

Russellstoll®

Control Circuits Connectors – Type SK & SKW Overview

20 Amp, 250 Volts AC or DC, 600 Volts AC Max. Rating
Load-Breaking Multi-Circuit Receptacles, Plugs, Connectors and Inlets

Features and Benefits



Type SK

Type SK Multi-Circuit Receptacles, Plugs Inlets and Connectors are designed for indoor or NEMA 1 Automatic Press, Tool Control and Welder applications requiring rugged, shock-resistant devices capable of safely interrupting rated currents under load.

Receptacles and connectors have neoprene gasket mounts and positive grounding path through separate contact. Equipment grounding contacts make first and break last. Wiring space is generous. Listed ratings are for interrupting currents under load.

The time-tested Ever-Lok automatic locking feature provides positive connections under the most severe conditions of shock and vibration. Yet, a twist of the wrist instantly disengages the plug when required.

Type SKW






Type SKW Multi-Circuit Receptacles, Plugs Inlets and Connectors are designed for outdoor NEMA 4, rough service and critical environment Machinery, HVACR systems, Servo Control and other automatic/controlled functions requiring rugged, shock-resistant devices capable of safely breaking rated loads. These watertight & oil-tight devices are equipment grounded with ground contacts that make first and break last. Wiring space is generous. Listed ratings are for full load interrupting currents.

Both series feature simple set-screw wiring termination in a circular connector with up to 11 pole 12 wire circuit capability. A wide selection of cable bushings can be specified upon ordering at no additional charge. Conduit adapters are also available for shielded or construction usage for both SK and SKW series.

Note: More than 12 circuits, miniature connectors or rectangular format. Ask about T&B Pos-E-Kon Line.

Russellstoll[®]**Control Circuits Connectors – Type SK Ordering Information and Specifications**

Indoor, NEMA1, 20 Amp Load Breaking
250 Volts DC, 600 Volts AC (Max Rating)

	Standard Service		Reverse Service		Connector	
						
Poles/Wires	Female Receptacle Style SKR	Male Plug Style SKP	Male Receptacle Style SKRR	Connector*/Female Plug Style SKCU	Female Connector Style SKC	Cable Bushing Hole ID
2P3W	SKR3G	SKP3G	SKRR3G	SKCU3G	SKC3G	5/8"
3P4W	SKR4G	SKP4G	SKRR4G	SKCU4G	SKC4G	5/8"
4P5W	SKR5G	SKP5G	SKRR5G	SKCU5G	SKC5G	3/4"
5P6W	SKR6G	SKP6G	SKRR6G	SKCU6G	SKC6G	3/4"
6P7W	SKR7G	SKP7G	SKRR7G	SKCU7G	SKC7G	3/4"
7P8W	SKR8G	SKP8G	SKRR8G	SKCU8G	SKC8G	7/8"
8P9W	SKR9G	SKP9G	SKRR9G	SKCU9G	SKC9G	7/8"
9P10W	SKR10G	SKP10G	SKRR10G	SKCU10G	SKC10G	1"
10P11W	SKR11G	SKP11G	SKRR11G	SKCU11G	SKC11G	1"
11P12W	SKR12XG	SKP12XG	SKRR12XG	SKCU12XG	SKC12XG	1"

* **Connectors** – Both SKCU and SKC connectors will mate with standard service SKP plugs. SKC devices offer external shroud protection for female contacts. Both devices will lock with plug.

Note: Conduit Fittings: Plugs and connectors can be furnished with adapters to accommodate rigid conduit or standard connectors for armored and non-metallic cable or flexible conduit. See page H123. **Special Construction:** Press Control Lockout Dummy, Cat. #SKPD-

Specifications

Receptacle Housing – Furnished with neoprene gasket and 6-32 mounting screws.

Type SKWR – Cast aluminum, corrosion-resistant copper free alloy.

Style SKR - heavy gauge steel, plated

Plug Housing

Type SKP – Steel, zinc plated with heavy cast aluminum alloy cable clamp and cable bushing.

Type SKWP – Cast aluminum, corrosion-resistant, copper-free alloy, epoxy powder coat finish. Furnished with heavy cast cable clamp and cable bushing.

Connector Housing – Cast aluminum, corrosion-resistant, copper-free alloy, epoxy powder coat finish. Furnished with heavy cast cable clamp and cable bushing.

Conduit Boxes – cast boxes for above receptacles are listed on page H120. Type SK receptacles require FD series or DSFD box. Can be furnished with single gang outlet box at additional cost. When required, add suffix catalog number of box to catalog number of receptacle.

Cable Bushing – oil resistant, neoprene strain relief cable bushing regularly furnished with hole size as listed. Other hole sizes available at no extra cost if specified on order. See page H123 for additional sizes.

Interiors – contacts are removable and have pressure type terminals for 12 AWG wire maximum conductors.

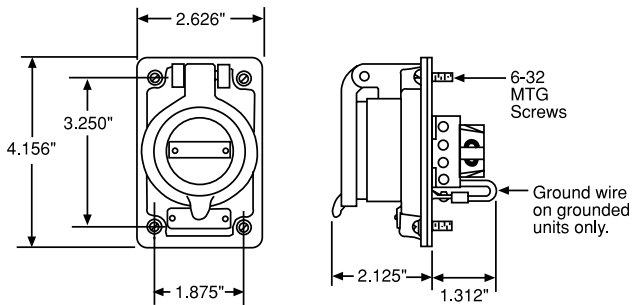
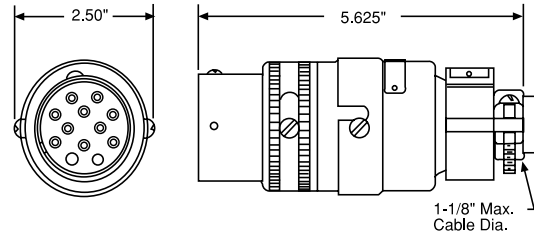
Insulating Bodies – arc and impact-resisting mold composition.

Contacts – silver plated with fully insulated pressure screw-type terminals.

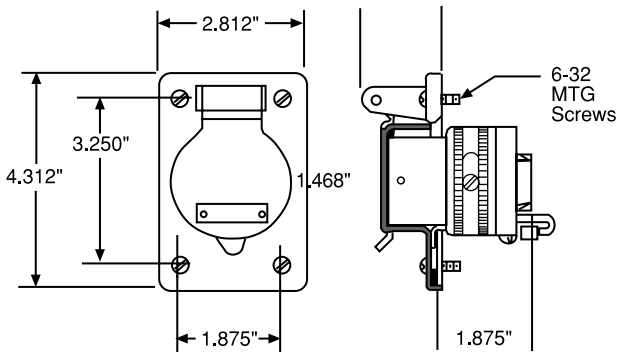
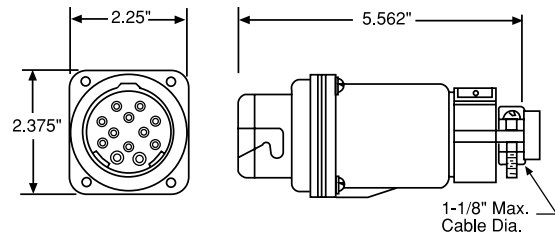
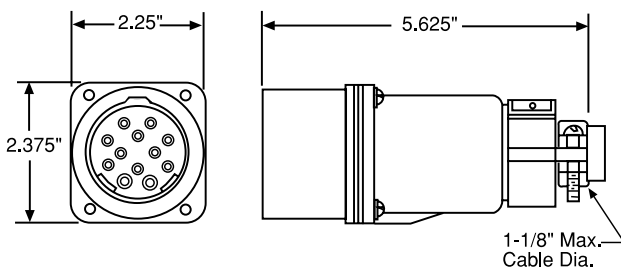
Repair Kits – Pins/Sleeves Repair – components for rebuild of 2-4 interiors

Male Devices Cat. No. SKX12MS

Female Devices Cat. No. SKX12FA

Russellstoll[®]**Control Circuits Connectors – Type SK Dimensions****Standard Service****Female Receptacle – Style SKR****Male Plug – Style SKP**

Note: All require FD or DSFD series box mounting.

Reverse Service**Male Receptacle – Style SKRR****Female Plug – Style SKCU (Non-shrouded connection)****Connector****Female Connector – Style SKC (shrouded style)**

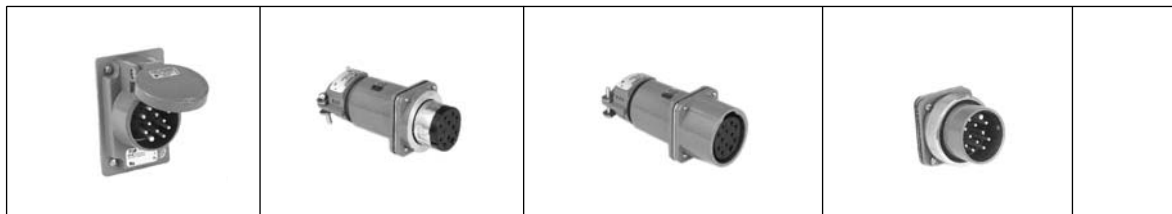
Russellstoll[®]**Control Circuits Connectors – Type SKW Ordering Information and Specifications****Ordering Information**

Outdoor, NEMA 4 (with screw cap)

20 Amp Load Breaking

600 Volts AC Max

250 Volts DC



Poles/Wires	Female Receptacle Style SKWR	Male Plug Style SKWP	Female Connector Style SKWC	Male Motor Plug Style SKWM	Cable Bushing Hole ID
2P3W	SKWR3G	SKWP3G	SKWC3G	SKWM3G	5/8"
3P4W	SKWR4G	SKWP4G	SKWC4G	SKWM4G	5/8"
4P5W	SKWR5G	SKWP5G	SKWC5G	SKWM5G	3/4"
5P6W	SKWR6G	SKWP6G	SKWC6G	SKWM6G	3/4"
6P7W	SKWR7G	SKWP7G	SKWC7G	SKWM7G	3/4"
7P8W	SKWR8G	SKWP8G	SKWC8G	SKWM8G	7/8"
8P9W	SKWR9G	SKWP9G	SKWC9G	SKWM9G	7/8"
9P10W	SKWR10G	SKWP10G	SKWC10G	SKWM10G	1"
10P11W	SKWR11G	SKWP11G	SKWC11G	SKWM11G	1"
11P12W	SKWR12XG	SKWP12XG	SKWC12XG	SKWM12XG	1 1/8"

Note:

* SKWM Male Inlet accommodates SKWC Connector (Female) Plugs and connectors can be furnished with adapters to accommodate rigid conduit or standard connectors for armored and non-metallic cable or flexible conduit. See page H123.

Specifications

Receptacle Housing – Type SKWR – Cast aluminum, corrosion-resistant copper free alloy. Furnished with neoprene gasket and stainless steel 6-32 mounting screws.

Plug & Connector Housing – Heavy cast aluminum, corrosion-resistant copper-free alloy, epoxy powder coat finish. Furnished with heavy cast cable clamp and cable bushing.

Conduit Boxes – cast boxes for above receptacles are on page H120. Can be furnished with single gang outlet box at additional cost. When so required, suffix catalog number of box to catalog number of receptacle.

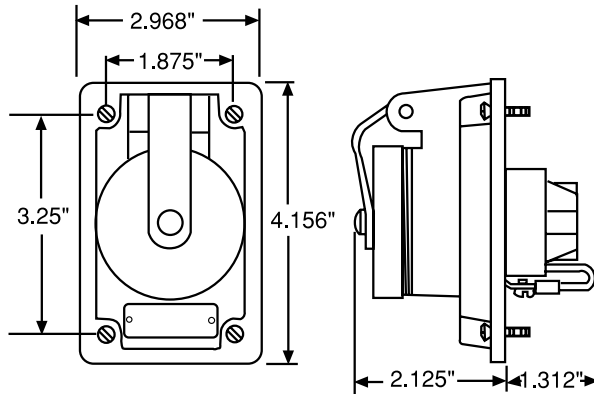
Cable Bushing – oil resistant, neoprene strain relief cable bushing regularly furnished with hole size as listed. Other hole sizes available at no extra cost if specified on order. See page H123 for additional sizes.

Protective Caps – Waterproof caps complete with mounting cable.

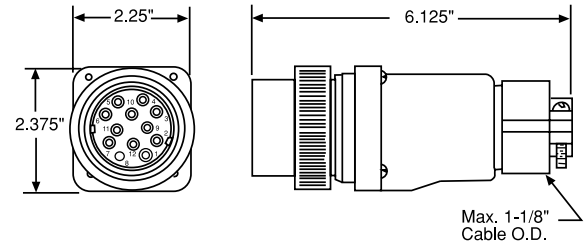
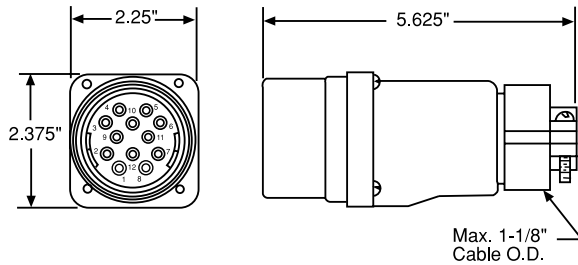
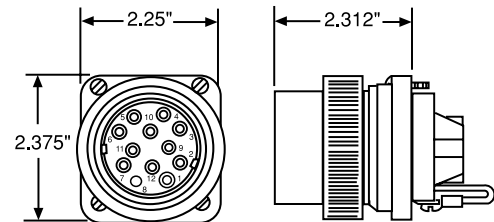
Male Devices Cat. No. F26874C (Cup Cap)
Female Devices Cat. No. F04077 (Screw Cap)

Repair Kits – Pins/Sleeves Repair – components for rebuild of 2-4 interiors

Male Devices Cat. No. SKX12MW
Female Devices Cat. No. SKX12FA

Russellstoll**Control Circuits Connectors – Type SKW Dimensions****Receptacle****Style SKWR**

Note: All require FD or DSFD series box mounting.

