

## 1 Sommario

1	Chain Pilot Box Overview .....	2
1.1	Package contents .....	2
1.2	Technical features .....	2
1.3	Technical data .....	3
2	Versions .....	4
2.1	Connector model .....	4
2.2	Number of poles .....	5
2.3	Color coding .....	6
2.4	Contact's terminal and current rating .....	6
2.5	Box height .....	7
2.6	Internal wiring .....	8
2.6.1	Serial wiring (Default option) .....	8
2.6.2	Parallel wiring (Available on request) .....	9
2.7	Overall dimensions .....	9
3	Installation .....	11
3.1	Mounting instructions .....	11
3.2	Electrical connection .....	12
3.3	External circuit connection .....	12
3.3.1	Serial internal wiring .....	13
3.3.2	Parallel internal wiring (available on request) .....	13
4	Operating instructions .....	14
4.1	Connection .....	14
4.2	Disconnection .....	15
4.3	Maintenance .....	15

## 1 Chain Pilot Box Overview

The PowerSyntax Chain Pilot box features a set of PowerSyntax Chain Pilot connectors with L1+L2+L3+N+PE (or L1+L2+L3+PE), each one with its built-in microswitch. The connector's microswitches control an auxiliary circuit connected to an external device (breaker, contactor, etc.), so that the system will only be activated once all the mechanically keyed cable connectors have been inserted in the corresponding panel-mount connectors on the Chain Pilot Box. So, there is no need to respect a sequential order when mating or unmating your connectors, unlike on other Powerlock-compatible boxes.

All connectors will de-energize should one become disconnected when in use.

### 1.1 Package contents

Before installing the Chain Pilot Box, the contents of the package should be checked, in order to verify that the model and its features match your requirements, according to your order.

Every carton should contain:

- 1 Chain Pilot Box unit with IP67 protective caps
- 1 Female M12 connector for control circuit

### 1.2 Technical features

- Intermateable with standard PowerSyntax or other powerlock-style connectors.
- Microswitch-controlled auxiliary circuit ensures that the system will only be energized when all 5 connectors on the box have been mated.
- Total electrical safety as all connectors are de-energized should one become disconnected.
- Color-coded connectors.
- 5-pole (E-N-L1-L2-L3) or 4-pole (E-L1-L2-L3) system with Panel Drain or Source connectors.
- Mechanically keyed connectors to prevent mating errors.
- Secondary lock for added mechanical safety.
- IP2X finger-proof protection.
- 2U 19" rack-mountable box.

- IP67 rating on connectors' front mating side.
- Microswitch-controlled auxiliary circuit ensures that the system will only be energized when all connectors on the box have been mated.

## 1.3 Technical data

<b>Rated current:</b>	480amp or 750amp
<b>Rated voltage:</b>	1000V AC / 1500V DC
<b>Color coding:</b>	<p><b>EUROPE:</b> color coded connectors and panel inscriptions (E-green, N-blue, L1-brown, L2-black, L3-grey)</p> <p><b>UK (old):</b> color coded connectors (E-green, N-black, L1-red, L2-yellow, L3-blue)</p> <p><b>AUSTRALIA:</b> color coded connectors (E-green, N-black, L1-red, L2-white, L3-blue)</p> <p><b>USA:</b> color coded connectors (E-green, N-white, L1-black, L2-red, L3-blue)</p>
<b>Model:</b>	source or drain
<b>Contact material:</b>	silver plated copper
<b>Box material:</b>	high temperature thermoplastic
<b>Rack space:</b>	2U or 2.5U
<b>Endurance:</b>	500+ connection cycles
<b>Degree of protection (connectors front side):</b>	IP67 when mated of with environmental caps fitted (IP67 caps supplied as a standard)
<b>Degree of protection (connectors without caps):</b>	IP2X finger-proof
<b>Flammability:</b>	UL94 - V0
<b>Operating temperature:</b>	-30°C to +85°C
<b>Safety notice:</b>	The PowerSyntax chain pilot box should only be installed and operated by suitably qualified persons

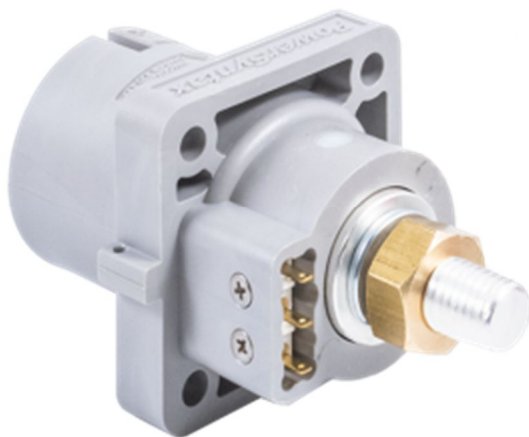
## 2 Versions

### 2.1 Connector model



#### Panel drain

On the panel drain, the spring device activating the microswitch is placed outside the mating part of the connector's shell.



