Data Sheet 10/14-1.23-EN

# TGE 5, TGE 5-Ex, TGM 5, TGM 5-Ex, TGU 5, TGU 5-Ex

### Transmitter for angular position



Conversion of the angular position of the shafts of mechanical primary detectors into a load-independent direct current signal

#### **High precision**

— Non-linearity < 1 %</p>

Simple conversion from 2, 3 or 4-wire operation (only 2-wire circuit in the case of devices with explosion protection)

#### **Options**

- Electrical isolation between output and power supply
- Marine version with German Lloyd approval
- Intrinsically safe version for operation in Zone 1
- $\boldsymbol{-}$  Limitation of superimposed interference voltage peaks
- Plug connection Han 7 D

#### Version TGE 5, TGE 5-Ex for attachment to

- Pressure gauges (with mounting hardware)
- Scales etc.

#### Version TGM 5, TGM 5-Ex for attachment to shafts

- In heavy machinery
- On ships etc.

#### Version TGU 5, TGU 5-Ex for installation in

- Pressure gauges
- Rotameters

Installation in systems with very high mechanical and climatic stress

The customer's specific adjustments are effected at the factory, but can be changed subsequently

#### **Technical data**

Input (see ordering information for measuring range)

Zero: Approx. ± 5 % adjustable (referred to the output span)

Shaft: can be freely rotated

#### Output and power supply

Non-linearity

< 1 % (referred to the output span) TGE 5, TGM 5 (measuring range < 90°):

< 0.5 % (referred to the output span)

Response time: < 50 ms (jump 0 %...100 %)

Long-term influence: < 0.2 % / year

Residual ripple (peak-peak)

Output signal < 1 % Power supply < 1.5 V

#### General and safety data

#### **Environment conditions**

See table 2 for application class

Ambient temperature: -25... +80 °C
Transportation and storage temperature: -40... +80 °C

Relative atmospheric humidity

TGE 5: < 75 % annual average, condensing perm., occasional

TGM 5: < 90 % annual average, condensing permitted

TGU 5: < 75 % annual average, condensing perm., occasional

#### Mechanical stress capabilities

Tested to DIN IEC 68-2-27 and 68-2-6

Impact: 50 g/11 ms

Vibration:  $5 \text{ g/} \pm 10 \text{ mm/} 5...150 \text{ Hz}$ 

TGU 5

Interference proof acc. to NAMUR Recommendation for industrial standard in 2-wire circuit

#### TGE 5. TGM 5

Interference immunity acc. to NAMUR Recommendation for industrial standard (surge 1.2/50 1.5 kV). Devices with explosion protection (Ex devices) are only operated in 2-wire circuit.

Connection, housing, mounting and safety

TGE 5, TGE 5-Ex, TGM 5, TGM 5-Ex, TGU 5, TGU 5-Ex

Electrical connections

Screw terminals for 2.5 mm<sup>2</sup>

or plug connection Han 7 D (not for Ex)

TGU 5, TGU 5-Ex

4-conductor ribbon cable 150 mm long
Mounting orientation: any
Test voltage to DIN VDE 0411: 0.5 kV

Material of housing

Salt-water-proof cast aluminium

Surface anodized

TGE 5, TGE 5-Ex, TGU 5, TGU 5-Ex: plastic cover

Weight

TGE 5 approx. 0.5 kg
TGM 5 approx. 2.6 kg
TGU 5 approx. 0.2 kg

Version	Degree of protection of housing to DIN 40050	Application class to DIN 40040	Max. sh pern radial	aft load nitted axial	required torque
TGU 5	IP 30/IP 00 <sup>2)</sup>	HQE			≈ 0.15 Ncm
TGU 5-Ex	11 30/11 00 /	HSE			(15 cmp)
TGE 5	IP 54/IP 50 <sup>1)</sup>	HQR			≈ 0.3 Ncm (30 cmp)
TGM 5					
With friction bearings + sealing ring	IP 66	HQR	300 N (30 kp)	900 N (90 kp)	Approx. 8 Ncm (800 cmp)
With friction bearings w. sealing ring	IP 66/ IP 50 <sup>1)</sup>	HQR	300 N (30 kp)	900 N (90 kp)	Approx. 2 Ncm (200 cmp)
With ball bearing	IP 56/ IP 50 <sup>1)</sup>	HQR	200 N (20 kp)	150 N (15 kp)	Approx. 0.6 Ncm (60 cmp)

<sup>1)</sup> On the shaft seal; seal for higher degree of protection

<sup>4)</sup> only version V1443A-xx73xxx

Electrical isolation	Power supply U <sub>S</sub>	Max. current supply	Max. load	2-wire connection	3-wire connection	4-wire connection	Jumper Br3
No (nonly Ex)	1220 V DC	24 mA	$\frac{U_S - 12V}{I_A}$	420 mA	-	_	open
No	13.236 V DC	24 mA	$\frac{U_S - 13, 2V}{I_A}$	- - - 420 mA	0 5 mA 010 mA 020 mA	0 5 mA 010 mA 020 mA 420 mA <sup>3)</sup>	closed closed closed open
No	13.226,4 V AC	24 mA	$\frac{U_S - 13, 2V}{I_A} \cdot 1, 4$	- - -	- - -	0 5 mA 010 mA 020 mA 420 mA <sup>3)</sup>	closed closed closed open
With	13.236 V DC	100 mA	600 Ω	- - -	- - -	0 5 mA 010 mA 020 mA 420 mA <sup>4)</sup>	closed closed closed open
With	13.226,4 V AC	100 mA	600 Ω	- - -	- - -	0 5 mA 010 mA 020 mA 420 mA <sup>4)</sup>	closed closed closed open

