

ENERGY INTEGRATOR

C ← BUS

IEB 73.. C1 Eng.



- **Energy metering:**
 - metering of thermal and refrigeration energy
 - signalling abnormal situations
 - saving data in event of power failure
- **Data transmission:**
 - C-Bus parallel connection with central display unit, computer or modem
- **Mounting on DIN rail or on pipework**
- **Power supply 24 V~ (IEB 734); 230 V~ (IEB 738)**

1. APPLICATION

IEB 73.. integrator, in combination with a volumetric meter with pulse transmitter of 1,000 or 100 or 10 or 1 liters/pulse, is designed for metering thermal energy in hot water heating installations and refrigeration energy in cooling installations with refrigerated water. By means of the C-Bus parallel connection IEB 73.. is able to communicate all the data to UMC 734 central display unit or to a computer or to a modem for transmission of data via PSTN.

2. OPERATION

Meters, by means of the two detectors supplied, the temperature difference between flow and return and, according to the number of pulses sent by the volumetric meter, the flow of circulating fluid. Calculates the energy consumed by the plant and, when the flow is more than the return, meters it as thermal, and when flow less than return, meters it as refrigeration.

WARNING:

If the integrator is used to meter water volumes it is necessary to replace the detectors by fixed resistances; **for the flow: 1.2 K Ω ; for the return: 1 K Ω** . Unless the detectors or resistances are connected the integrator will not carry out any integration or metering.

The display shows:

- Total count of thermal and refrigeration energy in MW/h.
- Total count of volume of hot and cold fluid in m³.
- Instantaneous temperature of flow and return in °C.
- Instantaneous temperature difference in °C.
- Address for telemanagement.
- Functional anomalies.

In the event of a fault or power failure IEB 73.. memorizes the last data recorded.

3. TEMPERATURE DETECTORS

IEB 73.. is supplied with two Pt 1,000 type detectors, calibrated as a pair, with an electric connecting cable about 3 m long (N.B. Length cannot be changed). Should a longer cable be indispensable please contact COSTER direct.

4. TECHNICAL DATA

Power supply IEB 734	24 V~	Ambient humidity	Class F DIN 40040
Power supply IEB 738	230 V~	Radio disturbances	VDE0875/0871
Consumption	0.35 VA	Vibration test	with 2g (DIN 40 046)
Case	Modulare DIN 6E	Construction standards	Italian Electrot. Committee (CEI)
Case protection	IP 54	Dimensions	83 x 105 x 46 mm
Base	ABS	Weight	0.4 kg
Cover	ABS	Two detectors supplied :	
Display	LCD, 8 digits	- type	Pt 1,000
Max number pulses input	1.200 pulses/h	- accuracy	0.1 °C
Max measurable flow	1,200 m ³ /h	- measurement range	0 ... 130 °C
Temperature range	1 ... 130 °C	- cross section cable	2 x 0.5 mm ²
Differential temperature range	0 ... 99 °C	- length cable	3 m
Accuracy differential	0.01 °C	Essential accessories:	
Ambient temperature:		Pair of pockets for detectors	GIS 045
- operation	0 ... 45 °C	- pocket thread	1/2"
- storage	- 25 ... + 60 °C	- depth pocket	59 mm

7. INSTALLATION

IEB 73.. can be installed on a DIN rail or on standardised panels or directly on the insulated pipework. The detectors must be installed with the pocket aligned against the direction of flow of the fluid. The volumetric meter must be installed on the return pipe. **At the conclusion of installation program the number of pulses per liter.** Finally, in order to avoid tampering, it is advisable to seal the integrator using the holes provided.

5. DISPLAY READING

IEB 73.. has an 8-digit display and a page-scrolling key →.
 To change pages tap →, key : a cursor indicates the measurement symbol displayed. In IEB 734/8 there is a basic metering which as been memorized during testing
 On the first page appears **total thermal energy**.
 Cursor indicates the red symbol **MWh**.

00000.000

On the second page appears **total volume hot fluid**.
 Cursor indicates the red symbol **m³**.

00000.000

On the third page appears **total refrigeration energy**.
 Cursor indicates the blue symbol **MWh**.

00000.000

On the fourth page appears **total volume cold fluid**.
 Cursor indicates the red symbol **m³**.

00000.000

On the fifth page appears **flow temperature**.
 Cursor indicates the grey symbol **°C**.


000.0

On the sixth page appears **return temperature**.
 Cursor indicates the grey symbol **°C**.

000.0

On the seventh page appears **temperature difference**.
 Cursor indicates the grey symbol **Δ°C**.

