Hall-Effect Speed Sensor HA-N

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BOSCH
Invented for life

- Camshaft/crankshaft/wheel speed
- Max. frequency 4.2 kHz
- Lightweight anodized aluminum housing

This sensor is designed for incremental measurement of rotational speed (e.g. camshaft, crankshaft or wheel speed). Due to the rotation of a ferromagnetic target wheel in front of the HA-N, the magnetic field is modulated at the place of the Hall probe. A Hall-effect sensor element with integrated signal conditioning circuit detects this change and generates a digital output signal.
The HA-N combines a robust sensing element with a lightweight aluminum housing that is well suited for motorsport use. The sensor element used was specifically selected for its resistance to demagnetization at high temperatures and is programmed for an active low output. This sensor element is approved for NASCAR competition as a camshaft speed sensor.

Application

Application	Rotational speed
Max. frequency	≤ 4.2 kHz
Target wheel air gap AG	0.5 to 1.5 mm
Temperature range	-40 to 160°C
Output circuit	Open collector for 1 kOhm
Output type	Active low
External magnetic fields	< 1 mT
Max. vibration	1,200 m/s^2 at 10 Hz to 2 kHz

Technical Specifications

Mechanical Data

Weight w/ wire	13 g w/ 254 mm cable length and AS connector 28.5 g w/ 1,000 mm cable length flying lead
Bore diameter	10 mm
Installation depth L2	14 mm
Tightening torque	6 Nm

Electrical Data

Power supply	5 to 18 V
Current IS	5.6 to 18 mA

Characteristic

Accuracy repeatability of the falling edge tooth	<4 % (≤ 6 kHz) <8 % (≤ 10 kHz)
Signal output	0.52 V to V_S

Environment

Target wheel diameter D	162.34 mm
Thickness t	12.5 mm
Width of teeth b1	3.8 mm
Width of gap b2	4.7 mm
Width of sync. gap b3	20.79 mm
Depth of teeth h	3.4 mm
Number of teeth	60-2

Connectors and Wires
Sensor AS connector

Connector	ASL 6-06-05PA-HE
Mating connector	ASL 0-06-05SA-HE
Pin 1	V_S
Pin 2	GND
Pin 3	Signal
Pin 4	Not used
Pin 5	Not used
Shrink sleeve	DR-25 TW
Wire size	AWG 26
Wire length L	254 mm

Sensor Flying lead

WHT/ORG	V_S
WHT/BLU	GND
WHT	Signal
Shrink sleeve	DR-25 TW
Wire size	AWG 26
Wire length L	1,000 mm

Installation Notes

The HA-N can be directly connected to most control units and data logging systems.

If a trigger wheel with different dimensions is used (see environment), the technical function must be tested.

Safety Note

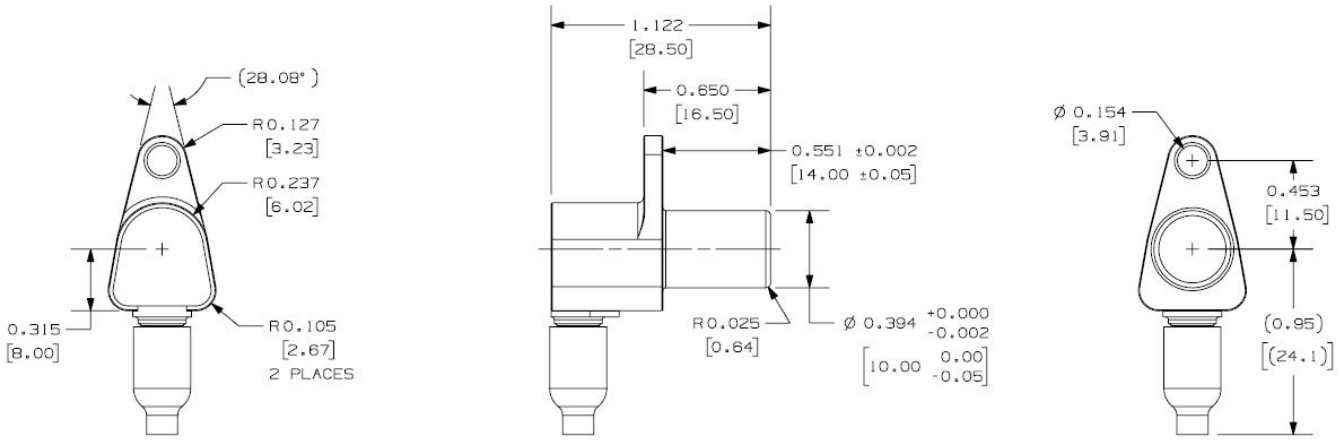
The sensor is not intended to be used for safety related applications without appropriate measures for signal validation in the application system.

