

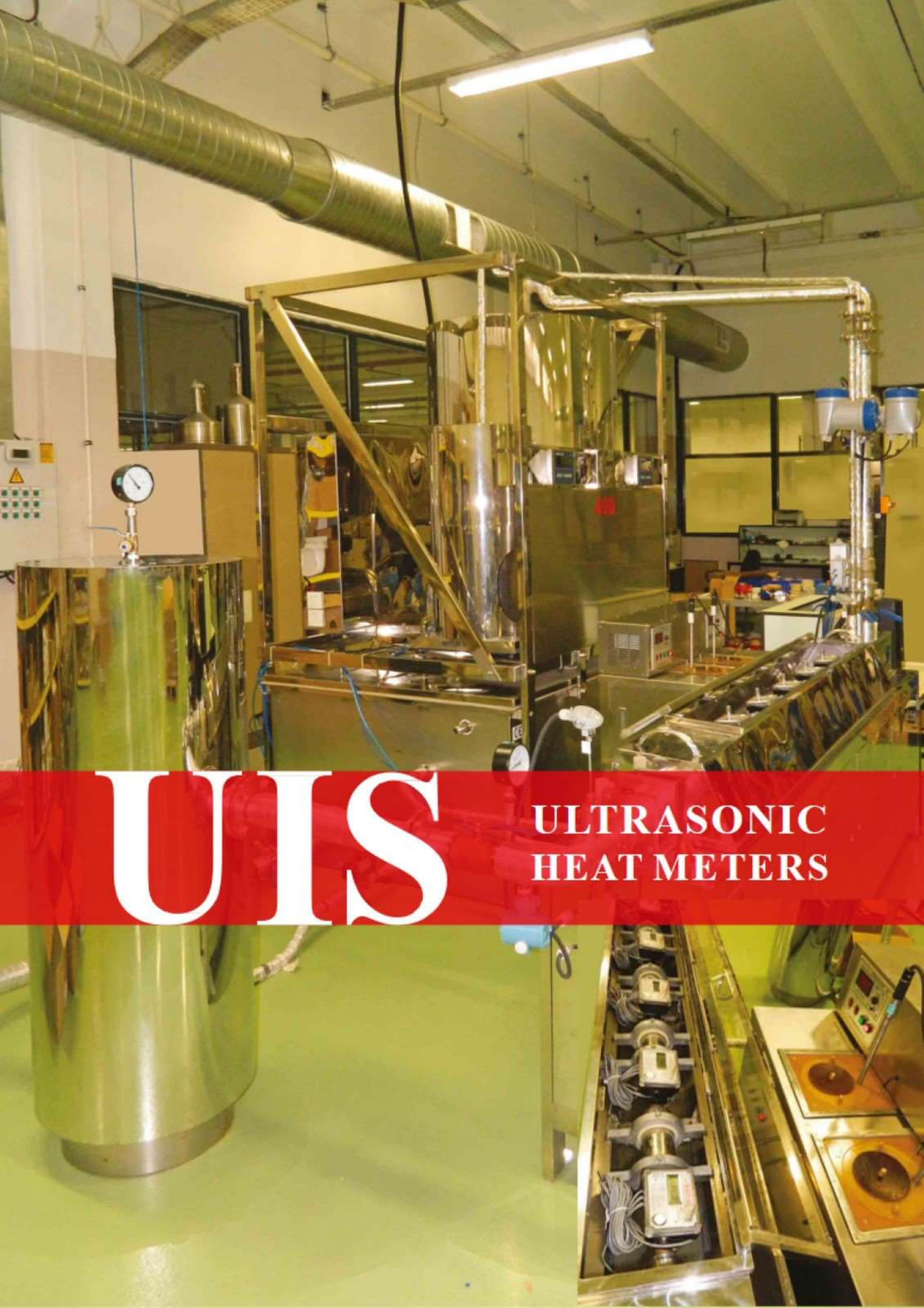
UIS

ULTRASONIC HEAT METERS

HEATED WITH THE SYSTEM
CENTER BUILDING HEAT
METERS CATALOGUE

BAYLAN





UIS

ULTRASONIC
HEAT METERS

BAYLAN

Water meters repair and maintenance workplace founded by our father who is Osman Baylan in 1955. As his successors and sons -İbrahim Baylan and Mehmet Akif Baylan brothers- we established the first big factory of Baylan Water Meters in 1992 with the legacy which passed to us from our father such as ambition to work, proactivity, pursuing new technology, a good craftsmanship and honest productiveness, the synergy of respect to the consumer and devotion to our country.

