

# ***ACCESS***

**Elevator & Electric Supply**

**Expertise and Service Set Us Apart**

## **Elevator Parts and Accessories**

**Version 6**



**1302 65<sup>th</sup> Street, Emeryville, CA 94608**

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800-266-8654  
510-658-8654  
Fax 510-652-5043

sales@aesupply.com  
www.aesupply.com

**Address**  
1302 65th Street  
Emeryville, CA 94608

**Hours**  
6:00 A.M. – 4:30 P.M. Pacific time

**Payment Terms**  
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## Welcome

Welcome to the newest and most comprehensive *ACCESS Elevator & Electric Supply* catalog.

*ACCESS Elevator & Electric Supply* was founded in 1988 with a primary focus on motor control products. Over the years our product lines have expanded to include most major brands of motor control along with related products such as relays, fuses, and other replacement parts used for elevator maintenance, repair and modernization.

At *ACCESS* you will find a wide variety of electrical products in the elevator and electrical industry.

### Expertise and Service Set Us Apart

Our sales people are not just order takers. The person you speak to on the phone has experience in the application and assembly of the electrical products we supply. Our product specialists can help you with the more technical aspects of everything we offer.

In 2013 we joined a family of elevator companies becoming a sister company to Waupaca Elevator and Quality Elevator Products. This has increased our footprint in the elevator industry, increasing our buying power of elevator components.

### We are Solutions Based

While that is an often-used phrase, you will find we actually walk that walk, whether it is application assistance or locating a hard-to-find part for you.

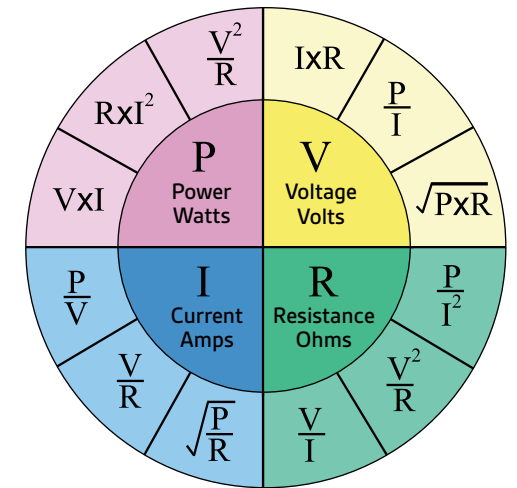
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We look forward to working with soon!

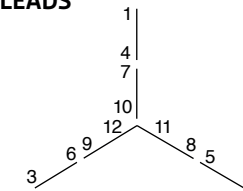
*ACCESS Elevator & Electric Team*

## Ohm's Law

### Terminal Markings and Connections Three-phase Motors, Single Speed



#### NEMA NOMENCLATURE – 12 LEADS



#### DUAL VOLTAGE EXTERNAL WYE CONNECTION

Voltage	L1	L2	L3	Join
High	1	2	3	4&7,5&8,6&9,10&11&12
Low	1,6,7	2,4,8	3,5,9	4&5&6,10&11&12

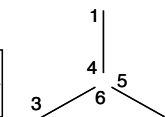
#### DUAL VOLTAGE WYE-CONNECTED START DELTA-CONNECTED RUN

Voltage	Conn.	L1	L2	L3	Join
High	WYE	1	2	3	4&7,5&8,6&9,10&11&12
	DELTA	1,12	2,10	3,11	4&7,5&8,6&9
Low	WYE	1,7	2,8	3,9	4&5&6,10&11&12
	DELTA	1,6,7,12	2,4,8,10	3,5,9,11	—

#### NEMA NOMENCLATURE – 6 LEADS

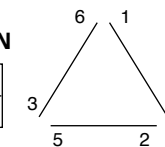
#### SINGLE VOLTAGE EXTERNAL WYE CONNECTION

L1	L2	L3	Join
1	2	3	4&5&6



#### SINGLE VOLTAGE EXTERNAL DELTA CONNECTION

L1	L2	L3
1,6	2,4	3,5



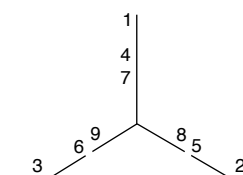
#### SINGLE AND DUAL VOLTAGE WYE-DELTA CONNECTIONS



#### SINGLE VOLTAGE

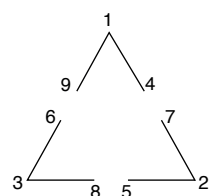
Operating Mode	Connection	L1	L2	L3	Join
Start	WYE	1	2	3	4&5&6
Run	DELTA	1,6	2,4	3,5	—

#### NEMA NOMENCLATURE – 9 LEADS



#### DUAL VOLTAGE WYE-CONNECTED

Voltage	L1	L2	L3	Join
High	1	2	3	4&7,5&8,6&9
Low	1,7	2,8	3,9	4&5&6



#### DUAL VOLTAGE DELTA-CONNECTED

Voltage	L1	L2	L3	Join
High	1	2	3	4&7,5&8,6&9
Low	1,6,7	2,4,8	3,5,9	—

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**ADA Emergency Telephones**

The EMS emergency telephone system provides trapped passengers with an easy, hands-free connection to emergency help. Janus EMS emergency telephones are a forerunner in the industry. All major elevator companies have come to trust our elevator emergency telephone systems to provide code-compliant service in North America.

The entire Janus EMS emergency telephone range is CSA certified and FCC approved.

**KEY FEATURES**

- Complies with the requirements of the Americans with Disabilities Act (ADA)
- FCC registered and CSA listed
- Phone line powered
- On-board keypad
- Built-in four-number dialer
- Easy installation and programming
- Fully programmable voice chip
- Surface mount, flush mount, and other mounting options available
- Available in stainless steel or muntz

**TECHNOLOGY MILESTONES**

**Call Director:** allows up to eight telephones to share a telephone line

**Telephone line monitoring:** audio and visual signal in the event of telephone line failure (ASME/844 2009 and 2010)

**Point-to-point intercom:** cost-effective communication without telephone line



PBX



PSM



PSL



PNB-R



LMA



PSS



PNB



MG3



LMX

Specifications

Part #	Description	Mounting Configuration	Dimensions (inches, w x h x d)	Weight (lbs)
PBX	Blue phone, box style	Surface mount	4.90 x 8.93 x 2.09	.5
PBX-M	Powder-coated black metal phone, box style	Surface mount	4.62 x 8.57 x 2.06	3
PSM	Stainless steel phone, box style	Surface mount	5.06 x 9.5 x 13.75	3.5
PSL	Flush mount stainless steel phone, large	Flush mount	10 x 13.25 x 2.125	4.5
PSS	Flush-mount stainless steel phone, small	Flush mount	6.5 x 10.5 x 2.125	3.5
PNB	COP mount phone, 1-LED	Behind COP	4.5 x 7.02 x 1.45	.5
PNB-2	COP mount phone, 2-LED	Behind COP	4.5 x 7.02 x 1.45	.5
PNB-R	Rath replacement	Behind COP	3.98w x 3.7H	.5
MG3	Otis replacement	Behind COP	1.75w x 3.74H	3 oz

Specifications continued

Part #	Power	Loop Current Range	REN	Dialing	Frequency Response	Operating Temp	Relative Humidity
PBX	Telephone line powered		0.28				
PBX-M	45 – 50VDC typical						
PSM		25 – 60mA (25mA typical)	0.38	DTMF	550 – 3400Hz, +/- 3db	-40 to 185° F -40 to 85° C	Up to 95% (non-condensing)
HDP							
PSL							
PSS							
PNB							
PNB-2	PNB-R optional power supply						
PNB-R	24V@ min 250mA	20 – 55mA					
G3	MG3 power supply	25 – 55mA					
MG3	2VDC min 100mA	10 – 55mA	0.79			0 to 50° C	

EMS Options and Accessories

Part #	Description
RLOC 2.8	Auxillary output relay option
ARB	Auxillary input for annunciator unit
PLM 2.8	Phone line monitoring option
ACCKIT-PNB	Accessory kit for PNB phones
ACCKIT-HFP	Accessory kit for all surface and flush mounted phones
RMG3	Auxillary output relay option for G3
PLMG3	Phone line monitoring option for G3
ACCKIT-G3	Accessory kit for G3
ACCKIT-MG3	Accessory kit for MG3

Janus Panachrome 3D

The Panachrome door edge system is the revolutionary new elevator safety detection system offering maximum passenger protection. The traditional infrared light curtain is coupled with colored indicators that operate on door movement, or that can be manually triggered with the door open/close circuit. The detectors illuminate green if the doors are opening, flash red as they start to close, and stay red as the doors move together. The combined system is an effective solution for sites where extra caution is required on an elevator.

KEY FEATURES

- Complies with the American Disabilities Act
- Coverage exceeds minimum requirements of 1" to 70.9"
- Colored red/green indicators highlight door movement
- Infrared detection delivered as 154 beam light curtain
- 13 foot pluggable cable
- 18 foot range
- Choice of 3/8" and 1-5/8" profiles
- High resistance to water and dust
- Simplified installation
- Suitable for center-opening and side-opening doors



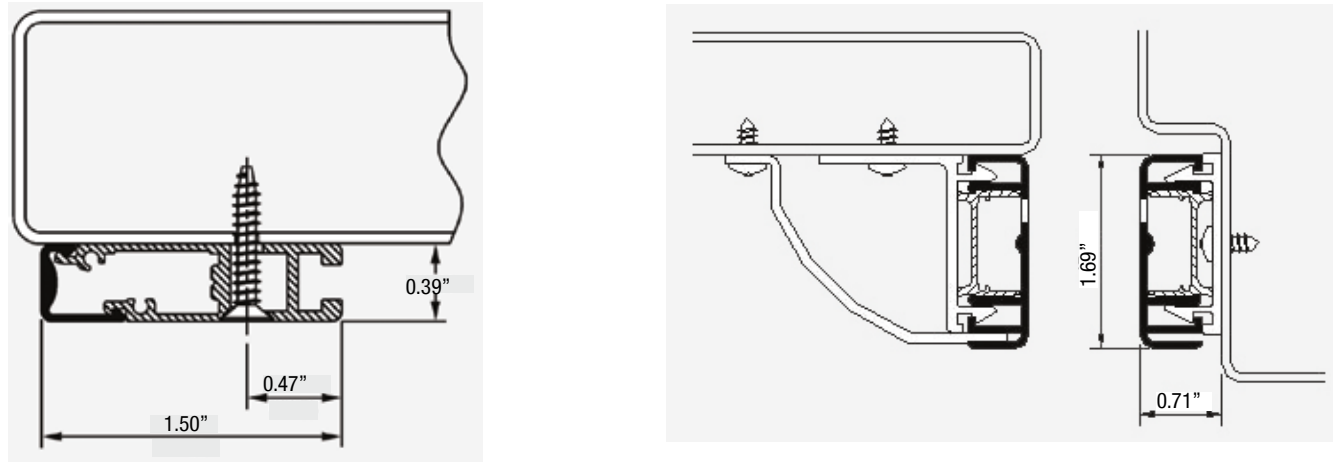
C2510 or C3510 000 Panachrome Green, 1 up 1 down



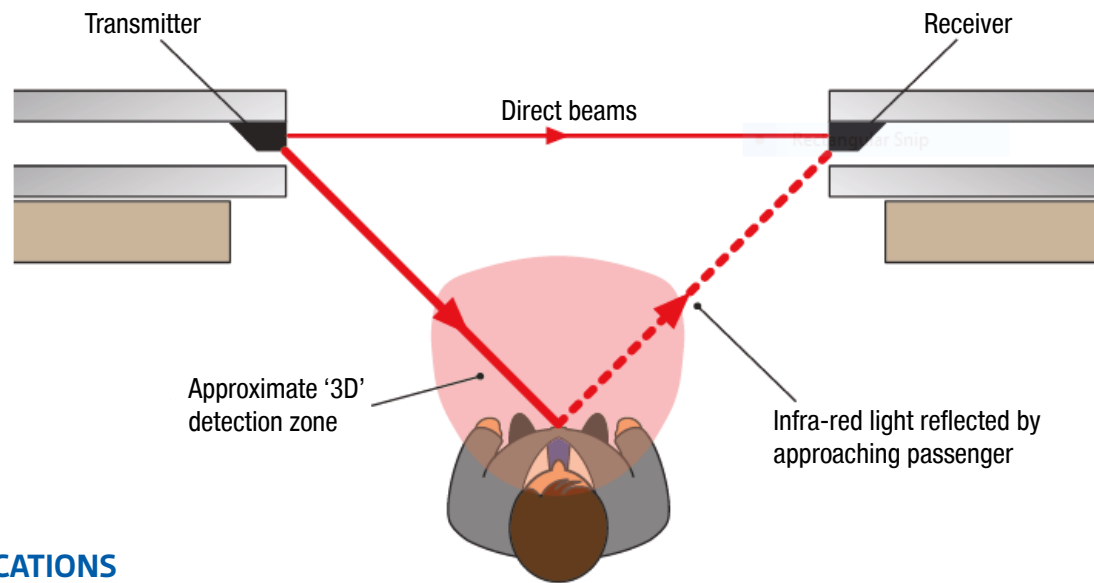
C2510 or C3510 000 Panachrome, red 2



DETECTOR PROFILES



3D OPERATION



SPECIFICATIONS

- 154 beams
- 120–240VAC power input. 18–25VDC
- Door operator relay 240VAC, 24VDC at 5A
- 72.0" level of highest beam
- 0.75" level of lowest beam

Janus Pana40 Plus 2D/3D Elevator Light Curtains

The Pana40 Plus safety detection system offers maximum passenger protection. The traditional 2D infrared light curtain is also available in 3D detection to offer additional protection in the landing zone.

Any object causing interruption of the direct beams or reflections within the 3D detection zone will trigger the system and re-open the elevator doors.

The 77X or 3D detectors can be used with all 3D versions of the Pana40Plus controller. These controllers are available in 40 or 194 beam pattern versions and for various supply voltages (AC or DC).

The system can be configured for different operating modes to suit particular installation needs. For example the '3D Timeout' mode is ideal for hospitals because the doors will only start to close if the 3D detection zone is clear and the timer has expired.

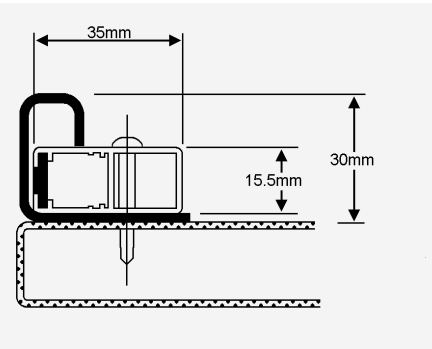
The 3D detector range is equal to approximately half the door separation. As the doors close the 3D detection zone moves inward giving increasingly sensitive protection to the door aperture.

KEY FEATURES

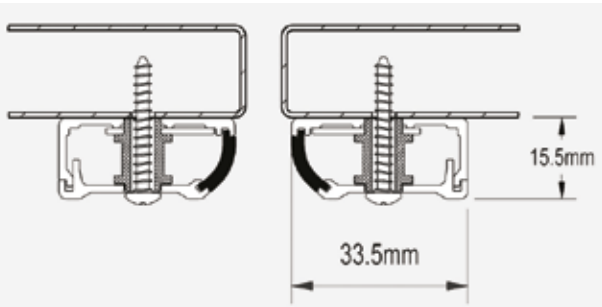
- Vandal-resistant fixtures designed for fast installation
- 40 parallel or 194 criss-cross beams offer protection up to a height of 1.8m
- Suitable for centre-opening and side-opening doors
- Surface mount diodes for improved performance and quality
- Custom-designed lens optimizes beam profile
- Self-drilling screw for fast, easy fixing
- 2D light immunity to over 100,000 lux



Pana40 Plus 740



741 000 profile



771 000 profile

**DETECTOR PROFILES**

The Pana40 Plus detector range is suitable for both side-opening and centre-opening doors and has a wide range of profiles to suit most installations. The detectors are supplied with appropriate fixing kits for up to five types of installation. They are designed for fast installation with no alignment problems.

The mechanical design of the profiles ensures simple installation methods, with high impact strength and ingress protection against dust and water.

The custom-designed lens used on this range optimises the beam profile and can be used with either the Pana40 Plus or Pana194 controllers to generate a 40 beam or 194 beam pattern respectively. The beams offer protection to 1.8m height to fully comply with legislation. The diagnostic LED assists service engineers in reducing call-out times.

**3D FEATURES**

- 3D 'zone' gives extended protection into the landing (see below)
- Selectable modes of 3D operation to suit various installation sites
- 3D greatly reduces the chances of passenger injury by the landing door
- 3D reduces damage to landing doors from trolleys and hospital beds
- Advanced 3D diagnostic self-check for engineers

**PROFILES AVAILABLE**

**9 mm Profile (Ultra Slim)**

- Suitable for virtually all lifts
- 2D or 3D Profiles (3D is 10mm)
- 40 beams/194 beams options

**16 mm profile (Slim Line)**

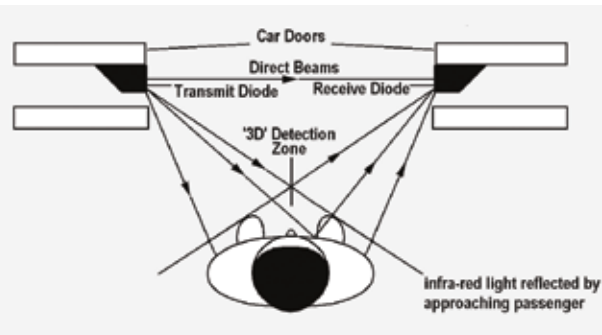
- Suitable for centre-opening doors with a narrow running clearance
- 2D or 3D profiles
- 40 beams/194 beams options

**43 mm profile (Standard)**

- Suitable for wider sill arrangements
- Pre-drilled holes
- 2D or 3D profiles
- 40 beams/194 beams options

**40 mm profile (Slam Post)**

- Only available in 2D version 2m and 2.1 m
- 40 beams/194 beams options



**ACCESSORIES**

- Static Fixing Kit 616 800-010: Necessary for installing a set of 9mm and 15mm profile detectors in a fixed position at either end of the lift car sill. See P40 Plus Detector installation guide.
- Sightguards: Designed to fit neatly over the Pana40 Plus range detectors and are available to suit elevators with different clearances.

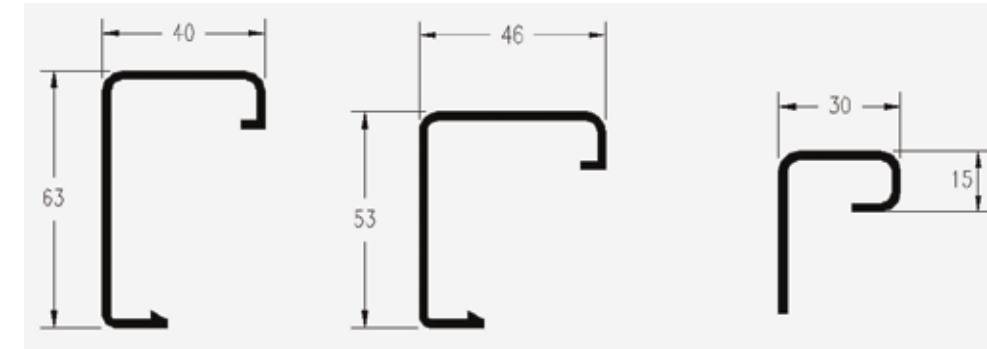
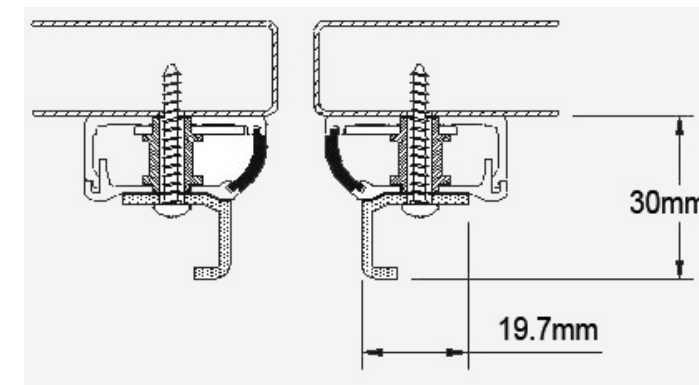


Fig1 007 035 40mm

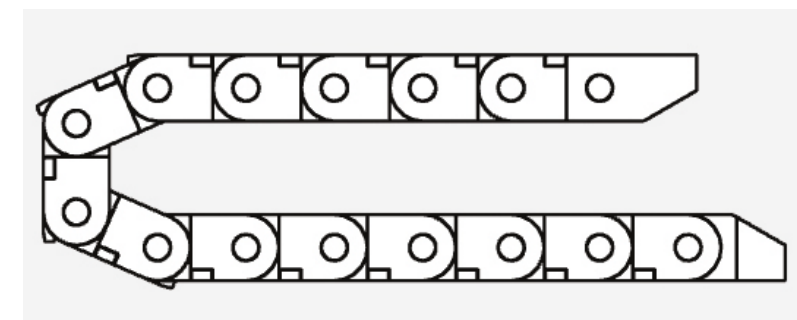
Fig2 007 045 46mm

Fig3 007 065 30mm

- FingerGuards: PVC FingerGuards are available to fill the 30mm gap found on some door types.



- IGUS Chains: A snap-open energy chain which is placed around the extension cable to protect the detector cables from clamping when installed in a dynamic installation.





Part #	Description	Optional
18ASF-2	Flame retardant wire. Primarily used for door interlock connections. Red with a white stripe	
18ASF-2R	Flame retardant wire. Primarily used for door interlock connections. Solid red	
21EL005	4.8v NiCad battery. 5 to 6 year life span	
DHT	Hand tachometer in shock-resistant case • Tolerance ±0.5% of max. scale value • 16 – 20,000 RPM, 5 – 6,000 FPM	
ELPB-1	Emergency light. Mounts inside car operating panel, power pack, light source and rectangular lens included	
ELSL-2	Car top mount power supply with alarm bell • CSA approved • External test switch • 18 gauge galvanized steel box • Remote light source 7" x 1-7/8" x 1" • Incandescent or optional LED lamps • Input 120V 50/60Hz	Light can be mounted in car above operating panel or ceiling Model ELSL-2: 3.75"H x 5.25"W x 6.31"L box Model ELSL-2-SB: 1.75"H x 5.25"W x 6.31"L box
ELWS-2	Emergency light. CSA approved, 5-1/2" x 8-1/2"	Can be wired into terminal strip
EP-1312	12V battery, 1.3AH	
FP8-ST	Fish plate. For 8# rail, seismic (dims: 12"L x 4"W x 1-3/4" thick)	
HMCLAMP-2	Insulated pipe clamp 2". Designed to hang off unistrut	
HMCLAMP-3	Insulated pipe clamp 3". Designed to hang off unistrut	
HMCLAMP-25	Insulated pipe clamp 2.5". Designed to hang off unistrut	



18ASF-2R  
Flame Retardant Wire



18ASF-2R  
Flame Retardant Wire



21EL005  
4.8v NiCad Battery



DHT  
Hand Tachometer



ELPB-1  
Emergency Light



ELSL-2  
Car Top Power Supply



ELWS-2  
Emergency Light



EP-1322  
12V Battery



HMCLAMP-2, HMCLAMP-25  
Insulated Pipe Clamps

Part #	Description	Optional
LGP (2259)	Lamp guard. Plastic, yellow. Lamp 200W max.	
LG-NC	Lamp guard. Non-conductive PVC coated metal	
LPG	Liquid pressure gauges • Scale max. psi: 600, 1000, 3000 and 5000 • 1/8" or 1/4" quick connects • 1/8" or 1/4" quick connects • Gauge peak pressure pointer, "P" option	• Flexible hose
LPG-QC	Quick connect assembly for liquid pressure gauge, 1/8" on gauge to 1/4" on valve	
LS1	Limit switch. 1N/O, 1N/C contacts	
LS1-L	Limit switch. 1N/O, 1N/C contact, left	
O3N2	Otis 3 section. Solid shaft, solid handle	
O3N2F	Otis 3-section key. Hollow shaft, flexible handle	
OSC/B	Scavenger pump Ribbed, reinforced polyethylene container. The clear 1/4" lexan top allows visibility of the inner workings of the unit. Internal float switch automatically turns pump on and off. External float switch shuts off pump if pit begins to fill with water. <b>Standard features:</b> • UL approved motor and cord • 100 ft. of head (discharge distance) • 100 ft. plastic tubing with fittings • 45GPH @ 100PSI, 39GPH @ 200PSI pump • 1/4HP, 2.8A, 115VAC, 1 phase, thermally protected motor • Includes flood control reset • 100 mesh filter (149 micron) • 15"W x 10"D x 8"H tank size	• 1/3 HP motor and 1.7 GPM pump • Pit flood warning alarm

continued



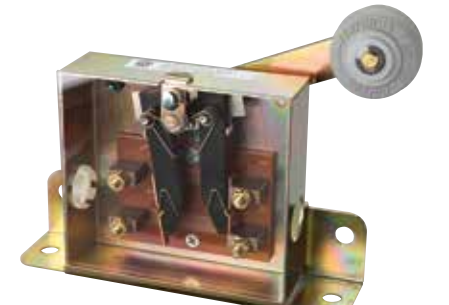
O3N2  
Otis 3 Section



O3N2F  
Otis 3-Section Key



LS1-L  
Limit Switch, 1N/O, 1N/C Contact, CS



LS1  
Limit Switch, 1N/O, 1N/C Contacts, CS



LPG  
Liquid Pressure Gauges



2259  
Lamp Guard



LG-NC  
Lamp Guard



OSC/B  
Heavy-duty Scavenger Pump



Part #	Description	Optional
P02LG001/003/006	1/8" quick connect for LPG	
PS2	Pit switch. 2-5/8"w x 4-7/16" x 1-1/2"d, rated 20A for 120 – 277V AC only	
PS3	Pit switch. C.S.A., w/cast aluminum cover	
PS4	Pit stop-run	
PS-40083	Pendant inspection stations (temporary inspection / run stations) <ul style="list-style-type: none"> <li>• "Up / Down" (1N/O, 1N/O) buttons with mechanical interlock, 3A 250VAC</li> <li>• "Common" (2N/O) button, 3A 250VAC</li> <li>• "Stop / Run" (2N/O) 2-position selector switch, 3A 250VAC</li> <li>• Shrouded knock-out hole for optional pilot light or button</li> <li>• Enclosure dimensions 9.8" x 3.5" x 2.3" (typical)</li> </ul> Impact resistant bright yellow pendant enclosure is double insulated, chemically resistant and rated NEMA 1, 3, 4, 4X and 12. Dual stainless steel hanger rings for easy attachment to strain relief cable. Prewired with 15 ft. bright yellow cable. UL/CUL approved.	* Longer lengths available
PWLG	Work light, pit. W/G F/I CSA	

Part #	Description	
TCIG-A-24	Car top inspection stations (ASME A17.1) Designed to meet ASME A17.1 Elevator Safety Code Requirements. CSA approved. <ul style="list-style-type: none"> <li>• "Up" button (2N/O, 2N/C)</li> <li>• "Down" button (2N/O, 2N/C)</li> <li>• "Run/Stop" switch (1N/O)</li> <li>• "Light On/Off" switch (1N/O)</li> <li>• 6 mounting holes, 0.3" dia.</li> </ul>	<ul style="list-style-type: none"> <li>• "Enable / Safe" button (1N/O, 1N/C)</li> <li>• "Normal Operate / Inspection" switch (2N/O, 2N/C)</li> <li>• Ceramic incandescent light bulb socket</li> <li>• 3-prong duplex electrical GFCI outlet</li> <li>• Box size: 12"L x 4.1"H x 6"D, 6.6"H (typical)</li> </ul> Contact arrangement can be modified upon request. Permanently attached work light w/GFCI, lamp and strain relief available. Stations could be prewired according to customer specifications with multi-cable and optional flexible metal conduit.
TCIG-A24P	Car top inspection station. Meets ASME A17.1 Elev Safety Code Fire Service 24 – 48VDC (Buzzer & Jewel), 6VAC top mounted alarm bell Size: 12"L x 4.1"H x 4"D	
TCIG-A24HL	Car top inspection station w/hand lamp Fire Service 24 – 48VDC (Buzzer and Jewel), 6VAC top mounted alarm bell <ul style="list-style-type: none"> <li>• "Up" button (2NO/2NC w/guard)</li> <li>• "Down" button (2NO/2NC w/guard)</li> <li>• "Run/Stop" switch (1NO w/guard)</li> <li>• "Light On/Off" switch, 1NO</li> </ul>	<ul style="list-style-type: none"> <li>• "Enable/Safe" button (1NO/1NC)</li> <li>• "Normal Operate / Inspection" switch (2NO/2NC w/guards)</li> <li>• Grounded duplex GFCI electrical outlet, ceramic light bulb socket</li> <li>• Size: 12"L x 4.1"H x 4"D</li> </ul>
TCIG-A24-HLP	Inspection station w/hand lamp, push/pull, 48VDC	
TCIG-A24-WG	Cartop inspection station (ASME A17.1) Meets ASME A17.1 Elev Safety Code. Approved for use in Canada. Fire Service 24 – 48VDC (Buzzer & Jewel), 6VAC top mounted alarm bell <ul style="list-style-type: none"> <li>• "Up" button (2NO/2NC w/guard)</li> <li>• "Down" button (2NO/2NC w/guard)</li> <li>• "Run/Stop" switch (1NO w/guard)</li> <li>• "Light On/Off" switch (1NO)</li> </ul>	<ul style="list-style-type: none"> <li>• "Enable/Safe" button (1NO/1NC)</li> <li>• "Normal Operate / Inspection" switch (2NO/2NC w/guards)</li> <li>• Grounded duplex GFCI electrical outlet, ceramic light bulb socket</li> <li>• Size: 12"L x 4.1"H x 4"D</li> </ul>

Accessories: Quality Elevator Products

Accessories: Quality Elevator Products



PS2  
Pit Switch



PS3  
Pit Switch



PS4  
Pit Stop-Run



PS-40083  
Temporary Pendant Station



PWLG  
Work Light

continued

**Accessories**

Part #	Description
21IS003	Light switch On/Off (1NO)
41IS001	Guard for (Toggle) switch
41IS002	Guard for (Run Enable) switch
41IS003	Guard for (Up and Down) switch
41PS001	Guard for (Stop) switch
71LB0009	28 PSB, 28V T-2 telephone slide
21IS008	Push button switch, double pole for cartop inspection



TCIG-A-24  
Car Top Inspection Stations



TCIG-A24HL  
Car Top Inspection Station



TCIG-A24P  
Car Top Inspection Station



TCIG-A-24 WG  
Car Top Inspection Station

Part #	Description
TSF1C	Square fan. Two speed, CFM: 345-300, voltage: 115VAC, 50 – 60 Hz, cage dimensions: 12" x 12" x 4-1/4"H, cage opening: 10" x 10"
TSFE1421	Round fan. Two speed, CFM:325, voltage: 115VAC, 50 – 60 Hz, cage dimensions: 12" dia. x 4-1/2"H, cage opening: 12" dia.
WRG-2000	Wire rope wear gauge SAE, red Manufactured to ASME A17.1-1996 1001.2(C)(29)(C) specifications of 2011. T3 aluminum, anodized, with numerals acid etched on • 3/8", 1/2", 9/16" and 5/8" wire rope diameter • Anodized red finish
WRGM	Wire rope wear gauge metric, blue Manufactured to ASME A17.1-1996 1001.2(C)(29)(C) specifications of 2011. T3 aluminum, anodized, with numerals acid etched on • 8 mm, 10 mm, 11 mm, and 13 mm wire rope diameter • Anodized blue finish
VTK	Valve test kit. Includes 1,000 PSI gauge, hose, quick connects for both 1/8" and 1/4" ports and Allen wrenches for both sizes, all in a heavy duty plastic case
DPG	Door pressure gauge. Used for checking hoist cable tension and V-belt tension. For push forces up to 35 lbs.
CD4B-3111N	Omron limit switch lever. Nylon roller, 0.69" diameter DPST, 1NO/1NC
CD4B-3113N	Adjustable lever. Rubber roller, 1.97" diameter DPST, 1NO, 1NC
CD4B-3A13N	Omron limit switch. Adjustable lever, rubber roller, 1.97" diameter DPST, 2NC
DW19	EECO LS1B limit switch. Specifically for use in the elevator hatchway as zoning, normal and final limits. One set of NO and NC closed contacts
DW19-D	EECO LS1B limit switch double contact switch
DW7	EECO MV-4C magnetic switch 1NO contact
DW7D	EECO MV-4C magnetic switch 2NO contact
RCS	Set of two top and bottom clamps. Repack hydraulic elevators or recable traction elevators with our Quality Rail Clamps.* By using two complete sets to hang counterweights and car, you can re-cable cars at midpoint of hoist-way. For use on 8, 12, and 15 lb. rails. *Load distribution should be equal on all four clamps. <i>Independent Testing Laboratory Rail Clamp Test Results.</i> Complete copy available upon request.
RCB	Bottom clamp. Anchor bolt torque, ft-lb 50/20,200 load/lb** or 70ft-lb 39,000 load/lb** maximum load, lb**
RCT	Top clamp. Anchor bolt torque, ft-lb 50/20,600 load/lb** or 70ft-lb 36,800 load/lb** maximum load, lb**



TSF1C  
Square Fan



TSFE1421  
Round Fan



WRG-2000  
Wire Rope Wear Gauge



WRGM  
Wire Rope Wear Gauge



RCS  
Set of two top and bottom clamps



RCB-RCT  
Top and bottom clamps

Part #	Description
BUCR-THERM1	Adjustable thermostat. 85°F – 195°F with terminal box
OLTG	Oil level temperature gauge
OLG100	Magnet. 3" w x 4" H, mount in tank as directed to check for oil leaks. Black letters on white background
RL8	8 lb rail leach. This "de-oiler" is mounted just below the guide shoe's most downward point of travel. Eliminates oil pools and fire hazards. Excess oil for reuse is stored in a can (by others) mounted directly below.
RL15	15 lb rail leach
RL30	30 lb rail leach
RM815	Rail oilers w/wick and copper tubing. A controlled flow of oil moves slowly and easily down the rail, oiling and cleaning continuously. For 8, 12 and 15 lb. guide rails
RM2230	For 22.5 and 30 lb. guide rails
GSM815	Guide shoe mounted oilers. Set of two (oiler only, shoe not included)
GRC-2006	Governor rope clamp. Designed to be used during the five-year test of the Governor Pull-Out and the Pull-Through. (See A17.2-2004 part 2, Item 2.13.2 (b)(5)). The two plates attach back to back using two vice grips to the governor rope. The plates are made of 6061 T-6 aluminum, clear anodized. Shackle is included. Vice grips can also be provided.
SJG12	Soft jaws. Safety tool to prevent accidental damage to wire ropes. • One size for 3/8" thru 1/2" rope. • Made from 6061- T6 aluminum, hard anodized black. • Use when performing governor test or shortening hoist ropes. Can also be used for seizing governor rope ends to prevent loss of rope lay. • Use with "Vice Grip" brand locking pliers, models 10CR and 10WR.

continued



BUCR-THERM1  
Adjustable thermostat



OLTG  
Oil level temperature gauge



OLG100  
Magnet



RM2230  
For 22.5 and 30 lb. guide rails

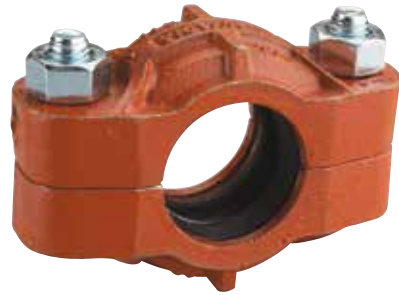


RM815  
Rail oilers w/wick and copper tubing

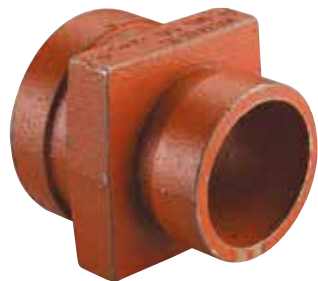




VF-2Q, VF-25Q Fittings



VF-15 Fitting



VR215 Reducer

Part #	Description
VF-15	Fitting. Victaulic 1.5"
VF-25Q	Fitting. Victaulic 2.5"
VF-2Q	Fitting. Victaulic 2"
VF-3	Fitting. Victaulic 3"
VFT-2	Fitting. Victaulic 2" T fitting
VFA-2	Threaded adaptor. 2" Vic female
VFA-2.5	Threaded adaptor. 2.5" Vic female
VFG-15	Gasket. Victaulic 1-1/2"
VFG-2	Gasket. Victaulic 2"
VFG-2Q	Gasket. Victaulic 2" for QuickVic couplings
VFG-25	Gasket. Victaulic 2-1/2"
VFG-25Q	Gasket. Victaulic 2.5" for QuickVic couplings
VFG-3	Gasket. Victaulic 3"
VFG-E1-1/2"	Gasket. Victaulic 1.5" for water
VFG-E 2"	Gasket. Victaulic 2" for water
VFG-E 2-1/2"	Gasket. Victaulic 2.5" for water
VFG-E 3"	Gasket. Victaulic 3" for water
VFG-3Q	Gasket. Victaulic 3" for QuickVic couplings
VR215	Reducer. Victaulic 2" to 1.5"
VR252	Reducer. Victaulic 2.5" to 2"
VR32	Reducer. Victaulic 3" to 2"
VR325	Reducer. Victaulic 3" to 2.5"
VRC215	2" to 1-1/2" Vic fittings threaded
VRC252	Victaulic coupling reducer 2" to 1-1/2"
VRC32	Victaulic coupling reducer 3" to 1"
V90EL-1.5	Elbow. Victaulic 1-1/2"
V90EL-2	Elbow. Victaulic 2"
V90EL-2.5	Elbow. Victaulic 2-1/2"
V90EL-3	Elbow. Victaulic 3"
SOV-1.5	Shut off valve. Victaulic 1-1/2"
SOV-2V	Shut off valve. Victaulic 2"
SOV-25V	Shut off valve. Victaulic 2-1/2"
SOV-3V	Shut off valve. Victaulic 3"

Note: Other sizes and styles can be ordered.

## Pit Ladders

### ONE PIECE PIT LADDERS

- Sides 3/8" x 2" flat bar
- 5/8" rungs
- Top brackets bolted in place

Model PL8 16"w x 8'L  
Model PL8-8 12.75"w x 8'L

### COLLAPSIBLE PIT LADDER

- Folds in half for shipping
- Center brackets at point of pivot provide rigidity when installed

Model PL8C-8 16"w x 8'L

### CUSTOM PIT LADDER

Worksheet required. See page 9.

Model PL8S Up to 9' long  
Model PL8L Up to 11' long  
Model PL8XL Up to 13' long

### RETRACTABLE PIT LADDER

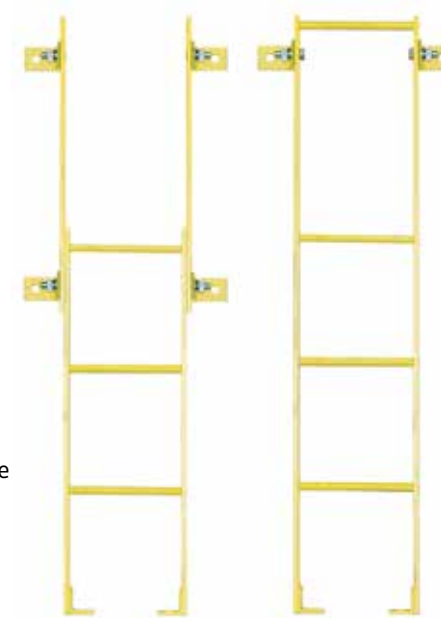
- Extend forward (down) to allow access to pit
- Retract (up) to lock ladder in place to allow elevator to run
- Top pin lock secures ladder position
- Gas spring assist to retract the ladder
- Contact switch provided to electrically position ladder in retracted position, and prevents elevator operation when ladder is down

Model PL8-RT

To order, provide ladder width and overall length.

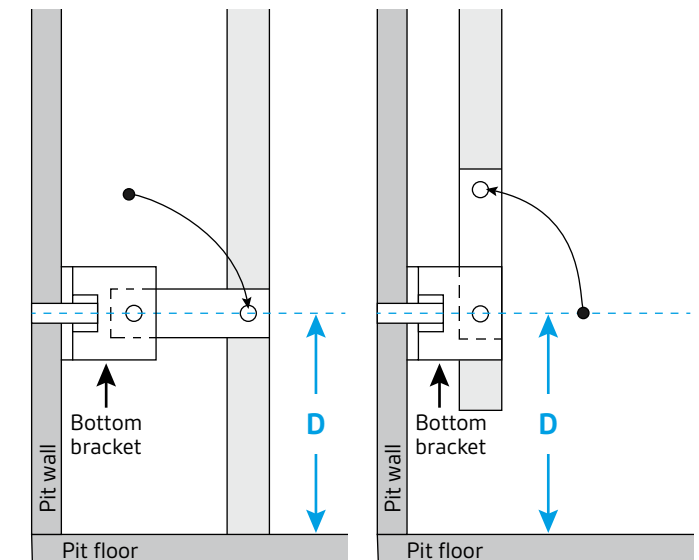
### Installation instructions

1. Measure the distance D between center of pivot and bottom of the ladder. Standard distance is 16", but for some custom ladders, it can be different.
2. Mark centers of mounting holes on the pit wall at distance D from the pit floor, for two bottom ladder brackets.
3. Fasten bottom brackets to the pit wall. Ladder stays on the floor.
4. Pull back retaining pin at the ladder top to release the bracket. Mark positions for remaining brackets and fasten to the pit wall.



PL8-RT on floor

PL8-RT on wall

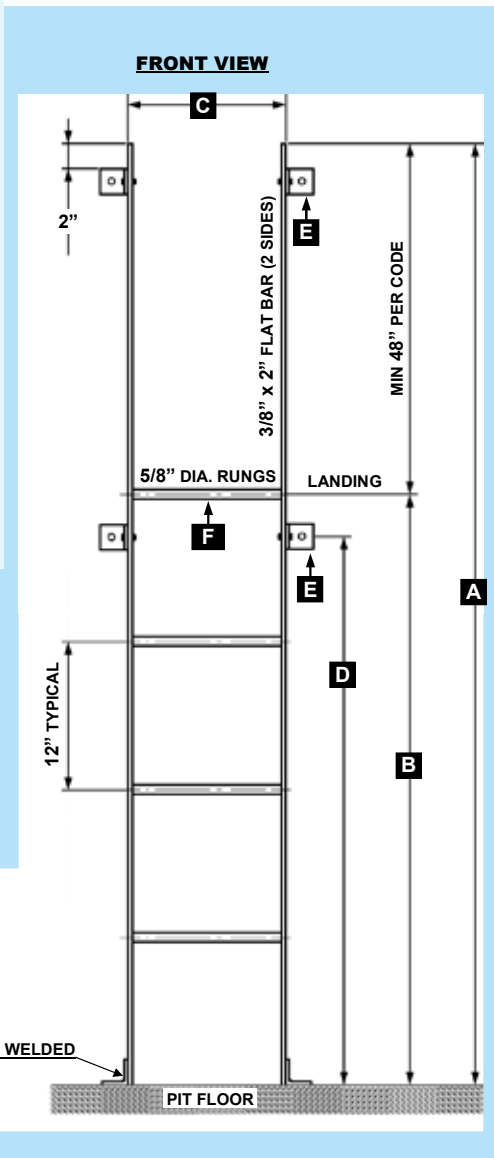
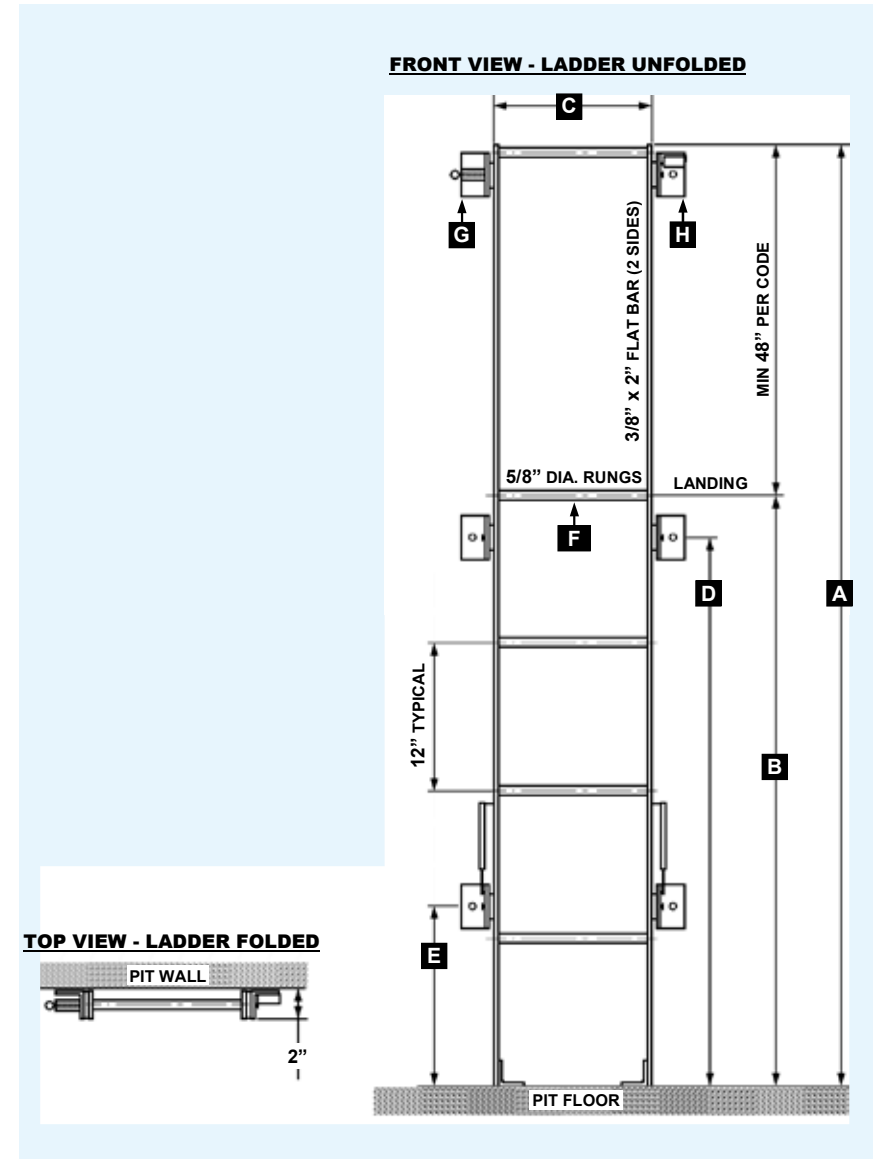


Extend (down) position

Retract (up) position



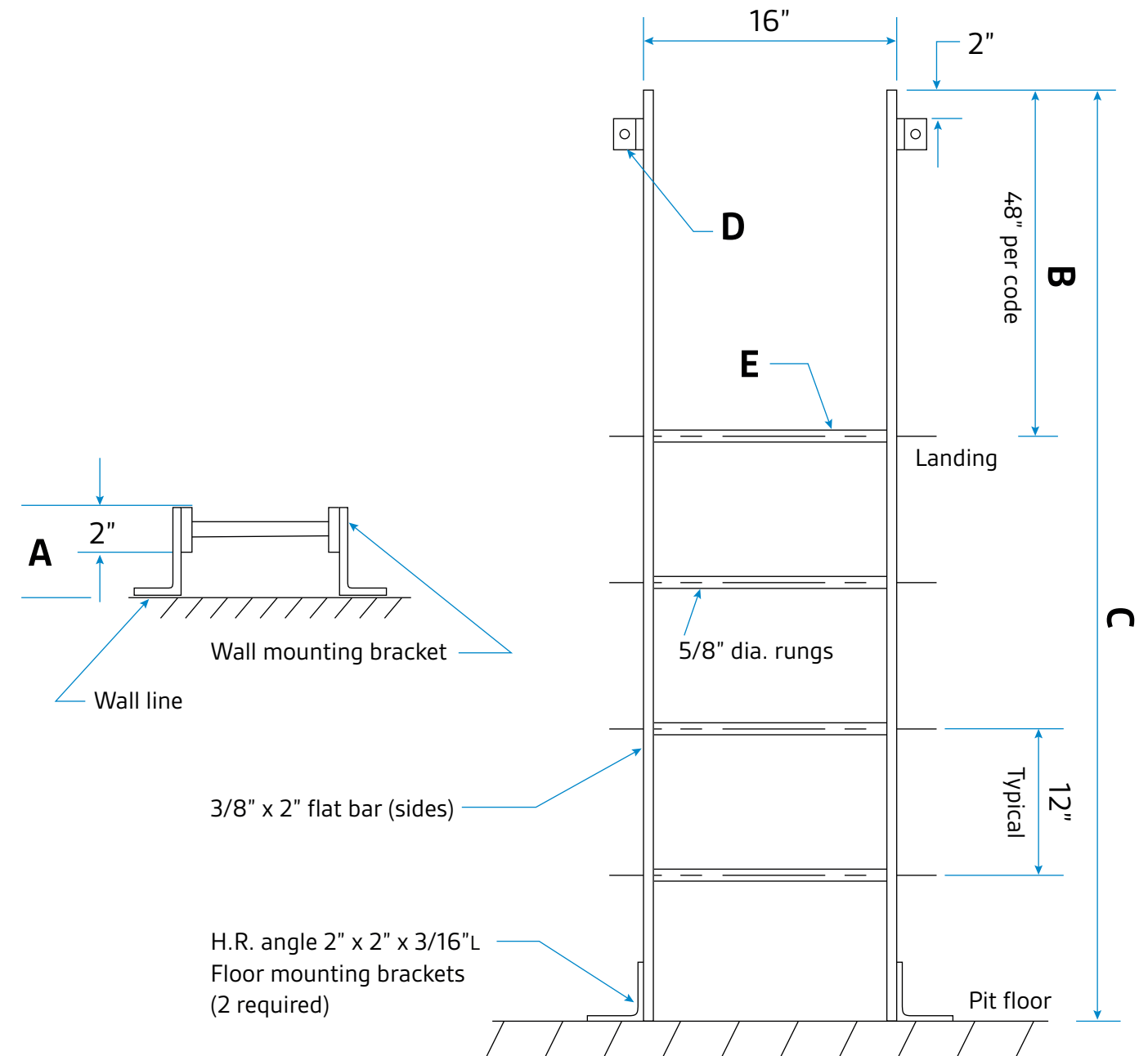
PIT LADDERS continued



Custom ladder worksheet

Master copy — please photo copy

- A. Distance from wall to face of ladder \_\_\_\_\_
- B. Distance from landing to top of ladder \_\_\_\_\_
- C. Overall ladder length required \_\_\_\_\_
- D. Quantity of wall mounting brackets \_\_\_\_\_
- E. Quantity of rungs \_\_\_\_\_



ALARM BELLS



AB120 Alarm Bell, 120VAC  
.07 amp, 92 db



AB12 Alarm Bell, 12VDC



AB6 Alarm Bell, 6VDC  
for use with emergency lights only

CAPACITORS



TVA1510  
TVA1510-E3 Electrolytic Capacitor, TVA Series,  
30 µF, 250 V, 15.875 mm, Axial Leaded

CERTIFICATE FRAMES



Part #	Size	Finish
CF46	4" x 6"	S/S #4
CF48	4" x 8"	S/S #4
CF69	6" x 9"	S/S #4
CF810	8" x 10"	S/S #4

Also available in other sizes.  
Mirror Stainless, and Brushed and Mirrored Bronze  
finishes are also available.

DIAMOND SPATULAS



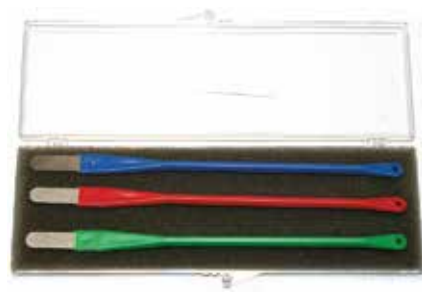
4000 Diamond Spatula  
5-1/2" long with a 1/4" x 7/8"  
face. Coarse grit



4001 Diamond Spatula  
5-1/2" long with a 1/4" x 7/8"  
face. Medium grit



4002 Diamond Spatula  
5-1/2" long with a 1/4" x 7/8"  
face. Fine grit



4003 Set of 3 Diamond Spatulas  
5-1/2" long with a 1/4" x 7/8" face.  
One each Coarse, Med and Fine grit

EMERGENCY STOP PULL SWITCHES



BEP Emergency Stop Pull Switch  
1" diameter halo, 0.875" diameter spindle

Part #	Spindle, Dia/Color	Halo, Outside Dimen/Color	Description
BEP	0.875"/red	1.0" Round/black	2NC, 1NO Push/Stop Pull/Run
CEP	0.875"/red 1.375"	Round/black	
EP	0.875"/red 1.25"	Square/black	

ENCLOSURES



11MS003  
Enclosure  
18"H x 18"W x 8"D



11MS005  
Enclosure  
24"H x 24"W x 8"D

FLEXIBLE ABRASIVES



Rubrite Flexible Abrasives, Unmounted  
6260 3/4" w x 3/4" L x 5"  
6256 1/2" x 1" x 5"  
6271 1/8" x 1" x 5"  
6250 3/8" x 3/8" x 5"  
6262 1" x 1" x 5"



Plastone Flexible File  
3002 180-fine : 1/4" w x 4-3/4" L x .040"  
6043 80-coarse : 1/2" x 4-3/4" x .080"  
6044 120-medium : 1/2" x 4-3/4" x .080"  
6046 240-extra fine: 1/2" x 4-3/4" x .080"

GONGS



BG40W Single Stroke  
Must be wired in series with a 40 watt  
incandescent hall light



TG-120V 2 Stroke Gong  
48 - 120V AC or DC, 4" x 2.5" x 1"  
Velcro mounting



9871925 Dover Gong, Single Stroke  
48VDC, with bracket

REPLACEMENT KEYS

Part #	Description
EPCO #1	EPCO Key for EPCO #1 locks
EPCO #2	EPCO Key for EPCO #2 locks
EPCO #27	EPCO Key for all EPCO locks
EPCO #BFD-1	EPCO Key for EPCO BFD locks
IN-EX513	Innovation Key for momentary 2nd and 3rd positions
IN-EX514	Innovation Key for "ON/OFF" and access
IN-EX515	Innovation Key for "FIRE SERVICE"
IN-FEOK1	Fire Service Key



IN-EX513



IN-EX514



IN-EX515



IN-FEOK1

**FIRE SERVICE KEY SWITCH**



IN-FEOK1L

Part #	Description
IN-FEOK1L	Phase 1
IN-FEOK1LL	Phase 2

**OMRON SWITCHES**



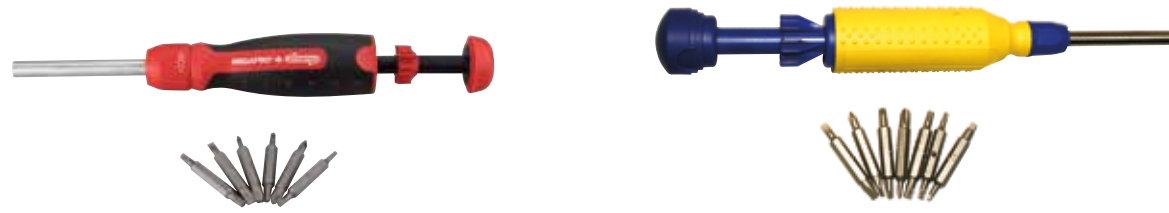
CD4DSK1

CD4DSK5

CD4NS-3CF

Part #	Description
CD4DSK1	Hatch actuating key, horizontal arm
CD4DSK5	Hatch switch actuators adjustable horizontal or vertical
CD4NS-3CF	Emergency hatch interlock switch, tongue operated

**MULTI BIT SECURITY DRIVERS**



211R2C36RD Multi Bit Security Driver

**Comes with:**

- Torx T10, T15, T20, T25 tamperproof bits
- #6, #8, #10, #12 spanner bits
- #0, #1, #2, #3 Phillips bits
- #4 and #6 straight blade bits

SD15N1SS Stainless Steel Multi Bit Driver

**Comes with:**

- Torx T10, T15, T20, T25 non-tamperproof bits
- #R0, #R1, #R2, #R3 square drive bits
- #0, #1, #2, #3 Phillips bits
- #4 and #6 straight blade bits

151ELEV-BL-WH

Blue handle with white cap and collar and white imprint with elevator bit load



**Innovation**

**PUSHBUTTONS**

Part #	Description
APB1NO1NC	Illuminated inland button 1NO/1NC contacts
APB12NO	Illuminated inland button 2NO contacts
APBN1NO1NC	Non-illuminated inland button 1NO/1NC contacts assembly only
APBN2NO	Non-illuminated inland button 2NO contacts assembly only



See innovation pushbuttons for part number.



APB1WR-1

APB1WR-2

APB1WR-3

APBNWYR-AL

APBHOLDER

BUTLBS-AR

BUTNBS-AR

APBNWRR-ES

**STAINLESS STEEL "SNAKE EYES" SPANNER SECURITY SCREWS**

Part #	Description
SS632-1/2	6-32 x 1/2 inch
SS632-1	6-32 x 1 inch
SS632-1 1/4	6-32 x 1 1/4 inch
SS632-1 1/2	6-32 x 1 1/2 inch
SS832-1/2	8-32 x 1/2 inch
SS832-1	8-32 x 1 inch
SS1032-1/2	10-32 X 1/2 inch
SS1032-1	10-32 x 1 inch
SS1032-1 1/2	10-32 x 1 1/2 inch





RESISTORS: PORCELAIN TUBE WIRE-WOUND ADJUSTABLE



Part #	Watts	Ohms	Length	Outside Diameter	Part #	Watts	Ohms	Length	Outside Diameter
D100K250	100	250	6-1/2"	1-1/8"	D225K25R	225	25	10-1/2"	1-1/8"
D100K300	100	300	6-1/2"	3/4"	D225K50R	225	50	10-1/2"	1-1/8"
D175K25	175	25	8-1/2"	1-1/8"	D225K100	225	100	10-1/2"	1-1/8"
D175K150	175	150	8-1/2"	1-1/8"	D225K150	225	150	10-1/2"	1-1/8"
D175K250	175	250	8-1/2"	1-1/8"	D225K250	225	250	10-1/2"	1-1/8"
D225K5R0	225	5	10-1/2"	1-1/8"	D225K500	225	500	10-1/2"	1-1/8"
D225K10R	225	10	10-1/2"	1-1/8"	D225K100E	225	1000	10-1/2"	1-1/8"
D225K15R	225	15	10-1/2"	1-1/8"	D225K150E	225	1500	10-1/2"	1-1/8"

WIRE AND TERMINAL CONNECTORS



Part #	Description
58514	22-16 AWG #8 stud vinyl insulated butted seam fork terminal
58539	22-16 AWG #6 stud nylon insulated grip ring terminal
58553	22-16 AWG #10 stud nylon insulated double crimp fork terminal
58556	16-14 AWG #8 stud nylon insulated double crimp fork terminal
58557	16-14 AWG #8 stud nylon insulated double crimp fork terminal
58569	16-14 AWG blue nylon fully insulated quick connect-double crimp male disconnect
58574	22-16 AWG red nylon fully insulated quick connect-double crimp female disconnect
60036	16-14 AWG #8 stud vinyl insulated butted seam funnel entry ring terminal
60037	16-14 AWG #10 stud vinyl insulated butted seam funnel entry ring terminal
60069	22-18 AWG nylon insulated seamless butt splice connector
60070	16-14 AWG vinyl insulated butted seam brass butt splice connector
0704854	22-16 AWG #8 stud nylon insulated double crimp ring terminal

SPIRATOR CLOSING REELS



ML-4402  
Universal Spiator Closing Reel,  
5", with cable



MLB  
Square stud mounting bracket

TOGGLE SWITCHES

TS-DPST-C: Toggle Switch  
DPST 2 position, off-on, spring return to "off"

TS-DPDT-M: Toggle Switch  
DPDT 3 position, center off, momentary

TS-DPDT Epco Toggle Switch  
DPDT 2 position maintained, off-on rated 20A @ 120VAC



SERVICE KIT

SRV-KIT-XL  
Relays, lamps, fuses, contact cleaners, flash light,  
orange sticks, signage, screw driver

Kit can be customized per amperage, voltage  
and wattage



WIRING ORGANIZATION TOOL



PAL50PA02YB  
Box, 10,000 PA-02 Loose (Yellow),  
2 PAD-3M



STS14022  
Compartment Box,  
Black/Yellow,  
2-3/4"H x 11-3/8"L x 14-5/8"W, 1EA



STS14027  
Adjustable Compartment Box,  
Black/Yellow,  
3-1/2"H x 13"L x 17-3/8"W, 1EA

WORK LIGHTS



6WORKLIGHT  
High Intensity LED Work Light



6VERSALITE  
Versa-Lite Maximum Versatility

PUMP RUPTURE VALVES



PRV-R102  
Pipe Rupture Valve 2" – Flow sensitive, pressure activated valves act as a "velocity fuse" to retard the downward motion of a descending elevator to provide gradual stop

- Flow rates to 380 GPM, 50 to 640 PSI operating range
- Fully adjustable closing rate, manual lowering around the valve when set
- Fully adjustable flow rate minimum pressure loss in the up direction 90 degrees

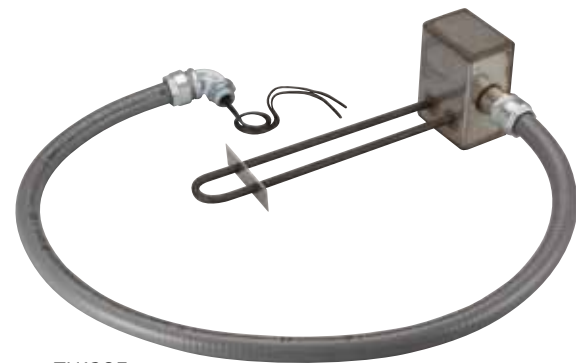


PRV-R102V  
Pipe Rupture Valve 2" Victaulic – Flow sensitive, pressure activated valves act as a "velocity fuse" to retard the downward motion of a descending elevator to provide gradual stop

- Flow rates to 380 GPM, 50 to 640 PSI operating range
- Fully adjustable closing rate, manual lowering around the valve when set
- Fully adjustable flow rate minimum pressure loss in the up direction 90 degrees



TH120FP  
Tank Heater 115 VAC, 275W 2.3A  
100°F thermostat w/plug  
Hard wiring not required



TH120F  
Tank Heater 115Vac, 275W 2.3A  
Quick, plug in, installation.  
Hard wiring required



MTH1153  
Magnetic Tank Heater  
200 watt, external mount,  
3' 6" cord



MTH1160  
Magnetic Tank Heater  
300 watt, external mount,  
3' 6" cord



5080619  
Hydraulic Oil AW #32 Premium Grade



PS-UP100HB  
15"x17" Gray Universal Pads



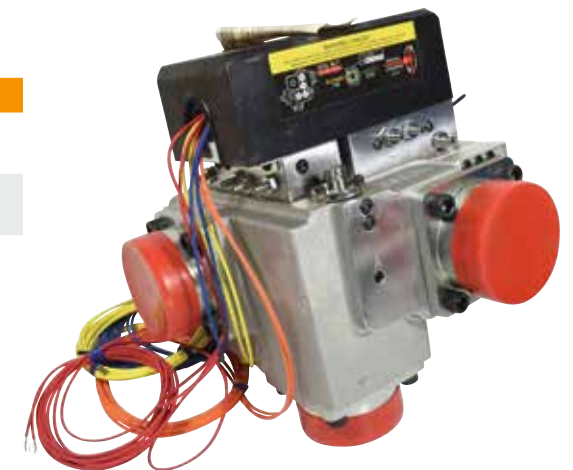
A-1  
Oil Odor Diffuser



PS-OP100HB  
15"x17" White Pads (for oil only)

MAXTON VALVES

Part #	Description
UC1A	Maxton valve. RH only, 2.5" ports and valves, with 4 coils, 115VAC, threaded ports
UC4-E2	15"x17" Gray Universal Pads. Maxton valve RH, E2 flow guides, 2" ports and valves, with 4 coils, 115VAC, threaded ports
UC4M-E2	Maxton valve. LH, E2 flow guides, 2" ports and valves, with 4 coils, 115VAC, threaded ports





Top view. Flexible Drip Ring installed on a typical hydraulic cylinder. Shows top and inside of Drip Ring pan, clamp, fitting and drain hose.



### FLEXIBLE DRIP RING

Contain leaking fluid with flexible drip rings for your hydraulic elevators. Advancing Technologies is a product design and development company owned and operated by experienced elevator trade professionals.

- Installation can be accomplished by one mechanic in approximately 15 minutes
- Tools needed: utility knife, marker, straight edge, screwdriver
- Manufactured and molded from high quality, durable oil-resistant materials
- Oversized drain to resist clogging
- Fits cylinders up to 15.5" diameter
- Fits Otis and Dover inverted pistons from 3 – 3.875"

Our Flexible Drip Ring package comes with a complete installation kit including full instructions, fittings, drain tubing, clamp and sealant. All of the materials necessary for a quick, simple, leak-free installation.

