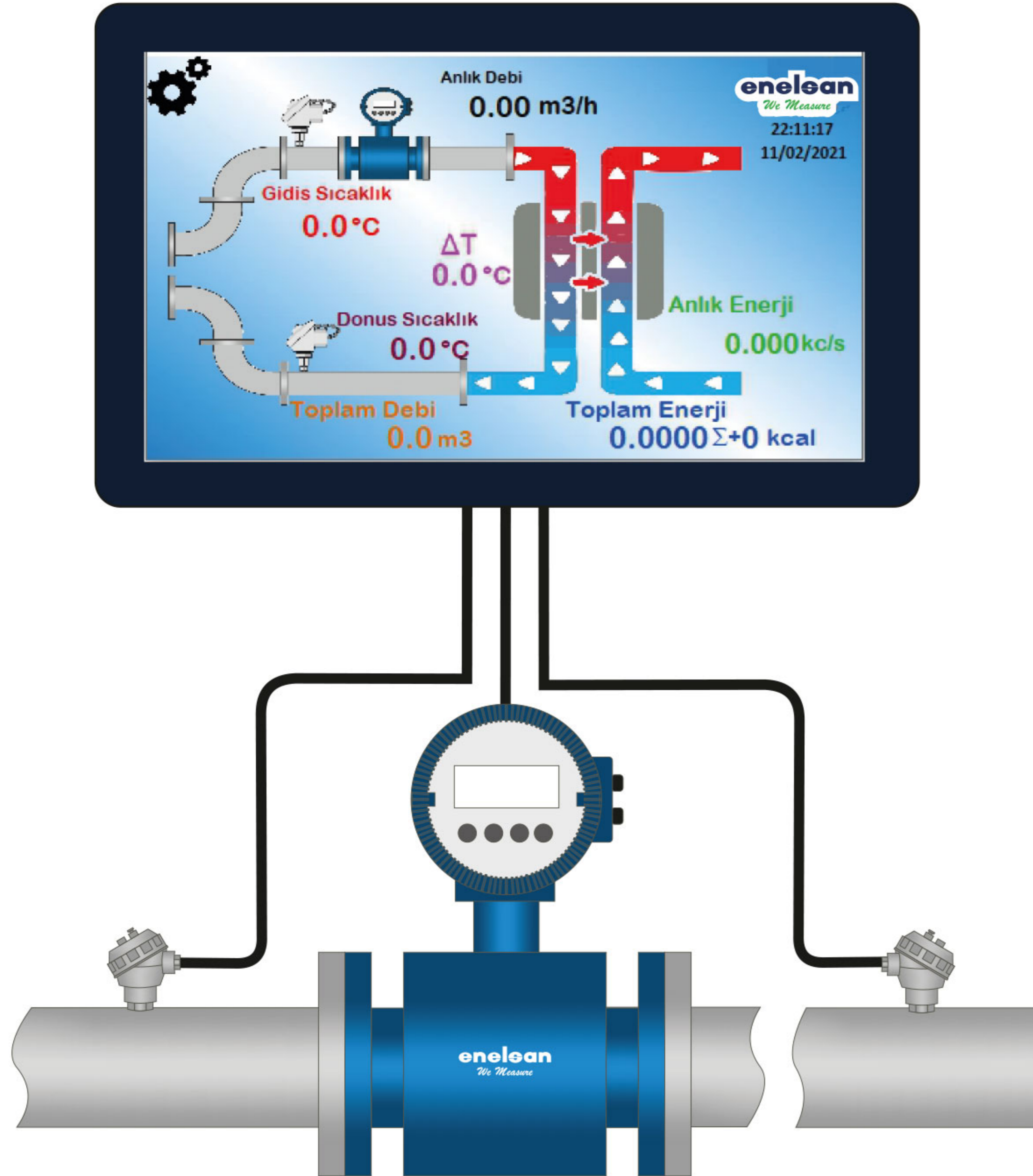


enelean

We Measure



FLOWMETER & CALORIMETER

Calorimeters are devices used to measure the energy consumed in heating and cooling systems. It calculates the difference between two temperature measuring sensors by measuring the flow and return line temperatures.

