

RPM 30

Capacitive Conditioner for Non-Contact Rotational Speed Measurement



Rotational Speed Measurement Solution

The RPM30 is a capacitive conditioner dedicated to non-contact rotational speed measurement.

Used in combination with a **dedicated capacitive sensor**, it accurately detects the **passage of moving metallic elements** and generates a signal proportional to rotational speed.

Available in 1-, 2-, or 4-channel versions, it meets the requirements of **rotating equipment monitoring and measurement** in industrial environments and test benches.



Capacitive Detection for Rotating Machinery

The RPM30 measurement principle is based on the **capacitance variation** generated by the passage of a **conductive target** in front of the sensor.

This technology enables **non-contact measurements**, eliminating wear mechanisms and limitations associated with conventional contact-based sensors.

The system is designed to operate with gaps ranging from 0.2

mm to 1.5 mm, depending on the configuration used.

With a speed output bandwidth from 0 to 4 kHz and a raw signal bandwidth up to 5 kHz, it is suitable for **measuring fast phenomena associated with shafts, turbines, compressors, and other rotating assemblies**.

The system's **low thermal drift** and **good linearity** contribute to **long-term measurement stability**.

Designed for Harsh Environments

The RPM30 operates from a 28 Vdc power supply and incorporates **automatic static balancing** for simplified commissioning.

It features a **linear 0–5 V analog output proportional to the measured rotational speed**, as well as a raw signal output that can be used for dedicated signal processing applications.

The associated sensor is **designed for demanding operating environments**. Its Inconel X750 body allows operation over a **wide temperature range** from -270°C to +180°C.

The sensor also offers **pressure resistance** up to 100 bar and **high vibration endurance**.

Combining **non-contact capacitive technology**, rugged construction, and the ability to provide a usable speed monitoring signal, the RPM30 is **well suited for machine monitoring, instrumentation, and rotating machinery test applications**.

Applications

-  Industry
-  Aerospace
-  Automotive
-  Metrology
-  Research / R&D
-  Électronics

Technical data

Measurement range	0.2 to 1.5 mm	depending on the diameter of the associated sensor measuring electrode (2 mm)
Linearity	< +/- 0.3%	of full scale (F.S.) on generator signal
Temperature sensitivity drift (/°C)	< 50 ppm	
Temperature zero drift (/°C)	< 20 ppm	
Speed output bandwidth	0.1 to 4 kHz	
Maximum bandwidth	0 to 5 kHz	typical value at -3 dB (raw signal output)
Typical sensitivity	70V/pF	
Measurement output	0 / 5V	linear with rotational speed
Raw signal output	0 / 10V	maximum
Static balancing	Automatic	
Power supply	28 Vdc +/- 5V	
Current consumption	<100 mA	
Conditioner operating temperature range	-20 °C to +50 °C	
Enclosure	AU4G housing	
Dimensions	60 × 90 × 35 mm	

Associated Sensor Specifications

Operating temperature range	-270 °C to +180 °C
Pressure rating	100 bar (maximum)
Vibration resistance	according to A5 SG 1X 40
Body material	Inconel X 750
Sensor connector	SMA
Cable connector	LEMO triaxial FFA 0S 650 CTAC
Maximum sensor cable length	2m

Output Connectors

- A** = +28V power supply
- B** = Raw signal output (pulse output)
- C** = 0V power supply
- D** = 0V power supply
- E** = Measurement output +
- F** = Measurement output - (0V measurement reference)

Note: The measurement 0V reference is isolated from the power supply 0V.