Patent No. 6,374,723 field installed and tested

Part #	Description
DR-1	Fits cylinder diameter of 5 – 7", cylinder circumference of 18 – 22"
DR-2	Fits cylinder diameter of 7 – 8", cylinder circumference of 22 – 26"
DR-3	Fits cylinder diameter of 8 – 10", cylinder circumference of 26 – 31"
DR-4	Fits cylinder diameter of 10 – 12", cylinder circumference of 31 – 37"
DR-5	Fits cylinder diameter of 12 – 15", cylinder circumference of 37 – 47"
DR-IVO	Fits 3-7/8" Dover inverted holeless jack
DR-OINV	Fits 3" Otis inverted holeless jack
CMT	Cylinder tape measure

### Sizing Chart

Diameter	Circumference	Model
5-3/4 – 7"	18" – 22"	DR-1
7 – 8-1/2"	22" – 26"	DR-2
8-1/2 – 10"	26 – 31"	DR-3
10 – 12"	31" – 37-1/2"	DR-4
12 – 15-1/2"	37-1/2" – 59"	DR-5
3-7/8"	Dover Inverted	DR-IVO
3"	Otis Inverted	DR-OINV

### GORMAN PACKING SEALS

#### Door Astragal, 10' piece

Part #	Description
00-00-109-10-00000	style #109
00-00-119-10-00000	style #119
00-00-122-10-00000	style #122

#### Round Rod, with center hole

Part #	Description
00-00-RR5000-ROD00	1/2"
00-00-RR5625-ROD00	9/16"
00-00-RR6250-ROD00	5/8"
00-00-RR6875-ROD00	11/16"
00-00-RR8125-ROD00	13/16"
00-00-RR8750-ROD00	7/8"
00-00-RR1000-ROD00	1"

#### Geared Machines, worm gear kit

Part #	Description
00-50-F02167-180R	Mitsubishi #EM-3640, 55 m x 80 mm (2.167")
00-50-G02757-180RO	Mistubishi #EM-3640H, 70 mm x 100 mm (2.750")
00-50-F02500-180RO	Schindler / Westinghouse #28 kit 2-1/2" x 3-1/2"

### Complete Packing Kits

	Part #	Description
<b>Amtech/Idessa</b>	01-31-F04500-E000	4-1/2"
	01-31-F05000-E0000	5"
	01-31-F05500-E0000	5-1/2"
	01-31-F06000-E0000	6"
<b>Bore Max</b>	14-25-F04000-E0000	4" w/ wiper, 2 seals and bearing
	14-25-F04375-E0000	4-3/8" w/ wiper, 2 seals and bearing
	14-25-F05500-E0000	5-1/2" w/ wiper, 2 seals and bearing
	14-25-F06000-E0000	6" w/ wiper, 2 seals and bearing
<b>Dover</b>	14-25-F06500-E0000	6-1/2" w/ wiper, 2 seals and bearing
	10-72-R04375-LF10Z	4-3/8" Rotary 4S, mfg 1993-2002
	10-72-R05437-LF107	5-7/16" Rotary 5S, mfg 1994-2002
	10-72-R06500-LF10Z	6-1/2" Rotary 6S, mfg 1994-2002
<b>Dover/TKE</b>	06-00-F03875-LF10Z	3-7/8" Dover kit w/ wiper seal and O-ring, no bearing
	06-72-F03000-LF20Z	3" Dover 2S (TKE) holeless complete kit w/ LF2 seal
	06-72-F03875-E000Z	3-7/8" Dover 3S (TKE) complete kit w/ E series seal
<b>Econo / US Elevator</b>	14-37-F04500-E0000	4-1/2" w/ wiper, seal and bearing (hexagon shaped)
<b>EECO</b>	03-39-DC3000-0000Z	3" PJ3NET w/ wiper, seal, bearing and o-ring
	03-39-F03437-LF100	3-7/16" PJ3R w/ wiper, seal, bearing and no o-ring
	03-39-F03875-LF10Z	3-7/8" PJ387 w/ wiper, LF seal, bearing and no o-ring
	03-33-F04375-LF1ZZ	4-3/8" LJ/FJ w/ 2 seals, bearing, lantern and 2 o-rings
<b>Miscellaneous</b>	14-00-F05500-E0000	Canton Elevator 5-1/2" kit w/ wiper and seal
	14-00-F05437-E0000	Hollister-Whitney 5-7/16" kit w/ wiper and seal
	14-36-F05500-LF100	Winter & Bain 5-1/2" kit, has 1 oil groove, bore max has 2 oil grooves
<b>Otis</b>	12-04-F02750-LF100	2-3/4" Holeless kit, mfg prior to 2000
	12-04-F02840-LF150	2.840" Holeless kit, mfg prior to 2000
	14-04-EE3938-LF200	3.938" Holeless/roped kit w/ wiper, spacer, seal and bearing, mfg after 2000
	14-04-EE4438-LF200	4.438" Holeless/roped kit w/ wiper, spacer, seal and bearing, mfg after 2000
	14-04-EE5500-LF200	5-1/2" Holeless/roped kit w/ wiper, spacer, seal and bearing, mfg after 2000

continued



**GORMAN PACKING SEALS** continued

**Complete Packing Kits** continued

	Part #	Description
Schindler	18-42-B05500-GW000	5-1/2" MPH2/F2 w/ snap-in bearing, mfg after 1989
	18-42-MM0750-09000	75mm x 90mm Schindler inverted Gemini telescopic kit
	18-42-MM0900-10500	90mm x 105mm Schindler inverted Gemini telescopic kit
Thyssen Krupp	17-18-T25III-LF2Z7	2.5T-III, 3 Stage kit, 2-1/4", 3-3/4" & 5" telescopic
	17-18-T25000-LF2Z4	2.5T, 2 Stage kit, 2-1/2" & 3-3/4" telescopic
	17-18-T30000-LF2Z4	3.0T, 2 Stage kit, 3" & 4-1/4" (4.250") telescopic
	10-72-F04375-LF10Z	4-3/8" New style 4S kit, mfg 2002- present day
	10-72-F05437-LF10Z	5-7/16" new style 5S kit, mfg 2002- present day
	10-72-F06500-LF10Z	6-1/2" new style 6S kit, mfg 2002- present day
US Elevator before 1982	01-17-F04500-18000	4-1/2" Stack kit w/ wiper, split spacer & 3 split seals
	01-17-F06000-18000	6" Stack kit w/ wiper, split spacer & 3 split seals



Gorman Low Friction Jack Seals  
Full selection in stock

Otis

Schindler/Westinghouse

Montgomery



01002  
Packing Puller, 1 pair

**Gorman's Tools**

Part #	Description
01002	Packing puller, 1 pair

**Microswitches**

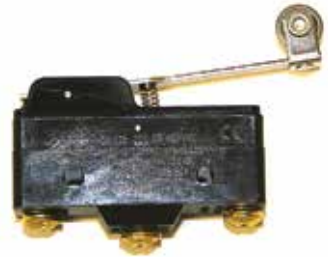
Part #	Description
3SE52320CC05	Position switch. Plastic enclosure according to EN 50047, 31mm device connection 1 x (M20 x 1.5) 1 NO/1 NC, quick action contacts (replaceable), rounded plunger form B
3SE52320HD03	Position switch. Plastic enclosure according to EN 50047, 31mm device connection 1 x (M20 x 1.5) 1 NO/1 NC quick action contacts integrated (not replaceable) roller plunger, Form C with plastic roller 10 mm
3SE52320HE10	Position switch. Plastic enclosure according to EN 50047, 31mm device connection 1 x (M20 x 1.5) 1 NO/1 NC quick action contacts integrated (not replaceable) roller lever with plastic roller 13 mm
3SE52320HF10	Position switch. Plastic enclosure according to EN 50047, 31mm device connection 1 x (M20 x 1.5) 1 NO/1 NC quick action contacts integrated (not replaceable) angular roller lever with plastic roller 13 mm
3SE52320HK21	Position switch. Plastic enclosure according to EN 50047, 31mm device connection 1 x (M20 x 1.5) 1 NO/1 NC quick action contacts integrated (not replaceable) twist lever, 21 mm long right/left adjustable with plastic roller 19 mm
3SE52320HK50	Position switch. Plastic enclosure according to EN 50047, 31mm device connection 1 x (M20 x 1.5) 1 NO/1 NC quick action contacts integrated (not replaceable) adjustable-length twist lever right/left adjustable with plastic roller 19 mm
BZ-2RD-A2	Basic switch. Precision, snap action; large plunger SPDT, screw terminals
BZ-2RW82-A2	Microswitch long arm w/roller. SPDT 15A @ 125VAC
BZ-2RW822-A2	Microswitch short arm w/roller. SPDT 15A @ 125VAC
BZ-2RW84-A2	Microswitch w/straight lever. SPDT 15A @ 125VAC; Used with A575KXX reversing contactors
BZ-2RW84381-A2	Universal basic switch. BZ series; plunger, solder lugs; CE, CSA; SPDT 15A @ 250VAC
D2SW-3MS	Switch. Snap action NO/NC. SPDT pin plunger 3A 250VAC 30VDC 1.77N screw mount wire lead
V7-1C17D8	Microswitch miniature w/pin plunger. For Dover V-7 push button SPDT
Z15GQB7K	Microswitch w/plunger. SPDT 15A @ 120/250VAC; body size 2" x .7" x 1"



Z15GQB7K



V7-1C17D8



BZ-2RW82-A2



BZ-2RW822-A2



BZ-2RW84-A2

## Transformers

### SIEMENS TRANSFORMERS

All transformers are epoxy encapsulated which completely seals the transformer coils against moisture, dust, dirt, and other contamination. Most models (50 – 750VA) come with an integral 120V fuse clip. Molded terminal barriers provide extra protection against short circuits.

All transformers listed below have a primary rating of 208/230/460VAC and a secondary voltage of 115VAC. The primary voltage is selected by the use of jumper links (included).



MT0075G



MT0500G

Part #	VA Rating	Dimensions (inches)	Weight (lbs)
MT0050G	50	3.13 x 3 x 2.56	3
MT0075G	75	3.38 x 3.38 x 2.88	5
MT0100G	100	3.69 x 3.38 x 2.88	5
MT0150G	150	4.19 x 3.75 x 3.19	8
MT0200G	200	4.25 x 4.50 x 3.81	10
MT0250G	250	4.75 x 4.50 x 3.81	12
MT0300G	300	5.25 x 4.50 x 3.81	14
MT0500G	500	6.00 x 5.25 x 4.75	22
MT1000G	1000	7.13 x 6.38 x 5.38	30
MT1500G	1500	7.50 x 6.75 x 5.69	34
MT2000G	2000	8.25 x 6.75 x 5.69	43
MT3000G	3000	8 x 9 x 7.56	64
MT5000G	5000	8.67 x 9 x 8.06	89

Note: Fuse is not included as shown in photo

### MICRON TRANSFORMERS

Micron's fully encapsulated ImperviTRAN industrial control transformer is the most accepted transformer in the industry. Its clean design and toughness make it a favorite of industrial and commercial equipment manufacturers.

#### ImperviTRAN Series Information

- Epoxy encapsulated coil
- Corrosion-protected windings and solder
- Molded-in terminals and terminal barriers
- Pre-installed mounting holes
- Meets UL and cUL

Part #	Description
B075PU7JK	75VA, Primary 240/480, Secondary 24
B100MQ15XK	100VA, Primary 208/277, Secondary 120
B100PU7JK	100VA, Primary 240/480, Secondary 24
B150BTZ13RB	150VA, Primary 240/480, Secondary 120



B100MQ15XK



B150BTZ13RB

## Signage

- Made of durable plastic with a non-glare finish
- Comes with quality 3M full back adhesive
- Processed screen inks are permanent and resist fading from indoor lighting and sunlight
- All signs are also available in brass, stainless steel and Muntz.
- Printing on metal signs can be done with epoxy bond printing, engraved or chemically etched.

### IN CASE OF FIRE

Part #	Size (inches)
ICF-335-8CA	3 x 3.5
ICF-58-39	5 x 8
ICF-58-40	5 x 8
ICF-67-1MI	6 x 7
ICF-67-33CA	6 x 7



ICF-335-8CA



ICF-58-39



ICF-58-40



ICF-67-1MI



ICF-67-33CA

### FIRE SIGN

Part #	Size (inches)
PHASE2-FH-7525-2006-003	7w x 5.25" h



PHASE2-FH-7525-2006-003

### DATA TAGS

Part #	Size
TAG	5" w x 2-1/2" h
TAG-A17.1	4" w x 3" h
TAGGOV	3" w x 4" h

### TEST TAGS

Part #	Size
F-1055	5" w x 4-3/4" h
F-1056	5" w x 4-1/4" h
F-1057	5" w x 4-1/4" h
F-1058	5" w x 3-3/4" h
F-1080	10" x 7"



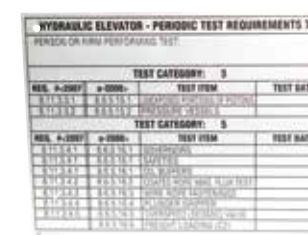
F-1055



F-1056



F-1057



F-1058



F-1080

Aluminum, 20ga. (0.032") thickness, tags in stock. Custom tags also available, call for quote.

### LEAD SEAL

Part #	Description
2011T11	Seal, blank lead and wire, 6"



**FIRE SERVICE**

Part #	Description	Size (inches)
SFOM-66-10	Fire Service	6 x 6
SFOM-66-11	Fire Service	6 x 6
SFOM-66-14	Fire Service	6 x 6
SFOM-66-15	Fire Service	6 x 6
SFOM-66-16	Fire Service	6 x 6
SFOM-66-17	Fire Service	6 x 6
SFOM-66-18	Fire Service	6 x 6
SFOM-66-19	Fire Service	6 x 6
SFOM-66-20	Fire Service	6 x 6
SFOM-66-34	Fire Service	6 x 6
SFOMC-69-14	Fire Service	6 x 9

4x4 signs can be ordered upon request.



SFOM-66-10



SFOM-66-11



SFOM-66-14



SFOM-66-15



SFOM-66-16



SFOM-66-17



SFOM-66-18



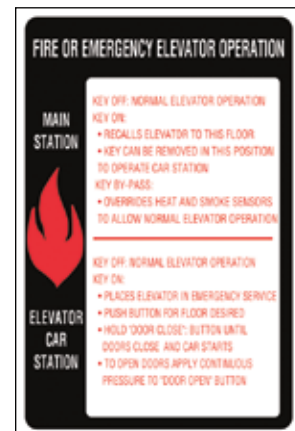
SFOM-66-19



SFOM-66-20



SFOM-66-34



SFOMC-69-14

**BRAILLE JAMB PLATES**

White letters black background. 4x4 square

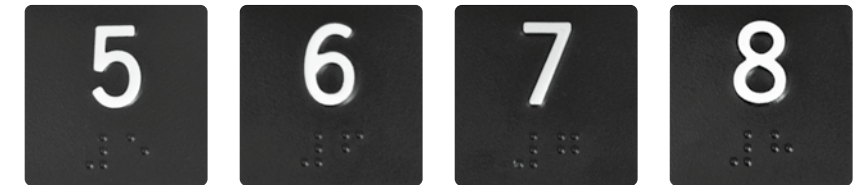
Part #	Description
SBJ442-*S	"STAR S"
WBJ442-*G	"STAR G"
WBJ442-G	"G"
WBJ442-1	"1"
WBJ442-2	"2"
WBJ442-3	"3"
WBJ442-4	"4"



SBJ442-\*S WBJ442-\*G WBJ442-G WBJ442-1



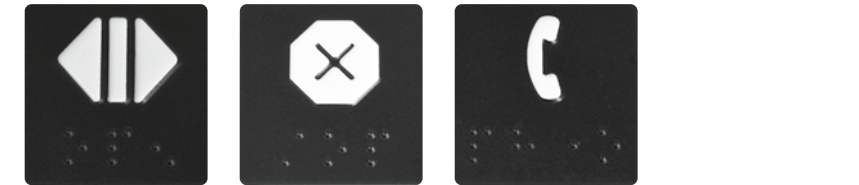
C1382-001CA C1382-002CA C1382-003CA C1382-004CA



C1382-005CA C1382-006CA C1382-007CA C1382-008CA



C1382-009CA C1382-010CA C1382-001CA-AL C1382-001CA-DC



C1382-001CA-DO C1382-001CA-ES C1382-001CA-PH

**BRAILLE HALL PLATES**

White letter black background, 3M Full Back Adhesive. 1.375" square

Part #	Description
C1382-001CA-1	"1" without star
C1382-001CA	"STAR 1"
C1382-002CA	"2"
C1382-003CA	"3"
C1382-004CA	"4"
C1382-005CA	"5"
C1382-006CA	"6"
C1382-007CA	"7"
C1382-008CA	"8"
C1382-009CA	"9"
C1382-010CA	"10"
C1382-001CA-AL	"Alarm"
C1382-001CA-DC	"Door Close"
C1382-001CA-DO	"Door Open"
C1382-001CA-ES	"Emergency Stop"
C1382-001CA-PH	"Phone"

**ESCALATOR SIGNS**

Part #	Description	Size (inches)
ESCAL-10	Escalator	5 x 9
ESCAL-11	Escalator	5 x 9



ESCAL-10



ESCAL-11





NOTICE-8511-MASK



CAUT-6FT-ALL



HANDI-77-W



NOTICE-107-3



NOTICE-107-6



SOL-P-Blue



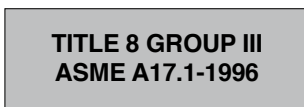
WARN-ANTI CREEP



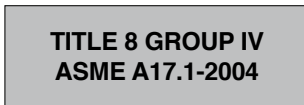
MIP34



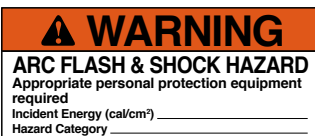
Title 8 Group II



Title 8 Group III



Title 8 Group IV



WARN-ARC FLASH

COVID SIGNS

Part #	Description	Size (inches)
CAUT-6FT-ALL	"Please remain 6ft apart at all times" yellow on black background.	8" circle
NOTICE-8511-MASK	"Notice - you must wear a mask to ride this elevator"	8.5 x 11
NOTICE-FMR	"Facemask Required" - Plastic, sturdy .055"-thick HDPE. Pre-drilled mounting holes and 4 strips of double-sided mounting tape.	7 x 10
NOTICE-STAY6FT	"Please Practice Social Distancing, Stay 6 Ft Apart" Sign - Aluminum Corrosion resistant with engineer-grade reflective enamel finish. Pre-drilled mounting holes.	12 x 18
SAFE-F6FT	"Maintain Distance, Stay Healthy" Plastic, sturdy .055"-thick HDPE. Pre-drilled mounting holes and 4 strips of double-sided mounting tape.	7 x 10

MISCELLANEOUS SIGNS

Part #	Description	Size (inches)
HANDI-77-W	Handicapped	7 x 7
MIP34	Maintenance In Progress paper tags Paper Post-it notes, 50 per pad	4 x 6
NOTICE-107-3	OSHA Notice: Elevator Equipment Room Authorized Personnel Only	10 x 7
NOTICE-107-6	OSHA Notice: This Elevator is for Freight Only Not for Passengers	10 x 7
NOTICE-107-7	OSHA Notice: Elevator Machine Room, No storage allowed	10 x 7
NOTICE-107-11	OSHA Notice: Contact on pit door	10 x 7
NOTICE-BLANK-710	Write-On Blank Safety Sign - Use with permanent or wet erase markers.	7 x 10
CAUTION-BLANK-710	Write-On Blank Safety Sign - Use with permanent or wet erase markers.	7 x 10
DANG-BLANK	Write-On Blank Safety Sign - Use with permanent or wet erase markers.	7 x 10
SOL-P-Blue	Star of Life (Blue)	4 x 4
Title 8 Group II	Title 8 Group II adhesive label	3 x 1
Title 8 Group III	Title 8 Group III adhesive label	3 x 1
Title 8 Group IV	Title 8 Group IV adhesive label	3 x 1
WARN-ANTI CREEP	OSHA Warning (vinyl sticker)	5 x 2-1/4
WARN-ARC FLASH	OSHA Warning (vinyl sticker)	4 x 2
WARN-DEC-1-V	OSHA Warning (vinyl sticker)	5 x 2-1/4
WARN-DEC-2-V	OSHA Warning (vinyl sticker)	5 x 2-1/4



WARN-DEC-1-V



WARN-DEC-2-V

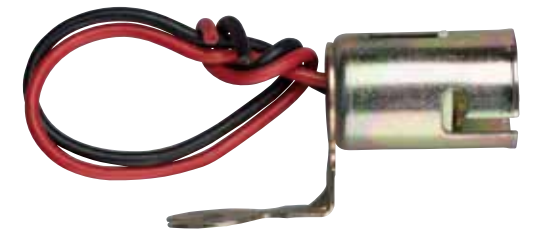
Elevator Lamps

Part #	Volts	Watts	Description / Base	Bulb
10S6-120V-CS	120	10	Candelabra screw	S-6
10S6-250V-CS	250	10	Candelabra screw	S-6
10S6-250V-DC	250	10	Double contact bayonet	S-6
12PSB	12	2.04	#5 slide	T-2
12OMB	120	3	Miniature bayonet	T-2-1/2
12OMS	120	3	Miniature screw	T-3-1/4
120PSB	120	3	#5 slide	T-2
120PSB-NE	120	2	#5 slide	T-2
120RC	120	3	Candelabra screw	T-2
120RC-NE	120	3	Candelabra screw	T-2
1252	28	6.44	Double contact bayonet	G6
1383	13	20	Single contact bayonet	R12
1477	24	4.08	Miniature screw	T-3
15B-002	N/A	N/A	Holder, candelabra screw	N/A
155MB	155	2	Miniature bayonet	T-2-1/2
155PSB	155	2	#5 slide	T-2
15T7-130V-CS	130	15	Candelabra screw	T-7
161	14	2.66	Wedge	T-3-1/4
1638	28	1.02	Double contact bayonet	S-8
1815	14	2.8	Miniature bayonet	T-3-1/4
1820	28	2.8	Miniature bayonet	T-3-1/4
1822	36	3.6	Miniature bayonet	T-3-1/4
1828	37.5	1.87	Miniature bayonet	T-3-1/4
1829	28	1.04	DC bayonet	T-31/4
1835	55	2.75	Miniature bayonet	T-3-1/4
1843	28	.616	Miniature bayonet	T-3-1/4
1847	6.3	.945	Miniature bayonet	T-3-1/4
1850	5.0	.45	Miniature bayonet	T-3-1/4
1893	14.0	4.62	Miniature bayonet	T-3-1/4
24MB	24	1.68	Miniature bayonet	T-2-1/2
24PSB	24	1.752	#5 slide	T-2
24OMB	240	2.4	Miniature bayonet	T-2-1/2
25S11-120V-CS	120	25	Candelabra screw	S-11
25S6-130V-CS	130	25	Candelabra screw	S-11
25T8-130V-CS	130	25	Candelabra screw	T-8
25T8-130V-DC	130	25	Double contact bayonet	T-8
28MB	28	1.12	Miniature bayonet	T-2-1/2
28PSB	28	1.12	#5 slide	T-2
28RC	28	1.12	Candelabra screw	T-2
303	28	0.3	Single contact bayonet	G6
307	28	0.7	Single contact bayonet	S-8
308	28	18.75	Double contact bayonet	S-8
313	28	4.75	Miniature bayonet	T-3-1/4
327	28	1.12	Midget flanged	T-1-3/4
35PSB	35	1.7	#5 slide	T-2

continued



120PSB



15B-002



1835



Part #	Volts	Watts	Description / Base	Bulb
40	6.3	.10	Miniature screw	T-3-1/4
44	6.3	.575	Miniature bayonet	T-3-1/4
48MB	48	2.5	Miniature bayonet	T-2-1/2
48PSB	48	2.4	#5 slide	T-2
502	5.1	.765	Miniature screw	G-4-1/2
503	5.1	.765	Miniature bayonet	G-4-1/2
51H/B2A-NE	120	2	Miniature bayonet	T-2-1/2
60MB	60	3	Miniature bayonet	T-2-1/2
60PSB	60	3	#5 slide	T-2
60RB	60	3	Miniature bayonet	T-2
60RC	60	3	Candelabra screw	T-2
64425	12	20	Medical/optical lamp	N/A
656	28	1.68	Wedge	T-3-1/4
657	28	2.24	Wedge	T-3-1/4
67	13.5	7.96	Single contact bayonet	G-6
67K	13.5	7.96	Candelabra screw	G6
6MB	6	.84	Miniature bayonet	T-2-1/2
6PSB	6	0.84	#5 slide	T2
6S6-6V-CS	6	6	Candelabra screw	S-6
6S6-12V-CS	12	6	Candelabra screw	S-6
6S6-120V-CS	120	6	Candelabra screw	S-6
6S6-120V-DC	120	6	Candelabra screw	S-6
6S6-130V-CS	130	6	Candelabra screw	S-6
6S6-130V-DC	130	6	Double contact bayonet	S-6
6S6-145V-CS	145	6	Candelabra screw	S-6
6S6-145V-DC	145	6	Double contact bayonet	S-6
6S6-155V-CS	155	6	Candelabra screw	S-6
6S6-155V-SCB	155	6	Single contact bayonet	S-6
6S6-230V-CS	230	6	Candelabra screw	S-6
6S6-24V-DC	24	6	Double contact bayonet	S-6
6S6-30V-CS	30	6	Candelabra screw	S-6
6S6-30V-DC	30	6	Double contact bayonet	S-6
6S6-48V-CS	48	6	Candelabra screw	S-6
6S6-60V-CS	60	6	Candelabra screw	S-6
7355	28	1.12	Midget grooved	T-1-3/4
7C7-130V-CS	130	7	C7 Miniature bulb; current: 0.054A, base type: E12 - Candelabra screw, life hours: 4,500, glass: clear, dimensions: 2.13 in. length	
755	6.3	1	Double contact bayonet	T-1-3/4
757	28	1.68	Miniature bayonet	T-3-1/4
90MB	90	2.7	Miniature bayonet	T-2-1/2
E12-002-10	N/A	N/A	Holder, screw	N/A
JC-G4 12V 10W	12	10	Bi-pin	G4
N85	28	1.12	Sub-miniature wedge	T1-3/4

Part #	Volts	Watts	Current	Color Emitted	Base	Description	Bulb
LED120PSBR-ACDC	120	0.80	6mA	Red	Slide base #5	Light output: 1000 mcd, life hours: 100,000, dimensions: 25.5 mm L x 7 mm diameter, viewing angle: 160 degree	T2 LED
LED120PSBA-ACDC	120	0.80	6mA	Amber	Slide base #5	Light output: 1000 mcd, life hours: 100,000, dimensions: 25.5 mm L x 7 mm diameter, viewing angle: 160 degree	T2 LED
LED120PSBW-ACDC	120	0.80	6mA	White	Slide base #5	Light output: 1000 mcd, life hours: 100,000, dimensions: 25.5 mm L x 7 mm diameter, viewing angle: 160 degree	T2 LED
LED28PSB-A	24-28	0.80	20mA	Amber	Slide base #5	Life hours: 100,000, dimensions: 25.5 mm L x 7 mm diameter, viewing angle: 160 degree	T2 LED
LED28PSB-RED	24-28	0.80	20mA	Red	Slide base #5	Light output: 1000 mcd, life hours: 100,000, dimensions: 25.5 mm L x 7 mm diameter, viewing angle: 160 degree	T2 LED
LED28PSBG-ACDC	24-28	0.80	20mA	Green	Slide base #5	Light output: 1000 mcd, life hours: 100,000, dimensions: 25.5 mm L x 7 mm diameter, viewing angle: 160 degree	T2 LED
LED28PSBW-AC/DC	24-28	0.80	20mA	White	Slide base #5	Light output: 1000 mcd, life hours: 100,000, dimensions: 25.5 mm L x 7 mm diameter, viewing angle: 160 degree	T2 LED
LED48MBA-AC/DC	48	0.5	15mA	Yellow	Miniature bayonet	Light output: 1000 mcd, life hours: 100,000, dimensions: 26 mm L x 9 mm diameter, viewing angle: 160 degree	T3-1/4 LED
LED48MBW-AC/DC	48	0.5	15mA	White	Miniature bayonet	Light output: 1000 mcd, life hours: 100,000, dimensions: 26 mm L x 9 mm diameter, viewing angle: 160 degree	T3-1/4 LED
LED-48PSB-RED	48	0.80	15mA	Red	Slide base #5	Light output: 1000 mcd, life hours: 100,000, dimensions: 25.5 mm L x 7 mm diameter, viewing angle: 160 degree	T2 LED
LED60MBB-ACDC	60	0.5	10mA	Blue	Miniature bayonet	Light output: 1000 mcd, life hours: 100,000, dimensions: 26 mm L x 9 mm diameter, viewing angle: 160 degree	T3-1/4 LED
LED60MBW-ACDC	60	0.5	10mA	White	Miniature bayonet	Light output: 1000 mcd, life hours: 100,000, dimensions: 26 mm L x 9 mm diameter, viewing angle: 160 degree	T3-1/4 LED
LED-85-GREEN	28	0.50	20mA	Green	Wedge	Light output: 500 mcd, life hours: 100,000, dimensions: 18.5 mm L x 5 mm diameter, viewing angle: 120 degree	T-1 3/4 (5 mm) LED
LED-85-RED	28	0.50	20mA	Red	Wedge	Light output: 500 mcd, life hours: 100,000, dimensions: 18.5 mm L x 5 mm diameter, viewing angle: 120 degree	T-1 3/4 (5 mm) LED
LED-85-WHITE	28	0.50	20mA	White	Wedge	Light output: 500 mcd, life hours: 100,000, dimensions: 18.5 mm L x 5 mm diameter, viewing angle: 120 degree	T-1 3/4 (5 mm) LED
LED-85-YELLOW	28	0.50	20mA	Amber	Wedge	Light output: 500 mcd, life hours: 100,000, dimensions: 18.5 mm v x 5 mm diameter, viewing angle: 120 degree	T-1 3/4 (5 mm) LED
LED-SB3KDC-24-28V	20-38	3			Double contact bayonet	Color temp (Kelvin): 3000K, lumens: 220, Replaces: 25-40W incandescent, length: 1.85 in., diameter: 0.65 in., average life hours: 50,000, viewing angle: 360 degree	LED: tubular bulb
LED-SB3KDC-120V	120	3			BA15D (double contact bayonet)	Color temp (Kelvin): 3000K, lumens: 220, replaces: 25-40W incandescent, length: 1.80 in., diameter: 0.70 in., average life hours: 50,000, viewing angle: 360 degree	LED: tubular bulb



LED120PSBR-ACDC



LED120PSBA-ACDC

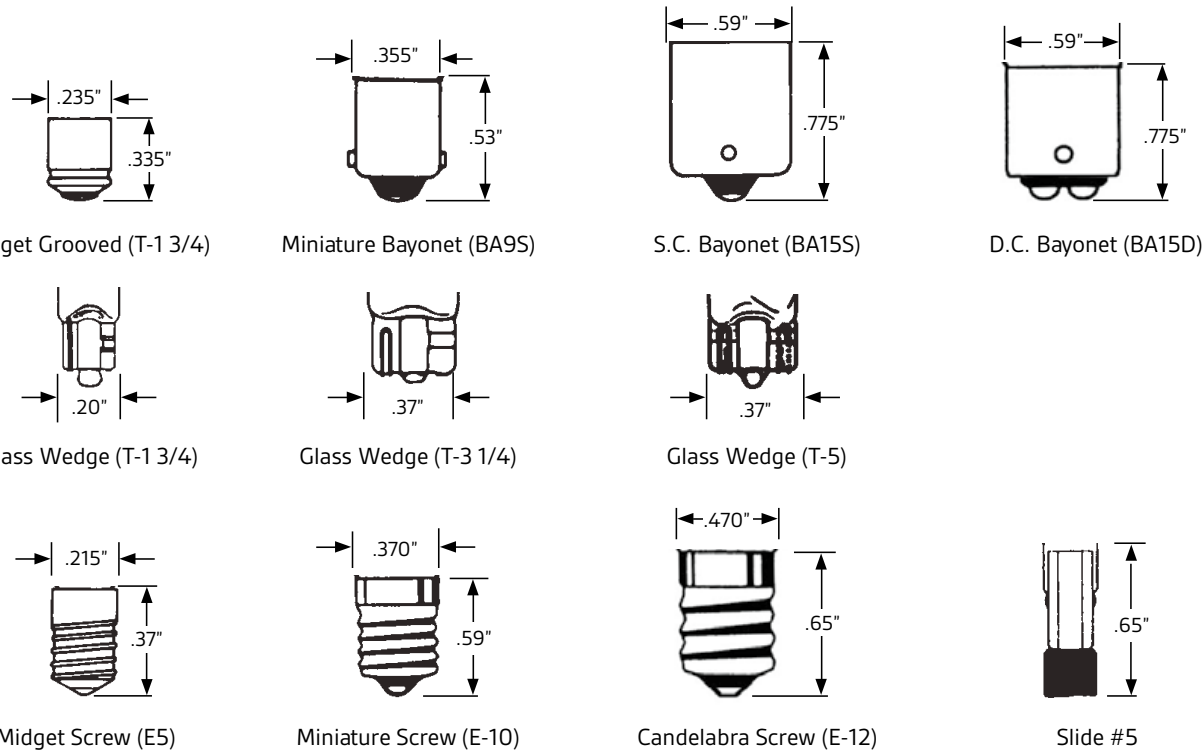


LED120PSBW-ACDC

**COMMON LAMP BASES WITH DIMENSIONS**

Bases provide electrical contact to the lamp and, in most cases, also support the lamp in the fixture. For miniature and subminiature lamps, bayonet or wedge base types are generally preferred over screw types when vibration is present. In addition, wedge bases reduce socket size and complexity. Flanged or collared types are usually associated with requirements for filament location.

All dimensions are ±1%. All length dimensions include the solder contact.



**GFUSE COMBO**

Variety of glass fuses (customer can customize)

- 1 amp
- 2 amp
- 3 amp
- 4 amp
- 5 amp
- 6 amp
- 10 amp



**GFUSE COMBO XL**

Variety of glass fuses, not available for customization, except where noted!

Contains 75 boxes; 1 box each of the following:

- ABC 1/2, 1/4, 1, 1-1/2 and 3
  - AGC 3/16, 3/8, 1/4, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 14, 15, 20, 25 and 30
  - GMA 100MA, 200MA, 250MA 300MA, 3-1/2, 5, 6, 7, 8, 10 and 15
  - GMC 63MA and 250MA
  - MDA 3/10, 1, 2, 3, 4, 5, 6, 7, 8, 10, 12, 15, 25 and 30
  - MDL 3/16, 3/4, 1/2, 1/4, 1/8, 1/10, 2/10, 6/10, 7/10, 8/10, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 15 and 20
- and one of your choice.





**SMALL DIMENSION FAST ACTING GLASS/CERAMIC FUSES**

**Type ABC**

**Description** Fast-acting  
**Dimensions** 1/4" x 1-1/4" (6.4 x 31.7 mm)  
**Construction** Ceramic tube with nickel-plated brass endcaps  
**Ratings** **Volts:** 250VAC/125VDC, (1/4 – 15A, 20 – 30A), 250VAC (18A) **Amps:** 1/4 – 30A  
**IR** 35A (1/4 – 1A @ 250VAC) 10kA (1/4 – 15A @ 125VAC)  
 100A (1-1/2 – 3A @ 250VAC) 1kA (18 – 30A @ 125VAC)  
 200A (4 – 10A @ 250VAC) 10kA (1/4 – 15, 20A @ 125VDC)  
 750A (12 – 15A @ 250VAC) 400A (25 – 30A @ 250VAC)  
 400A (18 – 20A @ 250VAC) 200A (25 – 30A @ 250VAC)

**Features and benefits** Ceramic body allows for higher amp/volt rating combinations

Part #	Description	Part #	Description
ABC1/4	Fast-acting ceramic 1/4" x 1-1/4" .25 amp	ABC6	Fast-acting ceramic 1/4" x 1-1/4" 6 amp
ABC1/2	Fast-acting ceramic 1/4" x 1-1/4" 0.5 amp	ABC7	Fast-acting ceramic 1/4" x 1-1/4" 7 amp
ABC3/4	Fast-acting ceramic 1/4" x 1-1/4" .75 amp	ABC8	Fast-acting ceramic 1/4" x 1-1/4" 8 amp
ABC1	Fast-acting ceramic 1/4" x 1-1/4" 1 amp	ABC10	Fast-acting ceramic 1/4" x 1-1/4" 10 amp
ABC1-1/2	Fast-acting ceramic 1/4" x 1-1/4" 1.5 amp	ABC12	Fast-acting ceramic 1/4" x 1-1/4" 12 amp
ABC2	Fast-acting ceramic 1/4" x 1-1/4" 2 amp	ABC15	Fast-acting ceramic 1/4" x 1-1/4" 15 amp
ABC3	Fast-acting ceramic 1/4" x 1-1/4" 3 amp	ABC20	Fast-acting ceramic 1/4" x 1-1/4" 20 amp
ABC4	Fast-acting ceramic 1/4" x 1-1/4" 4 amp	ABC25	Fast-acting ceramic 1/4" x 1-1/4" 25 amp
ABC5	Fast-acting ceramic 1/4" x 1-1/4" 5 amp	ABC30	Fast-acting ceramic 1/4" x 1-1/4" 30 amp

**Type AGC**

**Description** Fast-acting  
**Dimensions** 1/4" x 1-1/4" (6.4 x 31.7 mm)  
**Construction** Glass tube with nickel-plated brass endcaps  
**Ratings** **Volts:** 250VAC (1/20 – 10A), 32VAC (12 – 30A) **Amps:** 1/20 – 30A  
**IR** 35A (1/20 – 1A @ 250VAC) 10kA (1/20 – 10A @ 125VAC)  
 100A (1-1/4 – 3A @ 250VAC) 1000A (12 – 30A @ 32VAC)  
 200A (4 – 10A @ 250VAC)  
**Features and benefits** Original electronic tube fuse  
 Fast-acting for maximum protection  
 Wide amp/volt ratings allow versatility of protecting electronic circuits

Part #	Description	Part #	Description
AGC1/32	Fast-acting glass 1/4" x 1-1/4" 0.03125 amp	AGC1	Fast-acting glass 1/4" x 1-1/4" 1 amp
AGC1/10	Fast-acting glass 1/4" x 1-1/4" 0.1 amp	AGC1-1/2	Fast-acting glass 1/4" x 1-1/4" 1.5 amp
AGC3/16	Fast-acting glass 1/4" x 1-1/4" 0.1875 amp	AGC1-6/10	Fast-acting glass 1/4" x 1-1/4" 1.6 amp
AGC2/10	Fast-acting glass 1/4" x 1-1/4" 0.2 amp	AGC1-3/4	Fast-acting glass 1/4" x 1-1/4" 1.75 amp
AGC1/4	Fast-acting glass 1/4" x 1-1/4" 0.25 amp	AGC2	Fast-acting glass 1/4" x 1-1/4" 2 amp
AGC3/10	Fast-acting glass 1/4" x 1-1/4" 0.3 amp	AGC2-1/2	Fast-acting glass 1/4" x 1-1/4" 2.5 amp
AGC3/8	Fast-acting glass 1/4" x 1-1/4" 0.375 amp	AGC3	Fast-acting glass 1/4" x 1-1/4" 3 amp
AGC1/2	Fast-acting glass 1/4" x 1-1/4" 0.5 amp	AGC3-1/2	Fast-acting glass 1/4" x 1-1/4" 3.5 amp
AGC6/10	Fast-acting glass 1/4" x 1-1/4" 0.6 amp	AGC4	Fast-acting glass 1/4" x 1-1/4" 4 amp
AGC3/4	Fast-acting glass 1/4" x 1-1/4" 0.75 amp	AGC4-1/2	Fast-acting glass 1/4" x 1-1/4" 4.5 amp
AGC8/10	Fast-acting glass 1/4" x 1-1/4" 0.8 amp		

**Type AGC continued**

Part #	Description	Part #	Description
AGC5	Fast-acting glass 1/4" x 1-1/4" 5 amp	AGC10	Fast-acting glass 1/4" x 1-1/4" 10 amp
AGC6	Fast-acting glass 1/4" x 1-1/4" 6 amp	AGC12	Fast-acting glass 1/4" x 1-1/4" 12 amp
AGC6-1/4	Fast-acting glass 1/4" x 1-1/4" 6.25 amp	AGC14	Fast-acting glass 1/4" x 1-1/4" 14 amp
AGC7	Fast-acting glass 1/4" x 1-1/4" 7 amp	AGC15	Fast-acting glass 1/4" x 1-1/4" 15 amp
AGC7-1/2	Fast-acting glass 1/4" x 1-1/4" 7.5 amp	AGC20	Fast-acting glass 1/4" x 1-1/4" 20 amp
AGC8	Fast-acting glass 1/4" x 1-1/4" 8 amp	AGC25	Fast-acting glass 1/4" x 1-1/4" 25 amp
AGC9	Fast-acting glass 1/4" x 1-1/4" 9 amp	AGC30	Fast-acting glass 1/4" x 1-1/4" 30 amp

**Type AGX**

**Description** Fast-acting  
**Dimensions** 1/4" x 1" (6.4 x 25.4 mm)  
**Construction** Glass tube  
**Ratings** **Volts:** 250VAC (1/200 – 2A), 125VAC (2-1/2 – 7A) **Amps:** 1/4 – 30A  
**IR** 35A (1/4 – 1/2A @ 250VAC) 1000A (5 – 6A @ 125VAC)  
 100A (3/4 – 2A @ 250VAC) 1000A (8 – 30A @ 32VAC)  
 10kA (1/4 – 5A @ 125VAC)

**Features and benefits** Size rejects insertion of other fuse types

Part #	Description	Part #	Description
AGX1/32	1/4" – 1" glass 0.03125 amp	AGX5	1/4" – 1" glass 5 amp
AGX1	1/4" – 1" glass 1 amp	AGX6	1/4" – 1" glass 6 amp
AGX2	1/4" – 1" glass 2 amp	AGX10	1/4" – 1" glass 10 amp
AGX3	Eaton/Bussman 1/4" – 1" glass 3 amp		

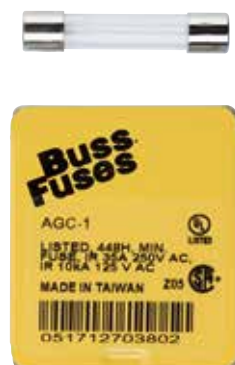
**SMALL DIMENSION TIME-DELAY GLASS FUSES**

**Type MDA**

**Description** Time-delay  
**Dimensions** 1/4" x 1-1/4" (6.35 x 31.75 mm)  
**Construction** Ceramic tube with nickel-plated brass endcaps  
**Ratings** **Volts:** 250VAC or less, 125VDC (20A – 30A) **Amps:** 1/4 – 30A  
**IR** 35A (1/4 – 1A @ 250VAC) 1500A (20 – 30A @ 250VAC)  
 100A (1-1/2 – 2A @ 250VAC) 10kA (1/4 – 30A @ 125VAC)  
 200A (2-1/2 – 10A @ 250VAC) 10kA (20 – 30A @ 125VDC)  
 750A (12 – 15A @ 250VAC)

**Features and benefits** Ceramic body allows for higher amp/volt rating combinations  
 Inventory consolidation by replacing MDL fuses allows for reduced SKU investment and minimizing potential for misapplying fuse

Part #	Description	Part #	Description
MDA3/10	1/4" x 1-1/4" ceramic 3/10 amp	MDA6-1/4	1/4" x 1-1/4" ceramic 6.25 amp
MDA1/2	1/4" x 1-1/4" ceramic 0.5 amp	MDA7	1/4" x 1-1/4" ceramic 7 amp
MDA8/10	1/4" x 1-1/4" ceramic 0.8 amp	MDA8	1/4" x 1-1/4" ceramic 8 amp
MDA1	1/4" x 1-1/4" ceramic 1 amp	MDA10	1/4" x 1-1/4" ceramic 10 amp
MDA2	1/4" x 1-1/4" ceramic 2 amp	MDA12	1/4" x 1-1/4" ceramic 12 amp
MDA3	1/4" x 1-1/4" ceramic 3 amp	MDA15	1/4" x 1-1/4" ceramic 15 amp
MDA4	1/4" x 1-1/4" ceramic 4 amp	MDA20	1/4" x 1-1/4" ceramic 20 amp
MDA5	1/4" x 1-1/4" ceramic 5 amp	MDA25	1/4" x 1-1/4" ceramic 25 amp
MDA6	1/4" x 1-1/4" ceramic 6 amp	MDA30	1/4" x 1-1/4" ceramic 30 amp



**SMALL DIMENSION TIME-DELAY GLASS FUSES** continued

**Type MDL**

**Description** Time-delay  
**Dimensions** 1/4" x 1-1/4" (6.4 x 31.17mm)  
**Construction** Glass tube, nickel-plated brass endcaps  
**Ratings** **Volts:** 250VAC (1/16 – 8A), 32VAC (9 – 30A) **Amps:** 1/16 – 30A  
**IR** 5A (1/16 – 1A @ 250VAC) 10000A (1/16 – 8A @ 125VAC)  
 100A (1-1/4 – 3A @ 250VAC) 1000A (9 – 30 @ 32VAC)  
 200A (4 – 8A @ 250VAC)

**Features and benefits** Time-delay allows close sizing on inductive circuits

Part #	Description	Part #	Description
MDL1/10	250VAC time-delay midget 0.1 amp	MDL2-1/4	250VAC time-delay midget 2.25 amp
MDL1/8	250VAC time-delay midget 0.125 amp	MDL2-1/2	250VAC time-delay midget 2.5 amp
MDL3/16	250VAC time-delay midget 0.1875 amp	MDL2-8/10	250VAC time-delay midget 2.8 amp
MDL2/10	250VAC time-delay midget 0.2 amp	MDL3	250VAC time-delay midget 3 amp
MDL1/4	250VAC time-delay midget 0.25 amp	MDL3-1/2	250VAC time-delay midget 3.5 amp
MDL1/2	250VAC time-delay midget 0.5 amp	MDL4	250VAC time-delay midget 4 amp
MDL6/10	250VAC time-delay midget 0.6 amp	MDL5	250VAC time-delay midget 5 amp
MDL7/10	250VAC time-delay midget 0.7 amp	MDL6	250VAC time-delay midget 6 amp
MDL3/4	250VAC time-delay midget 0.75 amp	MDL6-1/4	250VAC time-delay midget 6.25 amp
MDL8/10	250VAC time-delay midget 0.8 amp	MDL7	250VAC time-delay midget 7 amp
MDL1	250VAC time-delay midget 1 amp	MDL8	250VAC time-delay midget 8 amp
MDL1-1/4	250VAC time-delay midget 1.25 amp	MDL9	250VAC time-delay midget 9 amp
MDL1-1/2	250VAC time-delay midget 1.5 amp	MDL10	250VAC time-delay midget 10 amp
MDL1-6/10	250VAC time-delay midget 1.6 amp	MDL12	250VAC time-delay midget 12 amp
MDL1-8/10	250VAC time-delay midget 1.8 amp	MDL15	250VAC time-delay midget 15 amp
MDL2	250VAC time-delay midget 2 amp	MDL20	250VAC time-delay midget 20 amp



**MIDGET FAST-ACTING FUSES**

**Type MOL**

**Description** 250VAC or less, fast-acting  
**Dimensions** 13/32" dia. x 1-1/2" length  
**Ratings** **Volts:** 0.5 – 15 amps, 250VAC, 20 – 30 amps, 125VAC **Amps:** 0.5 – 30  
**Cross reference** BAF (Bussman)  
 OTM (Gould Shawmut)  
 DLF (Littlefuse)  
**IR** 10kA @ 125VAC 20 – 30A 200A @ 250VAC 6.5 – 10A  
 35A @ 250VAC 0.5 – 1A 750 @ 250VAC 12 – 15A  
 100A @ 250VAC 1.5 – 6A

**Features and benefits** Compact dimensions; Economical laminated paper tube design

**Applications** Supplemental protection for non-inductive control and lighting circuits

Part #	Description	Part #	Description
MOL.5	250VAC fast-acting midget 0.5 amp	MOL8	250VAC fast-acting midget 8 amp
MOL1	250VAC fast-acting midget 1 amp	MOL9	250VAC fast-acting midget 9 amp
MOL1.5	250VAC fast-acting midget 1.5 amp	MOL10	250VAC fast-acting midget 10 amp
MOL2	250VAC fast-acting midget 2 amp	MOL12	250VAC fast-acting midget 12 amp
MOL3	250VAC fast-acting midget 3 amp	MOL15	250VAC fast-acting midget 15 amp
MOL4	250VAC fast-acting midget 4 amp	MOL20	250VAC fast-acting midget 20 amp
MOL5	250VAC fast-acting midget 5 amp	MOL25	250VAC fast-acting midget 25 amp
MOL6	250VAC fast-acting midget 6 amp	MOL30	250VAC fast-acting midget 30 amp



**Type MCL**

**Description** 600VAC or less, fast-acting  
**Dimensions** 13/32" dia. x 1-1/2" length  
**Ratings** **Volts:** 600VAC **Amps:** 0.1 – 30  
**IR** 100kA RMS amps

**Cross reference** KTK (Bussman)  
 ATM (Gould Shawmut)  
 KLK (Littlefuse)

**Features and benefits** Compact dimensions  
 High interrupting rating  
 Fast-acting design respond quickly to both overloads and short-circuit current

**Applications** Street lighting holders, HID lighting, control circuits, electronic equipment protection

Part #	Description	Part #	Description
MCL.125	600VAC fast-acting midget .0125 amp	MCL7	600VAC fast-acting midget 7 amp
MCL.2	600VAC fast-acting midget 0.20 amp	MCL8	600VAC fast-acting midget 8 amp
MCL.25	600VAC fast-acting midget 0.25 amp	MCL9	600VAC fast-acting midget 9 amp
MCL.3	600VAC fast-acting midget 0.30 amp	MCL12	600VAC fast-acting midget 12 amp
MCL.5	600VAC fast-acting midget 0.50 amp	MCL15	600VAC fast-acting midget 15 amp
MCL.75	600VAC fast-acting midget 0.75 amp	MCL20	600VAC fast-acting midget 20 amp
MCL1.5	600VAC fast-acting midget 1.50 amp	MCL25	600VAC fast-acting midget 25 amp
MCL3.5	600VAC fast-acting midget 3.50 amp	MCL30	600VAC fast-acting midget 30 amp
MCL4	600VAC fast-acting midget 4 amp	MCL35	600VAC fast-acting midget 35 amp
MCL5	600VAC fast-acting midget 5 amp	MCL50	600VAC fast-acting midget 50 amp
MCL6	600VAC fast-acting midget 6 amp		



MIDGET TIME-DELAY FUSES

Type MEN

**Description** Time-delay  
**Dimensions** 1/4" dia. x 1-1/2" length  
**Ratings** **Volts:** 250VAC **Amps:** 0.5 – 30  
**IR** 10kA RMS amps @ 125V  
**Cross reference** FNM (Bussman)  
 TRM (Gould Shawmut)  
 FLM (Littlefuse)  
**Features and benefits** Compact dimensions  
 Fiber tube construction  
 Dual-element construction allows harmless inductive surges to pass without opening  
**Applications** Supplemental protection of small motors, transformers, solenoids and other high in-rush power electronic circuits

Part #	Description	Part #	Description
MEN.1	250VAC time-delay midget 0.10 amp	MEN3	250VAC time-delay midget 3 amp
MEN.15	250VAC time-delay midget 0.15 amp	MEN3.2	250VAC time-delay midget 3.2 amp
MEN.2	250VAC time-delay midget 0.20 amp	MEN3.5	250VAC time-delay midget 3.50 amp
MEN.25	250VAC time-delay midget 0.25 amp	MEN4	250VAC time-delay midget 4 amp
MEN.3	250VAC time-delay midget 0.30 amp	MEN4.5	250VAC time-delay midget 4.50 amp
MEN.4	250VAC time-delay midget 0.40 amp	MEN5	250VAC time-delay midget 5 amp
MEN.5	250VAC time-delay midget 0.50 amp	MEN5.6	250VAC time-delay midget 5.60 amp
MEN.8	250VAC time-delay midget 0.80 amp	MEN6	250VAC time-delay midget 6 amp
MEN1	250VAC time-delay midget 1 amp	MEN6.25	250VAC time-delay midget 6.25 amp
MEN1.125	250VAC time-delay midget 1.125 amp	MEN7	250VAC time-delay midget 7 amp
MEN1.25	250VAC time-delay midget 1.25 amp	MEN8	250VAC time-delay midget 8 amp
MEN1.4	250VAC time-delay midget 1.40 amp	MEN10	250VAC time-delay midget 10 amp
MEN1.5	250VAC time-delay midget 1.50 amp	MEN12	250VAC time-delay midget 12 amp
MEN1.6	250VAC time-delay midget.60 amp	MEN15	250VAC time-delay midget 12 amp
MEN1.8	250VAC time-delay midget 1.80 amp	MEN20	250VAC time-delay midget 20 amp
MEN2	250VAC time-delay midget 2 amp	MEN25	250VAC time-delay midget 25 amp
MEN2.25	250VAC time-delay midget 2.25 amp	MEN30	250VAC time-delay midget 30 amp
MEN2.5	250VAC time-delay midget 2.50 amp		
MEN2.8	250VAC time-delay midget 2.80 amp		



Type MEQ

**Description** Time-delay  
**Dimensions** 1/4" dia. x 1-1/2" length  
**Ratings** **Volts:** 500Vac **Amps:** 0.1 – 30  
**IR** 10kA RMS amps  
**Cross reference** FNQ (Bussman)  
 ATQ (Gould Shawmut)  
 FLQ (Littlefuse)  
**Features and benefits** Compact dimensions  
 Fiber tube construction  
 Time-delay allows harmless inductive surges to pass without needless fuse opening  
**Applications** Supplemental protection of transformers, solenoids, and other high in-rush circuits  
 For motor applications, refer to type EDCC

Part #	Description	Part #	Description
MEQ.125	500VAC time-delay midget 0.125 amp	MEQ4	500VAC time-delay midget 4 amp
MEQ.15	500VAC time-delay midget 0.15 amp	MEQ4.5	500VAC time-delay midget 4.50 amp
MEQ.25	500VAC time-delay midget 0.25 amp	MEQ5	500VAC time-delay midget 5 amp
MEQ.4	500VAC time-delay midget 0.4 amp	MEQ5.6	500VAC time-delay midget 5.60 amp
MEQ.5	500VAC time-delay midget 0.5 amp	MEQ6	500VAC time-delay midget 6 amp
MEQ.6	500VAC time-delay midget 0.6 amp	MEQ6.25	500VAC time-delay midget 6.25 amp
MEQ.8	500VAC time-delay midget 0.8 amp	MEQ7	500VAC time-delay midget 7 amp
MEQ1	500VAC time-delay midget 1 amp	MEQ8	500VAC time-delay midget 8 amp
MEQ1.125	500VAC time-delay midget 1.125 amp	MEQ9	500VAC time-delay midget 9 amp
MEQ1.25	500VAC time-delay midget 1.25 amp	MEQ10	500VAC time-delay midget 10 amp
MEQ1.5	500VAC time-delay midget 1.5 amp	MEQ12	500VAC time-delay midget 12 amp
MEQ2	500VAC time-delay midget 2 amp	MEQ15	500VAC time-delay midget 15 amp
MEQ2.25	500VAC time-delay midget 2.25 amp	MEQ20	500VAC time-delay midget 20 amp
MEQ2.5	500VAC time-delay midget 2.5 amp	MEQ25	500VAC time-delay midget 25 amp
MEQ3	500VAC time-delay midget 3 amp	MEQ30	500VAC time-delay midget 30 amp
MEQ3.2	500VAC time-delay midget 3.2 amp		
MEQ3.5	500VAC time-delay midget 3.50 amp		







**CLASS CC FUSES**

**Type HCLR**

**Description** Fast-acting  
**Dimensions** 13/32" dia. x 1-1/2" length  
**Ratings** **Volts:** HCLR-600VAC **Amps:** 0.1 – 30  
**IR** 200,000 RMS symmetrical amps  
**Cross reference** KTKP (Bussman)  
 ATMR (Gould Shawmut)  
 KLKR (Littlefuse)  
**Current limiting** Class CC Fuse  
**Features and benefits** Branch circuit rated for 600VAC  
 Compact dimensions  
 Fast-acting design responds quickly to both overload and short-circuit current  
**Applications** Lighting and resistive heating loads

Part #	Description	Part #	Description
HCLR.1	600VAC fast-acting Class CC 0.1 amp	HCLR4	600VAC fast-acting Class CC 4 amp
HCLR.125	600VAC fast-acting Class CC 0.125 amp	HCLR5	600VAC fast-acting class CC 5 amp
HCLR.25	600VAC fast-acting Class CC 0.25 amp	HCLR6	600VAC fast-acting Class CC 6 amp
HCLR.3	600VAC fast-acting Class CC 0.3 amp	HCLR7	600VAC fast-acting Class CC 7 amp
HCLR.5	600VAC fast-acting Class CC 0.5 amp	HCLR8	600VAC fast-acting Class CC 8 amp
HCLR1	600VAC fast-acting Class CC 1 amp	HCLR9	600VAC fast-acting Class CC 9 amp
HCLR2	600VAC fast-acting Class CC 2 amp	HCLR10	600VAC fast-acting Class CC 10 amp
HCLR2.5	600VAC fast-acting Class CC 2.5 amp	HCLR20	600VAC fast-acting Class CC 20 amp
HCLR3	600VAC fast-acting Class CC 3 amp	HCLR30	600VAC fast-acting Class CC 30 amp

**Type HCTR**



**Description** Time-delay  
**Dimension** 13/32" dia. x 1-1/2" length  
**Ratings** **Volts:** HCTR-600VAC **Amps:** 0.25 – 30  
**IR** 200,000 RMS symmetrical amps  
**Cross reference** FNQR (Bussman)  
 ATQR (Gould Shawmut)  
 KLDR (Littlefuse)  
**Current limiting** Class CC Fuse  
**Features and benefits** Branch circuit rated for 600VAC  
 Compact dimensions  
 Time-delay design allows looser sizing for inductive loads such as control transformers and solenoids  
**Applications** Primary protection for control

Part #	Description	Part #	Description
HCTR2	600VAC time-delay Class CC 2 amp	HCTR6	600VAC time-delay Class CC 6 amp
HCTR2.5	600VAC time-delay Class CC 2.5 amp	HCTR6.25	600VAC time-delay Class CC 6.25 amp
HCTR3	600VAC time-delay Class CC 3 amp	HCTR8	600VAC time-delay Class CC 8 amp
HCTR3.5	600VAC time-delay Class CC 3.5 amp	HCTR10	600VAC time-delay Class CC 10 amp
HCTR4	600VAC time-delay Class CC 4 amp	HCTR15	600VAC time-delay Class CC 15 amp
HCTR5	600VAC time-delay Class CC 5 amp	HCTR20	600VAC time-delay Class CC 20 amp

**Type EDCC**



**Description** Time-delay  
**Dimensions** 13/32" dia. x 1-1/2" length  
**Ratings** **Volts:** EDCC-600VAC **Amps:** 0.5 – 30  
**IR** 200,000 RMS symmetrical amps  
**Cross reference** LP-CC (Bussman)  
 ATDR (Gould Shawmut)  
 CCMR (Littlefuse)  
**Current limiting** Class CC fuse  
**UL listed DC rating** **Voltage rating:** EDCC 0.5 – 2.8A, 20 – 30A 300VDC, 3 – 15A 150VDC  
**IR** 20,000 amps DC  
**Features and benefits** Branch circuit rated for 600VAC  
 Time-delay for motor branch circuit protection  
 Excellent current-limiting performance  
 Upgrade for standard "midget" fuses  
**Applications** Use for protection of small horsepower motor circuit or other circuit requiring small dimension, time-delay fuses  
 Can provide Type 2 "No damage" protection for IEC or NEMA starters/contactors

Part #	Description	Part #	Description
EDCC.6	600VAC time-delay Class CC fuse 0.6 amp	EDCC3.2	600VAC time-delay Class CC fuse 3.2 amp
EDCC1	600VAC time-delay Class CC fuse 1 amp	EDCC4.5	600VAC time-delay Class CC fuse 4.5 amp
EDCC1.25	600VAC time-delay Class CC fuse 1.25 amp	EDCC6	600VAC time-delay Class CC fuse 6 amp
EDCC1.5	600VAC time-delay Class CC fuse 1.5 amp	EDCC6.25	600VAC time-delay Class CC fuse 6.25 amp
EDCC1.6	600VAC time-delay Class CC fuse 1.6 amp	EDCC7	600VAC time-delay Class CC fuse 7 amp
EDCC1.8	600VAC time-delay Class CC fuse 1.8 amp	EDCC7.5	600VAC time-delay Class CC fuse 7.5 amp
EDCC2	600VAC time-delay Class CC fuse 2 amp	EDCC8	600VAC time-delay Class CC fuse 8 amp
EDCC2.25	600VAC time-delay Class CC fuse 2.25 amp	EDCC10	600VAC time-delay Class CC fuse 10 amp
EDCC2.5	600VAC time-delay Class CC fuse 2.5 amp	EDCC12	600VAC time-delay Class CC fuse 12 amp
EDCC2.8	600VAC time-delay Class CC fuse 2.8 amp	EDCC15	600VAC time-delay Class CC fuse 15 amp
EDCC3	600VAC time-delay Class CC fuse 3 amp	EDCC25	600VAC time-delay Class CC fuse 25 amp

**ONE-TIME FUSES**

**Type KON**

**Description** "One-Time" fast-acting  
**Ratings** **Volts:** 250VAC **Amps:** 1 – 600  
**Cross reference** NON (Bussman)  
 OT (Gould Shawmut)  
 NLN (Littlefuse)

**Features and benefits** Economical, for general-purpose use  
**Applications** Lighting or heating circuit not subject to high levels of in-rush current  
 Circuit having relatively low levels of availability short-circuit current

Part #	Description	Part #	Description
KON1	250VAC Class K5 fast-acting "one time" 1 amp	KON12	250VAC Class K5 fast-acting "one time" 12 amp
KON2	250VAC Class K5 fast-acting "one time" 2 amp	KON15	250VAC Class K5 fast-acting "one time" 15 amp
KON3	250VAC Class K5 fast-acting "one time" 3 amp	KON20	250VAC Class K5 fast-acting "one time" 20 amp
KON4	250VAC Class K5 fast-acting "one time" 4 amp	KON30	250VAC Class K5 fast-acting "one time" 30 amp
KON5	250VAC Class K5 fast-acting "one time" 5 amp	KON35	250VAC Class K5 fast-acting "one time" 35 amp
KON6	250VAC Class K5 fast-acting "one time" 6 amp	KON40	250VAC Class K5 fast-acting "one time" 40 amp
KON7	250VAC Class K5 fast-acting "one time" 7 amp	KON50	250VAC Class K5 fast-acting "one time" 50 amp
KON8	250VAC Class K5 fast-acting "one time" 8 amp	KON60	250VAC Class K5 fast-acting "one time" 60 amp
KON10	250VAC Class K5 fast-acting "one time" 10 amp	KON100	250VAC Class K5 fast-acting "one time" 100 amp

**Type KOS**

**Description** "One-Time" fast acting  
**Ratings** **Volts:** 600VAC **Amps:** 1 – 600  
**Cross reference** NON (Bussman)  
 OT (Gould Shawmut)  
 NLN (Littlefuse)

**Features and benefits** Economical, for general-purpose use  
**Applications** Lighting or heating circuit not subject to high levels of in-rush current  
 Circuit having relatively low levels of availability short-circuit current

Part #	Description	Part #	Description
KOS1	600VAC Class K5 fast-acting "one time" 1 amp	KOS10	600VAC Class K5 fast-acting "one time" 10 amp
KOS2	600VAC Class K5 fast-acting "one time" 2 amp	KOS15	600VAC Class K5 fast-acting "one time" 15 amp
KOS3	600VAC Class K5 fast-acting "one time" 3 amp	KOS30	600VAC Class K5 fast-acting "one time" 30 amp
KOS4	600VAC Class K5 fast-acting "one time" 4 amp	KOS35	600VAC Class K5 fast-acting "one time" 35 amp
KOS5	600VAC Class K5 fast-acting "one time" 5 amp	KOS50	600VAC Class K5 fast-acting "one time" 50 amp
KOS6	600VAC Class K5 fast-acting "one time" 6 amp	KOS60	600VAC Class K5 fast-acting "one time" 60 amp
KOS7	600VAC Class K5 fast-acting "one time" 7 amp	KOS70	600VAC Class K5 fast-acting "one time" 70 amp
KOS8	600VAC Class K5 fast-acting "one time" 8 amp	KOS100	600VAC Class K5 fast-acting "one time" 100 amp



**DUAL-ELEMENT TIME-DELAY FUSES, CLASS RK5**

**Type ECNR**

**Description** Dual-element time-delay  
**Ratings** **Volts:** ECNR-250VAC, ECSR-600VAC **Amps:** 1,600  
**IR** 200,000 RMS symmetrical amps  
**Cross reference** FRN-R (Bussman)  
 TR-R (Gould Shawmut)  
 FLNR (Littlefuse)

**Current limiting** RK5 Fuse  
**Features and benefits** True dual-element contraction allows sizing of 125% FLA for motor backup protection  
 Superior overload and cycling capabilities  
 Current limiting provides component short-circuit protection  
**Applications** Recommended for AC power distribution system mains, feeders and branch circuits  
 Protection of motors and motor branch circuits  
 Protection of transformers and other inductive loads  
 All general-purpose applications including lighting, heating and other non-inductive loads

Part #	Description	Part #	Description
ECNR1	250VAC Class RK5 dual element time-delay 1 amp	ECNR10	250VAC Class RK5 dual element time-delay 10 amp
ECNR1.125	250VAC Class RK5 dual element time-delay 1.125 amp	ECNR12	250VAC Class RK5 dual element time-delay 12 amp
ECNR1.25	250VAC Class RK5 dual element time-delay 1.25 amp	ECNR15	250VAC Class RK5 dual element time-delay 15 amp
ECNR1.4	250VAC Class RK5 dual element time-delay 1.4 amp	ECNR20	250VAC Class RK5 dual element time-delay 20 amp
ECNR1.5	250VAC Class RK5 dual element time-delay 1.5 amp	ECNR25	250VAC Class RK5 dual element time-delay 25 amp
ECNR1.6	250VAC Class RK5 dual element time-delay 1.6 amp	ECNR30	250VAC Class RK5 dual element time-delay 30 amp
ECNR2	250VAC Class RK5 dual element time-delay 2 amp	ECNR35	250VAC Class RK5 dual element time-delay 35 amp
ECNR2.5	250VAC Class RK5 dual element time-delay 2.5 amp	ECNR40	250VAC Class RK5 dual element time-delay 40 amp
ECNR2.8	250VAC Class RK5 dual element time-delay 2.8 amp	ECNR45	250VAC Class RK5 dual element time-delay 45 amp
ECNR3	250VAC Class RK5 dual element time-delay 3 amp	ECNR50	250VAC Class RK5 dual element time-delay 50 amp
ECNR3.2	250VAC Class RK5 dual element time-delay 3.2 amp	ECNR60	250VAC Class RK5 dual element time-delay 60 amp
ECNR3.5	250VAC Class RK5 dual element time-delay 3.5 amp	ECNR70	250VAC Class RK5 dual element time-delay 70 amp
ECNR4	250VAC Class RK5 dual element time-delay 4 amp	ECNR75	250VAC Class RK5 dual element time-delay 75 amp
ECNR4.5	250VAC Class RK5 dual element time-delay 4.5 amp	ECNR80	250VAC Class RK5 dual element time-delay 80 amp
ECNR5	250VAC Class RK5 dual element time-delay 5 amp	ECNR90	250VAC Class RK5 dual element time-delay 90 amp
ECNR6	250VAC Class RK5 dual element time-delay 6 amp	ECNR100	250VAC Class RK5 dual element time-delay 100 amp
ECNR6.25	250VAC Class RK5 dual element time-delay 6.25 amp	ECNR200	250VAC Class RK5 dual element time-delay 200 amp
ECNR7	250VAC Class RK5 dual element time-delay 7 amp	ECNR225	250VAC Class RK5 dual element time-delay 225 amp
ECNR8	250VAC Class RK5 dual element time-delay 8 amp	ECNR250	250VAC Class RK5 dual element time-delay 250 amp
ECNR9	250VAC Class RK5 dual element time-delay 9 amp	ECNR300	250VAC Class RK5 dual element time-delay 300 amp





**DUAL-ELEMENT TIME-DELAY FUSES, CLASS RK5** continued

**Type ECSR**

**Description** Dual-element time-delay  
**Ratings** **Volts:** ECNR-250VAC, ECSR-600VAC **Amps:** 1,600  
**IR** 200,000 RMS symmetrical amps  
**Cross reference** FRS-R (Bussman)  
 TRS-R (Gould Shawmut)  
 FLSR (Littlefuse)  
**Current limiting** RK5 Fuse  
**Features and benefits** True dual-element contraction allows sizing of 125% FLA for motor backup protection  
 Superior overload and cycling capabilities  
 Current limiting provides component short-circuit protection  
**Applications** Recommended for AC power distribution system mains, feeders and branch circuits  
 Protection of motors and motor branch circuits  
 Protection of transformers and other inductive loads  
 All general-purpose applications including lighting, heating and other non-inductive load

Part #	Description
ECSR.25	600VAC Class RK5 dual element time-delay .25 amp
ECSR1	600VAC Class RK5 dual element time-delay 1 amp
ECSR1.5	600VAC Class RK5 dual element time-delay 1.5 amp
ECSR2	600VAC Class RK5 dual element time-delay 2 amp
ECSR2.5	600VAC Class RK5 dual element time-delay 2.5 amp
ECSR3	600VAC Class RK5 dual element time-delay 3 amp
ECSR3.2	600VAC Class RK5 dual element time-delay 3.2 amp
ECSR3.5	600VAC Class RK5 dual element time-delay 3.5 amp
ECSR4	600VAC Class RK5 dual element time-delay 4 amp
ECSR4.5	600VAC Class RK5 dual element time-delay 4.5 amp
ECSR5	600VAC Class RK5 dual element time-delay 5 amp
ECSR6.25	600VAC Class RK5 dual element time-delay 6.25 amp
ECSR8	600VAC Class RK5 dual element time-delay 8 amp
ECSR10	600VAC Class RK5 dual element time-delay 10 amp

Part #	Description
ECSR15	600VAC Class RK5 dual element time-delay 15 amp
ECSR20	600VAC Class RK5 dual element time-delay 20 amp
ECSR25	600VAC Class RK5 dual element time-delay 25 amp
ECSR30	600VAC Class RK5 dual element time-delay 30 amp
ECSR45	600VAC Class RK5 dual element time-delay 45 amp
ECSR50	600VAC Class RK5 dual element time-delay 50 amp
ECSR60	600VAC Class RK5 dual element time-delay 60 amp
ECSR70	600VAC Class RK5 dual element time-delay 70 amp
ECSR75	600VAC Class RK5 dual element time-delay 75 amp
ECSR80	600VAC Class RK5 dual element time-delay 80 amp
ECSR90	600VAC Class RK5 dual element time-delay 90 amp
ECSR100	600VAC Class RK5 dual element time-delay 100 amp
ECSR200	600VAC Class RK5 dual element time-delay 200 amp
ECSR600	600VAC Class RK5 dual element time-delay 600 amp

**HIGH SPEED SEMI-CONDUCTOR PROTECTION FUSES**

**Applications** Designed specifically for supplementary protection of semiconducting devices such as silicon-controlled rectifiers (SCRs), diodes, thyristors, triacs, transistors and similar solid-state devices. These devices are used in power equipment including variable speed drives, power rectifiers, UPS systems, DC power supplies, and in a wide range of electronic equipment.

