

# GCA8 - SAE J1939

Interface SAE J1939

Measuring length absolute 6 m and 8 m

Preliminary

## Overview

- Interface SAE J1939
- Redundant version
- Potentiometer sensing measuring method
- Operating temperature -40...+85 °C
- Protection IP 67
- Flange connector M12 or cable
- Measuring length 6 m and 8 m
- Designed for harsh environmental conditions
- Removable rubber plugs 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 8 m (linear position) 360° (inclination angle)
Resolution	0.1 mm (linear position) 0.1 ° (inclination angle)
Temperature coefficient	0.04 °/K (inclination angle)
Linearity	±0.3 % FS (linear position) ±0.2° (inclination angle)
Absolute accuracy	±0.6 % FS (+25 °C / linear position) ±1.1 % FS (-40...+85 °C / linear position) ±0.3 ° (+25 °C / inclination angle)
Sensing method	Potentiometer
Code sequence	Programmable
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 (electronic chamber) IP 54 (cable inlet)
Material	Cable: stainless steel cable AISI 316 coated with nylon PA12 Housing: plastic
Operating temperature	-40...+85 °C
Measuring length	6 m 8 m
Cable acceleration	≤10 m/s <sup>2</sup>
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	>2.5 N (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 10 g, 10-2000 Hz EN 60068-2-27 Shock 50 g, 11 ms
Weight approx.	1630 g
Connection	Cable 2 m, radial Flange connector M12, 5-pin
Instruction	Please consider the assembly instructions

## Optional

- Integrated inclination sensor

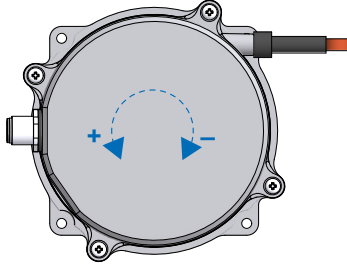
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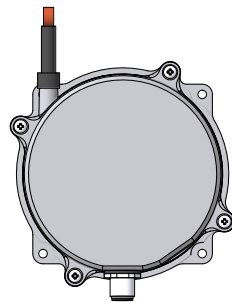
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## Installation position

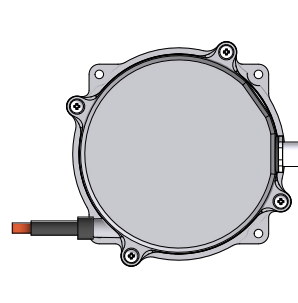


Position 1: 0/360°

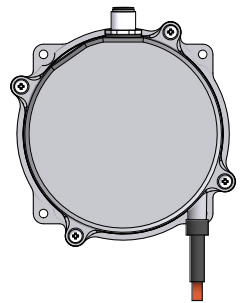
Position 2: +90°



Position 3: +180°



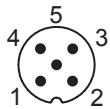
Position 4: +270°



## 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 mm<sup>2</sup>, 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 Channel A: ECU address 4 (04h) Channel A: ECU address 5 (05h) Time-driven: 100 ms

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## Data transfer

### ECU address 4

#### PGN65363 – cyclic message (PDU2 format)

LSB	...	...	MSB	...	...	...	...
Byte 0	1	2	3	4	5	6	7
linear position 0 → 60000\80000 <sub>dec</sub> 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 <sub>dec</sub> 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 → 60000\80000 <sub>dec</sub> 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 <sub>dec</sub> in steps of 0.1° angle increasing in size and value							

