



Emerson EPRO PR6424/006-131 CON041

16 mm Eddy-Current Sensor and Signal Converter Pair

Product scope

- Measures large-shaft displacement without mechanical contact.
- Provides a 4 V/mm sensitivity across the documented static range.
- Uses the exact M18, unarmored, 100 mm sleeve and 8 m open-end configuration.
- Operates only as a calibrated probe, cable and CON041 converter system.

Manufacturer source

Emerson PR6424 16 mm Eddy Current Sensor Specifications Sheet, December 2024.

The enclosed record and retained manufacturer pages identify the exact product and explain its function, operating principle, application and critical matching requirements.

Request a fast quote	Product reference	
Email: info@apterpower.com Phone: +86 18106909650 apter.com/inquiry.php	Emerson EPRO PR6424/006-131 CON041	

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Emerson EPRO PR6424/006-131 CON041

16 mm Eddy-Current Sensor and Signal Converter Pair

Manufacturer-source product record

This record consolidates exact-model facts from the manufacturer references listed below. It is included to identify the ordering configuration before the retained source pages.

Sensor	PR6424 16 mm eddy-current sensor
Sleeve thread	M18 x 1.5
Armored cable	Without armor
Sleeve code	006: Cx 100 mm in the official order matrix
Adapter plug	Without
Cable	8 m, open end
Sensitivity	4 V/mm (101.6 mV/mil), linearity within +/-1.5%
Static range	+/-2.0 mm
Operating temperature	-35 to 150 deg C
Minimum shaft diameter	80 mm

Official references

- Emerson PR6424 16 mm Eddy Current Sensor Specifications Sheet, December 2024.
- Emerson CON041 Eddy Current Signal Converter Specifications Sheet.
- Official source:
<https://www.emerson.com/is/content/emerson/en/systems-and-software/ams/forms-and-specs/documents/pr6424-16mm-sensor.pdf>

Only the exact configuration shown above is represented. Adjacent model variants, optional assemblies and system accessories are not treated as part of this ordering identity.

Function, operating principle and application

The notes below explain how this product is used and how its documented signal, power or control path operates. They remain limited to the manufacturer evidence for this model.

Measurement purpose

The sensor/converter pair provides non-contact shaft-displacement measurement for large turbomachinery, including radial vibration, axial position, eccentricity and speed/key observation.

Working principle

The converter drives a high-frequency electromagnetic field at the probe tip. A nearby ferromagnetic shaft changes the eddy-current loss as the gap varies, and the converter translates that change into a proportional electrical output.

Mechanical configuration

The /006 sensor execution combines the M18 x 1.5 unarmored body with the 100 mm sleeve code. The -131 suffix identifies no adapter plug, 8 m total cable length and an open cable end in the official order matrix.

Application

The larger 16 mm probe is suited to machines with shafts at least 80 mm in diameter and to installations requiring the documented +/-2 mm static measuring range.

Installation caution

Set the mechanical gap using the matched PR6424/CON041 calibration data and the actual target material. Sensor, converter and extension-cable identities must remain a calibrated system.

PR6424

Specifications Sheet

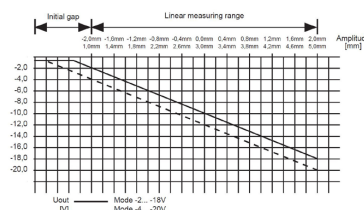
December 2024

16mm Eddy Current Sensor

Non-contact sensor designed for critical turbomachinery applications such as steam, gas and hydro turbines, compressors, pumps and fans to measure radial and axial shaft dynamic displacement; position, eccentricity and speed/key.



Dynamic Performance	
Sensitivity/Linearity	4 V/mm (101.6 mV/mil) $\leq \pm 1.5\%$
Air Gap (Center)	Approx. 2.7 mm (0.11") Nominal
Long Term Drift	< 0.3%
Range:	Static ± 2.0 mm (0.079")
	Dynamic 0 to 1,000 μ m (0 to 0.039")
Target	
Target/Surface Material	Ferromagnetic Steel (42 Cr Mo4 Standard)
Maximum Surface Speed	2,500 m/s (98,425 ips)
Shaft Diameter	≥ 80 mm
Environmental	
Operating Temperature Range	-35 to 150°C (-31 to 302°F)
Temperature Error	<4%/100°K (API 670 Compliant)
Pressure Resistance to Sensor Head	10,000 hPa (145 psi)
Shock and Vibration	5g @ 60Hz @ 25°C (77°F)
Physical	
Material	Sleeve – Stainless Steel, Cable – PTFE
Weight (Sensor & 1M Cable, no Armor)	~200 grams (7.05 oz)



