

# SSCU

## Ultrasonic energy meters



Flanged ultrasonic energy meters, intended for heating or cooling.

- ✓ Size DN25...DN100
- ✓ Nominal flow 3.5...60 m<sup>3</sup>/h
- ✓ For horizontal or vertical mounting
- ✓ No data loss when changing battery
- ✓ No moving parts enable flow measurement at low pressure drops
- ✓ Available with M-Bus, pulse output or M-Bus and 3 pulse inputs
- ✓ 24 V or 230 V power pack available as accessory
- ✓ Return flow or forward flow selectable on site

### Function

The menu system, available in the display, makes it possible to read a large number of parameters, such as heat and cold consumption, total energy spent on heating and cooling, temperatures along with current energy consumption. Installation is normally in the return pipe, but can be selected during installation.

### Connection

The energy meter comes equipped with two PT500 temperature sensors. The resistors for the sensors are composed of platinum and maintain a standard of DIN IEC 60751.

### High reliability

The meter offers reliable and accurate performance over long periods of measurement. The calculator features a high accuracy of measurement, in addition to a long life and robust design. The calculator utilizes EEPROM memory, meaning loss of data does not occur if the battery is changed.

### Flexible design

Due to the multiple combination options offered by its components, the meters can easily be adapted to suit a large number of individual requirements. Models with M-Bus, pulse output or M-Bus + pulse input are available.

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Energy meters with M-Bus have a default address of “0”, which is not a valid primary communication address. This primary address can be changed by searching for secondary addresses (i.e. the ID number of the meter).

## Installation

Both temperature sensors have a cable length of 3 m. Temperature sensor pockets can be found under the heading *Accessories*. The calculator can be wall mounted or DIN-rail mounted.

Installation is normally in the return pipe, but can be selected during installation.

