



# Y12AD

## Dual Channel Hall Effect Speed Sensor

### Product ID

Type #	Product #	Drawing #
Y12AD	385Z-05335	113632

### General

**Function** The Y12AD series Hall effect speed sensors are suitable, in conjunction with a ferrous pole wheel, for generating square wave signals proportional to rotary speeds and direction signals. They exhibit a static function, whereby pulse generation down to 0 Hz is guaranteed. The internal two channel structure means that the sensor must be oriented. The sensors have a special orientation sleeve with pin for ease of installation. These sensors can also be used as proximity switches.

### Technical data

Supply voltage	11...32 VDC, protected against reverse polarity
Current consumption	Max. 20 mA (without load)
Signal output	Two output channels: Square wave signal indicating frequency DC signal indicating direction  NPN open collector outputs with internal 10 kOhm pull-up resistor: Sink current: max. 20 Ma Output voltage: $U_{high} \sim$ supply voltage $U_{low} < 0.5 V$ at $I = 20 Ma$  The outputs are short-circuit proof and protected against reverse polarity.  The sensor is able to drive the coil of a relay by using a simple current limiting resistor. No additional protection against voltage peaks are needed. This is mainly used when the sensor acts as a proximity detection device. Limit values: $I_{sink} < 70 mA$ , $L < 800 mH$
Frequency range	0 Hz...15 kHz

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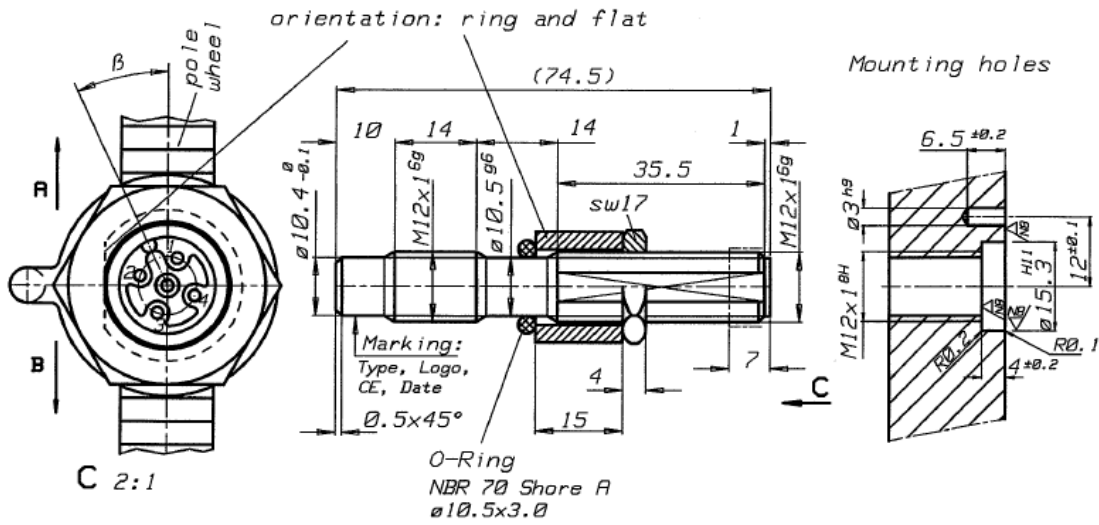
Housing	M12x1, tightening torque: max. 12 Nm Maximum pressure on front surface: 100 bar (other pressure values upon request)
Connection	Connector: M12x1 thread, 4 pins, black
Protection	Sensor head: IP68 Connector: IP67
Insulation	Housing and electronics galvanically isolated (Test: 500 V, 50 Hz for 1 minute)
Pole wheel	Prerequisite: Toothed wheel of a ferrous material (e.g. Steel 1.0036). Optimal performance with Involute gear Tooth width > 10mm Side offset < 0.2 mm Eccentricity <0.2 mm
Air gap between sensor and pole wheel	Module 1.0 (DP 25.4): 0.3...0.5 mm Module 2.0 (DP 12.7): 0.3...1.5 mm
Electromagnetic compatibility (EMC)	Please contact Jaquet for further details.
Vibration & shock immunity	Jaquet Greenline sensors are approved for rough environments. Please contact Jaquet for further details.
Operating temperature	-40°C...125°C

### Further Information

Safety	All mechanical installations must be carried out by an expert. General safety requirements have to be met.
Installation	These sensors use differential Hall probes. Therefore, the housing has to be aligned to the pole wheel according to the sensor drawing. Deviations in positioning may affect the performance and decrease the noise immunity of the sensor. During installation, the smallest possible pole wheel to sensor gap should be set. The gap should however be set to prevent the face of the sensor ever touching the pole wheel. Within the air gap specified the amplitude of the output signals is not influenced by the air gap. A sensor should be mounted with the middle of the face side over the middle of the pole wheel. Dependent upon the wheel width, a certain degree of axial movement is permissible. However, the middle of the sensor must be at minimum in a distance of 3 mm from the edge of the pole wheel under all operating conditions. A solid and vibration free mounting of the sensor is important. Eventual sensor vibration relative to the pole wheel can induce additional output pulses. The sensors are insensitive to oil, grease etc. and can be installed in arduous conditions.
Maintenance	Product cannot be repaired.
Transport	Product must be handled with care to prevent damage of the front face.
Storage	Product must be stored in dry conditions. The storage temperature corresponds to the operation temperature.
Disposal	Product must be disposed of properly, it must not be disposed as domestic waste.

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$\beta = 20^\circ$  adjusted by manufacturer

Modul 2 :  $\beta = 20^\circ - 35^\circ$

Modul 1 :  $\beta = 10^\circ - 20^\circ$

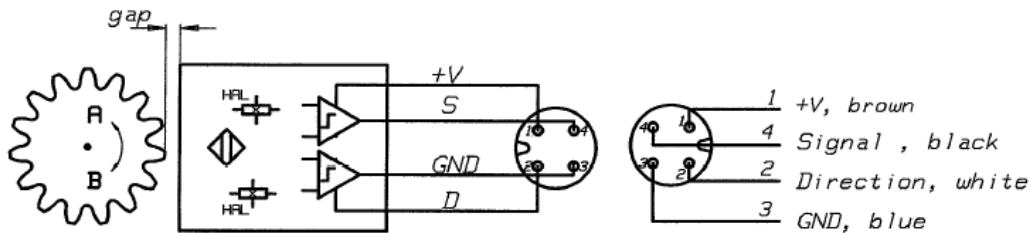
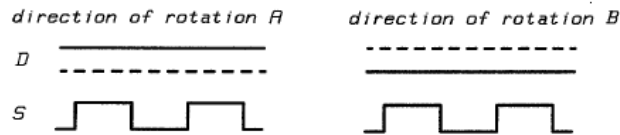
The signal "direction of rotation" will be influenced by the orientation angle  $\beta$ .

operational temperature:  $-20^\circ\text{C} - +100^\circ\text{C}$

operational instructions: 385D/E-64672

Tightening moment max.: 12Nm

## pulse diagram



Dimensions in mm

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