Baumer
Passion for Sensors

Acceleration sensors

GAM900S

With SIL 2/PL d relay output for limit monitoring
Analog / CANopen®

Overview

- Acceleration sensor for safety applications
- Safety limit monitoring with relay output for SIL 2/PL d
- Output of acceleration via analog / CANopen®
- Redundant 3 axes detection, MEMS based
- Measuring range ±2 g
- Connection: connector M12
- Offshore capability

Technical data

Safety-relevant key characteristics	
Performance Level (EN ISO 13849)	PL d
Category (EN ISO 13849)	3
$MTTF_d$ (EN ISO 13849)	393 years
DC_{avg} (EN ISO 13849)	86 %
TM (service life, EN ISO 13849)	20 years
Safety Integrity Level (EN 61508)	SIL 2
PFH_D (EN 61508)	2.5 E-9 1/h
PFD_{avg} (EN 61508)	2.1 E-4
Error reaction time	< 50 ms
Technical data - electrical ratings	
Voltage supply	10...30 VDC
Reverse polarity protection	Yes
Consumption w/o load	≤200 mA (24 VDC)
Initializing time	≤ 2000 ms after power on
Interface	CANopen® Analog 4...20 mA (0...10 V optional)
Frequency bands	4 (configurable)
Measuring range	±2 g
Resolution	< 4 mg
Accuracy 3σ (with band pass filtering)	= 60 mg (in the range of ±1000 mg) = 15 mg (in the range of ±250 mg) (with band pass filtering, up to -1dB)

Technical data - electrical ratings	
Interference immunity	EN 61000-6-2 EN 61326-3-1
Emitted interference	EN 61000-6-4
Status indicator	DUO-LED integrated in housing
Approval	CE SIL2 according to EN 61508 PL d / Cat. 3 according to EN ISO 13849-1 Certified by TÜV Rheinland UL approval / E63076 (the UL marking is based on UL863 and is independent of their suitability for functional safety)
Technical data - mechanical design	
Dimensions W x H x L	55 x 30 x 90 mm
Protection EN 60529	IP 55
Material	Aluminium
Operating temperature	-40...+75 °C
Resistance	EN 60068-2-6 Vibration 20 g, 60-2000 Hz EN 60068-2-27 Shock 100 g, 6 ms
Weight approx.	250 g
Connection	Connector M12

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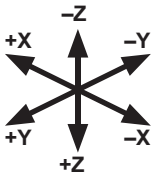
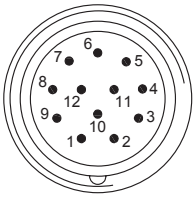
Installation position



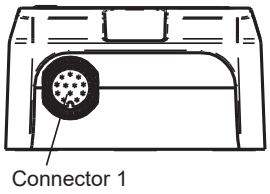
Terminal assignment

Standard / no option, connector M12, 12-pin

Connector 1



Pin	Description
1	GND
2	Test input (max. 30 V)
3	UB
4	Analog Ground
5	Analog output X
6	Analog output Y
7	Relay 1 / Safety contact NO*
8	CAN Ground
9	Relay 1 / Safety contact CO*
10	n.c.
11	CAN Low
12	CAN High

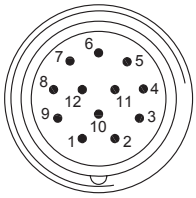


* Customer-specific relay configuration on request

Terminal assignment

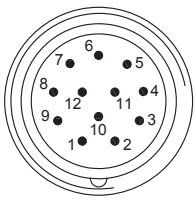
Standard / no option, connector 2xM12, 12-pin

Connector 1

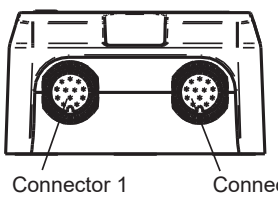


Pin	Description
1	GND
2	Test input (max. 30 V)
3	UB
4	Analog Ground
5	Analog output X
6	Analog output Y
7	Relay 1 / Safety contact NO*
8	CAN Ground
9	Relay 1 / Safety contact CO*
10	n.c.
11	CAN Low
12	CAN High

Connector 2



Pin	Description
1	Relay 2 / contact CO*
2	Relay 3 / contact NO*
3	Relay 3 / contact CO*
4	Relay 3 / contact NC*
5	Relay 4 / contact NO*
6	Relay 4 / contact CO*
7	Relay 4 / contact NC*
8	CAN Ground
9	Relay 2 / contact NO*
10	Relay 2 / contact NC*
11	CAN Low
12	CAN High



