



# MACHINE - ROBOT CONTROLS-SAFETY-SENSING EV CHARGING - BESS - SOLAR SOLUTIONS



# WIRELESS SAFETY SOLUTIONS — SIL 3 Cat 4 PLe

#### GROUP MODE





#### SAFEMASTER W -SIL 3 Cat 4 Radio Controlled Safety System

#### **Wireless Functional Safety in Group Mode**

The radio controlled safety system UH 6900 of the SAFEMASTER W series comprising a group controller and up to 255 group receivers for the safety transmission of emergency-stop and control functions provides more flexibility when securing dangerous areas. The group controller can be used to let several receivers securely shut down through a unidirectional, safety radio transmission. Furthermore, the controller together with a receiver can exchange indicator, control and status information.

#### Applications include:

mobile applications, such as completely-automated floor conveyors and automated guided vehicles.

#### Range:

The range in open areas is up to 800m allowing exceptional signal coverage

#### Safe signal transmission:

Safe radio transmission of emergency stop functions offers additional flexibility in protecting hazardous areas

#### 2-Channel safety inputs:



#### **PAIR** MODE



#### SAFEMASTER W -SIL 3 Cat 4 Radio Controlled Safety System

#### Wireless Functional Safety in Pair Mode

The safety approved, bidirectional radio controlled safety system UH 6900 from the SAFEMASTER W series , is for the transmission of safety inputs such as E-stop and conventional control functions and offers great flexibility for the protection of hazardous areas. By implementing the latest radio controlled technologies, a high level of safety and a long transmission range is achieved. Two safety zones can easily be connected wirelessly over a considerable distance. The main application areas include applications covering large areas and mobile applications such as fully automated conveyor systems and driverless transport systems. Simple and inexpensive retrofitting of existing safety systems can also be achieved wirelessly with this system.

#### **Highest safety standards:**

Suitable for use in safety applications up to Cat. 4 / PL e or SIL 3

#### **Control functions:**

Up to 8 function inputs and outputs

#### 2-Channel safety inputs:

Connect up to 3 two-channel safety functions (E-stop, LC, safety gate, two-hand operation, etc.)



#### COMHAND RADIO CONTROL

#### WITHOUT CONTROL, THE POWER IS NOTHING!

A new generation of portable wireless industrial wrist radio control to pilot by sight and fully exploit the power of your production tools in industrial environments.

100% hands-free portable emergency stop. Designed to be the best safety wireless remote control e-stop in its class. Integrated into the wrist, it offers more freedom, improves ergonomics and user productivity. Also incorporates 4 additional non-safety wireless control signals. Up to a 100 meter range. The magnetic wristband allows the control ring to be stored. The operator has his hands free very quickly and easily.





#### Remote lectern

The ComHAND can be carried or moved on the machine to be controlled. This system eliminates the need for a bulky wired console and thus reduces cable-related maintenance on your machines.

#### Plug & Work Receiver - Retrofit

The receiver allows you to connect to new and older machines and lifting equipment in just a few minutes.

#### WIRELESS E-STOP SECURHAND

#### ENHANCED OPERATOR PROTECTION

The portable emergency stop solution is unique on the market. It is worn continuously on the wrist and thanks to its "punch" button accessible at any time, it allows to significantly increase the safety of the operator.



#### TAKE BACK CONTROL

THE ADVANTAGES OF THE NEW GENERATION INDUSTRIAL RADIO CONTROL

#### Productivity

With both hands free, better visibility and total mobility, the operator regains control over his machine and his workstation. He remains focused on his task, without constraints. This freedom of movement helps to limit unnecessary gestures and movements.

#### Security

Carrying the radio control allows the operator to always be in control of his machine. The emergency stop is portable and is permanently on him. He is assured of working with maximum safety.

#### Reliability

Our products are designed to operate in harsh environments. The bracelet and the control ring guarantee the continuity of service of the machine.

#### **Ergonomics**

Your teams regain unparalleled freedom of movement, with a remote control always on them (no time wasted looking for it, no travel). They are easy to use even with gloves, and very quickly "become one" with the operator.

