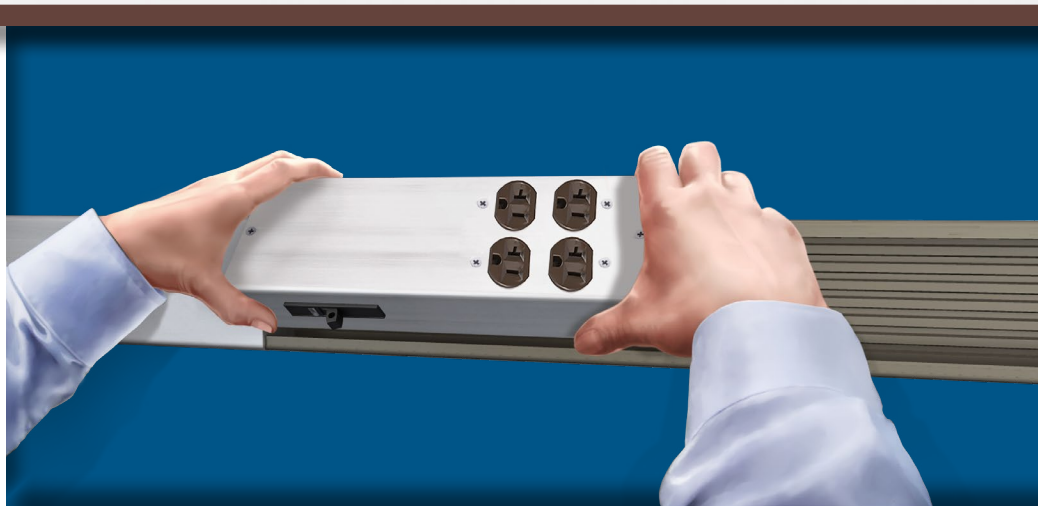
STARLINE®
PLUG-IN RACEWAY

Product Selection Guide



STARLINE® PLUG-IN RACEWAY

INTRODUCTION

At A Glance

- Designed to meet the ever-changing power distribution and datacom needs of research, pharmaceutical, university, hospital, and data labs.
- Add or relocate plug-in modules anywhere on the raceway at anytime – without turning off power.
- Plug-in modules are available in single phase and three phase.
- Optional datacom channel is available for data, video, and audio applications.
- Tested to meet NEC and UL standards and carries the ETL mark.
- Tested for IEC 61534-1 standard for Powertrack system
- Is re-locatable and scalable making it one of today's most "green" products on the market.
- Registered member of U.S. Green Building Council.
- 20 and 60 Amps (20 and 63 amps for IEC applications). 120V single phase, 480V 3 phase domestic/415V International; 3-phase.
- Elbows and end feeds can be cut in the field for a precise fit.
- Standard colors are metallic silver, black and white. Custom colors also available.
- A steel EMI shielding is available to separate raceway channels.
- Lengths available in 2.5, 5 and 10 ft. or 1, 2, and 3 meters
- Optional isolated ground.
- System is manufactured in the USA.

Introduction

The next generation in raceway systems is STARLINE Plug-In Raceway from Universal Electric Corporation (UEC) that was created to meet the ever changing power distribution and datacom needs of research, pharmaceutical, university, hospital, data, and other labs.

This innovative design offers a flexibility that no other product on the market offers – the ability to add or relocate plug-in modules anywhere on the raceway quickly and easily without running additional wire or cables. STARLINE Plug-In Raceway not only offers flexibility, additional benefits are:

- Safe Fingerproof Design
- Reduced Installation Costs
- Low Cost of Ownership
- Reliability
- Aesthetically Appealing
- Re-locatable/Scalable
- Safety and Convenience

This Product Selection Guide was developed to help the design engineer understand and consider all of the options available with STARLINE Plug-In Raceway when designing a system.

This guide includes many of the available options; however, UEC excels at collaborating with design engineers to provide solutions for any application. If you have a need that is not found in this guide, please contact us at **1-800-245-6378** or email us at info@uecorp.com. We will be happy to answer your questions over the telephone or schedule a visit with one of our local representatives.

Also, if viewing this guide in print, please keep in mind that this is a working document. UEC reseves the right to change information and descriptions of listed services and products. The latest version of this guide is available for download at http://downloads.uecorp.com/starline/raceway/.

Our goal is to provide you with Flexible Power Solutions – no matter what your design strategy may be. We welcome any comments regarding additional material that you feel should be included to help gain a more comprehensive understanding of STARLINE Plug-In Raceway. Please direct comments to **info@uecorp.com**.

STARLINE® PLUG-IN RACEWAY

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FREQUENTLY ASKED QUESTIONS

Q: What different versions of Plug-In Raceway are available?

A: Starline Plug-In Raceway is available in 'power only' or 'power & data' systems. Optional EMI shielding is available to separate the power/data raceway channels. Starline also offers many types of plug-in modules, allowing customers to specify any type of receptacle or breaker they desire.

Q: What are the benefits to having localized circuit protection in the plug-in modules?

A: By having local circuit protection, the user can control each plug-in module at their workstation and each workstation is unaffected by changes being made to an adjacent outlet. This allows elimination of a panel, which further reduces costs.

Q: During initial construction, how easy is the Starline Plug-In Raceway system to install versus other pre-wired products?

A: During construction, customers can add or change locations of plug-in modules without having to rewire. Also, with our field cutting kits, contractors can adjust lengths in the field, allowing for construction tolerances, saving time, and reducing errors.

Q: How does Starline's system compare in installation time to other similar pre-wired products?

A: It takes much less time to install compared to other pre-wired raceway systems. Starline Plug-In Raceway is a patented, pre-wired type of design, utilizing a smaller number of parts vs. other systems. And the plug-in modules literally snap into place, with no wiring required.

Q: After installation of an existing system, how easy and flexible is the Starline Plug-In Raceway system versus other pre-wired products?

A: The Starline Plug-In Raceway system is an investment that allows you to add, reconfigure, or relocate power receptacles anywhere you need it. It improves your ability to meet future and constantly changing facility needs.

Q: When adding plug-in modules to an existing system, is it necessary to turn the power off?

A: No, Starline Plug-In Raceway modules are finger-safe, so users can add plug-in modules simply by snapping the pre-assembled module into place on the raceway backplane. Plug-in modules are so easy to install, that outside labor after construction is not required.

Q: What amperage is available?

A: Starline Plug-In Raceway is 100% continuous duty rated and is available in 20 and 60 Amps (20 and 63 amps for IEC applications). 120V single phase, 480V 3 phase domestic/415V International; 3-phase.

Q: Is Starline Plug-In Raceway available with Isolated Ground?

A: Yes, it is available with or without an isolated ground bus.

Q: How does Starline Plug-In Raceway account for polarity?

A: This product was designed with polarity issues in mind. In each section of the raceway, (elbows, end feeds, center feeds) an easily identifiable groove indicates the polarity. In general, the polarity of the sections faces toward the ground when mounting the system to a vertical surface.

Q: Can the raceway be cut in the field?

A: Yes. Please see the Field Cutting Kits & Instructions section for field cutting instructions.

Q: Is STARLINE Plug-In Raceway Certified?

A: Yes, STARLINE Plug-In Raceway has been tested to meet IEC, NEC and UL standards and carries the ETL certification mark.

Q: What colors are available?

A: The raceway is available in a standard white, metallic silver and black. Custom colors are also available.

GROUND OPTIONS: END FEED

Housing (Case) Ground/ Chassis Earth

Uses ground wire from contractor and grounds the raceway with a ring lug. Raceway has no ground copper.

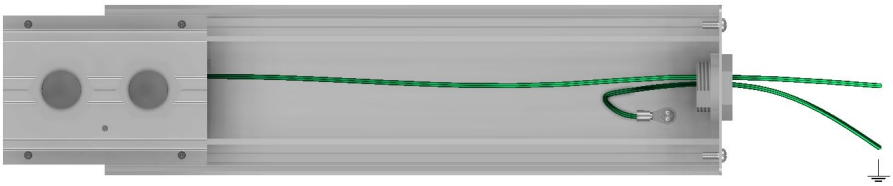
*5th clip not provided

Dedicated Ground/Earth

Uses ground wire from contractor and grounds directly to the raceway copper and then to the ring lug to ground the raceway.

Isolated Ground/Earth

Uses ground wire from contractor and grounds directly to the raceway copper. A second contractor ground wire is grounded to the ring lug, grounding the raceway.

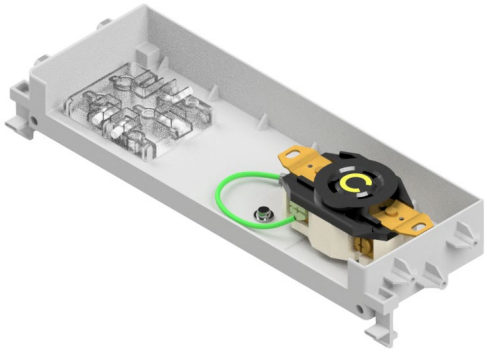


Note: Grounding to be done by installer.

GROUND OPTIONS: MODULES

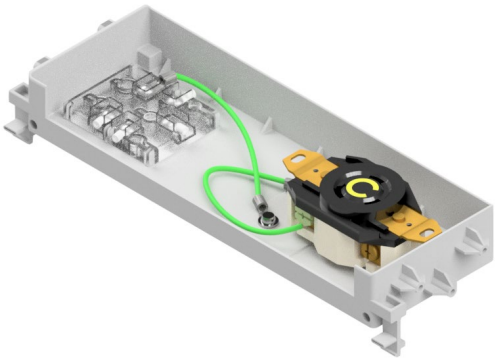
Housing (Case) Ground/ Chassis Earth

Uses the ground tab to ground the receptacle and enclosure to the raceway.



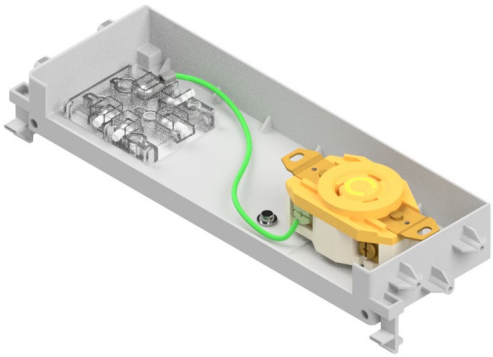
Dedicated Ground/Earth

Uses the ground tab and ground bar in raceway to ground the enclosure and receptacle.



Isolated Ground/Earth

Uses the ground bar in raceway to ground directly to the receptacle. The enclosure is grounded using a ground tab.

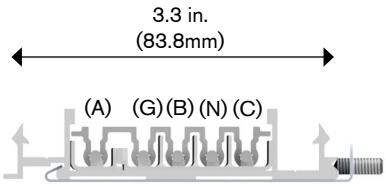


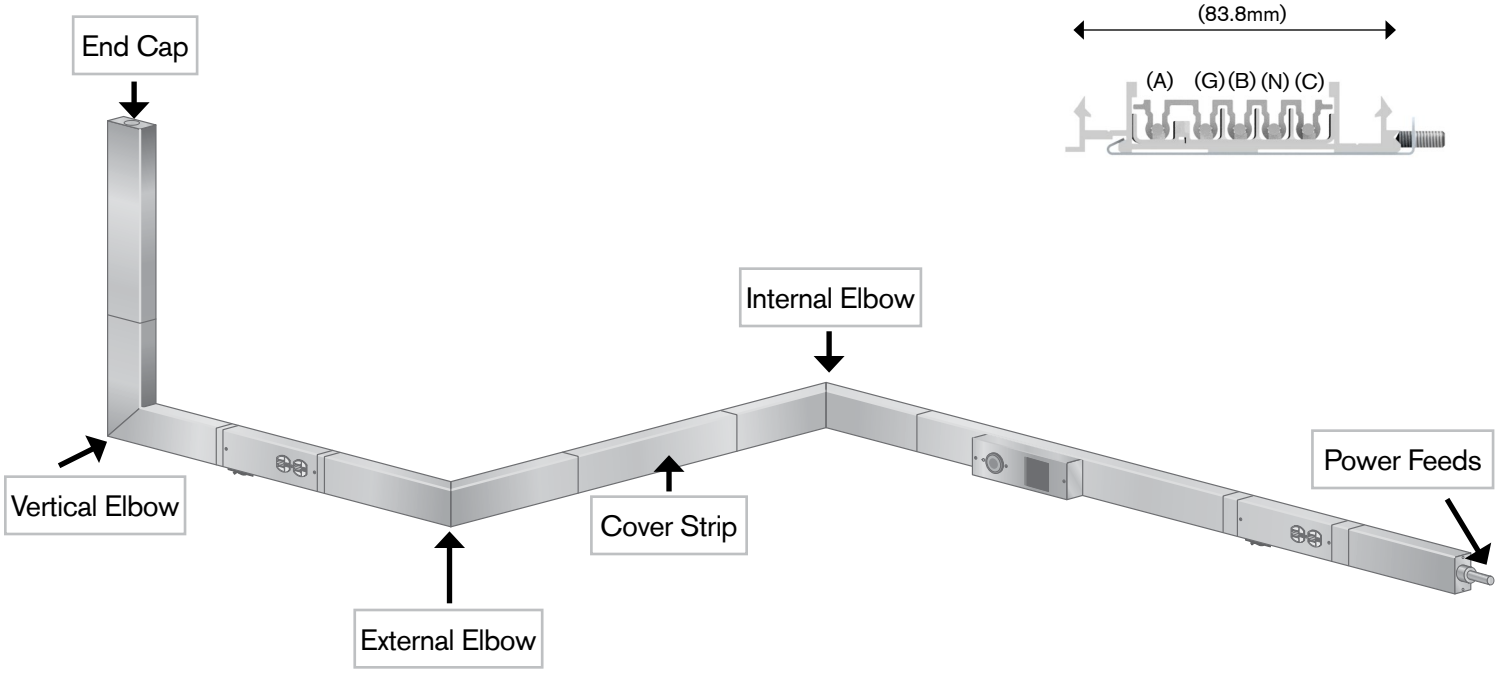
SYSTEM LAYOUT DRAWING

20 amp insulator

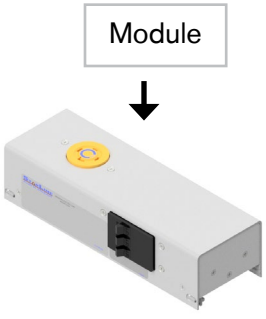
60 amp insulator

For Safety & Compatibility- PLEASE NOTE:
All catalog numbers for 20 amp Plug-In Raceway (systems & modules) must specify 20 amps (020) and all catalog numbers for 60 amp Plug-In Raceway (systems & modules) must specify 60 amps (060).





STARLINE Plug-In Raceway is available in standard lengths of 2.5, 5 & 10 feet (1, 2 & 3 meters). Various modules are offered complete with breaker and receptacle, and in both single phase and three phase configurations up to 30 amps.



INTENDED FOR INDOOR USE ONLY

STRAIGHT SECTIONS

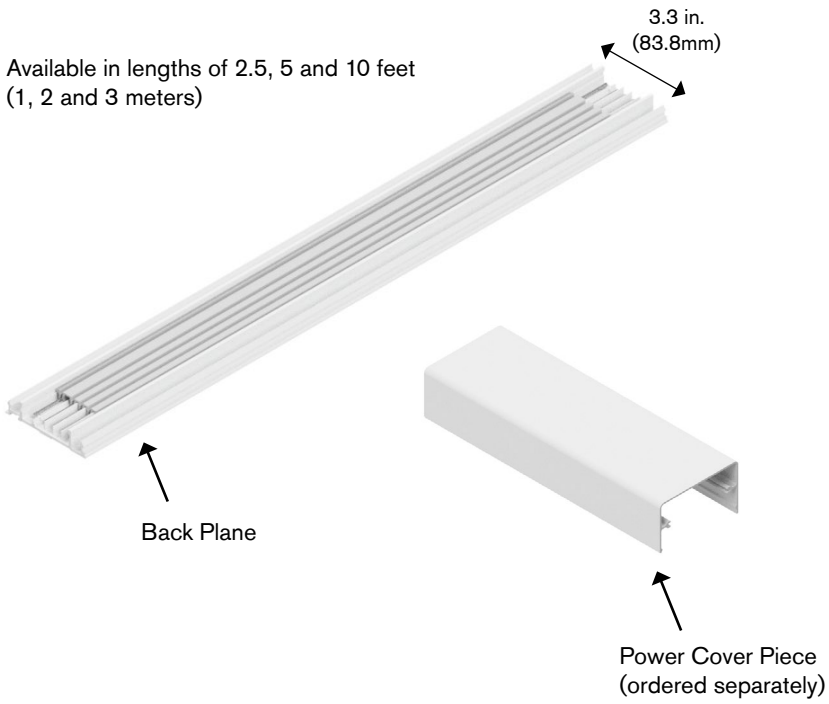
Product Description

Each Plug-In Raceway straight section consists of an extruded aluminum backplane with an insulated strip containing copper busbars. The aluminum extrusion acts as a 100% ground path. Each straight section is enclosed by means of cover pieces and plug-in modules (ordered separately). Available as 4-pole (3 phase + Neutral), and 4-pole with isolated ground conductor. Straight sections work with all ampere ratings – 20 and 60 Amp (63 Amp IEC).

Sections should be supported every 32" (813mm) max (typical wall joists are placed every 16" (406mm)). Straight sections are available in standard lengths of 2.5, 5 & 10 feet (1, 2 & 3 meters). If custom lengths are required for your project, Plug-In Raceway is also field cuttable. To learn more, please refer to pages 4.1-4.6.

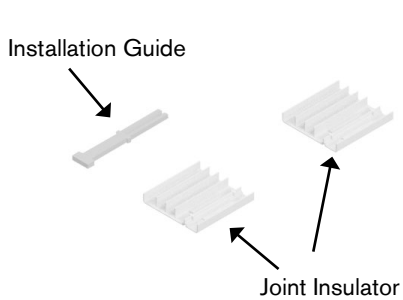
*Please note, a straight section only includes the backplane of the raceway. Cover pieces must be ordered with their own, separate part number (see pg. 2.10-2.11).

WEIGHT:
1 ft. (.3m): 1 lb/.45 kg

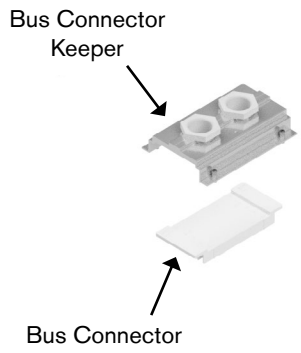


Included with Straight Section:

Components for shortening straight:



Joint Kit:



STRAIGHT SECTIONS: PRODUCT NUMBERS

U	RP	S	020	-	4	H	-	0206
1. System	2. Product Line	3. Product Type	4. Product Frame		5. Poles	6. Ground Busbar		7. Straight Length

1. System *(standard of measure)*

U	U.S.	**M**	Metric

2. Product Line *(section housing)*

RP	Raceway Power

3. Product Type *(section component)*

S	Straight

4. Product Frame *(maximum amperage)*

020	20 amps *(U.S. & Metric)*	**060**	60 amps *(U.S.)*
		063	63 amps *(Metric)*

5. Poles *(number of poles(including neutral))*

4	4 poles

6. Ground Busbar *(type of ground busbar)*

H	Housing Ground	**G**	Isolated/Dedicated Ground

7. Straight Length *(length of section)**

0206	2 ft. 6 in. *(U.S.)*	**M100**	1 meter *(Metric)*
0500	5 ft. *(U.S.)*	**M200**	2 meters *(Metric)*
1000	10 ft. *(U.S.)*	**M300**	3 meters *(Metric)*

*If custom lengths are required for your project, Plug-In Raceway is also field cuttable. To learn more, please refer to pages 4.1-4.6.

Examples:
URPS020-4H-0206 *= U.S., Raceway Power, Straight, 20 amps- 4 poles, Housing ground- 2 ft. 6 inches long*
MRPS063-4G-M300 *= Metric, Raceway Power, Straight, 63 amps- 4 poles, Isolated/Dedicated ground- 3 meters long*

ELBOW SECTIONS

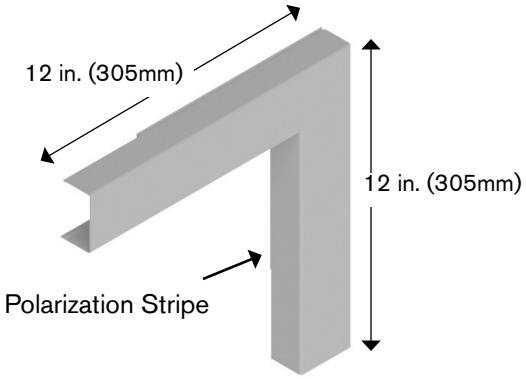
Product Description

An elbow is used for making a horizontal or vertical 90 degree change of direction in a raceway run. Specify internal or external for horizontal elbows and up or down for vertical.

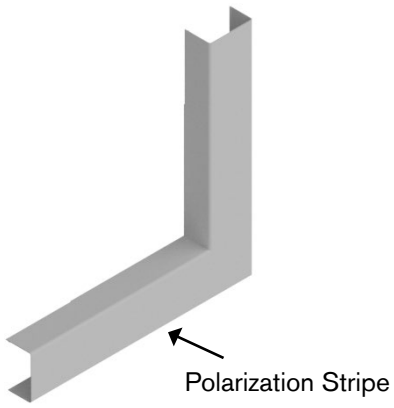
Elbows work with all ampere ratings – 20 and 60 Amp (63 Amp IEC); Elbows are 5-pole for use on systems with and without the ground bus.

All elbows have a 12 inch x 12 inch (305mm x 305mm) outside foot print and come with (2) bus connector keepers (not pictured) for easy connections to the adjacent sections and 17 inch (432mm) cover pieces. Elbows are designed to be field-cut for jobsite fitting to as-built construction.

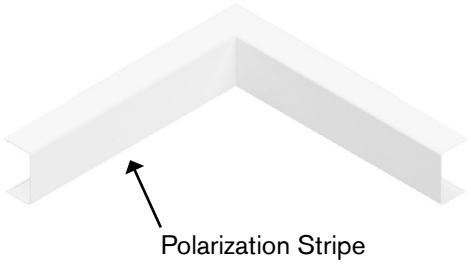
To learn more about field cutting, please refer to pages 4.1-4.6.



