

# EngyCal RH33

## BTU meter

Custody transfer BTU meter for recording heat quantities of water



More information and current pricing:

[www.casc.endress.com/RH33](http://www.casc.endress.com/RH33)

### Benefits:

- Transparent energy consumption helps you save on energy costs
- Calibrated, electronically paired temperature sensors ensure the highest accuracy and enable replacement of individual temperature sensors even for certified devices in the field (without reapproval!)
- Tariff counter for requirements-based billing
- Detailed data logging of current and counter values and of error messages, off-limit conditions and changes to operating parameters
- Standard models are suitable for connecting and supplying all common volume flow transmitters and temperature measuring points
- Remote readout via Ethernet and fieldbuses
- Verified and certified reliability and accuracy

### Specs at a glance

- **Input** 1x Puls/Analog 2x RTD/Analog Loop power supply 24V DC (+/-16%)
- **Output** 1x 4...20mA 2x digital (Open Collector)
- **Display** 160 x 80 Dot-Matrix LCD with white backlit colour change in case of alarm event active display area 70 x 34 mm
- **Calculations** heat quantity and heat quantity difference

**Field of application:** The BTU meter RH33 is used in applications with liquid energy carriers. It calculates the thermal energy of water acc. to EN1434, glycol/water mixtures or other fluids such as thermal oils. Temperature sensor matching using calibrated temperature sensors is done in the device. Potential for cost savings can be shown by using the software available as an accessory. The device has a custody transfer approval and allows bi-directional measurement, e.g. charging/discharging of a heat accumulator.

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## Features and specifications

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### Energy & Application Manager

**Measuring principle**

Energy manager

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**Measuring principle**

Energy manager

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**Function**

Monitoring and billing of energy in heating and cooling applications as well as combined heating-and cooling circles.

Typical applications can be found in industries, district heating and building automation.

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**Calculations**

heat quantity and heat quantity difference

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**Number of applications**

1

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**Data storage**

yes

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**Calculation standards**

IAPWS-97

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**Communication**

web server

USB

Ethernet

Modbus RTU/TCP Slave

M-Bus

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**Power supply**

Not defined

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**Energy & Application Manager Loop power supply**

Low voltage power supply:  
100 bis 230 V AC (-15% / +10%)  
Small voltage power supply:  
24 V DC (-50% / +75%)  
24 V AC ( $\pm$ 50%)

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**Protection class**

IP65

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**Input**

1x Puls/Analog  
2x RTD/Analog  
Loop power supply 24V DC (+/-16%)

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**Output**

1x 4...20mA  
2x digital (Open Collector)

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**Dimensions (WxHxD)**

144 x 144 x 103.1 mm (5.67" x 5.67" x 4.06")

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**Operation**

3 button on site or via FieldCare  
read out of historical / logged data via Field Data Manager Software  
(SQL database and visualization interface)  
selectable language

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**Display**

160 x 80 Dot-Matrix LCD with white backlit  
colour change in case of alarm event  
active display area 70 x 34 mm

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**Energy & Application Manager Software functions**

Calculated Values:

Energy, volume, density, enthalpy & enthalpy difference, DP-Flow-Compensation, mass, temperature difference

Counters:

Volume, mass, energy, counter in case of failure

Optional:

tariff 1, tariff 2 or separated heating energy, cooling energy, bilance energy

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**Certificates**

CE

CSA GP

MID 004 (custody transfer) according EN1434 (water/other liquids)

OIML R75

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**Thermal Energy Measurement Measuring principle**

Energy manager

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**Function**

Monitoring and billing of energy in heating and cooling applications as well as combined heating-and cooling circles.

Typical applications can be found in industries, district heating and building automation.

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**Certification**

CE, UL listed, CSA GP, MID 004 (custody transfer) according EN1434 (water/other liquids) and OIML R75

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**Input**

1x Puls/Analog,

2x RTD/Analog,

Loop power supply 24V DC (+/-16%)

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**Thermal Energy Measurement****Output**

1x 4...20mA,  
2x digital (Open Collector)

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**Relay output**

2x

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**Auxiliary power supply**

Low voltage power supply: 100 bis 230 V AC (-15% / +10%); Small voltage power supply: 24 V DC (-50% / +75%), 24 V AC ( $\pm 50\%$ )

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**Dimensions (wxhxd)**

144 x 144 x 103.1 mm  
(5.67" x 5.67" x 4.06")

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**Software**

Calculated Values:

Energy, volume, density, enthalpy & enthalpy difference,  
DP-Flow-Compensation,  
mass,

temperature difference;

Counters: volume, mass, energy, counter in case of failure

Optional: tariff 1, tariff 2 or seperated heating energy, cooling energy,  
balance energy

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**Operation**

3 button on site or via FieldCare; read out of historical / logged data via Field Data Manager Software (SQL database and visualization interface), selectable language

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**Display**

160 x 80 Dot-Matrix LCD with white backlit, colour change in case of alarm event, active display area 70 x 34 mm

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**Others**

electronic temperature sensor matching via CvD coefficients, logbook measured values, custody transfer logbook, event logbook, limit monitoring

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Thermal Energy Measurement **Calculations**  
IAPWS-IF97

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