MELTRIC
A company of MARECHAL ELECTRIC GROUP

Product Improvement Announcement

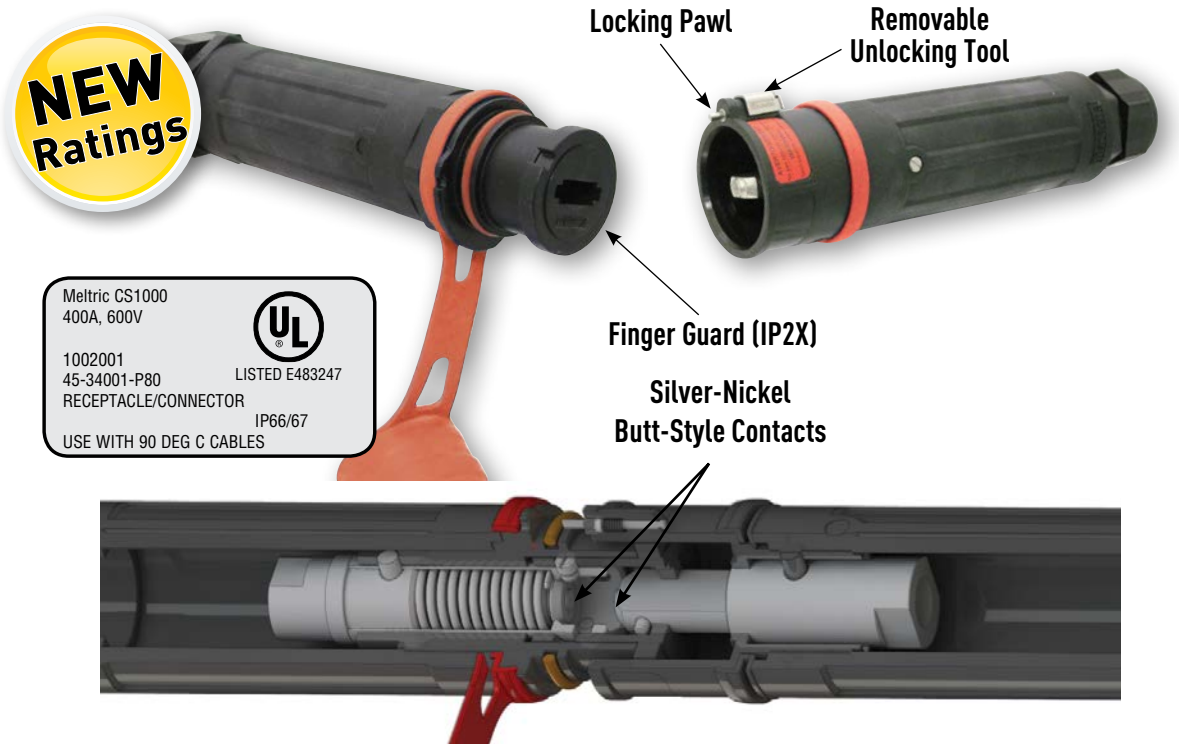
Issue date: 27 April 2016

CS1000

product improvement description

Single Pole Plugs & Connectors Now UL Listed

CS1000 plugs and receptacles are now UL listed in accordance with UL1691. CS1000 devices are for use in Non-Load Break applications up to 400A at 600VAC, 600VDC (in North America) and 1000V AC, 1500 VDC (in Europe –CE RATED).



CS1000 devices are safe, easy to use, and provide excellent performance and durability.

Safety Features

- A finger guard provides IP2X protection against accidental contact with live parts.
- A locking pin prevents unwanted disconnection.
- Five mechanical keying positions with color coding prevent electrically incompatible mating
- Advanced Safety Testing: The CS1000 successfully passed Abnormal Overload Tests consisting of making and breaking the devices three times at rated voltage and 150% of full load current.

Performance and Durability

- Solid silver-nickel contact material provides superior performance and corrosion resistance.
- Spring-loaded, butt-style contact technology ensures optimal contact pressure and withstands over 2000 operations.
- IP66/IP67 environmental protection for wet, corrosive environments.

