

GSH-A (from 10000 up to 12500 mm)

HALL-EFFECT WIRE LINEAR POSITION TRANSDUCER
WITH SINGLE AXIS TILT ANGLE MEASUREMENT



Contactless linear sensor - HALL EFFECT technology - with embedded single-axis MEMS inclinometer (i.e. single axis Z).

Excellent performance, high IP rating, shock and vibration resistance guarantee sensor performance in typical mobile hydraulic applications, wherever there's the need to monitor a linear position and a tilt angle at the same time.

TECHNICAL SPECIFICATIONS

Measurement Range (FS)

Strokes 10000 mm - 12500 mm

Supply voltage

+10...36 V DC (see ordering code for right supply voltage)

Output type

CANopen

Electrical connections

M12 connector output, cable output

Linearity factory verification@ 25°C

< ±1% FS – linear position
< ±0.5% FS – tilt angle

Resolution

0.1 mm - linear position
0.1 deg - tilt angle

Working temperature

-40°C...+85°C

Vibrations

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

Shock

Pulse on 3 axes; 50g 11 ms IEC 60068-2-27

Electromagnetic compatibility

2014/30/EU Electromagnetic Compatibility (EMC)

IP Protection Level

IP67 with female homologated connector mounted, tightening torque 0.6Nm + low strength threadlocker (GSH-M/N/O/P M12 connector version)
IP67 (GSH-F cable-PUR version)

