Impeller Meters	350 Series	Technical Brief

350 Series Wireless System
The Badger® 350 Series Wireless System consists of the 350T RF transmitter and the 350R RF receiver. These devices are serialized to each other and transmit and receive updated data every four seconds. The 350T is a potted, battery powered radio transmitter. This transmitter can be placed in below grade applications and is intended for outdoor use. The 350R requires 12-24VAC or VDC and needs to be installed in an indoor location or weatherproof enclosure.

This system is designed to collect scaled pulse information from Badger Meter flow products or other instrumentation with a pulse output that can be scaled to be compatible with the 350T. Once collected, this data is transmitted every four seconds to the serialized 350R. This device then reproduces the scaled pulse output and then sends it out to an appropriate collection device via an open collector output.

350T Wireless Transmitter
The Badger® 350T is a battery powered radio transmitter that will receive scaled pulses from an open collector output device. These pulses must be between 30mS and 70mS pulse width and the maximum frequency input must be less than 3HZ. The pulses within the 350 system are unitless as they are simply counted and passed on. The 350T has a red and black wire (10' in length) to allow a two wire connection to pulse output devices.

350R Wireless Receiver
The Badger® 350R is a radio receiver that is serialized to one 350T. Once powered, the receiver will collect the 350T transmissions every four seconds. An led is onboard the unit to indicate that these receptions are occurring. This is a good diagnostic tool to ensure the 350T and 350R are within range of each other. The 350R requires an external antenna. A coax connector is standard on the 350R.

Example uses and connections
To make the connections between the Badger® 350T and a pulse output device, the two wires (Red + and Black -) need to be connected to the output devices positive (+) and negative (-) terminals. The input to the 350T must meet the requirements mentioned above.

An example of a suitable pulse output device would be the Badger® Model 320 Pulse Transmitter. This device will make any non-battery powered Badger Meter Impeller Flow Sensor directly compatible with the 350 system.

Model 350T

Model 350R

For connection to a Badger® Model 320 Programmable Scaled Pulse Output Transmitter
The Red wire from the 350T connects to the Pulse Out + of the 320
The Black wire from the 350T connects to the Pulse Out – of the 320

In the PC Programming Software for the 320 the "Pulse Width (ms)" in the "Pulse Output Control" section of the parameters needs to be set to 50. The "1 Pulse =" needs to be setup so that the output does not over range the 350T. To make sure of this the following should be used based on pipe size:

< 3" = 1
3" to 6" = 10
8" to 18" = 100
20" to 36" = 1000

Another connection example of the 350 system would be using it with the Badger Meter Battery Powered SDI Flow Sensor.

For connection to a Badger® Battery SDI Sensor
The Red wire from the 350T connects to the Red wire from the pulse out of the Battery SDI
The Black wire from the 350T connects to the Black wire from the pulse out of the Battery SDI

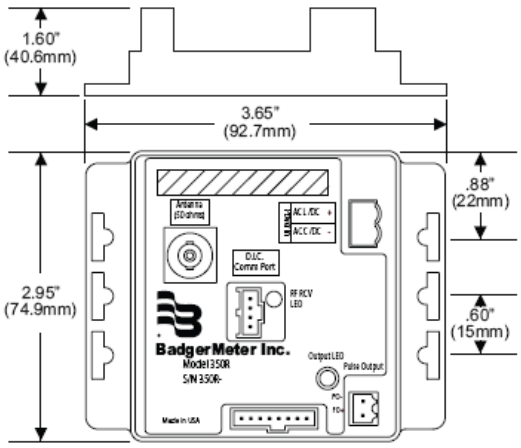
In the Programming Software for the Battery SDI the "Pulse Width (ms)" in the "Pulse Output Control" section of the parameters needs to be set to 50. The "1 Pulse =" needs to be setup so that the output does not over range the 350T. To make sure of this the following should be used based on pipe size:

< 5" = 100
5" to 14" = 1000
> 16" = 10000

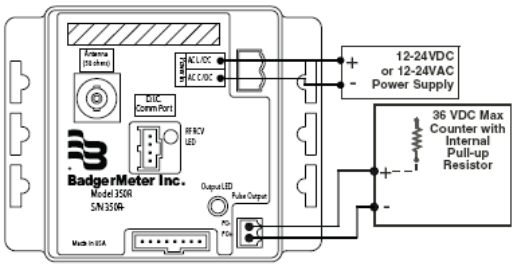
The Battery SDI "1 Pulse =" is larger due to battery conservation to hold to the life expectancy that is listed in the sensor IOM. The PC software will not let you enter in a number that is to low but this absolute lower number may be lower than what is listed here. The scale listed above is given in even 10's to make conversion as easy as possible.

Summary
This simple wireless system can benefit many installations by reducing installation time and cost. Whether used with a Badger Meter product or another instrument, the compatibility allows for a quick means to retrieve data without installing wires.

350R



350R

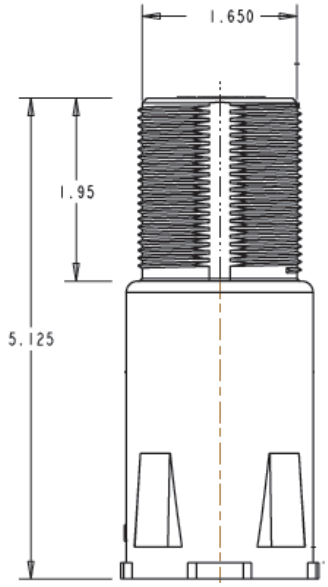


SPECIFICATIONS

Power Requirements
- 350T – Battery powered,
  (typical battery > 10 yrs)
- 350R – Externally powered
  12-24VAC/VDC
  Current Draw:
  36 mA @ 12 VDC
  16 mA @ 24 VDC
  40 mA rms @ 12 VAC rms
  30 mA rms@ 24 VAC rms

Programming
- 350R programming is accomplished using PC software via the A301W-20 connector cable
- Parameters
  - Volume units (gallons, ft3, m3, liters)
  - Scaled pulse output (units/pulse)
  - Scaled pulse output (pulse width)

350T Din



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Please see our website at **www.badgermeter.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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