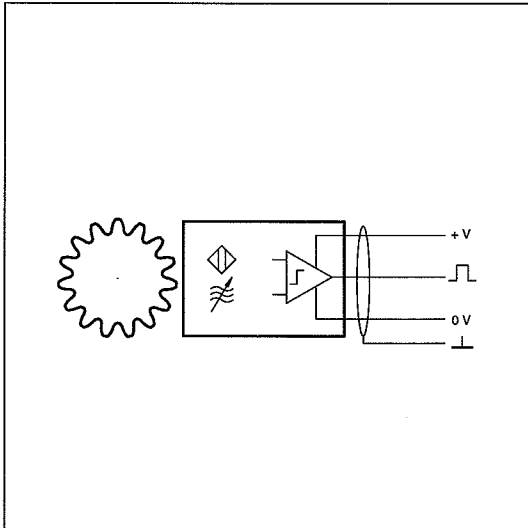


DSH...V

**HF Sensors (inductive),
with amplifier**



HF speed sensors with amplifier are suitable for generating speed signals from metallic (not necessarily ferrous) pole wheels.

They exhibit either dynamic or static behaviour with signal generation guaranteed down to between 0 and 0.05Hz.

The sensing element is an oscillator circuit at the face of the sensor. A metallic pole wheel passing the sensor head influences the damping in the oscillator. This modulation is converted to a square wave output signal by an amplifier with trigger characteristics and a short circuit output stage.

Connection

The sensor connections are sensitive to interference. The following 2 points should therefore be noted:

- 1) A screened cable must be used for connections. The screen must be taken all the way to the terminal provided on the instrument and not earthed.
- 2) The sensor cables should be laid as far from large electrical machines as possible and must never be laid parallel to high current cables.

The maximum permissible cable length is a function of sensor supply voltage, cable routing along with cable capacitance and inductance and the maximum sensor frequency.

In general it is advantageous to keep the distance between sensor and instrumentation to a minimum. The sensor cable may be lengthened via suitable IP 20 terminals and JAUQUET cable p/n 824L-31081.

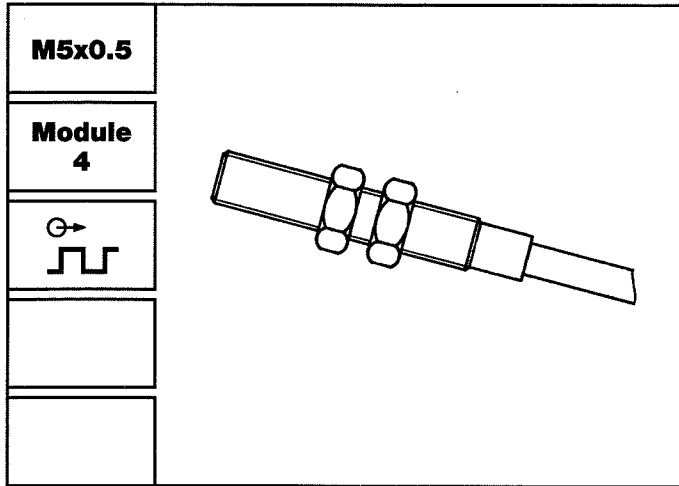
Mounting

The sensor is mounted with its centre over the centre of the pole wheel. With gear wheels or slots and radial mounting, the sensor is normally fixed over the middle of the wheel. Dependent on the gear width, a degree of axial movement is permissible. The centre of the sensor must however remain a minimum of 3 mm from the edge of the wheel under all operating conditions.

It is important to ensure a rigid, vibration free mounting of the sensor. Sensor vibration in relation to the pole wheel may induce additional pulses.

The sensors are insensitive to oil, grease etc. and can be used in arduous conditions. Should the cable come into contact with aggressive materials then teflon cable should be specified. During installation the optimum sensor to pole wheel gap should be set. On no account should the sensor come into contact with the pole wheel during operation. The air gap does not influence the calibration of the system.

