



## 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 including o-rings (where applicable).
- 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, 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.

**NOTE:** In closed thermal transfer or cooling systems, install the meter in the cool side of the line to minimize meter expansion and contraction and possible fluid leaks at the threaded connections.

- 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:

- 7100 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 these screws are loose

**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**

## FNPT CONNECTION

Maximum Non-Shock Pressure and Temperature		O-Ring Temperature	
Non-valve	4,000 psig	O-Ring Material	Max Temp
Inlet / Outlet Valve	1,500 psig	EPR	225° F
		Buna-N	275° F
Ambient temperature	-40° F - 125° F	Viton®	350° F
		Kalrez®	400° F
		No O-Ring	400° F

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

## FLANGED CONNECTION

Maximum Non-Shock Pressure and Temperature			O-Ring Temperature	
Temp °F	150# psig	300#psig	O-Ring Material	Max Temp
200	225	600	EPR	225° F
300	200	540	Buna-N	275° F
400	180	515	Viton®	350° F
Ambient Temperature -40°F - 125°F			Kalrez®	400° F

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## CAUTION

- O-rings should be replaced if meter is disassembled after it has been in service.
- Serious property damage and great personal injury could occur as the result of a meter misused or used in an unsuitable application.

## CLEANING

Carefully remove the flowmeter from piping system. Remove the threaded outlet plug and withdraw the float from the top. All necessary instrument components are now fully accessible for cleaning with a bottle brush and appropriate mild soap solution\*. Before the meter is reassembled, inspect all parts for damage. O-rings should be replaced during meter maintenance and cleaning.

To reassemble, carefully guide the magnetic float back into the tube. Reinstall and tighten top plug in appropriate port. Reinstall the instrument into the plumbing system after removing the old teflon tape (with a wire brush) and replacing with fresh teflon tape.

\*Do not use cleaning agents that will damage float, tube or o-rings.

Meters should be cleaned with a mild soap solution. This will be an effective cleaner of rust stains. Caution must be used so that materials of construction are not damaged by cleaning solutions. Hard water deposits can be removed with 5% acetic acid solution (vinegar).

## REPAIR

7100 meters that require repair should be sent to the factory. Please call for a Return Merchandise Authorization (RMA) number and return instructions.

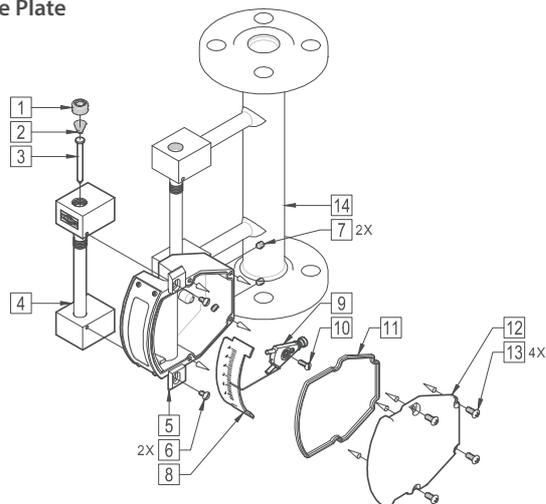
## WARNING:

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.

## 7100 SERIES ASSEMBLY NON VALVE

### PARTS LIST:

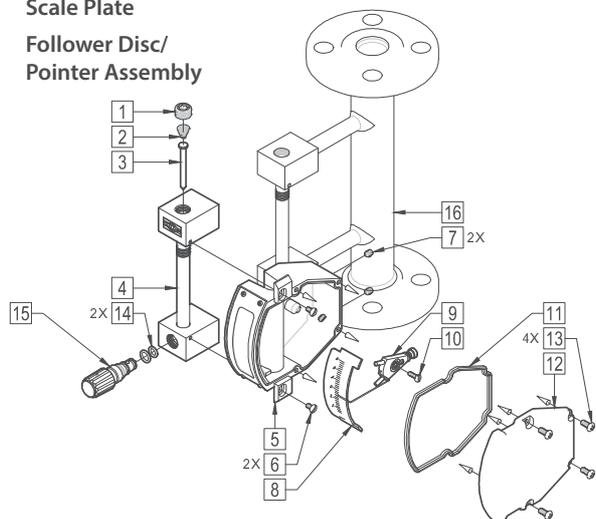
- |                              |                                    |
|------------------------------|------------------------------------|
| 1. Top Plug                  | 9. Follower Disc/ Pointer Assembly |
| 2. Outlet Float Stop         | 10. Pointer Assembly Screw         |
| 3. Float                     | 11. Case Cover Gasket              |
| 4. Meter Tube Assembly       | 12. Case Cover                     |
| 5. Case Assembly             | 13. Case Cover Screw               |
| 6. Meter Tube Assembly Screw | 14. Meter Tube Flange Assembly     |
| 7. Rear Case Screw Plug      |                                    |
| 8. Scale Plate               |                                    |



