



CR, CRR **Rotational Speed Monitors, Relay Output**
CRA, CRRA **Rotational Speed Monitors, Relay and Analog Outputs**

- **Input Range 0.01 Hz to 20,000 Hz**
- **Accepts Hall and Magnetic Sensors**
- **Programmable Measuring Units**
- **Programmable Outputs**
- **Compact Package for DIN-Rail Mounting**



General Specifications

Frequency Range	0.01 Hz to 20,000 Hz, 36 V max.
Units	Hz, pulses/min, pulses/hr, rpm, in/sec, in/min, in/hr, ft/sec, ft/min, ft/hr, mph, meters/sec, meters/min, meters/hr, km/hr
Pulses per Unit	1 to 10,000
Input Averaging	1-255 pulses depending on relay 1 setting
Accuracy	±0.03% of full scale ±1 digit
Temperature Coefficient	±0.01% of full scale
Power	18 to 36 VDC, less than 160 mA

Sensor Specifications

Types	PNP, NPN, or sine wave, 2- or 3-wire	
Minimum Pulse	20 µs duration	
Sensor Supply	12 VDC, 60 mA max.	
Trigger Level Ranges	NPN & PNP: 2.5 to 6 V	10 kΩ imp.
	Sine wave: 1.0 to 2.5 V	100 kΩ imp.
	Others: 0.2 to 0.7 V	100 kΩ imp.
Trigger Level Defaults	NPN & PNP: 6 V	
	Sine wave: 2.5 V	
External Start Input	>2.5 to 36 V to start, <1.0 V to stop	

Relay Output

CR and CRA	One SPDT relay
CRR and CRRA	Two SPDT relays
Response Time	<20 milliseconds + measuring period
Relay Action	Programmable Hi/Lo and normal/reverse
Contact Rating	5 A @ 250 VAC max. resistive load or 2 A @ 42 VDC max. resistive load
Hysteresis	Adjustable 1 to 85% of full scale units
Alarm Reset Delay	Adjustable 0-99.9 seconds
	Relay 1, Hi alarm mode only
Alarm Trigger Delay	Adjustable 0-99.9 seconds
	Relay 1 or 2, Lo alarm mode only

Analog Output

Ranges	0-20 mA or 4-20 mA
Accuracy	±1.0% of full scale
Maximum Burden	400 Ω
Temperature Coefficient	±0.02% of full scale

Environmental and Mechanical Specifications

Operating Temperature	-25 to 70°C (-13 to 158°F)
Protection (IEC 529)	IP 20 (installation in enclosure)
Vibration (IEC 68-2-6)	0.7 G @ 1-100 Hz
Dimensions	43 mm W x 70 mm H x 114 mm D
Material	UL94-V-0 polycarbonate
Mounting	Standard 35 mm DIN-rail

Model	Part Number	Output	Power
CR	5810.100	1 Relay	18-36 VDC
CRR	5810.200	2 Relays	18-36 VDC
CRA	5820.100	1 Relay, Analog Output	18-36 VDC
CRRA	5820.200	2 Relays, Analog Output	18-36 VDC



Use Commonly Available Non-Contact Sensors

Hall Effect
Differential Hall Effect
Magneto-Inductive
Magneto-Resistive
Inductive Oscillatory
2- or 3-Wire

Contact us for your high quantity and OEM sensor needs



Applications

The RheinTacho programmable speed monitors measure the rotational speed of machines and systems. It detects the signals of most non-contact speed and motion sensors such as Hall effect, magneto-inductive, magneto-resistive and others. If the measured value exceeds or falls below a preset limit value, the alarm relay is automatically switched. The following types of conditions are typically monitored.

Over speed monitoring with reset switching delay

An over speed condition triggers the alarm relay. Once the speed has fallen below the hysteresis value and the reset time delay has expired, the alarm relay resets to normal.

Under speed monitoring with run-up delay

An under speed condition triggers the alarm relay. Monitoring does not start until after the signal of the external start trigger has de-energized and the starting delay time has elapsed.

Remote speed monitoring using the analog output

The analog output can be used to remotely monitor machinery rotational speed. This combined with the alarm functions provides an economical solution for your speed monitoring applications.

Industry Applications

The speed monitor has numerous applications in many areas of technology, whether it be for protection of personnel, machines or manufactured products, to ensure that a plant operates at optimum efficiency, or for speed-dependent switching of system functions in a process.

Machinery Applications

- Internal combustion engines in power station and marine applications
- Gas, water and wind turbines
- Pumps, mixing plants, and conveyor systems
- Paper, foil, and textile production plants
- Machine tools, and processing plants

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RheinTacho Standard, OEM and Custom Speed Sensors

RheinTacho develops and manufactures a wide range of standard, custom, and OEM products for a variety of rotational speed measuring applications. Products include measuring systems, sensors, and electronics with appropriate housings, cabling, and connections.

RheinTacho speed sensors are specialized for use in harsh environments with resistance to high pressure, temperature extremes, EMI, aggressive media, water, and steam. A variety of measuring principles are available for your application. Call us today with your requirements or visit:

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ISO 9001 : 2000

Speed sensor applications

- Ship engines
- Generators and turbines
- Wind power plants
- Hydraulic drives
- Electric motors
- Construction equipment
- Agricultural machinery
- Printing and paper machines



SH Series Hall Effect Sensors

Hall sensors are suitable for non-contact rotational speed detection of small gearwheels at high resolution. Hall sensors are found in a variety of machinery, construction equipment, vehicles, mobile equipment, and hydraulic drives.

