

# OPERATING INSTRUCTIONS

# SP

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A manufacturer of products using Marechal technology



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## GENERAL

SP devices are single-pole, high-amperage plugs and receptacles that are designed for safety, durability, and ease of operation. Each device is mechanically interlocked with an integral pilot circuit switch for controlling the power circuit in order to prevent connection and disconnection under load. Each of the phases as well as the neutral and ground, are color coded and keyed to prevent improper connection. SP receptacles are IP 2X rated to prevent accidental finger contact with live parts.

**WARNING** There are inherent dangers associated with electrical products. Failure to follow safety precautions can result in serious injury or death. These instructions must be followed to ensure the safe and proper installation, operation and maintenance of the MELTRIC devices. Before installation, disconnect all sources of power to the circuit to eliminate the risk of electrical shock. This product must be installed with an electrical interlock that prevents connection or disconnection in a loaded condition.

## RATINGS

The SP series is CSA listed for use in Non-Load Break applications up to 600A at 600VAC, 500 HP 3 phase at 480 VAC and 600 VAC. ⚠ The SP devices are NOT designed or listed for current interruption. The SP receptacle is provided with two auxiliary/pilot contacts that make (close) when the locking collar is rotated after plug insertion. The pilot contacts are designed for use in control circuit wiring of medium current switchgear, (see diagram of pilot circuit wiring). The SP pilots have a D300 rating as shown in Table 1. The phase contact is rated to withstand a 30 kA short circuit with a current limiting fuse rating as shown in Table 2. Consult MELTRIC Engineering for horsepower ratings and limitations at lower voltages.

Device	120VAC	240VAC	480VAC	600VAC
SP	.6A	.3A	-	-

Device	Rating Fuse	Type <sup>1</sup>
SP - 600A	30 kA @ 600 VAC	Class L 1400A <sup>2</sup>

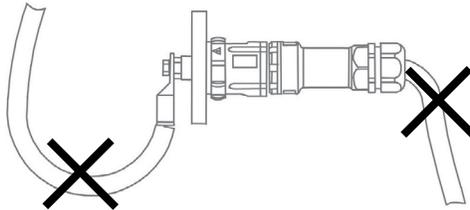
1 - Short Circuit Rating applies with fusing up to this amperage. Ratings are based on tests performed with Ferraz Shawmut non-time Delay Current Limiting fuses.  
2 - Tests performed with maximum allowable motor fusing sized per the 2008 NEC.

## INSTALLATION

⚠ SP devices should be installed by qualified electricians in accordance with all applicable local and national electrical codes.

Before installing, verify the power is off and the product ratings are appropriate for the application. Ensure the conductors meet code requirements and are within the wiring terminal capacities noted in Table 3.

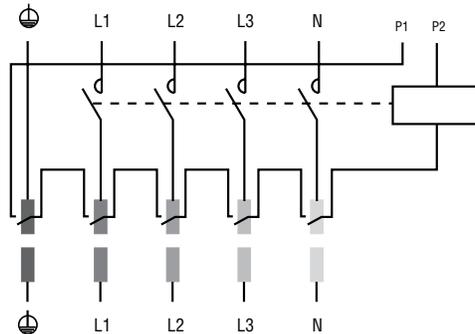
	Main Contacts		Aux. Contacts
	Max	Min	
SP	777 MCM	2/0	12-14 AWG



**NOTICE:** Ensure the plug and its flexible cable do not exert a significant force or a constraint on the receptacle.

### Wiring of the pilot contacts

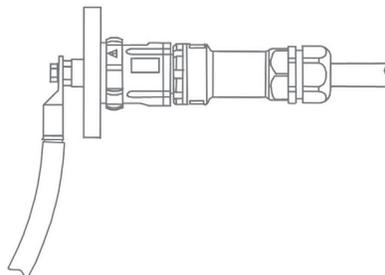
The SP auxiliary/pilot contact leads of each device should be wired in series within the power control circuit. A typical pilot circuit wiring diagram is shown below.



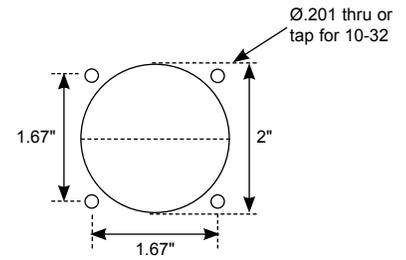
### Wiring of the main conductor

Use a flexible cable between 2/0 and 777 MCM (70 and 400 mm<sup>2</sup>). Strip the insulation as appropriate for the lug being used. Solder lugs have integral threads that screw into the terminals. The solder lug should be tightened until the tapered section is secured in solid contact with the terminal. Crimped lugs are secured with M12 bolts that should be tightened to approximately 30 ft-lb (40 N.m.) with a 3/4" (19 mm) wrench.

