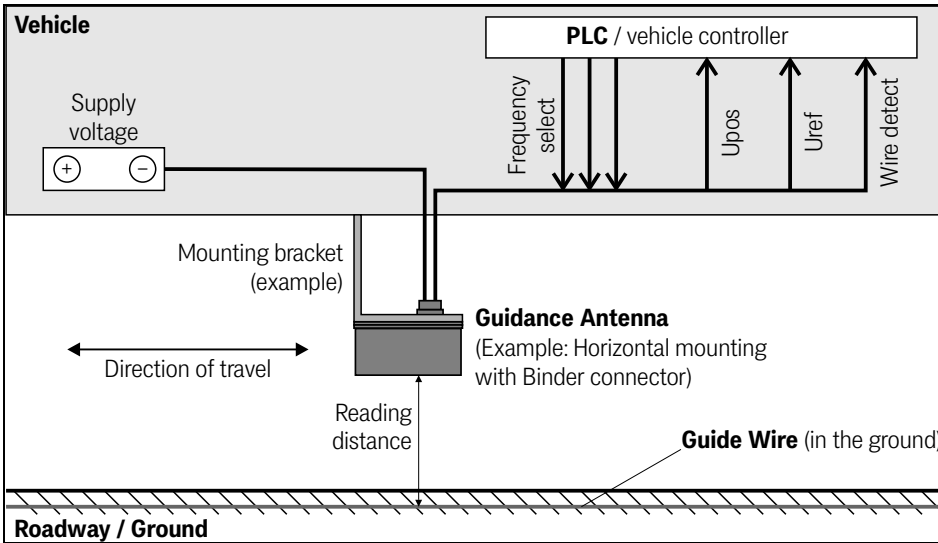


**Operational Description**

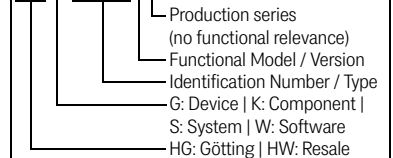


**Main Features**

- Inductive multiple frequency sensor for AGVs
- Indoor usage IP 40
- Detection of the electromagnetic field (flux) in X- (horizontal) and Z-direction (vertical)
- 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 Binder connector

**Götting Product IDs (order codes)**

**HG G-19330ZA**

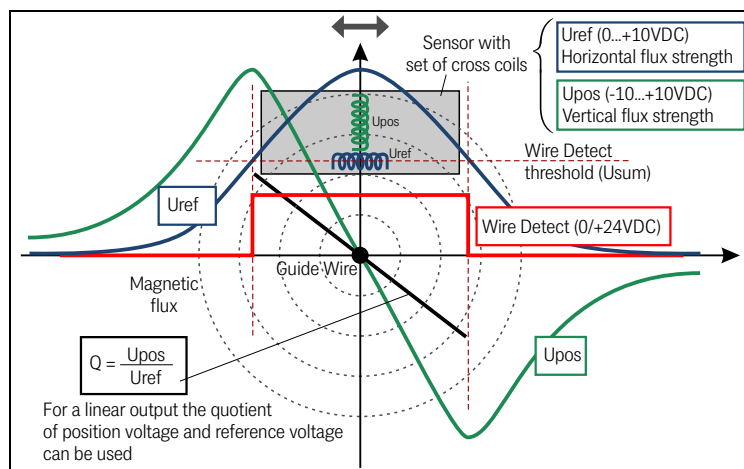


For track guiding automated guided vehicles (AGV), inductive guidance systems have proven to be very reliable. A frequency generator feeds a current into a guidance wire installed in the ground. Along this wire an alternating magnetic field is generated. The inductive sensor detects the horizontal and vertical components of the magnetic field by a specific set of coils.

When moving the sensor perpendicularly over 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 Binder 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**

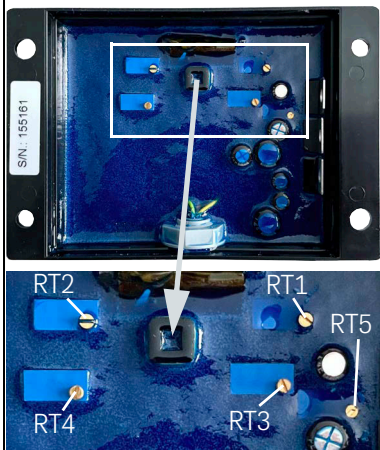
Direction	Minimum area
Left, right	>= 75 mm
Front, rear	>= 50 mm
Above (vehicle)	>= 30 mm
Underneath (reading side)	<b>No metal!</b>

**Frequency selection via the digital inputs F1-F3**

Dig. IN	1	2	3	4	5	6	7	8
<b>F1</b>	0	1	0	1	0	1	0	1
<b>F2</b>	0	0	1	1	0	0	1	1
<b>F3</b>	0	0	0	0	1	1	1	1