Water supplies in the world has been decreasing day by day and this supplies must be handled efficiently. At this point, measurement of water must be very sensitive and we are fully aware one's actions and producing our meters by this awareness. Today, in 5 continent and 75 country of the world our products have been used in consequence of our product quality and well-known brand name, whilst each year the demand to our products has been increasing. As a member of Top 1000 Exporters of Turkey, we are very proud of these results.

As an effective global brand -due to the use of energy sources consciously which our country is foreign-dependent- we invested in heat meter production areas and calibration stations with the combination of our experience which we gain in water meter production areas and the latest technology through long term R&D activities.

Our main purpose is contribute to the use of energy sources consciously and dominate existing heat meter market. So far, our line which we have created in water meter market "Baylan stands behind their products.", will be continue to use in heat meter market too.

I thank to who has believed the brand of Baylan; to the employees which become our family, to the partners who always supporting us and to our dear customers.
Sincerely yours...

İbrahim BAYLAN
Chairman of the Board
BAYLAN ÖLÇÜ ALETLERİ
SAN. ve TİC. LTD. ŞTİ.



ULTRASONIC HEAT METERS US MODEL



THE DESCRIPTION OF HEAT METERS

Ultrasonic meters measure the difference of the transit time of ultrasonic pulses propagating upstream and downstream of the flow.

Working Principle of Heat Meter

The heat meter calculates the amount of heat consumed according to the formula $Q = m \cdot c \cdot t$. There are two main variables; temperature difference and flow rate

Q = Energy amount

m = Amount of passing water

$\Delta t = T_1 - T_2 =$ Inlet water temperature
Outlet water temperature

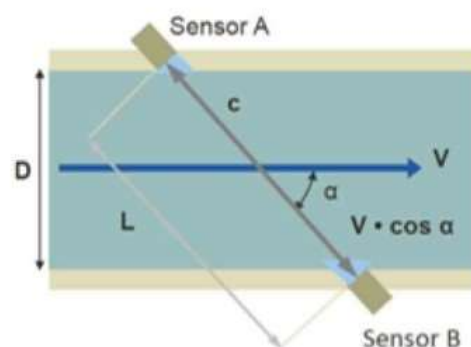
C = Coefficient

Components of Heat Meter

Baylan Ultrasonic Heat Meter consists of three parts.

- i-) Ultrasonic Flowmeter: Measures the water flow rate which passing over the meter via ultrasonic waves.
- ii-) Temperature Sensor Pair (Resistance Thermometers): Measures water temperatures at flow pipe and return pipe.
- iii-) Calculator

Calculates the amount of heat according to the measured flow and temperatures.



D = Flow tube diameter

L = Acoustic transmission path length

V = Flow rate

c = Audio transmission rate

BAYLAN ULTRASONIC HEAT METERS FEATURES

- » The compact design uses ultrasonic measurement technology
- » Due to ultrasonic technology, constantly and high measurement sensitivity
- » Wide dynamic measuring range and low pressure loss
- » Via the LCD display providing access to meter data for billing and check out
- » Due to the lack of moving parts, high measurement accuracy
- » Lithium battery, 10 years lifetime
- » Solid stainless steel reflector
- » Can be mounted horizontally or vertically
- » IP 66/68 protection class
- » M-Bus or Pulse Output or Modbus, wM-Bus interfaces
- » Comprehensive fault indication
- » OIML ve MID (1783-MID-039) certified
- » Advanced service network

ADVANTAGES OF THE BAYLAN US SERIES ULTRASONIC HEATMETERS



IP 66/68 Protection Class: Dust and water resistant with high protection class.