**Type E25S**

**Description** Very fast-acting semiconductor fuse  
**Ratings** **Volts:** 250VAC/DC **Amps:** 5 – 2,500  
**Cross reference** FWX (Bussman)  
 A25X (Gould Shawmut)  
 L25S (Littlefuse)



Part #	Description
E25S40	250VAC semiconductor 40 amp
E25S60	250VAC semiconductor 60 amp
E25S80	250VAC semiconductor 80 amp
E25S150	250VAC semiconductor 150 amp
E25S175	250VAC semiconductor 175 amp
E25S200	250VAC semiconductor 200 amp

Part #	Description
E25S225	250VAC semiconductor 225 amp
E25S350	250VAC semiconductor 350 amp
E25S400	250VAC semiconductor 400 amp
E25S500	250VAC semiconductor 500 amp
E25S600	250VAC semiconductor 600 amp
E25S800	250VAC semiconductor 800 amp

**Type E50S**

**Description** Very fast-acting semiconductor fuse  
**Ratings** **Volts:** 500VAC/DC **Amps:** 5 – 1,600  
**Cross reference** FWH (Bussman)  
 A50P (Gould Shawmut)  
 L50S (Littlefuse)



Part #	Description
E50SF5	500VAC semiconductor 5 amp
E50SF12	500VAC semiconductor 12 amp
E50SF15	500VAC semiconductor 15 amp
E50SF20	500VAC semiconductor 20 amp
E50SF25	500VAC semiconductor 25 amp
E50S40	500VAC semiconductor 40 amp
E50S50	500VAC semiconductor 50 amp
E50S70	500VAC semiconductor 70 amp
E50S90	500VAC semiconductor 90 amp

Part #	Description
E50S150	500VAC semiconductor 150 amp
E50S225	500VAC semiconductor 225 amp
E50S275	500VAC semiconductor 275 amp
E50S325	500VAC semiconductor 325 amp
E50S400	500VAC semiconductor 400 amp
E50S450	500VAC semiconductor 450 amp
E50S600	500VAC semiconductor 600 amp
E50S800	500VAC semiconductor 800 amp



**HIGH SPEED SEMI-CONDUCTOR PROTECTION FUSES** continued

**Cooper Bussman**

**Description** Low arc voltage and low energy let through, excellent cycling capability and dc performance, used with finger safe holders/blocks, low watts loss in a compact size

**Ratings** **Volts:** 500VAC/DC **Amps:** 5 – 1,600

**Cross reference** E50S (Edison)  
A50P (Gould Shawmut)  
L50S (Littlefuse)

Part #	Description	Part #	Description
FWH-50B	500VAC semiconductor fuse 50A	FWH-225A	500VAC semiconductor fuse 225A
FWH-60B	500VAC semi-onductor fuse 60A	FWH-250A	500VAC semiconductor fuse 250A
FWH-80A	500VAC semiconductor fuse 80A	FWH-275A	500VAC semiconductor fuse 275A
FWH-100A	500VAC semiconductor fuse 100VAC, 800VDC	FWH-300A	500VAC semiconductor fuse 300A
FWH-125A	500VAC semiconductor fuse 125A	FWH-325A	500VAC semiconductor fuse 325A
FWH-175B	500VAC semiconductor fuse 175A	FWH-350A	500VAC semiconductor fuse 35A
FWH-200A	500VAC semiconductor fuse 200A	FWH-400A	500VAC semiconductor fuse 400A
FWH-200B	500VAC semiconductor fuse 200A	FWH-450A	500VAC semiconductor fuse 450A



**Type E70S**

**Description** Very fast-acting semiconductor fuse

**Ratings** **Volts:** 700VAC/DC **Amps:** 5 – 1,200

**Cross reference** FWP (Bussman)  
A70P (Gould Shawmut)  
L70S (Littlefuse)

Part #	Description	Part #	Description
E70SF15	700VAC semiconductor 15 amp	E70S125	700VAC semiconductor 125 amp
E70SF20	700VAC semiconductor 20 amp	E70S200	700VAC semiconductor 200 amp
E70S35	700VAC semiconductor 35 amp	E70S225	700VAC semiconductor 225 amp
E70S40	700VAC semiconductor 40 amp	E70S350	700VAC semiconductor 350 amp
E70S60	700VAC semiconductor 60 amp	E70S600	700VAC semiconductor 600 amp
E70S90	700VAC semiconductor 90 amp	E70S800	700VAC semiconductor 800 amp

**Cooper Bussman**

**Description** High speed cylindrical fuses are suitable for the protection of AC and DC Drives, power converters/ rectifiers and variable speed drives. They are available as gR and aR operating class.

**Ratings** **Volts:** 700VAC/DC **Amps:** 5 – 1,200

**Cross reference** EE70S (Edison)  
A70P (Gould Shawmut)  
L70S (Littlefuse)

Part #	Description	Part #	Description
FWP-40A	700VAC semiconductor fuse 40 amp	FWP-100B	700VAC semiconductor fuse 100 amp
FWP-50A	700VAC semiconductor fuse 50 amp	FWP-125A	700VAC semiconductor fuse 125 amp
FWP-60A	700VAC semiconductor fuse 60 amp	FWP-150A	700VAC semiconductor fuse 150 amp
FWP-70A	700VAC semiconductor fuse 60 amp	FWP-200A	700VAC semiconductor fuse 200 amp
FWP-80A	700VAC semiconductor fuse 80 amp	FWP-300A	700VAC semiconductor fuse 300 amp
FWP-90A	700VAC semiconductor fuse 90 amp	FWP-600A	700VAC semiconductor fuse 600 amp
FWP-100A	700VAC semiconductor fuse 100 amp	FWP-800A	700VAC semiconductor fuse 800 amp

**FUSE HOLDERS**

**Ferraz Shawmut**

- UltraSafe™
- Non-indicator type
- Finger safe to an IP20 grade of protection under IEC standards
- Facilitates quick and easy fuse changes
- Can be mounted to 35 mm DIN rail
- Tough and durable polyamide body
- AC voltage rating 600
- DC voltage rating 600



USCC2

USCC3

Part #	Description	Part #	Description
US6J2	60 amp, 2 pole, for Class J fuses	USCC2	60 amp, 2 pole, for Class CC fuses
US6J3	60 amp, 3 pole, for Class J fuses	USCC3	60 amp, 3 pole, for Class CC fuses

**Bussman**

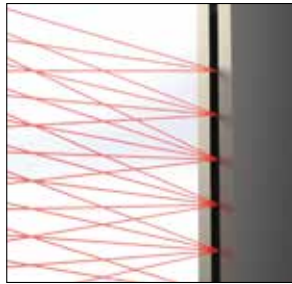
- Non-indicator type
- Finger safe to an IP20 grade of protection under IEC Standards
- Facilitates quick and easy fuse changes
- Can be mounted to 35 mm DIN rail
- Tough and durable polyamide body
- AC voltage rating 800
- DC voltage rating 1000



CHM2D

CHM3D

Part #	Description
CHM2D	30 amp, 600v, 2 pole, for midget fuses
CHM3D	30 amp, 600v, 3 pole, for midget fuses



# Tri-Tronics



## INVISIGUARD SPECIFICATIONS

### Optical

Operating range	0–11.5ft (0–3.5m)
Protection height	71.547" (1,817mm)
Lowest beam	22mm (0.867")
Beam spacing	2.283" (58mm)
Vertical displacement at 0mm	12mm
Horizontal displacement at 0mm	6mm
Horizontal displacement at 25mm	15mm
Horizontal displacement at 50mm	25mm
Horizontal displacement at 75mm	37mm
Longitudinal angular displacement at 0mm	25°
Transversal angular displacement at 0mm	60°
No. of optical elements	32
No. of beams at 32 elements	154 criss-cross beams
Max. ambient light	100,000 lux

### Mechanical

Dimensions (W x H x L)	12mm x 15.85mm x 1,903mm
Housing material	Aluminum
Surface protection	Anodized, natural color
Enclosure rating	IP65
Mounting holes required	No less than 4
Operating temperature range	-20°C to +60°C

### Electrical

Supply voltage	11–40VDC
Typ. current consumption at 24 VDC	65mA
Output	Push-pull, short circuit protected
Output logic polarity	High/low selectable
Max. output load	100mA
Typ. response time at 32 elements	70ms

### General

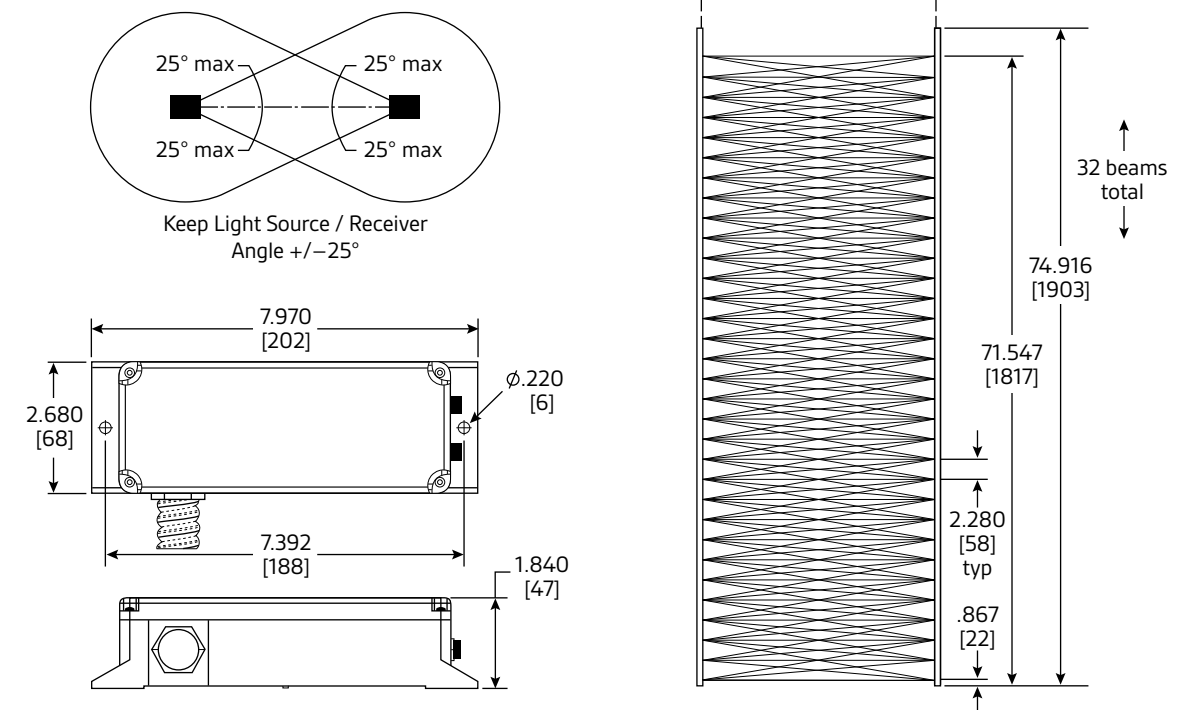
Synchronization	Optical
Cable length	5m
Material	PUR, AWG26
Edge connection	M8 (3-pin)
Highest and lowest beam standard	EN-81-70: 5.2.4
EMC emission	EN 12015: 2014
EMC immunity	EN 12016: 2013
Vibration	IEC 60068-2-6:2007
Shock	IEC 60068-2-27:2008
Cable durability	IEC 60227-2:2003
Composite temperature/humidity cyclic test	IEC 60068-2-28: 1974
IP rating	IEC 60529: 2001
RoHS	2011/65/EU
Certificates	CE, CSA B44.7 ASME A17.5

### Power supply

Enclosure rating	IP65
Rated voltage	20 to 265VAC/VDC, single phase, 50/60Hz
Fuse rating	500 mA
Output voltage	24VDC@100ma +/-10%
Contact rating	10A/250VAC/8A@28VDC
Certificates	CE, CSA B44.7 ASME A17.5
EMC emission/EMC immunity	EN 12015:2014, EN 12016:2013
Vibration and shock	IEC 60068-2-6:2007, IEC 60068-2-27:2008, IEC 60227-2:2003
Fire protection	UL 94 5VA
Housing material	ABS case, PC clear cover
Operation temp range	-20°C to +60°C
Obstruction buzzer	Standard
Relay test button	Standard
Nudge relay	Optional

Model	Description
IG-R	InvisiGuard System with PSC-UR universal power supply
IG-RN	InvisiGuard System with PSC-URN nudging universal power supply
IG-RDC	InvisiGuard System without universal power supply

## DIMENSIONS





**EDGE SPECIFICATIONS**

**Light Beam and Receiver Arrays**

Size (W x L x D)	1.57" x 81.125" x .75" (39.7 mm x 2,061 mm x 19 mm)
Cable length	18 ft (5,486 mm) Connectorized at both ends
Distance between bottom of receiver housing and lowest detector	2" (50.8 mm)
Distance between bottom of receiver housing and highest detector	64" (1,625 mm)
Range	Up to 12 ft (3,658 mm)
Number of light beams	64 (2 per detector operating in a redundant mode) Rated at 100,000 lux
Operating voltage range of arrays	12-30VDC
Maximum allowable installed misalignment	+/-20° @ 3 ft.
Response time	50 milliseconds nominal 75 milliseconds max
Maximum current draw	130mA total of both arrays
Ratings	NEMA 1 for Standard Leading Edge NEMA 4, IP67 for waterproof arrays
Diagnostic indicators	
Receiver array indicators	Top red LED: DSA™ indicator (Dynamic Sensitivity Adjustment) Lower red LED: output status indicator
Light beam array	Red LED: flash rate indicator Flash rate denotes operation status Exceeds ADA American Disability requirements

**Power Supplies**

Size (H x W x D)	Non-metallic: 3.25" x 9.2" x 5" (82.5 mm x 233.1 mm x 127 mm) Non-metallic waterproof, NEMA 4: 3" x 9.375" x 6" (76.2 mm x 238.13 mm x 152.4 mm)
Voltage requirements	120 or 240VAC power supply
Power consumption	5VA maximum
Plug-in outlet relay	Master control relay: SPDT action with contacts rated up to 10A @ 250VAC or 30VDC. Relay de-energizes when obstruction is detected.
Models equipped with Nudge-1 PC assembly:	
Accessory relay switch selectable options	Option 1: Functions as a nudging relay that energizes after adjustable delay Option 2: Functions as a redundant relay i.e., master control relay and accessory relay operate simultaneously
Buzzer options	On/Off switch selectable. Energizes after adjustable delay
Diagnostic indicators	Main output status indicator Nudge relay status indicator on nudge board DC power ON indicator
Nudge time out	Adjustable from 5 to 45 seconds
Power supply enclosures	NEMA 1 for non-metallic NEMA 4, IP67 non-metallic for W Series
Operating temperature range	-40° to +158°F (-40C to 70C)
Operating humidity range	Up to 95% relative humidity at 104°F (40C)



Complete Standard Systems Part #, Description	Power Supply Case		Nudging		Parting	
	PSC-4/ PSC-4N	PSC-5W/ PSC-5NW	Yes Nudge*	No	Slide Parting	Center Parting
EDGE-4	X			X	X	X
EDGE-4VS (vandal resistant, fast mount)	X			X	X	
EDGE-4VC (vandal resistant, fast mount)	X			X		X
EDGE-4N	X		X		X	X
EDGE-4NVS (vandal resistant, fast mount)	X		X		X	
EDGE-4NVC (vandal resistant, fast mount)	X		X			X

Complete Waterproof Systems						
EDGE-5W		X		X	X	X
EDGE-5WVS (vandal resistant, fast mount)		X		X	X	
EDGE-5WVC (vandal resistant, fast mount)		X		X		X
EDGE-5NW		X	X		X	
EDGE-5NWVS (vandal resistant, fast mount)		X	X		X	
EDGE-5NWVC (vandal resistant, fast mount)		X	X			X

Leading Edge Arrays Less-Power Supply <i>Note: Accessory Connector not included</i>						
EDGE-6					X	X
EDGE-6VS (vandal resistant, fast mount)					X	
EDGE-6VC (vandal resistant, fast mount)						X
EDGE-6W (waterproof)					X	X
EDGE-6WVS (waterproof, vandal resistant, fast mount)					X	
EDGE-6WVC (waterproof, vandal resistant, fast mount)						X

Accessory Connectors <i>Wire direct to door operator or existing power supply for EDGE-6</i>						
ECI-1	Leading edge array interface cable NPN					
ECI-3	Leading edge array interface cable NPN, use with GAL MOVFR					
ECI-4	Leading edge array interface cable NPN Sinking/PNP Sourcing, N.C.Opto Isolated					
ECI-5	Leading edge array interface cable NPN Sinking/PNP Sourcing, N.O.Opto Isolated					

All standard models include the EGAC-4 kit, which consists of mounting brackets and hardware.

All VS/VC models include the EGAC-6 kit.

\* The NUDGE-1 PC Assembly can be field installed on any model power supply.

**Warning**

Tri-Tronics elevator door control products are designed for elevator door protection only. Our edges are not designed to be used in applications such as top of elevator cab protection, or in residential elevators in conjunction with scissor gates. Additionally, they are not designed to be used as machine safety light curtains commonly found in industrial robotic areas, or around machines that could pinch, grab, or cut person or persons in close proximity.





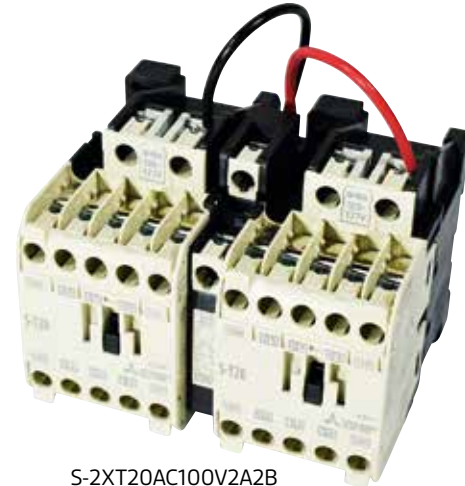
6940AR1 Universal Spirator  
5" diameter, w/cable



RDB716  
Rubber Door Bumper  
1" diameter x 3/4" long



RDB8023  
Rubber Door Bumper  
Stick-on, 13/16" square,  
w/1/2" surface x 5/16 thick, 12/pkg



S-2XT20AC100V2A2B

## Door-open/Door-close Relays

### MITSUBISHI

S-2XT20AC100V2A2B

- Rated 18 amps, 5HP @ 208/240V
- Includes 2N/O, 2N/C aux contacts on each side
- Compact dimensions: 3.1"H x 3.8"W x 4.3"D
- Available AC coil voltages: 120, 208, 230

### SPRECHER+SCHUH

CAU7-12 (AC coil)

- Dimensions: 3.2"H x 3.9"W x 3.2"D
- Available AC coil voltages: 24, 48, 120, 208, 480, 600

CAU7-12E (DC coil)

- Dimensions: 3.2"H x 3.9"W x 4.3"D
- Available DC coil voltages: 12, 24, 48, 110, 220

**Note:** Extra aux contacts can be added to the top and sides of these S+S Door-open/Door-close relays.

Part #	Max Motor Amps	HP@ 200V	HP@ 230V	HP@ 460V	Notes
CAU7-12-22-	12	3	3	7.5	Includes 2N/O, 2N/C aux, specify additional and aux AC coil voltage
CAU7-12E-22-	12	3	3	7.5	Includes 2N/O, 2N/C aux, specify additional aux and DC coil voltage

Provide coil voltage to complete part number.



CAU7-12E (DC coil)

### STRUTHERS-DUNN

A275KXX91- \_

- Rated 9.6 inductive (motor) amps
- 2HP @ 208V, 3HP @ 240-600V
- Includes 4 Form C aux contacts
- Dimensions: 3.6"H x 3.0"W x 2.75"D
- Available coil voltages: 24VAC, 120VAC, 208VAC, 240VAC, 48VDC, 115/125VDC



A275KXX91- \_

A575KXX90- \_

- Rated 17.5 inductive (motor) amps
- 5HP @ 240V, 7.5HP @ 480 - 600V
- Includes 2 Form C aux contacts.
- Dimensions: 4.5" h x 5.25" w x 3.0" d
- Available coil voltages: 24VAC, 120VAC, 208VAC, 240VAC, 48VDC, 115/125VDC



A575KXX90- \_

## Door Rollers



9838351 Dover Door Pick-up Roller, 1-5/8" x 3/4"



9875426 Dover Upthrust Roller, 5/8" ID, 13/16" OD, 1-1/2" wide. Used on high pocket and low pocket hanger assembly



R8858G01 Westinghouse Hanger Roller, 3.375" OD x .705" with 6204 bearing







REPLACEMENT PARTS continued

Part #	Description
CLU9-0115L	Locking assembly (left). LWZ-2 clutch zone 36" rod
CLU9-0115R	Locking assembly (right). LWZ-2 clutch zone 36" rod
CONT-0001N	Stationary carbon contact for intermediate relay. 3/8"-dia. carbon contact on threaded hex stud w/nut
HH1-0024N	Eccentric sheave. Used on hanger models, type A and HA
HH1-0025N	Door hanger roller kit. AKA NH roller, 3-1/4" diameter. Includes wiper and hardware
HH1-0026N	Wiper/oiler/cleaner. For HH1-0025N NH roller
HH1-0105L	Door hanger assembly LH sheave, 4.125 CL bolt CL with top safety retainer
HH1-0105R	Door hanger RH sheave, 4.125 CL 3/8-16, with top safety retainer
HH3-0042L	L/H tension pulley assembly. With nylon wheel
HH3-0042R	R/H tension pulley assembly. With nylon wheel
HH10-0041N	Type OS hanger roller kit. 2-1/4" diameter
HWBR-0008N	Car door clutch bearing kit. 7/8" shoulder
HWBS-0001N	Nylon liner bushing. 1/4" id (4L2-FF snap-in type 7)
INS-0025N	Insulator. For lower stationary contact on INT-5-6
INT-2-6	MO upper linkage rod. Does not include link pin and retainer clip
INT-2-12	Rod. Lower linkage MO 19"INT-2-12
INT1H-0002L	MOH interlock assembly, L/H
INT1H-0002R	MOH interlock assembly, L/H
INT1H-0003R	MOH interlock assembly, R/H
INT1H-0013L	L/H MO interlock switch housing and contacts
INT1H-0013R	R/H MO interlock switch housing and contacts
INT1H-0016L	L/H MO interlock keeper assembly
INT1H-0016R	R/H MO interlock keeper assembly
INT1H-0017N	Contact. For MO keeper bridging block
INT1H-0018N	Upper MO interlock, link assembly. 10-1/2" x 1/2" x 1/8". Includes snap pin and 1/4" ID nylon liner bushings
INT1H-0022L	Type MO/MOH pickup roller assembly, L/H. Includes cast alum. mounting base, release rocker and roller releases
INT1H-0022R	Type MO/MOH pickup roller assembly, R/H. Includes cast alum. mounting base, release rocker and roller releases
INT1H-0023N	Pickup roller with shaft. For MO interlock
INT1H-0034N	MO interlock emergency drop key
INT1H-0035N	Tomahawk jumper. For MO interlock assembly
INT1H-0036L	L/H MO and MOCP-KT contact kit
INT1H-0036R	RH MO and MOCP-KT contact kit
INT2H-0007N	MOCP interlock switch assembly
INT2H-0017R	R/H MOCP-KT-R interlock contact kit
INT4-0001N	Swing door keeper. Surface mount for type M/N/SM interlock
INT4-0004N	Slide door keeper
INT5-0014N	Upper M interlock contact kit. Used on interlock model M. For use on slide manual hatch and swing manual hatch, doors, all sizes
INT5-0015N	Lower M interlock contact kit. Used on interlock models CSM, M, SM. For use on slide manual hatch and swing manual hatch, all sizes
INT5-0016N	Upper stationary contact assembly. For M interlock
INT5-0017N	Lower stationary contact assembly. For M interlock
INT5-0018N	Bridging contact. For type M/N/NHA interlock

REPLACEMENT PARTS continued

Part #	Description
INT5-0019N	Bridging contact. For type M/N swing door keeper. Used on CSM, DM, M, N. For use on slide manual hatch and swing manual hatch, all sizes
INT5-0025N	Arm and assembly. Used on SN and SN-Z lock and contact. 4-1/2" CL arm and roller assembly for M/N/SM interlock and SN/SM -Z lock and electric contact used on swing doors with surface mounted lock. Interlock models: DM, DM-MH- M, N NHA, SDM, SM, SN, SN-Z W, WP, WX
INT5-0029N	Jumper. For type M/N interlocks
INT5-0030N	M/N interlock key
INT5-0042N	Universal jumper. For type M/N/MO interlocks
INT22-0019N	Upper contact kit. For type N/NHA interlock. Do not use as replacement for type M interlocks
INT22-0020N	Lower contact kit. For type N interlock. Do not use as replacement for type M interlocks
INT22-0021N	Upper stationary contact assembly. For N interlock
INT22-0022N	Lower stationary contact assembly. For N/NHA interlock. Also used on SN-Z and SN-C lock and contact
KS1-0096V	Access up/down, vertical. Round, black, (1612 key)
LC-0021L	Movable finger contact, short lead 3/4" rivet L/H
LC-0021R	Movable finger contact, short lead 3/4" rivet R/H
LC-26-9	Silver stationary contact assembly
OP10-0032N	Operator pulley stop
SW1-0044N	Model G gate switch
SW1-0001N	Model G gate switch assembly with bracket
SW5-0001N	Type LS limit switch. 1 NC contact
SW1-0003N	Contact assembly. For Type G gate switch
SW1-0007N	Gate switch roller and bolt. Used on switch models G, SW2 (VG gate switch)

**GAL MOVFR II DOOR OPERATORS**

The fastest, easiest, quietest, and most dependable door operators ever available from GAL, now in stock at Access Elevator & Electric Supply. Order before 4:00 pm PST for same day shipping.

Please call for details.

- Door control with built-in diagnostics
- Plug and Play door protection
- Regulated speed via motor closed loop feedback
- LED indication of all inputs and outputs
- Test switches for open, close, nudging and heavy door
- Inputs: Door Open, Door Close and Nudging
- Input voltage: universal, 24-300VAC or VDC
- Motor: Heavy duty, 3-phase, 1/2 HP
- Non-contact optical couplers
- Supply circuit: 200-230VAC, 1-phase, 500VA min.

**13" Header Height, Single Speed, Two Speed, 220VAC**

Door Operator Assembly		Door Style and Opening		
Model	OEM#	Door Hand	Single Speed	Two Speed
DO-MOVFR02L	OP99-0002L	Left	25" – 29"	
DO-MOVFR02R	OP99-0002R	Right	25" – 29"	
DO-MOVFR03L	OP99-0003L	Left	30" – 34"	30" – 34"
DO-MOVFR03R	OP99-0003R	Right	30" – 34"	30" – 34"
DO-MOVFR04L	OP99-0004L	Left	35" – 39"	35" – 39"
DO-MOVFR04R	OP99-0004R	Right	35" – 39"	35" – 39"
DO-MOVFR05L	OP99-0005L	Left	40" – 44"	40" – 44"
DO-MOVFR05R	OP99-0005R	Right	40" – 44"	40" – 44"
DO-MOVFR06L	OP99-0006L	Left	45" – 48"	45" – 48"
DO-MOVFR06R	OP99-0006R	Right	45" – 48"	45" – 48"

**15" Header Height, Single Speed, Center Parting, 220VAC**

Door Operator Assembly		Door Style and Opening	
Model	OEM#	Single Speed Center Parting	
OP100-0001N	OP99-0002L	30" – 33"	
DO-MOVFR-3N2	OP99-0002R	34" – 39"	
DO-MOVFR-3N3	OP99-0003L	40" – 49"	

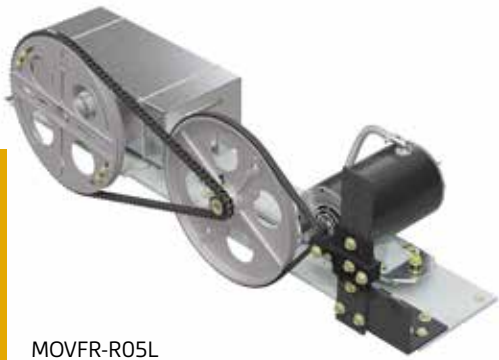
**MOVFR II door operator includes:**

- Door drive arm
- Nudging and gate switch
- Mounting hardware OEM# OP2-0050N

Optional: Model DO-ECHIP, OEM# DPPC-0001N

U5 enabling (IC) chip simplifies the door operator reopening circuits for Formula Systems, Scanguard, and Tri-Tronics infrared light curtain detectors.

Refer to wiring diagram 8032 for connections (see next page)



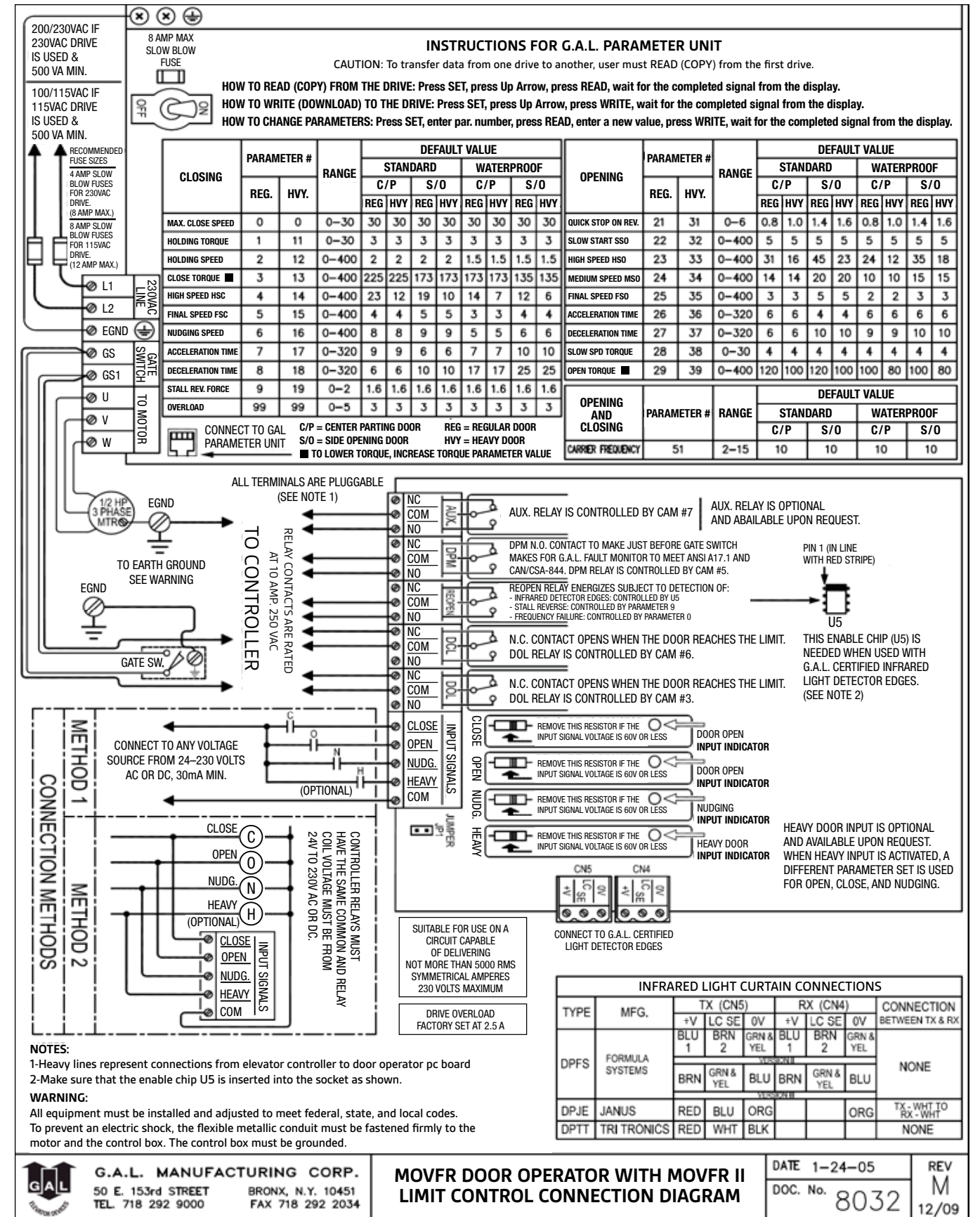
MOVFR-R05L  
Door operator, left hand door  
SS-2S 40" – 44" D.O MOVFR II, 220V 13"



MOVFR-06R  
Door operator, right hand door  
SS-2S 45" – 48" D.O. MOVFR II, 220V, 13"



MOVFR-3N3  
Door operator, center parting doors  
CP 40" – 49", D.O. MOVFR II, 220V, 15"



GAL: MOVFR II Door Operators

GAL: MOVFR II Door Operators



ACCESSORIES



DO-CHIP  
Eprom Chip for GAL Door Operator



DRV-0009N  
GAL Door Operator Parameter Unit  
Hand held



DRV-0081N  
GAL Door Operator Drive 230v



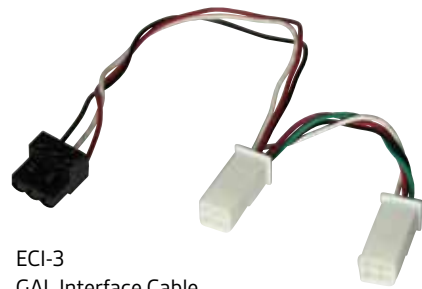
HH10-0041N  
Type OS Hanger Roller Kit  
2-1/4" diameter



INT5-0016N  
Upper Stationary Contact Assembly  
For M interlock



INT5-0017N  
Lower Stationary Contact Assembly  
For M interlock



ECI-3  
GAL Interface Cable  
With WAGO connector for Tri-Tronics  
Leading Edge



MOVFR-0002N  
Board  
MOVFR and MOVFR II input PC



MOVFR-0099N  
GAL Door Operator Drive 115v



INT22-0021N  
Upper Stationary Contact Assembly  
For N interlock



INT22-0022N  
Lower Stationary Contact Assembly  
For N/NHA interlock  
Also used on SN-Z and SN-C lock and contact



INT5-0018N  
Bridging Contact  
For type M/N/NHA interlock



MOVFR-0012N  
Board  
MOVFR main PC, with (3) input PC board



MOVFR-0075AN  
MOVFR Board  
Replaces MOVFR-0069N



MOVFR-ADPT  
GAL Adapter for Tri-Tronics Edge-4



INT5-0019N  
Bridging Contact  
For type M/N swing door keeper,  
Used on CSM, DM, M, N  
For use on slide manual hatch and swing  
manual hatch, all sizes



INT5-0014N  
Upper M Interlock Contact Kit  
Used on interlock model M  
For use on slide manual hatch and swing  
manual hatch, doors, all sizes



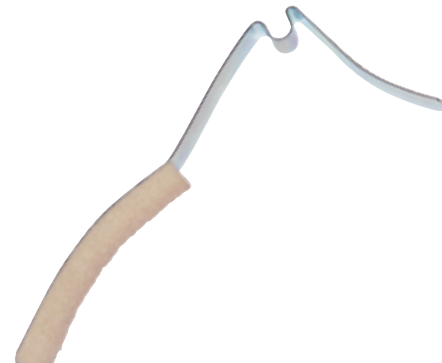
INT5-0015N  
Lower M Interlock Contact Kit  
Used on interlock models CSM, M, SM  
For use on slide manual hatch and swing  
manual hatch, all sizes



MOVFR-CONN  
Connector Kit  
IG-RDC to MOVFR



HH1-0025N  
Door Hanger Roller Kit  
AKA NH roller, 3-1/4" diameter  
Includes wiper and hardware



HH1-0026N  
Wiper/Oiler/Cleaner  
For HH1-0025N NH roller



GAL: Accessories

GAL: Accessories



**INT22-0019N**  
Upper Contact Kit  
For type N/NHA interlock  
Do not use as replacement for type M interlocks



**INT22-0020N**  
Lower Contact Kit  
For type N interlock  
Do not use as replacement for type M interlocks



**INT1H-0016L**  
L/H MO Interlock Keeper Assembly



**INT1H-0016R**  
R/H MO Interlock Keeper Assembly



**INT2H-0015N**  
MOCP Interlock Fixed Keeper  
Includes bridging block contact assembly



**INT1H-0017N**  
Contact  
For MO keeper bridging block



**CL5-0051N**  
Spring and Rod Assembly  
For door closer



**HH1-0024N**  
Eccentric Sheave  
Used on hanger models, type A and HA



**HH3-0042L**  
L/H Tension Pulley Assembly with nylon wheel



**HH3-0042R**  
R/H Tension Pulley Assembly with nylon wheel



**INT-2-6**  
MO Upper Linkage Rod  
Does not include link pin and retainer clip



**HWBS-0001N**  
Nylon Liner Bushing  
1/4" id (4L2-FF snap-in type 7)



**INT1H-0013L**  
L/H MO Interlock Switch Housing and Contacts



**INT4-0004N**  
Slide Door Keeper



**INT4-0001N**  
Swing Door Keeper  
Surface mount for type M/N/SM interlock



**INT1H-0018N**  
Upper MO Interlock, Link Assembly  
10-1/2" x 1/2" x 1/8"  
Includes snap pin and 1/4" ID nylon liner bushings



**INT1H-0023N**  
Pickup Roller with Shaft  
For MO interlock



**INT1H-0022L**  
Type MO/MOH Pickup Roller Assembly, L/H  
Includes cast alum. mounting base, release rocker and roller releases



**INT1H-0022R**  
Type MO/MOH Pickup Roller Assembly, R/H  
Includes cast alum. mounting base, release rocker and roller releases



INT2H-0017R  
Contact, Interlock R/H MOCP Contact Kit



INT2H-0007N  
MOCP Interlock Switch Assembly



INT5-0025N  
Arm and Assembly  
Used on SN and SN-Z lock and contact  
4-1/2" CL arm and roller assembly for M/N/SM  
interlock and SN/SN-Z lock and electric contact used  
on swing doors with surface mounted lock  
Interlock models: DM, DM-MH- M, N NHA, SDM, SM,  
SN, SN-Z W, WP, WX



INT1H-0035N  
Tomahawk Jumper  
For MO interlock assembly



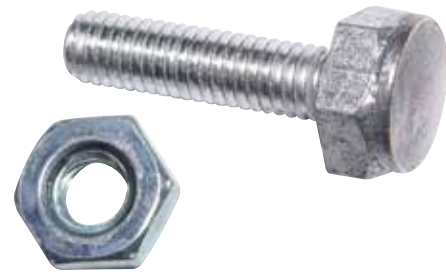
INT5-0029N  
Jumper  
For type M/N interlocks



INT5-0042N  
Universal Jumper  
For type M/N/MO interlocks



INS-0025N  
Insulator  
For lower stationary contact on INT-5-6



LC-26-9  
Silver Stationary Contact Assembly



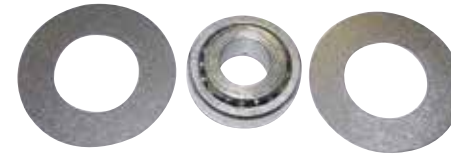
INT1H-0034N  
MO Interlock Emergency Drop Key



INT5-0030N  
M/N Interlock Key



OP10-0032N  
Operator Pulley Stop



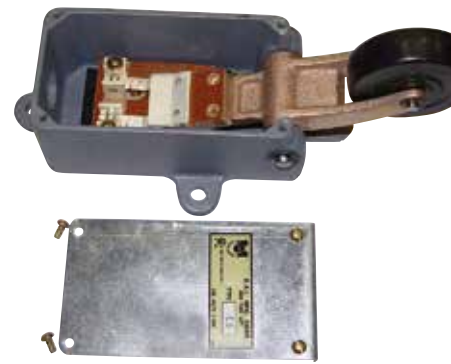
HWBR-0008N  
Car Door Clutch Bearing Kit  
7/8" shoulder



SW1-0044N  
Model G Gate Switch



SW1-0001N  
Model G Gate Switch Assembly  
with Bracket



SW5-0001N  
Type LS Limit Switch  
1 NC contact



SW1-0003N  
Contact Assembly  
For Type G gate switch



SW1-0007N  
Gate Switch Roller and Bolt  
Used on switch models G, SW2  
(VG gate switch)



CLU9-0113N  
Clutch Roller  
1-1/4" diameter  
Used on clutch model LWZ-2



CLU1-0036N  
Clutch Roller  
13/16" diameter  
Used on clutch models CWZ-R, LW,  
LW-LOW, LW-LRC, LWZ-1, LWZ-1-LOW,  
LWZ-1-LRC, LWZ-1-LRC



CLU1-0037N  
Clutch Roller  
15/16" diameter  
Used on clutch models L, L-LOW



CLU9-0084N  
Clutch Link  
6" CL standard  
Used on clutch models L-2, LW-2,  
LW-2-LCR STD, LWZ-2, LWZ-2-LRC STD



**RELAYS**

IDEC ..... 74  
 Aromat ..... 95  
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**IDEC Relays**

**Setting the Industry Standard**

Designed with attention to every detail, IDEC Relays go the extra mile in performance and dependability. RU relays are constructed with no internal wiring in a 100 percent automated robotic-assembly process, which for you means no weak solder points. Our RH relays are built to last and third-party tested at 500,000 operating cycles, even though UL approval only requires an electrical lifespan of 6,000 cycles.

When you want peace of mind, IDEC Relays are the only choice.

- Non-polarized, green LED (conforming to IEC requirements for non-hazardous situations) indicates power status
- Color marking plates allow you to organize your control panel
- Spot welding technology eliminates lead, the need for internal jumper wires, and solder joints
- Color check button differentiates AC and DC coils
- 100 percent robotic assembly ensures quality and precision

IDEC Relays are manufactured with precision and accuracy to ensure dependable performance you can always rely on. They may be small but when relays fail, it can be a large problem costing you time, money and your sense of security.

**THE IDEC RELAY FAMILY: 60 YEARS OF DESIGN EXCELLENCE**

IDEC was founded in 1945 and over the years has introduced many innovations to its family of relays. Thanks to technological advances, creative engineering and excellent customer support, our relays have continued to set a new standard as we strive to meet the needs of our customers. Global approvals and acceptance only prove how IDEC has made every effort to make its relays the best. Our vision to surpass our competitors in consistency, reliability and quality in the global market has become a reality.

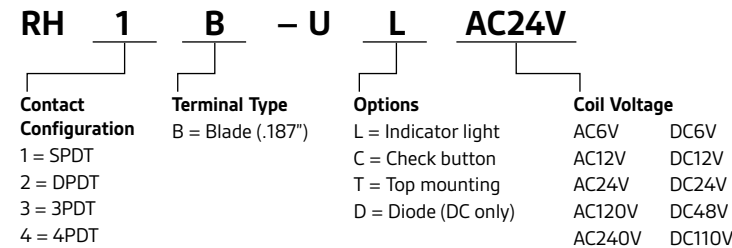
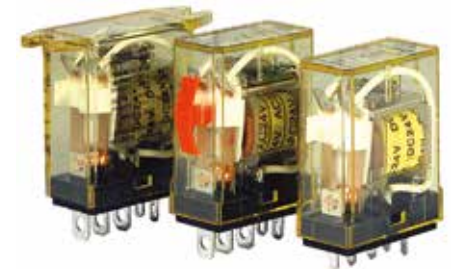
It's paying attention to the little things that makes a difference and at IDEC, that means going further to make sure you are satisfied. With that in mind, we continually strive to create products with features that will enhance your productivity and ensure your success.

**IDEC. Smart Products. Simple Solutions.**



**IDEC RH SERIES – COMPACT POWER RELAYS**

- Small, industrial 10A GP relay
- SPDT, DPDT, 3PDT, 4PDT contacts
- Options: Indicator LED, check-button and surge suppression diode
- DIN rail and through panel sockets available



	RH1	RH2	RH3	RH4
Specifications	Silver cadmium oxide (AgCdO)			
Contact Rating	10A			
Dimensions (w x d x h) mm	14x27.5x42	21x27.5x42	31x27.5x42	41x27.5x42

Relays	Standard DIN Rail Mount	Through Panel Mount
RH1B	SH1B-05	SH1B-51
RH2B	SH2B-05	SH2B-51
RH3B	SH3B-05	SH3B-51
RH4B	SH4B-05	SH4B-51

Part #	Description	Socket
RH1B-U-AC12V	10 amp SPDT 12VAC coil	SH1B-05, SH1B-51
RH1B-U-AC24V	10 amp SPDT 24VAC coil	SH1B-05, SH1B-51
RH1B-U-AC120V	10 amp SPDT 120VAC coil	SH1B-05, SH1B-51
RH1B-U-DC12V	10 amp SPDT 12VDC coil	SH1B-05, SH1B-51
RH1B-U-DC24V	10 amp SPDT 24VDC coil	SH1B-05, SH1B-51
RH1B-U-DC48V	10 amp SPDT 48VDC coil	SH1B-05, SH1B-51
RH1B-U-DC110V	10 amp SPDT 110VDC coil	SH1B-05, SH1B-51
RH1B-UT-AC120V	10 amp SPDT 120VAC coil w/UT top bracket	SH1B-05, SH1B-51
RH2B-U-AC24V	10 amp DPDT 24VAC coil	SH2B-05, SH2B-51
RH2B-U-AC120V	10 amp DPDT 120VAC coil	SH2B-05, SH2B-51
RH2B-U-DC12V	10 amp DPDT 12VDC coil	SH2B-05, SH2B-51
RH2B-U-DC24V	10 amp DPDT 24VDC coil	SH2B-05, SH2B-51
RH2B-U-DC48V	10 amp DPDT 48VDC coil	SH2B-05, SH2B-51
RH2B-U-DC110V	10 amp DPDT 110VDC coil	SH2B-05, SH2B-51
RH2B-UD-DC12V	10 amp DPDT 12VDC coil w/diode arc suppressor	SH2B-05, SH2B-51
RH2B-UD-DC24V	10 amp DPDT 24VDC coil w/diode arc suppressor	SH2B-05, SH2B-51
RH2B-UD-DC48V	10 amp DPDT 48VDC coil w/diode arc suppressor	SH2B-05, SH2B-51
RH2B-UD-DC110V	10 amp DPDT 110VDC coil w/diode arc suppressor	SH2B-05, SH2B-51

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 DIN Rail



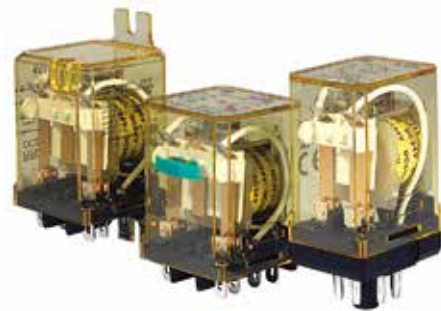
IDEC RH SERIES continued

Part #	Description	Socket
RH2B-UL-AC24V	10 amp DPDT 24VAC coil w/light	SH2B-05, SH2B-51
RH2B-UL-AC120V	10 amp DPDT 120VAC coil w/light	SH2B-05, SH2B-51
RH2B-UL-AC240V	10 amp DPDT 240VAC coil w/light	SH2B-05, SH2B-51
RH2B-UL-DC6V	10 amp DPDT 6VDC coil w/light	SH2B-05, SH2B-51
RH2B-UL-DC12V	10 amp DPDT 12VDC coil w/light	SH2B-05, SH2B-51
RH2B-UL-DC24V	10 amp DPDT 24VDC coil w/light	SH2B-05, SH2B-51
RH2B-UL-DC48V	10 amp DPDT 48VDC coil w/light	SH2B-05, SH2B-51
RH2B-UL-DC110V	10 amp DPDT 110VDC coil w/light	SH2B-05, SH2B-51
RH2B-ULC-AC12V	10 amp DPDT 12VDC coil w/light and check button	SH2B-05, SH2B-51
RH2B-ULC-AC24V	10 amp DPDT 24VAC coil w/light and check button	SH2B-05, SH2B-51
RH2B-ULC-AC120V	10 amp DPDT 120VAC coil w/light and check button	SH2B-05, SH2B-51
RH2B-ULC-AC240V	10 amp DPDT 240VAC coil w/light and check button	SH2B-05, SH2B-51
RH2B-ULC-DC6V	10 amp DPDT 6VDC coil w/light and check button	SH2B-05, SH2B-51
RH2B-ULC-DC12V	10 amp DPDT 12VDC coil w/light and check button	SH2B-05, SH2B-51
RH2B-ULC-DC24V	10 amp DPDT 24VDC coil w/light and check button	SH2B-05, SH2B-51
RH2B-ULC-DC48V	10 amp DPDT 48VDC coil w/light and check button	SH2B-05, SH2B-51
RH2B-ULC-DC110V	10 amp DPDT 110VDC coil w/light and check button	SH2B-05, SH2B-51
RH3B-U-AC24V	10 amp 3PDT 24VAC coil	SH3B-05, SH3B-51
RH3B-U-AC120V	10 amp 3PDT 120VAC coil	SH3B-05, SH3B-51
RH3B-U-AC240V	10 amp 3PDT 240VAC coil	SH3B-05, SH3B-51
RH3B-U-DC24V	10 amp 3PDT 24VDC coil	SH3B-05, SH3B-51
RH3B-UL-AC24V	10 amp 3PDT 24VAC coil w/light	SH3B-05, SH3B-51
RH3B-UL-AC120V	10 amp 3PDT 120VAC coil w/light	SH3B-05, SH3B-51
RH3B-UL-AC240V	10 amp 3PDT 240VAC coil w/light	SH3B-05, SH3B-51
RH3B-UL-DC24V	10 amp 3PDT 24VDC coil w/light	SH3B-05, SH3B-51
RH3B-UL-DC48V	10 amp 3PDT 48VDC coil w/light	SH3B-05, SH3B-51
RH3B-UL-DC110V	10 amp 3PDT 110VDC coil w/light	SH3B-05, SH3B-51
RH3B-ULC-AC120V	10 amp 3PDT 120VAC coil w/light and check button	SH3B-05, SH3B-51
RH3B-ULC-AC240V	10 amp 3PDT 240VAC coil w/light and check button	SH3B-05, SH3B-51
RH3B-ULC-DC24V	10 amp 3PDT 48VDC coil w/light and check button	SH3B-05, SH3B-51
RH3B-ULC-DC110V	10 amp 3PDT 110VDC coil w/light and check button	SH3B-05, SH3B-51
RH4B-U-AC24V	10 amp 4PDT 24VAC coil	SH4B-05, SH4B-51
RH4B-U-AC120V	10 amp 4PDT 120VAC coil	SH4B-05, SH4B-51
RH4B-U-AC240V	10 amp 4PDT 240VAC coil	SH4B-05, SH4B-51
RH4B-U-DC24V	10 amp 4PDT 24VDC coil	SH4B-05, SH4B-51
RH4B-U-DC48V	10 amp 4PDT 48VDC coil	SH4B-05, SH4B-51
RH4B-U-DC110V	10 amp 4PDT 110VDC coil	SH4B-05, SH4B-51
RH4B-UL-AC120V	10 amp 4PDT 120VAC coil w/light	SH4B-05, SH4B-51
RH4B-UL-AC240V	10 amp 4PDT 240VAC coil w/light	SH4B-05, SH4B-51
RH4B-UL-DC24V	10 amp 4PDT 24VDC coil w/light	SH4B-05, SH4B-51
RH4B-UL-DC48V	10 amp 4PDT 48VDC coil w/light	SH4B-05, SH4B-51
RH4B-UL-DC110V	10 amp 4PDT 110VDC coil w/light	SH4B-05, SH4B-51
RH4B-ULC-AC24V	10 amp 4PDT 24VAC coil w/light and check button	SH4B-05, SH4B-51
RH4B-ULC-AC120V	10 amp 4PDT 120VAC coil w/light and check button	SH4B-05, SH4B-51
RH4B-ULC-AC240V	10 amp 4PDT 240VAC coil w/light and check button	SH4B-05, SH4B-51
RH4B-ULC-DC12V	10 amp 4PDT 12VDC coil w/light and check button	SH4B-05, SH4B-51
RH4B-ULC-DC24V	10 amp 4PDT 24VDC coil w/light and check button	SH4B-05, SH4B-51
RH4B-ULC-DC48V	10 amp 4PDT 48VDC coil w/light and check button	SH4B-05, SH4B-51
RH4B-ULC-DC110V	10 amp 4PDT 110VDC coil w/light and check button	SH4B-05, SH4B-51

Cross Reference	IDEC
Omron LY2	RH2
Omron LY3	RH3
Omron LY4	RH4
P&B K10	RH2B
MSD 78(1)XAX	RH1B
MSD 782XBX	RH2B
MSD 783XCX	RH3B
MSD 784XDX	RH4B
MSD 78XCX	RH3B
MSD 78XDX	RH4B
MSD W78(A)R	RH2B

IDEC RJ SERIES

Part #	Description	Socket
RJ22V-C-A120	Bifurcated PCB relay DPDT AC120V	
RJ22V-C-A240	Bifurcated PCB relay DPDT AC240V	
RJ22V-C-D100	Bifurcated PCB relay DPDT DC110V	
RJ22V-C-D24	Bifurcated PCB relay DPDT DC24V	
RJ22V-C-D48	Bifurcated PCB relay DPDT DC48	
RJ2V-C-A120	PCB Mount relay 8A contact DPDT 120VAC coil	
RJ2V-C-A24	PCB Mount relay 8A contact DPDT 24VAC coil	
RJ2V-C-D100	PCB Mount relay 8A contact DPDT 110VDC coil	
RJ2V-C-D24	PCB Mount relay 8A contact DPDT 24VDC coil	



**IDEC RR SERIES – POWER RELAYS**

- Rugged, industrial 10A relay
- SPDT, DPDT, 3PDT 10A contacts
- Options: Indicator LED, check-button and side flange mounting
- Round 8- and 11-pin base and square blade base relays
- Horsepower rated for small motors and solenoids

<b>RR</b>	<b>1</b>	<b>BA</b>	<b>- U</b>	<b>L</b>	<b>AC120V</b>
<b>Contact Configuration</b>	<b>Terminal Type</b>	<b>Options</b>	<b>Coil Voltage</b>		
1 = SPDT#	P = 8 Pin (DPDT)	L = Indicator light	AC6V	DC6V	
2 = DPDT	PA = 11 Pin (3PDT)	C = Check button	AC12V	DC12V	
3 = 3PDT	B = Blade (3PDT)	LC = Indicator and check button	AC24V	DC24V	
	BA = Blade (SPDT, DPDT)	S = Side flange*#	AC120V	DC110V	
			AC240V	DC240V	

\* Indicator light and check button not available  
# Available in blade type only

	RR2P	RR3PA	RR1BA	RR2BA	RR3B
Specifications					
Contact Material	Silver (Ag)				
Contact Rating	10A				
Dimensions (w x d x h) mm	29.3x36.4x56	36.4x36.4x56	36.4x36.4x55.4		

Relays	Standard DIN Rail Mount	Through Panel Mount
RR2P	SR2P-05, SR2P-06	SR2P-51
RR3PA	SR3P-05, SR3P-06	SR3P-51
RR1BA RR2BA RR3B	SR3B-05	SR3B-51

Part #	Description	Socket
RR2BA-UL-AC24V	10 amp DPDT 24VAC coil w/light	SR3B-05, SR3B-51
RR2BA-UL-AC120V	10 amp DPDT 120VAC coil w/light	SR3B-05, SR3B-51
RR2BA-UL-AC240V	10 amp DPDT 240VAC coil w/light	SR3B-05, SR3B-51
RR2BA-UL-DC110V	10 amp DPDT 110VDC coil w/light	SR3B-05, SR3B-51
RR2BA-ULC-AC240V	10 amp DPDT 240VAC coil w/light and check button	SR3B-05, SR3B-51
RR2BA-ULC-DC48V	10 amp DPDT 48VDC coil w/light and check button	SR3B-05, SR3B-51
RR2BA-ULC-DC110V	10 amp DPDT 110VDC coil w/light and check button	SR3B-05, SR3B-51
RR2KP-U-AC120V	10 amp DPDT 120VAC coil, latching (set/reset)	SR3P-05, SR3P-06, SR3P-51
RR2KP-U-AC240V	10 amp DPDT 240VAC coil, latching (set/reset)	SR3P-05, SR3P-06, SR3P-51
RR2KP-U-DC24V	10 amp DPDT 24VDC coil, latching (set/reset)	SR3P-05, SR3P-06, SR3P-51
RR2KP-U-DC110V	10 amp DPDT 110VDC coil, latching (set/reset)	SR3P-05, SR3P-06, SR3P-51
RR2P-U-AC24V	10 amp DPDT 24VAC coil	SR2P-05, SR2P-06, SR2P-51
RR2P-U-AC120V	10 amp DPDT 120VAC coil	SR2P-05, SR2P-06, SR2P-51
RR2P-U-DC24V	10 amp DPDT 24VDC coil	SR2P-05, SR2P-06, SR2P-51
RR2P-U-DC48V	10 amp DPDT 48VDC coil	SR2P-05, SR2P-06, SR2P-51
RR2P-U-DC110V	10 amp DPDT 110VDC coil	SR2P-05, SR2P-06, SR2P-51

Part #	Description	Socket
RR2P-UL-AC120V	10 amp DPDT 120VAC coil w/light	SR2P-05, SR2P-06, SR2P-51
RR2P-UL-AC240V	10 amp DPDT 240VAC coil w/light	SR2P-05, SR2P-06, SR2P-51
RR2P-UL-DC24V	10 amp DPDT 24VDC coil w/light	SR2P-05, SR2P-06, SR2P-51
RR2P-UL-DC110V	10 amp DPDT 110VDC coil w/light	SR2P-05, SR2P-06, SR2P-51
RR2P-ULC-AC24V	10 amp DPDT 24VAC coil w/light and check button	SR2P-05, SR2P-06, SR2P-51
RR2P-ULC-AC120V	10 amp DPDT 120VAC coil w/light and check button	SR2P-05, SR2P-06, SR2P-51
RR2P-ULC-AC240V	10 amp DPDT 240VAC coil w/light and check button	SR2P-05, SR2P-06, SR2P-51
RR2P-ULC-DC110V	10 amp DPDT 110VDC coil w/light and check button	SR2P-05, SR2P-06, SR2P-51
RR3B-U-AC120V	10 amp 3PDT 120VAC coil	SR3B-05, SR3B-51
RR3B-U-AC240V	10 amp 3PDT 240VAC coil	SR3B-05, SR3B-51
RR3B-U-DC12V	10 amp 3PDT 12VDC coil	SR3B-05, SR3B-51
RR3B-U-DC24V	10 amp 3PDT 24VDC coil	SR3B-05, SR3B-51
RR3B-U-DC48V	10 amp 3PDT 48VDC coil	SR3B-05, SR3B-51
RR3B-U-DC110V	10 amp 3PDT 110VDC coil	SR3B-05, SR3B-51
RR3B-UL-AC12V	10 amp 3PDT 12VAC coil w/light	SR3B-05, SR3B-51
RR3B-UL-AC24V	10 amp 3PDT 24VAC coil w/light	SR3B-05, SR3B-51
RR3B-UL-AC120V	10 amp 3PDT 120VAC coil w/light	SR3B-05, SR3B-51
RR3B-UL-AC240V	10 amp 3PDT 240VAC coil w/light	SR3B-05, SR3B-51
RR3B-UL-DC6	10 amp 3PDT 6VDC coil w/light	SR3B-05, SR3B-51
RR3B-UL-DC24V	10 amp 3PDT 24VDC coil w/light	SR3B-05, SR3B-51
RR3B-UL-DC48V	10 amp 3PDT 48VDC coil w/light	SR3B-05, SR3B-51
RR3B-UL-DC110V	10 amp 3PDT 110VDC coil w/light	SR3B-05, SR3B-51
RR3B-ULC-AC24V	10 amp 3PDT 24VAC coil w/light and check button	SR3B-05, SR3B-51
RR3B-ULC-AC120V	10 amp 3PDT 120VAC coil w/light and check button	SR3B-05, SR3B-51
RR3B-ULC-AC240V	10 amp 3PDT 240VAC coilT w/light and check button	SR3B-05, SR3B-51
RR3B-ULC-DC12V	10 amp 3PDT 12VDC coil w/light and check button	SR3B-05, SR3B-51
RR3B-ULC-DC24V	10 amp 3PDT 24VDC coil w/light and check button	SR3B-05, SR3B-51
RR3B-ULC-DC48V	10 amp 3PDT 48VDC coil w/light and check button	SR3B-05, SR3B-51
RR3B-ULC-DC110V	10 amp 3PDT 110VDC coil w/light and check button	SR3B-05, SR3B-51
RR3PA-U-AC120V	10 amp 3PDT 120VAC coil	SR3P-05, SR3P-06, SR3P-51
RR3PA-U-AC240V	10 amp 3PDT 240VAC coil	SR3P-05, SR3P-06, SR3P-51
RR3PA-U-DC110V	10 amp 3PDT 110VDC coil	SR3P-05, SR3P-06, SR3P-51
RR3PA-UL-AC120V	10 amp 3PDT 120VAC coil w/light	SR3P-05, SR3P-06, SR3P-51
RR3PA-ULC-AC120V	10 amp 3PDT 120VAC coil w/light and check button	SR3P-05, SR3P-06, SR3P-51
RR3PA-ULC-AC240V	10 amp 3PDT 240VAC coil w/light and check button	SR3P-05, SR3P-06, SR3P-51
RR3PA-ULC-DC24V	10 amp 3PDT 24VDC coil w/light and check button	SR3P-05, SR3P-06, SR3P-51
RR3PA-ULC-DC110V	10 amp 3PDT 110VDC coil w/light and check button	SR3P-05, SR3P-06, SR3P-51

Cross Reference	IDEC	Cross Reference	IDEC
Omron MK2P	RR2P	MSD 750XCX	RR3PA
Omron MK3P	RR3PA	MSD 788XBX	RR2BA
Omron MJN1	RR1BA	MSD 788XCX	RR3B
Omron MJN2	RR2BA	MSD A283XAX	RR1BA
Omron MJN3	RR3B	MSD A283XBX	RR2BA
Omron MRL	RR2KP	MSD A283XCX	RR3B
P&B KRP(A)-11	RR2P	MSD A314XBX	RR2P
P&B KRP(A)-14	RR3PA	MSD A314XCX	RR3PA
P&B KUP-11	RR2BA	MSD W250ACPX	RR2P
P&B KUP-14	RR3B	MSD W250CPX	RR3PA
P&B KUP93-11	RR3B	MSD W388	
MSD 750XBX	RR2P	RR1BA/2BA/3B	

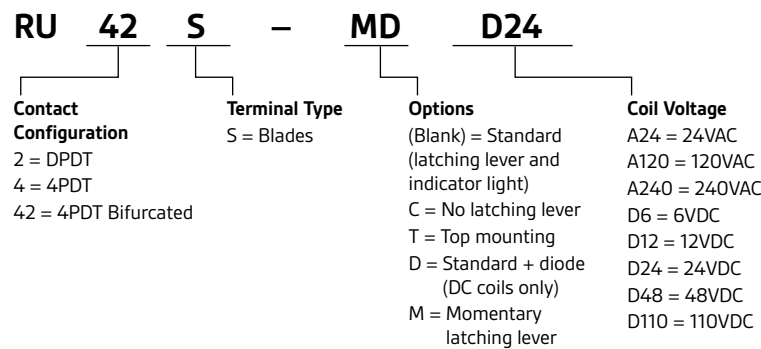
Relays: IDEC: RR Series

Relays: IDEC: RR Series



**IDEC RU SERIES – UNIVERSAL RELAYS**

- 100 percent robotic assembly
- DPDT 10A, 4PDT 6A and bifurcated 4PDT 3A contacts
- Spot welding technology eliminates internal wires and solder
- Non-polarized, green LED
- Color-coded, snap-on marking plates
- RoHS compliant



	RU4	RU42
Contact Material	AuAg/Ag	AuAg/AgNi
Contact Rating	6A	3A (bifurcated)
Dimensions (w x d x h) mm	21x27.5x41.4	

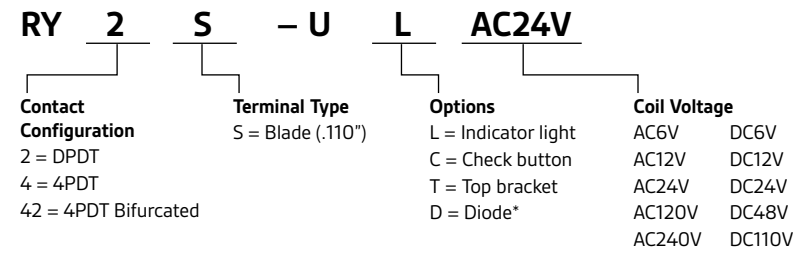
Relays	Standard DIN Rail Mount	Panel Mount
RU2S (DPDT) RU4S (4PDT) RU42S (4PDT)	SY4S-05	SY4S-51

Cross Reference	IDEC
Omron MY2	RU2
Omron MY4	RU4
P&B KHAU-11	RU2S
P&B KHAU-17	RU4S
Schrack PT2	RU2S
Schrack PT4	RU4S
MSD 782XB1/2	RU2S
MSD 782XD1/2	RU4S
MSD 782XD3	RU42S
MSD W78(A)CSX	RU4S
MSD W78(A)T	RU42S

Part #	Description	Socket
RU2S-M-A24	10 amp DPDT 24VAC coil w/light and check button	SY4S-05, SY4S-51
RU2S-M-A110	10 amp DPDT 110VAC coil w/light and check button	SY4S-05, SY4S-51
RU2S-M-A220	10 amp DPDT 220VAC coil w/light and check button	SY4S-05, SY4S-51
RU2S-M-D24	10 amp DPDT 24VDC coil w/light and check button	SY4S-05, SY4S-51
RU2S-M-D110	10 amp DPDT 110VDC coil w/ light and check button	SY4S-05, SY4S-51
RU42S-M-A110	5 amp 4PDT 120VAC coil bifurcated w/light and check button	SY4S-05, SY4S-51
RU42S-M-A220	5 amp 4PDT 240VAC coil bifurcated w/light and check button	SY4S-05, SY4S-51
RU42S-M-D12	5 amp 4PDT 12VAC coil bifurcated w/light and check button	SY4S-05, SY4S-51
RU42S-M-D24	5 amp 4PDT 24VDC coil bifurcated w/light and check button	SY4S-05, SY4S-51
RU42S-M-D48	5 amp 4PDT 48VDC coil bifurcated w/light and check button	SY4S-05, SY4S-51
RU42S-M-D110	5 amp 4PDT 110VDC coil bifurcated w/light and check button	SY4S-05, SY4S-51
RU4S-M-A24	6 amp 4PDT 24VAC coil w/light and check button	SY4S-05, SY4S-51
RU4S-M-A110	6 amp 4PDT 120VAC coil w/light and check button	SY4S-05, SY4S-51
RU4S-M-A220	6 amp 4PDT 240VAC coil w/light and check button	SY4S-05, SY4S-51
RU4S-M-D12	6 amp 4PDT 12VDC coil w/light and check button	SY4S-05, SY4S-51
RU4S-M-D24	6 amp 4PDT 24VDC coil w/light and check button	SY4S-05, SY4S-51
RU4S-M-D48	6 amp 4PDT 48VDC coil w/light and check button	SY4S-05, SY4S-51
RU4S-M-D110	6 amp 4PDT 110VDC coil w/light and check button	SY4S-05, SY4S-51

**IDEC RY SERIES – MINIATURE RELAYS**

- Small, industrial GP signaling relay
- DPDT 3A, 4PDT 5A contacts
- Bifurcated 4PDT 1A contacts available
- Options: Indicator LED, check-button and surge suppression diode



\*Diode for DC coils only

	RY2	RY4	RY42
Contact Material	Silver (Ag), gold-plated		Ag-Pd alloy
Contact Rating	3A	5A	1A (bifurcated)
Dimensions (w x d x h) mm	14.2x27.5x41.5		

Relays	Standard DIN Rail Mount	Through Panel Mount
RY2S	SY2S-05	SY2S-51
RY4S RY42S	SY4S-05	SY4S-51

Part #	Description	Socket
RY2KS-U-AC120V	3 amp DPDT 120VAC latching-dual coil	SY4S-05
RY2KS-U-AC220V	3 amp DPDT 220VAC latching-dual coil	SY4S-05
RY2KS-U-DC12V	3 amp DPDT 12VDC latching-dual coil	SY4S-05
RY2KS-U-DC24V	3 amp DPDT 24VDC latching-dual coil	SY2S-05
RY2KS-U-DC48V	3 amp DPDT 48VDC latching-dual coil	SY2S-05
RY2KS-U-DC110V	3 amp DPDT 110VDC latching-dual coil	SY2S-05
RY2S-U-AC24V	5 amp DPDT 24VAC coil	SY2S-05
RY2S-U-AC110V	5 amp DPDT 120VAC coil	SY2S-05
RY2S-U-DC12V	5 amp DPDT 12VDC coi	SY2S-05
RY2S-U-DC24V	5 amp DPDT 24VDC coil	SY2S-05
RY2S-U-DC48V	5 amp DPDT 48VDC coil	SY2S-05
RY2S-U-DC110V	5 amp DPDT 110VDC coil	SY2S-05
RY2S-UL-AC120V	5 amp DPDT 120VAC coil w/light	SY2S-05
RY2S-UL-DC24V	5 amp DPDT 24VDC coil w/light	SY2S-05
RY2S-ULC-AC120V	5 amp DPDT 120VAC coil w/ light and check button	SY2S-05
RY4S-UL-AC24V	5 amp 4PDT 24VAC coil w/light	SY4S-05, SY4S-51
RY4S-UL-AC240V	5 amp 4PDT 240VAC coil w/light	SY4S-05, SY4S-51
RY4S-UL-DC48V	5 amp 4PDT 48VDC coil w/light	SY4S-05, SY4S-51
RY4S-UL-DC110V	5 amp 4PDT 110VDC coil w/light	SY4S-05, SY4S-51
RY4S-ULC-AC12V	5 amp 4PDT 12VAC coil w/light and check button	SY4S-05, SY4S-51
RY4S-ULC-AC24V	5 amp 4PDT 24VAC coil w/light and check button	SY4S-05, SY4S-51
RY4S-ULC-AC240V	5 amp 4PDT 240VAC coil w/light and check button	SY4S-05, SY4S-51
RY4S-ULC-DC6V	5 amp 4PDT 6VDC coil w/light and check button	SY4S-05, SY4S-51
RY4S-ULC-DC12V	5 amp 4PDT 12VDC coil w/light and check button	SY4S-05, SY4S-51
RY4S-ULC-DC48V	5 amp 4PDT 48VDC coil w/light and check button	SY4S-05, SY4S-51

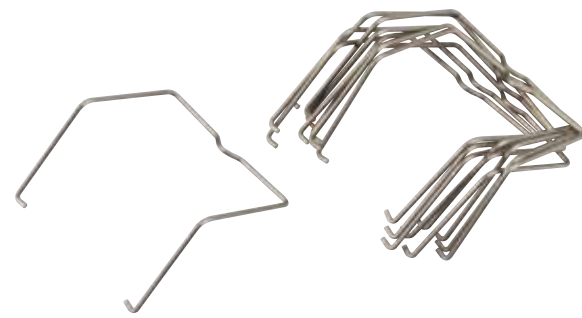




BNDN-1000  
Aluminum low-profile DIN rail  
Length: 1 meter, 39.5"



BNL5  
DIN rail end stop



SR3B-02F1  
Hold Down Spring Clip

IDEC RELAYS AND TIMER SOCKETS, DIN RAIL

Series	Part #	No. of Poles	Receptacle	Compatible IDEC Relay and Timer
SR	SR2P-05 SR2P-06	2	8-pin	GT3 (8-pin), GT5P, RR2P, RTE-P1
	SR3P-05 SR3P-06	3	11-pin	GT3 (11-pin), RR2KP, RR3PA, RTE-P2
	SR3B-05	3	11-blade	RR1BA, RR2BA, RR3B, RTE-B
SH	SH1B-05	1	5-blade	RH1B
	SH2B-05	2	8-blade	RH2B
	SH3B-05	3	11-blade	RH2LB, RH3B
	SH4B-05	4	14-blade	RH4B
SH	SH1B-51	1	5-blade	RH1B
	SH2B-51	2	8-blade	RH2B
	SH3B-51	3	11-blade	RH2LB, RH3B
	SH4B-51	4	14-blade	RH4B
SY	SY2S-05	2	8-blade	RY2S, RY22S
	SY4S-05	4	14-blade	GT5Y, RU2S, RU4S, RU42S, RY2KS, RY2LS, RY4S, RY42S
SY	SY4S-51	4	14-blade	GT5Y, RU2S, RU4S, RU42S, RY2KS, RY2LS, RY4S, RY42S



SY4S-051  
Socket, panel mount



SR2P-06  
DIN rail or surface mount



SH3B-05  
DIN rail or surface mount

IDEC PS5R-V SERIES SWITCHING POWER SUPPLIES



Output Capacity	Part Number	Input Voltage	Output Voltage	Output Current
7.5W	PS5R-VA05	100 to 240VAC Voltage range: 85 to 264VAC / 100 to 370VDC	5V	1.5A
	PS5R-VA12		12V	0.6A
10W	PS5R-VA24		24V	0.3A
	PS5R-VB05		5V	2.0A
15W	PS5R-VB12		12V	1.3A
	PS5R-VB24		24V	0.65A
30W	PS5R-VC12		12V	2.5A
	PS5R-VC24		24V	1.3A
60W	PS5R-VD24		24V	2.5A
90W	PS5R-VE24		24V	3.75A
120W	PS5R-VF24		24V	5.0A
240W	PS5R-VG24		24V	10.0A

Part number structure PS5R - V □ □

Output capacity      Output voltage

A 7.5W                      05 5V<sup>3</sup>

B 10W/15W                12 12V<sup>4</sup>

C 30W                        24 24V

D 60W

E 90W

F 120W

G 240W

Note 3: PS5R-VA/VB only  
Note 4: PS5R-VA/VB/VC only  
Use only for interpreting part numbers.  
Do not use for developing part numbers.