At the same time, it measures the amount of water (m³/h) passing through the installation with an electromagnetic flowmeter.

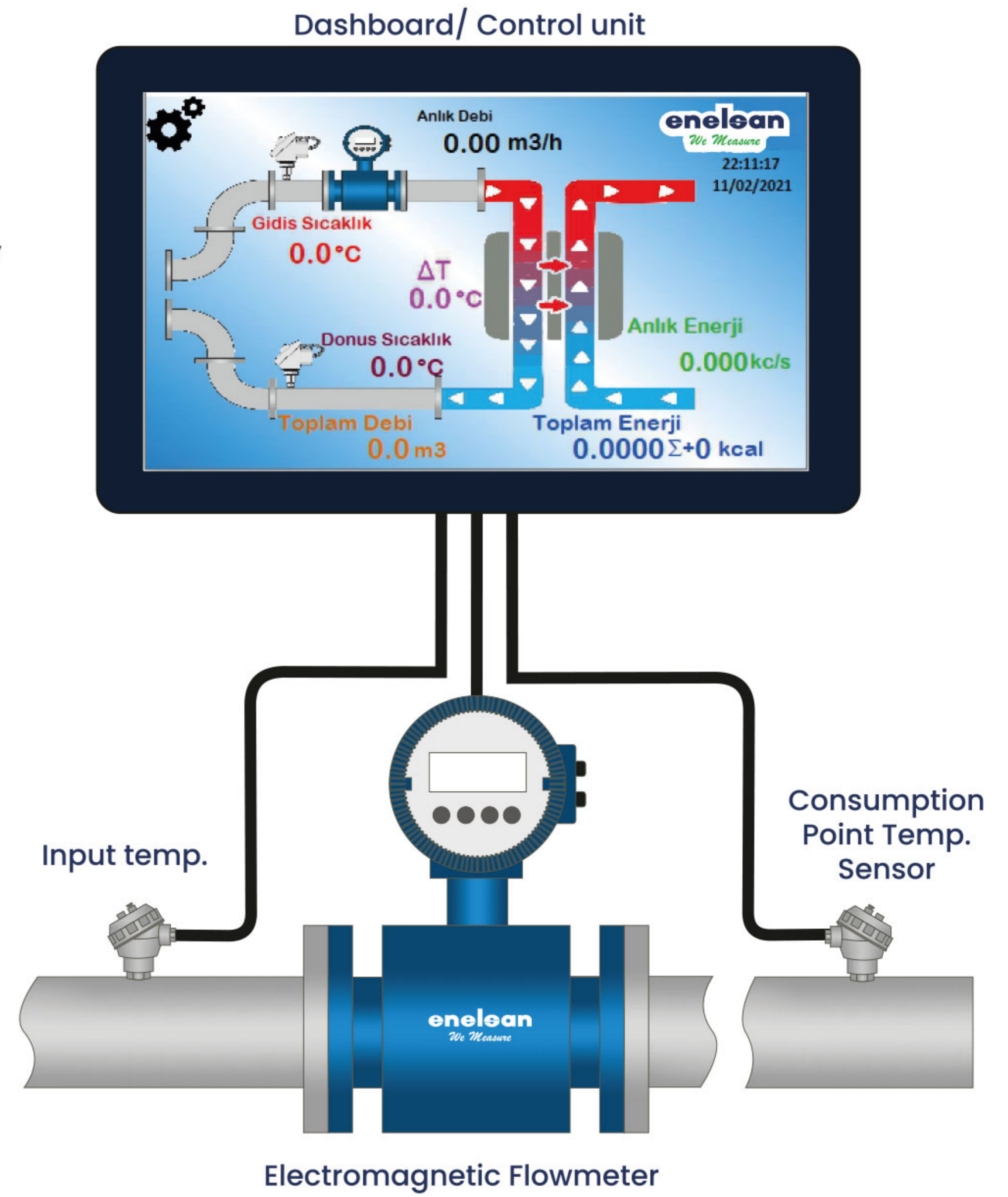
In order to provide high sensitivity and accuracy in calorie measurement, electromagnetic flowmeter and temperature measurement with PT100 temperature sensor are used.

