

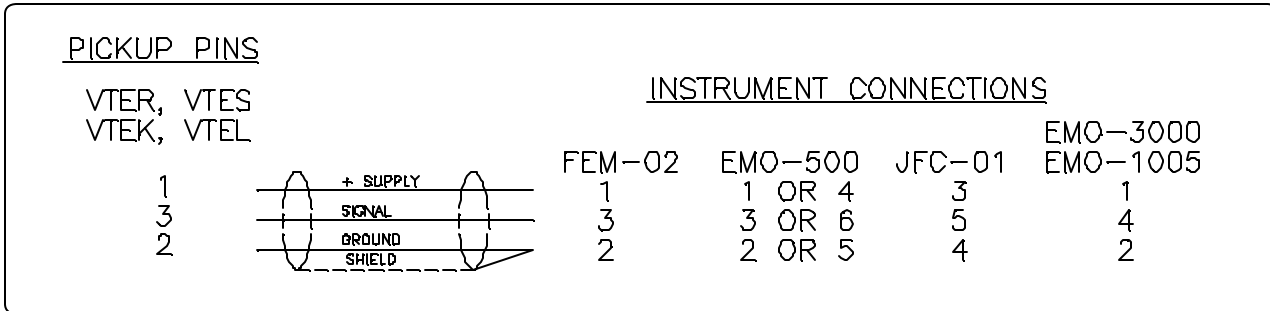
# Electrical Installation Tips For Sensors and Flowmeters

Wiring should be installed by a qualified electrician or instrumentation technician. When dealing with low voltage/power signals from pickups and transmitters, it is important to use a shielded cable between the transmitter and the signal processing unit. A shielded cable will keep most of the electromagnetic interference (EMI) from entering the signal cable and disrupting the signal before it can be processed. A 20-22 gauge 3 or 4 conductor cable with shield is acceptable. Recommended cable: Belden #88723 2 pair stranded, 22 awg teflon coated cable. This cable is available from AW Company.

When hooking up to instrumentation connect the shield together with the wire for the signal ground, to the **Instrument Ground** terminal.

## NEVER CONNECT THE SHIELD TO GROUND AT BOTH ENDS

When hooking up to AW Company instrumentation refer to the following drawing:



1. To prevent extraneous signal noise, ensure that a clean, central ground is established for both the flow meter and sensor.
2. Where possible, keep the signal cable at least 1 foot from any cable handling 110 Volt AC. If several signal cables are used, consider using metal conduit tubing for the signal cables for extra protection and shield from external noise and EMI. If possible, ground the conduit at one end. Ground to a water pipe or another good ground connection.
3. Place the pickup well away from motors, starters and relays. Do not share a common power supply with these devices. If used in a location where there are starters and other controls using relays, be sure there are diodes mounted across the coils for DC relays, and an R-C network for AC relays. This will dampen EMI from the relays when they operate.
4. Supply clean, regulated DC power with a ripple under 3% of supply.

<b>AW Company wire color code:</b>	
Supply Voltage:	Red
Ground:	Black
Signal:	White

## **If the sensor appears faulty - review the following steps**

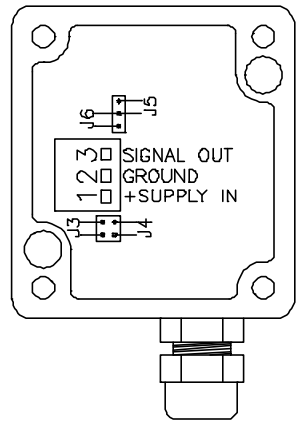
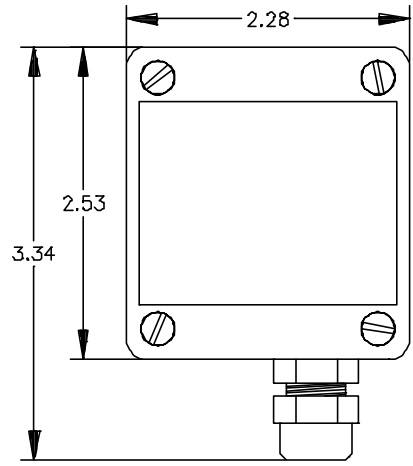
1. Detach the wiring from the sensor and repeatedly touch wire 1 to 3. These simulated pulses should register at the instrument. If this doesn't occur, verify that the wiring connections are set up as shown in the Figure 2 above and check the instrument. If using a non AW Company instrument, check the specifications for signal compatibility with the jumper settings.
2. If the pulses do register, reattach the wiring to the sensor and rapidly move a screwdriver back and forth 1/16" in front of the sensor nose. If pulses register, the sensor is okay. If not, contact the factory for a return tracking number.

Note: If the sensor transmits a frequency irrespective of flow or by touch, the cable shielding and/or grounding is faulty and the equipment is behaving as an antenna.

