H 310
18.10.05 MZ

CENTRAL DISPLAY UNIT FOR ENERGY METERING SYSTEMS

C ←BUS

UMC 734 C3 Eng.

- **Permits communicating with IEB 7.. , IET 7… & UCI 328 (total 239 units):**
  – for each zone displays: calories, frigories, temperatures & fluid volumes.
  – display of alarm status of remote units.
- **Insertion in telemanagement system:**
  – direct connection to computer or modem,
  – signalling of alarm state.
- **DIN 144 x 144 panel mounting**

CE

1. APPLICATION

UMC 734 central unit is designed for use in multizone systems for thermal and refrigeration energy metering to display the data from the remote metering units IEB 7.. , IET 7… and UCI 328.
It can be connected via C-Bus parallel connection and/or by RS232 serial connection, to a local computer and, via modem and telephone line, to a Telemanagement system.

2. FUNCTIONS

The main functions of UMC734 are :
- Regular scanning of each remote unit in order to :
  – check their correct connection to C-Bus ring,
  – identify units that do not respond or do not respond correctly,
  – identify units with error situations.
- Displaying metering data of each unit: :
  – flow and return temperatures
  – temperature differential.
- Assigning addresses to the remote units.

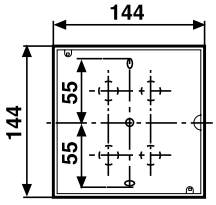
3. TECHNICAL DATA

Power supply	24 V ~ ± 10%
Frequency	50…60 Hz
Consumption	5 VA
Enclosure	DIN 144 x 144
Protection	IP40
Connection with remote units:	
– type of output	C-Bus
– number units connectable	max. 239
Transmission data:	
– C-Bus	Telemanagement
– RS232	Local PC or Telemanagement

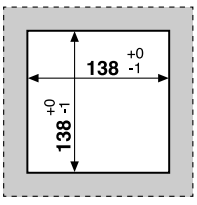
Output contacts for warning of faults:	
– maximum switching voltage	250 V ~
– maximum switching current	5 (1) A
Radio disturbances	VDE0875/0871
Vibration test	with 2g(DIN 40 046)
Construction standards	Italian Electrotech. Comm. (CEI)
Ambient temperature:	
– operation	0…45 °C
– storage	–25…60 °C
Ambient humidity	Class F DIN 40040
Weight	1.1 kg

