CAREL

4.5 Connecting the terminal

c.pCOmini
Use the accessory cable P/N S90CONN0S0, connected as shown in the figure. The maximum distance allowed between controller and terminal is 10 m.
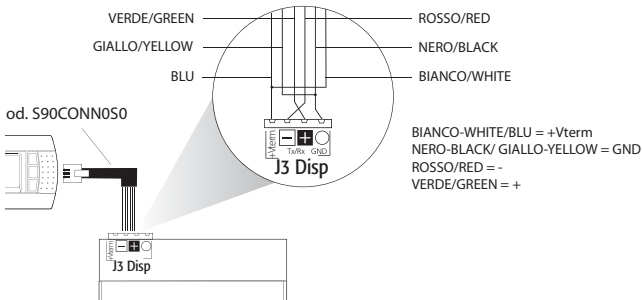

VERDE/GREEN — ROSSO/RED
GIALLO/YELLOW — NERO/BLACK
BLU — BIANCO/WHITE

od. S90CONN0S0

J3 Disp

BIANCO-WHITE/BLU = +Vterm
NERO-BLACK/ GIALLO-YELLOW = GND
ROSSO/RED = -
VERDE/GREEN = +

J3 Disp

Fig. 4.k

c.pCO Small...Extralarge
The controller and the terminal are connected to a pLAN network.

1: Connecting the terminal to one c.pCO controller
When connecting the controller to the terminal, the following restrictions should be kept in mind:
1. the overall length of the pLAN network should not exceed 500 m. Consequently, if the terminal is installed in a remote position, the length of the terminal cable must be included in the total length;
2. the unshielded telephone cable can be used for a max. length of 50 m. Beyond this length, use a 3-wire shielded cable (see the table below);
3. for lengths greater than 200 m, the power supply for the terminal must be provided separately;
4. no more than 3 terminals can be connected to the same c.pCO controller. The terminals must be the same type (e.g. all pGD1). One terminal is powered by the controller, and the other two by an external power supply.

⚠ **Important:**
• in domestic installations, standard EN55014 requires the connection cable between the controller and the terminal to be shielded, with the shield earthed at both ends;
• in industrial installations with length >10 m, the connection cable between the controller and the terminal must be shielded and the shield must be earthed.

Case A: 1 terminal.
A.1: distance L < 50 m.
The typical connection for one terminal (e.g. PGD1) is made using a 6-wire telephone cable available from CAREL as an accessory (S90CONN00*). The telephone connector provides both data transmission and the power supply for the terminal.

To make the connection:
• plug the connector into terminal J10 until it clicks into place.

To remove the connector:
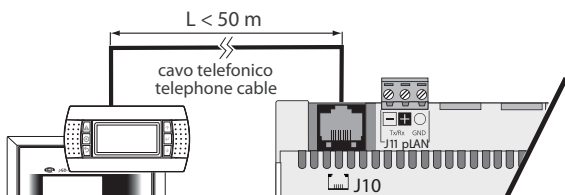• press lightly on the plastic catch on the connector and pull it out.

L < 50 m
cavo telefonico
telephone cable
J11 pLAN
J10

Fig. 4.l

A.2: distance 50< L< 200 m.
Lengths greater than 50 m require two TCONN6J000 cards connected with a 4-wire shielded cable, as shown in the figure. The terminal is powered by the controller.
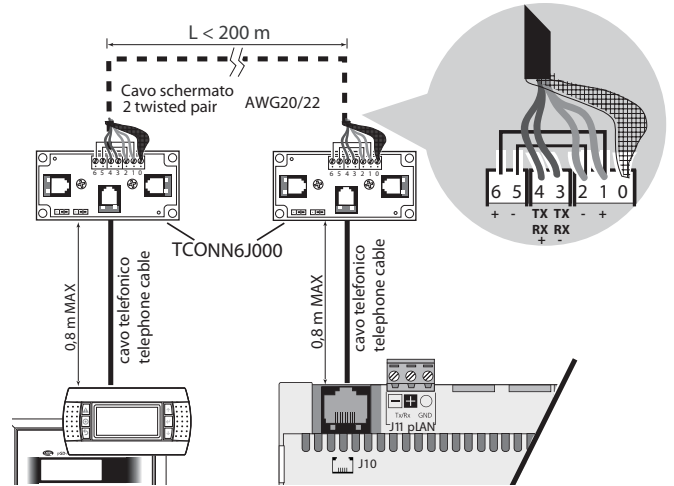

L < 200 m
Cavo schermato 2 twisted pair   AWG20/22
TCONN6J000
cavo telefonico
telephone cable
0,8 m MAX
6 5 4 3 2 1 0
+ - TX TX - +
RX RX
+ -
J11 pLAN
J10

Fig. 4.m

➡ **Note:** for information on the position of the jumpers on the TCONN6J000 board, see instruction sheet +050002895.

