



**GENERAL Inclinometer MEMS technology  
RELAY VERSION**

High performance, high IP rating, resistance to shock and vibrations, and high electromagnetic compatibility make this sensor suitable for mobile hydraulics applications.

Ideal for all mobile hydraulic applications (agricultural machines, earth moving machines, material handling applications) that need a sensor with safety function.

### TECHNICAL SPECIFICATIONS

**Measurement Range**

$\pm 10^\circ \pm 15^\circ \pm 20^\circ \pm 30^\circ \pm 45^\circ \pm 60^\circ$  (dual XY axis)

**Supply voltage**

+10...+36VDC

**Output signal**

Relay (CONFIGURABLE - dual XY axis only)

**Electrical connections**

M12 connector output; cable output

**Resolution**

0.01° (from  $\pm 10^\circ$  to  $\pm 20^\circ$ ); 0.02° ( $\pm 30^\circ$ ); 0.03° ( $\pm 45^\circ$ ); 0.04° ( $\pm 60^\circ$ )

**Linearity**

<  $\pm 0.15\%$  FS

**Working temperature and Coefficient of temperature**

-40°C...+85°C thermal drift < 0.005°/°C in range (T=-10°C...+60°C)  
otherwise < 0.008°/°C

**Vibrations**

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

**Shock**

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

**Electromagnetic compatibility**

2014/30/EU Electromagnetic Compatibility (EMC)

**IP Protection Level**

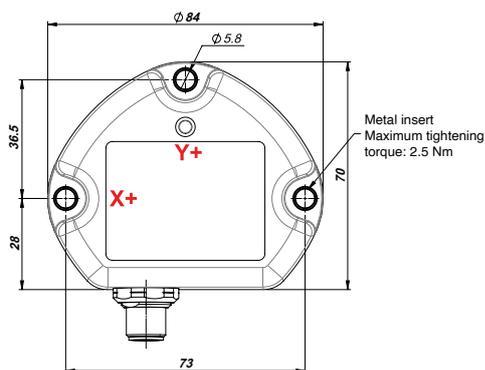
M12 connector output (IP67); cable output (IP X9K)

**Housing body**

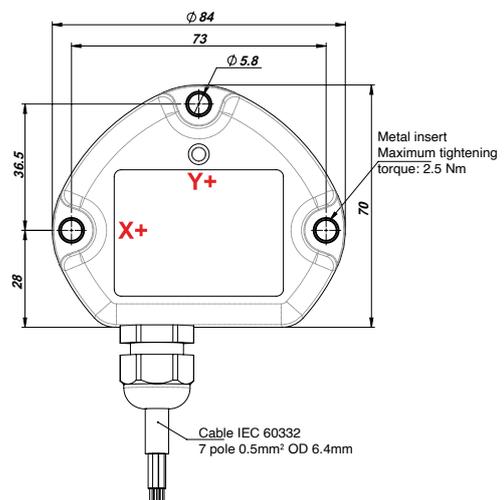
PBT

### MECHANICAL DIMENSIONS

**M12 VERSION**



**CABLE VERSION**



## ELECTRICAL CONNECTIONS - CONNECTOR OUTPUT

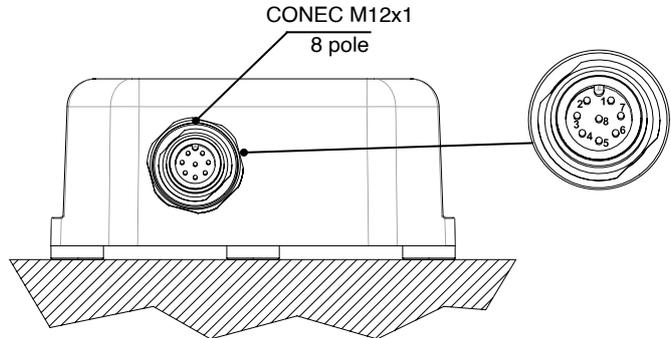
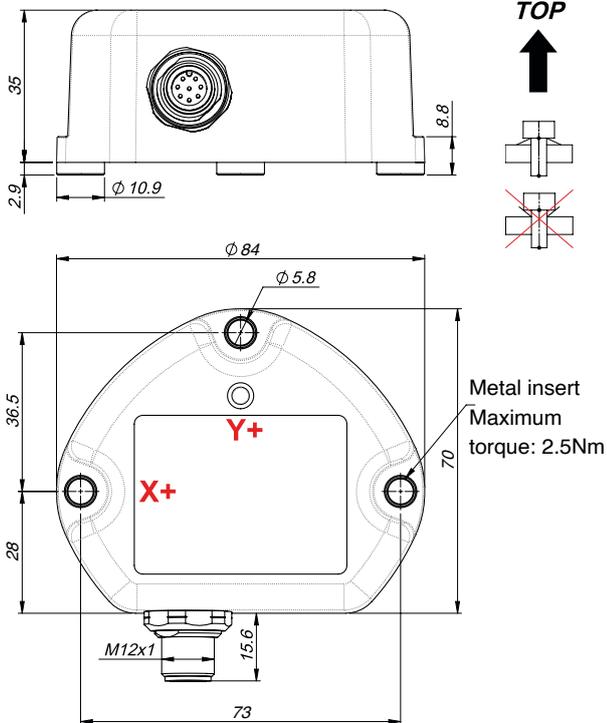
For the connections refer to the table below:

