



FLOW METER LIMITED WARRANTY

Meters are warranted against defects in materials and workmanship to the original user for a period of thirteen (13) months from the date of factory shipment, provided the meter is installed, operated and maintained in accordance with King Instrument Company's instructions and recommendations.

This warranty does not apply if failure is caused or contributed to by any of the following: improper handling, improper storage, abuse, unsuitable application of the product, lack of reasonable and necessary maintenance, use exceeding suggested pressure and temperature maximums, improper packaging for return, or repairs made or attempted to be made by anyone other than King Instrument Company, Inc.

KING INSTRUMENT COMPANY, INC. MAKES NO WARRANTY AS TO THE FITNESS OF ITS PRODUCTS FOR SPECIFIC APPLICATIONS.

This warranty is valid for the original end-user only and does not apply to products that have been damaged or modified. This warranty is non-transferrable and is limited to replacement or repair. The liability of King Instrument Company arising out of its supply of the products, or their use, shall not in any case exceed the cost of correcting defects in the products as set forth above.

THIS WARRANTY IS A LIMITED WARRANTY AND SHALL BE IN LIEU OF ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THERE ARE NO OTHER WARRANTIES WHICH EXIST BEYOND THE DESCRIPTION OR FACE HEREOF.

IN NO EVENT SHALL KING INSTRUMENT COMPANY BE LIABLE FOR LOSS OF PROFITS, INDIRECT, CONSEQUENTIAL OR INCIDENTAL DAMAGES.

Products should be returned, prepaid, to King Instrument Company, Inc. with proof of purchase. Call factory for Return Merchandise Authorization (RMA) number and return instructions.

THIS IS IMPORTANT INFORMATION. READ IT CAREFULLY BEFORE BEGINNING WORK.

- 1) Inspect meter for damage that may have occurred during shipping. Report any damage to the container to the freight carrier immediately.
- 2) Make sure your pressure, temperature, fluid and other requirements are compatible with the meter and components (including o-rings).
- 3) Select a suitable location for installation to prevent excess stress on the meter which may result from:
 - a) Misaligned pipe.
 - b) The weight of related plumbing.
 - c) "Water Hammer" which is most likely to occur when flow is suddenly stopped as with quick closing solenoid operated valves. (If necessary, a surge chamber should be installed. This will also be useful in pressure start-up situations.)
 - d) Thermal expansion of liquid in a stagnated or valve isolated system.
 - e) Instantaneous pressurization which will stress the meter and could result in tube failure.
- 4) Handle the meter carefully during installation.
 - a) Use an appropriate amount of teflon tape on external pipe threads before making connections. Do not use paste or stick type thread sealing products.
- 5) Install the meter vertically with the inlet port at the bottom.
- 6) Meters with stainless steel fittings will support several feet of pipe as long as significant vibration or stress resulting from misaligned pipe are not factors.

ADDITIONALLY:

- 7710 Series meters are designed for vertical installation only. (Inlet at bottom, Outlet at top)
- Do not remove or adjust the screws on the side of the indicator housing. These screws were positioned during factory calibration and represent the zero adjustment. If the pointer is set on zero, proceed with installation. If the pointer is not set at zero, follow these steps:
 - 1) Remove front cover with gasket from indicator housing.
 - 2) Loosen set screw at the base of the pointer hub.
 - 3) Reposition pointer to zero line.
 - 4) Tighten set screw with a 1/16" allen wrench by holding the pointer hub and gently tightening the set screws.
 - 5) Replace front cover with gasket on indicator housing.

CAUTION: Zero is factory set when meter is calibrated. Do not loosen screws that fasten indicator housing to meter body. If indicator housing is moved, the meter will need to be calibrated.

Max Non-Shock Pressure and Temp.				O-Ring Temperature**	
Temp	Stainless Steel Flange Class			O-Ring Material	Max Temp
	°F	150# psig	300# psig	600# psig	EPR
200	225	600	1,200	Buna-N	275° F
300	200	540	1,100	Viton®	350° F
400	180	515	1,000	Kalrez®	400° F

**CAUTION: Meters with NPT (threaded) connections can be used in service up to 1,500 psi and 400° F, but always make certain that materials of construction (including O-Ring material) are compatible with the fluid to be metered at the desired temperature and pressure.

Viton® and Kalrez® are registered trademarks of DuPont Dow Elastomers.

CAUTION

- O-rings should be replaced if meter is disassembled after it has been in service.
- Do not loosen nuts that fasten indicator housing to metering tube. If the relationship of meter tube and indicator housing are changed, meter must be calibrated.
- Serious property damage and great personal injury could occur as the result of a meter misused or used in an unsuitable application.

