



#### OVERVIEW

The Model 320 from Badger Meter is a compact, programmable transmitter designed to accept relatively fast unscaled raw pulses from devices like flow sensors, and then output slow-scaled pulses of programmable width, pulse resolution and units of measure. In addition to our standard flow sensors, the Model 320 can also accept a sine wave signal, making it a versatile transmitter for numerous applications.

With an onboard microcontroller and digital circuitry, the Model 320 is programmed using a Windows® based computer program. This eliminates the need to set dip switches and produces precise, accurate and drift-free signals of high resolution.

The compact cast epoxy body measures 1.75 x 2.75 x 1 inches (44 x 70 x 25 mm) and can easily be mounted to panels, DIN rails or enclosures. With multiple inputs, ease of use and a variety of enclosures, the Model 320 is a powerful and competitive transmitter for many of today's demanding applications.

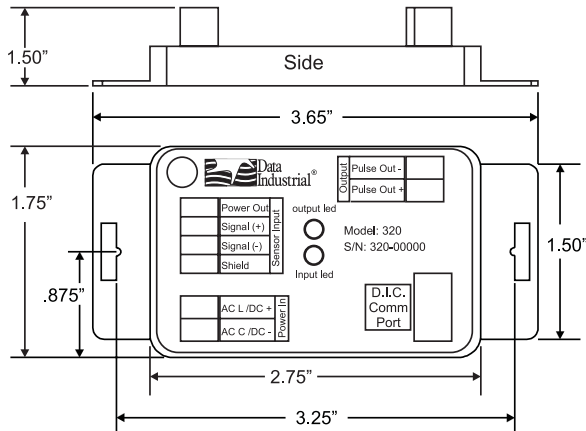
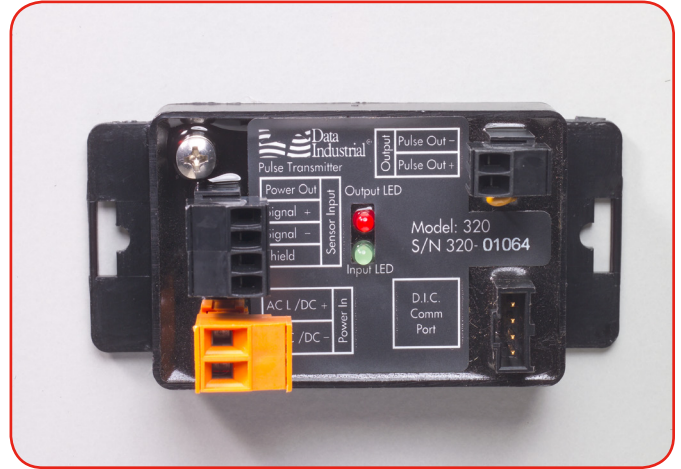


Figure 1: Transmitter dimensions

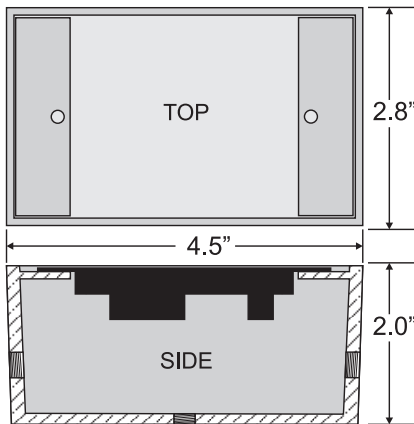


Figure 2: Optional enclosure (Ver. 320-02 and 320-03)

		<b>EXAMPLE:</b>	320	-	xx
<b>SERIES</b>	Programmable Pulse Transmitter	320			
<b>OPTIONS</b>	Transmitter Only				00
	W / NEMA 4X Enclosure				01
	W / Metal Enclosure				02
	W / Plastic Enclosure				03
	W / DIN rail Mounting Clips				04