#### Panel source

On the panel source, the spring device activating the microswitch is placed inside the mating part of the connector's shell.

## 2.2 Number of poles

The Chain Pilot Box can be ordered with the standard 5-poles (G - N - L1 - L2 - L3) or in the 4-poles (G - L1 - L2 - L3) version.

- 



### 5-poles version

- 


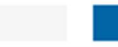



### 4-poles version

## 2.3 Color coding

The PowerSyntax Chain Pilot connectors can be coded for Europe, UK (old), Australia and U.S.A. color schemes.

- Identification color codes (5-POLES)

	Ground	Neutral	Line 1	Line 2	Line 3
Europe & UK					
UK (old)					
Australia					
U.S.A.					

- Identification color codes (4-POLES)

	Ground	Line 1	Line 2	Line 3
Europe & UK				
UK (old)				
Australia				
U.S.A.				

## 2.4 Contact's terminal and current rating

The PowerSyntax Chain Pilot Panel connectors in the Chain Pilot Box are equipped with different contact types, depending on current rating (480amp or 750amp) and cable terminations.



## **Extended length contact M12 threaded post**

M12 threaded-post contact, up to 480 amp or 750 amp (all-copper contact). Lug terminal retained through a M12 nut. Longer contact allows connectors mating without interfering with the microswitch's contacts.



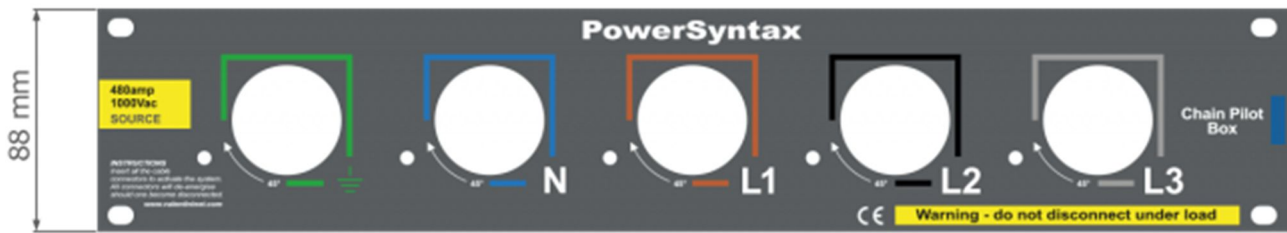
## **Extended length contact M12 threaded hole**

M12 threaded-hole contact, up to 480 amp or 750 amp (all-copper contact). Lug terminal retained through a M12 bolt. Longer contact allows connectors mating without interfering with the microswitch's contacts.

## **2.5 Box height**

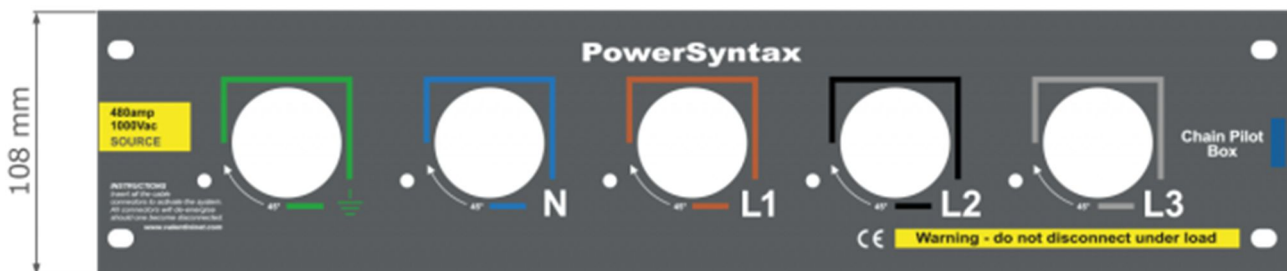
Pick the right box for your rack, we can provide two options: 2U and 2.5U. Both choices are available for the 4-poles or the 5-poles versions.

