

# GCA5 - CANopen® up to 4.7 m

Interface CANopen®

Measuring length absolute 2.3 m and 4.7 m

## Overview

- Interface CANopen®
- Redundant version
- Magnetic sensing method
- Operating temperature -40...+85 °C
- Protection IP 67
- Flange connector M12 or cable
- Measuring length 2.3 m and 4.7 m
- Designed for harsh environmental conditions
- Removable stickers for drainage
- Load dump protection
- Integrated inclination sensor



## Technical data

### Technical data - electrical ratings

Voltage supply	8...36 VDC
Reverse polarity protection	Yes
Short-circuit proof	Yes
Consumption typ.	30 mA (24 VDC, w/o load) 60 mA (24 VDC, w/o load, redundant)
Initializing time typ.	≤ 0.5 s after power on
Interface	CANopen®
Function	Linear position feedback
Profile conformity	CANopen® CiA DS 301, DS 305, DS 406
Measuring range	Up to 4.7 m (linear position) 0...360° (inclination angle)
Resolution	0.1 mm (linear position) 0.1° (inclination angle)
Temperature coefficient	0.04 °/K (inclination angle)
Linearity	±0.5 % FS (linear position) ±0.2° (inclination angle)
Absolute accuracy	±0.8 % FS (+25 °C / linear position) ±1.4 % FS (-40...+85 °C / linear position) ±0.3° (+25 °C / inclination angle)
Sensing method	Magnetic
Code sequence	Programmable
Load dump protection	ISO 16750-2 Test Level 4, 12 V/24 V systems
Interference immunity	EN 61000-6-2
Emitted interference	EN 61000-6-4
Programmable parameters	Operating modes Rotating direction Scaling Zero position

### Technical data - mechanical design

Protection EN 60529	IP 67 (housing, drainage holes closed) IP 54 (cable inlet)
Material	Cable: stainless steel cable AISI 304 coated with nylon PA12 Housing: plastic
Operating temperature	-40...+85 °C
Measuring length	2.3 m 4.7 m
Cable acceleration	≤50 m/s <sup>2</sup>
Cable diameter	0.9 mm
Cable fastening	Eyelet Height: 5 mm Internal diameter: 8 mm Outer diameter: 15 mm
Pull-in force	>1.5 N (pull-in force reduced at low temperatures)
Pull-out force	≤8 N
Relative humidity	95 % non-condensing
Resistance	EN 60068-2-6 Vibration 10 g, 10-2000 Hz EN 60068-2-27 Shock 50 g, 11 ms
Weight approx.	625 g
Connection	Cable 2 m, radial Flange connector M12, 5-pin
Instruction	Please consider the assembly instructions

## Optional

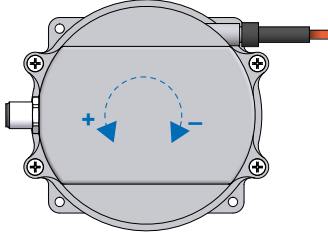
- With integrated terminating resistor

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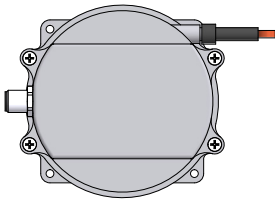
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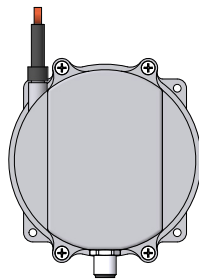
## Installation position



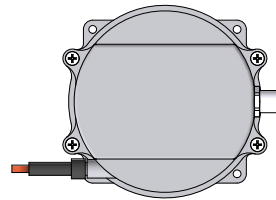
Position 1  
0/360°



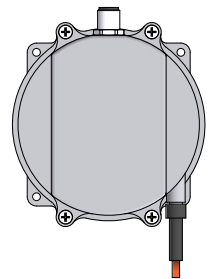
Position 2  
+90°



Position 3  
+180°



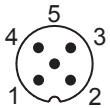
Position 4  
+270°



## Terminal assignment

### Flange connector M12, male, 5-pin

Pin	Signals	Description
1	CAN_GND	Ground connection relating to CAN
2	+Vs	Voltage supply
3	GND	Ground connection relating to +Vs
4	CAN_H	CAN Bus Signal (dominant High)
5	CAN_L	CAN Bus Signal (dominant Low)



### Cable

Core colour	Signals	Description
white	GND	Ground connection relating to +Vs
brown	+Vs	Voltage supply
green	CAN_H	CAN Bus Signal (dominant High)
yellow	CAN_L	CAN Bus Signal (dominant Low)
grey	CAN_GND	Ground connection relating to CAN

Cable data: 5 x 0.5 mm<sup>2</sup>, 2 m

Terminals GND and CAN\_GND are internally connected and identical in their functions.

