

- Sensing of position, speed and direction of ferrous gear wheels
- Up to 2 mm sensing gap
- Operating temperature range from -40 °C to +140 °C
- Output signal frequency from 0.1 Hz to 20,000 Hz
- Protection against overvoltage, reverse polarity, ESD

The VGTS gear tooth sensors are a low cost solution for a wide range of speed sensing applications. Commonly called speed sensors or AB sensors these compact devices provide a reliable and accurate position, speed and direction feedback.

The non-contact, frictionless design ensures long-term reliability and simple installation. The sensor is internally biased with a permanent magnet and detects the interaction from an external ferrous gear wheel. The compact body is just 8 mm in diameter and provides degree of protection to IP68.

The VGTS sensors have been designed for direct integration to high volume OEM applications and can be used in a wide range of applications including automotive, for heavy duty vehicles, eg. for camshaft and crankshaft speed and position sensing, transmission speed and anti-skid/traction control, and in industrial automation, eg. for sprocket speed sensing, tachometers, counters.



Technical specifications

System data

Gear wheel module (m) (at 0° yaw) VGTS35 1.25 mm VGTS45 1.4 mm

Applicable gear wheel module 0.8 mm to 1.6 mm

Sensing gap 0.2 mm to 2 mm

Electrical data

Power supply V_{CC} 4.5 V to 24 V – reverse polarity protected

Power consumption < 20 mA

Output signals Digital, Open Collector

Output saturation voltage < 0.6 V (at $I = 40$ mA of output current)

Environmental conditions

Temperature Operating and storage -40 °C to +140 °C

ESD protection EN 61000-4-2; 15 kV R / ±8 kV contact

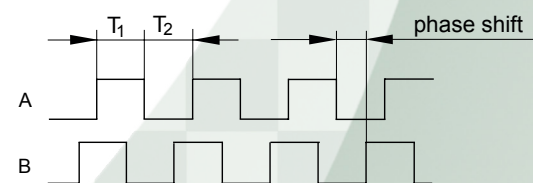
EMC standards EN 61000-6-2, EN 61000-6-3

Digital output signals, Open Collector NPN

Square wave output

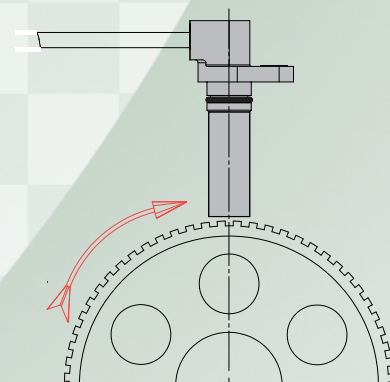
Output signals	A, B
Duty cycle of output signals (T_1 / T_2)	0.6 to 1.7
Phase shift	90° ± 40°
Maximum load	$R_L > V_{CC} / 40$ mA
Cable	Standard 100 mm, other lengths per request AWG22 (4 × 0.35 mm ²), UL94-V0
Connector	4-pin plug, male Moulded on cable, compatible with AMP Superseal 282106-1, mating connector: AMP 282088-1 (not provided)

Timing diagram

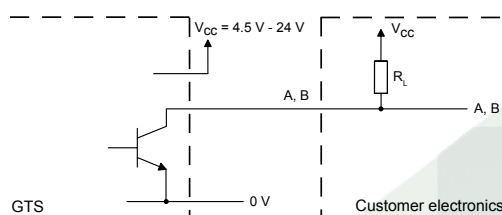


B leads A for clockwise rotation of the gear wheel.

