

## EngyCal RS33 Steam calculator

Steam calculator for recording steam mass and energy flow for saturated or superheated steam



Thông tin thêm và mức tính giá hiện tại:

[www.apsc.endress.com/RS33](http://www.apsc.endress.com/RS33)

### Lợi ích:

- 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

### Tổng quan về thông số kỹ thuật

- **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

**Phạm vi ứng dụng:** 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.

## Tín năng và thông số kỹ thuật

### 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**

Not defined

**Data storage**

yes

**Calculation standards**

IAPWS-97

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**Energy & Application Manager** **Communication**

web server

USB

Ethernet

Modbus RTU/TCP Slave

M-Bus

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**Power supply**

Not defined

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**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 for flow

2x RTD/Analog for temperature and pressure

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

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**Energy & Application Manager****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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**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

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**Energy & Application Manager** **Certificates**

CE

CSA GP  
MID 004OIML R75

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**Thermal Energy Measurement** **Measuring principle**Energy manager

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**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

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**Certification**CE, UL listed, CSA GP

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**Input**

1x Puls/Analog for flow,

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

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**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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## Thermal Energy Measurement

### 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, DP-Flow;

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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### Calculations

IAPWS-IF97

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