## 7100 SERIES ASSEMBLY WITH INLET VALVE

### PARTS LIST:

- |                                    |                                |
|------------------------------------|--------------------------------|
| 1. Top Plug                        | 10. Pointer Assembly Screw     |
| 2. Outlet Float Stop               | 11. Case Cover Gasket          |
| 3. Float                           | 12. Case Cover                 |
| 4. Meter Tube Assembly             | 13. Case Cover Screw           |
| 5. Case Assembly                   | 14. Valve O-Ring               |
| 6. Meter Tube Assembly Screw       | 15. Valve Assembly             |
| 7. Rear Case Screw Plug            | 16. Meter Tube Flange Assembly |
| 8. Scale Plate                     |                                |
| 9. Follower Disc/ Pointer Assembly |                                |



## 7100 SERIES INDUCTIVE SLOT SENSOR

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

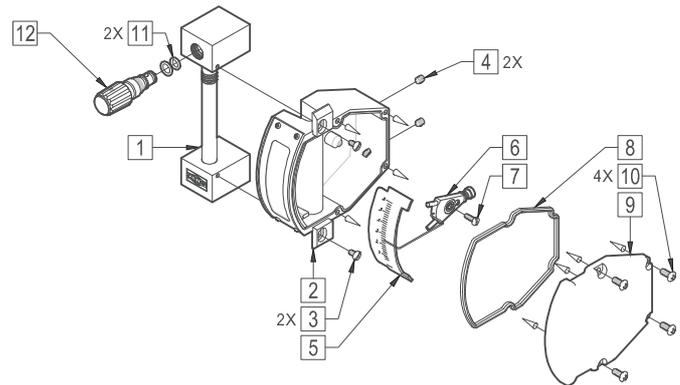
TYPE:	Inductive
SUPPLY VOLTAGE:	5-25V DC (Switch Isolator)
OUTPUT:	NAMUR
OUTPUT LOAD CURRENT:	<= 1mA-Float Present >= 3mA (15mA Max.)-Float Absent
SWITCHING FREQUENCY:	5kHz
HOUSING RATING:	IP67
WIRING:	2 Conductor, NAMUR POS=BROWN / NEG=BLUE TERMINALS: #1=POS / #2=NEG
PEPPERL+FUCHS: UL:	General Purpose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

## SETTING ALARM TRIGGER POINTS

- 1) Remove the two screws **13** securing the ALARM ADJUST-SLOT COVER **12** & GASKET **11**
- 2) Remove the ALARM ADJUSTING-SLOT COVER & GASKET.
- 3) Use a small screwdriver to adjust the ALARM SET POINTER **3** to the desired flow / alarm trigger point. MOVE UP AND DOWN ONLY. CAUTION: DO NOT push in or pull on the ALARM SET POINTER.
- 4) Once you have the ALARM SET POINTER set to the desired trigger point you may replace the ALARM ADJUST SLOT COVER & GASKET.
- 5) Replace the screws to secure the ALARM ADJUST-SLOT COVER & GASKET.

## 7100 SERIES ASSEMBLY WITH OUTLET VALVE PARTS LIST:

- |                                    |                           |
|------------------------------------|---------------------------|
| 1. Meter Tube Assembly             | 7. Pointer Assembly Screw |
| 2. Case Assembly                   | 8. Case Cover Gasket      |
| 3. Meter Tube Assembly Screw       | 9. Case Cover             |
| 4. Rear Case Screw Plug            | 10. Case Cover Screw      |
| 5. Scale Plate                     | 11. Valve O-Ring          |
| 6. Follower Disc/ Pointer Assembly | 12. Valve Assembly        |



## 7100 SERIES ASSEMBLY WITH ALARM PARTS LIST:

- |                                    |                                   |
|------------------------------------|-----------------------------------|
| 1. Case and Meter Tube Assembly    | 7. Pointer Assembly Screw         |
| 2. Alarm Spacer                    | 8. Case Cover Gasket              |
| 3. Alarm Set Pointer and Sensor    | 9. Case Cover                     |
| 4. Alarm Tension Spring            | 10. Case Cover Screw              |
| 5. Alarm Retainer Clip             | 11. Alarm Adjust Slot Gasket      |
| 6. Follower Disc/ Pointer Assembly | 12. Alarm Adjust Slot Cover       |
|                                    | 13. Alarm Adjust Slot Cover Screw |
|                                    | 14. Alarm Connector               |