* Customer-specific relay configuration on request

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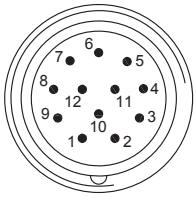
Terminal assignment

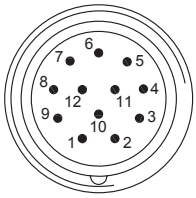
Option -3500, Connector 2 x M12, 12-pin
Supply voltage and redundates Safety relay at connector 2

Connector 1



Pin	Description
1	GND
2	Test input (max. 30 V)
3	UB
4	Analog Ground
5	Analog output X
6	Analog output Y
7	Relay 1 / Safety contact NO*
8	CAN Ground
9	Relay 1 / Safety contact CO*
10	Relay 1 / contact NC*
11	CAN Low
12	CAN High

Connector 2



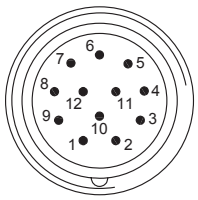
Pin	Description
1	Relay 2 / contact CO*
2	Relay 1a / Safety contact NO
3	Relay 1a / Safety contact CO
4	Relay 1a / contact NC
5	n.c.
6	GND
7	UB
8	CAN Ground
9	Relay 2 / contact NO*
10	Relay 2 / contact NC*
11	CAN Low
12	CAN High

* Customer-specific relay configuration on request

Terminal assignment

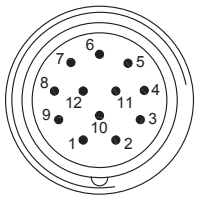
Option -3501, connector 2 x M12, 12-pin
Safety relay parallel at Stecker 1 and 2

Connector 1



Pin	Description
1	GND
2	Test input (max. 30 V)
3	UB
4	Analog Ground
5	Analog output X
6	Analog output Y
7	Relay 1 / Safety contact NO*
8	CAN Ground
9	Relay 1 / Safety contact CO*
10	Relay 1 / contact NC*
11	CAN Low
12	CAN High

Connector 2



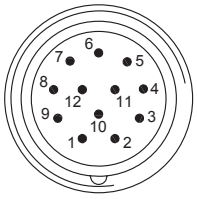
Pin	Description
1	Relay 2 / contact CO*
2	Relay 1a / Safety contact NO
3	Relay 1a / Safety contact CO
4	Relay 1a / contact NC
5	Relay 4 / contact NO*
6	Relay 4 / contact CO*
7	Relay 4 / contact NC*
8	CAN Ground
9	Relay 2 / contact NO*
10	Relay 2 / contact NC*
11	CAN Low
12	CAN High

* Customer-specific relay configuration on request

Terminal assignment

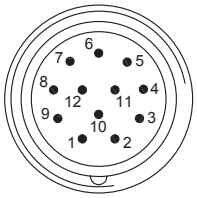
Option -3502, connector 2 x M12, 12-pin
Voltage supply at connector 2

Connector 1



Pin	Description
1	GND
2	Test input (max. 30 V)
3	UB
4	Analog Ground
5	Analog output X
6	Analog output Y
7	Relay 1 / Safety contact NO*
8	CAN Ground
9	Relay 1 / Safety contact CO*
10	n.c.
11	CAN Low
12	CAN High

Connector 2



Pin	Description
1	Relay 2 / contact CO*
2	Relay 3 / contact NO*
3	Relay 3 / contact CO*
4	Relay 3 / contact NC*
5	n.c.
6	GND
7	UB
8	CAN Ground
9	Relay 2 / contact NO*
10	Relay 2 / contact NC*
11	CAN Low
12	CAN High

* Customer-specific relay configuration on request

Configuration profile

Band	Analog 1 CANopen® 1	Analog 2 CANopen® 2	CANopen® 3	CANopen® 4
Direction	X	Y	Z	|X,Y|
Range Analog	±0.5 g	±0.5 g	–	–
Range CANopen®	±2 g	±2 g	±2 g	±2 g
Resolution Analog	0.244 mg	0.244 mg	–	–
Resolution CANopen®	1 mg	1 mg	1 mg	1 mg
Filter type	Bandpass	Bandpass	Bandpass	Bandpass
Filter order	4	4	4	4
Bandwidth	0.05...10 Hz	0.05...10 Hz	0.05...10 Hz	0.05...10 Hz
Relay ID	2	2	–	1 (safety)
Relay attack value	see part number	see part number	–	see part number
Relay attack time	0 s	0 s	–	0 s
Relay decay value	100 %	100 %	–	100 %
Relay decay time	1 s	1 s	–	1 s

Different configurations on request.