- 



Box height: 2U

- 



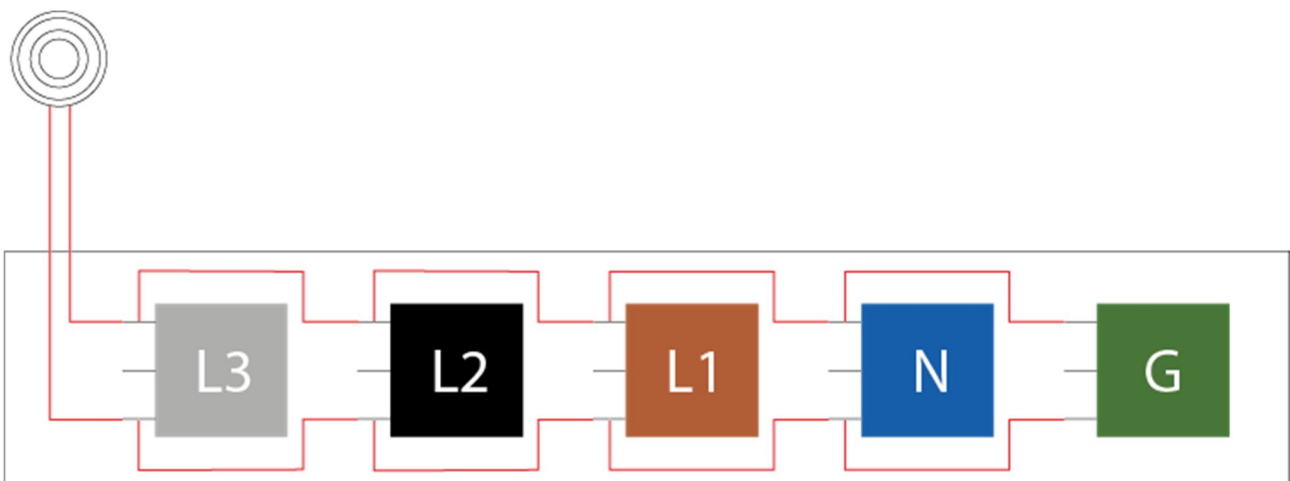
Box height: 2.5U

## 2.6 Internal wiring

Depending on the control circuit you choose to employ, the internal wiring of the connectors microswitches can be performed in two different ways:

### 2.6.1 Serial wiring (Default option)

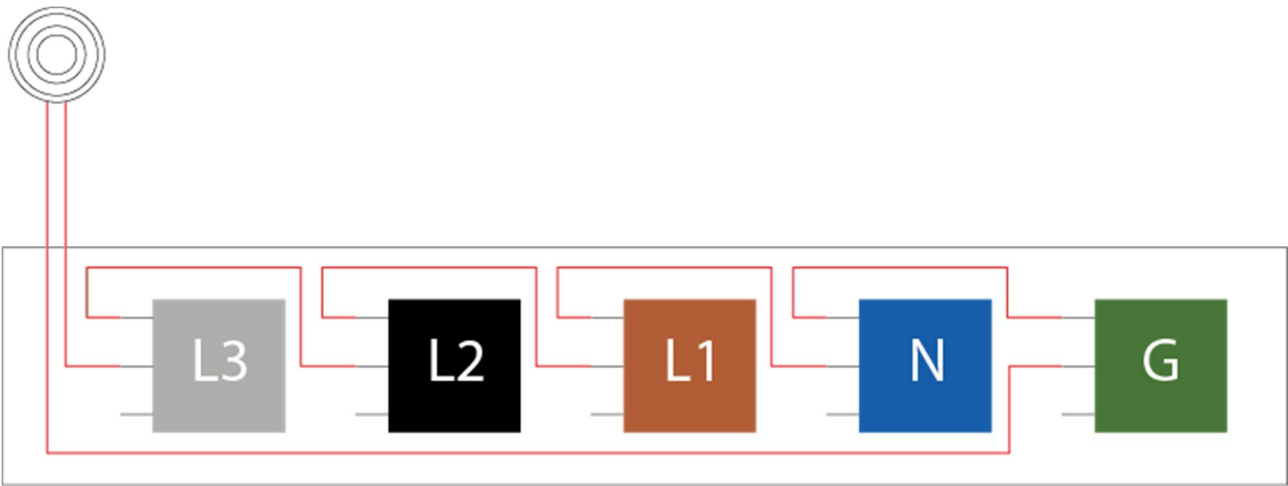
This type of wiring is employed when using circuit breakers (MCB / MCCB) equipped with minimum voltage coils or contactors.