Clockwise rotation of the gear wheel

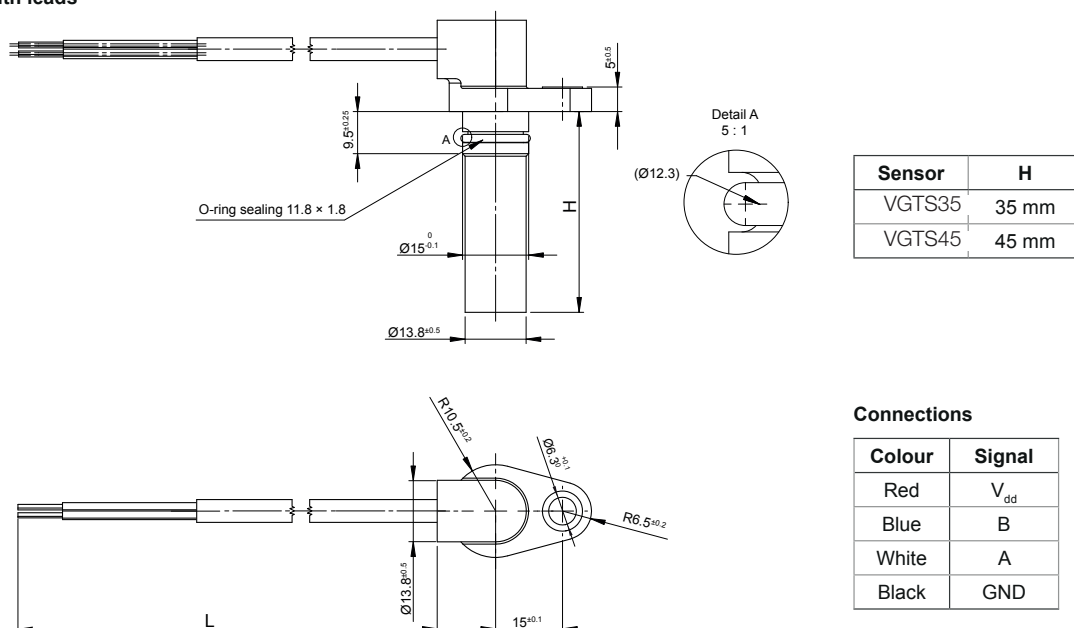


Recommended signal termination

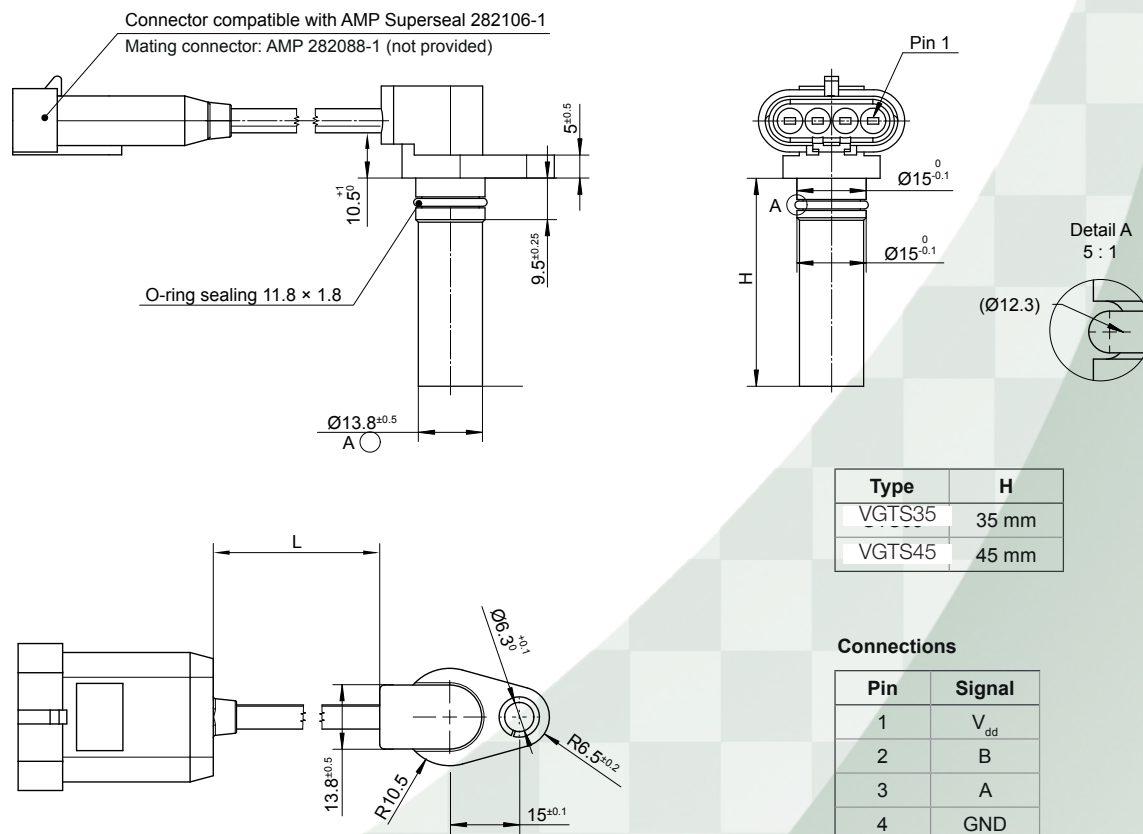


Dimensions (mm)

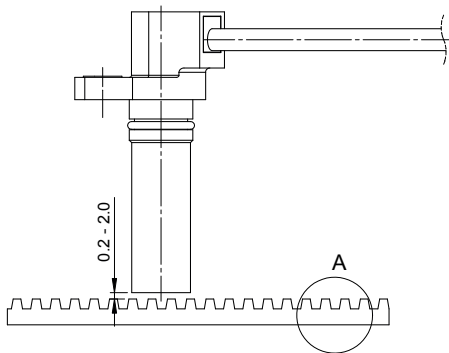
With leads



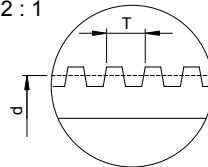
With connector



Installation drawing (dimensions in mm)



Detail A
2 : 1



Module calculation

$$m = \frac{d}{z}$$

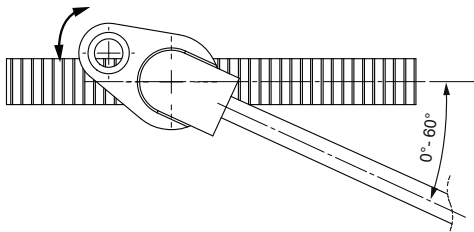
d = Diameter (mm)
z = Number of teeth
m = Module (mm)
T = Pitch (mm)

Pitch calculation

$$T = \pi \times m$$

NOTE: Gear tooth wheel not provided.

Adjustment for other modules



Depending on the yaw angle (0° to 60°) of the GTS sensor gear wheels with modules from 0.8 mm to 1.6 mm can be used.

At 0° yaw:

Sensor	Module (m)
VGTS35	1.25 mm
VGTS45	1.4 mm

Ordering information

(Please use the characters in the chart below to construct your product code)

Sample Code: **VGTS35 - A - 10 - F - 00**

Type	Option	Cable length (L)	Connector option	Special requirements
VGTS35 - H = 35 mm VGTS45 - H = 45 mm	A - Standard	10 - Standard, 100 mm	A - 4-pin plug, male F - No connector (flying leads)	00 - None (standard)