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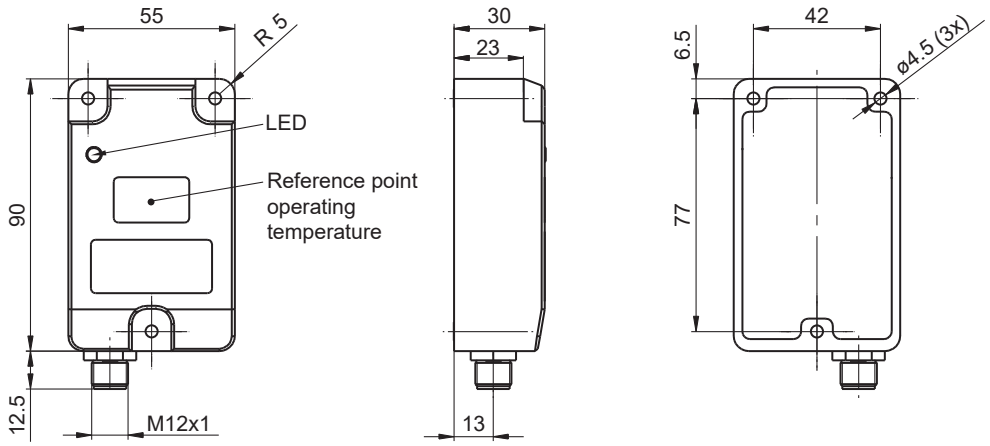
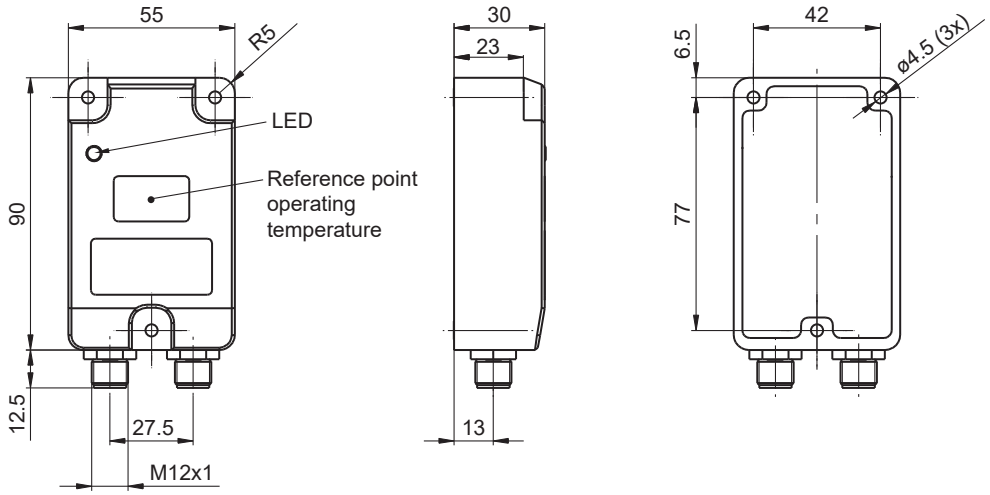
Dimensions



GAM900S - aluminium housing, 1x connector M12



GAM900S - aluminium housing, 2x connector M12

GAM900S

With SIL 2/PL d relay output for limit monitoring
Analog / CANopen®

Ordering reference

	GAM900S	-	M	3	2G	.	#	##	.	AC	B	...	#
Product													
	GAM900S												
Housing material													
Aluminium			M										
Number of axes													
Three axes				3									
Measuring range													
±2 g					2G								
Connection / Output													
1 x M12 connector, 12-pin / 1 x relay							J						
2 x M12 connector, 12-pin / 4 x relay							2						
Voltage supply / interface													
10...30 VDC / CANopen® and analog (4...20 mA)								CC					
10...30 VDC / CANopen® and analog (0...+10 V)								VC					
Resolution													
12 bit (OUT 1), 16 bit (OUT 2)										AC			
Resolution addition													
High precision, 2 channel											B		
Relay trigger threshold													
Encoding value 05...99 at choice Trigger threshold = encoding value x 10 mg (e.g. 80 mg = 08 x 10 mg) Encoding value 00: at different switching threshold												...	
Option terminal assignment													
No options													-
Voltage supply and redundant safety relay at connector 2													/3500
Redundant safety relay at connector 2													/3501
Voltage supply at connector 2													/3502