**Trimming & adjusting**

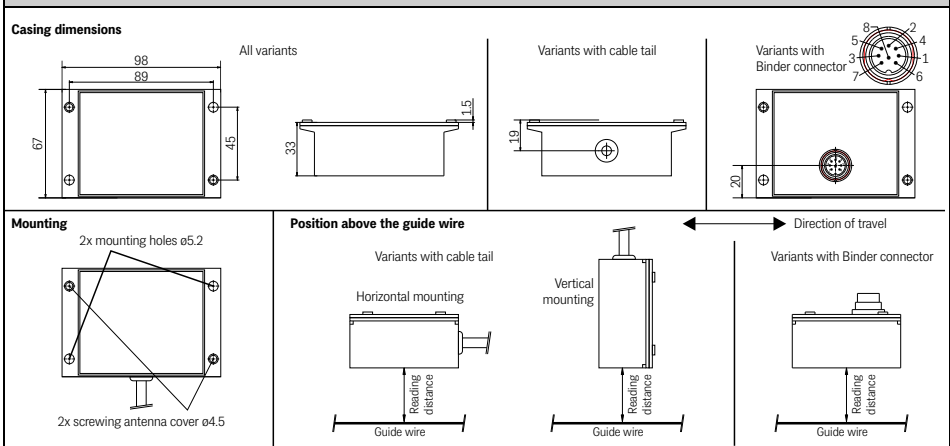
The sensor can be calibrated via the potentiometers RT 1 to RT 5. To do this, remove the sensor cover to be able to reach the potentiometers with a small screwdriver. The diagrams on the right show which values influence the potentiometers.



**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
HW CON00036	Binder coupling
HW CAB00087	Connection cable 5 m with Binder coupling

**Dimensions / Mounting**

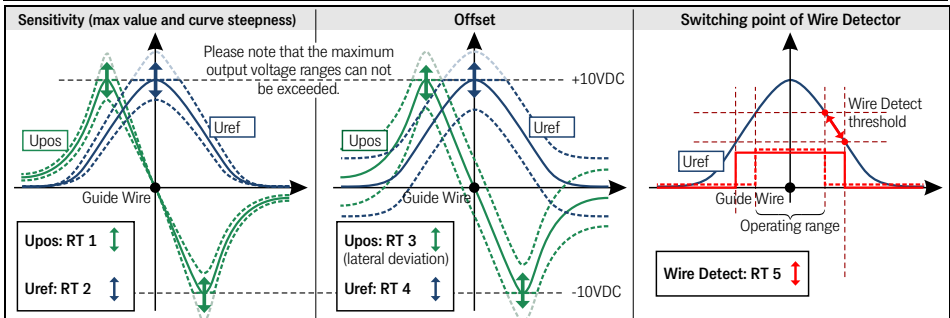


The sensor can be mounted with 2 screws. The alignment depends on the variant (see below). For mounting under the vehicle we recommend the use of non-metallic mounting brackets (not included). Please note the metal-free areas listed on the left for undisturbed signal processing.

**Frequency ranges and factory settings of the sensor variants HG G-19330xx**

Variant	Preset frequencies [Hz] <sup>1) 2)</sup>								Wire current <sup>3)</sup> [mA]	Reading distance [mm]	Connection	Mounting
	1	2	3	4	5	6	7	8				
<b>ZA 001</b>	5100	5700	6300	7000	7800	9000	10000	12000	35	60	cable tail	horizontal
<b>ZA 002</b>									100			
<b>YA</b>	1500	2000	2700	3500	4700	6300	6300	6300	450	70	cable tail	horizontal
<b>XA</b>	5100	5700	6300	7000	7800	9000	10000	12000	150	150	cable tail	horizontal
<b>WA 001</b>	5100	5700	6300	7000	7800	9000	10000	12000	35	60	Binder connector	horizontal
<b>WA 002</b>									100			
<b>TA</b>	5500	7000	8400	10100	12200	15200	18100	26700	100	70	cable tail	horizontal
<b>RA</b>	5100	5700	6300	7000	7800	9000	10000	8550	100	60	cable tail	horizontal
<b>PA</b>	2200	5200	5700	6250	7000	8500	9000	10000	35	70	cable tail	horizontal
<b>NA</b>	5500	7000	8400	10100	12200	15200	18100	26700	100	70	cable tail	horizontal
<b>KA</b>	2412	3108	4040	5213	6216	5100	5700	6300	100	50	cable tail	horizontal

- 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<sub>Sum</sub> 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 <sub>ref</sub> /U <sub>pos</sub>	-10 to +10 VDC / I <sub>a</sub> < 1 mA
Wire detect output	24 VDC, 20 mA power restricted
Protection class	IP 40
Connector	Cable tail 1300 mm (open end) or Binder connector 8-pin (723 series, type 09-0173-80-08)