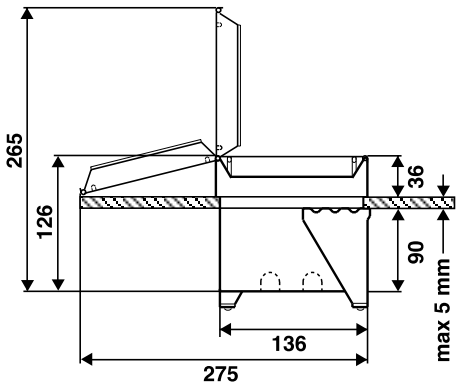
4. OVERALL DIMENSIONS

Front dimensions

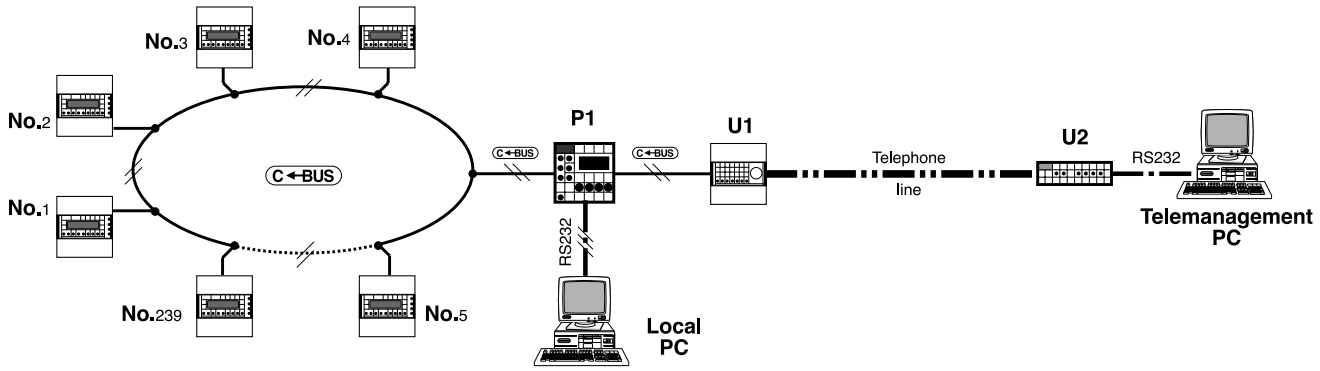


Cut out panel mounting



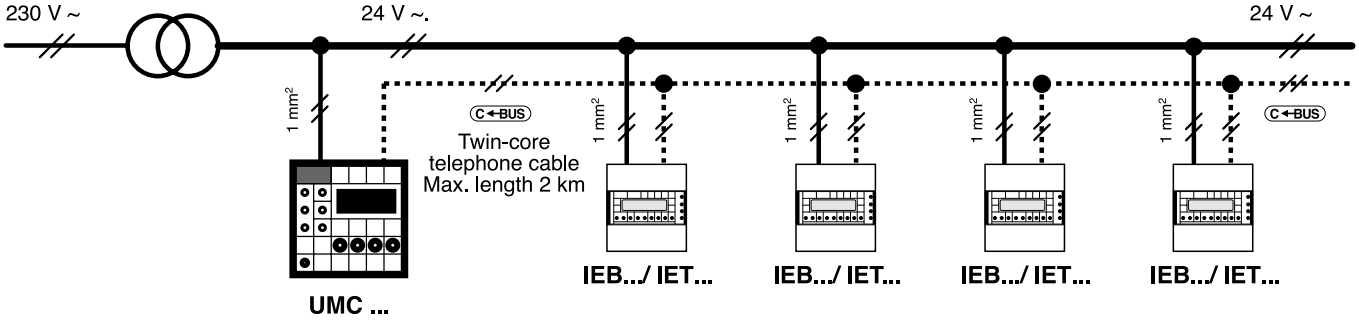


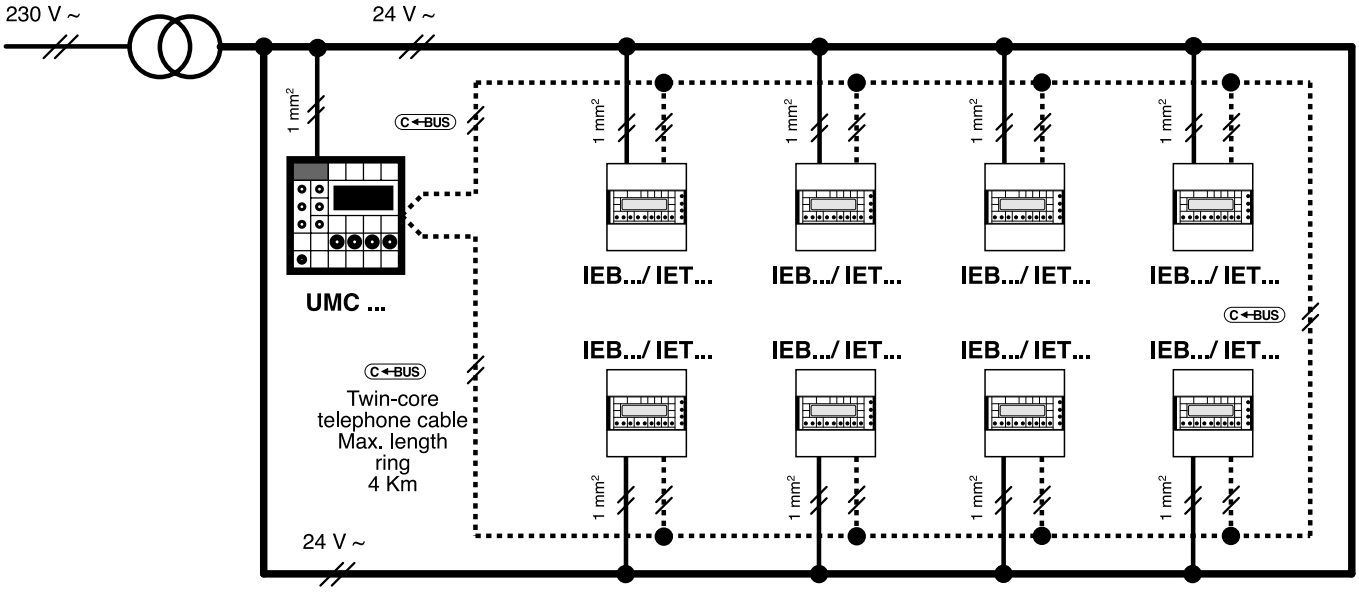
5. GENERAL LAYOUT



N 1…239 – IEB... / IET... integrators
P1 – UMC 734 central unit
U1 – MPD 612 panel-mount modem