M-Bus and Rf (Radio Frequency) All in One Design: Allows heat meter reading with desired reading system. Heat meter can be use whether by M-Bus and RF.

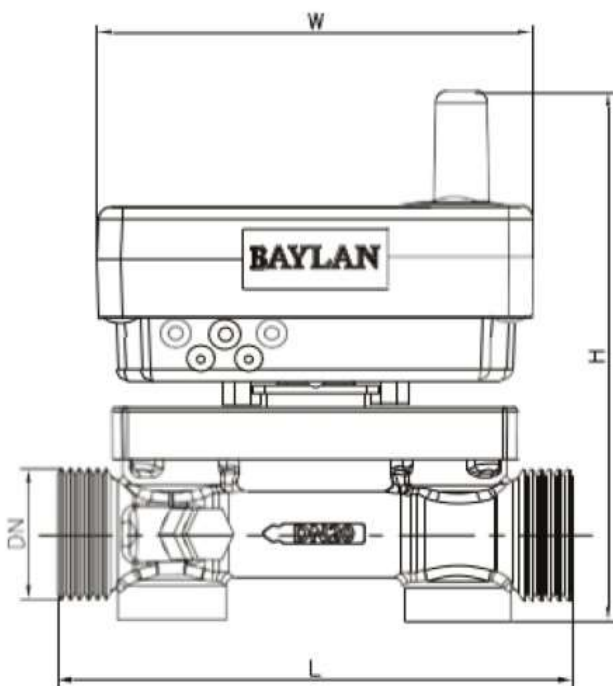
Wide Service Network: Implementation and control services for all heat meters.

Wide Dynamic Measurement Range: High sensitive measurement within the low flow rates and provides measurement sustainability.

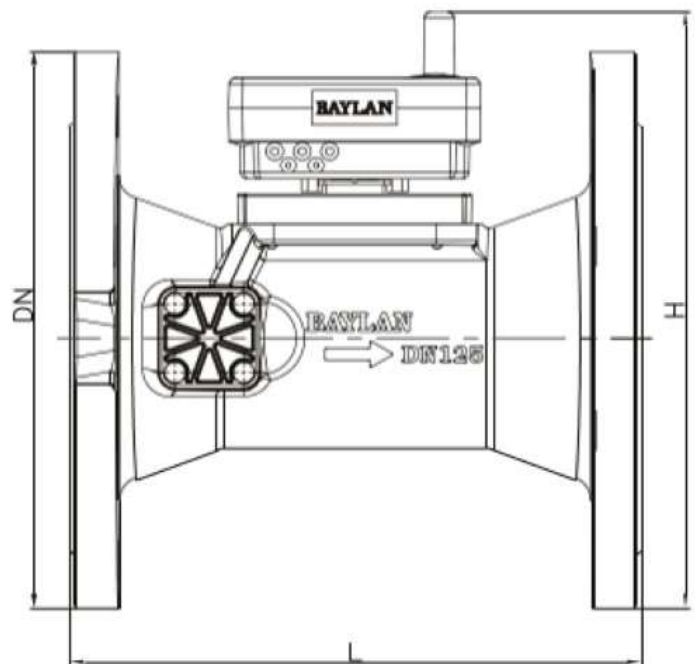
Meter reading system both RF and M-Bus interface without need to buy an extra communication module.

DIMENSIONS

Model	DN (mm)	Dimensions (mm)			
		L Length	W Width	H Height	Connection
US-1	15	130	80	131	G 3/4 B
US-2	20	130	80	131	G1 B
US-3	25	160	80	133	G1 1/4 B
US-4	32	180	80	145	G1 1/2 B
US-5	40	200	80	145	G 2 B
US-6	50	200	163	192	165
US-7	65	200	183	208	185
US-8	80	225	198	219	200
US-9	100	250	219	234	220
US-10	125	250	219	234	250
US-11	150	300	284	284	285
US-12	200	350	339	330	340