Page 2 of 10 05.02

<sup>2)</sup> At cable end

only version V1443A-xx7xxxx

#### **Technical data**

#### **Explosion protection**

Only with 2-wire connection

#### TGU 5-Ex, TGE 5-Ex, TGM 5-Ex

Manufacturer's code 49/14-09 Ex

Certificate of Conformity PTB-No. Ex-89.C.2148

Type of protection Intrinsic safety "i"

Code

EEx ib IIC T4/T6

Hazardous area

Zone 1 or 2

Protection group

T6 at max. 40 °C ambient temperature T4 at max. 70 °C ambient temperature

Transmitter TGx 5-Ex must be powered from an intrinsically safer certified current source, suitable for connection to the transmitter's power supply circuit.

In the case of a 2-wire connection, the output signal is shown as a change of the current consumption.

Power supply circuit

With type of protection "intrinsic safety"

EEx ib IIC

Rated values

Voltage 1 2...20 V DC

Current

With 2-wire connection up to 20 mA

For connection to an intrinsically safe certified circuit with the following max. values:

Open-circuit voltage 20 V Short-circuit current to 35 mA Power to 0.7 W

Effective internal inductance between the terminals

and housing (earth)  $\leq 6 \text{ nF}.$ 

Effective internal inductance is negligible.

#### **Output circuit**

With type of protection "Intrinsic safety" EEx ib IIC

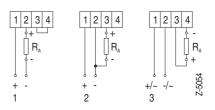
The power supply circuit and output circuit are identical for the 2-wire connection. In the event of a fault, the maximum values of the power supply circuit will also occur in the output circuit.

If active, intrinsically safe circuits are connected to the output circuit, the sum total of the maximum values of the active, intrinsically safe circuits, connected to the output circuit, including the maximum values of the power supply circuit may not exceed the following values:

Voltage to 20 V Current to 35 mA Power to 0.7 W

#### **Connection diagrams**

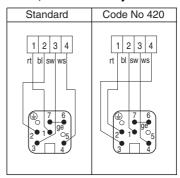
#### **Terminal connection TGE 5, TGM 5**