Figure 3: Model 320 ordering matrix

#### SPECIFICATIONS

<b>Power</b>	<ul style="list-style-type: none"> <li>12...28V AC RMS, 85mA max</li> <li>12...40V DC, 30mA max</li> <li>Reverse and over voltage protected</li> </ul>
<b>Input Frequency</b>	0.4...10 kHz
<b>Transient Suppression</b>	Complies with IEC-801-4 electrical burst, fast transient specification
<b>Pulse Output</b>	<ul style="list-style-type: none"> <li>Isolated solid state switch in any standard or custom flow</li> <li>Adjustable 50 mS to 1.0 second pulse output width in 50 mS increments</li> <li>Maximum sinking current: 100 mA at 36 V DC</li> </ul>
<b>Temperature</b>	<ul style="list-style-type: none"> <li>Operating: -29...70°C (-20...158°F)</li> <li>Storage: -40...85°C (-40...185°F)</li> </ul>



## CALIBRATION

Units can be pre-set at our facility or easily programmed in the field. Field programming requires an A301-20 programming kit (consisting of a custom cable and software) and a PC running Windows 7, XP or Vista. To program, the Model 320 must be connected to power, and the A301-20 cable must be connected to an available 9-pin port on the computer. Once the software is loaded and communications with the transmitter are established, the following parameters are entered on the setup screens:

- Units of measure
- K and Offset values manually entered from values in sensor operator's manual or automatically entered using the "calculate" button
- Units per output pulse
- Filter setting
- Pulse width

Once the values are set, the "send" command loads the transmitter. A full explanation of all settings is available in the software help file.

## WIRING

Per standard wiring practices, the loop power must be off before making any wire connections. The terminal strips have removable plug-in connectors to make wiring easier. Refer to *Figure 4* for terminal connections. An example of typical wiring is shown in *Figure 5*.

1. Connect power supply positive (+) or AC Load to terminal marked AC L /DC (+).
2. Connect power supply negative (-) or AC Common to terminal marked AC C /DC (-).
3. If wiring a **200** sensor, connect the red wire to the Signal (+) terminal, black wire to Signal (-) terminal, and the shield to the Shield terminal (Disregard shield for the IR sensors).

If wiring a **4000** sensor, connect the red wire to the Power Out terminal, clear wire to Signal (+) terminal, black wire to Signal (-) terminal, and shield wire to the Shield terminal.

If wiring to a **sine wave output** sensor, consult the factory.

4. Connect Pulse (+) from pulse input device to Pulse Out (+) of the Model 320. Connect Pulse (-) from pulse input device to Pulse Out (-) of the Model 320.
5. For maximum EMI protection, connect the ground lug to panel ground.
6. Make sure all connections are tight, then plug the connector into the header.

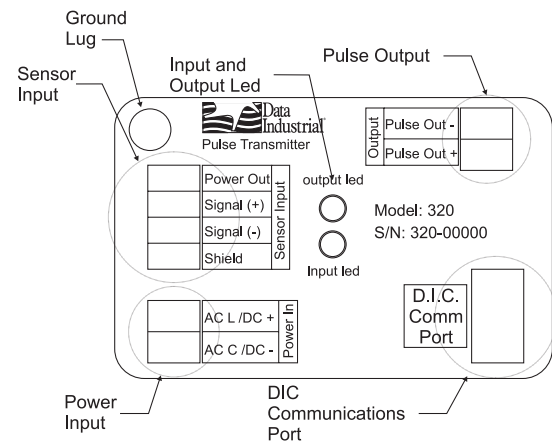


Figure 4: Terminal connections

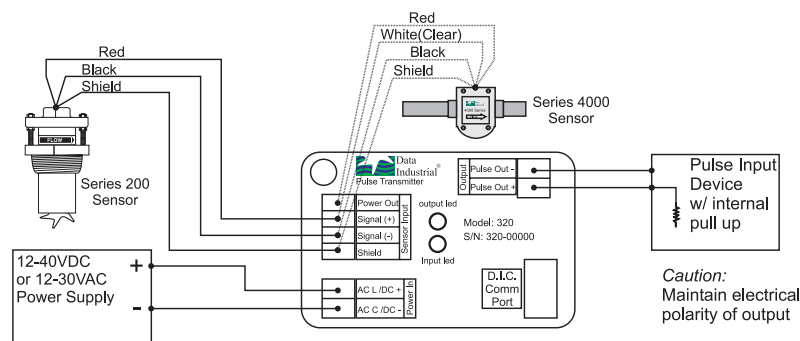


Figure 5: Example of typical wiring

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