Plug**Style SKWP****Connector****Style SKWC****Motor Plug****Style SKWM****H**

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Control Circuits Connectors – Accessories

Mounting options for Midget & Standard Everlok

Type FS (shallow) & Type FD (deep)

Aluminum boxes have 6-32 cover mounting holes tapped to accommodate all FS and FD cover assemblies.

Brass boxes have 10-24 cover mounting holes tapped to accommodate all FS and FD cover assemblies.



Single Gang



Two Gang



DSFD

No. of Gangs	Type	Cast Aluminum	Cast Brass	*Overall Dimensions
Single	FS	3701A	3721	4.12" x 2.62" x 2.31"
	FD	3711A	3731	4.12" x 2.62" x 2.94"
	DSFD	3781A	3782	4.12" x 3.62" x 4.12"
Two	FS	3702A	3722	4.12" x 5.5" x 2.25"
	FD	3712A	3732	4.12" x 5.62" x 2.87"

Notes:

When type FD devices are to be mounted in boxes, type FD boxes should be used. FS boxes will not accommodate FD devices.

Mounting – all the above boxes are for surface mounting. For flush mounting see page H121.

Boxes – Cast brass, natural finish. Cast aluminum, corrosion resistant copper-free alloy, epoxy powder coat finish.

* Dimensions are overall exclusive of conduit pads and mounting lugs.

Outlets – unless otherwise specified, furnished with one .75" outlet per gang, top or bottom. Additional outlets charged extra – see price list. Specify size and location.

Maximum Conduit – FS and FD: 1", one per gang top and bottom and one each side.

DSFD: one 1.5" or two .5" top and bottom.

Cast iron available on special order – consult factory.

Type FSWS and FDWS (with mounting shelf for box-mounted devices)

Aluminum Die-Cast Boxes with cover mounting holes tapped for 6-32 screws to accommodate all FS and FD cover assemblies.

Cat. No.	Standard Outlets	
	Top	Bottom
FSWS-62	¾"	NA
FDWS-62	¾"	NA
FDWS-622	¾"	¾"
FDWS-63	1"	NA
FDWS-633	1"	1"

**Notes:**

Boxes – Aluminum die-cast, corrosion-resistant, copper-free alloy, epoxy powder coat finish.

Outlets – standard as listed.

Mounting – all of the above boxes are for surface mounting.

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Control Circuits Connectors – Accessories

Adapter Flush Frames*

No. of Gangs	Cast Aluminum	Cast Brass	Overall Dimensions
1	3671A	3681	5" x 3.5"
2	3672A	3682	5" x 6.5"



Blank Cover*

Covers Standard FS/FD box openings

Cast Aluminum	3677A
Cast Brass	3687



Flush Wall Mounting Extension*

Cast Aluminum	3679A
Cast Brass	3679B



45° Angle Adapter*

Mounts to any FS/FD box.

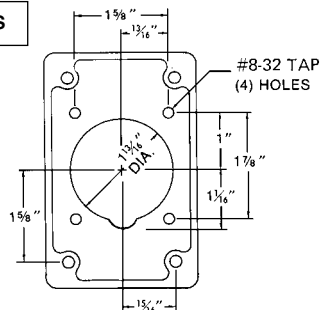
Cast Aluminum	3678A
Cast Brass	3678B



SKWM Mount Adapter Plate

Used to mount SKWM to FS/FD standard series boxes.

Aluminum	SKWMFS
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Adapter Sub-Plate

The addition of this adapter sub-plate will permit the use of Ever-Lok conduit box-type receptacles in switch boxes or outlet boxes with raised covers, as listed. Used on standard (deep) stamped metal conduit boxes. Adapts two hole to four hole patterns.

Cast Aluminum	8091A
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* Furnished complete with gasket and screws.

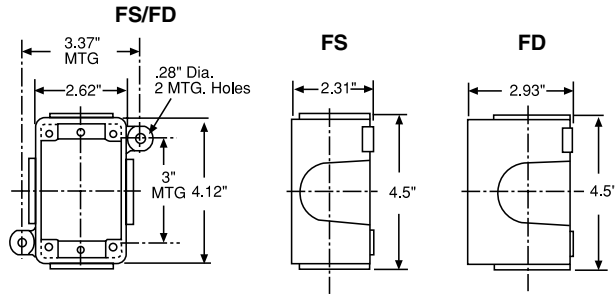
Materials: Cast aluminum, corrosion-resistant, copper-free alloy, epoxy powder coat finish. Cast brass, natural finish.

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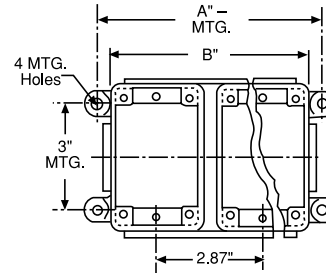
Control Circuits Connectors – Accessories

Type FS & FD

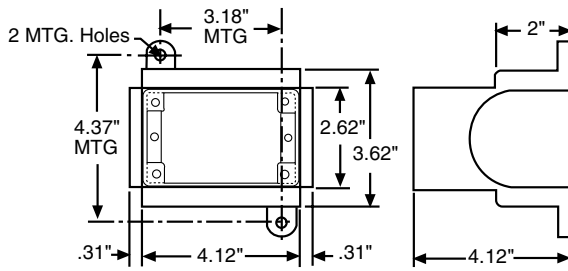
Single Gang



Multiple Gang



DSFD

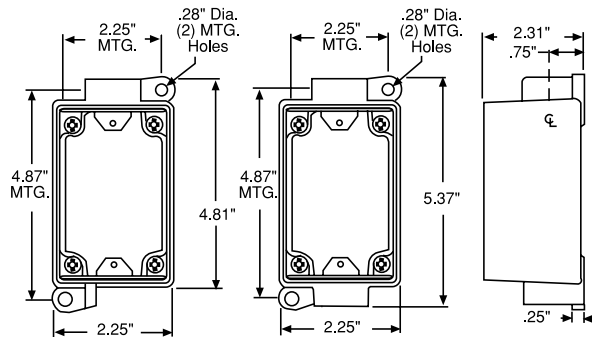


Multiple Gang Dimensions

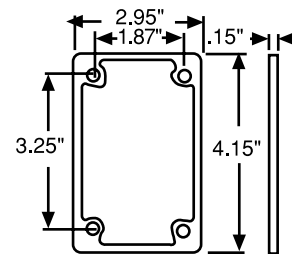
	A		B	
	FS	FD	FS	FD
2-Gang	6.50"	6.50"	5.50"	5.62"

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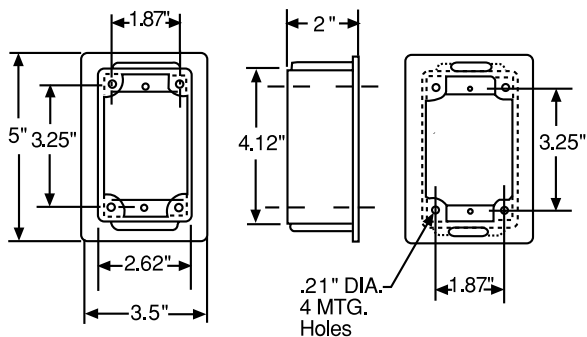
Type FSWS & FDWS



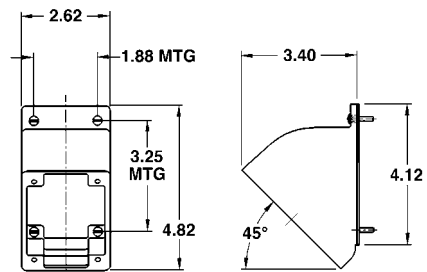
Blank Cover



Flush Mounting Extension



45° Angle Adapter



Russellstoll[®]**Control Circuits Connectors – Accessories****Combination Gland Nut and Cable Clamp**

Provides extra clamping protection in hard service applications. Relieves terminals and rubber gland of all cable strain.

Plug or Connector Size	Cast Aluminum Cat. No.	Cast Brass Cat. No.	Max Cable Dia.
20 Amp & SKW	3906	3906B	1 $\frac{1}{8}$ "

Notes:

Material – cast aluminum, corrosion-resistant, copper-free alloy, cast brass, epoxy powder coat finish or cast brass, natural finish.

Adapters for Conduit

Adapter tapped with NPT thread to accommodate armored and non-metallic cable or flexible conduit.

Plug or Connector Size	Cast Aluminum Cat. No.	Cast Brass Cat. No.	Tapped Hole NPSM
20 Amp & All SKW	FSA21 FSA22 FSA23	FSA21B FSA22B FSA23B	1 $\frac{1}{2}$ " 3 $\frac{1}{4}$ " 1"

HRussellstoll[®]**Cable Bushings**

Hole Diameter for Cable	Size 3 20 Amp
.375"	JG31
.500"	JG32
.563"	JG325
.625"	JG33
.750"	JG34
.875"	JG35
1.000"	JG36*
1.125"	JG361**



Size 3
Cable Bushing

Material – oil resistant neoprene.

Size 3 Cable Bushing:

*Style for Maximum Cable only.

**Special minimum wall style.

Notes:

When standard plugs or connectors are required to be furnished with one or more of the above accessories, add the suffix and catalog number of the accessory selected by a "I" to the catalog number of the plug or connector. Complete list price is the total of the list price of the device plus the list price of the accessory.

EXAMPLE – Catalog No. SKP9G with 1" bushing would be Catalog No. "SKP9G/JG36."

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Heavy Duty Tumbler Switches

General use heavy duty switches are applied to control a variety of lighting, power and machinery branch circuit loads. They can be used with any Russellstoll industrial receptacle for maximum control system flexibility.

Ordering Information

Watertight



1-2 HP Rated

Switch	125/250 VAC Rating		Cast Aluminum	Cast Brass
	Hp	Amps		
Single Pole / Single Throw	1.5/2.0	15	3705S7	3725S7
	1.0/2.0	20	3705S27	3725S27
	2.0/2.0	30	3705S37	3725S37
Double Pole / Single Throw	1.5/2.0	15	3706D7	3726D7
	1.0/2.0	20	3706D27	3726D27
	2.0/2.0*	30	3706D37	3726D37

Notes:

Switches rated 15 or 20 Amp, 277 volts, A.C. and with other than listed ratings can be furnished. Prices and information on application. AC only.

* Also rated 1 Hp, 460VAC or 2Hp to 600VAC.

Boxes Available in cast aluminum, cat. no. 3701A and cast brass cat. no. 3721.

Specifications

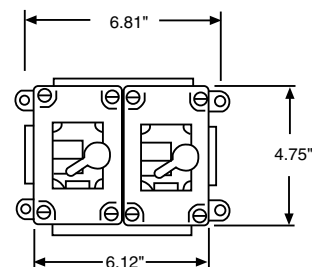
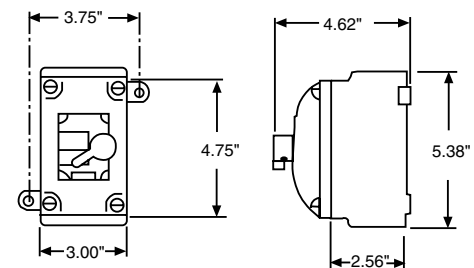
Enclosures – Corrosion resisting baked enamel finish. Cast brass, natural finish.

Gang Types – Can be furnished in 2 gang aluminum or tandem units and in combination with other Russellstoll FS and FD devices. Contact Technical Services.

Outlets – Unless otherwise specified, furnished with one 3/4" outlet per gang, top or bottom. Additional or larger outlets charged extra – see price list. Maximum conduit 1": single gang – top and bottom only, multiple gang – one per gang top and bottom and one each side. Specify size and location.

Flush Mounting – Adapters for flush mounting are listed on page H121.

Dimensions



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Industrial Interlocked Receptacles – Overview



Industrial Interlocked Receptacles are available in 30 thru 400 Amp. Switched receptacles have mechanical linkages for added safety. Safety features include:

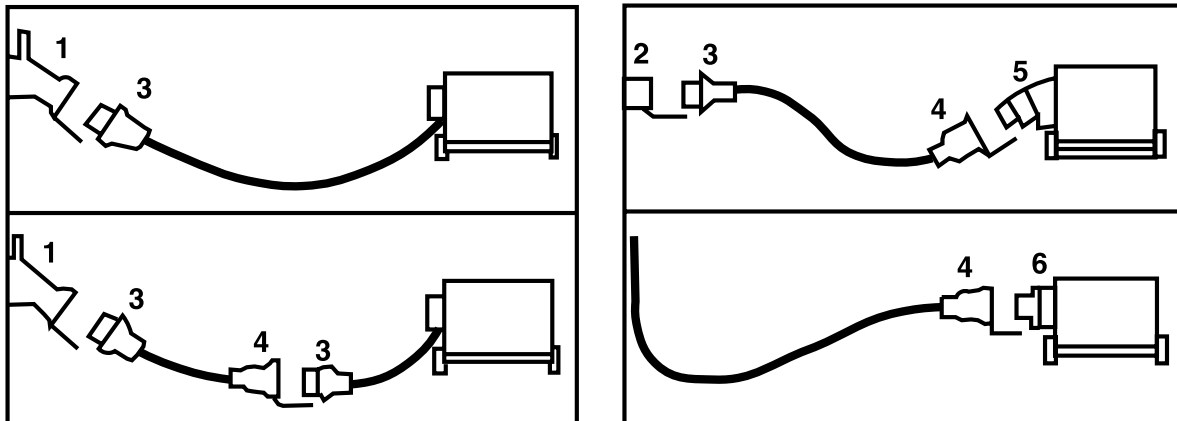
- Plugs cannot be inserted unless power is safely turned off.
- Plugs cannot be removed until power is turned off.
- Specialty designs may also automatically disengage power if plug is removed while power is on, either mechanically or electrically.

Applications

Applications where these units are most commonly used are:

- Welding stations in automotive and heavy industry.
- Temporary and portable power distribution for construction.
- Marine shore to ship power.
- Industrial machinery installation.
- Portable power distribution, vehicle and gen set power for aerospace.
- Custom systems in all industries.

