T 328
15.05.03

REMOTE PANEL-MOUNT MODEM WITH DTMF

C←BUS

MPF 612 C2 Eng.

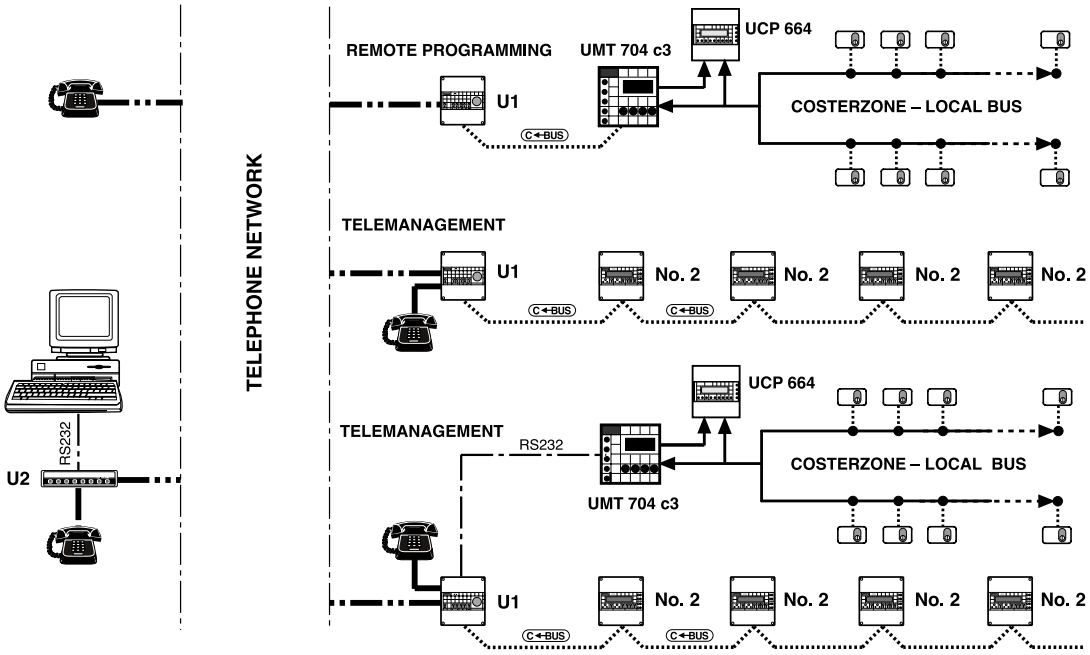
- **Option of remote programming using DTMF controls** (only with UMT 704 C3 devices in COSTERZONE system)
- **Shares telephone line with a telephone or fax or modem** (only if not used for remote programming)
- **RS232 serial output for data transmission**
- **C-Bus output for Telemanagement**
- **Power supply: 230 V~; DIN rail mounting**

CE

1. APPLICATION

MPF 612 modem with DTMF is designed for connecting Coster devices enabled for Telemanagement to a telephone line for communicating with a remote computer; moreover, it permits sending DTMF controls to remote units enabled for remote programming (only COSTERZONE system with UMT 704 C3).
Converts the digital signals from the controllers into analogue signals for transmission via telephone lines (MOdulation) and re-converts the analogue signals from the telephone line into digital signals to be sent to the controllers (DEModulation).
Thanks to the call discrimination function it can use a telephone line shared with a telephone, a fax or with another modem (only if not used for remote programming).

2. OPERATIONAL DIAGRAM



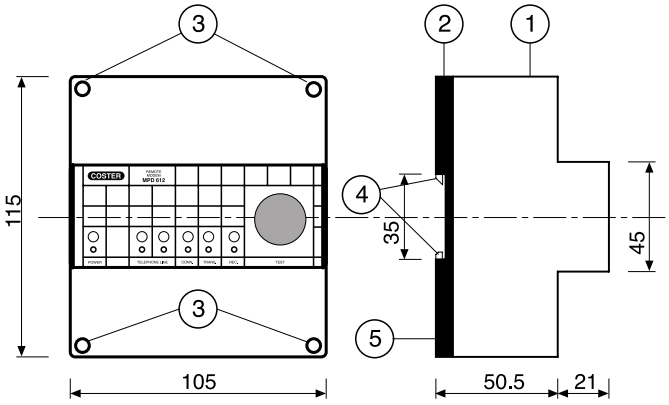
N1 – RS 232 electronic devices
N2 – C-Bus electronic devices