Constructive material of transducer body and wire

Transducer: PBT
Wire: AISI316 stainless steel, Ø0.85mm nylon coating

Typical speed

max 2m/s, typical 1m/s

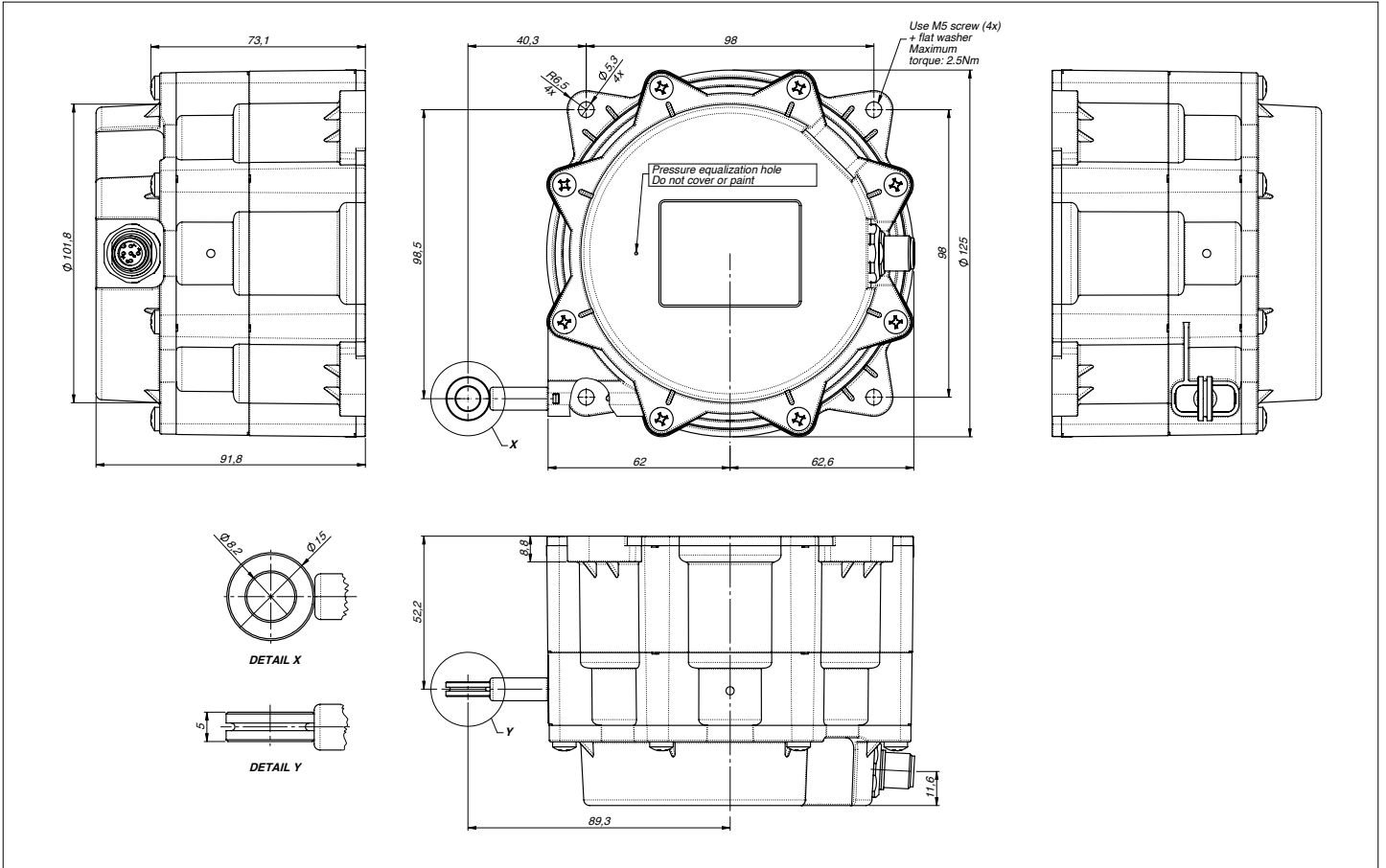
Typical acceleration

1g

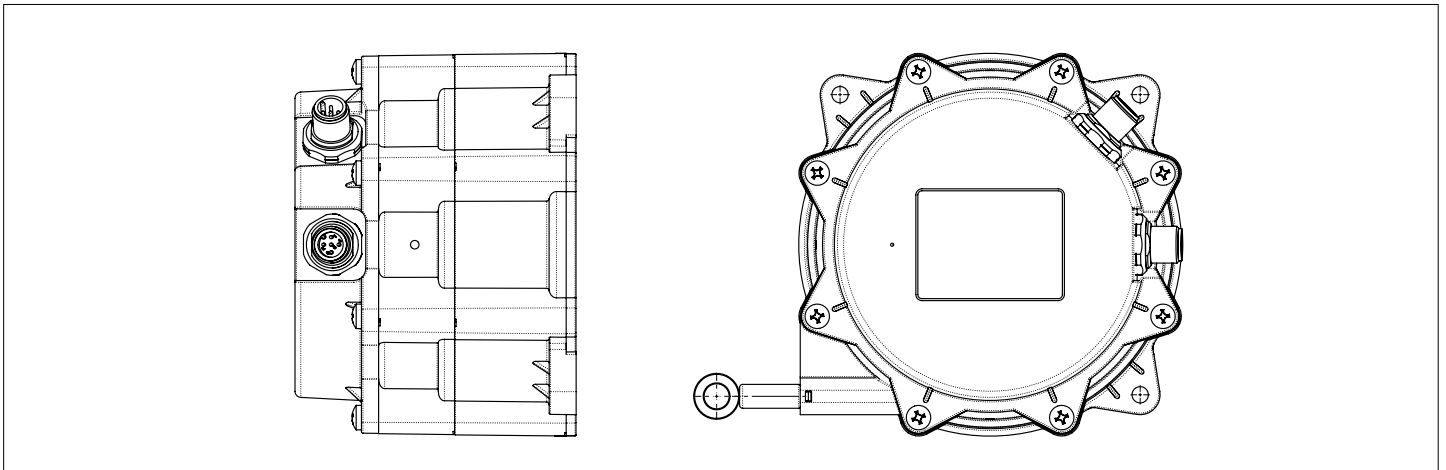
Weight

1.5 kg

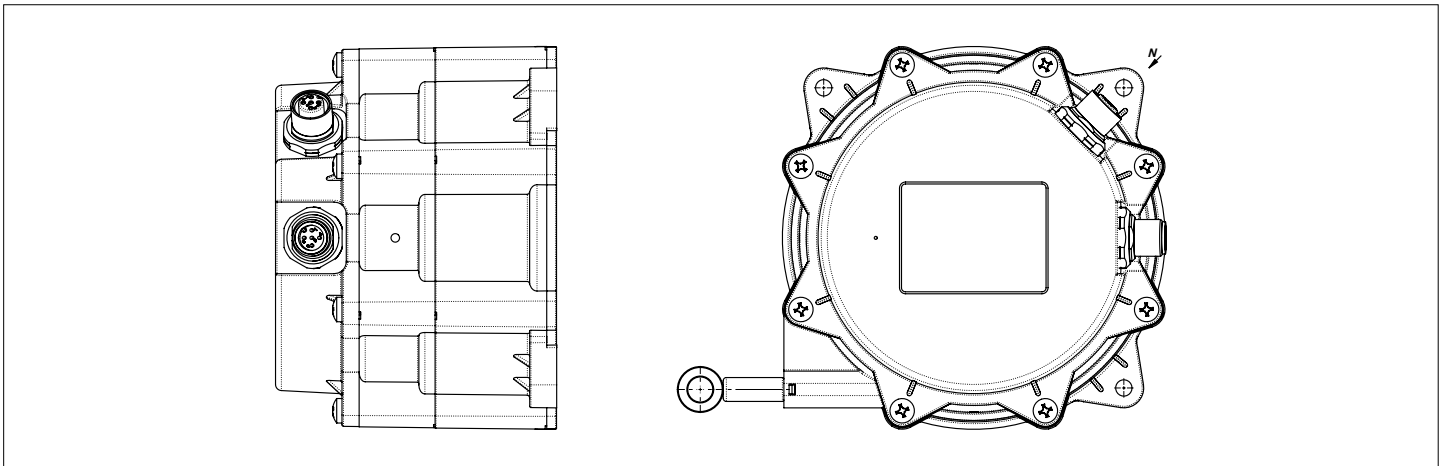
MECHANICAL DIMENSIONS - SINGLE / REDUNDANT / HALF - M12 1x VERSION



MECHANICAL DIMENSIONS - REDUNDANT - M12 2x VERSION

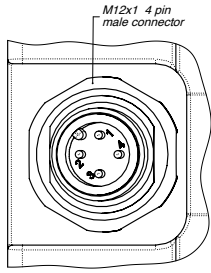


MECHANICAL DIMENSIONS - IN-OUT (S/R/H) M12 5P CAN VERSION



ELECTRICAL CONNECTIONS - M12 VERSION

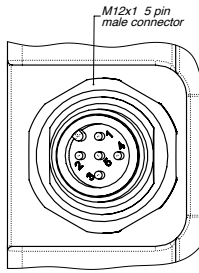
SINGLE VERSION M-1-S