US1, US2, US3, US4, US5 Models



US6, US7, US8, US9, US10, US11, US12 Models

Unaffected by water and dust due to IP 66/68 protection class

PERFORMANCE DATA

Model	US-1	US-2	US-3	US-4	US-5	US-6	US-7	US-8	US-9	US-10	US-11	US-12
Nominal Diameter	DN15	DN20	DN25	DN32	DN40	DN50	DN65	DN80	DN100	DN125	DN150	DN200
Maximum Flowrate q_s (m ³ /h)	3.0	5.0	7.0	12.0	20	30	50	80	120	200	300	500
Permanent Flowrate q_p (m ³ /h)	1.5	2.5	3.5	6.0	10	15	25	40	60	100	150	250
Minimum Flowrate q_m (m ³ /h)	0,015	0,025	0,035	0,06	0,1	0,15	0,25	0,40	0,60	1,00	1,50	2,50
Accuracy Class	Class 2											
Environmental Class	Class A											
Type Of Temperature Sensor	PT 1000											
Electro. Environmental Class	E1											
Maximum Max Water Temp.	4 - 95 °C											
Maximum Working Pressure	16 Bar											
Limits of temp. difference	3 - 70 K											
Mechanical Class	M1											
Connection Position	All positions											
IP Protection	IP66/68											
Pres. Loss at Permanent Flow	0,25 bar											
Sensor Cable Length	1,5 m											
Battery	3.6V Lithium battery											
Communication Interface	M-Bus / wM-Bus / Pulse output, Modbus (Optional)											
Display	Power: kW, Cumulative Heat Counter: kWh or MJ, Counter Range: 0-99999999 Transitional Flow: m ³ /h, Cumulative Flow: m ³ , Input Temperature & Output Temperature: °C Temperature Difference: °C, Cumulative Heat Input Period: s, Date: DMYY, Temp: m/h/m/s											
Display Resolution	Heat Amount: 0.1 kWh-1 kWh, Cumulative Flow: 0.001 m ³ -1 m ³ , Temperature: 0.01 °C, Temperature Difference: 0.01 °C											
Operating Temperature	+5 °C, +55 °C											
Installation	Output water pipe (made out of water temperature sensor assembly ready)											
Weight (kg)	0,7	0,82	0,85	1,3	1,7	10,1	11,2	12,8	15,2	20,1	27,1	37,1

"Due to continuous development of our products, we reserve the right to modify our product design or construction without prior notice."



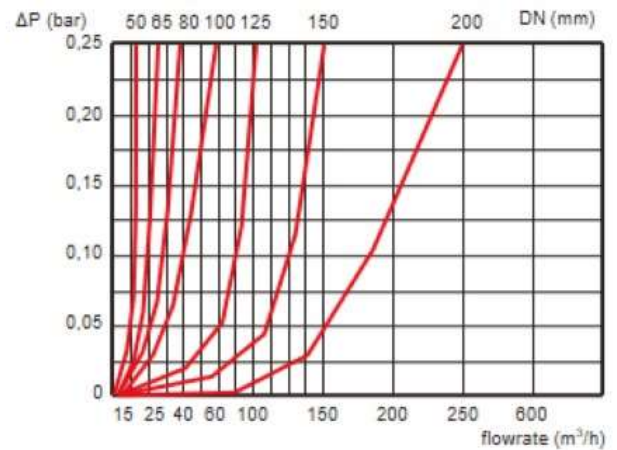
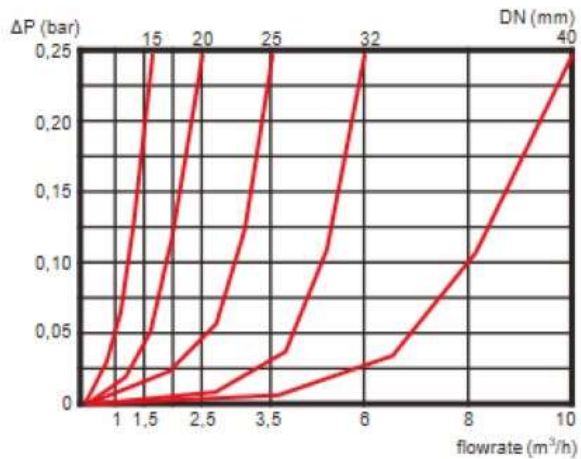
US2 - DN20