CS1000

operating instructions

Connection

Insert the plug partially into a matching receptacle.

Rotate the plug counterclockwise as needed to position the locking pin 90° from its latch.

Apply insertion pressure and rotate the plug a quarter turn clockwise to seat the contacts and engage the locking pin.

Disconnection

Insert the key into the groove on the locking pin.

Slide the key back to retract the locking pin.

Twist the plug a quarter turn counter clockwise and withdraw it.

CS1000

single pole feature comparison: MELTRIC CS1000 vs Typical Competitive Device

Competitors include:

- ✖ **Hubbell**
- ✖ **Crouse-Hinds**
- ✖ **Leviton**
- ✖ **Rig-Power**
- ✖ **Others**

	MELTRIC CS1000	Competitive Device
DURABILITY		
• Contact Material	Solid Silver-Nickel	Copper Alloy (may be silver plated)
• Contact System	Spring-Loaded, Butt-Style	Pin and Sleeve Style
• IP2X Finger protection from energized parts	YES	NO
SAFETY FEATURES		
• Mechanical Keying System (Prevents insertion of wrong phase)	YES	VARIES
• Locking System (prevents unintentional disconnection)	YES	VARIES
EASE OF USE		
• Color Coding of Phases	YES	YES
• Plug/Receptacle Accept Different Cable Sizes	YES (use different lugs)	NO (order different for each cable size)

highlighted feature

5 mechanical keying positions

L1 L2 L3 Neutral Ground Positive Negative

CS1000

faq

What makes the CS1000 different and better than other single pole devices?

CS1000's offer safety features that competitive single pole devices do not:

1. A finger guard provides IP2X protection from live receptacle parts.
2. Mechanical keying prevents the insertion of plugs with the wrong phasing.
3. A locking pin prevents accidental disconnection.
4. Advanced Safety Testing: The CS1000 successfully passed Abnormal Overload Tests consisting of making and breaking the devices three times at rated voltage and 150% of full load current.

CS1000's also offer durability advantages because:

1. Solid silver-nickel contacts offer superior conductivity and corrosion resistance.
2. Butt-style contact system ensures optimal contact pressure even after numerous operations.
3. The standard receptacle cap and optional inlet/plug cap keep out contaminants and maintain IP66/67 protection.

Where should I sell the CS1000?

There are many high amperage applications where the CS1000 is ideal; for example, portable power distribution, backup power generation and OEM skid equipment. We expect the mining, oil, steel, marine/military and entertainment industries to be heavy users.

Is the CS1000 CSA listed?

The CS1000 is not CSA listed but it is UL listed in accordance with UL 1691. At some time in the future MELTRIC may obtain a CSA listing for the CS1000 but right now we do not have a timeline for that.

Which handle should I order and why?

MELTRIC offers two handle options. The standard handle is intended for normal duty and withstands pull out forces up to 100 lbs - this is the lowest cost alternative. The handle with cord grip (mesh) is intended for heavy duty applications and meets UL 1691 requirements for withstanding a 300 lb pull test.

Standard Handle

Handle w/Cord Grip (Mesh)

Why is a key ring included with the unlocking tool?

MELTRIC felt that the unlocking tool by itself would be too easy to lose or misplace, so we provide it on a handy "valet" style separable key ring to help the user keep track of it and ensure it is available when needed. We did not feel that it was a good idea to tether the unlocking tool to the plug because it might allow unwanted disconnection by unauthorized personnel.

Can I get a sample for a sales demo?

CS1000 devices are available on a limited basis for sales demonstrations. Please contact your regional manager to request a sales sample when you need one.

Is there CS1000 literature available?

The CS1000 is in the 2015 catalog but the ratings do not reflect the new UL ratings recently obtained. The 2017 MELTRIC catalog (due to be released in August 2016) will show the new UL ratings. At this point we do not have a flyer available.

