

GCA3-PM - CANopen® up to 4.7 m

Interface CANopen®

Measuring length absolute 2.3 m and 4.7 m

Overview

- Interface CANopen®
- 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
- 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.	≤ 500 ms after power on
Interface	CANopen®
Function	Linear position feedback
Profile conformity	CANopen® CiA communication profile DS 301, LSS profile DSP 305, device profile DS 406
Measuring range	Up to 4.7 m (linear position) 0...360° (inclination sensor)
Resolution	0.1 mm (linear position) 0.1° (inclination angle)
Temperature coefficient	0.04 °/K (inclination angle)
Linearity typ.	±0.5 % FS (measuring length 2.3 m) ±0.3 % FS (measuring length 4.7 m) ±0.2° (inclination angle)
Absolute accuracy typ.	±0.6 % FS (+25 °C / measuring length 2.3 m) ±1 % FS (-40...+85 °C / measuring length 2.3 m) ±0.8 % FS (-40...+85 °C / measuring length 4.7 m)
Sensing method	Magnetic
Code	Programmable
Load dump protection	ISO 7637-2 Test Level 4, 12 V/24 V systems
Interference immunity	EN 61000-6-2
Emitted interference	EN 61000-6-3
Programmable parameters	Operating modes Rotating direction Scaling Zero position

Technical data - mechanical design

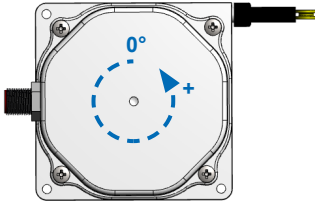
Protection EN 60529	IP 67 (housing, drainage holes closed) IP 54 (cable inlet)
Material	Cable: stainless steel cable AISI 316 coated with nylon PA12 Housing: plastic
Operating temperature	-40...+85 °C
Service life	Typ. 500 000 strokes (the lifetime depends on the type of load. It is affected by environmental conditions, installation location, measuring range in use, travel speed and acceleration)
Measuring length	2.3 m 4.7 m
Cable acceleration	≤1 m/s ²
Cable diameter	0.7 mm
Cable fastening	Eyelet Height: 5 mm Internal diameter: 8 mm Outer diameter: 15 mm
Pull-in force	>1.5 N (+25 °C, pull-in force reduced at low temperatures)
Pull-out force	≤8 N (+25 °C)
Relative humidity	95 % non-condensing
Resistance	EN 60068-2-6 Vibration 20 g, 58-2000 Hz EN 60068-2-27 Shock 50 g, 11 ms
Weight approx.	440 g
Connection	Flange connector M12, 5-pin Cable 2 m, radial
Instruction	Please consider the assembly instructions

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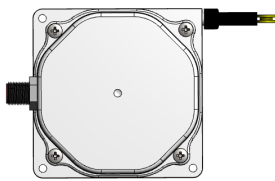
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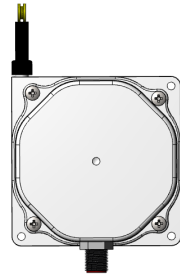
Installation position



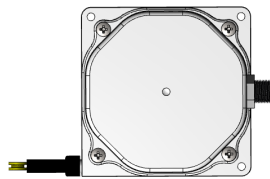
Position 1: **0/360°**



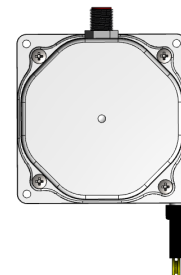
Position 2: **+90°**



Position 3: **+180°**



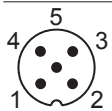
Position 4: **+270°**



Terminal assignment

Flange connector M12, male, 5-pin, A-coded

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 mm², 2 m

Terminals GND and CAN_GND are internally connected and identical in their functions.