#### Productivity

By adopting a latest generation remote control, the operator becomes free to focus on his task. This allows him to gain 20% in productivity. The customization of the program allows to optimize his work process according to his needs.

#### **SAFEMASTER** STS

#### **Robust Locking System** (Stainless Steel or FRP)

SAFEMASTER STS is the reliable safety switch and key transfer system used for safeguarding separating protective devices of machines and systems. Designed to meet the highest safety standards and



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complies with all relevant standards. It safely and reliably protects employees as well as machines and production facilities.

The FRP version is characterized by a sophisticated design. high signaling effect and easy handling. Thanks to the robust combination of stainless steel and FRP, it offers the best possible application options, for example in automation technology as well as in the automotive and railroad industries. The robust and high-quality stainless steel design finds optimal use in harsh environments, such as those found in bulk material areas of the construction, chemical, food and pharmaceutical industries. However, SAFEMASTER STS is also the optimal solution in areas where extreme ambient temperatures prevail or where moisture and dirt are present.

#### **SAFEMASTER STS**



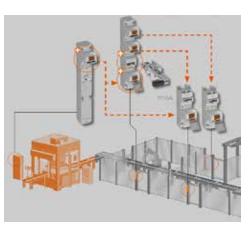


#### **Mechanical System with** Integrated Key Exchange Unit

None of the entrances are wired, the main entrance must be opened first. There is also the optional possibility of directly opening one of the maintenance gates. If only one door is directly opened, then it is ensured that the remaining doors will stay closed.

#### Optional:

- Personal kev
- Authorization kev
- Padlock module
- Escape release
- Feedback contact



#### **SAFEMASTER STS** COMMAND





#### **Guard lock with integrated** command and indication functions.

The SAFEMASTER STS series safety switch with guard lock offers the possibility of integrating up to three command and indication functions. This allows control signals such as emergency stop or acknowledgment of the safety door to be

triggered directly at the entrances of machines and plant access points. In addition emergency stop buttons, illuminated buttons, pushbuttons or selector switches are also available. The safety switch with guard lock is also available with auxiliary and emergency release as well as coded actuators.

Due to its very slim design, the robust and attractive fiber reinforced polymer (FRP) enclosure can be mounted directly on safety fences to save space. The optional M23 plug connectors ensure fast set-up and reduce the wiring effort to a minimum.

#### **SAFEMASTER** THREE-STAGE **ENABLING SWITCH**

The three-stage enabling switch has two normally open contacts controlling the safety function. When the enabling switch is activated, both contacts are closed and the facility is released by a suitable safe evaluation device with cross-wire monitoring. When the three-stage enabling switch is pushed through resp. released, the safety function is triggered and both contacts open up. The enabling switch fulfills the following safety function: f If the enabling switch is not pressed (position 1), the contacts are open. f If the enabling switch is fully pushed through (position 3), the contacts are open. Optionally, the enabling switch can be equipped with further functions, e.g. buttons, LEDs, etc



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# **INTERLOCKING LOCKABLE E-STOP & TWO-HAND CONTROLS**



#### 22MM EMERGENCY STOP

22mm Emergency Stop Button Lockable and Push-Pull. Robust heavy duty switch with spring loaded lockout/tagout device. The body is made from die-cast zinc. The mushroom shaped plungers are molded from DuPont Delrin 100ST Acetal for improved impact resistance and are solid colors throughout.





#### **30MM EMERGENCY STOP**

30mm Emergency Stop Button Lockable and Push-Pull. Robust heavy duty switch with sliding plate to function for a lockout/ tagout device. The body is made from die-cast zinc. The mushroom shaped plungers are molded from DuPont Delrin 100ST Acetal for improved impact resistance and are solid colors throughout.





#### 2.25" MAINTAINED SWITCH

The plastic plungers are molded from DuPont Delrin 100ST Acetal for improved impact resistance and are solid colors throughout. "Positive Break" contacts comply with all standards for 'emergency stop' applications.

