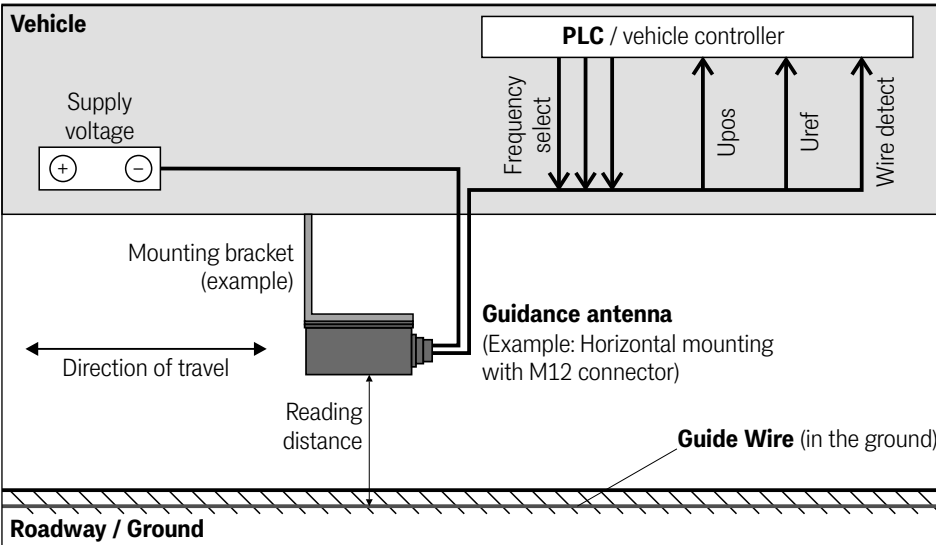


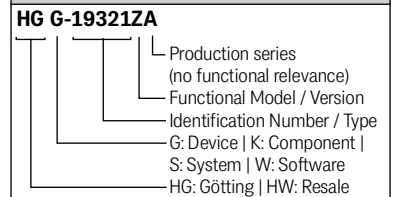
Functional Description



Main Features

- Inductive multiple frequency sensor for AGVs
- Indoor usage IP 40
- Detection of the electromagnetic field (flux) in horizontal direction
- Multiple frequencies: 8 preset frequencies, selection of the desired frequency via 3 digital inputs (see table on the back)
- Analog output -10 VDC to +10 VDC
- Guide wire detect signal (Detect)
- Connection: Cable tail 1.3 m or M12 connector with or without cable

Götting Product IDs (order codes)

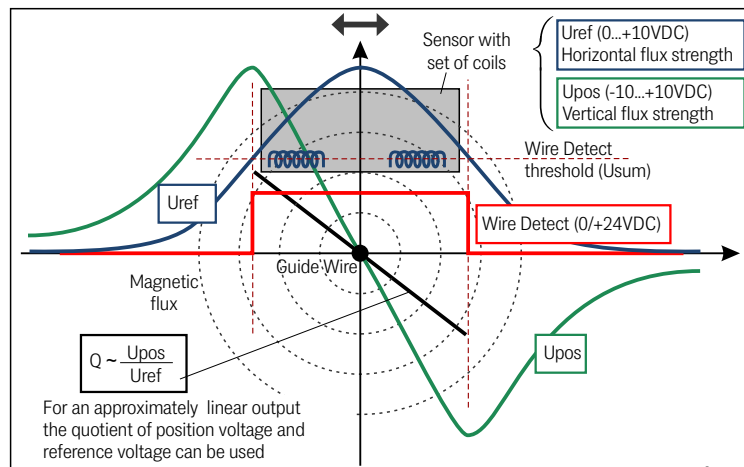


The sensor is used for track guidance of automated guided vehicles (AGVs). Due to the arrangement of the coils, the sensor HG G-19321 is insensitive to crossing wires with the same frequency. With its coils, it detects the horizontal components of an alternating magnetic field around a current-carrying guide wire laid in the ground.

When moving the sensor across the guide wire two characteristic voltages are induced. The U_{ref} (sum voltage) shows a bell shaped curve with a maximum directly above the wire. The U_{pos} (difference voltage) shows maxima at both sides of the wire and falls to zero directly above the wire.

The two output voltages can be used to determine the lateral deviation of the sensor from the wire. For a simple steering function connect U_{pos} to the steering drive using a P-controller.

The digital Wire-Detect output switches to +24 VDC if the induced U_{ref} voltage exceeds an adjustable threshold. The wire detect signal is often used to stop the AGV in case it drives off the track.



Pin assignment M12 connector resp. wire color of the cable tail

Pin	Color	Function
1	Yellow	F1 (Dig IN, +24VDC/open)
2	Grey	F2 (Dig IN, +24VDC/open)
3	Pink	F3 (Dig IN, +24VDC/open)
4	White	UDifference
5	Brown	USum
6	Green	Wire Detect (Dig. OUT)
7	Blue	GND
8	Red	+24 VDC
Casing	Braiding	Shielding

Metal-free areas around the sensor

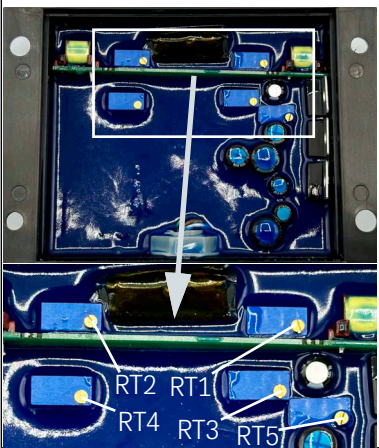
Direction	Minimum area
Left, right	>= 75 mm
Front, rear	>= 50 mm
Above (vehicle)	>= 30 mm
Underneath (reading side)	No metal!

