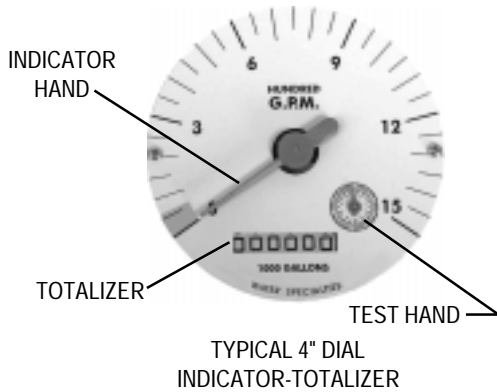




**MODEL TR-16**  
 INDICATOR - TOTALIZER - TRANSMITTER  
 SOLID STATE CONSTRUCTION  
 CURRENT OUTPUT - PULSE RATE OUTPUT  
 (TWO) 2-WIRE CIRCUITS



#### DESCRIPTION

**MODEL TR-16 INDICATOR-TOTALIZER-TRANSMITTERS** provide an instantaneous flow rate indication, a totalization of flow volume and both a 4-20 mA current signal and a pulse rate output signal proportional to the rate of flow when mounted on our propeller meters. The unit features a mechanically driven indicator-totalizer, and solid state construction.

**INSTALLATION** is normally made at the factory when the meter is assembled, but installation may be made in the field by removing the standard totalizer assembly, and attaching the indicator-totalizer-transmitter to the meter head. The unit is furnished complete with all screws and o-rings necessary for installation.

**CONSTRUCTION** of the indicator-totalizer-transmitter features an O-ring sealed housing conforming to NEMA 4X standards.

**INDICATOR-TOTALIZER** is mechanically driven by the meter mechanism and features a full 4" diameter, 250 degree sweep dial with a six digit, straight reading type totalizer and sweep test hand. The indicator drive mechanism is temperature compensated so the indicator will be accurate at all points on the dial when operated between 32° and 140° F. The indicator dial can be furnished in GPM, CFS, MGD or any standard liquid measuring units with choice of standard totalizer measuring units. The bonnet, with padlock hasp, is o-ring sealed to the meter head.

**TRANSMITTER** utilizes an optic switch (open collector transistor output). The standard 4-20 mA sourcing type current output gives 4 mA output at zero flow and 20 mA output at maximum scale range. The standard pulse rate output (open collector transistor output) is 150 pulses per minute at the maximum flow range of the instrument that the transmitter is controlling. Other pulse rates available upon request in 50 PPM increments. (600 PPM maximum) A four-lead shielded cable, four feet long, is furnished with each transmitter equipped with pulse output. A two-lead shielded cable, four feet long, is furnished if 4-20 mA only is ordered. The pulse output wiring will be provided only if requested (see ordering info).

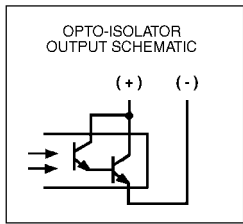
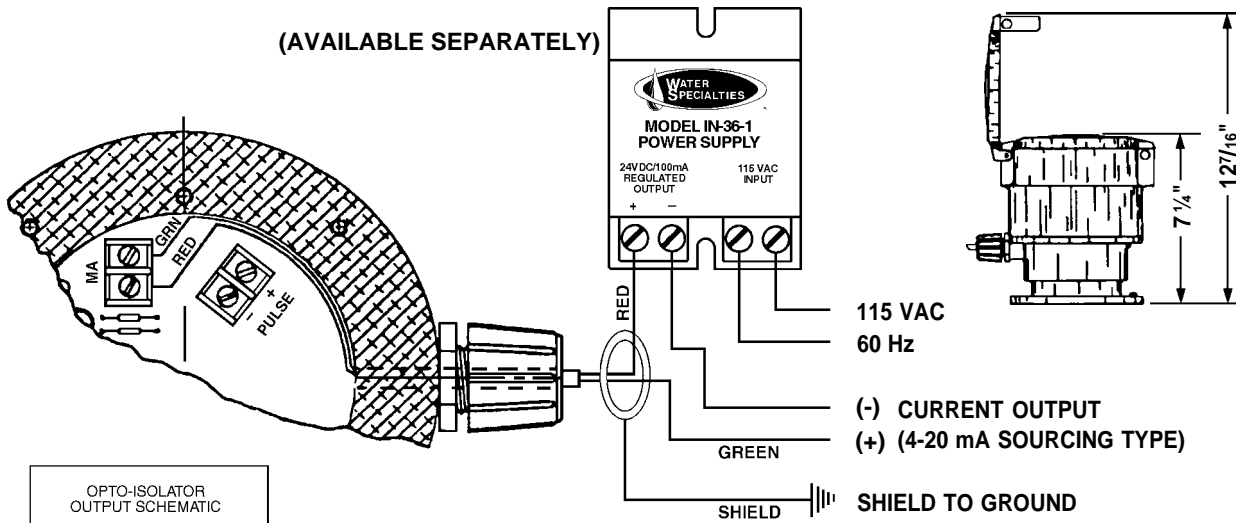
**O-RING SEALS** are used at all points where seals are required, making the indicator-totalizer-transmitter mechanism completely immune to any of the corrosive effects of atmospheric moisture or the liquids measured by the meter assembly.