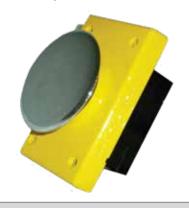
Maintained, latch with hole is released when switch is actuated allowing a lockout device to be applied.





#### **TWO HAND CONTROLS**

Hand operated, control circuit device, rated 'heavy duty' normally for use with electromagnetic equipment. The powder coat painted yellow cover and chrome plated flat plunger are made from die-cast zinc. Auxiliary rubber boot under plunger head. Low operating force - under 2 lbs. Nema 12/13, IP 65.









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Performance Level (PL) e and category 4 to EN ISO 13849-1. SIL Claimed Level (SIL CL) 3 to IEC/EN 62061. Safety Integrity Level (SIL) 3 to IEC/EN 61508. Safety level Type III-C to EN 574

- · Inputs for 2 push buttons with 1 NC and 1 NO contact
- Output: 3 NO contacts, 1 NC contact
- Overvoltage and short circuit protection
- . Width: 22.5 mm



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#### SAFETY SWITCHING

DOLD also offer high-performance multifunctional safety switching devices and systems. In doing so, DOLD integrates increasing functionality with constantly sinking space requirements.

The multifunctional safety switching devices offer you optimal solutions for many areas of use in machinery and system construction.



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#### SAFEMASTER S MONITORS

The SAFEMASTER S series standstill and speed monitors are used for safe standstill and speed monitoring of drives. The speed monitors detect and signal the standstill and speed of machines and systems in automatic as well as in setup mode. DOLD offers efficient and economical solutions for safe sensorless speed monitoring, sensorless frequency monitoring as well as drive monitoring via proximity switches. Used in machines and systems where machine movements or moving parts can pose a risk to man

and machine. For example, safe monitoring of the reduced operating speed in setup mode increases the safety of the operating personnel. It also increases productivity by preventing unnecessary shutdown.



# DOLD &



#### **EMERGENCY STOP MODULES**

For emergency stop monitoring to safeguard people and machinery -SAFEMASTER Emergency stop modules, are suitable for monitoring safety functions such as emergency stop or safety gate in almost any application.

Characterized by maximum safety for man and machine and fulfill all criteria up to Performance Level (PL) e / Category 4 according to DIN EN ISO 13849.

Large selection of variants and functions for wide range of applications.



# **CABLE OPERATED SAFETY SWITCHES**



#### CABLE/ROPE SWITCH

CABLE/ROPE OPERATED SWITCHES WITH BROKEN CABLE DETECTION

with positive break and positive transfer features making them particularly competent for Emergency Stop applications. Housing is made from high quality diecast aluminum and painted with yellow dry powder paint. Set-up position easily attained without cover removal. Cable is stretched until shaft end is flush with indicator hub end. Switch will trip and latch if the cable breaks, comes loose or is pulled. Blue booted reset button pushed to reset contact. Designed to reduce "nuisance tripping" from cable expansion and





#### CABLE SWITCH

The following switch is to be hung in line with the cable run and do not need to be mounted to any surface.

There are many configurations of this style of switch available including both "slack" and "taut" cable styles.

They are available with up to 2 NO contacts and 2 NC contacts and/or an LED pilot light. All versions of this switch will come pre-wired with a 5 or 8 pin M12 connector for easy installation.





# CABLE OPERATED SWITCH W/DOUBLE FLAG INDICATOR **OR LATCH PLATE**

"Slack cable" style switch with 1 NO and 1 NC contact on each end. For use in Emergency Stop applications as well as for ordinary circuit control. Housing is made from high quality die-cast aluminum and powder coated painted yellow. Independently operating red indicating flags rotate 90 degrees when tripped. Manually returning the flags to their normal position resets the switch.



# DOLD &

#### SOFTSTART-SOFTSTOP

The softstart-softstop unit provides smooth starting and stopping of 3-phase asynchronous motors. 2 phases are controlled by power semiconductors in a way that the current can rise continuously. This provides also a continuous rising

motor torque. This eliminates mechanical shock while starting. After successful starting the power semiconductors are bridged with internal relay contacts. This reduces internal power dissipation. The softstop function prolongs the stop time of the motor in order to avoid a sudden stop.



