

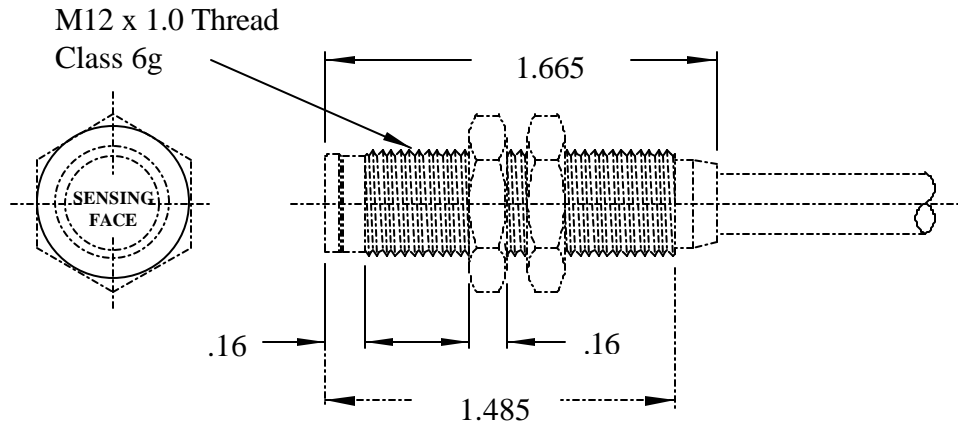


PHOENIX AMERICA INC.

4717 CLUBVIEW DRIVE
FORT WAYNE, IN 46804

P7700 and 7710

PROXIMITY SENSOR, FERROUS STEEL ACTUATED



FEATURES:

- Digital Output Signal
- Senses Ferrous Metal Targets
- Senses Permanent Magnet Targets
- Operation from -20°C to 85°C
- Short Circuit Protection
- High Speed (15kHz) Operation
- 4.5-24 VDC Operation
- Nickel plated, Brass housing
- Metallic Cover over Sensing Face
- 72" long PVC jacketed cable, 18 AWG
- 2mm max. operating gap
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SENSOR DESCRIPTION:

The Series 7100 and 7110 proximity sensor is a non-contact, solid state device with a switched output. This device operates effectively to the presence of a ferrous steel or permanent magnet target. A 2mm operating air gap can easily be obtained with a ferrous metal disc target equal to the sensor package diameter. This device uses a Hall Effect sensor with a specialized magnetic circuit that is factory calibrated for optimum performance and consistent repeatability. In addition, electronic hysteresis built into the device eliminates false triggering due to mechanical backlash and vibration. The sensor circuit is encapsulated in a Nickel-plated, Brass housing for use in rugged and wet environments. Its unique design provides a cost-effective solution for a wide range of proximity sensing applications.

PART

NUMBER

SENSOR DESCRIPTION

P7700

Normally Open (Output High w/o Steel Target)

P7710

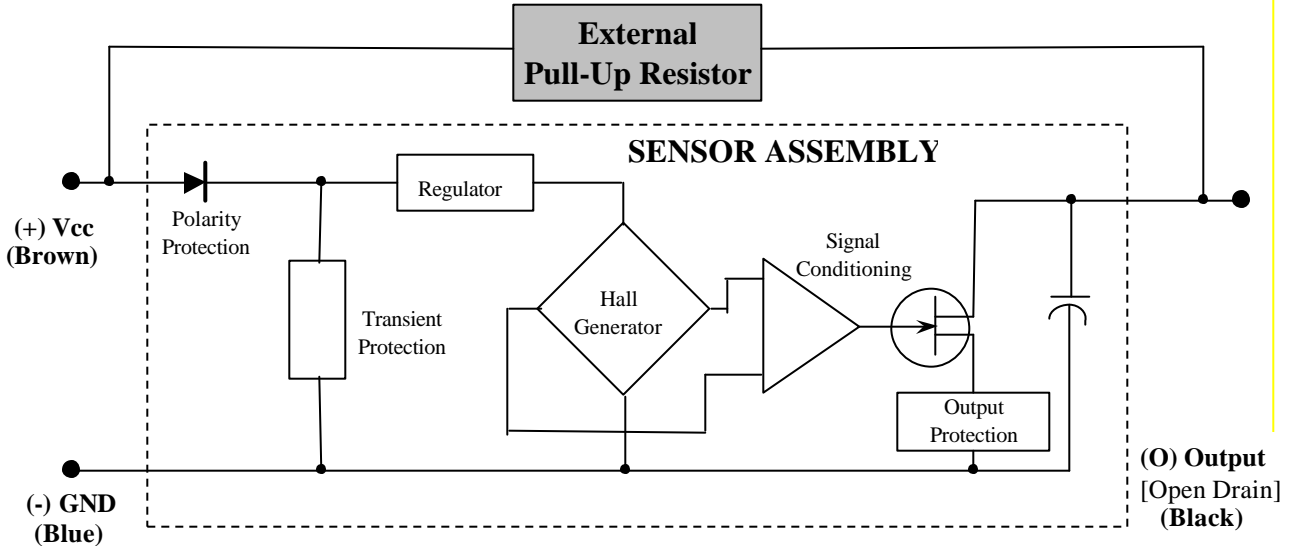
Normally Closed (Output Low w/o Steel Target)



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Functional Block Diagram



Specifications

T = 25°C

Characteristics	Symbol	Test Condition	Limits		
			Min.	Max.	Units
Supply Voltage	V _{CC}	Operating	4.5	24	VDC
Supply Current	I _{CC}	Over V _{CC} and Temp. Range		9.0	mA
Reverse Supply Protection	V _{REV}	Operating		-24	VDC
Output Pull-Up Voltage	V _{OUT}	Over V _{CC} and Temp. Range		24	VDC
Output Current	I _{OUT}	Operating		20	mA
Output Leakage	V _L	Operating (Typ. Wiring)		20	µA
Rise/ Fall Time	T _{RISE} / T _{FALL}	Operating (1.2kΩ & 33pF)		5	ns

SENSOR OPERATION:

The device consists of a Hall Effect switch and a balanced magnetic circuit that is calibration for optimum performance. An external pull-up resistor is required to establish a quiescent voltage along with providing improved noise immunity and faster rise and fall times. When a Ferrous metal target enters the proximity of the sensor's magnetic circuit, the magnetic circuit is imbalanced. This magnetic imbalance is sensed by the Hall Effect switch causing a change in electrical state. Upon removal of this metal target, the magnetic circuit returns to its balanced state and previous electrical state. This sensor is immune to small imperfections in the configurations of ferrous metal targets and only reacts due to the basic shape of the target. This allows the use of typical fasteners to be used as ferrous targets without the false triggering on screwdriver slots, etc. This sensor can also operate effectively with most permanent magnet materials and pole configurations. The magnetic field of a permanent magnet target provides an alternate source of imbalance for the magnetic circuit of the sensor.