CS1000

part numbering / pricing – receptacles & inlets

CS1000 – 400A - 1000 VAC
Standard Duty Plugs & Receptacles

Ratings – UL

- **Amperage**
  400A
  Not for Current Interrupting
- **Voltage**
  600 VAC, 600 VDC
- **Short Circuit Rating**
  10kA Withstand
  Testing was performed with RK1 current limiting fuses sized at at least 100% of the devices ampacity rating.
- **Environmental Ratings**
  IP66/IP67
- **Temperature Range**
  Min -40°F/Max 140°F
- **Wiring Capacity**
  Min 1/0 AWG / Max 450 MCM
  90°C rated wire must be used
- **Listings**
  UL 1691, (CSA pending*)

* Contact Customer Service

Receptacle (female) without lug

Don't forget to add installation accessories to your order

North American Color Code	Polarity	Part # without lug
	L1	45-34001-P80
	L2	45-34002-P80
	L3	45-34003-P80
	NEUTRAL	45-3400N-P80
	GROUND	45-3400T-P80
	POSITIVE	45-3400P-P80
	NEGATIVE	45-3400M-P80

Inlet (male) without lug

North American Color Code	Polarity	Part # without lug
	L1	45-38001-P80
	L2	45-38002-P80
	L3	45-38003-P80
	NEUTRAL	45-3800N-P80
	GROUND	45-3800T-P80
	POSITIVE	45-3800P-P80
	NEGATIVE	45-3800M-P80

International Ratings – CE

- **Amperage**
  400A
- **Voltage**
  1000 VAC, 1500 VDC
- **Environmental Ratings**
  IP66/IP67
- **Temperature Range**
  Min -40°F/Max 140°F
- **Wiring Capacity**
  Min 1/0 AWG / Max 450 MCM
- **Listings**
  CE

European Color Code	Polarity	Part # without lug
	L1	45-34001
	L2	45-34002
	L3	45-34003
	NEUTRAL	45-3400N
	GROUND	45-3400T
	POSITIVE	45-3400P
	NEGATIVE	45-3400M

European Color Code	Polarity	Part # without lug
	L1	45-38001
	L2	45-38002
	L3	45-38003
	NEUTRAL	45-3800N
	GROUND	45-3800T
	POSITIVE	45-3800P
	NEGATIVE	45-3800M

Installation Accessories

Angles

w/Adapter Plate

Required for mounting on panels, walls, etc.

Angle 30°	Adapter Plate
45-3A027	45-3A540

Accessories

Inlet Cap	Unlocking Tool *	Padlocking Tool
45-3A126	45-3A396	45-3A844

* One unlocking tool on a "valet" style separable key ring is included with each male inlet.

part numbering / pricing – accessories

CS1000

Installation Accessories

Crimping lug

Use with angle 30° or direct mount

Use with handle or angle

Conductor Size	Allowable Current (A)	Internal Diameter (in)	Straight w/Terminal	Straight Threaded
1/0[2]	200	.43	45-3A50C	45-3A50D
2/0	250	.52	45-3A70C	45-3A70D
3/0	275			
4/0	300	.58	45-3A95C	45-3A95D
250	325	.63	45-3A12C	45-3A12D
350	350	.80	45-4A18C	45-4A18D
450	400	.90	45-4A24C	45-4A24D

1 Lugs to be crimped with Greenlee EK6IDL11 Crimping Tool Dieless 120V CHRG.
2 The ground conductor for the CS1000 series devices shall be limited to a maximum size of 1/0 AWG.

Handle

Normal Duty 100 lb grip

Cable Outside Diameter	Part #
.550 - 1.000	45-3A753
.700 - 1.260	45-3A783

Handle w/Cord Grip (Mesh)

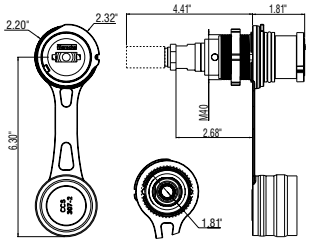
Heavy Duty 300 lb grip

Cable Outside Diameter	Part #
.500 - .625	45-3A753-A
.562 - .688	45-3A753-B
.625 - .750	45-3A753-C
.688 - .812	45-3A753-D
.750 - .875	45-3A753-E
.875 - 1.000	45-3A783-A
1.000 - 1.125	45-3A783-B
1.125 - 1.250	45-3A783-C
1.250 - 1.375	45-3A783-D

