

7700 SERIES INSTALLATION INSTRUCTIONS

This is important information. Read it carefully before beginning work.

- 1) Inspect the meter for damage that may have occurred during shipping. If container is damaged report this 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.)
- 4) Handle the meter carefully during installation.
- 5) Install the meter vertically with the inlet port at the bottom. No piping runs are required. Because the guide rod extends from the top of the meter during operation, 4" of straight pipe must be provided at the outlet of the meter.
- 6) Meters will support several feet of pipe as long as significant vibration or stress resulting from misaligned pipe are not factors.

INSTALLATION

- 7700 Series meters are designed for vertical installation only (inlet at bottom, outlet at top).
- The indicator housing is not removeable from the meter tube.
- Do not remove or adjust the screws on the back 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 the piping. If the pointer is not set at zero follow these steps.
 - 1) remove front cover of indicator and gasket
 - 2) loosen set screw at base of pointer shaft
 - 3) reposition pointer to zero line
 - 4) tighten set screw with a 1/16" allen wrench by holding the pointer shaft and gently tightening the set screw
 - 5) replace gasket and cover of indicator housing

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

Maximum Non-Shock Pressure for Flanged Meters

Temperature**

Temp. °F	Stainless Steel Flange Class			O-Ring Material	Maximum Temperature
	150# psig	300# psig	600# psig		
200	225	600	1,200	EPR	225 °F
300	200	540	1,100	Buna-N	275 °F
400	180	515	1,000	Viton®	350 °F
				Zalak®	400 °F
				Kalrez®	400 °F
The maximum ambient temperature for the Indicator Housing is 158 °F.					

**** Caution:** Meters with NPT (threaded) connections can be used in service up to 1500 psi & 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.

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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 and housing are changed, meter must be recalibrated.
- Serious property damage and great personal injury could occur as the result of a meter used in an unsuitable application.

CLEANING:

Carefully remove the flowmeter from piping system. Remove the threaded inlet and withdraw the float and guide assembly out from the top. (Normally it is not necessary to remove the tapered sleeve or spacers.) 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. When installing float/guide assembly make certain that the end of the guide fully engages the inlet and/or outlet float stop. Reinstall and tighten fittings in appropriate ports. Reinstall the instrument into the plumbing system after removing the old teflon tape (with a wire brush) and replacing with fresh tape.

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

CAUTION: Do Not loosen nuts that fasten indicator housing to meter tube. If the relationship of meter and housing are changed, meter must be recalibrated.

REPAIR:

7700 meters that require repair or calibration should be sent to the factory. Please call for a Return Merchandise Authorization (RMA) number and return instructions.

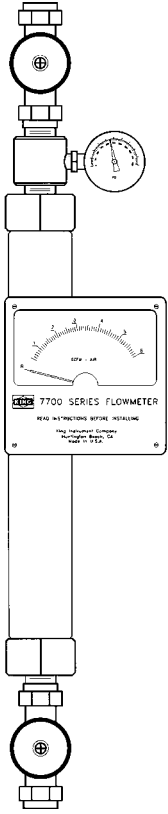
WARNING:

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 overpressurized. 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 manufactures 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.

**Meters are not specifically recommended for service other than water or air.
The user must determine meter suitability for use with other fluids.**

KING INSTRUMENT COMPANY

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METERS FOR GAS SERVICE

Meters used in gas service may be susceptible to float bounce. (This is especially true in low density gas applications.) To reduce the possibility of float bounce, valves should be installed at both ends of the meter. Make sure there is minimum piping between the valve and the meter body.

During start up (with both valves closed) open the inlet 1/2 turn, then slowly open the outlet two turns. Return to the inlet and open another two turns. Now adjust a combination of the valves to achieve desired flow. Make sure to open the valves slowly. If the float begins to bounce, close the valves immediately and begin procedure again.

Both the inlet and outlet valves should be opened to the minimum required to achieve the desired flow. Follow this procedure during each start up.

A pressure gage installed between the outlet of the meter and the downstream piping will show the operating pressure in the meter and will allow the exact flow to be calculated using the formulae shown below.

$$\text{Pressure Correction Factor (PCF)} = \sqrt{\frac{14.7 + \text{operating pressure (psig)}}{14.7}}$$

$$\text{Temperature Correction Factor (TCF)} = \sqrt{\frac{530}{460 + \text{Operating } ^\circ\text{F}}}$$

$$\text{Specific Gravity Correction Factor (SGCF)} = \sqrt{\frac{1}{\text{Sp. Gr.}}}$$

$$\text{Actual Flow Rate (Gas @ Operating Conditions)} = \text{Indicated Flow (Air—STP)} \times \text{PCF} \times \text{TCF} \times \text{SGCF}$$

FLOWMETER 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 the Company's instructions and recommendations.

This warranty does not apply if the failure is caused or contributed to by any of the following: improper handling, improper storage, improper installation, 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 other than the Company.

THE COMPANY 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 nontransferable and is limited to replacement or repair. The liability of the 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 above set forth.

THIS WARRANTY IS A LIMITED WARRANTY AND SHALL BE IN LIEU OF ANY OTHER WARRANTIES, EXPRESS 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 THE COMPANY BE LIABLE FOR LOSS OF PROFITS, INDIRECT, CONSEQUENTIAL OR INCIDENTAL DAMAGES.

Products should be returned, prepaid, to the Company with proof of purchase. Call factory for Return Authorization Number and return instructions.

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