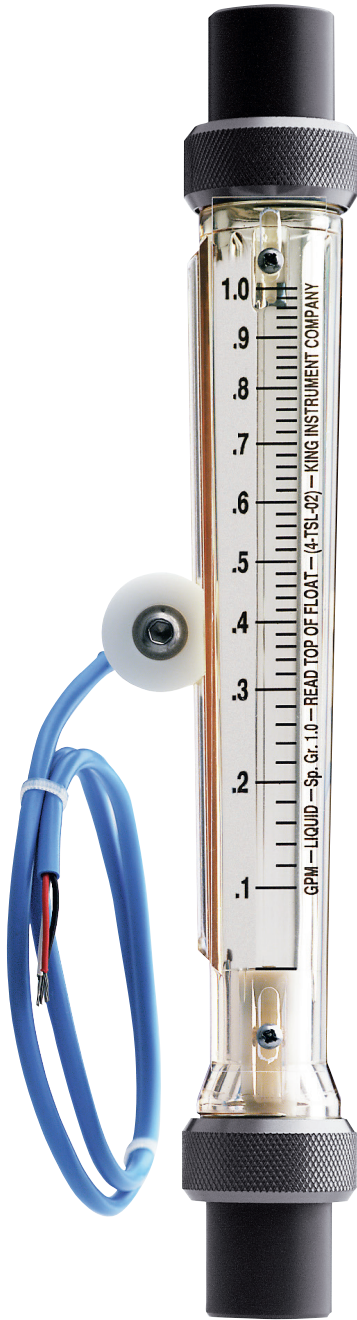


# Latching Reed Switch

ALARM OPTIONS

Latching Reed Switch alarm available for 7310, 7330, 7470, 7480, 7610, 7910 Series



A latching reed switch is available for 7310, 7330, 7470, 7480, 7610, 7910 Series flowmeters. Operating temperature range is -40° C to 125° C.

The switch assembly is mounted on the side of the metering tube by a dovetail or guide rod. The switch can be positioned to trip at any point on the scale.

The switch is a reed type and uses a biasing magnet to give it the latching feature. The float contains hermetically sealed magnet(s), so when the float comes in close proximity to the switch it closes and remains closed (latched) when the float moves past the switch. When the flow returns to normal and the float moves below the switch it resets itself. Multiple switches can be used.

## ELECTRICAL SPECIFICATIONS FOR LATCHING REED SWITCH

<b>Switch Type</b>	SPDT, Latching
<b>Max Contact Voltage</b>	100 VDC
<b>Max Contact Current</b>	0.2 A DC
<b>Max Contact Power</b>	4 Watts DC
<b>Breakdown Voltage</b>	200 VDC
<b>Initial Contact Resistance</b>	0.15 OHMS
<b>Standard Pull-In Range</b>	15-40 ampere turns
<b>Intrinsically Safe Wiring</b>	With switch Isolator 3 conductor, 22 Awg, 2' long 1) White, N.O. switch output 1 2) Red, common 3) Black, N.C. switch output 2

7330 with Latching Reed Switch

# Latching Reed Switch

Latching Reed Switch alarm available for the 9000 "Silver" Series



The latching reed switch is an available option for the 9000 Series Flowmeter.

The switch assembly is mounted on the side of the metering tube by a dovetail or guide rod. The switch can be positioned to trip at any point on the scale.

The switch is a reed type and uses a biasing magnet to give it the latching feature. The float contains hermetically sealed magnet(s), so when the float comes in close proximity to the switch it closes and remains closed (latched) when the float moves below the switch it resets itself. Multiple switches can be used.

Operating temperature range is -40° C to 125° C.

## LATCHING REED SWITCH ELECTRICAL SPECIFICATIONS

<b>Switch Type</b>	SPST
<b>Power</b>	4W Max
<b>Switching Voltage</b>	30VDC Max
<b>Breakdown Voltage</b>	200VDC Min
<b>Switching Current</b>	0.2 A Max
<b>Carry Current</b>	1.4 A Max
<b>Initial Contact Resistance</b>	.020 Ohm Max @ 50% Magnetic Overdrive

## CONNECTIONS

Single Switch	Dual Switch
1(+), 2(-)	High Switch
	1(+), 2(-)
	Low Switch
	4(+), 5(-)

9000 "Silver" Series with Latching Reed Switch

# Inductive Slot Sensor

ALARM OPTIONS

Inductive Slot Sensor alarm available for 7100, 7710, 7720, 7750 Series



7100 with Inductive Slot Sensor



7750 with Inductive Slot Sensor

All 7100, 7710, 7720 and 7750 Series flow meters may be fitted with one inductive slot sensor. The 7710, 7720 and 7750 Series may be fitted with two inductive slot sensors.