## CANopen® features

Bus protocol	CANopen®
Device profile	Communication profile DS 301 V4.2 Encoder profile DS 406 V4.0.2 LSS service profile DS 305 V3.0
Operating modes	Timer-driven (Event-Time) Synchronously triggered (Sync)
Node Monitoring	Heartbeat (default: disabled)
Programmable parameters	Operating modes Rotating direction Scaling Zero position
Default	Baud rate 250 kbit/s Channel A: Node ID 4 (04h) Channel B: Node ID 5 (05h) Timer-driven: 100 ms

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## Data transfer

### PDO Mapping / ID 4

#### PDO 1 (linear position)

LSB	...	...	MSB	...	...	...	...
Byte 0	1	2	3	4	5	6	7
linear position $0 \rightarrow 23000\backslash 47000_{dec}$ in steps of 0.1 mm position increasing in size and value							

#### PDO 2 (inclination angle)

LSB	...	...	MSB	...	...	...	...
Byte 0	1	2	3	4	5	6	7
inclination angle $0 \rightarrow 3600_{dec}$ in steps of 0.1° angle increasing in size and value							

### PDO Mapping / ID 5

#### PDO 1 (linear position)

LSB	...	...	MSB	...	...	...	...
Byte 0	1	2	3	4	5	6	7
linear position $0 \rightarrow 23000\backslash 47000_{dec}$ in steps of 0.1 mm position increasing in size and value							

#### PDO 2 (inclination angle)

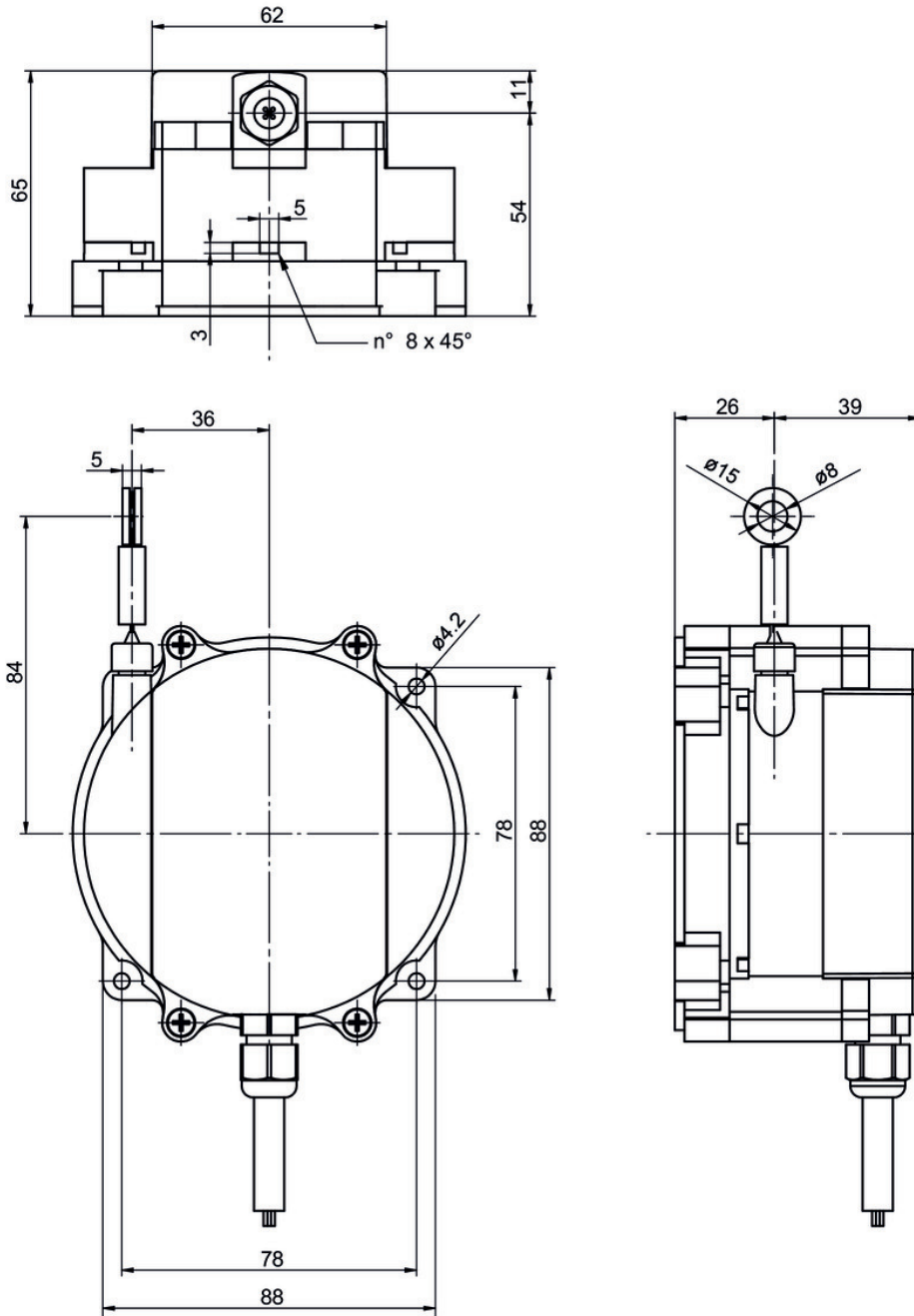
LSB	...	...	MSB	...	...	...	...
Byte 0	1	2	3	4	5	6	7
inclination angle $0 \rightarrow 3600_{dec}$ in steps of 0.1° angle increasing in size and value							

