

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
- E1 approval (KBA)
- UL approval / E217823
- Load Dump protection
- Integrated inclination sensor
- Available as redundant linear and 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.	±0.45 % FS (+25 °C, measuring length 2.3 m) ±0.75 % FS (-40...+85 °C, measuring length 2.3 m) ±0.35 % FS (+25 °C, measuring length 4.7 m) ±0.65 % FS (-40...+85 °C, measuring length 4.7 m) ±0.2° (inclination angle)
Absolute accuracy typ.	±0.55 % FS (+25 °C / measuring length 2.3 m) ±0.85 % FS (-40...+85 °C / measuring length 2.3 m) ±0.4 % FS (+25 °C / measuring length 4.7 m) ±0.7 % FS (-40...+85 °C / measuring length 4.7 m) ±0.3 ° (+25 °C / inclination angle)

Technical data - electrical ratings

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
Approval	UL approval / E217823 E1-type UN ECE 10R06 CE

Technical data - mechanical design

Protection EN 60529	IP 67 (electronic chamber) 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 (depends on the type of load)
Measuring length	2.3 m 4.7 m
Cable acceleration	≤10 m/s²
Cable speed	≤1 m/s
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)

GCA3-PM - CANopen® up to 4.7 m

Technical data

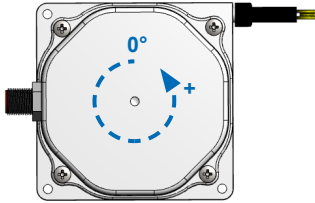
Technical data - mechanical design

Pull-out force	≤8 N (+25 °C)
Resistance	EN 60068-2-6 Vibration 20 g, 10-2000 Hz EN 60068-2-27 Shock 50 g, 11 ms
Weight approx.	440 g

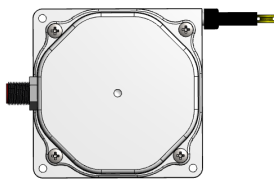
Technical data - mechanical design

Connection	Flange connector M12, 5-pin Cable 2 m, radial
Instruction	Please consider the assembly instructions

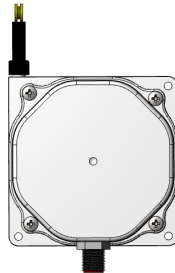
Installation position



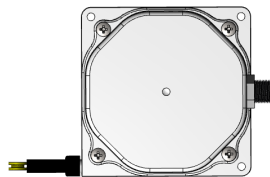
Position 1: 0/360°



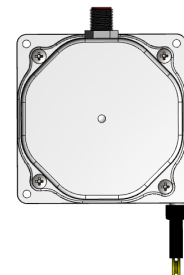
Position 2: +90°



Position 3: +180°



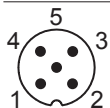
Position 4: +270°



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.

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 (CCW) in size and value							

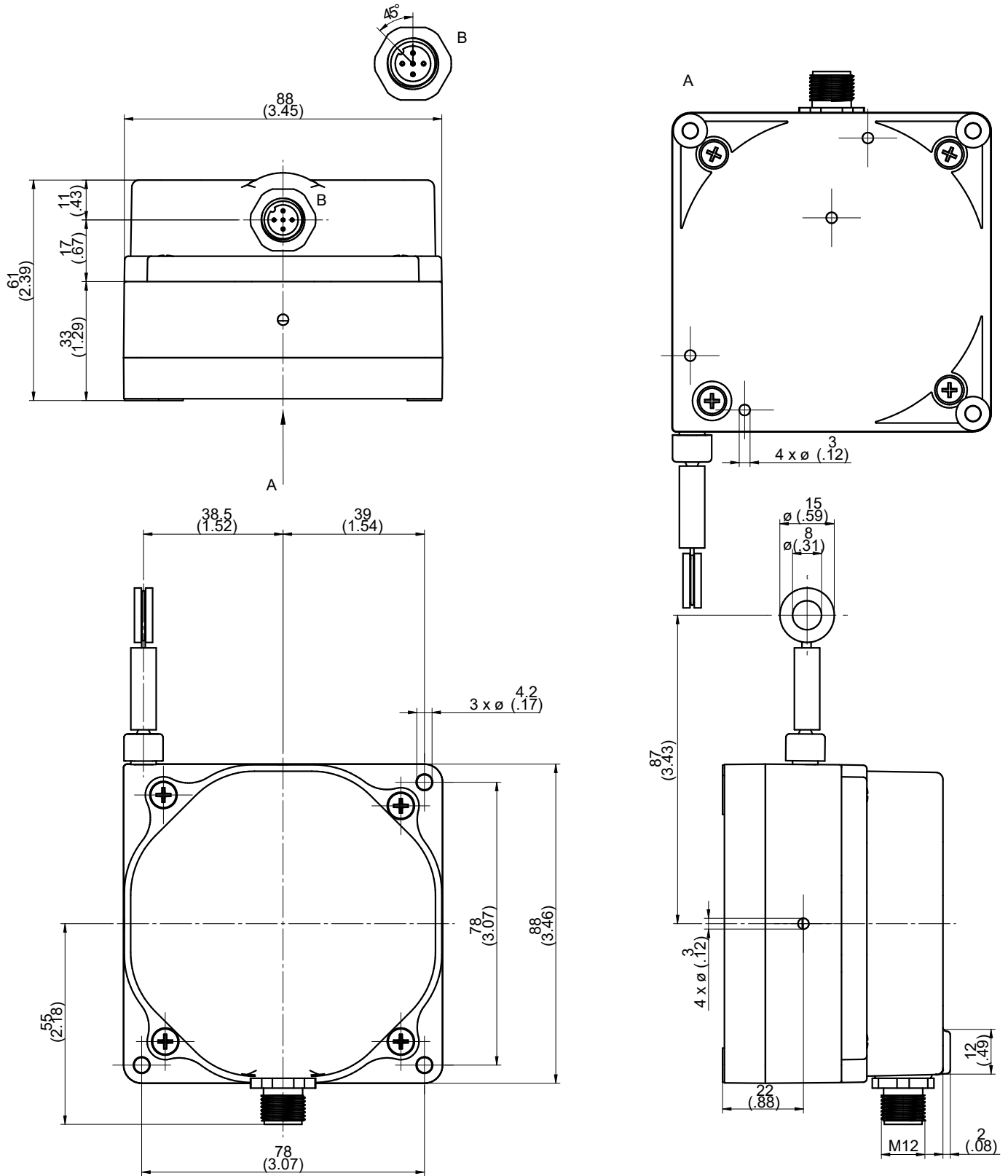
PDO Mapping / ID 5
PDO 1 (linear position)