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#### MINISTOP BRAKING DEVICE

High-performance and flexibility

The factors of safety and efficiency are an important argument for the motor braking devices of DOLD. The wear- and maintenance-free devices can be easily installed. even in existing systems. The configurable braking current allows an optimal adjustment to machines and systems. Asynchronous motors up to 160 kW are reliably braked with the DOLD braking devices of the MINISTOP series. This allows your machine to be brought to a standstill in



only ten seconds in accordance with the EU Machinery Directive and European standard.

# DOLD 🅸



#### **REVERSING CONTACTORS POWERSWITCH -**

High functionality in the smallest space DOLD reversing contactors of the POW-ERSWITCH series are used to change the direction of rotation in alternating current motors, start them gently and/or to monitor their load. Various diagnostic functions inform you constantly about the operating condition of the motor. Space saving and have few wires as all functions are combined in a single housing. Costs can also be saved as an alternative to

a frequency converter. The devices are universally usable, e.g. for extruders, pumps, actuators or conveyors.



# **SAFE SWITCHING & DISCONNECTING**



#### **DISCONNECT SWITCHES**

Hand-operated switchgear for main circuits and are offered as ON-OFF Switches (3, 4, 6 and 8 pole) or as Changeover Switches with center Off (3 and 4 pole).





The Switch Company

#### **ROTARY CAM SWITCHES**

Manually operated, independently programmable control switches for main and auxiliary circuits with up to 24 contacts and are offered with switching angles of 30°, 45°, 60° or 90°. A maximum of 12 switching positions can be provided.







The Switch Company

#### DC DISCONNECT SOLUTIONS



**Contact Plates** Guarantee **Pin Point** Accuracy D200 - making the best contacts. Silver

alloy self-cleaning contacts guarantee permanently low contact resistance with little contact wear. Double-break per contact stage. Very high level of longterm stability of switching parameters. Operator-independent switching action. Forced opening of contacts when switching on and off. Compact design with standard overall height for all capacities. Complies with IEC 60947-3 and VDE 066. Applicable for systems conforming to IEC 60364-7-712:2007.

# **NON-CONTACT SAFETY SWITCH SOLUTIONS**

#### COMITRONIC - BTI

#### **RFID SAFETY LOCK SOLUTION**

#### LockGard®

Locking with SMART DIGITAL RFID KEY 16 million codes. Equipped with a self-learning system. 2-In-1. Interlocking safety device for rotary disconnect switch, power-on device, hazardous machine safeguard with input/output management by special RFID key control up to 16 million codes.

#### Conformity:

ISO 13849-1 2013 EN 62061/A2 2015 EN 60947-5-3 2014 ISO 14119 2013 SIL3 PLe with AWAX26XXL/ **AWAX SOFT** 

#### © COMITRONIC - BTI

#### **NON CONTACT SAFETY** SWITCH W/HOLDING FORCE

- · 40N integrated stainless steel magnetic door holding
- Level of performance with AWAX controller: up to PL = e
- Up to 4 with an AWAX controller
- · Dangerous failure time: MTTFd = 360 years
- Max. activation distance: 3 mm, 2 mm hysteresis
  - Holding force: transmitter +
- receiver in contact = 40N Safety contacts/diagnostics:
- 2 x NO 0.8A max / 48V redundant and 1 x PNP 250mA

#### COMITRONIC - BTI

#### **AMX - SAFETY SWITCH** STAND ALONE

Controls the position of hazardous machine doors/cases with integrated self-checking Contactless coded sensor with electronic technology and relays IP68 PA6 /

IP69K INOX316L Performance level and category without external controller: Cat 3 PL=d according to ISO 13849-1



#### COMITRONIC - BTI



#### INTERLOCK-KAR

This interlocking system uses a bolt detection device with the ACOTOM technology process. This guarantees a contactless connection with a type 4 coding according to ISO 14119.

Interlock-KAR thanks to the Axkef FRID coding system (RFID technology with 16 million codings) makes it possible to have a customizable strike.