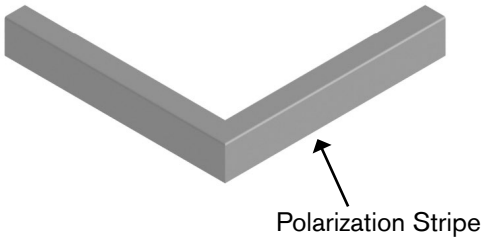
Down Turning Vertical Elbow



Up Turning Vertical Elbow



Internal Horizontal Elbow



External Horizontal Elbow

ELBOW SECTIONS: PRODUCT NUMBERS

U	RP	E	020	-	4	H	-	SIL	-	IN
1. System	2. Product Line	3. Product Type	4. Product Frame		5. Poles	6. Ground Busbar		*7. Paint Color		8. Turning Direction

1. System *(standard of measure)*
U U.S. **M** Metric

2. Product Line *(section housing)*
RP Raceway Power

3. Product Type *(section component)*
E Elbow

4. Product Frame *(maximum amperage)*
020 20 amps *(U.S. & Metric)* **060** 60 amps *(U.S.)*
063 63 amps *(Metric)*

5. Poles *(number of poles(including neutral))*
4 4 poles

6. Ground Busbar *(type of ground busbar)*
H Housing Ground **G** Isolated/Dedicated Ground

7. Paint *(color of cover)*
SIL Paint UEC Silver **BLK** Paint UEC Black
WHT Paint UEC White

**RAL system can also be used; reference page 8.1*

8. Turning Direction *(direction of elbow)*
IN Internal Horizontal **EX** External Horizontal
UP Up turning vertical **DN** Down turning vertical

Examples:
URPE020-4H-SIL-UP *= U.S., Raceway Power, Elbow, 20 amps- 4 poles, Housing ground- painted Silver- Up turning vertical elbow*
MRPE063-4G-BLK-IN *= Metric, Raceway Power, Elbow, 63 amps- 4 poles, Isolated/Dedicated ground- painted Black- Internal horizontal elbow*

UNIVERSAL END FEED KIT

Product Description

Provide an inconspicuous and fully customizable means for connecting power to the raceway busbars at the end of a run. Kit consists of a 12 in. (305mm) section of raceway, connector, wire leads, and end cap.

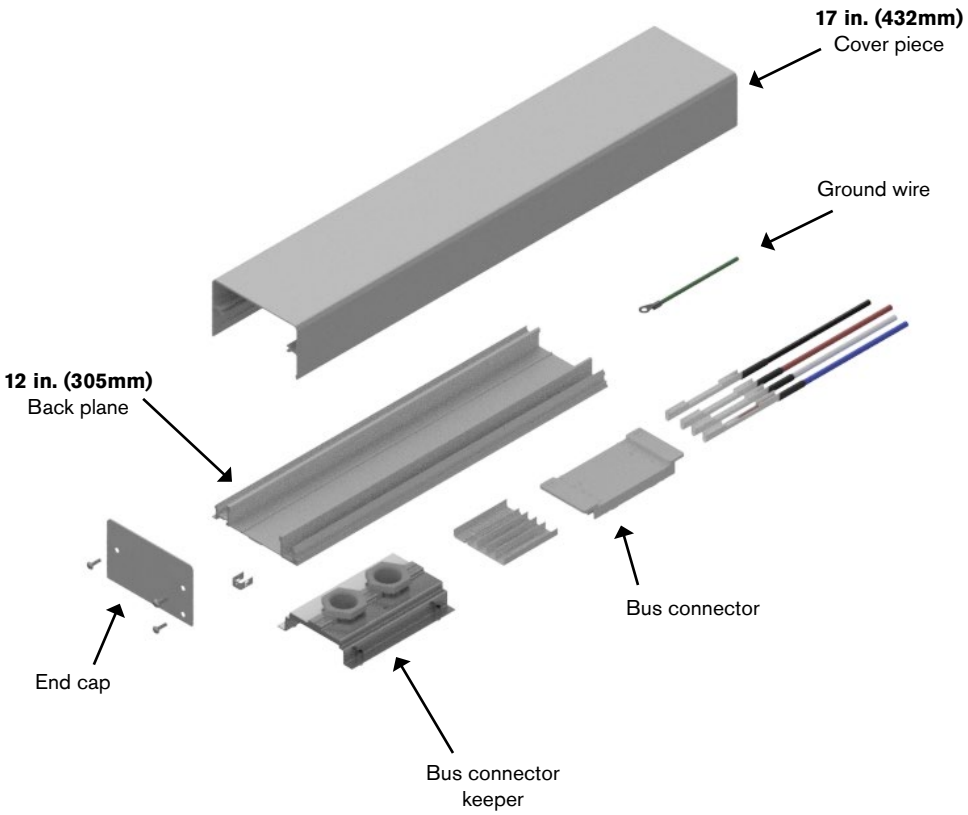
Providing components unassembled allows installers to field customize as required.

***Installer can configure for left hand, right hand, top or rear wire entry points- thus the term 'Universal'.**

End feeds work with all ampere ratings – 20 and 60 Amp (63 Amp IEC).

**Please note: cover piece will be 17 inches (432mm) long, with 5 inches (127mm) hanging over one side of the 12 inch (305mm) back plane.*

WEIGHT: 2.25 lbs/1 kg



If current monitoring is required, it must be ordered separately and at the same time as the Universal End Feed Kit. Please see pages 8.1 - 8.2 for metering options.

UNIVERSAL END FEED: PRODUCT NUMBERS

U	RP	F	020	-	4	H	-	SIL
1. System	2. Product Line	3. Product Type	4. Product Frame		5. Poles	6. Ground Busbar		*7. Paint Color

1. System *(standard of measure)*
U U.S. **M** Metric

2. Product Line *(section housing)*
RP Raceway Power

3. Product Type *(section component)*
F End Feed

4. Product Frame *(maximum amperage)*
020 20 amps *(U.S. & Metric)* **060** 60 amps *(U.S.)*
063 63 amps *(Metric)*

5. Poles *(number of poles(including neutral))*
4 4 poles

6. Ground Busbar *(type of ground busbar)*
H Housing Ground **G** Isolated/Dedicated Ground

7. Paint *(color of cover)*
SIL Paint UEC Silver **BLK** Paint UEC Black
WHT Paint UEC White

**RAL system can also be used; reference page 8.1*

Examples:
URPF060-4G-SIL *= U.S., Raceway Power, End Feed, 60 amps- 4 poles, Isolated/Dedicated ground- painted Silver*
MRPF063-4H-PK6 *= Metric, Raceway Power, End Feed, 63 amps- 4 poles, Housing ground- painted RAL 6006*

UNIVERSAL CENTER FEED KIT

Product Description

Provides an inconspicuous means for connecting power to the raceway busbars in the center of a run. Kit consists of a 12 in. (305mm) section of raceway, connector and wire leads.

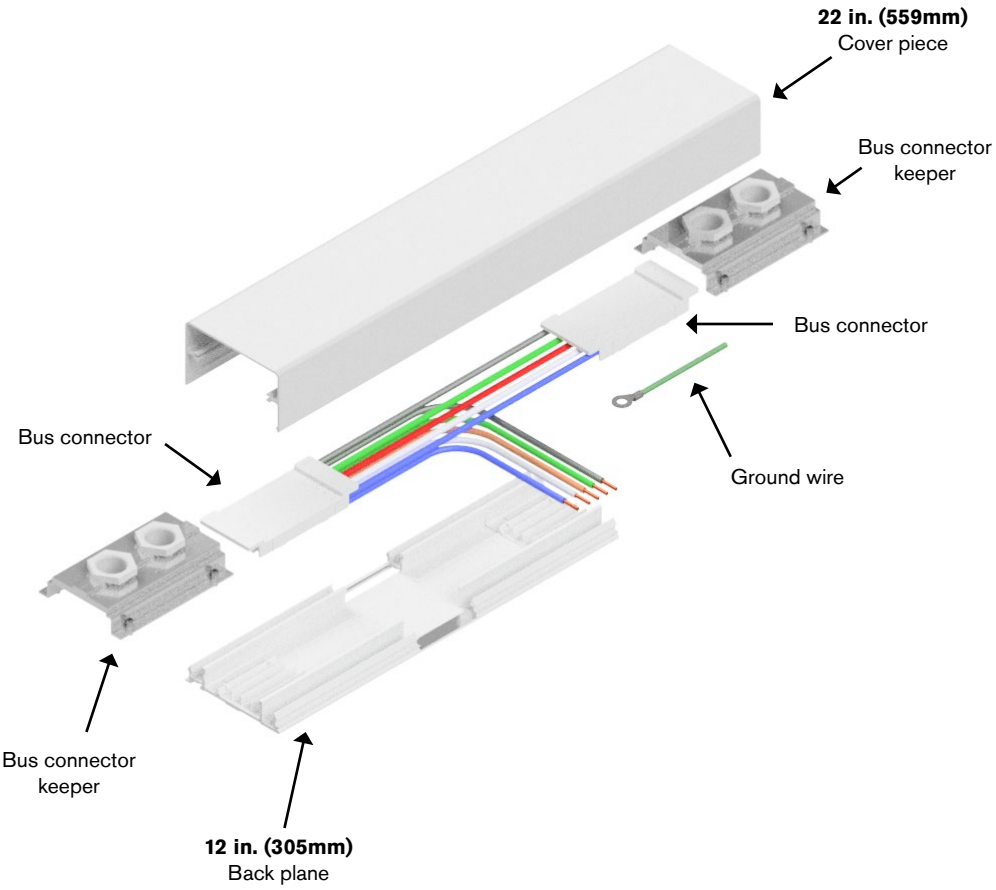
Providing components unassembled allows installers to field customize as required.

***Installer can configure for top, bottom or rear wire entry points- thus the term 'Universal'.**

Center feeds work with all ampere ratings – 20 and 60 Amp (63 Amp IEC).

**Please note: cover piece will be 22 inches (559mm) long, with 5 inches (127mm) hanging over each side of the 12 inch (305mm) back plane.*

WEIGHT: 2.25 lbs/1 kg



If current monitoring is required, it must be ordered separately and at the same time as the Universal End Feed Kit. Please see pages 8.1 - 8.2 for metering options.

UNIVERSAL CENTER FEED: PRODUCT NUMBERS

U	RP	C	020	-	4	H	-	SIL
1. System	2. Product Line	3. Product Type	4. Product Frame		5. Poles	6. Ground Busbar		*7. Paint Color

1. System *(standard of measure)*

U	U.S.	**M**	Metric

2. Product Line *(section housing)*

RP	Raceway Power

3. Product Type *(section component)*

C	Center Feed

4. Product Frame *(maximum amperage)*

020	20 amps *(U.S. & Metric)*	**060**	60 amps *(U.S.)*
		063	63 amps *(Metric)*

5. Poles *(number of poles(including neutral))*

4	4 poles

6. Ground Busbar *(type of ground busbar)*

H	Housing Ground	**G**	Isolated/Dedicated Ground

7. Paint *(color of cover)*

SIL	Paint UEC Silver	**BLK**	Paint UEC Black
WHT	Paint UEC White		

**RAL system can also be used; reference page 8.1*

Examples:

URPC060-4G-SIL *= U.S., Raceway Power, Center Feed, 60 amps- 4 poles, Isolated/Dedicated ground- painted Silver*

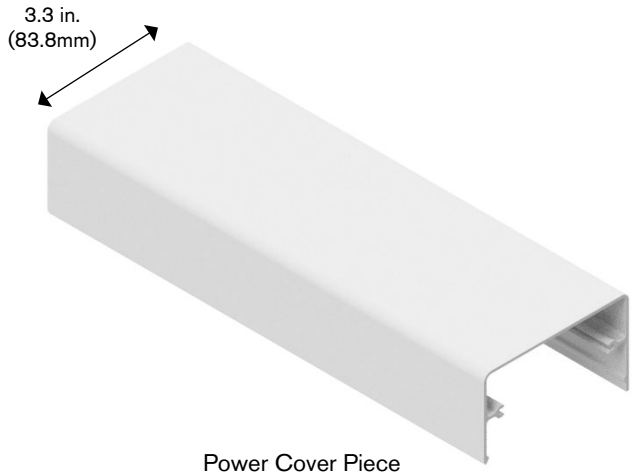
MRPC063-4H-WHT *= Metric, Raceway Power, Center Feed, 63 amps- 4 poles, Housing ground- painted White*

POWER COVER PIECES

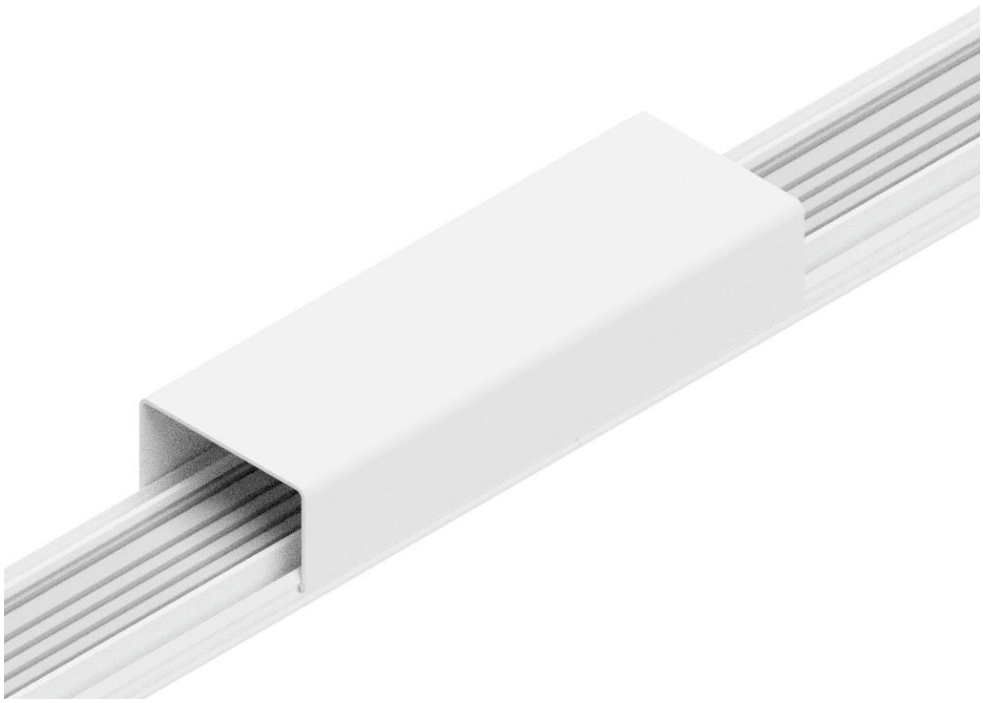
Product Description

Cover pieces are required to cover the remaining open areas that are not covered by Plug-In Modules, Feeds or Elbows. Going along with your straight pieces of Power Raceway or Power & Data Raceway, you will need to order your power cover pieces, or your power and your data cover pieces.

WEIGHT:
.55 lb/.25 kg per 10 inches (254mm)



Power Cover Piece



POWER COVER PIECES: PRODUCT NUMBERS

U **PC** - **0010** - **SIL**

1. System
2. Product
3. Length
4. Paint Color

1. System *(standard of measure)*

U	U.S.	**M**	Metric

2. Product *(section housing)*

PC	Power Cover

3. Length *(length of section)*

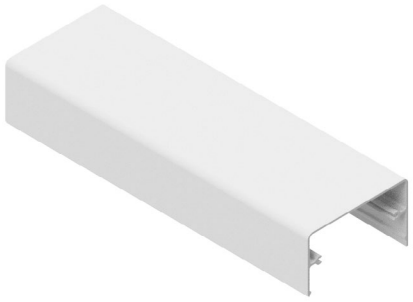
0010	0 ft. 10 in. *(U.S.)*	**M025**	25 centimeters *(Metric)*
0015	0 ft. 15 in. *(U.S.)*	**M200**	2 meters *(Metric)*
0206	2 ft. 6 in. *(U.S.)*		
0500	5 ft. *(U.S.)*		

4. Paint Color *(allows painting of the housing)*

SIL	Paint UEC Silver	**BLK**	Paint UEC Black
WHT	Paint UEC White		

**RAL system can also be used; reference page 8.1*

Examples:
UPC-0500-SIL *= U.S., Power Cover- 5 feet- painted Silver*
MPC-M200-BLK *= Metric, Power Cover- 2 meters- painted Black*



ASSEMBLY ACCESSORIES: SYSTEM HARDWARE

Joint Kit

A joint kit makes electrical and mechanical connections between raceway sections. Consists of a bus connector and bus connector keeper.

The bus connector presses and locks into place between adjoining sections. The bus connector keeper is positioned then screwed to the backplane, making the mechanical and equipment ground connections.

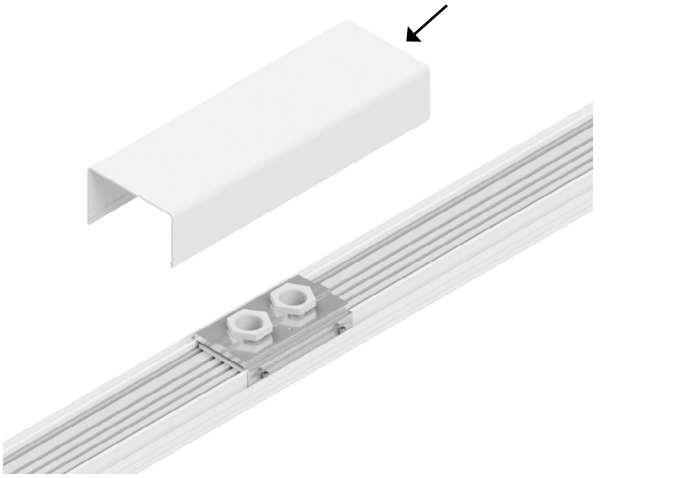
Joint kits are 5-pole for use on systems with and without the ground bus.

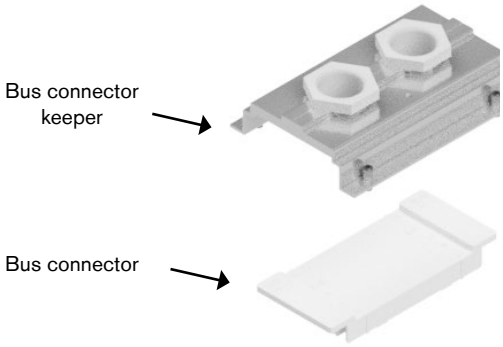
The joint kit comes in a variety of colors including silver, black, white or RAL color code.

Part Number
SRPJK-PIR-SIL
SRPJK-PIR-BLK
SRPJK-PIR-WHT

*RAL color codes can also be used

****A joint kit is provided with each straight section (see pg. 2.2)**





ASSEMBLY ACCESSORIES: SYSTEM HARDWARE

End Cap Kit

Used for covering and securing open ends of the raceway. The end cap, screws, and five red safety covers are included for a standard straight.

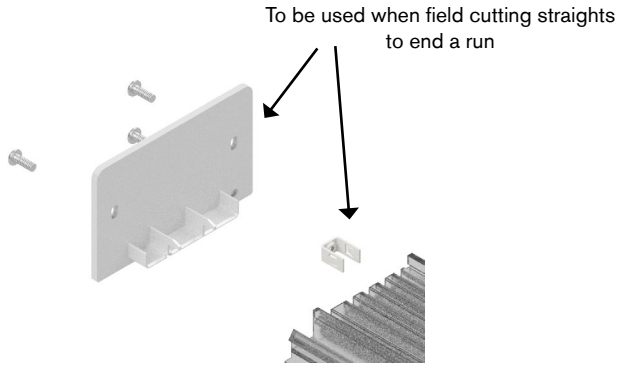
For straights that will be field cut, two end caps, screws and an end cap clip are provided.

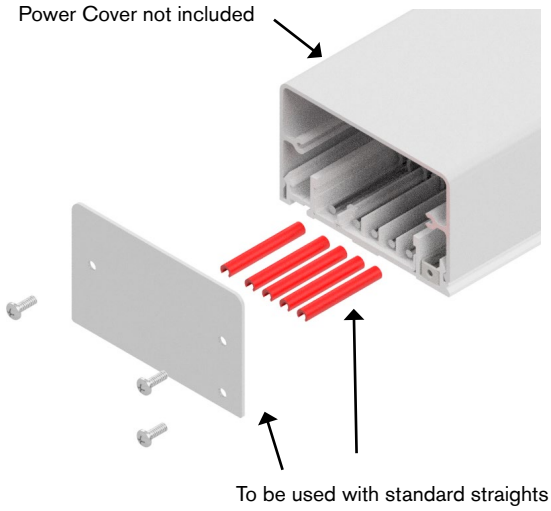
The end cap kit comes in a variety of colors including silver, black, white or RAL color code.

Part Number
SRPEC-PIR-SIL
SRPEC-PIR-BLK
SRPEC-PIR-WHT

*RAL color codes can also be used

****Kit contains parts for ending both standard and field cut straights**





ASSEMBLY ACCESSORIES: SUPPORT HARDWARE

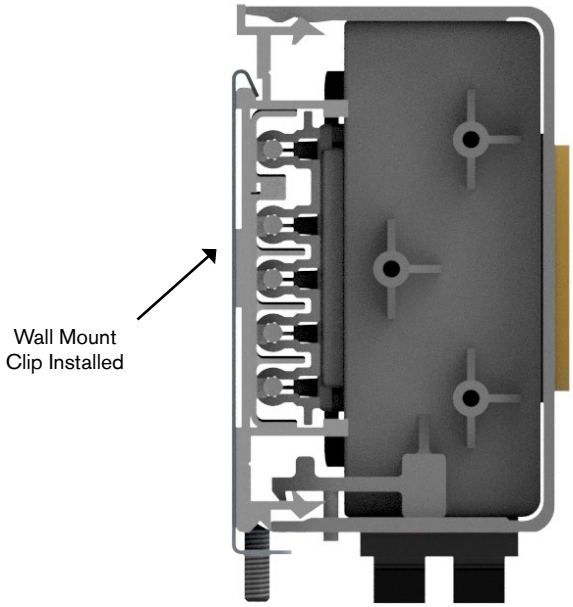
Wall Mount Clip

Sections of Plug-In Raceway may be mounted by means of wall mount clips. Use of the wall mount clips can dramatically speed up the system installation time compared to direct wall mounting.

The clip is installed by inserting two flat head screws through the clip and into the support point on the wall. The Plug-In Raceway pivots into the hook and is secured with a set screw. One wall mount clip is required every 32 inches (81 cm).

*Plug-In Raceway can also be installed by inserting screws through the backplane and directly into wall studs.

Part Number
SRPWMC-PIR



ADD-ON ACCESSORIES: ANGLED COVER

Angled Cover

The Angled Cover is perfect for clean rooms and any other environment where it's critical that dust does not build up. Angled Covers can be purchased with both Power only and Power & Data systems.

The Angled Cover comes with included brackets that are screwed into joists along the wall above the raceway. The Angled Cover then snaps onto the brackets.

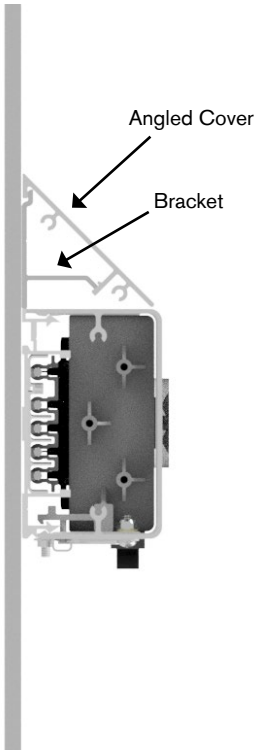
The Angled Cover can be cut to size in the field and easily reconfigured to match any layout.

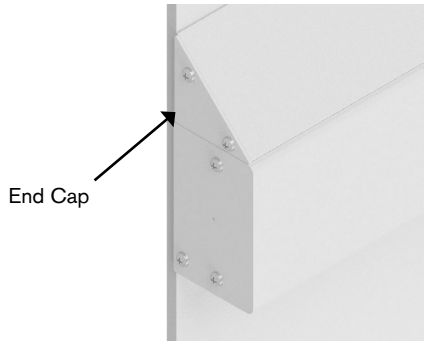
Each order of 5 ft. (2 meters) of Angled Cover comes with 2 brackets (18"[457mm] each) and an end cap.