U2 – MCT 710 central desktop modem

6. ELECTRICAL WIRING





Calculation diameter of 24 V~ power cables

Base formula: $\mathbf{D = \frac{S \times 5{,}000}{nº}}$ where : $\mathbf{S = \frac{No. \times D}{5{,}000}}$

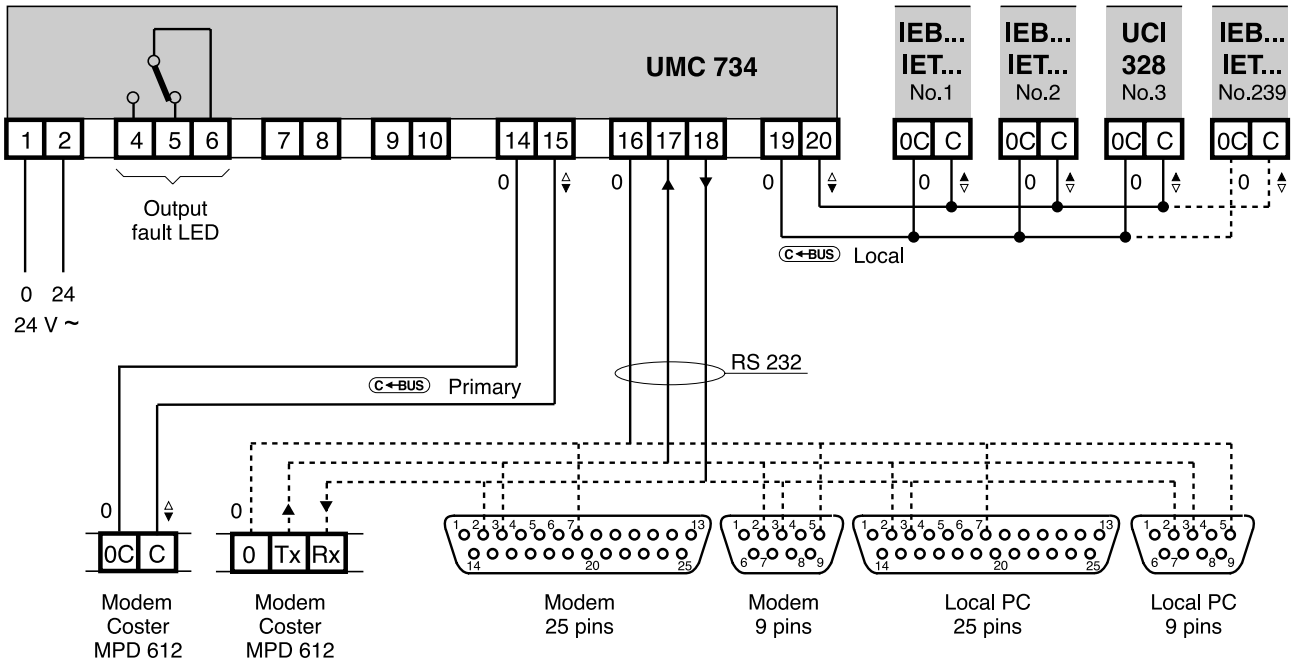
D = Maximum distance in meters
S = diameter mm²
No.=Total number of units connected

