**Functional Description**

The magnet sensor HG G-19600ZA detects the magnetic field above a magnetic tape in horizontal and vertical direction and continuously calculates the actual deviation diagonally to the direction of travel. The deviation is then output as an analog voltage.

The sensor is based on digital magnetometer technology for the detection of the magnetic field above the magnetic tape. This technology is robust and maintenance free. The magnetic tape is easy to install and unaffected by dirt.

The sensor contains three independent detection systems. It can thus detect junctions (second track) and follow turnoffs. Via the two digital inputs DIN1 and DIN2 one of max. two tracks underneath the sensor is dynamically selected.

Five LEDs show the operating state (PWR), errors (ERR) and a track underneath the individual systems (TR1, TR2, TR3).

The detection range depends on the reading height (mounting position of the sensor) and the type of the magnetic tape. As shown in the image above the sensor uses the magnetic flux density to calculate the deviation $X$ of the center of the track. The higher the deviation the higher the voltage generated in the sensor.

The image below shows typical levels of the output voltages: Via two analog outputs the deviation from the track as well as the current level of the magnetic field are output. Additionally a detect signal is generated when a magnetic tape is detected underneath the sensor.

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**Main Features**

- Magnet sensor for AGV guidance
- Indoor / IP 54
- Digital Magnetometer Technology
- For axially polarized magnet tapes, nominal reading height 60 mm
- Three independent systems for the detection of turnoffs, track selection via digital inputs
- Analog outputs: Flux density $Z$ (0 to 10 VDC), flux density $X$ (-10 to +10 VDC)
- Digital output: Magnet tape detected within reading area (Detect, +24 VDC)
- Display of operating status via 5 LEDs

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![Magnet Sensor HG G-19600ZA](Magnet Sensor HG G-19600ZA.png)

**Data Sheet**

- **Magnet Sensor HG G-19600ZA**
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**Date: 08.01.2019 | Revision 03 / English | Author(s): RAD / GW**

**Product page:** [http://goetting-agv.com/components/19600](http://goetting-agv.com/components/19600)

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**Innovation in Guidance**

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**www.goetting-agv.com**
Magnet Sensor HG G-19600ZA

### Pin Assignment

<table>
<thead>
<tr>
<th>ST1</th>
<th>ST2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>M12, 5 pin</td>
</tr>
<tr>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>-</td>
</tr>
<tr>
<td>4</td>
<td>M12, 8 pin</td>
</tr>
<tr>
<td>5</td>
<td>GND</td>
</tr>
<tr>
<td>6</td>
<td>AOUT 1 (X)</td>
</tr>
<tr>
<td>7</td>
<td>Dig. OUT 1</td>
</tr>
<tr>
<td>8</td>
<td>-</td>
</tr>
</tbody>
</table>

### Mounting
- Sensor is designed for reading distance of 60 mm above magnet tape
- Please avoid strong magnetic fields near the sensor.

### Adjustments / Trimming
- Configuration of the output parameters (voltage range, offset) as well as the sensitivity (reading height) and thresholds via RS232.
- Track selection:
  - Dig. IN 1: 0 = Left
  - Dig. IN 2: 0 = Straight, 1 = Right

### Factory Settings
- 60 mm reading distance to magnet tape
- OUT Z (vertical field): 0 to 10 VDC
- OUT X (horizontal field): -10 to +10 VDC

### Corresponding Products
- Magnetic tape types
  - HW MAT00003: Magnetic tape on a roll, W x H: 50 mm x approx. 1.2 mm, length 15.2 m
  - HW MAT00004: Embedded magnetic bar, W x H: 6 x 10 mm, quote length
  - HW MAT00005: Magnetic tape curve segment, 30° segment of circle, radius 600 mm
  - HW MAT00006: Magnetic tape curve segment, 30° segment of circle, radius 800 mm

### Göttting Product IDs (order codes)
- HG G-19600ZA
- HW CAB00001: Cable PUR, 5m with M12-elbow plug, 5 pins, A-coded
- HW CAB00007: Cable PUR, 2m with M12-elbow plug, 8 pins, A-coded

### Casing Dimensions

- Nominal reading distance: 60 mm when using the Göttting magnetic tape HW MAT00003
- Dimensions: 156 mm x 31 mm x 53 mm (W x H x D)
- Casing: Polycarbonate
- Weight: 150 g
- Protection class: IP 54
- Relative humidity: 95 % at 25° C (without condensation)
- Operating temperature: -20° to +50° C
- Storage temperature: -20° to +70° C
- Supply voltage: +24 VDC
- Current consumption: < 100 mA
- Analog outputs: Z: 0 to 10 VDC, X: -10 to +10 VDC
- Digital output: Track Detect: +24 VDC (Ub)
- Connectors: 2 circular connectors M12 male 1 x 5 pin / 1x 8 pin

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