- 1 = Two-wire connection
- 2 = Three-wire connection
- 3 = Four-wire connection

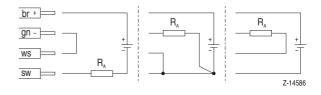
#### Plug connection TGE 5, TGM 5

#### TGE 5, TGM 5 only TGE 5



Z-13890 EN

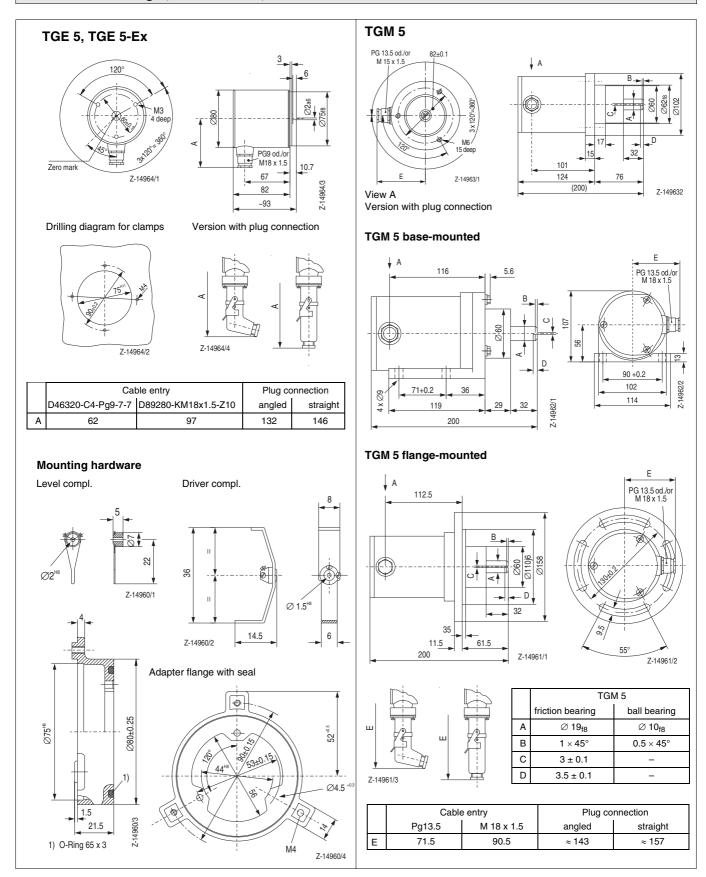
#### TGU 5



Two-wire connection Three-wire connection Four-wire connection

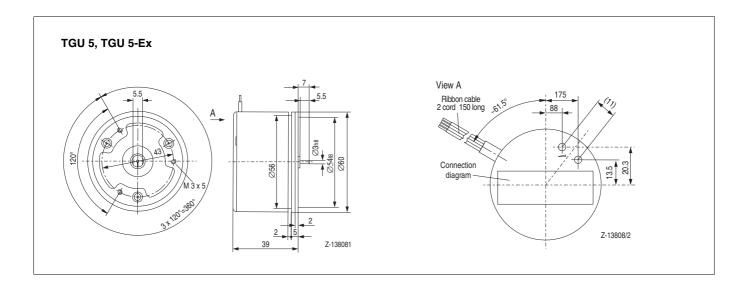
05.02 Page 3 of 10

#### Dimensional drawings (Dimensions in mm)



Page 4 of 10 05.02

#### Dimensional drawing (Dimensions in mm)



05.02 Page 5 of 10

10/14-1.23 EN

Stock versi	ons				
Version	Measuring range	Power supply	Bearing	Catalog No.	
Transmitter T	GE 5, TGE 5-Ex				
Standard	0270°	24 V UC	-	V14432A-1712300	
Intrinsic. safe	0270°	24 V UC	-	V14432A-5711300	
Transmitter T	GM 5				
Standard	0 30°	24 V UC	friction bearing with sealing	V14436A-1312110	
Standard	0 60°	24 V UC	friction bearing without sealing	V14436A-1412120	
Standard	0 90°	24 V UC	friction bearing with sealing	V14436A-1512110	
Standard	0 90°	24 V UC	friction bearing without sealing	V14436A-1512120	
Standard	0270°	24 V UC	friction bearing with sealing	V14436A-1712110	
Standard	0270°	24 V UC	friction bearing without sealing	V14436A-1712120	

Page 6 of 10 05.02

10/14-1.23 EN

Ordering information											
	Catalog No.							Code			
Transmitter TGU 5	V14437A-		Ī		0	0	0	0			
Design	·										
Standard		1									
Intrinsically safe EEx ib		5								no longer av	ailable
Measuring range											
0 10°, can be set to 0 9/ 11°			1								
0 30°, can be set to 0 27/ 33°			3								
0 60°, can be set to 0 54/ 66°			4								
0 90°, can be set to 0 81/ 99°			5								
0180°, can be set to 0162/198°			6					1			
0270°, can be set to 0224/280°			7				1	1			
0310°			8					1			
Other measuring ranges acc. to Code-Nos. 302306			0								
Output											
0/420 mA				1							
010 mA				3							
0 5 mA				5							
420 mA 4-wire circuit <sup>1)</sup>				7	ļ				<u> </u>		
Additional ordering information											
Other measuring ranges											
Upper value setting range as from											
0 7,5°/17° adjusted to: (clear text)									302		
0 15°/75° adjusted to: (clear text)									303		
0 60°/165° adjusted to: (clear text)									304		
0150°/280° adjusted to: (clear text)									305		
0220°/310° adjusted to: (clear text)									306		
Output signal increases when shaft turns towards the left (>150°)									310		
Operating manual (state total quantity) <sup>2)</sup>											
German (no indication for 1 manual)									Z1D		
English (no indication for 1 manual)									Z1E		
French (no indication for 1 manual)									Z1F		