Each order of 10 ft. (3 meters) of Angled Cover comes with 3 brackets (18"[457mm] each) and an end cap.

End caps can also be ordered separately, using the following product numbers:

SACEC-45-PIR-SIL
SACEC-45-PIR-BLK
SACEC-45-PIR-WHT





U - **AC** - **45** - **0010** - **SIL**

1. System
2. Product
3. Angle
4. Length
5. Paint Color

1. System *(standard of measure)*
U U.S. **M** Metric

2. Product *(section housing)*
AC Angled Cover

3. Angle *(angle of cover)*
45 45 degree angle

4. Length *(length of section)*
0500 5 ft. *(U.S.)* **M200** 2 meters *(Metric)*
1000 10 ft. *(U.S.)* **M300** 3 meters *(Metric)*

5. Paint Color *(allows painting of the housing)*
SIL Paint UEC Silver **BLK** Paint UEC Black
WHT Paint UEC White

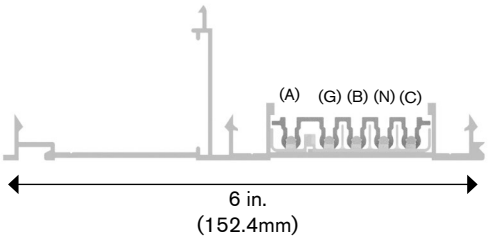
Examples:
UAC-45-0500-SIL *= U.S., Angled Cover- 45 degree angle- 5 feet- painted Silver*
MAC-45-M300-BLK *= Metric, Angled Cover- 45 degree angle- 3 meters- painted Black*

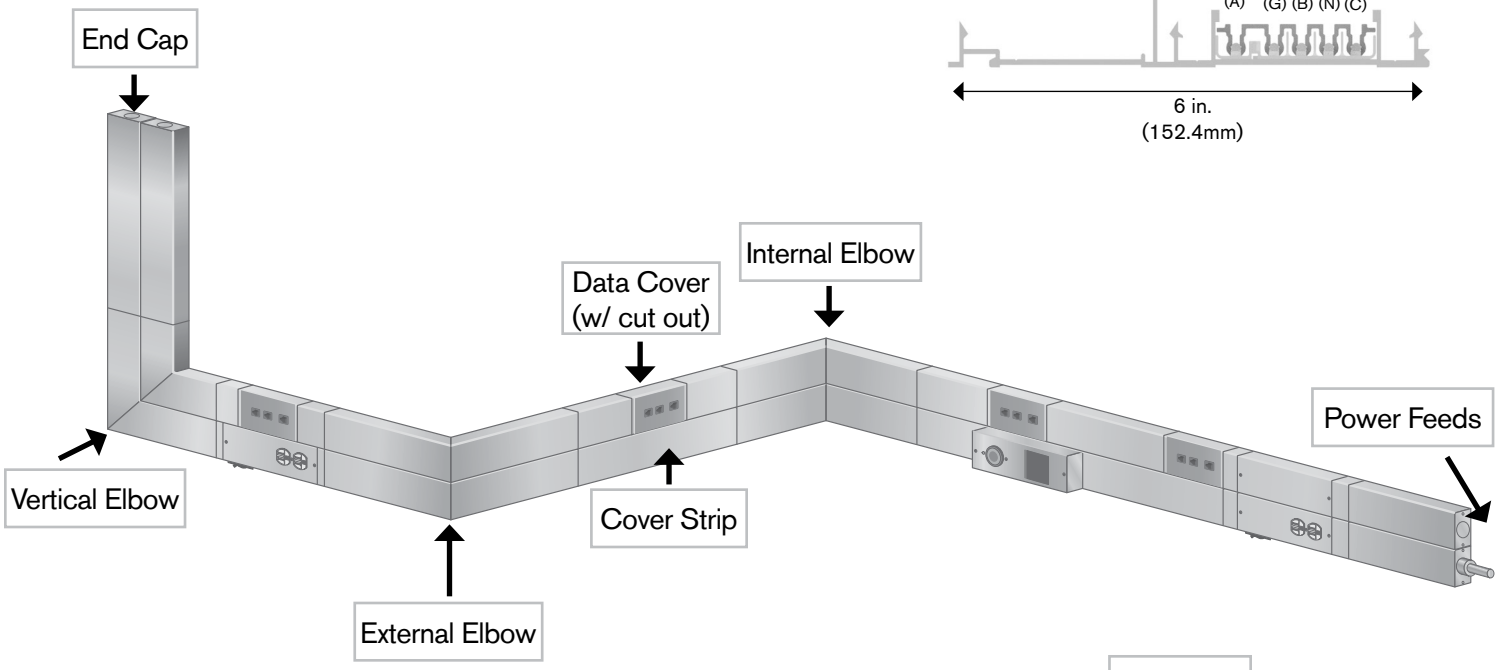
SYSTEM LAYOUT DRAWING

20 amp insulator

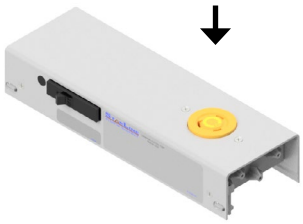
60 amp insulator

For Safety & Compatibility- PLEASE NOTE:
All catalog numbers for 20 amp Plug-In Raceway (systems & modules) must specify 20 amps (020) and all catalog numbers for 60 amp Plug-In Raceway (systems & modules) must specify 60 amps (060).





Module



Joint Kit

STARLINE Plug-In Raceway is available in standard lengths of 2.5, 5 & 10 feet (1, 2 & 3 meters). Various modules are offered complete with breaker and receptacle, and in both single phase and three phase configurations up to 30 amps.

INTENDED FOR INDOOR USE ONLY

STRAIGHT SECTIONS

Product Description

Each Plug-In Raceway straight section consists of a two-channel extruded aluminum housing. The power channel contains an insulated strip with copper busbars. The aluminum extrusion acts as a 100% ground path. The data channel provides a raceway for datacom cabling.

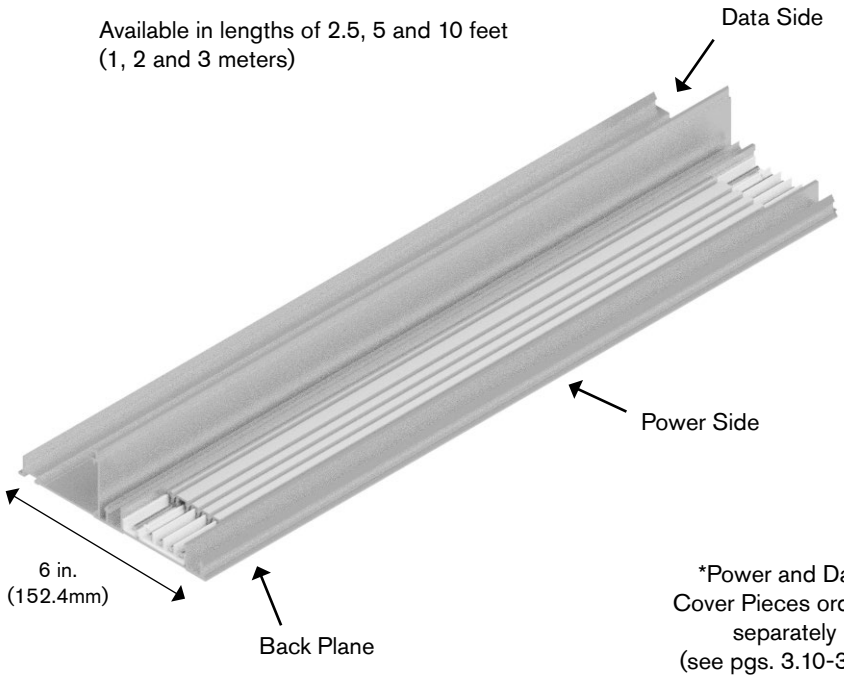
Each raceway straight is enclosed by means of cover pieces and plug-in modules (ordered separately). Power available as 4 pole (3 phase + Neutral) and 4 pole with isolated ground conductor. Straight sections work with all ampere ratings – 20 and 60 Amp (63 Amp IEC).

Sections should be supported every 32" (813mm) max (typical wall joists are placed every 16" (406mm)). STARLINE Plug-In Raceway is available in standard lengths of 2.5, 5 & 10 feet (1, 2 & 3 meters). If custom lengths are required for your project, Plug-In Raceway is also field cuttable. To learn more, please refer to pages 4.1-4.6.

*Please note, a straight section only includes the backplane of the raceway. Cover strip pieces must be ordered with their own, separate part number (see pg. 3.10-3.13).

WEIGHT:
1.5 lb/.68 kg per foot

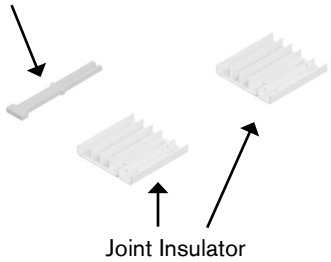
Available in lengths of 2.5, 5 and 10 feet
(1, 2 and 3 meters)



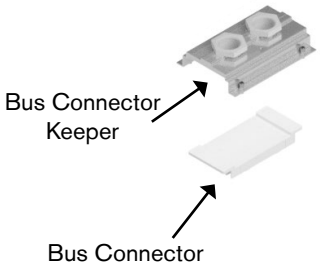
*Power and Data Cover Pieces ordered separately
(see pgs. 3.10-3.13)

Now Included with Straight:

Components for resizing straight:



Joint Kit:



STRAIGHT SECTIONS: PRODUCT NUMBERS

U	RD	S	020	-	4	H	-	0206	U
1. System	2. Product Line	3. Product Type	4. Product Frame		5. Poles	6. Ground Busbar		7. Straight Length	8. EMI Shield

1. System *(standard of measure)*

U U.S. **M** Metric

2. Product Line *(section housing)*

RD Raceway Dual

3. Product Type *(section component)*

S Straight

4. Product Frame *(maximum amperage)*

020 20 amps *(U.S. & Metric)*
060 60 amps *(U.S.)*
063 63 amps *(Metric)*

5. Poles *(number of poles(including neutral))*

4 4 poles

6. Ground Busbar *(type of ground busbar)*

H Housing Ground **G** Isolated/Dedicated Ground

7. Straight Length *(length of section)**

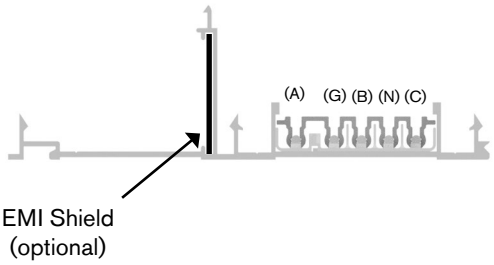
0206	2 ft. 6 in. *(U.S.)*	**M100**	1 meter *(Metric)*
0500	5 ft. *(U.S.)*	**M200**	2 meters *(Metric)*
1000	10 ft. *(U.S.)*	**M300**	3 meters *(Metric)*

8. EMI Shield *(optional shield to minimize electromagnetic radiation)*

U Unshielded **S** Shielded

*If custom lengths are required for your project, Plug-In Raceway is also field cuttable. To learn more, please refer to pages 4.1 - 4.6.

Examples:
URDS020-4H-0500U *= U.S., Raceway Dual, Straight, 20 amps- 4 poles, Housing ground- 5 feet long, unshielded*
MRDS063-4G-M100S *= Metric, Raceway Dual, Straight, 63 amps- 4 poles, Isolated/Dedicated ground- 1 meter long, shielded*



ELBOW SECTIONS

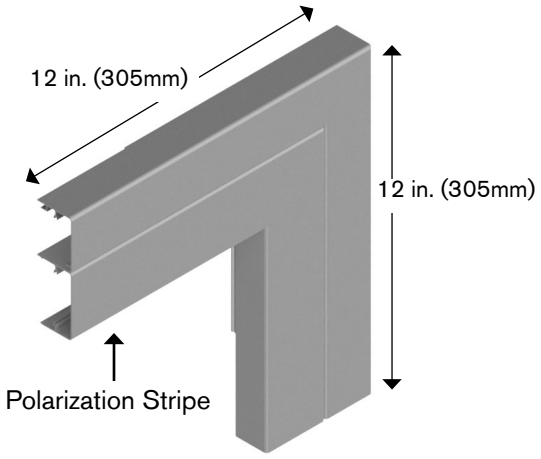
Product Description

An elbow is used for making a horizontal or vertical 90 degree change of direction in a raceway run. Specify internal or external for horizontal elbows and up or down for vertical.

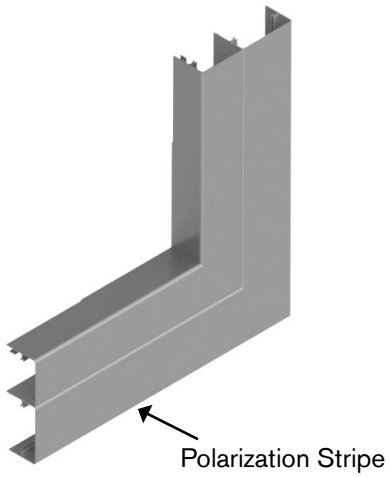
Elbows work with all ampere ratings – 20 and 60 Amp (63 Amp IEC); Elbows are 5-pole for use on systems with and without the ground bus.

All elbows have a 12 inch x 12 inch (305mm x 305mm) outside foot print and come with (2) bus connector keepers (not pictured) for easy connections to the adjacent sections and 17 inch (432mm) cover pieces. Elbows are designed to be field-cut for jobsite fitting to as-built construction.

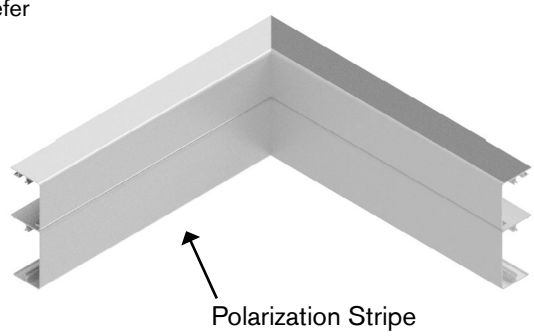
To learn more about field cutting, please refer to pages 4.1 - 4.6.



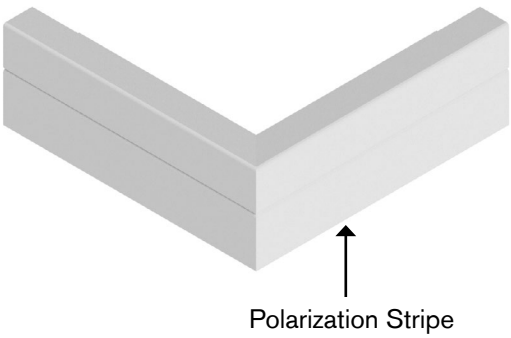
Down Turning Vertical Elbow



Up Turning Vertical Elbow



Internal Horizontal Elbow



External Horizontal Elbow

ELBOW SECTIONS: PRODUCT NUMBERS

U	RD	E	020	-	4	H	-	SIL	-	IN	U
1. System	2. Product Line	3. Product Type	4. Product Frame		5. Poles	6. Ground Busbar		*7. Paint Color		8. Turning Direction	9. EMI Shield

1. System *(standard of measure)*

U U.S. **M** Metric

2. Product Line *(section housing)*

RD Raceway Dual

3. Product Type *(section component)*

E Elbow

4. Product Frame *(maximum amperage)*

020 20 amps *(U.S. & Metric)* **060** 60 amps *(U.S.)*
063 63 amps *(Metric)*

5. Poles *(number of poles(including neutral))*

4 4 poles

6. Ground Busbar *(type of ground busbar)*

H Housing Ground **G** Isolated/Dedicated Ground

7. Paint *(color of cover)*

SIL Paint UEC Silver **BLK** Paint UEC Black
WHT Paint UEC White

**RAL system can also be used; reference page 8.1*

8. Turning Direction *(direction of elbow)*

IN Internal Horizontal **EX** External Horizontal
UP Up turning vertical **DN** Down turning vertical

9. EMI Shield *(optional shield to minimize electromagnetic radiation)*

U Unshielded **S** Shielded

Examples:
URDE060-4H-SIL-UPU *= U.S., Raceway Dual, Elbow, 60 amps- 4 poles, Housing ground- painted Silver- Up turning vertical elbow, Unshielded*
MRDE063-4G-BLK-INS *= Metric, Raceway Dual, Elbow, 63 amps- 4 poles, Isolated/Dedicated ground- painted Black- Internal horizontal elbow, Shielded*

UNIVERSAL END FEED KIT

Product Description

Provide an inconspicuous and fully customizable means for connecting power to the raceway busbars at the end of a run. Kit consists of a 12 in. (305mm) section of raceway, connector, wire leads, and end cap.

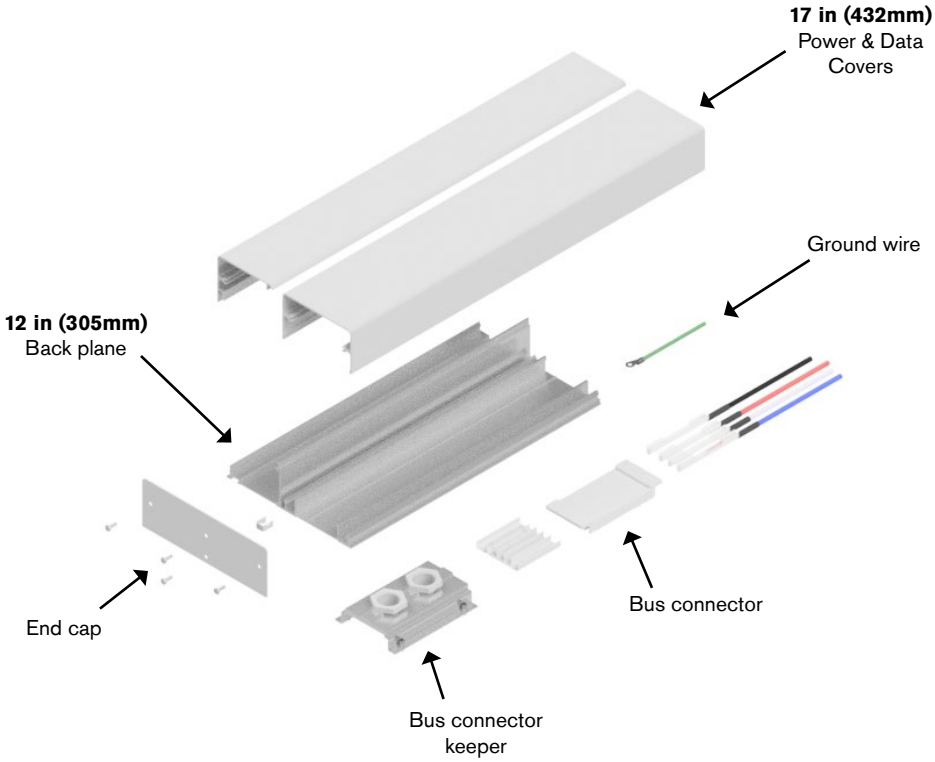
Providing components unassembled allows installers to field customize as required.

***Installer can configure for left hand, right hand, top or rear wire entry points- thus the term 'Universal'.**

End feeds work with all ampere ratings – 20 and 60 Amp (63 Amp IEC).

**Please note: cover piece will be 17 inches (432mm) long, with 5 inches (127mm) hanging over one side of the 12 inch (305mm) back plane.*

WEIGHT: 2.7 lbs/1.2 kg



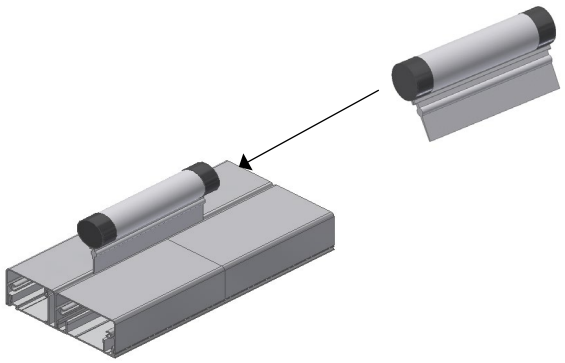
If current monitoring is required, it must be ordered separately and at the same time as the Universal End Feed Kit. Please see pages 8.1 - 8.2 for metering options.

Data Cover Removal Tool

A Data Cover Removal Tool is supplied with every Power & Data end feed.

Before moving or adding a plug-in module to a Power and Data system, the data cover(s) above the module must be removed first. Using the Data Cover Removal Tool (SRDCRT-PIR) makes the removal of installed data covers very easy.

To order additional tools, please visit pg. 3.16.



UNIVERSAL END FEED: PRODUCT NUMBERS

U	RD	F	020	-	4	H	-	SIL	-	U
1. System	2. Product Line	3. Product Type	4. Product Frame		5. Poles	6. Ground Busbar		*7. Paint Color		8. EMI Shield

1. System *(standard of measure)*

U	U.S.	**M**	Metric

2. Product Line *(section housing)*

RD	Raceway Dual

3. Product Type *(section component)*

F	End Feed

4. Product Frame *(maximum amperage)*

020	20 amps *(U.S. & Metric)*	**060**	60 amps *(U.S.)*
		063	63 amps *(Metric)*

5. Poles *(number of poles(including neutral))*

4	4 poles

6. Ground Busbar *(type of ground busbar)*

H	Housing Ground	**G**	Isolated/Dedicated Ground

7. Paint *(color of the cover)*

SIL	Paint UEC Silver	**BLK**	Paint UEC Black
WHT	Paint UEC White		

**RAL system can also be used; reference page 8.1*

8. EMI Shield *(optional shield to minimize electromagnetic radiation)*

U	Unshielded	**S**	Shielded

Examples:

URDF060-4G-SIL-S *= U.S., Raceway Dual, End Feed, 60 amps- 4 poles, Isolated/Dedicated ground-painted Silver- Shielded*

MRDF063-4H-PB8-U *= Metric, Raceway Dual, End Feed, 63 amps- 4 poles, Housing ground- painted RAL 3018- Unshielded*

UNIVERSAL CENTER FEED KIT

Product Description

Provides an inconspicuous means for connecting power to the raceway busbars in the center of a run. Kit consists of a 12 inch (305mm) section of raceway, connector and wire leads.

