

Speed Sensor Hall-Effect HA-Di



- ▶ Max. frequency: ≤ 10 kHz
- ▶ Air gap: 0.4 to 1.0 mm
- ▶ Bore diameter: 12 mm
- ▶ Max. vibration: $1,200 \text{ m/s}^2$ at 10 Hz to 2 kHz
- ▶ Weight w/o wire: 12 g

This sensor is designed for incremental measurement of rotational speed (e.g. crankshaft or wheel speed).

Due to the rotation of a ferromagnetic target wheel in front of the HA-Di, the magnetic field of the built-in magnet is modulated at the place of the sensors diff.

The main feature and benefit of this sensor is the detection of the rotational direction.

Application

Application	Speed
Max. frequency	≤ 10 kHz forward ≤ 6 kHz backward
Target wheel air gap AG	0.4 to 1.0 mm
Temperature range	-40 to 150°C
Output circuit	Open collector for 1 kOhm
External magnetic fields	≤ 100 mT
Max. vibration	$1,200 \text{ m/s}^2$ at 10 Hz to 2 kHz

Technical Specifications

Mechanical Data

Weight w/o wire	12 g
Mounting	Screw 1 x M5
Bore diameter	$12 + 0.2$ mm
Installation depth L2	30 mm
Tightening torque	6 Nm

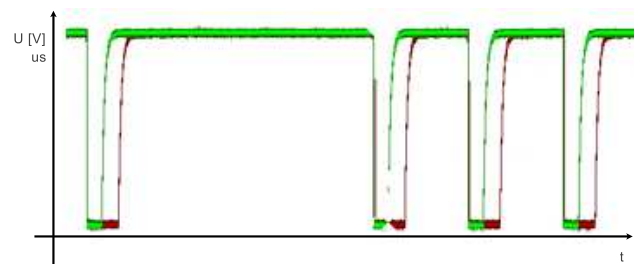
Electrical Data

Power supply	5 to 16 V (24 V for max. 5 min.)
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Current I_S	< 20 mA
Power-on time	1 ms

Characteristic

Signal output width forward	37 to 53 μs (45)
Signal output width backward	75 to 105 μs (90)
Accuracy (tolerance)	$\pm 1.5^\circ$ (for forward direction)
Signal output	0.52 V to $< U_S$



Signal output width (forward: green, backward: red)

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

Alternative Target Wheel

Target wheel diameter	118 to 370 mm
Width of teeth b1	2.2 to 3.8 mm
Width of gap b2	≥ 4 mm
Depth of teeth h	≥ 4 mm

Target wheel width	≥5 mm
Relative magnetic permeability	$\mu (r) \geq 1000$

Connectors and Wires

Connector	ASL606-05PC-HE
Mating connector	F02U.000.228-01
ASL006-05SC-HE	
Pin 1	U_s
Pin 2	Gnd
Pin 3	Sig
Pin 4	Nc
Pin 5	Nc

Various motorsport and automotive connectors available on request.

Sleeve	DR-25
Wire size	AWG 24
Wire length L	15 to 100 cm

Please specify the required wire length with your order.

Installation Notes

The HA-Di is no true-power-on sensor. It needs the falling edge of trigger wheel teeth for correct working. After a time of 0.68 s without rotation of the detected wheel it needs again the falling edge of two teeth.

Please specify the angle between the mounting and the target wheel.

Please avoid abrupt temperature changes.

For mounting please use only the integrated plug.

If a wheel with different dimensions is used (see Environment), the technical function has to be tested individually.

Please ensure that the environmental conditions do not exceed the sensor specifications.

Please find further application hints in the offer drawing at our homepage.

Safety Note

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

Legal Restrictions

Due to embargo restrictions, sale of this product in Russia, Belarus, Iran, Syria, and North Korea is prohibited.