Sample Installation: Fixed Power Source (Wall) To Remote/Portable Location



1. Receptacle (wall mtg.) (female)
2. Receptacle (panel mtg.) (female)
3. Plug (attachment)

4. Female Connector
5. Male Inlet w/Angle Adapter
6. Male Inlet w/Straight Adapter

Other Installations: Generator Power Sources, Custom Control Circuits, Multiple Voltage Service – Contact Technical Services.

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Industrial Interlocked Receptacles – Overview

The Most In Mounting Options



Industrial Wall Mount Interlocks

- Indoor service NEMA 3R.
- Fused protection.
- 30-100A Models, 600V.
- Heavy Service EverLok® or MaxGard® interfaces.



Automotive / Heavy Industrial I-Beam Web Mount

- Indoor service NEMA 12/3R.
- Fused or circuit breaker protection.
- 30-100A Models, 600V.
- Stepdown transformer-disconnect designs with convenience outlets.
- Cast aluminum & sheet steel housing versions.
- Mounts inside web of standard 8" I-beam column.
- Interfaces with Heavy Service Ever-Lok, MaxGard, Standard Ever-Lok and FS/ FD.



Marine / Heavy Industrial & Custom

- Outdoor service NEMA – 3R to 4X.
- Switched or circuit breaker protection.
- 30-400A Models, 600V.
- Cast aluminum or cast brass.
- Mounting to customer specifications.
- Interfaces with MaxGard, FS/FD and more.

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Industrial Interlocked Receptacles – Overview

MaxGard Fused-Disconnect** Interlocked Receptacle with Disconnect Switch

Available in 30, 60 and 100 amp sizes, all polarizations.



MaxGard's Fused-Disconnect Interlocked Receptacle with safety switch, meets UL, NEC and major automotive specifications. This unit is the maximum in:

Safety

- Door safety switch, with three external lockout points.
- Safety fuse pulls for standard class R fuses.
- Backup door safety latch.

Durability

- Heavy .060 steel galvaneel with baked enamel, NEMA 3R/12 construction.
- Clear shield for test probes.

Performance

- Standard 600V cartridge fuse clips and spacing.
- Fully interlocked MaxGard receptacle.
- Angled front receptacle for easier access.

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Ordering Information

Maximum 600 VAC
or 250 VDC

Notes:

** Non-fused version available: Specify
DNRF _____ . (Non-U/L)

Standard polarizations shown. **Boldface** figures
are for voltage assignment; **for different ratings
see page H20.**

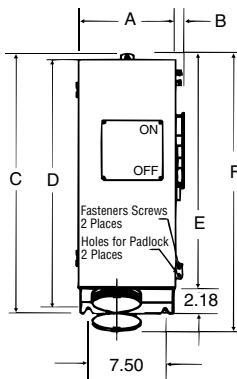
Conduit Hubs

Amp	Std. NPT thread outlet	Max
30	1½"	2½"
60	2"	2½"
100	2"	2½"

Specifications on page H14.

	Poles Wires		Voltage	Fused Disconnect** Interlocked Receptacle NEMA 12/3R Cat. No.	Mating MaxGard Plug Cat. No.	Std. Bushing ID
30 Amp	2P3W	125		DFRF3 1070 ▼	DS3 107 MP000	⅞"
	2P3W	250		DFRF3 2070	DS3 207 MP000	⅞"
	3P4W	3Ø250		DFRF3 3070	DS3 307 MP000	1"
	3P4W	3Ø480		DFRF3 4040	DS3 404 MP000	1"
60 Amp	4P5W	277/480		DFRF3 5040	DS3 504 MP000	1⅜"
	2P3W	250		DFRF6 2070	DS6 207 MP000	1⅜"
	3P4W	125/250		DFRF6 3070	DS6 307 MP000	1⅜"
	3P4W	3Ø480		DFRF6 4040	DS6 404 MP000	1⅝"
100 Amp	4P5W	277/480		DFRF6 5040	DS6 504 MP000	1½"
	2P3W	250		DFRF1 2070	DS1 207 MP000	1⅞"
	3P4W	125/250		DFRF1 3070	DS1 307 MP000	1⅞"
	3P4W	3Ø480		DFRF1 4040	DS1 404 MP000	1⅞"
	4P5W	277/480		DFRF1 5040	DS1 504 MP000	2"

▼ **Control Contacts** (position 9) use "K" example: DFRF1207K
Always use liquid-tight fittings to limit condensation entry.



Dimensions

Amp	A	B	C	D	E	F
30	9½"	¾"	25¾"	25"	22¾"	30"
60	9½"	¾"	25¾"	25"	22¾"	30"
100	9½"	¾"	25¾"	25"	22¾"	30"



E5239

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Industrial Interlocked Receptacles – Fused-Disconnect Interlocked Receptacle/Safety Switch

Heavy Service Ever-Lok 60 Amps

Standard fused/non-fused disconnect interlocked receptacle and safety switch is specified by major automotive manufacturers for welding disconnects and other applications. The Heavy Service Ever-Lok system features 'one-handed' insertion, locking and removal with your choice of switchgear!

Benefits

- Specified switchgear: GE or Square D.
- Door safety switch with external lockout access.
- Backup door safety latch.
- Push-in plug locking: no screw collars needed.
- Full interlocked outlet protection and functions.
- Angled front receptacle in compact one handed interlock.

Options (Custom Capabilities)

- Other Russellstoll product interfaces.
 - 30, 60, 100 or 200 amp installations.
 - Specialty enclosures for your application.
 - Circuit breaker interlocked mechanisms.
- * See pages H107-H113 for full Heavy Service Ever-Lok line

Features

- Heavy steel galvaneel with baked enamel finish.
- NEMA 3R/12 construction.
- Standard 600V class, Type R fuses.
- Listed components.

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Ordering Information

GE Switchgear

Cat. No.	Mating Plug
TH3362JRS	8418 or F27194†

(Mating Plugs sold separately)

*other styles available

† F27194 Automotive 480VAC Label

Square D (mechanism)

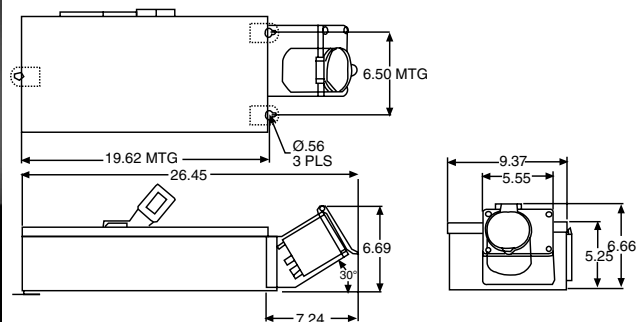
Cat. No.	Mating Plug
ESDFH8414F00	8418 or F27194†

(Mating Plugs sold separately)

*other styles available

† F27194 Automotive 480VAC Label

Also available: Many options for mounting, configuration or interfaces.



Russellstoll®

Industrial Interlocked Receptacles – Combination Interlocked Transformer Disconnect Automotive/Heavy Industrial I-Beam Web Mount Combination Interlocked Transformer Disconnect

60 Amp, 480 VAC plus 120 or 240 VAC convenience outlets to spec.
3P4W (100A also available)



ERSFH8414FBB
ERSFH8414FDC*

*A number of convenience outlet types, including NEMA bladed styles can be supplied.

Benefits

Transformer Disconnects offer a combination of voltage outlets from a single facility 480V 3Ø service drop. Standard configurations include a fused, interlocked 480VAC, 60A 3Ø receptacle outlet and separately protected 120/240 VAC, 15-20A convenience outlets. Custom configurations are available to meet your application requirements.

- **Quickest** way to expand or build a single voltage factory or facility, with voltage combinations available at every power drop.
- **Safest** way to operate: with fuses and breaker protection for each receptacle. 60A plug cannot be inserted or removed unless power is “off”.
- **Most cost effective** way of providing power and convenience outlets in one location; wall mount or column mount in standard 8" I-beam pillars.

Specifications

Electrical & Safety Features:

- Fused 480VAC 60A 3P4W Receptacle + Fused Dual 125 VAC 20A 2P3W Outlets 20A Combination breaker/GFCI convenience outlets on door.
- Heavy Duty (8 hour rated) 2KVA 480VAC-120VAC (fused primary) transformer 4KVA option available.

Mechanical and Safety Features:

- **Three Point, Two-way Interlock Function:**
 - Blade type disconnect handle interlocked with door handle.
 - Main disconnect uses steel rod arm interlock to 480VAC outlet.
- **High strength** 3-point door hinge design.
- Standard 8" I-Beam web vertical mounting or conventional wall mount.
- **Easy access** angled front 480VAC receptacle position.
- **Heavy duty** 14 gauge steel NEMA 3R/12 welded enclosure with gasketed door Electrostatic epoxy powder coat gray finish.
- **Dual lockout** locations on main switch handle and door handle.

Optional Construction Features:

- Stepdown transformer 2KVA/4KVA and secondary.
- 30/60A outlet (Heavy Service Ever-Lok, Angle Type or 30A MaxGuard).
- Convenience outlet styles, types and protection.

Ordering Information

(many other configurations available)

Cat. No.	480VAC 60A Receptacle	Mating Plug	120VAC 20A Receptacle	Mating Plug
ERSFH8414FBB ERSFH8414FDC	8414Spl. 8414Spl.	8418 or F27194† 8418 or F27194†	8003N (x2) 8003U-1 (x2)	8593CTN* 8013U-1*

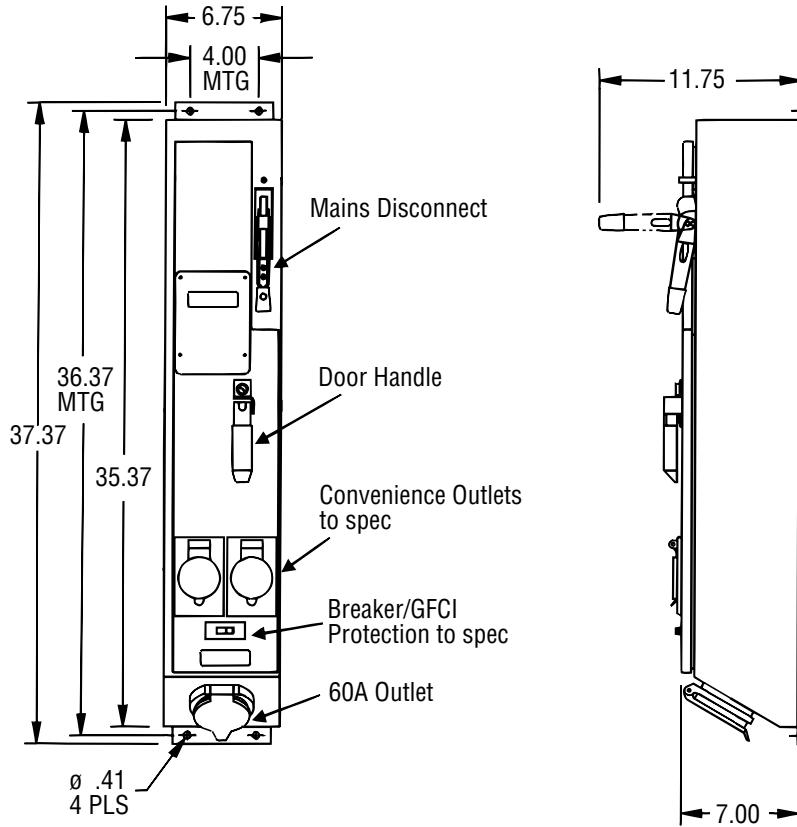
(Mating Plugs sold separately)
†F27194 Automotive 480VAC Label

*Other styles available
100A also available - consult factory

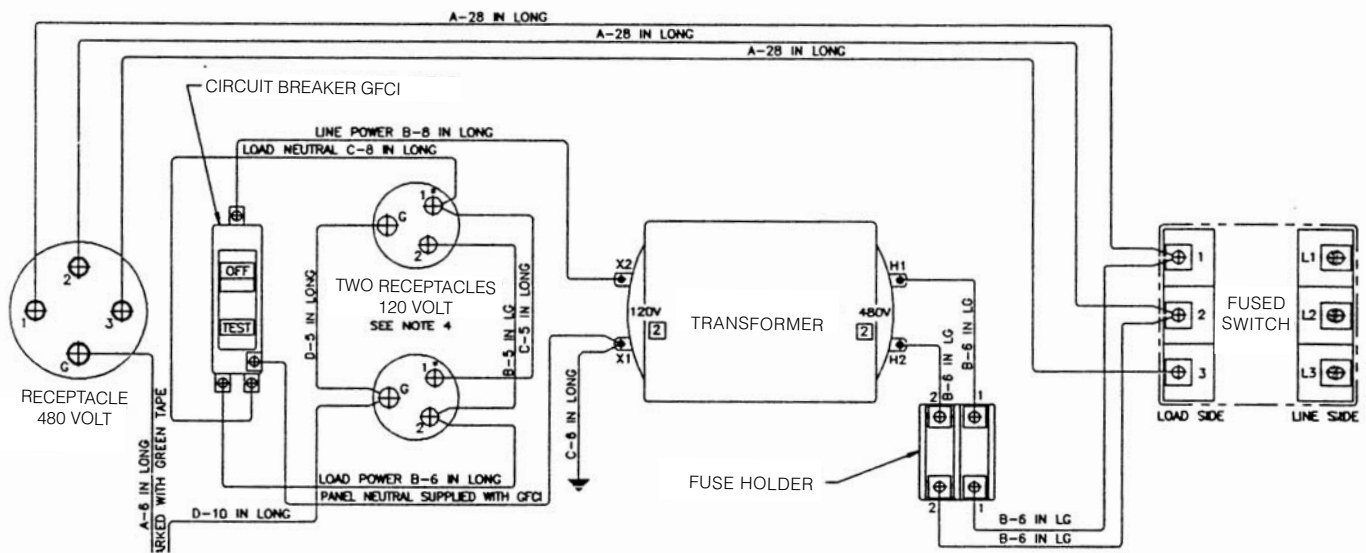
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Industrial Interlocked Receptacles

Dimensions



Wiring Diagram



Russellstoll®

Industrial Interlocked Receptacles –

Ever-Lok® Mechanically Interlocked Receptacle and Switch

Automotive/Heavy Industrial I-Beam Web Mount

Heavy Service Ever-Lok® Mechanically Interlocked Receptacles and Switch

60 Amp, 480 VAC/250VDC, 3P4W

Circuit Breaker Interlocked Receptacle Option



Note: CFCRA13-60 replaces previous Cat. #FCSRA13-60.