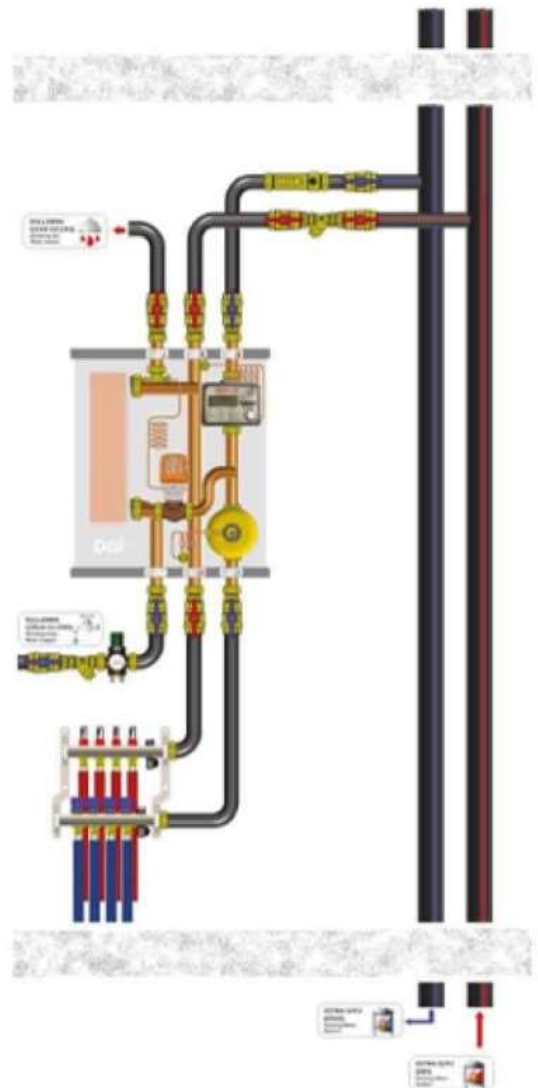
US7 - DN65

TECHNICAL DATA

Heat Meter Pressure Loss Curves



MATTERS TO BE CONSIDERED IN HEAT METER INSTALLATION



- » Can be mounted vertical or horizontal. The water meter shall not mounted inclined.
- » Pipe line and water meter have to be clean before the installation. Also, the pipe line shall not have any air while the water flow through.
- » The heat meter shall be mounted on the return pipe, if any other instruction is not given. Temperature sensor must be connected and sealed
- » While mounting the heat meter to the pipe line, the arrow on the heat meter and water flow shall be in the same direction.
"Spherical valves shall be used in input and output of the heat meter. Heat meters shall be mounted with end connections.

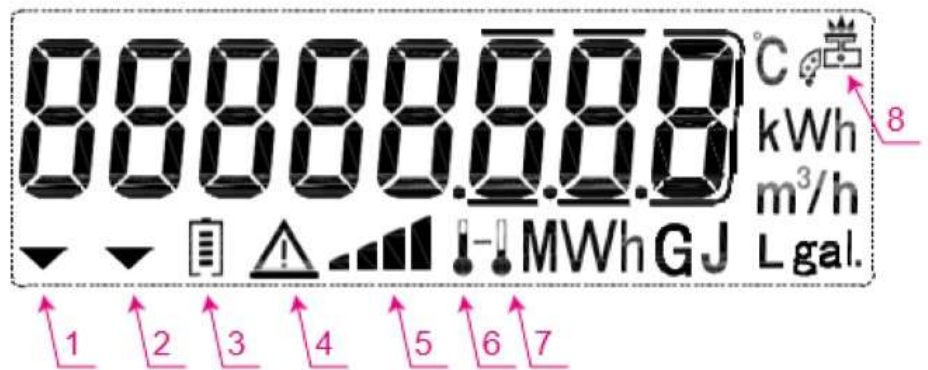
Wide range of products with heating, cooling and heating/cooling measurement options to meet your needs diameter from DN15 to DN200.

