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15.05.03

REMOTE PANEL-MOUNTED MODEM

C←BUS

MPD 612 C3 Eng.

- Sharing of telephone line with telephone, fax or modem.
- 1 RS232 serial communication output.
- 1 C-Bus parallel communication output.
- DIN 46277 mounting compatible

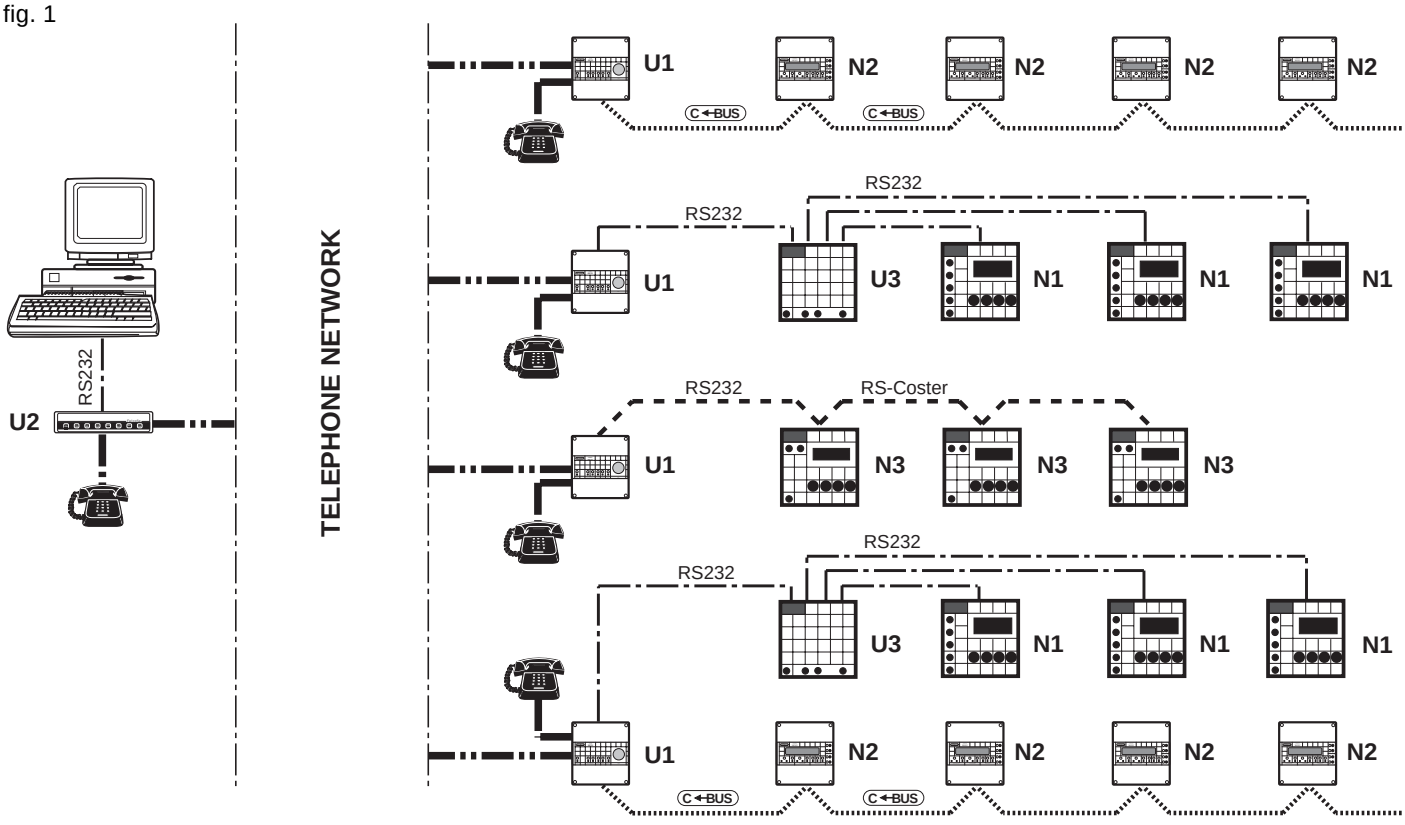
CE

1.APPLICATION

MPD 612 modem is used for connecting Coster controllers suitable for telemanagement to a telephone line so they can dialogue with a remote computer.
It converts digital signals originating from the controllers into analogue signals for transmission along the telephone line (MODulation) and reconverts the analogue signals coming from the telephone line into digital signals to be sent to the controllers (DEModulation).
Thanks to the call discriminator function it is possible to share a telephone line with a telephone set or a fax or another modem.