<sup>1)</sup> Not for Ex-version

05.02 Page 7 of 10

<sup>2) 1</sup> manual at no extra cost

10/14-1.23 EN

Catalog No.   Code	Ordering informa	ition											
Transmitter TGM 5	<b>J</b>		Catalog No	).							Code		
Design   Standard	Transmitter TGM 5			<u>.                                    </u>					П	7	2340		
Standard     1			TITIOUA							Ť			
Marine GL Certificate (cable connector M 18 x 1.5)    Marine GL Certificate (cable connector M 18 x 1.5)   3   5				1									
Intrinsically safe EEx ib    Measuring range		(cable connector M 18 x 1.5)											
Measuring range   0 10", can be set to 0 9/ 11"   0 30", can be set to 0 9/ 11"   0 30", can be set to 0 27/ 33"   3   3   0 60", can be set to 0 27/ 33"   3   3   0 60", can be set to 0 54/ 66"   4   0 90", can be set to 0 162/198"   5   0 180", can be set to 0 162/198"   6   0 270", can be set to 0 162/198"   6   0 270", can be set to 0 224/280"   7   0 310"   8   0 270", can be set to 0 224/280"   7   0 310"   8   0 270", can be set to 0 224/280"   7   0 310"   8   0 310"   8   0 310"   8   0 310"   9   0 310												no longer av	ailable
0 10°, can be set to 0 9/ 11° 0 30°, can be set to 0 27′ 33° 0 60°, can be set to 0 27′ 33° 0 60°, can be set to 0 81′ 99° 0 180°, can be set to 0 81′ 99° 0 180°, can be set to 0 180′ 99° 0 270°, can be set to 0 180′ 99° 0 270°, can be set to 0 180′ 99° 0 270°, can be set to 0 224′280° 0 270°, can be set to 0 224′280° 0 270°, can be set to 0 224′280° 0 310° 0 270° 0 310° 0 30° 0		•		_									
0 30°, can be set to 0 27′, 33° 0 60°, can be set to 0 54′, 66° 0 90°, can be set to 0 81′, 99° 0 180°, can be set to 0 62′/198° 0 270°, can be set to 0 62′/198° 0 270°, can be set to 0 62′/198° 0 310° 0 10° 0 270°, can be set to 0 62′/198° 0 310° 0 10° 0		0 9/ 11°			1								
0 60°, can be set to 0 54′, 66° 0 90°, can be set to 0 54′, 66° 0 90°, can be set to 0 162′198° 0 270°, can be set to 0 162′198° 0 270°, can be set to 0 224′280° 0 270°, can be set to 0 224′280° 0 310° 0													
0 90°, can be set to 0 81/ 99° 0180°, can be set to 0 162/198° 0270°, can be set to 0 24/280° 0310° 0210° 0310° 010 mA 010 mA 010 mA 05 mA 120 mA 05 mA 120 mA 010 mA 0 5 mA 120 mA 0 5 mA 120 mA over circuit¹¹  Power supply Direct voltage Universal current with electr. Isolation and TAZ suppressor diode¹¹(only 4-wire-circuit)  Cable entry Cable connector PG 13.5 Cable entry Cable connector M 18 x 1.5 Plug connection (see Code-Nos. 415416)¹¹ Shaft bearings Friction bearing with sealing ring Friction bearing with visualing ring Ball bearing  Additional ordering information  Other measuring ranges Upper value setting range as from 0 7,5°/17° adjusted to: (clear text) 0 15°/75° adjusted to: (clear text) 0 20°/310° adjusted to:													
0180°, can be set to 0162/198° 0270°, can be set to 024/280° 0270°, can be set to 0224/280° 0310° Other measuring ranges acc. to Code-Nos. 302306  Other measuring ranges acc. to Code-Nos. 302306  Output 0/420 mA 010 mA 010 mA 05 mA 420 mA 4-wire circuit¹)  Power supply Inviersal current with TAZ suppressor diode¹¹²² Universal current with electr. Isolation and TAZ suppressor diode¹¹ (only 4-wire-circuit)  Cable connector PG 13.5 Cable connector PG 13.5 Cable connector M 18 x 1.5 Plug connection (see Code-Nos. 415416)¹¹ Shaft bearings Friction bearing with usealing ring Friction bearing without sealing ring Ball bearing  Additional ordering information  Other measuring ranges Upper value setting range as from 0 7.5°/17° adjusted to: (clear text) 0 60°/165° adjusted to: (clear text) 0 60°/165° adjusted to: (clear text) 0 20°/20°30° adjusted to: (clear text) 0 306 0.0 4156° adjusted to: (clear text) 0 306 0.0 4156° adjusted to: (clear text) 307 0.0 507 308 309 309 3000 3000 3000 3000 3000 30													
0270°, can be set to 0224/280° 0310° 0310° Output 0/420 mA 010 mA 05 mA 420 mA 4-wire circuit¹) Power supply Direct voltage Universal current with TAZ suppressor diode¹¹²0 Universal current with electr. Isolation and TAZ suppressor diode¹¹ (only 4-wire-circuit)  Cable connector PG 13.5 Cable connector PG 13.5 Cable connector M 18 x 1.5 Plug connection (see Code-Nos. 415416)¹¹ Shaft bearings Friction bearing with sealing ring Bail bearing  Additional ordering information  Other measuring ranges Upper value setting range as from 0 7,5°/17° adjusted to: (clear text) 0 16°/75° adjusted to: (clear text) 0 26°/310° adjusted to: (cle													
O310° Other measuring ranges acc. to Code-Nos. 302306 Other measuring ranges acc. to Code-Nos. 302306 Output 0/420 mA 010 mA 010 mA 010 mA 05 mA 420 mA 4-wire circuit¹) Power supply Direct voltage Universal current with TAZ suppressor diode¹¹20 Universal current with electr. Isolation and TAZ suppressor diode¹¹ (only 4-wire-circuit) 2 Universal current with a tectr. Isolation and TAZ suppressor diode¹¹ (only 4-wire-circuit) Cable connector PG 13.5 Cable connector M 18 x 1.5 Plug connection (see Code-Nos. 415416)¹¹ Shaft bearings Friction bearing with sealing ring Friction bearing without sealing ring Friction bearing without sealing ring Ball bearing  Additional ordering information Other measuring ranges Upper value setting range as from 0 7.5°/17° adjusted to: (clear text) 0 15°/75° adjusted to: (clear text) 0 60°/165° adjusted to: (clear text) 0 220°/210° adjusted to: (clear text) 0 220°/210° adjusted to: (clear text) 0 220°/210° adjusted to: (clear text) 900 Output signal increases when shaft turns towards the left (>150°) Plug connection (see Code-Nos. 415416)¹¹ Sleeve case¹¹ straight, pin on TGM 5 angled, pin on TGM 5													