DSH 0540 KTV

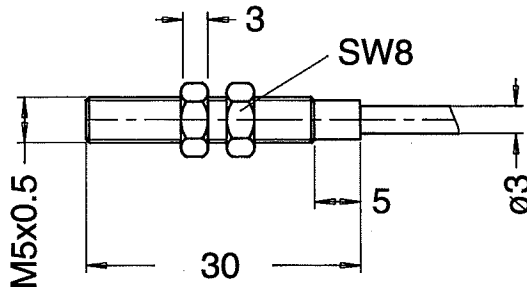


Features

- With signal amplifier
- Static characteristic
- Sensing any metallic pole wheel
- No residual magnetic field

Dimensions

Version KTV



Model overview

Type	Part nr.	Connection	Housing thread	Weight [g]	Operating temperature [°C]	Notes
DSH 0540 KTV	830G-35651	Cable 2 m	M5x0.5	36	-25...+75	—

HF Sensor (inductive) with amplifier

Technical Data

Supply

Power supply

Power supply: 10...30 V D.C., max. superimposed A.C. voltage 25 mVpp, protected against reverse polarity.
Current consumption: max. 10 mA at 12 V.

Input

Frequency range

0 Hz...5 kHz with reference measuring plate 4.5x4.5x0.3 mm³ Fe.

Noise immunity

Noise generator between housing and electronics.
1.5 kV/1.5 ms/max. 5 Hz (source resistance 500 Ω),
2.0 kV/HF-bursts (level 4 in accordance with IEC 801-4),
2.5 kV/1 MHz damped resonance (class III in accordance with IEC 255-4).

Pole wheel

Toothed wheel (involute gear form), wheel with holes, impeller wheel, slotted wheel or equal made of metallic material. Width ≥ 6 mm, eccentricity < 0.2 mm.

Pole wheel-sensor gap d:

Toothed wheel St 37-2			
≥ Module 4:	0.2...0.4 mm	(max. 2 kHz)	
Slotted wheel St 37-2			
acc. to EN 50010:	0.2...0.4 mm	(max. 5 kHz)	
	0.2...0.8 mm	(max. 2 kHz)	

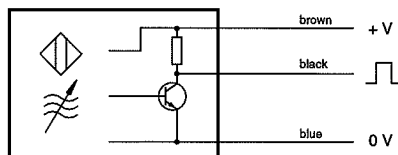
Output

Signal output

Square wave signals, open-collector, D.C. coupled with the supply (negative pole = reference voltage), sink current max. 100 mA.
Output voltage LO: < 2.5 V at I = 100 mA, short circuit proof and protected against reverse polarity.
Pole wheel's material affects the damping characteristic. For the working distance, note the reduction factor for each material as follows:

Steel St 37	Chrom-Nickel-Steel	Brass	Aluminium	Copper
1.0	0.85	0.5	0.4	0.3

Connection



Mechanical

Protection class

IP67 (head), IP67 (cable connection).

Vibration immunity

$a \leq 1$ mm, $f \leq 55$ Hz (equivalent to max 10 g_n).

Shock immunity

30 g_n during 11 ms, half sine wave.

Operating temperature

-25...+75 °C

Insulation

Housing and electronics galvanically isolated (500 V/50 Hz/1 min).

Housing

Chrom-Nickel-Steel, electronic components potted in a chemical- and age-proof synthetic resin.

Dimensions acc. to model overview and dimensional drawing.

Weight

Acc. to model overview.

Operating instructions

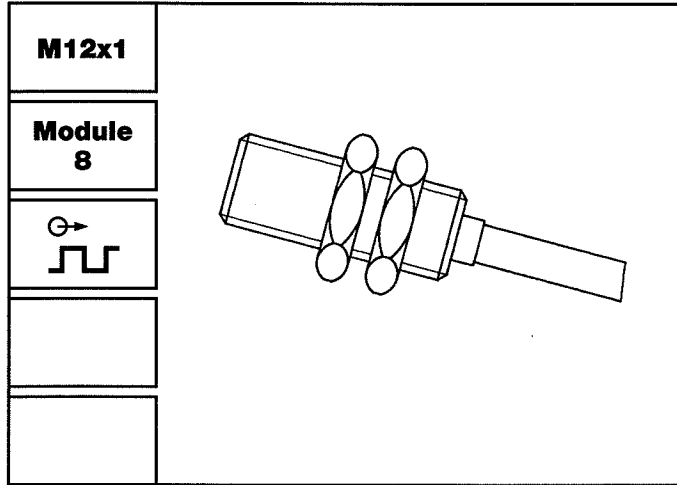
Nr. 490

Versions

Version KT

PVC-cable: 3wire, 3 x 0.14 mm² (AWG 26).
Outer Ø max. 3.0 mm, bending radius min. 45 mm,
weight 15 g/m.