M12 8-POLE CONNECTIONS	Meaning
1	+ Supply
2	NC (should not be connected)
3	NC (should not be connected)
4	Ground
5	<b>Relay 1 NO/NC</b> (depending on order selection)
6	<b>Relay 1 COM</b>
7	<b>Relay 2 NO/NC</b> (depending on order selection)
8	<b>Relay 2 COM</b>



**Important Note:**

use conical spring washer M5 DIN6796 A2 (3 pcs)



**Contact Rating:**

Relay 1 and Relay 2	
Max. switching voltage	120VDC, 125VAC
Rated current @ 85°C	1.25A
Switching power	30W, 62.5VA
Contact material	AgPd, gold plated
Initial contact resistance	100mΩ at 10mA, 20mV
Electrical endurance: at 24VDC / 1.25A	min. 3x10 <sup>5</sup> ops

## ELECTRICAL CONNECTIONS - CABLE OUTPUT

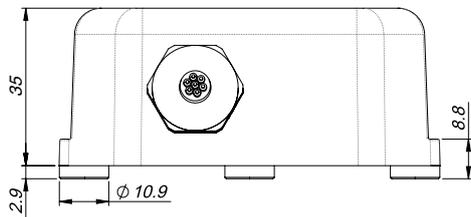
For the connections refer to the table below:

CABLE OUTPUT CONNECTIONS	Meaning
WHITE	+ Supply (+10...+36Vdc)
BROWN	NC (should not be connected)
GREEN	NC (should not be connected)
YELLOW	Ground
GREY	Relay 1 NO/NC (depending on order selection)
PINK	Relay 1 COM
BLUE	Relay 2 NO/NC (depending on order selection)
RED	Relay 2 COM

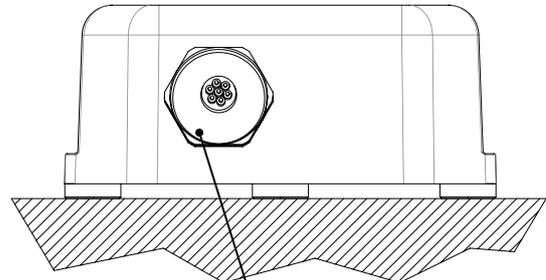
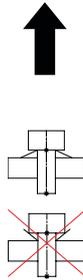


**Important Note:**

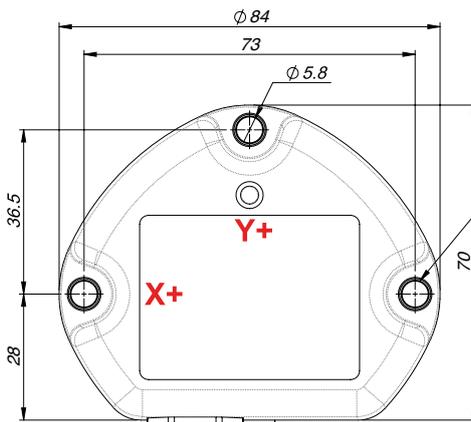
use conical spring washer M5 DIN6796 A2 (3 pcs)



