Guidance Sensor

HG 19330-A

System Description

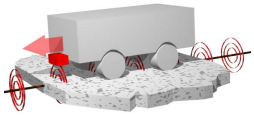
For track guiding automated vehicles, inductive systems have proven to be reliable. In order to be able to meet the system requirements with regards to the accuracy, several guidance sensors have been developed.

Our Standard Guidance Sensor HG 19330 is powerful and inexpensive at the same time. It uses a cross coil system for the detection of the horizontal and vertical field line components. The output voltage proportional to the vertical field line components is a measure for the lateral deviation (difference signal). This output is valid for constant wire current and constant distance between the sensor and the guide wire. Spindle potentiometers within the sensor enable adjusting five important parameters.

Via the 3 inputs (3 bit; F1 to F3) one out of eight possible frequencies can be selected.

In addition, the Guidance Sensor includes a squelch for the sum voltage (corresponds to the horizontal field component). It outputs a zero level, whenever the sum voltage underruns a certain value. This enables the detection of a guide wire.

Because of its extremely favourable price, the Guidance Sensor HG 19330 is very well suited for “Low-Cost“ AGV Concepts, while offering state-of-the-art guidance features.



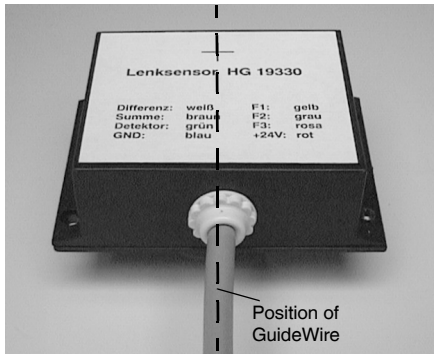
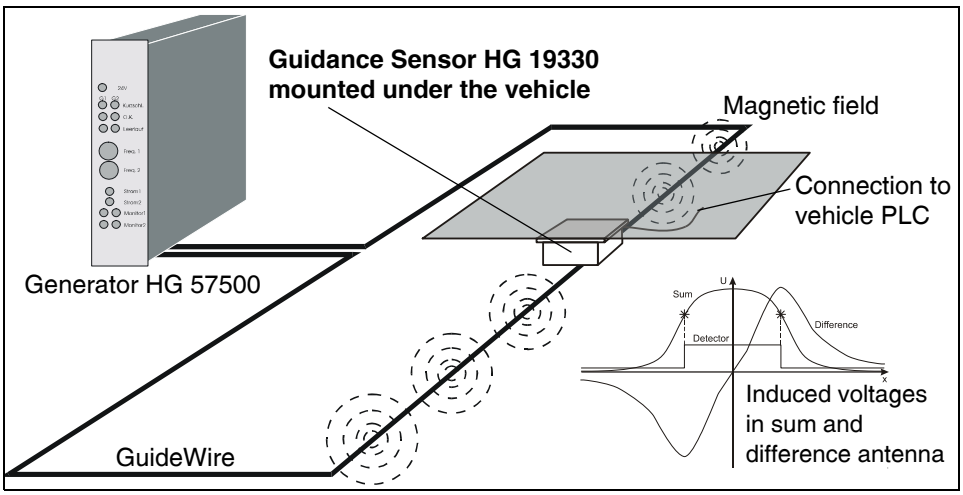


Photo of the guidance sensor
(Mounted to the vehicle with the overprint downward most)

Type	Frequencies [kHz]								Calibrated to		Connection
	1	2	3	4	5	6	7	8	wire current	inst. height	
ZA	5.1	5.7	6.3	7.0	7.8	9.0	10.0	12.0	35 mA	60 mm	Cable
YA	1.5	2.0	2.7	3.5	4.7	6.3	6.3	6.3	450 mA	70 mm	Cable
XA	5.1	5.7	6.3	7.0	7.8	9.0	10.0	12.0	150 mA	150 mm	Cable
WA	5.1	5.7	6.3	7.0	7.8	9.0	10.0	12.0	35 mA	60 mm	Binder Plug
VA	6.0	8.0	9.0	10.0	12.0	14.0	16.0	26.0	100 mA	70 mm	Binder Plug
UA	4.0	6.0	8.0	10.0	16.0	4.7	5.1	5.7	100 mA	70 mm	Cable
TA	5.5	7.0	8.4	10.1	12.2	15.2	18.1	26.7	100 mA	70 mm	Cable
SA	4.0	6.0	8.0	9.0	10.0	12.0	14.0	16.0	100 mA	70 mm	Binder Plug
RA	5.1	5.7	6.3	7.0	7.8	9.0	10.0	8.55	100 mA	60 mm	Cable
QA	8.1	10.7	13.5	7.0	7.8	9.0	10.0	12.0	100 mA	100 mm	Binder Plug