Inductive 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 220 VAC, 110 VAC or 24 VDC supply voltage requirements, contain single pole, double throw (SPDT) relays, and are DIN rail mountable. (Only 24 VDC units are actually powered by the rail.) See barrier/switch isolator specifications for electrical connections and further details. (Page 61)

The operating temperature range for this sensor is -13° F to 158° F (-25° C to 70° C).

**Note:** We can supply the isolator / barrier upon request, but the user must provide the power supply voltage.

## ELECTRICAL SPECIFICATIONS

Type	Inductive
Supply Voltage	5-25V DC (Switch Isolator)
Output	NAMUR
Output Load Current	<=1 mA – Float Present >= 3 mA (15 mA Max.) –Float Absent
Switching Frequency	5 kHz
Housing Rating	IP67
Wiring	2 Conductor, NAMUR Pos = Brown, Neg.= Blue
Terminals	#1=Pos., #2=Neg.
Pepperl & Fuchs Slot Sensor Approvals:	<b>UL:</b> General Purpose <b>FM:</b> Intrinsically Safe <b>CSA:</b> Intrinsically Safe <b>CENELEC:</b> Intrinsically Safe

# 4-20 mA Transmitter

## ALARM OPTIONS

4-20 mA Transmitter for 7710, 7720, 7750



7710 with 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.

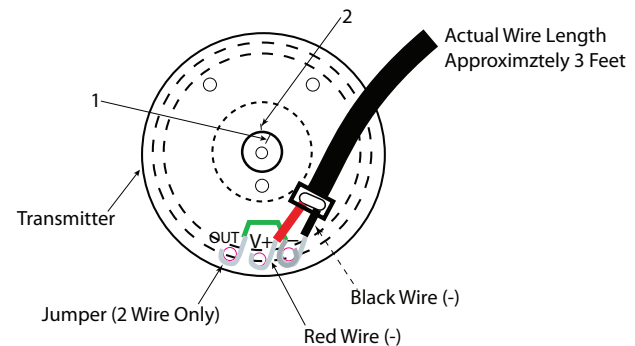
The proper and safe operation of the device requires that the specific listed below are not exceeded:

### SPECIFICATIONS

<b>Power Supply</b>	12 to 33Vdc
<b>Maximum Current Consumption</b>	40mA
<b>Temperature Limits</b>	-13° to 158° F ( -25° to 70° C)
<b>Output</b>	4 to 20 mAdc
<b>Accuracy</b>	<= 0.5%
<b>Linearity</b>	± 0.4%
<b>Influence From Bearing</b>	± 0.1%
<b>Temperature Influence (ambient)</b>	± 0.3% per degree C
<b>Power Supply Influence</b>	± 0.1%
<b>Load Resistance Influence</b>	± 0.1% at R max.

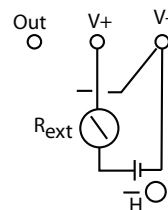
### ELECTRICAL CONNECTIONS

#### Transmitter Layout Rear View



- Zero:** Potentiometer P1 for zero point
- SPAN:** Potentiometer P2 for measuring range and value
- 1:** Zero point mark on transmitter housing
- 2:** Zero point mark on transmitter shaft
- S1:** Switch for reversing rotation (Not Applicable)