DISPLAY INFORMATION



- ▶ BAYLAN US heat meters have easily readable LCD screen, including 8 digits, measuring units and information screen.
- ▶ The display automatically returns to LCD sleep mode 10 minutes after the last pushing on the button.

- ▶ Users may press the button to read the meter information such as Accumulated volume, current flow rate, water temperature, etc.



- ▶ The following information is displayed in order by short pressing on the button: Temperature in, Temperature out, Temperature difference, instant flow rate, Cumulative flow volume, instant heat power, cumulative heat consumption, date, time, continuous working time, meter ID, software ID, type ID, M-bus address, etc.

No.	Icon	Name	Meaning
1	▼	Calibration Mode	During Calibration
2	▼	Reserved	Reserved
3	🔋	Low Battery Warning	User is reminded to replace the battery with a new one
4	⚠️	Error	Error Warnings
5	📶	Signal	Signal Quality
6	🌡️	Inlet temperature	Water temperature in inlet pipe
7	🌡️	Outlet temperature	Water temperature in outlet pipe
8	🏠	Air Warning	Air Warning if there is air in the pipe line

M-BUS SYSTEM

M-Bus is a standard protocol for reading the meters by cable.

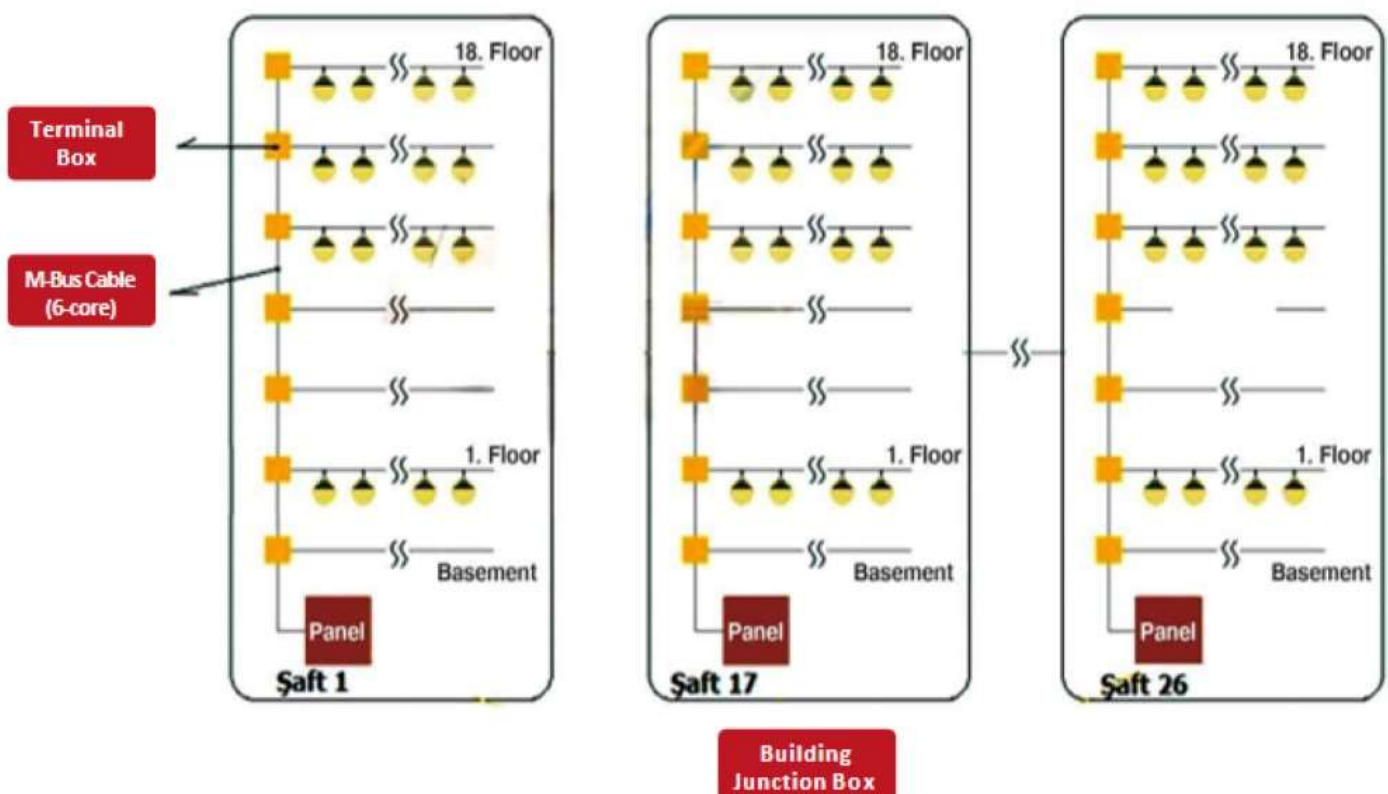
The water meters with M-bus interfaces give us the opportunity to monitor the meters with two-core cable through the central reading panel.