Features and Benefits

Mechanically interlocked between the receptacle and the switch. Designed so that when the plug is fully inserted the switch interlock is automatically released, permitting the switch to be turned on. The plug cannot be removed from the receptacle until the switch is manually turned off.

- Switch: 60 Amp, 480VAC, 3 pole, quick "make" and quick "break".
- Housings: heavy cast aluminum corrosion-resistant copper-free alloy with gray electrostatic epoxy powder coat finish. Furnished with oil-resistant gaskets.

- Handle lock-out feature.
- Circuit-breaker interlocked version available in standard and high AIC models.
- One-handed insertion or removal: unique auto-locking collar engages upon insertion, 1/8" counter-clockwise turn disengages for removal.
- Simple and rugged full interlock safety. Plug cannot be inserted or withdrawn while power is on.
- Fits in standard 8" I-beam web or wall mounting.

Ordering Information

Interlock Cat. No.	Mating Type	Plug
CFCRA13-60 F32753‡	Switched Only Circuit-Breaker	8418 or F27194† 8418 or F27194†

(Mating Plugs sold separately)

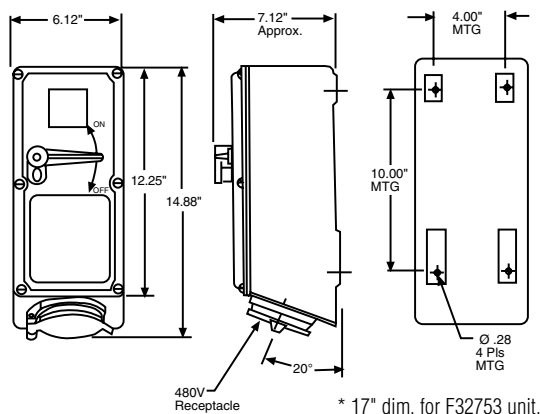
† Automotive 480VAC

‡70A Trip version F26313 and other variations also available.

Dimensions

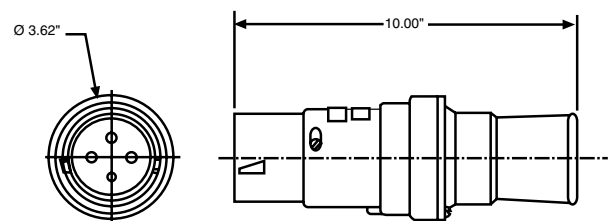
Mechanically Interlocked Switch

1 1/4" NPT Top Entry Std. / other sizes available.



Mating Plug

60A, 3P4W, 8418 or F27194



Thomas & Betts

Russellstoll[®]**Industrial Interlocked Receptacles – Interlocked Switch (30A, 480VAC)**

Automotive/Heavy Industrial I-Beam Web Mount

Interlocked Switch (FS/FD Interface)

30 Amp, 480 VAC

3P4W (other polarizations available)

**Features and Benefits**

The FS/FD Interlocked Switch is made of heavy duty cast aluminum. The mechanical interlock functions when the plug is fully engaged allowing the switch to be operated. Basic interlock design has many variations including screw cover, brass and circuit breaker versions.

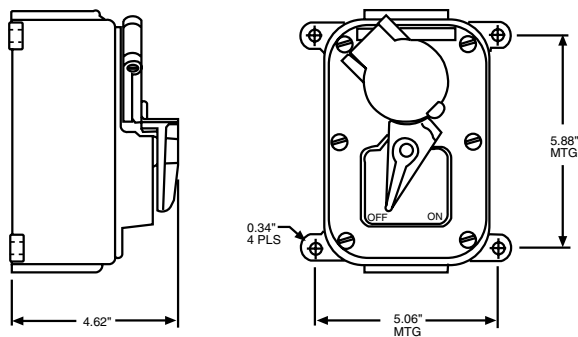
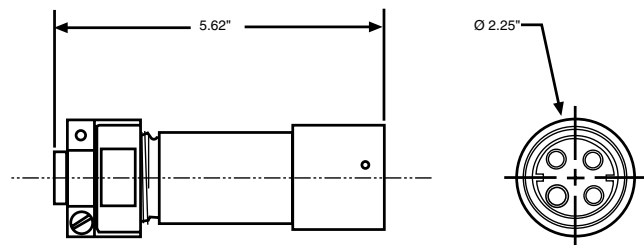
- Male plug cannot be plugged or unplugged under load.

- Dead-front female receptacle for safety.
- Weathertight receptacle made of cast aluminum, corrosion resistant copper-free alloy, gray electrostatic epoxy powder coat finish.
- Compact size for limited space applications.
- Available with UL style steel back boxes to user specifications.

Ordering Information

Cat. No.	Mating Plug
F34331	F34332

(Mating Plugs sold separately)

Dimensions**Interlocked Switch****Mating Plug**

Russellstoll®

Industrial Interlocked Receptacles –

Heavy Duty Industrial/Marine Interlocked Receptacle (MaxGard)®

Available in 30, 60, 100, 200 and 400 amp sizes, all polarizations.



MaxGard® NEMA 4x interlocks are ideal for demanding non-hazardous areas where dust, dirt, moisture and corrosion might be a problem—such as shipyards, food processing facilities, manufacturing operations or similar areas.

Safety

- Gated dead-front waterproof receptacle.
- Standard, high AIC or NA/switch circuit breaker.
- Protective screw cap for watertight protection.

Durability

- Thick wall cast copper-free aluminum housing with epoxy powder coat finish.
- Heavy duty sliding bar interlock mechanism.

Performance

- Heavy on/off handle adds mechanical to electrical interlock function.
- Standard conduit openings through top or side.

H

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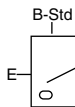
Ordering Information

Maximum 600 VAC/250 VDC

Boldface figures are for voltage assignment; for different ratings see page H20.

Conduit Hubs: (at B or E)

Amp	Std. NPT thread outlet	Max
30	1½"	2½"
60	1½"	2½"
100	2"	2½"



▼ **Control Contacts** (position 12) use "K" example: DBRF6104060K0

Shunt Trip Breaker (position 13) add "Z" to above: DBRF6104060KZ

Breaker Trip Ratings (positions 9, 10, 11) 30 amp use 030; 50 amp use 050; 60 amp use 060

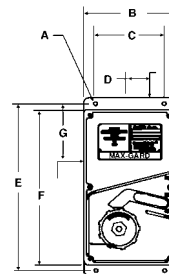
Non-Auto Sw. NAO (repl." DBRF" with "DSRF")

For additional full line and polarization options, see MaxGard section pages H9-H29.

	Poles	Wires	Voltage	Mechanically Interlocked Receptacle NEMA 4x	Mating MaxGard Plug	Std. Bushing ID
				Cat. No.	Cat. No.	
30 Amp	2P3W		125	DBRF3 107 03000	DS3 107 MP000	¾"
	2P3W		250	DBRF3 207 03000	DS3 207 MP000	¾"
	3P4W		3Ø250	DBRF3 307 03000	DS3 307 MP000	1"
	3P4W		3Ø480	DBRF3 404 03000	DS3 404 MP000	1"
	4P5W		277/480	DBRF3 504 03000	DS3 504 MP000	1¾"
60 Amp	2P3W		250	DBRF6 207 06000	DS6 207 MP000	1¾"
	3P4W		125/250	DBRF6 307 06000	DS6 307 MP000	1¾"
	3P4W		3Ø480	DBRF6 404 06000	DS6 404 MP000	1¾"
	4P5W		277/480	DBRF6 504 06000	DS6 504 MP000	1½"
100 Amp	2P3W		250	DBRF 1207 10000	DS 1207 MP000	1½"
	3P4W		125/250	DBRF 1307 10000	DS 1307 MP000	1¾"
	3P4W		3Ø480	DBRF 1404 10000	DS 1404 MP000	1¾"
	4P5W		277/480	DBRF 1504 10000	DS 1504 MP000	2"
200 Amp	3P4W		277/480	DBRF 2307 20000	DS 2307 MP000	1½"
	3P4W		3Ø480	DBRF 2404 20000	DS 2404 MP000	2¼"
400 Amp	4P5W		277/480	DBRF 2504 20000	DS 2504 MP000	2½"
	3P4W		277/480	DBRF 4307 40000	DS 4307 MP000	3"
400 Amp	3P4W		3Ø480	DBRF 4404 40000	DS 4404 MP000	3"
	4P5W		277/480	DBRF 4504 40000	DS 4504 MP000	3¼"

Dimensions

Amp	A	B	C	D	E	F	G
30	¾"	8¾"	6½"	1½"	16¼"	15½"	3½"
60	¾"	8¾"	6½"	1½"	16¼"	15½"	3½"
100	¾"	8¾"	6½"	1½"	16¼"	15½"	3½"
200	¾"	12¼"	9"	2½"	26¼"	24¾"	5"
400	¾"	15½"	12"	3"	30½"	29"	6"

**Thomas & Betts**

Russellstoll®**Industrial Interlocked Receptacles – Portable Power Distribution Centers (Custom)**

20-1200 AMP, 120-600VAC

**Benefits: Power Convenience and Control**

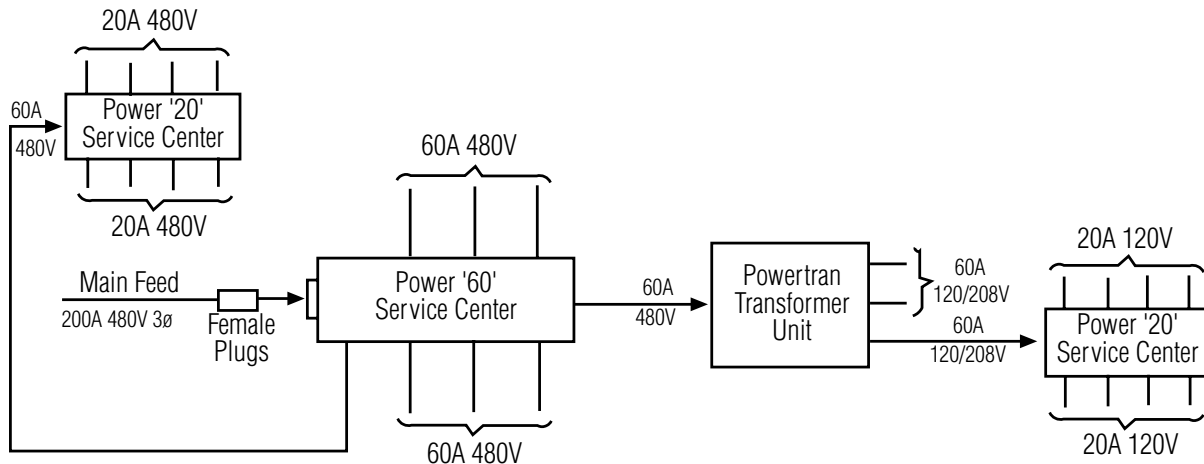
- Customer-specified custom power distribution.
- Many Russellstoll interface combinations.
- Designed-in safety features.
- Indoor and outdoor (to NEMA 4) construction.
- Built in accordance with applicable UL, CSA and NEC standards.

Options

- Amperage and voltages, inputs and outputs.
- Receptacles and/or interlocks used.
- Supply type and protection.
- Distribution or step-down transformers.
- Indoor/outdoor construction, materials & finishes.
- Auxiliary controls and functions.

Applications

- Portable welding power distribution.
- Shore power distribution.
- Combination voltage systems.
- Power and convenience combined.

Typical Schematic Diagram

Russellstoll®

Industrial Interlocked Receptacles – Portable Power Distribution Centers (Custom)

Heavy Duty Industrial/Marine

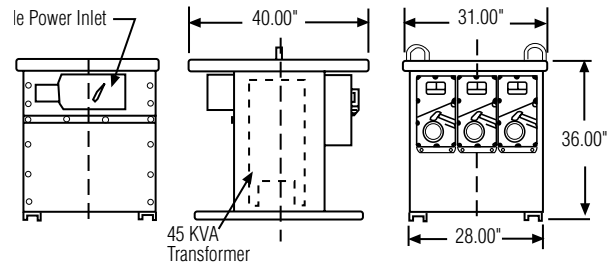
Typical Portable Power Distribution Projects

Powertran Case

Input Range: 60 Amps, Reverse Service, Normally 3P4W, 480VAC, Protect by 3-Pole Switch.

Transformer: Normally 45KVA, 480 VAC primary, 12/208 VAC, secondary, 3 phase.

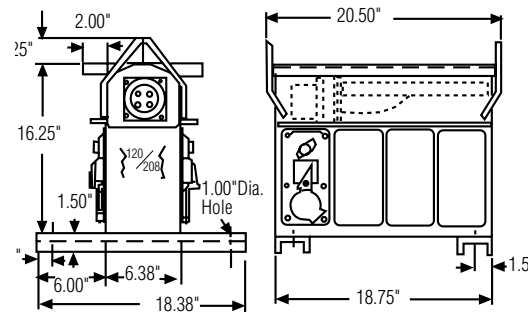
Output Range: Three Gang, 30 Amps, Normally 4P5W, 120/208 VAC interlocked with circuit breaker.



Power 20 Case

Input Range: 60 Amps, 3P4W, 480VAC or 60 Amps, 4P5W, 120/208VAC.