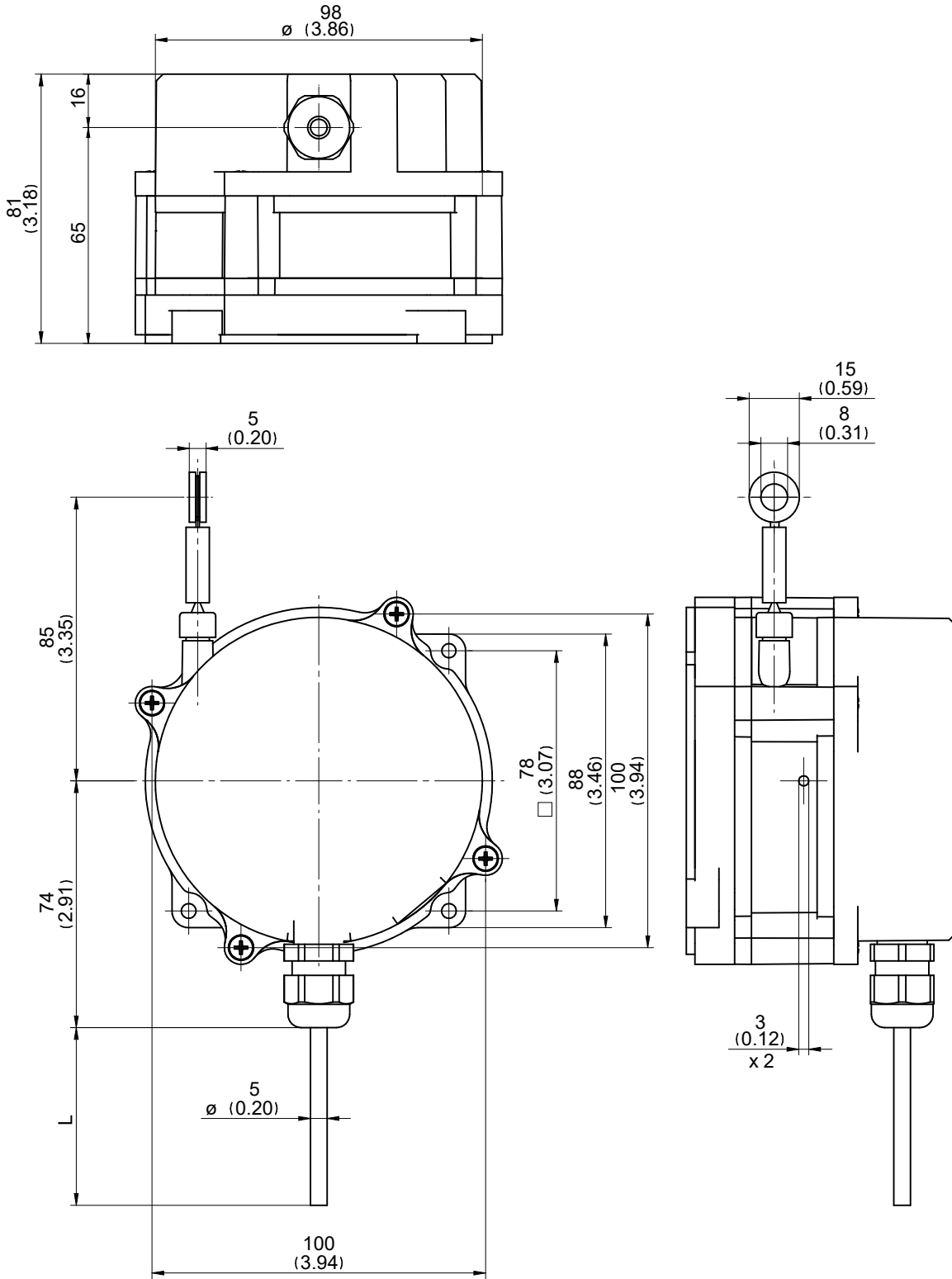
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## Dimensions



