

# Angular position transmitters Rotational speed sensors Frequency transmitters Pressure gauges

Instrument overview and selection table

## ■ Angular position transmitters

- Conversion of a rotation angle up to  $310^\circ$  to a 0/4...20 mA signal, with increasing or decreasing characteristic curve
- Position measurement of gate valves, standard valves, and flap valves
- For use in gas turbines, shipbuilding, windmills, liquid level measurement
- Mounting on/in pressure gauges
- For use inside/outside hazardous areas

## ■ Rotational speed sensors

- Active or passive
- For low and high rotational speed of up to  $10,000 \text{ revs./min}^{-1}$
- Non-contact or coupled measurement
- Detecting the direction of rotation

## ■ Frequency transmitters

- For frequency and rotational speed, configurable
- Span 0.1 Hz...20 kHz, output 0/4...20 mA
- Alarm value signalling
- Degree of protection IP 20 or IP 65

## ■ Pressure gauges

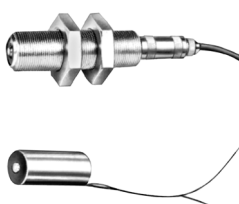
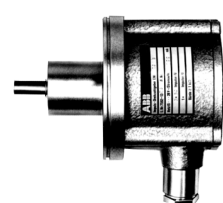

- Bourdon gauge or diaphragm gauge
- Pressure range 16 mbar...600 bar
- Material: copper alloy, stainless steel or coated with PTFE




Angular position transmitters

	Applications	Specifications	Data Sheet
	<p><b>TGU5, TGU5-Ex</b> Angular position transmitter converting angular positions to a 0/4...20 mA DC signal, mounting in pressure gauges, rotameters, etc.</p>	<p>With/without explosion protection, angular position 7°...310°, protection IP 30, 2-wire/3-wire/4-wire connection, increas./decreas. direction of rotation</p>	<p>10/14-1.23 EN</p>
	<p><b>TGE5, TGE5-Ex</b> Angular position transmitter converting angular positions to a 0/4...20 mA DC signal, mounting on pressure gauges, balances, etc.</p>	<p>With/without explosion protection, angular position 7°...310°, &gt; 310° with gear adapter, protection IP 54, 2-wire/3-wire/4-wire connection increas./decreas. direction of rotation</p>	<p>10/14-1.23 EN</p>
	<p><b>TGM5, TGM5-Ex</b> Angular position transmitter for angular position measurement in heavy machinery, on gas turbines, in the shipbuilding industry, on windmills, etc.</p>	<p>With/ without explosion protection, angular position 7°...310°, &gt; 310° with gear adapter, ball bearing, friction bearing with/without sealing ring up to protection IP 66, 2-wire/3-wire/4-wire connection increas./decreas. direction of rotation</p>	<p>10/14-1.23 EN</p>
	<p><b>TGSE</b> Angular position transmitter for angular position measurement on flap valves, standard valves, and gate valves, with local indicator.</p>	<p>Measuring range 30°...60° revolutions, protection IP 54, shaft Ø 10 mm, 2-wire/3-wire/4-wire connection increas./decreas. direction of rotation, max. 6 limit switches, NO/NC contacts (reconnectable)</p>	<p>10/14-1.11 EN</p>
	<p><b>TGNE</b> Angular position transmitter for liquid level measurement on water reservoirs and tanks, in lakes and on rivers, with local indicator.</p>	<p>Measuring range 0.5...30 m, protection IP 54, 2-wire/3-wire/4-wire connection increas./decreas. direction of rotation, max. 6 limit switches, NO/NC contacts (reconnectable)</p>	<p>10/14-1.11 EN</p>
<p>without photo</p>	<p><b>TGS40</b> Angular position transmitter mounting to flap traps, for applications with high ambient temperatures up to 470 °C.</p>	<p>Magnetic sensor, high mechanical capabilities (shock and vibration)</p>	<p>10/14-1.15 EN</p>
	<p><b>TZG24</b> Mains rectifier unit for power supply e.g. of angular position transmitters.</p>	<p>220 V AC mains, 24 V DC output voltage, max. 150 mA.</p>	<p>10/14-1.50 EN</p>


## Rotational speed sensors

	Applications	Specifications	Data sheet
	<b>ENI4, ENI5</b> Non-contact rotational speed sensor for high rotational speeds	Frequency range max. 10,000 Imp/s, permissible ambient temperature -50...+150 °C.	10/14-2.12 EN
	<b>ENI11, ENI12</b> Non-contact rotational speed sensor for low rotational speeds	With additional power supply 7.7...8.7 V.	
	<b>ENI21, -22, -22R, -23</b> Optoelectric rotational speed sensor with pulse output. ENI 22R with logic signal for dedecting the direction of rotation	Drive speed max. 6000 revs/min., 15/30/60 pulses per revolution, with 1, 2, or 3 outputs, power supply 18...28 V DC.	10/14-2.15 EN
	<b>NM510</b> Rotational speed sensor with AC voltage output for high rotational speeds	Drive speed max. 5000 min <sup>-1</sup> , generated voltage 10 V, 66 2/3 Hz per 1000 min <sup>-1</sup> .	10/14-2.16 EN
	<b>NMk611</b> Rotational speed sensor with AC voltage output, various mechanical connection options.	Drive speed max. 2500 min <sup>-1</sup> , generated voltage 10 V, 66 2/3 Hz per 1000 min <sup>-1</sup> .	10/14-2.18 EN

## Frequency transmitters

	<b>ENM4</b> Parameterizable transmitter for frequency and rotational speed Input: active or passive rotational speed sensor, protection IP 20 or IP 65.	Span 0.1 Hz...20 kHz, input amplitude active frequency source 50 mV...100 V, output signal 0/4...20 mA, 0...10 V, el. isolation between input/output/power supply, built-in constant voltage source 5...18 V, alarm limit signalling.	10/14-2.23 EN
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## Pressure gauges

	<b>TDB160</b> Bourdon gauge for high pressure, with or without attached transmitter for angular position, output signal 0/4...20 mA, alarm limit contacts.	Measuring range 0.6...600 bar, Bourdon tube made of copper alloy or CrNi steel 1.4571, housing made of CrNi steel 1.4301, protection IP 54.	10/14-4.11 EN
	<b>TDP160</b> Diaphragm gauge for low pressure, with or without attached transmitter for angular position output signal 0/4...20 mA, alarm value contacts.	Measuring range 16 mbar...25 bar, overload capability up to 5-fold, material CrNi steel 1.4571 or parts in contact with the pressure medium coated with PTFE, housing CrNi steel 1.4301, protection IP 54.	10/14-4.11 EN

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