LENNTECH
WATER TREATMENT SOLUTIONS

EngyCal RS33 steam calculator

Steam calculator for one measuring point with one pulse/analog input for flow and two RTD/ analog inputs for temperature/pressure

Benefits:

- Compensation of differential pressure flow measurement
- Calculation according to international water steam tables
- Electronic matching of the temperature sensor (sensor-transmitter matching) with the arithmetic unit enables highly accurate temperature measurement
- 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 flow transmitters, temperature sensors and pressure sensors
- Remote readout via Ethernet and fieldbuses
- Deficit counter for transparency in case of error or alarm

Specs at a glance

- **Input** 1x Puls/Analog for flow 2x RTD/Analog for temperature and pressure 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** IAPWS-IF97

Field of application: The steam calculator EngyCal RS33 is used to record steam mass and energy flow of saturated and superheated steam. The calculation is based on the measured process variables volume flow, temperature and/or pressure. The EngyCal RS33 uses the standard IAPWS IF97 to calculate the mass and energy flow of steam. The density and enthalpy of the steam are calculated from the input variables pressure and temperature.

Features and specifications

Energy & Application Manager

Measuring principle
Energy manager

Measuring principle
Energy manager

Function
Monitoring and billing of energy in saturated and superheated steam applications (steam heat flow, heat difference.
Typical applications can be found in food & beverage industry, chemical industry, pharmaceutical industry, power plants, building automation and skid builders.

Calculations
IAPWS-IF97

Number of applications
1

Calculation standards
IAPWS-97

Communication
web server
USB
Ethernet
Modbus RTU/TCP Slave
M-Bus

Power supply
Not defined

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 (±50%)

Protection class

IP65

Input

1x Puls/Analog for flow
2x RTD/Analog for temperature and pressure
Loop power supply 24V DC (+/-16%)

Output

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

Dimensions (WxHxD)

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

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

Display

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

Energy & Application Manager

Software functions

Calculated Values:
Energy, volume, density, enthalpy, DP-Flow
Counters:
volume, mass, energy, counter in case of failure
Optional:
tariff 1, tariff 2 or seperated heating energy, cooling energy, bilance energy

Certificates

MID 004 (custody transfer) according EN1434 (water/other liquids)
OIML R75
Non-hazardous area + KC marking

Thermal Energy Measurement

Measuring principle

Energy manager

Function

Monitoring and billing of energy in saturated and superheated steam applications (steam heat flow, heat difference; typical applications can be found in food & beverage industry, chemical industry, pharmaceutical industry, power plants, building automation and skid builders

Certification

CE, UL listed, CSA GP

Input

1x Puls/Analog for flow,
2x RTD/Analog for temperature and pressure,
Loop power supply 24V DC (+/-16%)

Output

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

Relay output

2x

Thermal Energy Measurement

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 (±50%)

Dimensions (wxhxd)

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

Software

Calculated Values:
Energy, volume, density, enthalpy, DP-Flow;
Counters: volume, mass, energy, counter in case of failure
Optional: tariff 1, tariff 2 or seperated heating energy, cooling energy, bilance energy

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

Display

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

Others

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

Calculations

IAPWS-IF97

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