M5413x Line Powered BTU Meters

Features

- The H2O Degree M5413x is an economical wireless BTU meter and flow sensor that is highly accurate.
- The M5413x provides a radio interface to remotely collect BTU consumption by measuring inlet temperature, outlet temperature and flow rate. A BTU is defined as the amount of energy used to raise the temperature of one pound of water by one degree Fahrenheit.
- Both the inlet temperature and outlet temperature is measured using a PT1000 thermistor. The difference between the two values is computed using a microprocessor.
- Water flow is measured using a vortex flow sensor with no moving parts.
- Radio is compatible with the H2O Degree secure wireless 2.4 GHz mesh network.
- By using a magnet, the installer can force a radio transmission and receive a LED sequence feedback on radio connectivity in real-time for ease and validation of commissioning.
- Type of packet reported:
  - Data Packet (60 minute interval default).
  - Health Packet (120 minute interval default).
- Non-volatile memory maintains last reading in the event of a power failure.
- Approvals:
  - US Complies with FCC CFR Part 15
  - European RADIO EN 300 328:v1.7.1
  - European EMC EN 301 489-17:V2.1.1
  - European SAFETY EN 60950-1:2005 (Ed. 2.0)
- Input voltage 24 volt AC. Current input 45 mA typical, 250 mA maximum.
- Operating temperature 32 Degrees F to 86 Degrees F.
- Flow Rates:
  - V1000 - 0.5-10 gpm 1/2”
  - V1001 - 2-40 gpm 1”
  - V1002 - 1.3-21 gpm 3/4”
- Pulse output: PA1 pulse output - Positive (heating) therms, PA2 pulse output - Negative (cooling) therms.
- Five year warranty.

Overview

The H2O Degree M5413x BTU meter is a BTU meter and flow sensor that monitors and records two temperatures, the temperature difference and the flow rate in order to determine BTU consumption.

The M5413x BTU meter can operate as part of a radio network or stand alone. In stand alone mode there are two pulse outputs. The two dry contact pulse outputs are; one for positive (heating) and one for negative (cooling) therms.

Applications include:

- New or retrofit installation
- Fan Coils - Water type hot, chilled or both
- Hydronic baseboard fin tube heating

NOTES:
1. BTU kits do not include a 24 VAC power supply. Order PS1005 for a 120 VAC wall plug to 24 VAC power supply.
2. BTU kits do not include a brass female TEE with a 1/2” female port for the RTD1003 outlet temperature sensor.
3. BTU kits do not include any hoses or plumbing connectors.

Ordering Information

Model	Description
M54131-KIT	BTU kit includes BTU meter w/pulse output, V1000 1/2” flow sensor, CA1015 cable flow sensor to BTU meter, RTD1003 outlet temperature sensor, CA1016 cable temp sensor to BTU meter and CA1006 24 VAC pwer cable
M54132-KIT	BTU kit includes BTU meter w/pulse output, V1001 1” flow sensor, CA1015 cable flow sensor to BTU meter, RTD1003 outlet temperature sensor, CA1016 cable temp sensor to BTU meter and CA1006 24 VAC power cable
M54133-KIT	BTU kit includes BTU meter w/pulse output, V1002 3/4” flow sensor, CA1015 cable flow sensor to BTU meter, RTD1003 outlet temperature sensor, CA1016 cable temp sensor to BTU meter and CA1006 24 VAC power cable
PS1005	120 VAC to 24 VAC Wall Plug power supply (required)

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Technical Specifications

Electrical
Voltage input 24 volt AC
Current input 45 milli-amps typical, 250 milli-amp max

Regulatory approvals
US Complies with FCC CFR Part 15
European RADIO EN 300 328:v1.7.1
European EMC EN 301 489-17:V2.1.1
European SAFETY EN 60950-1:2005 (Ed. 2.0)

Radio
20 dBm output power
High sensitivity -106 dBm
16 channels (802.15.4 Channel 11 to 26)
Data rate 250 kilo bytes per second
2.4 GHz ISM band

Environmental
Operating temperature 0 to 30 degree C
Storage temperature -25 to 50 degrees C

Flow and inlet temperature sensor
V1000—Flow Rate 0.5-10 gpm 1/2”
V1001—Flow Rate 2-40 gpm 1”
V1002—Flow Rate 1.3-21 gpm 3/4”
Flow sensor temperature sensor PT1000

Outlet Temperature Sensor
Temperature sensor at the outlet PT1000

Installation Indicators
Hall cell used with magnet to test successful radio connection
Two LEDs (green and red) to indicate successful radio connection

Physical
(H x W x D) 1.5 x3.2 x 5.3 inch, Color black
Weight / shipping weight < 10 oz. / 1 lbs.. Shipping restrictions

Technical Specifications