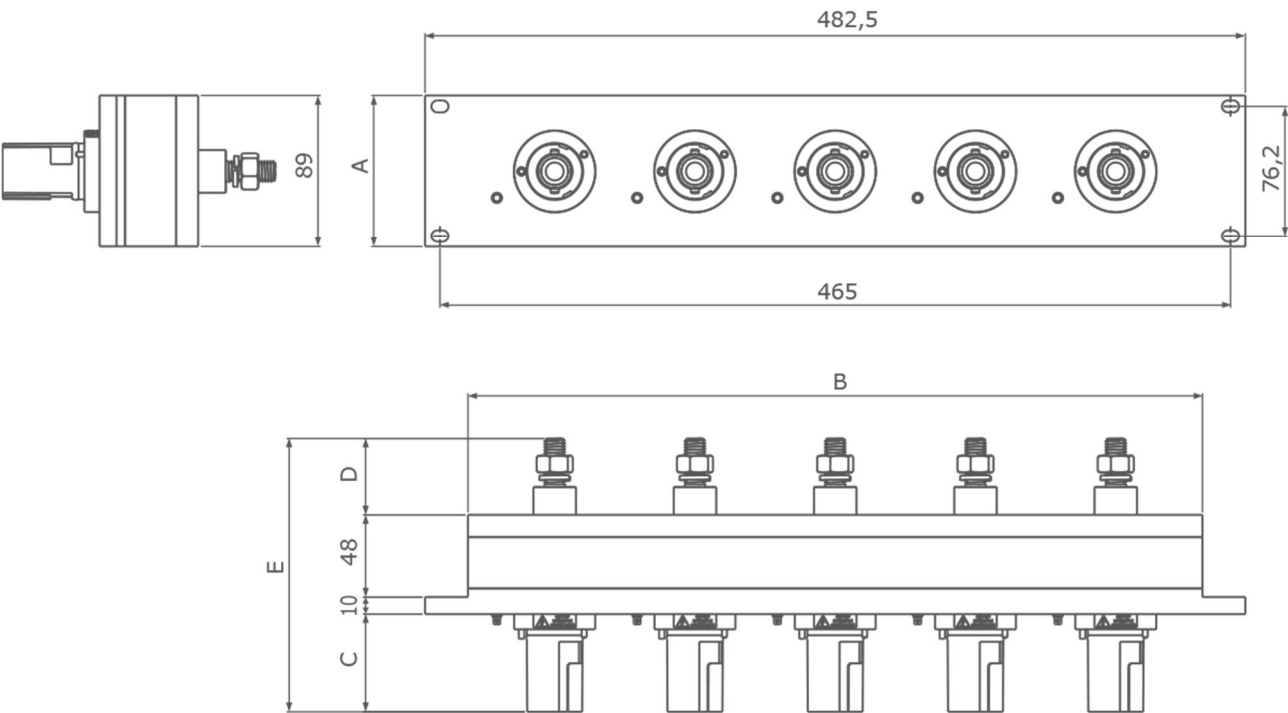


## 2.6.2 Parallel wiring (Available on request)

This type of wiring is employed when using circuit breakers equipped with shunt trip coils.



## 2.7 Overall dimensions



Type	Poles	Units	Contact	A	B	C	D	E
Drain	4	2U	M12 post	89 mm	349,5 mm	57 mm	46 mm	161 mm
Drain	4	2U	M12 hole	89 mm	349,5 mm	57 mm	16,3 mm	131,3 mm
Drain	4	2,5U	M12 post	108 mm	349,5 mm	57 mm	46 mm	161 mm
Drain	4	2,5U	M12 hole	108 mm	349,5 mm	57 mm	16,3 mm	131,3 mm
Drain	5	2U	M12 post	89 mm	432 mm	57 mm	46 mm	161 mm