**IDEC PS5R-V SERIES – POWER SUPPLIES**

- Compact size preserves panel space  
Slim size (width): 22.5mm (10W/15W/30W) 36mm (60W/90W) 46mm (120W) 60mm (240W)
- Universal voltage input: 85–264VAC/100–370VDC
- Wide operating temperature range
- Spring-up terminals accept ring and fork terminals
- Approved for use in Class I Division 2 hazardous locations
- Can be installed in six directions
- DIN-rail or panel mount
- Overcurrent protection with auto-reset
- Meets SEMI F47 Sag Immunity (208V AC input)
- RoHS compliant
- Five-year factory warranty



Part #	Description
PS5R-VB05	10W 5VDC DIN RAIL
PS5R-VB12	15W 12VDC DIN RAIL
PS5R-VB24	15W 24VDC DIN RAIL
PS5R-VC12	30W 12VDC DIN RAIL
PS5R-VC24	30W 24VDC DIN RAIL
PS5R-VD24	60W 24VDC DIN RAIL
PS5R-VE24	90W 24VDC DIN RAIL
PS5R-VF24	120W 24VDC DIN RAIL
PS5R-VG24	240W 24VDC DIN RAIL

**IDEC 6TH GENERATION SMARTRELAYS**

Part #	Description
FL1F-H12RCA	SmartRelay CPU 24VAC-DC
FL1F-H12RCC	SmartRelay CPU 100-20VAC-DC
FL1F-H12RCE	SmartRelay CPU 24VDC tran out 10.8 to 28
FL1F-H12SCD	SmartRelay CPU 24VDC trans out

**Accessories**

FL1F-M08B2R2	4in 4out 12–24VDC exp. module
FL1F-M08C2R2	4in 4out 100–240VAC exp. module



**Series L8 UL1077  
Supplementary Protectors**

**Supplemental short circuit protection for a variety of applications up to 63 amps**

Sprecher+Schuh Series L8 Supplementary Protectors provide supplemental overcurrent protection for control circuits, solenoids, actuators, appliances, business equipment and a range of other applications where a high performance current limiting device is required. Advanced features and global approvals make them ideal for use in equipment installed throughout the world.

**BROAD PRODUCT RANGE**

Series L8 Supplementary Protectors are available in up to 20 different current ratings from 0.5A to 63A, in one, two and three pole configurations. Over 180 base models are available with a full complement of accessories.



Devices can be used in applications up to 480V AC and 48V DC with interrupting capacities up to 10kA.

**SAFETY FEATURES PROVIDE ENHANCED PROTECTION**

The terminals of Series L8 Supplementary Protectors provide IP20 protection to guard against accidental contact with live parts.

To aid troubleshooting, a color-coded indicator provides positive visual indication of the device status (green for OFF, red for ON) and isolation function.

Sprecher+Schuh Supplementary Protectors also incorporate a trip-free mechanism, ensuring that the device operation cannot be defeated by holding the operator in the ON position.

**EASY INSTALLATION**

Sprecher+Schuh Supplementary Protectors mount on a standard 35mm DIN-rail. Wire terminals accept multiple conductors, and UL 508 approved bus bars can be used to quickly distribute power to many Supplementary Protectors simultaneously. In addition, power to the circuit breakers can be fed from the line or load side.

**GLOBAL APPROVALS FOR WORLDWIDE ACCEPTANCE**

Series L8 Supplementary Protectors are UL Recognized for use in the United States in accordance with NFPA 79 (NEC, National Electrical Code). The devices comply with UL 1077 and CSA 22.2 No.235, meeting the requirements for supplementary protectors intended for use as overcurrent protection where branch circuit protection is not required, or is provided by another device such as a fuse or molded case circuit breaker. These Supplementary Protectors also comply with IEC 60947-2 for use in commercial and residential applications and are CE marked.

See online white paper *Methods of Applying Circuit Protection*.



### THREE TRIP CHARACTERISTICS

All Sprecher+Schuh L8 Supplementary Protectors are available with three different tripping characteristics, Type "B", "C", and "D". The tripping characteristic defines the device's speed of response (trip-time) to various levels of overcurrent. The figure below shows trip-time versus overcurrent for Type B, C, and D devices. The time-current characteristics enable the device to be optimally matched to the application. For example, PLC outputs that can only tolerate minimal overcurrents are best protected by Supplementary Protectors with Type B trip characteristics.

Sprecher+Schuh L8 Supplementary Protectors are also current limiting — interrupting fault currents within one half cycle. Current limiting devices protect circuit components from damage by reducing the peak let-through current which causes damaging magnetic forces and let-through energy which generates heat.

#### Type "B" Characteristic

Developed primarily to protect conductors and low level signal devices such as PLCs. Instantaneous trip is three to five times the rated current of the Supplementary Protector (3~5 x I<sub>N</sub>). The fast trip time of these devices minimizes damage to control circuit conductors from low-level faults.

#### Compare these advanced features

Box lug terminals accept #18...#4 (1.0...25mm<sup>2</sup>) wire as standard

Ratings to 480Y/277V AC @230/440VAC  
10kA interrupt rating

Amp rating and trip curve characteristic clearly marked on the device for easy identification

Magnetic trip elements provide Type B, C and D trip characteristics, while bimetallic elements protect against slight overloads.



Line and load side terminals designed with dual terminals which allows the connection of two wires, or both a wire and a bus bar

Guarded No.2 pozidrive terminals screws with finger-safe IP20 protection

Devices install on standard 35mm DIN-rail (EN 50022)

Trip-free mechanism; device operation cannot be defeated by holding the operator in the ON position

Color coded indicator provides visual indication of the device status and isolation function

Available in one, two and three pole



#### Type "C" Characteristic

Developed primarily for applications with moderate inrush currents such as lighting, control circuits and coils, computers and appliances. Instantaneous trip is five to ten times the rated current of the Supplementary Protector (5~10 x I<sub>N</sub>). The higher instantaneous trip level prevents nuisance tripping, and components being protected can typically withstand higher fault currents without being damaged.

#### Type "D" Characteristic

Developed primarily for applications with high inrush currents, i.e., transformers, power supplies and heaters. Instantaneous trip is 10 to 20 times the rated current of the Supplementary Protector (10~20 x I<sub>N</sub>). The high instantaneous trip level prevents nuisance tripping, and components being protected can typically withstand higher fault currents without being damaged.

### Trip Characteristic B

#### Trip Characteristic B (3~5 x I<sub>N</sub>) – Resistive or slightly inductive loads ③

Rated Current (A)	1 Pole ①		2 Pole ②		3 Pole ②	
	Catalog Number	Std. Pkg.	Catalog Number	Std. Pkg.	Catalog Number	Std. Pkg.
0.5	L8-0.5/1/B	2	L8-0.5/2/B	1	L8-0.5/3/B	1
1	L8-1/1/B	2	L8-1/2/B	1	L8-1/3/B	1
2	L8-2/1/B	2	L8-2/2/B	1	L8-2/3/B	1
3	L8-3/1/B	2	L8-3/2/B	1	L8-3/3/B	1
4	L8-4/1/B	2	L8-4/2/B	1	L8-4/3/B	1
5	L8-5/1/B	2	L8-5/2/B	1	L8-5/3/B	1
6	L8-6/1/B	2	L8-6/2/B	1	L8-6/3/B	1
7	L8-7/1/B	2	L8-7/2/B	1	L8-7/3/B	1
8	L8-8/1/B	2	L8-8/2/B	1	L8-8/3/B	1
10	L8-10/1/B	2	L8-10/2/B	1	L8-10/3/B	1
13	L8-13/1/B	2	L8-13/2/B	1	L8-13/3/B	1
15	L8-15/1/B	2	L8-15/2/B	1	L8-15/3/B	1
16	L8-16/1/B	2	L8-16/2/B	1	L8-16/3/B	1
20	L8-20/1/B	2	L8-20/2/B	1	L8-20/3/B	1
25	L8-25/1/B	2	L8-25/2/B	1	L8-25/3/B	1
30	L8-30/1/B	2	L8-30/2/B	1	L8-30/3/B	1
32	L8-32/1/B	2	L8-32/2/B	1	L8-32/3/B	1
40	L8-40/1/B	2	L8-40/2/B	1	L8-40/3/B	1
50	L8-50/1/B	2	L8-50/2/B	1	L8-50/3/B	1
63	L8-63/1/B	2	L8-63/2/B	1	L8-63/3/B	1

#### L8 Supplementary Protector Features:

- UL-1077 Approved, CSA 22.2 No. 235 and IEC/EN 60947-2
- Thermal Magnetic Overcurrent Protection
- Trip characteristics based on 40°C ambient for UL/CSA
- Up to 10kA interruption ratings
- Finger safe design
- DIN-rail mounting

- ① 1-Pole ratings: UL/CSA 277VAC 48VDC, IEC 240/440VAC
- ② Multi-pole ratings: UL/CSA 480Y/277VAC 96VDC, IEC 440VAC
- ③ See UL Short Circuit ratings U1/U2 in the technical data sections.



**Trip Characteristic C**

Trip Characteristic C (5~10 x I<sub>N</sub>) – Inductive loads ③

Rated Current (A)	1 Pole ①		2 Pole ②		3 Pole ②	
	Catalog Number	Std. Pkg.	Catalog Number	Std. Pkg.	Catalog Number	Std. Pkg.
0.5	L8-0.5/1/C	2	L8-0.5/2/C	1	L8-0.5/3/C	1
1	L8-1/1/C	2	L8-1/2/C	1	L8-1/3/C	1
2	L8-2/1/C	2	L8-2/2/C	1	L8-2/3/C	1
3	L8-3/1/C	2	L8-3/2/C	1	L8-3/3/C	1
4	L8-4/1/C	2	L8-4/2/C	1	L8-4/3/C	1
5	L8-5/1/C	2	L8-5/2/C	1	L8-5/3/C	1
6	L8-6/1/C	2	L8-6/2/C	1	L8-6/3/C	1
7	L8-7/1/C	2	L8-7/2/C	1	L8-7/3/C	1
8	L8-8/1/C	2	L8-8/2/C	1	L8-8/3/C	1
10	L8-10/1/C	2	L8-10/2/C	1	L8-10/3/C	1
13	L8-13/1/C	2	L8-13/2/C	1	L8-13/3/C	1
15	L8-15/1/C	2	L8-15/2/C	1	L8-15/3/C	1
16	L8-16/1/C	2	L8-16/2/C	1	L8-16/3/C	1
20	L8-20/1/C	2	L8-20/2/C	1	L8-20/3/C	1
25	L8-25/1/C	2	L8-25/2/C	1	L8-25/3/C	1
30	L8-30/1/C	2	L8-30/2/C	1	L8-30/3/C	1
32	L8-32/1/C	2	L8-32/2/C	1	L8-32/3/C	1
40	L8-40/1/C	2	L8-40/2/C	1	L8-40/3/C	1
50	L8-50/1/C	2	L8-50/2/C	1	L8-50/3/C	1
63	L8-63/1/C	2	L8-63/2/C	1	L8-63/3/C	1

**L8 Supplementary Protector features**

- UL-1077 Approved, CSA 22.2 No. 235 and IEC/EN 60947-2
- Thermal Magnetic Overcurrent Protection
- Trip characteristics based on 40°C ambient for UL/CSA
- Up to 10kA interruption ratings
- Finger safe design
- DIN-rail mounting

- ① 1-pole ratings: UL/CSA 277VAC 48VDC, IEC 240/440VAC
- ② Multi-pole ratings: UL/CSA 480Y/277VAC 96VDC, IEC 440VAC
- ③ See UL Short Circuit ratings U1/U2 in the technical data sections.

**Trip Characteristic D**

Trip Characteristic D (10~20 x I<sub>N</sub>) – Highly inductive loads ③

Rated Current (A)	1 Pole ①		2 Pole ②		3 Pole ②	
	Catalog Number	Std. Pkg.	Catalog Number	Std. Pkg.	Catalog Number	Std. Pkg.
0.5	L8-0.5/1/D	2	L8-0.5/2/D	1	L8-0.5/3/D	1
1	L8-1/1/D	2	L8-1/2/D	1	L8-1/3/D	1
2	L8-2/1/D	2	L8-2/2/D	1	L8-2/3/D	1
3	L8-3/1/D	2	L8-3/2/D	1	L8-3/3/D	1
4	L8-4/1/D	2	L8-4/2/D	1	L8-4/3/D	1
5	L8-5/1/D	2	L8-5/2/D	1	L8-5/3/D	1
6	L8-6/1/D	2	L8-6/2/D	1	L8-6/3/D	1
7	L8-7/1/D	2	L8-7/2/D	1	L8-7/3/D	1
8	L8-8/1/D	2	L8-8/2/D	1	L8-8/3/D	1
10	L8-10/1/D	2	L8-10/2/D	1	L8-10/3/D	1
13	L8-13/1/D	2	L8-13/2/D	1	L8-13/3/D	1
15	L8-15/1/D	2	L8-15/2/D	1	L8-15/3/D	1
16	L8-16/1/D	2	L8-16/2/D	1	L8-16/3/D	1
20	L8-20/1/D	2	L8-20/2/D	1	L8-20/3/D	1
25	L8-25/1/D	2	L8-25/2/D	1	L8-25/3/D	1
30	L8-30/1/D	2	L8-30/2/D	1	L8-30/3/D	1
32	L8-32/1/D	2	L8-32/2/D	1	L8-32/3/D	1
40	L8-40/1/D	2	L8-40/2/D	1	L8-40/3/D	1
50	L8-50/1/D	2	L8-50/2/D	1	L8-50/3/D	1
63	L8-63/1/D	2	L8-63/2/D	1	L8-63/3/D	1

**L8 Supplementary Protector features**

- UL-1077 Approved, CSA 22.2 No. 235 and IEC/EN 60947-2
- Thermal Magnetic Overcurrent Protection
- Trip characteristics based on 40°C ambient for UL/CSA
- Up to 10kA interruption ratings
- Finger safe design
- DIN-rail mounting

- ① 1-pole ratings: UL/CSA 277VAC 48VDC, IEC 240/440VAC
- ② Multi-pole ratings: UL/CSA 480Y/277VAC 96VDC, IEC 440VAC
- ③ See UL Short Circuit ratings U1/U2 in the technical data sections.

Technical Information: Series L8 Supplementary Protectors

Electrical Ratings	
Number of Poles	1, 2, or 3
Tripping Characteristics	B, C, or D
Rated Current I <sub>n</sub>	0.5...63A
Rated Frequency f	50/60 Hz
Rated Insulation voltage	Phase-to-ground 250V AC
U <sub>i</sub> acc. to IEC/EN 60664-1	Phase-to-phase 440V AC
Overtoltage Category	III
Pollution Degree	3

Mechanical Data	
Housing	Insulation group II, RAL 7035
Indicator window	red ON/green OFF
Protection degree per EN 60529	IP20, IP40 in enclosure with cover
Mechanical endurance	20,000 operations
Shock resistance per IEC/EN 60068-2-27	25 g - 2 shocks - 13 ms
Vibration resistance per IEC/EN 60068-2-6	5g - 20 cycles at 5...150...5 Hz with load 0.8 In

Environmental	
Environmental conditions (damp heat) per IEC/EN 60068-2-30	28 cycles with 55°C/90-96% and 25°C/95-100%
Ambient temperature ③	-25...+55°C
Storage temperature	-40...+70°C

Installation	
Terminal	Dual terminal
Cross-section of wire – solid, stranded (front/back terminal slot) ④	35/35 mm <sup>2</sup> 18...4/18...10 AWG
Flexible	25/10 mm <sup>2</sup>
Multi-wire rating per UL, CSA	1 wire, 18...4 AWG 2-4 wires ⑥, 18...10 AWG
Cross-section of bus bars (top / bottom)	10/10 mm <sup>2</sup>
Tightening torque	IEC 2.8 N•m AWG 18...16: 13.3 in•lb
	UL/CSA AWG 14...10: 17.7 in•lb AWG 8...4: 39.8 in•lb
Screwdriver	No. 2 Pozidrive
Mounting	DIN Rail (EN 60715, 35 mm) with fast clip
Mounting position	Any
Supply	Optional

Approximate Dimensions/Weight	
Pole dimensions H x D x W	88 x 69 x 17.5 mm (3.46" x 2.72" x 0.69")
Pole weight	115 g (4.1 oz)

Combination with Auxiliary Elements	
Auxiliary contact	Yes
Signal contact	Yes
Shunt trip	Yes

Data acc. to UL/CSA ⑤	
Rated voltage	1-pole AC 277V AC DC 48V DC
	2-pole AC 480Y/277V AC DC 96V DC
	3-pole AC 480Y/277V AC
Rated interrupting capacity per UL 1077	≤ 32 A: 10 kA (AC); > 32 A: 5kA (AC); 0.5...63 A: 10 kA (DC)
Application ①	Supplementary protector for general use; application codes: TC1: [1P] OLO 277V AC, [2P, 3P] OLO 480Y/277V AC; SC: 10 kA (0.5...32 A), 5 kA (35...63 A), U2 480Y/277V AC; FW3
Reference temperature for tripping characteristics	40°C
Electrical Endurance	6,000 ops (AC), 6,000 ops. (DC) 1 cycle (1s - ON, 9s - OFF)

Data acc. to IEC/EN 60947-2	
Rated operational voltage U <sub>e</sub>	1-pole 230V AC
	2-, 3-pole 400V AC
Highest supply or utilization voltage U <sub>max</sub>	AC 1-pole 253V AC 2-, 3-pole 440V AC
	DC ② 1-pole 48V DC 2-pole 96V DC
Min. operating voltage	12V AC/DC
Rated ultimate short-circuit breaking capacity I <sub>cu</sub>	15 kA
Rated service short-circuit breaking capacity I <sub>cs</sub>	≤40 A: 11.25 kA >40 A: 7.5 kA
Rated impulse withstand voltage U <sub>imp</sub> . (1.2/50 μs)	4 kV (test voltage 6.2kV at sea level, 5kV at 2,000m)
Dielectric test voltage	2 kV (50/60Hz, 1 min.)
Reference temperature for tripping characteristics	30 °C
Electrical endurance	
1 cycle (2s - ON, 13s - OFF, I <sub>n</sub> ≤ 32A)	In < 30A: 20,000 operations (AC)
1 cycle (2s - ON, 28s - OFF, I <sub>n</sub> > 32A)	In ≥ 30A: 10,000 ops. (AC); 1,000 ops. (DC)

- ① 2-pole/3-pole single pole load: TC2
- ② IEC DC Ratings Self-declared
- ③ 35mm<sup>2</sup> self-declared. Not included in IEC/EN approval.
- ④ Refer to Ambient Temperature Derating tables.
- ⑤ UL File E65138
- ⑥ Wires must be of like size and stranding. Up to two wires per terminal slot.

Technical Information: Series L8 Supplementary Protectors

Power Loss Due to Current

Rated Current (A)	Power Loss Per Pole (W)	Rated Current (A)	Power Loss Per Pole (W)
0.5	1.4	13	2.3
1	1.4	15	2.4
2	1.8	16	2.5
3	1.6	20	2.5
4	1.8	25	3.2
5	1.9	30	3.5
6	2.0	32	3.7
7	1.1	40	4.5
8	1.5	50	4.5
10	2.1	63	5.4

Zero-stack Derating

The installation of several miniature circuit breaker side by side with rated current on all poles requires a correction factor to the rated current (not required if spacers are used).

Number of Adjacent Devices	Factor
1	1
2, 3	0.9
4, 5	0.8
≥ 6	0.75

L8 Supplementary Protection Devices Ambient Temperature Derating

**Note:** Application below 0° C is for non-condensing atmosphere. Care should be taken for applications below 0 °C. These devices are not certified to operate correctly in the presence of ice.

Temperature Derating, UL  
Reference temperature = 40 °C

Current Rating (A)	Ambient Temperature (°C)										
	-25	-20	-10	0	10	20	30	40	50	55	60
0.5	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5
1	1.2	1.2	1.2	1.1	1.1	1.1	1.0	1	1.0	0.9	0.9
2	2.5	2.4	2.4	2.3	2.2	2.1	2.1	2	1.9	1.9	1.8
3	3.7	3.7	3.6	3.4	3.3	3.2	3.1	3	2.9	2.8	2.8
4	5.0	4.9	4.7	4.6	4.4	4.3	4.1	4	3.9	3.8	3.7
5	6.2	6.1	5.9	5.7	5.6	5.4	5.2	5	4.8	4.7	4.6
6	7.4	7.3	7.1	6.9	6.7	6.4	6.2	6	5.8	5.7	5.6
7	8.7	8.6	8.3	8.0	7.8	7.5	7.3	7	6.7	6.6	6.5
8	9.9	9.8	9.5	9.2	8.9	8.6	8.3	8	7.7	7.6	7.4
10	12.4	12.2	11.9	11.5	11.1	10.7	10.4	10	9.6	9.4	9.3
13	16.1	15.9	15.4	14.9	14.4	14.0	13.5	13	12.5	12.3	12.0
15	18.6	18.3	17.8	17.2	16.7	16.1	15.6	15	14.4	14.2	13.9
16	19.8	19.6	19.0	18.4	17.8	17.2	16.6	16	15.4	15.1	14.8
20	24.8	24.4	23.7	23.0	22.2	21.5	20.7	20	19.3	18.9	18.5
25	31.0	30.6	29.6	28.7	27.8	26.9	25.9	25	24.1	23.6	23.1
30	37.2	36.7	35.6	34.4	33.3	32.2	31.1	30	28.9	28.3	27.8
32	39.7	39.1	37.9	36.7	35.6	34.4	33.2	32	30.8	30.2	29.6
40	49.6	48.9	47.4	45.9	44.4	43.0	41.5	40	38.5	37.8	37.0
50	62.0	61.1	59.3	57.4	55.6	53.7	51.9	50	48.2	47.2	46.3
63	78.2	77.0	74.7	72.3	70.0	67.7	65.3	63	60.7	59.5	58.3

Temperature Derating, IEC  
Reference temperature = 30 °C

Current Rating (A)	Ambient Temperature (°C)										
	-25	-20	-10	0	10	20	30	40	50	55	60
0.5	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1	1.2	1.2	1.1	1.1	1.1	1.0	1	1.0	0.9	0.9	0.9
2	2.3	2.3	2.2	2.2	2.1	2.1	2	1.9	1.9	1.9	1.8
3	3.5	3.5	3.4	3.3	3.2	3.1	3	2.9	2.8	2.8	2.7
4	4.7	4.6	4.5	4.4	4.2	4.1	4	3.9	3.8	3.7	3.6
5	5.8	5.8	5.6	5.5	5.3	5.2	5	4.9	4.7	4.6	4.5
6	7.0	6.9	6.7	6.5	6.4	6.2	6	5.8	5.6	5.6	5.5
7	8.2	8.1	7.8	7.6	7.4	7.2	7	6.8	6.6	6.5	6.4
8	9.3	9.2	9.0	8.7	8.5	8.2	8	7.8	7.5	7.4	7.3
10	11.7	11.5	11.2	10.9	10.6	10.3	10	9.7	9.4	9.3	9.1
13	15.1	15.0	14.6	14.2	13.8	13.4	13	12.6	12.2	12.0	11.8
15	17.5	17.3	16.8	16.4	15.9	15.5	15	14.6	14.1	13.9	13.6
16	18.6	18.4	17.9	17.4	17.0	16.5	16	15.5	15.0	14.8	14.6
20	23.3	23.0	22.4	21.8	21.2	20.6	20	19.4	18.8	18.5	18.2
25	29.1	28.8	28.0	27.3	26.5	25.8	25	24.3	23.5	23.1	22.7
30	35.0	34.5	33.6	32.7	31.8	30.9	30	29.1	28.2	27.8	27.3
32	37.3	36.8	35.8	34.9	33.9	33.0	32	31.0	30.1	29.6	29.1
40	46.6	46.0	44.8	43.6	42.4	41.2	40	38.8	37.6	37.0	36.4
50	58.3	57.5	56.0	54.5	53.0	51.5	50	48.5	47.0	46.3	45.5
63	73.4	72.5	70.6	68.7	66.8	64.9	63	61.1	59.2	58.3	57.3

**Note:** In order to use MCB at 60°C you must use cable suitable for this temperature. Any third party certifications are not covering this ambient temperature rating.

**IDEC TW SERIES – 22MM NEMA STYLE PUSHBUTTONS**

- TW NEMA style switches with snap-on contacts
- Corrosion resistant octagonal chrome plated locking bezel
- Snap-on 10A contact blocks
- LED illumination
- Slow make, double break, contacts
- Modular construction for maximum flexibility
- Type 4X and IP65 watertight/oiltight panel
- Available assembled or as sub-components
- Finger-safe – spring-up
- Large M3.5 screw terminals with captive sems plate



IDEC has your 22mm switching needs covered.

Button styles include flush, extended, mushroom, or square and all bodies are crafted from fracture-resistant nylon.

All illuminated units feature two lens styles, one that maximizes light dispersion, the other accommodates direct lens engraving.

Contact mechanism allow for a wide current rating, 5mA to 10A, which reduces the need for various contact materials.

When looking for a 22mm switch that is durable, easy to use, and versatile, then IDEC's TW series is your solution.



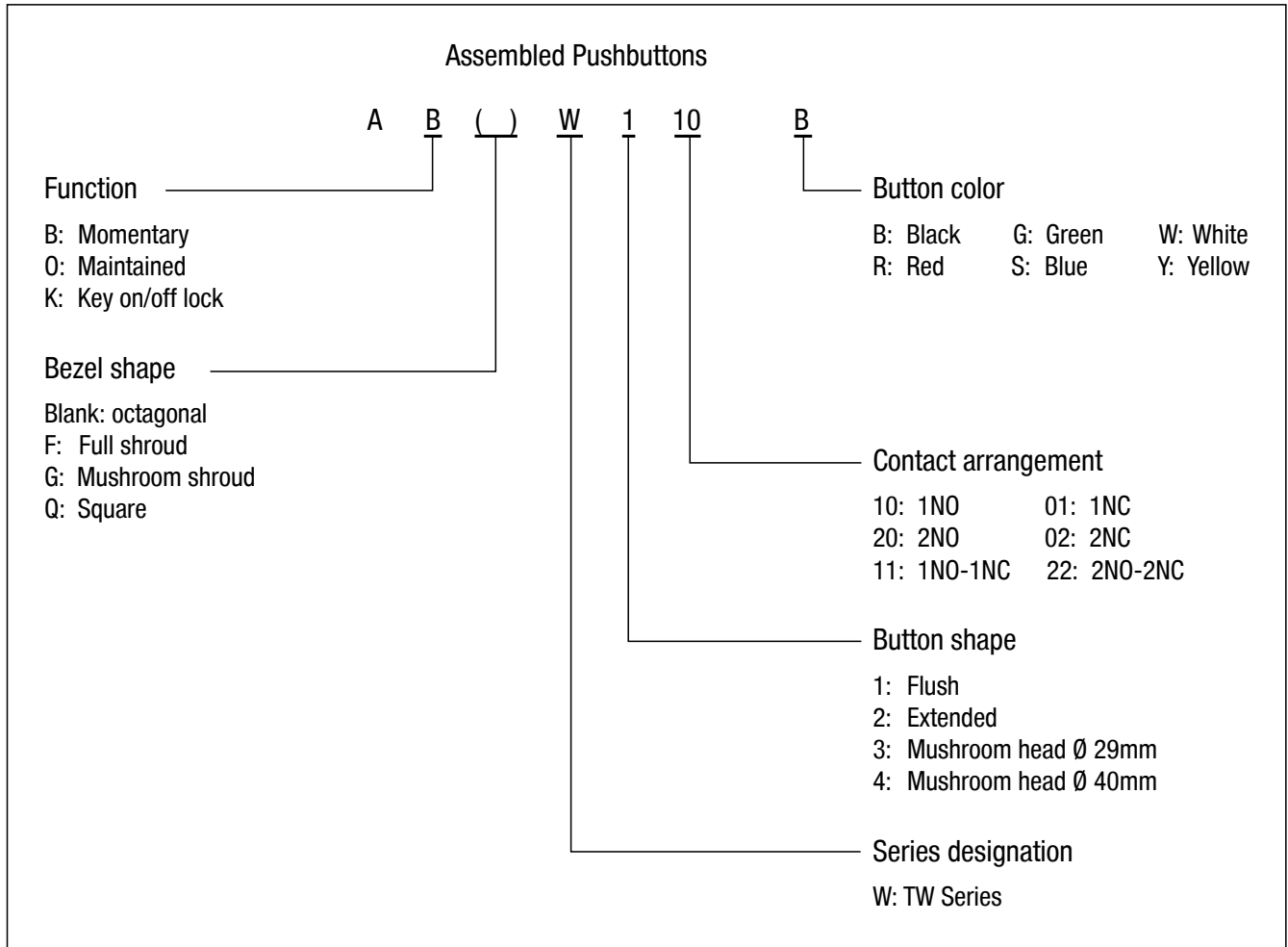
<b>Conforming to Standards</b>		EN60947-1, EN60947-5-1, VDE0660-200, UL508, CSA C22-2 No.14						
<b>Approvals</b>		CSA: pushbuttons and selector switches: A600 pilot lights and illuminated pushbuttons, direct supply pilot lights and illuminated pushbuttons with integral transformer (100/110, 115, 120, 200/220, 230, 240, 380, 400/440, 480V) UL: pushbuttons and selector switches: A600 pilot lights and illuminated pushbuttons, direct supply pilot lights and illuminated pushbuttons with integral transformer (100/110, 115, 120, 200/220, 230, 240, 380, 400/440, 480V) TÜV: pushbuttons and selector switches: A600=P600 (NO, NC)/Q600 (NO-EM, NC-LB) pilot lights and illuminated pushbuttons, direct supply pilot lights and illuminated pushbuttons with integral transformer (100/110, 115, 120, 200/220, 230, 240, 380, 400/440, 480V)						
File No. E68961 File No. LR21451 Certificate No. 2030010305027380 TÜV Rheinland CE Registration No: J9551802 (E-Stops) Registration No: J9551803 (All other switches) Registration No: J9551804 (Pilot lights)								
Operating temperature		Operation: -25 to +50°C (without freezing), Storage: -40 to +80°C (without freezing)						
Vibration resistance		5 to 55Hz, 100m/sec (10g) conforming to IEC6068-2-6						
Shock resistance		1000m/sec (100g) conforming to IEC6068-2-7						
Electric shock protection		Class 2 conforming to IEC60664-7						
Degree of protection (conforming to IEC60529) (conforming to NEMA ICS6-110)		IP65 from front of the panel; (IP54 for key switches) IP20 (Type HW-U contact block) Type 1, 2, 3, 3R, 3S, 4, 4X, 5, 12, 13 (Type 1, 2, 3R, 5, 12, 13 for key switches)						
Mechanical life		Momentary pushbuttons: 5,000,000 (1800 operations per hour) All other switches: 500,000						
Pollution degree (conforming to IEC60947-1)		3						
Rated operational characteristics		AC-15: A600 or Ue = 250V, Ie = 3A (NO, NC, NO-EM, NC-LB) DC-13: P600 or Ue = 125V, Ie = 1.1A (NO, NC) DC-13: Q600 or Ue = 125V, Ie = 0.9A (NO-EM, NC-LB)						
Rated insulation voltage		600V						
Rated switching over-voltage		Less than 4kV, conforming to IEC60947-1						
Rated impulse withstanding voltage		4kV for contact circuit, 2.5kV for lamp circuit						
Rated thermal current		10 Amp						
Minimum switching capacity		5 mA at 3V AC/DC						
Contact operation		Slow break NC or slow make NO, self-cleaning						
Recommended terminal torque		<b>Unit</b>		<b>Wire</b>	<b>Number of Wires</b>	<b>Recommended Tightening Torque (Nm)</b>	<b>Terminal Screw</b>	
		HW-U Contact Block		<b>Crimping Terminal</b>		2	1.0 to 1.3	M3.5
				Solid Wire	ø0.5 to 1.6 mm (AWG14 to 22)			
		Stranded Wire	ø1.7 to 2.0 mm (AWG12)		1	1.2 to 1.3		
			Illuminated Unit (*1)		<b>Crimping Terminal</b>		2	1.0 to 1.3
		Solid Wire			ø0.5 to 1.6 mm (AWG14 to 22)	2		
Applicable wire size			<b>Crimping Terminal</b>		2	0.6 to 1.0 (M3.0) 1.0 to 1.3 (M3.5)		
		Stranded Wire	ø0.3 to 2.0 mm (AWG14 to 22)	2				0.6 to 1.0 (M3.0) 1.0 to 1.3 (M3.5)
					1. * refers to the lamp terminals of the illuminated push buttons and selector switches.			
External short-circuit protection		10A 250V fuse conforming to IEC60269-1						
Applicable wire size		Minimum 1 x 22 AWG, max. 2 x 14 AWG or 1 x 12 AWG						
Contact resistance		Initial contact resistance of 50mΩ or less						
Contact gap		4mm (NO and NC), 2mm (NO-EM and NC-LB)						
Electrical reliability		MTBF < 1 fault for 10 million operation cycles (3V DC, 5mA)						
Lamp ratings		LEDs: 6V: 17mA max, 12/24V: 11mA max, 120/240V: 10mA max						
Horsepower rating		1/4 HP @ 120V (single-phase, non-reversing motor); 1 HP @ 240V (3 phase, non-reversing motor)						
Contact material		Silver						

<b>Contact Ratings</b>	Pushbuttons	Contact block	Type HW-U
	Illuminated pushbuttons	Rated insulation voltage	600V
	Selector switches	Rated continuous current	10A
	Illuminated selector switches	Contact ratings by utilization category	AC-15 (A600) DC-13 (P600)
	Pushbutton selectors	IEC 60947-5-1	

		Contact Ratings by Utilization Category						
Operational voltage		24V	48V	50V	110V	220V	440V	
Operational current	AC50/60Hz	AC-12 Control of resistive loads and solid state load	10A	—	10A	10A	6A	2A
		AC-15 Control of electromagnetic loads (> 72VA)	10A	—	7A	5A	3A	1A
	DC	DC-12 Control of resistive loads and solid state loads	10A	5A	—	2.2A	1.1A	—
		DC-13 Control of electromagnets	5A	2A	—	1.1A	0.6A	—



NON-ILLUMINATED PUSHBUTTONS (ASSEMBLED)



To be used for interpreting part numbers only, not for part number development.

AROMAT DS MINIATURE RELAYS

Part #	Description
DS2E-D-DC12V	Miniature relay DPDT 2 amp w/12VDC coil
DS2E-S-DC12V	Miniature relay DPDT 2 amp w/12VDC coil
DS2E-S-DC24V	Miniature relay DPDT 2 amp w/24VDC coil
DS2E-S-DC48V	Miniature relay DPDT 2 amp w/48VDC coil
DS4E-M-DC12V	Miniature relay 4PDT 3 amp w/12VDC coil



VC15-2A2B-AC120VNH8

AROMAT/OMRON CONTROL RELAYS

Part #	Description
VC15-2A1B-AC24VK	BW5152185K Relay 3PDT 2NO/1NC 20 amp w/24VAC coil
VC15-2A2B-AC120VNH8	BW2252185K-H8 Relay 4PDT 2NO/2NC 20 amp w/120VAC coil
VC15-3A1B-AC120VN	BW2253185K Relay 4PDT 2NO/1NC 20 amp w/120VAC coil. Otis #P613AP9
G7J-3A1B-BW-1-AC120V	BW2213185K Relay 4PDT 2NO/1NC 20 amp w/120VAC coil and screw terminals. MCE #27-01-0035



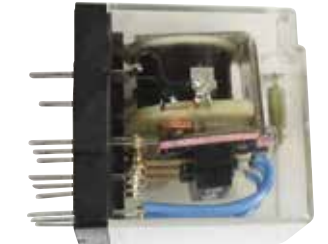
G7J-3A1B-BW-1-AC120V

LINE ELECTRIC

Part #	Description
LER1222D110	Relay DPDT w/110VDC coil. Replacement for the Guardian 1225-2C-110D
LER1223A240	Relay 3PDT with 240VAC coil. Replacement for Guardian 1220-3C-240A
LER1223D110	Relay 3PDT with 110VDC coil. Replacement for Guardian 1225-3C-110D
ORM11PB	Socket for AH5871 and AH5873 relays



LER1222D110



LER1223A240



LER1223A240



ORM11PB

Switches and Pilot Devices: IDEC

Relays: Aromat, Aromat/Omron, Line Electric



2961105



2961118

MISC. RELAYS

Part #	Description
2961105	Relay. E-Mech; power; SPDT; curr. rtg 6A; ctrl-V 24DC; vol-rtg 250AC/DC; PCB Mnt
2961118	Relay. E-Mech; power; SPDT; curr. rtg 6A; ctrl-V 60DC; vol-rtg 250AC/DC; PCB mnt; 5 pin
2961192	Power relay. DPDT, 24VDC, 8 A, REL-MR series, through hole, non-latching
40.52.8.120.0000	General purpose relay. 40 series, power, DPDT, 24VDC, 8 A
40.52.7.024.0000	General purpose relay. 40 series, power, DPDT, 24VDC, 8 A
W389ACX-14	Relay. 3PDT, 20A,120VAC w/flange
782XDX3C-120A	Control relay. E-Mech 4PDT 3A 120VAC; 782 Power Series
T84S17D414-48	Relay. 4PDT, 1A, 24VDC RES. Hi Dielectric
56.0W11.1131N	Safety relay. 110VDC
RTE24615	General purpose relays. DPDT 8 A 115VAC
1225-2C-110D	Guardian relay. DPDT, 110VDC

OMRON RELAYS

Part #	Description
G2R-1-S-DC12(S)	Power relay. SPDT, 12VDC, 10A, G2RS series, socket, non-latching
G2RL-1-DC5	Low profile power relay. SPDT 5VDC 12A
G2RL-1-E 24VDC	Non-latching relay. SPDT PCB mount, PC pin; 16A; 24VDC
G5Q-1A4-DC24	Relay. E-Mech; gen purp; SPST-NO; cur-rtg 10; 3; 5A; ctrl-V 24DC; PCB Mnt; 4 pin
G5RL-1-E-115/120VAC	Power relay. SPDT, 120VAC, 16A, G5RL series, through hole, non-latching
G5V-2-48VDC	Relay. Low signal; 24VDC; 2A; 62.5/60 VA/W; 1000VAC @ 50/60 Hz; 8 pin
G5V-2-DC12	Signal relay. 12VDC, DPDT, 2A, G5V-2 series, through hole, non-latching
MY4-DC24(S)	4PDT. Ctrl-V 24VDC; 5A; 250VAC/4PDT; ctrl-V 24VAC; 5A; 250VAC/30VDC; socket mnt; blade term; MY series
LY2F-AC110-120V	Relay. E-MECH; gen purp; DPDT; cur-rtg 10A; ctrl-V 110/120AC; vol-rtg 250/125AC/DC

RELAY LOGIC IBM REPLACEMENT RELAYS

Part #	Description
159941	Socket for 4 pole IBM relay
159942	Socket for 6 pole IBM relay
159943	Socket for 12 pole IBM relay
186685LRLS	IBM relay replacement 4PDT latching w/48VDC coil
333242RLS	IBM relay replacement 4PDT w/100/120VDC coil
769009RLS	IBM relay replacement 4PDT w/24/32VDC coil
769019RLS	IBM relay replacement 6PDT w/48VDC coil
769488RLS	IBM relay replacement 12PDT w/48VDC coil
769489RLS	IBM relay replacement 4PDT w/48VDC coil
9710292DRLS	IBM relay replacement 4PDT w/48VDC coil and diode



333242RLS



186685LRLS



9710292DRLS



769019RLS



769488RLS

SIEMENS 3TX SERIES – HEAVY DUTY POWER RELAYS

- Contact rating 30 and 40 amps, DPDT and SPDT
- Magnetic blowouts available for increased arc suppression

Part #	Description	Notes
3TX7130-0CC03	DPST-NO, 40A, 24VDC	PRD7DY0-24VDC/ PRD7DH0-24VDC
3TX7130-0CD03	DPST-NO, 40 Amp, 48VDC	PRD7DY0-48VDC/ PRD7DH0-48VDC
3TX7130-0CF03	DPST-NO,110VDC	PRD7DY0-110VDC/ PRD7DH0-110VDC
3TX7130-0CF13	DPST-NO, 40A, 120VAC	PRD7AY0-120VAC
3TX7130-0CH13	DPST-NO, 40A, 240VAC	PRD7AY0-240VAC
3TX7130-0DB03	DPDT, 40 amp, 12VDC	PRD11DY0-12VDC
3TX7130-0DC03	DPDT, 40 amp, 24VDC	PRD11DY0-24VDC
3TX7130-0DC13	DPDT, 40 amp, 24VAC	PRD11AY0-24VAC
3TX7130-0DD03	DPDT, 40 amp, 48VDC	PRD11DY0-48VDC
3TX7130-0DF03	DPDT, 40 amp, 110VDC	PRD11DY0-110VDC
3TX7130-0DF13	DPDT, 40 amp, 120VAC	PRD11AY0-120VAC
3TX7130-0DH13	DPDT, 40 amp, 240VAC	PRD11AY0-240VAC
3TX7130-0RB03	DPST, 40 amp, 12VDC mag blowout	PRD11DH0-12VDC
3TX7130-0RC03	DPST, 40 amp, 24VDC mag blowout	PRD11DH0-24VDC
3TX7130-0RD03	DPST, 40 amp, 48VDC mag blowout	PRD11DH0-48VDC
3TX7130-0RF03	DPDT, 40 amp, 110VDC mag blowout	PRD11DH0-110VDC
3TX7130-0RF13	DPDT, 30 amp, 120VAC, no LED	PRD11AH0-120VAC



3TX7130-0DC13

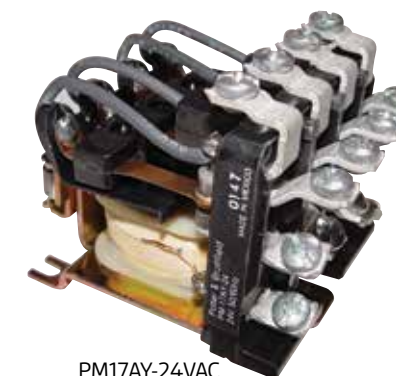


3TX7130-0RC03

STRUTHERS-DUNN

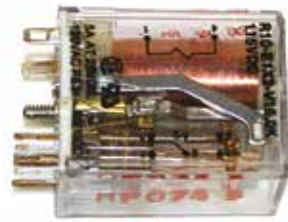
- Contact rating 25 amps 4PDT

Part #	Description
PM17AY-120VAC	4PDT 25 amp w/120VAC coil
PM17AY-240VAC	4PDT 25 amp w/240VAC coil
PM17AY-24VAC	4PDT 25 amp w/24VAC coil
PM17DY-110VDC	4PDT 25 amp w/110VDC coil



PM17AY-24VAC





R10E1X2-V15.0K



R10E1Y4-V2.5K



R10E1Z6-V1.5K

**TYCO ELECTRONICS**

Part #	Description
R10E1X2-V15.0K	DPDT 5 amp w/115VDC coil
R10E1X4-V15.0K	4PDT 5 amp w/115VDC coil
R10E1X6-V9.0K	6PDT 5 amp w/115VDC coil
R10E1Y2-V2.5K	DPDT 3 amp w/48VDC coil
R10E1Y2-V15.0K	DPDT 3 amp w/115VDC coil
R10E1Y2-V700	DPDT 3 amp w/24VDC coil
R10E1Y4-V2.5K	4PDT 3 amp w/48VDC coil
R10E1Y4-V700	4PDT 3 amp w/24VDC coil
R10E1Y6-V1.5K	6PDT 3 amp w/48VDC coil
R10E1Y6-V9.0K	6PDT 3 amp w/115VDC coil
R10E1Y6-V430	6PDT 3 amp w/24VDC coil
R10E1Z4-V2.5K	4PDT 2 amp bifurcated w/48VDC coil
R10E1Z6-V1.5K	6PDT 2 amp bifurcated w/48VDC coil
R10E1Z6-V9.0K	6PDT 2 amp bifurcated w/115VDC coil



V23050-A1110-A533



V23047-A1024-A501  
Schrack Relay 24VDC 8230hm  
6A DPDT  
29 x 12.6 x 25.5 mm



V23050-A1012-A542  
Schrack Relay 12VDC,  
Safety, 4NO, DPST-NC,  
250VAC, 8A

**TYCO/SCHRACK A17 SAFETY RELAY**

Part #	Description
V23047-A1024-A501	Schrack relay 24VDC 8230hm 6A DPDT 29 x 12.6 x 25.5 mm
V23047-A1110-A501	Schrack relay, DPDT 6A PCB w/110VDC coil
V23050-A1012-A542	Schrack relay, safety, 4NO, DPST-NC, 250VAC, 8A, 12VDC
V23050-A1110-A533	SR960001/SR6A4110 safety relay 6PST 3NO/3NC positively guided 8 amp contacts w/110VDC coil. Used with A17controllers

**LIMIT SWITCHES**

Part #	Description
CD4B-3111N	Omron limit switch lever, nylon roller, 0.69" diameter DPST, 1NO/1NC
CD4B-3113N	Adjustable lever, rubber roller, 1.97" diameter DPST, 1NO, 1NC
CD4B-3A13N	Omron limit switch, adjustable lever, rubber roller, 1.97" diameter DPST, 2NC
DW19	EECO LS1B limit switch. Specifically for use in the elevator hatchway as zoning, normal and final limits. One set of NO and NC closed contacts
DW19-D	EECO LS1B limit switch double contact switch
DW7	EECO MV-4C magnetic switch 1NO contact
DW7D	EECO MV-4C magnetic switch 2NO contact
ZE-N-25	Switch, enclosed, limit, 15A 125/250VAC, 2.8" h, 800 operating force



DW19



DW19-D



DW7



DW7D



CD4B-3111N



CD4B-3A13N



ZE-N-25



ARTISAN

Part #	Description	Extended Description
2410SA-8	Microprocessor Delay on Make DPDT Timer rated 12A resistive at 125VAC, 7A resistive at 250VAC/30VDC. Terminations: Octal plug-in type. Replaces Freedom 10-octal	A microprocessor time delay on make timer, controlling a DPDT set of relay contacts. Available on both AC and DC voltage models.
438U	Solid-state delay on Make Universal Timer rated 19 – 288VAC/DC, 1 amp, adjustable from 1 – 1,000 seconds	Model 438U (Universal Time Capsule) is an all solid-state timer providing Delay on Make control to any load operating from 19 – 288VAC/DC. Time delay is adjustable from 1 – 1000 seconds and is obtained by connecting a fixed resistor or potentiometer across the middle terminals (10K per second). Remains in off state when power is applied. After preset period has elapsed, timer switches on, energizing the load.
438UP	Solid-state delay on Make Universal Potentiometer Timer rated 19 – 288VAC/DC, 1 amp, adjustable from 1 second – 8 minutes	Model 438UP (Universal Potentiometer Adjustable Time Capsule) is an all solid-state timer providing Delay on Make control to any load operating from 19 – 288VAC/DC. Remains in off state when power is applied. Switches on when preset time period has elapsed, allowing load to energize. Load remains energized as long as power is applied. Power must be removed for at least 50 milliseconds to reset timer. Timing adjustment is made via potentiometer located between load terminals.
438USA	Solid-state delay on Make Universal Timer rated 19 – 288VAC/DC, 1 amp, adjustable from 1 – 1,024 seconds	Model 438USA (universal switch Adjustable Time Capsule) is an all solid-state timer providing Delay on Make control. Timing is set via a binary coded dip switch and is adjustable. Remains in off state when power is applied. Switches on when preset time period has elapsed, allowing load to energize. Load remains energized as long as power is applied.
438USA-3	Solid-state delay on Make Universal Timer rated 100 – 288VAC/DC, 1 amp, adjustable from 0.1 – 102.4 seconds	
438A-115-1	Solid-state delay on Make Timer rated 115VAC/DC, 1 amp, adjustable from 10.1 – 30 seconds	Model 438 Time Capsule is an all solid-state timer providing Delay on Make control to any 1 ampere AC or DC load such as a relay, solenoid or lamp. Timing adjustment is made by way of an external resistor. Consult instruction sheet for resistor selection.
438A-115-5	Solid-state delay on Make Timer rated 115VAC/DC, 1 amp, adjustable from 30 – 8,000 seconds	After choosing a timing resistor, connect the timer in series with the load. Polarity need not be observed. Remains in off state when power is applied. Switches on when preset time period has elapsed, allowing load to energize. Load remains energized as long as power is applied.
PP-1038	Bracket for mounting any Artisan Time Capsule device to DIN rail	
437-110-1-A	Solid-state delay on Make Timer rated 110VDC, 2 amp, 1 second	
5400-E-000	3.5" diagonal color display	Includes two relay contact outputs, two DC outputs for driving solid state relays, two switch inputs, and a USB port for importing and exporting the controller configurations.



2410SA-8



438U



438UP



438USA



438USA-3



438A-115-1



438A-115-5



PP-1038



437-110-1-A



5400-E-000

IDEC RTE SERIES – ANALOG

- 20 time ranges and 10 timing functions
- Time delays up to 600 hours
- ON and timing OUT LED indicators
- Standard 8- or 11-pin and 11-blade termination
- 2 form C delayed output contacts
- 10A Contact Rating

Specifications		
Operating System	Solid-state CMOS circuit	
Operation Type	Multi-mode	
Time Range	0.1 sec to 600 hours	
Rated Operational Voltage	AF20	100 – 240VAC
	AD24	24VAC, 24VDC
	D12	12V DC
Reset Time	100 msec maximum	
Dimensions (mm)	RTE-P1, P2	40h x 36w x 77.9d
	RTE-B1, B2	40h x 36w x 74.9d
Contact Configuration	2 Form C, DPDT (Delay output)	
Allowable Voltage/Allowable Current	240VAC, 30VDC/10A	
Rated Load	Resistive	10A 240VAC, 30VDC
	Inductive	7A 240VAC, 30VDC

Part #	Voltage	Terminals	Socket
RTE-B1AF20	100 – 240VAC	Blade	SR3B-05
RTE-B2AF20	100 – 240VAC	Blade	SR3B-05
RTE-P1AF20	100 – 240VAC	8 pin	SR2P-06
RTE-P2AD24	24VAC	11 pin	SR3P-05
RTE-P2AF20	100 – 240VAC	11 pin	SR3P-05



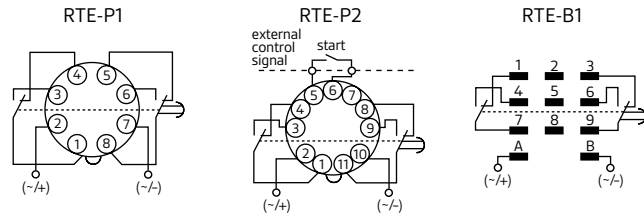
RTE-P1AF20



RTE-B1AF20

Timers and Flashers: IDEC

RTE Timing: P1+2 – B1+2



**A: ON-Delay 1 (power start)**  
Set timer for desired delay, apply power to coil. Contacts transfer after preset time has elapsed, and remain in transferred position until timer is reset. Reset occurs with removal of power.

Item	Terminal Number	Operation
Power	(1) 2 - 7 (2) A - B	
Delayed Contact	(1) 1 - 4, 5 - 8 (NC) (2) 1 - 7, 3 - 9 (NO)	
Indicator	PWR OUT	
Set Time		T

**C: Cycle 1 (power start, OFF fi rst)**  
Set timer for desired delay, apply power to coil. First transfer of contacts occurs after preset delay has elapsed, after the next elapse of preset delay contacts return to original position. The timer now cycles between on and off as long as power is applied (duty ratio 1:1).

Item	Terminal Number	Operation
Power	(1) 2 - 7 (2) A - B	
Delayed Contact	(1) 1 - 4, 5 - 8 (NC) (2) 1 - 7, 3 - 9 (NO)	
Indicator	PWR OUT	
Set Time		T

**A: ON-Delay 2 (signal start)**  
When a preset time has elapsed after the start input turned on while power is on, the NO output contact goes on.

Item	Terminal Number	Operation
Power	(A) 2 - 10 (B) A - B	
Start	(A) 5 - 6 (B) 2 - 5	
Delayed Contact	(A) 1 - 4, 8 - 11 (NC) (B) 1 - 7, 3 - 9 (NO)	
Indicator	PWR OUT	
Set Time		T

**C: Cycle 4 (signal start, ON fi rst)**  
When the start input turns on while power is on, the NO contact goes on. The output oscillates at a preset cycle (duty ratio 1:1).

Item	Terminal Number	Operation
Power	(A) 2 - 10 (B) A - B	
Start	(A) 5 - 6 (B) 2 - 5	
Delayed Contact	(A) 1 - 4, 8 - 11 (NC) (B) 1 - 7, 3 - 9 (NO)	
Indicator	PWR OUT	
Set Time		T

1. RTE-P2: Do not apply voltage to terminals 5, 6 & 7.
2. RTE-B1, B2: Do not apply voltage to terminals 2, 5 & 8.
3. IDEC sockets are as follows: RTE-P2: SR3P-05\* pin type socket, RTE-B2: SR3B-05\* blade type socket (\*may be followed by suffix letter A,B,C or U).

**B: Interval (power start)**  
Set timer for desired delay, apply power to coil. Contacts transfer immediately, and return to original position after preset time has elapsed. Reset occurs with removal of power.

Item	Terminal Number	Operation
Power	(1) 2 - 7 (2) A - B	
Delayed Contact	(1) 1 - 4, 5 - 8 (NC) (2) 1 - 7, 3 - 9 (NO)	
Indicator	PWR OUT	
Set Time		T

**C: Cycle 3 (power start, ON fi rst)**  
Functions in same manner as Mode C, with the exception that first transfer of contacts occurs as soon as power is applied. The ratio is 1:1. Time On = Time Off

Item	Terminal Number	Operation
Power	(1) 2 - 7 (2) A - B	
Delayed Contact	(1) 1 - 4, 5 - 8 (NC) (2) 1 - 7, 3 - 9 (NO)	
Indicator	PWR OUT	
Set Time		T

**B: Cycle 2 (signal start, OFF fi rst)**  
When the start input turns on while power is on, the output oscillates at a preset cycle (duty ratio 1:1), starting while the NO contact off.

Item	Terminal Number	Operation
Power	(A) 2 - 10 (B) A - B	
Start	(A) 5 - 6 (B) 2 - 5	
Delayed Contact	(A) 1 - 4, 8 - 11 (NC) (B) 1 - 7, 3 - 9 (NO)	
Indicator	PWR OUT	
Set Time		T

**D: Signal ON/OFF-Delay**  
When the start input turns on while power is on, the NO output contact goes on. When a preset time has elapsed while the start input remains on, the output contact goes off. When the start input turns off, the NO contact goes on again. When a preset time has elapsed after the start input turned off, the NO contact goes off.

Item	Terminal Number	Operation
Power	(A) 2 - 10 (B) A - B	
Start	(A) 5 - 6 (B) 2 - 5	
Delayed Contact	(A) 1 - 4, 8 - 11 (NC) (B) 1 - 7, 3 - 9 (NO)	
Indicator	PWR OUT	
Set Time		T

IDEC RTE SERIES continued

RTE Timing: P1+2 – B1+2 continued

**E: Signal OFF-Delay**  
When power is turned on while the start input is on, the NO output contact goes on. When a preset time has elapsed after the start input turned off, the NO output contact goes off.

Item	Terminal Number	Operation
Power	(A) 2 - 10 (B) A - B	
Start	(A) 5 - 6 (B) 2 - 5	
Delayed Contact	(A) 1 - 4, 8 - 11 (NC) (B) 1 - 7, 3 - 9 (NO)	
Indicator	PWR OUT	
Set Time		T

**F: One-Shot (signal start)**  
When the start input turns on while power is on, the NO output contact goes on. When a preset time has elapsed, the NO output contact goes off.