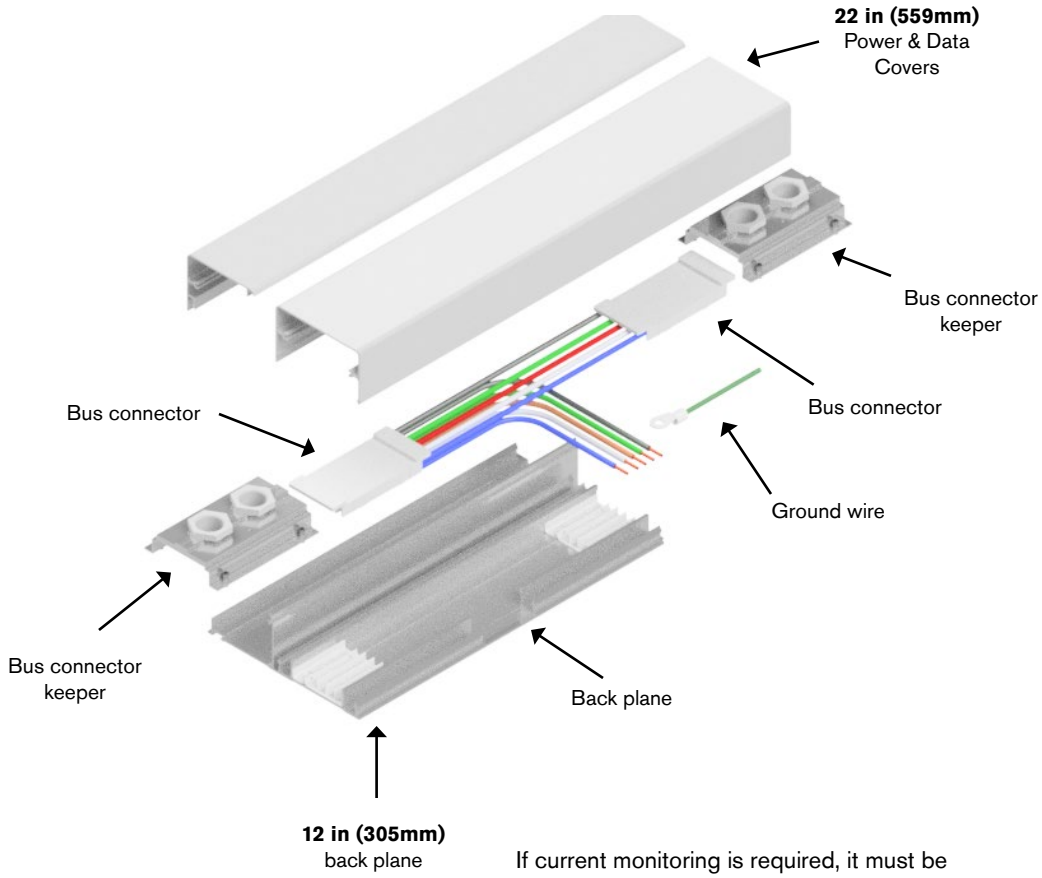
Providing components unassembled allows installers to field customize as required.

***Installer can configure for top, bottom or rear wire entry points- thus the term 'Universal'.**

Center feeds work with all ampere ratings – 20 and 60 Amp (63 Amp IEC).

**Please note: cover piece will be 22 inches (559mm) long, with 5 inches (127mm) hanging over each side of the 12 inch (305mm) back plane.*

WEIGHT: 2.7 lbs/1.2 kg



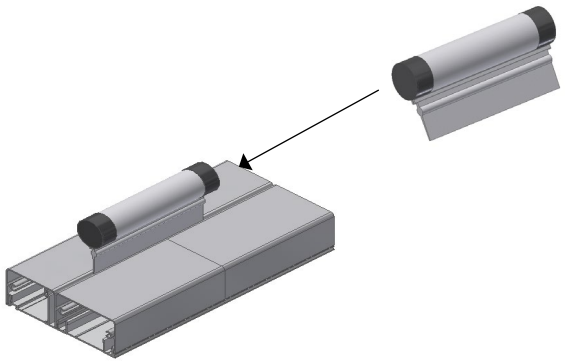
If current monitoring is required, it must be ordered separately and at the same time as the Universal Center Feed Kit. Please see pages 8.1 - 8.2 for metering options.

Data Cover Removal Tool

A Data Cover Removal Tool is supplied with every Power & Data center feed.

Before moving or adding a plug-in module to a Power and Data system, the data cover(s) above the module must be removed first. Using the Data Cover Removal Tool (SRDCRT-PIR) makes the removal of installed data covers very easy.

To order additional tools, please visit pg. 3.16.



UNIVERSAL CENTER FEED: PRODUCT NUMBERS

U	RD	C	020	-	4	H	-	SIL	-	U
1. System	2. Product Line	3. Product Type	4. Product Frame		5. Poles	6. Ground Busbar		*7. Paint Color		8. EMI Shield

1. System *(standard of measure)*

U U.S. **M** Metric

2. Product Line *(section housing)*

RD Raceway Dual

3. Product Type *(section component)*

C Center Feed

4. Product Frame *(maximum amperage)*

020 20 amps *(U.S. & Metric)* **060** 60 amps *(U.S.)*
063 63 amps *(Metric)*

5. Poles *(number of poles(including neutral))*

4 4 poles

6. Ground Busbar *(type of ground busbar)*

H Housing Ground **G** Isolated/Dedicated Ground

7. Paint *(color of the cover)*

SIL Paint UEC Silver **BLK** Paint UEC Black
WHT Paint UEC White

**RAL system can also be used; reference page 8.1*

8. EMI Shield *(optional shield to minimize electromagnetic radiation)*

U Unshielded **S** Shielded

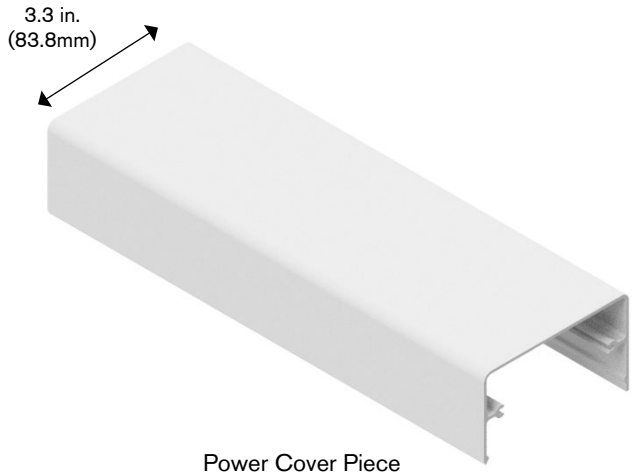
Examples:
URDC060-4G-SIL-U *= U.S., Raceway Dual, Center Feed, 60 amps- 4 poles, Isolated/Dedicated ground- painted Silver, Unshielded*
MRDC063-4H-WHT-U *= Metric, Raceway Power, Center Feed, 63 amps- 4 poles, Housing ground- painted White, Unshielded*

POWER COVER PIECES

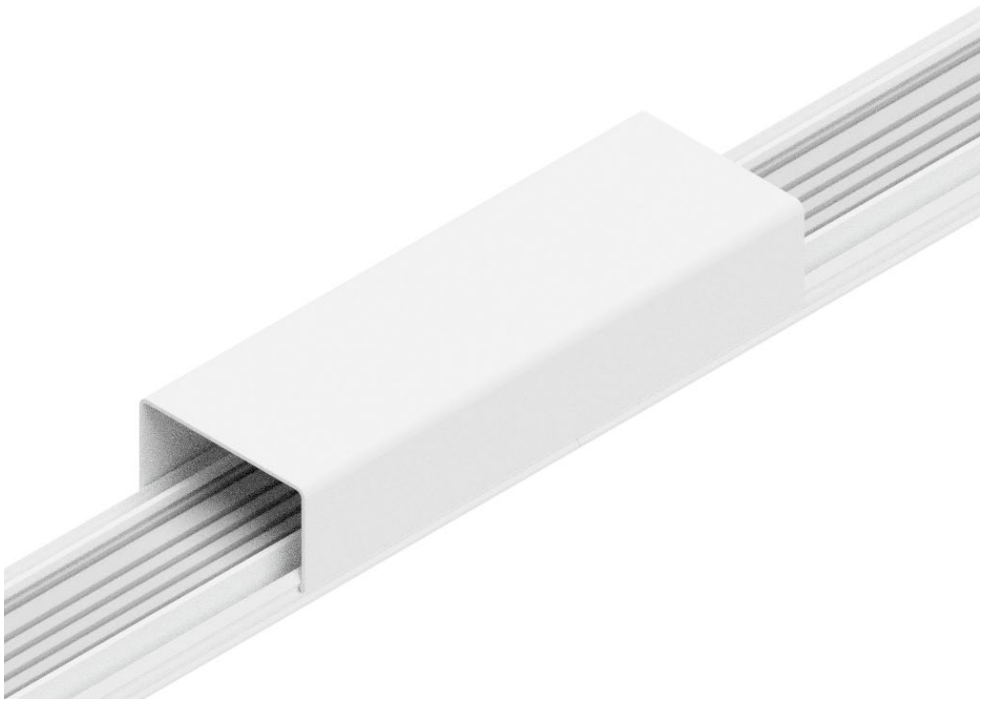
Product Description

Cover pieces are required to cover the remaining open areas that are not covered by Plug-In Modules, Feeds or Elbows. Going along with your straight pieces of Power Raceway or Power & Data Raceway, you will need to order your power cover pieces, or your power and your data cover pieces.

WEIGHT:
.55 lb/.25 kg per 10 inches (254mm)



Power Cover Piece



POWER COVER PIECES: PRODUCT NUMBERS

U **PC** - **0010** - **SIL**

1. System
2. Product
3. Length
*4. Paint Color

1. System *(standard of measure)*

U	U.S.	**M**	Metric

2. Product *(section housing)*

PC	Power Cover

3. Length *(length of section)*

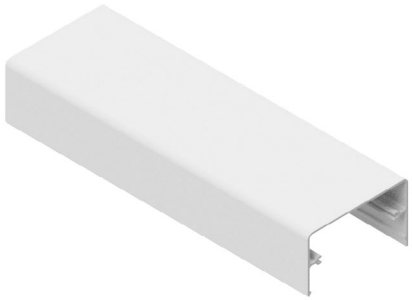
0010	0 ft. 10 in. *(U.S.)*	**M025**	25 centimeters *(Metric)*
0015	0 ft. 15 in. *(U.S.)*	**M200**	2 meters *(Metric)*
0206	2 ft. 6 in. *(U.S.)*		
0500	5 ft. *(U.S.)*		

4. Paint Color *(allows painting of the housing)*

SIL	Paint UEC Silver	**BLK**	Paint UEC Black
WHT	Paint UEC White		

**RAL system can also be used; reference page 8.1*

Examples:
UPC-0500-SIL *= U.S., Power Cover- 5 feet- painted Silver*
MPC-M200-BLK *= Metric, Power Cover- 2 meters- painted Black*



DATA COVER PIECES

Product Description

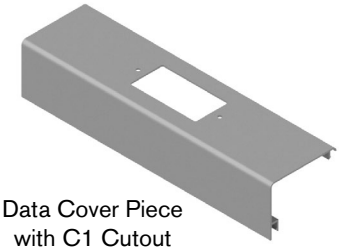
Cover pieces for data outlets are provided with a rectangular cutout sized for the target communication device. There are two cutouts available the C1 and C2. The “C1 cutout” measures 2.64”x1.320” (67.056 x 33.528mm) with mounting hole spacing of 3.28” (83.312mm). The C1 cutout is able to accept two and three port housings.

The C2 cutout is designed to accept angled modules, making it possible to meet bend radius requirements while maintaining the sleek design of the raceway. The C2 Cutout is designed to accept HUBBELL® and BLACK BOX® Modules or other manufacturer equivalent.

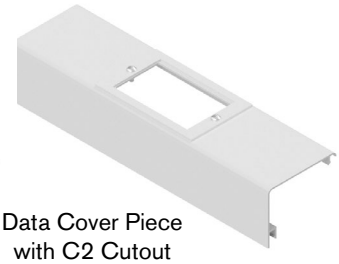
The modules and housings accept a wide variety of Data, Audio/Video, and Fiber Jacks.

WEIGHT (no cutout):
.4 lb/.18 kg per 10 inches (254mm)

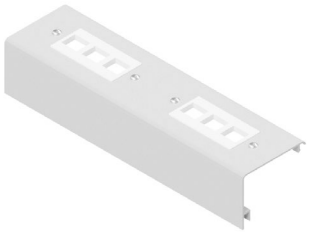
Data Cover Piece with no cutout



Data Cover Piece with C1 Cutout



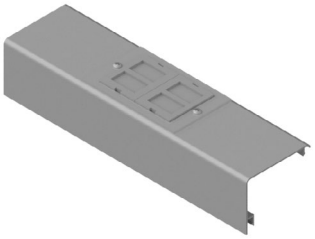
Data Cover Piece with C2 Cutout



C1 cutout with 2 ISF3W device configurations

C1 cutout with 1 ISF2BK device configuration

C1 cutout with 1 ISF2GY device configuration



C2 cutout with IM2IA15GY device configuration

C1 cutout with 1 ISF3GY device configuration

C2 cutout with IM2IA15W device configuration

Cutout	Configuration	Description
C1	ISF3B	3-port frame
C1	IM1IA15GY	1-port recessed angle, gray
C1	(2) SF3W	(2) 3-port frame, white
C1	ISF2BK	2-port frame, black
C1	ISF2W	2-port frame, white
C1	ISF3GY	outlet cover, 3-port frame, gray
C1	ISF2GY	outlet cover, 2-port frame, gray
C1	ISF3W	outlet cover, 3-port frame, white
C2	IM1IA15W	outlet cover, white
C2	IM2IA15W	2-port recessed angled, white
C2	IM2KA15GY	2-port angled, gray

BLANK DATA COVER PIECES: PRODUCT NUMBERS

U **DC** - **0010** - **SIL**

1. System | 2. Product | 3. Length | * | 4. Paint Color

1. System *(standard of measure)*
U U.S. **M** Metric

2. Product *(section housing)*
DC Data Cover

3. Length *(length of section)*
0010 0 ft. 10 in. *(U.S.)*
0015 0 ft. 15 in. *(U.S.)*
0206 2 ft. 6 in. *(U.S.)*
0500 5 ft. *(U.S.)*
M025 25 centimeters *(Metric)*
M200 2 meters *(Metric)*

4. Paint Color *(allows painting of the housing)*
SIL Paint UEC Silver **BLK** Paint UEC Black
WHT Paint UEC White

**RAL system can also be used; reference page 8.1*

Examples:
UDC-0206-SIL *= U.S., Data Cover- 2 feet 6 inches- painted Silver*
MDC-M025-BLK *= Metric, Data Cover- 25 centimeters- painted Black*

CUT-OUT DATA COVER PIECES: PRODUCT NUMBERS

U **DC** - **C1** - **0010** - **1** - **ISF3B** - **SIL**

1. System | 2. Product | 3. Cut out | 4. Length | * | 5. Quantity | 6. Device | 7. Paint Color

1. System *(standard of measure)*
U U.S. **M** Metric

2. Product *(section housing)*
DC Data Cover

3. Cut out *(cut-out size)*
C1 C1 **C2** C2

4. Length *(length of section)*
0010 0 ft. 10 in. *(U.S.)* **M025** 25 centimeters *(Metric)*

5. Quantity *(number of devices)*
1 1 device **2** 2 devices

6. Device *(NEMA or IEC configuration)*
*For a complete list of NEMA & IEC configurations, see pg. 8.1

7. Paint Color *(allows painting of the housing)*
SIL Paint UEC Silver **BLK** Paint UEC Black
WHT Paint UEC White

**RAL system can also be used; reference page 8.1*

Examples:
UDC-C1-0010-2-IM1IA15GY-SIL *= U.S., Data Cover- C1 cut out- 10 inches, 2 devices- IM1IA15GY configuration- painted Silver*
MDC-C2-M025-1-IM2IA12W-BLK *= Metric, Data Cover- C2 cut out- 25 centimeters, 1 device- IM2IA12W configuration- painted Black*

ASSEMBLY ACCESSORIES: SYSTEM HARDWARE

Joint Kit

A joint kit makes electrical and mechanical connections between raceway sections. Consists of a bus connector and bus connector keeper.

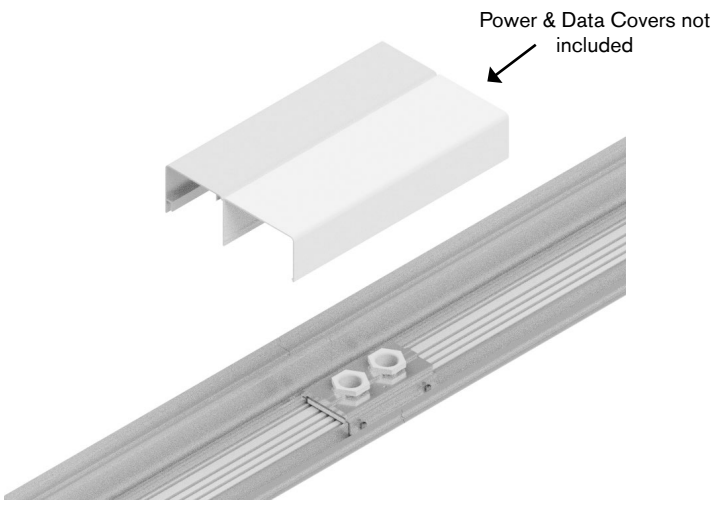
The bus connector presses and locks into place between adjoining sections. The bus connector keeper is positioned then screwed to the backplane, making the mechanical and equipment ground connections. Joint kits are 5-pole for use on systems with and without the ground bus.

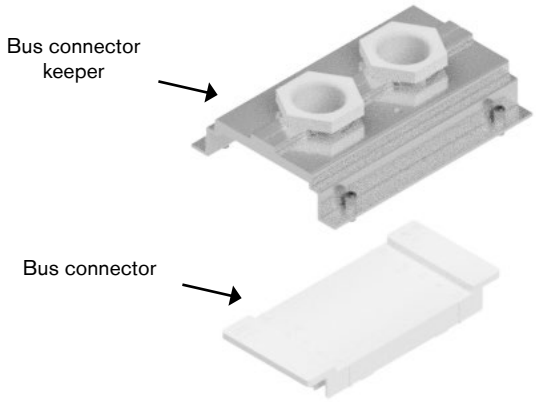
The joint kit comes in a variety of colors including silver, black, white or RAL color code.

Part Number
SRDJK-PIR-SIL
SRDJK-PIR-BLK
SRDJK-PIR-WHT

*RAL color codes can also be used

****A joint kit is provided with each straight section (see pg. 3.2)**





ASSEMBLY ACCESSORIES: SYSTEM HARDWARE

End Cap Kit

Used for covering and securing open ends of the raceway. The end cap, screws, and five red safety covers are included for a standard straight.

For straights that will be field cut, two end caps, screws and an end cap clip are provided.

A Data Cover Remover Tool is also provided for easy removal of data covers (see pg. 3.16).

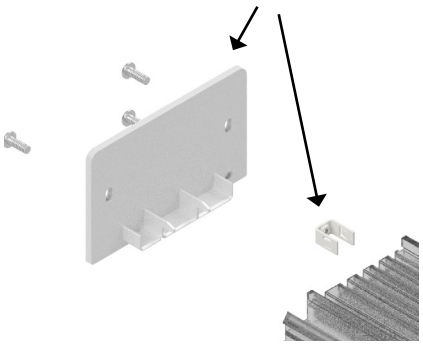
The end cap kit comes in a variety of colors including silver, black, white or RAL color code.

Part Number
SRDEC-PIR-SIL
SRDEC-PIR-BLK
SRDEC-PIR-WHT

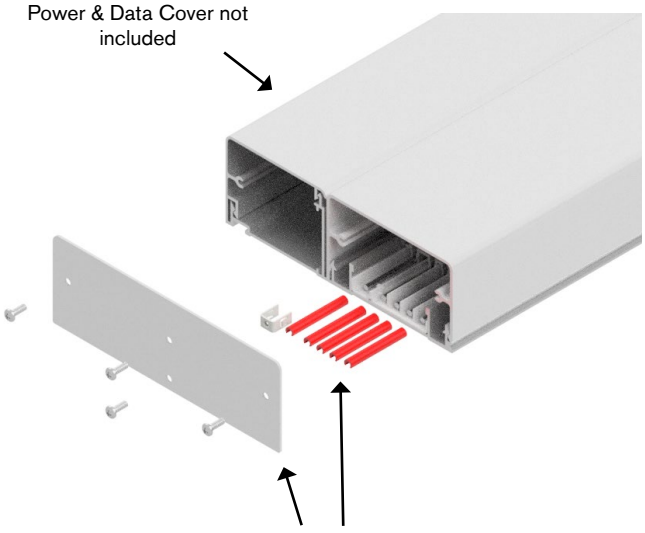
*RAL color codes can also be used

****Kit contains parts for ending both standard and field cut straights**

To be used when field cutting straights to end a run



Power & Data Cover not included



To be used with standard straights

ASSEMBLY ACCESSORIES: SUPPORT HARDWARE

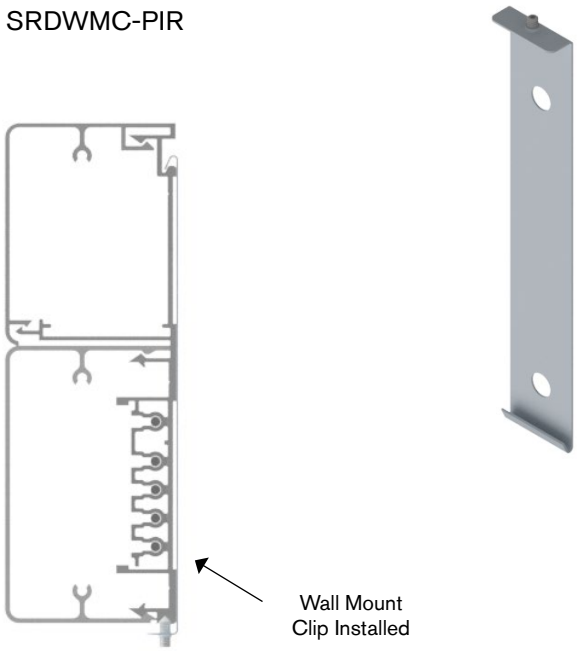
Wall Mount Clip

Sections of Plug-In Raceway may be mounted by means of wall mount clips. Use of the wall mount clips can dramatically speed up the system installation time compared to direct wall mounting.

The clip is installed by inserting two flat head screws through the clip and into the support point on the wall. The Plug-In Raceway pivots into the hook and is secured with a set screw. One wall mount clip is required every 32 inches (81 cm).

*Plug-In Raceway can also be installed by inserting screws through the backplane and directly into wall studs.

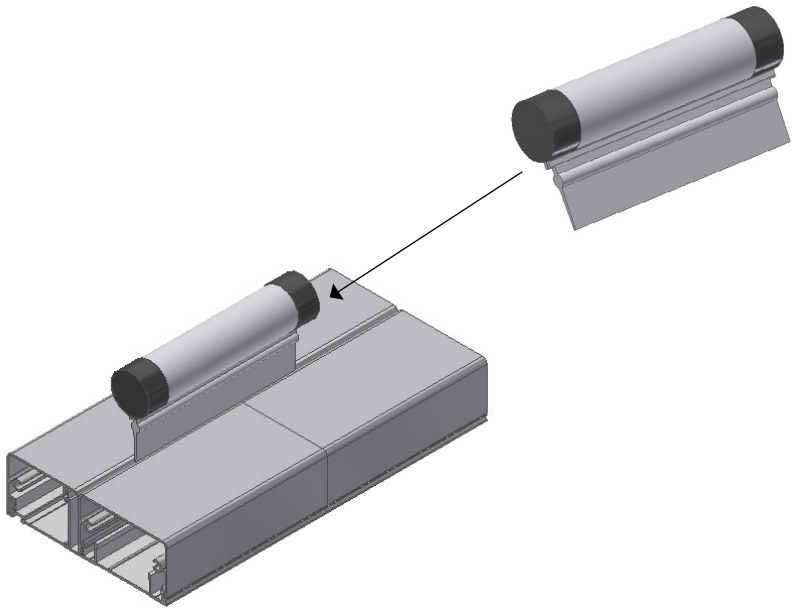
Part Number
SRDWMC-PIR



Data Cover Removal Tool

Before moving or adding a plug-in module to a Power and Data system, the data cover(s) above the module must be removed first. Using the Data Cover Removal Tool (SRDCRT-PIR) makes the removal of installed data covers very easy. One tool is provided with each purchased end cap kit, but also can be purchased separately.