With ring power lines, the diameter is halved or the distance doubled.
To avoid power lines with too large diameters, it is possible to divide the plant into blocks with autonomous transformers and power cables.

e.g..: 25 units powered by 200 metre open line

$$\text{diameter} = \frac{25 \times 200}{5{,}000} = 1 \text{ mm}^2 \text{ (for plants in line)}$$

7. WIRING DIAGRAM



8. DATA COMMUNICATION

UMC 734 is provided with three outputs for data communication:
– Local C-Bus: permits parallel connection with the remote units (max. 239) for reception of energy metering data.
– RS232 : for connecting to a local computer or, via modem and telephone line, to Telemanagement systems.
– Primary C-Bus: for connection, via Coster MPD 612 modem and telephone line, to Telemanagement systems.

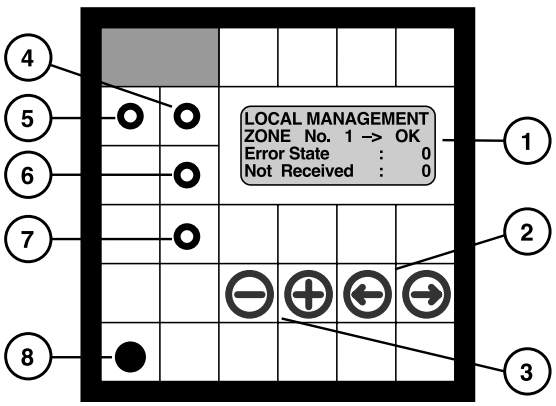
9. WIRING

- Make the electrical connections following carefully the wiring diagrams in this Data Sheet and in observance of the regulations in force
- For C-Bus connection it is possible to use twin-core telephone cable; it is indispensable, however, to use wires of different colours in order to ensure that the polarities are respected.
- Before connecting UMC 734 and the remote units on their respective bases, check with a multimeter that there are no short or open circuits in the power cables or C-Bus lines.

10. SECURITY JACK PLUG

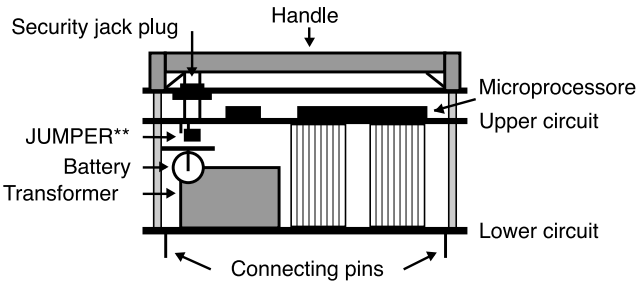
On the front panel there is a security jack plug (section11.8) which, if extracted, disables the + and – keys thereby preventing any changes being made to the data set; it remains possible, however, to make changes remotely.
In case of necessity the maintenance engineer can use an internal jumper (section 12) to re-enable the keys even without the jack plug.

11. FACIA



1 – Display
2 – ← and → page-scrolling keys
3 – + and – operating keys
4 – Fault LED
5 – Error LED
6 – Trasmissione dati
7 – Data reception LED
8 – Security jack plug

12. JUMPERS



**Without jumper : Data can be changed only with security jack plug
With jumper : Data can be changed even without security jack plug

13. DISPLAY

The data is presented in a series of pages that can be scrolled on the four-line back-lighted alphanumeric display (Section 11.1) ← and → keys (Section 11.2).
The data can be adjusted, provided the jack plug (Fig. 11.8) is inserted, using the + and – keys (Section 11.3).
To return quickly to the first page, press ← and →.