Item	Terminal Number	Operation
Power	(A) 2 - 10 (B) A - B	
Start	(A) 5 - 6 (B) 2 - 5	
Delayed Contact	(A) 1 - 4, 8 - 11 (NC) (B) 1 - 7, 3 - 9 (NO)	
Indicator	PWR OUT	
Set Time		T

IDEC GT3A SERIES – ANALOG

Timer, On Delay (delay on make), 100-240VAC - 8 pin octal base 0.05s to 180 hours multi-mode

Specifications: GT3A-3AF20	
Time Range	0.05 sec – 180 hours
Rated Voltage	100 – 240VAC, 12VDC, 24VAC, 24VDC
Reset Time	60 msec maximum
Contact Ratings	125VAC/250VAC, 5A; 30VDC, 5A (resistive load)



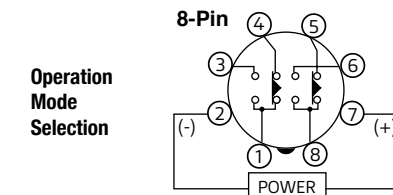
GT3A-3AF20

Key features

- 4 selectable operations modes on each model
- External start, reset and pause prints
- Panel mount or socket mount
- Large variety of timing functions
- Power and outputs status indicating LEDs

Mode of Operation	Rated Voltage Code	Time Range	Output	Contact	Complete Part #
A: ON-delay 1	AF20: 100 – 240VAC (50/60Hz)	0.05s – 180 hours	240VAC, 5A, 24VDC, 5A (resistive load)	Delayed DPDT	GT3A-3AF20
B: Interval 1	D12: 12V DC				
C: Cycle 1	AD24: 24VAC (50/60Hz) 24VDC				
D: Cycle 3					

GT3A-3 Timing: Delayed DPDT



**ON-Delay 1**

Item	Terminal Number	Operation
Power	2 - 7	
Delayed Contact	1 - 4, 5 - 8 (NC) 1 - 3, 6 - 8 (NO)	
Indicator	PWR OUT	
Set Time		T

**Cycle 1 (OFF first)**

Item	Terminal Number	Operation
Power	2 - 7	
Delayed Contact	1 - 4, 5 - 8 (NC) 1 - 3, 6 - 8 (NO)	
Indicator	PWR OUT	
Set Time		T

**Interval 1**

Item	Terminal Number	Operation
Power	2 - 7	
Delayed Contact	1 - 4, 5 - 8 (NC) 1 - 3, 6 - 8 (NO)	
Indicator	PWR OUT	
Set Time		T

**Cycle 3 (ON first)**

Item	Terminal Number	Operation
Power	2 - 7	
Delayed Contact	1 - 4, 5 - 8 (NC) 1 - 3, 6 - 8 (NO)	
Indicator	PWR OUT	
Set Time		T



GT3F-2AF20

**IDEC GT3F SERIES – TRUE OFF DELAY**

Timer, TRUE Off Delay (delay on break)  
100-240VAC, 24VAC/DC - 8 pin octal base.  
No external control switch is necessary.  
0.5s to 600s, 3A resistive contact rating.

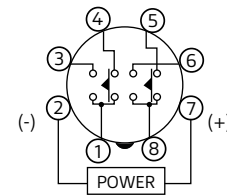
**Key features**

- Mountable in sockets or flush panel
- "True" power OFF-delay up to 10 minutes
- No external control switch necessary
- Available with reset inputs

**Specifications: GT3F-2AF20**

Operation	True power OFF-delay
Time Range	0.05 sec – 600 secs
Rated Voltage	100 – 240VAC, 24VAC, VDC
Contact Rating	250VAC/30VDC, 3A (resistive load)
Contact Form	DPDT
Minimum Power Application Time	1 sec

**GT3F-2 (8-pin) Timing: Delayed DPDT**



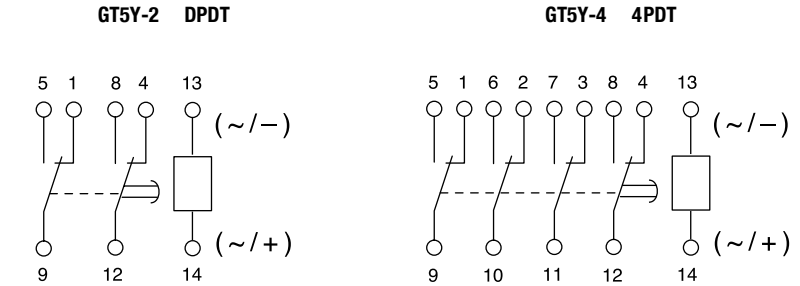
Item	Terminal Number	Operation
Power	2 - 7	
Delayed Contact	1 - 4	(NC)
	5 - 8	(NO)
Indicator	POWER	
Set Time		

T = Set time  
Tr = Minimum Power Application Time

When power is applied, the NO contact closes. When power is removed, the timing period begins. When time has elapsed, the NO contact opens. Optional reset input will return contacts to original state before time elapses.

**GT5Y Timing/Schematics/Electrical Life Curves**

**Internal Connections (bottom view)**



**Operation Mode: ON-Delay**

Item	Terminal Number	Operation
Set Time		
Power	13 - 14	
Delayed Contact	1 - 9, 2 - 10	(NC)
	3 - 11, 4 - 12	(NO)
Indicator	POWER	
	OUT	



GT5Y-4SN6A100

**IDEC GT5Y SERIES – ON DELAY**

- 4PDT, 3A or DPDT, 5A contacts
- 4 time ranges
- Control settings by hand or screwdriver
- Power ON and timing out LED indicators
- Uses the same sockets and hold-down clips as IDEC's RY4S and RU series relays

**Specifications**

		GT5Y-4	
Rated Operating Voltage		100 – 120VAC	24VDC
		200 – 240VAC	24VAC
Contact Form		4PDT	
Rated Load	Resistive Load	220VAC, 3A	30VDC, 3A
	Inductive Load	220VAC, 0.8A	30VDC, 1.5A
Allowable Contact Power	Resistive Load	660VA AC	90W DC
	Inductive Load	176VA AC	45W DC
	Cos 0 = 0.3		
	L/r = 7 msec		
Allowable Voltage		250VAC, 125VDC	
Allowable Current		3A	
Reset Time		When turning power off after time up: 0.1 sec maximum	
		When turning power off before time up: 1 sec maximum	

Mode of Operation	Contact	Output	Rated Voltage	Time Range	Complete Part #	
ON-delay	DPDT	220VAC/ 30VDC, 5A	100 – 120VAC	1S/10S/1M/10M	GT5Y-25N1A100	
				3S/30S/3M/30M	GT5Y-25N3A100	
		4PDT	220VAC/ 30VDC, 3A	100 – 120VAC	1S/10S/1M/10M	GT5Y-45N1A100
					3S/30S/3M/30M	GT5Y-45N3A100
				6S/60S/6M/60M	GT5Y-45N6A100	
				200 – 240VAC	1S/10S/1M/10M	GT5Y-45N1A200
				24VDC	1S/10S/1M/10M	GT5Y-45N1D24
				24VAC	1S/10S/1M/10M	GT5Y-45N1A24

**SPRECHER+SCHUH**

**Part #**

**Description**

CZA7-30	Off-delay pneumatic timer attachment for S+S CA7 contactors, 0.3 – 30 secs
CZA7-180	Off-delay pneumatic timer attachment for S+S CA7 contactors, 1.8 – 180 secs
CZE7-30	Timer attachment, on delay, pneumatic 0.3 – 30 secs



CZA7-180



CZA7-30

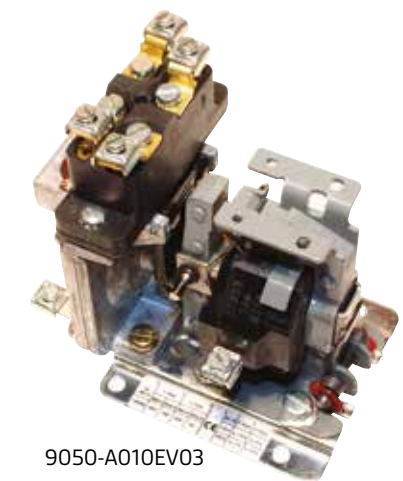
**SQUARE D PNEUMATIC**

- On or Off delay (convertible)
- SPDT timed contacts rated 15 amps continuous
- Timing range 0.15 – 60 seconds
- Repeat accuracy +/- 10%
- Operating temperature range 68° – 104°F

**Part #**

**Description**

9050-A010EV02	120VAC
9050-A010EV03	230VAC



9050-A010EV03





## TIME MARK CORPORATION 3-Phase Power Monitors

### Detect phase loss, low voltage, phase reversal

Time-Mark Three Phase Power Monitors continuously monitor 3-phase power lines for abnormal conditions. When properly adjusted, they will detect phase loss on a loaded motor even when regenerated voltage is present.

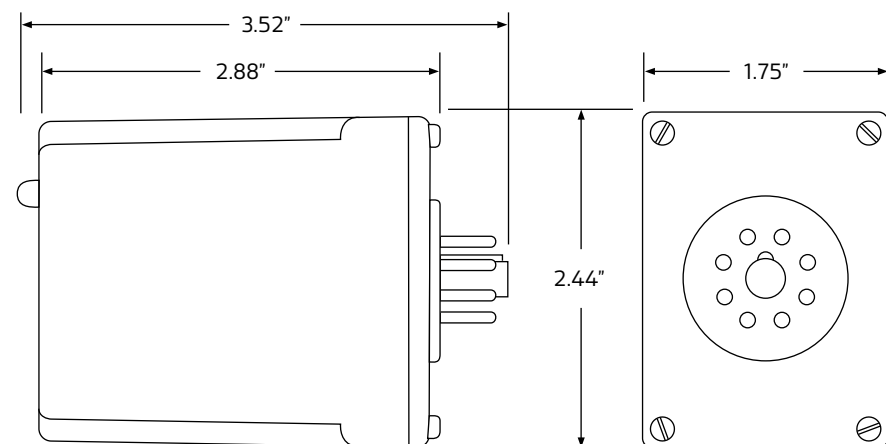
These devices consist of a solid-state voltage and phase-angle sensing circuit, driving an electromechanical relay. When correct voltage and phase rotation are applied, the internal relay energizes. A fault condition de-energizes the relay. When the fault is corrected, the monitors automatically reset.

The monitors do not require a neutral connection and can be used with Wye or Delta systems. Voltage ranges are sufficiently wide to allow for proper adjustment to existing conditions. Both TRIP and NORM condition indicators are provided to aid in adjustment and system troubleshooting.

### Specifications

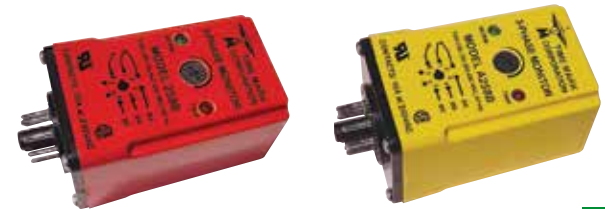
Auto Reset	B257B	257B	A257B
Nominal AC Voltage (phase to phase)	120VAC	208/240VAC	480VAC
Case Color	Gray	Red	Yellow
Adjustment Range	85 - 120VAC	160 - 240VAC	380 - 480VAC
Response Time	50 msec (set or reset)		
Output Contacts	SPDT 10 amps at 240VAC resistive		
Expected Relay Life	Mechanical: 10 million operations Electrical: 100,000 operations at rated load		
Mounting	8-pin socket Cat. #51X120		

### Dimensions



Part #	Description
18-120	3-phase monitor w/trip and restart delays 85-120VAC SPDT 10 amps
18-208/240	3-phase monitor w/trip and restart delays 160-240VAC SPDT 10 amps
18-480	3-phase monitor w/trip and restart delays 380-480VAC SPDT 10 amps
253	SPDT 10A 208-480VAC (phase to phase) Reverse phase relay, socket mounted, senses phase reversal, low power consumption
257B	3-phase power monitor 208/240VAC side adjust
258B	3-phase power monitor 208/240VAC top adjust
98A00110-01	3-phase power monitor 45-60VAC side adjust, Otis special
A257B	3-phase power monitor 480VAC top adjust
A258B	3-phase power monitor 480VAC side adjust
B257B	3-phase power monitor 120VAC top adjust
B258B	3-phase power monitor 120VAC side adjust

Accessories	
51X120	Socket for 3-phase power monitor, 600V rated
98A53-5	Hold down clamp



258B

A258B



98A00110-01

A257B



18-120

18-208/240

18-480



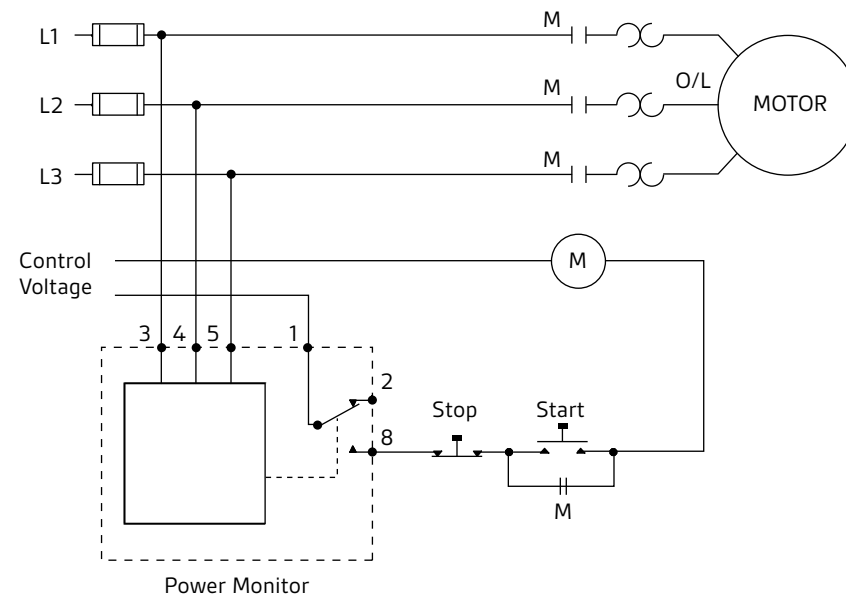
DPA01CM60

DPA53CM23



DPA53CM48

### Typical Application



### CARLO GAVAZZI

Part #	Description
DPA01CM60	Relay; E-Mech; 3-phase monitor
DPA53CM23	Relay; E-Mech; 3-phase monitor
DPA53CM48	Power monitor, Carlo Gavazzi 3



A50-30



A75-30



A145-30

**ABB/ASEA BROWN BOVERI**

For a complete listing of ABB DC Drive Contactors and replacement parts, see the DC Contactor section starting on page 182.

For a complete listing of ABB contact kits, see the Contact Kit section starting on page 189.

**AC IEC Contactors**

Part #	Max Motor Amps	HP@ 200V	HP@ 230V	HP@ 460V	Notes
A9-30-01-84	9	2	2	5	Includes 1NC built-in aux, 120VAC coil
A9-30-10-84	9	2	2	5	Includes 1NO built-in aux, 120VAC coil
A9-30-11-84	9	2	2	5	Includes 1NO/1NC built in aux, 120VAC coil
A12-30-01-84	11	3	3	7.5	Includes 1NC built-in aux, 120VAC coil
A12-30-10-84	11	3	3	7.5	Includes 1NO built-in aux, 120VAC coil
A16-30-01-84	17	5	5	10	Includes 1NC built-in aux, 120VAC coil
A16-30-10-84	17	5	5	10	Includes 1NO built-in aux, 120VAC coil
A26-30-01-84	28	7.5	10	20	Includes 1NC built-in aux, 120VAC coil
A26-30-10-84	28	7.5	10	20	Includes 1NO built-in aux, 120VAC coil
A26-30-11-84	28	7.5	10	20	Includes 1NO/1NC built in aux, 120VAC coil
A30-30-01-84	34	10	10	25	Includes 1NC built-in aux, 120VAC coil
A30-30-10-84	34	10	10	25	Includes 1NO built-in aux, 120VAC coil
A40-30-01-84	42	10	15	30	Includes 1NC built-in aux, 120VAC coil
A40-30-10-81	42	10	15	30	Includes 1NO built in aux, 24VAC coil
A40-30-10-84	42	10	15	30	Includes 1NO built-in aux, 120VAC coil
A40-30-11-84	42	10	15	30	Includes 1NO/1NC built in aux, 120VAC coil
A50-30-11-84	54	15	20	40	Includes 1NO/1NC built-in aux, 120VAC coil
A63-30-11-84	65	20	25	50	Includes 1NO/1NC built-in aux, 120VAC coil
A75-30-11-84	80	25	30	60	Includes 1NO/1NC built-in aux, 120VAC coil
A95-30-11-80	95	30	30	60	Includes 1NO/1NC built in aux, 240VAC coil
A95-30-11-84	95	30	30	60	Includes 1NO/1NC built-in aux, 120VAC coil
A145-30-11-84	130	40	50	100	Includes 1NO/1NC built-in aux, 120VAC coil
A210-30-11-84	192	60	75	150	Includes 1NO/1NC built-in aux, 120VAC coil

This product is being phased out and replaced the the AF series.

**Mechanical Interlocks**

Part #	Description	Notes
VE5-2	Includes 2 NC aux contacts	For use with A45-A110 contactors
VM4	Mech interlock AF09-AF38	
VM5-1	Mech interlock A9-A40	



VE5-2

**Aux Contacts**

Part #	Description	Notes
CA5-22E	Aux contact, top mount 2NO/2NC	For use with A30-A110 contactors
CAL5-11	Aux contact, side mount 1NO/1NC	For use with A9-A110 contactors
CAL18-11	Aux contact, side mount 1NO/1NC	For use with AA145-300 and AF145-AF2050 contactors
CA5-10	Aux contact 1NO	Front mounting A9-A40
CA5-01	Aux contact 1NC	Front mounting A-line
CA5-04E	Aux contact 4NC	Front mounting A-line
CA5-22E	Aux contact 2NO/2NC	Front mounting A-line
CA5-31E	Aux contact 3NO/1NC	Front mounting A-line
CA5-40E	Aux contact 4NO	Front mounting A-line
CAL16-11A	Aux contact 1NO/1NC	Leftside mounting A-line
CAL16-11B	Aux contact 1NO/1NC	Rightside mounting A-line
CAL16-11C	Aux contact 1NO/1NC	Left/rightside mounting A-line
CCL16-11E	Aux contact 1NO/1NC	Late break EHDB220-280
CAL16-11N	Aux contact 1NO/1NC	Leftside mounting EHDB220-280
CAL18-11	Aux contact 1NO/1NC	AA145-300 anf AF145-AF2050



CA5-22E



CAL18-11



CAL5-11

Starters and Contactors: ABB

Starters and Contactors: ABB



**ALLEN-BRADLEY**

**Bulletin 100-C Contactors and Starters, IEC Contactors**



Allen-Bradley 100-C60 and Sprecher+Schuh CA7-60 Contactors



Part #	Sprecher+Schuh Part #	Max Motor Amps	HP@ 200V	HP@ 230V	HP@ 460V	Notes
100-C09-01-	CA7-09-01-*	9	2	2	5	Includes 1NC built-in aux
100-C09-10-	CA7-09-10-*	9	2	2	5	Includes 1NO built-in aux
100-C12-01-	CA7-12-01	12	3	3	7.5	Includes 1NC built-in aux
100-C12-10-	CA7-12-10-*	12	3	3	7.5	Includes 1NO built-in aux
100-C12-M40-	CA7-12E-10	12	3	3	7.5	4NO power poles
100-C16-01-	CA7-16-01-*	16	5	5	10	Includes 1NC built-in aux
100-C16-10-	CA7-16-10-*	16	5	5	10	Includes 1NO built-in aux
100-C16-M31-	CA7-16-M31	16	5	5	10	3NO/1NC power poles
100-C23-01-	CA7-23-01-*	23	5	7.5	15	Includes 1NC built-in aux
100-C23-10-	CA7-23-10-*	23	5	7.5	15	Includes 1NO built-in aux
100-C23-M22-	CA7-23-M22	23	5	7.5	15	2NO/2NC power poles
100-C23-M31-	CA7-23-M31	23	5	7.5	15	3NO/1NC power poles
100-C23-M40-	CA7-23-M40	23	5	7.5	15	4NO power poles
100-C30-00-*	CA7-23-00-*	30	7.5	10	20	Specify aux contacts
100-C37-00-*	CA7-37-00-*	37	10	10	25	Specify aux contacts
100-C43-00-*	CA7-43-00-*	43	10	15	30	Specify aux contacts
100-C60-00-*	CA7-60-00-*	60	15	20	40	Specify aux contacts
100-C72-00-*	CA7-72-00-*	72	20	25	50	Specify aux contacts
100-C85-00-*	CA7-85-00-*	85	25	30	60	Specify aux contacts
100-C97-00-*	CA7-97-10-*	97	30	30	75	Specify aux contacts
100-D115-00-*	CA6-115-11	115	40	40	75	Specify aux contacts
100-D140-00-*	CA6-140-00-*	140	40	50	100	Specify aux contacts
100-D180-00-*	CA6-180-00-*	180	50	60	150	Specify aux contacts

Available AC coil voltages: 24, 120, 208, 240, 480, 600  
 Available DC coil voltages: 12, 24, 48, 110, 125, 220

\*These contactors have replaceable contacts.

Access Elevator Supply is not a franchised distributor for Allen-Bradley products, but we are for Sprecher+Schuh.

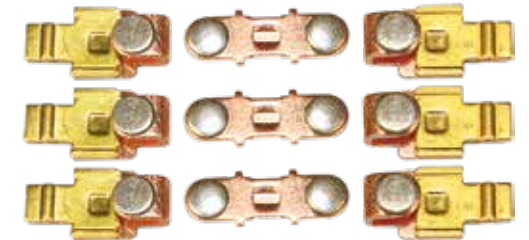
**Replacement Contact Kits for 100-C and 100-D Contactors**

All 3-pole kits

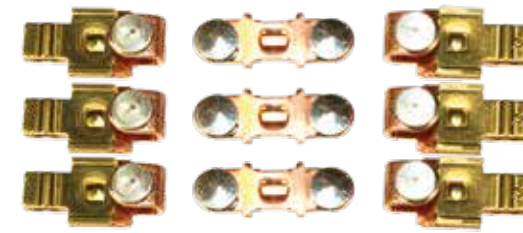
Part #	Contact Kit
100-C30	CA7-C30
100-C37	CA7-C37
100-C43	CA7-C43
100-C60	CA7-C60
100-C72	CA7-C72
100-C85	CA7-C85
100-D95	CA6-C95



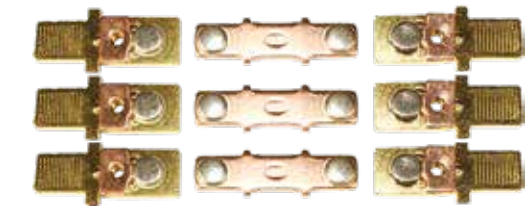
CA7-C30



CA7-C37



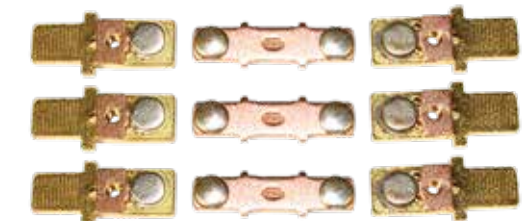
CA7-C43



CA7-C60



CA7-C72



CA7-C85

**100-B Replacement Contactors and Parts**



3RT1054-6AF36-PEM Replacement Contactor for 100-B110ND3



40780-800-01 Contact Kit for 100-B110ND3 Contactor

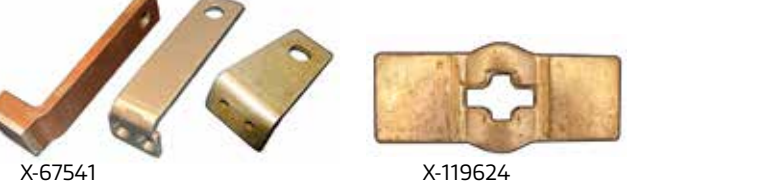


195-GA10 1NO aux contact Used with 100-B110ND3 Contactor

Baseplate mounting holes match those of the 100-B110ND3. Order in pairs when using in an MCE 12 Pulse Drive.

Also order mounting kit 3RT1054-SVCKIT, one per contactor.





ALLEN-BRADLEY continued

500 Line NEMA Starters and Contact Kits

All 1-pole kits

Part #	NEMA Size	Contact Kit, 1-pole
509-A0D	0	40410-331-51
509-B0D	1	40410-331-52
509-C0D	2	40420-322-51
509-D0D	3	40430-300-51
509-E0D	4	40440-300-51
509-F09	5	40450-805-01

Series K Contact Kits

All 1-pole kits

Part #	Size	Notes
Z34037	0	
Z34038	1	
Z34039	2	
Z34040	3	
Z34041	4	
Z34043	5	Accommodates terminal mounted current transformers

Series A Contact Kits

Part #	Size	Description
X-33977	0	Stationary, short, 1 piece
X-35162	0	Stationary, long, 1 piece
X-33553	0	Movable, 1 piece
X-33519	1	Stationary, short, 1 piece
X-35163	1	Stationary, long, 1 piece
X-36702	2	Stationary, 1 piece
X-36670	2	Movable, 1 piece
X-36703	3	Stationary, 1 piece
X-36671	3	Movable, 1 piece
X-67541	4	Stationary, 1 piece
X-119624	4	Movable, 1 piece

FUJI

Electric Parts

Part #	Description
4SH4221Y	SH-4Y 2NO/2NC 110 - 120V/60HZ
4SH4401Y	SH-4Y 4NO 110-120V/60HZ
4SH4311Y	SH-4Y 3NO/1NC AC110 - 120V/60hz
4NCOH0102Y	SC-5-1Y 110-120V60HZ 2NC
4NCOH0111Y	SC-5-1Y AC110 - 120V 60HZ AC110 1NO/1NC
SZ-A22Y	2NO/ 2NC aux for SC-5
SZ-Z5	Surge suppressor 100 - 250V AC, DC



4SH4221Y



4SH4401Y



4SH4311Y



4NCOH0102Y



4NCOH0111Y



SZ-A22Y



SZ-Z5



CL04



CL02



CL06



CK75



CL04



CL10



BCLF10



BCLF01



BCLL11



BCLL20



BRLL11

GE

C2000 IEC Contactors

Part #	Max Motor Amps	200V HP	230V HP	460V HP
CL00A310T	10	3	3	5
CL01A310T	13.8	3	3	7.5
CL02A310T	17.5	5	5	10
CL25A310T	22	5	7.5	15
CL04A310M*	32	10	10	20
CL45A310M	34	10	10	25
CL06A300M*	48	15	15	30
CL07A300M*	62	20	20	40
CL08A300M*	68	20	25	50
CL09A300M*	80	25	30	60
CL10A300M*	96	30	40	75
CK75CE11W100-250	150	40	50	100
CK08CE31W100-250	156	50	60	125

To complete catalog number, specify AC or DC coil voltage.

\*Replacement contacts available. See following page for available contact kits.

C2000 IEC Starters

Part #	Max Motor Amps	200V HP	230V HP	460V HP
CL00A310T	10	3	3	5
CL01A310T	13.8	3	3	7.5
CL02A310T	17.5	5	5	10
CL25A310T	22	5	7.5	15
CL04A310M	32	10	10	20
CL45A310M	34	10	10	25
CL06A300M*	48	15	15	30
CL07A300MJ*	62	20	20	40
CL08A300MJ*	68	20	25	50
CL09A300MJ*	80	25	30	60
CL10A300MJ*	96	30	40	75

To complete catalog number, specify AC or DC coil voltage, and overload relay amps.

\*Replacement contacts available. See following page for available contact kits.

Aux Contacts

Part #	Contacts	Mounting
BCLF10	1NO	Aux contact, front mounting CL00-CL10/CK
BCLF01	1NC	Aux contact, front mounting CL00-CL10/CK
BCLL11	1NO/1NC	Aux contact, side mounting CL00-CL10/CK
BCLL20	2NO	Aux contact, side mounting CL00-CL10/CK
BRLL11	1NO/1NC	Aux contact, side mounting CL00-CL10/CK

Mechanical Interlock #	Notes
BELA02	Mechanical interlock w/2NC aux contacts, CL contactors
BEKH	Mechanical interlock, CK contactors



BELA02



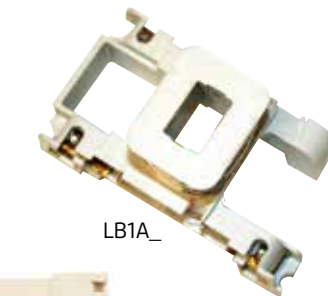
BEKH

Replacement Coils

Part #	Contactor/Starter
LB1A_	CL00/01/02/25
LB3A_	CL04/45
LB4A_	CL06/07/08/09/10

To complete replacement coil part number, specify coil voltage.

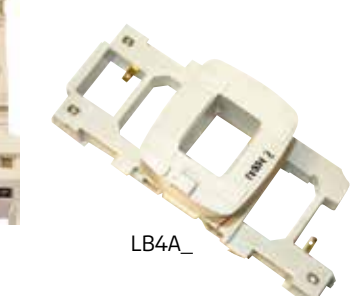
- 120V = J
- 240V = S
- 208V = L
- 24V = D
- 277V = N



LB1A\_



LB3A\_



LB4A\_

Replacement Starter-mounted Overload Relays for CL00, CL01, CL02, CL25, CL04 and CL45

Auto/Manual Reset

Part #	Amp Range
RT1H	1.3 - 1.9
RT1L	4 - 6.3
RT1M	5.5 - 8.5
RT1T	17.5 - 22
RT1U	21 - 26
RT12W	30 - 40

Replacement Starter-mounted Overload Relays for CL06, CL07, CL08, CL09 and CL10

Auto/Manual Reset

Part #	Amp Range
RT2D	24 - 32
RT2E	30 - 43
RT2G	42 - 55
RT2H	54 - 65
RT2J	64 - 82
RT2L	78 - 97
RT2M	90 - 110



RT2E



RT2L



GE continued

300 Line NEMA Starters

- Heavy-duty NEMA industrial design
- Easy to replace coils and contacts
- NEMA Type 1, 3R, and 12 enclosures readily available



CR306A/B/C (CR306C shown)

200V HP	230V HP	460V HP	Max Motor Amps	NEMA Size	Part #	Std. Aux Contacts NO	Std. Aux Contacts NC	Height	Width	Depth
1-1/2	1-1/2	2	9	00	CR306A00	1	—	7"	3.7"	5.5"
3	3	5	18	0	CR306B00	1	—	7"	3.7"	5.5"
7-1/2	7-1/2	10	27	1	CR306C00	1	—	7"	3.7"	5.5"
10	15	25	45	2	CR306D00	1	—	9"	4.6"	5.5"
25	30	50	90	3	CR306E00	1	—	11.6"	6.6"	6.5"
40	50	100	135	4	CR306F00	1	—	11.6"	6.6"	6.5"
75	100	200	270	5	CR306G00	1	—	14"	11.5"	9"

To complete catalog number, specify AC coil voltage and overload relay amps.



CR306D

NEMA Reversing/Wye-Delta Contactors

Part #	Size	Amps	NEMA Max		
			Height	Width	Depth
CR309A0 --BAA	00	9	4.5"	8.9"	5"
CR309B0 --BAA	0	18	4.5"	8.9"	5"
CR309C0 --BAA	1	27	4.5"	8.9"	5"
CR309D0 --BAA	2	45	7"	10.4"	6.2"
CR309E0 --BAA	3	90	9"	15"	7.2"
CR309F0 --BAA	4	135	9"	15"	7.2"

To complete catalog number, specify AC coil voltage.

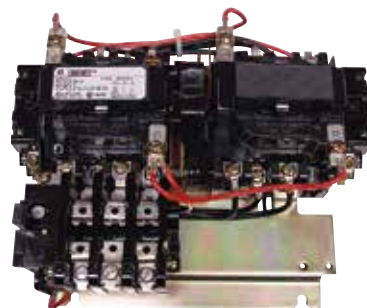


CR306E/F (CR306E shown)

NEMA Reversing/Wye-Delta Starters

Part #	Size	Amps	NEMA Max		
			Height	Width	Depth
CR309A0 --	00	9	7"	8.9"	5"
CR309B0 --	0	18	7"	8.9"	5"
CR309C0 --	1	27	7"	8.9"	5"
CR309D0 --	2	45	9"	10.4"	6.2"
CR309E0 --	3	90	15"	15"	7.2"
CR309F0 --	4	135	15"	15"	7.2"

To complete catalog number, specify AC coil voltage and overload relay amps.



CR309C002



CR309C002BAA

Mechanical Interlocks

Part #	Contactor/ Starter Size	Notes
CR309X300B	3-4	For use with CR200 and CR300 line
CR305X146C	0-6	Surge suppressor; connected in parallel with 120V coil



CR309X300B



CR305X146C

Replacement T-bars

Replacement T-bar Contact Carrier	Contactor/ Starter Size	Notes
187D350P001	00-1	2, 3 and 4 pole/CR200 and CR300 line
55-750320P007	3-4	2 and 3 pole/CR300 line only
55-154607G010	5	2 and 3 pole/CR200 line only



187D350P001



55-750320P007

Replacement Coils

Part #	Contactor/ Starter Size	Notes
15D21G___	00-1	For use with CR200 and CR300 line
15D22G___	2	For use with CR200 and CR300 line
55-501336G___	3	For use with CR200 and CR300 line
55-501463G___	4	For use with CR200 and CR300 line
55-530249G___	5	For use with CR300 only
55-501493G___	5	For use with CR200 only
55-536548G___	6	For use with CR200 and CR300 line

To complete catalog number, specify coil voltage.



15D21G002



15D22G003



55-501336G004



55-501463G002



55-530249G004



55-501493G004



55-536548G004



GE continued

Aux Contacts

Part #	Contacts	Contactors/ Starter Size	Notes
CR305X100A	1NO	0-1	Base block. Mounts directly to side of starter
CR305X100B	1NC	0-1	Base block. Mounts directly to side of starter
CR305X100C	1NO/1NC	0-1	Base block. Mounts directly to side of starter
CR305X200A	1NO	2	Base block. Mounts directly to side of starter
CR305X200B	1NC	2	Base block. Mounts directly to side of starter
CR305X200C	1NO/1NC	2	Base block. Mounts directly to side of starter
CR305X300A	1NO	3-4	Base block. Mounts directly to side of starter
CR305X300B	1NC	3-4	Base block. Mounts directly to side of starter
CR305X500A	1NO	5-6	Base block. Mounts directly to side of starter
CR305X100E	1NC	0-6	Adder block. Mounts to base or another adder block



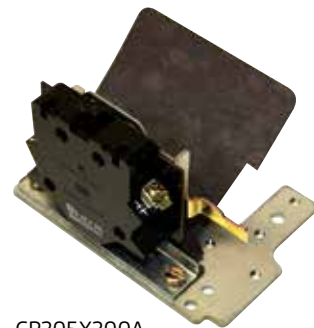
CR305X100A



CR305X100C



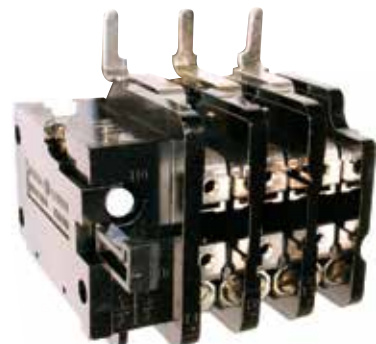
CR305X200C



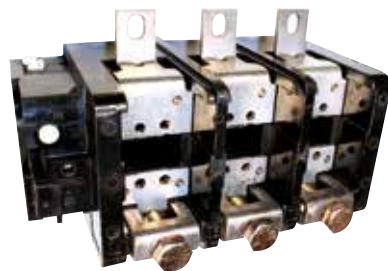
CR305X300A



CR305X100E



CR324D310F



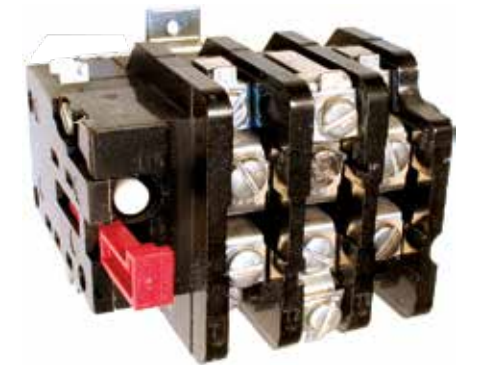
CR324E360F

Replacement Starter-mounted Overload Relays – 3 Phase

Size	CR200 Line	CR300 Line
00-1	CR224C310F/F9X2	CR324C310F/C360F
2	CR224D310F/FX	CR324D310F/D360F
3	CR224E310F/FX	CR324E310F/E360F
4	CR224F310F/FX	CR324F310F/F360F

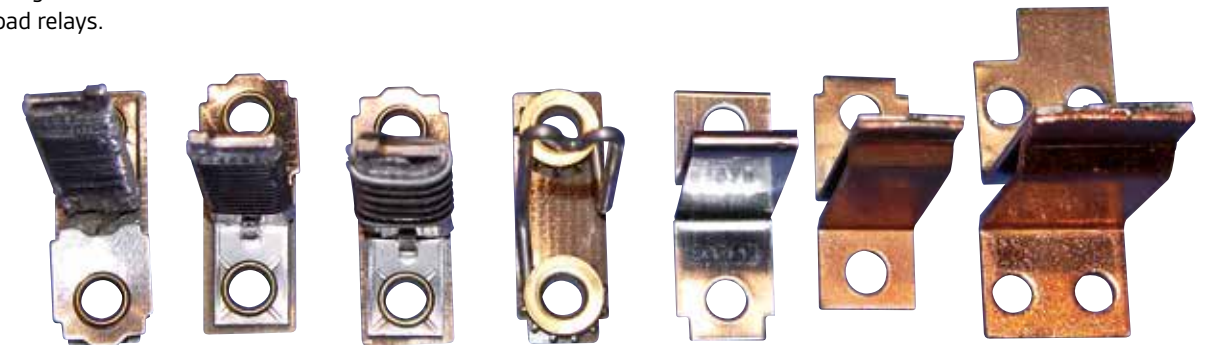
Replacement Panel-mounted Overload Relays – 3 Phase

Size	Max Amps	Contacts	Part # for Manual Reset	Part # for Auto Reset
00-1	27	1NC	CR324C310A/C610A	CR324C310A1/C610A1
00-1	27	1NO/1NC	CR324C360A/C660A	
2	45	1NC	CR324D310A/D610A	CR324D310A1/D610A1
2	45	1NO/1NC	CR324D360A/D660A	
3	90	1NC	CR324E310A/E610A	CR324E310A1/E610A1
3	90	1NO/1NC	CR324E360A/E660A	
4	135	1NC	CR324F310A/F610A	CR324F310A1/F610A1
4	135	1NO/1NC	CR324F360A/F660A	



CR324C610A1

Don't forget to order new CR123C/CR123F heaters with all overload relays.



## MS-T Series Introduction

### Standardization

#### NEW INTEGRATED TERMINAL COVERS

The perennial issues of remembering to order the terminal covers, fitting them correctly or losing them in the process are challenges of the past. The integrated terminal cover system means they are always there, on the Magnetic Contactor or its Auxiliary contact, ready to be used.

#### REDUCE YOUR COIL INVENTORY BY UP TO 50%

The 14 types of operation coil ratings available with the SN Series have been halved to 8 types with that increasing the applicable voltage range. Users can reduce their inventory, and by integrating the types of coils manufactured, a shorter delivery can be realized.

Coil Designation	Rated Voltage (V):		Coil Designation	Rated Voltage (V):
	50Hz	60Hz		
AC12V	12	24	AC12V	12
AC24V	24	12	AC24V	24
AC48V	48 – 50	48 – 50	AC48V	48 – 50
AC100V	100	100 – 110	AC100V	100 – 127
AC120V	110 – 120	115 – 120	AC200V	200 – 240
AC127V	125 – 127	127	AC300V	260 – 300
AC200V	200	200 – 220	AC400V	380 – 440
AC220V	208 – 220	220	AC500V	460 – 500
AC230V	220 – 240	230 – 240		
AC260V	240 – 260	260 – 280		
AC380V	346 – 380	380		
AC400V	380 – 415	400 – 440		
AC440V	415 – 440	460 – 480		
AC500V	500	500 – 550		

#### CAPABLE OF DIRECT DRIVE WITH TRANSISTOR OUTPUT OF PLC, ETC

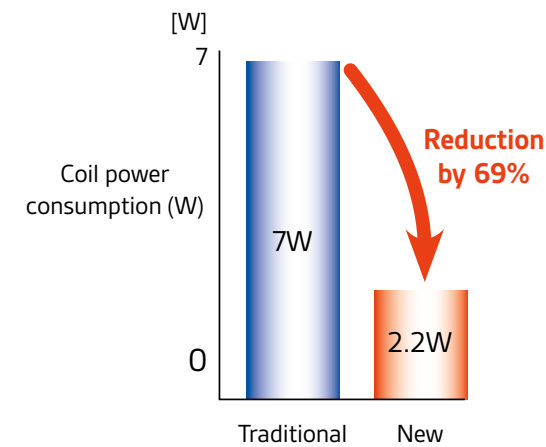
The adopted high-efficiency polarized electromagnet greatly reduces the coil power consumption, and enables all models to be directly driven with a DC24V, 0.1A rating transistor output. (DC24V coil).

	Conventional Model	New Model	Lowering Rate
13A Frame (Coil: DC12/24V)	7W	2.2W	69%
20A Frame (Coil: DC12/24V)	9W	2.2W	76%
32A Frame (Coil: DC12/24V)	—	2.2W	—

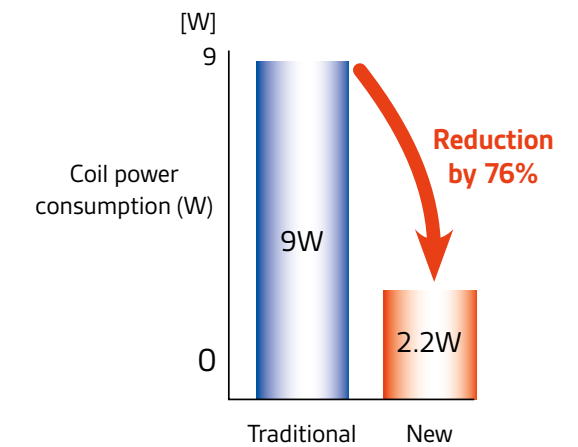
DC48V to 220V:3.3W

See page 122 for a complete part list.

#### Reduced power consumption 13A Frame



#### Reduced power consumption 20A Frame



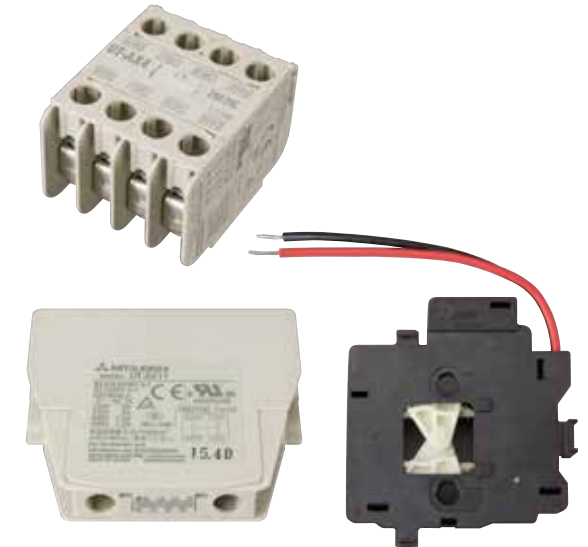
### Small

#### 10A FRAME MODEL IS OVER 16% SMALLER WITH A WIDTH OF JUST 36MM

There is a saying that "every bit helps" and now with the industries smallest\* general purpose Magnetic Contactor in its class, customers are able to more easily down-size their boards than ever before.

For AC-operated 10A frame class general-purpose Magnetic Contactor (based on survey conducted by Mitsubishi dated September 2015)

The optimized high-temperature gas discharge structure and arc runner shape streamline the outline dimensions.

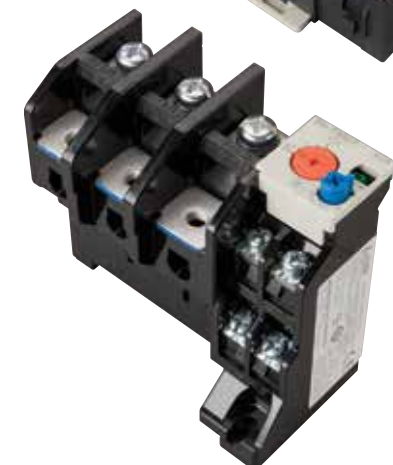
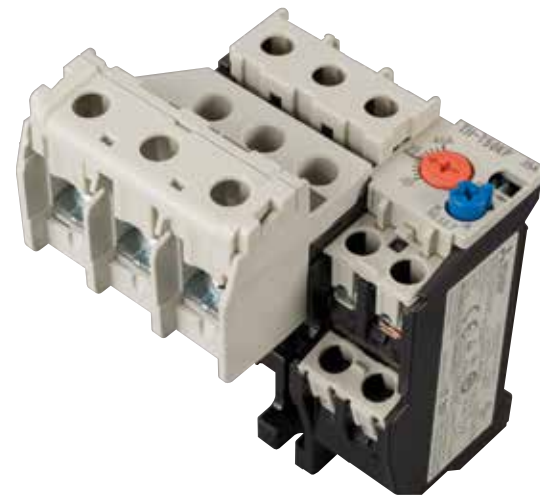


#### Making and Breaking Capacities

Frame	T10	T12	T20	T21	T25	T32	T35	T50	T65	T80	T100	
Making capacity Category AC-3 [A]	220 to 240VAC	110	130	180	250	300	320	400	550	650	850	1050
	380 to 440VAC	90	120	180	230	300	320	400	500	650	850	1050
	500VAC	70	90	170	170	240	240	320	380	600	750	850
Breaking capacity Category AC-4 [A]	220 to 240VAC	88	104	144	200	240	256	320	440	520	680	840
	380 to 440VAC	72	96	144	184	240	256	320	400	520	680	840
	500VAC	56	72	136	136	192	192	256	304	480	600	680

#### Coordination with Short-circuit Protective Devices

Magnetic Contactors Model		T10	T12	T20	T21	T25	T32	T35	T50	T65	T80	T100	SR-T5/T9	
Type1	Short-circuit protective device rating	Main circuit			40A		80A		100A		125A		160A	
	*Fuse gG (IEC60269-1/2)	Auxiliary circuit			10A									







S-T50AC1002A2B



S-T65AC200V2A2B

**MITSUBISHI** continued

**MS-T Series**

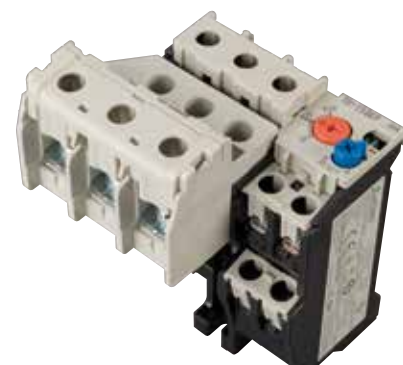
Part #	Description
S-T35AC100V2A2B	Contactors 60A 100-127V coil
S-T35AC200V2A2B	Contactors 60A 200-240V coil
S-T50AC1002A2B	Contactors 80A 100V coil
S-T50AC2002A2B	Contactors 80A 200V coil
S-T65AC100V2A2B	Contactors 100A 100V coil
S-T65AC200V2A2B	Contactors 100A 200V coil
S-T80AC24V2A2B	Contactors 120A 24V coil
S-T80AC100V2A2B	Contactors 120A 100V coil
S-T80AC200V2A2B	Contactors 120A 200V coil

**Overload Relays**

Part #	Description
TH-T50KP29A	Overload relay 24-34 A
TH-T50KP35A	Overload relay 30-40 A
TH-T50KP42A	Overload relay 34-50 A
TH-T65KP22A	Overload relay 18-26 A
TH-T65KP35A	Overload relay 30-40 A
TH-T65KP29A	Overload relay 24-34 A
TH-T65KP42A	Overload relay 34-50 A
TH-T65KP54A	Overload relay 43-65 A

**Accessories**

Part #	Description
UT-ML11	S-T series mechanical interloc
UT-AX42A2B	Auxiliary block 2NO/2NC
UT-AX111A1B	Auxiliary block 1NO/1NC side M
UT-TH50	OLR Connector for TH-T50 to the S-T50-65



TH-T50KP35A



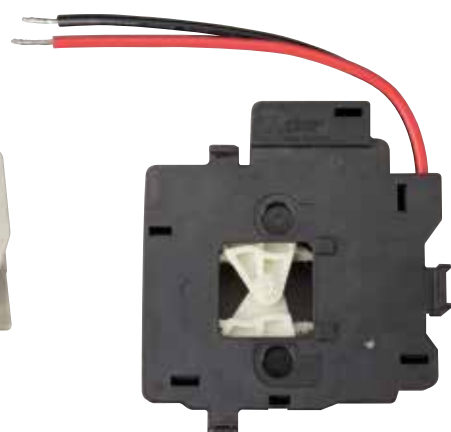
TH-T65KP42A



UT-AX42A2B



UT-AX111A1B

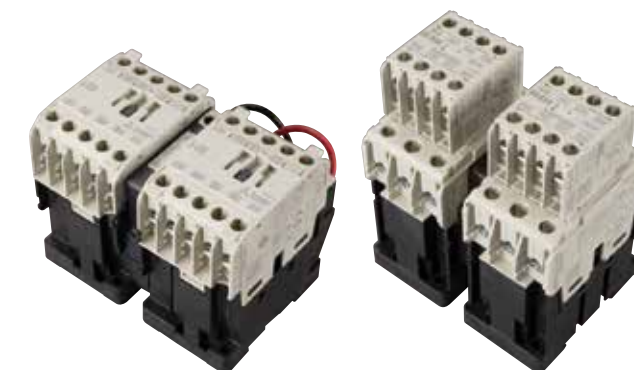


UT-ML11

**Wye-Delta (Reversing) Contactors**

Part #	Description
S-2XT20AC100V2A2B	18A, coil, 100-127V
S-2XT20AC200V2A2B	18A, coil, 200-240V
S-2XT32AC100V4A4B	32A, coil, 100-127V
S-2XT32AC200V4A4B	32A, coil, 200-240V

**Note:** Access has a limited supply of these in stock, but all items can be special ordered.



S-2XT20AC200V2A2B

S-2XT32AC100V4A4B

**S-N Series**

- High performance at lower cost
- Compact size (compared with full-size NEMA contactors)
- Comparable in size, performance and price to Aromat Green Power
- Includes built-in set of 2NO/2NC aux contacts at no extra charge
- Easy to check and replace contacts



Easy to check and replace contacts

**Contactors**

Part #	HP Rating at			AC-3 FLA	Included Aux	Height	Width	Depth
	208V	240V	480V					
S-N50AC-	15	15	30	50	2NO/2NC	4.2"	3.5"	4.2"
S-N65AC-	15	20	40	65	2NO/2NC	4.2"	3.5"	4.2"
S-N80AC-	20	25	50	85	2NO/2NC	5.3"	4"	5"
S-N95AC-	25	30	60	105	2NO/2NC	5.3"	4"	5"
S-N125AC-	40	40	75	120	2NO/2NC	6"	4"	5.4"

Specify AC coil voltage when ordering. See page 126 for a listing of available AC coil voltages.

**Starters**

Part #	HP Rating at			AC-3 FLA	Included Aux	Height	Width	Depth
	208V	240V	480V					
S-N50AC-(-OLR)	15	15	30	50	2NO/2NC	6.7"	3.5"	4.2"
S-N65AC-(-OLR)	15	20	40	65	2NO/2NC	6.7"	3.5"	4.2"
S-N80AC-(-OLR)	20	25	50	85	2NO/2NC	8.3"	4"	5"
S-N95AC-(-OLR)	25	30	60	105	2NO/2NC	8.3"	4"	5"
S-N125AC-(-OLR)	40	40	75	120	2NO/2NC	9.5"	4"	5.4"

Specify AC coil voltage when ordering. See page 124 for a listing of available AC coil voltages.

Specify FLA of motor so that the overload relay may be properly sized.

S-N series is being phased out and replaced by S-T series. See page 122 for more information.



S-N125AC



S-N50AC-(-OLR)



S-N95AC-(-OLR)

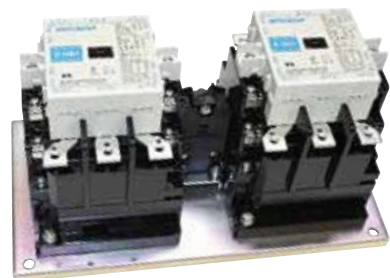


MITSUBISHI continued

Wye-Delta (Reversing) Contactors

Part #	HP Rating at			AC-3 FLA	Included Aux	Height	Width	Depth
	208V	240V	480V					
S-2XN80AC-	20	25	50	85	2NO/2NC	5.5"	10.6"	5.2"
S-2XN95AC-	25	30	60	105	2NO/2NC	5.5"	10.6"	5.2"

Specify AC coil voltage when ordering. See page 126 for a listing of available AC coil voltages.



S-2XN80AC



S-2XN95AC



S-2XN95AC- (-OLR)

Wye-Delta (Reversing) Starters

Part #	HP Rating at			AC-3 FLA	Included Aux	Height	Width	Depth
	208V	240V	480V					
S-2XN80AC- (-OLR)	20	25	50	85	2NO/2NC	8.5"	10.6"	5.2"
S-2XN95AC- (-OLR)	25	30	60	105	2NO/2NC	8.5"	10.6"	5.2"

Specify AC coil voltage when ordering. See page 126 for a listing of available AC coil voltages.

Specify FLA of motor so that the overload relay may be properly sized. OLR sized at FLA x .58.

Overload Relays for S-N Series Starters

- No heaters required. Simple adjustment via front mounted dial
- Selectable reset mode. Manual or automatic
- Includes test button and trip indicator. Easy to troubleshoot
- A connector kit is required to attach the OLR to the contactor

Part #	Amp Range	Contactors
TH-N60KP15A	12 - 18	S-N50 - S-N95
TH-N60KP22A	18 - 26	S-N50 - S-N95
TH-N60KP29A	24 - 34	S-N50 - S-N95
TH-N60KP35A	30 - 40	S-N50 - S-N95
TH-N60KP42A	34 - 50	S-N50 - S-N95
TH-N60KP54A	43 - 65	S-N50 - S-N95
TH-N60TAKP67A	54 - 80	S-N80 - S-N95
TH-N60TAKP82A	65 - 100	S-N80 - S-N95
TH-N120TAKPUL105A	85 - 125	S-N125 - S-N150
TH-N220HZKPUL105A	85 - 125	S-N180 - S-N220



TH-N60KP29A



TH-N60KP35A



TH-N60KP42A



TH-N60KP54A



TH-N60TAKP67A



TH-N60TAKP82A



TH-N120TAKPUL105A

Aux Contacts

Part #	Contacts	Mtg.	Contactors
UN-AX202(CX)	2NC	Top	S-N10 - S-N65
UN-AX220(CX)	2NO	Top	S-N10 - S-N65
UN-AX431(CX)	3NO/1NC	Top	S-N10 - S-N65
UN-AX440(CX)	4NO	Top	S-N10 - S-N65
UN-AX11(CX)	1NO/1NC	Side	S-N10 - S-N65
UN-AX150	NO/1NC	Side	S-N150 - S-N400, DU-K180 - DU-K260
UN-AX80	1NO/1NC	Side	S-N80 - S-N125



UN-AX220(CX)



UN-AX431(CX)



UN-AX440(CX)



UN-AX11(CX)



UN-AX150

MITSUBISHI continued

Replacement Coils

Part #	Contactors
S-N35-COILAC120V	S-N10 – S-N48
S-N50-COILAC400V	S-N50 – S-N65
S-N50-COILAC500V	S-N50 – S-N65
S-N80-COILAC100V	S-N80 – S-N95 & S-K80 – S-K95
S-N80-COILAC200V	S-N80 – S-N95 & S-K80 – S-K95
S-N80-COILAC24V	S-N80 – S-N95 & S-K80 – S-K95
S-N125-COILAC100V	S-N125 – S-N150 & S-D125 – S-D150



S-N50-COILAC-100V



S-N-80COILAC-24V



S-N125-COILAC-200V



UN-ML21



UN-ML80

Mechanical Interlocks

Part #	Contactors
UN-ML21	S-N18 – S-N65
UN-ML80	S-N80 – S-N125
UN-ML220	SK/N: 180/220/300/400

SIEMENS/FURNAS

NEMA Starters

- Rugged NEMA industrial design
- ESP electronic overload relay is adjustable over a wide range and provides phase-loss protection
- Easy to replace contacts or coil
- Large contacts and encapsulated coil
- Best electromechanical choice for heavy duty-cycle elevator applications



14CUD32AA



14DUD32AA



14EUE32AA



14FUF32AA



14GUG32AA



14HUG32AA



14JUH32AA

Part #	NEMA Size	Max Motor Amps	200V HP	230V HP	460V HP	OLR Range	Height	Width	Depth
14CUD32AA	0	18	3	3	—	5.5–22	7.5"	3.5"	3.75"
14DUD32AA	1	27	3	3	10	5.5–22	7.5"	3.5"	3.75"
14DUE32AA	1	27	7.5	7.5	—	5.5–22	7.5"	3.5"	3.75"
14EUE32AA	1.75	40	10	10	15	10–40	7.5"	3.5"	3.75"
14FUF32AA	2	45	10	15	25	13–52	8.1"	3.5"	4"
14GUG32AA	2.5	60	15	20	30	25–100	8.1"	3.5"	4"
14HUG32AA	3	90	25	30	50	25–100	9.75"	4.5"	5.2"
14IUH32AA	3.5	115	30	40	75	50–200	9.75"	4.5"	5.2"
14JUH32AA	4	135	40	50	100	50–200	11"	4.5"	5.75"

To complete catalog number, please specify AC coil voltage.

All starters come with 1NO aux contact.

120/240V dual voltage coil is standard. Other AC coil voltages are available.

NEMA Contactors

- Rugged NEMA industrial design
- Easy to replace contacts or coil
- Large contacts and encapsulated coil
- Best electromechanical choice for heavy duty-cycle applications such as elevators

Part #	NEMA Size	Max Motor Amps	200V HP	230V HP	460V HP	Standard NO	Aux NC	Height	Width	Depth
40CP32A	0	18	3	3	5	1	0	4.31"	4.25"	3.75"
40DP32A	1	27	7-1/2	7-1/2	10	1	0	4.31"	4.25"	3.75"
40EP32A	1-3/4	40	10	10	15	1	0	4.31"	4.25"	3.75"
40FP32A	2	45	10	15	25	1	0	4.88"	4.25"	4"
40GP32A	2-1/2	60	15	20	30	1	0	4.88"	4.25"	4"
40HP32A	3	90	20	30	50	1	0	6.13"	5.5"	5.25"
40IP32A	3-1/2	115	30	40	75	1	0	6.13"	5.5"	5.25"
40JG32A	4	135	40	50	100	1	0	7.81"	5.5"	5.75"

\*To complete catalog number, please specify AC coil voltage.



40HP/IP (40HP32A shown)



SIEMENS/FURNAS continued

Aux Contacts

Part #	Contacts	Contact/ Starter Size	Notes
49AB10	1NO	00-4	Side mounted/not stackable
49AB01	1NC	00-4	Side mounted/not stackable
49AB11	1NO/1NC	00-4	Side mounted/not stackable
49AB20	2NO	00-4	Side mounted/not stackable
49AB40	4NO	00-4	Side mounted/not stackable
49AB31	3NO/1NC	00-4	Side mounted/not stackable
49AB22	2NO/2NC	00-4	Side mounted/not stackable
49D54682NO	NO	00-3-1/2	Special aux for older model "F" Innova, where the 4th character of the contactor/ starter is "F". Example: 14GF32AA



Mechanical Interlocks

Part #	Contact/ Starter Size
49CCF22H	00-1
49EEF22H	1-3/4
49GGF22HP	2
49HHP22HP	3-3-1/2



ESP200 Electronic 3 Phase Overload Relays

Part #	Adjustment Range	European Part #
48ATC3S00	3-12 amps	3UB81234CW2
48ATE3S00	10-40 amps	3UB81234EW2
48BTG3S00	25-100 amps	3UB81334GW2
48BTH3S00	50-200 amps	3UB81334HW2



SIEMENS SIRIUS IEC

Contactors

Part #	Max Motor Amps	200V HP	230V HP	460V HP	Direct Replacement
3RT1025	17	5	5	10	3RT2025
3RT1026	25	7-1/2	7-1/2	15	3RT2026
3RT1033	28	7-1/2	10	20	3RT2026
3RT1034*	32	10	10	25	3RT2027
3RT1035*	40	10	15	30	3RT2028
3RT1036*	50	15	15	40	3RT2036
3RT1044*	65	20	25	50	3RT2037
3RT1045*	80	25	30	60	3RT2038
3RT1046*	95	30	30	75	3RT2046
3RT1054*	115	40	50	100	
3RT1055*	150	50	60	125	
3RT1056*	185	60	75	150	
3RT1064*	225	60	75	150	
3RT1065*	265	75	100	200	
3RT1066*	300	100	125	250	

To complete catalog number, please specify AC or DC coil voltage.

\*These have replaceable contacts.



Starters

Part #	Max Motor Amps	200V HP	230V HP	460V HP	Direct Replacement
3RT1025	17	5	5	10	3RT2025
3RT1026	25	7-1/2	7-1/2	15	3RT2026
3RT1033	28	7-1/2	10	20	3RT2026
3RT1034*	32	10	10	25	3RT2027
3RT1035*	40	10	15	30	3RT2028
3RT1036*	50	15	15	40	3RT2036
3RT1044*	65	20	25	50	3RT2037
3RT1045*	80	25	30	60	3RT2038
3RT1046*	95	30	30	75	3RT2046
3RT1054*	115	40	50	100	
3RT1055*	150	50	60	125	
3RT1056*	185	60	75	150	
3RT1064*	225	60	75	150	
3RT1065*	265	75	100	200	
3RT1066*	300	100	125	250	

To complete catalog number, please specify AC or DC coil voltage and overload relay amps.

\*These starters have replaceable contacts.

Note: Some of these items will be obsolete.





SIEMENS SIRIUS IEC continued

Wye-Delta Contactors

Part #	Wye-Delta HP Rating @ Max				Height	Width	Depth	Contactor
	200V	230V	460V	FLA				
3RT-30-YD*	20	25	50	71	6"	6"	5.3"	3RT1044-1AK60
3RT-40-YD*	25	30	60	90	6"	6"	5.3"	3RT1045-1AK60
3RT-50-YD*	30	40	75	107	6"	6"	5.3"	3RT1046-1AK60
3RT-75-YD*	40	50	100	179	6.5"	9.8"	6.5"	3RT1054-6AF36
3RT-125-YD*	75	75	150	269	6.5"	9.8"	6.5"	3RT1056-6AF36

\*These have replaceable contacts.  
All contactors come with 120VAC coils.



3RT-30-YD



3RT-40-YD



3RT-50-YD



3RT-75-YD



3RT-125-YD



3RT-40-YD-3RB2046



3RT-50-YD-3RB2046



3RT-30-YD-3RB2046

Wye-Delta Starters

Part #	Wye-Delta HP Rating @ Max				Height	Width	Depth	Contactor
	200V	230V	460V	FLA				
3RT-30-YD-3RB2046*	20	25	50	71	9"	6"	5.3"	3RT1044-1AK60
3RT-40-YD-3RB2046*	25	30	60	90	9"	6"	5.3"	3RT1045-1AK60
3RT-50-YD-3RB2046*	30	40	75	107	9"	6"	5.3"	3RT1046-1AK60
3RT-75-YD-1FC2*	40	50	100	179	11"	9.8"	6.5"	3RT1054-6AF36
3RT-125-YD-1FC2*	75	75	150	269	11"	9.8"	6.5"	3RT1056-6AF36

Aux Contacts

Part #	Mounting	Contacts	Contactors	Notes
3RH1921-1CA01	Front	1NC	3RT1023-3RT1056	
3RH1921-1CA10	Front	1NO	3RT1023-3RT1056	
3RH1921-1DA11	Side	1NO/1NC	3RT1023-3RT1056	
3RH1921-2DA11	Side	1NO/1NC	3RT1023-3RT1056	Uses cage clamp terminals
3RH1921-1EA02	Side	2NC	3RT1023-3RT1056	
3RH1921-1EA11	Side	1NO/1NC	3RT1023-3RT1056	Different term markings than -1DA11
3RH1921-1EA20	Side	2NO	3RT1023-3RT1056	
3RH1921-1FA22	Front	2NO/2NC	3RT1023-3RT1046	
3RH1921-1FA31	Front	3NO/1NC	3RT1023-3RT1046	
3RH1921-1FA40	Front	4NO	3RT1023-3RT1046	
3RH1921-1JA11	Side	1NO/1NC	3RT1044-3RT1056	Second level aux

\*Low level, gold plated aux contacts are used with electronic circuits with rated operational currents of 1 to 300 mA at 3 to 60V.



