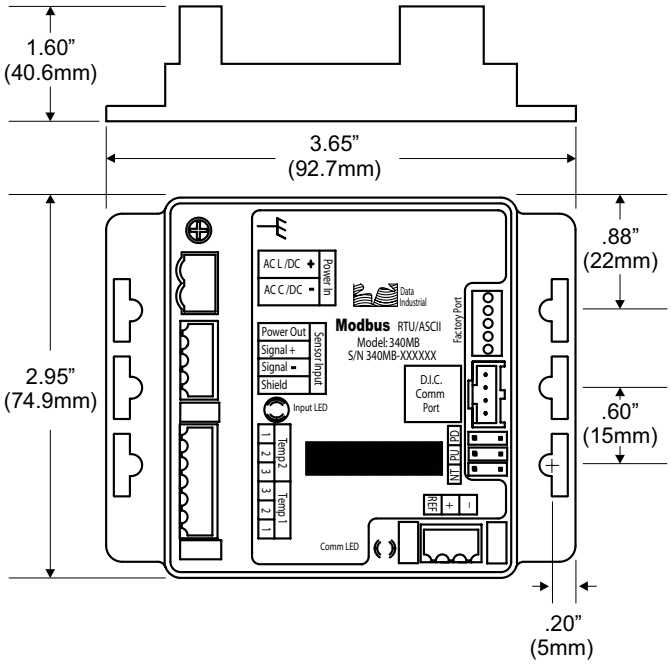
Model 340MB	Modbus Energy Transmitter	**Technical Brief**

The Badger Meter Model 340MB Btu Transmitter is an economical, compact device for sub-metering applications that utilize the Modbus communications protocol.

The Model 340MB calculates thermal energy using the signal from a flow sensor installed in a hydronic heating or chilled water system, and the signals from two 10kΩ temperature thermistors or 100Ω RTD's installed in the system's inlet and outlet points. The flow input may be provided by any Badger Meter sensor and many other pulse or sine wave signal flow sensors.

The onboard microcontroller and digital circuitry provide precise measurements and produce accurate, drift-free outputs. The Model 340MB is programmed using Badger Meter Windows® based software. Calibration information for the flow sensor type and pipe size may be preselected or entered by the user in the field. While the unit is connected to a PC or laptop computer, real-time flow rate, flow total, temperatures, energy rate, and energy total are available.



	EXAMPLE:	340MB	-	xx
SERIES				
Btu Transmitter w/ Modbus output		340MB		
OPTIONS				
Transmitter Only				00
W / Metal Enclosure				02
W / Plastic Enclosure				03
W / DIN Rail Mounting Clips				04

Series 340MB Ordering Matrix

The Model 340MB transmitter features 2 LED's to verify sensor input signal and network link.

The Model 340MB communicate via RS485.

The compact cast body measures 3.65" (93mm) x 2.95" (75mm) and can be easily mounted on panels, DIN rails or enclosures.

SPECIFICATIONS

Power

Power supply options:
- 12-24 VAC rms
- 12-24 VDC

Current draw:
- < 70mA @ 12 VDC

Flow Sensor Input

Pulse type sensors:
- Signal amplitude:
  - 2.5 VDC threshold
- Signal limits:
  - Vin < 35V (DC or AC peak)
- Frequency:
  - 0-10kHz
- Pull-up:
  - 15 VDC @ 2 kΩ Source Impedance

Sine wave sensors:
- Signal amplitude:
  - 30 mV p-p threshold
- Signal limits:
  - Vin < 35V (DC or AC peak)
- Frequency:
  - 0-10kHz

Power out terminal
- Excitation voltage 3 wire sensors:
  - 15 VDC @ 500Ω Source Impedance

Temperature Sensor Input

2 required:
- 10 kΩ thermistor, 2 wire, type II, 10 kΩ @ 25°C
- 100Ω platinum RTD, DIN calibration curve conforms to IEC-751 Standard
- 1000Ω platinum RTD, DIN calibration curve, conforms to IEC-751 Standard

calibration range 0-150°C

Communication Port

RS-485 with termination, pull-up and pull-down jumpers

Operating Temperature

0° C to +70° C
32° F to +158° F

Storage Temperature

-40° C to +85° C
-40° F to +185° F

Weight

4.8 oz. with connector headers installed

SENSOR CALIBRATION

Badger Meter

Use K and Offset provided in sensor owner's manual

Other Sensors

Check with factory

UNITS OF MEASURE

Flow measurement

Rate:
- gpm, gph, l/sec, l/min, l/hr, ft3/sec, ft3/min, ft3/hr, m3/sec, m3/min, m3/hr

Total:
- gallons, liters, cubic feet, cubic meters

Energy measurement

Rate
- kBtu/min, kBtu/hr, kW, MW, hp, tons

Total
- Btu, kBtu, MBtu, kWh, MWh, kJ, MJ

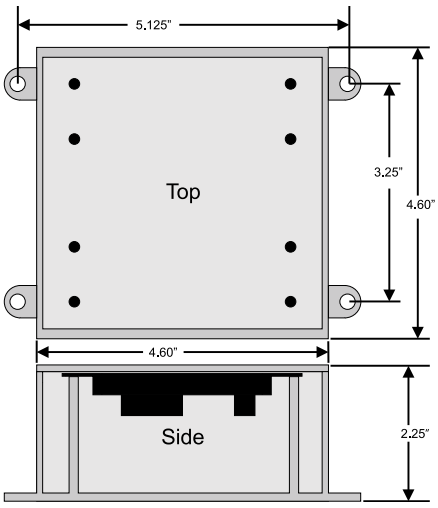
Temperature Units

Fahrenheit, Centigrade

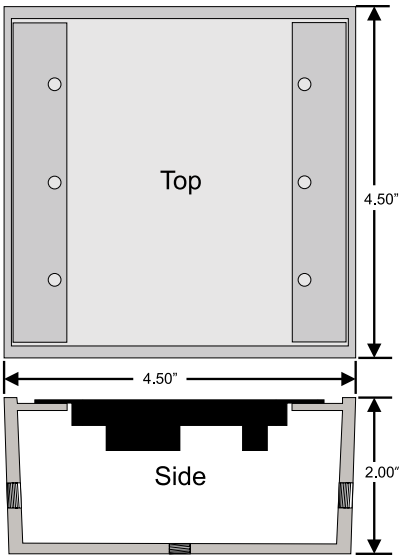
PROGRAMMING

Requires PC or laptop running Windows® 2000, XP

Badger Meter Model A-340BN programming kit containing software and Model A301 programming cable is required for programming and setup



Plastic Enclosure Dimensions



Metal Enclosure Dimensions

Data Industrial®

Please see our website at **www.dataindustrial.com** for specific contacts.

Due to continuous research, product improvements and enhancements, Badger Meter reserves the right to change product or system specifications without notice, except to the extent an outstanding contractual obligation exists.

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