14. CONFIGURATION

At the start-up of the plant, UMC 734 has to be configured so that it can manage the remote units correctly..

• Keep → key pressed until there appears :

```
WARNING !!!!!
TECHNICAL PAGES!
TO CONTINUE
PRESS + KEY
```

Keep + key pressed until : **RELEASE THE KEY** appears.

• Release + key, page **C1** appears :

```
UMC 734
Address      :  1 (1)
Group        :  1 (2)
```

(1) Enter the telematic address of the UMC 734 central unit, only if it is connected in Telemanagement via primary C-Bus with other devices
(2) Enter the group to which UMC 734 central unit assigned, only if scheduled in Telemanagement system.

• Press →, page **C2** appears :

```
UMC 734
Send Alarms   :NO (1)
PassWTeleman  :NO (2)
```

(1) – **NO** : Send alarms disabled. Adjustment possible also from central computer.
– **YES**: Send alarms enabled. Enable only if UMC 734 Telemanaged & you want to send alarm situation to central computer..
(2) – **NO** : Telemanagement password disabled. Adjustments possible also by central computer.
– **YES**: Telemanagement password enabled. Enable only if you want to prevent Telemanagement without use of password.

• Press →, page **C3** appears :

```
UMC 734 C3 Eng.
Vers.xx
```

Identifying data of controller.

• Press ← and → keys at the same time to return to first page.

```
LOCAL MANAGEM ENT
ZONE No. x -> OK
Error State:  0
Not Riceived:  0
```

15. ADDRESS REMOTE UNITS

The assignment of the addresses of the **UCI 328** remote units is carried out only using the dipswitches on the base circuit of each device.

To assign or change the telematic address number of the **IEB** and **IET** remote units there are two dedicated pages that appear after the controller identity page

```
UMC 734 C3 Eng.
Vers. xx
```

• **Keep pressed the + key**, for about 15 seconds, until **RELEASE KEY** appears

• Release + key: page **I 1** appears. :

```
UMC 734
Total number
of Zones : 000 (1)
```

(1) Enter number of remote units connected

• Press → page. **I 2** appears:

```
AUTOMATIC
ADDRESSING !!!
NEXT NUMBER :
     000 (1)
```

Page for automatic assignment of addresses to remote units.
(1) Address number assigned to remote unit by pressing → key of the remote unit.
After having assigned address, the number is automatically changed into the next number, ready to be assigned to another remote unit.

• Press → page. **I 3** appears :

```
CHANGE ADDRESS
Old    :   x (1)
New    :   x (2)
SEND  -->  (3)
```

Page for changing address of remote units.
(1) Present address of remote unit that you wish to change.
(2) New address of remote unit that you wish to assign.
(3) Operation to carry out:
– **SEND – – >** : Press → key to change address.
– **OLD INEXISTENT** : number entered at point (1) inexistent.
– **NEW IS DUPLICATE**: number entered at point (2) already assigned to another unit.

15.1 Assigning addresses to new plant

After configuring the central unit you must assign addresses to the remote units connected:
• Display page **I 2** "AUTOMATIC ADDRESSING":

```
AUTOMATIC !!!
ADDRESSING
NEXT NUMBER :
      000
```

With + or – keys enter the number **1**; this will be the address of the first remote unit.
View the page on UMC 734 display.

• Go to the remote unit to be addressed with number 1 and keep → key pressed until its display confirms that the address has been stored. There will appear: **H . 0 0 0 1**
• After this operation, on the UMC 734 display there will appear automatically in progression the "NEXT NUMBER", **2,** to be used to address the second remote unit (it is not necessary to return to UMC 734).
• Go to the remote device to be addressed with number 2 and keep → key pressed until the display confirms that the address has been stored. There will appear: **H . 0 0 0 2**
• Continue in the same way to address progressively all the remote units..
• If one of these remote units does not signal the storage of the address, this means that the unit is faulty or that there is a break in the C-Bus connection.
• If it is not possible to remedy the situation:
  – Return to UMC 734 and press + key to increase by one unit the "Next number".
  – Re-start the assignment of addresses skipping the remote unit that does not reply.

