

GENERAL Inclinometer MEMS technology.

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

Developed to guarantee a robust, high-performance solution for applications such as agricultural vehicles, earth-moving machines, and hoisting equipment.

TECHNICAL SPECIFICATIONS

Measurement Range

$\pm 10^\circ \pm 15^\circ \pm 20^\circ \pm 30^\circ \pm 45^\circ \pm 60^\circ \pm 85^\circ$ (single Z axis for analog output - XY dual axis)
 $360^\circ (\pm 180^\circ)$ only for single Z axis

Supply voltage

+5Vdc (only for 0.5...4.5Vdc output); +10...+36VDC (see output signal for right supply voltage)

Output signal

0.5...4.5Vdc RATIOMETRIC (supply +5Vdc); 0.5...4.5Vdc; 0...10Vdc; 4...20mA; CANopen

Electrical connections

M12 connector output; cable output

Resolution

12 bit (analog output); 0.01 deg (CANopen output)

Accuracy (Factory verification @ 25 °C)

$< \pm 0.5\%$ FS

Working temperature

-40... +85°C

Temperature coefficient at 0-deg inclination

Typical $< \pm 0.006$ deg/°C

Long term repeatability

Single axis: Typical $< \pm 0.5$ deg in the range ± 180 deg
 Dual axis: Typical $< \pm 0.5$ deg in the range $\leq \pm 60$ deg, ± 2 deg otherwise

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

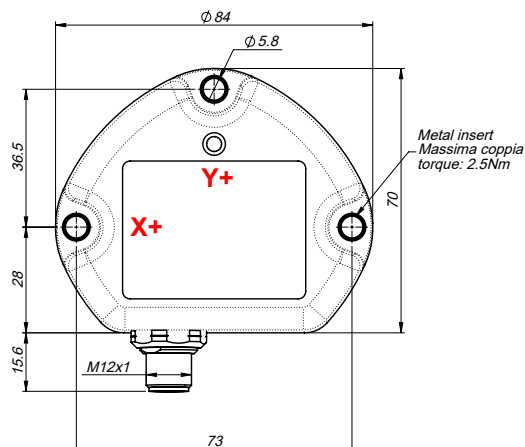
IP67 - IPX9K with female homologated connector mounted, tightening torque 0.6Nm + low strength threadlocker (GIG-M M12 connector version) IP67 - IPX9K (GIG-F cable-PUR version)

Housing body

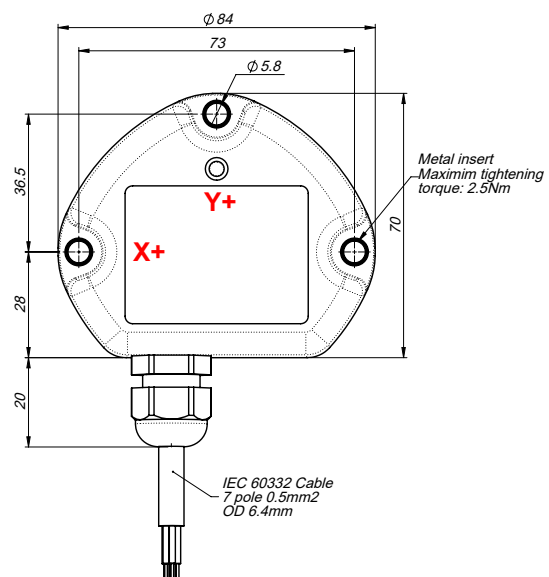
PBT

MECHANICAL DIMENSIONS

M12 VERSION , SINGLE CIRCUIT

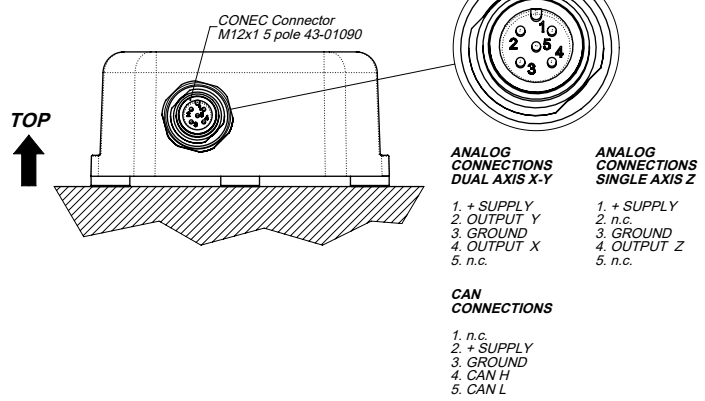
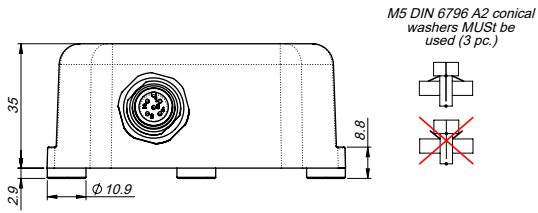


