

GCA3-PM - SAE J1939 up to 4.7 m

Interface SAE J1939

Measuring length absolute 2.3 m and 4.7 m

Preliminary

Overview

- Interface SAE J1939
- 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

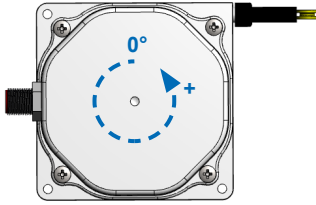
Voltage supply	8...36 VDC
Reverse polarity protection	Yes
Short-circuit proof	Yes
Consumption typ.	30 mA (24 VDC, w/o load) 60 mA (24 VDC, w/o load, redundant)
Initializing time typ.	≤ 500 ms after power on
Interface	SAE J1939
Function	Linear position feedback
Measuring range	Up to 4.7 m (linear position) 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) ±0.5 % FS (+25 °C / measuring length 4.7 m) ±0.9 % FS (-40...+85 °C / measuring length 4.7 m) ±0.4 ° (+25 °C / inclination angle)
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

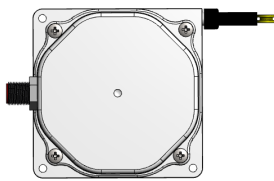
Protection EN 60529	IP 67 (housing, drainage holes closed) IP 54 (cable inlet)
Material	Cable: stainless steel cable AISI 316 coated with nylon PA12 Housing: plastic
Operating temperature	-40...+85 °C
Service life	Typ. 500 000 strokes (depends on the type of shaft load)
Measuring length	2.3 m 4.7 m
Cable acceleration	≤10 m/s ²
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)
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

Preliminary

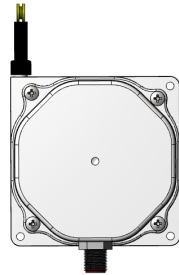
Installation position



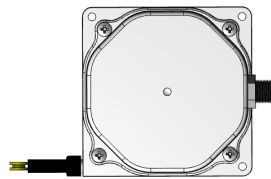
Position 1: **0/360°**



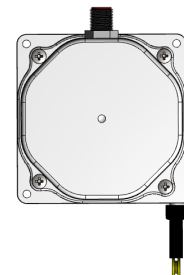
Position 2: **+90°**



Position 3: **+180°**



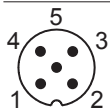
Position 4: **+270°**



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.

SAE J1939 features

Programmable parameters	Rotating direction Scaling Zero position
Default	Baud rate 250 kbit/s Time-driven: 100 ms Channel A: ECU address 4 (04h) Channel A: ECU address 5 (05h)

Preliminary

Data transfer
ECU address 4
PGN65363 – cyclic message (PDU2 format)

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			Speed value		Status		

PGN65364 – cyclic message (PDU2 format)

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							

ECU address 5
PGN65363 – cyclic message (PDU2 format)

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			Speed value		Status		

PGN65364 – cyclic message (PDU2 format)

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							

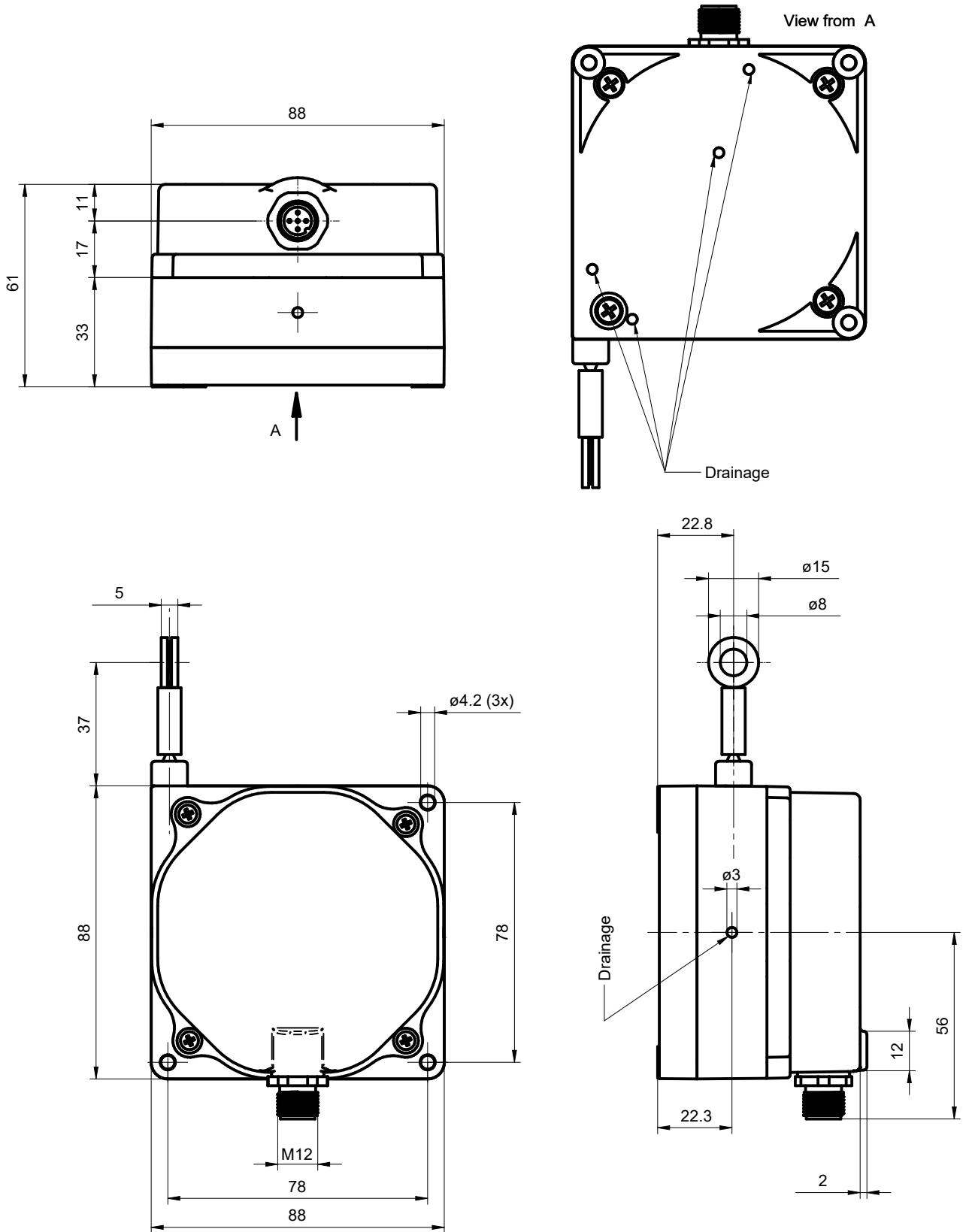
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Dimensions