Other measuring ranges acc. to Code-Nos. 302306		····== //===											
Output 0/420 mA         1 010 mA         1 3 3 0 5 mA         1 420 mA 4-wire circuit*)         1 7         1 7         1 7         1 7         1 8         1 9		ies acc. to Code-Nos. 302, 306											
0/420 mA 010 mA 010 mA 010 mA 420 mA 4-wire circuit <sup>1)</sup> 7  Power supply Direct voltage Universal current with TAZ suppressor diode <sup>1)(2)</sup> Universal current with electr. Isolation and TAZ suppressor diode <sup>1) (only 4-wire-circuit)</sup> 2 Universal current with electr. Isolation and TAZ suppressor diode <sup>1) (only 4-wire-circuit)</sup> 3  Cable connector PG 13.5 Cable connector PG 13.5 Cable connector M 18 x 1.5 Plug connection (see Code-Nos. 415416) <sup>1)</sup> Shaft bearing Friction bearing with sealing ring Friction bearing without sealing ring Ball bearing  Additional ordering information  Other measuring ranges Upper value setting range as from 0 7,5'/17' adjusted to: (clear text) 0 15'/75' adjusted to: (clear text) 0 15'/75' adjusted to: (clear text) 0 20'/165' adjusted to: (clear text) 0 20'/310' adjusted to: (clear text) 0 220'/310' adjusted to: (clear text) 0 2415 415 416		35 455.15 5545 1151 552555			Ů								
010 mA 05 mA 420 mA 4-wire circuit <sup>1</sup> )  Power supply Direct voltage Universal current with TAZ suppressor diode <sup>1</sup> (e) Universal current with electr. Isolation and TAZ suppressor diode <sup>1</sup> ) (only 4-wire-circuit)  Cable entry Cable connector PG 13.5 Cable connector M 18 x 1.5 Plug connection (see Code-Nos. 415416) <sup>1</sup> )  Shaft bearings Friction bearing with sealing ring Friction bearing without sealing ring Ball bearing  Additional ordering information  Other measuring ranges Upper value setting range as from 0 7,5"/17" adjusted to: (clear text) 0 15"/75° adjusted to: (clear text) 0 15"/75° adjusted to: (clear text) 0 220"/310° adjusted to: (clear text) 0 220"/310° adjusted to: (clear text) 0 220"/310° adjusted to: (clear text) 910 Courted the first of						1							
0 5 mA 420 mA 4-wire circuit <sup>1)</sup> Power supply Direct voltage Universal current with TAZ suppressor diode <sup>1/2)</sup> Universal current with TAZ suppressor diode <sup>1/2)</sup> Universal current with electr. Isolation and TAZ suppressor diode <sup>1)</sup> (only 4-wire-circuit)  Cable connector PG 13.5 Cable connector PG 13.5 Cable connector M 18 x 1.5 Plug connection (see Code-Nos. 415416) <sup>1)</sup> Shaft bearings Friction bearing with sealing ring Friction bearing withsus sealing ring Ball bearing  Additional ordering information  Other measuring ranges Upper value setting range as from  0 7,5°/17° adjusted to: (clear text) 0 15°/75° adjusted to: (clear text) 0 15°/75° adjusted to: (clear text) 0 220°/310° adjusted to: (clear text) 0 250°/416° adjusted to: (clear text) 0 220°/310° adjusted to: (clear text) 0 220°/310° adjusted to: (clear text) 0 2415 415 415 416						l							
### 4-wire circuit**)    Power supply													
Power supply Direct voltage Universal current with TAZ suppressor diode <sup>1/2)</sup> Universal current with electr. Isolation and TAZ suppressor diode <sup>1/2)</sup> Universal current with electr. Isolation and TAZ suppressor diode <sup>1/2)</sup> Universal current with electr. Isolation and TAZ suppressor diode <sup>1/2)</sup> (2 Universal current with electr. Isolation and TAZ suppressor diode <sup>1/2)</sup> (3 Universal current with electr. Isolation and TAZ suppressor diode <sup>1/2)</sup> (3 Universal current with electr. Isolation and TAZ suppressor diode <sup>1/2)</sup> (4 Universal current with electr. Isolation and TAZ suppressor diode <sup>1/2)</sup> (5 Universal current with electr. Isolation and TAZ suppressor diode <sup>1/2)</sup> (6 Universal current with electr. Isolation and TAZ suppressor diode <sup>1/2)</sup> (7 Universal current with electr. Isolation and TAZ suppressor diode <sup>1/2)</sup> (7 Universal current with electr. Isolation and TAZ suppressor diode <sup>1/2)</sup> (8 Universal current with electr. Isolation and TAZ suppressor diode <sup>1/2)</sup> (8 Universal current with electr. Isolation and TAZ suppressor diode <sup>1/2)</sup> (8 Universal current with electr. Isolation and TAZ suppressor diode <sup>1/2)</sup> (9 Universal current with electr. Isolation and TAZ suppressor diode <sup>1/2)</sup> (9 Universal current with electr. Isolation and TAZ suppressor diode <sup>1/2</sup> (1 Universal current with electr. Isolation and TAZ suppressor diode <sup>1/2</sup> (1 Universal current with electr. Isolation and TAZ suppressor diode <sup>1/2</sup> (1 Universal current with electr. Isolation and TAZ suppressor diode <sup>1/2</sup> (1 Universal current with electr. Isolation and TAZ suppressor diode <sup>1/2</sup> (2 Universal current with electr. Isolation and TAZ suppressor diode <sup>1/2</sup> (2 Universal current with electr. Isolation and TAZ suppressor diode <sup>1/2</sup> (2 Universal current with electr. Isolation and TAZ suppressor diode <sup>1/2</sup> (2 Universal current with electr. Isolation and TAZ suppressor diode <sup>1/2</sup> (2 Universal current with electr. Isolation and TAZ suppressor diode <sup>1/2</sup> (2 Universal current with electr. Isolation and TAZ suppressor diode <sup>1/2</sup> (2 Universal current with electr. Isol		it <sup>1)</sup>											