#### SPECIFICATIONS

<b>ACCURACY</b>	Current output: plus or minus .5% of full scale of the instrument the transmitter is controlling. Output or fluctuation bounce can be decreased but will cause a slower response. Pulse output: plus or minus 2.0% of actual flow within the range specified for each meter size. 140° F Maximum. Consult factory for special construction for higher temperatures.
<b>TEMPERATURE RANGE</b>	140° F Maximum. Consult factory for special construction for higher temperatures.
<b>POWER SUPPLY</b>	24 VDC (as supplied by our power supply Model IN-36-1, available separately) wired in series with mA output and instrument. The mA output must be powered in order to use the pulse output. Note: Maximum current consumption of transmitter is 20 mA.
<b>FLOW RANGE</b>	Acceptable for each transmitter unit is the same as that for the meter to which the unit mounts.
<b>MATERIALS</b>	Used in construction are chosen for their durability and immunity to the corrosive effects of atmospheric moisture and the liquids measured by the meter assembly.
<b>OUTPUT SIGNAL</b>	Current signal: 4-20 mA sourcing type, with loop impedance of 175W to 1075W, (see chart on back), true two wire with external power supply. Pulse rate: two wire pulse rate output. (Customer specified pulse rate, 150 PPM min. to 600 PPM max. in 50 PPM increments. Consult factory for other pulse rates.) The maximum recommended distance for pulse output transmission is 5000 ft. 35 VDC reverse voltage polarity protection. The pulse output wiring will be provided only if requested (see ordering info). Pulse Output Ratings: Maximums are for signals between P2 & P1 Voltage: 18VDC Current: 60 mA DC Power dissipation: 100 mW
<b>SHIPPING WEIGHT</b>	4 pounds
<b>OPTIONAL EQUIPMENT</b>	A non-reversing ratchet, special outputs (consult factory for special applications).
<b>ORDERING INFO</b>	Must be specified by the customer and includes: Serial number of meter unit is to be mounted on. Maximum scale range required for current and pulse output. Change gears and type of dial on totalizer that is going to be replaced. Pulse output is available on all units, but will be wired only if requested to eliminate possible improper hookups or damage to the circuit card.

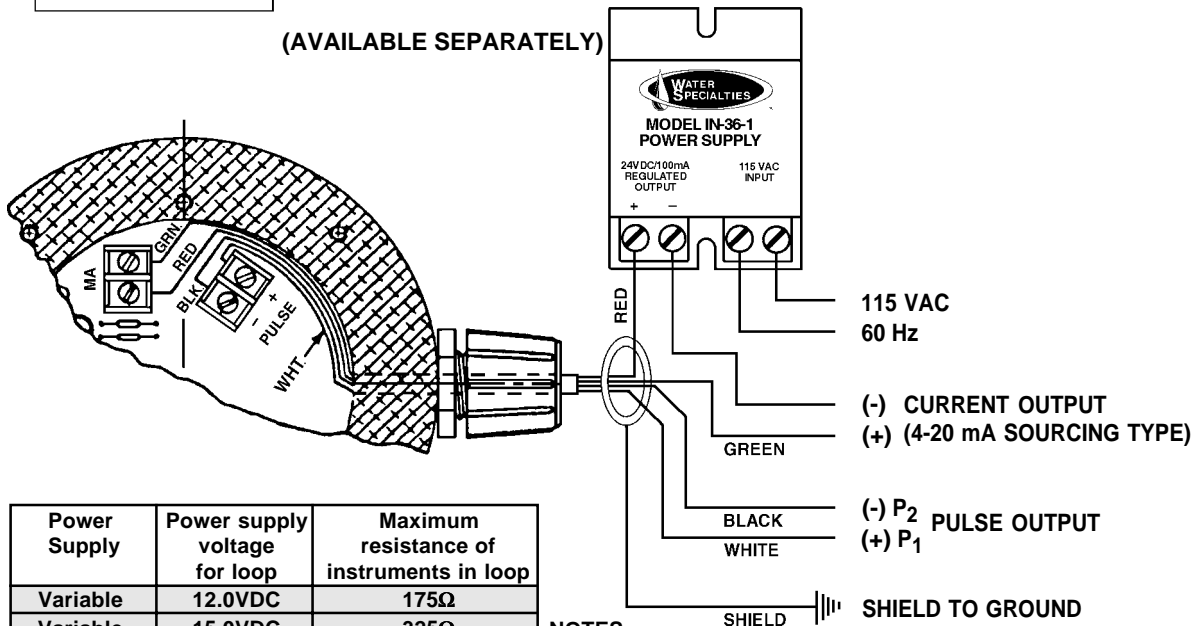
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**2 WIRE CIRCUIT CONNECTION**  
 (STANDARD TRANSMITTER SUPPLIED WITHOUT PULSE OUTPUT)



NOTE: MAXIMUM CURRENT CONSUMPTION OF TRANSMITTER IS 20 mA.

**4 WIRE CIRCUIT CONNECTION (WITH PULSE OUTPUT)**



Power Supply	Power supply voltage for loop	Maximum resistance of instruments in loop
Variable	12.0VDC	175Ω
Variable	15.0VDC	325Ω
Variable	18.0VDC	475Ω
Variable	21.0VDC	675Ω
IN-36-1(24V)	24.0VDC	775Ω
Variable	27.0VDC	925Ω
Variable	30.0VDC	1075Ω

**NOTES:**

Maximum current consumption of transmitter is 20 mA. Units which are provided with only 2 output wires may be rewired for 150 ppm pulse output by stripping back the insulation on both ends of the output cables and wiring as shown above.

Wire Size Information: The distance of the communication line from transmitter to the device the 4-20mA will operate depends on the loop resistance, the wire size, and the power supply. Based on a 24V DC power supply and 22 gauge wire, we recommend a maximum loop of 5,250 feet.