Emerson PR9376-010-011

01 Function and selected configuration

Product function

Emerson PR9376-010-011 detects individual gear teeth without touching the rotating target. Its active Hall-effect circuit permits pulse acquisition at low speed while the protective cable hose supports exposed machine-side routing.

Selected configuration

The PR9376/010-011 configuration uses a stainless-steel sensor body, PTFE cable and protective hose. The open-ended lead connects to the appropriate powered speed-monitor input; it is not a passive variable-reluctance pickup.

Functional path

Ferromagnetic teeth	Hall sensing circuit	5 m armoured lead	Speed-monitor input

Sensing principle	Non-contact Hall effect
Selected lead	5 m, armoured, open cable end
Supply and pulse rate	10–30 VDC, maximum 12 kHz

For a 12 VDC supply and 100 kΩ load, the output high level exceeds 10 V and the low level is below 1 V. Rise and fall time is 1 µs. One signal cycle is produced per passing gear tooth, so the configured tooth count determines how pulse frequency is converted into shaft speed.

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02 Technical operating envelope

Sensing principle	Hall effect
Integral cable	5 m; armoured; open end
Power supply	10–30 VDC; maximum 25 mA
Maximum pulse frequency	12 kHz
Output high level	>10 V at 12 VDC, 100 kΩ load
Output low level	<1 V at 12 VDC, 100 kΩ load

Rise / fall time	1 µs
Target material	Magnetic soft iron or non-stainless steel
Air gap	1 mm at module 1; 1.5 mm at module ≥2
Operating temperature	-25 to +100 °C
Sealing	IP67
Cable insulation	PTFE

Output levels refer to 12 VDC and 100 kΩ loading. Pulse-rate capability and tooth count jointly determine the usable shaft-speed range.

Signal interpretation

Pulse frequency equals shaft revolutions per second multiplied by the number of target teeth. A speed setting that assumes one pulse per revolution will be incorrect when a multi-tooth wheel is used.

Interface boundary

The high/low output specification is conditional on 12 VDC and 100 kΩ loading. Check the actual receiving-input thresholds instead of treating the full 10–30 VDC supply range as a single output-voltage rating.

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03 System integration and applications

Gear-tooth speed

Count pulses from the rotating ferromagnetic wheel and scale them by the actual teeth per revolution.

Slow rotation detection

An active Hall circuit detects passing magnetic targets without relying on the speed-dependent amplitude of a passive pickup.

Proximity indication

Use the high/low signal with a receiving input that accepts the sensor output levels and intended target movement.

Armoured field routing

The protective hose supports routing between the measurement point and the external speed-monitor connection.

System and supply context

Connect the open-ended armoured sensor lead to a compatible powered speed or proximity input. The receiving monitor, target wheel and mounting hardware must be selected separately.

Application boundary

Use a magnetic steel or soft-iron target with suitable geometry. Machinery applications include turbines, compressors, pumps and fans; the sensor alone does not provide shutdown logic.

Does PR9376-010-011 need an external supply when measuring slow rotation?

Yes. It is an active Hall-effect sensor requiring 10–30 VDC, with a maximum supply current of 25 mA. It is not a self-powered magnetic pickup.

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04 Engineering selection decisions

How many pulses should PR9376-010-011 generate from a 60-tooth wheel?

It generates one cycle for each passing tooth, giving 60 cycles per revolution. Shaft rpm is 60 times pulse frequency divided by the number of teeth.

Why is a stainless-steel target unsuitable for the stated PR9376-010-011 performance?

The specified target is magnetic soft iron or non-stainless steel. The reference spur-wheel material is ST37; do not assume equivalent response from a nonmagnetic stainless-steel target.

Can PR9376-010-011 count more than 12,000 teeth per second?

No. Its maximum operating pulse frequency is 12 kHz. This limit is a tooth-passage frequency, so maximum shaft speed depends on the number of teeth.

Which environmental limits apply to PR9376-010-011 at the machine?

The operating range is -25 to +100 °C and the sealing rating is IP67. Storage is -40 to +100 °C; storage limits do not widen the operating range.

Verify the load	Compare input thresholds and loading with the conditional high/low output specification.
Protect the cable	Support the armoured lead without pulling the open-end terminations or allowing contact with rotating parts.

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05 Configuration boundary and references

Lifecycle and support

The current manufacturing and factory-support phase of PR9376-010-011 is not confirmed. Product availability alone does not establish its lifecycle status.

Replacement assessment

Match the armoured 5 m cable, open termination, target geometry and receiving-input thresholds. A passive pickup or differently terminated PR9376 is not automatically interchangeable.

Document roles

Use the original manufacturer excerpt for its preserved technical tables and drawings. This product brief explains selection and system context. The separate installation guide covers preparation, connection, tests and handover; it does not replace manufacturer instructions.

Technical basis

Emerson PR9376 Hall Effect Speed/Proximity Sensor Specifications Sheet, August 2024.

Related product navigation

- Emerson PR6422-013-041
- Epro PR6423/003-030 CON021

These are related references, not confirmed substitutes or an automatically approved assembly.

Product enquiries