Direct voltage													
Universal current with TAZ suppressor diode <sup>1)(2)</sup> Universal current with electr. Isolation and TAZ suppressor diode <sup>1)</sup> (only 4-wire-circuit)  Cable entry Cable connector PG 13.5 Cable connector M 18 x 1.5 Plug connection (see Code-Nos. 415416) <sup>1)</sup> Shaft bearings Friction bearing with sealing ring Friction bearing without sealing ring Ball bearing  Additional ordering information  Other measuring ranges Upper value setting range as from 0 7,5°/17° adjusted to: (clear text) 0 15°/75° adjusted to: (clear text) 0 60°/165° adjusted to: (clear text) 0 220°/310° adjusted to: (clear text) 0 240°/310° adjusted to: (clear text) 0 250°/310° adjusted to:							1						
Universal current with electr. Isolation and TAZ suppressor diode <sup>1)</sup> (only 4-wire-circuit)  Cable entry Cable connector PG 13.5 Cable connector M 18 x 1.5 Plug connection (see Code-Nos. 415416) <sup>1)</sup> Shaft bearings Friction bearing with sealing ring Friction bearing without sealing ring Ball bearing  Additional ordering information  Other measuring ranges Upper value setting range as from  0 7,5°/17° adjusted to: (clear text) 0 15°/75° adjusted to: (clear text) 0 15°/75° adjusted to: (clear text) 0 22°/310° adjusted to: (clear text) 0 220°/310° adjusted to: (clear text) 0 240°/310° adjusted to: (clear text) 0 2415 0 2415 0 2415 0 2415 0 2415 0 2415 0 2415		TAZ suppressor diode <sup>1)2)</sup>											
Cable entry       1       1       2       2       Plug connector M 18 x 1.5       2       2       Plug connection (see Code-Nos. 415416)¹¹)       5       Shaft bearings       1       1       Friction bearing with sealing ring       1       1       Friction bearing without sealing ring       1       2       Ball bearing       2       Ball bearing       3       3       Ball bearing       Ball bearing       3       Ball bearing		• •	wire-circuit)										
Cable connector PG 13.5 Cable connector M 18 x 1.5 Plug connection (see Code-Nos. 415416)¹¹) Shaft bearings Friction bearing with sealing ring Friction bearing without sealing ring Ball bearing  Additional ordering information  Other measuring ranges Upper value setting range as from  0 7,5°/17° adjusted to: (clear text) 0 15°/75° adjusted to: (clear text) 0 60°/165° adjusted to: (clear text) 0 220°/310° adjusted to: (clear text) Sleeve case¹¹ Straight, pin on TGM 5  415 angled, pin on TGM 5		cook residuor and relative suppresses aloue (em)	0 0 0 0										
Cable connector M 18 x 1.5  Plug connection (see Code-Nos. 415416)¹¹)  Shaft bearings Friction bearing with sealing ring Friction bearing without sealing ring Ball bearing  Additional ordering information  Other measuring ranges Upper value setting range as from  0 7,5°/17° adjusted to: (clear text) 0 15°/75° adjusted to: (clear text) 0 150°/180° adjusted to: (clear text) 0 150°/280° adjusted to: (clear text) 0 220°/310° adjusted to: (clear text) Sleeve case¹¹ Straight, pin on TGM 5 angled, pin on TGM 5	•	13.5						1					
Plug connection (see Code-Nos. 415416)¹)													
Shaft bearings   1													
Friction bearing with sealing ring Friction bearing without sealing ring Ball bearing  Additional ordering information  Other measuring ranges Upper value setting range as from  0 7,5°/17° adjusted to: (clear text) 0 15°/75° adjusted to: (clear text) 0 60°/165° adjusted to: (clear text) 0 150°/280° adjusted to: (clear text) 0 150°/280° adjusted to: (clear text) 0 220°/310° adjusted to: (clear text) 0 220°/310° adjusted to: (clear text) 0 220°/310° adjusted to: (clear text) Soleon clear text)  Output signal increases when shaft turns towards the left (>150°)  Plug connection (see Code-Nos. 415416)¹¹)  Sleeve case¹¹ straight, pin on TGM 5 angled, pin on TGM 5		3343 11351 11311 113											
Friction bearing without sealing ring Ball bearing  Additional ordering information  Other measuring ranges Upper value setting range as from  0 7,5°/17° adjusted to: (clear text) 0 15°/75° adjusted to: (clear text) 0 60°/165° adjusted to: (clear text) 0 15°/280° adjusted to: (clear text) 0 220°/310° adjusted to: (clear text) 0220°/310° adjusted to: (clear text) 0220°/310° adjusted to: (clear text) 0220°/310° adjusted to: (clear text) Supper value setting range as from  302 303 303 304 304 305 305 306 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		ealing ring							1				