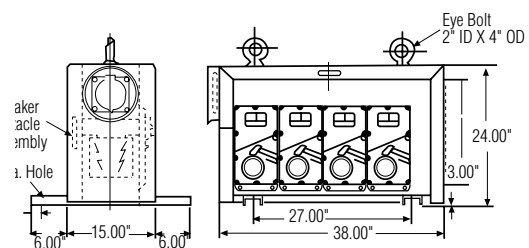
Output Range: Up to eight gang, 20 Amps, 3P4W, 480VAC or 20 Amps, 2P3W, 120/208VAC Interlocked with circuit breakers or fused switches.



Power 60 Case

Input Range: 200 Amps, Reverse Service, Normally 3P4W, 480VAC Input may be protected by circuit breaker.

Output Range: Up to eight gang, 30, 60, or 100 Amps, Normally 3P4W, 480VAC, interlocked with circuit breaker or switch.



Russellstoll®

Hazardous Duty Plugs, Receptacles and Interlocks



Hazardous Duty Applications

Russellstoll Hazardous Duty Plugs, Receptacles and Interlocks are designed to support a variety of installation needs throughout 20, 30, 60 and 100A ranges; where Division 1, Class 1 NEC guidelines require the utmost in safety.

Unique among others, the Russellstoll MaxGard also offers true O-ring sealed waterproof design protection in addition to standard threaded flame-path construction employed elsewhere. In rough service, washdown and outdoor applications, MaxGard performance goes beyond normal XP ratings.

With coming increases in harmonized designations for classifications between NFPA/NEC and IEC (International) hazardous area standards, a quick reference classification chart is provided below. In all cases, the customer must determine and approve proper area classification standards and degree of harmonized standards acceptance.



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Hazardous Materials Environment	U.S. NEC Stds	Euro IEC Stds.
Gas or Vapor	Div. 1, Class I Div. 2, Class I	Zone 0 & 1 Zone 2
Dust	Div. 1, Class II Div. 2, Class II	Zone 10 Zone 11
Fibers/Flyings	Div. 1, Class III Div. 2, Class III	Zone 10 Zone 11
Group Applications	NEC Art. 500 Class I: Groups	NEC Art. 505 Zones 0, 1 & 2
Div. 1 & 2, Class I	A: Acetylene	IIC
	B: Hydrogen	IIB
	C: Ethylene	IIB
	D: Propane	IIA

The above charts are presented for quick reference only and should only be used in conjunction with noted Articles. Further definition of harmonized standards will be supported by Russellstoll through appropriate specification efforts whenever practical.

Russellstoll®

Hazardous Duty Plugs, Receptacles and Interlocks

Interlocked Switch and Receptacles

Explosion-Proof: Class I, Groups C and D
 Dust Ignition-Proof: Class II, Groups G

These receptacles are for use in general Div. 1 classified industrial installations such as chemical plants, oil refineries, bulk stations, distilleries, solvent areas, mills, etc. A higher degree of safety is afforded by interlocking the plug with the switch, making it impossible to insert or withdraw plug under load.

When the polarized plug is inserted into the receptacle and the plug shell is turned clockwise, it turns the switch to the "on" position and vice-versa.

Ordering Information

20 Amp, 575VAC 30 Amp, 250VAC				
	Description	Flap Cover	Screw Cover	Plug
2P 3W 1 H.P. 220/575VAC	4240FC/ F16081A	4240SC	4241	5/8"
3P 4W 2 H.P. 110/575 VAC	4242FC	4242SC	4243	3/4"

H
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Specifications


Receptacle Housings – cast aluminum; electrostatic epoxy powder coated finish.

Plugs – steel, cadmium plated. Furnished with aluminum alloy cable clamp and neoprene cable bushing.

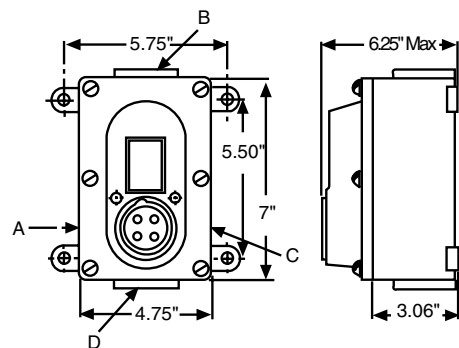
Outlets – standard 3/4" top, additional or larger outlets available. Maximum 1-inch four way. See diagram, use symbols when ordering.

Cable Bushing – oil resistant, neoprene strain relief cable bushing regularly furnished with hole I.D. size as listed. Other hole sizes available consult Technical Services for catalog number.

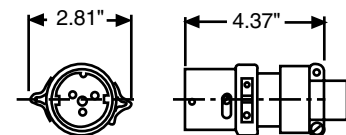
Two Gang style – Consult Technical Services.

Approvals:  E10919 

Dimensions



For 2 gang unit, width 9 3/8"
 Mounting Lugs – C. TO C. 10 1/2" W X 5 1/2" H



Russellstoll®

Hazardous Duty Plugs, Receptacles and Interlocks

Explosion-Proof Waterproof Circuit Breaker Interlocked Receptacle

Available in 30, 60 and 100 AMP sizes, all polarizations. Division 1, Class I & II

Heavy duty XP cast aluminum housing, electrostatic epoxy coat finish.

Standard, high AIC and NA (switched only) breakers available.

Threaded access (cover not shown) with "O" ring for XP and waterproof integrity.

Gated dead-front safety.

Drain Plug.

Factory sealed receptacle interior. Accepts standard XP rated MaxGard plugs.

UL and CSA listed for hazardous locations.

Class I, Division 1, Groups B, C and D
Class II, Division 1, Groups F and G
UL File E10919

NEMA 7, 8, 9

CSA

D.O.T. shipboard used above deck "green water"

NEMA 4X

USCG approved.

MaxGard DBRE and DSRE series interlocks are the only devices certified both explosion proof and waterproof, along with optional control contacts, fully UL listed.

Russellstoll®

H

Explosion-Proof Waterproof Non-Interlocked Receptacle

Available in 30A 480VAC max., all polarizations.

Heavy duty XP cast aluminum housing, electrostatic epoxy coat finish.

Threaded access with (cover not shown) "O" ring for XP and waterproof integrity.

Gated dead-front for safety.

All standard polarizations available to 480VAC.

Factory sealed receptacle interior. Accepts standard XP rated MaxGard plugs.

UL and CSA listed for hazardous locations.

Class I, Division 1, C and D
Class II, Division 1, Groups F and G
UL File E10919

NEMA 7, 8, 9

CSA

D.O.T. shipboard used above deck "green water"

NEMA 4X

USCG approved.

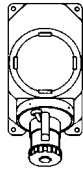
- **Factory Sealed Interior (no filled conduits).**
- **Easy low cost installation.**

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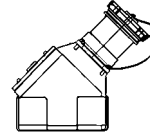
Hazardous Duty Plugs, Receptacles and Interlocks

Maximum
600 VAC or
250 VDC

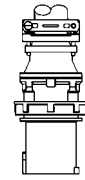
Ordering Information



Explosion-Proof Interlocked Receptacle With Circuit Breaker Class I, Class II



Explosion Proof Receptacle



Male Plug

Poles Wires	Voltage (VAC)	Cat. No.	Cat. No.	Cat. No.	Std. Bushing I.D.*
30 Amp					
2P3W	125	DBRE3 107 03000	DSE3 107 FR0	DS3 107 MP000	7/8"
2P3W	250	DBRE3 207 03000	DSE3 207 FR0	DS3 207 MP000	7/8"
3P4W	3Ø250	DBRE3 307 03000	DSE3 307 FR0	DS3 307 MP000	1"
3P4W	3Ø480	DBRE3 404 03000	DSE3 404 FR0	DS3 404 MP000	1"
4P5W	277/480	DBRE3 504 03000	DSE3 504 FR0	DS3 504 MP000	1 1/16"
60 Amp					
2P3W	250	DBRE6 207 06000	—	DS6 207 MP000	1 1/16"
3P4W	3Ø250	DBRE6 307 06000	—	DS6 307 MP000	1 5/16"
3P4W	3Ø480	DBRE6 404 06000	—	DS6 404 MP000	1 5/16"
4P5W	277/480	DBRE6 504 06000	—	DS6 504 MP000	1 1/2"
100 Amp					
2P3W	250	DBRE 1207 10000	—	DS 1207 MP000	1 1/16"
3P4W	3Ø250	DBRE 1307 10000	—	DS 1307 MP000	1 3/16"
3P4W	3Ø480	DBRE 1404 10000	—	DS 1404 MP000	1 3/16"
4P5W	277/480	DBRE 1504 10000	—	DS 1504 MP000	2"

* Non-fused version available. Replace DFRF with DNRF.

Boldface figures are for voltage assignment; for different ratings see following pages.

☞ * **Notes to Catalog Numbers: Suffixes**

▼Control Contacts

(position 12)
use "K" example:
DBRF6104060K0

Breaker Trip Ratings

(positions 9, 10, 11)
30 amp use 030
50 amp 050
60 amp 060

Shunt Trip Breaker

(position 13)
add "Z" to above:
DBRF6104060KZ

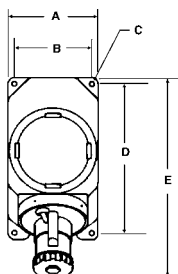
Non-Auto Sw. NAO

(repl. "DBRE" with
"DSRE")

For specification information and additional bushing sizes see MaxGard section, pages H9-H29.

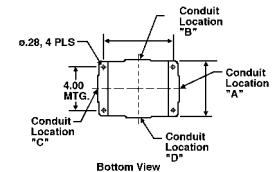
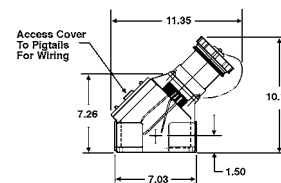
Dimensions

Explosion-Proof Interlocked Receptacle



Amp	A	B	C	D	E
30	8 3/4"	7 1/2"	1/2"	14 3/4"	20"
60	8 3/4"	7 1/2"	1/2"	14 3/4"	20"
100	8 3/4"	7 1/2"	1/2"	14 3/4"	20"

Explosion-Proof Receptacle



Russellstoll®

Hazardous Duty Plugs, Receptacles and Interlocks




Delayed Action Receptacles

Explosion Proof: Div. 1, Class 1, Groups C and D

Circuit breaking receptacles, plugs and connectors assure complete circuit breaking under full rated loads. Equipment grounding is provided by means of a separate pole which makes contact before and breaks contact after the circuit poles. The delayed action operation sequence is as follows:

Insert plug, turn left, push in to make electrical contact then turn right to prevent accidental disconnection. To withdraw plug, the reverse procedure is followed which allows time for extinction of the arc and cooling before the plug can be completely withdrawn.

Ordering Information

		Receptacles		Connector [^]	Plug	
						
Ratings	Poles/Wires	Surface Mount**		Flush Mount	Bushing	Cable Hole Dia.
		Straight	Angled			
Type EFS						
20 Amp	2P, 3W	4462	4464FC	4445	4803	4466 9/16"
125VAC or 250VAC	3P, 4W	4463	4465FC	4446	4804	4467 19/32"
Type DA						
30 Amp+	2P, 3W	RA4233BC	4233BC	—	—	4237BC 5/8"
250VAC or 480VAC	3P, 4W	RA4234BC	4234BC	—	—	4238BC 3/4"
60 Amp*	2P, 3W	RA4263BC	4263BC	—	—	4267BC 1 1/4"
480VAC	3P, 4W	RA4264BC	4264BC	—	—	4268BC 1 1/4"

Notes:

*Also available for use at 30 Amp, 480VAC

**Can be furnished with flap or screw cap covers. When so required, add suffix "FC" for flap or suffix "SC" for screw cap to above catalog number. Price on application.

▼ Furnished with plaster gage plate. Requires wall depth of 4-inches minimum.

[^] Portable-service receptacles (connectors) Not UL listed.

+ 30 Amp Iron Bodied Plug Family for replacement use only. Not UL listed. (60 Amp carries full listing)

Russellstoll®

Russellstoll®

Delayed Action Receptacles (EFS and DA)

Specifications

Receptacle Housings – EFS – Cast copper free aluminum; DA – cast iron, corrosion resisting baked enamel finish.

Plug Housings – 20 Amp – steel, cadmium plated; 30 Amp – cast iron; 60 Amp – steel and aluminum, natural finish. Plugs are furnished with aluminum alloy cable clamp and neoprene cable bushing.

Connectors – Cast aluminum, natural finish. Furnished with aluminum cable clamp and neoprene cable bushing.

Flush Plates – Brass, polished chromium finish.

Outlets – Furnished with one outlet top or bottom as follows. 20 Amp – ¾"; 30 Amp – 1", 60 Amp – 1½". Additional or larger outlets charged extra. Maximum conduit sizes, four ways as follows:

20 Amp – 1", 30 Amp – 1½"; 60 Amp – 2". Single gang-top and bottom only, two gang – one per gang top and bottom and one on each side. Specify size and location.

Cable Bushing – oil resistant, neoprene strain relief cable bushing regularly furnished with hole size as listed. Other hole sizes available at no extra cost if specified on order. See page H144.

Surface Gang Units – EFS available and can be furnished in 2 gang units or in combination with other like devices.