Drain	5	2U	M12 hole	89 mm	432 mm	57 mm	46 mm	161 mm
Drain	5	2,5U	M12 post	108 mm	432 mm	57 mm	46 mm	161 mm
Drain	5	2,5U	M12 hole	108 mm	432 mm	57 mm	16,3 mm	131,3 mm
Source	4	2U	M12 post	89 mm	349,5 mm	35 mm	46 mm	139 mm
Source	4	2U	M12 hole	89 mm	349,5 mm	35 mm	16,3 mm	109,3 mm
Source	4	2,5U	M12 post	108 mm	349,5 mm	35 mm	46 mm	139 mm
Source	4	2,5U	M12 hole	108 mm	349,5 mm	35 mm	16,3 mm	109,3 mm
Source	5	2U	M12 post	89 mm	432 mm	35 mm	46 mm	139 mm
Source	5	2U	M12 hole	89 mm	432 mm	35 mm	16,3 mm	109,3 mm
Source	5	2,5U	M12 post	108 mm	432 mm	35 mm	46 mm	139 mm
Source	5	2,5U	M12 hole	108 mm	432 mm	35 mm	16,3 mm	109,3 mm

## 3 Installation



**DANGER:** All installation tasks must be performed by professionally trained personnel, as incorrect operations may result in severe injuries, electric shocks and burns up to immediate death for the installers or for the end users.

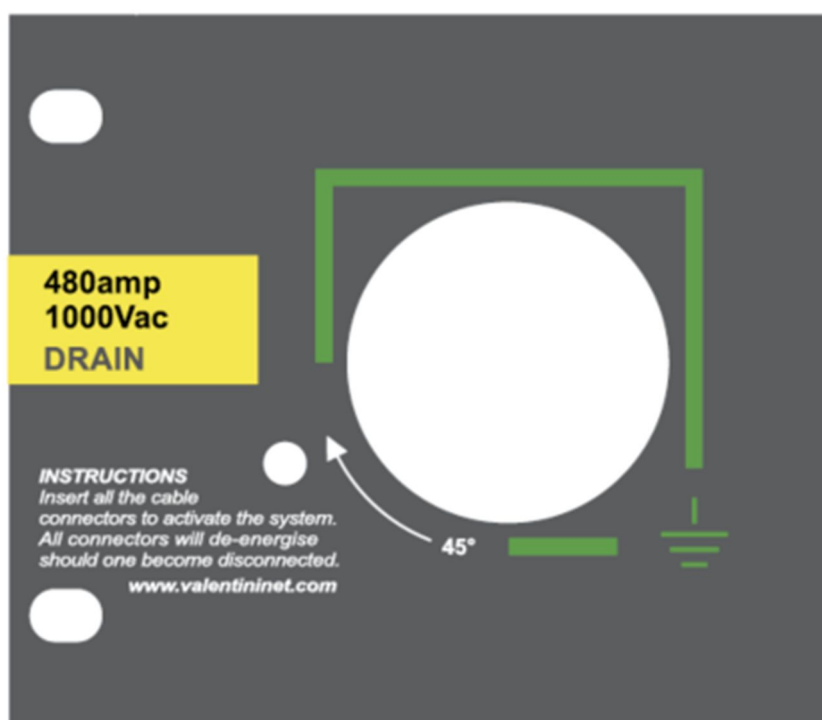
It is responsibility of installers and users to ensure that all the safety practices are correctly adopted.

### 3.1 Mounting instructions

The Chain Pilot Box is designed for installation on standard 19" mounting frames or racks.

The fixing holes dimensions are 10mm x 7mm.

Aggiungere dimensioni al disegno



We recommend the use of screws, nuts and washers of thread size M6. The length of the screws must be adequate to fully support the Chain Pilot Box to the chosen mounting frame or rack.

**CAUTION** – Tighten all screw and bolts evenly to ensure maximum support for the unit.

## 3.2 Electrical connection

Two types of contacts may be used in the Chain Pilot Box: with a M12 Threaded Post and with a M12 Threaded Hole. Both contacts are intended for connection with a lug terminated power cable.

To connect the power cables to the Chain Pilot Box proceed as stated in the following paragraphs.

The phases of each connector are clearly marked on the rear of the box.

### Contacts with M12 Threaded posts

Insert the post into the lug and screw the nut with a tightening torque of 30Nm.

### Contacts with M12 Threaded holes

Insert the bolt into the lug and screw them into the hole with a tightening torque of 30Nm.

## 3.3 External circuit connection



To link the safety control circuit to the connectors' microswitches, we provide in every package a M12 female connector to be plugged to the matching male one located on the rear of the Chain Pilot Box.