TOP



Cables output IEC 60332  
Cable output - 0.5mm<sup>2</sup> OD 6.4mm



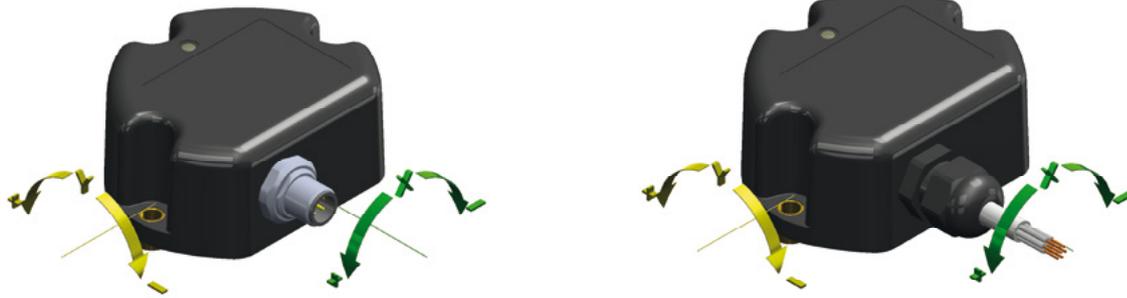
Metal insert  
Maximum  
torque: 2.5Nm

IEC 60332 Cable  
output 0.5mm<sup>2</sup>  
OD 6.4mm

**Contact Rating:**

Relay 1 and Relay 2	
Max. switching voltage	120VDC, 125VAC
Rated current @ 85°C	1.25A
Switching power	30W, 62.5VA
Contact material	AgPd, gold plated
Initial contact resistance	100mΩ at 10mA, 20mV
Electrical endurance: at 24VDC / 1.25A	min. 3x10 <sup>5</sup> ops

## AUTOZERO FUNCTION (additional function)



To activate the **Autozero function** make sure that:

- sensor is powered
- fixing surface is free of dust or grease
- sensor is fixed on the horizontal plane with suitable screws



### ATTENTION!

The Autozero function can be defined **within a maximum range of +/- 4.5°** from the original zero position (factory set).

Hold the **magnetic pen** ① (accessory to order-PKIT312) to the **ZERO POINT**  indicated on the product label ②.

Hold the position for **at least 3-5 seconds** so that the operation is successful.

①



②



## ORDERING CODE

ELECTRICAL CONNECTIONS	
M12- 8 pole connector output	M
Cable output (specify cable length)	F

AXIS TYPE	
Dual axis (XY axis)	O

CIRCUIT TYPE	
Single	S

MEASUREMENT RANGE	
measuring range (indicate) ( $\pm 10^\circ \pm 15^\circ \pm 20^\circ \pm 30^\circ \pm 45^\circ \pm 60^\circ$ )	XXX

SUPPLY VOLTAGE	
+10..36Vdc	H

OUTPUT TYPE	
Relay output	R1

RELAY TYPE	
1 x relay (N.C. = normally closed) relay 1 only	C1
1 x relay (N.O. = normally open) relay 1 only	O1
2 x relay (N.C. = normally closed) relay 1 and relay 2	C2
2 x relay (N.O. = normally open) relay 1 and relay 2	O2

SWITCH-OFF DELAY TIME (Step 0.5s...max 25.5s)	
No delay time	0
0.5s	1
1s	2
1.5s	3
2s	4
Different values (use the dedicated document)	...

SWITCH-ON DELAY TIME (Step 0.5s...max 25.5s)	
No delay time	0
0.5s	1
1s	2
1.5s	3
2s	4
Different values (use the dedicated document)	...

TYPE OF LINK (X/Y AXIS)	
Relay 1: X1/X3 Relay 2: Y1/Y3 (in case of configuration C2 o O2)	1
Relay 1: X1/X3 (in case of configuration C1 o O1)	2
Relay 1: X1/X3 or Y1/Y3 Relay 2: X2/X4 or Y2/Y4 (in case of configuration C2 o O2)	3
Relay 1: Y1/Y3 (in case of configuration C1 o O1)	4
Relay 1: Y1/Y3 Relay 2: Y2/Y4 (in case of configuration C2 o O2)	5
Relay 1: X1/X3 or Y1/Y3 (in case of configuration C1 o O1)	6
Relay 1: X1/X3 Relay 2: X2/X4 (in case of configuration C2 o O2)	7
Relay 1: X1 Relay 2: X3 (in case of configuration C2 o O2)	8

