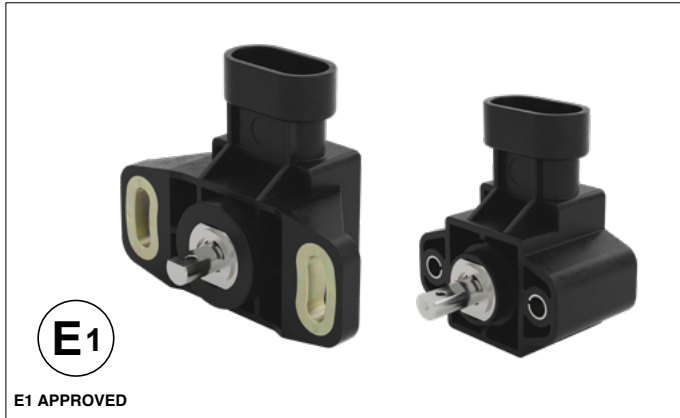


GEFRAN

GR3P

HALL-EFFECT SINGLE-TURN ROTARY SENSOR WITH SHAFT AND AMP SUPERSEAL 3P CONNECTOR



Rotary sensor for measurement ranges up to $\pm 180^\circ$ with ability to angle rotation in step of 5° .

Contactless Hall technology for almost infinite sensor life due to absence of wear on the sensing element.

Specifically designed to ensure a robust and high-performance solution for harsh environments, featuring a high IP protection level to resist dust and water ingress. It offers exceptional resistance to shock and vibration and is capable of operating across a wide temperature range.

The various configurations and accessory levers make the product versatile to installation on a variety of vehicle types such as agricultural machinery, construction equipment and material handling equipment.

Available in two center-to-center distances versions:

- 32 mm
- 50 mm

TECHNICAL DATA

Measurement range

$\pm 15^\circ \dots \pm 180^\circ$, in step of 5°

Supply voltage

4.5...5.5 V DC; 8...32 V DC

Output signal

0.5...4.5 V ratiometric (powered at 5 V DC); 0.5...4.5 V; 0...10 V; 4...20 mA

Load conditions

Voltage output: min 10 k Ω .

Current output:

max 200 Ω for supply voltage < 15 V DC;

max 500 Ω for supply voltage > 15 V DC

Electrical connections

AMP 3P Superseal 2820087-1

Fixing system

Eyelets; circular holes

Resolution

12 bit

Linearity

$\pm 0.5\%$ FS

Working and coefficient temperature

-40... +125 $^\circ\text{C}$ (-40...+275 $^\circ\text{F}$); ± 50 ppm/ $^\circ\text{C}$ (typ.)

Vibrations

20g - 10 Hz ... 2000 Hz IEC 60068-2-6

Shock

50g 11 ms IEC 60068-2-27

Electromagnetic compatibility

2014/30/EU Electromagnetic Compatibility (EMC)

Life

35 M operations (stroke $\pm 75^\circ$)

IP Protection level

IP67, IP69K

Materials

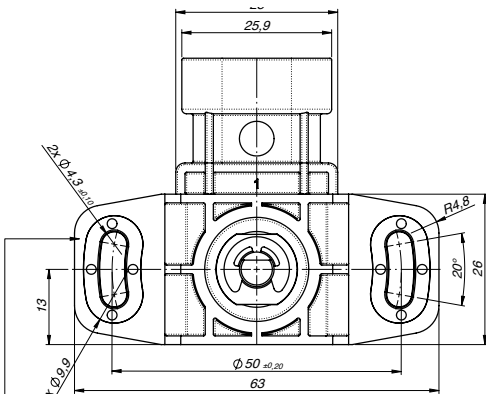
Housing: PPA; Bearing: bronze alloy; Shaft: stainless steel; Levers*: stainless steel, PBT