# VTES & VTER (FOR ZHM-01 AND SRZ SERIES ONLY)

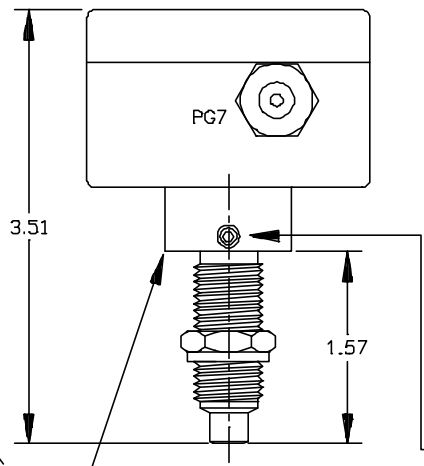
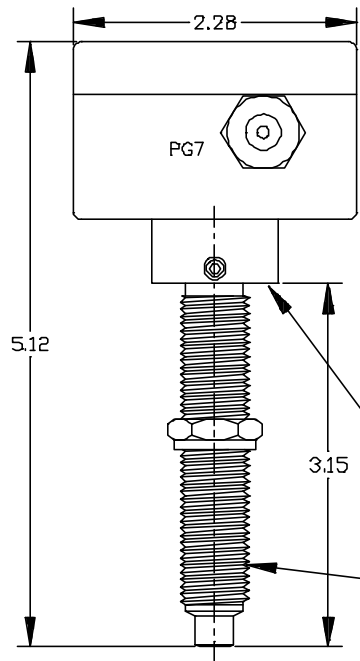
## CARRIER FREQUENCY PICKUPS

REV	DESCRIPTION	DATE	APPR. BY
E	ADDED INSTL. GUIDE TEXT	10-24-97	A.W.



### VTES

### VTER



SWIVEL COLLAR  
(2mm HEX KEY)

M14x1.5

DIMENSIONS IN INCHES

### JUMPER SETTING & TERMINAL

VERSION	J3	J4	J5	J6	TERMINAL
2-WIRE	OFF	ON	OFF	OFF	1,2
3-WIRE ACTIVE NPN	ON	OFF	OFF	ON	1,2,3
3-WIRE ACTIVE PNP	ON	OFF	ON	OFF	1,2,3
3-WIRE PASSIVE NPN	OFF	OFF	OFF	ON	1,2,3

←-- DEFAULT

### TECHNICAL DATA

SUPPLY VOLTAGE: 7 - 29VDC  
 CURRENT CONSUMPTION: < 4mA  
 OUTPUT SIGNAL: FREQUENCY, MAX 3000Hz  
 OPERATING TEMP.: 0°F - +300°F (-20°C - +150°C)  
 CABLE: 2 OR 3-WIRE SHIELDED. MAX Ø0.25"

#### VOLTAGE LEVELS NPN/PNP (3-WIRE)

##### ACTIVE OUTPUT NPN

HIGH:  $V_{high} > V_{supply} - 0.6V - (2.6Kohm * I_{out})$   
 LOW:  $V_{low} > 0.6V + (1.3Kohm * I_{out})$

##### PASSIVE OUTPUT NPN (OPEN COLLECTOR)

$V_{high} = V$   
 LOW:  $V_{low} < 0.6V + (1.3Kohm * I_{out})$   
 V IS THE APPLIED VOLTAGE AT OUTPUT MAX 29V.

##### ACTIVE OUTPUT PNP

HIGH:  $V_{high} > V_{supply} - 0.6V - (150ohm * I_{out})$   
 LOW:  $V_{low} = CUT OFF$

##### PASSIVE OUTPUT PNP (OPEN COLLECTOR)

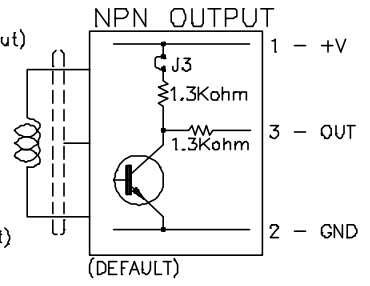
HIGH:  $V_{high} > V - 0.6V - (150ohm * I_{out})$   
 LOW:  $V_{low} = CUT OFF$   
 V IS THE APPLIED VOLTAGE AT OUTPUT MAX 29V.  
 $I_{max} = 60mA, P_{max ON R_s} = 1W, R_s = 150ohm$

##### CURRENT LEVEL (2-WIRE)

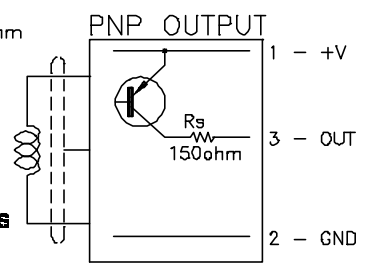
HIGH:  $I_{high} > 2.2mA$   
 LOW:  $I_{low} < 1.4mA$

### INSTALLATION GUIDE:

**SCREW IN THE SENSOR BY HAND UNTIL IT TOUCHES BOTTOM, THEN BACK OFF 1/4 TURN AND TIGHTEN THE LOCK NUT. THE SENSOR HEAD MAY THEN BE ROTATED INTO A PREFERRED POSITION BY LOOSENING THE LOCK SCREW WITH A 2mm HEX KEY. RETIGHTEN THE LOCK SCREW AFTER REPOSITIONING.**



(DEFAULT)



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FRANKSVILLE, WI 53126

TITLE: VTE PICKUPS  
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