Series	Housings	Material	Protection	Max. PSI
SHN9	M14x1x40, M14x1x60	PES 30% GF	IP65	none
SHN9	M14x1x80, M14x1x120	PES 30% GF	IP65	none
SHx10	M16x1.5x45, M18x1.5x50	303 SS	IP69K	300
SHx10	5/8"x60mm, 3/4"x60mm	303 SS	IP69K	300
SHP7	M16x1.5x45, M18x1.5x50	BeCu	IP67	290
SHx7	M16x1.5x45, M18x1.5x50, UNF 5/8"-18	303 SS	IP67	70
SHx7	M18x1x45, M18x1x60, M18x1.5x85	Brass	IP67	70
SHP7	M18x1.5x50	Brass	IP67	800

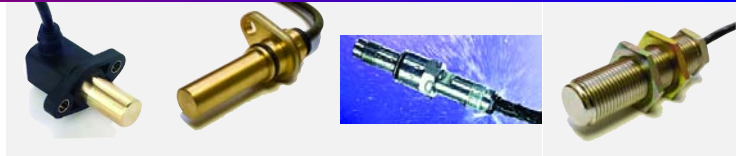


- Output** Square wave, NPN or PNP options
- Power supply** 8-36 VDC
- Air gap** 1 to 3.5 mm, typical
- Freq. range** 0-15,000 Hz
- Connections** M12, CA-Com, Bayonet, Sure-Seal, AMP. Plugs are IP67.
- Cable options** Consult factory
- Temp. range** -40 to 257°F (-40° to 125°C), SHN9: -13 to 185°F (-25° to 85°C) SHP7, 800 psi: -22 to 180°F (-30° to 80°C)

SD Series Hall Effect Differential Sensors

Differential Hall sensors are designed for rotational speed detection where very high resolution is required over a wide frequency range. Versions are available for directional sensing in addition to speed. Some models allow greater installation distance at low frequencies.

Series	Housing	Material	Air Gap mm	Freq. Range	Max. PSI.	Power
SDN	Flange	Brass	1 to 2.5	0.1-20,000 Hz	218	7-30 VDC
SDP	M18x1.5x50	Ni-plated brass	1.5 to 4	0.5-20,000 Hz	1400	10-36 VDC
SDP	M12x1x50	Ni-plated brass	1.5 to 4	0.5-20,000 Hz	1400	10-36 VDC
SDx2	M12x1x50	303 SS	0.5 to 3	0.5-20,000 Hz	3200-7250	10-36 VDC
SDx2	M12x1x50	303 SS	0.5 to 3	0.5-20,000 Hz	1400	10-36 VDC
SDx2	M18x1x50	303 SS	0.5 to 3	0.5-20,000 Hz	1400	10-36 VDC
SDx2	M18x1.5x50	303 SS	0.5 to 3	0.5-20,000 Hz	1400	10-36 VDC
SDx0	M18x1x40	303 SS	0.3 to 2.5	2-20,000 Hz	145	8-36 VDC
SDx1	M18x1x40	303 SS	0.3 to 2.5	2-20,000 Hz	145	8-36 VDC



- Output** Dual phase square wave, NPN or PNP options
SDx0: 2 NPN or 2 PNP
SDx1: 1 frequency + 1 direction
- Protection** IP69K, SDx0, SDx1: IP68
- Connections** M12, CA-Com, Bayonet, Sure-Seal, or AMP. Plugs are IP67.
- Cable options** Consult factory
- Temp. range** -40 to 257°F (-40° to 125°C), SDN: -26 to 284°F (-32° to 140°C)

Designed for rotational speed and zero speed detection of ferromagnetic materials. Capable of detecting high frequencies and fine gear teeth, but are sensitive to varying external magnetic fields. With proper installation they work well at lower frequencies.



- Output** Square wave, NPN or PNP options
- Air gap** 0.4 to 1.9 mm, typical
- Freq. range** 0-25,000 Hz
- Power supply** 10-36 VDC
- Housing sizes** M14x1x90, M12x1x50, M18x1x50, M18x1.5x50
- Material** Nickel-plated brass
- Connections** Cable, M12 plug, Sure-Seal plug
- Protection** IP 67, IP68 depending on model
- Temp. Range** -40 to 257°F (-40° to 125°C)

Suitable for rotational speed and zero-speed detection in normal industrial environments. Used for detection of keyways, bolts, screw heads and similar shaft-mounted objects and where only one or a few pulses per revolution need to be detected.



- Output** Square wave, NPN or PNP options
- Air gap** 2-8 mm typical depending on version
- Freq. range** 0-3,000 Hz with M12x1x40 or 0-2,000 Hz with M18x1x55
- Power supply** 10-35 VDC
- Housing sizes** M12x1x40 or M18x1x55
- Material** Chrome-plated brass
- Pressure** Not for pressurized applications
- Connections** Cable or M12 plug
- Protection** IP 67
- Temp. range** -13 to 158°F (-25° to 70°C)

Self-powered sensors which use the inductive oscillator principle. For simple rotational speed measuring in normal industrial environments. Can sense simple ferromagnetic targets such as screw heads, nuts, bolts or gear teeth.



- Output** Sinusoidal
- Typical air gap** 0.5 mm
- Freq. range** 50-30,000 Hz
- Housing sizes** M16x1.5x45, M18x1.5x50, M18x1x65, M18x1x85, M18x1.5x58, M18x1.5x55, M18x1.5x85
- Material** Zinc plated steel
- Pressure** 210 psi max. with M16x1.5x45, M18x1.5x50 housings
Other housings not for pressurized applications
- Connections** Cable, CA-Com plug, or M12 plug
- Protection** IP 67
- Temp. range** -13 to 185°F (-25° to 85°C) or
-13 to 248°F (-25° to 120°C) with cable or CA-Com plug