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16mm Eddy Current Sensor

December 2024

Compliance and Certifications	
CE	2014/30/EU (EN 61326-1) 2014/34/EU 2011/65/EU
ATEX	EN 60079-0 EN 60079-11
IEC-Ex	IEC 60079-0 IEC 60079-11 IEC 60079-26
CSA	CAN/CSA-C22.2 NO. 0-M91 CAN/CSA-C22.2 NO. 157-92 CAN/CSA-C22.2 NO. 213-M1987 CAN/CSA-E60079-15-02 (R2006) CAN/CSA-C22.2 NO. 25-1966 CAN/CSA-C22.2 NO. 61010-1-04 ANSI/UL Standard 913-2004 ANSI/UL Standard 1604-1995 UL 60079-15 2002 UL 61010-1

Hazardous Area Approvals

Compliance and Certifications	
ATEX / IEC-Ex	Area classification depends on converter, see converter documentation for details, sensor temperature classification: T6: Ta ≤ 84°C T4: Ta ≤ 114°C T3: Ta ≤ 160°C
CSA	Area classification depends on converter, see converter documentation for details, sensor temperature classification: T6: Ta ≤ 64°C T4: Ta ≤ 114°C T3: Ta ≤ 160°C
Non-sparking (nA)	
CSA	Area classification depends on converter, see converter documentation for details, sensor temperature classification: T6: Ta ≤ 64°C T4: Ta ≤ 114°C T3: Ta ≤ 160°C

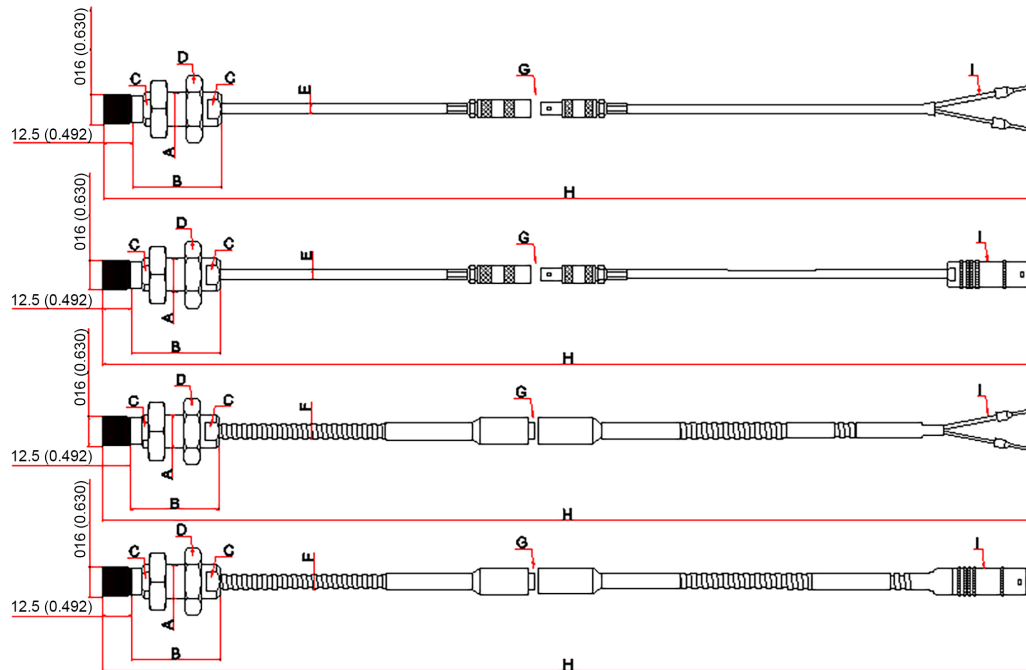
16mm Eddy Current Sensor

December 2024

Dimensions

PR6424/xxx-xxx

Note: All dimensions shown in millimetres (inches)