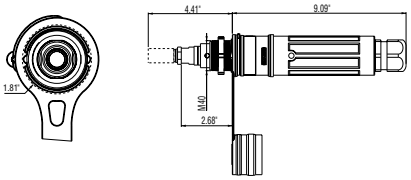
Dimensions Provided in inches

Dimensions are for reference only and may change depending on accessories used. For precise dimensions contact MELTRIC Engineering.

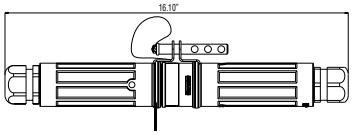
receptacle



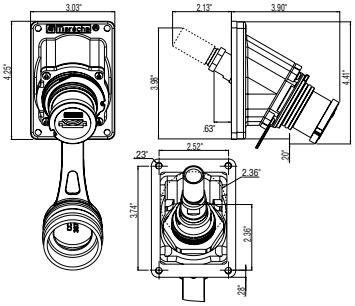
plug / receptacle



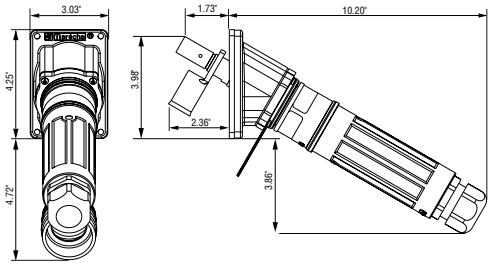
inline connector



30° inclined receptacle / angle



30° receptacle / angle with plug



HIGH AMPACITY

CS1000

instructions

INSCS1000 E

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A manufacturer of products using **Marechal technology**

meltric.com — MELTRIC — A company of MARECHAL ELECTRIC GROUP

GENERAL

CS1000 single pole plugs and connectors are designed with safety and durability in mind. A finger guard on the receptacle provides IP2X protection from live parts. A locking pin prevents unwanted disconnection. Each of the phases as well as the neutral and ground are color coded and keyed to prevent improper connection. Please follow the instructions below to ensure the proper installation and use of the product.

⚠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.

RATINGS

CS1000 plugs and receptacles are UL listed in accordance with UL 1691. CS1000 devices are for use in Non-Load Break applications up to 400A at 600VAC, 600VDC (in North America) or 1000VAC, 1500VDC (in Europe – CE rated).

⚠ The CS1000 devices are NOT designed or listed for current interruption.

INSTALLATION

⚠ These products should be installed by qualified personnel in accordance with all applicable local and national electrical codes.

Before starting, verify that the power is off, that the product ratings are appropriate for the application, and that the conductors meet code requirements and are within the capacities of the lugs noted in Table 1.
NOTICE: Connect only copper or copper-clad wire to this device.
NOTICE: For correct operation, the power cable must not exert significant force on the product.

Table 1 CS1000 Crimping Lugs[1]

Conductor Size[2]	Allowable Current (A)[3]	Straight With Terminal	Straight Threaded
1/0[4]	200	45-3A50C	45-3A50D
2/0	250	45-3A70C	45-3A70D
3/0	275		
4/0	300	45-3A95C	45-3A95D
250	325	45-3A12C	45-3A12D
350	350	45-4A18C	45-4A18D
450[5]	400	45-4A24C	45-4A24D

1. Lugs to be crimped with Greenlee EK6IDL11 Crimping Tool, Dieless 120V CHRG.
2. Type W or Compact Cable.
3. Intended to be wired with conductors rated 90°C or higher.
4. The ground conductor for the CS1000 series devices shall be limited to a maximum size of 1/0 AWG.
5. 444 Locomotive or Diesel Cable to 500MCM Compact Cable.

