H 212
20.09.06 MC

ENERGY INTEGRATOR

IES 733 C1 Eng.

- **Energy metering:**
  – metering of thermal and refrigeration energy
  – signalling of anomalous situations
  – saving of data in event of battery fault
- **Battery powered:**
  – 5-year life
- **Mounting on DIN rail or on pipework**

CE

1. APPLICATION

IES 733 integrator, combined with a volumetric meter with pulse transmitter with 1,000 or 100 or 10 or 1 liter/pulse, is designed for metering thermal energy in hot water heating installations and refrigeration energy in cooling installations with refrigerated water.

2. OPERATION

Powered by a 3.6 V– internal battery.
Meters, by means of the two detectors supplied, the difference in temperature between plant flow and return and, according to the number of pulses sent by the volumetric meter, the flow of water in circulation.
Calculates the energy consumed by the installation and, when the flow is greater than the return, meters it as thermal; when the flow is less than the 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 KΩ; for the return: 1 KΩ** . Unless the detectors or resistances are connected the integrator will not carry out any integration or metering.
The display is lit only when data readout is requested, and displays:
– Total metering of thermal and refrigeration energy in MW/h.
– Total metering of volume of heat and cold in m^3.
– Instantaneous temperature of flow and return in °C.
– Instantaneous temperature difference in °C.
– Functional anomalies.
In the event of a fault or run-down battery IES 733 memorizes the last data recorded.

3. TEMPERATURE DETECTORS

IES 733 is suppled 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	One 3.6 V – battery
Battery life	5 years
Case	Modular DIN 6E
Case protection	IP 54
Base	ABS
Cover	ABS
Display	LCD, 8 digits
Max number pulses input	1,200 pulses/h
Max measurable flow	1,200 m^3/h
Temperature range	1 ... 130 °C
Differential temperature range	0 ... 99 °C
Accuracy differential	0.01 °C
Ambient temperature:	
- operation	0 ... 45 °C
- storage	– 25 ... + 60 °C
Ambient humidity	Class F DIN 40040
Radio disturbances	VDE0875/0871
Vibration test	with 2g (DIN 40 046)
Construction standards	Italian Electrotech. Committee (CEI)
Dimensions	83 x 105 x 46 mm
Weight	0.4 kg
Two detectors supplied:	
- type	Pt 1,000
- accuracy	0.1 °C
- measurement range	0 ... 130 °C
- cross section cable	2 x 0.5 mm^2
- length cable	3 m
Essential accessories**:**	
Pair pockets for detectors	GIS 045
- Pocket thread	1/2"
- Pocket depth	59 mm

6. INSTALLATION

IES 733 can be installed on a DIN rail, on standardized panels or directly on the pipework.
The detectors must be installed with the pocket aligned against the flow of fluid.The volumetric meter must be installed on the return pipe. **At the conclusion of installation program the number of pulses per liter.**
At the conclusion of installation, in order to prevent tampering, it is advisable to seal the integrator using the holes provided.

5. DISPLAY READINGS

IES 733 has an 8-digit display and a page →scrolling key.
Normally the display is off; to turn it on press → key for a second.
A cursor appears which positions itself above the measurement symbol indicated.
To change pages tap → key.
In IES 733 there is a basic metering which has been memorized during testing.
On the first page appears **total thermal energy**.
Cursor indicates the red symbol **MWh**.

0 0 0 0 0 . 0 0 0

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

0 0 0 0 0 . 0 0 0

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

0 0 0 0 0 . 0 0 0

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

0 0 0 0 0 . 0 0 0

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

0 0 0 . 0

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

0 0 0 . 0

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

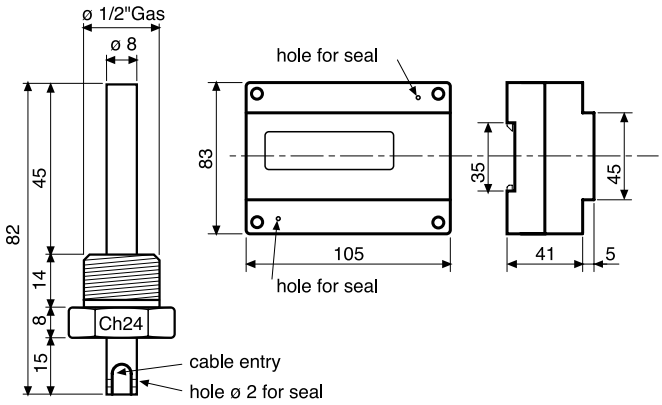
± 0 0 0 . 0

On the eighth page appears **number of liters / pulse** selected by the internal programmer (9) which must coincide with the pulse transmitter of the volumetric meter connected.
Cursor indicates the grey symbol

