Cable transducers

Linear travel measurements made easy.
Easy installation. Reliable results.

Whether as OEM or retrofit – Baumer cable transducers are ideal for easy and precise linear measurements. Extremely compact and yet long measuring length. Unrivalled easy to install compared to other methods. With all robust and long-life components, cable transducers are designed for safe and low-maintenance operation in harsh environments.

Different measuring tasks require the optimal product. Within our broad portfolio you will always encounter the perfect match for your cable transducer application:

- Compact design or configuration flexibility
- Measuring length up to 50 m
- Precise optical or robust magnetic sensing technology
- Absolute or incremental interfaces
- Comprehensive range of accessories for optimum installation

Cable transducers.

Baumer cable transducers are the most convenient, reliable and cost-efficient solution for linear positioning and travel measuring operations.
Ultimate application versatility.

Baumer cable transducers feature any common interface. Hence, they allow for quick integration in any control environment. They are extremely robust and cost-efficient compared to other measuring principles. They enable easy installation without any adjustment aids. They master virtually any task in linear travel measurement – even where space is a constraint and under rough conditions.

**Flexible cable travel:**
Additional pulleys allow for angled cable travel. The cable is sheathed with polyamide as protection against corrosion and for enhanced bending proof performance.

**Never off the track:**
One reason for the high measuring precision is for example the precise and partially mechanically led winding of the steel cable. The robust, sophisticated mechanics is durable and long-lasting.

**Perfect interaction:**
Encoder and cable-pull mechanics perfectly match each other. Linearity in the measuring operation is up to ±0.01 % of the measuring range.
Compact cable transducers for outdoor use.

The compact cable transducers MAGRES BMMS and GCA5 with plastic housing are ideal for outdoor applications where space is limited, for example at utility vehicles.

- Linearity max. 0.2% of the measuring range
- Measuring range up to 7.5 m
- For outdoor applications IP 67

Three-chamber principle
The cable transducer features three separate chambers for optimum protection of electronics and spring mechanism against ingressing moisture or other harmful ambient impacts (series GCA5).

High-end components
Corrosion-proof stainless steel cable with nylon-/polyamide coating and shock-proof plastic housing.

Compact design
Flat, light housing

Broad product portfolio
Absolute cable transducer with robust magnetic sensing. SSI, CANopen® or analog interfaces optional with redundant sensing and signal output.

Integrated skimmer
Durable and efficient dirt skimming by flexible ball head with resilient rubber coating to protect the mechanics of the cable drum against ingress of humidity, dust or dirt (series GCA5).

Versatile accessories
- Pulleys max. angle 180°: for areas difficult to access, as protection against moisture and ice formation.
- Cable extensions allow for attachment even outside the measuring range.
- Mounting angle for easy, durable and safe installation.
Flexible cable transducers with highest linearity.

Medical technology, logistics and similar industries pose high requirements on cable transducers in terms of linearity. The new product platforms GCI and GCA with metal housings and optical position sensing meet the most demanding requirements in terms of measuring accuracy and service life.

- Linearity ±0.01 % of the measuring range
- Measuring range up to 50 m
- For indoor applications IP 65

Extremely high accuracy
Precise mechanics with guided winding of the cable, combined with precise optical sensing.

Versatile program
Cable-pull mechanics combined with a versatile selection of encoders to master any measuring task.

Robust and durable
Aluminum housing ensures minimum wearing and high life span.

High configuration flexibility – any conventional absolute interfaces
Utility vehicles
Analog output, CANopen® or SAEJ1939 interface capabilities make the cable transducers predestined for deployment in utility vehicles. Redundant product variants are available where more diagnostic functions are required. Temperature stability down to –40 °C and pulleys ensure your reliable measuring operations where other methods would fail.
Application examples:
- Outrigger positioning
- Extended boom positioning

Logistics
High-dynamic measurements by cable transducers support speed-optimized processes. Despite the limited installation space prevailing at industrial trucks, they are very easy to integrate and yet provide up to 50 m measuring length.
Application examples:
- Height measurement of the forklift and AGVs such as automatically guided forklift trucks
- Position acquisition at stacker cranes

Working and lifting platforms
Cable transducers to acquire positions at working platforms, lifting tables and hydraulic lifts are particularly convenient and cost-efficient.
Application examples:
- Position acquisition at assembly and scissor lifts in the automotive industry
- Position acquisition at working platforms

Medical technology
In medical technology, the compact cable transducers impress by their easy installation capabilities in limited space and high efficiency.
Application examples:
- Positioning of patient bed in computer tomography
- Horizontal and vertical alignment of camera and X-ray unit in automated X-ray systems
Optimal Design-In.

Optimum integration in your application will ensure consistently precise measured results and extend the cable transducers service life to the maximum.

Installation is preferred with the cable outlet pointing downward to prevent ingress of water and liquids. A pulley may be used to remove any ice formation from the cable to prevent transport inside the drum mechanism. The optional dirt skimmer will additionally remove any dust or dirt deposits.

