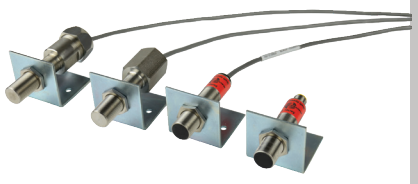
ELECTRO-SENSORS

Series 18 Shaft Speed Sensors

- Square-wave pulse frequency output, zero speed operation
- NPN or PNP output (open-collector or terminated) options
- Single channel or bidirectional (quadrature) signaling options
- 5-24 VDC powered
- Hall Effect or Magnetoresistive sensing options
- Standard and wide temperature options
- Rugged M18x1 stainless steel sensor housing
- Four housing options:
  - Basic (corded)
  - M12 Eurofast Connector – quick disconnect
  - 1/2" NPT female conduit port (corded)
  - 1/2" flexible, liquid-tight conduit fitting (corded)
- Optional EZ-18mm mounting bracket and mounting magnet available

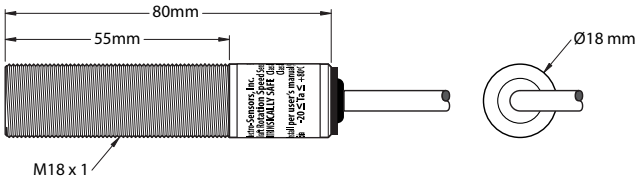


FM C US APPROVED Class I/II/III, Division 1

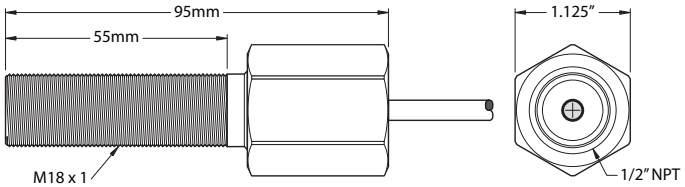
Description

Series 18 shaft speed sensors detect passing magnets of a shaft-mounted pulser disc or pulser wrap and output a voltage pulse frequency directly proportional to the shaft rotation speed. All models work with all Electro-Sensors pulser targets (discs and wraps) and operate down to zero speed. All models have rugged stainless steel M18x1 housings that are epoxy-filled and sealed against liquids/dust and come with two stainless steel hex jam nuts and a bracket.

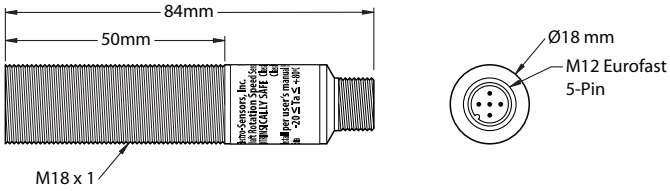
Basic Housing (18B)



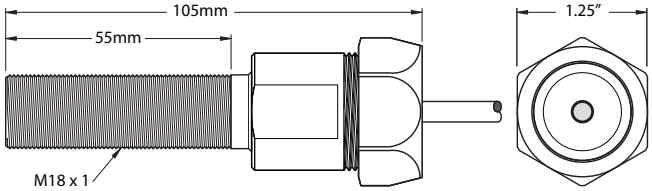
1/2" NPT Female Conduit Fitting (18R)



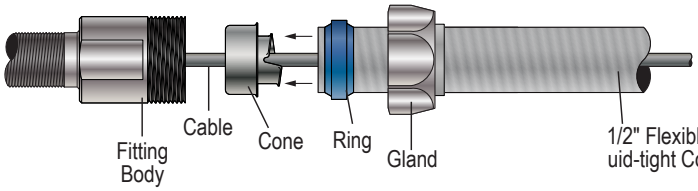
M12 Eurofast Connector (no cable) (18E)



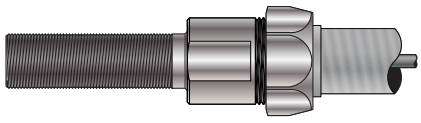
1/2" Flex Liquid-Tight Conduit Fitting (18F)



1/2" Flex Liquid-Tight Conduit Assembly (18F)



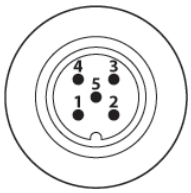
Disassembled



Assembled

Product Specifications

Output Functions	
Hall Effect	f_{pulse} = RPM * PPR / 60 RPM = f_{pulse}* 60 / PPR
Magnetoresistive	f_{pulse} = RPM * PPR / 30 RPM = f_{pulse}* 30 / PPR
Notes: f_{pulse} is the pulse output signal frequency (Hz). RPM is the shaft revolutions-per-minute. PPR is the pulser target pulses-per-revolution (number of N/S magnet pairs or 1/2 of total magnets). Magnetoresistive gives 2X the frequency of Hall-Effect. Some pulser target restrictions exist for Magnetoresistive sensing (consult factory).	
Operational Specifications	
Sensor Gap	1/4" ± 1/8" (using pulser targets with 1/2" magnets)
V_{supply}	5 → 24 VDC
I_{supply} (no I_{out} load)	10 mA (max)
I_{out}	20 mA (max, NPN sink / PNP source)

Operating Temperature	-20 → +80 °C (-4 → +176 °F) Standard Option 18B, R, F (not –W)
Output Frequency	0 → 20 kHz
Cable	
Type	Shielded, 24 AWG
Color code	Red (V+), Blk (Common), Wht (signal A), Grn* (signal B) * Q signal option only
M12 Euro pinout*	
	1 - Shield 2 - V+ (5 – 24 VDC) 3 - Common 4 - Signal (A) 5 - Signal (B) - Q signal option only, else unconnected * 18E housing option only

Specifications subject to change without notice.

Ordering: 18 ___ ___ ___ ___ ___ ___ ___ ___ — W

Build a model number by filling in the blanks

- **W**: wide-temp option (otherwise blank, available for 18B/R/F only)
- Cable length, ft (18B/R/F only, use leading zeros; 18E blank) – 010 is standard
- **O**: open-collector (un-terminated) output(s)
  T: terminated output(s) (internal 10kΩ: pull-up for 18***NT, pull-down for 18***PT)
- **N**: NPN (sinking) output(s)
  P: PNP (sourcing) output(s)
- **S**: single signal (speed only)
  Q: quadrature signal (Signal A, Signal B; 18*HQ** only): speed and direction
- **H**: Hall Effect sensing (one signal pulse per pulser target N-S magnet pair)
  M: Magnetoresistive sensing (one signal pulse per pulser target magnet)
- **B**: M18x1 housing (basic)
- **E**: M18x1 housing with 5-pin male M12 (Eurofast) connector – no cable
- **R**: M18x1 housing with 1/2" NPT female conduit port
- **F**: M18x1 housing with 1/2" (Flexible) liquid-tight conduit fitting

Series 18 EZ Mounting Options

Option	Part Number
EZ-18mm Mounting Bracket Assembly	810-000042
MM-1.50 Mounting Magnet (Must be used with EZ-18mm)	810-000070



EZ-18mm Mounting Bracket Option



MM-1.5 Mounting Magnet Option (must be used with EZ-18mm)

Intrinsically safe for:
Class I/II/III, Division 1, Groups A, B, C, D, E, F, and G;
Intrinsically safe for: Class I, Zone 0, Group IIC;
Hazardous (classified) Locations:
indoor and outdoor Type 4X, IP65.

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 product, please refer to the Series 18 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

ES120 Rev E © 2025 Electro-Sensors, Inc. All rights reserved.