REPAIR

7710 meters that require repair should be sent to the factory. Please call for a Return Merchandise Authorization (RMA) number and return instructions.

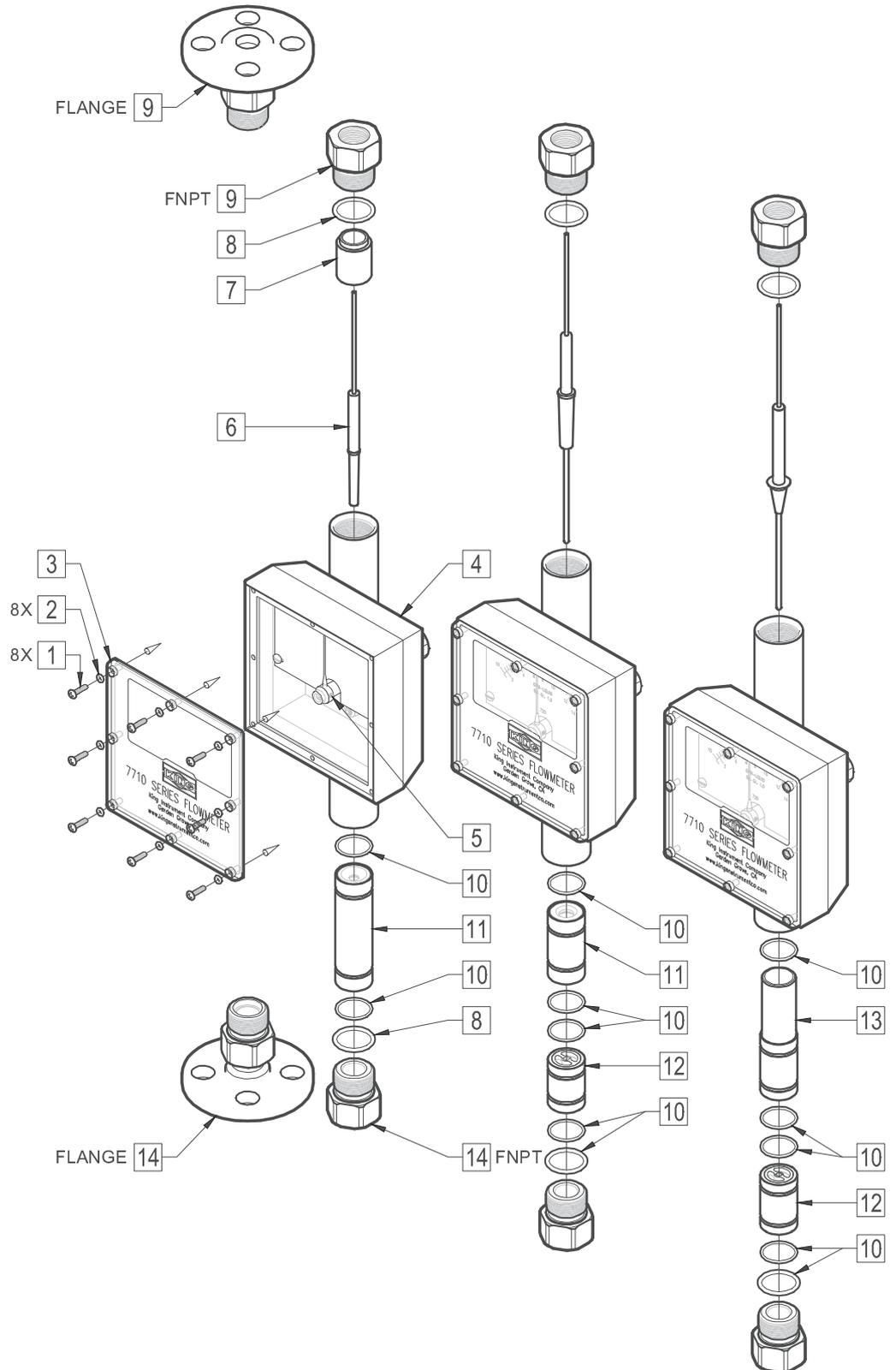
WARNING:

Pressure and temperature ratings are based on a study of the engineering data for particular materials used in construction and on the design of individual models. This information is supplemented by destructive test results. Meters with stainless enclosures must never be operated without shields securely in place. Meters exposed to difficult environments such as those created by certain chemicals, excessive vibration or other stress inducing factors could fail at or below the suggested maximums. Never operate meters above pressure and temperature maximums. It is strongly recommended that all meter installations utilize an appropriate pressure relief valve and/or rupture disc. The pressure settings and locations of these devices should be such that meters cannot be over pressurized. Meter failure could result in damage to equipment and serious personal injury. Always use suitable safety gear, including OSHA approved eye protection when working around meters in service. We are happy to pass along chemical compatibility information that has been published by the manufacturer's of raw materials used in our products; however, this information should not be construed as a recommendation made by King Instrument Company, Inc. for a specific application.

