

A heatmeter with a sensor-operated flow, heating and cooling energy, inlet & outlet temperature, Delta T and flow rate data monitoring,

Nominal supply: DC 24V(For ModBUS), for MBUS(Battery)

- Closed cold and hot water systems
- Modbus RTU,MBUS(Optional),IoT(Optional)
- Conversion of sensor signals
- 10 years battery life
- Temperature Sensors: PT1000
- Accuracy: Class II, meets EN1434



General Information

Type	DN	G ["]	Q'max [kW]	V'min [m ³ /h]	Qp [m ³ /h]	Qs [m ³ /h]	PN	Cable length
T-1205-015	015	3/4	350	0.015	1.5	3.0	25	1 m
T-1205-020	020	1	585	0.020	2.5	5.0	25	1 m
T-1205-025	025	1 1/4	815	0.035	3.5	7.0	25	1 m
T-1205-032	032	1 1/2	1400	0.060	6	12.0	25	1 m
T-1205-040	040	2	2330	0.100	10	20.0	25	1 m
T-1205-050	050	2 1/2	3500	0.600	15	30.0	25	1 m

Where Qp means: Nominal Flow Rate, Qs means: Maximum Flow Rate

Q'max is the maximum thermal energy output ($q=q_s$, $\Delta\theta = 100$ K)

Structure

Heatmeter sensor:

It consists of a sensor module and a logical controller that has connected temperature sensors and includes a calculator unit and a measurement system. Communication settings can be made with the integrated web interface in the heatmeter sensor module and all read data can be accessed from this interface.

In terms of hardware features, it has two temperature sensors (one integrated) and is based on the ultrasonic measurement principle. It can measure energy. The ultrasonic heat meter measures the flow volume and displays the heating or cooling energy released or absorbed by water flow when passing through the pipeline.

The supply can operate in the range of 5VDC-28VDC or battery. It can keep total energy data in its memory.

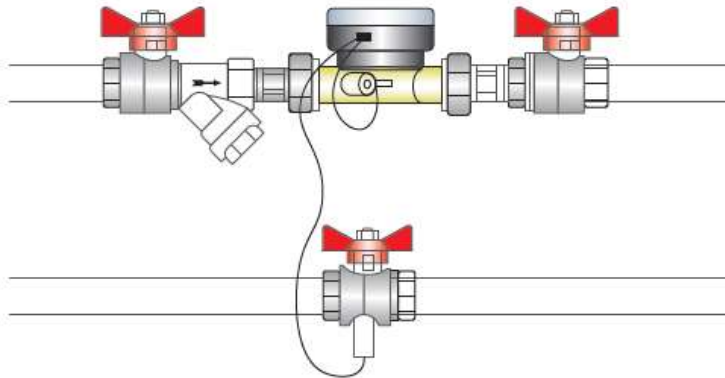
To communicate with Heatmeter via Rs485 should be supplied 24VDC supplied voltage otherwise, the rs485 will not be worked.

Heatmeter Dimensions:

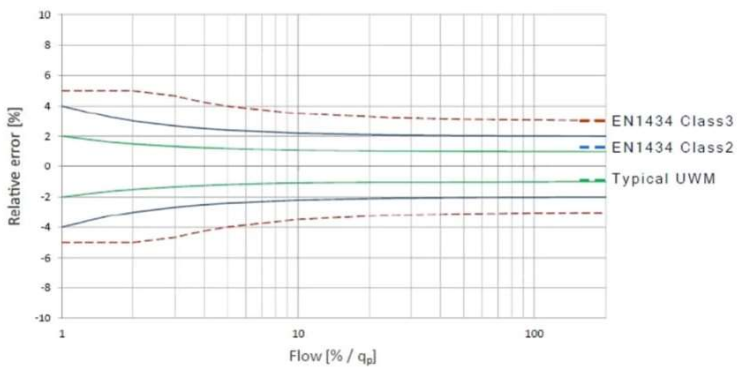
Dimensions(mm)	Length (L)	Width (W)	Height (H)
DN15	110	85	85
DN20	130	85	95
DN25	160	85	105
DN32	180	85	105
DN40	180	85	115



Installation Diagram



Typical error acc. to EN1434



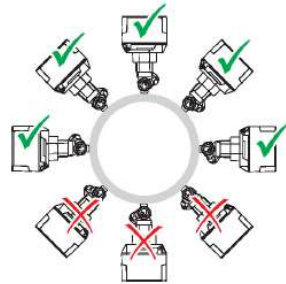
Technical data

Electrical Specifications	Nominal supply	DC 24 V - Power supply 220VAC- 24VDC or Battery
	Nominal supply voltage frequency	50/60 Hz
	Nominal Supply Voltage Range	DC24V
	Connections (Power / Control)	Cable 1 m, 8x 0.75 mm ²
	Conductors, cables	AC/DC 24V, cable length <100m, shielding or twisting not required
Data bus communication	Communication control	Modbus RTU and Mbus (Optional)
	Customization	Integrated Web Interface (Optional)
	Compatible Fluids	Cold and hot water
	Fluid temperature	-10...100°C [14...248°F] optional(150°C)
	Fluid temperature notes	-10...2°C inter- fluid at temperature shaft heatingapparatus or valve neck extension piece to be used recommended.

