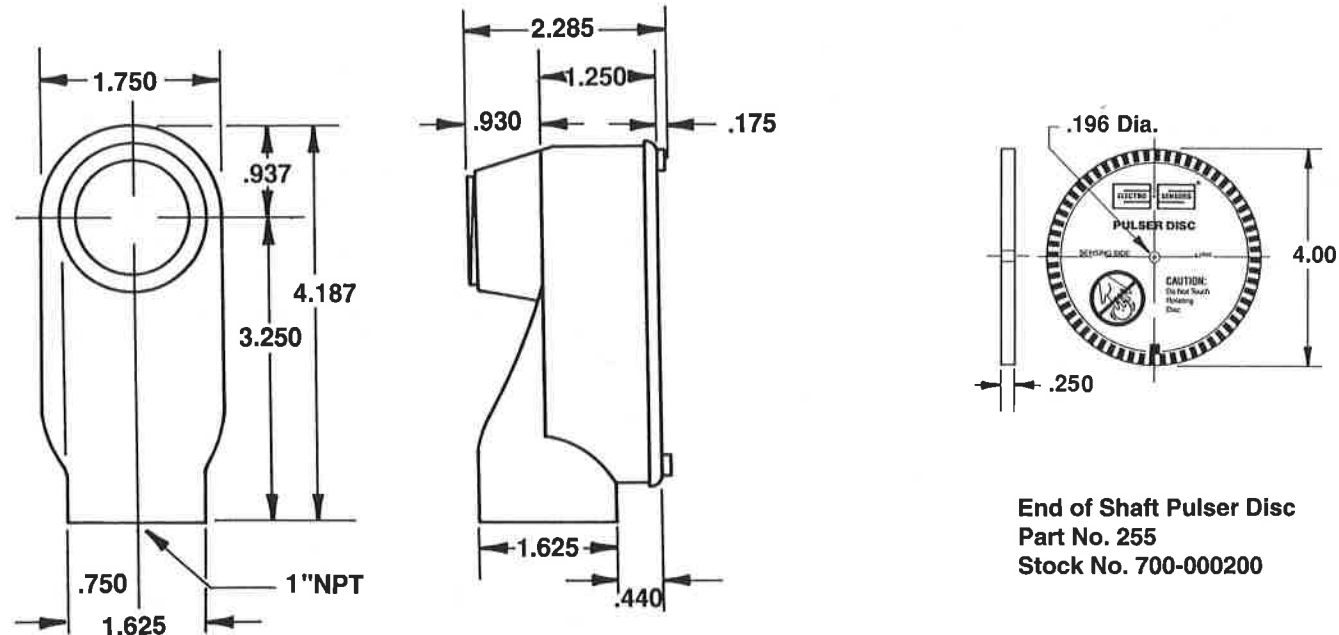


Electro-Sensors PLC Speed Switch Model PLC1000

PLC1000 Dimensional Drawings
Dimensions in Inches



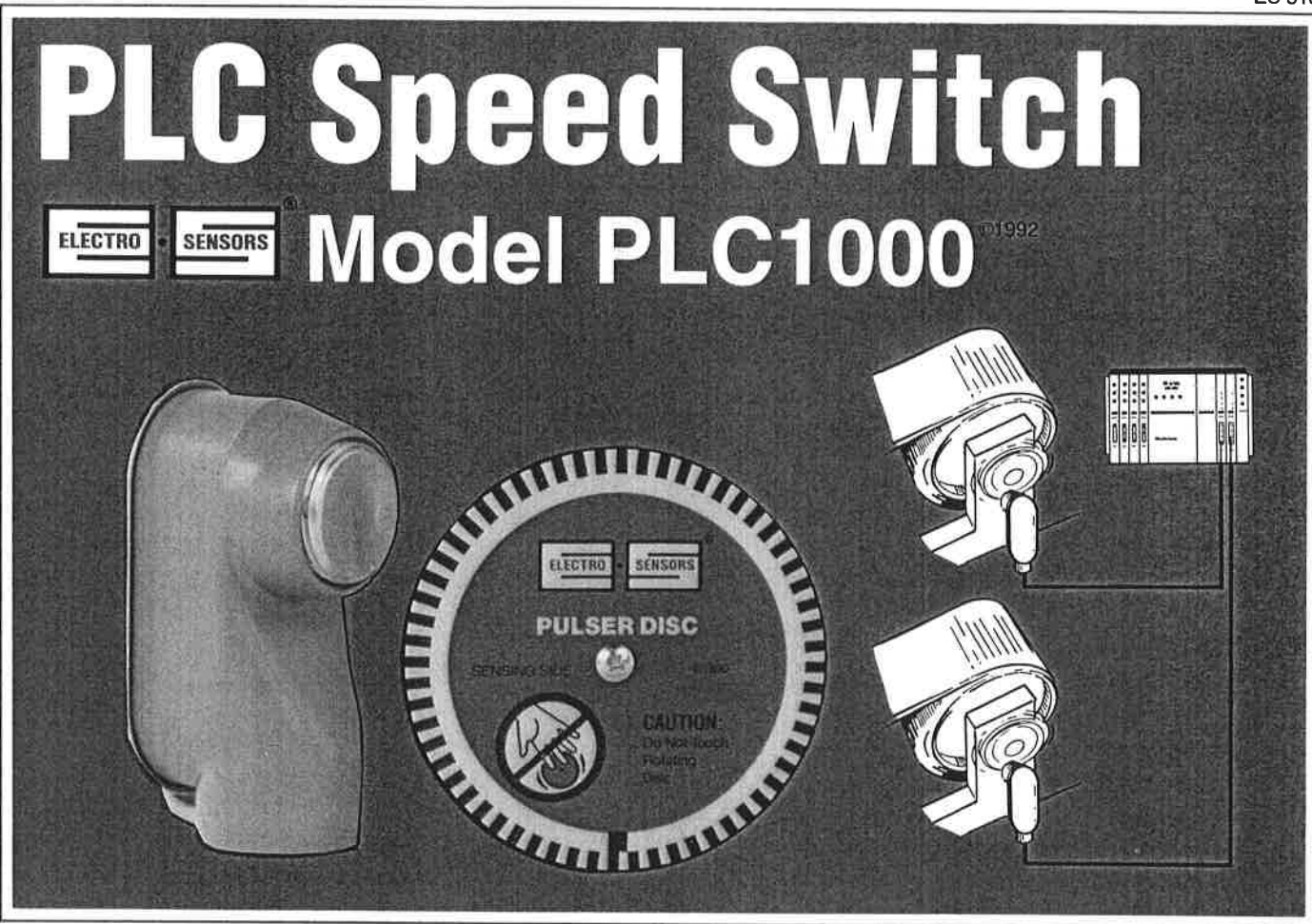
PLC1000
Part No. PLC1000 Sensor
Stock No. 775-080100

Specifications:

Voltage	7-24 Vdc 5Vdc Optional
Current	17 mA @ 24Vdc With Internal 4.7k Ohm Pull-Up
Output	Current Sinking (NPN) 25mA
Setpoint Speed	Fixed @ .666Hz (5 RPM @ 8 pulses/revolution)
Setpoint Accuracy	±20%
Hysteresis	12%
Setpoint Stability	.004 RPM / 0° - 70°C
Operating Temperature	0° - 60°C

Specifications subject to change without notice.

Spare Parts List	Stock No.	Part No.
Internal Electronics	750-039400	-
Pulser Disc	700-000200	255
Pulser Wrap	Consult Factory	



Features:

- ▶ Compatible with PLC Logic Input Cards
- ▶ Simple Installation
- ▶ Complete System
- ▶ 7 - 24Vdc Input, 5Vdc Optional
- ▶ Optional Split Collar Pulser Wrap

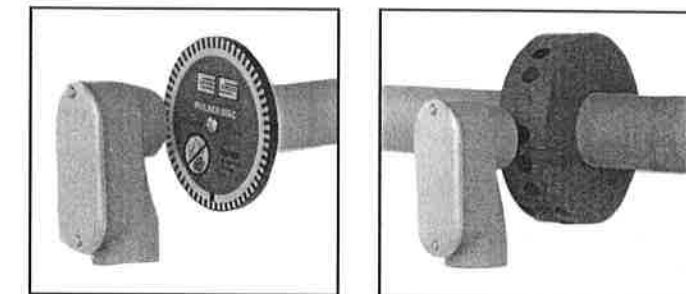
The Electro-Sensors' PLC1000 is a low cost shaft speed switch designed to interface directly with Programmable Logic Controllers (PLC's), Industrial Computers and Distributive Control Systems.

The PLC1000 system is comprised of a sensor and a magnetic disc, for end of shaft mounting, or a magnetic split collar wrap, which clamps around the shaft to be monitored.

Principle of Operation:

The sensor provides a simple, go / no-go, indication of shaft rotation. When the monitored shaft is turning faster than the setpoint speed, the output is switched low. The output is switched high when the shaft is turning slower than the setpoint speed (see specifications for setpoint data).

The standard unit can be powered directly by most PLC's. The PLC1000 will operate over a very wide supply voltage range from 7Vdc to 24Vdc with an optional 5Vdc unit available. Current draw is extremely low, typically 17mA with a 24Vdc supply voltage and internal pull-up resistor installed.



PLC1000 with pulser disc

PLC1000 with pulser wrap (optional)

Pulser Disc:

The end of the shaft to be monitored must be center drilled to a depth of 1/2 inch with a No. 21 drill and tapped for a 10-32UNF screw. After applying Loctite® or a similar adhesive on the threads to keep the disc tight, the pulser disc should be attached, decal side out, with the 10-32 screw supplied.