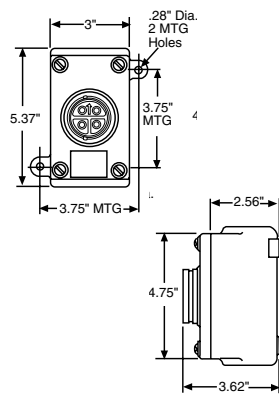
Approvals – (20 & 60 Amp)



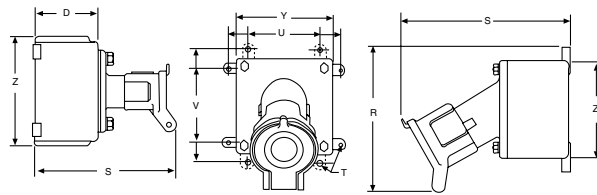
Dimensions

Surface Mount Receptacles

Type EFS (20 Amp) Straight



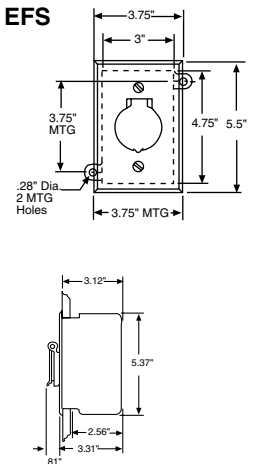
Type DA (30 & 60 Amp) Straight



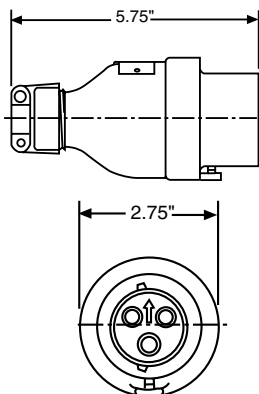
Amp		D	R	S	T	U	V	Y	Z
20	Angle	2.56"	—	6.12"	.28"	3.75"	3.75"	3"	5.37"
30	Straight	3.87"	—	8.62"	.34"	6.12"	5"	5.25"	6.75"
	Angle	3.06"	7.37"	8.37"	.28"	3.50"	5.50"	4.75"	4.75"
60	Straight	3.87"	—	9.25"	.34"	6.12"	5"	5.25"	6.75"
	Angle	3.87"	9"	9.25"	.34"	6.12"	5"	5.25"	6.75"

Flush Mount Receptacles

Type EFS

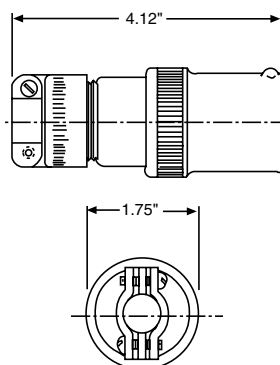


Connector

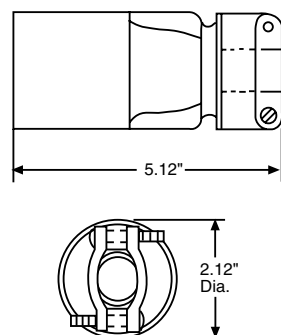


Plug

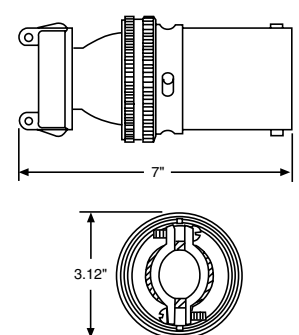
20 Amp Plug



30 Amp Plug



60 Amp Plug



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Delayed Action Receptacles (EFS and DA)

Accessories

Cable Bushings

For Explosion Proof Plugs & Connectors

To order non-standard bushing, add cable bushing number to end of catalog number. This is furnished at no additional cost at time of order. For 60 A devices, see J-line 60A chart on page H41.

Hole Diameter for Cable	Cat. No.	Hole Diameter for Cable	20A Cat. No.
.312"	SG05	.563"	SG25
.375"	SG1	.594"	SG2B
.438"	SG15	.625"	SG3
.500"	SG2	.687"	SG3A
.531"	SG2A	.750"	SG4



Material – Oil Resistant Neoprene.

Note: Cable outside diameter should be at or slightly less than bushing I.D. Bushings can compress approx. 10% at installation.

To Order add suffix as examples: 4466/SG3

H

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Flap Cover Assembly

For 20 Amp Delayed Action Circuit Receptacles

Part No.	Finish	Used on Cat. No.
F19054C	Chrome Plated	4445
F19054D	Natural Finish	4464

Combination Gland Nut and Cable Clamp

For 20 Amp Delayed Action Circuit Plugs

Provides extra clamping protection in hard service applications.

Part No.	Used on Cat. No.
F24853C	4466
F24853D	4467



Material – Cast aluminum alloy, natural finish

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Switches

Explosion Proof: Div. 1, Class 1, Groups C and D
 Dust-Tight: Class II, Groups E, F and G

In hazardous locations, these switches are applied to control a variety of lighting, power and machinery branch circuit loads. They can also be used with Russellstoll hazardous locations receptacles for maximum control system flexibility.

Ordering Information

EFS Series
20 Amp, 575VAC
30 Amp, 250VAC



Switch	Rating Hp	Amps	Explosion Proof & Dust Tight	2 Gang
Single Pole / Single Throw	1.5/2.0	15	4411S7	4421S7
	1.0/2.0	20	4411S27	4421S27
	2.0/2.0	30	4411S3	4421S37
Double Pole / Single Throw	1.5/2.0	15	4412D7	4422D7
	1.0/2.0	20	4412D27	4422D27
	2.0/2.0*	30	4412D37	4422D37

Notes:

Switches with other than listed ratings can be furnished. Prices and information on application.

* 1 Hp, 460VAC, 2 HP, 115 or 230VAC, 250 or 600VAC rating also applies to 30A switch. Brass construction also available - consult Technical Services.

Specifications

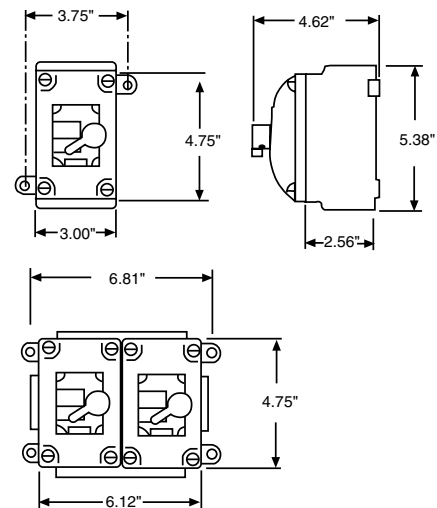
Enclosures – Cast copper-free aluminum, epoxy powder coated finish. Can be furnished with lock-type cover to permit locking in either “on” or “off” position. When so required, add suffix “L” to catalog number. See price list.

Can be furnished in two gang units and in combination with other Russellstoll explosion proof receptacles.

Outlets – Unless otherwise specified, furnished and one ¼" outlet per gang, top or bottom. Maximum conduit 1": single gang – top and bottom only, multiple gang – one per gang top and bottom and one each side. Specify size and location.

Approvals –  844 Standard
 E10765

Dimensions



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Static Ground Receptacle

Aerospace / Industrial Static Ground Devices

Static grounding receptacles are used in Airport and Aerospace installations worldwide during fueling, testing and maintenance procedures. Normal mounting is concrete / tarmac floor inset, threaded onto copper ground rod.

Heavy Brass construction cup includes optional cover and receptacles contact pin. Accommodates a wide variety of single contact (copper on steel wire) static ground wire clamps in service.



F07073
(cover only)

Ordering Information

Description	Cat. No.
Ground cup w/ cover*	GCC1
Ground cup with out cover*	GC1
Replacement contact tip**	F06146

* Hub is tapped for 3/4" -10
 ** Hub is tapped for 1/2" - 13

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Safe Ground Indicator System (GSUL)

Class I, Groups C and D NEMA 7
 Class II, Groups E, F and G NEMA 9



Instant signal for safe ground

Ground indicators are designed for grounding tank vehicles, carriers, drums or similar applications for dissipating ever-present static electricity. The establishment of a safe ground is indicated by the two parallel connected green signal lights. Two lights are used for continuity. In case one lamp burns out visual indication of safe groundings will be maintained.

Intrinsically safe circuitry

GSUL devices have an Intrinsically Safe (low energy) Ground Sensing Circuit, which does not have sufficient electrical energy to cause ignition in classified Hazardous Locations.

In use, the sensing Circuit extends through the grounding clamp and its connection to the Ground Indicator, the metal portion of the vehicle between the jaw terminals of the clamp and earth ground electrode.

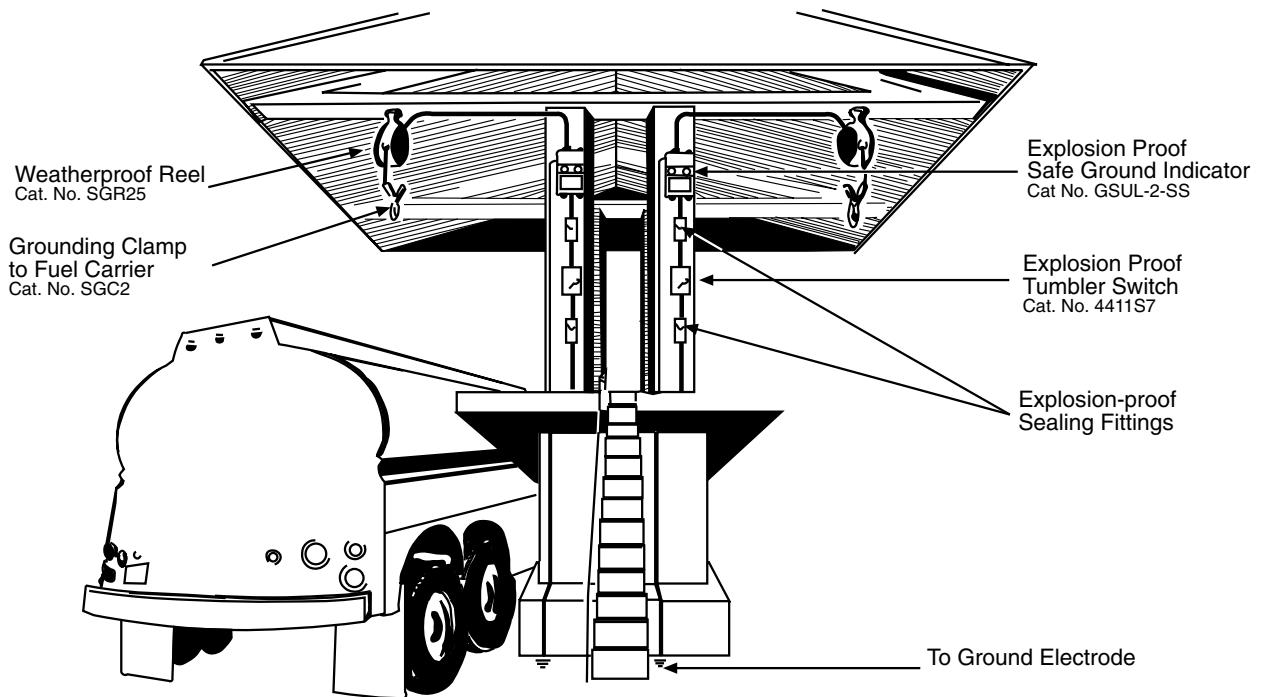
Pumps will not operate until a safe ground is established

A control relay is included for interlocked control of pump motor at the loading platform. The electronic control circuit will be de-energized while the green lights are off. Attaching the clamps to the tank will close the interlocking contact and energize the control circuits to the motors.

Applications

Volatile or classified areas such as:
 Tank Farms PetroChem
 Cosmetics Grain Mills
 Vehicular or Rail Transport

Typical Installation



Loading Rack Illustration suggests a typical installation which includes an Explosion Proof Switch: Explosion-Proof Sealing Fittings: Weathertight Reel; and the GSUL-2-SS Safe Ground Indicator with special 2 wire grounding clamp.

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Safe Ground Indicator System (GSUL)



Unit shown with covers removed

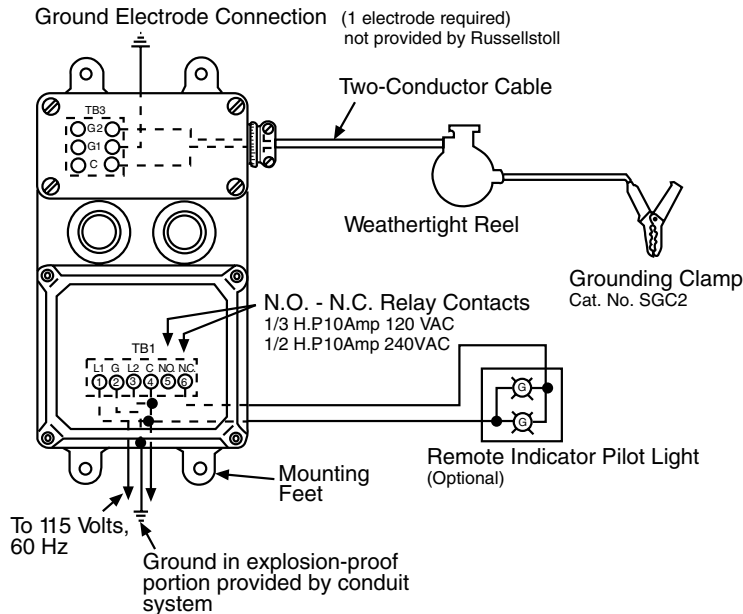
GSUL Safe Operating Features

- The Green Lights glow when a Safe Ground is established. Lamp life is approximately 20,000 hours.
- Intrinsically safe ... simplified circuitry.
- Furnished with two redundant parallel indicating pilot lights mounted on the enclosures. The unit may be ordered without the lights where remote visual indication is desired.
- Unit is furnished with an integral, intrinsically safe wiring compartment provided with an approved strain relief fitting for connection of cable from the grounding clamp.
- The actuating and control circuits are solid state units mounted on a removable printed circuit board.
- Components are well protected against moisture.
- A Control Relay is provided for interlocked control of Pump Motor at a loading rack.
- A special Grounding Clamp is available for use with the Ground indicator Unit, order SGC2.
- New grounding clamp (Cat. SGC2, replaces old cat. # GSUC) provides dual isolated tip contacts in a very heavy duty cast aluminum handle design.