DSH 1280 KTV

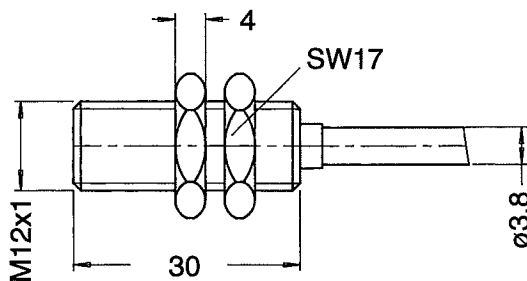


Features

- With signal amplifier
- Static characteristic
- Sensing any metallic pole wheel
- No residual magnetic field

Dimensions

Version KTV



Model overview

Type	Part nr.	Connection	Housing thread	Weight [g]	Operating temperature [°C]	Notes
DSH 1280 KTV	830G-35652	Cable 2 m	M12x1	64	-25...+75	—

Technical Data

Supply

Power supply

Power supply: 10...30 V D.C., max. superimposed A.C. voltage 25 mVpp, protected against reverse polarity.
Current consumption: max. 10 mA at 12 V.

Input

Frequency range

0 Hz...2 kHz with reference measuring plate 12x12x1 mm³ Fe.

Noise immunity

Noise generator between housing and electronics.
1.5 kV/1.5 ms/max. 5 Hz (source resistance 500 Ω),
2.0 kV/HF-bursts (level 4 in accordance with IEC 801-4),
2.5 kV/1 MHz damped resonance (class III in accordance with IEC 255-4).

Pole wheel

Toothed wheel (involute gear form), wheel with holes, impeller wheel, slotted wheel or equal made of metallic material. Width ≥ 6 mm, eccentricity < 0.2 mm.

Pole wheel-sensor gap d:

Toothed wheel St 37-2		
≥ Module 4:	0.8...1.2 mm	(max. 0.8 kHz)
Slotted wheel St 37-2		
acc. to EN 50010:	0.2...0.4 mm	(max. 2 kHz)
	0.2...0.8 mm	(max. 0.8 kHz)

Output

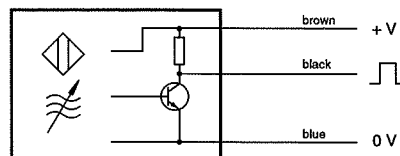
Signal output

Square wave signals, open-collector, D.C. coupled with the supply (negative pole = reference voltage), sink current max. 250 mA.

Output voltage LO: < 2.5 V at I = 250 mA, short circuit proof and protected against reverse polarity. Pole wheel's material affects the damping characteristic. For the working distance, note the reduction factor for each material as follows:

Steel St 37	Chrom-Nickel-Steel	Brass	Aluminium	Copper
1.0	0.85	0.5	0.4	0.3

Connection



Mechanical

Protection class

IP67 (head), IP67 (cable connection).

Vibration immunity

a ≤ 1 mm, f ≤ 55 Hz (equivalent to max 10g_r).

Shock immunity

30 g_r during 11 ms, half sine wave.

Operating temperature

-25...+75 °C

Insulation

Housing and electronics galvanically isolated (500 V/50 Hz/1 min).

Housing

Chrom-Nickel-Steel, electronic components potted in a chemical- and age-proof synthetic resin.

Dimensions acc. to model overview and dimensional drawing.

Weight

Acc. to model overview.