# **SAFETY SOLUTIONS FOR EV / BESS / SOLAR INDUSTRIES**



ISC, Inc. has been providing unique solutions to evolving industries since 1994 and work with international partners to find the next set of solutions. Insulation monitoring devices for EV charging -BESS, generators, solar farms, IT systems, etc. Innovative timely solutions with such features as Modbus, UL2231, etc.

Visit: IndustrialSafetyControls.com

## DOLD &

#### **INSULATION MONITOR RN 5897/300**

- DC charging stations, 52,5 mm
- Response value: 1 500 k $\Omega$
- IMD type: AC, DC, AC/DC
- Auxiliary voltage: AC/DC



# DOLD &

#### **INSULATION MONITOR LK 5895**

- Photovoltaic systems, 90 mm
- Response value: 1 250 k $\Omega$
- IMD type: AC, DC, AC/DC
- · Auxiliary voltage: DC



# DOLD &

#### **INSULATION MONITOR RN 5897/320**

- DC charging stations, 52,5 mm
- Response value: 1 100  $k\Omega$
- IMD type: AC, DC, AC/DC
- Auxiliary voltage: DC, AC/DC



# DOLD &

#### INSULATION MONITOR RN 5893 (MODBUS)

- DC charging stations, 52,5 mm
- Response value: 1 500  $k\Omega$
- IMD type: AC, DC, AC/DC
- Auxiliary voltage: AC/DC



# DOLD &

#### BATTERY SYMMETRY MONITOR UH 9830

- · Monitoring of battery energy storage systems (BESS)
- Configurable for common battery / accumulator voltages
- Large battery voltage ranges up to DC 1000 V
- Wide auxiliary voltage & temperature application range



## DOLD & **DC VOLTAGE RELAY.**

# **FOR MODBUS**

- UG 9431 VARIMETER PRO series
- Easy parameter setting, monitoring, diagnosis via Modbus RTU interface
- Monitors overvoltages/undervoltages as well as voltage range violations





# SAFETY SOLUTIONS FOR THE CONVEYOR INDUSTRY



ISC, Inc. has been specializing in safety solutions for the conveying, palletizing, material handling, machinery and robotic application for over three decades. We have the solutions and knowledge.

Visit: IndustrialSafetyControls.com

### DOLD 🕸 **UH6900 WIRELESS** (PAIR OR GROUP MODE)

- SIL3 Cat4 PLe
- · Safety wireless system
- Up to a 1,000 meter range





# **SLACK CABLE**

- · Manual reset required
- Rated for up to 200 ft. for each direction





#### **INLINE CABLE SWITCH**

- NEMA Type 4 indoor use, IP 65
- Pre-wired for guick and easy installation
- Broken cable detection and slack cable versions



#### **EMERGENCY STOP BUTTON**

· With integrated interlock and lockable feature





#### **BROKEN CABLE/ROPE** DETECTION

- 2 NO + 2 NC
- Manual reseT
- For emergency stop applications







# **SAFETY SOLUTIONS FOR THE ROBOTICS INDUSTRY**



ISC, Inc. has been specializing in safety solutions for machinery and robots of all types since 1994. Traditional solutions or with safety wireless systems, interlocking/ lockable e-stops and beyond, we are your source for safety solutions.

Visit: IndustrialSafetyControls.com

# DOLD &

#### **UH6900 WIRELESS** (PAIR OR GROUP MODE)



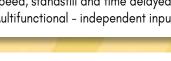
- Up to a 1,000 meter range
- Auxiliary voltage: AC/DC



# DOLD &

#### **SAFETY RELAYS**

- 8-36VDC for mobile robots
- Emergency stop safety switches
- · Speed, standstill and time delayed
- Multifunctional independent inputs/outputs





#### **EMERGENCY STOP WITH** INTEGRATED INTERLOCK

- Lockable
- 30mm



# DOLD &

#### SAFEMASTER STS

- Interlocking solutions
- Mechanical trapped key
- · Electrical & latching, electromechanical
- · Integrated command functions



