

SYSTEM-20 BTU METER

Chilled Water • Hot Water • Condenser Water

Selection & Ordering Guide



ONICON's System-20 BTU Meter accurately measures thermal energy, flow and temperature. The versatile design can be used with a variety of flow meter and temperature sensor options allowing you to match accuracy and performance requirements to your application.

The System-20 must be connected to a flow meter and a pair of temperature sensors to calculate thermal energy. ONICON offers a variety of temperature sensor and flow meter options for use with the System-20. Please do not hesitate to contact ONICON or your local representative for assistance in selection the products that best meet your needs.



SELECTING THE RIGHT TEMPERATURE SENSORS

The following information is presented to help you choose the right temperature sensors for your application.

ONICON offers two types of temperature sensors for use with the System-20. Current based solid state sensors are recommended for all applications up to 200° F. 4-wire Platinum RTDs are recommended for applications that exceed 200° F. Both sensor types offer outstanding accuracy and reliability.

ONICON also offers a wide variety of thermowell installation hardware kits for use with our sensors.

Solid State Sensors with 0-20 mA Output –

- Bath calibrated sensors with certificate of calibration
- Paired to maximize differential accuracy
- Current based output is ideal for HVAC environments and allows for lead lengths of > 500 ft.
- 32 – 200° F operating range
- $\pm 0.15^\circ$ F differential accuracy

4-wire Platinum RTD Sensors –

- Bath calibrated sensors with certificate of calibration
- Paired to maximize differential accuracy
- 4-wire resistance measurement allows for variable lead lengths ≥ 450 ft.
- 32 – 302° F operating range
- $\pm 0.18^\circ$ F differential accuracy

ONICON also offers a wide variety of thermowell installation hardware kits for use with our sensors.



SELECTING THE RIGHT FLOW METER



The following information is presented to help you choose the right flow meter for your application

What type of hydronic system do you need to measure?

The type of system may limit your choice of meter.

- Compare the fluid temperature and pressure with the operating limits of the meter.
- Make sure the flow meter recommended for use with the fluid and pipe material.

Do you need an inline or insertion style meter?

Inline flow meters are often used in smaller pipes. Insertion meters may be a better value in larger pipes.

- Small inline meters often use threaded connections. Larger inline meters use flanged connections.
- Insertion meters can be installed and serviced while the pipes are pressurized.

How much straight unobstructed pipe is there at the installation site?

- Always check the straight run requirements for the meter and compare them to the available straight run.

Electromagnetic Flow Meters –

- Excellent accuracy over a wide operating range
- Very good low flow performance
- Low maintenance design

Ultrasonic Flow Meters –

- Excellent accuracy over a wide operating range
- Very good low flow performance
- Low maintenance design

Turbine Flow Meters –

- Good accuracy over a wide operating range
- Good low flow performance
- Good value

Vortex Flow Meters –

- Ideal for high temperature applications
- Low maintenance design

Model	Sensor Technology	Meter Style	Pipe or Meter size range	Velocity Range	Temp Range (°F)	Accuracy % of reading
F-3500	Electromagnetic	Insertion	1¼ – 72"	0.1 – 20	32 – 250	1%
F-3100	Electromagnetic	Inline	¼ – 48"	0.1 – 33	4 – 302	0.4%
F-3200	Electromagnetic	Inline	¼ – 48"	0.1 – 33	4 – 302	0.2%
F-1100	Turbine	Insertion	1¼ – 72"	0.17 – 30	32 – 300	1%
F-1200	Turbine	Insertion	2½ – 72"	0.17 – 30	32 – 300	1%
F-1300	Turbine	Inline	¾ – 1"	0.17 – 30	32 – 300	1%
F-4600	Ultrasonic	Inline	½ – 2½"	0.025 – 12.5	32 – 250	1%
F-4200	Ultrasonic	Clamp-on	½ – 48"	0.1 – 40	-40 – 446	1%
F-2600	Vortex	Inline	½ – 12"	1 – 30	-330 – 750	0.7%

ORDERING INFORMATION

The System-20 BTU Meter is used in conjunction with a flow meter and a pair of temperature sensors.

The ordering information below includes the System-20, temperature sensors and thermowell installation kits. Contact ONICON or your local representative for flow meter ordering information.

METER ORDERING INFORMATION

Meter Model Number Coding = SYS-20-ABCD-EFGG-HHH

A = Electronics Enclosure

1 = NEMA 12 K

B = Input Power

1 = 24 V AC/DC - 24 VA

C = Serial Communications

1 = RS485, BACnet or MODBUS

D = Analog Output

1 = Single 4-20 mA analog output, user programmable

EF = Auxiliary Pulse I/O

11 = Three (3) pulse inputs, and three (3) pulse outputs, user configurable

GG = Temperature Sensor Options

01 = Includes CHW pair of matched current based (mA) temp. sensors

02 = Includes HW pair of matched current based (mA) temp. sensors

03 = Includes CW pair of matched current based (mA) temp. sensors

R2 = Includes pair of matched 4 wire RTDs, 0.5" to 2.5" line size, 32 to 250° F

R3 = Includes pair of matched 4 wire RTDs, 3" to 24" line size, 32 to 250° F

HHH = Special Configurations

Dry Tap Installation Kits for Current Based Temperature Sensors		
Item #	Pipe Material / Mounting	Description
INSTL32-BTU-DT	Steel / Welded	Brass kit for welded steel pipe (¾ - 5")
INSTL34-BTU-DT	Steel / Welded	SS kit for welded steel pipe (¾" and up)
INSTL52-BTU-DT	Steel / Threaded	Brass kit for threaded steel pipe (¾ - 2½")
INSTL53-BTU-DT	Steel / Threaded	SS kit for threaded steel pipe (¾ - 2½")
INSTL83-BTU-DT	Copper Tees	SS kit for copper tube w/tees (¾ - 2")
INSTL86-BTU-DT	Copper Tees	SS kit for copper tube w/tees (2½ - 3")
INSTL87-BTU-DT	Copper Tees	SS kit for copper tube w/tees (4")
Contact ONICON or your local representative for other installation kit options		

Dry Tap Installation Kits for RTD Temperature Sensors		
Item #	Pipe Material / Mounting	Description
INSTL4001-BTU-DT	Steel / Threaded	Brass kit for threaded steel pipe (½ - 1")
INSTL4005-BTU-DT	Steel / Welded	Brass kit for welded steel pipe (¾ - 2½")
INSTL4021-BTU-DT	Steel / Welded	SS kit for welded steel pipe (3 - 24")
Contact ONICON or your local representative for other installation kit options		