The main features of M-Bus reading system are as follows;

- ▶ It is a standard system and a common protocol.
- ▶ Implementation and using the protocol is easy.
- ▶ Central reading panel system is supplied between 38.5V-40 V.
- ▶ Easy to use with the 2x0,75 wire phone cord. (6x0,75 cable is preferable in standard cases) The main reason for this; 2 wires for heat meters, 2 wires for hot water meters and 2 wires for replacement. 6x0.75 mm wire unshielded cable must be used. Shielded cables are not preferable because they lower the signal strength.
- ▶ M-Bus cable should be far away from the power line. Cable transportation order due to the weak current signal must pass from the shaft or distribution line. Main cable in the boiler room should contact the large diameter calorimeter and then it distributes to the other terminals. The form of the distribution line should be a type of tree branch. It shouldn't circulate an area as a ring type.

The length of M-Bus cables of the heat meter shall be 50cm and it shall be placed to the junction boxes as shown below.

SAMPLE CONNECTION DIAGRAM



COMPACT DESIGN

Flowmeter, calculator and temperature sensor pair calibrated together and these heat meters are described as complete heat meter.

Mounting of the heat meters in the field are easy owing to its compact design.

Reading of the heat meters are relatively simple due to its detachable electronic housing. Electronics housing can be positioned parallel and perpendicular to the water flow.



READING PROGRAM



- ▶ It is possible to read the heat meters with Wireless M-Bus and M-Bus systems
- ▶ The opportunity of sorting and grouping according to details.
- ▶ It is possible to read the most common heat meters in the field.
- ▶ Saving as Excel.
- ▶ Working with different Baud-Rates.
- ▶ Automatic port recognition.
- ▶ Reading according to the customer list.
- ▶ Searching the heat meters.

EXPENSE SHARING SOFTWARE

- ▶ Owing to web-based interface, it is possible to use independent from the computer.
- ▶ Enduring Back-up
- ▶ The software contains sharing the expenses of systems such as central heating and heating with hot water plumbing according to the related regulations.
- ▶ Automatic comparison system
- ▶ Preparing expenses feed back for each customer as PDF.
- ▶ Preparing administrator summary.
- ▶ Automatically applying the 15 °C condition.
- ▶ It contains distribution of expense feed backs via SMS and e-mail is optional.

Easy Expense Sharing.
My Caldeplas.com is energy consuming in buildings quickly and accurately data collected automatically modules. Fast, reliable and easy.

[Learn more >](#)

- Reading**
Reading program meter value with the rapid and accurate collection is provided.
- Transfer**
Collecting meter data collected by program control is transferred accurately.
- Backup**
All data are entered into the system stored as backup. Your data is always secure.
- Cost Sharing**
Sharing is quick and easy to make. Automatically checked for errors.
- Billing**
Each will be billed a one touch sharing.
- Analysis**
The collected data can be analyzed. Automatically prepare graphs of usage details.
- User Pages**
Users belonging to current and past month are graphical user interface and have access to the details.
- Invoice Distribution**
Created invoices are distributed to users via email. Also be downloaded from the user.
- Short Message Service**
Billing information is automatically sent as text messages to each user.

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