00.00

On the eighth page appears **number of liters / pulse** selected with the internal programmer (10), which must coincide with the pulse transmitter of the volumetric meter connected.
 Cursor indicates the grey symbol 

L.0010

On the ninth page appears the telematic address assigned by means of the central display unit UMC 734.

H.0001

On the tenth page appears the indication of any **functional anomalies** of the integrator shown by an **E** placed above the symbol concerned :
 - **E** above the red or blue symbol **MWh** : Integrator faulty.
 - **E** above the grey symbol **°C** or **c°** : Flow or return detector faulty : replace detectors with a new pair of calibrated detectors.

6. ASSIGNING ADDRESS WITHOUT UMC

IEB integrators can be connected to a C-Bus communication system even without the use of UMC 734. To be able to communicate with the computer each single IEB must be addressed as must all the other devices connected in the system.

• By means of →, key, display the ninth page :

H.0001

• Press → key until on display appears :

• Release → key

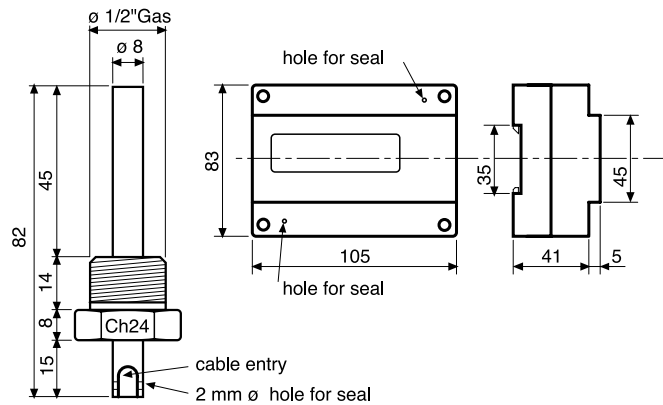
• Tap → key until on display appears address number required (1 ... 239).

H.0001

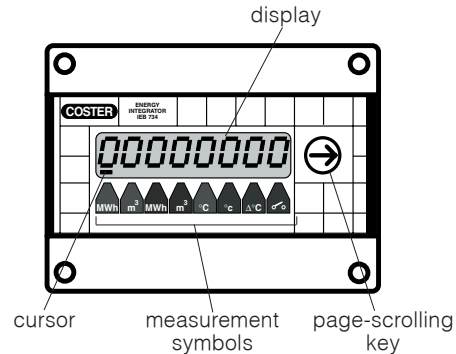
Amendments to data sheet

From version	to version	Page	Section	Details of amendments
11.04.05 LB	08.06.06 MC	1-2 1	General 3. Temperature detectors 4. Technical data	Page layout revised; updated general table at foot of page; table with amendments to data sheet added Measurement amended length cable for sensors.

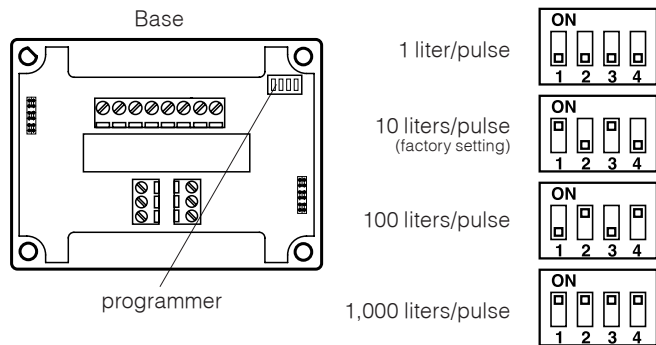
8. OVERALL DIMENSIONS



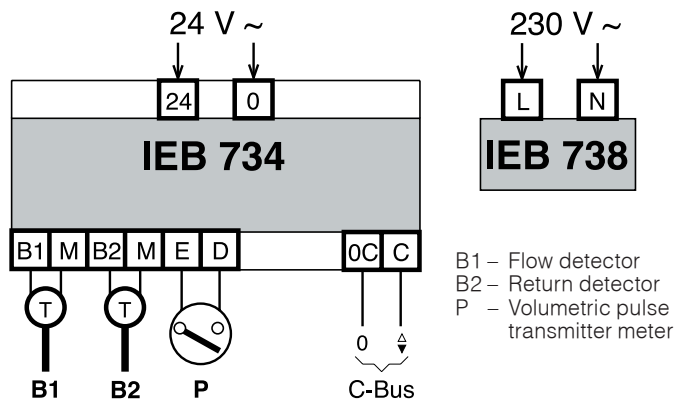
9. FACIA



10. PROGRAMMER



11. WIRING DIAGRAM



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