3RH1921-1DA11



3RH1921-2DA11



3RH1921-1EA20



3RH1921-1EA02



3RH1921-1EA11



3RH1921-1FA22



3RH1921-1FA31



3RH1921-1FA40



3RH1921-1FE13



3RH1921-1JA11

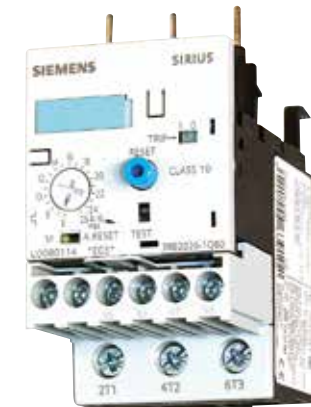
Starters and Contactors: Siemens SIRIUS IEC

Starters and Contactors: Siemens SIRIUS IEC

SIEMENS SIRIUS IEC continued

Overload Relays

Part #	Description
3RB2026-1QB0	Range 6 – 25 amps. For use with 3RT1023 – 3RT1026 contactor
3RB2036-1QB0	Range 6 – 25 amps. For use with 3RT1033 – 3RT1036 contactors
3RB2036-1UB0	Range 12.5 – 50 amps. For use with 3RT1033 – 3RT1036 contactors
3RB2046-1UB0	Range 12.5 – 50 amps. For use with 3RT1044 – 3RT1046 contactors
3RB2046-1EB0	Range 25 – 100 amps. For use with 3RT1044 – 3RT1046 contactors
3RB2056-1FC2	Range 50 – 200 amps. For use with 3RT1054 – 3RT1056 contactors



3RB2026-1QB0



3RB2036-1QB0



3RB2036-1UB0



3RB2046-1UB0



3RB2046-1EB0



3RB2056-1FC2



3RA1954-2A



3RA1924-2B



3RA1932-2D

Mechanical Interlocks, Reversing Links and Wye Jumpers

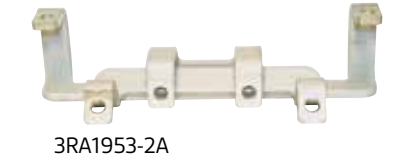
For joining two contactors into a reversing or Wye-Delta configuration

Interlock #	Description
3RA1924-2B	Use with 3RT1025 – 3RT1046 contactors. Includes 2 NC contacts. Qty 2 3RA1932-2D dovetails required
3RA1954-2A	Use with 3RT1054 – 3RT1076 contactors. No Aux included. Qty 2 3RA1932-2D dovetails required
3RA1932-2D	Dovetail connectors for use with above mechanical interlocks

Reversing Link #	Description
3RA1933-3E	For use with 3RT1033 – 3RT1036 contactors
3RA1943-3E	For use with 3RT1044 – 3RT1046 contactors
3RA1953-2A	For use with 3RT1054 – 3RT1056 contactors



3RA1933-3E



3RA1953-2A

Wye Jumper #	Description
3RT1936-4BA31	For use with 3RT1033 – 3RT1036 contactors
3RT1946-4BA31	For use with 3RT1044 – 3RT1046 contactors
3RT1956-4BA31	For use with 3RT1054 – 3RT1056 contactors



3RA1943-3E



3RT1936-4BA31

Box Lug Block	Description
3RT1955-4G	For use with 3RT1033 – 3RT1036 contactors



3RT1946-4BA31



3RT1955-4G

Surge Suppressors

Part #	Description
3RT1916-1BD00	Varistor type. Rated 127 – 240VAC for 3RT1015 – 3RT1017 contactors and type 3RH relays
3RT1916-1CD00	RC element type. Rated 127 – 240VAC for 3RT1015 – 3RT1017 contactors and type 3RH relays
3RT1926-1CD00	RC element type. Rated 127 – 240VAC for 3RT1023 – 3RT1026 contactors
3RT1936-1CD00	RC element type. Rated 127 – 240VAC for 3RT1033 – 3RT1046 contactors



3RT1916-1BD00



3RT1916-1CD00



3RT1926-1CD00



3RT1936-1CD00

Replacement Coils for 3RT Contactors

Part #	Description
3RT1935-5AK61	120V coil for use with 3RT1035 – 3RT1036 contactors
3RT1944-5AK61	120V coil for use with 3RT1044 contactors
3RT1945-5AK61	120V coil for use with 3RT1045 – 3RT1046 contactors
3RT1955-5AF31	120V coil for use with 3RT1054 – 3RT1056 contactors
3RT1955-5AM31	200 – 220V coil for use with 3RT1054 – 3RT1056 contactors



3RT1945-5AK61



3RT1955-5AF31



SIEMENS/FURNAS

Class 42/16 DP Replacement Parts

49D70035001 Mechanical Interlock for 42AF - 42EF DP Contactors

Part #	Contacts	Contactors	Notes
49ACR0	1NO	42AF - 42EF	Side mounted
49ACRC	1NC	42AF - 42EF	Side mounted
49ACR6	1NO/1NC	42AF - 42EF	Side mounted
49ACR7	2NO	42AF - 42EF	Side mounted
49ACR8	2NC	42AF - 42EF	Side mounted
49D22125001	1NO	42FE - 42GE	Side mounted
49D22125002	1NC	42FE - 42GE	Side mounted
49CE42SPDT	SPDT	42FE - 42GE	Side mounted
49D54682NO	1NO	42HF - 42IF	Side mounted

Part #	AC Voltage	Contactors
75D54760F	120	41NB
75D54760G	208 - 240	41NB
75D54760J	24	41NB
75D56630F	120	42BE - 42EE
75D56630G	208 - 240	42BE - 42EE
75D56630J	24	42BE - 42EE
75D54772F	120	42FE, 42GE
75D54772G	208 - 240	42FE, 42GE
75D54772J	24	42FE, 42GE
75D70152F	120	42AF - 42EF
75D70233F		
75D70545F		
75D70550F		
75D70152G	208 - 240	42AF - 42EF
75D70233G		
75D70545G		
75D70550G		
75D70152J	24	42AF - 42EF
75D70233J		
75D70545J		
75D70233L	277	42AF - 42EF
75D70233H	480	42AF - 42EF
75D73251F	120	42HF, 42IF
75D73251A	120/240	42HF, 42IF
75D73251D	208	42HF, 42IF
75D73251C	240/480	42HF, 42IF
75D73251L	277	42HF, 42IF



SPRECHER+SCHUH

IEC Contactors

Part #	Max Motor Amps	HP@ 200V	HP@ 230V	HP@ 460V	Notes
CA7-9-01-	9	2	2	5	Includes 1NC built-in aux, specify AC coil voltage
CA7-9-10-	9	2	2	5	Includes 1NO built-in aux, specify AC coil voltage
CA7-9E-01-	9	2	2	5	Includes 1NC built-in aux, specify DC coil voltage
CA7-9E-10-	9	2	2	5	Includes 1NO built-in aux, specify DC coil voltage
CA7-12-01-	12	3	3	7.5	Includes 1NC built-in aux, specify AC coil voltage
CA7-12-10-	12	3	3	7.5	Includes 1NO built-in aux, specify AC coil voltage
CA7-12E-01-	12	3	3	7.5	Includes 1NC built-in aux, specify DC coil voltage
CA7-12E-10-	12	3	3	7.5	Includes 1NO built-in aux, specify DC coil voltage
CA7-12-M40-	12	3	3	7.5	4NO power poles, specify AC coil voltage
CA7-16-01-	16	5	5	10	Includes 1NC built-in aux, specify AC coil voltage
CA7-16-10-	16	5	5	10	Includes 1NO built-in aux, specify AC coil voltage
CA7-16E-01-	16	5	5	10	Includes 1NC built-in aux, specify DC coil voltage
CA7-16E-10-	16	5	5	10	Includes 1NO built-in aux, specify DC coil voltage
CA7-16-M31-	16	5	5	10	3NO/1NC power poles, specify AC coil voltage
CA7-16E-M31-	16	5	5	10	3NO/1NC power poles, specify DC coil voltage
CA7-16E-M40-	16	5	5	10	4NO power poles, specify DC coil voltage
CA7-23-01-	23	5	7.5	15	Includes 1NC built-in aux, specify AC coil voltage
CA7-23-10-	23	5	7.5	15	Includes 1NO built-in aux, specify AC coil voltage
CA7-23E-01-	23	5	7.5	15	Includes 1NC built-in aux, specify DC coil voltage
CA7-23E-10-	23	5	7.5	15	Includes 1NO built-in aux, specify DC coil voltage
CA7-23-M22-	23	5	7.5	15	2NO/2NC power poles, specify AC coil voltage
CA7-23-M31-	23	5	7.5	15	3NO/1NC power poles, specify AC coil voltage
CA7-23-M40-	23	5	7.5	15	4NO power poles, specify AC coil voltage
CA7-23C-M40-	23	5	7.5	15	4NO power poles, specify DC coil voltage
CA7-30-00-*	30	7.5	10	20	Specify AC coil voltage, aux contacts
CA7-30C-00-*	30	7.5	10	20	Specify DC coil voltage, aux contacts
CA7-37-00-*	37	10	10	25	Specify AC coil voltage, aux contacts
CA7-37C-00-*	37	10	10	25	Specify DC coil voltage, aux contacts
CA7-43-00-*	43	10	15	30	Specify AC coil voltage, aux contacts
CA7-43C-00-*	43	10	15	30	Specify DC coil voltage, aux contacts
CA7-60-00-*	60	15	20	40	Specify AC coil voltage, aux contacts
CA7-60D-00-*	60	15	20	40	Specify DC coil voltage, aux contacts
CA7-72-00-*	72	20	25	50	Specify AC coil voltage, aux contacts
CA7-72D-00-*	72	20	25	50	Specify DC coil voltage, aux contacts
CA7-85-00-*	85	25	30	60	Specify AC coil voltage, aux contacts
CA7-85D-00-*	85	25	30	60	Specify DC coil voltage, aux contacts
CA7-97-00-*	97	25	30	60	Specify AC coil voltage, aux contacts
CA9-116-11-*	116	30	40	75	Specify coil voltage/ Coils are universal AC/DC
CA9-146-11-*	146	40	50	100	Specify coil voltage/ Coils are universal AC/DC
CA9-190-11-*	190	50	60	125	Specify coil voltage/ Coils are universal AC/DC
CA9-205-11	205	60	75	150	Specify coil voltage/ Coils are universal AC/DC
CA9-265-11	265	75	100	200	Specify coil voltage/ Coils are universal AC/DC

\*These contactors have replaceable contacts.

Available AC coil voltages: 24, 120, 208, 240, 480, 600

Available DC coil voltages: 12, 24, 48, 110, 125, 220





SPRECHER+SCHUH continued

IEC Starters

Part #	Max Motor Amps	HP@ 200V	HP@ 230V	HP@ 460V	Notes
CAT7-9-01-	9	2	2	5	Includes 1NC built-in aux, specify AC coil voltage and motor amps
CAT7-9-10-	9	2	2	5	Includes 1NO built-in aux, specify AC coil voltage and motor amps
CAT7-9E-01-	9	2	2	5	Includes 1NC built-in aux, specify DC coil voltage and motor amps
CAT7-9E-10-	9	2	2	5	Includes 1NO built-in aux, specify DC coil voltage and motor amps
CAT7-12-01-	12	3	3	7.5	Includes 1NC built-in aux, specify AC coil voltage and motor amps
CAT7-12-10-	12	3	3	7.5	Includes 1NO built-in aux, specify AC coil voltage and motor amps
CAT7-12E-01-	12	3	3	7.5	Includes 1NC built-in aux, specify DC coil voltage and motor amps
CAT7-12E-10-	12	3	3	7.5	Includes 1NO built-in aux, specify DC coil voltage and motor amps
CAT7-16-01-	16	5	5	10	Includes 1NC built-in aux, specify AC coil voltage and motor amps
CAT7-16-10-	16	5	5	10	Includes 1NO built-in aux, specify AC coil voltage and motor amps
CAT7-16E-01-	16	5	5	10	Includes 1NC built-in aux, specify DC coil voltage and motor amps
CAT7-16E-10-	16	5	5	10	Includes 1NO built-in aux, specify DC coil voltage and motor amps
CAT7-23-01-	23	5	7.5	15	Includes 1NC built-in aux, specify AC coil voltage and motor amps
CAT7-23-10-	23	5	7.5	15	Includes 1NO built-in aux, specify AC coil voltage and motor amps
CAT7-23E-01-	23	5	7.5	15	Includes 1NC built-in aux, specify DC coil voltage and motor amps
CAT7-23E-10-	23	5	7.5	15	Includes 1NO built-in aux, specify DC coil voltage and motor amps
CAT7-30-00-*	30	7.5	10	20	Specify AC coil voltage, aux contacts and motor amps
CAT7-30E-00-*	30	7.5	10	20	Specify DC coil voltage, aux contacts and motor amps
CAT7-37-00-*	37	10	10	25	Specify AC coil voltage, aux contacts and motor amps
CAT7-37E-00-*	37	10	10	25	Specify DC coil voltage, aux contacts and motor amps
CAT7-43-00-*	43	10	15	30	Specify AC coil voltage, aux contacts and motor amps
CAT7-43E-00-*	43	10	15	30	Specify DC coil voltage, aux contacts and motor amps
CAT7-60-00-*	60	15	20	40	Specify AC coil voltage, aux contacts and motor amps
CAT7-60E-00-*	60	15	20	40	Specify DC coil voltage, aux contacts and motor amps
CAT7-72-00-*	72	20	25	50	Specify AC coil voltage, aux contacts and motor amps
CAT7-72E-00-*	72	20	25	50	Specify DC coil voltage, aux contacts and motor amps
CAT7-85-00-*	85	25	30	60	Specify AC coil voltage, aux contacts and motor amps
CAT7-85E-00-*	85	25	30	60	Specify DC coil voltage, aux contacts and motor amps
CAT7-97-00-*	97	25	30	60	Specify AC coil voltage, aux contacts and motor amps
CAT9-116-00-	116	30	40	75	Specify coil voltage, aux contacts and motor amps
CAT9-190-00-	190	50	60	125	Specify coil voltage, aux contacts and motor amps

\*These starters have replaceable contacts.

Available AC coil voltages: 24, 120, 208, 240, 480, 600

Available DC coil voltages: 12, 24, 48, 110, 125, 220

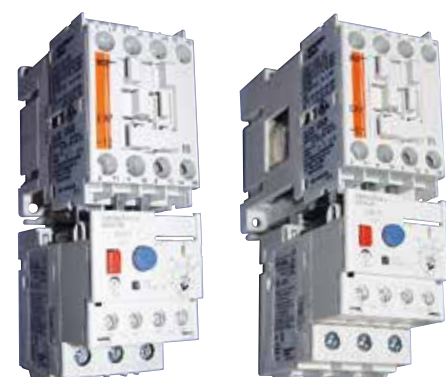
IEC Reversing/Wye-Delta Contactors

Part #	Max Motor Amps	HP@ 200V	HP@ 230V	HP@ 460V	Notes
CAU7-9-22-	9	2	2	5	Includes 2NO/2NC aux, specify additional aux and AC coil voltage
CAU7-9E-22-	9	2	2	5	Includes 2NO/2NC aux, specify additional aux and DC coil voltage
CAU7-12-22-	12	3	3	7.5	Includes 2NO/2NC aux, specify additional aux and AC coil voltage
CAU7-12E-22-	12	3	3	7.5	Includes 2NO/2NC aux, specify additional aux and DC coil voltage
CAU7-16-22-	16	5	5	10	Includes 2NO/2NC aux, specify additional aux and AC coil voltage
CAU7-16E-22-	16	5	5	10	Includes 2NO/2NC aux, specify additional aux and DC coil voltage
CAU7-23-22-	23	5	7.5	15	Includes 2NO/2NC aux, specify additional aux and AC coil voltage
CAU7-23E-22-	23	5	7.5	15	Includes 2NO/2NC aux, specify additional aux and DC coil voltage
CAU7-30-22-*	30	7.5	10	20	Includes 2NO/2NC aux, specify additional aux and AC coil voltage
CAU7-30E-22-*	30	7.5	10	20	Includes 2NO/2NC aux, specify additional aux and DC coil voltage
CAU7-37-22-*	37	10	10	25	Includes 2NO/2NC aux, specify additional aux and AC coil voltage
CAU7-37E-22-*	37	10	10	25	Includes 2NO/2NC aux, specify additional aux and DC coil voltage
CAU7-43-22-*	43	10	15	30	Includes 2NO/2NC aux, specify additional aux and AC coil voltage
CAU7-43E-22-*	43	10	15	30	Includes 2NO/2NC aux, specify additional aux and DC coil voltage
CAU7-60-22-*	60	15	20	40	Includes 2NO/2NC aux, specify additional aux and AC coil voltage
CAU7-60D-22-*	60	15	20	40	Includes 2NO/2NC aux, specify additional aux and DC coil voltage
CAU7-72-22-*	72	20	25	50	Includes 2NO/2NC aux, specify additional aux and AC coil voltage
CAU7-72D-22-*	72	20	25	50	Includes 2NO/2NC aux, specify additional aux and DC coil voltage
CAU7-85-22-*	85	25	30	60	Includes 2NO/2NC aux, specify additional aux and AC coil voltage
CAU7-85D-22-*	85	25	30	60	Includes 2NO/2NC aux, specify additional aux and DC coil voltage
CAU7-97-22-*	97	25	30	60	Includes 2NO/2NC aux, specify additional aux and AC coil voltage
CAU9-116-22-	116	30	40	75	Includes 2NO/2NC aux, specify additional aux and coil voltage
CAU9-146-22-	146	40	50	100	Includes 2NO/2NC aux, specify additional aux and coil voltage
CAU9-190-22-	190	50	60	125	Includes 2NO/2NC aux, specify additional aux and coil voltage

\*These contactors have replaceable contacts.

Available AC coil voltages: 24, 48, 120, 208, 240, 480, 600

Available DC coil voltages: 12, 24, 48, 110, 220



CAT7-12



CAT7-12E



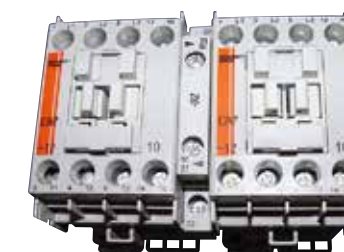
CAT7-23



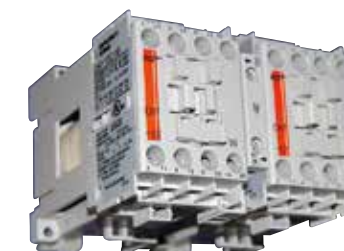
CAT7-43



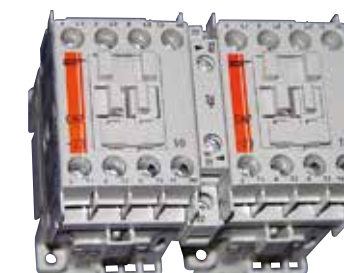
CAT7-60



CAU7-12



CAU7-12C



CAU7-23



CAU7-43



CAU7-60



SPRECHER+SCHUH continued

IEC Reversing/Wye-Delta Starters

Part #	Max Motor Amps	HP@ 200V	HP@ 230V	HP@ 460V	Notes
CAUT7-9-22-	9	2	2	5	Includes 2NO/2NC aux, specify additional aux, AC coil voltage and motor amps
CAUT7-9E-22-	9	2	2	5	Includes 2NO/2NC aux, specify additional aux, DC coil voltage and motor amps
CAUT7-12-22-	12	3	3	7.5	Includes 2NO/2NC aux, specify additional aux, AC coil voltage and motor amps
CAUT7-12E-22-	12	3	3	7.5	Includes 2NO/2NC aux, specify additional aux, DC coil voltage and motor amps
CAUT7-16-22-	16	5	5	10	Includes 2NO/2NC aux, specify additional aux, AC coil voltage and motor amps
CAUT7-16E-22-	16	5	5	10	Includes 2NO/2NC aux, specify additional aux, AC coil voltage and motor amps
CAUT7-23-22-	23	5	7.5	15	Includes 2NO/2NC aux, specify additional aux, AC coil voltage and motor amps
CAUT7-23E-22-	23	5	7.5	15	Includes 2NO/2NC aux, specify additional aux, DC coil voltage and motor amps
CAUT7-30-22-*	30	7.5	10	20	Includes 2NO/2NC aux, specify additional aux, AC coil voltage and motor amps
CAUT7-30E-22-*	30	7.5	10	20	Includes 2NO/2NC aux, specify additional aux, DC coil voltage and motor amps
CAUT7-37-22-*	37	10	10	25	Includes 2NO/2NC aux, specify additional aux, AC coil voltage and motor amps
CAUT7-37E-22-*	37	10	10	25	Includes 2NO/2NC aux, specify additional aux, DC coil voltage and motor amps
CAUT7-43-22-*	43	10	15	30	Includes 2NO/2NC aux, specify additional aux, AC coil voltage and motor amps
CAUT7-43E-22-*	43	10	15	30	Includes 2NO/2NC aux, specify additional aux, DC coil voltage and motor amps
CAUT7-60-22-*	60	15	20	40	Includes 2NO/2NC aux, specify additional aux, AC coil voltage and motor amps
CAUT7-60D-22-*	60	15	20	40	Includes 2NO/2NC aux, specify additional aux, DC coil voltage and motor amps
CAUT7-72-22-*	72	20	25	50	Includes 2NO/2NC aux, specify additional aux, AC coil voltage and motor amps
CAUT7-72D-22-*	72	20	25	50	Includes 2NO/2NC aux, specify additional aux, DC coil voltage and motor amps
CAUT7-85-22-*	85	25	30	60	Includes 2NO/2NC aux, specify additional aux, AC coil voltage and motor amps
CAUT7-85D-22-*	85	25	30	60	Includes 2NO/2NC aux, specify additional aux, DC coil voltage and motor amps
CAUT7-97-22-*	97	25	30	60	Includes 2NO/2NC aux, specify additional aux, AC coil voltage and motor amps
CAUT9-116-22-	116	30	40	75	Includes 2NO/2NC aux, specify additional aux and coil voltage
CAUT9-146-22-	146	40	50	100	Includes 2NO/2NC aux, specify additional aux, coil voltage and motor amps
CAUT9-190-22-*	190	50	60	125	Includes 2NO/2NC aux, specify additional aux, coil voltage and motor amps

\*These starters have replaceable contacts.

Available AC coil voltages: 24, 48, 120, 208, 240, 480, 600

Available DC coil voltages: 12, 24, 48, 110, 220



CAUT7-12



CAUT7-12C



CAUT7-23



CAUT7-43



CAUT7-60

Overload Relays for CA6 and CA7 Contactors and Starters

Part #	Use with Contactors	Amp Range
CEP7-EEEB	CA7-9 – CA7-23	5.4 – 27
CEP7-EEFD	CA7-30 – CA7-43	9 – 45
CEP7-EEGE	CA7-60 – CA7-97	18 – 90

Note: Some CT3 and CTA3 Overload Relays for CA3 contactors are still available.



CEP7-EEEB



CEP7-EEFD



CEP7-EEGE

Overload Relay Panel Mount Adapters

Part #	Use with Overload Relay
CEP7-EPB	CEP7-ED1CB & CEP7-EEEB
CEP7-EPD	CEP7-EEFD
CEP7-EPE	CEP7-EEGE



CEP7-EPD

Aux Contacts for CA7 Devices

Part #	Description
CA7-PA-01	1NC side mounted
CA7-PA-02	2NC side mounted
CA7-PA-10	1NO side mounted
CA7-PA-11	1NO/1NC side mounted
CA7-PA-20	2NO side mounted contact
CA7-PV-02	2NC top mounted
CA7-PV-11	1NO/1NC top mounted
CA7-PV-20	2NO top mounted
CA7-PV-22	2NO/2NC top mounted
CA7-PV-L11	Late breaking NO/NC top mounted
CA7-PV-S11	1NO/1NC top mounted
CA7-PV-S22	2NO/2NC top mounted



CA7-PA-10



CA7-PA-11



CA7-PA-20



CA7-PA-L11



CA7-PV-11



CA7-PV-S11



CA7-PV-22



CA7-PV-S22



CA7-PV-20



CA7-PV-L11





CS7-22E-120



CS7C-40E-24D

**SPRECHER+SCHUH continued**

**Industrial Control Relays**

Part #	Description
CS7-22E-*	2NO/2NC contacts w/AC coil
CS7-31E-*	3NO/1NC contacts w/AC coil
CS7-40E-*	4NO contacts w/AC coil
CS7C-22E-**	2NO/2NC contacts w/DC coil
CS7C-31E-**	3NO/1NC contacts w/DC coil
CS7C-40E-**	4NO contacts w/DC coil
CM7	Mechanical interlock side mounted
CM7-02	Mechanical interlock side mounted with 2 built-in NC contacts

\* Specify AC coil voltage. \*\* Specify DC coil voltage.

Available AC coil voltages: 24V, 48V, 120V, 208 – 240V, 277V, 480V  
Available DC coil voltages: 24V, 48V, 110V, 220V

**Timers**

Part #	Description
CZA7-30	Pneumatic timing module off-delay 0.3 – 30 seconds, front mounted
CZA7-180	Pneumatic timing module off-delay 1.8 – 180 seconds, front mounted
CZE7-30	Pneumatic timing module on-delay 0.3 – 30 seconds, front mounted
CZE7-180	Pneumatic timing module on-delay 1.8 – 180 seconds, front mounted

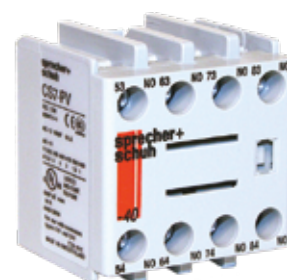
**Miniature Industrial Control Relays**

Only 45mm wide

Part #	Description
CS8-22Z-120	2NO/2NC w/120VAC coil
CS8-22Z-240	2NO/2NC w/240VAC coil
CS8-31Z-120	3NO/1NC w/120VAC coil
CS8-31Z-240	3NO/1NC w/240VAC coil
CS8-40E-120	4NO w/120VAC coil
CS8-40E-240	4NO w/240VAC coil
CS8C-22Z-110D	2NO/2NC w/110VDC coil
CS8C-22Z-48D	2NO/2NC w/48VDC coil
CS8C-31Z-110D	3NO/1NC w/110VDC coil
CS8C-31Z-48D	3NO/1NC w/48VDC coil
CS8C-40E-110D	4NO w/110VDC coil
CS8C-40E-48D	4NO w/48VDC coil
CS8-P11E	1NO/1NC aux front mounted
CS8-P22Z	2NO/2NC aux front mounted
CS8-P40E	4NO aux front mounted
CS8-P04E	4NC aux front mounted



CS7-PV-11



CS7-PV-40



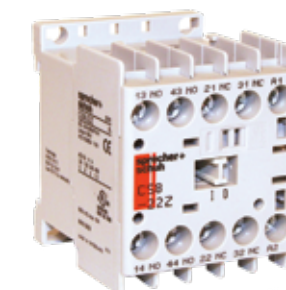
CA7-PA-20



CZE7-30



CM7-02



CS8-22Z-120



CS8-P40E

**Series CA8 Contactors and CAT8 Starters**

**An ingenious miniature contactor and starter system**

Sprecher + Schuh's CA8 Series of miniature contactors and starters provide an extremely compact and reliable method of controlling motors of 7.5 HP or less (@460V). The CA8 is an economical choice for applications where space is limited or where a minimal enclosure is desired.



**SMALL BUT RUGGED**

Even though their contacts and coils are not replaceable, Sprecher + Schuh has subjected this series of contactors to monitored endurance tests that demonstrate their ruggedness. At full load, under 3-phase power, the contacts in the CA8 have an electrical life of 700,000 operations, while the AC magnet system has a mechanical life of 15,000,000 operations.

**THE CAT8 STARTER – EFFICIENT AND RELIABLE**

This miniature starter features the new CT8 Thermal Overload Relay. A complex current limiting calibration procedure performed after each unit ensures the consistent high quality of Sprecher + Schuh's thermal overload relay. Today's Class 10 T-frame design, like the CT8 Series, has been recognized by many motor manufacturers as the ideal type to assure optimum motor protection due to less use of copper and iron.

**ACCESSORIES REQUIRE NO ADDITIONAL PANEL SPACE**

The entire CA8 System is logically engineered. Modular accessories like auxiliary contact blocks snap-on without increasing the CA8's original width of 45mm. Also, due to its horizontal switching movement, the basic contactor has the same low profile whether an AC or DC operating magnet is used. This permits the use of enclosures with shallow mounting depths. Once the CA8 is installed, all auxiliary contact blocks can be snapped-on or removed without changing any existing power wiring. Other accessories include a snap-on RC Link (surge suppressor), mechanical interlocks and space saving adaptors for connecting auxiliary components.

**EFFORTLESS INSTALLATION**

Both the CA8 Contactor and the CAT8 Starter are DIN-rail mountable for instant installation and modification. Fittings are also included on the CA8 for base mounting. All terminals are clearly marked and shipped in the open position for installation with either manual or power screwdrivers.



CAT8 starters feature the CT8 thermal overload



45mm  
(≈ 1-7/16")

9A  
12A

Starters and Contactors: Sprecher+Schuh

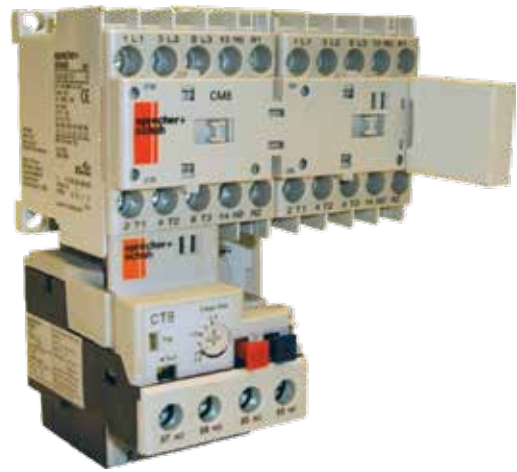
Starters and Contactors: Sprecher+Schuh

**SPRECHER+SCHUH continued**

**Miniature Contactors Series CA8**

Series CA8 Miniature Contactors, Starters, Overloads and Industrial Relays

- Rated 690V
- RoHs compliant
- Conforming to U.S., Canadian, and IEC standards
- Same dimensions for AC and DC



**Pluggable Surge Suppressor Modules**

- Suppressor modules are simply plugged on the front of the contactors, next to the auxiliary contact blocks.
- No wiring required
- Fast and easy installation

**Auxiliary Contact Reliability**

- Bifurcated, AgNi (silver/nickel) plated contacts for high contact reliability for 2mA/15V electronic signals.
- H-shaped self cleaning auxiliary contacts provide a 4-way current path ensure high contact reliability for low energy switching.



**Auxiliary Contacts**

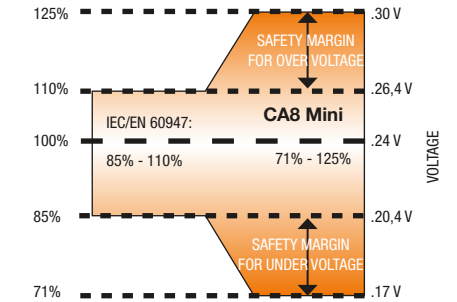
Top/front mount for use with CA8 contactors

Part #	Description
CA8-P02	2NC
CA8-P04	4NC
CA8-P11	1NO/1NC
CA8-P13	1NO/3NC
CA8-P20	2NO
CA8-P22	2NO/2NC
CA8-P31	3NO/1NC
CA8-P40	4NO

**MINIATURE STARTERS SERIES CA8**

**High performance AC and DC coils**

- Wide range DC coils can provide reliability in case of over- and under-voltage, a common issue with battery-fed control power supply systems.
- The low coil consumption allows the contactors to be directly controlled via a PLC.
- Optional, integral factory-installed surge suppressor modules for AC and DC for limiting coil switching transients.



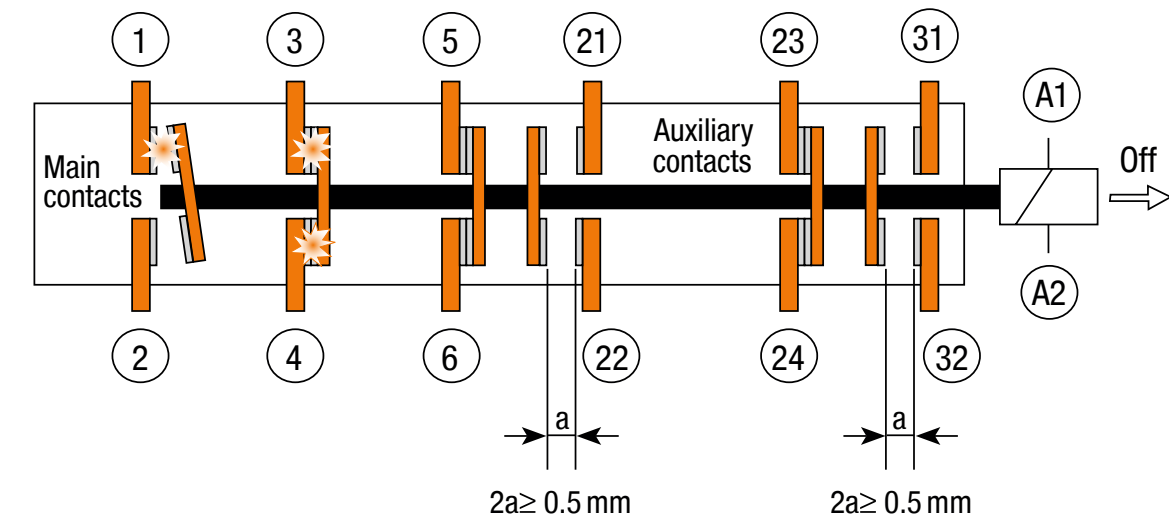
CA8: mechanically linked performance between main contacts and internal auxiliary contacts as per IEC 60947-5-1. This feature provides status feedback in the event of a contact weld.

**All around safety**

CA8/Auxiliary contacts: mechanically linked performance between main contacts and auxiliary contacts as per IEC 60947-5-1 for CA8 models with DC coils. Mechanically linked provides status feedback in the event of a contact weld. Mirror contact between main and auxiliary contacts as per IEC 60947-4-1 for CA8 models with AC coils. Mirror contacts prevent any unclear status indications if a N.O. power pole welds.



**Mirror and Mechanically Linked Design**





MINIATURE CONTACTORS – AC AND DC COIL, SERIES CA8



CA8-09-10 contactor

Non-Reversing, Three Pole Contactors With AC Coil, Series CA8 (Open type only) ①

I <sub>e</sub> [A]	Ratings for Switching AC Motors (AC2 / AC3 / AC4)										Auxiliary Contacts per Contactor		Open Type
	3 Ø kW (50 Hz)				UL/CSA HP (60 Hz)								
					1 Ø		3 Ø						
40°C													
AC-1	230V	400V 415V	500V	690V	115V	230V	200V	230V	460V	575V	NO	NC	Catalog Number
20	3	4	4	4	1/2	1-1/2	2	2	5	5	1 0	0 1	CA8-09-10-*
20	3	5.5	5.5	5.5	3/4	2	3	3	7-1/2	7-1/2	1 0	0 1	CA8-12-10-*

Non-Reversing, Three Pole Contactors With DC Coil, Series CA8 (Open type only) ①②

I <sub>e</sub> [A]	Ratings for Switching AC Motors (AC2 / AC3 / AC4)										Auxiliary Contacts per Contactor		Open Type
	3 Ø kW (50 Hz)				UL/CSA HP (60 Hz)								
					1 Ø		3 Ø						
40°C													
AC-1	230V	400V 415V	500V	690V	115V	230V	200V	230V	460V	575V	NO	NC	Catalog Number
20	3	4	4	4	1/2	1-1/2	2	2	5	5	1 0	0 1	CA8-09C-10-*
20	3	5.5	5.5	5.5	3/4	2	3	3	7-1/2	7-1/2	1 0	0 1	CA8-12C-10-*

AC Coil Codes ①③

AC Coil Code	Voltage Range	
	50 Hz	60 Hz
12	12V	12V
24Z	24V	24V
48Z	48V	48V
120	110V	120V
208	200V-220V	208V-220V
240	240V	240V
380 ⑤	Use Coil Code 400	
400 ⑤	400V	400V
480	440V	480V
575 ⑥	Use Coil Code 600	
600 ⑥	525V	600V

DC Coil Codes ①③

DC Coil Code	Voltage
12D	12V
24D	24V ④
110D	110V
125D	125V
220D	220V

Ordering Instructions

Specify Catalog Number	
Replace (* ) with Coil Code	See Coil Codes on this page

- ① CA8 not available without coil. Coils and contacts not replaceable.
- ② Select Coil Code from DC Coil Code table only.
- ③ The coil codes shown are the most commonly stocked items. Contact ACCESS Elevator & Electric Supply to determine if other voltages are available.
- ④ Integrated diode surge suppressor coils available. Order coil code 24DD. Example: CA8-09C-10-24D becomes CA8-09C-10-24DD.
- ⑤ The European Community has agreed that 400V is the nominal voltage in lieu of 380V. Use this code when 380V is required.
- ⑥ Use this code for 575V applications.

SERIES CDP2 DEFINITE PURPOSE CONTACTORS

High-performance Economical Contactors for Commercial Applications up to 90A

Sprecher+Schuh's Definite Purpose contactors are ideal for commercial applications including air conditioning, refrigeration, resistive heating and many other installations where a low cost, high performance contactor is needed. These devices offer flexibility and are designed to meet or exceed electrical and mechanical requirements as defined by definite purpose contactor standards.

Popular Sizes for Most Applications

The CDP2 series consists of one, two, three and four pole contactors rated to 600V AC. Three pole devices range up to 90A, while the one and two pole models are rated to 40A. Four pole contactors are also available ranging from 25A to 40A.

Flexibility and Convenience Make Installation Easy

CDP2 contactors are compact in size and offer three convenient methods of wire connection: quick connect terminals, screws or box lugs. Box lugs are standard on 40A and larger contactors. Other models come standard with combination quick connect terminals and screws that accept hex, slotted or Phillips screwdrivers.

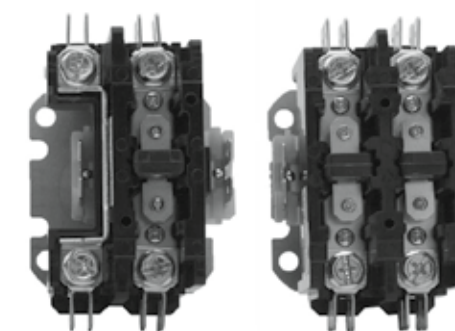


Standard Features

- Universal mounting plate
- 25A and 30A have screw power terminals that will accept ring-tongue terminals
- 40A and larger have box power terminals
- Dual quick-connect power terminals on all sizes
- Dual quick-connect coil terminals on all sizes
- Double break power contact design with feed-thru wiring
- Class B (130°C) coil insulation
- Double E magnet assembly

Optional Features

- SPDT auxiliary contacts optional on 3- and 4-pole contactors (max of two)
- Optional covers for 1- and 2-pole contactors
- Mechanical interlock for 3-pole contactors



One Pole

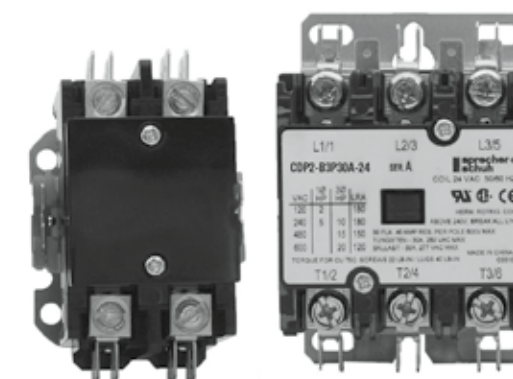
Two Pole



30A  
40A



30A



Two Pole

Three Pole



40A



30A  
40A  
50A  
60A  
75A  
90A



Four Pole

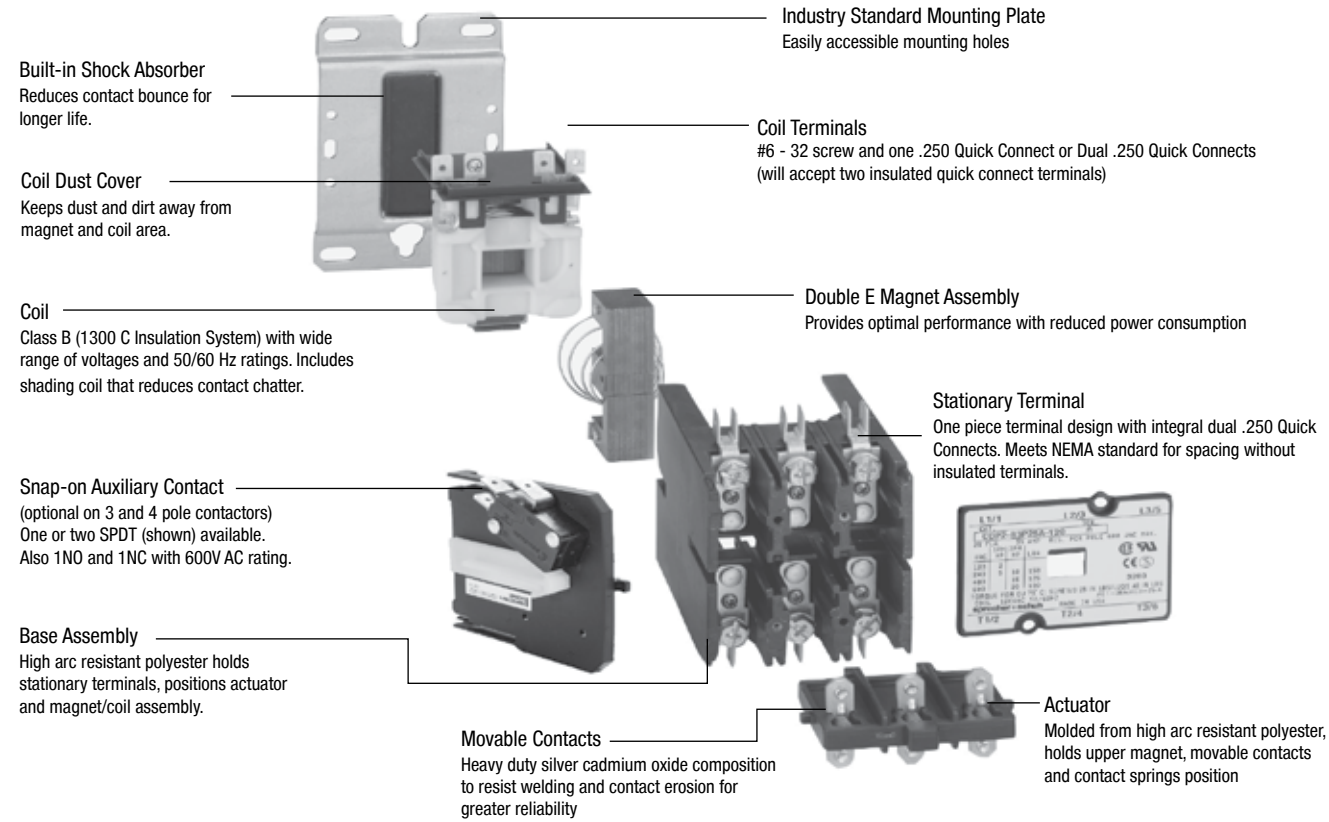


30A  
40A

Starters and Contactors: Sprecher+Schuh

Starters and Contactors: Sprecher+Schuh

Compare These Features



Quick Selection Guide

1 and 2 Pole Definite Purpose Contactors with AC Coil				
CDP2	1	A	1P	30A
Type	Frame Size	Poles	Amp Rating	Coil Voltage
Definite Purpose	A = 30 & 40A	1P = 1 pole 2P = 2 pole	30A = 30 amps 40A = 40 amps	24 = 24 volts 120 = 120 volts 220W = 208-240 volts 277 = 277 volts

3 Pole Definite Purpose Contactors with AC Coil				
CDP2	1 2	B	3P	30A
Type	Frame Size	Poles	Amp Rating	Coil Voltage
Definite Purpose	B = 30 & 40A C = 50 & 60A D = 75 & 90A	3P = 3 poles	30A = 30 amps 40A = 40 amps 50A = 50 amps 60A = 60 amps 75A = 75 amps 90A = 90 amps	24 = 24 volts 120 = 120 volts 220W = 208-240 volts 277 = 277 volts 480 = 480 volts

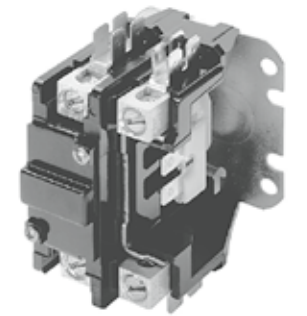
4 Pole Definite Purpose Contactors with AC Coil				
CDP2	1 2	E	4P	25A
Type	Frame Size	Poles	Amp Rating	Coil Voltage
Definite Purpose	E = 25...40A	4P = 4 poles	25A = 25 amps 30A = 30 amps 40A = 40 amps	120 = 120 volts 220W = 208-240 volts 277 = 277 volts 480 = 480 volts

- 1 Screw power terminals standard on 30A. Box lug power terminals standard for 40A and larger.
- 2 Box lugs on 30A available with volume special order only.

DEFINITE PURPOSE CONTACTORS, 1 AND 2 POLE – SERIES CDP2

One- and Two-Pole Definite Purpose Contactors with AC Coil (Open type only) 4

Full Load Amps	Poles	Locked Rotor Amps			Resistive Amps 2	Maximum H.P.		Catalog Number	Std. Pkg.
		240V 2	480V	600V		10	120V		
30 1	1 6	150	75	50	40	1	2	CDP2-A1P30A- * 5	50
30 1	2	150	125	100	40	2	3	CDP2-A2P30A- * 5	50
40	1 6	200	150	120	50	2	3	CDP2-A1P40A- * 3	50
40	2	200	150	120	50	2	3	CDP2-A2P40A- * 3	50



Series CDP2 1-pole contactor



Series CDP2 2-pole contactor (with optional cover)

Accessories

Accessory	Description	For use with	Catalog Number
	Contactors Cover - Prevents foreign particles from entering contactor. Covers current carrying parts.	CDP2-A1P30A... CDP2-A2P30A...	CDP2-A1P-C CDP2-A2P-C 7

AC Coil Codes

AC Coil Code	Voltage Range
	60 Hz
24	24V
120	120V
220W	208-240V
277	277V

- 1 25A contactors only available by special order. Contact ACCESS Elevator & Electric Supply.
- 2 240V rating also applies to 277V applications.
- 3 Box power lugs are supplied as standard. Screw terminals are available on the power connections by special order only in quantity.
- 4 1- and 2-pole, 25 and 30A contactors supplied without cover.
- 5 Screw power terminals are supplied standard on 25 and 30A contactors. Box lugs available by special order only in quantity.
- 6 1-pole (1-pole plus) contactors include a shunt for termination and feed-thru of neutral.
- 7 40 amp contactors are supplied with cover as standard.



**DEFINITE PURPOSE CONTACTORS, 3 POLE – SERIES CDP2**



Series CDP2 3-pole contactor

**Three Pole Definite Purpose Contactors with AC Coil (Open Type only)**

Full Load Amps	Locked Rotor Amps			Resistive Amps ②	Maximum Horsepower ②						Catalog Number	Std. Pkg.	
					1Ø			3Ø					
	240V ②	480V	600V		120V	200	240V	200V	240V	480V			600V
30 ①	180	150	120	40	2	~	5	10	10	15	20	CDP2-B3P30A- * ④	25
40	240	200	160	50	3	~	7-1/2	10	10	20	25	CDP2-B3P40A- * ⑤	25
50	300	250	200	65	3	7-1/2	10	15	15	25	25	CDP2-C3P50A- * ⑥	15
60	360	300	240	75	5	7-1/2	10	25	25	30	30	CDP2-C3P60A- * ⑥	15
75	450	375	300	93	5	10	15	20	25	40	40	CDP2-D3P75A- * ⑥	1
90	540	450	360	120	7-1/2	15	20	25	30	50	50	CDP2-D3P90A- * ⑥	1

**Auxiliary Contacts for 3-Pole Contactors**

Auxiliary	Description	Circuit Diagram	Catalog Number
	Two pole Auxiliary Contact Block (1-NO / 1-NC) - Side mount with quick connect stabs		CDP2-BE-11 ⑥ CDP2-CD-11 ⑤
	for 25...40A, 3 pole contactors for 50...90A, 3 pole contactors		
	One pole Auxiliary Contact Block (SPDT) - Side mount with quick connect stabs for 25...40A, 3 or 4 pole contactors		CDP2-BE-1SPDT ⑤

**AC Coil Codes**

AC Coil Code	Voltage Range
24	24V
120	120V
220W	208-240V
277	277V
480	480V

- ① 25A contactors available by special order. Contact ACCESS Elevator & Electric Supply. 240V rating also applies to 277V applications.
- ② Box lugs are supplied as standard. Screw terminals are available on the power connections by special order only in quantity.
- ③ Screw power terminals are supplied standard on 25 and 30A contactors. Box lugs available by special order only in quantity.
- ④ Meets NEMA Standard B600.
- ⑤ Meets NEMA Standard B600 *except* has 10A continuous current rating.

**DEFINITE PURPOSE CONTACTORS, 4 POLE – SERIES CDP2**



Series CDP2 4-pole contactor

**Four Pole Definite Purpose Contactors With AC Coil (Open Type only)**

Full Load Amps	Locked Rotor Amps			Resistive Amps ②	Maximum Horsepower ②					Catalog Number	Std. Pkg.
					1Ø		3Ø				
	240V ②	480V	600V		120V	240V	200V	240V	480V		
30 ①	180	150	120	40	2	5	10	10	15	CDP2-E4P30A- * ④	20
40	240	200	160	50	3	7-1/2	10	10	20	CDP2-E4P40A- * ⑤	20

**Auxiliary Contacts for 4 Pole Contactors**

Auxiliary	Description	Circuit Diagram	Catalog Number
	Two pole Auxiliary Contact Block (1-NO / 1-NC) - Side mount with quick connect stabs for all 4 pole contactors		CDP2-BE-11
	One pole Auxiliary Contact Block (SPDT) - Side mount with quick connect stabs for all 4 pole contactors		CDP2-BE-1SPDT

**A.C. Coil Codes**

AC Coil Code	Voltage Range
24	24V
120	120V
220W	208-240V
277	277V
480	480V

- ① 25A contactors available by special order. Contact ACCESS Elevator & Electric Supply.
- ② 240V rating also applies to 277V applications.
- ③ Box Power Lugs are supplied as standard. Screw terminals are available on the power connections by special order only in quantity.
- ④ Screw per terminals are supplied standard on 25 and 30A contactors. Box Lugs available by special order only in quantity.







**SIRIUS Innovations Modular System continued**

One particular advantage is that the link modules for direct-on-line, reversing and star-delta (wye-delta) starting are also available with spring-loaded terminals. This enables you to install feeders entirely without tools.

Spring-loaded terminals in the auxiliary circuit are optionally available in sizes S2 and S3.

**MAXIMUM FLEXIBILITY**

**When it comes to connections**

All the components of the SIRIUS Modular System are, of course, also available with screw terminals for special requirements such as mechanical engineering in the semiconductor industry. In sizes with design widths of 70 mm and larger (i.e. as of size S3), additional possible connection options are available such as for connecting cable terminal lugs to device connection bars, or connecting cables with large cross sections to box terminals.



3RT2028-1AK60



3RT2026-1AK60



3RT2027-1AK60

**3RT2 Contactors**

Part #	Amps	Aux	Coil	Poles	Frame Size
3RT2015-1AK61	7	1NO	120VAC	3	S00
3RT2015-1AK62	7	1NC	120VAC	3	S00
3RT2015-1AP01	7	1NO	240VAC	3	S00
3RT2015-1AP02	7	1NC	240VAC	3	S00
3RT2015-1BB41	7	1NO	24VDC	3	S00
3RT2015-1BB42	7	1NC	24VDC	3	S00
3RT2016-1AK61	9	1NO	120VAC	3	S00
3RT2016-1BB41	9	1NO	24VDC	3	S00
3RT2016-1BB42	9	1NC	24VDC	3	S00
3RT2017-1AK62	12	1NC	120VAC	3	S00
3RT2017-1AP01	12	1NO	240VAC	3	S00
3RT2018-1AK61	16	1NO	120VAC	3	S00
3RT2018-1AK62	16	1NC	120VAC	3	S00
3RT2024-1AK60	12	1NO	120VAC	3	S0
3RT2025-1AK60	17	1NO	120VAC	3	S0
3RT2026-1AK60	25	1NO/1NC	120VAC	3	S0
3RT2026-1AP60	25	1NO/1NC	240VAC	3	S0
3RT2027-1AK60	32	1NO/1NC	120VAC	3	S0
3RT2027-1BB40	32	1NO/1NC	24VDC	3	S0
3RT2028-1AK60	38	1NO/1NC	120VAC	3	S0
3RT2035-1AK60	40	1NO/1NC	120VAC	3	S2
3RT2035-1AP60	40	1NO/1NC	240VAC	3	S2
3RT2036-1AK60	50	1NO/1NC	120VAC	3	S2
3RT2036-1KB40	50	1NO/1NC	24VDC	3	S2
3RT2037-1AK60	65	1NO/1NC	120VAC	3	S2
3RT2045-1AK60	80	1NO/1NC	120VAC	3	S3
3RT2046-1AK60	95	1NO/1NC	120VAC	3	S3
3RT2516-1AK60	9	2NO/2NC	120VAC	4	S00
3RT2517-1AK60	12	2NO/2NC	120VAC	4	S00
3RT2517-1BB40	12	2NO/2NC	24VDC	4	S00
3RT2517-1BG40	12	2NO/2NC	110VDC	4	S00
3RT2535-1AK60	55	2NO/2NC	120VAC	4	S2
3RT2336-1AK60	60	1NO/1NC	120VAC	4	S2

**Aux Contacts**

Part #	Description
3RH2911-1FA22	Aux. switch on the front, 2NO + 2NC curr. path 1NO, 1NC, 1NC, 1NO, for 3RH and 3RT, .3/.4, .1/.2, .1/.2, .3/.4, screw
3RH2911-1HA11	Aux. switch on the front, 1NO + 1NC curr. path 1NC, 1NO, for 3RH and 3RT, .1/.2, .3/.4, screw
3RH2911-1HA22	Aux. switch on the front, 2NO/2NC curr. path 1 NC, 1 NC, 1 NO, 1 NO for 3RH and 3RT screw terminal .1/.2, .1/.2, .3/.4, .3/.4
3RH2911-1HA31	Aux. switch on the front, 3NO + 1NC curr. path 1 NC, 1NO, 1NO, 1NO, for 3RH and 3RT, .1/.2, .1/.2, .3/.4, .3/.4, screw
3RH2911-1NF11	Electron. contr. auxiliary switch 1NO+1NC, curr. path 1NO,---, 1NC, front-side for 3RH and 3RT, .3/.4, --/--, --/--, .1/.2, screw
3RH2911-2GA04	Aux. switch on the front, 4NC curr. path 1NC, 1NC, 1NC, 1NC for contactor relays, 51/52, 61/62, 71/72, 81/82, spring-loaded
3RH2911-2GA22	Aux. switch block, front, 2NO/2NC, curr. path 1NO, 1NC, 1NC, 1NO, for contactor relays, 53 / 54, 61 / 62, 71 / 72, 83 / 84, spring-loaded
3RH2911-2HA22	Aux. switch block, front, 2NO/2NC, curr. path 1NC, 1NC, 1NO, 1NO, for contactor relays A. motor cont., .1 / .2, .1 / .2, .3 / .4, .3 / .4, spring-loaded
3RH2911-2HA31	Aux. switch on the front, 3NO + 1NC curr. path 1NC, 1NO, 1NO, 1NO, for 3RH and 3RT .1/.2, .3/.4, .3/.4, .3/.4, spring-loaded
3RH2921-1DA11	Lateral aux. switch block, side, 1NO/1NC, curr. path 1NC, 1NO, for motor contactors, R: 31/32, 43/44 L: 51/52, 63/64, screw
3RH2921-2DA02	Aux. switch lateral, 2NC curr. path 1NC, 1 NC for 3RH and 3RT, R: 31/32, 41/42 L: 51/52, 61/62, screw
3RH2921-2DA11	Lateral aux. switch block, side, 2NO/2NC, curr. path 1NC, 1NO, for motor contactors, R: 31/32, 43/44 L: 51/52, 63/64, spring-loaded
3RH2921-2DA20	Aux. switch lateral, 2NO curr. path 1NO, 1NO, for 3RH and 3RT, R: 33/34, 43/44 L: 53/54, 63/64, spring-loaded



3RH2921-2DA11



Overload Relays

Part #	Description	Size
3RU2116-4AB0	Overload relay 11...16 A for motor protection, class 10, for mounting onto contactor main circuit: screw terminal aux. circuit: screw terminal, manual-automatic-reset	S00
3RB3016-1SB0	Overload relay 3...12 A for motor protection, class 10 contactor ass. main circuit: screw conn. aux. circuit: screw conn., manual-automatic-reset	S00
3RB3016-1TB0	Overload relay 4...16 A for motor protection	S00
3RB3026-1QB0	Overload relay A for motor protection, class 10 contactor ass. main circuit: aux. circuit: screw conn., manual-automatic-reset	S0
3RU2116-1KB0	Overload relay 9.0...12.5 A for motor protection bgr	S00
3RU2116-1HB0	Overload relay 5.5...8.0 A thermal for motor protection, class 10 contactor mounting main circuit: screw auxiliary circuit: screw manual-automatic-reset	S00
3RU2126-1GB0	Overload relay 4.5...6.3 A thermal for motor protection, class 10 contactor mounting main circuit: screw auxiliary circuit: screw manual-automatic-reset	S0
3RU2126-4AB0	Overload relay 11...16 A thermal for motor protection, class 10 contactor mounting main circuit: screw auxiliary circuit: screw manual-automatic-reset	S0
3RU2126-4CB1	Overload relay 17...22 A thermal for motor protection, class 10 stand-alone installation main circuit: screw auxiliary circuit: screw manual-automatic-reset	S0
3RU2126-4FB0	Overload relay 34...40 A thermal for motor protection, class 10 contactor mounting main circuit: screw auxiliary circuit: screw manual-automatic-reset	S0
3RU2126-4NB0	Overload relay 23...28 A thermal for motor protection, class 10 contactor mounting main circuit: screw auxiliary circuit: screw manual-automatic-reset	S0

SIRIUS

Protection Equipment: Overload Relays up to 80 A

	3RB30	3RB31
<b>Applications</b>		
• System protection	✓ <sup>1</sup>	✓ <sup>1</sup>
• Motor protection	✓	✓
• Alternating current, three-phase	✓	✓
• Alternating current, single-phase	–	–
• Direct current	–	–
<b>Size Contactor</b>	S00, S0, S2	S00, S0, S2
<b>Rated operational current <math>I_n</math></b>		
• Size S00	A Up to 16	Up to 16
• Size S0	A Up to 40	Up to 40
• Size S2	A Up to 80	Up to 80
<b>Rated operational voltage <math>U_n</math></b>	A 690 AC	690 AC
<b>Rated frequency</b>	Hz 50/60	50/60
<b>Trip class</b>	Class 10E, 20E	Class 10E, 20E, 30E (adjustable)
<b>Thermal overload releases</b>	A –	–
<b>Electronic overload releases</b>	A 0.1 ... 0.4 up to 20 ... 80	0.1 ... 0.4 up to 20 ... 80

Accessories	3RB30	3RB31
<b>For sizes</b>	S00 S0 S2	S00 S0 S2
Terminal supports for stand-alone installation	✓ ✓ ✓	✓ ✓ ✓
Mechanical RESET	✓ ✓ ✓	✓ ✓ ✓
Cable releases for RESET	✓ ✓ ✓	✓ ✓ ✓
Electrical remote RESET	– – –	Integrated in the unit
Terminal covers		
• Ring terminal lug connections		
• For box terminals		

Soft Starters

Part #	Description	Size
3RW4024-1BB14	SIRIUS soft starter. 12.5A, 5.5Kw/400V, 40 degrees, AC200 – 480V, AC/DC110 – 230V, screw terminals	S0
3RW4026-1BB14	SIRIUS soft starter. 25A, 11Kw/400V, 40 degrees, AC200 – 480V, AC/DC110 – 230V, screw terminals	S0
3RW4027-1BB14	SIRIUS soft starter. 32A, 15Kw/400V, 40 degrees, AC200 – 480V, AC/DC110 – 230V, screw terminals	S0

Power Supply

Part #	Description
6EP1333-2BA20	SITOP. PSU100S 24V/5 A stabilized power supply input: 120-230VAC output: 24V/5 A DC
6EP3330-6SB00-0AY0	Logo!Power. 24V / 0.6 A stabilized power supply input: 100-240VAC output: DC 24V / 0.6 A
6EP3321-6SB10-0AY0	Logo!Power. 15V / 1.9 A stabilized power supply input: 100-240VAC output: DC 15 V / 1.9 A
6EP3311-6SB00-0AY0	Logo!Power. 5V / 6.3 A stabilized power supply input: 100-240VAC output: 5V DC / 6.3 A
6EP13325BA10	SITOP. PSU100C 24 V/4 A stabilized power supply input: 120-230VAC (DC 110-300 V) output: 24V DC/4 A
6EP13321LB00	SITOP. PSU100L 24 V/2.5 A stabilized power supply input: 120/230VAC, output: DC 24V/2,5 A
6EP13331LB00	SITOP. PSU100L 24 V/5 A stabilized power supply input: 120/230VAC, output: 24VDC/5 A



3RW4024-1BB14 Soft Starter



6EP1333-2BA20 Sitop Stabilized Power Supply

Replacement Part Numbers

Standard SIRIUS Contactor Part #	Replaced by Innovations Part #	Standard SIRIUS Contactor Part #	Replaced by Innovations Part #
3RT1024-1AK60	3RT2024-1AK62	3RT1035-1AP60	3RT2035-1AK60
3RT1025-1AK60	3RT2025-1AK60	3RT1036-1AK60	3RT2036-1AK60
3RT1026-1AK60	3RT2026-1AK60	3RT1044-1AK60	3RT2037-1AK60
3RT1026-1AP60	3RT2026-1AK60	3RH1921-1DA11	3RH2921-1DA11
3RT1033-1AK60	3RT2027-1AK60	3RH1921-1EA11	3RH2921-1DA11
3RT1034-1AK60	3RT2034-1AK60	3RH1921-1FA22	3RH2911-1FA22
3RT1035-1AK60	3RT2035-1AK60		



3RH2921-1DA11 Lateral Aux Switch Block



3RH2921-2DA11 Aux Contact



3RT2035-1AK60 Contactor



## Siemens/Nordic

### The Industry Standard for Electronic Soft Starters

Siemens/Nordic elevator starters are specifically designed and manufactured for the elevator industry with over 150,000 units installed and running.

#### FEATURES

- Heavy duty, full size, and fully rated @ 80 starts per hour**  
 Not a light duty uprated miniature electronic starter that has to rely on constant cooling from a fan, the Siemens/Nordic starter has set the industry standard for heavy-duty service.
- Easy to read self-diagnostics and easy to set starting and overload amps**  
 All done with the keypad and two-line LCD display. Just follow the prompts.
- Provides smooth, stepless soft-start of elevator motor**  
 Reduces or eliminates the problem dimming lights.  
 Protects sensitive medical and diagnostic equipment and computers.  
 Reduces wear of motor, pump, valves, seals, and other mechanical components.
- Built in phase loss/phase reversal protection plus field adjustable electronic overload relay**  
 Fully protects expensive elevator motors and service components.
- No moving parts**  
 Eliminates the expense of replacing contact kits.
- Significant noise reduction**  
 No electromechanical contactors closing and opening. Delivers quiet operation.
- Automatic status monitoring**  
 Siemens/Nordic starters automatically check for proper motor connections upon initial start-up.
- Windows-based computer diagnostic software also available**

#### INSTALLATION AND SET-UP

One of the many reasons that the Siemens/Nordic elevator starter is the industry's preferred product is its ease of set-up.

After making the control power connections (remember, only use 120VAC for the motor run signal on terminal 4), make the line and load connections. The starter is wired at the factory for a Wye-Delta motor, 6 or 12 leads.

If you have a 9-lead motor or a 3- or 6-lead in-line motor, you must reconnect the starter to run across the line. Check to make sure the starter can handle the larger draw of an across-the-line motor. For in-line connections, consult the instruction book.

*continued on page 160*

*Call Access today for low prices and same day shipping on all Siemens Soft Starters. We ship from Emeryville, California or Niles, Illinois warehouse.*

*For a complete troubleshooting guide, contact Access Elevator Supply or visit [www.AESupply.com](http://www.AESupply.com)*

### Soft-Start Hydraulic Elevator Application Guide\*

**Table 1:**  
For use with  
**Wye-Delta Wound Motors**  
**200-460 Volts**

HP @ 200V	HP @ 230V	HP @ 460V	Rated Current (Amps)	Overload Range (Amps)	Current Limit Range (Amps)	Part #
5	7.5	15	22	7-27	26-94	72EG34AFP
7.5	10	25	35	12-44	41-148	72GG34AFP
10	15	30	42	14-53	49-179	72HG34AFP
15	20	40	55	18-69	64-234	72JG34AFP
20	25	50	68	22-85	79-289	72KG34AFP
25	30	60	80	26-100	93-340	72LG34AFP
30	40	75	105	35-131	121-447	72MG34AFP
40	50	100	130	43-163	151-553	72NG34AFP
50	60	125	156	52-196	181-663	72PG34AFP
75	100	—	252	83-315	292-1071	72RG32AFP

**Table 2:**  
For use with  
**Wye-Delta Wound Motors**  
**575-600 Volts**  
(primarily Canada)

HP @ 460V	HP @ 575V	Rated Current (Amps)	Overload Range (Amps)	Current Limit Range (Amps)	Part #
15	20	22	7-27	26-94	72EG35AFP
25	30	35	12-44	41-148	72GG35AFP
30	40	42	14-53	49-179	72HG35AFP
40	50	55	18-69	64-234	72JG35AFP
50	60	68	22-85	79-289	72KG35AFP
60	75	80	26-100	93-340	72LG35AFP
75	100	105	35-131	121-447	72MG35AFP
100	125	130	43-163	151-553	72NG35AFP
125	150	156	52-196	181-663	72PG35AFP

**Table 3:**  
For use with  
**Across-the-Line Motors**  
**200-460 Volts**

HP @ 200V	HP @ 230V	HP @ 460V	Rated Current (Amps)	Overload Range (Amps)	Current Limit Range (Amps)	Part #
—	5	10	18	6-25	24-85	72GG34AFP
5	7.5	15	22	8-30	28-10	72HG34AFP
7.5	10	20	28	10-39	36-135	72JG34AFP
7.5	10	25	35	13-49	45-166	72KG34AFP
10	15	30	42	15-57	53-196	72LG34AFP
15	20	40	55	20-76	70-257	72MG34AFP
20	25	50	68	24-93	87-319	72NG34AFP
25	30	60	80	29-112	104-382	72PG34AFP
40	50	—	130	48-181	168-618	72RG32AFP

**Table 4:**  
For use with  
**Across-the-Line Motors**  
**575-600 Volts**  
(primarily Canada)

HP @ 460V	HP @ 575V	Rated Current (Amps)	Overload Range (Amps)	Current Limit Range (Amps)	Part #
10	15	18	6-25	24-25	72GG35AFP
15	20	22	8-30	28-103	72HG35AFP
20	25	28	10-39	36-135	72JG35AFP
25	30	35	13-49	45-166	72KG35AFP
30	40	42	15-57	53-196	72LG35AFP
40	50	55	20-75	70-257	72MG35AFP
50	60	68	24-93	87-319	72NG35AFP
60	75	80	29-119	104-382	72PG35AFP

\*For traction elevator applications, call Access.





One of the many reasons that the Siemens/Nordic elevator starter is the industry's preferred product is its ease of set-up.

### INSTALLATION AND SET-UP continued

After making the power and control connection, set the starting amps and overload amps using the keypad.

Enter the desired settings as indicated below. The factory default settings are shown in the default setting column.

- Use the Up/Down keys to reach the desired parameter.
- Use the right arrow key to enter the edit mode.
- Use the right arrow key to select the digit to edit.
- Use the Up and Down keys to decrease or increase the flashing digit.

When the desired value has been entered, use the left arrow key to exit.

After exiting the editing menu, a screen asking you to accept or reject the changes will appear. The bottom line shows the new parameter.

Menu Choice		Default Setting
Starting amps	This is the level that the elevator starter will hold the current limit to, during the start. Keep in mind that while lower settings reduce the inrush currents, they increase the starting time. This setting should not be less than twice the motor's FLA.	425% of the starter current rating as measured in amps
Overload amps	This setting should be set at or below the FLA of the hydraulic pump motor.	50% of the starter rating in amps
Line rotation	The choices for this are either ABC or CBA. To change the setting from the factory default of ABC rotation, select the right key, which causes the ABC to flash and select the up key. To exit select the left key.	ABC rotation
Off delay	This is the time the starter continues to run after the run signal has been removed. This value is adjustable from 0 to 2500 milliseconds. To change from the factory default of 500 milliseconds, press the right key then select the desired setting the same using the up, down and right keys. Once the desired value is reached, press the left key to exit.	500 milliseconds
On delay	This is the time the starter waits before running after receiving a run signal. The factory default is 0 milliseconds. This is adjustable from 0 to 2500 milliseconds. It is adjusted the same way the Off delay is adjusted.	0 milliseconds

### SINGLE PHASE HYDRAULIC SYSTEM

- Saves space and reduces cost for the building owner by eliminating the phase converter.
- Simplifies maintenance and reduces service calls, increasing profit for the elevator contractor.
- Same installation and programming as traditional elevator applications for quick, confident commissioning.

### THREE PHASE HYDRAULIC SYSTEM

- The industry standard hydraulic controller with 20 years of proven performance.
- Expanded diagnostics and firmware upgrades via communications port.