The main unit calculates calories by calculating the energy difference between the temperature sensors according to the flow rate it receives and the temperature difference between the 2 temperature sensors. The system outputs this information in the desired communication protocol via Rs232, Rs485 and Ethernet outputs.

Electromagnetic flowmeter calorimeter displays all measured values on the screen of flow temperature, return temperature and flow rate and sends it to the communication unit.

It allows retrospective reporting by storing these values in its memory.

CONTROL UNIT	
IP67 Protection Class	
Dimensions 200mm. X 309mm. X 167mm.	
4.3" TFT LCD Touch Screen	
Usb Connection	
Ethernet Communication	
1xRS232 Communication port / Optional: RS485	
32Bit RISC Cortex-A8 600MHz Processor	
2x Universal Output	
2x Universal Input	
(Frequency, Thermo Element, 4-20mA, 0-10V)	
Sampling frequency: 100 ms	
Mathematical Calculation feature	
Free Tuning Software	
Input or Output Adjustable via Software	



Calories can be calculated in the following units.

Giga Joule (GJ)

Kwh

Kilocalories (KC)

BTU

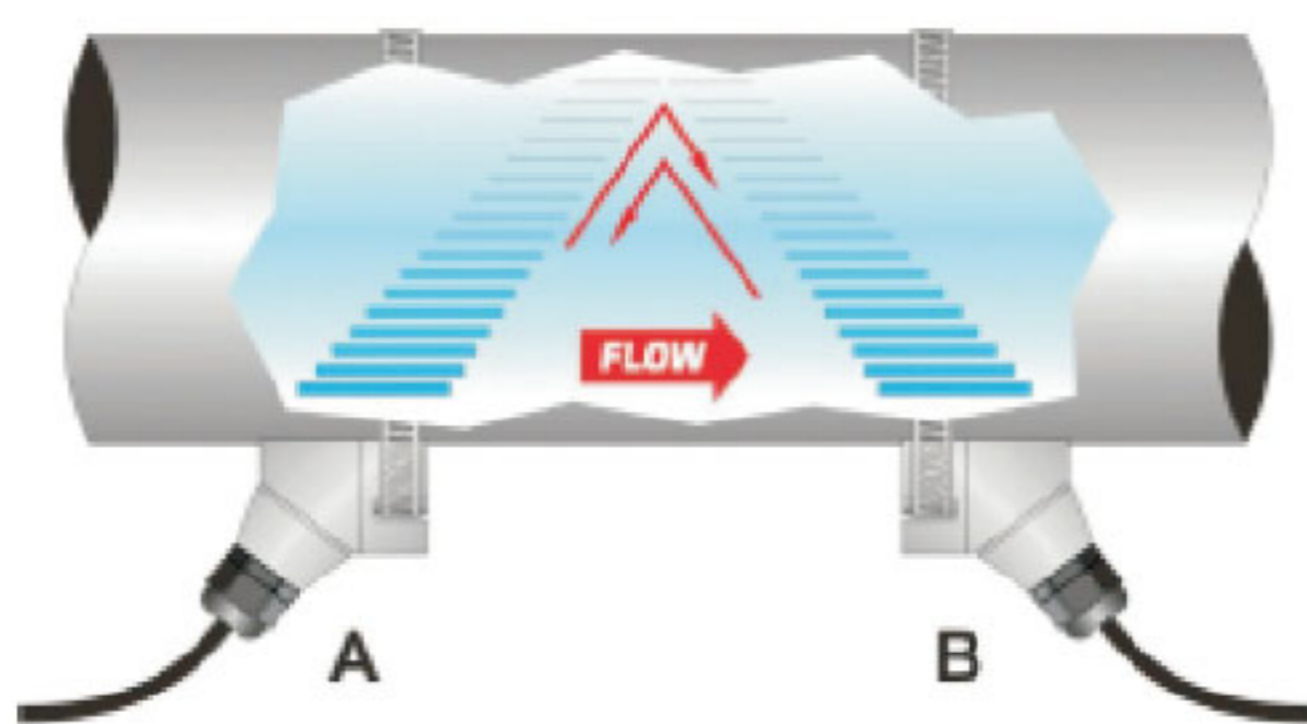
Flowmeter Technical Specifications

Measuring Range	0.3 m/sn ... 15 m/sn
Measuring Range	İletken Sıvılar
Fluids	ST37 Siyah Çelik+ Korozyona Dayanıklı Boya
Body Material	SS316l Ops: SS304, HastelloyC, HastelloyB, Titanyum, Tantalum, Platin
Inner Covering	Teflon (PTFE) veya Sert Kauçuk (Rubber)
Precision	%0.5 veya %0.25 (Türkak Akredite)
Temperature	-10°C 60°C Kauçuk /-20°C ... + 150°C Teflon
Humidity	%5-%95
Measureable Min. Conductivity	20 µs/ cm Su / Opsiyonel 5 µs/ cm
Connection	Flanş Bağlantı, Ops: Clamb Bağlantı
Pressure	4MPa, 1.6MPa, 1.0 MPa
Power Supply	85 -265 VAC 50 Hz veya 24VDC, Ops. Pili
Grounding	Topraklama Elektrodu Dahil
Output	Pulse / Frekans / 4-20Ma / RS485 Modbus 12 X Transistor Alarm (Programlanabilir) / Ops. HART
Indicator	Anlık veya Toplam Debi Göstergen 3x16 Arkadan Aydınlatmalı LCD
Alarms	Boş Boru, Sensör Hatası, Limit Aşımı, Cut Off
Reporting	Günlük, Haftalık, Aylık ve Yıllık toplam debi (negatif/pozitif/net)
Sampling Speed	0.2 sn'den 100 sn'ye kadar seçilebilir.
Protection Class	IP67/ ops. IP68

FLOWMETER & CALORIMETER