*Optional accessories

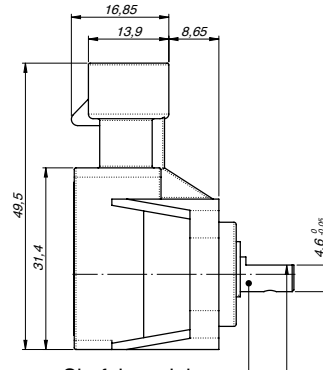
MECHANICAL DIMENSIONS

50 mm VERSION

Version with eyelets fixing Ø4.3 mm



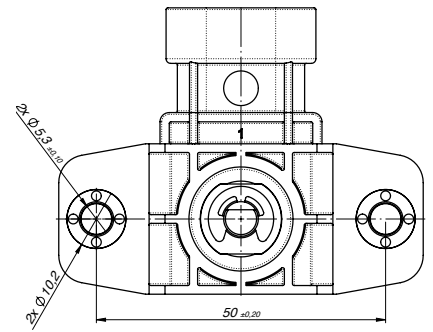
Zinc alloy insert, zinc plated
Maximum torque: 2.5 Nm
(same for circular hole fixing)



Shaft in stainless steel AISI 316L

Position Zero 0° when the planar face of the shaft is parallel to the axis of the mounting holes

Version with circular holes fixing Ø5.3 mm



Fixing systems available for 50 mm version

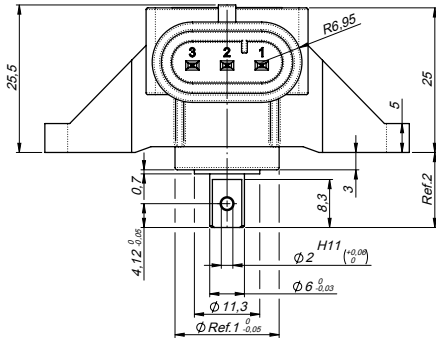
Code	Description
H2	Circular holes Ø5.3 mm
E1	Eyelets Ø4.3 mm

Shaft lengths available for 50 mm version

Ref.2	Description
S	13 mm

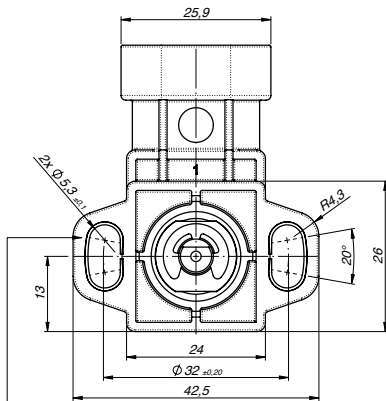
Guide rings available for 50 mm version

Ref.1	Description
M	Ø18 mm
L	Ø20 mm
H	Ø22 mm

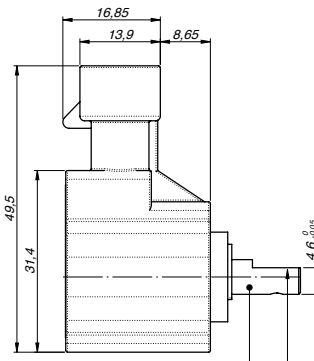


32 mm VERSION

Version with eyelets fixing Ø5.3 mm



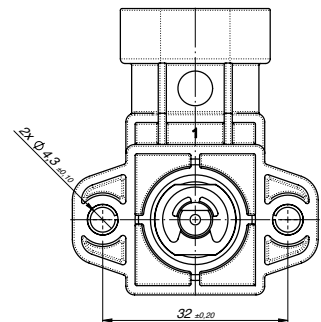
AISI 316L stainless steel insert
Maximum torque: 2.5 Nm
(same for circular hole fixing)



Shaft in stainless steel AISI 316L

Position Zero 0° when the planar face of the shaft is parallel to the axis of the mounting holes

Version with circular holes fixing Ø4.3 mm



Fixing systems available for 32 mm version

Code	Description
H1	Circular holes Ø4.3 mm
E2	Eyelets Ø5.3 mm

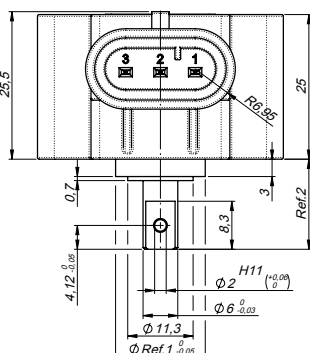
Shaft lengths available for 32 mm version

Ref.2	Description
S*	13 mm
L**	15.6 mm

*only with Ø18 mm guide ring;
**only with Ø15.5 mm guide ring.