Model #	In-line FLA	Single Phase Ratings (HP) 200V / 230V
72GG34AFP	18	2 / 3
72HG34AFP	22	3 / 3
72JG34AFP	28	3 / 5
72KG34AFP	35	5 / 5
72LG34AFP	42	5 / 7.5
72MG34AFP	55	7.5 / 10
72LG34AFP	42	5 / 7.5
72MG34AFP	55	7.5 / 10
72NG34AFP	68	10 / 15
72PG34AFP	80	- / 15
72RG32AFP	130	- / 25

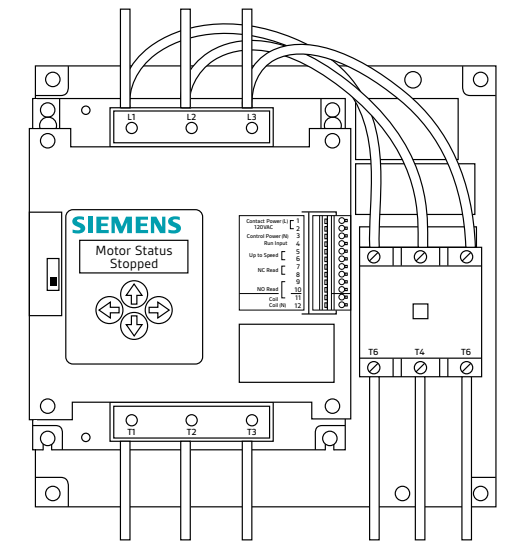
### MOTOR GENERATOR TRACTION SYSTEM

- Current limit starting for faster response to car calls.
- Shared spare parts with hydraulic controllers reduces inventory costs.

### Elevator Starter Dimensions

Part #	Height	Width	Depth
72EG34AFP-72KG34AFP	11.5"	11"	5.63"
72LG34AFP-72PG34AFP	11.5"	11"	7.13"
72RG32AFP	12"	16.75"	7.16"
72EG35AFP-72KG35AFP	11.5"	11"	5.63"
72LG35AFP	11.5"	11"	7.13"
72MG35AFP-72PG35AFP	12"	16.75"	7.13"

All panel mounting holes are 5/16". Starter and Fault contactors can extend up to 1/4" beyond the width of the mounting panel.



### Soft Starter Electrical Specifications

Input Power and Control	
Control power	±15% of 120VAC
Operating frequency	50/60 Hz
Three phase	-15%/+10% 200 – 460VAC -15%/+10% 460 – 575VAC ±5Hz of 50/60 Hz
Motor run input	Pull in: 79VAC max Drop out: 20VAC min Off state leakage: 1.5mA max
Up to speed output	Solid state, AC voltage only
Number of contacts	1 Normally Open
Rated operational current	1 amp @ 120VAC
Make/break VA	1200 VA for 250 mS/120 VA
Ready output	Mechanical relay
Number of contacts	1 Normally Open, 7 & 8 1 Normally Closed 9 & 10, 11
Rated operational current	3.0 amps @ 120VAC
Make/break VA	3600/360 VA

### Crossover Siemens Soft Starters

Unitec Part #	Otis Part #	Siemens Part #
AAA21240AD5	72KV34AFP	72KG34AFP
AAA21240AD7	72MV34AFP	72MG34AFP
AAA21240AD8	72NV34AFP	72NG34AFP
AAA21240AD9	72PV34AFP	72PG34AFP
AAA21240A10	72RV32AFP	72RG32AFP
AAA21240AD14	72JV35AFP	72JG35AFP
AAA21240AD15	72KV35AFP	72KG35AFP
AAA21240AD16		72LG34AFP / 72LG35AFP
AAA21240AD17		72MG34AFP / 72MG35AFP

TKE CROSS REFERENCE

ThyssenKrupp	Amps Inside the Delta	Max Volts	Standard Part	ThyssenKrupp	Amps In-line	Max Volts
72DV 787AF1	22A	480VAC	72EG34	72DV 787AF1	N/A	480VAC
72DV 787AF2	22A	575VAC	72EG35	72DV 787AF2	N/A	575VAC
72DV 787AF2SP	22A	575VAC	72EG35	72DV 787AF2SP	N/A	575VAC
72DV 787AF3	55A	480VAC	72JG34	72DV 787AF3	28A	480VAC
72DV 787AF3SP	55A	480VAC	72JG34	72DV 787AF3SP	28A	480VAC
72DV 787AF4	55A	575VAC	72JG35	72DV 787AF4	28A	575VAC
72DV 787AF4SP	55A	575VAC	72JG35	72DV 787AF4SP	28A	575VAC
72DV 787AF5	105A	480VAC	72MG34	72DV 787AF5	55A	480VAC
72DV 787AF5SP	105A	480VAC	72MG34	72DV 787AF5SP	55A	480VAC
72DV 787AF6	105A	575VAC	72MG35	72DV 787AF6	55A	575VAC
72DV 787AF6SP	105A	575VAC	72MG35	72DV 787AF6SP	55A	575VAC
72DV 787AF7	130A	480VAC	72NG34	72DV 787AF7	68A	480VAC
72DV 787AF7SP	130A	480VAC	72NG34	72DV 787AF7SP	68A	480VAC
72DV 787AF8	130A	575VAC	72NG35	72DV 787AF8	68A	575VAC
72DV 787AF9	156A	480VAC	72PG34	72DV 787AF9	80A	480VAC
72DV 787AF9SP	156A	480VAC	72PG34	72DV 787AF9SP	80A	480VAC
72DV 787AF10	156A	575VAC	72PG35	72DV 787AF10	80A	575VAC
72DV 787AF11	68A	480VAC	72KG34	72DV 787AF11	35A	480VAC
72DV 787AF11SP	68A	480VAC	72KG34	72DV 787AF11SP	35A	480VAC
72DV 787AF13	68A	575VAC	72KG35	72DV 787AF13	35A	575VAC
72DV 787AF13SP	68A	575VAC	72KG35	72DV 787AF13SP	35A	575VAC
72DV 787AF12	80A	480VAC	72LG34	72DV 787AF12	42A	480VAC
72DV 787AF12SP	80A	480VAC	72LG34	72DV 787AF12SP	42A	480VAC
72DV 787AF14	252A	240VAC	72RG32	72DV 787AF14	130A	240VAC



Sprecher + Schuh

PCEC HYDRAULIC ELEVATOR SOFT STARTERS

The PCE Hydraulic Elevator Soft Starter and PCEC Panel Solution by Sprecher+Schuh are designed to simplify installation, set-up and typical operation of motors that drive hydraulic elevators and escalators. This solid state starter solution is designed to operate 3 phase standard squirrel cage induction motors and can be connected to a 6 or 12 lead Wye-Delta (Star-Delta) or standard 3 or 9 lead motors.

Through the use of line or inside-the-delta control, the solid state solution can provide ultimate control of the motor. Advantages of a solid state solution include:

- Provides smooth motor starting
- Decreases current surges on weak electrical systems
- Reduced starting torque of the motor helps to reduce mechanical stress on system components
- Eliminates voltage and current spikes associated with traditional Wye-Delta (Star-Delta) starters
- Maximizes motor life due to reduced electrical strain
- Lowers general system maintenance requirements for improved uptime

The PCEC panel solution provides a standard PCE controller and a factory coordinated fault contactor on a common mounting plate for ease of installation. The PCE controller utilizes software optimized for the elevator industry along with a built-in selectable Class 10, 15 and 20 overload relay and SCR bypass to control all three phases. A pre-wired 3-foot control harness is supplied to simplify wiring into current installations, while the mounting plate holes are the same as many standard Wye-Delta electromechanical starter panels. To insure start up performance both the PCE controller and PCEC panel assembly are factory tested before shipping.

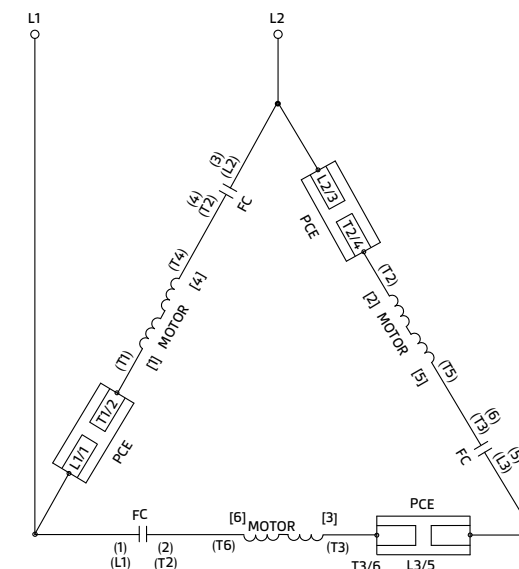
The result is a quick and easy starter solution for the elevator and escalator industries.

LED DIAGNOSTIC DISPLAY

An LED display indicates operating status and fault condition (overload, over temperature, phase reversal/phase loss, phase imbalance, shorted SCR, start fault). This enables speedy diagnosis and quick resolution of problems.

STANDARD FAULT CONTACTOR

The PCEC panel solution is equipped with a standard fault contactor which isolates one side of the motor windings from the line power in case of soft starter fault or motor overload. Current flow is prevented by this mechanical isolation in addition to the solid state SCRs.



PCEC hydraulic elevator soft starters are wired "inside the delta" for more efficient operation and retrofit

REPLACEMENT LOGIC BOARD



This board works in all models of the Siemens Class 72 soft starters and fixes over 90 percent of all starter failures. After installation, simply use the starter keypad to configure the replacement logic board for the particular model of starter.

Part #72GBD01 Universal Logic Board

72GBD01

ENCLOSURES



11MS003 Enclosure 18"H x 18"W x 8"D



11MS005 Enclosure 24"H x 24"W x 8"D

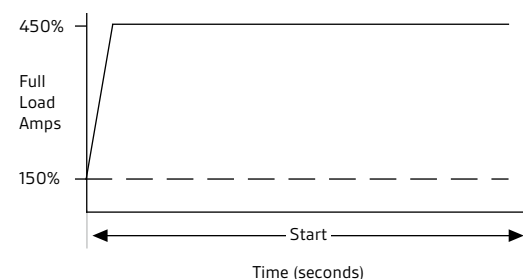


## HYDRAULIC ELEVATOR SOFT STARTER – SERIES PCEC

### Modes of Operation (Standard)

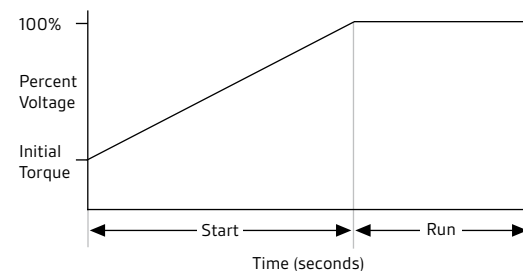
#### Current Limit Starting

Through the use of internal current sensors, the PCEC will regulate the current level applied to the motor over the programmed period of time. This type of motor control produces a slow start and insures that the current does not exceed the programmed level. This is standard configuration of the device and aligns well with traditional applications.



#### Soft Start

During soft start, the voltage is ramped from an initial set point to full voltage over the programmed period of time. This type of motor control produces a smooth start in less time than the current limit setting, however the current is not restricted.



## DIAGNOSTICS

### Overload

The built in motor overload provides protection of the motor for over current conditions. This protection feature offers a user selectable trip class setting, which can be used to accommodate different applications and motor types. When the motor draws more than the nominal value of current for a period of time, the device will fault on a motor overload fault.

### Over Temperature

The product includes a built in self monitoring method for detecting a SCR over-temperature condition. If the internal temperature exceeds a design threshold the device will fault on a SCR Overtemp fault.

### Phase Reversal

The user can select the phase relationship of the incoming power. If this phase relationship changes, the device will fault indicating a problem.

### Phase Loss/Open Load

When any one of the incoming three phases are lost, the controller will fault indicating a phase loss condition has occurred.

### Phase Imbalance

When enabled, this motor protection feature will detect if a phase imbalance condition exists and fault the unit. A phase imbalance is defined as a 65 percent differential between the highest and lowest phase for more than three seconds.

### Shorted SCR

Each time the PCEC initiates a start, it checks to see if the SCRs are operating correctly. If the controller is unable to properly turn on and off any one of the SCRs, the device will fault on a Shorted SCR fault.

## PCEC Controller Panel: 120V Control Voltage ④⑥

DELTA Connected – 6 Wire					Line Connected – 3 Wire ②					With 120VAC 50/60 Hz ③		
Maximum Horsepower					Overload Range ①	Maximum Horsepower					Overload Range ①	Control Voltage
200V	240V	480V	575V		200V	240V	480V	575V		Part #		
10	10	20	30	10.9...32.9	5	5	10	15	6.3...19	PCEC-032-600V-120V		
15	15	30	40	17...51	7.5	10	20	25	10...30	PCEC-051-600V-120V		
20	20	40	60	21.3...64	10	10	25	30	12.3...37	PCEC-064-600V-120V		
20	25	50	60	24.7...74	10	15	30	40	14.3...43	PCEC-074-600V-120V		
30	40	75	100	34.7...104	15	20	40	50	20...60	PCEC-104-600V-120V		
40	50	100	150	49...147	25	30	60	75	28.3...85	PCEC-147-600V-120V		
75	75	150	200	59...234	40	50	100	125	34...135	PCEC-234-600V-120V ⑤		

## PCEC Controller Panel: 208–230V Control Voltage ④⑥

DELTA Connected – 6 Wire					Line Connected – 3 Wire ②					With 230VAC 50/60 Hz ③		
Maximum Horsepower					Overload Range ①	Maximum Horsepower					Overload Range ①	Control Voltage
200V	240V	480V	575V		200V	240V	480V	575V		Part #		
10	10	20	30	10.9...32.9	5	5	10	15	6.3...19	PCEC-032-600V-230V		
15	15	30	40	17...51	7.5	10	20	25	10...30	PCEC-051-600V-230V		
20	20	40	60	21.3...64	10	10	25	30	12.3...37	PCEC-064-600V-230V		
20	25	50	60	24.7...74	10	15	30	40	14.3...43	PCEC-074-600V-230V		
30	40	75	100	34.7...104	15	20	40	50	20...60	PCEC-104-600V-230V		
40	50	100	150	49...147	25	30	60	75	28.3...85	PCEC-147-600V-230V		
75	75	150	200	59...234	40	50	100	125	34...135	PCEC-234-600V-230V ⑤		

- ① Motor FLA must fall within the specified range to operate correctly.
- ② The PCEC controller panels are shipped in the DELTA connection mode by default. LINE connection requires the power wires to be reconfigured and DIP Switch #15 to be programmed for LINE connection mode by the customer.
- ③ Internal fan is optional for PCEC-032...064. All other PCEC units have internal fan as standard.
- ④ Purchase additional PCE auxiliary contact blocks separately. One auxiliary contact block may be mounted on the right side of the PCE Controller.
- ⑤ Separate 120V or 240V single phase is required for PCEC fan operation.
- ⑥ The PCEC Hydraulic Elevator duty rating is 80 starts per hour at 50% duty cycle (160 calls per hour). Starts per hour are based on when the motor starts, the motor only runs on "up" calls.

## Accessories

Part #	Description
PCS-PA-01	1NC aux contact, side mount
PCS-PA-10	1NO aux contact, side mount
PCS-PA11	1 NO/1 NC aux contact kit, right side mount
PSC-PA-20	2NO aux contact, side mount
PCV-064	Fan kit. Recommended for PCEC-032 – PCEC-064. All other PCECs include fan.
PCV-147	PCE fan for 074, 104 and 147

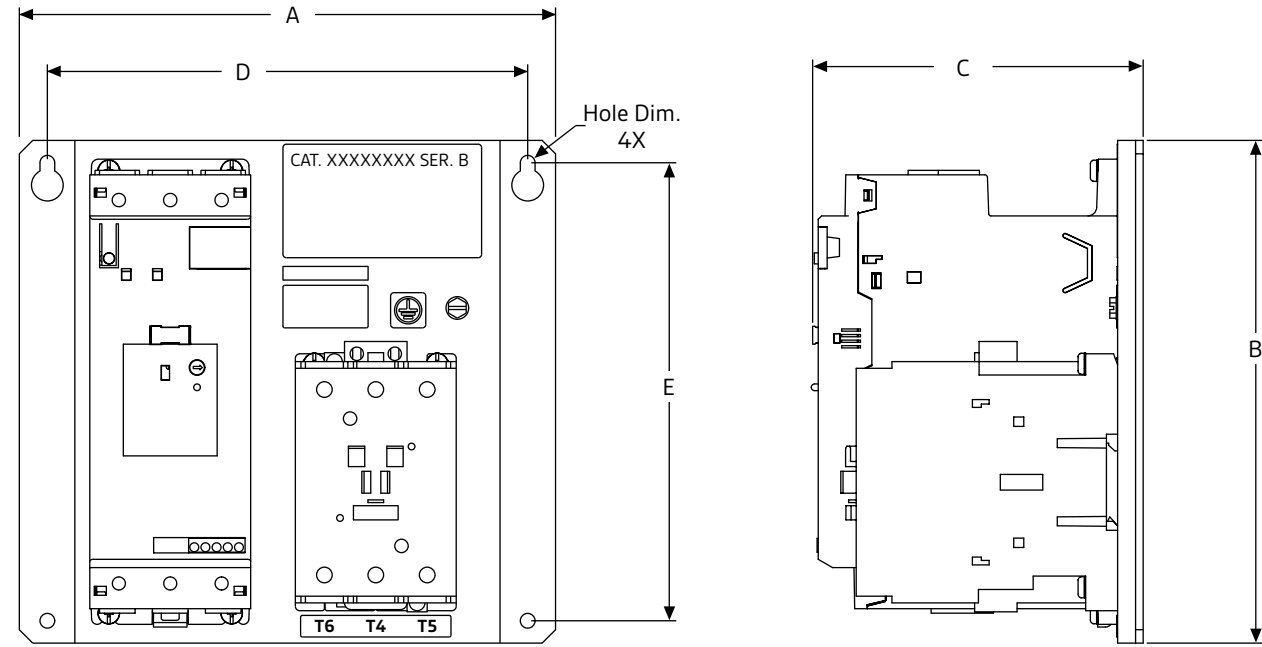


PCV-064



PCS-PA11

Series PCEC D imensions

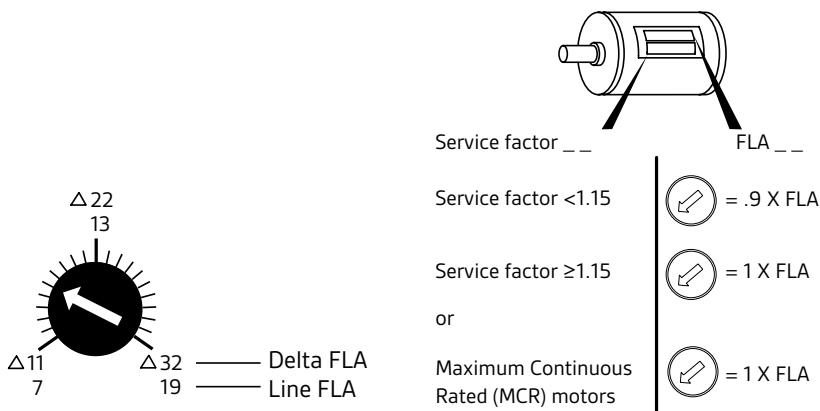


Controller Size	Units	A (Width)	B (Height)	C (Depth)	D	E	Hole Dim 4x	Approx. Weight
32/51/64	mm	178	144	115.7	165.1	127.0	5.6	4 lbs (2 kg)
	in	7.01	5.67	4.56	6.50	5.00	0.22	
74/104/147	mm	240	225	147.9	215	205	6.6	14 lbs (6 kg)
	in	9.45	8.86	5.82	8.46	8.07	0.260	
234	mm	362	515	216.4	330.2	489.5	8.7	51 lbs (23 kg)
	in	14.25	20.28	8.52	13.00	19.27	0.343	

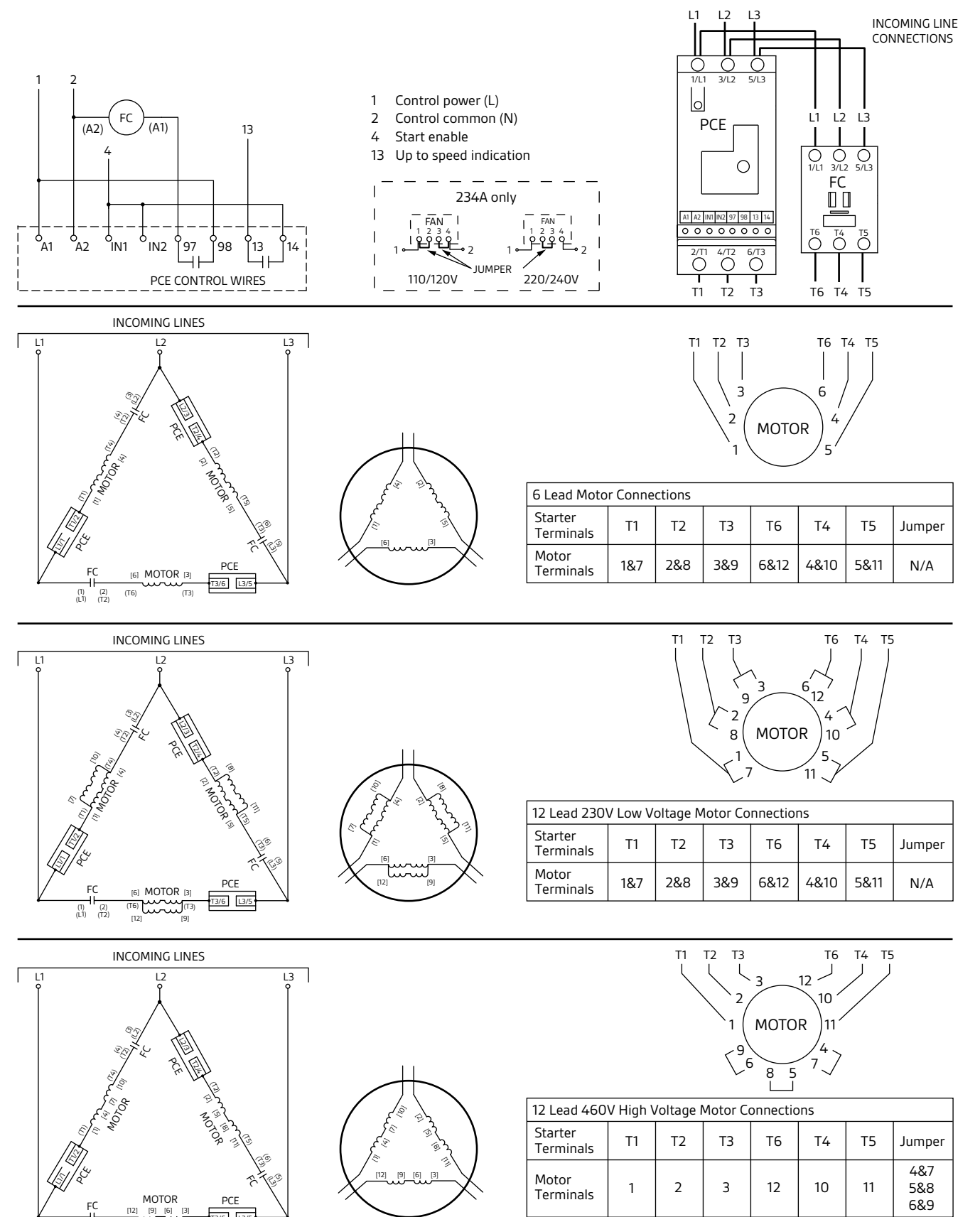
Motor FLA Adjustments

The front of the PCE controller contains a dial which is used for setting the actual FLA of the motor. The label is designed to accommodate motors connected in the LINE or DELTA mode. To determine the proper setting, look at the motor's nameplate and set the dial accordingly.

The dial setting can be modified depending on the service factor of the motor as shown:



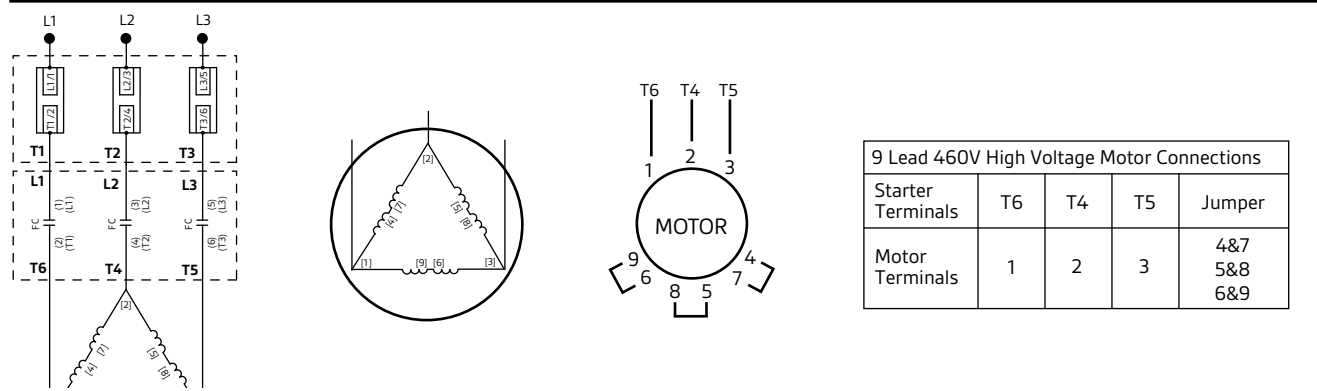
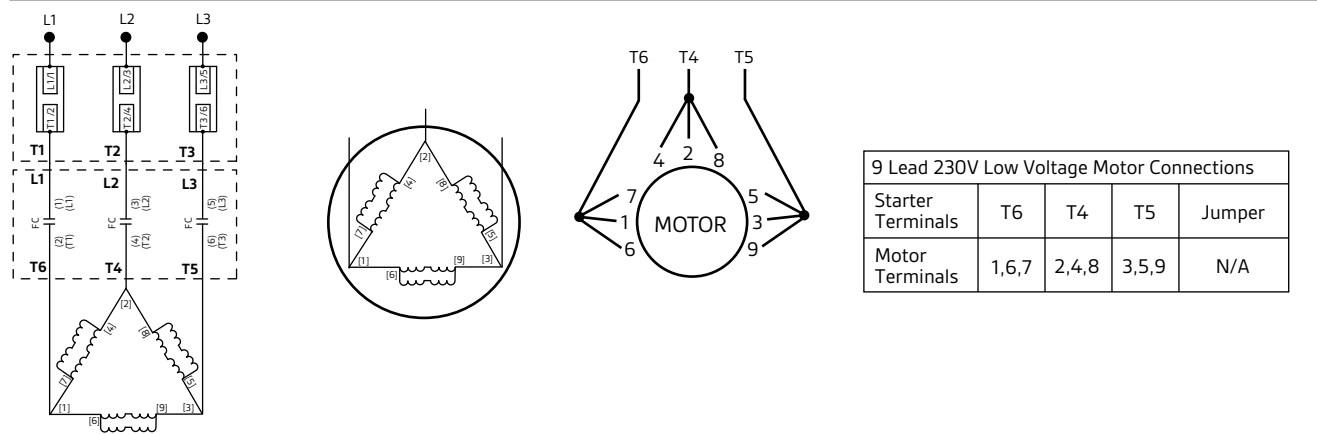
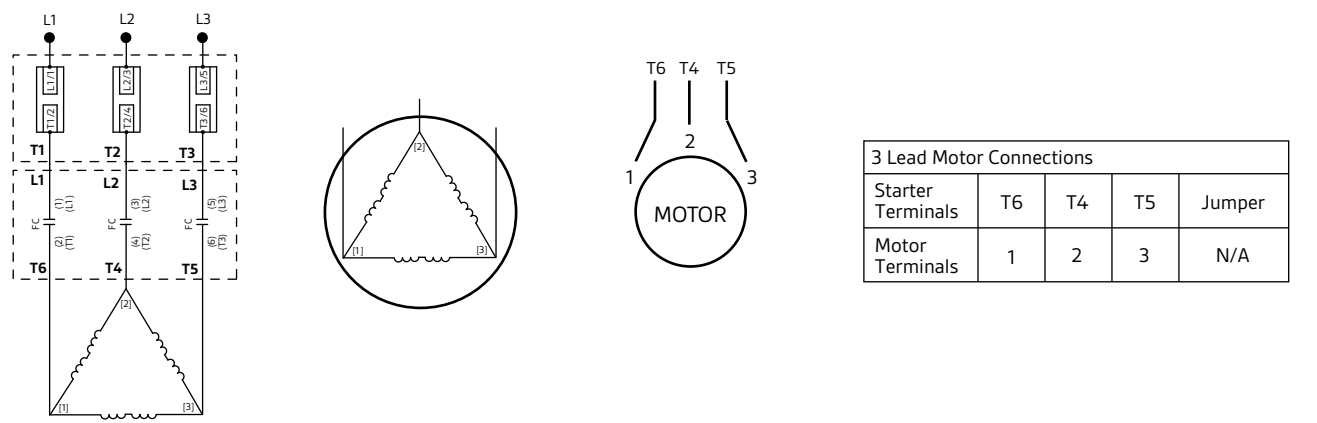
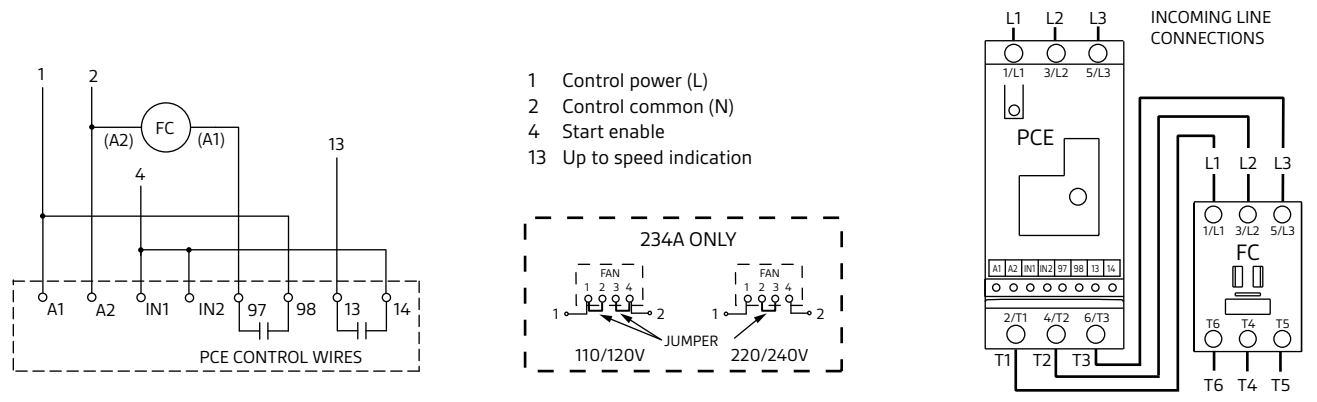
Wiring Diagrams: DELTA Connection Diagrams, Power and Motor Wiring





**Line Connection Diagrams, Power and Motor Wiring**

**Note:** The power wire configuration and dip switch settings must be changed for the line connection method.



**PCS Controllers**

The PCS Softstarter Controller is Sprecher + Schuh's solid-state controller with rich features at an economical price. This softstarter is specifically designed to start 3-phase motors (up to 400HP@460V / 500HP@575V), but is very compact, easy to use and DIN-rail mountable for models up to 85A. Four standard starting modes are available with the PCS Controller:

- Soft start
- Soft start with selectable kick-start
- Current limit starting
- Soft start with soft stop

All PCS Softstarters are designed to control either a standard 3-phase squirrel-cage induction motor or a wye-delta motor (700HP @ 460V/900HP @ 575V Y-D).



**FOR USE ANYWHERE**

PCS Softstarters come in three different frame sizes. The smallest frame is from 3A...37A, the middle size is from 43A...85A and the largest frame size is 108A...480A. These units are available from 200V...600V - 50/60 Hz. This assures the devices can be used anywhere in the world.



**MANY CONVENIENT FEATURES**

**Easy Set-up** – Digital rotary switches are quickly and easily set to the exact value. LED indication of all faults is standard.

**Built-in Overload Protection** – PCS Softstarters are equipped with electronic overload protection, accomplished with the use of current transformers on each of the three phases. Protection is programmable, providing total flexibility. Overload trip class selection includes OFF, 10, 15 or 20 seconds. In addition, either manual or automatic trip reset may be selected. Trip rating is 120% of dial setting.

**Bypass Contactor** – PCS controllers are equipped with a bypass contactor on each phase. Once the motor is up to speed, the load is removed from the SCRs, increasing their life and reducing heat.

**Over Temperature Protection** – The Softstarter monitors SCR temperature by means of internal thermistors. When the power poles maximum rated temperature is reached, the microcomputer switches off the PCS, a TEMP fault is indicated via LED, and the 97/98 fault contact closes.

**Phase Reversal Protection** – When enabled via a DIP-switch, 3-phase input power will be verified before starting. If input power phasing is detected to be incorrect, the start will be aborted and a fault indicated.

*continued*



*DIN-rail mounted softstarters up to 85A. Larger softstarter frame sizes up to 480A (400HP @480V)*

Soft Starters: Sprecher+Schuh



### PCS Controllers continued

**Phase Loss / Open Load** – The PCS will not attempt to start if there is a single phase condition on the line. This protects from motor burnout during single phase starting.

**Phase Imbalance** – The unit monitors for imbalance between phase currents. To prevent motor damage, the unit will trip if the difference between the minimum phase current and the maximum phase current exceeds 65% for 3 seconds, and a fault will be indicated.

**Shorted SCR** – Prior to every start and during starting, the unit will check all SCRs for shorts and unit load connections to the motor. If there is a shorted SCR in the PCS and/or open load, the start will be aborted and a shorted SCR or open load fault will be indicated. This prevents damage from phase imbalance.

**Push to Test** – The unit with control wiring can be tested for fault conditions by using the Push to Test function. Hold down the Reset button for 7 seconds to activate the fault Aux (97, 98) and shut down the PCS. To clear, either push the Reset button or cycle control power to the device.

#### LED Description (Number of Flashes)

1. Overload
2. Overtemperature
3. Phase Reversal
4. Phase Loss/Open Load
5. Phase Imbalance
6. Shorted SCR
7. Test

*Sprecher + Schuh DIN-rail mounted Controllers can be direct connected to CA7 contactors to provide isolation or to KT7 Motor Circuit Controllers for branch circuit protection (for models up to 37A).*

## Softstarter Intelligent Controllers

### SERIES PCS

#### Modes of Operation (Standard)

Soft Start	
	<p>This method has the most general application. The motor is raised from an initial torque value to full voltage. Initial torque is adjustable to 15%, 25%, 35% or 65% locked rotor torque. The motor voltage is gradually increased during the acceleration ramp time, which can be adjusted from 2, 5, 10, 15, 20, 25 or 30 seconds.</p>
Soft Start with Selectable Kickstart	
	<p>During the Soft Start phase, an initial kickstart or boost can be provided. This supplies a current pulse of 450% of full load current and is adjustable from 0.5 to 1.5 seconds. This allows the motor to develop additional torque for starting high inertia loads.</p>
Current Limit Starting	
	<p>This starting mode is used when it is desired to limit the maximum starting current (inrush). It can be adjusted for 150%, 250%, 350% or 450% of full load amps. Start times are selectable from 2, 5, 10, 15, 20, 25 or 30 seconds. If the motor is not up to speed after the selected time elapses, the controller transitions to full voltage.</p>
Soft Stop	
	<p>Soft Stop can be used for applications requiring an extended coast-to-rest, such as frictional type loads that tend to stop suddenly when voltage is removed from the motor. When enabled, the voltage ramp down time is equal to one, two or three times the start time selected. The load stops when the motor voltage drops to a point where the load torque is greater than the motor torque.</p>

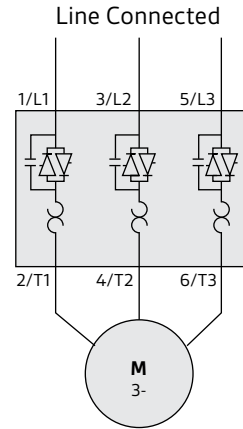


Softstarter Intelligent Controllers continued

SERIES PCS

Open Type – Line Connected Controllers ② ④

Rated Voltage (VAC)	Current Rating (Amps) ①	Starting Duty		With 100...240V AC Control Voltage Catalog #	With 24V AC/DC Control Voltage Catalog #
		kW 50 Hz	Hp 60Hz		
200/208	1...3	~	0.5	PCS-003-600V	PCS-003-600V-024
	3...9	~	0.75...2	PCS-009-600V	PCS-009-600V-024
	5.3...16	~	1.5...3	PCS-016-600V	PCS-016-600V-024
	6.3...19	~	1.5...3	PCS-019-600V	PCS-019-600V-024
	9.2...25	~	3...7.5	PCS-025-600V	PCS-025-600V-024
	10...30	~	3...7.5	PCS-030-600V	PCS-030-600V-024
	12.3...37	~	5...10	PCS-037-600V	PCS-037-600V-024
	14.3...43	~	5...10	PCS-043-600V	PCS-043-600V-024
	20...60	~	7.5...15	PCS-060-600V	PCS-060-600V-024
	28.3...85	~	10...25	PCS-085-600V	PCS-085-600V-024
	27...108	~	20...30	PCS-108-600V ③	PCS-108-600V-024 ③
	34...135	~	25...40	PCS-135-600V ③	PCS-135-600V-024 ③
	67...201	~	40...60	PCS-201-600V ③	PCS-201-600V-024 ③
	84...251	~	50...75	PCS-251-600V ③	PCS-251-600V-024 ③
	106...317	~	60...100	PCS-317-600V ③	PCS-317-600V-024 ③
	120...361	~	75...125	PCS-361-600V ③	PCS-361-600V-024 ③
160...480	~	100...150	PCS-480-600V ③	PCS-480-600V-024 ③	
230	1...3	0.55	0.5	PCS-003-600V	PCS-003-600V-024
	3...9	2.2	0.75...2	PCS-009-600V	PCS-009-600V-024
	5.3...16	4	1.5...5	PCS-016-600V	PCS-016-600V-024
	6.3...19	4	2...5	PCS-019-600V	PCS-019-600V-024
	9.2...25	5.5	3...7.5	PCS-025-600V	PCS-025-600V-024
	10...30	7.5	5...10	PCS-030-600V	PCS-030-600V-024
	12.3...37	7.5	5...10	PCS-037-600V	PCS-037-600V-024
	14.3...43	11	5...15	PCS-043-600V	PCS-043-600V-024
	20...60	15	7.5...20	PCS-060-600V	PCS-060-600V-024
	28.3...85	22	15...30	PCS-085-600V	PCS-085-600V-024
	27...108	30	20...40	PCS-108-600V ③	PCS-108-600V-024 ③
	34...135	37	25...50	PCS-135-600V ③	PCS-135-600V-024 ③
	67...201	55	40...75	PCS-201-600V ③	PCS-201-600V-024 ③
	84...251	75	50...100	PCS-251-600V ③	PCS-251-600V-024 ③
	106...317	90	60...125	PCS-317-600V ③	PCS-317-600V-024 ③
	120...361	110	75...150	PCS-361-600V ③	PCS-361-600V-024 ③
160...480	132	100...200	PCS-480-600V ③	PCS-480-600V-024 ③	



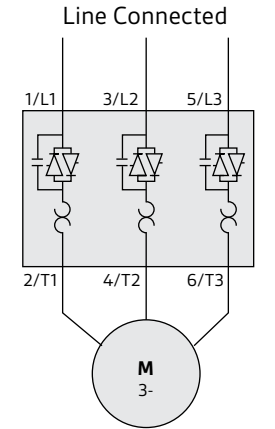
- ① Motor FLA rating must fall within the specified current range for unit to operate properly. Special consideration should be given when using a motor with a potentially high starting current (greater than ten times motor FLA) with the PCS in the "Full Voltage" starting mode. The overload setting must be set to the motor FLA regardless if the Overload Function is "OFF" (disabled). Contact Sprecher+Schuh technical support for further guidance.
- ② Prior to the initial start of the motor at the final installation location:
  - The bypass relays on the main circuit may be in an undefined switching state due to handling during shipping. Before connecting the main power source, apply the control voltage to set the bypass relays to a defined switching state. If this step is not performed, inadvertent operation of the motor may occur.
- ③ Separate 120V or 240V single phase is required for PCS fan operation.
- ④ Controllers rated 108A and greater are not equipped with the line and load terminal lugs.

Softstarter Intelligent Controllers

SERIES PCS

Open Type – Line Connected Controllers continued ② ④

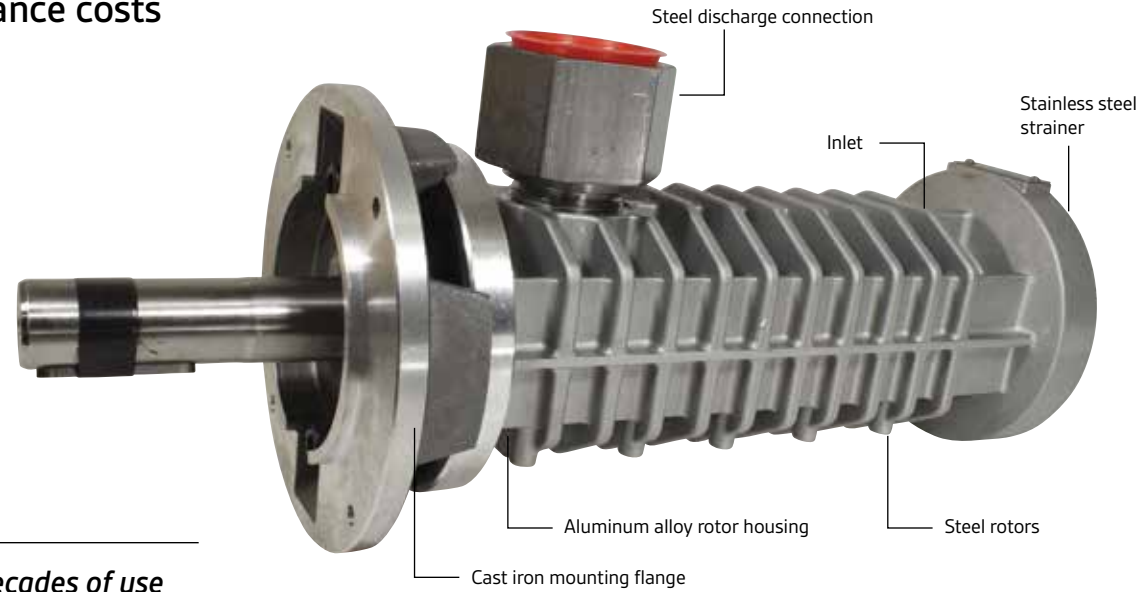
Rated Voltage (VAC)	Current Rating (Amps) ①	Starting Duty		With 100...240V AC Control Voltage Catalog #	With 24V AC/DC Control Voltage Catalog #
		kW 50 Hz	Hp 60Hz		
380/400/415/460	1...3	1.1	0.5...1.5	PCS-003-600V	PCS-003-600V-024
	3...9	4	1.5...5	PCS-009-600V	PCS-009-600V-024
	5.3...16	7.5	5...10	PCS-016-600V	PCS-016-600V-024
	6.3...19	7.5	5...10	PCS-019-600V	PCS-019-600V-024
	9.2...25	11	7.5...15	PCS-025-600V	PCS-025-600V-024
	10...30	15	7.5...20	PCS-030-600V	PCS-030-600V-024
	12.3...37	18.5	10...25	PCS-037-600V	PCS-037-600V-024
	14.3...43	22	10...30	PCS-043-600V	PCS-043-600V-024
	20...60	30	15...40	PCS-060-600V	PCS-060-600V-024
	28.3...85	45	25...60	PCS-085-600V	PCS-085-600V-024
	27...108	55	50...75	PCS-108-600V ③	PCS-108-600V-024 ③
	34...135	75	60...100	PCS-135-600V ③	PCS-135-600V-024 ③
	67...201	95...110	75...150	PCS-201-600V ③	PCS-201-600V-024 ③
	84...251	95...132	100...200	PCS-251-600V ③	PCS-251-600V-024 ③
	106...317	95...160	125...250	PCS-317-600V ③	PCS-317-600V-024 ③
	120...361	110...200	250...300	PCS-361-600V ③	PCS-361-600V-024 ③
160...480	160...250	160...250	PCS-480-600V ③	PCS-480-600V-024 ③	
500/575	1...3	1.5	0.75...2	PCS-003-600V	PCS-003-600V-024
	3...9	5.5	3...7.5	PCS-009-600V	PCS-009-600V-024
	5.3...16	7.5	5...10	PCS-016-600V	PCS-016-600V-024
	6.3...19	11	7.5...15	PCS-019-600V	PCS-019-600V-024
	9.2...25	15	7.5...20	PCS-025-600V	PCS-025-600V-024
	10...30	18.5	10...25	PCS-030-600V	PCS-030-600V-024
	12.3...37	22	15...30	PCS-037-600V	PCS-037-600V-024
	14.3...43	22	15...40	PCS-043-600V	PCS-043-600V-024
	20...60	37	20...50	PCS-060-600V	PCS-060-600V-024
	28.3...85	55	30...75	PCS-085-600V	PCS-085-600V-024
	27...108	75	60...100	PCS-108-600V ③	PCS-108-600V-024 ③
	34...135	90	75...125	PCS-135-600V ③	PCS-135-600V-024 ③
	67...201	75...132	100...200	PCS-201-600V ③	PCS-201-600V-024 ③
	84...251	90...160	125...250	PCS-251-600V ③	PCS-251-600V-024 ③
	106...317	100...200	200...300	PCS-317-600V ③	PCS-317-600V-024 ③
	120...361	132...250	200...350	PCS-361-600V ③	PCS-361-600V-024 ③
160...480	200...315	250...500	PCS-480-600V ③	PCS-480-600V-024 ③	



- ① Motor FLA rating must fall within the specified current range for unit to operate properly. Special consideration should be given when using a motor with a potentially high starting current (greater than ten times motor FLA) with the PCS in the "Full Voltage" starting mode. The overload setting must be set to the motor FLA regardless if the Overload Function is "OFF" (disabled). Contact Sprecher+Schuh technical support for further guidance.
- ② Prior to the initial start of the motor at the final installation location:
  - The bypass relays on the main circuit may be in an undefined switching state due to handling during shipping. Before connecting the main power source, apply the control voltage to set the bypass relays to a defined switching state. If this step is not performed, inadvertent operation of the motor may occur.
- ③ Separate 120V or 240V single phase is required for PCS fan operation.
- ④ Controllers rated 108A and greater are not equipped with the line and load terminal lugs.

# ALLift®

Fully optimized pump with very low operating and maintenance costs



**Proven over decades of use**  
**ALLift® guarantees a quiet and uniform delivery and high performance. No maintenance will be required over a long time due to no gasket and other wearing parts.**  
**ALLift® provides the highest performance at the best price.**

### DESIGN AND OPERATION

The ALLWEILER three-rotor screw pump is a positive displacement rotary pump with an axial flow design.

There are only three moving parts. The main screw is the only driven part which extends outside the case. The idler screws act as sealing parts and are turned hydraulically by the fluid being pumped. Thus, the mechanical action between the screws is negligible. There is only a rolling action between the drive screw and the idler screws. The outside diameter of the idler screw is the same as the root diameter of the drive screw. The rolling action eliminates noise and vibration.

The double head screw design provides a continuous non-pulsating flow. An unobstructed axial flow through the pump results in low velocity and excellent suction capabilities. Discharge pressure is spread evenly over the length of the screw from suction to discharge.

The ALLWEILER three-rotor screw pump is balanced both axially and radially. The double lead drive screw results in symmetrical pressure loading which centers the drive screw in the bore, eliminating radial loads. The axial load created by the discharge pressure is balanced by means of microfinished stop faces at the discharge of the pump.

### SPECIAL FEATURES

- Nineteen different flow capacities from 8 to 260 GPM
- Aluminum alloy rotor housing with steel discharge connection for extra strength, reliability and superior performance
- Common shaft and mounting dimensions for the most popular sizes, providing flexibility and interchangeabilities with motors
- Pumps can be utilized with any submersible motor
- Light weight for ease of handling

# ALLift®

## ALLWEILER SUBMERSIBLE ELEVATOR SCREW PUMP

### Dimensional Drawing Series SUB

Model	Pump				Shaft				Discharge	
	D <sub>2</sub>	I <sub>1</sub>	K <sub>2</sub>	Q	D	L	T	U		
20..	3.15	2.28	11.14	2.28	$\frac{.74785}{.74702}$	1.38	.85	$\frac{.2362}{.2350}$	3/4" NPT	2.54
40..	4.45	2.28	12.40	2.64	$\frac{.74785}{.74702}$	1.38	.85	$\frac{.2362}{.2350}$	1" NPT	2.95
80..	4.45	2.5625	13.90	2.83	$\frac{1.25955}{1.25856}$	1.38	.85	$\frac{.2362}{.2350}$	1-1/2" NPT	3.03
140..	5.59	4.25	18.46	3.98	$\frac{1.25955}{1.25856}$	3.15	1.38	$\frac{.3937}{.3923}$	2" NPT	3.94
210..	6.30	4.25	20.24	4.17	$\frac{1.25955}{1.25856}$	3.15	1.38	$\frac{.3937}{.3923}$	2" NPT	3.74
280..	6.30	4.25	21.46	4.17	$\frac{1.25955}{1.25856}$	3.15	1.38	$\frac{.3937}{.3923}$	2" NPT	3.94
440..	7.48	4.02	27.13	5.75	$\frac{1.25955}{1.25856}$	2.56	1.38	$\frac{.3937}{.3923}$	3" NPT	4.84

Model	Pump								Weight (lbs)	
	A <sub>2</sub>	B <sub>1</sub>	C	C <sub>1</sub>	S <sub>1</sub>	Y <sub>1</sub>	Y <sub>3</sub>	Y <sub>4</sub>	NET	SHIP
20..	$\frac{6.1018}{6.1002}$	4.33	—	5.31	.35	.16	.39	—	11	13
40..	$\frac{6.1018}{6.1002}$	4.33	4.33	5.31	.35	.55	.39	.08	17	20
80..	$\frac{6.1018}{6.1002}$	4.33	4.33	5.31	.35	.55	.39	.08	23	26
140..	7.09	$\frac{4.3744}{4.3736}$	—	6.26	.31	—	.47	.20	38	42
210..	7.09	$\frac{4.3744}{4.3736}$	—	6.26	.31	—	.47	.20	51	53
280..	7.09	$\frac{4.3744}{4.3736}$	—	6.26	.31	—	.47	.20	59	63
440..	11.50	$\frac{8.6614}{8.6603}$	—	10.24	.69	—	.71	.20	90	110

### Notes

1. Made in metric, shown in decimal equivalents (inches).
2. Rotation: clockwise, viewed from drive end.
3. Alteration of dimensions reserved.
4. Loose hexagon head bolts and flatwashers supplied with pump

Models 20, 40, 80 (2)  
 5/16-18 x 1 UNC

Models 140, 210, 280 (4)  
 1/4-20 x 1-1/4 UNC

Model 440 (4) M 16 x 45 DIN 933

ALLWEILER SUBMERSIBLE ELEVATOR SCREW PUMPS continued

Plunger Speed (feet per minute) for RAM Displacement  
3400 RPM, 350 PSI, 150 SSU

Model	GPM	Pump															
		3-7/8	4	4-3/8	4-7/8	4-1/2	5	5-3/8	5-7/16	6	6-1/2	7	7-1/2	8	8-1/2	9	10
20-38	8.3	14	13	11	10	10	8	7									
20-50	13.2	22	20	17	16	16	13	11	11	9							
20-56	15.6	25	24	20	19	19	15	13	13	11							
40-41	17.7	29	27	23	22	21	17	15	15	12	10						
40-49	24	39	37	31	30	29	24	20	20	16	14	12					
80-36	32	52	49	41	40	39	31	27	27	22	19	16	14				
80-42	38	62	58	49	47	46	37	32	31	26	22	19	17	15			
80-46	46	75	70	59	57	56	45	39	38	31	27	23	20	18	16		
140-39	60	98	92	77	75	73	59	51	50	41	35	30	26	23	20	18	
140-43	68	111	104	87	85	82	67	58	56	46	39	34	30	26	23	21	17
140-46	78	127	119	100	97	94	76	66	65	53	45	39	34	30	26	24	19
210-40	95	155	146	122	118	115	93	81	79	65	55	48	41	36	32	29	23
210-43	103	168	158	132	128	125	101	87	85	70	60	52	45	39	35	31	25
210-46	119	194	182	152	148	144	117	101	99	81	69	60	52	46	40	36	29
280-43	139	227	213	178	173	168	136	118	115	95	81	70	61	53	47	42	34
280-46	159		244	204	198	192	156	135	1324	108	92	80	69	61	54	48	39
280-51	180			230	224	218	176	153	149	123	104	90	78	69	61	54	44
440-40	198				246	240	194	168	164	135	115	99	86	76	67	60	49
440-46	253						248	215	210	172	147	127	110	97	86	77	62



AC Dry Hydraulic Motors

FRAMES 215T THROUGH 365T

Quiet, efficient AC dry hydraulic motors

Designed for use with belted hydraulic pump systems, Imperial Electric AC Dry Hydraulic Motors are exceptionally quiet, highly efficient and built for rugged duty. Totally Enclosed Fan Cooled (TEFC) designs are available for most ratings.

Rated for 80 or 120 starts per hour, the AC Dry Hydraulic Motor is a drop-in replacement for existing motors, making any elevator modernization project more efficient.

The AC Dry Hydraulic Motor is just one of many highly engineered products developed for the elevator industry by Imperial Electric. Imperial Electric has more than 100 years experience in electrodynamic devices. Learn how Imperial Electric can benefit your next project. Call your representative today for more information.

Benefits

- Stock availability
- Drop-in replacement
- Available through 100 HP

Features

- Cast iron construction
- Stock motors dual rated for 80 or 120 starts per hour
- 15 through 100 HP
- 1,800 rpm
- Voltages: 200, 230/460, 575 AC 3-phase, 60 Hz
- Dual ball bearing
- Drip-proof or TEFC enclosure
- Class F insulation standard
- 40° C ambient
- WYE Start, Delta Run

Applications

- Dry hydraulic elevators



AC dry hydraulic motors are available across a wide range of horsepower ratings, including 80 or 120 starts per hour.

Part #	Description
ML20D/200	Motor. Dry hydro, 20HP, 200-3-60, 1750 rpm, 254T frame, 80 starts/hr
ML25D/200	Motor. Dry hydro, 25HP, 200-3-60, 1800 rpm, 256T frame, 80 starts/hr
ML30D	Motor. Dry hydro, 30HP, 230/460-3-60, 1800 rpm, 284T frame, 80 starts/hr
ML30D/200	Motor. Dry hydro, 30HP, 200-3-60, 1800 rpm, 284T frame, 80 starts/hr
ML40D	Motor. Dry hydro, 40HP, 230/460-3-60, 1800 rpm, 286T frame, 80 starts/hr
ML50D	30/460v, 1760 rpm, 324T frame, weighs 475lbs

Pumps and Motors: Allweiler Pumps

Pumps and Motors: Imperial Electric



IMPERIAL ELECTRIC continued

Frames 215T, 254T, 256T, 284T, 286T, 324T, 326T, 364T, 365T

AC Dry Hydraulic Motors duty table, 80 starts per hour

HP	Full Load RPM	Frame	Voltage	Amps (A)					Elevator Duty BTU Per Hour
				Delta				wYE	
				Full Load	No Load	Locked Rotor	KVA Code	Locked Rotor	
15	1740	215T	20	46	23	270	G	89	1859
	1735	215T	230/460	39.2/19.6	19/9.5	230/115	G	76/38	1859
20	1735	215T	575	15.7	7.6	92	G	31	1859
	1750	254T	200	62	31	340	G	112	2263
	1750	254T	230/460	54/27	27/13.5	296/148	G	98/49	2263
25	1750	254T	575	22	11	120	G	40	2263
	1755	256T	200	73	31	420	G	139	2360
30	1755	256T	230/460	62/31	26.4/13.2	366/183	G	120/60	2360
	1755	256T	575	25	10.6	146	G	48	2360
	1760	284T	200	87	36	500	G	165	2774
40	1760	284T	230/460	74/37	31/15.5	430/215	G	142/71	2774
	1760	284T	575	30	12.4	172	G	57	2774
50	1760	286T	200	112	42	670	G	221	3282
	1760	286T	230/460	98/49	37/18.5	580/290	G	192/96	3282
	1760	286T	575	39	14.5	230	G	76	3282
60	1760	324T	200	138	70	850	G	281	3869
	1760	324T	230/460	118/59.4	62/31	740/370	G	244/122	3869
	1760	324T	575	49	25	310	G	102	3869
75	1760	326T	200	162	70	1000	G	330	4477
	1760	326T	230/460	143.2/71.6	64/32	920/460	G	304/152	4477
100	1760	326T	575	58	26	370	G	122	4477
	1770	364T	200	210	87	1320	G	436	5253
100	1770	364T	230/460	180/90	72/36	1120/560	G	370/185	5253
	1770	364T	575	72	29	450	G	149	5253
100	1780	365T	230/460	228/114	76/38	1590/795	G	524/262	6015
	1780	365T	575	91	30	636	G	210	6015

AC SUBMERSIBLE HYDRAULIC MOTORS

Frame 217Z

Compact, open-frame construction delivers a lightweight, high-performance, submersible solution.

More than dependable, Imperial Electric AC Submersible Hydraulic Motors are ruggedly built, highly efficient units. Open construction, asynchronous motors are perfectly suited for wet operations. Hydraulic fluid cools the motors as they work. Motor leads are extra length, non-wicking for flexible unit positioning.

Imperial Electric submersible motors are compatible with pump units from all major manufacturers. The motors offer the advantages of small size and light weight coupled with high starting torque and low starting current.

Benefits

- High performance
- Stock availability
- Drop-in replacement
- Available through 50HP

Features

- Rolled steel construction
- Submersible enclosure
- Stock motors dual rated for 80 or 120 starts per hour
- 10–50HP
- 3,600 rpm
- Voltages: 200, 230/460, 575 AC 3-phase, 60Hz
- Single ball bearing
- High starting torque
- Low starting current
- Adapter kits available for alternate pumps
- CUS certified

Applications

- Submersible hydraulic elevators



440 Series w/ flange for Alweiler 440 Series pumps



80 Series Submersible Flange Kit w/ flange for 80 Alweiler Series pumps



Ac Submersible w/ flange for all other Alweiler Series pump and Imo pumps

IMPERIAL ELECTRIC FRAME 217Z continued

HP	IE Part #	Motor Loss BTU/hr	FL EFF %	FL PF %	FL RPM	Volts	Amps (A)				
							Delta				WYE
							Full Load	No Load	Locked Rotor	KVA Code	Locked Rotor
15	217EAS015C001	14,120	73	87	3400	200	51.0	27.0	242	F	82
	217EAS015C015	14,120	73	87	3400	230	44.6	23.0	204	F	68
						460	22.3	11.5	102	F	34
20	217EAS015C020	14,120	73	87	3400	575	17.6	9.2	84	F	30
	217EAS020C001	16,074	76	89	3395	200	65.4	31.2	311	F	104
						230	56.2	25.5	270	F	90
25	217EAS020C015	16,074	76	89	3395	460	28.1	12.8	135	F	45
						575	22.4	10.2	108	F	36
	217EAS025C001	17,946	78	91	3400	200	78.2	34.5	391	F	130
30	217EAS025C015	17,946	78	91	3400	230	67.8	30.0	340	F	113
						460	33.9	15.0	170	F	57
	217EAS025C020	17,946	78	91	3400	575	26.9	11.3	136	F	45
40	217EAS030C001	20,296	79	91	3390	200	90.0	36.0	471	F	157
	217EAS030C015	20,296	79	91	3390	230	78.2	31.0	410	F	136
						460	39.1	15.5	205	F	68
50	217EAS030C020	20,296	79	91	3390	575	31.2	12.0	174	G	58
	217EAS040C001	23,879	81	91	3410	200	120.0	46.0	671	G	224
						230	104.0	40.0	584	G	195
50	217EAS040C015	23,879	81	91	3410	460	52.0	20.0	292	G	97
						575	42.0	16.0	234	G	78
	217EAS050C001	29,861	81	91	3380	200	142.0	42.7	920	G	307
50	217EAS050C015	29,861	81	91	3380	230	123.0	37.5	800	G	268
						460	61.5	18.8	400	G	133
	217EAS050C020	29,861	81	91	3380	575	49.4	15.0	320	G	106

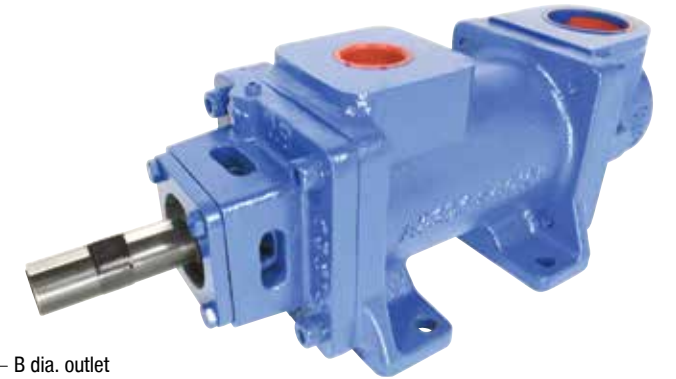
200 volt motors are designed for operation at 208 volts.



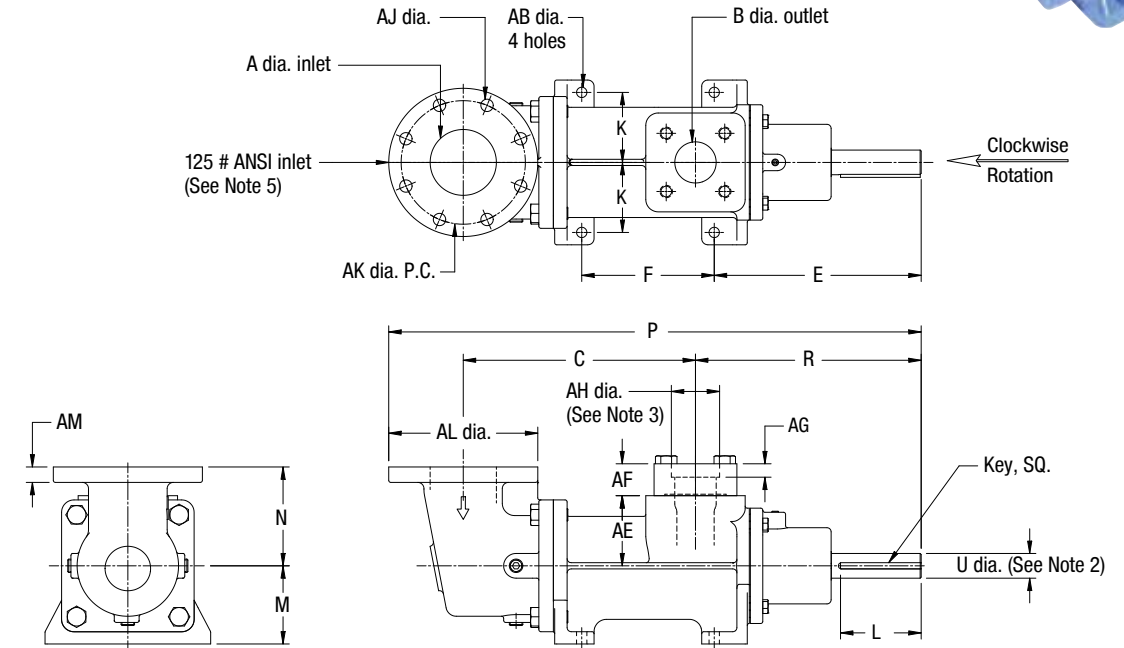
Accessories

Unitec Part #	Otis Part #
440-PFK -	Flange Kit for 440 series motors

IMO® Dry Mounted Pumps



Dimensions, Rotor Sizes 187 – 350



Pump Model	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	Key SQ
3D-187	2.5	1.5	8.95	3.31	8.81	4.88	6.93	0.50	3.75	3.13	3.31	3.49	3.25	20.26	9.06	0.25
3D-218	3	2	12.14	5.00	12.38	6.63	10.13	0.63	4.50	3.75	4.81	4.00	5.00	29.14	13.26	0.375
3D-250	4	2.5	14.02	4.96	12.50	8.00	10.12	0.75	5.00	4.25	4.81	4.74	6.00	32.15	13.63	0.375
3D-275	4	3	15.40	4.54	12.09	8.94	9.71	0.75	2.63	4.50	4.25	5.12	6.69	33.48	13.59	0.5
3D-312	4	3	17.53	4.25	11.99	10.19	9.36	0.75	2.63	5.25	4.25	5.50	6.25	35.26	13.24	0.5
3D-350	5	4	19.79	4.22	12.03	12.00	9.40	0.75	2.88	5.75	4.25	6.25	7.00	38.44	13.66	0.5

Pump Model	U	V	X	AB	AC	AD	AE	AF	AG	AH	AJ	AK	AL	AM	AN
3D-187	1.125	7.50	8.31	0.63	2.50	1.88	3.63	-	-	-	-	-	-	-	2.38
3D-218	1.5	9.00	10.38	0.63	3.00	2.25	4.13	1.46	0.72	2.41	4 x .75	6.00	7.50	0.75	2.25
3D-250	1.5	10.00	11.94	0.63	3.13	2.38	4.26	1.96	0.81	2.91	8 x .75	7.50	9.00	0.94	2.38
3D-275	1.875	11.00	13.69	0.63	3.25	2.38	5.01	2.22	0.94	3.54	8 x .75	7.50	9.00	1.13	3.25
3D-312	2	12.00	15.38	0.63	3.38	2.63	5.25	2.22	0.94	3.54	8 x .75	7.50	9.00	0.94	3.31
3D-350	2	13.00	17.31	0.63	3.38	2.63	6.26	2.72	1.13	4.55	8 x .875	8.50	10.00	0.94	3.44

- Cast iron cased pumps.
- "U" dimensions are subject to standard NEMA tolerances.
- Dimension "AH" is weld socket (weld by customer). Removable socket weld flange must be ordered with pump.
- Top inlet position is standard.
- LL™-187 has 2 1/2 inch NPT inlet and 1 1/2 inch NPT outlet, NOT shown as above.
- All table values are approximate. No tolerances are implied.

## DC Contactors

Designed specifically for use with SCR controlled variable speed drive applications and directly controlled DC motors.

### ABB/ASEA BROWN BOVERI

#### Type EHDB

- ABB DC Contactors are designed specifically for use with SCR controlled variable speed drive applications.
- All ABB DC Contactors Type EHDB come with 2 Normally Open and 1 Normally Closed Power Poles. The center NC power pole is used for dynamic braking purposes.
- Each contactor also includes 1NO/1NC aux contacts as standard. Additional aux contacts can be added (see listing below).
- Coil voltages available are 120VAC, 208VAC, 240VAC and 110VDC\*.