*MAGRES* BMMS and GCA5 cable transducers for outdoor applications, e.g. utility vehicles, provide holes for water outlet all around to drain any liquid adhering to the cable or condensation.

Just remove the protective caps during installation.

Cable travel axial to the outlet will extend the cable service life. A pulley is recommended in the event of the misalignment exceeding 3° to protect the material and to prevent excessive cable wear. A pulley also enables optimum cable travel around objects without bending.

Appropriate cable assembly ensures reliable measured results and a firm hold. It prevents cable rewind without control and the entailed damage of encoder.

Appropriate mounting on an even surface ensures precise results and prevents the drum from blocking. Optimal attachment is achieved by using the robust, accurately fitting mounting angles.
## Product overview

### Compact

<table>
<thead>
<tr>
<th>Measuring length</th>
<th>BMMS K34</th>
<th>BMMS K50</th>
<th>BMMS M75</th>
<th>GCA5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Up to 3.4 m</td>
<td>Up to 5 m</td>
<td>Up to 7.5 m</td>
<td>Up to 4.7 m</td>
</tr>
<tr>
<td>Product family</td>
<td>BMMS</td>
<td>BMMS</td>
<td>BMMS</td>
<td>GCAS</td>
</tr>
<tr>
<td>Sensing method</td>
<td>Magnetic</td>
<td>Magnetic</td>
<td>Magnetic</td>
<td>Magnetic</td>
</tr>
<tr>
<td>Voltage supply</td>
<td>8 ... 30 VDC, 10 ... 30 VDC</td>
<td>8 ... 30 VDC, 10 ... 30 VDC</td>
<td>8 ... 30 VDC, 10 ... 30 VDC</td>
<td>8 ... 30 VDC, 10 ... 30 VDC</td>
</tr>
<tr>
<td>Interfaces</td>
<td>Analog, analog redundant, CANopen®, CANopen® redundant, SSI</td>
<td>Analog, analog redundant, CANopen®, CANopen® redundant, SSI</td>
<td>Analog, analog redundant, CANopen®, CANopen® redundant, SSI</td>
<td>Analog, analog redundant, CANopen®, CANopen® redundant, SSI</td>
</tr>
<tr>
<td>Output circuit</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Connection</td>
<td>M12, cable</td>
<td>M12, cable</td>
<td>M12, cable</td>
<td>M12, cable</td>
</tr>
<tr>
<td>Resolution</td>
<td>0.1 mm / step (SSI, CANopen®), 12 bit (analog)</td>
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</tr>
<tr>
<td>Linearity</td>
<td>±0.6 %</td>
<td>±0.6 %</td>
<td>±0.2 %</td>
<td>1 %</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>–40 ... +85 °C</td>
<td>–40 ... +85 °C</td>
<td>–40 ... +85 °C</td>
<td>–40 ... +85 °C</td>
</tr>
<tr>
<td>Protection</td>
<td>IP 65 (encoder)</td>
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<td>IP 65 (encoder)</td>
<td>IP 67 (cable inlet IP 54)</td>
</tr>
<tr>
<td>Accessories</td>
<td>Pulleys, eyelets, hooks, extension cables, mounting angles</td>
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</tr>
</tbody>
</table>

### Flexible

<table>
<thead>
<tr>
<th>Measuring length</th>
<th>GCI2 / GCA2 (on request)</th>
<th>GCI4 / GCA4</th>
<th>GCI15 / GCA15</th>
<th>GCI50 / GCA50</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Up to 2.1 m</td>
<td>Up to 3 m</td>
<td>5 ... 15 m</td>
<td>30 ... 50 m</td>
</tr>
<tr>
<td>Product family</td>
<td>GCI2 / GCI4 / GCA2</td>
<td>GCI4 / GCA4</td>
<td>GCI15 / GCA15</td>
<td>GCI50 / GCA50</td>
</tr>
<tr>
<td>Sensing method</td>
<td>Optical</td>
<td>Optical</td>
<td>Optical</td>
<td>Optical</td>
</tr>
<tr>
<td>Voltage supply</td>
<td>5 VDC (incremental), 4.75 ... 30 VDC (incremental), 10 ... 30 VDC (absolute)</td>
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</tr>
<tr>
<td>Output circuit</td>
<td>TTL/RS422, HTL/push-pull</td>
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</tr>
<tr>
<td>Connection</td>
<td>M23, M12, cable or bus cover</td>
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</tr>
<tr>
<td>Resolution</td>
<td>Up to 80.000 ppr (incremental), up to 36 bit (absolute)</td>
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<td>Up to 80.000 ppr (incremental), up to 36 bit (absolute)</td>
</tr>
<tr>
<td>Linearity</td>
<td>±0.01 %</td>
<td>±0.02 %</td>
<td>±0.01 %</td>
<td>±0.01 %</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>–20 ... +85 °C (~–40 ... +85 °C optional)</td>
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Learn more about our cable transducers at:

www.baumer.com/cabletransducer

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