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## Dimensions



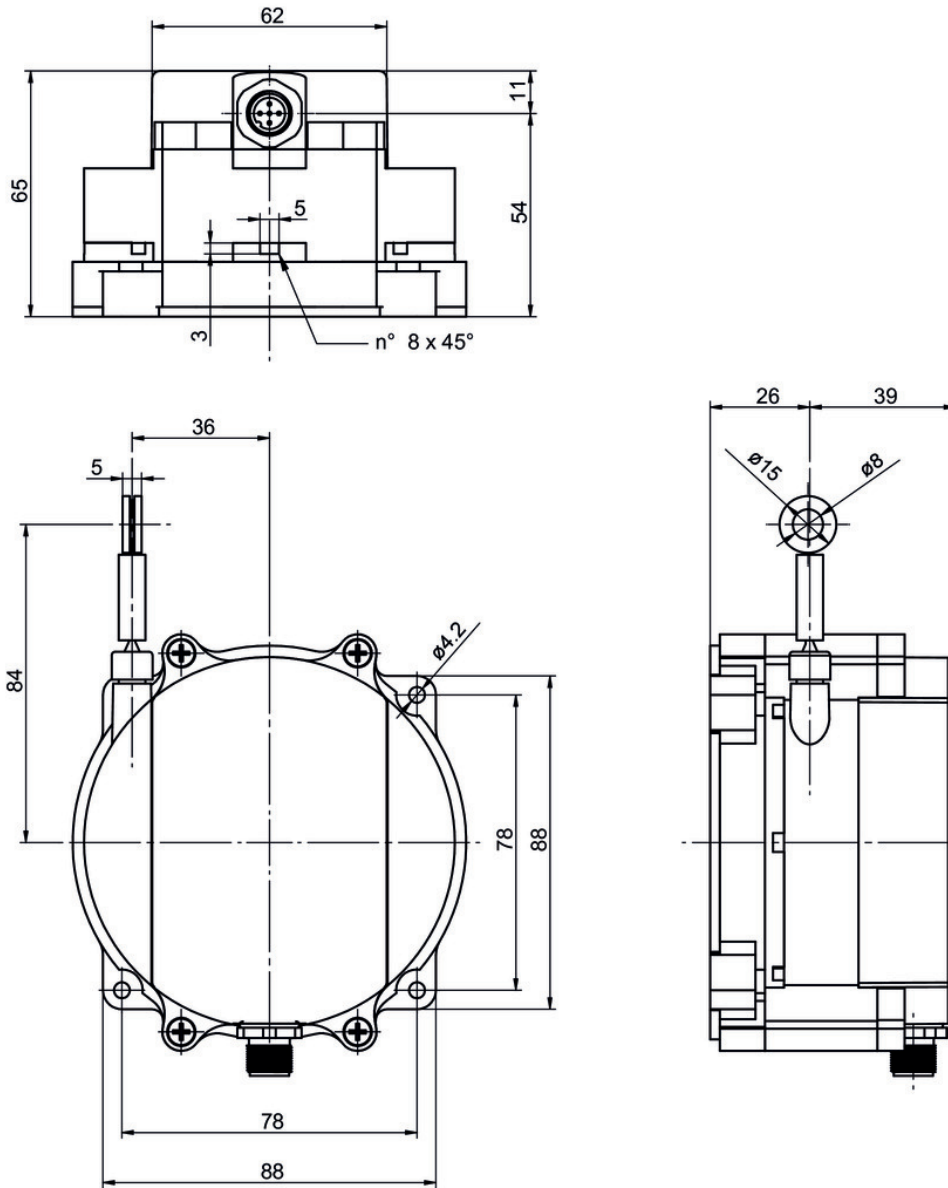
With cable

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## Dimensions



With flange connector M12

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**Ordering reference**

	GCA5	-	P	M	###	.	R	A	#	.	##	0	.	A	###	####	
<b>Product</b>	GCA5																
<b>Type</b>	Plastic		P														
<b>Technology</b>	Magnetic			M													
<b>Measuring range</b>	2.3 m				023												
	4.7 m				047												
<b>Measuring wire fixation</b>	Ring						R										
<b>Measuring wire diameter</b>	0.90 mm							A									
<b>Connection</b>	Cable radial, 2 m								L								
	Flange socket radial, M12, 5-pin, male contacts, A-coded								N								
<b>Voltage supply / output</b>	8...36 VDC, CANopen (DS 406)											CA					
	8...36 VDC, CANopen (DS 406) redundant (2-channel design)											CC					
<b>Resolution supplement</b>	No option											0					
<b>Operating temperature</b>	-40...+85 °C													A			
<b>Option inclinometer</b>	1-dimensional / 0...360°															136	
	No option																
<b>Option terminating resistor</b>	With integrated terminating resistor																4816
	No option																