REDUNDANT VERSION M-1-R M-2-R



CAN CONNECTIONS

1. +SUPPLY
2. GROUND
3. CAN-H
4. CAN-L

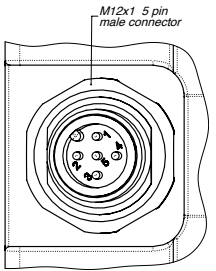
SINGLE VERSION N-1-S
REDUNDANT VERSION N-1-R N-2-R



CAN CONNECTIONS

1. n.c.
2. +SUPPLY
3. GROUND
4. CAN-H
5. CAN-L

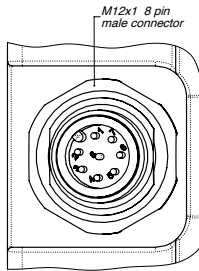
SINGLE VERSION P-1-S
REDUNDANT VERSION P-1-R P-2-R
HALF REDUNDANT VERSION P-1-H



CAN CONNECTIONS

1. GROUND
2. +SUPPLY
3. GROUND
4. CAN-H
5. CAN-L

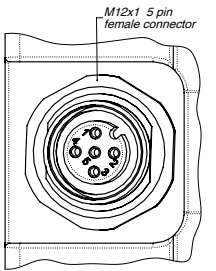
REDUNDANT VERSION O-1-R



CAN CONNECTIONS

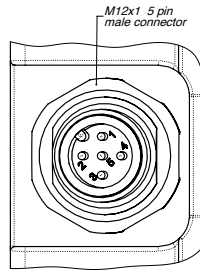
1. + SUPPLY CH1
2. GROUND CH1
3. CAN-H CH1
4. CAN-L CH1
5. + SUPPLY CH2
6. GROUND CH2
7. CAN-H CH2
8. CAN-L CH2