7710 SERIES ASSEMBLY PARTS LIST:

1. Shield Screw
2. Shield Screw O-Ring
3. Shield With Gasket
4. Indicator Housing/ Meter Tube Assembly
5. Pointer Needle Set Screw
6. Float
7. Outlet Float Stop Housing Assembly
8. End Fitting O-Ring
9. Outlet End Fitting
10. Orifice Housing O-Ring*
11. Orifice Housing/ Orifice Assembly*
12. Inlet Float Stop Housing Assembly*
13. Taper Sleeve*
14. Inlet End Fitting

*Configurations vary by flow rate and meter size.



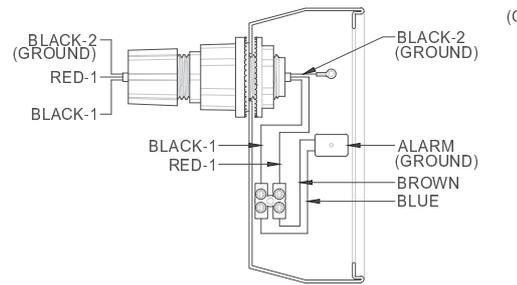
7710 SERIES INDUCTIVE SLOT SENSOR

All 7710 Series flowmeters may be fitted with one or two inductive slot sensors. Inductive slot sensors are 2-wire, DC, low current devices and are designed to be used with a remote barrier / switch isolator capable of powering the sensor and providing the desired switching option(s). Barrier / switch isolators are available with 220VAC, 110VAC or 24VDC supply voltage requirements, contain single pole double throw (SPDT) relays, and are DIN rail mountable. (Only 24VDC units are actually powered by the rail.) See barrier / switch isolator specifications for electrical connections and further details.

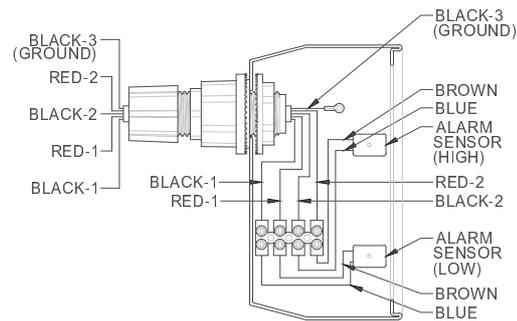
INDUCTIVE SLOT SENSOR-ELECTRICAL SPECIFICATIONS

TYPE:	INDUCTIVE
SUPPLY VOLTAGE:	5-25V DC (Switch Isolator)
OUTPUT:	NAMUR
OUTPUT LOAD CURRENT:	<= 1mA-Float Present >= 3mA (15mA Max.)-Float Absent
SWITCHING FREQUENCY:	2kHz
HOUSING RATING:	IP67
WIRING:	2 Conductor, NAMUR POS=BROWN / NEG=BLUE
PEPPERL+FUCHS	TERMINALS: #1=POS / #2=NEG UL: General Purpose
SENSOR APPROVALS	CSA: Intrinsically Safe

