

Single Channel Hall Effect Speed Sensor Type FTG 1087.00 S / SH / AH



Product ID

Type #	Product #	Drawing #
FTG 1087.00 SH STD	374Z-04886	4-111.037 A
FTG 1087.00 AH STD	374Z-04460	4-111.580E
FTG 1087.00 AH L90	374Z-04397	4-111.580B
FTG 1087.00 AH L140	374Z-04108	4-111.580
FTG 1087.00 SH L140	374Z-04887	4-112.381
FTG 1087.00 AH L225	374Z-04454	4-111.580C
FTG 1087.00 AH L225/1	374Z-04774	4-111.580H
FTG 1087.00 AH L225/2	374Z-05550	4-111.580N
FTG 1087.00 AH L225/3	374Z-05657	4-111.740
FTG 1087.00 AH L265	374Z-04456	4-111.580A
FTG 1087.00 AH L280	374Z-05171	4-111.580K
FTG 1087.00 AH L300	374Z-04392	4-111.580D
FTG 1087.00 AH L300/1	374Z-05263	4-111.580L
FTG 1087.00 AH L325	374Z-04426	4-111.580F
FTG 1087.00 AH L350	374Z-04772	4-111.580G

General

Function	The Ferrostat Speed Probes FTG 1087.00 S, FTG 1087.00 SH and FTG 1087.00 AH are suitable for use with a pole wheel to generate speed proportional frequency signals. It exhibits a dynamic function, whereby pulse generation down to 0.05Hz is guaranteed. The sensing element is a magnetically biased Hall device followed by an amplifier having a trigger characteristic and a push-pull output stage. The two digit no. in the type designation identifies the internal design.
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Technical data

Supply voltage	10 VDC to 30 VDC, protected against transient overvoltage
Current consumption	Max. 16 mA (without load)
Signal output	<ul style="list-style-type: none"> • Push-pull outputs : $I_{max} = \pm 25$ mA <ul style="list-style-type: none"> ○ $U_{low} < 1.5$ V ○ $U_{high} > U_{supply} - 2.5$ V • The outputs are short circuit proof and protected against reverse polarity.
Frequency range	0.05 Hz ... 20 kHz
Electromagnetic compatibility (EMC):	<p>With cable shield connected to the GND pole. According to Directive 2004/108/EC, EN 61000-6-2 and 61000-6-4:</p> <ul style="list-style-type: none"> • Electrostatic discharge into housing, cable shield and wires: up to ± 4 kV peak according to IEC 61000-4-2, severity level 2 • Radiated electromagnetic field: Up to 30 v/m, 50% AM, 1 KHz in the range of 1 MHz to 1000 MHz according to IEC 61000-4-3, severity level 3 • Electrical fast transients/bursts, coupled to sensor cable with a capacitive coupling clamp: up to ± 4 kV peak according to IEC 61000-4-4, severity level 4
Housing	<p>Stainless steel 1.4305, front side sealed hermetically. Electronic components potted in chemical and age proof synthetic resin. Dimensions according to drawing. Maximum allowable tightening moment: 75Nm for M22x1</p>

Cable / Connector

Version	Connection
Version S	<p>PVC cable, part No. 824L-31081, 5m long, 3-wire, 3x0.75 mm², stranded wire, shielded (metal net, insulated from the housing) grey, outer \varnothing = max. 7.4. mm, bending radius = min. 110mm, weight 80gr/m</p> <p>Shield to be connected to 0 Volt of power supply.</p>
Version SH	<p>Teflon cable, part No. 824L-35053, 4-wire, 5m long, stranded wire shielded (metal net), 4x0.24mm² (AWG 24). Outer \varnothing = max. 4.0 mm, cable colour white, bending radius min. 60mm. Weight 32gr/m. The brown wire is not connected. The shield is insulated from the housing.</p> <p>Shield to be connected to 0 Volt of power supply.</p>
Version AH	<p>Connector Fa. Jaeger Type :</p> <ul style="list-style-type: none"> • Case connector , 4 poles... HETT 401 472 P1 , 533 755 • Cable jack , 4poles HETT 401 415 P1 , 530 755 • Cable connection part HETT 401 473 P1 , 532 968 <p>For the dimensions see the added dimensional drawing (drawing number in type-table).</p>

Requirements for pole wheel	<p>Ferromagnetic toothed wheel (e.g.USt 37-2), Optimal performance with</p> <ul style="list-style-type: none"> • Involute gear • Tooth width > 6 mm • Side offset < 0.2 mm • Eccentricity < 0.2 mm • Sensor is optimized to operate with an involute gear of module ≥ 1.
Air gap between sensor and pole wheel	<p>Air gap between pole wheel (involute gear) and sensor housing:</p> <p>Module 1: 0.2...1.0 mm</p> <p>Module 2: 0.2...2.5 mm</p> <p>\geq Module 4: 0.2...4.5 mm</p>
Insulation	Housing, cable shield and electronics galvanically separated (500 V/50 Hz/ 1 min)
Protection class	IP68 (head) and IP67 (cable outlet), IP64 (connector)
Vibration immunity	5 g in the range of 5 ... 2000 Hz
Shock immunity	50 g for 20 ms, half sine wave
Temperature	AH-/SH-types: -40°C...+125°C S-types: -25°C...+85°C

Further Information

Safety	All mechanical installations must be carried out by an expert. General safety requirements have to be met.
Connection	<p>The sensors must be connected according to sensor drawing.</p> <p>Sensor wires are susceptible to radiated noise. Therefore, the following points have to be considered when connecting a sensor:</p> <p>The sensor wires must be laid as far as possible from large electrical machines. They must not run parallel in the vicinity of power cables.</p> <p>The maximum permissible cable length is dependent upon the sensor voltage, the cable routing, along with cable capacitance and inductance. However, it is advantageous to keep the distance between sensor and instrument as short as possible. The sensor cable may be lengthened via a terminal box located in an IP20 connection area in accordance with EN 60529.</p>
Installation	<p>The sensor has to be aligned to the pole wheel according to the sensor drawing independent of its rotational orientation. 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. 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.</p> <p>A solid and vibration free mounting of the sensor is important. Eventual sensor vibration relative to the pole wheel can induce additional output pulses.</p> <p>The sensors are insensitive to oil, grease etc. and can be installed in arduous conditions. 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.</p>
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.