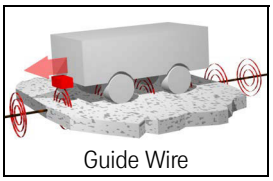
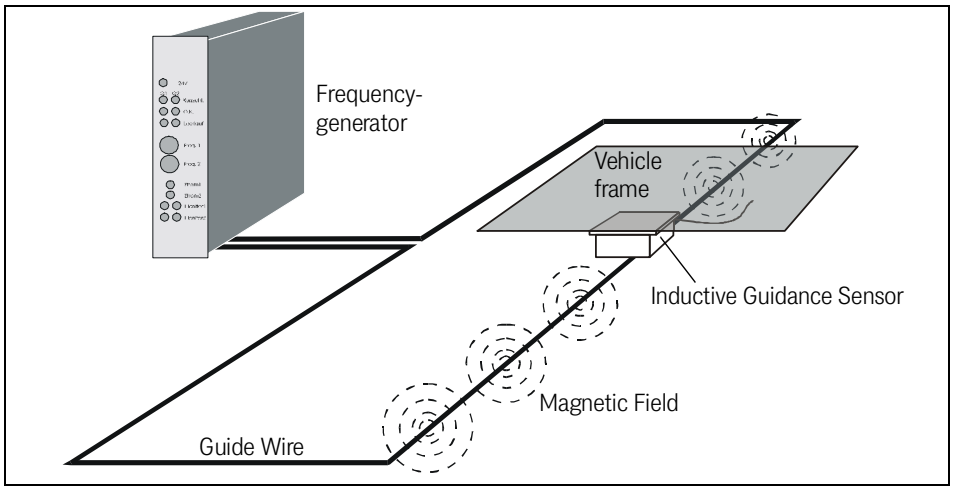
Data Sheet


Photo: Variant HG G-19370YB
25 kHz Energy Track
PROFINET & USB



Guide Wire

## Variants HG G-19370-B & HG G-19380-B | Guide Wire / Energy Track

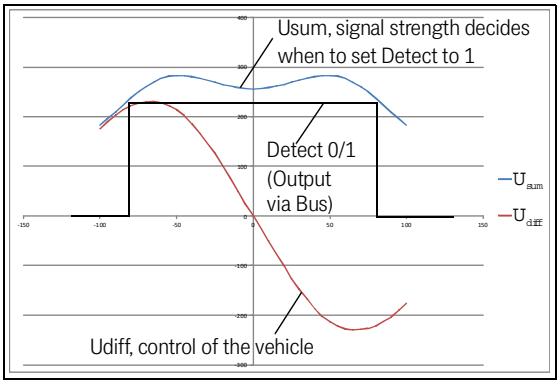



The inductive guidance sensor HG G-19370 / HG G-19380 is used for the inductive track guidance of Automated Guided Vehicles (AGV). Up to 5 different guide wire frequencies may be detected and evaluated simultaneously. Alternatively a ground installation for the contact-less inductive energy transmission with two wires (energy track) can be used for the track guidance.

The guide wire frequencies to be detected are configured via the USB interface. The guidance sensor is available in different variants for common energy tracks (s. table to the right). Additionally an incremental encoder for the measurement of distance or speed may be connected directly to the sensor.

### Functional Principle (using Guide Wire as an Example)

A frequency generator feeds a current into a guide wire installed in the ground. Along this wire an alternating magnetic field is generated. When the sensor is moved along the guide wire two characteristic voltages are induced in its horizontal coils and evaluated. Thus for each frequency a sum and difference signal is calculated. *Usum* is used to detect whether a track is available (signal *Detect* when a threshold is exceeded). *Udiff* shows maxima at both sides of the wire and crosses zero directly above the wire. Udiff is used to control the vehicle.




## Overview

- Inductive guidance sensor for the track guidance of automated guided vehicles (AGV)
- Guide wire, 5 programmable simultaneously usable frequencies (2 – 20 kHz)
- If there is an existing ground installation for the contact-less inductive energy transmission (energy track) this can also be used for the track guidance, see table Variants below. Within the zone of influence of an active energy track guide wire signals can not be used.
- Reading height: 40 – 200 mm, nominal reading height 60 mm, customizable via programmable gain
- IP 54, Indoor
- Version ZB: CAN/CANopen® interface
- Version YB: PROFINET® interface
- USB interface (configuration via USB Virtual Port Driver)
- Possibility to connect and evaluate an incremental encoder

**Versions/Variants**

| | | | |
|---|---|---|---|
| HG G-19370 | ZB | CAN | Energy track 20/25 kHz, 140 mm wire spacing, 85 A |
| | YB | Profinet | |
| HG G-19380 | ZB | CAN | Energy track 140 kHz, 110 mm wire spacing, 45 A |
| | YB | Profinet | |

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Product page: http://goetting-agv.com/components/19370-19380

## Mounting Notes

- The sensor has two bore holes for screws with which it can be mounted (see figure to the right).
- The inductive guidance sensor is to be mounted diagonally to the direction of travel with the connectors facing upwards.
- The recommended reading height is 40 to 200 mm from the bottom edge of the casing to the guide wire. Nominal reading height is 60 mm, programmable gain for different reading heights.
- Additional magnetic fields close to the sensor can affect the system characteristics.
- The limit value for the magnetic field of e.g. transverters/engines/wire connections at the position of the inductive guidance sensor is circa 0,01 A/m

## Guide Wire / Energy Track

- Inside the track a guide wire is layed that is operated in the frequency range 2 to 20 kHz.
- If there is an existing ground installation for the contact-less inductive energy transmission this can also be used for the track guidance. These energy tracks are supported in the implementations listed in table Variants on the front. A matching variant of the inductive guidance sensor has to be used. Within the zone of influence of an active energy track guide wire signals can not be used.
- The inductive guidance sensor can follow turn-offs in guide wire installations by using different frequencies for the different wires.
- The inductive guidance sensor can **not follow** turn-offs in energy track installations. Thus the energy track may not have switch points. For energy track installations with switch points Götting has different antennas with more than one detection system.