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Basic Installation


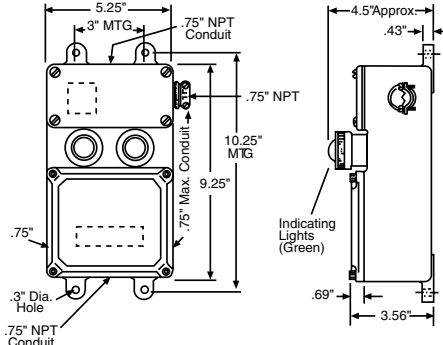

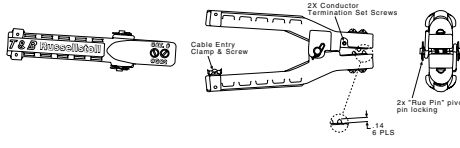
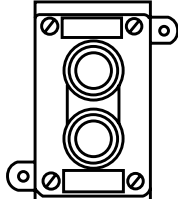
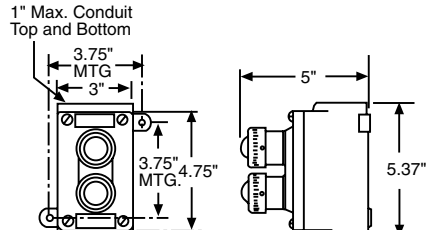

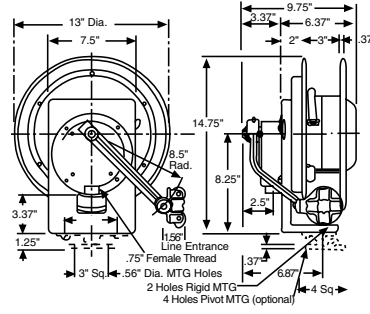


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Safe Ground Indicator System (GSUL)

Ordering Information

Safe Ground Indicators are designed to operate on 110-120 VAC, 50/60 Hz circuits, with grounding being made through use of a 2-conductor #12 AWG Type SO cable.

Catalog No.	Description	Dimensions
 <p>GSUL-2-SS*</p>	<p>Safe Ground Indicator with Indicator Lights (*furnished with lamps) (120V supply) New: 240V version available GSUL2SS-240 Contact Technical Services</p>	
 <p>SGC2</p>	<p>Grounding Clamp (Replaces GSUC)</p>	
 <p>P12G2</p>	<p>Remote Indicator Light – Surface mounting duplex pilot light with two green lens. Explosionproof. Consult Customer Service for Availability and Delivery.</p>	
 <p>SGR25** SGR50 SGR75</p>	<p>Weathertight Reel – Retracting Reel with 25 ft. of 2 conductor #12 AWG type SO cable. Note: 50 foot and 75 foot versions available. (Replaces AR253)</p>	

Notes:

- * Ground clamps must be ordered separately. Ground Indicators complete with Control Relay. When unit is required without control relay add suffix "X" to catalog number.
- Outlets** – Regularly furnished tapped 3/4" NPT as per diagram on opposite page.
- Enclosures** – Cast copper free aluminum, epoxy powder coated.
- ** Relay contacts are rated 1/3 H.P., 10 Amps, 120VAC; 1/2 H.P., 10 Amps, 240VAC.

Spare Parts

Description	Cat. No.
Printed Circuit Board	C13662
Control Relay**	F30674
Lamp for GSUL-2-SS	310993
Ground Clamp Repair Kit	GX2TK

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Computer System Interconnections – Overview

Defined

- Any application where electrical connections must be protected from humidity, water, condensation and/or dust ingress to the wiring compartment and contacts.
- Cable-to-connector sealing and device locking designs are critical.
- Thermoplastic connectors preferred: some with aluminum conduit grounded shell.
- Connection integrity needs are absolute; Data Center systems cannot go down.
- Underfloor Data Center applications and wall mount installations.

Russellstoll Line Selections for Outdoor (and Indoor) Applications

DuraGard to 4P4W 20 thru 50A

The toughest construction in thermoplastic safety, durability and performance by design, in UL94-V0 flame rated DuraV material. With DurOring sealed pins, sleeves and interiors watertight even unmated. A 30 & 50A unique circuit breaker interlock line in DuraV is the best choice in all standard voltage polarization options through 600VAC (Interlock to 480VAC)

Angle Type to 3P4W 60A use

The original 60A main power computer system connector, Angle Type plugs are also available in specialty UL94-V0 material. (Alum. Connectors) As part of the MRO usage 30-200A Angle Type Line, the 60A connector is still commonly used today. Other lines such as MaxGard should be used for changeout when possible.

SpecGrade to 4P4W 20 & 30A

Otherwise similar to the DuraGard, Spec Grade refers to blue Lexan plugs only made to the same original FS/FD design standards as DuraGard, in UL94-5VA flame rated material. Spec Grade features DurOring sealed pins, sleeves and interiors, watertight even unmated. Spec Grade devices have been superseded by DuraGard ratings for OEM use.

MaxGard 30A to 4P5W

For DP/Computer System Applications, a special MaxGard polarization reflects DP installations. Special thermoplastic housing and back handle are supplied for these applications. Use wherever 4P5W installations are required.

FS/FD to 3P4W 15 thru 30A

The original 15/20/30A computer system connectors, the FS/FD line in aluminum continues in MRO usage. Many installations can also mate directly or convert to DuraGard units. Our large installed base can be supported with any construction and product options. Convert to DuraGard when possible.

IEC: IP67 to 4P5W 20 to 100A

Thermoplastic International standard 309-2 or CEE-17 type connector lines usage is growing, especially in OEM, export, and standard performance applications. The IP67 style is watertight when mated and directly interchangeable with other manufacturers. International designations shadow U.S. ratings: 20/16, 30/32, 60/63 and 100/125. IP67 devices have screw collars or flap/screw covers, with catalog number "W" suffixes.



Typical Application Groups

Telephony Equipment
Switching Rack Systems
Power Distribution Units
Test & Laboratory Equipment

Mainframes from 30-270A
Peripherals
Data Storage Devices
Military or Critical Power Supplies

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Computer System Plugs, Connectors and Receptacles





Over 30 years ago, Russellstoll offered the first pin and sleeve connectors that met the demanding needs of the Data Processing industry and we've been leading the way ever since.

The expanding technology of the Computer System Industry is creating more sophisticated applications which require a safe, reliable connection that exceeds the tough demands of today's applications. Russellstoll's commitment to excellence offers you that and more... Safety, Durability, Reliability and

Performance on our complete line of plugs, receptacles and connectors.

Pin & Sleeve power connections are chosen for Computer Systems interconnections because of the absolute performance required in today's mainframe and peripheral installation. Pin & Sleeve connections have been proven to be 1- times more reliable in service than any bladed device. Data centers stay in service, because Russellstoll stays connected.

Quick Selection Chart

				
SERIES*	FS/FD	Spec Grade	DuraGard®	Spec Grade
Available Ranges (Amp)	20 & 30	20 & 30	20, 30 & 50	30 (IEC)
Safety Grade™ UL Flame rated High-Temp Thermoplastic	UL94-V0 Aluminum	UL94-5VA	UL94-V0	UL94-V0
Easy-to-Wire Rear loaded interiors		✓	✓	✓
Single Rated Safety Voltage Polarizations	20A	20A 30A	20A 30A 50A	30A (9h – IEC)
Waterproof O-Ring Seal (pins, sleeves & interiors)		✓	✓	✓
2nd Internal Ground Lug (cable shielding alt.)		✓	(optional)	
External Cable Clamp	✓		✓	✓
External Gland Nut Lock			✓	✓

* 60A devices are specially designed versions of Russellstoll Angle Type (7328DP)




















TüV For TÜV listed devices, contact Technical Services.

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Computer System Plugs, Connectors and Receptacles – Ordering Information

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			Plugs				Connectors		Receptacles		
											
	Voltage	Plug Safety Polarization	Std. Cable** Bushing	FS/FD• Aluminum	Spec Grade UL94-5VA	See Bushing Chart DuraGard® UL94-V0*	FS/FD Aluminum	DuraGard® UL94-V0*	FS/FD• Aluminum	DuraGard® UL94-V0*	
2P/3W	15/20 Amp	Up To 600 VAC/250VDC		0.625" 0.455" 0.405"	3720	3720DP (0.375) 3720DP/0455 3720DP/0405	9P23U0	3913	9C23U0	3743	9R23U0W▼
		125VAC		0.625" 0.455" 0.405"	3720U1	3720DPU1 (0.375) 3720DPU1/0455 3720DPU1/0405	9P23U1	3913U1	9C23U1	3743U1	9R23U1W▼
		250 VAC		0.625" 0.455" 0.405"	3720U2	3720DPU2 (0.375) 3720DPU2/0455 3720DPU2/0405	9P23U2	3913U2	9C23U2	3743U2	9R23U2W▼
	30 Amp	Up To 600 VAC		0.760" 0.700" 0.625"	3750	3750DP	9P33U0	3933■	9C33U0■	3753■	9R33U0W▼■
	50 Amp	Up To 600 VAC		1.000" 0.925" 0.750"	–	–	9P53U0	–	9C53U0	–	9R53U0W●
3P/4W	20 Amp	Up To 600 VAC/250 VDC		0.688" 0.625" 0.606"	3730	– 3730DP/0625 3730DP	9P24U0 –	3914 –	– 9C24U0	3744	9R24U0W▼
	30 Amp	Up To 600 VAC		1.100" 1.000" 0.875" 0.760"	3760	3760DPG/1100 3760PDG/1000 3760PDG/0875 3760DPG0760	– 9P34U0◆	– 3934■	– 9C34U0◆■	3754■	9R34U0W▼■
	50 Amp	Up To 600 VAC/250 VDC		1.000" 0.925" 0.750"	–	–	9P54U0	–	9C54U0	–	9R54U0*▼
Special MaxGard®											
3P/4W	60 Amp	Up To 600 VAC	 Angle Type	1.375" 1.188" 1.020" 0.750"	7328-78^	– – – –	7328DP/1375 – 7328DP† 7328DP/0750	7428-78^	– – – –	–	SCF7324-78
Special Angle Type											
4P/5W	30 Amp	3øY 120/208 VAC	 MaxGard	0.775"	–	–	DS3516MPDP+	DS3516FP+	–	DS3516FR+	–

Note: All 20A devices are compatible. 30A FS/FD receptacles and connectors will accept all styles of mating plugs.

* For a more complete listing of UL 94-V0 rated devices, consult DuraGard information on Pages H44-H54.

** Consult Factory for additional cable bushing sizes not listed.

† 7328 DP series thermoplastic can replace 7328 metallic.

● 30A FS/FD Aluminum plugs may not directly exchange with DuraGard plugs. FS/FD metal mating devices must be used.

◆ Standard 0.750 Bushing.

■ DuraGard receptacles and connectors 30/50A will accept only DuraGard or Spec Grade. FS/FD Aluminum 30A plugs must be used with FS/FD metal connectors or receptacles..

^ Angle Type Line

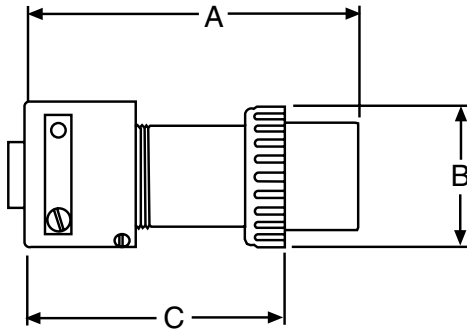
+ MaxGard Line for further information see pages H9-H29.

▼ Requires 3711A conduit FD box or 3781A DSFD Box (50A).

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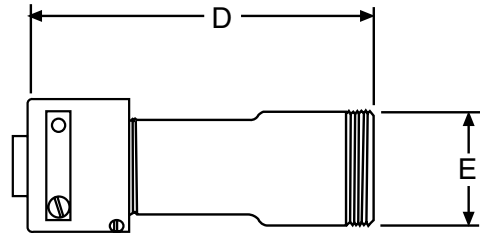
Computer System Plugs, Connectors and Receptacles – Dimensions

Plugs



		A	B	C
FS/FD	20 Amp	3 ⁵ / ₈ "	2"	2 ¹ / ₄ "
	30 Amp	3 ³ / ₄ "	2 ¹ / ₄ "	2 ³ / ₈ "
Angle Type DP (Thermoplastic)	60 Amp	8"	2 ¹ / ₂ "	3 ³ / ₄ "
Spec Grade DuraGard®	20 Amp	3 ¹ / ₄ "	2 ¹ / ₈ "	2 ¹ / ₈ "
	30 AMP	5"	2 ³ / ₈ "	3 ⁵ / ₈ "
	50 AMP	5 ¹ / ₄ "	2 ³ / ₈ "	3 ⁵ / ₈ "

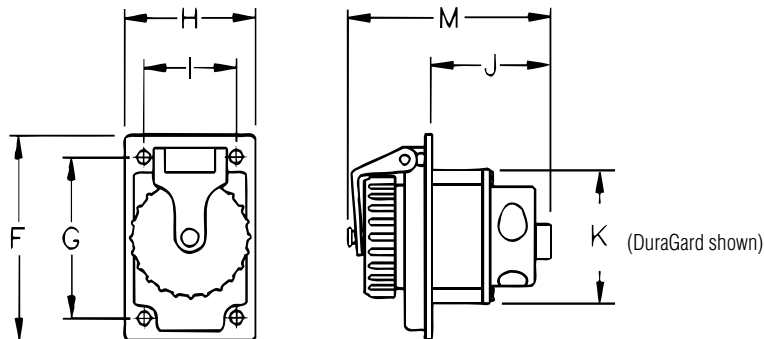
Connectors



		D	E
FS/FD	20 Amp	4"	1 ⁷ / ₈ "
	30 Amp	4 ⁵ / ₈ "	2 ¹ / ₈ "
Angle Type (Metallic)	60 Amp	9 ¹ / ₈ "	3 ¹ / ₂ "
Spec Grade DuraGard®	20 Amp	4 ¹ / ₈ "	1 ⁷ / ₈ "
	30 AMP	5 ⁵ / ₈ "	2 ¹ / ₈ "
	50 AMP	5 ⁵ / ₈ "	2 ¹ / ₈ "