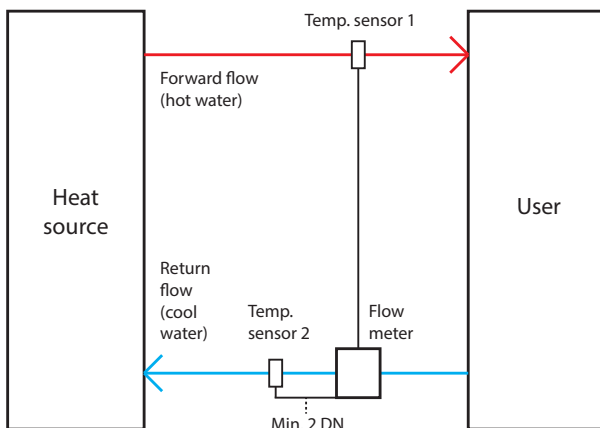


Fig. 1 Installation example heating

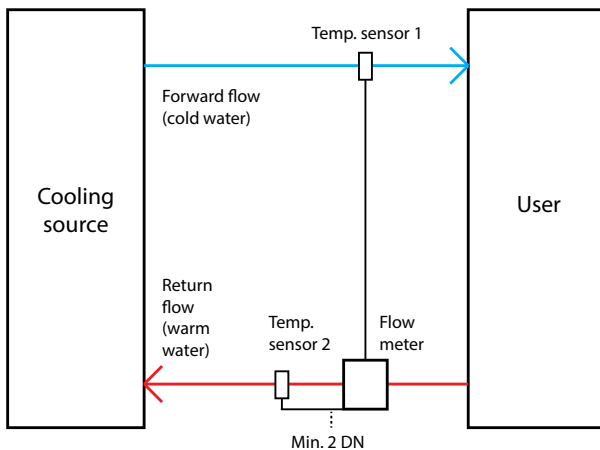


Fig. 2 Installation example cooling

## Technical data, calculator

|                                                  |                                                                   |
|--------------------------------------------------|-------------------------------------------------------------------|
| <b>Power supply</b>                              | 3 V lithium battery, min. 10 years                                |
| <b>Temperature range</b>                         | 0...150 °C Heating, 0...50 °C Cooling                             |
| <b>Temperature difference limits</b>             | 3...100 K (heating), -3...-50 K (cooling)                         |
| <b>Temperature resolution</b>                    | 0.01 °C                                                           |
| <b>Ambient temperature</b>                       | 5...55 °C                                                         |
| <b>Storage temperature</b>                       | -25...-55 °C                                                      |
| <b>Ambient humidity</b>                          | < 95 % RH                                                         |
| <b>Protection class</b>                          | IP54                                                              |
| <b>Calculation of heat from K</b>                | $\Delta\theta > 0.05 \text{ K}$                                   |
| <b>Calculation of cooling from K</b>             | $\Delta\theta < -0.05 \text{ K}$                                  |
| <b>Dual purpose heat/cooling meter</b>           | $\Delta\theta_{HC} < -0.5 \text{ K}$                              |
| <b>Measurement frequency at <math>q_p</math></b> | Cycle 30 s                                                        |
| <b>Data storage</b>                              | EEPROM, daily storage of values                                   |
| <b>Interfaces</b>                                | M-Bus, pulse output or M-Bus with 3 pulse inputs                  |
| <b>Reading dates</b>                             | Annual billing date selectable, 24 monthly values                 |
| <b>Display</b>                                   | LCD, 8 digits + additional symbols                                |
| <b>Display units</b>                             | MWh, kWh, GJ, m <sup>3</sup> , m <sup>3</sup> /h, l/h, kW, MW, °C |
| <b>Mechanical class</b>                          | Class M2 (MID: 31.03.2004 annex I)                                |
| <b>EMC</b>                                       | Class E2 (MID: 31.03.2004 annex I)                                |
| <b>Environmental class</b>                       | C (EN 1434)                                                       |

## Technical data, temperature sensor

|                                                       |                                                                                                                        |
|-------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| <b>Cable length</b>                                   | 3 m                                                                                                                    |
| <b>Sensor element</b>                                 | PT500; separately approved type as per EN60751, unshielded                                                             |
| <b>Diameter, sensor</b>                               | 6 mm                                                                                                                   |
| <b>Installation</b>                                   | Direct or indirect in a temperature sensor pocket per EN1434                                                           |
| <b>Temperature sensor requirements, heat meter</b>    | EU (MID) identification on the temperature sensors                                                                     |
| <b>Temperature sensor requirements, cooling meter</b> | National German approval as a temperature sensor for cooling meters. Requirements in other countries may be different. |

## Technical data, flow meter

|                                   |                                                                          |
|-----------------------------------|--------------------------------------------------------------------------|
| <b>Connection</b>                 | Flanged according to EN 1092-3                                           |
| <b>Pressure rating</b>            | PN25                                                                     |
| <b>Media</b>                      | Water                                                                    |
| <b>Mounting position</b>          | Horizontal or vertical                                                   |
| <b>Mounting position, cooling</b> | Transducers (black housing) to the side of or under the measuring tube   |
| <b>Point of installation</b>      | Return flow (optional forward flow if the calculator is set up for this) |
| <b>Temperature range</b>          | 5...130 °C (National approvals may differ)                               |
| <b>Temperature range, heating</b> | 10...130 °C                                                              |
| <b>Temperature range, cooling</b> | 5...50 °C                                                                |

|                                            |                                      |
|--------------------------------------------|--------------------------------------|
| <b>Accuracy according to MID</b>           | Class 2                              |
| <b>Recommended minimum system pressure</b> | 1 bar (to avoid cavitation problems) |



This product carries the CE-mark. More information is available at [www.regincontrols.com](http://www.regincontrols.com).