SCHEMATIC DIAGRAM

fig. 1



N1 – RS232 devices
N2 – C-Bus devices
N3 – RS-Coster devices

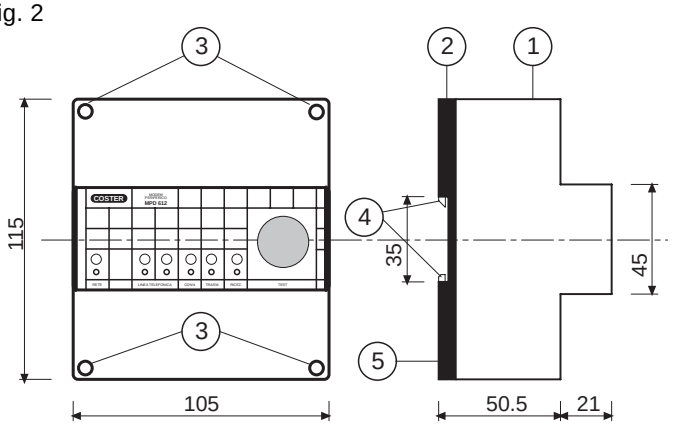
U1 – MPD 612 panel-mounted remote modem
U2 – MCT 710 desktop modem
U3 – Concentrator for RS232 & INT 959

2.TECHNICAL DATA

Power supply	230 V ac ± 10%; 50 to 60 Hz
Consumption	3.5W
Protection	IP40
Construction standards	Italian Electrotech. Comm. (CEI)
Operational standard	Full Duplex
Call mode :	
- in multifrequence	ATDT
- pulses	ATDP
Transmission speed :	
- RS232 & C-Bus	1,200 bps asyn.
-telephone line	1,200 bit/s
Ambient temperature :	
- operating	0 to 45°C
- storage	– 25 to + 60°C
Dimensions	105 x 115 x 71.5 mm
Weight	1 kg

OVERALL DIMENSIONS

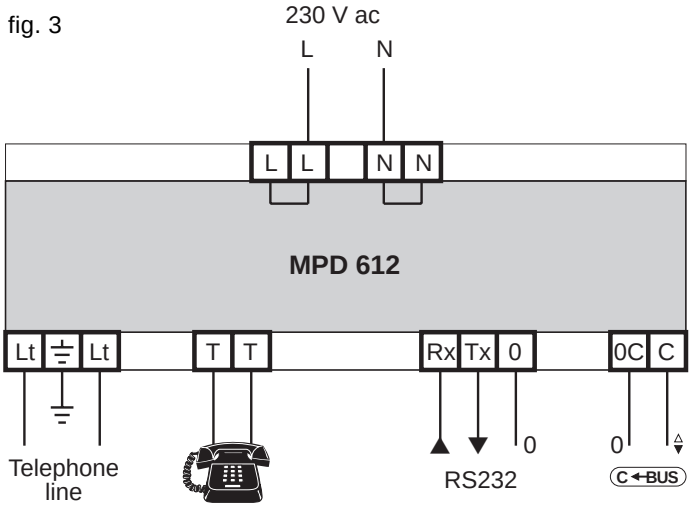
fig. 2



1 - Protective cover
2 - Base
3 - Screws for securing cover to base
4 - DIN rail securing elements
5 - DIN rail release lever

3.WIRING DIAGRAM

fig. 3



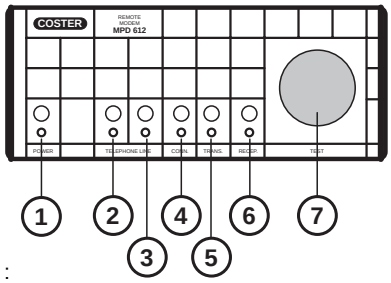
4. INSTALLATION & WIRING

MPD 612 must be installed in a dry ambience having a temperature not above 45°C and as far away as possible from any water drips or sprays.
MPD 612 can be installed on the wall on a DIN rail or in a DIN standard enclosure.
If positioned in locations classified as "Dangerous" it must be installed inside an enclosure for electrical equipment constructed according to current regulations for the type of danger involved.

- Loosen the four screws (fig. 2.3) which secure the cover (fig. 2.1) to the base (fig. 2.2) and separate the two parts.
- Mount base on the DIN rail and check that securing elements (fig. 2.4) keep it firmly in place.
- Carry out the electrical and telephone wiring in strict observance of the wiring diagrams given above and of current regulations .

FACIA

fig. 4



LED indicators :
1 – Power
2 – Lit when telephone line is engaged by modem.
3 – Lit when telephone line is engaged by parallel telephone.
4 – Lit when modem is connected.
5 – Lit when modem is in transmission stage.
6 – Lit when modem is in reception stage.
7 – Socket for TCB908.