U1 – MPF 612 remote panel-mount modem
U2 – MCT 710 central desktop modem

3. TECHNICAL DATA

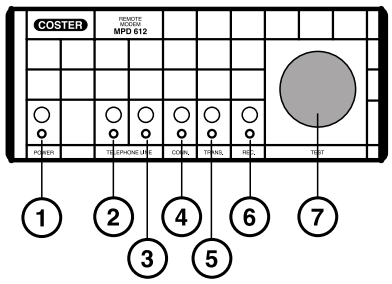
Power supply	230 V~ ± 10%; 50...60 Hz
Consumption	3.5W
Protection	IP40
Construction standards	Italian Electrotech. Committee (CEI)
Operating mode	Full Duplex
Call mode :	
- in multifrequence	ATDT
- pulses	ATDP
Transmission speed :	
- RS232 & C-Bus	1,200 bps asynch
- telephone line	1,200 bit/s
Ambient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

4. OVERALL DIMENSIONS



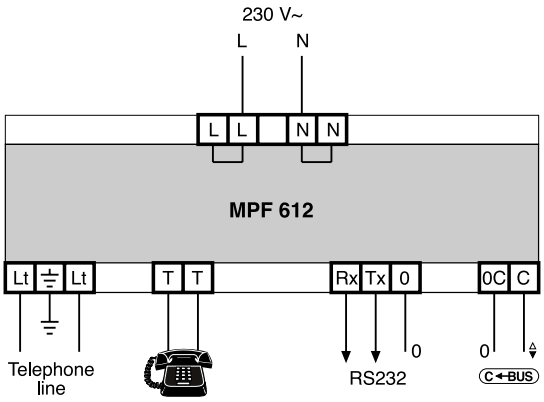
1 – Protective cover
2 – Base
3 – Screws for securing base and cover
4 – DIN rail securing elements
5 – DIN rail release lever

5. FACIA

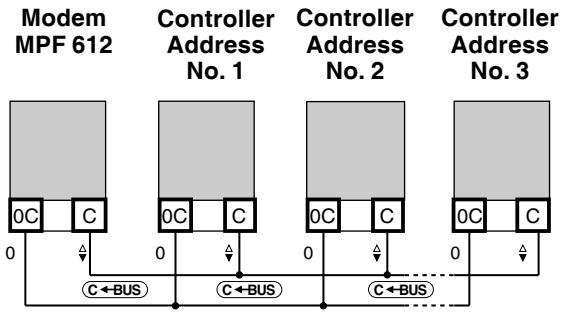


LEDs :
1 – Power supply.
2 – Lit when telephone line is engaged by the modem.
3 – Lit when telephone line is engaged by the parallel telephone.
4 – Lit when modem is connected.
5 – Lit when modem is transmitting.
6 – Lit when modem is receiving.
7 – Socket for TCB908

6. WIRING DIAGRAM



7. C-BUS WIRING



8. INSTALLATION & CONNECTIONS

MPF 612 must be sited in a dry location with a temperature not above 45°C and away from possible drops or sprays of water.
If installed in a location classified as “Hazardous” it must be installed in a cabinet for electrical equipment constructed according to the regulations in force for the class of danger concerned.
The controller can be wall-mounted on a DIN rail or housed in a standard DIN enclosure.

- Loosen the four screws (3.3) securing the cover (3.1) to the base (3.2) and separate the two parts.
- Mount the base on the DIN rail and check that the securing elements (3.4) anchor it securely.
- Carry out the electrical and telephone wiring in strict accordance with the diagrams shown above and in compliance with current safety regulations.
- You are advised not to insert more than two cables in a single terminal of the modem and, if necessary, to use an external junction box
- For the power supply cables it is recommended to use normal copper wires of at least 1.5 mm^2 diameter
- For the connections to the data communication ring (C-Bus) use a normal two-wire cable of at least 1 mm^2 and pay careful attention to the polarities (the use of wires of different colours is recommended).
- Using a tester, check that there are no open- or short-circuits in the power and C-Bus lines.
- Apply power (230 V~) and with a tester check across terminals L – N.
- Remove power, replace the cover on the base and tighten up the four screws (3.3).