A.3: distance 200< L< 500 m.
The terminal must be powered by an external power supply. Connect a 3-wire shielded cable to the pLAN connector (J11). Provide a separate power supply for the TCONN6J000 card, as shown in the figure.
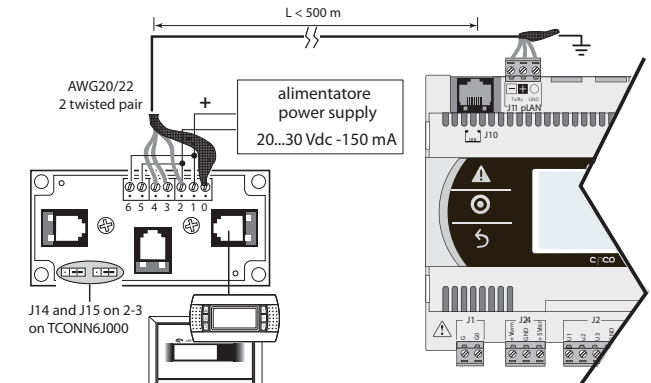

L < 500 m
AWG20/22
2 twisted pair
alimentatore
power supply
20...30 Vdc -150 mA
6 5 4 3 2 1 0
J14 and J15 on 2-3 on TCONN6J000
J11 pLAN
J10

Fig. 4.n

➡ **Note:** to reach the maximum network length, use a bus layout with branches not exceeding 5 m.

Case B: 2 terminals
Two terminals can be directly connected only on Small models. Other sizes require the second terminal to be powered separately. On Medium/Large/Extralarge controllers apply configuration A.1, A.2 or A.3.

B.1: distance L < 50 m.
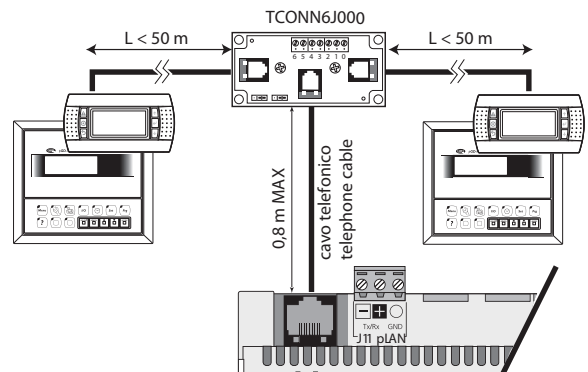Use 1 TCONN6J000 card, connected as shown in the figure.

TCONN6J000
L < 50 m   L < 50 m
0,8 m MAX
cavo telefonico
telephone cable
J11 pLAN
J10

Fig. 4.o

B.2 distance 50< L< 200 m.

Use 3 TCONN6J000 cards, connected as shown in the figure.

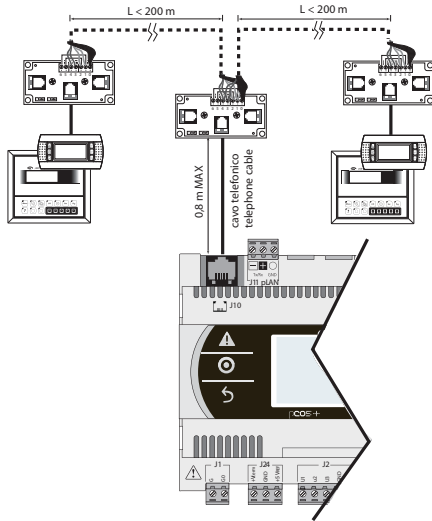Fig. 4.p

B.3 distance 200< L< 500 m.