Frequency selection via the digital inputs F1-F3

Dig. IN	1	2	3	4	5	6	7	8
F1	0	1	0	1	0	1	0	1
F2	0	0	1	1	0	0	1	1
F3	0	0	0	0	1	1	1	1

Trimming & adjusting

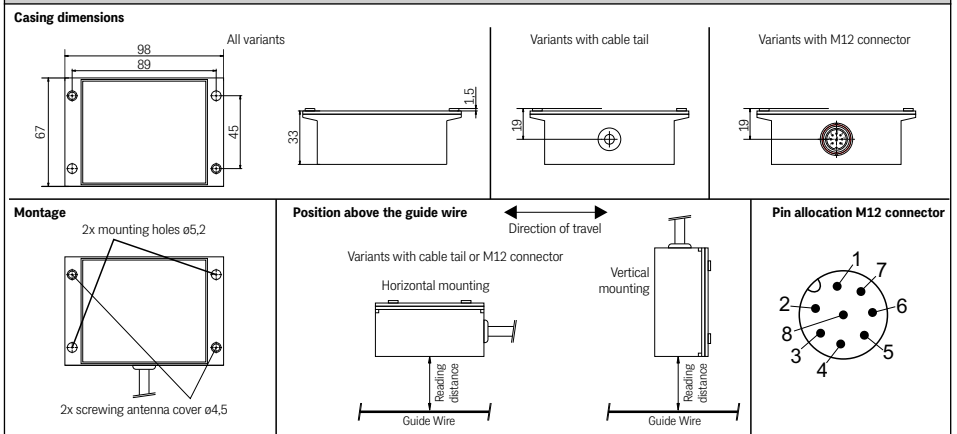
The sensor can be calibrated via the potentiometers RT 1 to RT 5. To do this, remove the sensor cover to be able to reach the potentiometers with a small screwdriver. The diagrams on the right show which values influence the potentiometers.



Corresponding Products

HG G-57400	Frequency generator, single loop, euro cassette
HG G-57401	Frequency generator, single loop, euro card
HG G-57500	Frequency generator, dual loop, euro card

Dimensions / Mounting

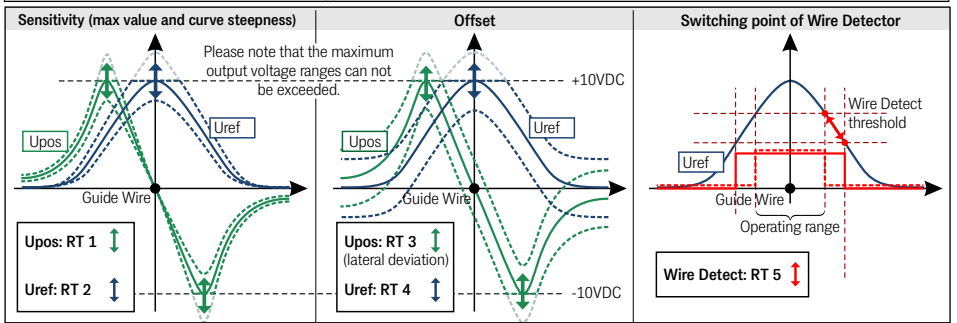


The sensor can be mounted with 2 screws. The alignment depends on the variant (see below). For mounting under the vehicle we recommend the use of non-metallic mounting brackets (not included). Please note the metal-free areas listed on the left for undisturbed signal processing.

Frequency ranges and factory settings of the sensor variants HG G-19321xx

Variant	Preset frequencies [Hz] ^{1) 2)}								Wire current ³⁾ [mA]	Reading distance [mm]	Connection
	1	2	3	4	5	6	7	8			
ZA 001	5100	5700	6300	7000	7800	9000	10000	12000	35	70	Cable tail 1300 mm
ZA 002											M12 connector 150 mm
PA	5500	7000	8400	10100	12200	15200	18100	22600	100	70	Cable tail 1300 mm
NA	5500	7000	8400	10100	12200	15200	18100	26700	100	70	Cable tail 1300 mm
MA	1000	1148	1322	1515	1736	2000	2500	3000	400	70	Cable tail 1300 mm
IA	4096	6554	10923	16384	18000	20000	22000	24000	100	70	M12 connector 500 mm
HA	1650	2200	3100	4000	5200	6700	7800	9000	400	70	M12 connector 300 mm
GA	2575	3433	4390	3500	4700	6300	6300	6300	500	70	Cable tail 1300 mm
FA	1650	2200	3100	4000	5200	6700	7800	9000	400	70	M12 connector without cable
EA	2575	3433	4390	3500	4700	6300	5280	6300	500	70	M12 connector without cable

1) Other variants with frequencies from the range 1 Hz to 26700 Hz are available on request.
 2) For selection of frequencies via the digital inputs, see box on the left.
 3) Wire current and reading distance are variable. Double wire current = double reading distance and vice versa.
 Wire Detect (dig. OUT): The threshold for U_{Sum} for wire detect is factory set to 50% (= 5 VDC).



Technical Data

Dimensions	98 x 67 x 34,5 mm (without connector or cable tail)
Casing	ABS
Weight	260 g
Temperature ranges	Operation: 0° C to +40° C / Storage: -20° C to +70° C
Supply voltage	24 V ±20 %
Current consumption	approx. 100 mA
Frequencies	8 fixed default frequencies (see variants table above)
Fsel data inputs	24 VDC, Ri = 10 KΩ, selection of the active frequency, see box on the left
Analog outputs U _{ref} /U _{pos}	-10 to +10 VDC / a < 1 mA
Wire detect output	24 VDC, 20 mA power restricted
Protection class	IP 40
Connector	Cable tail 1300 mm (open end) or M12 connector, male, 8-pin with cable (open end) or without cable