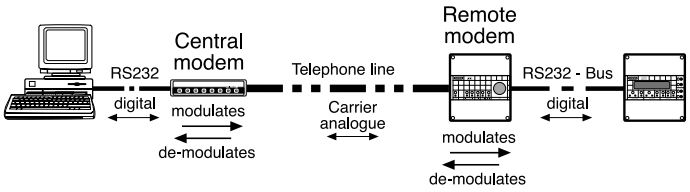
9. C-BUS : COMMUNICATION WITH TELEMANAGEMENT

MPF 612 has two inputs: a serial RS232 and a parallel C-Bus.
The RS232 input permits connecting to the modem COSTER digital electronic devices provided with RS232 output.
The C-Bus input permits connecting to the modem up to 16 **electronic devices** having a C-Bus parallel output.
The **parallel** electrical connection between all the electronic devices must be made with a **1 mm^2 diameter twin-wire cable** respecting carefully the 0C – C polarity (for further details consult technical data sheet T 021).

10. CONNECTING TELEPHONES

MPF 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 .
If used in a Telemanaged site, for the correct operation of the modem it is essential that MPA 643 is the first electronic device connected to the line coming from the telephone company; any other electronic devices sharing the line must be connected to the output T – T.
If used in the Costerzone system for remote programming, MPA 643 modem is of no use and it is not possible for the devices connected to share the line.

11. OPERATION



The output data transmission signals of the electronic devices (RS232 or Bus) is of the digital type since they can assume only two distinct levels:

- 1 – High signal (presence of voltage);
- 0 – Low signal (absence of voltage).

The signals travelling along the telephone lines are of the analogue type because, within certain limits, they can assume over time any intermediate value.

The modem is the device which converts digital into analogue signals (MODulation) and re-converts the analogue signals into digital (DEModulation).

The digital signal converted into an analogue one is called the CARRIER; its amplitude, its frequency or phase are the characteristics which make 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 (bits per second).

Modems are divided into categories according to their capacity to dialogue; the two most common categories are:

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

11.1 MPF 612 (inserted in a Telemanagement system)

MPF 612 remote modem is of the full-duplex type and operates at a speed of 1,200 bps, both on the RS232 and Bus communication port and on the telephone line.

– TRANSMISSION:

MPF 612 can transmit with two different call tones, selected by switch 3 of the internal programmer so as to permit the central modem to distinguish the "Telemanagement" call not only from the voice calls but also from the calls from a fax or from another modem of the non-Coster type :

– "Standard" call tone (switch 3 Off): used when the central modem has a telephone line dedicated to or shared with a telephone.

– "Coster" call tone (switch 3 On): used when the central modem has a telephone line shared with a fax or with a non-Coster modem. Under these circumstances the central modem must be configured for reception with Coster tone and all the remote modems for that Telemanagement system must be configured to transmit with Coster tone

– RECEPTION (CALL DISCRIMINATION):

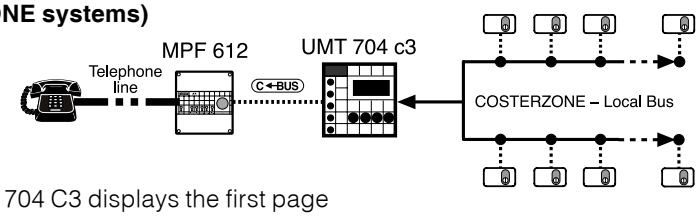
MPF 612 can **discriminate automatically** the incoming calls destined for telephone sets (max. 3) or a fax or another non-Coster modem connected to terminals T – T.

By means of switch 1 of the internal programmer it is possible to obtain::

- call discrimination disabled (switch 1 Off): the modem does not recognize the type of incoming call and always makes the connection.
- call discrimination enabled (switch 1 On): the modem analyses the type of incoming telephone call by discriminating the call tone selected with switch 4:
  – "Standard + Coster" call tone (switch 4 Off): used when the telephone line is dedicated or shared with a telephone set. The voice calls are sent to the parallel telephone and the calls with Standard tone and with Coster tone are all sent to the Telemanagement system.
  – "Coster" tone call (switch 4 On): used when the telephone line is shared with a fax or with a non-Coster modem. Under these circumstances the central modem must be configured for transmission with Coster tone. The calls with "Standard" tone, coming from fax or from 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 is faulty, the telephone line is automatically switched to the parallel device.

11.2 MPF 612 REMOTE PROGRAMMING (only for COSTERZONE systems)



For the remote programming of a remote controller it is essential that the system comprises the following:

– UMT 704 C3 from Version 5 onwards

– MPF 612 (panel-mount modem plus DTMF receiver)

Remote programming is possible only if the UMT 704 C3 displays the first page

Procedure:

– Dial the number of the telephone to which the modem is connected: UMT 704, after having received from the modem the message warning of a telephone call in arrival, displays the following message: "AWAITING A DTMF CONTROL" and sends three pairs of tones (BIPBIP…BIPBIP… BIPBIP) as confirmation.