Function data		
Pipe connection		external threaded
Assembly direction		From vertical to horizontal (based on the shaft)
Measurement data		
Measured values		Flow Rate Supply fluid temperature Return fluid temperature Fluid temperature differences Energy
Temperature sensor		Pt1000- EN 60751, 2-wire technology permanently attached Cable Length for External Sensor T1: 3 m Integrated Flow Sensor T2
Flow measurement		
Measuring principle		Ultrasonic flow measurement
Flow Measurement Accuracy:		±%2 (20%...100%) V ^{nom})
Minimum Flow Measurement:		0.5% of V ^{nom}
Protection degree IEC/EN		IP54(IP67 Optional)
Pollution degree		3
Environment humidity		Max . 95% relative humidity, non-condensing
Environment temperature		-30...50°C [-22... 122 °F]
Storage temperature		-40...80°C [-40... 176 °F]
Materials		
Body		Brass

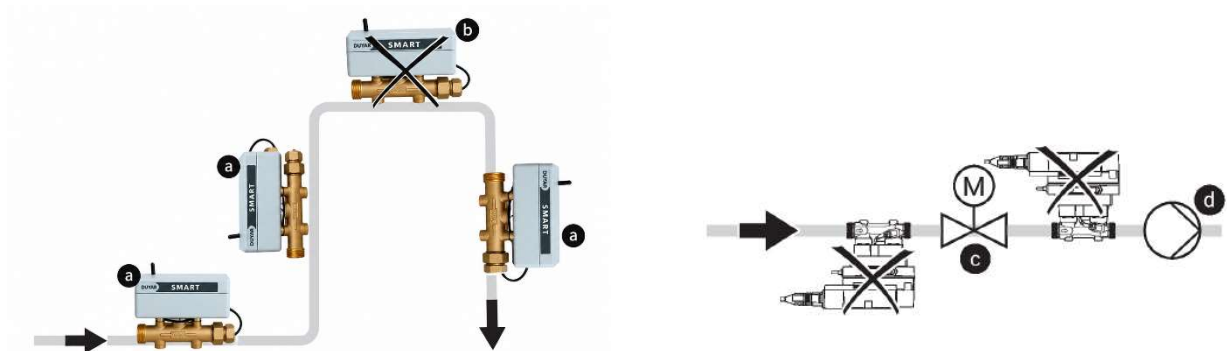
Assembly notes

Permitted Installation Direction : Horizontal/ Vertical



Assembly place, return line

It is recommended to install it on the return line



Inlet section

To achieve the specified measurement accuracy, a flow conditioning section (inlet section) or a flow straightening section must be installed upstream of the flow sensor in the direction of flow. According to EN 1434-4:2022 (out-of-plane double 90° elbow), an inlet section of $0 \times DN$ can be applied. In all other cases, EN 1434-6:2022, recommends an inlet section of $\geq 5 \times DN$.

- a) Recommended installation positions
- b) Prohibited installation positions due to the risk of air accumulation
- c) Installation directly after valves is not permitted. Exception: if it is a shut-off valve without restriction and it is fully open (100%)
- d) Installation on the suction side of a pump is not recommended

Water Quality Requirements

The water quality requirements specified in VDI 2035 must be adhered to. Smart valves are adjustment devices. Care must be taken to ensure the valves are not contaminated for proper long-term operation (e.g., welding slag during installation). It is recommended to install an appropriate filter.

Flow Direction

The flow direction indicated by an arrow on the housing must be followed; otherwise, the flow will be measured incorrectly.

Pipe Cleaning

The system should be thoroughly flushed to remove contaminants before installing the heatmeter.

Stress Prevention

The heatmeter should not be exposed to excessive strain caused by pipes or fittings.

Inlet Section

To achieve the specified measurement accuracy, a flow stabilization section or an inlet section must be created downstream of the flow sensor in the direction of flow. Its dimensions should be at least $5 \times DN$

Assembly notes**Installation of the Immersion Sleeve and Temperature Sensor:**

The valve is equipped with two fully connected temperature sensors.

- T2: This sensor is mounted on the thermal energy measuring instrument.
- T1: This sensor should be installed either before the consumer (on the return line valve; recommended) or after the consumer (on the supply line valve).

Note:

The cables between the valve unit and the temperature sensors should not be shortened or extended.

Service

The heatmeter is maintenance-free. Before carrying out any service work on the heatmeter, it is extremely important to isolate the device from the power supply (disconnect electrical cables if necessary). The pumps in the relevant section of the piping system must be stopped, and the corresponding shut-off valves must be closed (if necessary, allow all components to cool down, and always reduce the system pressure to ambient pressure). The system must not be put into operation until the heatmeter has been correctly installed in accordance with the instructions and the pipeline has been refilled by trained, professional personnel.

Flow direction

The flow direction indicated by an arrow on the housing must be observed; otherwise, the flow rate will be measured incorrectly.

Cavitation prevention

To prevent cavitation, the system pressure at the outlet of the heatmeter must be at least 1.0 bar at q_s (maximum flow rate) and at temperatures up to 90°C.

At a temperature of 120°C, the system pressure at the outlet of the heatmeter must be at least 2.5 bar.

Cleaning of pipes

Before installing the heatmeter, the system must be thoroughly flushed to remove contaminants.

Stress prevention

The heatmeter must not be subjected to excessive stress caused by pipes or fittings.

**Safety notes**

This device is designed for use in fixed heating, ventilation, and air conditioning (HVAC) systems and must not be used outside the specified field of application, particularly not in aircraft or other airborne vehicles.

Outdoor applications: These are only permissible if (sea) water, snow, ice, sunlight, or aggressive gases do not directly affect the unit, and if ambient conditions always remain within the limit values specified in the catalog. Installation may only be carried out by authorized specialists. All relevant regulations must be observed during installation.

The device contains electrical and electronic components and must not be disposed of as household waste. Local regulations must be followed.

T-1205 AKILLI VANA - SMART VALVE



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