ELECTRICAL CONNECTIONS



SINGLE ALARM WIRING DIAGRAM



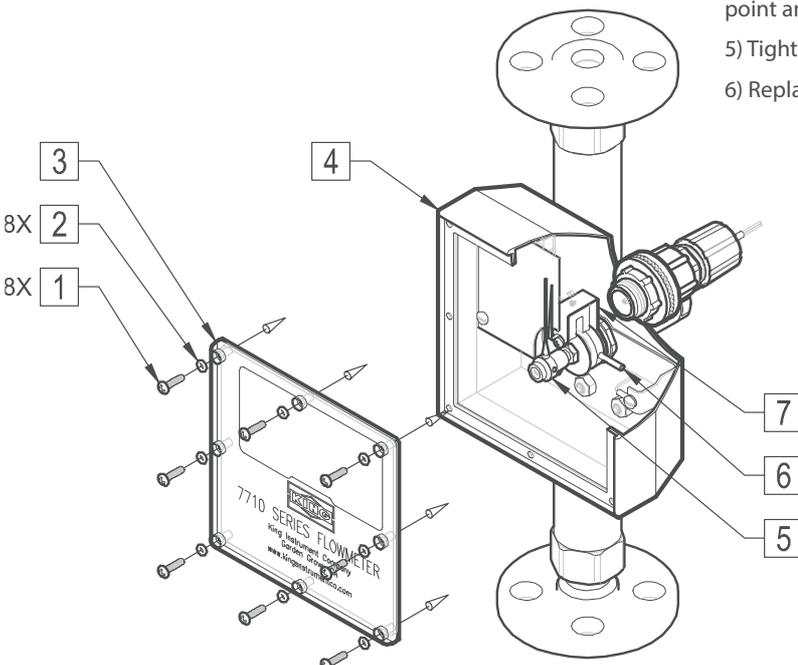
DUAL ALARM WIRING DIAGRAM

SETTING ALARM TRIGGER POINTS

- 1) Remove the eight screws securing the SHIELD.
- 2) Remove the SHIELD.
- 3) Carefully loosen the ALARM NUT. (Loosen just enough to rotate the ALARM SENSOR BRACKET).
- 4) Carefully rotate the ALARM SENSOR BRACKET to the desired alarm set point. If the meter has DUAL ALARMS, set the LOW ALARM set point and then the HIGH ALARM set point.
- 5) Tighten the ALARM NUT.
- 6) Replace the SHIELD and secure with the eight screws.

7710 SERIES ASSEMBLY INDUCTIVE SLOT SENSOR PARTS LIST:

1. Shield Screw
2. Shield Screw O-Ring
3. Shield With Gasket
4. Indicator Housing/ Meter Tube Assembly
5. Pointer Hub and Pointer Needle
6. Alarm Nut
7. Alarm Sensor Bracket



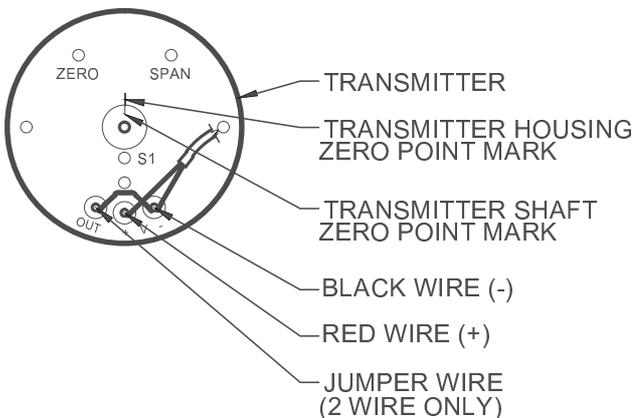
7710 SERIES 4-20 mA TRANSMITTER

To convert the measured flow into a 4-20 mAdc signal, an angle of rotation transmitter is mounted to the indicator. This device is factory calibrated to ensure accuracy and should only be adjusted by King Instrument Company.

4-20 MA TRANSMITTER SPECIFICATIONS:

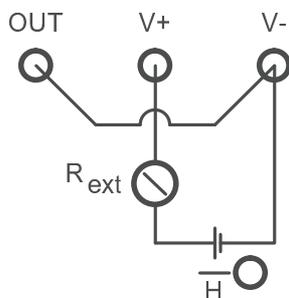
POWER SUPPLY:	12-33V DC
MAXIMUM CURRENT CONSUMPTION:	40 mA
TEMPERATURE LIMITS:	-13°F to 158°F (-25°C to 70° C)
OUTPUT:	4 to 20 mAdc
ACCURACY:	<=0.5%
LINEARITY:	+/- 0.4%
INFLUENCE FROM BEARING:	+/- 0.1%
TEMPERATURE INFLUENCE (AMBIENT):	+/- 0.03% per degree C
POWER SUPPLY INFLUENCE:	+/- 0.1%
LOAD RESISTANCE INFLUENCE:	+/- 0.03% at R max.

ELECTRICAL CONNECTIONS:



TRANSMITTER - REAR VIEW

- ZERO: POTENTIOMETER P1 FOR ZERO POINT
- SPAN: POTENTIOMETER P2 FOR MEASURING RANGE AND VALUE
- S 1: SWITCH FOR REVERSING ROTATION (NOT APPLICABLE)



2-WIRE CONNECTION

R_{ext} : EXTERNAL RESISTANCE =

POWER SUPPLY (V) -12V
OUTPUT SIGNAL (mA)

H: DC POWER SUPPLY
(12V-33V)