Pulser Wrap (optional):

When the wrap is shipped, four Allen head socket screws hold the two halves together. Remove the screws so the wrap is in two halves. Place the two halves around the shaft and replace the four Allen head screws. Torque to 8 Ft./Lbs. each.

CALL FOR APPLICATION SPECIALIST

Electro-Sensors® Inc. SPEED DIVISION
10365 West 70th St., Eden Prairie, MN 55344-3446

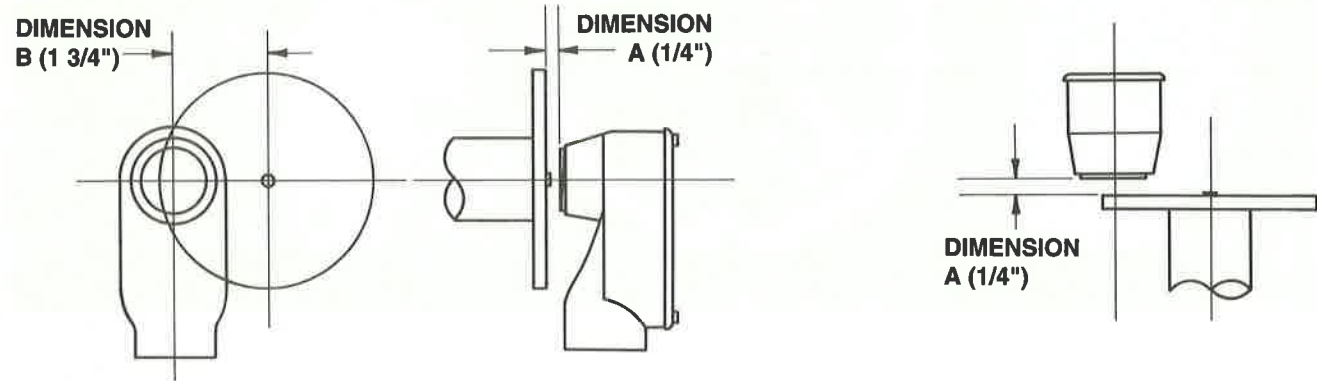
1-800-328-6170

IN MINNESOTA (612) 941-8171
FAX NO. (612) 941-0529

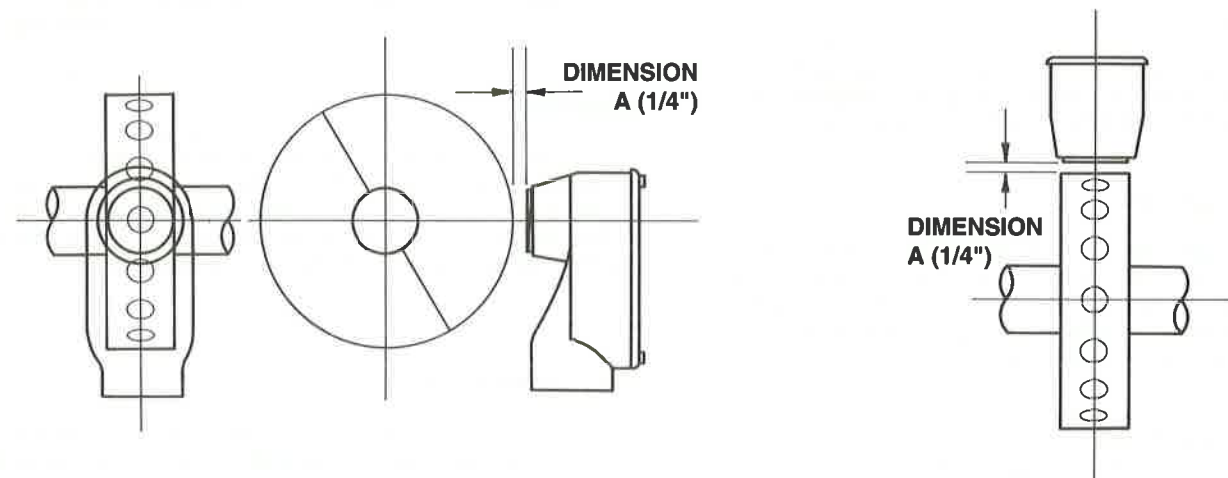
Sensor Installation:

The sensor may be located up to two thousand feet from the PLC. Use a high quality, three conductor, shielded cable (Belden® Part No. 8771 or equivalent). When using the standard four inch pulser disc (figure 1), mount the sensor 1-3/4 inches from the center of the shaft and 1/4 inch from the surface of the disc. When using a pulser wrap (figure 2), mount the sensor 1/4 inch from the surface that contains the magnets, with the center of the sensor directly over the center of the magnets.