Ordering Information

Speed Sensor Hall-Effect HA-Di 0

Order number **F02U.V01.802-02**

Speed Sensor Hall-Effect HA-Di 90

Order number **F02U.V01.803-02**

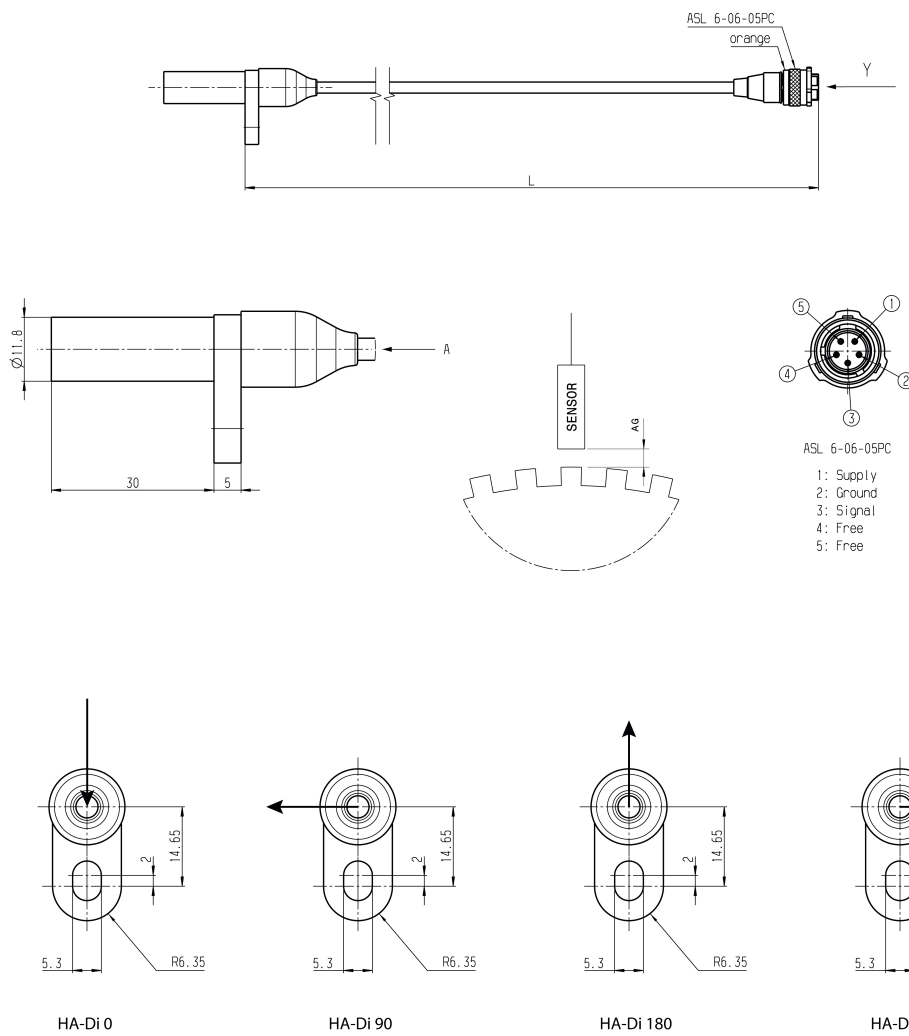
Speed Sensor Hall-Effect HA-Di 180

Order number **F02U.V01.804-02**

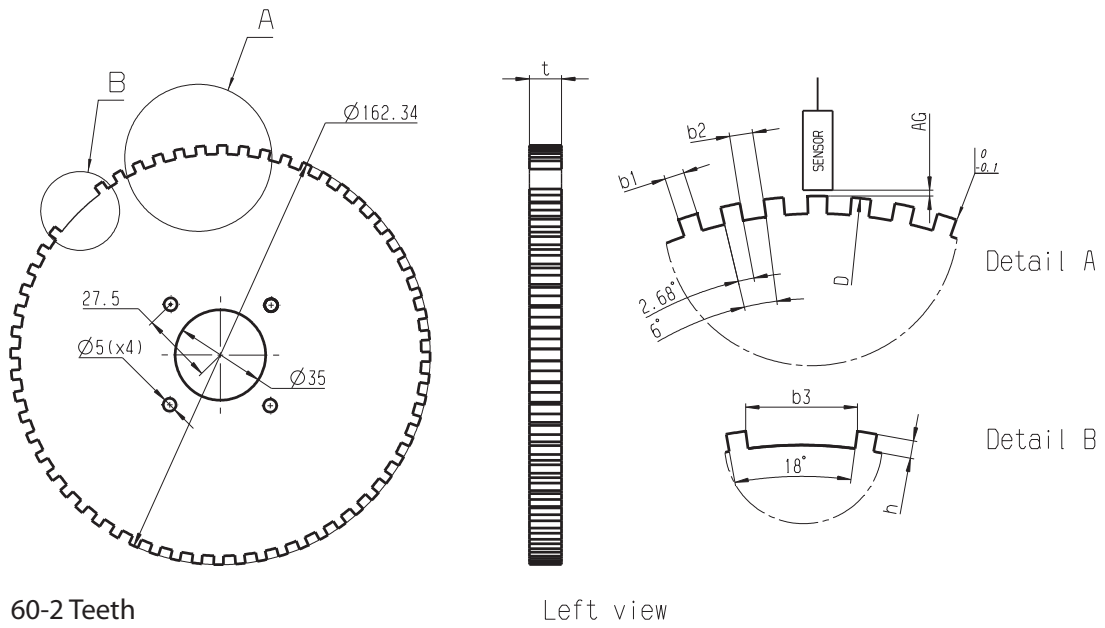
Speed Sensor Hall-Effect HA-Di 270

Order number **F02U.V01.805-02**

Dimensions



Direction of rotation of the target wheel, View A



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