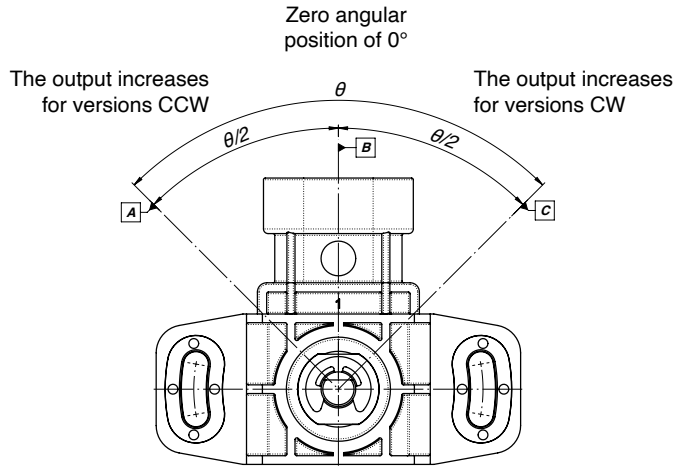
Guide rings available for 32 mm version

Ref.1	Description
S	Ø15.5 mm
M	Ø18 mm



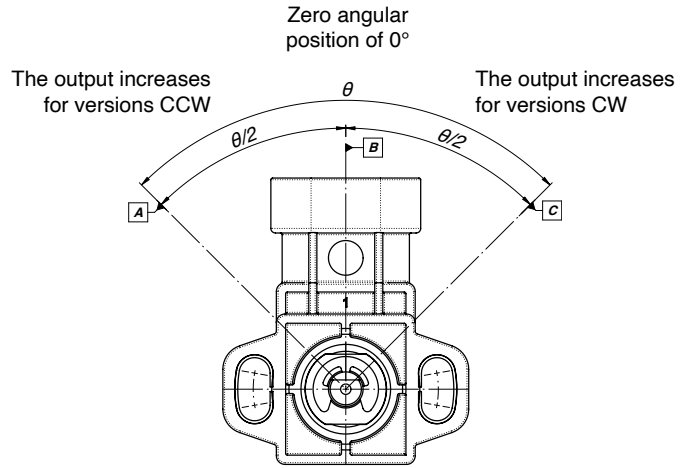
ROTATION DIRECTION

50 mm VERSION

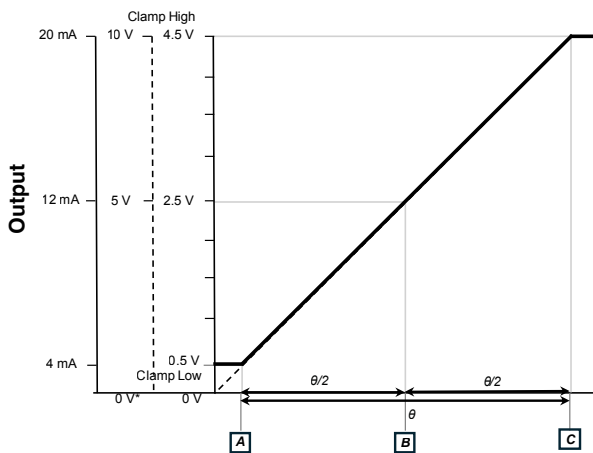


θ = Measurement range

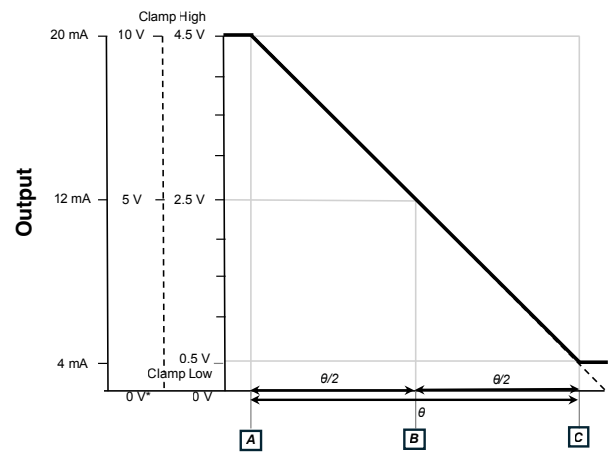
32 mm VERSION



Reference	Description	Output CW				Output CCW			
		ratiometric	0.5...4.5 V	0...10 V	4...20 mA	ratiometric	0.5...4.5 V	0...10 V	4...20 mA
A	Measurement range lower limit	0.5 V	0.5 V	0 V	4 mA	4.5 V	4.5 V	10 V	20 mA
B	Zero angular position of 0°	2.5 V	2.5 V	5 V	12 mA	2.5 V	2.5 V	5 V	12 mA
C	Measurement range upper limit	4.5 V	4.5 V	10 V	20 mA	0.5 V	0.5 V	0 V	4 mA