Table
Overview of available versions



Sketch
Inductive Track Guiding System including Guidance Sensor HG 19330 and Frequency Generator HG 57500

GÖTTING

Guidance Sensor

HG 19330-A

Presettings and Adjusting the Guidance Sensor

Presettings

The Guidance Sensors are preset. Different versions are available. The version HG 19330ZA, e. g., is tuned to the following values:

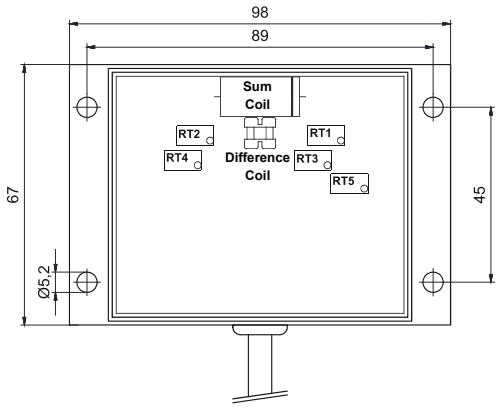
- Wire Current = 35 mA
- Height of Sensor = 60 mm above the guide wire

The threshold of the wire current detector is set to approx. 20 mA. If necessary it is possible to readjust these values:

Adjusting the Guidance Sensor

Spindle potentiometers within the sensor housing enable adjusting the following five values.

- **RT1** Sensitivity of the difference voltage (steepness)
- **RT2** Sensitivity of the sum voltage
- **RT3** Offset of the output voltage proportional to the lateral deviation (corresponds to the off-center deviation; difference voltage)
- **RT4** Offset of the output voltage proportional to the wire current (sum voltage)
- **RT5** Switching point of the sum voltage detector (wire current detector)



Sketch of the guidance sensor
with housing measurements and position of the spindle potentiometers

Frequency selection

Over the frequency select inputs it is possible to select one of the eight preprogrammed frequencies. The following table shows the settings, for the related cable colour / pin for F1, F2 and F3 see the technical data below.

kHz / Cable	5.1	5.7	6.3	7	7.8	9	10	12
F1	0	+	0	+	0	+	0	+
F2	0	0	+	+	0	0	+	+
F3	0	0	0	0	+	+	+	+

0 = connect or GND or leave open; + = connect to 24 V

Table
Frequency selection via F1 through F3 (for the corresponding values of the freq. 1 through 8, see table „overview of available versions“ on the front page)

Technical Data

- **Housing dimensions**	**98 x 67 x 31 mm**
- **Connection**	**Connecting cable (length 1300 mm) or Binder plug (type 09 0173 8008); see table „version overview“ on the front page**
- **Connecting Cable (colors)**	**Difference voltage (white/pin 4); Sum voltage (brown/pin 5); Sum voltage detector (green/pin 6); Frequency sel. F1 (yellow/pin 1); F2 (grey/pin 2); F3 (pink/pin 3); 0 Volt (ground; blue/pin 7); +24 V (red/pin 8); shield (–)**
- **Operating voltage**	**+24 V ±20 %**
- **Current Consumption**	**approx. 100 mA**
- **Variation range of output voltage**	**-10 to +10 V**
- **Sum voltage detector**	**24 V, 20 mA current-limited**
- **Ambient temperature**	**0 to 40° C**
- **Frequency**	**8 different frequencies (see table „version overview“) Selection over F1, F2 and F3 (see table above)**
- **Adjusting the sensor**	**over 5 spindle potentiometers (see above)**

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