### Additional ordering information  Other measuring ranges  Upper value setting range as from  0 7,5°/17° adjusted to: (clear text) 0 15°/75° adjusted to: (clear text) 0 60°/165° adjusted to: (clear text) 0 150°/280° adjusted to: (clear text) 0 220°/310° adjusted to: (clear text)  Output signal increases when shaft turns towards the left (>150°)  Plug connection (see Code-Nos. 415416)¹)  Sleeve case¹) straight, pin on TGM 5 angled, pin on TGM 5 415 416													
Additional ordering information  Other measuring ranges  Upper value setting range as from  0 7,5°/17° adjusted to: (clear text)  0 15°/75° adjusted to: (clear text)  0 60°/165° adjusted to: (clear text)  0 150°/280° adjusted to: (clear text)  0 220°/310° adjusted to: (clear text)  0 220°/310° adjusted to: (clear text)  Output signal increases when shaft turns towards the left (>150°)  Plug connection (see Code-Nos. 415416)¹¹  Sleeve case¹¹  straight, pin on TGM 5  angled, pin on TGM 5	_												
Other measuring ranges  Upper value setting range as from  0 7,5°/17° adjusted to: (clear text)  0 15°/75° adjusted to: (clear text)  0 60°/165° adjusted to: (clear text)  0 150°/280° adjusted to: (clear text)  0 220°/310° adjusted to: (clear text)  305  0 220°/310° adjusted to: (clear text)  306  Output signal increases when shaft turns towards the left (>150°)  Plug connection (see Code-Nos. 415416)¹¹)  Sleeve case¹¹  straight, pin on TGM 5  angled, pin on TGM 5												I	
Upper value setting range as from  0 7,5°/17° adjusted to: (clear text)  0 15°/75° adjusted to: (clear text)  0 60°/165° adjusted to: (clear text)  0 150°/280° adjusted to: (clear text)  0 220°/310° adjusted to: (clear text)  0 220°/310° adjusted to: (clear text)  306  Output signal increases when shaft turns towards the left (>150°)  Plug connection (see Code-Nos. 415416)¹)  Sleeve case¹)  straight, pin on TGM 5  angled, pin on TGM 5  415	Additional orderi	ng information											
0 7,5°/17° adjusted to:       (clear text)       302         0 15°/75° adjusted to:       (clear text)       303         0 60°/165° adjusted to:       (clear text)       304         0150°/280° adjusted to:       (clear text)       305         0220°/310° adjusted to:       (clear text)       306         Output signal increases when shaft turns towards the left (>150°)       310         Plug connection (see Code-Nos. 415416)¹¹)       Sleeve case¹¹)         straight, pin on TGM 5       415         angled, pin on TGM 5       416	Other measuring rang	jes											
0 15°/75° adjusted to:       (clear text)       303         0 60°/165° adjusted to:       (clear text)       304         0150°/280° adjusted to:       (clear text)       305         0220°/310° adjusted to:       (clear text)       306         Output signal increases when shaft turns towards the left (>150°)       310         Plug connection (see Code-Nos. 415416)¹¹       Sleeve case¹¹)         straight, pin on TGM 5       415         angled, pin on TGM 5       416	Upper value setting ra	inge as from											
0 60°/165° adjusted to:       (clear text)       304         0150°/280° adjusted to:       (clear text)       305         0220°/310° adjusted to:       (clear text)       306         Output signal increases when shaft turns towards the left (>150°)       310         Plug connection (see Code-Nos. 415416)¹¹       510         Sleeve case¹¹)       510         straight, pin on TGM 5       415         angled, pin on TGM 5       416	0 7,5°/17°	adjusted to: (clear text)									302		
0150°/280° adjusted to:       (clear text)         0220°/310° adjusted to:       (clear text)         Output signal increases when shaft turns towards the left (>150°)       310         Plug connection (see Code-Nos. 415416)¹¹       310         Sleeve case¹¹       51         straight, pin on TGM 5       415         angled, pin on TGM 5       416	0 15°/75°	adjusted to: (clear text)									303		
0220°/310° adjusted to: (clear text)  Output signal increases when shaft turns towards the left (>150°)  Plug connection (see Code-Nos. 415416)¹)  Sleeve case¹)  straight, pin on TGM 5  angled, pin on TGM 5  415	0 60°/165°	adjusted to: (clear text)									304		
Output signal increases when shaft turns towards the left (>150°)  Plug connection (see Code-Nos. 415416)¹)  Sleeve case¹)  straight, pin on TGM 5  angled, pin on TGM 5	0150°/280°	adjusted to: (clear text)									305		
Output signal increases when shaft turns towards the left (>150°)  Plug connection (see Code-Nos. 415416)¹¹  Sleeve case¹¹  straight, pin on TGM 5  angled, pin on TGM 5											306		
Plug connection (see Code-Nos. 415416) <sup>1)</sup> Sleeve case <sup>1)</sup> straight, pin on TGM 5 angled, pin on TGM 5 415 416	Output signal increase	es when shaft turns towards the left (>150°)									310		
straight, pin on TGM 5 angled, pin on TGM 5 415 416													
angled, pin on TGM 5	Sleeve case <sup>1)</sup>												
	straight, pin or	n TGM 5									415		
Operating manual (state total quantity)	angled, pin on	TGM 5									416		
Operating manual (State total quantity)"	Operating manual	(state total quantity) <sup>3)</sup>											
German (no indication for 1 manual)											Z1D		
English (no indication for 1 manual)													
French (no indication for 1 manual)													