Reference angle



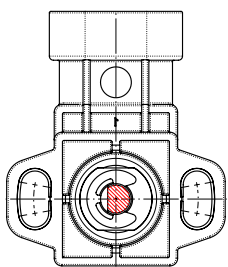
Reference angle

* For 0...10 V output signal, approaching the A position for CW (C position for CCW) the sensor output will saturate at 25 mV (typ.).

Es: GR3PASE2MS090A11SX0

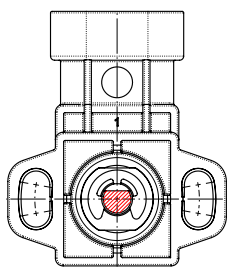
GR3P AMP – single – 32 mm – rotation $\pm 90^\circ$ ($\theta = 180^\circ$) – output 0.5...4.5 V – CW

Output = 0.5 V



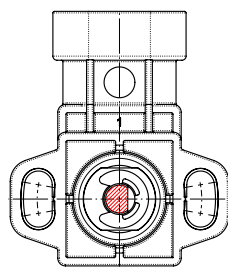
A

Output = 2.5 V

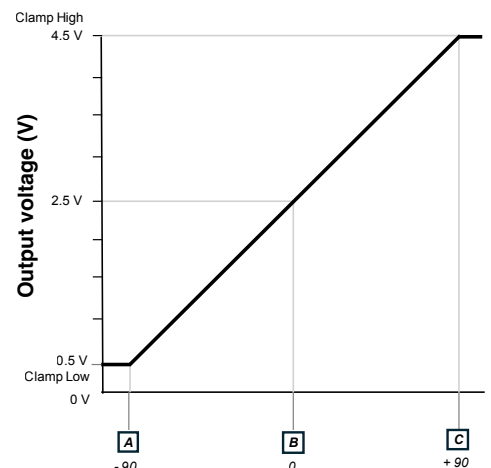


B

Output = 4.5 V



C



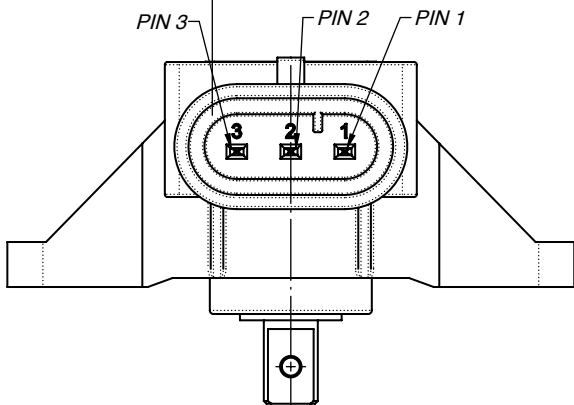
Actuator position

The operating principle remains the same regardless of the fixing system.