CERTIFICATE	
No certificate attached	0
Linearity curve to be attached	L

DIGITAL SWITCHING POINTS ( $\pm 1.5^\circ \dots \pm 60^\circ$ - step of $0.1^\circ$ ) (values for X and/or Y axis can be different) <b>Specify always the values in the dedicated document.</b>	
Relay 1: X1 = ..... ° X3 = ..... ° Relay 2: Y1 = ..... ° Y3 = ..... °	(type of relay link 1)
Relay 1: X1 = ..... ° X3 = ..... °	(type of relay link 2)
Relay 1: X1 = ..... ° X3 = ..... ° or Y1 = ..... ° Y3 = ..... °	(type of relay link 3)
Relay 2: X2 = ..... ° X4 = ..... ° or Y2 = ..... ° Y4 = ..... °	(type of relay link 3)
Relay 1: Y1 = ..... ° Y3 = ..... °	(type of relay link 4)
Relay 1: Y1 = ..... ° Y3 = ..... ° Relay 2: Y2 = ..... ° Y4 = ..... °	(type of relay link 5)
Relay 1: X1 = ..... ° X3 = ..... ° or Y1 = ..... ° Y3 = ..... °	(type of relay link 6)
Relay 1: X1 = ..... ° X3 = ..... ° Relay 2: X2 = ..... ° X4 = ..... °	(type of relay link 7)
Relay 1: X1 = ..... ° Relay 2: X3 = ..... °	(type of relay link 8)

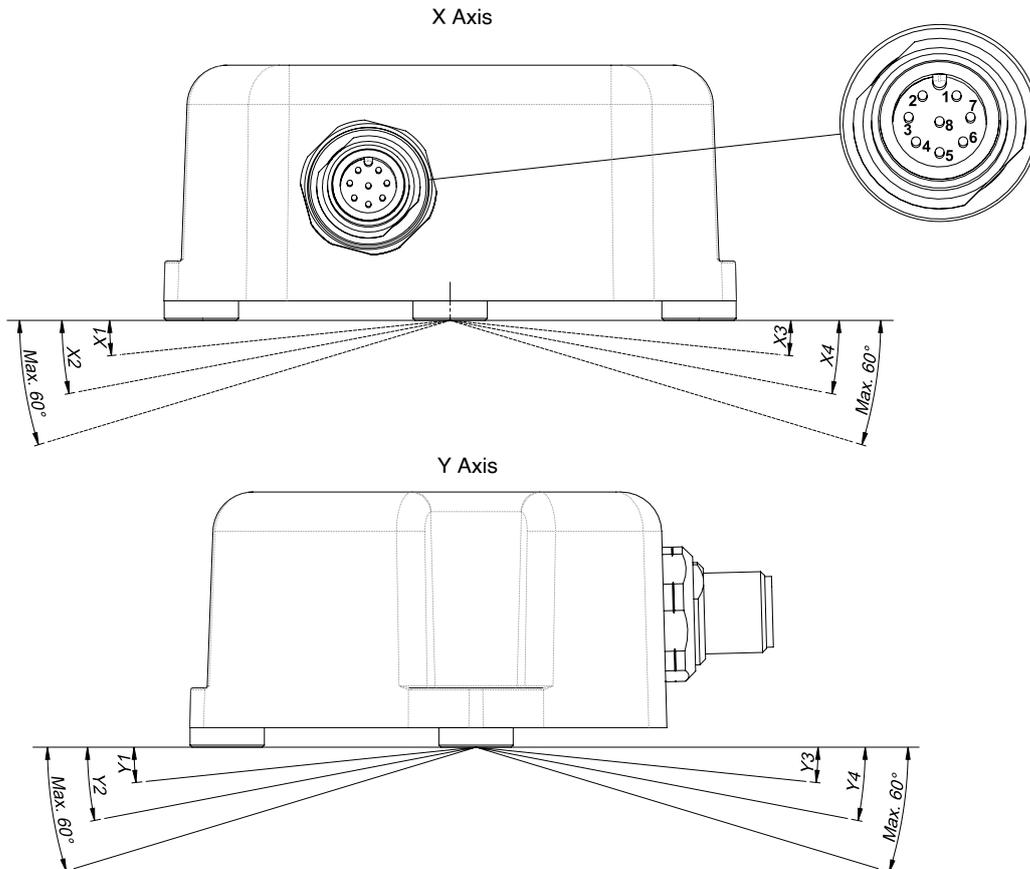
ACCESSORIES	
No accessories	X
Magnetic pen (PKIT312)	Y

CABLE LENGTH	
100mm cable	01
200mm cable	02
500mm cable	05
1m cable	10
2m cable	20
other lengths on request	.....

# ORDERING CODE

EXAMPLE OF DESCRIPTION: GIGFOS020HR1C11116 000X10

GIG	F	O	S	020	H	R1	C1	1	1	6	0	000	X	10
Cable output	Double axis XY	Single		$\pm 20^\circ$	+10..36Vdc	Relay output	1xrelay (N.C.)	0.5s switch-off delay time	0.5s switch-on delay time	X1/X3 or Y1/Y3	no certificate attached	special execution (switching points, custom switch-off/on)	no accessories	1m cable



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

**GEFRAN**

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