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CANopen® features

Operating modes	Time-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) Time-driven: 100 ms

Data transfer

PDO Mapping / ID 4

PDO 1 (linear position)

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

PDO 2 (inclination angle)

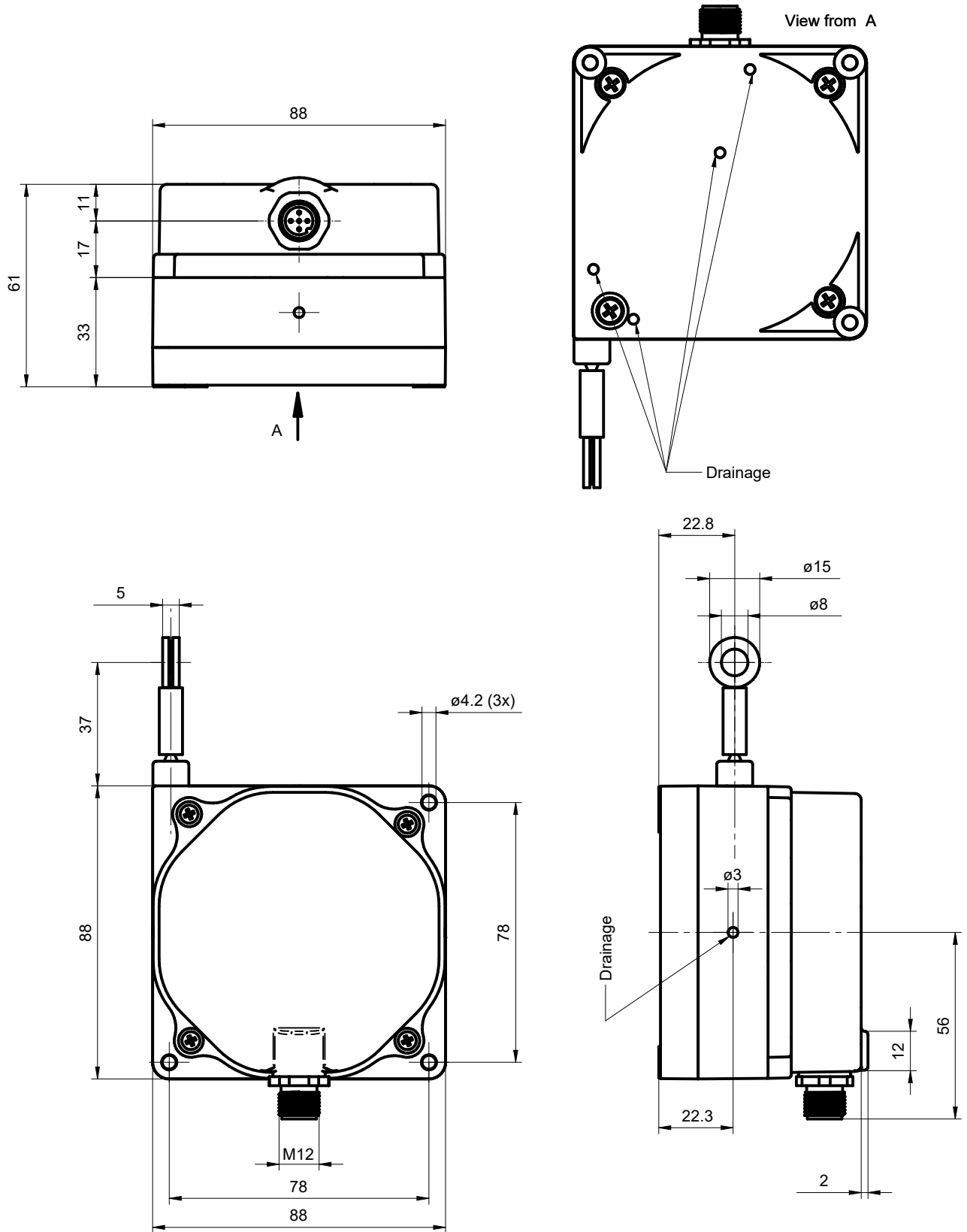
LSB	...	...	MSB	...	...	...	...
Byte 0	1	2	3	4	5	6	7
inclination angle 0 → 3600 _{dec} in steps of 0.1° angle increasing in size and value							