The proper way to wire the M12 connector depends on how the microswitches of the connectors have been wired inside the Chain Pilot Box. There are 2 options available: Serial internal wiring (default option) or Parallel internal wiring (available on request).



### **Serial internal wiring (default option)**

Connect wires in contacts 3 and 4.

### **Parallel internal wiring (available on request)**

Connect wires in contacts 1 and 3.

## 4 Operating instructions



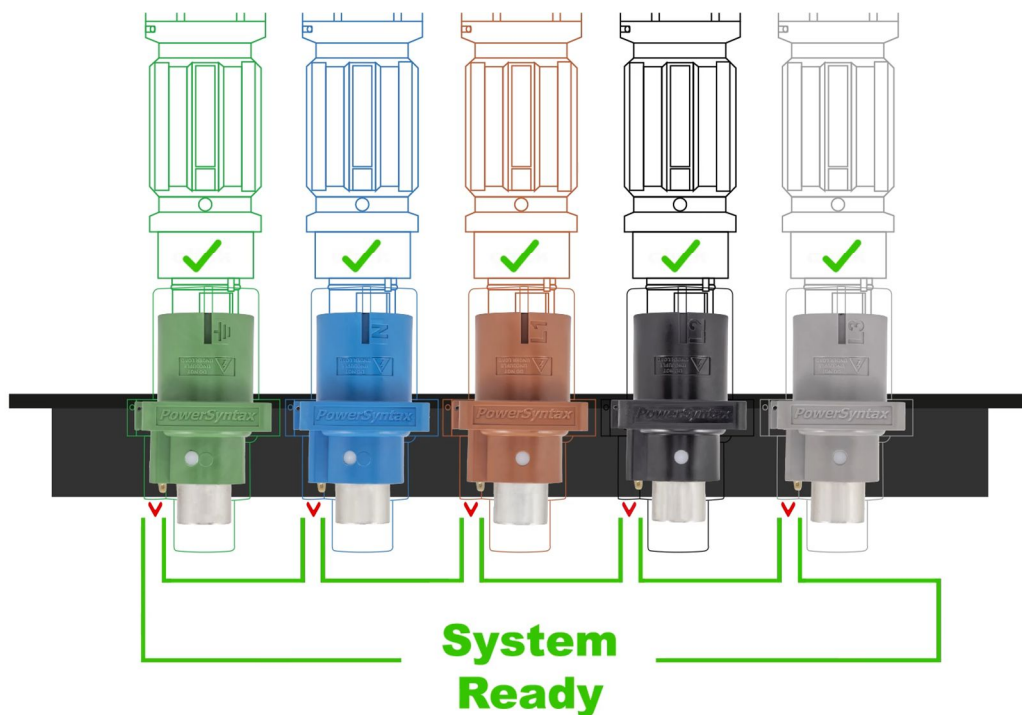
**DANGER:** The Chain Pilot Box must be used by professionally trained personnel, as incorrect operations may result in severe injuries, electric shocks and burns up to immediate death for the installers or for the end users.

It is responsibility of the operators to ensure that all the safety practices are correctly adopted.

### 4.1 Connection

Check that the current ratings of the cables and connectors used are compatible with the current rating of the Chain Pilot Box and connected supply.

The signal to the safety circuit is only sent when all the line connectors and phases have been properly inserted.



- The connectors are keyed, polarized and color coded to prevent insertion of wrong phases.

- Locate the insertion keyways in both the panel and line connectors.
- Push firmly and completely the line connector into the corresponding panel connector.
- While still pushing, rotate the line connector 45° clockwise, until you hear a click from the secondary locking mechanism.
- Repeat the previous operations for all the other connectors/phases.
- No specific order is required when inserting the connectors.

## 4.2 Disconnection

The safety circuit will de-energize the Chain Pilot Box as soon as a single line connector is unmated from the system.

- Using a dedicated release key or the SyntaxLock accessory (if present) press the secondary locking mechanism to unmate the connectors.
- While still pressing the secondary lock, rotate the line connector 45° anticlockwise.
- Pull the line connector to completely release it.
- Repeat the previous operations for all the other connectors/phases.
- No specific order is required when removing the connectors.

## 4.3 Maintenance

- When not operational, fit the Chain Pilot Box with the provided safety caps, to ensure full IP67 protection.
- The Chain Pilot Box should regularly be inspected for visible damage, including the connectors and the protective caps.
- Periodic greasing of the O-ring seals is recommended.