SINGLE/REDUNDANT/HALF-REDUNDANT IN-OUT VERSION P-3-(S/R/H)



CAN CONNECTIONS

1. GROUND
2. +SUPPLY
3. GROUND
4. CAN-H
5. CAN-L

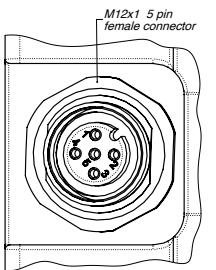


CAN CONNECTIONS

1. GROUND
2. +SUPPLY
3. GROUND
4. CAN-H
5. CAN-L

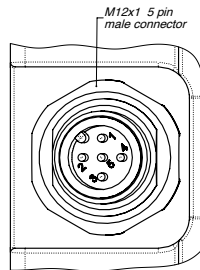
VIEW FROM N

SINGLE/REDUNDANT/HALF-REDUNDANT IN-OUT VERSION N-3-(S/R/H)



CAN CONNECTIONS

1. FLOATING
2. +SUPPLY
3. GROUND
4. CAN-H
5. CAN-L



CAN CONNECTIONS

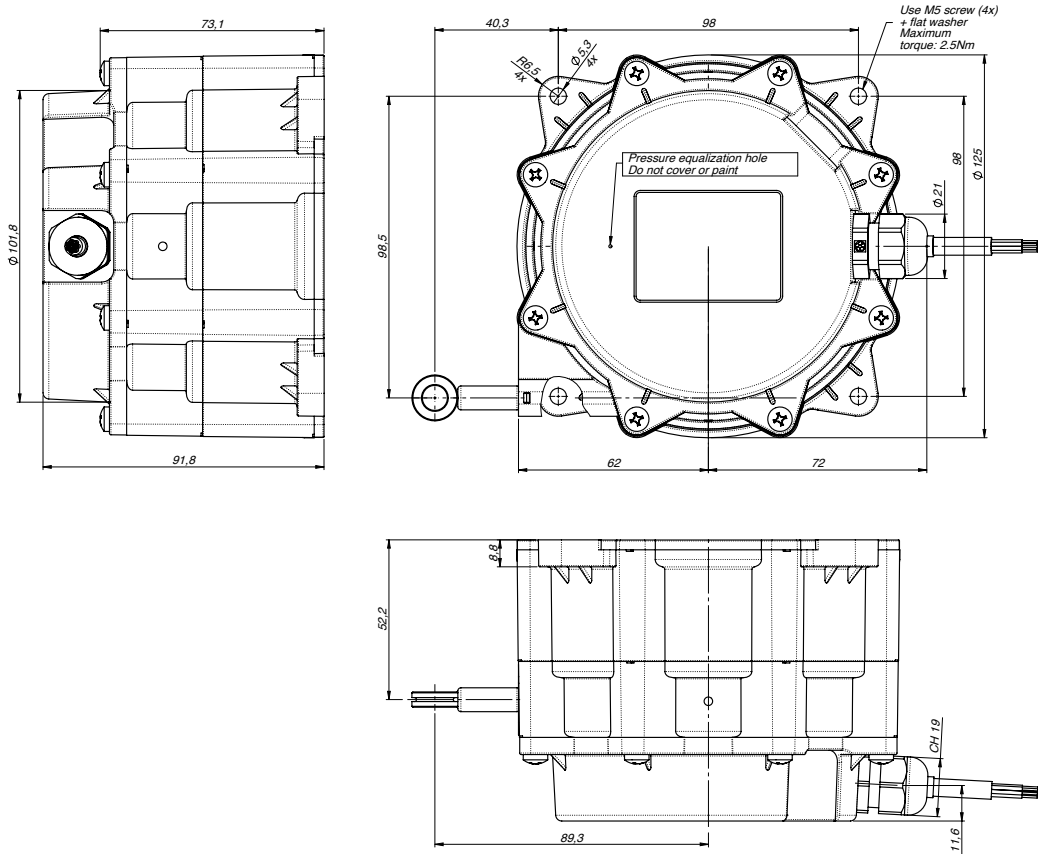
1. FLOATING
2. +SUPPLY
3. GROUND
4. CAN-H
5. CAN-L