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Dimensions



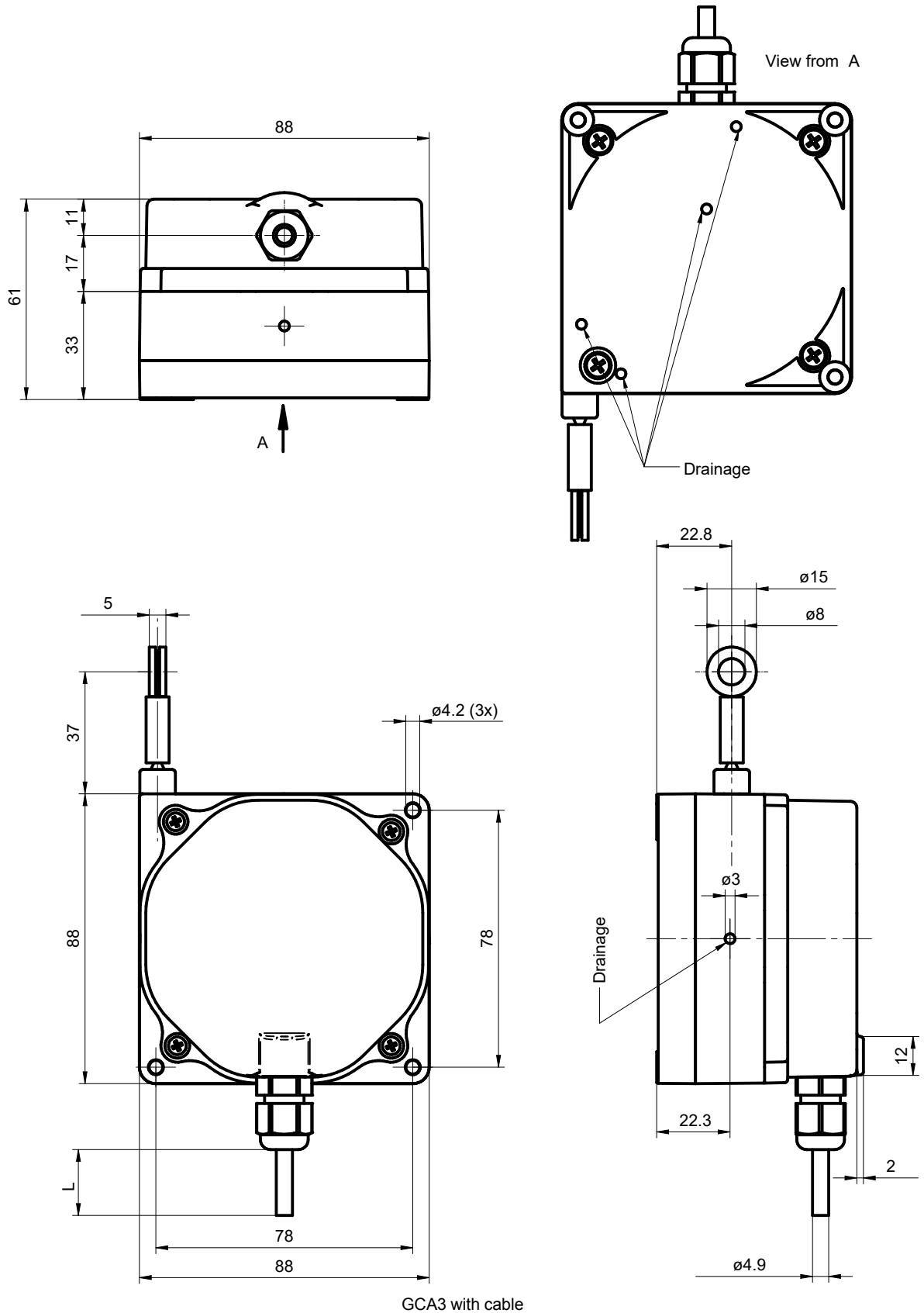
GCA3 with flange connector M12

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Ordering reference

	GCA3-	P	M	###	.	R	C	#	.	##	0	.	A	###	####	
Product	GCA3-															
Type																
Plastic		P														
Technology																
Magnetic			M													
Measuring range																
2.3 m				023												
4.7 m				047												
Measuring wire fixation																
Ring						R										
Measuring wire diameter																
0.70 mm							C									
Connection																
Cable radial, 2 m																L
Flange socket radial, M12, 5-pin, male contacts, CCW																N
Voltage supply / output																
8...36 VDC, CANopen (DS 406)																CA
8...36 VDC, CANopen (DS 406) redundant (2-channel design)																CC
Resolution supplement																
No option																0
Operating temperature																
-40...+85 °C																A
Option inclinometer																
1-dimensional / 0...360°																136
No option																
Option terminating resistor																
With integrated terminating resistor																4816
No option																