ELECTRICAL CONNECTIONS

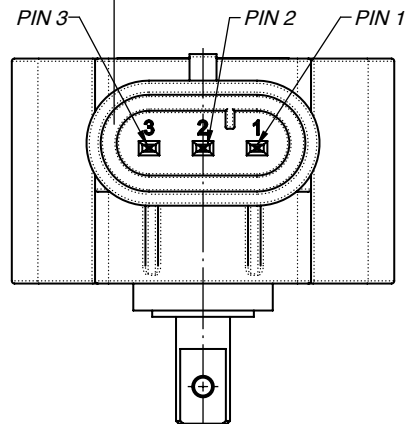
50 mm VERSION

"AMP Superseal 3-pole
282105-1 connector
Mated with connector
AMP 282097-1"



32 mm VERSION

"AMP Superseal 3-pole
282105-1 connector
Mated with connector
AMP 282097-1"

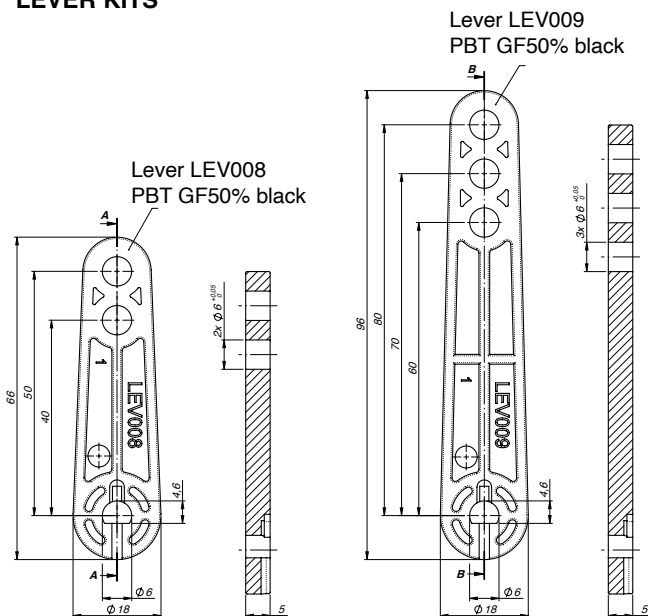


ANALOG CONNECTIONS

Pinout S		Pinout R	
PIN 1	GROUND	PIN 1	+ SUPPLY
PIN 2	+ SUPPLY	PIN 2	GROUND
PIN 3	OUTPUT	PIN 3	OUTPUT

ACCESSORIES

LEVER KITS

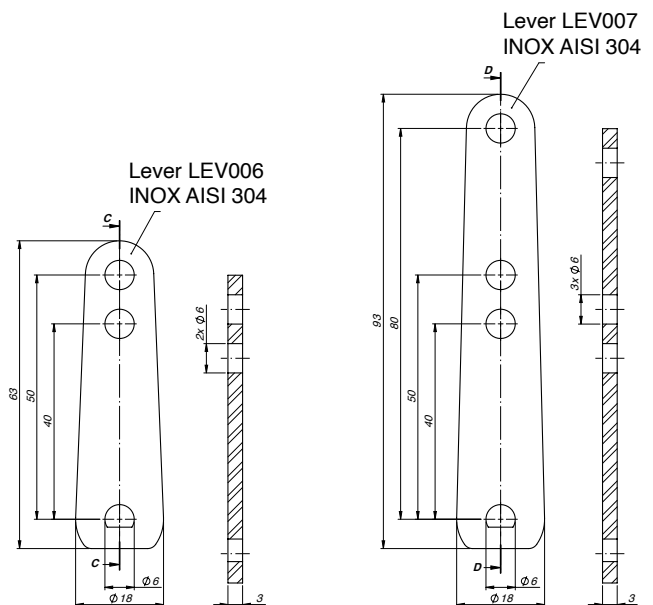
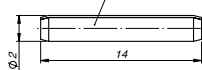


Lever LEV008
PBT GF50% black

Lever LEV009
PBT GF50% black

Fastening pin

Dowel pin MIM775 ISO 8750
INOX AISI 302



Lever LEV006
INOX AISI 304

Lever LEV007
INOX AISI 304

Fastening pin

Cotter pin MIM070 ISO 1234
INOX AISI 316



Levers can be ordered mounted or unmounted.