EHDB220C-1L



EHDB280C-1L

Part #	Amp Rating	Dimensions (h x w x d)
EHDB220C-__*	220	6.3" x 5.6" x 6.6"
EHDB280C-__*	280	6.3" x 5.6" x 6.6"

\*Specify coil voltage when ordering.

#### EHDB Coil Codes

Suffix	Voltage	Notes
1	120VAC	
B	208VAC	
2	240VAC	
P	110VDC 3 lead coil	Must use CAL16-11E 1NO/1NC late break aux
RE	110VDC 3 lead coil	Includes CCL16-11E 1NO/1NC late break aux and resistor

#### Aux Contacts for EHDB DC Drive Contactors

Part #	Description	Terminal Markings	AKA
CAL16-11A	Aux contact. 1NO/1NC side mount (left side recommended)	13-14 & 21-22	EHAX-11A, SK829002-A, CCL16-11A
CAL16-11B	Aux contact. 1NO/1NC side mount (right side recommended)	31-32 & 43-44	EHAX-11B, SK829002-B, CCL16-11B
CAL16-11C	Aux contact. 1NO/1NC side mount (left side recommended)	53-54 & 61-62	EHAX-11C, SK829002-C



CAL16-11A



CAL16-11B



CAL16-11C

### ABB/ASEA BROWN BOVERI continued

#### Type EHDB continued

##### Replacement Parts

Part #	Description
EHDBRC110-*	Coil for EHDB75 and EHDB110
EHDBRC130-*	Coil for EHDB130
EHDBRC280-*	Coil for EHDB220 and EHDB280
EHDBCK110-2	2 NO power pole kit for EHDB110 and EHD110 contactor
EHDBCK130-2	2 NO power pole kit for EHDB130 and EHD130 contactor
EHDBCK220-2	2 NO power pole kit for EHDB220 contactor
EHDBCK280-2	2 NO power pole kit for EHDB280 contactor
EHDBCK110-NC	1 NC power pole kit for EHDB110 contactor. Does not work with EHD contactor
EHDBCK130-NC	1 NC power pole kit for EHDB130 contactor. Does not work with EHD contactor
EHDBCK220-NC	1 NC power pole kit for EHDB220 contactor. Does not work with EHD contactor



EHDBRC110-1

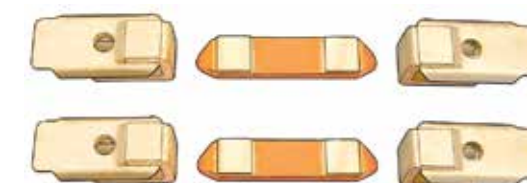
EHDBRC280-2



EHDBCK130-2



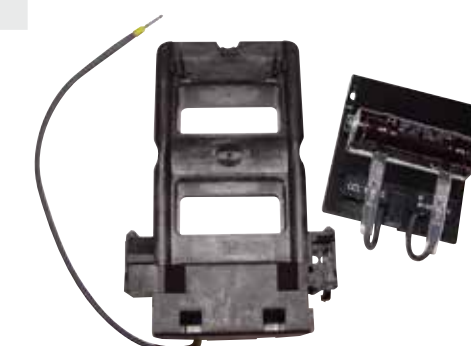
EHDBCK130-NC



EHDBCK220-2



EHDBCK220-NC



EHDBRC280-RE

#### European to US Part Numbers for Selected Replacement Coils

European Part #	US Part #
SK 823 100-AF	EHDBRC110-1
SK 823 100-AK	EHDBRC110-2
SK 824 101-AF	EHDBRC130-1
SK 824 101-AK	EHDBRC130-2
SK 824 101-DE	EHDBRC130-P
SK 825 400-AF	EHDBRC280-1
SK 825 400-AK	EHDBRC280-2
SK 825 400-DE	EHDBRC280-P
SK 825 400-RE	EHDBRC280-RE

\*Specify coil voltage when ordering.





DU-A30-Coil-AC230V

DU N60

**MITSUBISHI**

**Type DU**

- All come with 2 Normally Open and 1 Normally Closed power poles
- Each contactor includes 2NO/2NC aux contacts as standard
- Additional aux contacts can be added to the DUN-180 and DUN-260 contactors by using aux contact kit UN-AX150
- Coil voltages available are 120 – 240VAC\*

Part #	Amp Rating	Part #	Amp Rating
DU-N30AC120V	120A	DU-N180AC100V	120A
DU-N60AC120V	120A	DU-N180AC120V	120A
DU-N60AC200V	200A	DU-N180AC200V	200A
DU-N120AC120V	120A	DU-N260AC120V	120A
DU-N120AC200V	200A	DU-N260AC200V	200A

\*Specify AC coil voltage when ordering.

**Replacement Parts**

Part #	Description
Z939401G10	2NO/1NC contact kit for DU-A60
Z939402G10	2NO/1NC contact kit for DU-A120
BH599N308	2NO contact kit for DU-K180
BH599N309	1NC contact kit for DU-K180



Z939400G10

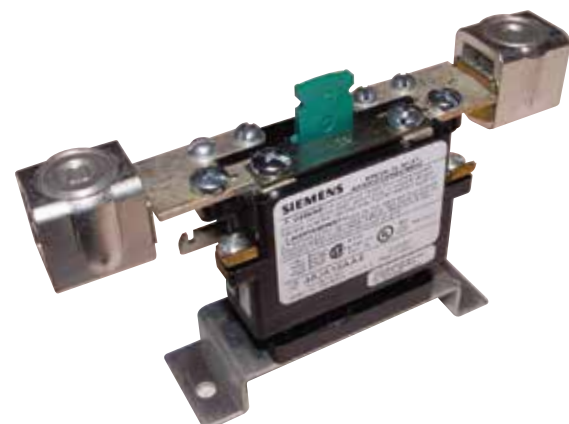
**SIEMENS/FURNAS**

**Overload Relays for DC Contactors, Single Pole Thermal**

- Suitable for use with either AC or DC applications
- Max voltage is 600VAC/250VDC
- Use Type K bimetallic heaters
- Manual reset
- Easy to connect. Clamp-style terminals included on line and load side
- Include 1NC contact
- Ambient compensated
- Includes mounting bracket

Part #	Rating
48DA18AA4	1.69 – 25 amps
48GA18AA4	8.48 – 60 amps
48HA18AA4	27.1 – 100 amps
48JA18AA4	43 – 180 amps

Need to have FLA of motor to confirm which heater needed.



48JA18AA4

**Overload Relays – Panel Mount**

This section lists panel mounted overload relays which may be used to replace starter mounted overload relays that are no longer available.

While most of these overload relays require incoming and outgoing wiring, using the Siemens ESP200 is much easier. Simply pass the wiring straight through the device and connect it directly to the load side of the contactor.

**TECHNICAL NOTE**

**Sizing overload relays for Wye-Delta applications**

At Access Elevator Supply we often see overload relays that are incorrectly sized or misadjusted. The motor data tag will provide you with the full load amperage (FLA) of the motor or you can calculate the FLA from the motor HP and line voltage.

The FLA is your starting point for sizing and setting the overload. Since electronic overload relays with an adjustable range are most accurate at mid scale, you should select an overload that meets that criteria if possible.

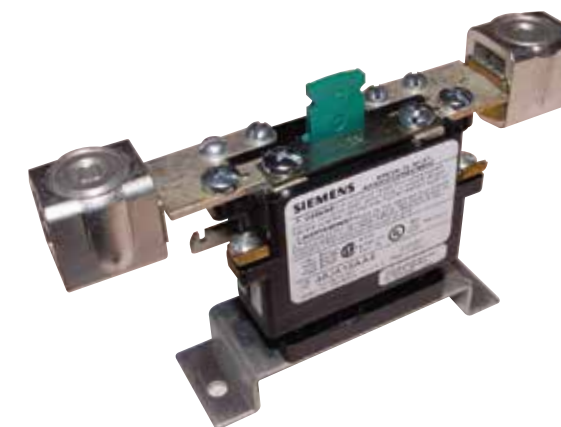
**Select the right setting**

For across the line motors, the overload should be initially set at the motor FLA. From that point, you can gradually dial down to where nuisance tripping begins, then bump it up from there.

For Wye-Delta motors, the overload relay should be initially set at the motor FLA x .58. For example, a 100A FLA would be set at 58A. This is because this type motor runs at a reduced current inside the delta, where the overload relay is connected.

Where does the .58 multiplier come from? Well, obviously it is the inverse of the square root of 3. But then you already knew that. From your initial setting, dial down as described above until you are above nuisance tripping.

Remember that overloads are a safety item. An improperly sized or adjusted overload can have unintentional consequences.





TH-N60KP42A



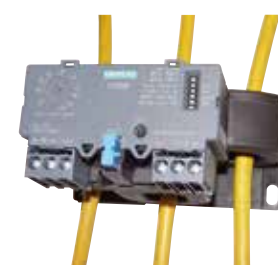
TH-N120TAKPUL105A



48ATC3S00



48ATE3S00



48BTG3S00



48BTH3S00

**mitsubishi**

- Simple installation. Two-hole mounting molded into base
- No heaters required. Simple adjustment via front mounted dial
- Selectable reset mode. Manual or automatic
- Includes test button and trip indicator. Easy to troubleshoot
- Easy to connect. Lugs or saddle clamp terminals included on line and load side
- Not suitable for use with DC circuits

**TH-N**

Part #	Adjustment Range
TH-N60KP15A	12 – 18 amps
TH-N60KP35A	30 – 40 amps
TH-N60KP42A	34 – 50 amps
TH-N60KP54A	43 – 65 amps
TH-N60TAKP67A	54 – 80 amps
TH-N120TAKPUL105A	85 – 125 amps

**TH-T**

Part #	Adjustment Range
TH-T50KP29A	24 – 34 amps
TH-T50KP35A	30 – 40 amps
TH-T50KP42A	34 – 50 amps
TH-T65KP22A	18 – 26 amps
TH-T65KP29A	24 – 34 amps
TH-T65KP35A	30 – 40 amps
TH-T65KP42A	34 – 50 amps
TH-T65KP54A	43 – 65 amps

**SIEMENS**

**ESP200 Electronic 3 Phase**

- Easy installation. Just run motor wires through the overload relay
- No heaters required. Simple adjustment via front mounted dial
- Wide adjustment range. Four overload relay part numbers cover most applications
- Phase unbalance and phase loss protection. Protects motor from burning out\*
- Selectable reset mode. Manual or automatic
- Selectable trip classes. Class 5, 10, 20 or 30
- Ambient compensated. Unaffected by ambient temperature
- Includes test button and trip indicator. Easy to troubleshoot
- Motor ground fault protection. Protects motor against ground faults due to moisture, insulation damage\*
- Not suitable for use with DC circuits

Part #	Adjustment Range	European Part #
48ATC3S00	3 – 12 amps	3UB81234CW2
48ATE3S00	10 – 40 amps	3UB81234EW2
48BTG3S00	25 – 100 amps	3UB81334GW2
48BTH3S00	50 – 200 amps	3UB81334HW2

\* Feature can be turned on or off

**SIEMENS**

**Single Pole**

- Suitable for use with either AC or DC applications
- Max voltage is 600VAC/250VDC
- Use Type K bimetallic heaters
- Manual reset
- Easy to connect. Clamp-style terminals included on line and load side
- Includes 1NC contact
- Ambient compensated
- Includes mounting bracket

Part #	Rating
48DA18AA4	1.69 – 25 amps
48GA18AA4	8.48 – 60 amps
48HA18AA4	27.1 – 100 amps
48JA18AA4	43 – 180 amps

Note: Customer must provide full load amps for motor to determine Heater element needed.

**SPRECHER+SCHUH**

**CEP7 Electronic 3 Phase**

- No heaters required. Simple adjustment via front mounted dial
- Wide adjustment range. Four overload relay part numbers cover most applications
- Selectable reset mode. Manual or automatic
- Selectable trip classes. Class 10, 15, 20 or 30
- Includes test button and trip indicator. Easy to troubleshoot
- Easy to connect. Lugs or saddle clamp terminals included on line and load side
- DIN rail mountable
- Not suitable for use with DC circuits

Part #	Adjustment Range	Panel Mount Adapter
CEP7-EEEB	5.4 – 27 amps	CEP7-EPB
CEP7-EEFD	9 – 45 amps	CEP7-EPD
CEP7-EEGE	18 – 90 amps	CEP7-EPE
CEP7-EPD	Panel mount adapter. For CEP7-ED1..D and CEP7(S)-EE...D	
CEP7-EPE	Panel mount adapter. For CEP7(S)-EE...E	

\* Class 10 manual reset only



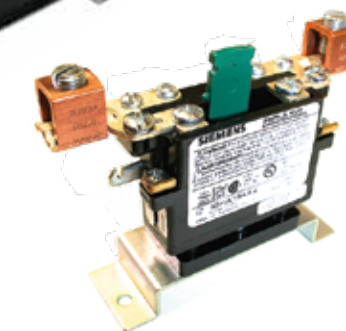
48DA18AA4



48JA18AA4



48GA18AA4



48HA18AA4



CEP7-EEEB



CEP7-EEFD



CEP7-EEGE



## Contact Kits

Access Elevator Supply offers the largest selection of replacement contact kits of any supplier in the elevator industry. Where possible, we stock both the original manufacturer's contact kit as well as a qualified aftermarket kit. The choice is up to you.

### ORIGINAL OR AFTERMARKET (AM)?

Access offers a choice for many of the contact kits in our extensive inventory.

#### Original



3TY6480-OA



75HF14



55-153677G002

#### Aftermarket



3TY6480-OA



75HF14



55-153677G002

### QUALITY IS THE CRITICAL FACTOR

Our aftermarket (AM) kits offer the same or better quality and performance as the original manufacturer's kits, at a substantial cost savings. All Access AM kits are American-made to our exacting specifications. In addition, we are constantly evaluating and field testing new aftermarket kits. Only after they have passed our stringent quality control inspections are they made available to you. You can be assured that Access stands behind the combination of quality and performance of our AM contact kits.

### O&G OR FULL MAINTENANCE?

If you're an elevator contractor, deciding on which replacement contact you buy may depend on the type of contract you have with your customer.

For O&G, the original OEM contacts may be your answer. If it's Full Maintenance, the less expensive aftermarket kit may be more appropriate.

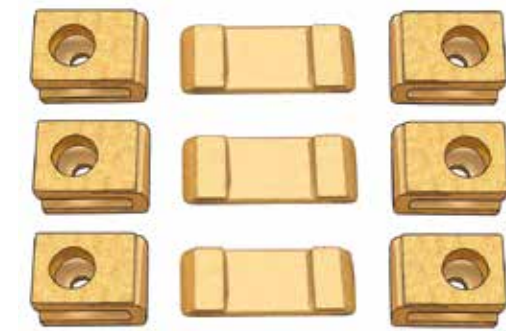
Regardless of which type you may need, Access has the largest selection at the best price. Call today and let us help you find the best solution for your specific contact needs.

## ABB/ASEA BROWN BOVERI

### Type EG

All 3-pole kits

Part #	Contactor	Size
EG3151CK	EG315	5



EG3151CK

### Type EH

All 3-pole kits

Part #	Contactor	Size
EHCK100-3	EH100	4



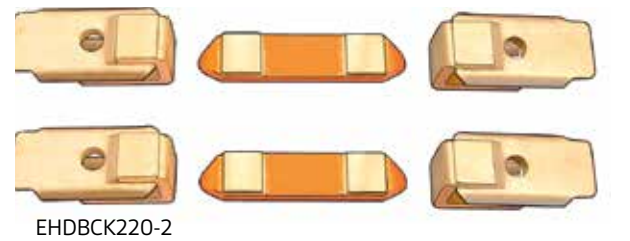
EHDBCK110-2

### Type EHDB DC Drive Contactors

Part #	Contactor	Note
EHDBCK110-2	EHDB110	2 pole NO contact kit
EHDBCK110-NC	EHDB110	1 pole NC contact
EHDBCK130-2	EHDB130	2 pole NO contact kit
EHDBCK130-NC	EHDB130	1 pole NC contact
EHDBCK220-2	EHDB220	2 pole NO contact kit
EHDBCK220-NC	EHDB220	1 pole NC contact
EHDBCK280-2	EHDB280	2 pole NO contact kit



EHDBCK130-2



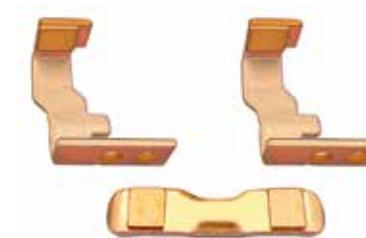
EHDBCK220-2



EHDBCK280-2



EHDBCK110-NC



EHDBCK130-NC



EHDBCK220-NC





**ALLEN-BRADLEY**

**Series A**

Part #	Size	Description
X-33519	1	Stationary, short, 1 piece
X-33977	0	Stationary, short, 1 piece
X-35162	0	Stationary, long, 1 piece
X-35163	1	Stationary, long, 1 piece
X-33553	0	Movable, 1 piece
X-36702	2	Stationary, 1 piece
X-36670	2	Movable, 1 piece
X-36703	3	Stationary, 1 piece
X-36671	3	Movable, 1 piece
X-67541	4	Stationary, 1 piece
X-119624	4	Movable, 1 piece

**Series K**

All 1-pole kits

Part #	Size	Note
Z-21102 Series	00	
Z-34037-AM Series	0	
Z-34038 Series	1	
Z-34039-AM Series	2	
Z-34040 Series	3	
Z-34041 Series	4	
Z-34043	5	Accommodates terminal mounted current transformers

**500 Line**

All 1-pole kits

Part #	Size
40410-331-51	0
40410-331-52	1
40420-322-51	2
40430-300-51	3
40440-300-51	4

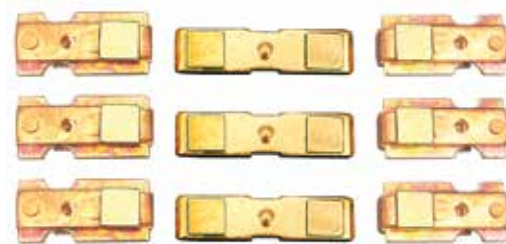
**IEC 100 Line, A & B**

All 3-pole kits

Part #	Contactor
40769-800-01	100-A60
40780-800-01	100-B110



40769-800-01



40780-800-01

**IEC 100-C and 100-D Line**

All 3-pole kits

Part #	Contactor
CA7-C30	100-C30
CA7-C37	100-C37
CA7-C43	100-C43
CA7-C60	100-C60
CA7-C72	100-C72
CA7-C85	100-C85
CA6-C95	100-D95



CA7-C60



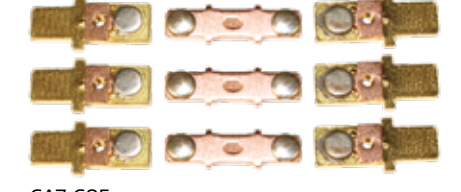
CA7-C30



CA7-C43



CA7-C72



CA7-C85

**AROMAT**

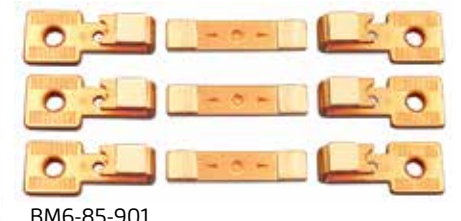
**Green Power**

All 3-pole kits

Part #	Contactor
BM6-35-901	F35 (size 1++)
BM6-50-901	F35 (size 1++), F50 (size 2+)
BM6-65-901	F65 (size 2++)
BM6-85-901	F80 (size 3), F85 (size 3+)
BM6-125-901	F125 (size 3++)
BM6-190-901	F190 (size 4++)



BM6-50-901



BM6-85-901



BM6-125-901

**CUTLER-HAMMER**

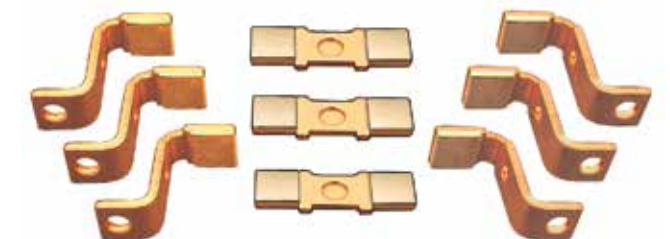
**Series B1**

All 3-pole kits

Part #	Size
6-34-2	2
6-35-2	3
6-36-2	4
6-36-4	4



6-35-2

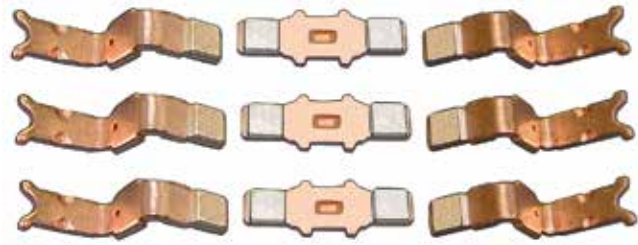


6-34-2



6-36-2

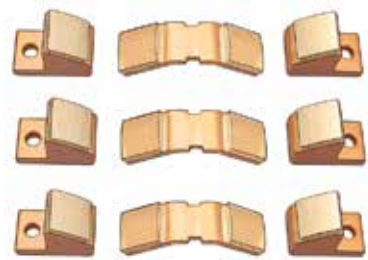




6-65-6



6-65-8



6-43-6

**CUTLER-HAMMER** continued

**Freedom Series**

All 3-pole kits

Part #	Size
6-65-6	1-3/4, H
6-65-8	2, J
6-65-17	K
6-43-6	N
6-45-2	5

**FURNAS**

**Vertical Lift Contactors/Starters**

All 1-pole kits

Part #	Size	Contactors/Starter
75DA14	1, 1-1/2	14/40DA
75FB14	2	14FB, 40FB, 22FB, 42FB
75GB14	2-1/2	14GB, 40GB, 22GB
75HB14	3	14HB, 40HB, 22HB
75IB14	3-1/2	14IB, 40IB, 22IB
75JB14	4	14JB, 40JB, 22JB
75RB14	4-1/2	14RB, 14RF, 14RS, 40RB, 40RF, 22RB, 22RF, 22RS
75KB14	5	14/40/22KB, 14/40/22KF, 14/40/22KS



75DA14



75KB14



75BF14



75CF14



75DF14



75EF14



75FF14



75GF14



75HF14



75IF14



75JG14

**Innova 45° Series Contactors/Starters**

All 1-pole kits

Part #	Size	Contactors/Starter
75BF14	00	14/40/22BF
75CF14	0	14/40/22CF, 14/40/22CP, 14/40/22CS
75DF14	1	14/40/22DF, 14/40/22DP, 14/40/22DS
75EF14	1P,1-3/4	14/40/22EF, 14/40/22EP, 14/40/22ES
75FF14	2	14/40/22FF
75GF14	2-1/2	14/40/22GF
75HF14	3	14/40/22HF, 14/40/22HP, 14/40/22HS
75IF14	3-1/2	14/40/22IF, 14/40/22IP, 14/40/22IS
75JG14	4	14/40/22JT, 14/40/22JG

**Innova Plus Series Contactors/Starters**

All 1-pole kits

Part #	Size	Contactors/Starter
75FP14	2	14/40/22FP, 14/40/22FS
75FP109153	2	Dover Contactor No 147283
75GP14	2-1/2	14/40/22GP, 14/40/22GS



75FP14



75FP109153



75GP14



75GF15



75GF15



75GF15

**IEC Class Contactors/Starters**

All 1-pole kits

Part #	Size	Contactors/Starter
75GF15	G	15/21/23/24GF

**Old Style DP (Definite Purpose) Contactors/Starters**

All 1-pole kits

Part #	Amps	Contactors/Starter
75CE42	40	42CE
75EE42	60	42EE
75FE42	75	42FE



75CE42



75EE42



75FE42

**Centurion 2000 DP (Definite Purpose) Contactors/Starters**

All 1-pole kits

Part #	Size	Contactors/Starter
75FE42	75	42FE, 16FE
75HF14	120	42HF, 16HF
75IF14	150	42IF, 16IF



75FE42



75HF14



75IF14

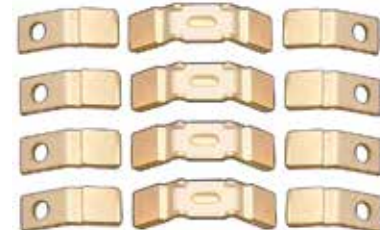




546A300G002



546A300G010



546A301G002



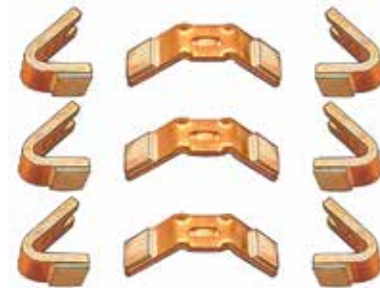
546A301G053



546A780G002



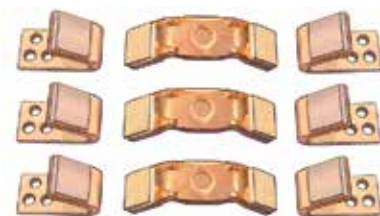
546A780G051



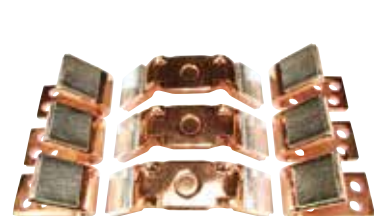
55-153677G002



55-153678G002



55-154607G002



55-154607G041

GE

CR100/200/300 Line

All 3-pole kits, except as noted

Part #	Size	Contactors/Starters	Note
546A300G002	0	CR305/306/309, CR205/206/209, CR105/106/109	4 pole kit
546A300G010	0	CR305/306/309, CR205/206/209, CR105/106/109	4 pole kit
546A301G002	1	CR305/306/309, CR205/206/209, CR105/106/109	4 pole kit
546A301G053	1	CR305/306/309, CR205/206/209, CR105/106/109	4 pole kit
546A780G002	2	CR305/306/309, CR205/206/209, CR105/106/109	
546A780G051	2	CR305/306/309, CR205/206/209, CR105/106/109	
55-153677G002	3	CR305/306/309, CR205/206/209, CR105/106/109	
55-153678G002	4	CR305/306/309, CR205/206/209, CR105/106/109	
55-154607G002	5	CR305/306/309, CR205/206/209, CR105/106/109	
55-154607G041	5	CR305/306/309, CR205/206/209, CR105/106/109	

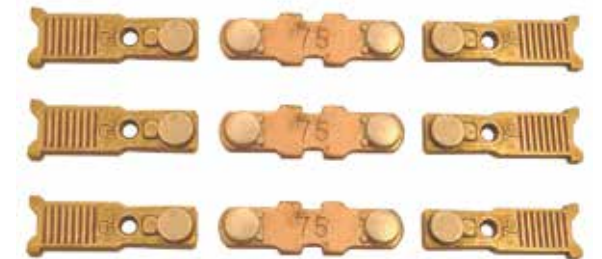
CL C-2000 IEC

All 3-pole kits

Part #	Contactors	Amps
V31206B	CL06	48
V31207B	CL07	62
V31208B	CL08	68
V31209B	CL09	80
V31210B	CL10	96
V31175CA	CK75	140
V31108CA	CK08C	156
V31109BA	CK09	192



V31206B



V31207B



V31208B

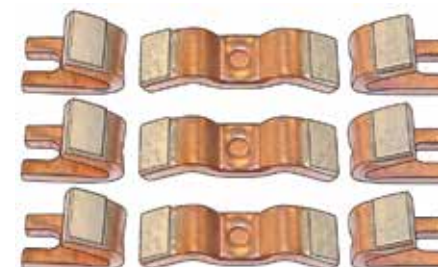
V31209B



V31210B



V31175CA



V31109BA



V31108CA



GE continued

CR7 Spectra 700 IEC

All 3-pole kits

Part #	Contactor	Amps
CR7XDG	CR7CG	37
CR7XDH	CR7CH	45
CR7XDJ	CR7CJ	56
CR7XDK	CR7CK	73
CA5F2CPR1	CA5F2	105
CA5F3CPR1	CA5F3	140



CR7XDG



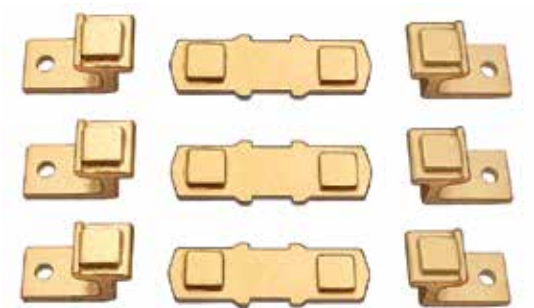
CR7XDH



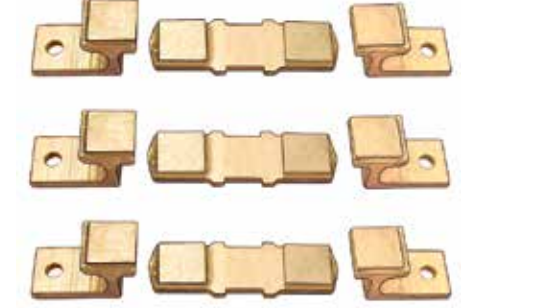
CR7XDJ



CR7XDK



CA5F2CPR1



CA5F3CPR1



6960047G026



2455288



1477513

Misc Contacts

Part #	Note
6960047G026	1 pole kit for CR2810 relay Normally Open or Normally Closed (reversible)
5351643	1 pole kit for CR2800
2455288	Hoyt number 3004
1477513	Hoyt number 3026
1464861	Hoyt number 3027
138A1125G1	Hoyt number M716M

Limitamp Medium Voltage 5KV

All sold per piece, not in kits. Contact Access.

Part #	Amps
138A1125G1	400



138A1125G1

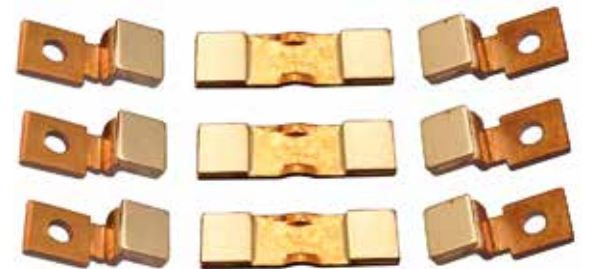
ITE-GOULD/TELEMECANIQUE

All 3-pole kits

Part #	Size
G203C	1
G203D	2



G203C



G203D

JOSLYN CLARK/SYLVANIA

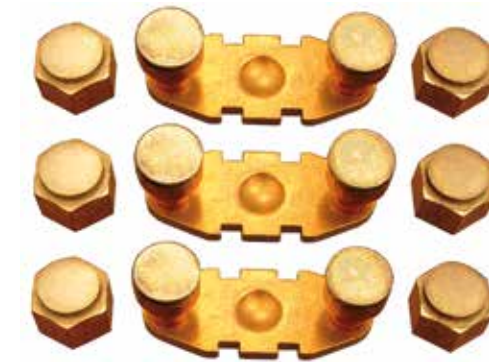
Type CY

All 3-pole kits

Part #	Size
CY31-1	1
CY32-1	2
CY33-1	3



CY32-1



CY33-1



5M52



5M53

Type 5DP

All 1-pole kits

Part #	Contactor	Amps	Note
5M-052	5DP2	56	NO contact
5M-053	5DP3	110	NO contact
5M-045	5DP5	360	NO contact
5M-049	5DP9	260	NC contact
5M-056	5DP9	260	NO contact



5M49



5M-045



**MITSUBISHI**

**Series S-D and S-K**

All 3-pole kits

Part #	Contactor	Size
BH549N301 Main	S(D)-K35	1.5
BH559N306 Main	S-K38	1.5
BH559N307 Main	S-K48	2
BH559N300 Main	S-K50	2
BH559N302 Main	SD-K50	2
BH559N301 Main	S-K65	2.5
BH559N303 Main	SD-K65	2.5
BH569N300	S-K80	2
BH569N302 Main	SD-K80	2.75
BH569N301 Main	S-K95	3
BH579N301 Main	S-K125	3.5

**Series S-N**

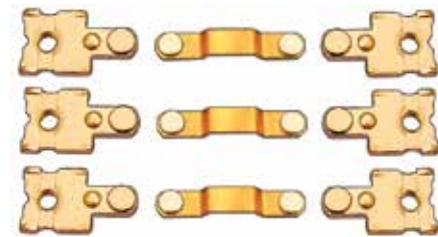
All 3-pole kits

Part #	Contactor
MAINKITBH749N301	S-N35
MAINKITBH759N300	S-N50 and S-N35
MAINKITBH759N301	S-N65
MAINKITBH769N300	S-N80
MAINKITBH769N301	S-N95
MAINKITBH779N300	S-N125

**Series DU DC Contactors**

All 3-pole kits except as noted

Part #	Contactor	Note
MAINKITZ939401G10	DU-A60	3 pole contact kit
MAINKITZ939402G10	DU-A120	
MAINKITBH599308	DU-K180	2 pole NO (purchase with 1 set MAINKITBH599309)
MAINKITBH599309	DU-K180	1 pole NC (purchase with 2 sets MAINKITBH599308)



BH549N301 Main



BH559N306 Main



BH559N307 Main



BH559N300 Main



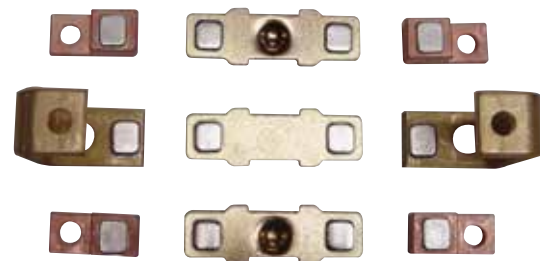
BH569N301



BH579N301



Z939401G10



Z939402G10

**S+S/SPRECHER+SCHUH**

**CA1 Contactors/Starters**

All 3-pole kits

Part #	Contactor	Size
22.110.212-02	CA1-25	2
22.114.212-02	CA1-40	2-1/2
22.104.212-04	CA1-55/60	3, 3-1/2
22.104.212-06	CA1-100	4

**CA3 Contactors/Starters**

All 3-pole kits

Part #	Contactor	Size
22.701.217-01	CA3-72	2.5

**CA7 Contactors/Starters**

All 3-pole kits

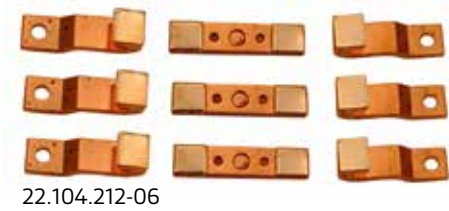
Part #	Contactor
CA7-C30	CA7-30
CA7-C37	CA7-37
CA7-C43	CA7-43
CA7-C60	CA7-60
CA7-C72	CA7-72
CA7-C85	CA7-85
CA7-C97	CA7-97



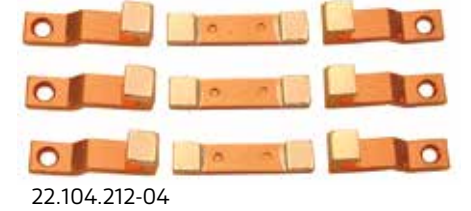
22.110.212-02



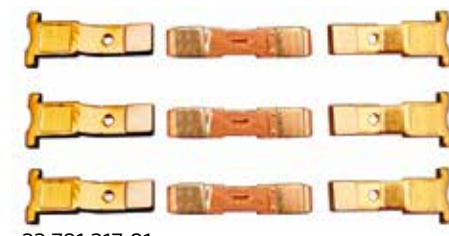
22.114.212-02



22.104.212-06



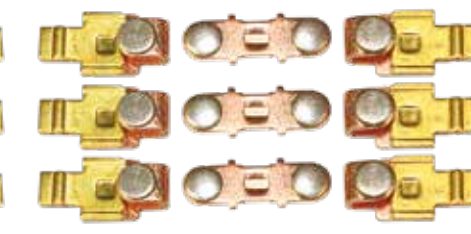
22.104.212-04



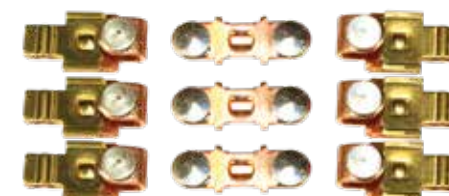
22.701.217-01



CA7-C30



CA7-C37



CA7-C43



CA7-C60

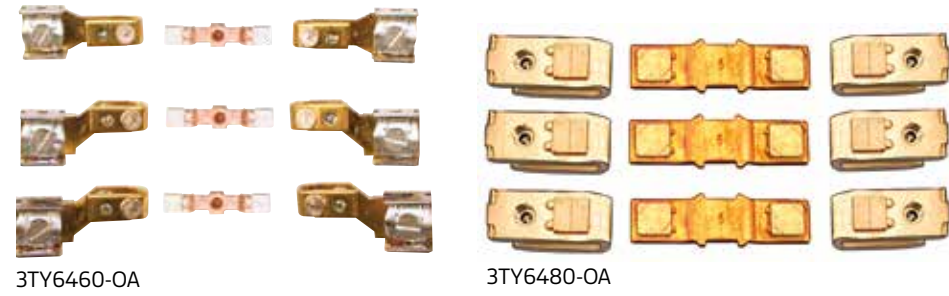


CA7-C72



CA7-C85



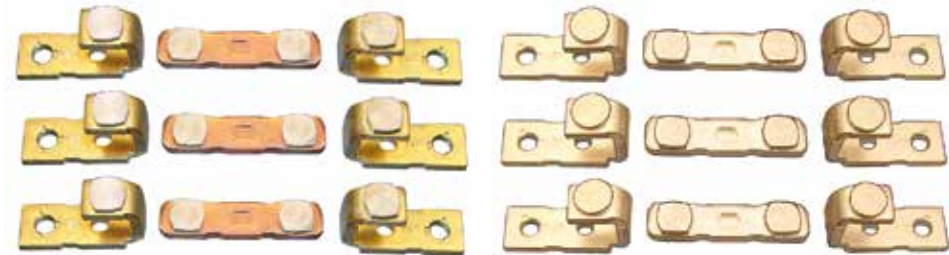


3TY6460-OA

3TY6480-OA



3TY6520-OA



3TY7440-OA

3TY7450-OA



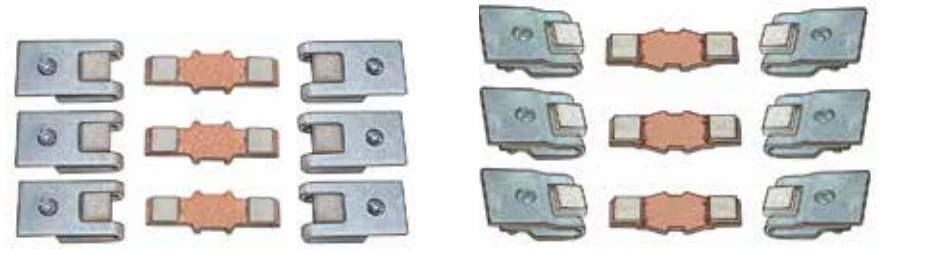
3TY7460-OA

3TY7470-OA



3TY7480-OA

3TY7490-OA



3TY7500-OA

3TY7520-OA

**SIEMENS**

**3TB Series**

All 3-pole kits

Part #	Contactors
3TY6460-OA	3TB46
3TY6480-OA	3TB48
3TY6520-OA	3TB52

**3TF World Series**

All 3-pole kits

Part #	Contactors
3TY7440-OA	3TF44
3TY7450-OA	3TF45
3TY7460-OA	3TF46
3TY7470-OA	3TF47
3TY7480-OA	3TF48
3TY7490-OA	3TF49
3TY7500-OA	3TF50
3TY7510-OA	3TF51
3TY7520-OA	3TF52
3TY7560-OA/0B	3TF56

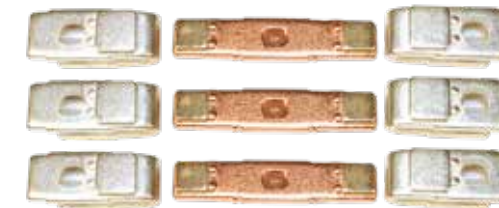
**3RT SIRIUS**

All 3-pole kits

Part #	Contactors
3RT1934-6A	3RT1034
3RT1935-6A	3RT1035
3RT1936-6A	3RT1036
3RT1944-6A	3RT1044
3RT1945-6A	3RT1045
3RT1946-6A	3RT1046
3RT1954-6A	3RT1054
3RT1955-6A	3RT1055
3RT1956-6A	3RT1056



3RT1935-6A



3RT1944-6A



3RT1946-6A



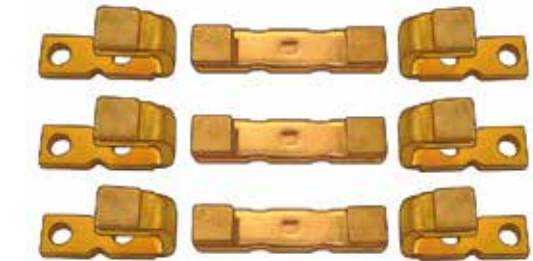
3RT1955-6A



3RT1933-6A



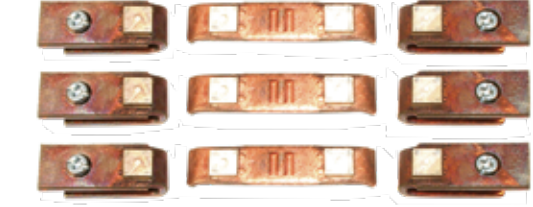
3RT1936-6A



3RT1936-6A



3RT1945-6A

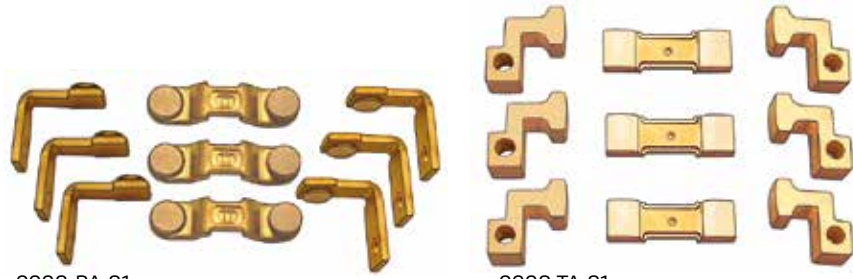


3RT1954-6A



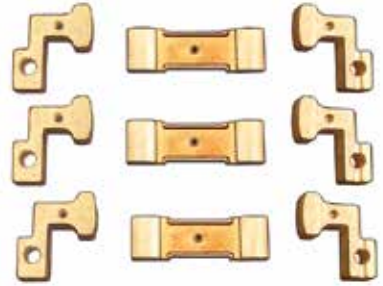
3RT1956-6A





9998-BA-81

9998-TA-81



9998-UA-81

**SQUARE D**

**Old Style Contactors and Starters**

All 3-pole kits

Part #	Size	Type	Series
9998-BA-81	0	B	A
9998-TA-81	2	D	
9998-UA-81	3	E	

**Class 8502 / 8702 / 8536 / 8736 Contactors and Starters**

All 3-pole kits

Part #	Size	Type
9998-SL-2	00/0	SB
9998-SL-3	1	SC
9998-SL-4	2	SD
9998-SL-7	3	SE
9998-SL-9	4	SF



9998-SL-2



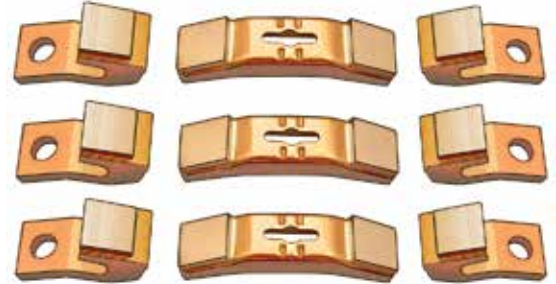
9998-SL-3



9998-SL-7



9998-SL-4



9998-SL-9

**STRUTHERS-DUNN**

**Dover #14 and #15 Relays**

All contacts are individual pieces

Part #	Note
35900	Stationary contact, total length = 2-9/16"
35890	Movable contact
35909	Stationary contact, total length = 1-3/4"



35890



35900



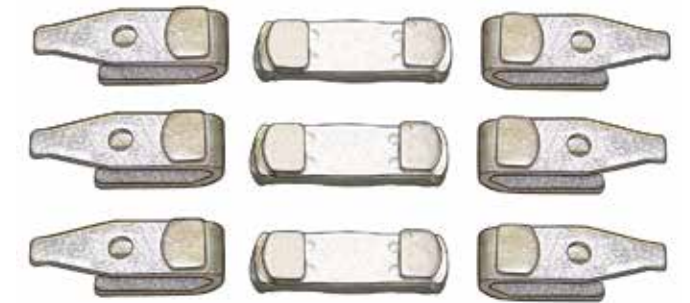
35909

**TELEMECANIQUE**

**LC1 Series**

All 3-pole kits

Part #	Contactors
LA5-FF431	LC1FF43, F115, F150
LA5-FG431	LC1FG43, F185



LA5-FF431



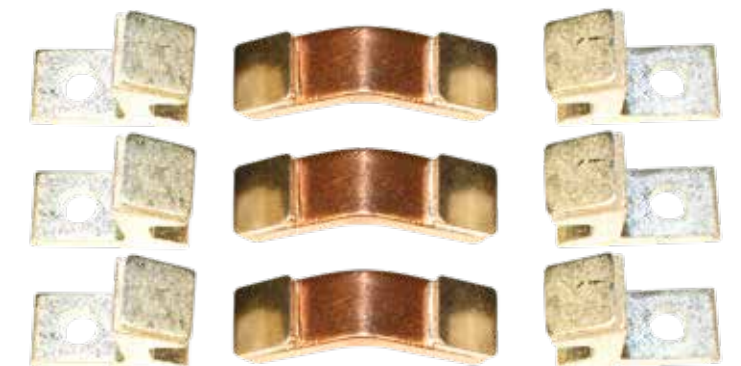
LA5-FG431

**WESTINGHOUSE ELECTRIC**

**Advantage Series**

All 3-pole kits

Part #	Size
WCK43	4



WCK43





Dover: 9790123  
Access: 75FE42



Dover: 9755317  
Access: 75DF14



Dover: 9755330  
Access: 75FB14A

Dover: 112194  
Access: 75FF14



Dover: 9754714  
Access: 75FP14



Dover: 9713384  
Access: 75FP109153



Dover: 9755548  
Access: 75GB14



Dover: 9755342  
Access: 75GP14



Dover: 9755433  
Access: 75HF14



Dover: 9755366  
Access: 75IB14



Dover: 9755378  
Access: 75JB14

**DOVER**

**Contact Kits**

1 pole kit unless specified

Contact #	Description	Contact Kit #	Access Part #
9790123	42FE DP		75FE42
9755317	Size 1 45° green or gray cover	9755792, 9790081	75DF14
9755330	Size 2 vertical lift green cover	9788785, 9755536, 9790111	75FB14A
112194	Size 2 45° green cover	9788748, 9790135	75FF14
9754714	Size 2 45° gray cover	9790160	75FP14
9713384	Size 2 45° gray cover	9716014, 147283	75FP109153
9755548	Size 2-1/2 vertical lift green cover	9755810, 9790172	75GB14
9755640	Size 2-1/2 45° green cover	9790196	75GF14
9755342	Size 2-1/2 45° gray cover	9790226	75GP14
9755354	Size 3 vertical lift green cover	9755822, 9790238	75HB14
9755433	Size 3 45° green or gray cover	9790240, 147284	75HF14
9839446	Size H IEC	9790251, 9839460, 298AD1	75HF15
9755366	Size 3-1/2 vertical lift green cover	9755834, 9790263	75IB14
9755445	Size 3-1/2 45° green or gray cover	9790275	75IF14
9755378	Size 4 vertical lift green or gray cover	9755834, 9790287	75JB14



Dover: 9755640  
Access: 75GF14



Dover: 9755354  
Access: 75HB14



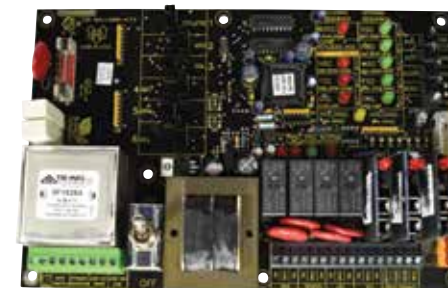
Dover: 9839446  
Access: 75HF15



Dover: 9755445  
Access: 75IF14

**REPLACEMENT BOARDS**

Part #	Description
MOVFR-0012N	Board. MOVFR Main PC, with (3) input PC board
MOVFR-0075AN	Board. MOVFR II and MOVFRW II Main PC without input PC boards (includes 4 relays). Replaces MOVFR-0069N
MES330R	Alternate More Durable (lifetime warranty) for Mac 104 door operator with relays
72GBD01	Universal replacement logic board. Siemens class 72G soft starter
SRE CIB	Smartrise Cedes interface board
SRE Hall Board	Smartrise hall board
SRE Lock Board	Smartrise lock board
SRE SRU Board	Smartrise SRU board



MOVFR-0012N



MOVFR-0075AN



MES330R



72GBD01



SRE CIB



SRE Hall Board

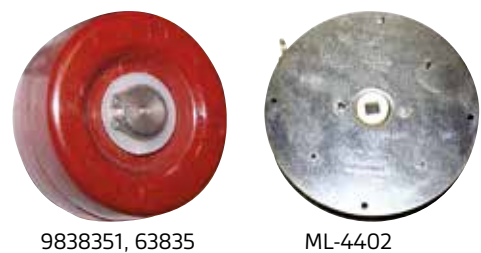


SRE Lock Board



SRE SRU Board

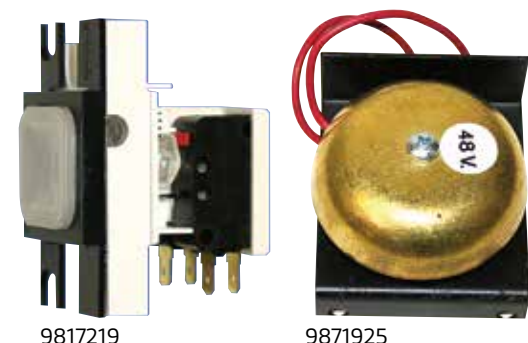




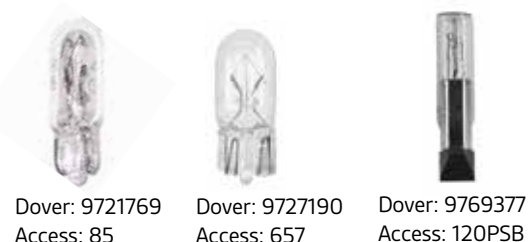
9838351, 63835 ML-4402



9840230 1/4" ext. ADA compatible 9773150 California ADA compatible



9817219 9871925



Dover: 9721769 Access: 85 Dover: 9727190 Access: 657 Dover: 9769377 Access: 120PSB



Dover: 9782485 Access: 503 Dover: 9871688 Access: 24PSB

## Dover

### DOOR PARTS AND EQUIPMENT

Dover Part #	Description
9838351, 63835	Pick-up roller kit. 1-5/8", includes retaining ring
ML-4402	Universal spirator. 5" diameter, with cable

### CAR SIGNAL REPLACEMENT PARTS

#### Pushbutton Caps

Part #	Description
9840230	Clear pushbutton cap. 1/4" ext., ADA compatible
9773150	Clear pushbutton cap. California ADA compatible

#### Car Signal Components

Part #	Description
9817219	Pushbutton assembly, complete. Incl. 2 microswitches
9871925	Gong assembly, 48VDC single stroke. Incl. mounting bracket

### Replacement Lamps and Bulbs

Dover Part #	Access Part #	Description
9721769	85	Lamp. 28V .04 amp 1.12W subminiature wedge base
9727190	657	Lamp. 28V .08 amp 2.24W wedge base mini
9769377	120PSB	Lamp. 120V .025 amp 3W #5 slide base
9782485	503	Mini lamp. 5.1V .15 amp SC bayonet base
9871664	48PSB	Lamp. 48V .053 amp 2.4W #5 slide base
9871688	24PSB	Lamp. 24V .73 amp #5 slide base
32462	656-120V-CS	Lamp. 120V 6W candelabra screw base
32464	25T8-130V-CS	Lamp. 130V 25W candelabra screw base

For a complete listing of lamps, see Elevator Lamps section starting on page 35.

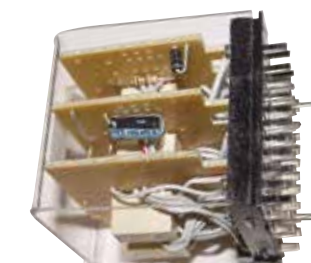
### IBM RELAYS

**Note:** The original IBM relays were electromechanical wire-contact type. While some items may still be available in the original form, they are by nature very expensive.

Some suppliers sell a short, miniature replacement product, but based on feedback from elevator mechanics, these relays are difficult to service and not particularly reliable.

Access stocks quality-made, full-size electronic/solid state IBM replacement relays manufactured by RLS.

Part #	Description
333242RLS	4PDT w/100-120VDC coil
769009RLS	4PDT w/24 - 32VDC coil
769489RLS	4PDT w/48VDC coil
769019RLS	6PDT w/48VDC coil
186685LRLS	4PDT latching w/48VDC coil
769488RLS	12PDT w/48VDC coil
9710292DRLS	4PDT w/48VDC coil and diode
159942	Base for 6PDT IBM-type relay
159943	Base for 12PDT IBM-type relay



769488RLS



769019RLS



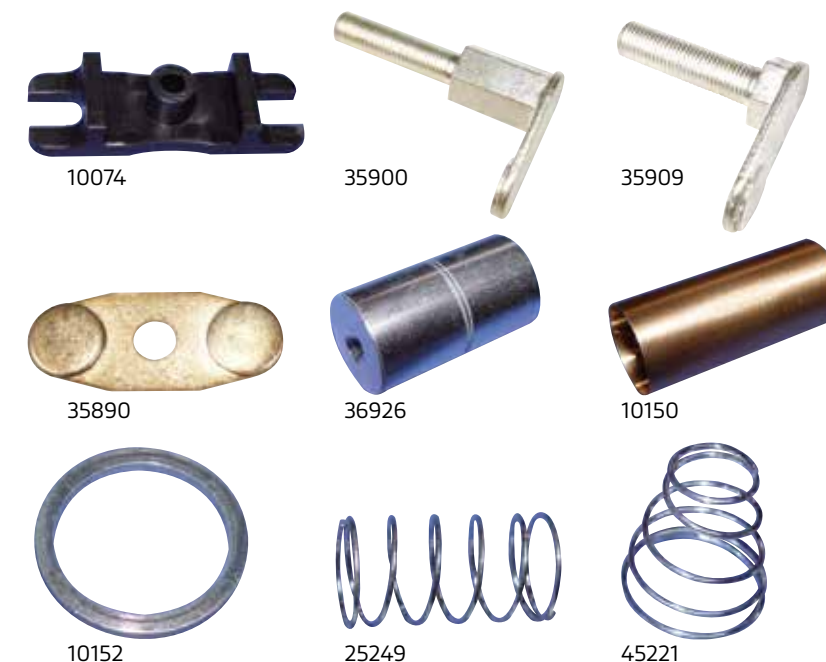
186685LRLS



159942

### #14 #15 CONTACTORS

Part #	Description
10074	Cradle block
35900	Contact post, 2-1/2" long
35909	Contact post, 1-1/2" long
35890	Moving contact
36926	Fixed core
10150	Core tube
10152	Core tube bushing
25249	Compression spring, straight
45221	Compression spring, conical
35891	Retaining screw
44778	Belville washer
31735	#10 shakeproof washer
922	#6 flat washer
997	#6 bronze lock washer
434	Nut, #6-32 x 1/4" hex
7371	Nut, #10-32 x 5/16" hex
7097	Lock washer
4660312	Screw, #10-32 rhs



10074

35900

35909

35890

36926

10150

10152

25249

45221





## Otis

### ROLLERS

Part #	Description
456AJ2	Roller. Guide 7-7/8 x 1.5 w/shaft ext. 1.025 – used 1941 – 1962
456C1	Roller. Door lock, 1-5/8" long
456C3	Roller. Door lock, 1-9/32" long
456CV4	Roller. Guide 10 x 1-1/2 w/(2) 6203 bearing and shaft
A290AB1	Roller. Escalator, model "O", 5.5 x 1.125 w/(2) 6203 bearings



456AJ2



456C1



456C3



456CV4



A290AB1

### PARTS

Part #	Description
194AD2	Key, lunar
194AD6	Key, 2 section drop
194AD7	Key, 3 section drop
607C1	Solid state SCR replacement for Otis 2050 tube
98A00110-01	Three phase power monitor. 45 – 60VAC side adjust
A290AB1	Roller. Escalator, model "O", 5.5 x 1.125 w/(2) 6203 bearings



194AD2



194AD6



194AD7



607C1



98A00110-01



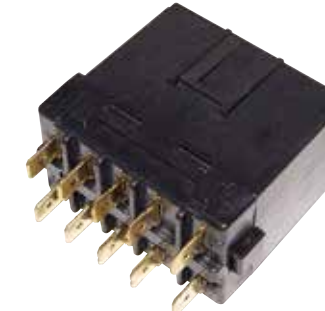
A290AB1

### OTIS PARTS continued

Part #	Description
A6098A3	Switch. Limit R/H straight arm DPST
A6098B7	Switch. Limit; double pole break
VC15-2A2B-AC120VN	Relay. 120VAC, 2NO and 2NC, VC15-2A2B-AC120V
98A00557	Three phase power monitor. 380 – 480VAC
98A00110-01	Three phase power monitor. 45 – 60VAC side adjust



A6098B7



VC15-2A2B-AC120VN



A6098A3



98A00557



98A00110-01

### REPLACEMENT PARTS

Part #	Description
M1230-G4	Contact for KS multipole relay with 1/4" silver contact and 4-3/4" shunt
R3620G01	Stationary contact type B-2, N/O
R3620G02	Stationary contact type B-2, N/C
R3620G03	Intermediate contact type B-2, N/O, includes shunt and eyelet



M1230-G4



R3620G01



R3620G02



R3620G03



# MCE

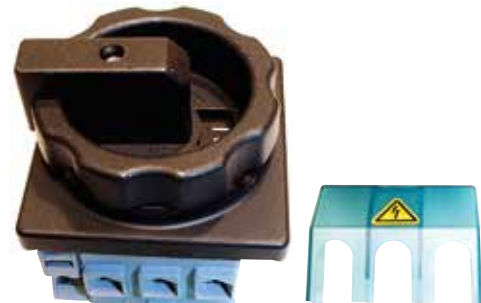
## REPLACEMENT PARTS FOR MCE CONTROLLERS



V23050-A1110-A533/SR96001  
Safety Relay  
6PST 3NO/3NC positively-guided  
8 amp contacts w/110VDC coil  
Commonly used with A17 compliant  
controllers  
Equivalent to Schrack SR6A4110



VC15S-3A1B-AC120VN/BW2213185K  
Relay 4PDT 2NO/1NC 20 amp w/120VAC  
coil and screw terminals  
MCE part # 27-01-0035



3LD2103-1TP51  
Handle and switch for MCE TOPS, 25 amp 690V  
MCE part # 36-03-0015



437-110-1-A  
Solid state 1 second delay on  
make timer, 110VDC 2 amp  
MCE part # 27-01-0094



TVA510  
TVA1510-E3 Electrolytic Capacitor,  
TVA Series, 30 µF, 250 V, 15.875  
mm, Axial Leaded



AZ762-1C-115AEF  
Relay 115VAC 8.1KOhm 16A SPDT



438USA  
Time Capsule  
Delay on make timer, 19 – 288VAC/DC  
1 – 1,024 seconds  
MCE part # 27-01-0043



438115-1  
Time Capsule  
Delay on make timer, 115VAC/DC  
0.1 – 30 seconds  
MCE part # 27-01-0041



438115-5  
Time Capsule  
Delay on make timer, 115VAC/DC  
30 – 8,000 seconds  
MCE part # 27-01-0046

## REPLACEMENT PARTS FOR MCE CONTROLLERS continued



If you need to replace an MCE SmartStart solid state starter, call Access. You may be able to use one of our S+S PCEC solid state starters. For complete information on these starters, see page 169.



For a complete listing of Siemens electronic soft starters, see page 158.

### Universal Logic Board

This board works in all models of the Siemens Class 72 soft starters and fixes over 90 percent of all starter failures. After installation, simply use the starter keypad to configure the replacement logic board for the particular model of starter.

Installation instructions and RMA paperwork included with each replacement board.



72GBD01  
Replacement Logic Board

Since they began in 1983, MCE has used a number of different suppliers for their motor control. ACCESS sells replacement contactors, starters, overload relays, coils and contact kits for almost all of these devices. If the motor control manufacturer's product line has been discontinued, we can often offer functional replacements.

To locate a particular manufacturer's listing of products and replacement parts, see the listing below, or just call ACCESS.

### ABB Type EHDB DC Drive Contactors

For complete information on these products, see page 182.

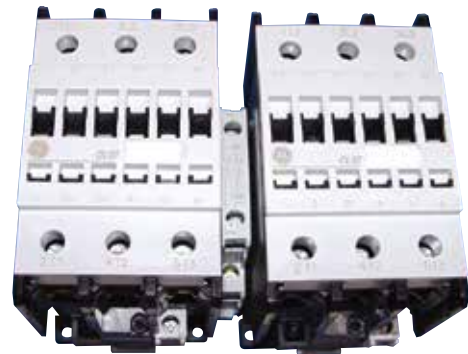


### Mitsubishi Type DU DC Contactors

For complete information on these products, see page 184.



**REPLACEMENT PARTS FOR MCE CONTROLLERS**  
continued



**GE C2000 Contactors**

For complete information on these products, see page 114.



**Siemens SIRIUS 3RT Contactors**

For complete information on these products, see the Siemens SIRIUS IEC section of Starters and Contactors beginning on page 129.



**Elevator Controls**

**REPLACEMENT PARTS FOR ELEVATOR CONTROLS CONTROLLERS**

**Tyco/Schrack A17 Safety Relay**

Part #	Description
V23050-A1110-A533	SR960001/SR6A4110 safety relay 6PST 3NO/3NC positively guided 8 amp contacts w/110VDC coil Used with A17 controllers Equivalent to Schrack SR6A4110



**PRD Relays**

Refer to page 95 in the Relays section for a complete listing of PRD relays.



**Mitsubishi DC Contactor**

For complete information, see the DC Contactors section beginning on page 184.

**Replacement Logic Board**

This board works in all models of the Siemens Class 72 soft starters and fixes over 90 percent of all starter failures. After installation, simply use the starter keypad to configure the replacement logic board for the particular model of starter.



72GBD01 Universal Logic Board

**72G Series Soft Starters**

Refer to page 159 in the Soft Starters section for a complete listing of Siemens soft starters.



**PCEC Series Soft Starters**

Refer to page 165 in the Soft Starters section for a complete listing of Sprecher+Shuh PCEC soft starters.







CE15KN3  
Freedom Series IEC Contactor



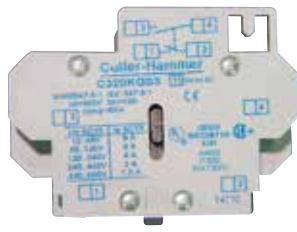
AE16GNO  
Freedom Series IEC Starter



AE56NNO  
Freedom Series Rev/Wye-Delta IEC Starter



C320KGS1



C320KGS3



C320KGS20



C320KGS31



C320KGT1



C320KGT3



C320KGT15

### CUTLER-HAMMER FREEDOM IEC SERIESSTARTERS AND REVERSING STARTERS

Contactor	Starter	Rev. Starter	Amps	200V HP	230V HP	460V HP	Frame
CE15AN3_	AE16ANO_	AE56ANO_	7	1.5	1.5	3	A
CE15BN3_	AE16BNO_	AE56BNO_	10	2	2	5	B
CE15CN3_	AE16CNO_	AE56CNO_	12	3	3	7.5	C
CE15DN3_	AE16DNO_	AE56DNO_	18	5	5	10	D
CE15EN3_	AE16ENO_	AE56ENO_	25	5	7.5	15	E
CE15FN3_	AE16FNO_	AE56FNO_	32	7.5	10	20	F
CE15GN3_	AE16GNO_	AE56GNO_	37	7.5	10	25	G
CE15HN3_	AE16HNO_	AE56HNO_	44	10	15	30	H
CE15JN3_	AE16JNO_	AE56JNO_	60	15	20	40	J
CE15KN3_	AE16KNO_	AE56KNO_	73	20	25	50	K
CE15LN3_	AE16LNO_	AE56LNO_	85	25	30	60	L
CE15MN3_	AE16MNO_	AE56MNO_	105	30	40	75	M
CE15NN3_	AE16NNO_	AE56NNO_	140	40	50	100	N

**Note:** Not normally stocked at ACCESS, but can be sourced.

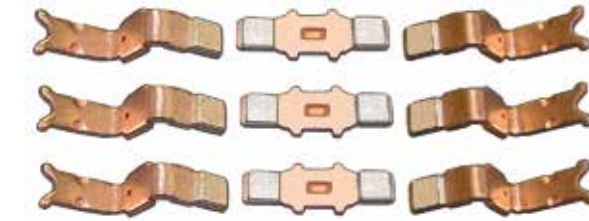
### AUX CONTACTS

Part #	Description
C320KGS1	1NO, side mounted
C320KGS2	1NC, side mounted
C320KGS3	1NO/1NC, side mounted
C320KGS4	2NO, side mounted
C320KGS5	2NC, side mounted
C320KGT1	1NO, top mounted
C320KGT2	1NC, top mounted
C320KGT3	1NO/1NC, top mounted
C320KGT4	2NO, top mounted
C320KGT5	2NC, top mounted
C320KGT9	3NO, top mounted
C320KGT10	2NO/1NC, top mounted
C320KGT11	1NO/2NC, top mounted
C320KGT12	3NC, top mounted
C320KGT13	4NO, top mounted
C320KGT14	3NO/1NC, top mounted
C320KGT15	2NO/2NC, top mounted
C320KGT16	1NO/3NC, top mounted
C320KGT17	4NC, top mounted

### REPLACEMENT CONTACT KITS

All 3-pole kits

Part #	Size
6-65-6	1-3/4, H
6-65-8	2, J
6-65-19	K
6-43-6	N
6-45-2	5



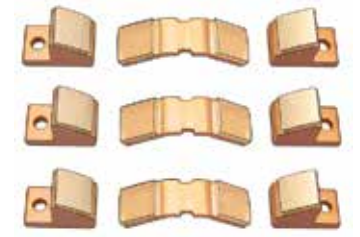
6-65-6



6-65-8



6-65-19



6-43-6







# **ACCESS**

**Elevator & Electric Supply**

1302 65<sup>th</sup> Street, Emeryville, CA 94608

1-800-266-8654 or 510-658-8654

Fax: 510-652-5043

[www.aesupply.com](http://www.aesupply.com)

Sales or inquiries: [sales@aesupply.com](mailto:sales@aesupply.com)