Flowmeter / Calorimeter works by transmitting the high frequency sound at a certain angle in the pipe and detecting the reflected signal with the receiver sensor. When there is no flow, there is a difference between the time it takes for this signal to be generated and returned, and the time spent with the translation of the signals depending on the flow rate in the pipe.

The system calculates the velocity of the fluid by calculating this difference. For this reason, this working principle is called transit time.



In this system, two signal generator sensors and two signal detecting sensors are connected to the main unit. According to the pipe information entered in the main unit, the installation distance is determined by the main unit and notified to the user, and the sensor is mounted according to this information.

The information entered in the main unit is pipe type, fluid type, pipe diameter and wall thickness. According to this information, the required distance between 2 sensors is calculated by the main unit. After installation, the correct signal strength can be monitored by the main unit, and the main unit helps to fine-tune the signal quality to be the most accurate.

The system calculates the flow rate with the help of these sensors and calculates the calories by using the temperature difference between the temperature sensors. Temperature sensors are placed at 2 points where the energy difference is desired to be calculated.

In general, in cooling or heating systems, one of the temperature sensors is placed at the beginning of the input unit and the other sensor is placed at the end of the collection or output unit, and is used to calculate the entire energy consumed in the system.

Apart from this, the energy consumption of a single machine, the energy consumption of the heating system, etc. This system is also used for the purpose of calculating the calories of these regions only by placing temperature sensors at the entrance and exit of the points to be calculated within the applications.

In calorie measurement, the flow measurement method working on the ultrasonic principle and temperature measurement with the PT100 temperature sensor are used. The flow rate of the main unit and

According to the temperature difference between the 2 temperature sensors, it calculates the energy difference between the temperature sensors and calculates calories.

Ultrasonic calorie measurement system can calculate calories in the following units.

Giga Joule (GJ)

Kilocalories (KC)

