

# SVM Meters heat and cooling



## Complete heat and cooling meters

Kamstrup SVM's products are used in district heating and cooling systems, residential and industry applications and to document the efficiency of boiler plants, heat pumps and solar systems. We offer products such as compact meters, calculators, temperature sensors, ultrasonic and mechanical flow meters as well as communication systems and related peripheral equipment.

## Remote reading via radio or cable

Kamstrup SVM's meters offer several opportunities for remote reading, both wireless and with traditional signal cable. All our meters can measure and store a variety of parameters concerning the energy consumption and quality of the district heating network, which are also available via communication. They can easily be supplemented with a wide range of option boards or modules for different types of communication systems, tariffs, peak values, data logger, analogue inputs and outputs and relay outputs. All this provides a good basis for billing and facilitates troubleshooting and optimization of the district heating network.

## Service and test

In order to meet future requirements, new products and modules are continuously developed with various additional functions. The meters also have a built-in service function, which makes it possible to change the parameters in the field without service tools.

In addition, Kamstrup SVM offers test systems for calculators and temperature sensors.

# SVM meters and flow sensors

## SVM F2 & F25 compact



- **Small, only 90 x 110 mm**
- **Several power supply options**
- **Can be compact mounted**
- **Integrated service function without tools**

F2 is a small stand-alone calculator with a high flexibility and for use as debit meter in both heating and cooling applications.

F2 can be combined with most types of flow sensors with standard pulse and can be wall mounted or compact mounted on the flow sensor.

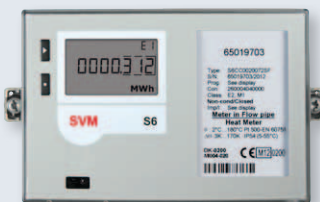
F2 offers great flexibility in terms of power supply, and it comes with battery or 230 VAC mains supply. F2 is also available in a version with power supply from M-Bus. The battery life exceeds 10 years. The design of the mains supply and M-Bus supply includes a supercap that secures the power supply during short-term power outages.

F2 can be supplied with two pulse outputs for energy and volume, or with two extra pulse inputs. F2 is available with Pt100 or Pt500 temperature sensors for 2-wire connection.

The meter's built-in service function makes it easy to change several operating parameters, e.g. time, date and pulse value. This facilitates e.g. reverification of flow meters.

F25 is the compact mounted version that is combined with UF54, our new ultrasonic flow sensor. F25 comes with the flow sensor and temperature sensors connected and can also be supplied with connected M-Bus cable and, if required, power cord. F25 can be selected with mains supply or battery supply, where the same battery also supplies the flow sensor.

## SVM S6 Heat & Cooling



- **Complete range of communication modules**
- **High Power RadioRouter module**
- **Data loggers**
- **Info loggers**
- **Data backup in case of power failure**

SVM S6 is an all-purpose energy calculator for heat and cooling and combined heat/cooling applications. The meter can be used together with almost any kind of flow sensor with a pulse output, and is adapted to the fast pulses from e.g. an ULTRFLOW® 54 or standard pulses from a mechanical flow sensor. Combined with ULTRFLOW® 54 SVM S6 offers more advanced functions in terms of flow sensor diagnostics.

SVM S6 is characterized by its complete range of communication modules. In the meter there is space for one top module and one base module making it possible to combine a large variety of inputs, outputs and communication protocols, for example LON, M-Bus, a data module, Metasys N2, Ethernet/IP or the new modules for Bacnet or KNX. If the meter is to be integrated into a wireless network, select from radio, wireless M-Bus, Zigbee or one of the new wireless modules GSM/GPRS or High Power RadioRouter.

SVM S6 is equipped with a built-in RTC along with an extensive data logger for yearly, monthly, daily and hourly values.

The meter is also equipped with an info log and error hour counter, offering extra security if an error occurs.

Select mains supply 230 VAC or 24 VAC or battery supply for 13 years battery life, including wireless M-Bus.

SVM S6 can be equipped with Pt100 temperature sensors for 2-wire connection, or Pt500 temperature sensors for 2 or 4-wire connection.



## SVM F4 & MF4 glycol



- Flexible with 5 option board slots
- For glycol mixtures
- 4-wire connection, extra high accuracy
- Robust cable glands
- Integrated service function without tools

F4 is designed for heating and cooling applications where customers require more advanced features of the calculator.

