



# M5413x BTU Meters

## Line Powered

### 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 data 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.
- Pulse Output: PA1 pulse output—Positive (heating) therms, PA2 pulse output—Negative (cooling) therms.
- RS-485 Modbus RTU Communications: Gallons, positive (heating) therms, Negative (cooling therms, Inlet temperature, Outlet temperature, Pulse count, million gallon count.
- Two 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 types of output; pulse output (dry contact) and Modbus RS-485 output.

### Applications

- New or Retrofit Installation
- Fan Coils-Water Type Hot, Chilled or both
- Hydronic base board fin tube heating

## Ordering Information

Model	Description
M54131	1/2" BTU Meter, flow sensor and radio (requires 120 VAC to 24 VAC power supply)
M54132	1" BTU Meter (For Use with V1001 1" sensor)
M54133	3/4" BTU Meter (For use with V1002 3/4" sensor)
RTD1004	1/2" NPT Temperature Probe with 24" cable with strain relief
PS-1005	120 VAC to 24 VAC power supply
V1000	1/2" Vortex flow sensor 8-30 Volt
V1001	1" Vortex flow sensor 8-30 Volt
V1002	3/4" Vortex flow sensor
CA1015	Vortex cable with RJ-45 Connector

4/2017

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## Technical Specifications

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#### 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

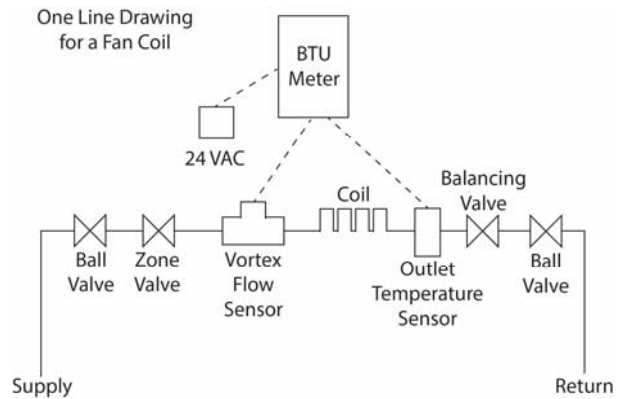
Two LEDs (green and red) to indicate successful radio connection

#### 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

### Typical Wiring & Installation Information



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