Part Number
SRDCRT-PIR



ASSEMBLY ACCESSORIES: SUPPORT HARDWARE

Floor Mount Bracket

The Floor Mount Bracket can be attached to the floor or any level, flat surface and allows for a free-standing install of Plug-In Raceway- no wall required. It is recommended to have one Floor Mount Bracket every 5 feet (1.5 meters) of raceway.

Part Number
SRDFMB-PIR-SIL
SRDFMB-PIR-WHT
SRDFMB-PIR-BLK

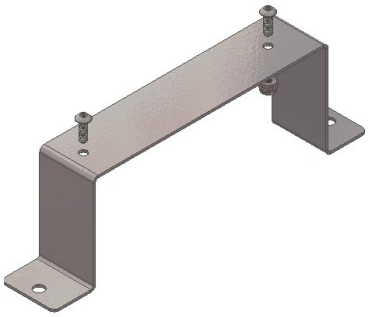
*RAL color codes can also be used

Table Mount Bracket

The Table Mount Bracket can be used to secure Plug-In Raceway to tables, unistrut, and other non-traditional surfaces in a variety of orientations.

For other mounting options not listed, consult the factory or your applications engineer.

Part Number
SRDTMB-PIR-SIL



Dual Side Mount Surface Bracket

The Dual Side Mount Surface Bracket can be used for mounting Plug-In Raceway with threaded rod, typically for overhead or ceiling applications. Wall clips are provided on both sides, so up to 2 raceways can be mounted. One bracket per every 5 feet of raceway should be used.

For other mounting options not listed, consult the factory or your applications engineer.

Part Number
DSMSBD-1

ADD-ON ACCESSORIES: ANGLED COVER

Angled Cover

The Angled Cover is perfect for clean rooms and any other environment where it's critical that dust does not build up. Angled Covers can be purchased with both Power only and Power & Data systems.

The Angled Cover comes with included brackets that are screwed into joists along the wall above the raceway. The Angled Cover then snaps onto the brackets.

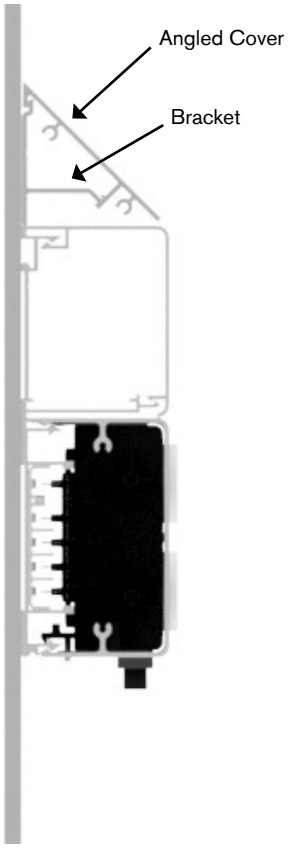
The Angled Cover can be cut to size in the field and easily reconfigured to match any layout.

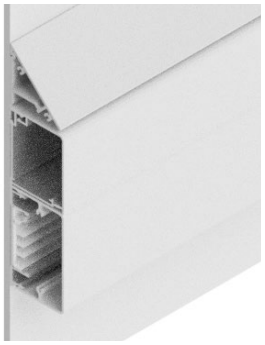
Each order of 5 ft. (2 meters) of Angled Cover comes with 2 brackets (18"[457mm] each) and an end cap.

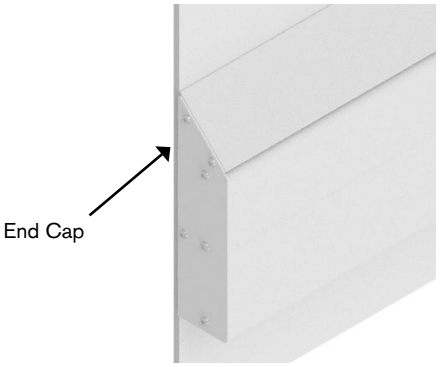
Each order of 10 ft. (3 meters) of Angled Cover comes with 3 brackets (18"[457mm] each) and an end cap.

End caps can also be ordered separately, using the following product numbers:

SACEC-45-PIR-SIL
SACEC-45-PIR-BLK
SACEC-45-PIR-WHT







U **AC** - **45** - **0010**
- **SIL**

1. System — 2. Product — 3. Angle — 4. Length — 5. Paint Color

1. System *(standard of measure)*
U U.S. **M** Metric

2. Product *(section housing)*
AC Angled Cover

3. Angle *(angle of cover)*
45 45 degree angle

4. Length *(length of section)*
0500 5 ft. *(U.S.)* **M200** 2 meters *(Metric)*
1000 10 ft. *(U.S.)* **M300** 3 meters *(Metric)*

5. Paint Color *(allows painting of the housing)*
SIL Paint UEC Silver **BLK** Paint UEC Black
WHT Paint UEC White

Examples:
UAC-45-0500-SIL *= U.S., Angled Cover- 45 degree angle- 5 feet- painted Silver*
MAC-45-M300-BLK *= Metric, Angled Cover- 45 degree angle- 3 meters- painted Black*

FIELD CUTTING INSTRUCTIONS: RESIZE

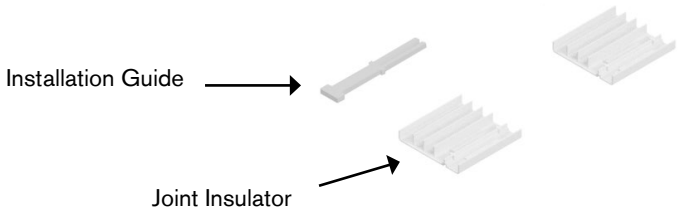
Resize Cutting Procedure (to prepare the cut ends on a length of straight, to be used to continue a run of Plug-In Raceway)

Starline Plug-In Raceway was designed to allow for in field customization to fit the as-built dimensions of the application in which the raceway is to be installed. The field customization can be accomplished by cutting/trimming the end feeds, center feeds, straight joiner sections or the elbows of the installed system in both power and power & data systems.

When Plug-In Raceway is cut in the field, care must be taken to ensure that the field cut ends are properly insulated. This is essential for maintaining proper clearances for live electrical parts and safe operation of the system.

Field cutting parts are included with straights. See page 2.2 and 3.2 for contents.

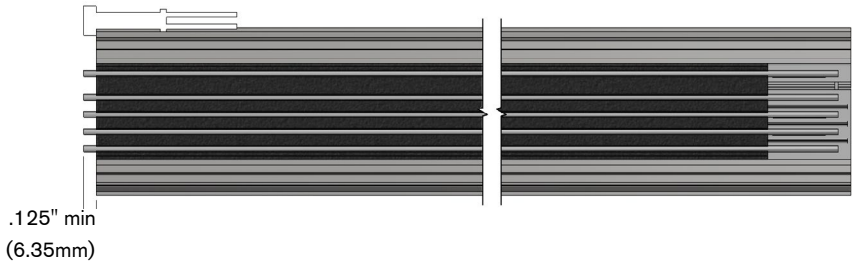
*The Installation Guide has embossed dimensions to assist on dimensions as discussed through the procedure.



Step 1. Cut one end of the straight to the new desired length. Cutting can be performed by using a chop saw with a finishing blade, similar to a 14" diameter blade, 66 tooth carbide tipped blade.

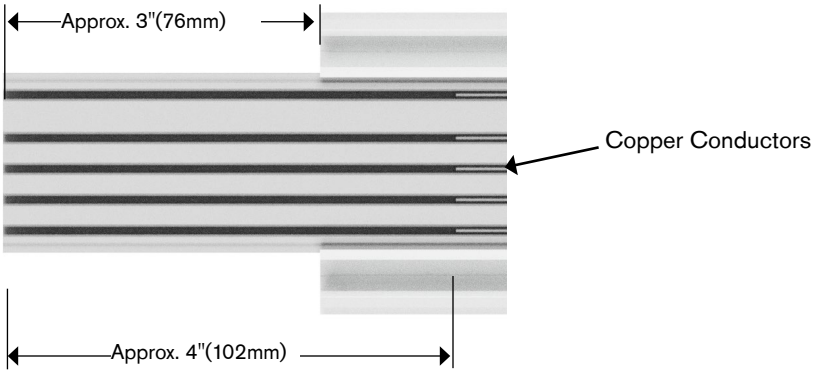
Cut End

Step 2. Push only the copper conductors past the end of the black insulator and out of the aluminum backplane. Then cut off a minimum of .125" off the copper conductors, using the Installation Guide for measuring.

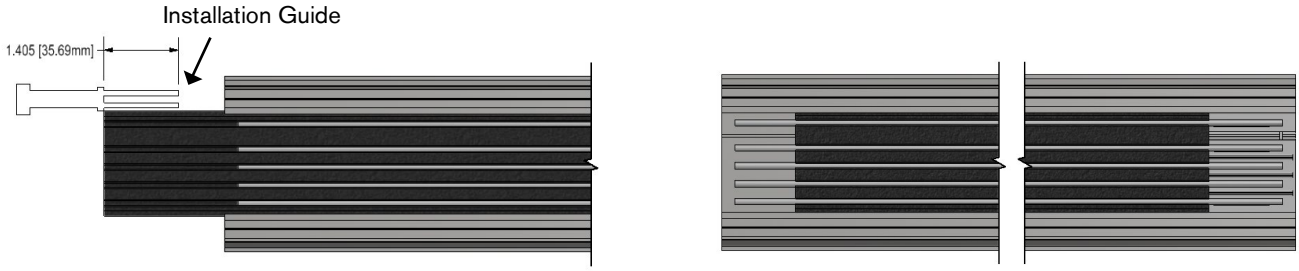


FIELD CUTTING INSTRUCTIONS: RESIZE (cont'd)

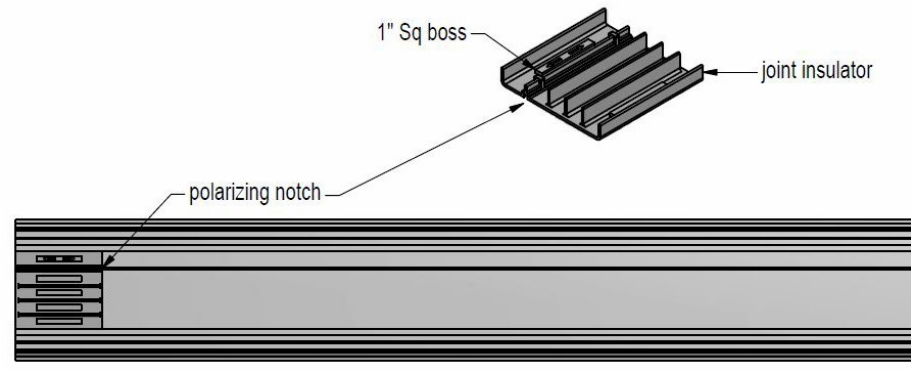
Step 3. Slide only the black insulator further out of the backplane to total about 3". Using a flat tip screw driver, push the copper conductors back to about 4 inches (102mm) from the end into the aluminum backplane as shown.

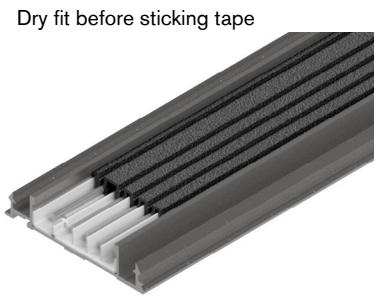


Step 4. Now cut 1.405" (36mm) off the end of the black insulator. Push the black insulator back into the aluminum housing, until its opposite edge lines up with the 1" (25mm) square boss on the other side. The black insulator now will slightly overlap the pre-installed joint insulator on the opposite side. Push the copper conductor back into place, roughly .250 inches from the end.



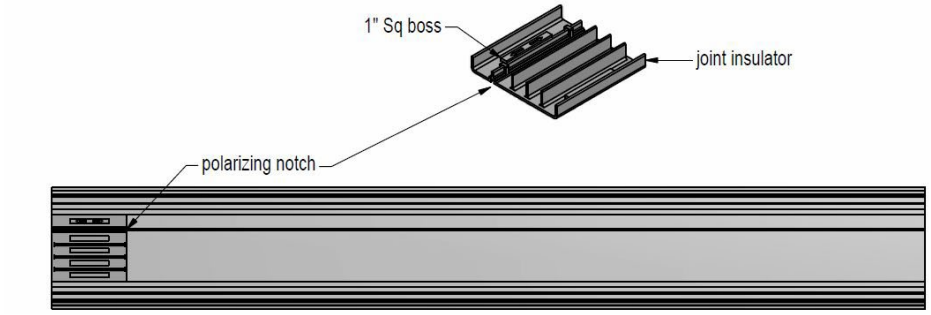
Step 5. To install the joint insulator, slide the joint insulator under the copper conductor by removing the protective plastic off the double sided tape and sliding under the copper conductors, making sure the joint insulator edge is flush with the end of the aluminum housing. Press firmly down to secure the joint insulator to the aluminum housing. Be aware of the orientation of the polarizing notch on the backplane and the joint insulator.

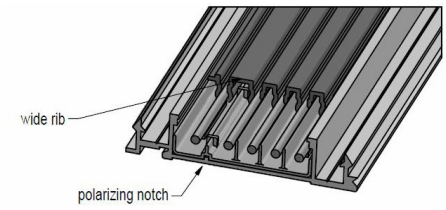




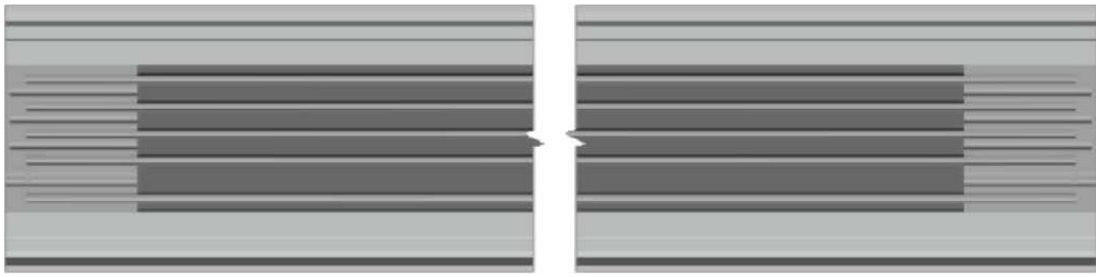
FIELD CUTTING INSTRUCTIONS: RESIZE (cont'd)

Step 6. Inspect to see if the black insulator is slid and aligned to the inside edge of the 1" square boss on the installed joint insulator. Then check to see if the end of the copper conductors are lined up with the outside of the 1" square boss. Adjust as necessary. *Be sure to match the insulators wide rib up with the polarizing notch.*





Step 7. The process for resizing a raceway straight is now complete. Below is an example of a finished resized straight.

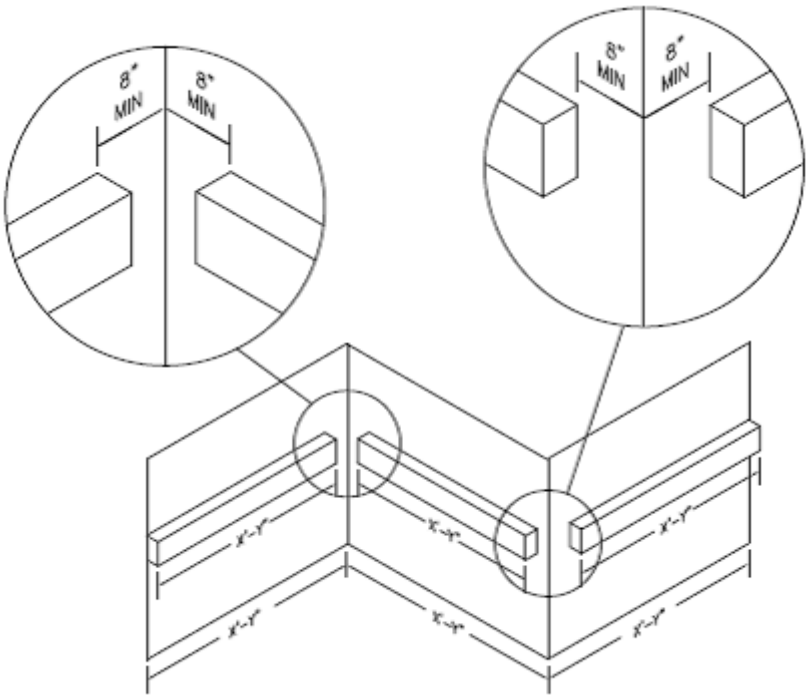


FIELD CUTTING: ELBOWS

STARLINE Plug-In Raceway was designed to allow for in field customization to fit the as-built dimensions of the application in which the raceway is to be installed. The field customization can be accomplished by cutting/trimming the end feeds, center feeds, straight joiner sections or the elbows of the installed system in both power and power & data systems. ***It should be noted that a maximum of 4" (101.6mm) can be removed from the end feeds and center feeds, and a maximum of 4" (101.6mm) can be removed from each of the legs that create an elbow.*** The cutting/trimming is easily accomplished with the use of a cut-off saw. The backplanes contain the copper busbars that supply the power to the plug-in modules. ***These backplane sections can also be cut with use of the proper instructions.***

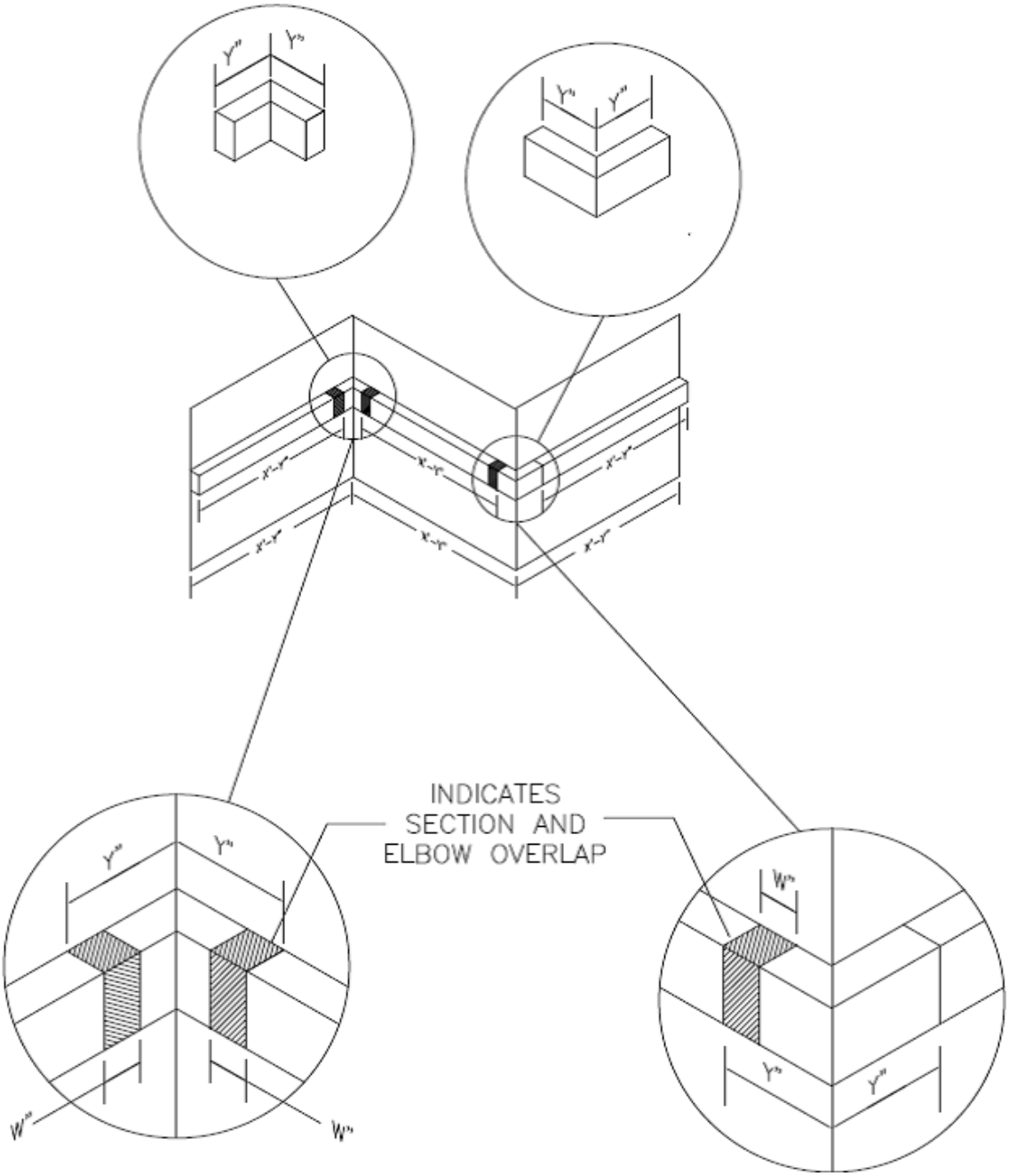
Situations will arise in the field where the lengths of the backplane do not meet the dimensions on a layout drawing. As an example a backplane section may end up too close to an interior or exterior corner of a room.