## Models

| Article       | Nominal diameter | Nominal flow, Q <sub>p</sub> | Maximum flow, q <sub>s</sub> | Minimum flow, q <sub>l</sub> | Flow at 0.1 bar pressure drop | Low flow threshold | Pressure drop at q <sub>p</sub> |
|---------------|------------------|------------------------------|------------------------------|------------------------------|-------------------------------|--------------------|---------------------------------|
| SSCU25-3.5... | DN25             | 3.5 m³/h                     | 7 m³/h                       | 35 l/h                       | 4.4 m³/h                      | 14 l/h             | 60 mbar                         |
| SSCU25-6.0... | DN25             | 6 m³/h                       | 12 m³/h                      | 60 l/h                       | 4.4 m³/h                      | 24 l/h             | 180 mbar                        |
| SSCU40-10...  | DN40             | 10 m³/h                      | 20 m³/h                      | 100 l/h                      | 8.9 m³/h                      | 40 l/h             | 130 mbar                        |
| SSCU50-15...  | DN50             | 15 m³/h                      | 30 m³/h                      | 150 l/h                      | 13.3 m³/h                     | 60 l/h             | 110 mbar                        |
| SSCU65-25...  | DN65             | 25 m³/h                      | 50 m³/h                      | 250 l/h                      | 30 m³/h                       | 100 l/h            | 105 mbar                        |
| SSCU80-40...  | DN80             | 40 m³/h                      | 80 m³/h                      | 400 l/h                      | 36 m³/h                       | 160 l/h            | 160 mbar                        |
| SSCU100-60... | DN100            | 60 m³/h                      | 120 m³/h                     | 600 l/h                      | 50.6 m³/h                     | 240 l/h            | 115 mbar                        |

| Options                                                           | SSCU...       | -... | -... |
|-------------------------------------------------------------------|---------------|------|------|
| <b>Flow (DN) (length) (flange)</b>                                |               |      |      |
| 3.5 m³/h (DN25) (260 mm) (PN25 flange with 4 bolt holes)          | SSCU25-3.5... |      |      |
| 6 m³/h (DN25) (260 mm) (PN25 flange with 4 bolt holes)            | SSCU25-6.0... |      |      |
| 10 m³/h (DN40) (300 mm) (PN25 flange with 4 bolt holes)           | SSCU40-10...  |      |      |
| 15 m³/h (DN50) (270 mm) (PN25 flange with 4 bolt holes)           | SSCU50-15...  |      |      |
| 25 m³/h (DN65) (300 mm) (PN25 flange with 8 bolt holes)           | SSCU65-25...  |      |      |
| 40 m³/h (DN80) (300 mm) (PN25 flange with 8 bolt holes)           | SSCU80-40...  |      |      |
| 60 m³/h (DN100) (360 mm) (PN25 flange with 8 bolt holes)          | SSCU100-60... |      |      |
| <b>Type of measurement and installation point</b>                 |               |      |      |
| Heating, installation of flow meter in return pipe (MID approval) |               | -HR  |      |
| Cooling, installation of flow meter in return pipe <sup>1</sup>   |               | -CR  |      |
| <b>Communication interface</b>                                    |               |      |      |
| M-Bus                                                             |               |      | -M   |
| M-Bus with 3 pulse inputs <sup>2</sup>                            |               |      | -MPI |
| Pulse output for energy                                           |               |      | -PO  |

1. National German approval

2. The standard setting for the pulse counters is 1 l/pulse. Other values (10 l/pulse or 100 l/pulse) are available upon request.

If any further requirements or options are needed, please contact Regin.

### Example 1:

Desired application: Meter with 10 m³/h. Heating, installation in return pipe. M-Bus.

Resulting item ordering number: SSCU40-10-HR-M

Accessories needed: TH-85 - 1 / 2, 2 pcs, Temperature sensor pockets

### Example 2:

Desired application: Meter with 60 m³/h. Cooling, horizontal installation in return pipe. M-Bus + pulse input.