PIN 1 male and female are internally connected

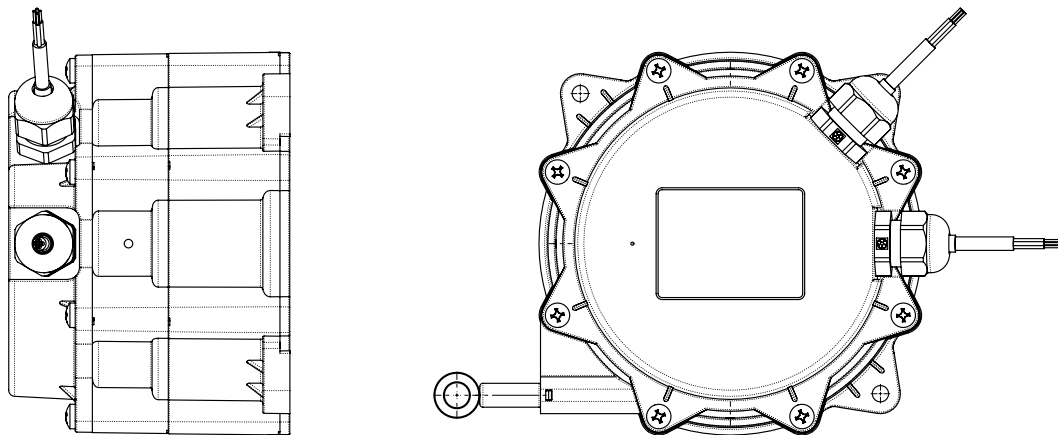
VIEW FROM N

ITEMS MARKED "n.c." MUST NOT BE CONNECTED

MECHANICAL DIMENSIONS - CABLE VERSION



MECHANICAL DIMENSIONS - IN-OUT (S/R/H) 2x CABLE CAN VERSION

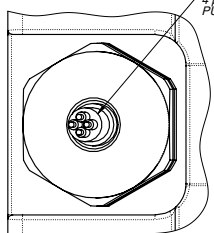


ELECTRICAL CONNECTION - CABLE VERSION

SINGLE VERSION F-0-(S/H)
IN-OUT VERSION F-3-(S/R/H)

REDUNDANT VERSION F-0-R

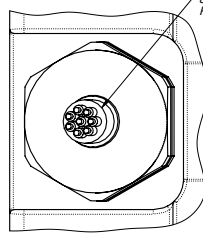
IEC 60228 Cable
4 pole 0.34mm²
PUR OD 4.4mm