- It is recommended not to insert more than two cables in a single terminal of the modem and, if necessary, to make use of external terminals.
- For power connections it is recommended to use normal copper conductors having a cross-section of at least 1.5 mm^2.
- For wiring the communication (C-Bus) ring it is possible to use telephone cables with two wires. It is essential to ensure that the polarities are observed and to this end it is recommended to use wires of different colours.
- With a multitester check that there are no short or open circuits in the power and C-Bus circuits.
- Apply power (230 V ac) and check with a multitester on terminals L - N that the voltage is correct.
- Remove power, replace the cover on the base and tighten the four screws.

5.C-BUS : COMMUN. WITH TELEMANAGEMENT

MPD 612 is provided with two inputs : a serial RS232 and a parallel C-Bus.
The RS232 input permits connecting to the modem Coster digital devices having an RS232 output.
The C-Bus input permits connecting to the modem up to 16 devices with the C-Bus badge.

5.1 C-Bus electric wiring

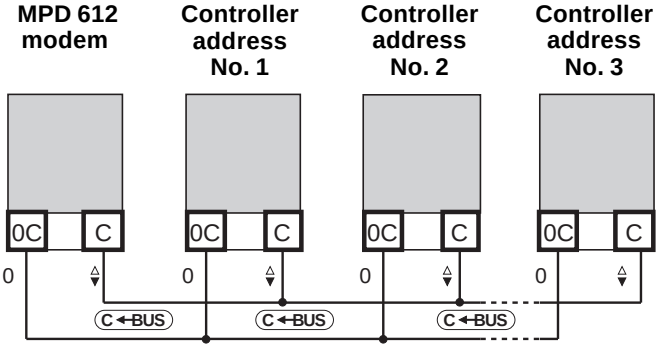
The **parallel** electrical connections between all the electronic units must be made using low-capacity **twin-core telephone cable** and in strict observance of the polarity 0C - C.
The wiring system can be:
– closed ring having a maximum wiring length of 4 km.
– linear or with stubs having a maximum wiring length of 2 km.
For longer distances **model DCL 232 signal amplifiers** must be used.

6.WIRING TELEPHONES

MPD 612 incorporates telephone line protection but in order for it to function effectively **an efficient earth connection is essential**. The input line must be connected to terminals Lt - Lt.
For the correct operation of the modem it is indispensable that MPA 643 is the first device connected to the line in arrival from the telephone company; any other device sharing the line must be connected to output T - T.

C-BUS WIRING DIAGRAM

fig. 5



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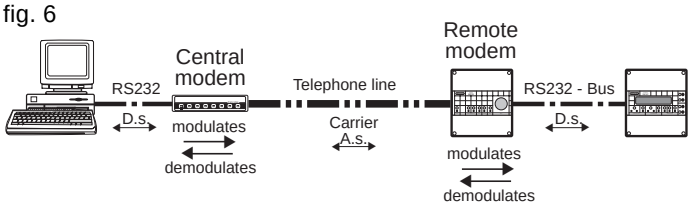
7.OPERATION

7.1 General remarks

The output data transmission signals from the electronic devices (RS232 or Bus) are of the digital type (D.s.) since they can assume only two distinct levels :
1 –High signal, presence of voltage ;
0 – Low signal, absence of voltage.
The signals which travel along the telephone lines are of the analogue type (A.s.) because, within certain limits, they can assume over time any intermediate level.
The modem is the device which permits the conversion of digital signals into analogue (MODulation) and the reconversion of the analogue signals into digital (DEModulation).
The digital signal converted into analogue is called CARRIER ; its amplitude, frequency or phase are the characteristics which render it comprehensible to the receiving device. It is a cyclical signal which is repeated at precise time intervals; the frequency with which the repetitions take place determines the transmission speed, expressed in BAUD or bps (bit per second).
Modems are divided into categories according to their capacity to dialogue; the two most common categories are :

- **Half - duplex** : the modem is able to transmit and receive but not at the same time.
- **Full - duplex** :the modem is able to transmit and to receive at the same time.

fig. 6



7.2 MPD612

MPD 612 remote modem is of the full-duplex type and operates at a speed of :

- 1,200 bps, on communication port RS232 and Bus;
- 1,200 bps, on telephone line.

– TRANSMISSION:

MPD 612 can transmit with two different call tones, selected by switch 3 of the internal programmer (fig. 7), so as to permit the central modem to distinguish the telemanagement call not only from the vocal calls but also from calls from fax or from another modem of the non-Coster type :

– "Standard" call tone (switch 3 on Off) : used when the central modem has a telephone line which is dedicated or shared with a telephone set.
– "Coster" call tone (switch 3 on On) : used when the central modem has a telephone line shared with a fax or with a non-Coster modem. In this case the central modem must be configured for reception with Coster tone and all the remote modems for that telemanagment system must be configured to transmit with Coster tone.

