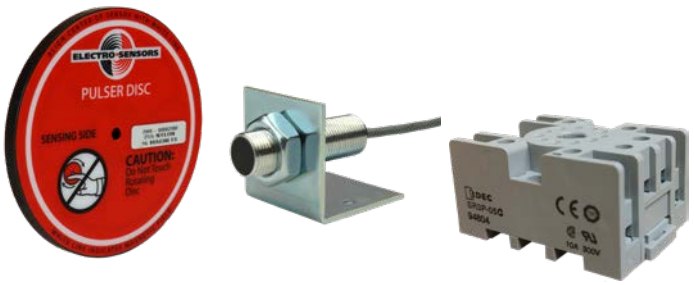
LRB1000/LRB 2000 Shaft Speed Switches

- Works with remote / external pulse frequency NPN output sensor. For PNP option, contact Electro-Sensors.
- Over-speed or under-speed configuration, 1-1,000 rpm
- 1 SPDT relay output (LRB1000) or 2 SPDT relay outputs (LRB2000)
- Visual setpoint adjustment with digital accuracy
- Dial-in calibration does not require power
- Built-in start delay
- DIN rail mounting simplifies installation
- 115, 230 VAC (50-60 Hz) and 12, 24 VDC power options
- Optional explosion proof enclosure
- Optional NEMA 4, NEMA 4X, or NEMA 12 enclosure kit

Description

The LRB1000 (single relay, 1 setpoint) and LRB2000 (double relay, 2 setpoints) shaft speed switches are an efficient way to continuously monitor machine RPM and provide relay protection upon detection of an unwanted change in speed or stoppage of the monitored shaft.

The LRB1000 and LRB2000 are completely field adjustable while the machinery is at rest; there is no need to run the shaft. They feature visual setpoint adjustment for dial-in ease and the precise digital circuitry provides high accuracy, repeatability, and reliability. An example of a standard LRB1000/LRB2000 system includes the LRB1000 DIN rail mount module, a 906 Hall Effect Shaft Speed Sensor, and a 255 Pulser Disc. Other shaft speed sensor and pulser target options are available.

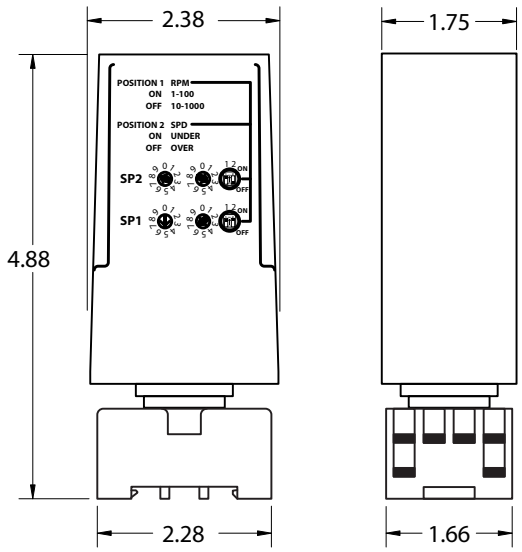


Standard system also uses a Pulser Disc, Speed Sensor, and finger safe Din-Rail mount

Principle of Operation

A shaft-mounted pulser disc or pulser wrap generates an alternating magnetic field that is picked up be the sensing head. The sensor transmits this speed signal as a digital pulse (frequency) to the switch via a 3-conductor shielded cable. The LRB decodes this frequency signal to determine shaft speed and compares this to the pre-adjusted setpoint(s). The relay output(s) can then be used for equipment shutdown or to provide an alarm, assuring machine protection and process integrity. LRB Speed Switches are failsafe; any malfunction during operation will de-energize the control circuit.

Dimensions



Product Specifications

Input Signal	
Sensor Supply	12 VDC @ 50 mA Max.
Type	Open Collector/Logic
Amplitude	5 V Pull-Up
Pull-Up	2200 Ohms to 5 V
Frequency Input	990 Hz* Max
Min. Pulse Width	1 mS
Setpoint Data	
Number of Setpoints	One (LRB1000) or Two (LRB2000)
Actuation State	Under-speed or Over-speed
Setpoint RPM Range	1 - 99 RPM or 10 - 990 RPM*
Adjustment	Rotary Switches: 1 (10x), 1 (1x)
Setpoint Accuracy	0.005% @ Low Range 0.25% @ Mid Range 0.5% @ Top Range
Hysteresis	6.6%*
Contact Arrangement	LRB1000 - One Form C, SPDT LRB2000 - Two Form C, SPDT
Relay Contact Rating	5 Amp @ 30 VDC, or 250 VAC Resistive
Start Delay	10 Seconds*
Physical Environment	
Mounting	DIN Rail or Stand Alone
Operating Temperature	-40 °C → +60 °C (-40 °F → +140 °F)
Storage Temperature	-65 °C → +125 °C (-85°F → +257 °F)
Electrical Connections	11 Position DIN Rail Terminal Block
Enclosure Rating	NEMA 1

Input Power	Input Current	Fuse Type (F2)
LRB1000/LRB2000		
115 VAC, 230 VAC	2.5 VA	Sloblo 0.032A 5X20
LRB1000		
12 VDC, 24 VDC	45 mA	Sloblo 80 mA 5X20
LRB2000		
12 VDC, 24 VDC	75 mA	Sloblo 125 mA 5X20

** Other settings available, contact Electro-Sensors.*
For higher temperature ranges, contact Electro-Sensors.
Specifications subject to change without notice.

Ordering

Model Description	Part Number
LRB1000, 115 VAC - Standard	800-076000
LRB1000, 230 VAC	800-076001
LRB1000, 12 VDC	800-076011
LRB1000, 24 VDC	800-076010
LRB2000, 115 VAC - Standard	800-076002
LRB2000, 230 VAC	800-076003
LRB2000, 12 VDC	800-076009
LRB2000, 24 VDC	800-076008

LRB1000/LRB2000 Standard System

- Shaft Speed Sensor
- Shaft Speed Pulse Generator

These are the most popular system components. Many other options are available.

System Options	Part Number
906 Hall Effect Speed Sensor 907 XP Hall Effect Speed Sensor (Explosion Proof)	775-000500 775-000600
Standard 255 Nylon Pulser Disc, 4" Diameter, 16 Magnets	700-000200
Split Collar Pulser Wrap (PVC, Aluminum, Stainless Steel)	Custom (See Website)
Finger-Safe Din-Rail Mount (Additional Replacement)	569-006110

Enclosure Options	Part Number
Explosion Proof Enclosure	305-001601
NEMA 4X Enclosure Kit	725-000006
NEMA 4 Enclosure Kit	725-000005
NEMA 12 Enclosure Kit	725-000004

Customization

If one of our standard products does not meet your specifications, please call one of our applications specialists. Many of our products can be customized to fit specific needs.

Additional Information

For more information about shaft speed switches, please refer to the Installation and Operating Manual.

Email: sales@electro-sensors.com
Tel: (800)328-6170
Fax: (952)930-0130
We also have more information online at: www.electro-sensors.com