*Minimum of 8" (203.2mm)



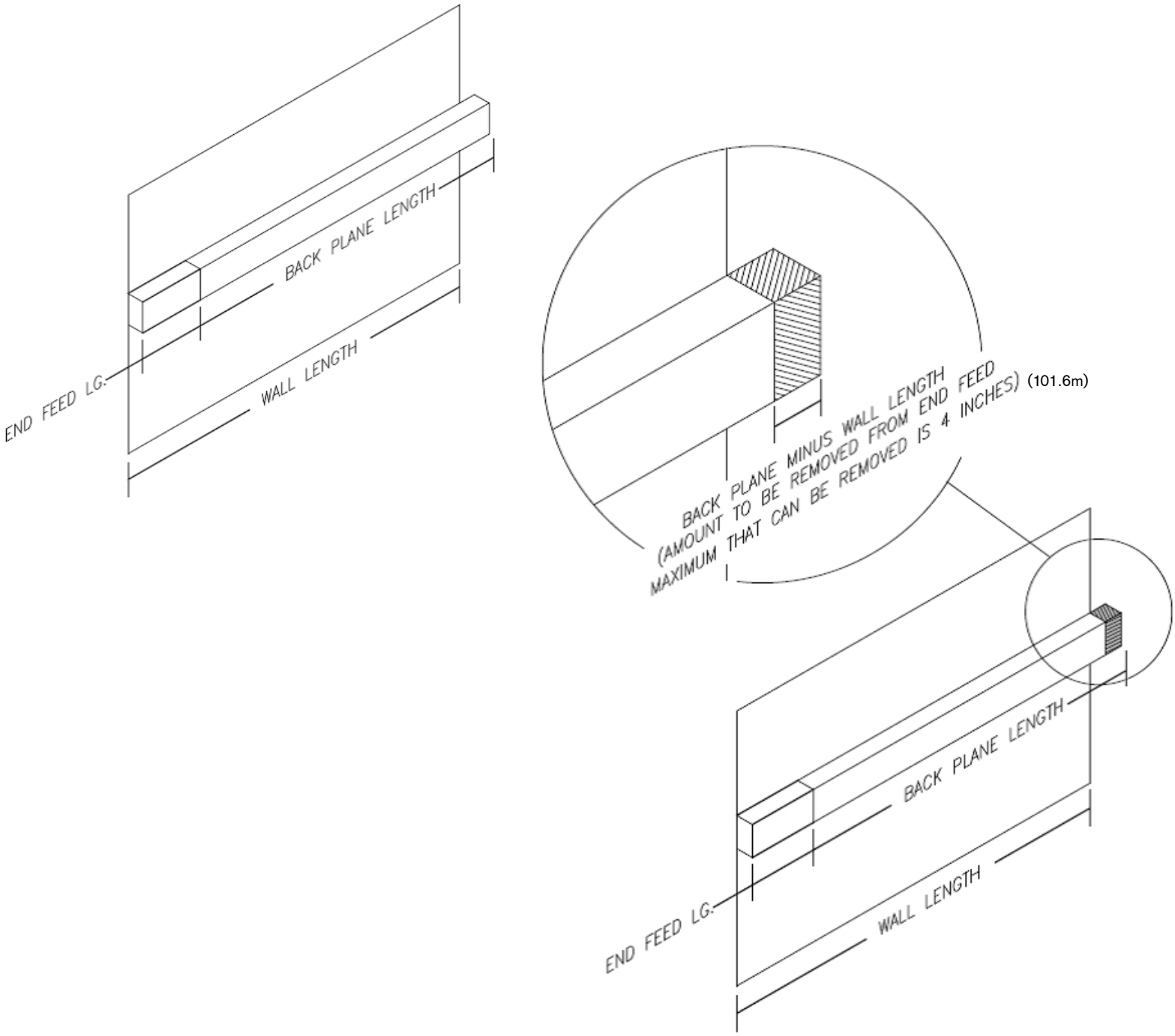
FIELD CUTTING: ELBOWS (cont'd)

In order for the sections to fit, it will be necessary to adjust the length(s) of the interior or exterior elbow piece. The elbow pieces were designed with this situation in mind and thus can be field modified (cut) to connect the backplane sections together seamlessly.



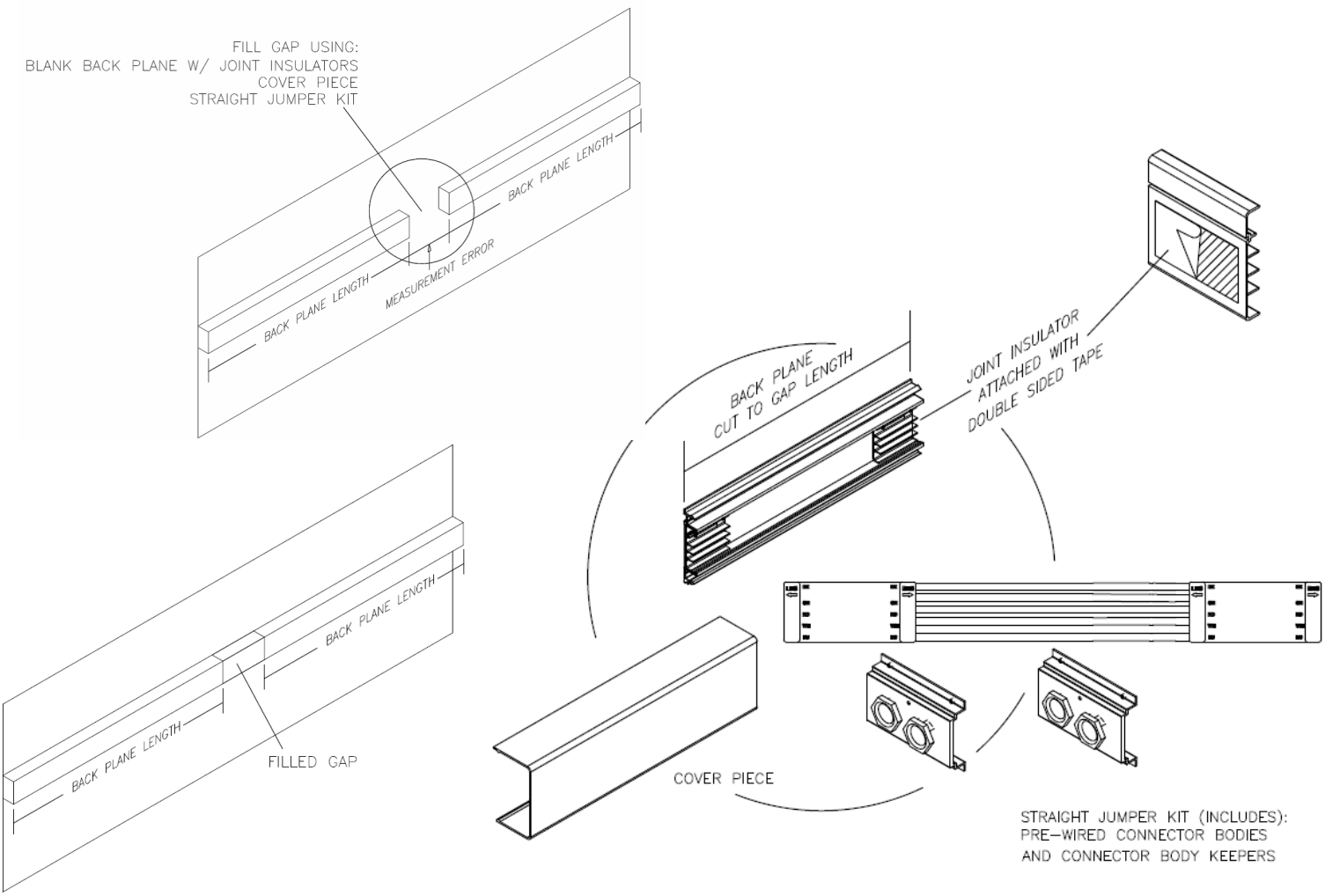
FIELD CUTTING: END FEEDS

In another situation, a simple straight run of STARLINE Plug-In Raceway powered by an end feed may need to be adjusted to fit onto a wall. The end feed can be modified so the run will fit onto the wall and maximize the plug-in space.



FIELD CUTTING: STRAIGHT JUMPER

As a final example of the field cutting flexibility of STARLINE Plug-In Raceway, a situation may arise where two runs of backplanes do not meet as intended in the middle of a wall. In this case a straight jumper section can be used to tie the two runs together. NOTE: Plug-in space will be lost in the section of the straight jumper and the gap distance must be 6" (152.4mm) or larger.



The straight jumper kits (and the elbow sections) include all the necessary parts to jump between the two backplanes. Installation of the straight jumper is similar to how the field modified elbows are installed.

End Cap Installation

ENDING RUNS

Ending Runs (for ending standard or field cut runs of Plug-In Raceway)

When a Plug-In Raceway run needs terminated in the field, care must be taken to ensure that the field cut ends are insulated. This is essential for maintaining proper clearances for live electrical parts and safe operation of the system.

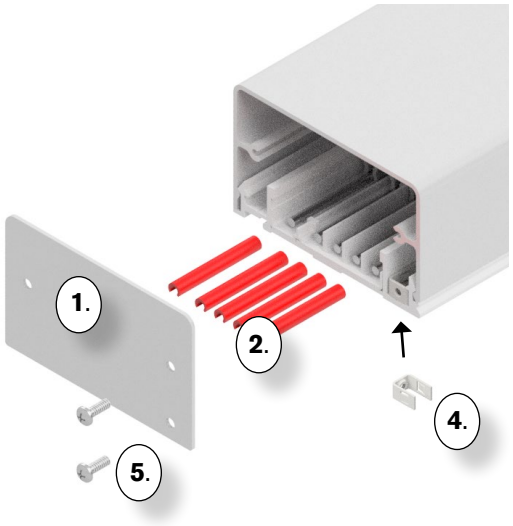
To order end cap kits, please see pg. 2.12 and 3.14 for catalog numbers. The contents of these kits contain parts for both standard and field cut ends.

To properly end a raceway straight that **has not** been cut from its original length:

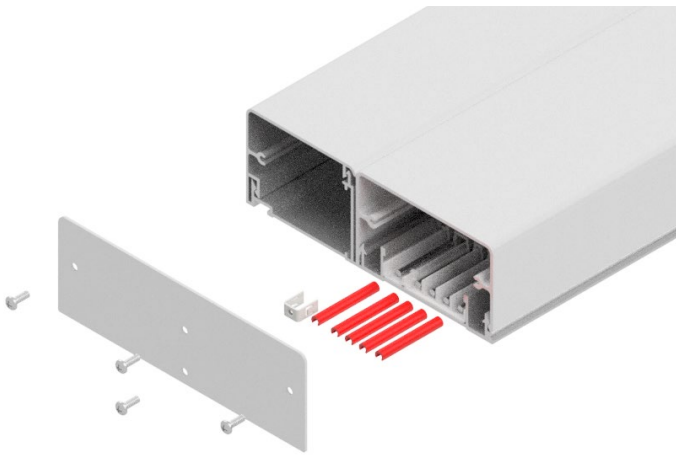
End Cap Kit contents:

1. Steel End Cap Plate
2. Insulator Sleeves (Red, qty 5)
3. Plastic End Cap (Left and Right) - (not used for uncut straights)
4. End Cap Clip
5. Screws

Power Only



Power & Data



Step 1. Slide the insulator sleeves (2) over each exposed conductor on the straight end.

Step 2. To attach the steel end cap plate (1), install the end cap clip (4) into the channel. Attach screw (5) to hold end cap (1) in place.

Step 3. Snap the power cover into place, aligning the steel end cap plate holes with the screw channels, then insert remaining 2 screws.

Step 4: The plastic end caps (3) are not used and can be discarded.

End Cap Installation

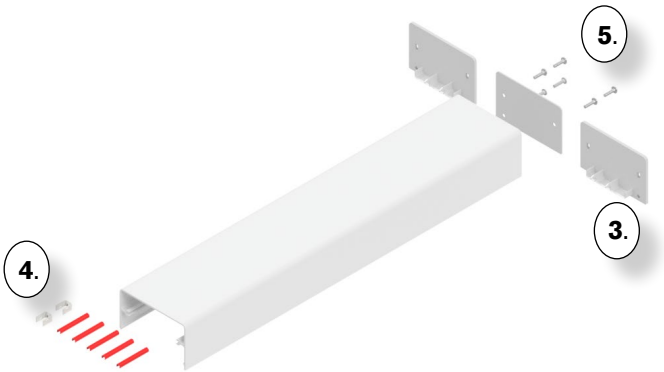
ENDING FLUSH CUT RUNS

To properly end a raceway straight that **has been shortened** from its original length:

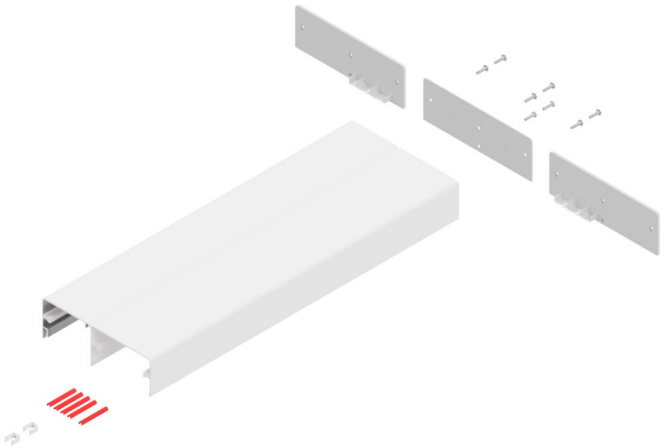
End Cap Kit contents:

1. Steel End Cap Plate (not used on cut straights)
2. Insulator Sleeves (Red, qty 5) (not used on cut straights)
3. Plastic End Cap (Left and Right)
4. End Cap Clip
5. Screws

Power Only



Power & Data



Step 1. Cut the straight to the desired length.

Step 2. To attach the plastic end cap (3) to a cut end of straight, install the end cap clip (4) into the large channel.

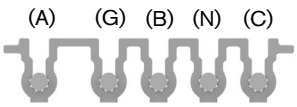
Step 3. Choose the correct plastic end cap (3) (left or right), secure the end cap to the straight by inserting one screw (5) into the end cap clip (4) and tighten.

Step 4: Snap the power cover into place, aligning the screw channels with the end cap holes, then insert remaining 2 screws.

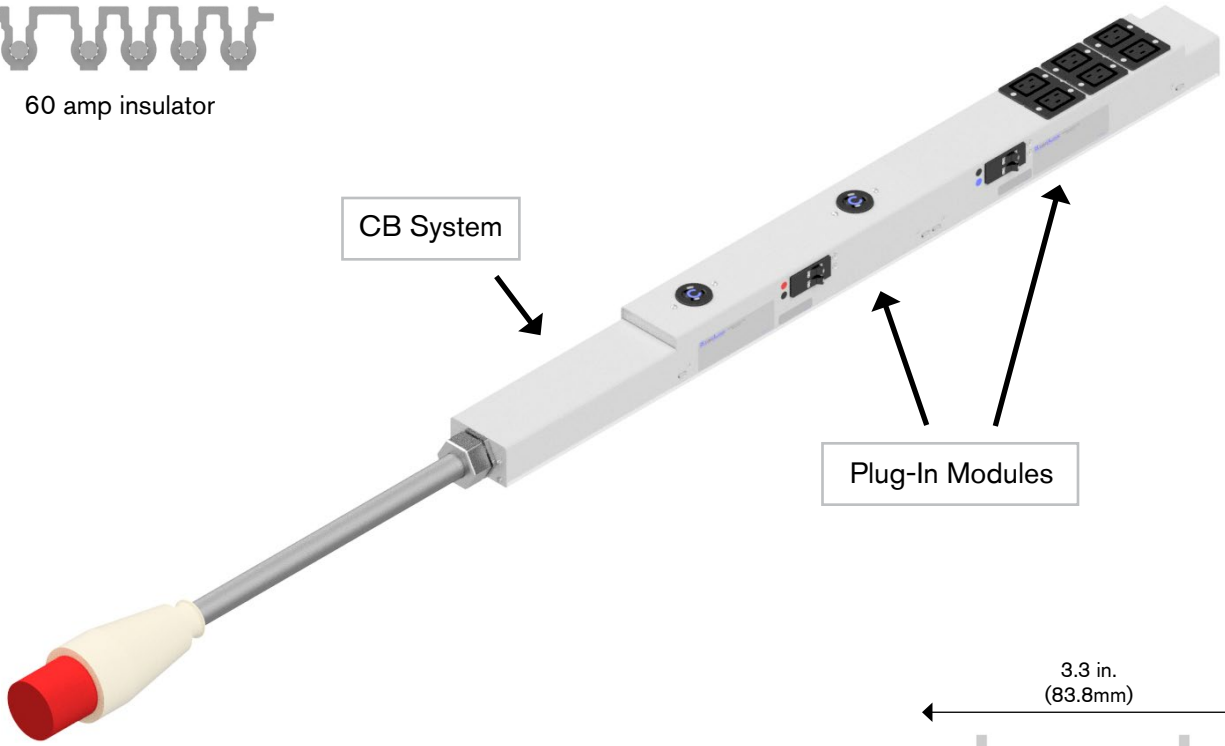
Step 5: The steel end cap plate (1) and red insulator sleeves (2) are not used and can be discarded.

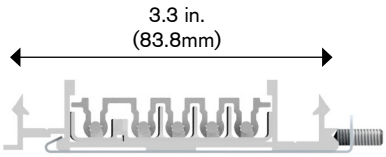
WARNING: The steel end cap plate cannot be used to end a run that has been cut.

SYSTEM LAYOUT DRAWING

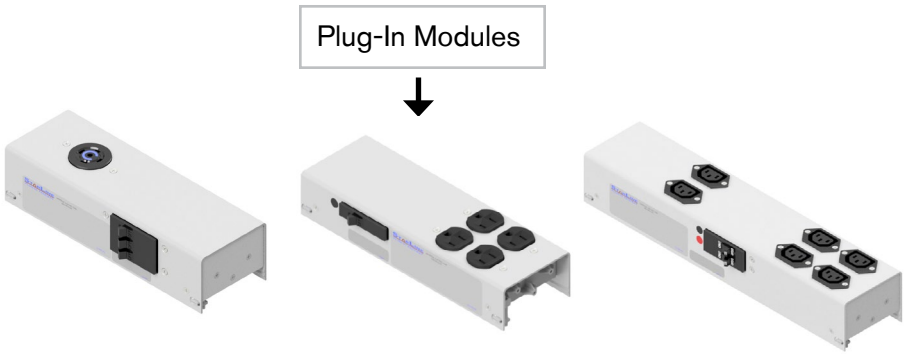


60 amp insulator





The Starline Plug-In Raceway Cabinet Busway (CB) series is available in multiple lengths with various cord lengths and connector body options. Plug-in modules are offered complete with breaker and receptacle, and in both single phase and three phase configurations up to 30 amps. System and modules are ordered separately.



INTENDED FOR INDOOR USE ONLY

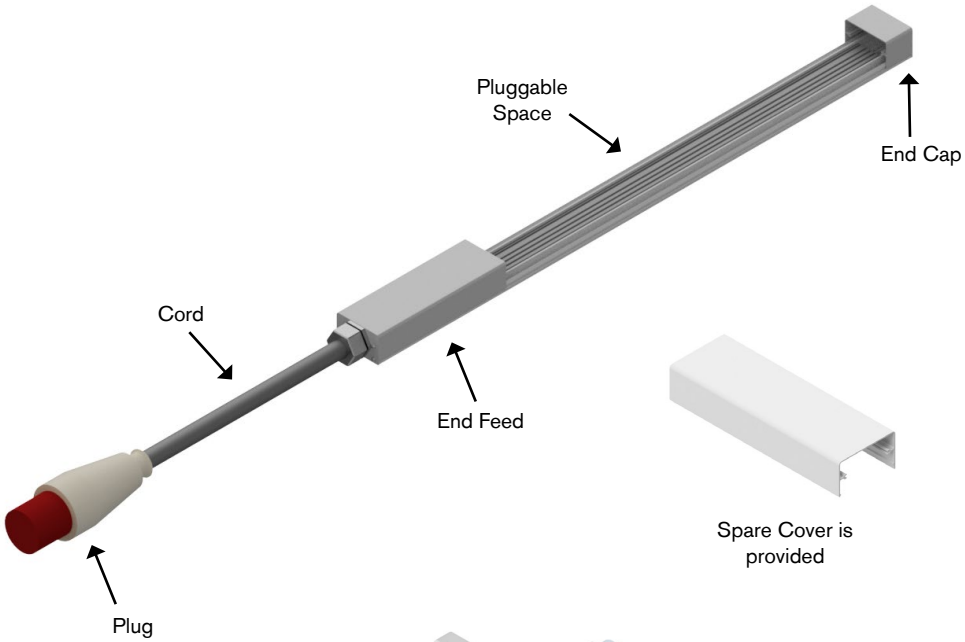
SYSTEM COMPONENTS

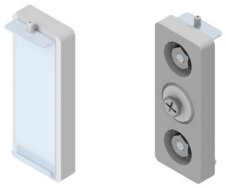
Product Description

Each CB series unit consists of an extruded aluminum backplane with an insulated strip containing copper busbars, along with an end feed, end cap and optional cord. The aluminum extrusion acts as a 100% ground path. Each unit is enclosed by means of cover pieces and plug-in modules (ordered separately). Available as 4-pole (3 phase + Neutral), and 4-pole with isolated ground conductor. The CB series is offered in 60 Amps (63 Amp IEC).

The CB series includes built-in hardware on the back of each unit that can be used to hang the device in a server cabinet.

Total length of your device will be your selected pluggable space plus 10 inches (254mm) to accommodate for the end cap and end feed *(Refer to option 8. Plug-In Module Space on pg. 5.3 Cabinet Busway Series: Product Numbers)*





*2 mounting brackets are provided with each system

*Please note, a CB series unit only includes the backplane of the raceway, end feed, end cap and optional cord. Plug-in modules must be ordered separately (see section 6).