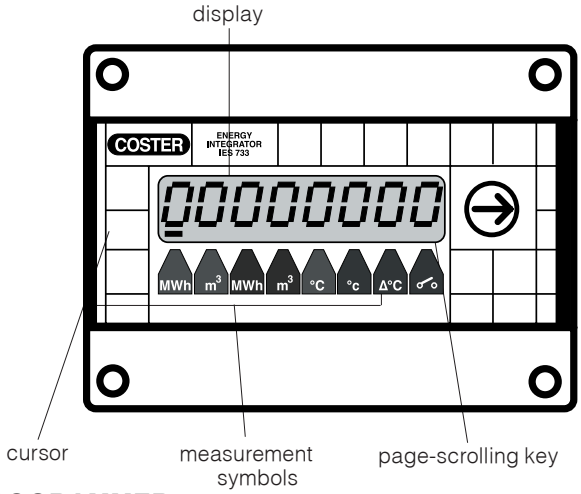
L . 0 0 1 0

On the ninth page appears the indication of any **functional anomalies** of the integrator indicated by the letter **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.

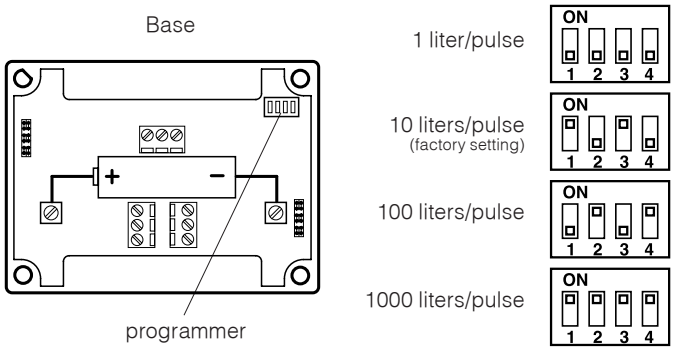
7. OVERAL DIMENSION



8. FACIA



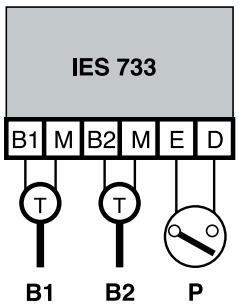
9. PROGRAMMER



WARNING !

AT THE MOMENT OF INSTALLATION THE INTEGRATOR MUST BE PROGRAMMED ACCORDING TO THE TYPE OF PULSE TRANSMITTER CONNECTED, USING THE INTERNAL PROGRAMMER.

10. WIRING DIAGRAM



B1 – Flow temperature detector
B2 – Return temperature detector
P – Volumetric pulse transmitter meter

Amendments to data sheet

From version	to version	Page	Section	Details of amendments
16.12.99 LB	20.09.06 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 ength cable for sensors. Measurement amended ength cable for sensors.

COSTER
CIE CONTROLLI TEMPERATURA ENERGIA
COSTER TECNOLOGIE ELETTRONICHE S.p.A.
Sede Legale: 20132 Milano - Via San G.B. De La Salle, 4/a

Head Office & Sales
Via San G.B. De La Salle, 4/a — Tel. +39 022722121
20132 - Milano — Fax +39 022593645
Orders — Fax +39 0227221239
Reg. Off. Central & Southern
Via S. Longanesi, 14 — Tel. +39 065573330
00146 - Roma — Fax +39 065566517
Shipping
Via Gen. Treboldi, 190/192 — Tel. +39 0364773200
25048 - Edolo (BS) — Tel. +39 0364773202

E-mail: info@coster.info — Web: www.coster.info

ISO 9001:2000
IQNet
THE INTERNATIONAL CERTIFICATION NETWORK
Registration Number: IT - 34674
CSQ - Certificate N. 9115.COEE

D 33147