## DOLD &



#### SAFEMASTER STS SOLUTIONS

- · Reliable safety switch and key transfer system
- For harsh environments
- · Highest safety standards
- · Complies with all standards





MHAND

- SIL2 Cat3 Pld
- Safety wireless e-stop
- Incorporates 4 additional non-safety wireless control functions
- · Range: 100 meters





# SAFETY SOLUTIONS FOR:

# **Autonomous IMRs, Robots, Industrial Machinery & Autonomous AG Machinery**



Industrial Safety Controls, Inc. has been an industry leader in the machine safety world for nearly three decades. Our commitment to industrial and AG industry safety requirements, including autonomous industrial mobile robots and autonomous AG Industry Equipment is at the forefront. Our innovative approach, knowledge of workable safety solutions and understanding of industry safety standards allows us to ...be a valued resource. Please contact us to discuss your requirements.



#### UH6900 – Group Mode

SIL3 Cat4 PLe Safety Wireless System 800 meter range outdoor - e-stop signal. Can be sent to 255 other motors, drives, robots, etc.

#### **EMERGENCY STOP BUTTON**

Extremely robust. Integrated lockout feature. Option of fail safe contact block







#### **UH6900 - Pair Mode**

SIL3 Cat4 PLe Safety Wireless System 1.000 meter range outdoor.



SIL2 Cat3 Pld Safety Wireless E-Stop Also incorporates 4 additional non-safety wireless control functions. Range: 100 meters.





#### **SAFETY RELAY**

SIL3 Cat4 PLe 17.5mm in width. Operating voltage DC8-36V

#### **3D RADAR SYSTEM**

The world's first safe 3D radar system, LBK, was developed for monitoring hazardous areas in harsh industrial and outdoor



environments. It detects the bodies of persons and monitors the protected area for access and presence. Up to 6 sensors can be combined via one controller.

# Machine - Robot - Processing SAFETY EVALUATION

Industrial Safety Controls, Inc. has been performing "Machine Safety Evaluations" since the late 1990s. Providing safety solutions for a broad range of applications since 1988.

# WHAT IS THE DIFFERENCE BETWEEN A RISK ASSESSMENT AND A MACHINE SAFETY EVALUATION?

**Risk Assessment** is a complete in depth look at every aspect of the machine from operator-maintenance interactions, to fall-slip-trip hazards, chemical exposure, proper PPE and analyzing all task associated with the machine. Identifying the hazards, methods to protect against the hazards and providing a safe work environment. This is the very condensed definition of a Risk Assessment.

Machine Safety Evaluation is a focused look at the hazards associated with the moving aspects of the machine, robot, processing line, etc. and identifying the hazards that operators, maintenance, cleaning and other personnel are exposed to in their expected duties and potential hazards for the unexpected. Evaluate the current guarding, protective/safety practices, lockout/tag out and effectiveness in areas of operating and maintaining the machine safely.

In addition to an observation of the machine running, we will also ask a series of questions to best understand the requirements of the job to operate and a production level that is required. Come to better understand the maintenance, set up and cleaning tasks - guarding in place and potential hazard that could be present.

After identifying areas that need attention, a brain-storming session will take place to discuss all the potential safety solutions. Determining the pros and cons of each before reaching a solution. The solutions will be supported by current industry safety standards and common practices.

When addressing the safety needs of very old machinery, it can be a more difficult task due to the technology of the machine, etc., but we will provide solutions that enhance the safety and create a safer workplace.

Over the years, we have served industries from the steel, food, automotive, high tech, robotic and more.

We stay current on all the industry safety standards, machine safeguarding solutions, etc.



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#### **FEE STRUCTURE**

Our fee structure is based on the following and includes the time in our office researching and generating a final report.

#### MACHINE SAFEGUARDING EVALUATIONS

Evaluate as many machines, etc. during this designated time frame.

Half Day (1-4 hours)
- \$800.00

Full Day (5-8 hours)
- \$1,500.00

Plus travel related expenses and any overnight travel: add \$200.00 to stated fee.

Contact Brian Thomas at:

or call 262-456-0927 to learn more about these services and to discuss your application and requirements.