If one of the terminals is connected at a distance >200 m, connect it according to the diagram described in A.3. Connect the other terminal as described in A.1 or A.2. If both terminals are close to a distance > 200 m, connect them as shown in the diagram below:
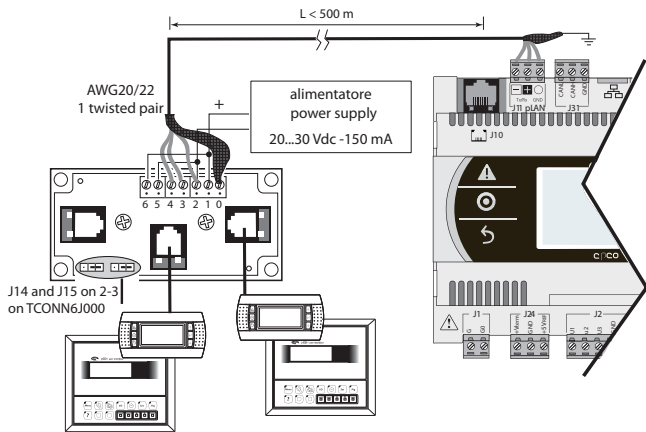

Fig. 4.q

Case C: 3 terminals.

For the first 2 terminals refer to Case B. For the third terminal use one of connections A.1, A.2 or A.3.

⚠ **Important:**
- the 24 Vdc at +Vterm (J24) can be used only in alternative to connector J10 to power an external terminal, with maximum current 1.5 W;
- in networks with a star layout, if the cable is longer than 5 m, connect the terminal only to the first or last c.pCO in the network (to avoid branches).

The following table applies.

	type of cable	MAX controller-terminal distance (m)	power supply	use TCONN6J000 card
1	telephone	50	from the controller (150 mA)	NO
2	shielded AWG24	200	from the controller (150 mA)	YES
3	shielded AWG20/22	500	separate	YES

2: Shared terminal connection in pLAN network

To share a terminal between several c.pCO controllers, these can be connected in a pLAN network, and the terminal connected to one of the controllers in the network (see the figure below). The previous details on the maximum length allowed between terminal and controller also apply in this case.
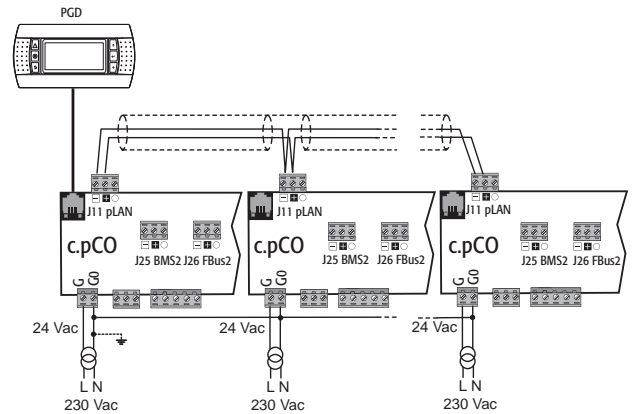

Fig. 4.r

It is possible use one terminal only, sharing it between controllers to display the information relating to each (see the paragraph "Private and shared terminal").

4.6 Input/output labels

c.pCO controllers are distinguished by size and provided with inputs and outputs and power supplies for the active probes most suitable for various applications.
The features that depend on the model are:
- maximum number and type of inputs/outputs;
- availability of built-in driver for expansion valves;
- type of interfaces

label	Type of signal
U...	Universal inputs/outputs, can be configured via software as: Analogue inputs: - NTC PTC, PT500, PT1000 sensors - PT100 sensors - 0 to 1 Vdc or 0 to 10 Vdc signals - 0/4 to 20 mA signals - 0 to 5 V signals for ratiometric probes Digital inputs (not optically-isolated): - voltage-free contacts (not optically-isolated) - fast digital inputs Analogue outputs (not optically-isolated): - 0 to 10 Vdc signals - PWM signals
Y...	0 to 10 Vdc analogue outputs, PWM outputs
ID...	24 Vac/ 24 Vdc digital input
ID...H	230 Vac digital input
NO...	Relay output, normally open contact
NC...	Relay output, normally closed contact
C...	Relay output, common
Tx/Rx, GND	Serial port
	Ethernet port
	Functional earth

Tab. 4.b