Operating instructions

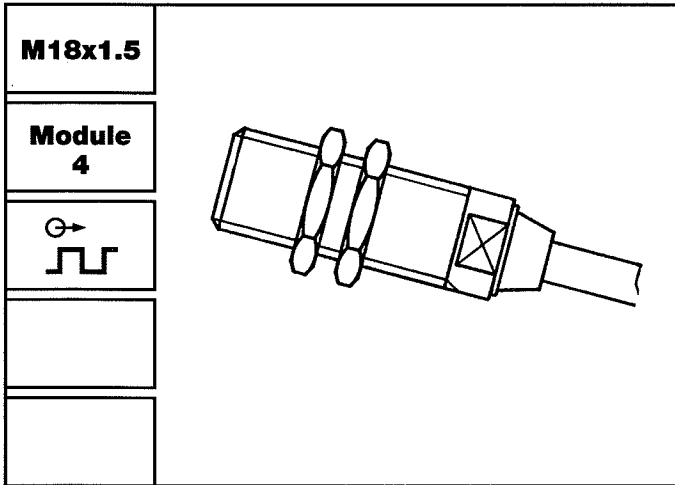
Nr. 490

Versions

Version KT

PVC-cable: 3wire, 3 x 0.34 mm² (AWG 22).
Outer Ø max. 3.8 mm, bending radius min. 55 mm,
weight 19 g/m.

DSH 1840 SHV

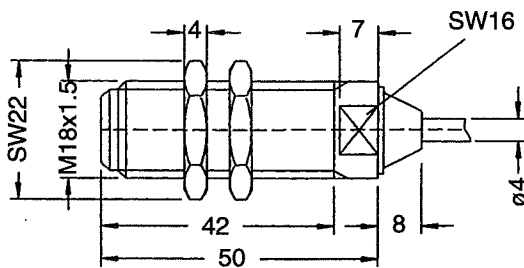


Features

- With signal amplifier
- Dynamic characteristic
- Lower frequency limit: 0.1 Hz
- Sensing of any metallic pole wheel
- No residual magnetic field

Dimensions

Version SHV



Model overview

Type	Part nr.	Connection	Housing thread	Weight [g]	Operating temperature [°C]	Notes
DSH 1840.01 SHV	374Z-04025	Cable 2 m	M18x1.5	100	-30...+125	—

HF Sensor (inductive) with amplifier

Technical Data

Supply

Power supply

Power supply: 10...30 V D.C., max. superimposed A.C. voltage 25 mVpp, protected against reverse polarity.
Current consumption: max. 12 mA at 12 V.

Input

Frequency range

0.1 Hz...20 kHz.

Noise immunity

Cable shield connected to the supply negative pole. Noise generator between housing and electronics.

1.5 kV/1.5 ms/max. 5 Hz (source resistance 500 Ω),
2.0 kV/HF-bursts (level 4 in accordance with IEC 801-4),
2.5 kV/1 MHz damped resonance (class III in accordance with IEC 255-4).

Pole wheel

Made of metal, module 4...8 or acc. to the specification below, eccentricity < 0.2 mm.

Pole wheel-sensor gap at: Toothed wheel (St 37), module 4: 0.2...0.4 mm

Impeller pole wheel (Aluminium):

Blade	Thickness	Width	Sensor air gap
4.0 mm	15 mm	6.5 mm	0.2...2.0 mm
2.1 mm	15 mm	7.5 mm	0.2...1.5 mm

Output

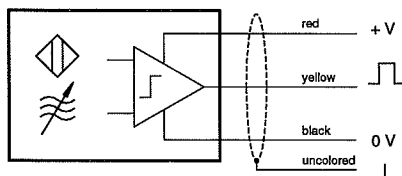
Signal output

Square wave signals from push-pull stage, D.C. coupled with the supply

(negative pole = reference voltage, max. load 25 mA,
Output voltage HI: > (Power supply - 2.5 V) at I = 15 mA

Output voltage LO: < 1.5 V at I = 15 mA,
short circuit proof and protected against reverse polarity.

Connection



Shield to be connected with 0 V of power supply.

Mechanical

Protection class

IP67 (head), IP67 (cable connection).

Vibration immunity

5 g_r in the range 5...2000 Hz.

Shock immunity

50 g_r during 20 ms, half sine wave.

Operating temperature

Acc. to model overview.

Insulation

Housing and electronics galvanically isolated (500 V/50 Hz/1 min).

Housing

Aluminium alloy 3.0615, black anodized, electronic components potted in a chemical- and age-proof synthetic resin. Caution: impact sensitive.

Dimensions acc. to model overview and dimensional drawing.

Weight

Acc. to model overview.

Operating instructions

347D-63953

Versions

Version SH

Teflon cable: Part nr. 824L-35053, 4wire, 4 x 0.24 mm² (AWG 24), stranded wire (metal net insulated from housing), white.
Outer Ø max. 4,0 mm, bending radius min. 60 mm, weight 32 g/m.