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Receptacles



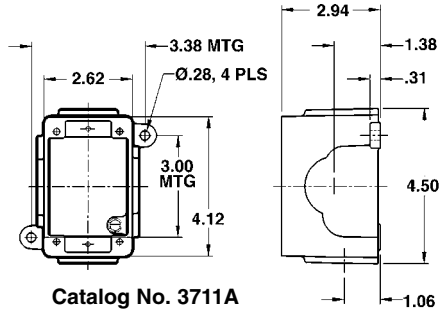
		F	G	H	I	J	K	M
FS/FD	20 AMP	4 ¹ / ₈ "	3 ¹ / ₄ "	2 ⁵ / ₈ "	1 ⁷ / ₈ "	1 ¹ / ₈ "	2 ¹ / ₄ "	2 ¹ / ₂ "
	30 AMP	4 ¹ / ₈ "	3 ¹ / ₄ "	2 ⁵ / ₈ "	1 ⁷ / ₈ "	1 ³ / ₈ "	2 ³ / ₄ "	2 ⁵ / ₈ "
Angle Type (Metallic)	60 Amp	3 1/2"	2 ⁷ / ₈ "	3 ¹ / ₂ "	2 ⁷ / ₈ "		2 ¹ / ₂ "	6"
DuraGard®	20 Amp	4 ¹ / ₈ "	3 ¹ / ₄ "	2 ⁵ / ₈ "	1 ⁷ / ₈ "	1 ¹ / ₂ "	2"	3 ³ / ₈ "
	30 Amp	4 ¹ / ₈ "	3 ¹ / ₄ "	2 ⁵ / ₈ "	1 ⁷ / ₈ "	2 ¹ / ₂ "	2 ³ / ₄ "	4 ¹ / ₈ "
	50 Amp	4 ¹ / ₈ "	3 ¹ / ₄ "	2 ⁵ / ₈ "	1 ⁷ / ₈ "	2 ¹ / ₂ "	2 ³ / ₄ "	4 ¹ / ₈ "

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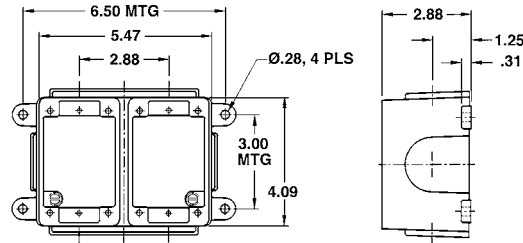
Computer System Plugs, Connectors and Receptacles – Accessories

All conduit boxes/Angle Adapters are copper free, cast aluminum, epoxy powder coat finish.

Conduit Boxes (For Surface Mounting)



Catalog No. 3711A



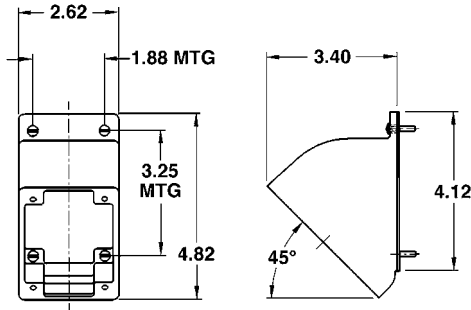
Catalog No. 3712A

Receptacle size	Cat. No.	
	Single Gang	Double Gang
20, 30 & 50 Amp	3711A	3712A
60 Amp*	JB6-1	
50 Amp	3781A	3782

* Various mounting options available.
4" deep (not shown)

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Angle Adapter



Catalog Number 3678A

Receptacle size	Cat. No.	
	45 Degree	20 Degree
20, 30 & 50 Amp	3678A	—
60 Amp*	JAA6-45	JAA6-AB6

Mounts to conduit boxes to angle receptacle downward, for easier access, no moisture retention on surfaces and better plug-cable drop bend relief.

* Various mounting options available.

Conduit Adapter

Kit includes gland nuts for plugs or connectors.



Plug/ Connector Size	Tapped Hole Size	Cat. No.		
		FS/FD	Spec Grade	DuraGard®
20 Amp	1/2"	FSA11	—	9X2C50
	3/4"	FSA12	—	9X2C75
30 Amp	1/2"	FSA21	—	9X3C50
	3/4"	FSA22	—	9X3C75
	1"	FSA23	—	—
50 Amp	3/4"	—	—	9X5C75
	1"	—	—	9X5C10
60 Amp Angle Type	3/4"	JPA62	—	—
	1"	JPA63	—	—
	1 1/4"	JPA64	—	—
	1 1/2"	JPA65	—	—



Russellstoll[®]**Computer System Plugs, Connectors and Receptacles – Accessories****Plug/Connector Replacement Items**

	Spec Grade	DuraGard	Spec Grade	DuraGard	
Item Color	Blue	Yellow	Blue	Yellow	Black
Plug/Connector Amperage	20A	20A	30A	30A	50A
Gland Nut	C17077C	C17077A	C17076CX	C17076AX	C17076BX
Nylon Locking Screw	N/A	NA	B16983	B16983	B16983
Bushing, Clamp, Nut, and Screw Kit (Inc. Nylon Locking Screw – 30/50A)	B17019CPR	B17019APR	B17018CPR	B17018APR	B17018BPR
Bushings	To Spec	To Spec	To Spec	To Spec	To Spec
Glide Washer	863-8	863-8	500RS	500RS	500RS
Gland Nut Assembly	B17019CR	B17019AR	B17018CR	B17018AR	B17018BR

Note: Minimum purchase quantities apply.

HRussellstoll[®]**Replacement Interiors**

Note: For replacement bushings, see DuraGard Section, pg. H51.

		Cat. No.	
		Male Interior Assembly	Female Interior Assembly
			
Amperage	Voltage Polarization		
2P3W 20	125 VAC	9XM23U1	9XF23U1
	250 VAC Thru 600VAC/250 VDC	9XM23U2 9XM23U0	9XF23U2 9XF23U0
2P3W 30	Thru 600VAC/250VDC	9XM33U0	9XF33U0
	Thru 600VAC/250VDC	9XM53U0	9XF53U0
3P4W 20	Thru 600VAC/250VDC	9XM24U0	9XF24U0
	Thru 600VAC/250VDC	9XM34U0	9XF34U0
3P4W 50	Thru 600VAC/250VDC	9XM54U0	9XF54U0

Interiors with ground straps are specials.

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Computer System Plugs, Connectors and Receptacles – Specifications

Performance – Electrical

Dielectric Voltage Withstand	3,000 Volts
Max. Working Voltage	6000 volts RMS minimum (creepage distance and minimum clearance per UL 840)
Circuit Interrupting/ Load Breaking	UL listed and CSA certified for circuit interrupting at full rated current.
Temperature Rise	Max. 30°C temperature rise at full rated current after 50 cycles of overload at 150% rated current at .75-PF.
Shrouded Contacts	Complies with California Code Title 8, Art. 51, S2510.7(b) for devices exceeding 300 VAC
Horsepower	Per NEC 430-151 ratings

Performance – Mechanical

Impact Resistance	Per UL 1682 Paragraph 34
Cord Accommodation	Round portable service cords per UL Std. 62 & CSA C22.2 No. 49.1
Terminal Identification	In accordance with UL1682
Cable Pull Out Force	In accordance with UL1682
Product Identification	Identification label and molded in name
Lockout/Tagout	Lockout/Tagout hole in 30/50A DuraGard® plug complies with OSHA Reg. 29 CFR 1910.147 (V0 30 & 50A plugs only)

Performance – Environmental

Moisture Resistance	Per UL1682 Paragraph 49. Watertight flap screw cover on receptacle, O-Rings on all V0/5VA pins and sleeves (excludes 60A)
Flammability	V0 / 5A per UL94 (DuraV also 5VA in some apps.)

Operating Temperatures

	V0*	5VA	Metal*
Maximum Continuous	95°C (230°F)	130°C (266°F)	130°C (266°F)
Minimum W/o Impact	-40°C (-40°F)	-29°C (-20°F)	-40°C (-40°F)

Chemicals

Resists standard industrial hydrocarbons, acids, bases and solvents. (DuraV & Metal)

Approvals



Conforms to NEMA 4, 4X & 6. (DuraGard and Spec Grade) Contact Technical Services.

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Materials

	FS/FD	Spec Grade	DuraGard® Safety Grade™
Contact Carrier Interior	Thermoset / Thermoplastic) (20A & 30A)	Arc resistant UL94-V0 phenolic Thermoset	Arc resistant UL94-V0 phenolic Thermoset
Housing, Gland Nuts	Cast Aluminum	Lexan® UL94-5VA,	DuraV™ UL94-V0,
Screw Collar Rings	–	High Impact Thermoplastic	High Impact Thermoplastic
O-Rings	–	Buna-N (Nitrile)	Buna-N (Nitrile)
Contacts: Pins & Sleeves	Brass	Brass CDA 360	Brass CDA 360
Hinge Pins (Receptacle)	Stainless Steel	–	Stainless Steel
Terminals	Brass	Stainless Steel	Stainless Steel
All Hardware	Stainless Steel	Stainless Steel	Stainless Steel
Gland Glide Washer (or Internal Cable Grip)	Brass	–	20 Amp - Nylon 30 & 50 Amp - Aluminum
	–	Nylon	
Cable Clamp Bushing	Neoprene	Neoprene	Neoprene

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Computer System Plugs, Connectors and Receptacles – Data Center Installation



Custom Products:

Interlocked Branch Distribution Centers

Utilize an existing higher amperage service and split it into multiple lower current service outlets. The outlets are individually interlocked with circuit breaker protection. Branch Distribution Centers are UL & CSA listed and can be configured for many inlet/outlet combinations.

Standard Dual Configuration:

- 60A Male Inlet
- 2 - 30 A Individually Interlocked Female Outlets, each Circuit Breaker Protected.
- Heavy duty NEMA 4 welded, gasketed enclosure.

Benefits

- **Saves rewiring costs** in a facility when installing small-sized, lower current machines using existing electrical service.
- **Quickest** and most cost effective way to expand or reconfigure a single service with multiple service outlet combinations possible at every power drop.
- **Safest** way to operate: UL Listed 22kA interrupt capacity interlocked circuit breaker protection for each branch outlet receptacle, in a NEMA 4 enclosure.

Applications

- **Data Processing:** CPU / Disk Arrays / Peripherals new smaller multiple units.
- **Industrial / Manufacturing Lines:** reorganization, process reconfiguration.
- **Portable Power:** Machinery, Tools, Test and Diagnostic equipment.

Electrical and Safety Features

- One: 250VAC 3p4w 60A male inlet feeding Two: 250VAC 3p4w 30a IEC 309-2 (9h Blue) female receptacle outlets, each protected by 22kA IC circuit breaker; each mechanically Interlocked.

- Power is manually energized only after plug is inserted; externally visible trip indicator handles on each Interlock.
- Automatic Shut Off when plug is removed before contacts disengage; ground sleeves Make first, Break last.
- Patented "Trip-Free" Safety Mechanism where outlets are not powered unless plug is inserted.
- Full NEMA rated UL 489 listed 22kA Circuit Breakers, available to 480V at 30 Amps. 60 Amp and other options available.

Mechanical and Safety Features

- All internal wiring is complete: a Drop-In, Plug-In specified device.
- DP Underfloor (Horizontal) installation standard; vertical or other mounting conventions optional.
- Electrostatic epoxy powder coat gray finish over 14 gauge steel NEMA 4 welded enclosure with gasketed access cover.
- Screw cover protects outlet receptacles (flap cap option).
- Long life stainless steel & nylon external hardware, copper-free aluminum castings, O-ring seals (to device spec) & brass electrical contacts.

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Computer System Plugs, Connectors and Receptacles – Data Center Installation

Ordering Information

Cat. No.	Inlet Side		Outlet Side*	
	250VAC, 60A Male Inlet	Mating Connector	250VAC, 30a Outlet Receptacle	Mating Plug
ER206M39	7528 Spl.	7428-78	RS430MM9W (x2)	RS430P9WV0

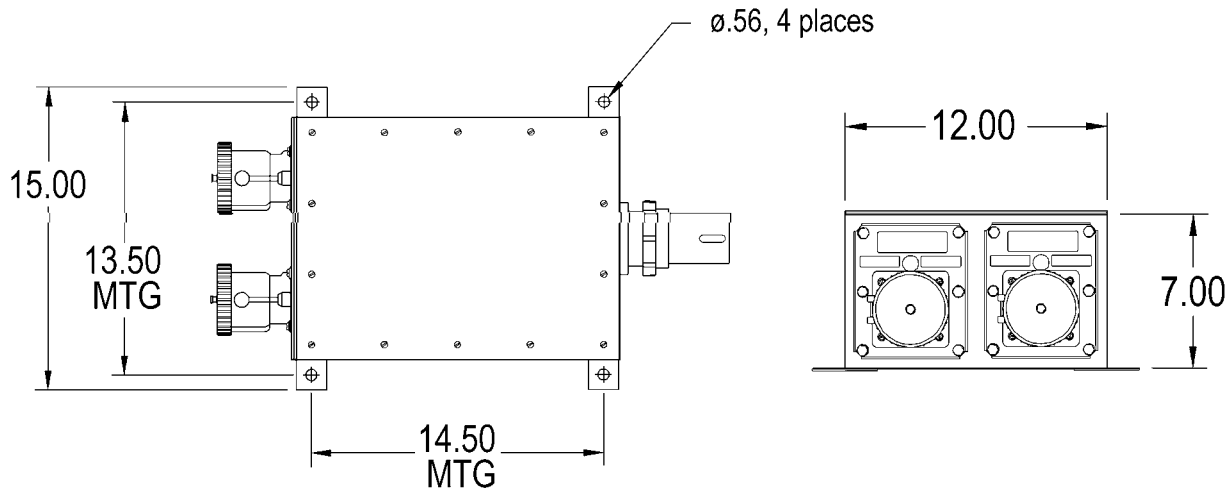
(External mating Plugs & Connectors sold separately)

Other Configurations available. Consult factory or your Russellstoll Representative

* IEC 309-2 configuration, 9h, 3P4W

Outline Dimensions

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Schematic Diagram