ORDERING CODE

GR3P A S - - - - - 0 - 000 - 00

ELECTRICAL CONNECTIONS

AMP Superseal 3P connector output **A**

CIRCUIT TYPE

Single **S**

CENTRE-TO-CENTRE DISTANCE

32 mm **3**

50 mm **5**

FIXING

Circular holes Ø4.3 mm **H1**

Circular holes Ø5.3 mm **H2**

Eyelets Ø4.3 mm **E1**

Eyelets Ø5.3 mm **E2**

Note: 50 mm version available with H2 and E1;
32 mm version available with H1 and E2.

GUIDE RING

15,5 mm **S**

18 mm **M**

20 mm **L**

22 mm **H**

Note: 50 mm version available with M, L and H guide rings;
32 mm version available with S and M guide rings.

SHAFT LENGTH

13 mm **S**

15,6 mm **L**

Note: 50 mm version available with S; 32 mm version available
with S (only with M guide ring) and L (only with S guide ring).

MEASUREMENT RANGE

±15° **015**

... in step of 5° (specify XXX°) **XXX**

±180° **180**

OUTPUT TYPE

0.5...4.5 V ratiometric output
(powered at 5 V DC) **A0**

0.5...4.5 V output (powered at 8...32 V DC) **A1**

0...10 V output (powered at 8...32 V DC) **A2**

4...20 mA output (powered at 8...32 V DC) **A3**

ROTATION DIRECTION

Clockwise CW **1**

Counterclockwise CCW **2**

PINOUT

1. GROUND, 2. + SUPPLY, 3. OUTPUT **S**

1.+SUPPLY, 2. GROUND, 3. OUTPUT **R**

ACTUATOR

Shaft **X**

Shaft with lever LEV006 50 mm INOX AISI
304 (cotter pin mounted) **A**

Shaft with lever LEV008 50 mm PBT GF50%
black (dowel pin mounted) **B**

Shaft with lever LEV007 80 mm INOX AISI
304 (cotter pin mounted) **C**

Shaft with lever LEV009 PBT 80 mm GF50%
black (dowel pin mounted) **D**

ND

special
execution
code

ND

ACCESSORIES

X No accessories to be included
in the package

A 50 mm INOX Lever Kit:
LEV006 + cotter pin ISO
8752 Ø2x14 INOX AISI 316
(PKIT917)

B 50 mm PBT Lever Kit:
LEV008 50 + dowel pin ISO
8752 Ø2x14 INOX AISI 302
(PKIT937)

C 80 mm INOX Lever Kit:
LEV007 + cotter pin ISO
1234 Ø2x10 INOX AISI 316
(PKIT936)

D 80 mm PBT Lever Kit:
LEV009 + dowel pin ISO
8752 Ø2x14 INOX AISI 302
(PKIT947)

CERTIFICATES

0 No certificate attached

L Linearity curve to be attached

EXAMPLE OF DESCRIPTION:

GR3P A S 5 E1 H S 180 A0 1 S X 0 0 000 D 00

GR3P – AMP 3 pin – single – 50 mm – eyelets Ø4.3 mm – guide ring Ø22 mm – shaft
13 mm – rotation ±180° – output 0.5...4.5 V – clockwise CW – pinout 1. GROUND, 2. +
SUPPLY, 3. OUTPUT – shaft – no certificate attached – no special execution – 80 mm
PBT Lever Kit

GEFRAN spa reserves the right to make any kind of design or functional modification at any moment without prior notice.

GEFRAN

GEFRAN spa

via Sebina, 74 - 25050 PROVAGLIO D'ISEO (BS) - ITALIA

tel. 0309888.1 - fax. 0309839063 - Internet: <http://www.gefran.com>

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