CABINET BUSWAY SERIES: PRODUCT NUMBERS

U	CB	P	060	240	-	H	M	-	0206
1. System	2. Product Line	3. Frame Type	4. Product Frame	5. Voltage		6. Ground Busbar	7. Metering		8. Plug-In Module Space

-	0200	-	460P9S	-	L	-	SIL
	9. Cord Length		10. Connector Body		11. End Feed Location		12. Paint Color

1. System *(standard of measure)*

U	U.S.	**M**	Metric

2. Product Line *(section housing)*

CB	Cabinet Busway

3. Frame Type *(section housing)*

P	Power	**D**	Power & Data

4. Product Frame *(maximum amperage)*

060	60 amps *(U.S.)*	**063**	63 amps *(Metric)*

5. Voltage *(voltage options)*

240	240 volts or 120/208 volts *(U.S.)*		
480	480 volts *(U.S.)*	**415**	415 volts *(Metric)*

6. Ground Busbar *(type of ground busbar)*

H	Housing Ground	**G**	Isolated/Dedicated Ground

7. Current Monitoring *(optional metering)*

M	Metered Unit*	**N**	Non-Metered Unit

If metering is selected, you must order a separate metering module on pgs. 7.1-7.2. Selecting metering will automatically reduce your plug-in module space by 10 inches (254mm)

8. Plug-In Module Space *(total length available for modules)*

0206	2 ft. 6 in. *(U.S.)*	**M080**	.8 meter *(Metric)*
0309	3 ft. 9 in. *(U.S.)*	**M120**	1.2 meters *(Metric)*
0500	5 ft. *(U.S.)*	**M160**	1.6 meters *(Metric)*
0603	6 ft. 3 in. *(U.S.)*	**M200**	2 meters *(Metric)*

***Total length of your device will be your selected plug-in module space plus 10 inches (254mm) to accommodate for the end cap and end feed*

9. Cord Length *(cord length options)*

0000	no cord	**M060**	.6 meter *(Metric)*
0200	2 ft. *(U.S.)*	**M125**	1.25 meters *(Metric)*
0400	4 ft. *(U.S.)*	**M200**	2 meters *(Metric)*
0600	6 ft. *(U.S.)*	**M250**	2.5 meters *(Metric)*
0800	8 ft. *(U.S.)*	**M300**	3 meters *(Metric)*
1000	10 ft. *(U.S.)*		
1200	12 ft. *(U.S.)*		

10. Plug *(plug options at end of cord)*

STNDRD	Wire clips, no cord	**560P9S**	
460P9S		**560P7S**	
460P7S		**563P6S**	
04WIRE	Terminal box	**563P6W**	
		05WIRE	Terminal box

11. End Feed Location *(side of end user connection)*

L	Left

****Consult factory if end feed location of 'right' is necessary*

12. Paint Color *(color of module cover)*

SIL	Paint UEC Silver	**BLK**	Paint UEC Black
WHT	Paint UEC White		

*****RAL system can also be used; reference page 8.1*

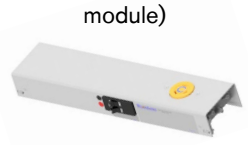
Examples:

UCBP060240-HM-0500-0000-STNDRD-L-SIL *= U.S., Cabinet Busway system, Power, 60 amp, 240 volts- Housing ground, Metered Unit- 5 feet pluggable space- no cord- wire clips, no cord- Left end feed location- painted Silver*

MCBP063415-GN-M200-M060-560P7S-L-WHT *= Metric, Cabinet Busway system, Power, 63 amp, 415 volts- Isolated ground, Non-metered Unit- 2 meters pluggable space- .6 meter cord- 560P7S plug- Left end feed location- painted White*

U.S. SYSTEM CONFIGURATION CHARTS

Example CB Unit Configurations

		PLUG-IN MODULE SIZE		
		10"	15"	Spare Cover
		(P11, P12 or P13 plug-in module) 	(P21, P22 or P23 plug-in module) 	
EXAMPLE CONFIGURATIONS	PLUGGABLE SPACE (U.S.)	(rows below represent possible plug configurations per pluggable space)		
	2 ft. 6 in. (30")	(3) P11 modules		
	2 ft. 6 in. (30")		(2) P22 modules	
	2 ft. 6 in. (30")	(1) P12 module	(1) P21 module	REQ'D
	3 ft. 9 in. (45")	(3) P11 modules, (1) P13 module		REQ'D
	3 ft. 9 in. (45")		(3) P23 modules	
	5 ft. (60")	(6) P11 modules		
	5 ft. (60")	(4) P11 modules	(1) P21 module	REQ'D
	6 ft. 3 in. (75")	(6) P12 modules	(1) P22 module	
	6 ft. 3 in. (75")	(3) P11 modules	(3) P21 modules	

*Spare Cover is supplied with each system to ensure all backplane is covered

Pluggable Space Vs. Total Length

CB Pluggable Space		CB Total Length
2 ft. 6 in. (30")	+10"	3 ft. 4 in. (40")
3 ft. 9 in. (45")		4 ft. 7 in. (55")
5 ft. (60")		5 ft. 10 in. (70")
6 ft. 3 in. (75")		7 ft. 1 in. (85")

Plug Options per System Voltage

System Voltage	Plug Options
240V (4 wire)	460P9S
120/208V (5 wire)	560P9S
480V (4 wire)	460P7S
277/480V (5 wire)	560P7S

**For plug options not listed, consult the factory or your applications engineer

METRIC SYSTEM CONFIGURATION CHARTS

Example CB Unit Configurations

		PLUG-IN MODULE SIZE		
		254mm	381mm	Spare Cover
		(P11, P12 or P13 plug-in module) 	(P21, P22 or P23 plug-in module) 	
EXAMPLE CONFIGURATIONS	**PLUGGABLE SPACE (Int'l (metric))**	(rows below represent possible plug configurations per pluggable space)		
	M080	(3) P11 modules		
	M080		(2) P22 modules	
	M080	(1) P12 module	(1) P21 module	REQ'D
	M120	(3) P11 modules, (1) P13 module		REQ'D
	M120		(3) P23 modules	
	M160	(6) P11 modules		
	M160	(4) P11 modules	(1) P21 module	REQ'D
	M200	(6) P12 modules	(1) P22 module	
	M200	(3) P11 modules	(3) P21 modules	

*Spare Cover is supplied with each system to ensure all backplane is covered

Pluggable Space Vs. Total Length

CB Pluggable Space		CB Total Length
M080	+ approx. .2 meters	1.02 meters
M120		1.40 meters
M160		1.78 meters
M200		2.20 meters

Plug Options per System Voltage

System Voltage	Plug Options
240/415V (5 wire)	560P7S
415V (5 wire)	563P6S
415V (5 wire)	563P6W

**For plug options not listed, consult the factory or your applications engineer

PLUG-IN MODULE: P11

*previously known as E31

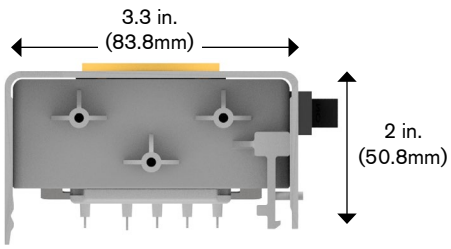
Product Description

Plug-in modules are used to tap off power from along the raceway busbars. Modules are factory assembled and include the cover and a plug head. The module is inserted onto the raceway backplane until the latching mechanism snaps into place. Modules are easily removed by pressing and holdilng in two buttons at the bottom of the module. The P11 style modules are 10" (254mm) long and exactly match the raceway system profile.

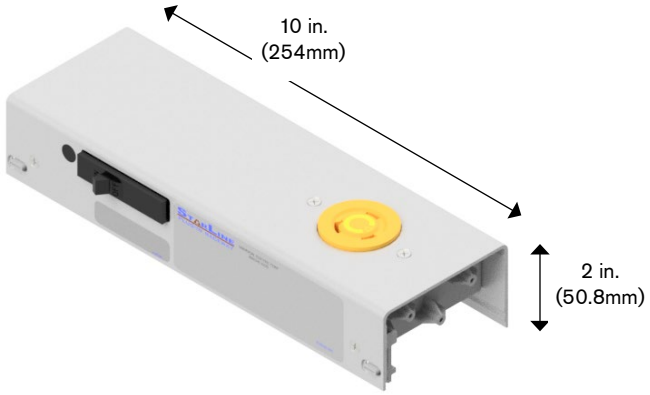
Standard modules are fully configured with receptacle and circuit breaker. A variety of receptacle and breaker combinations are available in P11 size, with ratings up to 30 Amps, (1) 1 pole. Only one, single pole breaker per module, optional isolated ground. Units without a circuit breaker may be used on 20 amp raceway systems.

WEIGHT (P11 with 520Q):
1.4 lbs/.635 kg

Breakers	Voltage	Listing
1 pole	120	UL, ETL
1 pole	240	UL, ETL

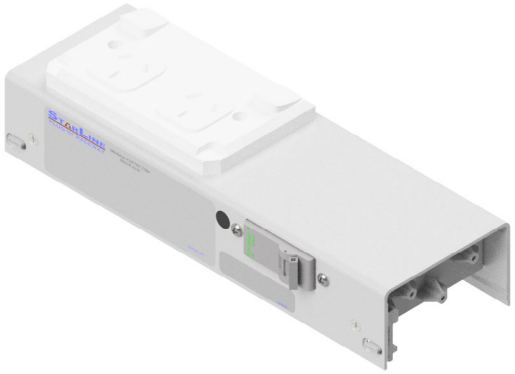


Side profile view



URMCS060S-P11G-1-L520-SIL

URMCS060S-P11H-1-520QBK-SIL



MRMCS060S-P11D-1-695W10-SIL

PLUG-IN MODULE: P21

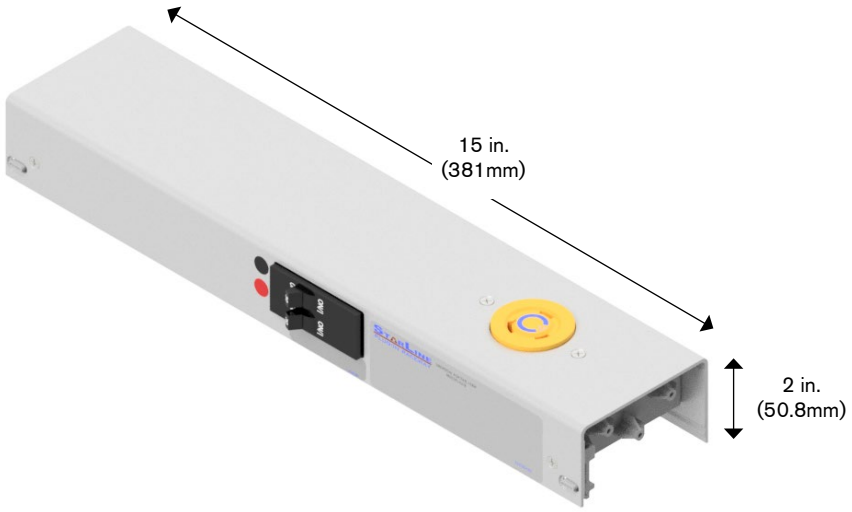
*previously known as E32

Product Description

Plug-in modules are used to tap off power from along the raceway busbars. Modules are factory assembled and include the cover and a plug head. The module is inserted onto the raceway backplane until the latching mechanism snaps into place. Modules are easily removed by pressing and holdilng in two buttons at the bottom of the module. The P21 style modules are 15" (381mm) long and exactly match the raceway system profile.

Standard modules are fully configured with receptacle and circuit breaker. A variety of receptacle and breaker combinations are available in P21 size, with ratings up to 30 Amps, (1) 2 pole or (2) 1 pole. Optional isolated ground. Units without a circuit breaker may be used on 20 amp raceway systems.

Breakers	Voltage	Listing
1 pole	120	UL, ETL
2 pole	240	UL, ETL



URMCS060SP21G-1-L620-SIL

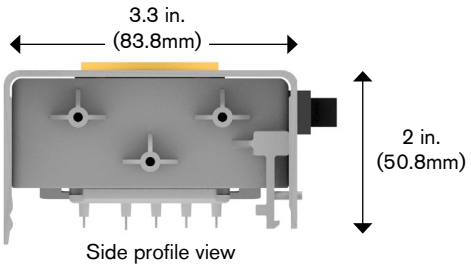
URMCS060S-P21H-1-L620-SIL

Module Nomenclature Logic:

P — **P**lug-in Raceway enclosure

(x) — **1** = 10 in.(254mm) L
2 = 15 in.(381mm) L

(x) — **1** = 2 in.(50.8mm) H
2 = 2.5 in.(63.5mm) H
3 = 3 in. (76.2mm) H



Side profile view

PLUG-IN MODULE: P12

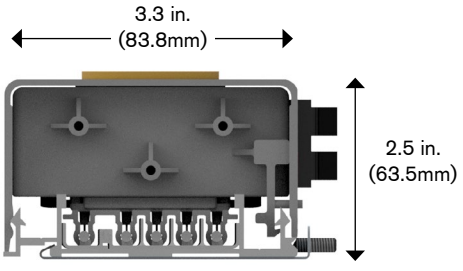
*previously known as E33

Product Description

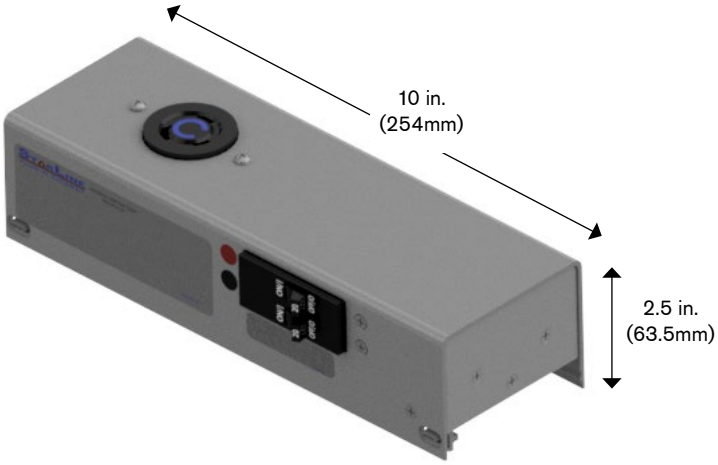
Plug-in modules are used to tap off power from along the raceway busbars. Modules are factory assembled and include the cover and a plug head. The module is inserted onto the raceway backplane until the latching mechanism snaps into place. Modules are easily removed by pressing and holdilng in two buttons at the bottom of the module. The P12 style modules are 10" (254mm) long and are 1/2" (13mm) higher than the raceway system profile (see image below).

Standard modules are fully configured with receptacle and circuit breaker. A variety of receptacle and breaker combinations are available in P12 size, with ratings up to 30 Amps, up to 2 pole. Optional isolated ground. Units without a circuit breaker may be used on 20 Amp raceway systems.

Breakers	Voltage	Listing
1 pole	120	UL, ETL
2 pole	240	UL, ETL
2 pole	277/480 (max)	UL, ETL
1 or 2 pole	415V (max)	IEC

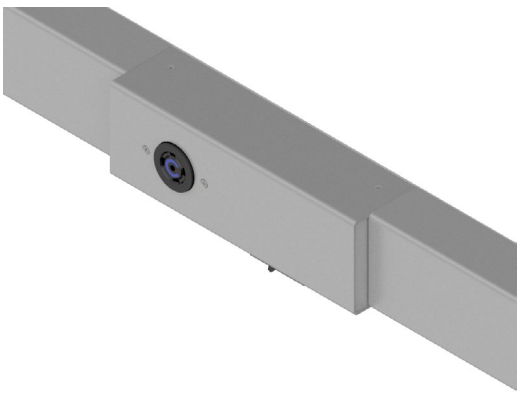


Side profile view



URMCS060S-P12H-1-L620-SIL

MRMCS060S-P12H-1-316A6S-SIL



PLUG-IN MODULE: P22

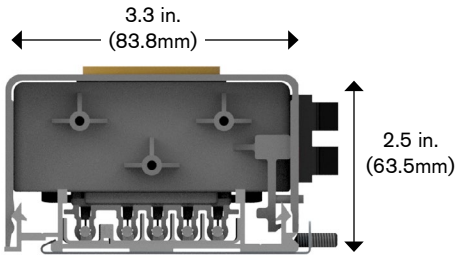
*previously known as E34

Product Description

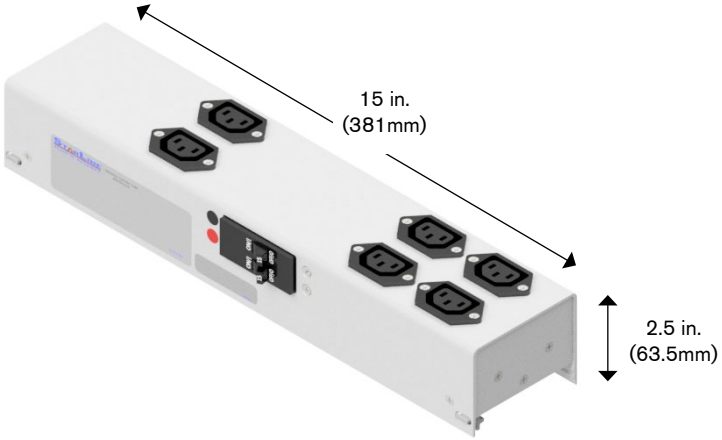
Plug-in modules are used to tap off power from along the raceway busbars. Modules are factory assembled and include the cover and a plug head. The module is inserted onto the raceway backplane until the latching mechanism snaps into place. Modules are easily removed by pressing and holdilng in two buttons at the bottom of the module. The P22 style modules are 15" (381mm) long and are 1/2" (13mm) higher than the raceway system profile.

Standard modules are fully configured with receptacle and circuit breaker. A variety of receptacle and breaker combinations are available in P22 size, with ratings up to 30 Amps, 2 pole. Optional isolated ground. Units without a circuit breaker may be used on 20 Amp raceway systems.

Breakers	Voltage	Listing
1 pole	120	UL, ETL
2 pole	240	UL, ETL
2 pole	277/480 (max)	UL, ETL
1 or 2 poles	415V (max)	IEC



Side profile view



URMCM060S-P22H-6-C13-SIL

URMCM060S-P22D-6-C19-BLK

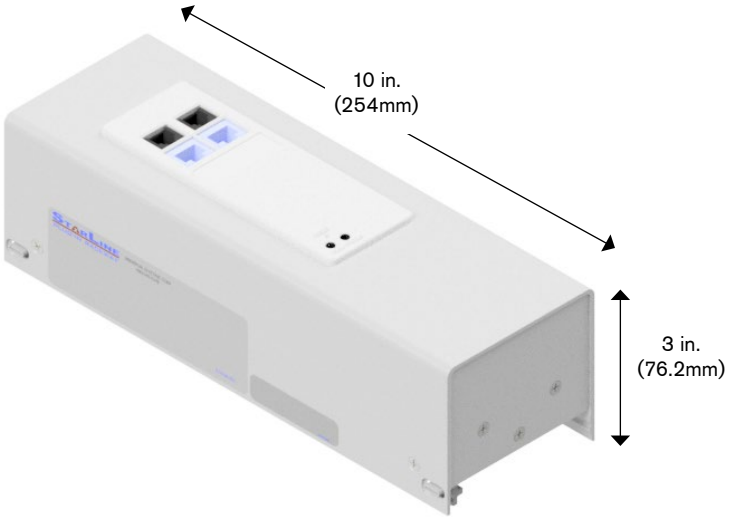
PLUG-IN MODULE: P13

*previously known as E29

Product Description

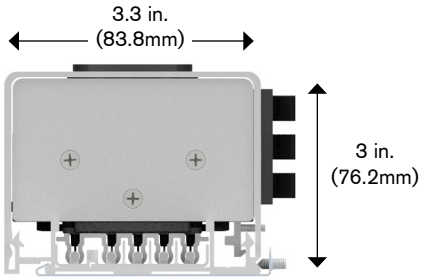
Plug-in modules are used to tap off power from along the raceway busbars. Modules are factory assembled and include the cover and a plug head. The module is inserted into the raceway backplane until the latching mechanism snaps into place. Modules are easily removed by pressing and holdilng in two buttons at the bottom of the module. The P13 style modules are 10" (254mm) long and are 1" (25.4mm) higher than the raceway system profile.

Standard modules are fully configured with receptacle and circuit breaker. A variety of receptacle and breaker combinations are available in P13 size, with ratings up to 30 Amps, 3-phase. Optional isolated ground. Units without a circuit breaker may be used on 20 Amp raceway systems.



*This module style can incorporate the M50 series meter. For metering options, see pages 7.1-7.2.

Breakers	Voltage	Listing
1 pole	120	UL, ETL
2 pole	240	UL, ETL
2 or 3 pole	277/480 (max)	UL, ETL
2 or 3 pole	415V	IEC



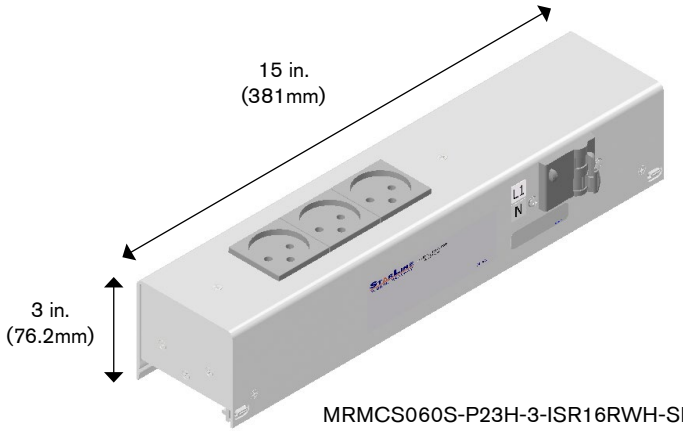
Side profile view

PLUG-IN MODULE: P23

Product Description

Plug-in modules are used to tap off power from along the raceway busbars. Modules are factory assembled and include the cover and a plug head. The module is inserted into the raceway backplane until the latching mechanism snaps into place. Modules are easily removed by pressing and holdilng in two buttons at the bottom of the module. The P23 style modules are 15" (381mm) long and are 1" (25.4mm) higher than the raceway system profile.

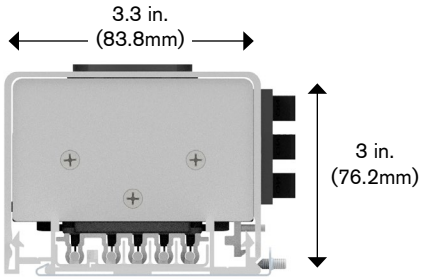
Standard modules are fully configured with receptacle and circuit breaker. A variety of receptacle and breaker combinations are available in P23 size, with ratings up to 30 Amps, 3-phase. Optional isolated ground. Units without a circuit breaker may be used on 20 Amp raceway systems.



MRMCS060S-P23H-3-ISR16RWH-SIL

*This module style can incorporate the M50 series meter.

Breakers	Voltage	Listing
1 pole	120	UL, ETL
2 pole	240	UL, ETL
2 or 3 pole	277/480 (max)	IEC



Side profile view

PLUG-IN MODULES: PRODUCT NUMBERS

U	RM	C	S	020	S	-	P11	H	-	1	-	515D	GY
1. System	2. Product	3. Protection	4. Number of Breakers	5. Amperage	6. Lock		7. Box *	8. Ground		9. Quantity		10. Device	11. Receptacle Color

- **SIL**

12. Paint Color

1. System *(standard of measure)*
U U.S. **M** Metric

2. Product *(section housing)*
RM Raceway Module

3. Protection *(section component)*
C Circuit Breaker (UL listed)
B Circuit Breaker C Curve (IEC listed)
E Circuit Breaker D Curve (IEC listed)
O Outlet Box
F Fused Box

4. Number of Breakers *(reference table on pgs. 6.8 & 6.9)*
S Single **M** Multiple
N None (0)

5. Amperage *(paddle compatibility)*
020 20 amps *(U.S. & Metric)* **060** 60 amps *(U.S.)*
063 63 amps *(Metric)*

6. Module Locking Options *(security for unit)*
S Standard **L** Module Lock**

7. Box *(what module/enclosure)*
P11 10"(254mm)L x 2"(50.8mm)H **P21** 15"(381mm)L x 2"(50.8mm)H
P12 10"(254mm)L x 2.5"(63.5mm)H **P22** 15"(381mm)L x 2.5"(63.5mm)H
P13 10"(254mm)L x 3"(76.2mm)H **P23** 15"(381mm)L x 3"(76.2mm)H
P14 10"(254mm)L x 4"(101.6mm)H **P24** 15"(381mm)L x 4"(101.6mm)H

8. Ground *(what type of ground is installed)*
H Housing **D** Dedicated
G Isolated

9. Quantity *(number of devices as selected in #10.)*
1 1 device **2** 2 devices
3 3 devices **4** 4 devices

10. Device *(NEMA or IEC configuration)*
*For a list of most common NEMA & IEC configurations, see pg. 7.8 - 7.9

11. Color *(receptacle color (not all colors available for all devices; consult factory))*
GY Gray **RD** Red
WH White **BK** Black
BL Blue **IV** Ivory

12. Paint Color *(color of module cover)*
SIL Paint UEC Silver **BLK** Paint UEC Black
WHT Paint UEC White

**RAL system can also be used; reference page 8.1*

**The image to the left shows a plug-in module with 'module lock'. This feature prevents the removal of the plug-in module from the straight, unless a special tool is used. Please refer to order option 6. for the purchase of this feature.