**NOTICE:** To avoid transmitting torque to the device moldings when securing the lugs, hold the terminal in place with a 24 mm wrench (flats are provided).



## Hole Pattern for Custom Mounting



**NOTICE:** In order to maintain IP66/67 protection in custom installations, watertight seals must be used under the heads of the four mounting bolts and they must be retained by a lock washer and nut on the inside of the box or panel. Alternatively, four blind holes can be drilled and threaded to accommodate #8-32 x 5/8" mounting screws. The hole depth must be sufficient to achieve adequate gasket compression.

### Attaching the handle

Insert cable through cable gland and handle before tightening the phase conductor. Assemble handle with the screws and gasket supplied, (use short screws for inlets, long screws for receptacles) and tighten cable gland with an appropriate tool.

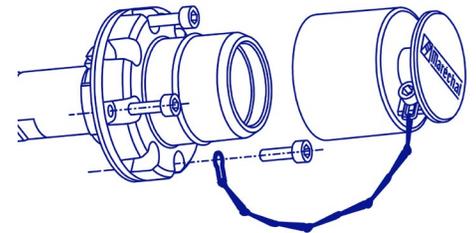
**NOTICE:** MELTRIC solder lugs are required for use with handles.

### Attaching the metal angle (if required)

Attach receptacle or inlet to metal angle using the screws and gasket supplied, (use short screws for inlets, long screws for receptacles). ⚠ Connect the metal angle to ground.

### Assembly of the plug/inlet cap

Attach the cap to the plug/inlet by retaining the end of the chain under one of the mounting screws.



### Gasket

In order to achieve rated watertightness, the flat black gasket must be installed between the inlet or receptacle and the panel or accessory to which it is attached.

### Rated current and voltage markings

It is essential to indicate the current and voltage of the main circuit on the supplied stickers. Apply the stickers on or adjacent to the product so they can easily be seen.

## OPERATION

⚠ To ensure safe and reliable operation, MELTRIC plugs and receptacles must be used in accordance with their assigned ratings.

SP devices can only be used in conjunction with mating receptacles or plugs manufactured by MELTRIC or another licensed producer of products bearing the Marechal™ technology trademark.

**NOTICE:** Do not attempt to operate the SP device until the receptacle is mounted. The mounting bolts must be in place to maintain alignment of components and compression against the panel or handle is required to maintain assembly.

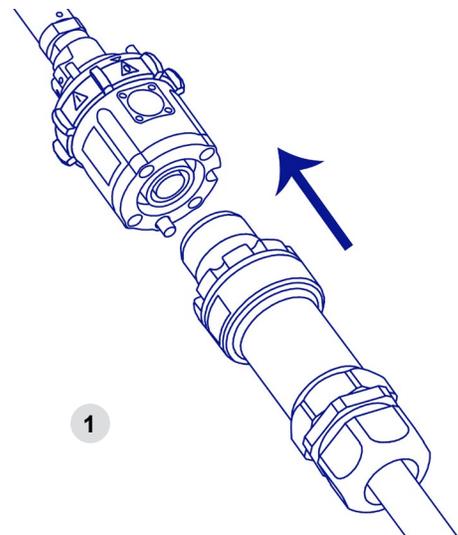
SP series plugs and receptacles feature different mechanical keying of L1, L2, L3, N, and G. Mating plug/receptacle combinations are color coded for easy identification.

**!** SP series plugs and receptacles are not intended to be connected or disconnected under load. The pilot circuit must be used to control the power circuit.

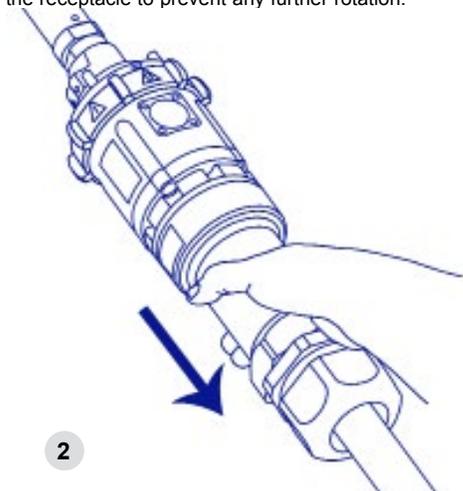
The pilot circuit can only be turned 'on' when the plug is engaged and the plug can only be removed when the pilot circuit is in the 'off' position. **!** For safety, MELTRIC recommends the following connection sequence: Ground, Neutral, Phase 1, Phase 2, Phase 3.