F4 is equipped with 5 option board slots that can be used for multiple parallel communications outputs, expanded data logger, tariff and peak values. There is also an option

board for analogue inputs or outputs and a relay board. F4 has a built-in M-Bus output for remote reading, but it can also be complemented by three additional communication boards for e.g. M-Bus, SIOX and LON.

The log option board stores values, from 6-min. values up to yearly loggings. The tariff option board uses a two-tariff register controlled by power or flow, and the peak value option board can be used for monitoring and control of the district heating network through the storage of flow/volume, energy/power and temperatures. All option boards are easily installed thanks to auto-install (plug-and-play).

F4 either mains supplied 230 VAC including a battery backup for full functionality during power cuts or battery supplied with a battery life of at least 10 years of operation. F4 can be used with Pt100 or Pt500 both for 2- or 4-wire connection and is compatible with most flow sensors on the market that offer standard pulses. The pulse value is also easy to change even during operation, e.g. when the flow sensor is replaced for verification. F4 is supplied with two pulse outputs for energy and volume, an alarm output and two extra pulse inputs. Galvanic isolation is accomplished with an option board.

MF4 is a special version of F4 that uses glycol or another mixed fluid for cooling applications. MF4 handles temperatures down to -20°C and is customized at the factory for the specific liquid mixture. The possibility of 4-wire connection of the temperature sensors is also particularly well suited in cooling applications.

Good glands and spacious screw terminals together with the accompanying documentation make the installation a pleasure!

## SVM UF54 flow sensors




We now introduce our new range of ultrasonic flow sensors, which can be combined with the calculators F2 and F4.

UF54 is used for measurement of volume in heating plants with water as the heat conveying liquid. Volume is measured according to the so-called transit time principle that guarantees a long-term stable and accurate measurement. With two ultrasonic transducers, sound signals are sent both in and against the flow direction at the same time. The signal transmitted in the flow direction reaches the opposite transducer slightly earlier than the signal sent against the flow direction. The time difference between the two signals is a direct measurement of the flow velocity which in the measuring electronics is converted to volume flow.

UF54 is connected to the calculator with a three-conductor cable that allows power supply to the flow sensor from the calculator.

UF54 comes in all sizes from DN15(G $\frac{3}{4}$ B) to DN250 with nominal flow from  $q_p$  0.6 to 1000 m<sup>3</sup>/h. UF54 with threaded connection is made of brass, and those with flanges are made of stainless steel.

UF54 has very good performance, with a temperature range of 15 ... 130 °C, accuracy class 2, environmental class C, and protection class IP65. Naturally, UF54 is approved according to MID and EN1434.



## SVM temperature sensors

### SVM TD/TL temperature sensors



Small rapid temperature sensors of the type Pt100/Pt500 which are mounted in a stainless steel (Inconel) socket. The sensors are designed for temperature measurement in district heating or cooling systems. The sensors are designed for fast response time and high accuracy with extreme long-term stability and comply with the European standard EN 1434. The directly connected sensors have an M10 union nut and are approved for a pressure of 16 bar [PN16].

The sensors are supplied in matched pairs with a temperature difference less than 0.05 °C. The average value of our production is 0.02 °C.

As default, the sensors are supplied with a 2 m heat resistant cable. There are two types of sensors:

- TD – Sensors for direct mounting in flow (DS)
- TL – Sensors for mounting in pocket (PS)

The pockets offered have a standard R $\frac{1}{2}$ " external thread for 25 bar [PN25] and is provided in brass or stainless steel.

### SVM TSF/TCF temperature sensors



The temperature sensors TSF / TCF are designed for temperature measurement in district heating or cooling systems and comply with the current European standard for heat meters (EN 1434).

Advantages:

- Sensors have an extremely fast thermal response time.
- Especially suited for cooling measurement.
- The coupling head has plenty of space for easy connection of 2- or 4-wire conductors.

The sensor consists of a Pt100 or Pt500 resistor protected by a sleeve made of brass and a connection pipe of insulating plastic. The coupling head is made of heat-resistant plastic (polyamide) and allows for both 2- and 4-wire connection. Despite of its small dimensions, the sensor's design provides generous connection space, which facilitates the mounting of the connection cables. The sensor's cable gland is designed for a connection cable with a maximum diameter of 9 mm.