– RECEPTION (CALL DISCRIMINATION):

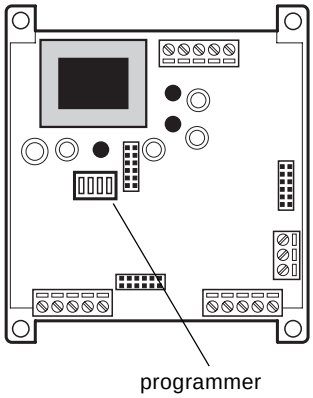
MPD 612 can **discriminate automatically** the incoming calls destined for the telephone sets (max. 3) or a fax or another non-Coster modem connected to terminals T - T.
By means of switch 1 of the internal programmer (fig. 7) it is possible to obtain :

- call discrimination disabled (switch 1 on Off) : the modem does not recognise the type of call in arrival and always forces the connection.
- call discrimination enabled (switch 1 on On): the modem analyses the type of call in arrival by discriminating the call tone selected with switch 4 :
  – Standard+Coster call tone (switch 4 on Off): used when the telephone line is dedicated or shared with a telephone set. The vocal calls are sent to the parallel telephone and the calls with Standard tone and with Coster tone are all sent to the telemanagment system.
  – "Coster" tone call (switch 4 on On) : used when the telephone line is shared with a fax or with a non-Coster modem. In this case the central modem must be configured for transmission with Coster tone. The calls with "Standard" tone, coming from fax or non-Coster modem, are sent on the parallel line and only the calls with "Coster" tone are sent to the telemanagement system.

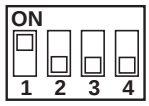
When the modem is switched off or faulty the telephone line is automatically switched to the parallel device.

PROGRAMMER

fig. 7



Factory setting

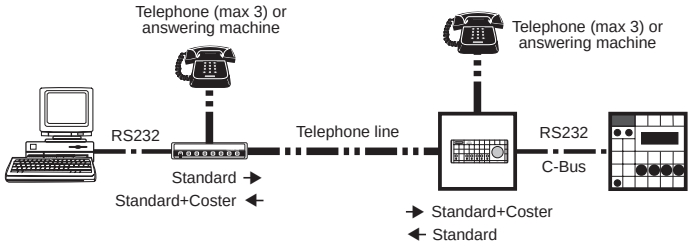


1 – On : discrimination enabled
Off : discrimination disabled
2 – On : error correction inactive
Off : error correction active
3 – On : trasmissione with Coster tone.
Off : transmission with Standard tone
4 – On: discrimination calls with Coster tone
Off: discrimination calls with Coster & Standard tone

7.3 Examples of modem hookups & configuration

1 Central modem and remote modems with telephone set sharing the line (fig. 8).
– Central modem :
- transmission with Standard tone
- reception with Standard + Coster tone
– Remote modems :
- transmission with Standard tone (3 on Off)
- reception with Standard + Coster tone (4 on Off)

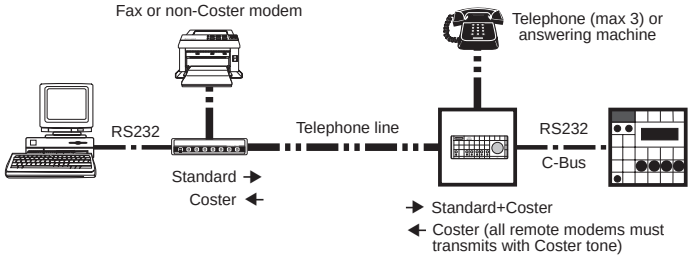
fig. 8



2 Central modem with fax or non-Coster modem sharing line and remote modems with telephone set sharing line (fig. 9).
– Central modem :
- transmission with Standard tone
- reception with Coster tone
– Remote modems :
- transmission with Coster tone (3 on On). All remote modems must be configured for transmission with Coster tone.
- reception with Standard + Coster tone (4 on Off)

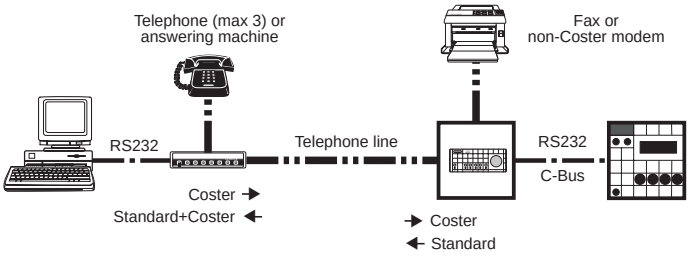
3 Central modem with telephone set sharing line and remote modems (even if only 1) with fax or non-Coster modem sharing line (fig. 10).

fig. 9



– Central modem :
  - transmission with Coster tone
  - reception with Standard +Coster tone
– Remote modems :
  - transmission with Standard tone (3 on Off).
  - reception with Coster tone (4 on On). The other remote modems can be set for reception with Coster or Standard + Coster tone.

fig. 10



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