15.2 Changing an existing address

If, for some reason, the same address has been assigned to two or more remote units, on the first page will appear:

```
LOCAL MANAGEMENT
ZONE NO. x(1) –> ??  (2)
Error State :000     (3)
Not Received:  X     (4)
```

When, during the scanning, UMC 734 interrogates the address (1) with multiple assignment there will appear (2) **? ?**; when it interrogates the numbers which have not been assigned there will appear . . .
Take note of the numbers with multiple assignment (**? ?**) and of the numbers not assigned (. .).
When the scanning has been completed UMC 734 displays the number of remote units that have not replied correctly (4).

• Check the address numbers of all the remote units on their displays on the penultimate page (H . 0 X X X).
• Identify those units that have the same address and remove all of them from their bases, including the one with the correct address.
• Replace on its base the first remote unit to be corrected.
• Display on UMC 734 page **I 3** "CHANGE ADDRESS"

```
CHANGE ADDRESS
Old    :    x (1)
New    :    x (2)
ENTER –––>
```

Enter, with + or – keys, the address to be corrected (1).
If the address does not exist, there will appear: **OLD INEXISTENT**. Check address and correct.
Enter, with + and – keys, correct address (2)
If address already assigned there will appear : **NEW IS DUPLICATE**. Check the address and correct.
When the two numbers are compatible with the existing situation (old address exists & new address has not already assigned) there will appear:
ENTER– – > Press → key until in position 1 appears the correct number.

• Replace on its base the second remote unit to be corrected and proceed as for the first one.
• After having corrected all the units replace also the one with the correct address.

15.3 Assigning address to replacement unit

After having replaced a faulty remote unit, on first page of UMC 734 will appear :

```
LOCAL MANAGEM EN T
ZONE No. x(1) –> ??  (2)
Error State:000      (3)
Not Received:  X     (4)
```

When, during the scanning, the address of the replaced device is interrogated, **??** appears.
Take note of the address of the replaced unit.

• Display page **I 2** "AUTOMATIC ADDRESS"

```
AUTOMATIC
ADDRESSING !!!
NEXT NUMBER:
      000
```

Use + and – keys to enter address of remote unit replaced.

• Display page "AUTOMATIC ADDRESS".
• Go to the unit to be addressed and keep → key pressed until its display confirms that the address has been stored.: **H.000X** appears.
• Check on the first page of UMC 734 that all the remote devices reply correctly.

WARNING !
Using this procedure you have to be absolutely sure of the number to assign because UMC 734 is not able to check if a number has already been assigned to another remote unit.

16. READING DATA

After UMC 734 has been configured and the addresses have been assigned to the remote units it is possible to read on the display all the data of each single unit.

1st Page

During normal operation this page must always be displayed in order to carry out regular control scanning of the remote units.

(1) Current type of control:
- – **LOCAL MANAGEMENT** : The remote units are continuously scanned by UMC 734.
- – **CONNECTION BY BUS** : UMC 734 is inactive and the remote units are checked by a computer connected directly or via modem to the C-Bus line.

(2) Address of unit interrogated by scanning in that moment. Varies progressively every two seconds from "1 to No". (number set on page C1.1)

(3) Result of the interrogation of each single remote unit
- – **OK** : data received, reply correct;
- – **ER** : data received, unit in error situation;
- – **??** : reception data error, reply incorrect.
- – **..** : data unreceived, no reply.

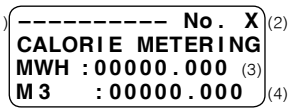
(4) Total number of units that have replied to the interrogation communicating error situations

(5) Total number of units that have not replied to the interrogation.