– **Within 15 seconds**, on the telephone dial compose the control string which establishes the new operating program for the chosen remote controller. The string comprises: :

– Address master UMT 704 (a number from 1…239 identifies it)

– Address RTB… controller (a number from 1…239 identifies it)

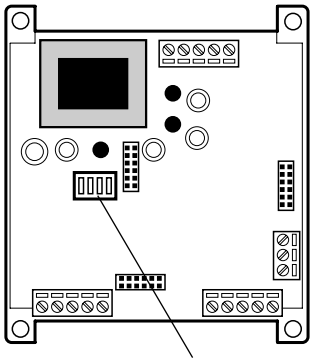
– Access code for the controller (a four-digit number identifies it)

– One of the following control codes:

0 = always SETBACK program	51 = 24hour1 program
1 = always NORMAL program	52 = 24hour2 program
2 = always FROSPROT program	53 = 24hour3 program
3 = always OFF program	54 = 24hour4 program
4 = 7DAY program	

WARNING: in composing the string, it is essential to use separators between the various sections of the message (permitted characters: "#" or "*"). e.g. to send the instruction "FROSPROT program" to a controller having address "2" code "1111" and with UMT address "1" send the following control string: **1 # 2 # 1111 # 2**; at the end the controller sends three pairs of tones (BIPBIP…BIPBIP… BIPBIP) in order to confirm that the control instruction has reached its correct destination; or a sequence of tones (BIP.BIP.BIP.BIP.BIP…) if it has not been carried out.

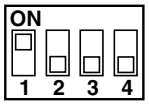
12. PROGRAMMER



programmer

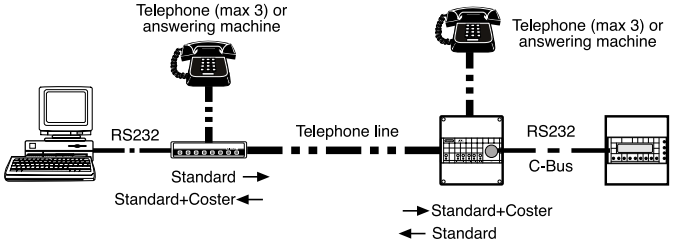
1 – On : discrimination enabled.
Off : discrimination disabled.
2 – On : error correction inactive
Off : error correction active.
3 – On : transmission with Coster tone.
Off : transmission with Standard tone.
4 – On : discrimination calls with Coster tone
Off : discrimination calls with Coster & Standard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

Factory setting

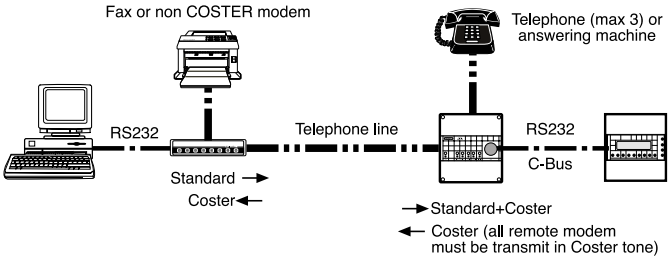


13. EXAMPLES OF CONNECTION & CONFIGURATION

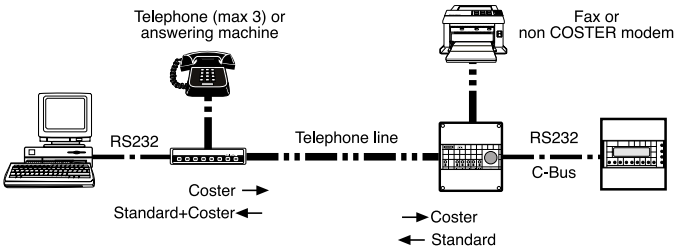
Central modem and remote modems with telephone set sharing line.
– Central modem :
- trasmissione with Standard tone
- reception with Standard + Coster tone
– Remote modems :
- transmission with Standard tone (programmer 3 on Off).
- reception with Standard + Coster tone (programmer 4 on Off).



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



Central modem with telephone set sharing a line and remote modems (even if only 1) with fax or non-Coster modem sharing the line.
– Central modem :
- transmission with Coster tone
- reception in Standard + Coster tone
– Parallel modem :
- transmission with Standard tone (programmer 3 on Off).
- reception with Coster tone (programmer 4 on On). The other remote modems can be set on reception with Coster or Standard + Coster tone.



LB 12.06.00 Rev. : MZ 15.05.03

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