GCA3 with flange connector M12

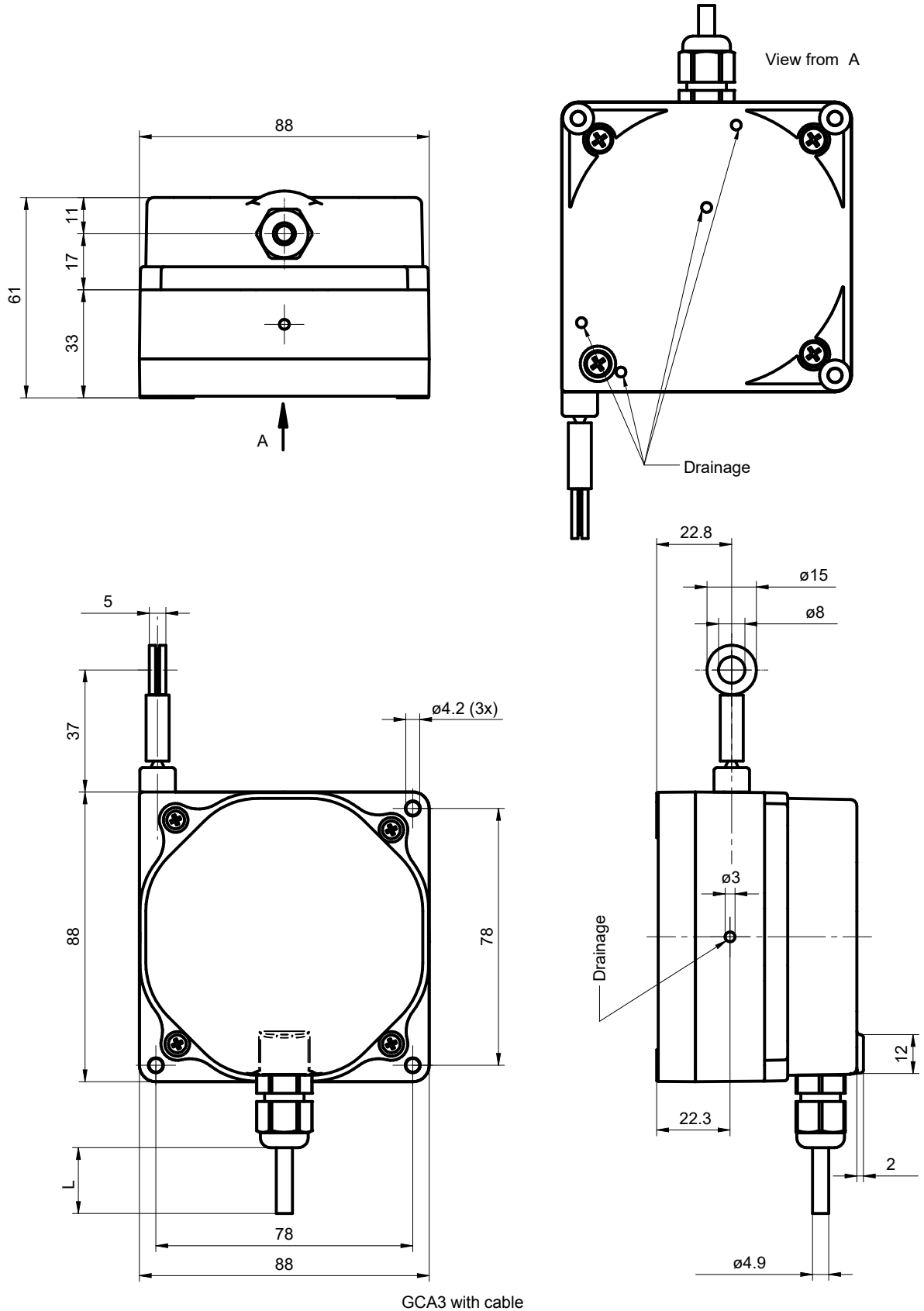
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GCA3 with cable

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Ordering reference

	GCA3-	P	M	###	.	R	C	#	.	##	0	.	A	###	####	
Product	GCA3-															
Type		P														
Plastic		P														
Technology			M													
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, SAE J1939																CD
8...36 VDC, SAE J1939 redundant (2-channel design)																CR
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																