Wiring of the main conductor

Strip the conductor by approximately 1-1/8" depending on the lug used. Lugs to be crimped with Greenlee EK6IDL11 Crimping Tool, Dieless 120V CHRG.

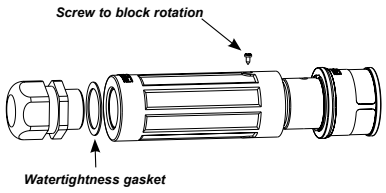
Tighten small (through 45-3A12D) Straight Threaded Lugs (Type D) with a 21 mm wrench and large (45-3A18D and up) with a 24 mm wrench. Tighten Straight With Terminal Lug (Type C) screw and washer with a 19 mm socket.

⚠ The tightening torque must not be transmitted to the insulated casing. To avoid transmitting torque to the device when securing the lugs, hold the terminal in place with a 20 mm wrench.

Torque both Type C and Type D style lugs to 30 ft-lb.

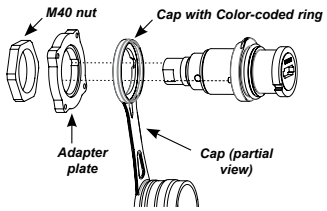
Assembly of the handle

Screw handle onto the product and tighten the cable gland with an appropriate tool. Block the rotation of the handle with the supplied screw. Assemble as shown below.

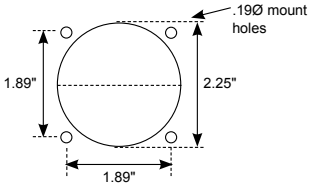


Assembly with adapter plate

Assemble the adaptor plate on the product and tighten the M40 nut with an appropriate tool. Align tabs and assemble as shown below.



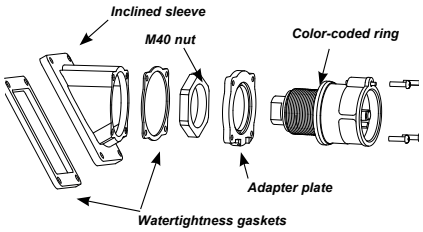
Hole pattern for adapter plate



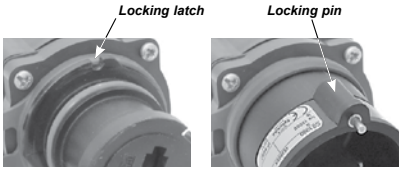
NOTICE: In order to maintain IP66/67 protection in custom installations, watertight seals must be used under the heads of the four mounting fasteners and they must be retained by a lock washer and nut on the inside of the box or panel. Alternatively, four blind holes can be drilled and threaded to accommodate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

Assembly on an inclined sleeve (with adapter plate)

Assemble the adapter plate on the inclined sleeve. Do not forget the gasket between the adaptor plate and the inclined sleeve, and between the inclined sleeve and the panel. Assemble as shown below.



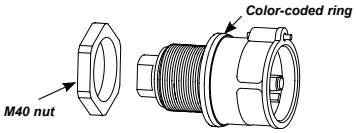
When mounting on a wall or panel, position the inlet or receptacle so that the locking pin or latch is at the top.



Assembly on a panel board

Direct assembly

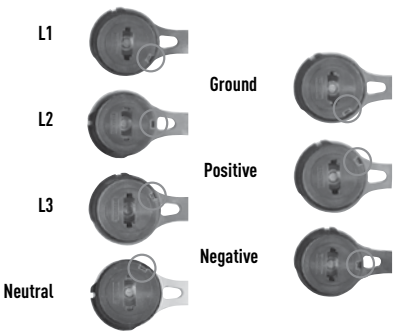
Assemble the product on the panel board and tighten the M40 nut supplied, with an appropriate tool.The watertightness is achieved by the color-coded ring.



Color coded ring and color-coded ring for the lid

In order to achieve watertightness, do not forget the color-coded ring at the rear of the inlet or receptacle and the panel.