PLC1000 and Pulser Disc:
Figure 1



PLC1000 and Pulser Wrap:
Figure 2



Wiring:

Wire the PLC1000 as follows (see figure 3):

Positive Supply TB1-1 RED - This lead is power to the sensor. Attach it to a power source on the PLC capable of supplying from +7 to +24Vdc (+5Vdc optional) and at least 25mA.

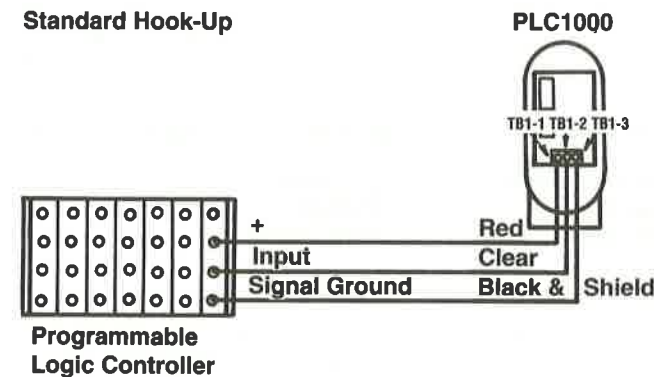
Signal TB1-2 CLEAR - This lead is the output from the sensor. Attach it to the PLC input. An internal pull-up resistor (4.7k Ohm) is connected directly across the positive supply and the signal. When the shaft is not turning, or turning below the setpoint, the output voltage is pulled up to near the supply voltage. When the shaft is turning above the setpoint speed, the output voltage will be pulled low, very near ground potential.

Ground TB1-3 BLACK - This lead is the power return and the signal ground from the sensor. Attach it to the signal ground of the PLC.

Shield TB1-3 BARE - This lead is the shield. It helps protect the other conductors from induced noise such as radio frequencies. Attach it to the signal ground with the black lead. Do not attach the Shield lead at the sensor end. Doing so may cause noise problems due to ground loops.

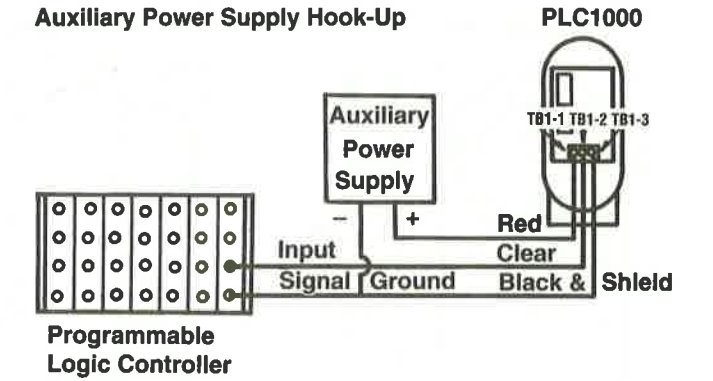
Standard Wiring Diagram:
Figure 3.

Standard Hook-Up



NOTE: If an auxiliary power supply is used to power the sensor, the signal ground from the PLC must also be attached to the auxiliary power supply ground (see figure 4).

Wiring with External Power Supply:
Figure 4.



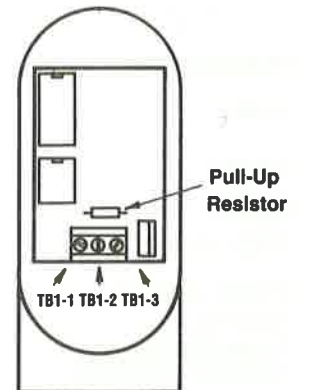
When the PLC has an Internal Pull-Up Resistor:

Some PLC input modules have their own internal pull-up resistor. In this case it may be necessary to remove the pull-up in the PLC1000 circuit board. Check the PLC owners manual, schematic diagram, or contact the PLC manufacturer if you are unsure.

To remove the pull-up resistor from the PLC1000, remove the two screws on the rear of the PLC1000 and take off the rear cover and gasket. Locate the 4.7k Ohm resistor (R4) near terminal strip TB-1 (see figure 5). Clip or de-solder and remove the resistor from the circuit board. Replace the gasket, rear cover and screws.

Pull-Up Resistor:
Figure 5.

Wire	Hook-up	Tabulation
TB1-1	TB1-2	TB1-3
Red	Clear	Black
Supply	Signal	Ground



WARNING
During a shut-down condition, movement of the monitored shaft could result in an indication from the PLC1000 to the PLC that the shaft is rotating. This could result in machine damage or personal injury if the PLC program automatically re-starts the machinery after an indication of rotational failure is cleared. Follow proper LOCK-OUT and TAG-OUT procedures when doing maintenance on machinery.