CAN CONNECTIONS

RED +SUPPLY
BLACK GROUND
BLUE CAN-H
WHITE CAN-L

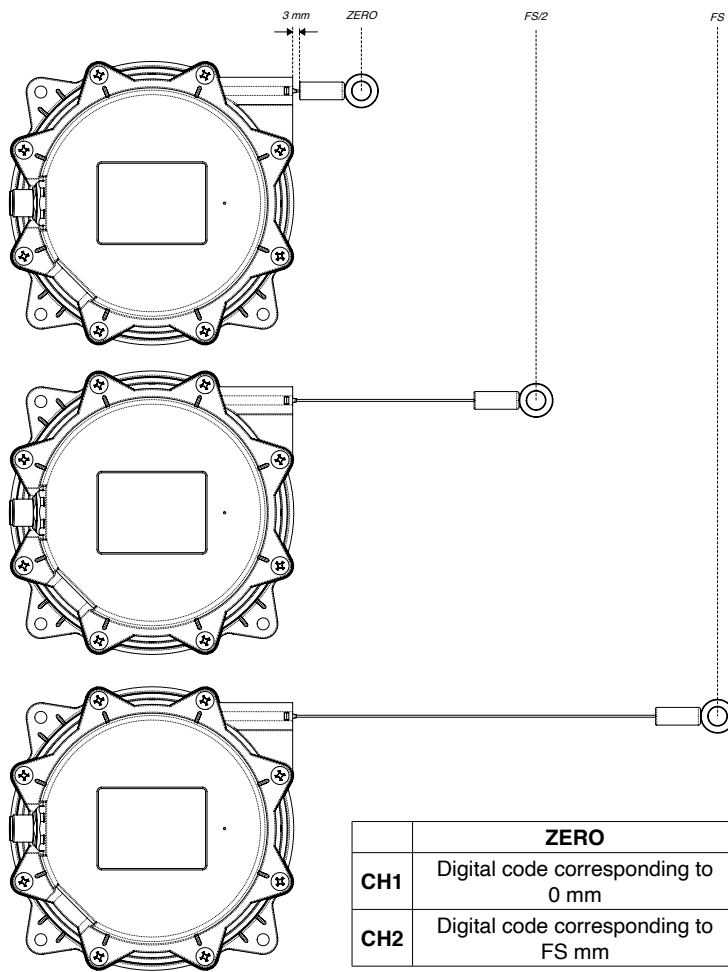
IEC 60228 Cable
8 pole 0.34mm²
PUR OD 5.8mm



CAN CONNECTIONS

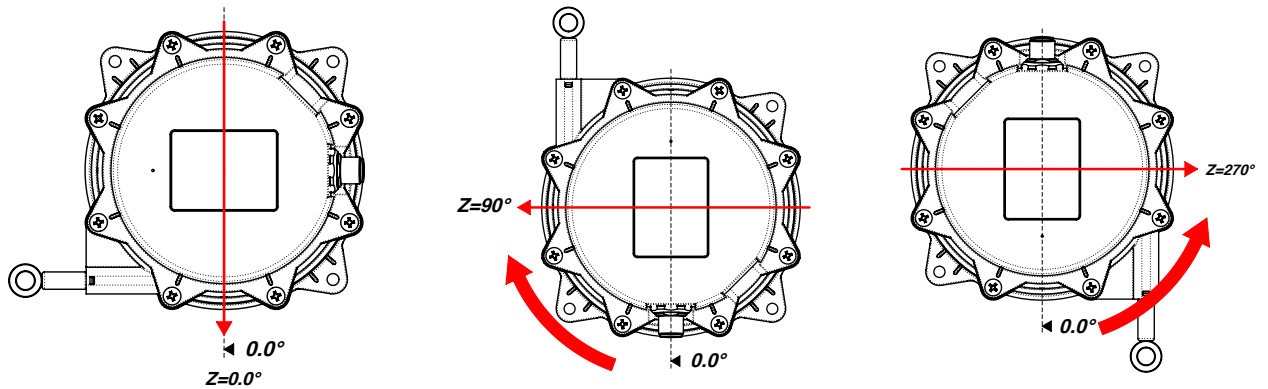
WHITE + SUPPLY CH1
BROWN GROUND CH1
GREEN CAN-H CH1
YELLOW CAN-L CH1
GREY + SUPPLY CH2
PINK GROUND CH2
BLUE CAN-H CH2
RED CAN-L CH2

