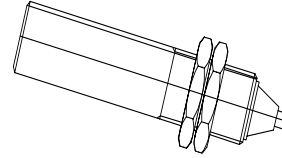


Ferrostat Differential Speed Probe with dual sensing system Type DSD 1810.11/2210.11 ..W

DSD 1810.11 ..W
DSD 2210.11 ..W

Operating instructions
374E-63892



General

Function The Ferrostat Differential Speed Probe **DSD 1810.11/2210.22 (Art. No. as per table on page 2)** is suitable, in conjunction with a **pole wheel**, for generating two square wave signals 90° out of phase and with a pulse frequency proportional to the rotary speed. The sensing elements are two magnetically biased Hall devices, followed by amplifiers and short-circuit proof line drivers, version **W**. The speed sensors must be aligned with reference to the plane of the pole wheel according to the drawing sensor alignment.

Technical data

Supply voltage 10...30 VDC **protected against false polarity and transient overvoltages**

Current consumption max. 35 mA (without load)

Signal output 2 square wave signals shifted by 90° ± 60°, resp. 8...41 % push-pull output stages, coupled to the supply (negative pole = reference voltage), max. load: 25 mA
Output voltage HI: Power supply -1.5 V at I = 25 mA
Output voltage LO: < 1.5 V at I = 25 mA
Duty cycle 50% (± 20%), dependent on direction of rotation, air gap and tooth design. Phase shift between positive and negative flank is not the same normally and is dependent of the duty cycle. The functionality of a post-connected discriminator for the sense of direction is assured.

Short circuit proof and protected against false polarity and transient overvoltages

Frequency range 0 Hz...20 kHz

Electromagnetic compatibility (EMC) With the cable shield connected to the supply negative pole, the EMC prevents any malfunctions of the sensor for the following conditions:

- Transient non-repetitive surges between 0 V and the housing: up to 1,5 kV peak with 10 kV/μs edge steepness during 1,5 μs
- Electrical fast transients / HF-Bursts, coupled to the sensor cable with a coupling clamp: up to 2 kV peak, according to IEC 801-2, severity level 3
- Radiated electromagnetic field / 1 MHz, on signal and supply lines capacitively coupled: up to 2,5 V peak, according to IEC 255-4, interference class III
- Electrical fast transients/bursts, coupled to sensor cable with a capacitive coupling clamp: up to 4 kV peak according to IEC 801-4, severity level 4

Insulation Housing, cable shield and electronics separated galvanically (500V/50 Hz/ 1 Min.)

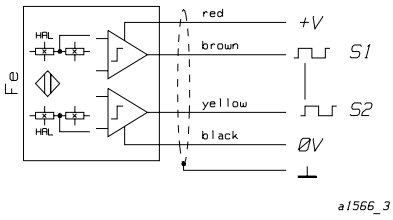
Operating temperature -25...+85°C (version T)
-40...+ 125°C (version H)

Housing	Stainless steel 1.4305, front side hermetically sealed. Electronic components potted in chemical and age proof synthetic resin. Dimensions according to table and drawing. Max. allowed tightening torque: 50 Nm with M18x1,5; 75 Nm with M22x1
Protection class	IP68 (head), IP67 (connection)
Vibration immunity	3 g _n in range of 4...100 Hz
Shock immunity	20 g _n during 11 ms, half-sine wave
Weight	According to table
Pole wheel	Ferromagnetic toothed wheel (i.e. USt 37-2) preferred involute gear wheel module 2, radial sensing, eccentricity < 0.2mm, minimum tooth width 10mm, side offset < 0.2mm <ul style="list-style-type: none"> • Pole wheel - sensor gap with module 1: 0,1...0,4 mm • Pole wheel - sensor gap with module 2 0,1...1,0 mm • Mounting angle α with module 1: 12...14...16° • Mounting angle α with module 2: 28...32...35°
Version MH	Teflon cable , Part No. 824L-35053, 2 m long, 4-wire, 4x0,24 mm ² (AWG24), stranded wire, shielded (metal net insulated from the housing) white, outer \varnothing = 4,0 mm, bending radius min 30 mm, weight 32 g/m. With „A-Types“ cable coupling RTK5 with 2 m of cable is included in delivery, Art.-No. 820A-35330 “M-Types” have a metal protective hose mounted over the cable. Metal tube made of sheet steel with PVC coating, grey. Weather proof, water proof, conditionally resistant against oil and acid. Outer \varnothing 14 mm. Bending radius min. 40 mm. Weight 167g/m. Art. No. 825G-30924 Shield to be connected with 0 Volt of power supply
Installation	The sensor has built in Differential Hall devices. Therefore the housing has to be aligned to the pole wheel according to the drawing sensor alignment. Mind the orientation of the notch against the pole wheel. If the sensor is not positioned correctly, the sensor may not work properly. See also drawing No. 4-111.566 und 4-111.566A