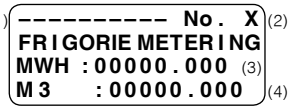
16.1 Reading IEB 7... data

• From **1st page** press → key, page **L 1** appears :

(1) User name (assigned on page L 5 .3).
(2) Address of remote unit interrogated. Use + or – keys to select other units..
(3) Thermal energy metered (MW h)
(4) Volume of hot fluid metered (m^3)

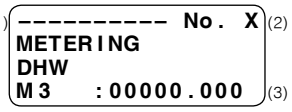


• Press → key, page **L 2** appears :
IEB 734 integrator :



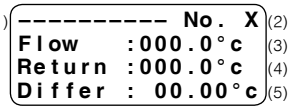
(1) - (2) idem L1
(3) Refrigeration energy units metered (MW h).
(4) Volume of cold fluid metered (m^3).

for **IEB 744** integrator :



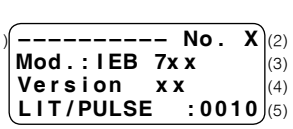
(1) - (2) idem L1
(3) Volume of DHW metered (m^3).

• Press → key, page **L 3** appears :



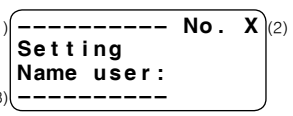
(1) - (2) idem L1
(3) Value of flow temperature (°C).
(4) Value of return temperature (°C).
(5) Differential between flow and return temperatures (°C). Appears – if metering of refrigeration units in progress

• Press → key, page **L 4** appears :



(1) - (2) idem L1
(3) Model of remote unit.
(4) Version of operating programme of remote unit.
(5) Number of litres per pulse. Setting on remote unit that must correspond with associated pulse transmitter.

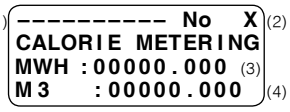
• Press → key, page **L 5** appears :



(1) - (2) idem L1
(3) User name. With + or – keys you can enter 10 characters (letters & numbers). Will appear on all pages.

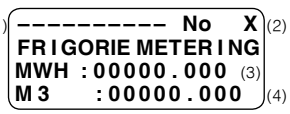
16.2 Reading IET 7.. data

• From **1st Page** press → key, page. **L 1** appears :



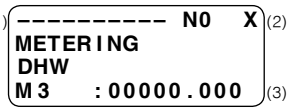
(1) User name (assigned on page L6.3).
(2) Address remote unit interrogated. Use + or – keys to select other units.
(3) Thermal energy metered (MW h)
(4) Volume of hot fluid metered (m^3)

• Press → key, page **L 2** appears **(only if cold metering is enabled on integrator)** :



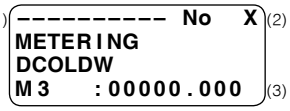
(1) - (2) Idem L1
(3) Refrigeration energy metered (MW h).
(4) Volume of cold fluid metered (m^3).

• Press → key, page **L 2a** appears **(only for IET 73.. integrators and only if on integrator DHW metering is enabled)** :



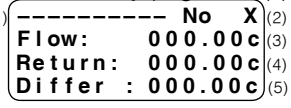
(1) - (2) Idem L1
(3) Volume of DHW metered (m^3).

• Press → key, page **L 2b** appears **(only for IET 73 .. integrators and only if on integrator Domestic Cold Water (DCOLDW) is enabled)** :



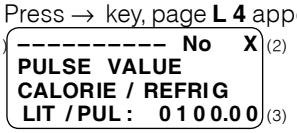
(1) - (2) Idem L1
(3) Volume of domestic cold water (DCOLDW) metered (m^3).

• Press → key, page **L 3** appears :



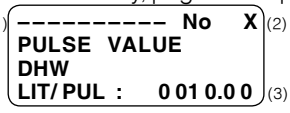
(1) - (2) Idem L1
(3) Value of flow temperature (°C).
(4) Value of return temperature (°C).
(5) Differential between flow and return temperatures (°C). Sign – appears if frigories been metered.