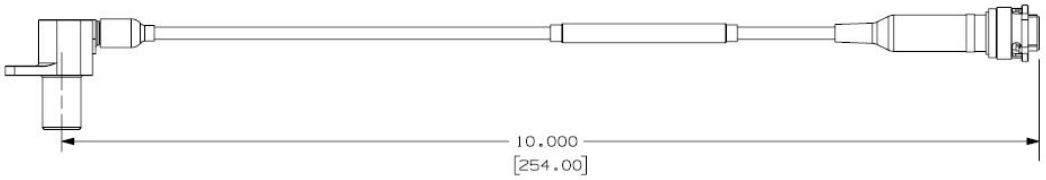
Ordering Information

Hall-Effect Speed Sensor HA-N
Sensor AS connector
Order number **F 02U V0U 714-01**

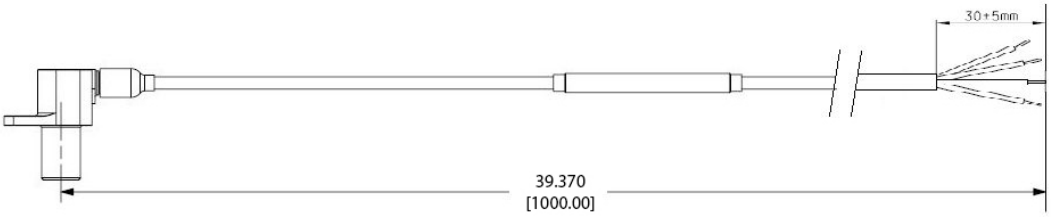
Hall-Effect Speed Sensor HA-N
Sensor Flying lead
Order number **F 02U V0U 714-90**

Dimensions

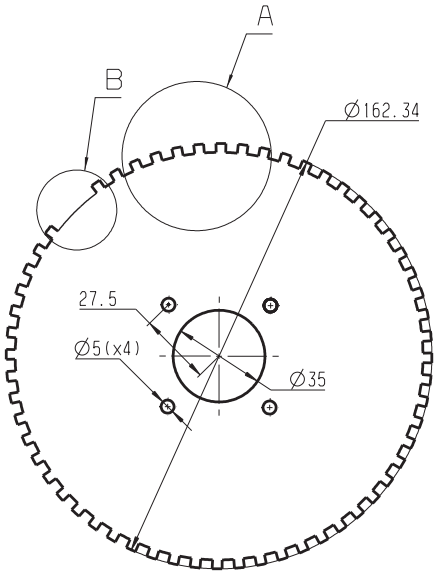




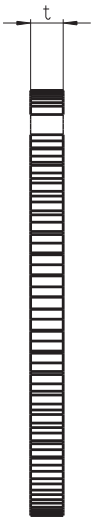
Sensor AS connector



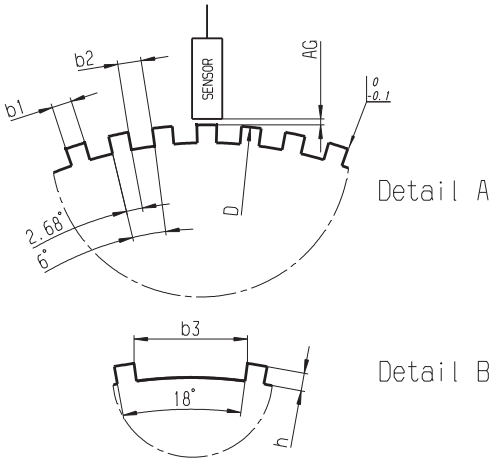
Sensor Flying lead



60-2 Teeth



Left view



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