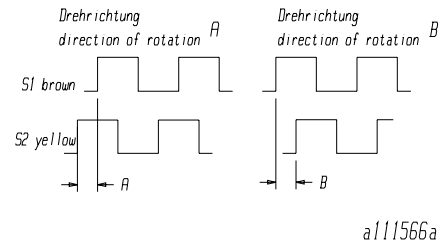
Type table

Type	Art.-No.	Housing Thread	Type of connector	Length of cable [m]	Total weight [g]	Operating temperature (see power supply) [°C]
DSD1810.11 STW	374Z-04317	\varnothing 18/M18x1,5		5	140	-25...+85
DSD1810.11 SHW	374Z-04318	\varnothing 18/M18x1,5		2	140	-40...+125
DSD1810.11 ATW	374Z-04319	\varnothing 18/M18x1,5	RSE5		140	-25...+85
DSD1810.11 AHW	374Z-04320	\varnothing 18/M18x1,5	RSE5		140	-40...+125
DSD1810.11 MTW	374Z-04324	\varnothing 18/M18x1,5		5	470	-25...+85
DSD2210.11 STW	374Z-04321	\varnothing 22/M22x1		5	220	-25...+85
DSD2210.11 SHW	374Z-04322	\varnothing 22/M22x1		2	220	-40...+125
DSD2210.11 ATW	374Z-04113	\varnothing 22/M22x1	RSE5		220	-25...+85
DSD2210.11 AHW	374Z-04323	\varnothing 22/M22x1	RSE5		220	-40...+125
DSD2210.11 MTW	374Z-04325	\varnothing 22/M22x1		5	550	-25...+85

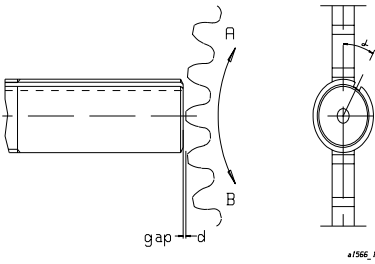
Connection diagram:



Impulse diagram:

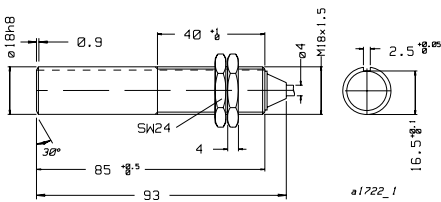


Sensor alignment:

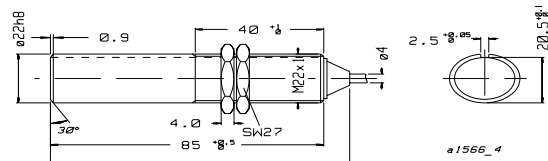


Drawings:

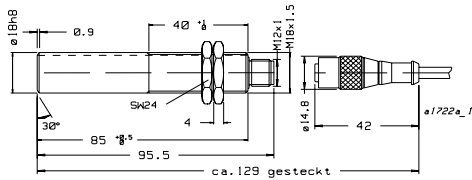
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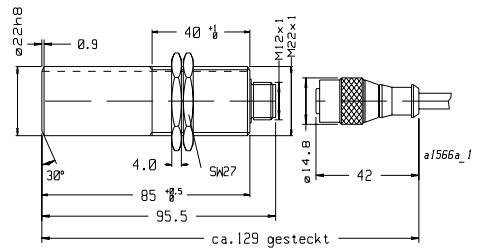
DSD 2210.11 S.W:



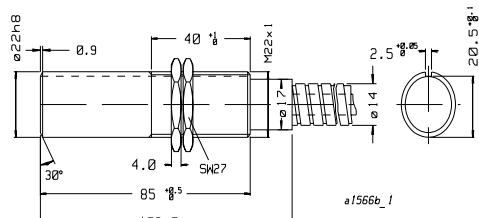
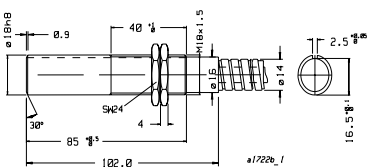
DSD 1810.11 A.W:



DSD 2210.11 A.W:



DSD 1810.11 MTW:



Modification :

DSD 1810.11 2210 ..W_e.doc

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