- A. Case thread, M18x1.5 or 3/4-16UNF
- B. Case Length
- C. Wrench flats, SW 16 mm
- D. SW 27 mm
- E. Standard cable diameter 2.8 mm (0.11 in), minimum bending radius 25 mm (0.984 in)
- F. Armored cable diameter 6 mm (0.236 in), minimum bending radius 35 mm (1.378 in)
- G. Optional Adapter Plug after 1m cable from Sensor
- H. Cable Length (Tolerances 0...+10%)
- I. Lemo connector (male), 11.0 mm (0.433 in) diameter or open cable end

16mm Eddy Current Sensor

December 2024

Ordering Information

Order Matrix		PR6424 /	X	X	X	-	X	X	X
Sleeve Thread	M18x1.5 3/4"-16 UNF	0 1							
Armored Cable	WITH WITHOUT		1 0						
Total Sensor Length C=Cx +12.5mm	0(Cx=40mm), 1(50), 2(60), 3(70), 4(80), 5(90), 6(100), B(150), G(200), M(250), R(290)			X					
Adaptor Plug	WITH WITHOUT					0 1			
Total Cable Length	0(4m), 1(5m), 3(8m), 4(10m)						X		
Cable End	LEMO OPEN							0 1	

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CON041

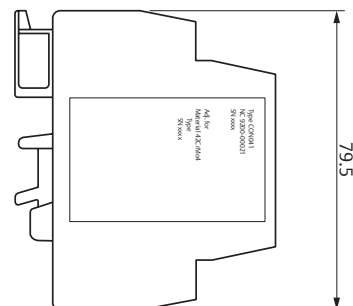
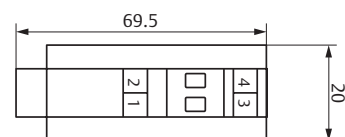
Specifications Sheet

June 2017

Eddy Current Signal Converter

Sensor Signal Converter designed for critical turbo machinery applications such as steam, gas and hydro turbines, compressors, pumps and fans to measure radial and axial shaft displacement, position, eccentricity and speed/key.

Dynamic Performance	
Frequency Range (-3 dB)	0 to 20,000 Hz
Rise Time	<15µs
NOTE: Designed for PR6422, PR6423, PR6424, PR6425, PR6426 For Extended Range Use: CON041/91x-xxx PR6425 Requires Extended Range Converter	
Environmental	
Operating Temperature Range	-30 to 100°C (-22 to 212°F)
Shock and Vibration	5g @ 60Hz @ 25°C (77°F)
Protection Class	IP20
Power & Electrical	
Supply Voltage Range	-23V to -32V (Output Range -4V to -20V)
	-21V to -32V (Output Range -2V to -18V)
Physical	
Housing Material / Weight	PA 6.6 / ~60 grams (2.12 oz)
Mounting	Din Rail
Connections	Screw Terminal (Max. 1.5mm ² , Wire-end Sleeves)



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CON041

June 2017

Compliance and Certifications	
CE	2014/30/EU 2014/34/EU 2011/65/EU EN61326-1 DIN EN 50581
ATEX	EN 60079-0:2009 EN 60079-11:2012
IEC-Ex	IEC 60079-0:2007-10; Edition 5 IEC 60079-11:2011; Edition: 6.0 IEC 60079-26:2006; Edition: 2
CSA	CAN/CSA-C22.2 NO. 0-M91 CAN/CSA-C22.2 NO. 157-92 CAN/CSA-C22.2 NO. 213-M1987 CAN/CSA-E60079-15-02 (R2006) CAN/CSA-C22.2 NO. 25-1966 CAN/CSA-C22.2 NO. 61010-1-04 ANSI/UL Standard 913-2004 ANSI/UL Standard 1604-1995 UL 60079-15 2002 UL 61010-1

Hazardous Area Approvals

Intrinsic Safety (iA)	
ATEX	II 2 G Ex ia IIC T4 Gb, -20°C ≤ Ta ≤ 80°C (Use with current limiting, e.g.: safety barrier)
IEC-Ex	Ex ia IIC T4 Gb, -20°C ≤ Ta ≤ 80°C (Use with current limiting, e.g.: safety barrier)
CSA	Class I Division 1, Groups A, B, C, D, T4 T4: -25°C ≤ Ta ≤ 80°C (Use with current limiting, e.g.: safety barrier)
Non-sparking (nA)	
CSA	Class I Division 2, Groups A, B, C, D Ex nA II T3..T4 AEx nA II T3..T4 T4: -25°C ≤ Ta ≤ 80°C

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