

Length of ULP Cords

The rules for ULP cord length are as follows:

- The maximum length of the ULP cord between two ULP modules in an IMU is 5 m (16.4 ft) if one of the ULP modules does not have an external power supply.
- The maximum length of the ULP cord between two ULP modules in an IMU is 10 m (32.8 ft) if both ULP modules have an external power supply.
- The maximum length of all the ULP cords on a single IMU is 20 m (65.6 ft).
- In the case of an installation with a withdrawable drawer, the total length of the ULP cords for the fixed part must be less than 12 m (39.4 ft). This length limitation is to ensure that the fixed part operates correctly when the drawer is drawn out ([see page 49](#)).
- The bending radius of the ULP cords must be 50 mm (1.97 in) minimum.

NOTE: In the following cases of device combinations with an IFE interface with part number LV434010 or LV434011, ULP total network length is limited to a maximum of 5 m (16.4 ft):

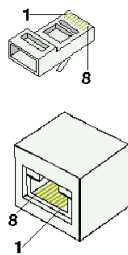
- A Masterpact MTZ circuit breaker and an IFE interface.
- A Masterpact MTZ circuit breaker, one IO module, and an IFE interface.
- A Masterpact MTZ circuit breaker, two IO modules, and an IFE interface.

Summary of Connection Rules

Characteristic	Value
Connection	Daisy-chaining of ULP cords and ULP line termination at the end of the ULP line.
Maximum length	• 20 m (65.6 ft) in total for the IMU. • 10 m (32.8 ft) between two ULP modules if both ULP modules have an external power supply. • 5 m (16.4 ft) between two ULP modules if one of the ULP modules does not have an external power supply. • 12 m (39.4 ft) for the fixed part in the case of an installation with a withdrawable drawer (see page 49).
Voltage range supported	24 Vdc -10%/+10% (21.6–26.4 Vdc)
Current limitation on each ULP RJ45 port (see page 53)	300 mA

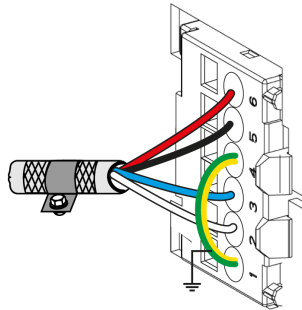
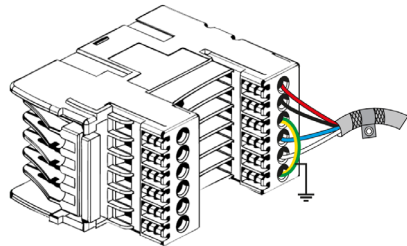
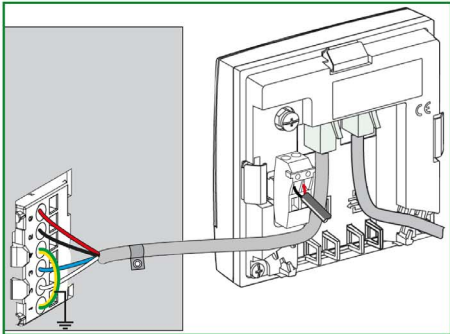
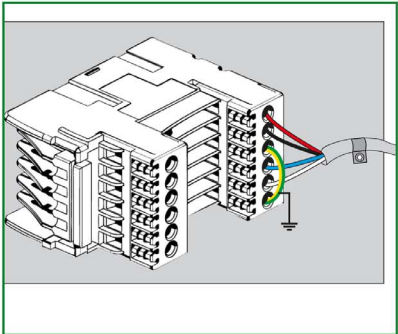
RJ45 Pin Connection of ULP Cord

The RJ45 male/male ULP cord uses an RJ45 connector with pin connection as follows:

RJ45 connector	Pin number	Pair number	Wire color	Assignment
	Cover	Shielding	Braid	Shielding
	1	Pair 1	White	Data (L)
	2	Pair 1	Blue	Data (H)
	3-4-5-6	–	–	Reserved
	7	Pair 2	Black	0 V
	8	Pair 2	Red	24 Vdc

Connection Procedure

The procedure for connecting the withdrawable drawer terminal block is as follows:

Step	Action	
1	Plug the four conductors into the terminal block (removable side): - Terminal 1: Connected to terminal 4 and to ground - Terminal 2: White wire (L data) - Terminal 3: Blue wire (H data) - Terminal 5: Black wire (0 V) - Terminal 6: Red wire (24 Vdc)	
2	Plug the four ULP cord conductors into the terminal block on the fixed part in the same order.	
3	Strip the ULP cord insulation: - Close to the ULP cord end connected into the terminal block (removable side). - Close to the ULP cord end connected on the fixed part.	
4	Insert the wire braid into a grounding clamp at both ends of the stripped ULP cord.	
5	Screw the grounding clamps on the fixed part and withdrawable part of the drawer.	 

RJ45 Male/Male ULP Cord Characteristics

Characteristics

The common characteristics of ULP cords are as follows:

- Shielded cable with four twisted-pairs, 0.15 mm² (26 AWG) cross-section, with typical impedance of 100 Ω
- Shielded male RJ45 connector at each end, cable shielding connected to the connector cover (connector conforming to standard IEC 60603-7-1)
- Color and order of internal wires conforming to standard EIA/TIA568B.2 (refer to the RJ45 pin connection (*see page 50*))
- Insulation voltage of the outer sheath: 300 V⁽¹⁾
- Bending radius: 50 mm (1.97 in)⁽¹⁾

(1) Cable must be compliant with installation requirements for voltage and temperature ratings. It is the responsibility of the user to select the correct cable for the specific installation.