• Press → key, page **L 4** appears :



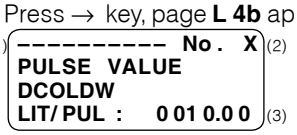
(1) - (2) Idem L1
(3) The reading is L / PULSE or PUL / L according to how integrator programmed

• Press → key, page **L 4a** appears **(only for IET 73.. integrators and only if enabled to meter DHW)** :



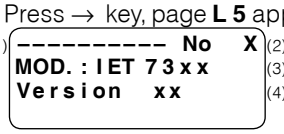
(1) - (2) Idem L1
(3) Number of litres per pulse. Data programmed on integrator according to type of pulse transmitter

• Press → key, page **L 4b** appears **(only for IET 73.. integrators and only if enabled to meter DCOLDW)** :



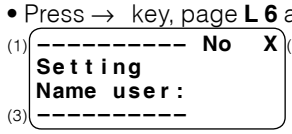
(1) - (2) Idem L1
(3) Number of litres per pulse. Data programmed on integrator according to type of pulse transmitter.

• Press → key, page **L 5** appears :



(1) - (2) Idem L1
(3) Model of remote unit.
(4) Version of operating program remote unit..

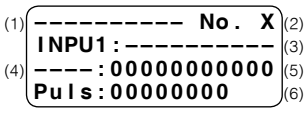
• Press → key, page **L 6** appears :



(1) - (2) Idem L1
(3) User name. With + or – keys you can enter 10 characters (letters or numbers). Will appear on all pages.

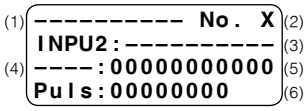
16.3 Reading UCI 328 data

• From **1st page** press → key, page **L 1** appears :



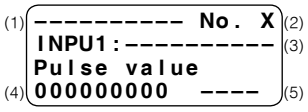
(1) User name (entered in L 6 .3).
(2) Address of remote unit interrogated. Use + or – keys to select other units.
(3) Name input 1 (entered in L 3).
(4) Measurement unit (entered in L 3).
(5) Metering (Number pulses x value of pulse).
(6) Number of pulses recorded.

• Press → key, page **L 2** appears :



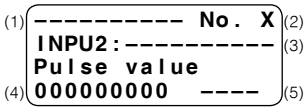
(1) - (2) idem L1.
(2) Address of remote unit interrogated. Use + or – keys to select other units.
(3) Name input 2 (entered in L 4).
(4) Measurement unit (entered in L 4).
(5) Metering (Number pulses x value of pulse).
(6) Number of pulses recorded.

• Press → key, page **L 3** appears :



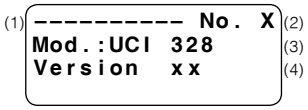
(1) - (2) idem L1.
(2) Address of remote unit interrogated. Use + or – keys to select other units.
(3) Name input 1 (setting).
(4) Pulse value (setting : 1 ; 10 ; 100 ; 1000). From telemanagement PC it is possible to enter a different value; in this event, on page L 1, third line, appears METERING.

• Press → key, page **L 4** appears :



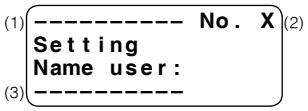
(1) - (2) idem L1.
(2) Address of remote unit interrogated. Use + or – keys to select other units.
(3) Name input 2 (setting).
(4) Pulse value (setting: 1 ; 10 ; 100 ; 1000). From telemanagement PC it is possible to enter a different value; in this event, on page L 2, third line, appears METERING.
(5) Measurement unit (setting).

• Press → key, page **L 5** appears :



(1) - (2) idem L 1
(3) Model of remote unit.
(4) Version operating program for remote unit.

• Press → key, page **L 6** appears :



(1) - (2) idem L1
(3) Name of user. With + or – keys you can enter 10 characters (letters & numbers).
Will appear on all L pages.

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