## Additional Products / Accessories

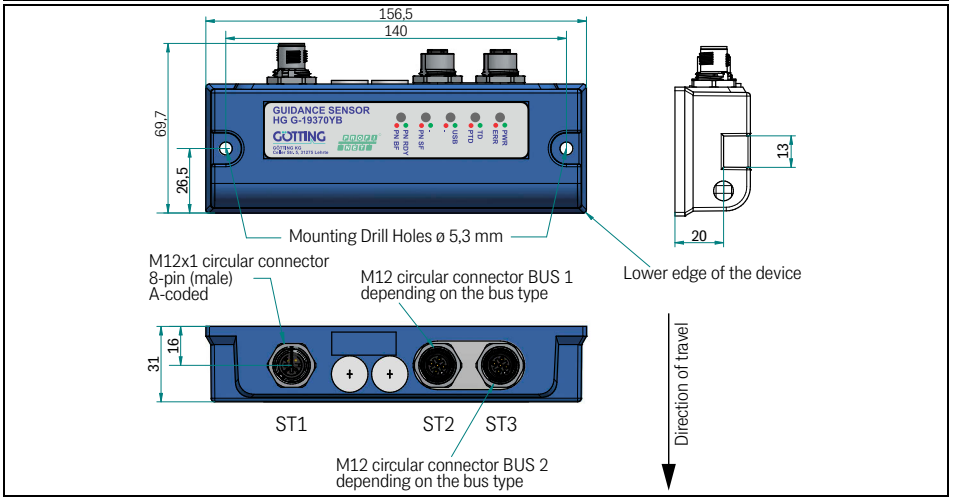
| | |
|---|---|
| HW CAB00008 | ST1: Cable PUR, 5 m, M12 elbow socket, open end |
| HW CON00055 | ST2: Variant ZB – CAN-Bus Terminator |
| HW CAB00064 | ST3: Variant ZB – CAN-Bus cable, 10 m, with shielding, M12 socket straight, open end |
| HG G-20960ZA | Connection box |

## Götting Product IDs (order codes)

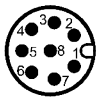
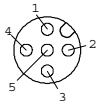
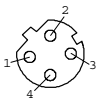
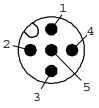
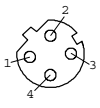
**HG G-19380ZB**

- Production series (no functional relevance)
- Functional Model / Version
- Identification Number / Type
- G: Device | K: Component | S: System | W: Software
- HG: Götting | HW: Resale

## Casing Dimensions / Mounting (all Variants)




## Pin assignments, all connectors M12

| | ST1 | | ST2 | | ST3 | |
|---|---|---|---|---|---|---|
| | all Variants | | ZB / CAN | YB / PROFINET | ZB / CAN | YB / PROFINET |
| Pin | 8 pin, A-coded, male | | 5 pin, A-coded, female | 4 pin, D-coded, female | 5 pin, A-coded, male | 4 pin, D-coded, female |
| 1 | VBUS (USB 5V-) to +UB | | — | TX+ | — | TX+ |
| 2 | GND | Incremental Encoder | +UB | RX+ | +UB | RX+ |
| 3 | Track A | | GND | TX- | GND | TX- |
| 4 | Track B | | CAN_H | RX- | CAN_H | RX- |
| 5 | Index Z | | CAN_L | | CAN_L | |
| 6 | D+ (USB) | | | | | |
| 7 | D- (USB) | | | | | |
| 8 | GND | | | | | |
| |  | |  |  |  |  |

## Technical Data

| | |
|---|---|
| Dimensions | 156,5 mm x max. 70 mm x 31 mm (W x H x D) |
| Casing | Polycarbonate |
| Weight | approx. 200 g |
| Protection class | IP 54, Indoor |
| Reading distance | 40 – 200 mm |
| Nominal reading distance | 60 mm (preset)<br>Different reading distances via programmable gain |
| Relative humidity | 95 % @ 25° C (without condensation) |
| Temperature ranges | Operation: -20° C to +50° C / Storage: -20° C to +70° C |
| Voltage supply | 5V (USB, configuration) / Nominal (vehicle): 12 VDC – 24 VDC /<br>Maximum: 10 VDC – 30 VDC |
| Current consumption | • HG G-19370ZB/HG G-19380ZB (CAN): 60 mA @ 24 V<br>• HG G-19370YB/HG G-19380YB (PROFINET): 110 mA @ 24 V |
| Frequencies | • 5 programmable guide wire frequencies, simultaneously usable, 2 – 20 kHz, 100 Hz resolution<br>• 1 programmable frequency for an energy track |
| Energy track | Guidance sensor variants for common energy tracks (see table Variants on the front) |
| Measuring rate | 100 Hz (every 10 ms a new value is calculated) |
| Connectors | 3x M12 circular connectors, see table Pin Assignments above |
| USB | Configuration / Firmware Update (emulation of a serial interface) |
| Incremental encoder | Input for the processing of an incremental encoder. All incremental encoders can be used that have a switching threshold > 10 V between high level and low level (typically 24V incremental encoders). |





**Götting KG**, Celler Str. 5, D-31275 Lehrte, Germany
Tel. +49(0)5136 / 8096-0, Fax -80, E-Mail info@goetting.de