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Resulting item ordering number: SSCU100-60-CR-MPI

Accessories needed: TH-120 - 1 / 2, 2 pcs, Temperature sensor pockets

Accessories

Temperature sensor pocket for installation of universal temperature sensor with 6 mm sheath diameter

| Article    | Connection A | Compatible with | Installation length |
|------------|--------------|-----------------|---------------------|
| TH-85-1/2  | G½           | qp3.5...10 m³h  | 85 mm               |
| TH-120-1/2 | G½           | qp15...100 m³h  | 120 mm              |

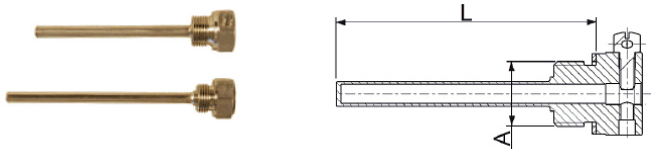


Fig. 3 TH

Optical interface and read-out software

| Article        | Description                    |
|----------------|--------------------------------|
| OPTO-CABLE-USB | Optocoupler with USB interface |
| OPTO-TOOL      | Software device monitor        |



Fig. 4 OPTO-CABLE-USB

24 V and 230 V power pack

| Article         | Description        |
|-----------------|--------------------|
| POWERPACK-EM    | 230 V power pack   |
| POWERPACK-EM-24 | 24 V AC power pack |



Fig. 5 POWERPACK-EM

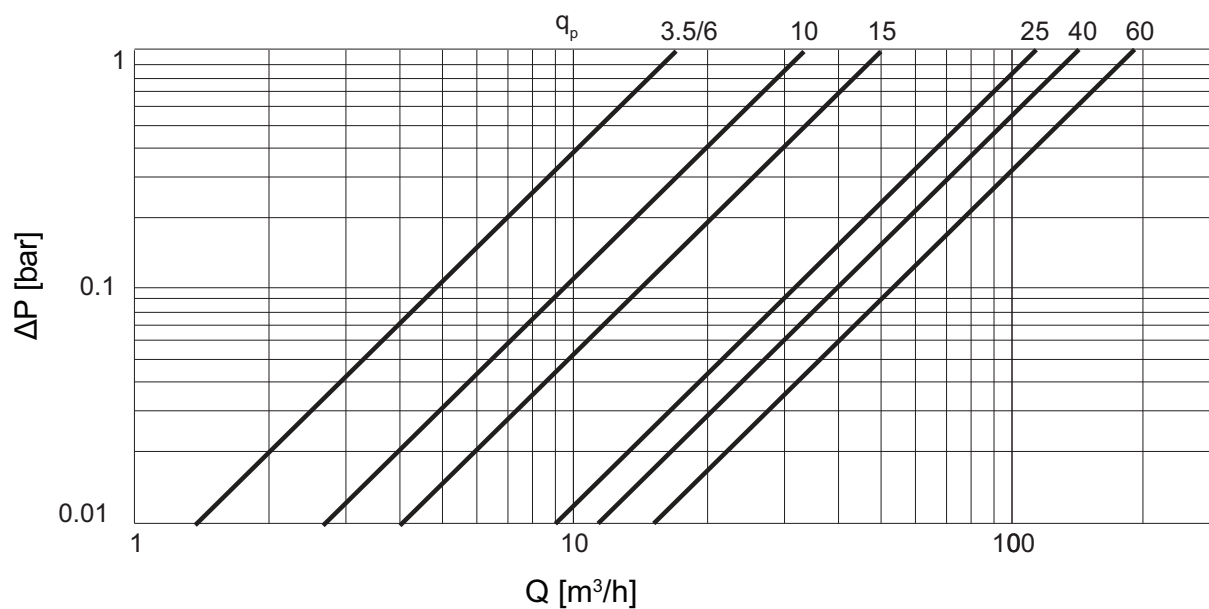
Spare parts

| Article    | Description |
|------------|-------------|
| BATTERY-EM | Battery     |