### Connection

Insert the plug straight into the receptacle until a 'click' is heard. Figure 1 The plug and its flexible cable must not exert force on the receptacle.

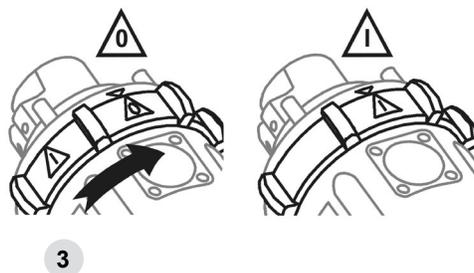


Pull on the plug to make sure it is properly latched in the receptacle. Figure 2 A small rotation of the plug, in either direction, engages the locking finger on the receptacle to prevent any further rotation.



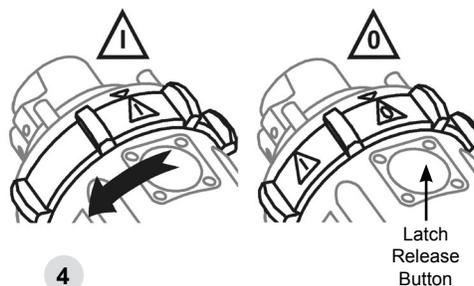
To close the pilot circuit and mechanically lock the plug into the receptacle, turn the ring on the receptacle until the "1" lines up with the arrow across from the release button. Figure 3

**!** Do not attempt to turn the ring towards "1" when there is no plug engaged. Defeating the mechanical lock could create a potentially hazardous condition if energized under load.



### Disconnection

To open the pilot circuit and unlock the plug, turn the ring back until the "0" is aligned with the arrow. Figure 4 This action signals the controller to switch off the power and unlocks the plug. To remove the plug, press firmly on the latch release button and simultaneously pull on the plug. A slight rotation of the plug may be required before it can be removed.



### Achieving rated watertightness

Rated IP66/67 watertightness is achieved when the plug and receptacle are mated. When disconnected, the receptacle cap must be fully inserted with the slot in the cap aligned with the protruding 'button'. The plug cap must be pressed firmly into place.

**NOTICE:** Proper steps must be taken to maintain watertightness at threaded connections on the plug handles or at the junction box. The use of a sealer tape is recommended.

### MAINTENANCE

**WARNING:** Before inspecting, repairing, or maintaining MELTRIC products, disconnect electrical power to the receptacle to eliminate the risk of electrical shock.

MELTRIC products require little on-going maintenance. However, it is a good practice to periodically perform the following general inspections:

- Check the mounting screws for tightness.
- Verify that the weight of the cable is supported by the strain relief mechanism and not by the terminal connections.
- Check the IP gaskets for wear and resiliency. Replace as required.
- Verify the electrical continuity of the ground circuit.
- Check the contact surfaces for cleanliness and pitting.

Use a clean cloth to rub off deposits of dust or similar foreign materials on the contacts and the plug interiors. Sprays should not be used, as they tend to collect dirt. If any significant pitting of the contacts or other serious damage is observed, the device should be replaced.

### MANUFACTURER'S RESPONSIBILITY

MELTRIC's responsibility is strictly limited to the repair or replacement of any product that does not conform to the warranty specified in the purchase contract. MELTRIC shall not be liable for any penalties or consequential damages associated with the loss of production, work, profit, or any other kind of financial loss incurred by the customer.

MELTRIC Corporation shall not be held liable when its products are used in conjunction with products not bearing the **Marechal**™ technology trademark. The use of MELTRIC products in conjunction with mating devices that are not marked with the **Marechal**™ technology trademark shall void all warranties on the product.

**MELTRIC Corporation** is an ISO 9001 certified company. Its products are designed, manufactured and rated in accordance with applicable UL, CSA and IEC standards. MELTRIC designs and manufactures its products in accordance with Marechal keying standards established to ensure intermatability with similarly rated products manufactured by Marechal Electric Group.