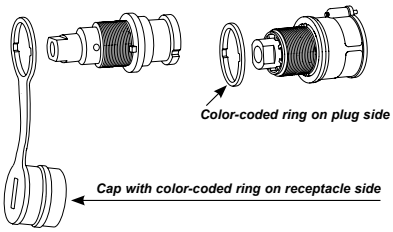
5 Mechanical Keying Postions (North America color codes shown.)



CS1000

instructions

The color-coded rings of receptacles and connectors include a cap. The color-coded rings of plugs and inlets do not include a cap.



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

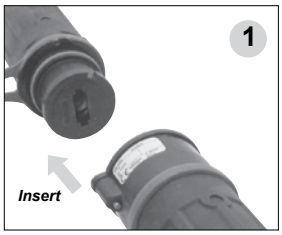
⚠ To ensure safe and reliable operation, Meltric plugs and receptacles must be used in accordance with their assigned ratings.

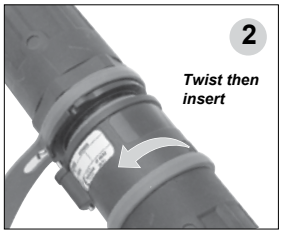
They can only be used in conjunction with mating receptacles or plugs manufactured by Meltric or another licensed producer of products bearing the Marechal™ technology trademark.

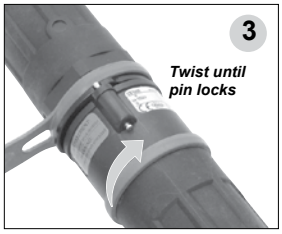
Connection

⚠ First check to see that the power source is de-energized. **DO NOT ENGAGE ON AN ENERGIZED CIRCUIT**.

Orient the plug so the contact will fit into the receptacle figure 1. Push the plug partially into the receptacle and rotate the plug counterclockwise until it hits a stop figure 2. Then insert plug fully into receptacle and rotate clockwise about one quarter turn until the locking pin engages into the slot on the receptacle figure 3.



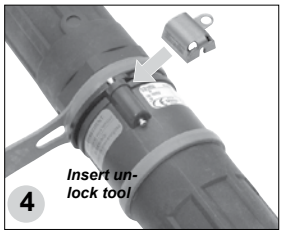


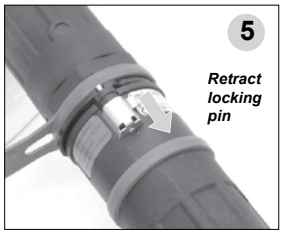


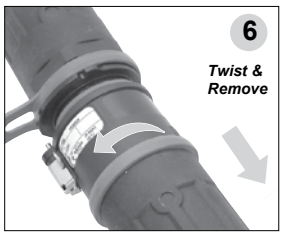
Disconnection

⚠ First check to see that the power source is de-energized. **DO NOT DISCONNECT ON AN ENERGIZED CIRCUIT**.

Insert unlocking key onto locking pin as shown in figure 4. Disengage locking pin by sliding unlocking key as shown in figure 5. When locking pin is released, hold unlocking key in position and twist plug counterclockwise about 30° as shown in figure 6. After turning, withdraw plug.



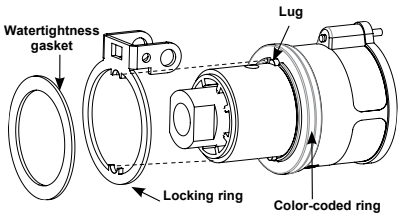




PADLOCKING OPTION

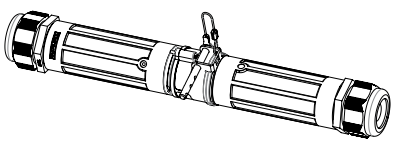
Assembly

Place the locking ring as shown:



Operation

Connect the product equipped with the locking ring, insert the shaft and padlock it.



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.

Deposits of dust or similar foreign materials can be rubbed off the contacts with a clean cloth. 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.

Receptacle contacts may be inspected by a qualified electrician. This should only be done with the power off.

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 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 intermateablility with similarly rated products manufactured by Marechal Electric Group.

INSCS1000 E