Fig. 6 BATTERY-EM

## Pressure drop curves



$\Delta P$  = Pressure drop  
 $Q$  = Flow

## Dimensions

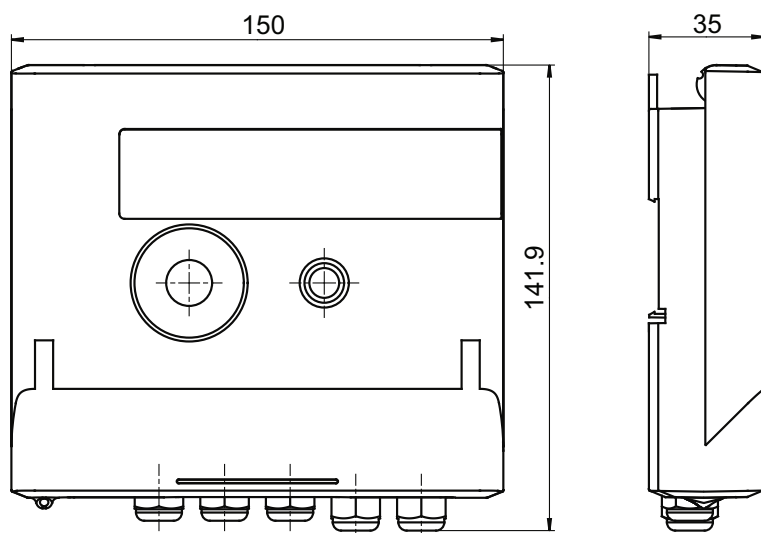


Fig. 7 Calculator

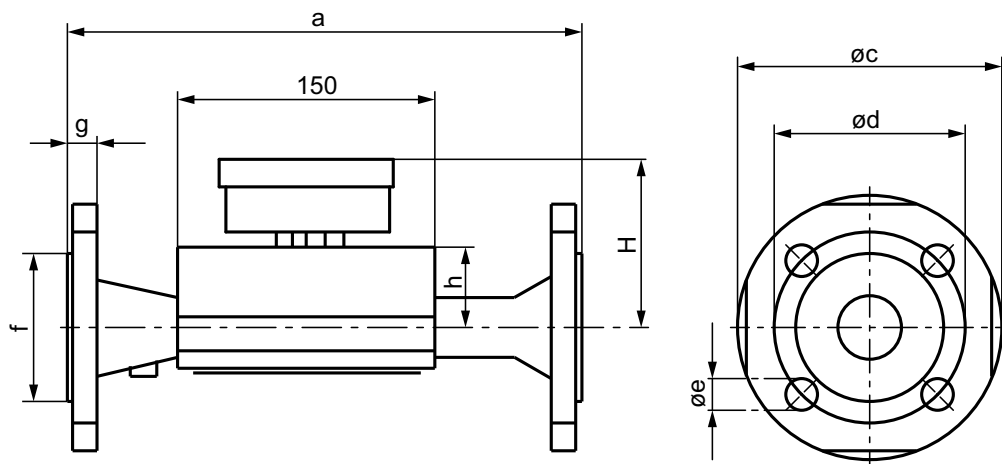


Fig. 8 Flow meter

| Qp (m3/h) | PN bar | DN  | a   | øc  | ød  | øe | No. of holes | f   | g  | h   |
|-----------|--------|-----|-----|-----|-----|----|--------------|-----|----|-----|
| 3.5       | 25     | 25  | 260 | 115 | 85  | 14 | 4            | 68  | 18 | 96  |
| 6.0       | 25     | 25  | 260 | 115 | 85  | 14 | 4            | 68  | 18 | 96  |
| 10        | 25     | 40  | 300 | 150 | 110 | 18 | 4            | 88  | 18 | 93  |
| 15        | 25     | 50  | 270 | 165 | 125 | 18 | 4            | 102 | 20 | 91  |
| 25        | 25     | 65  | 300 | 185 | 145 | 18 | 8            | 122 | 22 | 97  |
| 40        | 25     | 80  | 300 | 200 | 160 | 18 | 8            | 138 | 24 | 101 |
| 60        | 25     | 100 | 360 | 235 | 190 | 22 | 8            | 158 | 24 | 113 |

[mm], unless otherwise specified

## Documentation

All documentation can be downloaded from [www.regincontrols.com](http://www.regincontrols.com).