<sup>1)</sup> Not for Ex-version

Page 8 of 10 05.02

<sup>&</sup>lt;sup>2)</sup> only 4-wire-circuit, with the exception of 2-wire circuit with power supply direct voltage

<sup>3) 1</sup> manual at no extra cost

10/14-1.23 EN

Ordering information											
	Catalog No	).							Code		
Transmitter TGE 5	V14432A-	Ī				I	0	0	0000		
Design	100000						Ť	Ť			
Standard		1									
Intrinsically safe EEx ib		5								no longer av	ailable
Measuring range		Ŭ								3	
0 10°, can be set to 0 9/ 11°			1								
0 30°. can be set to 0 27/ 33°			3								
0 60°, can be set to 0 54/ 66°			4								
0 90°, can be set to 0 81/ 99°			5								
0180°, can be set to 0162/198°			6								
,			7								
0270°, can be set to 0224/280°											
0310°			8								
Other measuring ranges acc. to Code-Nos. 302306			0								
Output											
0/420 mA				1							
010 mA				3							
0 5 mA				5							
420 mA 4-wire circuit <sup>1)</sup>				7							
Power supply											
Direct voltage					1						
Universal current with TAZ suppressor diode <sup>1))</sup>					2						
Universal current with electrical isolation and TAZ suppressor diode1) c	nly 4-wire-circu	it)			3						
Cable entry											
Cable connector PG 9						3					
No cable connector <sup>1)2)</sup>						4					
Plug connection (see Code-Nos. 4154181) and 420 or 421)						5					
Additional ordering information										T	ī
Other measuring ranges											
Upper value setting range as from											
0 7,5°/17° adjusted to: (clear text)									302		
0 15°/75° adjusted to: (clear text)									303		
0 60°/165° adjusted to: (clear text)									304		
0150°/280° adjusted to: (clear text)									305		
0220°/310° adjusted to: (clear text)									306		
Output signal increases when shaft turns towards the left (>150°)									310		
Plug connection, sleeve case <sup>1)</sup>	<u> </u>										
straight, pin on TGE 5									415		
angled, pin on TGE 5									416		
straight, socket on TGE 5									417		
angled, socket on TGE 5									418		
Pinout acc. to TGS 40 connection diagram									420		
Standard (connection diagram TGE 5 version)									421		
Measuring ranges											
measuring range 070°									307		
adjustable 040°/80°											
without cable gland for TGS 40 + parts (inklusiding Code-No. 307)									410		
with mounted pointer for TGS 40									430		
Operating manual (state total quantity) <sup>3)</sup>											
German (no indication for 1 manual)									Z1D		
English (no indication for 1 manual)									Z1E		
French (no indication for 1 manual)									Z1F		

<sup>1)</sup> Not for Ex-version

05.02 Page 9 of 10

<sup>&</sup>lt;sup>2)</sup> only 4-wire-circuit, with the exception of 2-wire circuit with power supply direct voltage

<sup>3) 1</sup> manual at no extra cost

Accessories			
	Catalog No.	Code	
Mounting accessories for TGE 5 (see dimensional drawings) Set of mounting hardware for pressure gauge:  1 intermediate flange 1 lever 1 driver 1 sealing ring	14497-0373318		
Set of mounting hardware for drive unit: lever and driver	14497-0381236		
Gear adapter with transmission ratio 1:1	14491-8008357		
Gear adapter with transmission ratio 2:1	14491-8008358		
Gear adapter with transmission ratio 4:1	14491-8008359		
Gear adapter with transmission ratio 8:1	14491-8008360		
Gear adapter with transmission ratio 16:1	14491-8008361		
Gear adapter with transmission ratio 32:1	14491-8008362		
Gear adapter with transmission ratio 64:1	14491-8008363		
Mounting accessories for TGM 5 (see dimensional drawings)			
Mounting base Mounting flange	14497-0381225 14497-0381226		
Operating manual (state total quantity) <sup>1)</sup> German (no indication for 1 manual) English (no indication for 1 manual) French (no indication for 1 manual)		Z1D Z1E Z1F	

<sup>1) 1</sup> manual at no extra cost

### Contact us

#### ABB Ltd.

#### **Process Automation**

Howard Road, St. Neots Cambridgeshire, PE19 8EU UK

Tel: +44 (0)1480 475321 Fax: +44 (0)1480 217948

#### ABB Inc.

#### **Process Automation**

125 E. County Line Road Warminster, PA 18974 USA

Tel: +1 215 674 6000 Fax: +1 215 674 7183

### ABB Automation Products GmbH Process Automation

Borsigstr. 2 63755 Alzenau Germany

Tel: +49 551 905-534 Fax: +49 551 905-555

www.abb.com

#### Note

We reserve the right to make technical changes or modify the contents of this document without prior notice. With regard to purchase orders, the agreed particulars shall prevail. ABB does not accept any responsibility whatsoever for potential errors or possible lack of information in this document.

We reserve all rights in this document and in the subject matter and illustrations contained therein. Any reproduction, disclosure to third parties or utilization of its contents – in whole or in parts – is forbidden without prior written consent of ABB.

Copyright© 2011 ABB All rights reserved

3KDE470003R1001