#### 2- Wire Connection



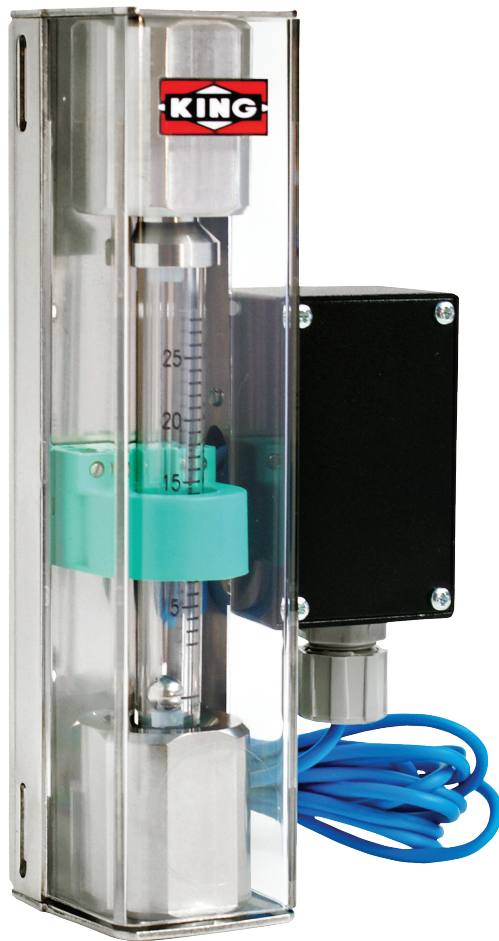
**R<sub>ext</sub>:** External Resistance  
 = Power Supply (V) - 12V  
 Output Signal (mA)

**H:** DC Power Supply  
 (12 - 33 V)

# Inductive Ring Sensor

ALARM OPTIONS

Inductive Ring Sensor alarm available for 7430, 7440 Series



7440 with Inductive Ring Sensor

7440 Series flowmeters with metallic floats can be ordered with an inductive ring sensor that is able to detect a predetermined rate of flow and is compatible with stainless steel or Carboloy floats only.

Inductive ring sensors are 2-wire, DC, low current devices and are designed to be used with a remote intrinsic safety barrier /switch isolator. Sensors are available as either proximity or latching devices. The sensor can be positioned to trigger at any point on the scale. It is able to detect the metal float by producing an electromagnetic field that senses the float within its sensing zone.

The inductive sensor connects to a barrier/switch isolator which powers the sensor and provides the desired switching option. 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. See barrier/switch isolator specifications for electrical connections and further details. (Page 61)

**Note:** We can supply the safety barriers/switch isolators upon request. User must provide the power supply voltage.

## INDUCTIVE RING SENSOR ELECTRICAL SPECIFICATIONS

Type	Inductive Proximity or Latching
Supply Voltage	5-25V DC (Switch Isolator)
Output	NAMUR
Output Load Current	<= 1 mA – Float Present >= 3 mA (15 mA max) – Float Absent
Switching Frequency	2 kHz
Housing Rating	IP67
Wiring	PVC Covered, 2 Conductor, 26 AWG, 6.5 Feet Long. Brown (+), Blue (-)
Pepperl & Fuchs Ring Sensor Approvals	<b>UL:</b> General Purpose <b>FM:</b> Intrinsically Safe <b>CSA:</b> Intrinsically Safe <b>CENELEC:</b> Intrinsically Safe
Electrical Connections	See barrier/switch isolator specifications for details. (Page 61)
Max Operating Temperature	40° C for 1/8" float; 70° C for 1/4" float.

# Fiber Optic Sensor

ALARM OPTIONS

Fiber Optic Sensor available for 7440 Series



7440 with Fiber Optic Sensor

The fiber optic alarm sensor is an available option for all 7440 Series flowmeters and is compatible with all float materials except sapphire. The sensor is used to detect a predetermined rate of flow. The sensor can interface directly to a Programmable Logic Controller (PLC) or when connected to a separate relay can trigger a local or remote alarm.

The fiber optic sensor is mounted in a junction box attached to the side of the flowmeter. The sensor uses a pair of fiber optic cables, an emitter and receiver, to transmit the light generated by the sensor. Note: Maximum operating temperature 131° F.

## FIBER OPTIC SENSOR ELECTRICAL SPECIFICATIONS

<b>Supply Voltage</b>	10-30 VDC
<b>Supply Current</b>	25 mA
<b>Output</b>	NPN Sinking, N.O. & N.C. PNP Sourcing, N.O. & N.C.
<b>Output Rating</b>	150 mA Max Total Load
<b>Output Response Time</b>	1ms
<b>Off State Leakage Current</b>	1 MICOAMP @ 30 VDC
<b>Output Saturation Voltage</b>	< 1 V at 10 mA DC < 1.5 V at 150 mA DC
<b>Repeatability</b>	0.25 ms
<b>Housing Rating</b>	IP67; NEMA 6
<b>Operating Temperature</b>	-5° to +131° F