Examples:
URMCS060S-P11H-1-515DGY-SIL *= U.S., Raceway Module, Circuit Breaker, Single breaker, 60 amp, Standard unlocked- P11 module, Housing ground- 1 device- 515D device, Gray receptacle, painted Silver*
MRMES063S-P12H-1-316A6SGY-SIL *= Metric, Raceway Module, Circuit Breaker D Curve, Single breaker, 63 amp, Standard unlocked- P12 module, Housing ground- 1 device- 316A6S device, Gray receptacle- painted Silver*

PLUG-IN MODULES: U.S. COMPATIBILITY CHART

	PLUG-IN MODULE TYPE					
	P11	**P12**	**P13**	**P21**	**P22**	**P23**
	10 in. (254mm) L x 2 in. (50.8mm) H	10 in. (254mm) L x 2.5 in. (63.5mm) H	10 in. (254mm) L x 3 in. (76.2mm) H	15 in. (381mm) L x 2 in. (50.8mm) H	15 in. (381mm) L x 2.5 in. (63.5mm) H	15 in. (381mm) L x 3 in. (76.2mm) H
BREAKER	(numbers below represent quantity of breakers)					
1 pole	1	2	up to 3	2	2	up to 3
2 pole		1	1	1	1	2
3 pole			1			1
RECEPTACLE (Domestic (U.S.))	(numbers below represent quantity of receptacles)					
515D	1	1	1	4	4	4
520D	1	1	1	4	4	4
520Q	1	1	1	2	2	2
520DGFI		1	1		2	2
520DUSB		1	1		2	2
615R		1	1	2	2	2
620R		1	1	2	2	2
615D		1	1	2	2	2
620D		1	1	2	2	2
1420R		1	1	2	2	2
L515R	1	1	1	2	2	2
L520R	1	1	1	2	2	2
L530R	1	1	1	2	2	2
L615R		1	1	2	2	2
L620R		1	1	2	2	2
L630R		1	1	2	2	2
L1015R			1	2	2	2
L1120R			1	2	2	2
L1420R		1	1	2	2	2
L1430R		1	1	2	2	2
L1520R			1			2
L1530R			1			2
L2120R			1			2

*For plug-in module configurations not listed, consult the factory or your applications engineer.

PLUG-IN MODULES: METRIC COMPATIBILITY CHART

	PLUG-IN MODULE TYPE					
	P11	**P12**	**P13**	**P21**	**P22**	**P23**
	10 in. (254mm) L x 2 in. (50.8mm) H	10 in. (254mm) L x 2.5 in. (63.5mm) H	10 in. (254mm) L x 3 in. (76.2mm) H	15 in. (381mm) L x 2 in. (50.8mm) H	15 in. (381mm) L x 2.5 in. (63.5mm) H	15 in. (381mm) L x 3 in. (76.2mm) H
BREAKER	(numbers below represent quantity of breakers)					
1 pole	1	2	up to 3	2	2	up to 3
2 pole		1	1	1	1	1
3 pole			1			1
RECEPTACLE (Int'l (metric))	(numbers below represent quantity of receptacles)					
695W-RCD30MA		1	1			1
695W-10		1	1			1
695W-15		1	1			1
695RCD30MA-10		1	1			1
316A6S		1	1			1
332A6S		1	1			1
415W		1	1			1
IND6B		up to 3	up to 3			up to 3
IND16B		up to 3	up to 3			up to 3
IND6W		up to 3	up to 3			up to 3
IND16W		up to 3	up to 3			up to 3
BS1363		up to 3	up to 3			up to 3

*For plug-in module configurations not listed, consult the factory or your applications engineer.

CURRENT MONITORING SYSTEM

M50/M40 Current Monitoring

The Starline Critical Power Monitor (CPM) for Plug-In Raceway is a distributed data acquisition system that enables current monitoring. The M50 unit measures current on the phases and neutral lines, and the M40 version monitors both current and power in raceway systems. Each phase and neutral may be monitored independently. The CPM may be incorporated at a power feed point or directly into a plug-in unit.

CURRENT TRANSFORMERS

Current transformers (CT's) are supplied and calibrated with the unit for installation onto the customer-supplied feeder cables. Sense leads from the CT's connect to the meter.

METER MODULES

Each unit is calibrated for accuracy within 99% to meet ANSI Revenue Grade Standards.

DISPLAY (OPTIONAL)

The digital display shows all power measurements and alarms, and provides for configuration and control of the device. The large format display is easily readable from a distance.

COMMUNICATION

Two Modbus RTU ports are standard for both the M50 and M40 versions.

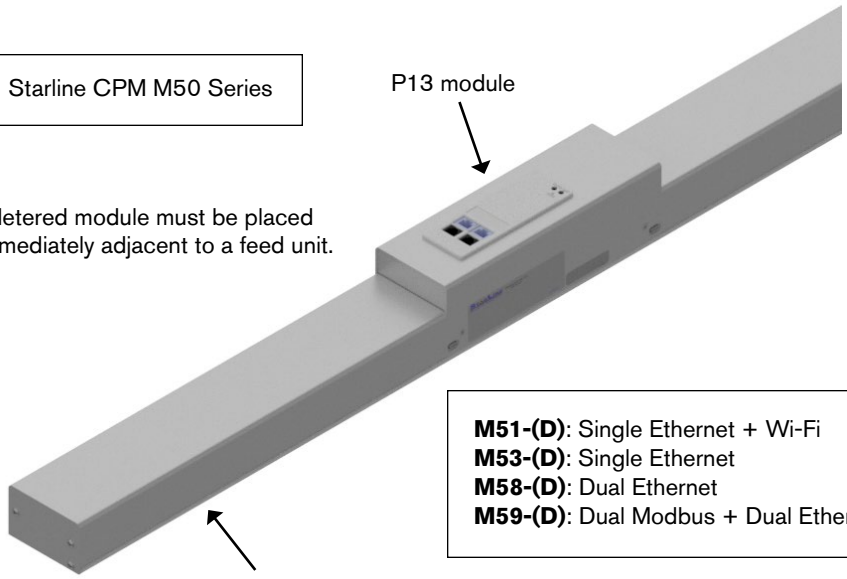
ALARMS

When the defined alarm threshold is exceeded, a warning corresponding to that channel will turn ON and activate a contact for an audible alarm.

Starline CPM M50 Series

P13 module

*Metered module must be placed immediately adjacent to a feed unit.

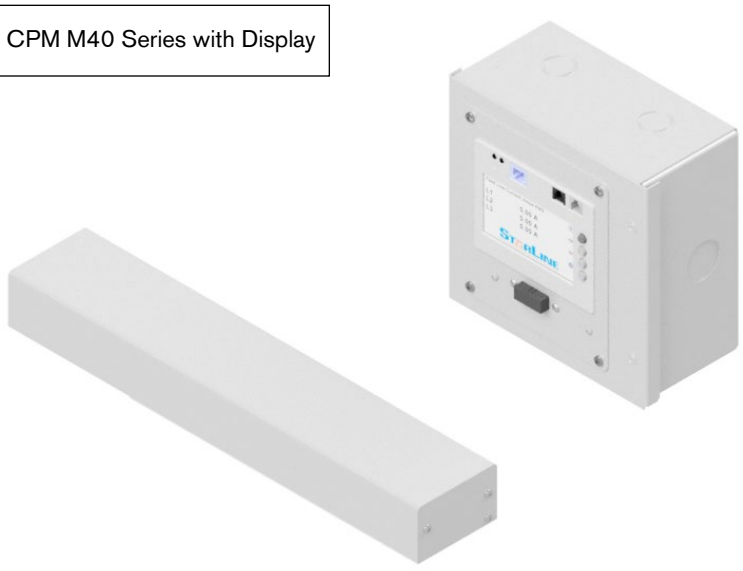


End Feed

M51-(D): Single Ethernet + Wi-Fi
M53-(D): Single Ethernet
M58-(D): Dual Ethernet
M59-(D): Dual Modbus + Dual Ethernet

(D) = optional display

Starline CPM M40 Series with Display



M41-D – Wi-Fi, low voltage, with display
M43-D – Low voltage, with display
M45-D – Wi-Fi, high voltage, with display
M47-D – High voltage, with display

CURRENT MONITORING: PRODUCT NUMBERS

U	RM	C	020	S	-	P13	H	-	M41	-	D	-	1
1. System	2. Product	3. Protection	4. Amperage	5. Lock		6. Box	7. Ground **		8. Meter		*9. Meter Display		10. System Configuration

- SIL

11. Paint Color

*Optional

1. System *(standard of measure)*

U U.S. **M** Metric

2. Product *(section housing)*

RM Raceway Module

3. Protection *(section component)*

O Outlet Box

4. Amperage *(paddle compatibility)*

020 20 amps *(U.S. & Metric)* **060** 60 amps *(U.S.)*
063 63 amps *(Metric)*

5. Module Locking Options *(security for unit)*

S Standard **L** Module lock

6. Box *(what module/enclosure)*

P13 P13 module for M50 series **P23** P23 module for M50 series
EXE Custom box for M40 series

7. Ground *(what type of ground is installed)*

H Housing **D** Dedicated
G Isolated

8. Meter *(what type of meter you require)*

M41 Wi-Fi, low voltage **M43** Low voltage
M45 Wi-Fi, high voltage **M47** High voltage
M51 Single ethernet + Wi-Fi **M53** Single ethernet
M58 Dual ethernet **M59** Dual modbus + dual ethernet

*9. Meter Display *(optional meter display)*

D Meter w/ display **N** Meter w/ no display

10. System Configuration *(how the system is wired)*

1 Line to Line, Delta (LLD) **2** Line to Line, Wye (LLY)
3 Line to Neutral, Wye (LNY)

11. Paint Color *(color of module cover)*

SIL Paint UEC Silver **BLK** Paint UEC Black
WHT Paint UEC White

***RAL system can also be used; reference page 8.1*

Examples:

URMO020S-P13H-M59-D-1-BLK *= U.S., Raceway Module, Outlet box, 20 amp, Standard unlocked- P13 module, Housing ground- M59 meter- with display- Line to line, delta- painted Black*

MRMO060L-EXEH-M43-D-3-WHT *= Metric, Raceway Module, Outlet box, 60 amp, Locked- custom box, Housing ground- M43 meter- with display- Line to Neutral, Wye- painted White*

RAL Colors

1st Character

P	Paint

2nd Character

0	100
1	101
2	102
3	103
4	200
5	201
A	300
B	301
C	302
D	303
E	400
F	401
G	500
H	501
J	502
K	600
L	601
M	602
N	603
P	700
Q	701
R	702
S	703
T	704
U	800
V	801
W	802
X	900
Y	901
Z	902

3rd Character

0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9

Example:

P B 2 = Paint RAL 3012

SPECIFICATIONS

PART 1 - GENERAL

1.1 SUMMARY-SCOPE

This specification covers the electrical characteristics and general requirements for a Plug-In Raceway system.

A. Starline Plug-In Raceway, hereafter referred to as 'Raceway', is an electrical distribution system using a continuous plug-in busway design with an enclosed pathway for power distribution and communication wiring. Plug-in modules contain receptacles to provide power with/without circuit protection at the point of use. Plug-in modules can be added to or removed from the Raceway without shutting down power, as designed for energized insertion per UL857. The Raceway also has an optional channel to run cabling for voice, data, multi-media, low voltage, and optical fiber cables or other similar items.

1.2 STANDARDS

Raceway is designed and manufactured to the following standards:

A. Underwriters Laboratories Standard, UL 857 – The common UL, CSA, and ANCE Standard for Busway that is derived from the fifth edition of CSA Standard C22.2 No. 27, the twelve edition of UL 857, and the second edition of NMX-J-148-1998-ANCE

B. National Electric Code (NEC) – Article 368 – Busway

C. National Electric Code (NEC) Article 386 Surface Metal Raceways

D. cETLus

E. NFPA 70 – National Fire Protection Agency

F. Low Voltage Directive (73/23/EEC) including Amendment (93/68/EEC)

G. Low Voltage Switchgear and Controlgear Assemblies, Part 1: Type Tested and partially type tested Assemblies, IEC 60439 1

H. Low Voltage Switchgear and Controlgear Assemblies, Part 2: Particular Requirements Busbar Trunking systems (Busway), IEC 60439 2

I. IEC 61534-1 requirement for Powertrack (PT) system

1.3 SUBMITTALS

A. Product Data: For each type of product indicated. Include data on features, components, ratings, and performance.

B. Shop Drawings: For Plug-In Raceway include:

1. Detail equipment assemblies and indicate dimensions, weights, and location and identification of each field connection.
2. Wiring Connection: For power and monitoring wiring.
3. Orientation of Plug-In units face in final installation.
4. Include Plug-In Schedule with detailed description.
5. Product Data sheets.
6. Installation Instructions Drawings.

C. Manufacturer Certificates: For each product, from manufacturer.

D. Operation and Maintenance Data: For Plug-In Raceway System include in operation and maintenance manuals.

1.4 MAINTENANCE MATERIAL & SPARE PARTS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
1. Plug-in Units
2. Field cut kits can be distributed to customize the length of the raceway in the field.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: Firms regularly engaged in the manufacture of raceway systems, boxes and fittings of the types and sizes required, whose products have been in satisfactory use in similar service for not less than 5 years. Provide raceways and boxes produced by a manufacturer listed in this section.

SPECIFICATIONS

B. Electrical Raceways, Boxes, and Components: Comply with requirements of applicable local codes, NEC, UL, ETL, NEMA and IEC Standards pertaining to busway, raceways, boxes, and components. Listed and labeled in accordance with UL857 and NFPA 70, article 100.

1.6 WARRANTY

A. Warranty: The Raceway manufacturer shall guarantee the entire system against defective material and workmanship for a period of one (1) year from date of shipment.

B. Manufacturer shall agree to repair or replace components that fail in materials or workmanship within specified warranty period. Warranty shall include all labor, material, and related expenses to restore system and/ or components from failures.

1.7 DELIVERY, STORAGE AND HANDLING

A. Deliver raceway system in factory labeled packages. Store and handle in strict compliance with manufacturer's written instructions and recommendations.

B. Protect from damage due to weather, excessive temperature, and construction operations.

C.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURER

A. Basis of Specification is Starline Plug-In Raceway as manufactured by Universal Electric Corporation.

B. Provide Starline Plug-in Raceway as manufactured by Universal Electric Corporation, 168 Georgetown Rd., Canonsburg, PA 15317: toll-free 1-800-245-6378, telephone 724-597-7800, fax 724-916-2221; www.StarlinePower.com. NO KNOWN EQUAL.

2.2 STARLINE PLUG-IN RACEWAY

A. Starline Plug-In Raceway assembly: Model Series 20A &, 60A (domestic), 20A & 63A (international) power only and power and data configurations.

2.3 PRODUCT DESCRIPTION AND COMPONENTS

A. Raceway system that shall be provided as 4 pole, (3Ph plus N) rated up to 480 Vac or 480 Vdc (domestic), 415 Vac (international), in power only single channel or power-data duel channel configurations.

B. The 20A and 60A (63A international) continuous surface mounted busway shall be a plug-in type module that allows for the direct plug-in of modules that contain various types of receptacles. Circuit breakers shall be provided as part of the plug-in modules.

C. This system is intended for field installation in accordance with Article 368 of the National Electrical Code (NEC) and installation instructions provided by the manufacturer.

D. Enclosure: Indoor use only. Approved for floor, wall, or ceiling mount.

E. Grounding: Provided by the metal enclosure or by copper ground conductor on request.

F. Support: To be supported every 32 inches (813mm) max

G. Short Circuit Rating: 10,000 RMS symmetrical amperes.

H. System type & Amperage (power only single channel OR power-data duel channel, 20 or 60A/63A)

a. <u>Sections and Fittings</u>

- 3 Phase 277/480 Vac or Vdc maximum, 100% rated Power Only (single channel) @ 20 or 60 Amp (domestic)
- 3 Phase 277/480 Vac or Vdc maximum, 100% rated Power-Data (dual channel) @ 20 or 60 Amp (domestic)
- 3 Phase 415 Vac maximum Power Only (single channel) @ 20 or 63 Amp (international)
- 3 Phase 415 Vac maximum Power-Data (dual channel) @ 20 or 63 Amp (international)

SPECIFICATIONS

b. Conductor Materials
20 Amp series uses bare copper; 60 Amp and 63 Amp series uses tin plated copper wire
x – Raceway length
y – EMI Shield option;
U = Unshielded or
S = Shielded

c. Joint Kit

d. End Cap

e. Elbows

f. Power End Feeds or Center Feeds
Providing components unassembled allows installers to field customize as required. Installer can configure for left hand, right hand, top or rear wire entry points. All units rated at 480 Vac and/or 480 Vdc max / 20 & 60 Amps (domestic); 415 Volts max/ 20 & 63 Amps (international).

g. Plug-In Module
Plug-in modules can be provided with circuit breaker overcurrent protection at the point of use. The circuit breakers and receptacles are factory wired and ordered to meet the user's power requirements.
h. The raceway covers consist of either plug-in modules or blank cover filler sections.

PART 3 - EXECUTION

3.1 PREPARATION AND INSTALLATION

A. Layout drawings of the raceway system should be approved prior to installation.
Note: Raceway is intended for indoor applications in well controlled dry environments, it should not be installed in wet areas.

i. Manufacturer's instructions for installing raceway and fittings should be followed by the installer.
ii. All wall surfaces or other permanent structures to which raceway is mounted, should be completed prior to installation.

1.Raceway Support: Starline Plug-In Raceway should be supported at intervals not exceeding 32 inches (813mm) or in accordance with manufacturer's installation sheets.

iii. d. Accessories
iv. Provide accessories as required for a complete installation, including insulated bushings and inserts when required by manufacturer

v. e. Unused Openings
vi. Close unused Raceway openings using manufacturers' recommended accessories such as covers, end caps and other such accessories.

3.2 CLEANING AND PROTECTION

A. Clean exposed surfaces using non-abrasive materials and methods recommended by manufacturer.

B. Protect raceways and boxes until installation, commissioning and testing.

C. Starline Plug-In Raceway is manufactured by Universal Electric Corporation, 168 Georgetown Rd., Canonsburg, PA 15317. Toll-free phone: 1-800-245-6378; telephone: 724-597-7800; fax: 724-916-2221; www.uecorp.com, No known equal.

3.3 FIELD QUALITY CONTROL

A. Installing Contractor Inspections:

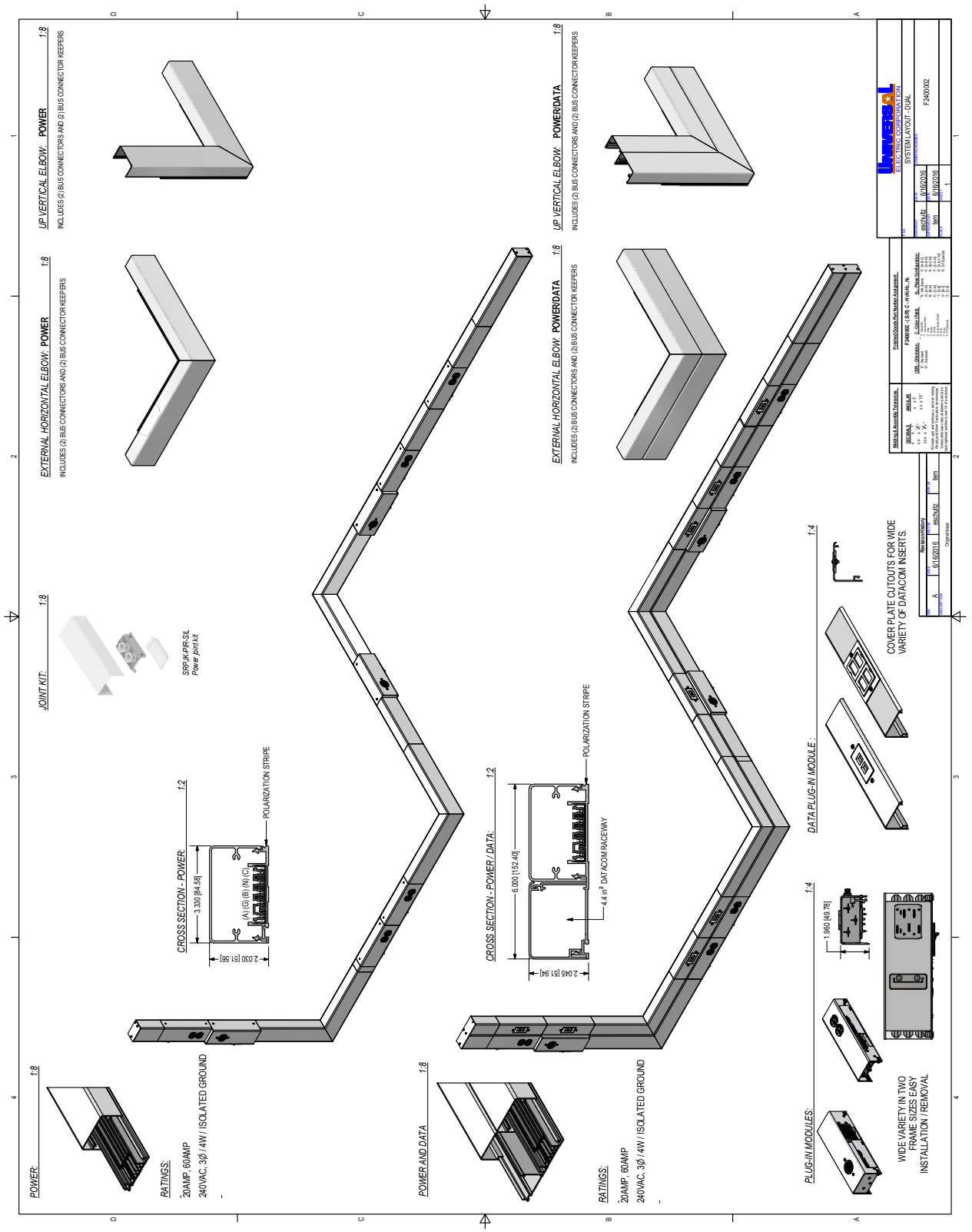
1. Comply with manufacturer's written instructions.
2. Inspect interiors of enclosures, including the following:
a. Integrity of mechanical and electrical connections.
b. Component type and labeling verification.
c. Ratings of installed components.

B. Installing Contractor to prepare inspection reports.

END OF SECTION xxxx

Product Drawings & Technical Information

DIAGRAM (cont'd)



*A larger version of this diagram is available for download on http://downloads.uecorp.com/starline/raceway/

FILL TABLE

The Plug-In Raceway Fill Table is a guide to determine the number of conductors allowed inside of the raceway for various cables. The maximum cable fill allowed by NEC is 40%.

			VOICE			DATA (Copper Cables)			DATA (Multimode Fiber Optic)		
			4-Pair	25-Pair	Type RG59U	Category 5e	Category 6	Augmented Cat 6	2/4 Fiber Round Cable	Fiber Optic Jumpers	Fiber Optic Zip Cord
		Wire O.D.	0.19	0.41	0.242	0.21	0.25	0.35	0.19	0.118	.12 X.24
		Area (sq. in)	0.0283	0.132	0.046	0.0346	0.0491	0.0962	0.0283	0.0109	0.0288
	Barrier	Channel Area	Number of Wires to fill 40% of Channel								
RD 20 amp RD 60 amp	center	4.4	62	13	38	51	36	18	62	161	61

Universal Electric Corporation, manufacturer of Starline Plug-In Raceway, has been a global leader in power distribution since 1924. The company's focus on innovation continues to pave the way for safer, more flexible and reliable electrical power distribution systems. Other Starline products include Track Busway, the customizable, overhead power distribution system; Critical Power Monitor (CPM), which works in conjunction with Starline Track Busway to improve energy efficiency; and DC Solutions, the revolutionary 380V direct current alternative for data centers.

UNIVERSAL ELECTRIC CORPORATION™

uecorp.com | starlinepower.com

STARLINE® PLUG-IN RACEWAY

United States

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UK & Northern Europe

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Asia Pacific Region Office

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REV 2.8

Most STARLINE systems and most standard components are UL, CE or ETL listed.

F0000020 11/2018