SENSOR OUTPUT



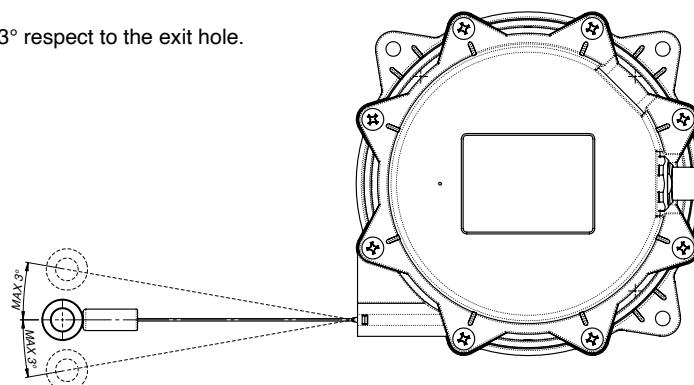
| | ZERO | FS/2 | FS |
|-----|-------------------------------------|---------------------------------------|-------------------------------------|
| CH1 | Digital code corresponding to 0 mm | Digital code corresponding to FS/2 mm | Digital code corresponding to FS mm |
| CH2 | Digital code corresponding to FS mm | Digital code corresponding to FS/2 mm | Digital code corresponding to 0 mm |

| CH1 | Digital code corresponding to 0 deg | Digital code corresponding to 270 deg | Digital code corresponding to 90 deg |
|-----|-------------------------------------|---------------------------------------|---------------------------------------|
| CH2 | Digital code corresponding to 0 deg | Digital code corresponding to 90 deg | Digital code corresponding to 270 deg |



INSTALLATION

Do not extract the cable at angles $> 3^\circ$ respect to the exit hole.



ORDERING CODE

| TRANSDUCER TYPE | |
|---|----------|
| Hall-effect wire linear position transducer with single axis tilt angle measurement | S |

| ELECTRICAL CONNECTIONS | |
|--|----------|
| M12 4P connector | M |
| M12 5P connector (CAN pin 1 n.c.) | N |
| M12 8P connector (only for redundant versions) | O |
| M12 5P connector (CAN pin 1 GROUND) | P |
| Cable output | F |

| CONNECTOR OPTIONS | |
|--|----------|
| Cable output | 0 |
| 1 male M12 4P or M12 5P connector (single/redundant version analog and CANopen output) or 1 male M12 8P connector (only for redundant version) | 1 |
| 2 male M12 4P connectors (redundant version) or 2 male M12 5P connectors (redundant version) | 2 |
| 1 male M12 5P connector and 1 female M12 5P connector or cable Output (only for IN-OUT CANopen version) | 3 |

| CIRCUIT TYPE | |
|--|----------|
| Single | S |
| Redundant | R |
| Half-redundant (only for CANopen output) | H |

| MEASUREMENT RANGE | |
|-------------------|-------------|
| 10000 mm | 100C |
| 12500 mm | 125C |

| SUPPLY VOLTAGE | |
|----------------|----------|
| +10...36 V DC | H |

| OUTPUT TYPE | |
|------------------------------------|-----------|
| CANopen (powered at +10...36 V DC) | C1 |

| CERTIFICATES | |
|--------------|--------------------------|
| 0 | No certificate enclosed |
| L | Linearity curve enclosed |

| ACCESSORIES | |
|-------------|---|
| X | No accessories |
| C | CON293 : 4-pin female mating connector M12x1; IP67 protection degree |
| D | CON469 : 8-pin female mating connector M12x1; IP67 protection degree |
| E | CON031 : 5-pin female mating connector M12x1; IP67 protection degree |

| CABLE LENGTH | |
|--------------|--------------------------|
| 10 | 1 m cable |
| 20 | 2 m cable |
| 30 | 3 m cable |
| 50 | 5 m cable |
| 80 | 8 m cable |
| A0 | 10 m cable |
| | other lengths on request |

Example of description: **GSHSN1S125CHC1 0000X00**

| | | | | | | | | | | | |
|------------------------------|----------------------|--------------------|----------|-----------------|---------------|----------------|-------------------------|-------------------|----------------|----------|-----------|
| GSH | A | N | 1 | S | 125C | H | C1 | 0 | 000 | X | ND |
| wire transducer inclinometer | M12 5-pole connector | 1xM12 5P connector | Single | 12500 mm stroke | +10...36 V DC | CANopen output | No certificate attached | Special execution | No accessories | 00 | |

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