GCA8 with cable

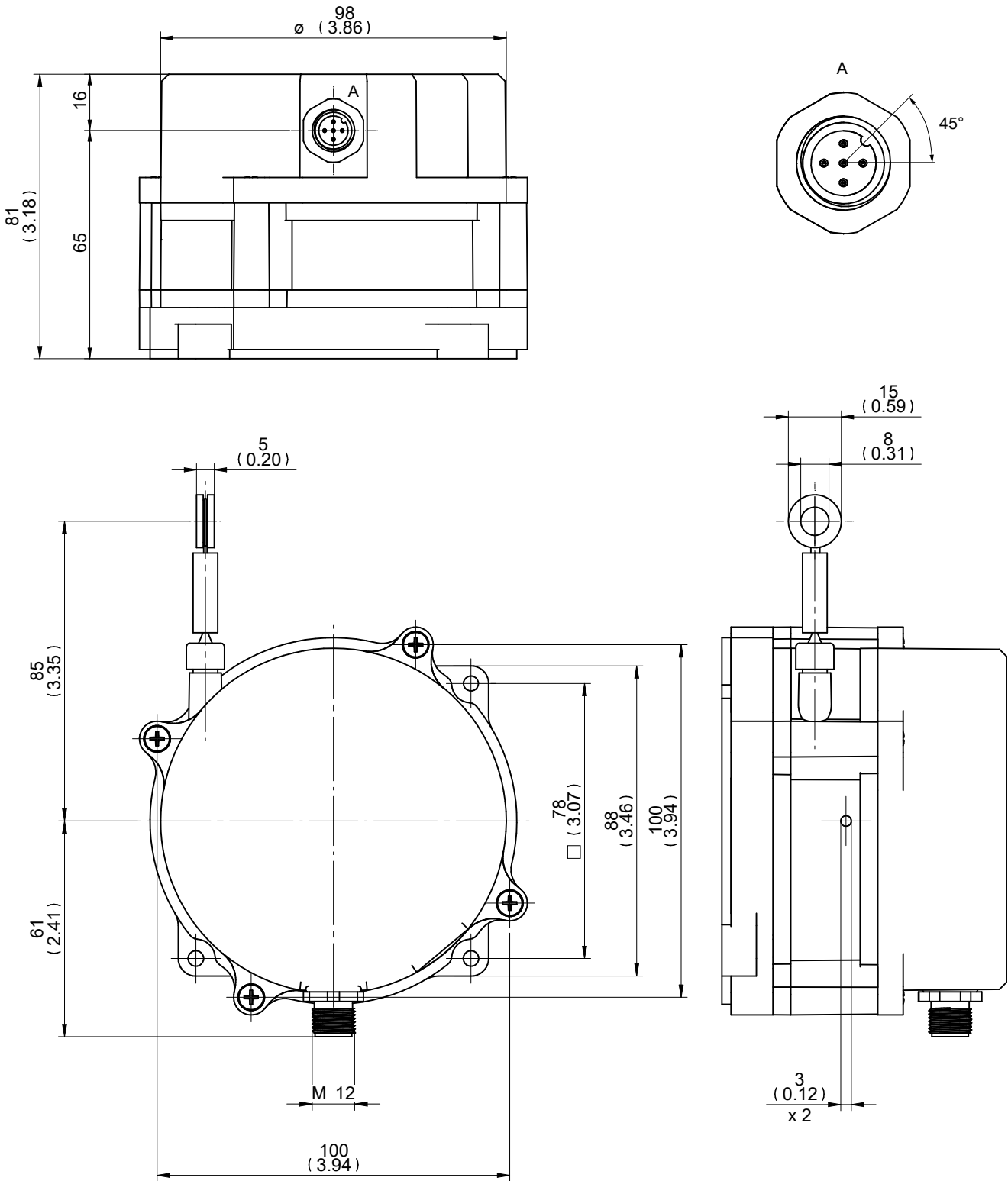
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## Dimensions



GCA8 with flange connector (male) M12

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## Ordering reference

	GCA8	-	P	P	###	.	R	C	#	.	##	0	.	A	.	#
<b>Product</b>	GCA8															
<b>Type</b>	Plastic			P												
<b>Technology</b>	Potentiometer			P												
<b>Measuring range</b>	6 m				060											
	8 m				080											
<b>Measuring wire fixation</b>	Mount with retaining ring						R									
<b>Measuring wire diameter</b>	0.70 mm							C								
<b>Connection</b>	Cable radial, 2 m								L							
	Flange connector M12, 5-pin, radial, male contacts, CCW								N							
<b>Voltage supply / output</b>	8...36 VDC, SAE J1939											CD				
	8...36 VDC, SAE J1939 redundant (2-channel design)											CR				
<b>Resolution supplement</b>	No option											0				
<b>Operating temperature</b>	-40...+85 °C													A		
<b>Inclination sensor (axes / measuring range)</b>	1-dimensional / 0...360°															136
	Without inclination sensor															