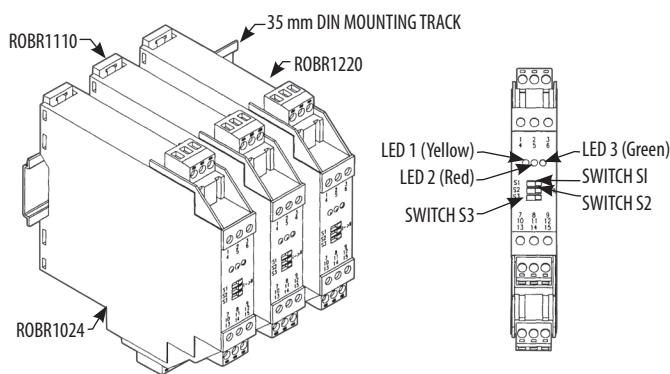
# Barrier/Switch Isolator

SWITCH ISOLATOR

## BARRIER/SWITCH ISOLATOR

A barrier/switch isolator is designed to supply power to the NAMUR sensor, read the output state of the sensor and provide the desired safety and switching options based on the sensors current state. The barrier/switch isolator has three sets of connections: the supply voltage (powers the barrier), an input stage (accepts sensor inputs), and an output stage (relay or transistor switching). Supply voltages are 220VAC, 110VAC, or 24VDC. Switch isolators may receive an input from inductive sensors or dry mechanical contacts. The input circuit between the sensor or mechanical contact and the switch isolator is suitable to be installed in a hazardous area under the designation "Intrinsically Safe". Supply voltage and switching options must be specified when ordering.

### SINGLE CHANNEL BARRIER/SWITCH ISOLATORS (I.S.)



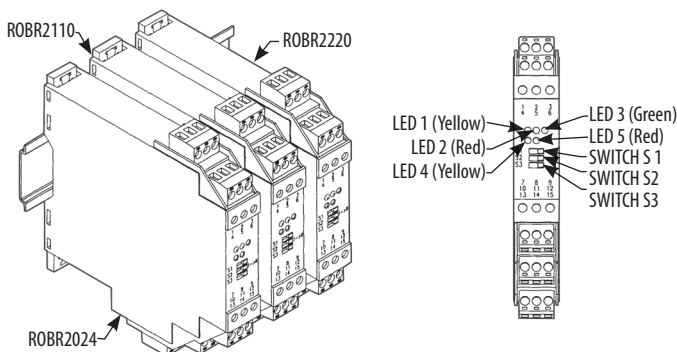
#### SINGLE CHANNEL OPTIONS

KING ORDER #	POWER SUPPLY	PEPPERL & FUCHS #	OUTPUT
ROBR1024	DC 20V-30V	KFD2-SR2-EX1.W	1 SPDT RELAY AC: 250V/2A DC: 40V/2A
ROBR1110	AC IO4-126V	KFA5-SR2-EX1.W	
ROBR1220	AC 207V-253V	KFA6-SR2-EX1.W	

#### RECOMMENDED USE

PRODUCT LINE	ALARM OPTION
7310/7330 Series	Single Latching Reed Switch
7430/7440 Series	Proximity or Latching Inductive Namur Ring Sensor
7470 Series	Single Latching Reed Switch
7480 Series	Single Latching Reed Switch
7610 Series	Single Latching Reed Switch
7710/7720/7750 Series	Single Inductive Namur Slot Sensor
7910 Series	Single Latching Reed Switch
9000 Series	Single Latching Reed Switch

### DUAL CHANNEL BARRIER/SWITCH ISOLATORS (I.S.)



#### DUAL CHANNEL OPTIONS

KING ORDER #	POWER SUPPLY	PEPPERL & FUCHS #	OUTPUT
ROBR2024	DC 20V-30V	KFD2-SR2-EX2.W	2 SPDT RELAY AC: 250V/2A DC: 40V/2A
ROBR2110	AC IO4-126V	KFA5-SR2-EX2.W	
ROBR2220	AC 207V-253V	KFA6-SR2-EX2.W	

#### RECOMMENDED USE

PRODUCT LINE	ALARM OPTION
7310/7330 Series	Dual Latching Reed Switch
7470 Series	Dual Latching Reed Switch
7480 Series	Dual Latching Reed Switch
7610 Series	Dual Latching Reed Switch
7710/7720/7750 Series	Dual Inductive Namur Slot Sensor
7910 Series	Dual Latching Reed Switch
9000 Series	Dual Latching Reed Switch