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)

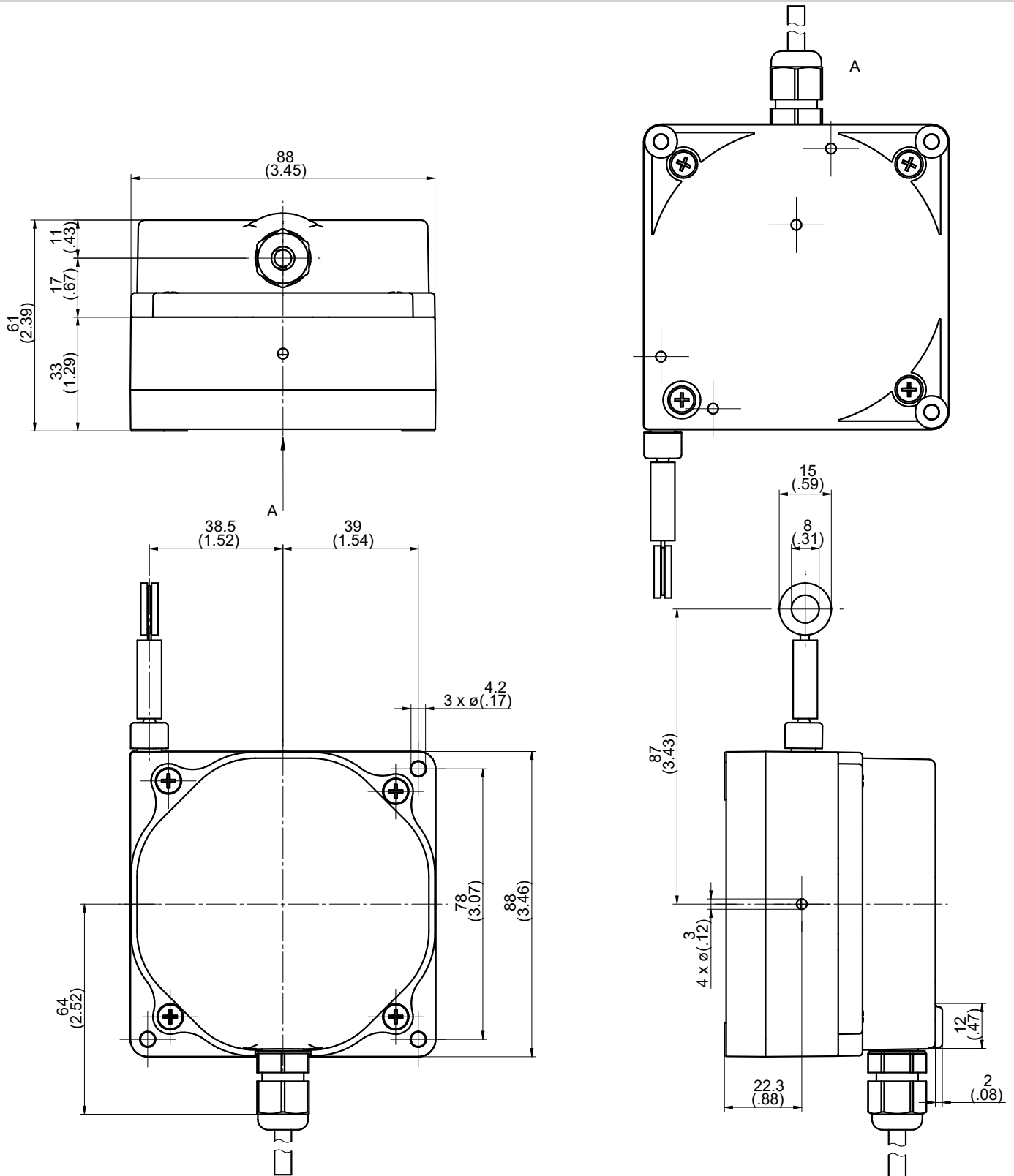
LSB	...	...	MSB	...	...	...	...
Byte 0	1	2	3	4	5	6	7
inclination angle 0 → 3600 _{dec} in steps of 0.1° angle increasing (CCW) in size and value							

Dimensions



GCA3 with flange connector M12

Dimensions



GCA3 with cable

GCA3-PM - CANopen® up to 4.7 m

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, A-coded								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	
Not selected															
Option terminating resistor															
With integrated terminating resistor															4816
No option															