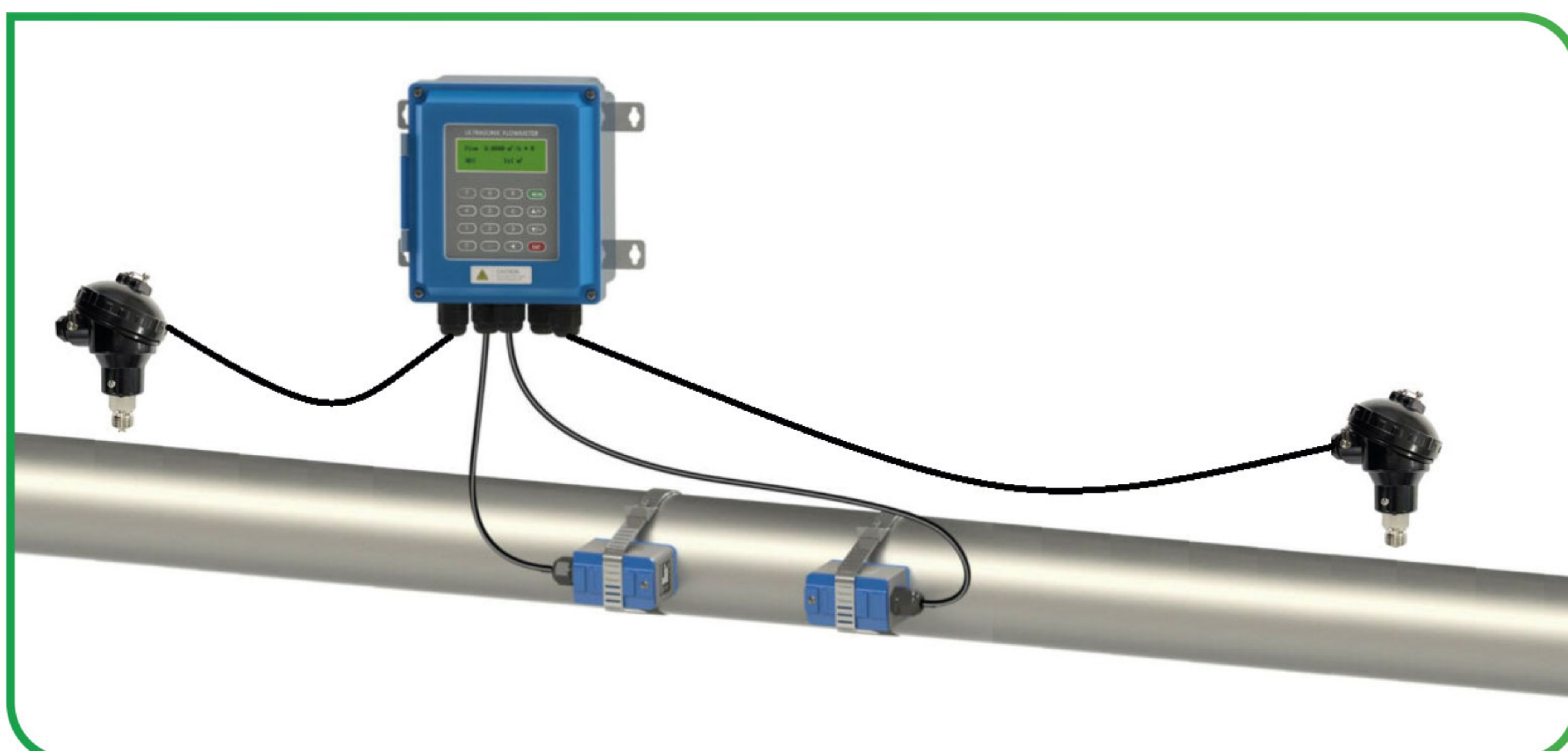
Kwh

BTU

The basic parts of the system consist of flow measurement sensors that allow measurement from outside the pipe, produce high-frequency sound and detect the return of this signal, temperature sensors that detect the inlet and outlet temperatures with high sensitivity and transmit them to the main unit, and the main unit that performs all calculations and operations according to the information it receives.

The main unit measures the inlet and outlet temperature. It calculates calories by calculating the energy difference between these 2 points with the flow measurement made using this temperature difference.

The system transfers this information to Modbus-Profibus converter via RS485Modbus output and calorie information is transferred as Profibus.



FLOWMETER & CALORIMETER

UYGULAMA VE REFERANS ÖRNEKLERİ



This system is a reliable and sensitive solution that has been used in the market for many years by us. Measurement accuracy is ISO17025 certified.

It has been proven in our TÜRKAK accredited laboratories. TÜRKAK accredited calibration certificate is provided with the supplied products.