CABLE VERSION , SINGLE CIRCUIT



ELECTRICAL CONNECTIONS

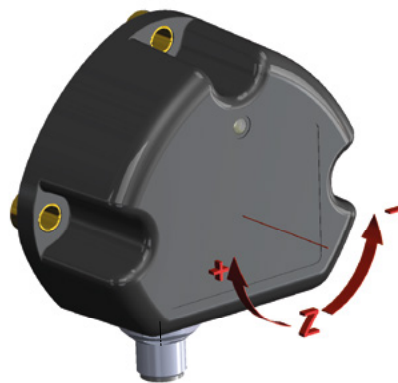
M12 VERSION , SINGLE CIRCUIT



DUAL AXIS , SINGLE CIRCUIT

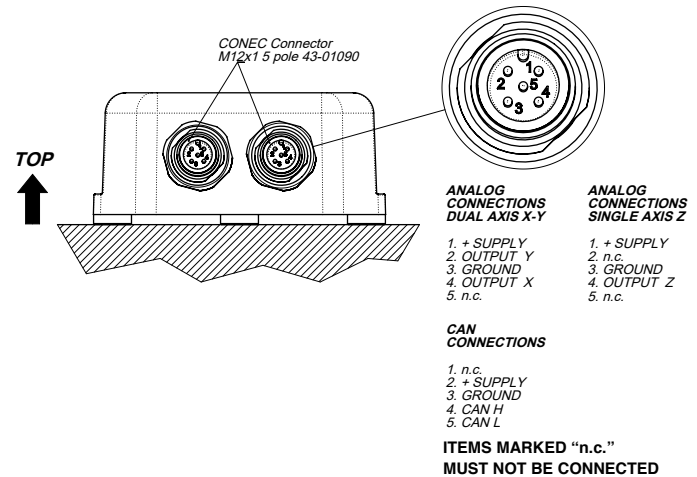
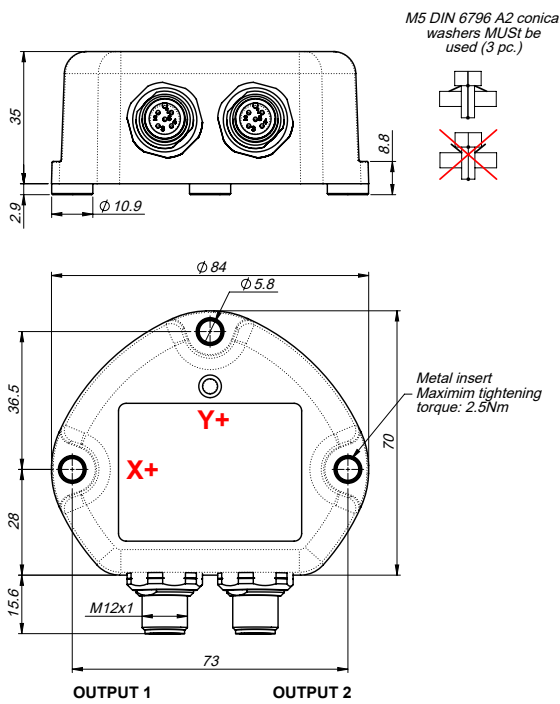


SINGLE AXIS , SINGLE CIRCUIT

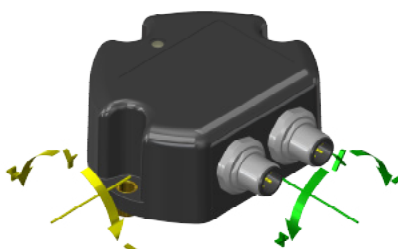


ITEMS MARKED "n.c."
MUST NOT BE CONNECTED

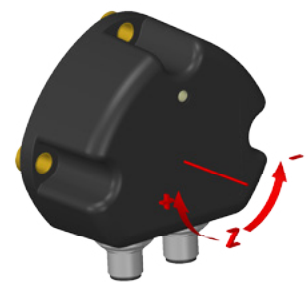
M12 VERSION , REDUNDANT CIRCUIT



DUAL AXIS REDUNDANT CIRCUIT

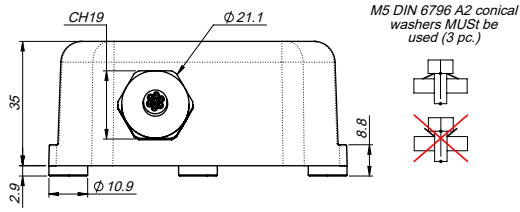


SINGLE AXIS REDUNDANT CIRCUIT

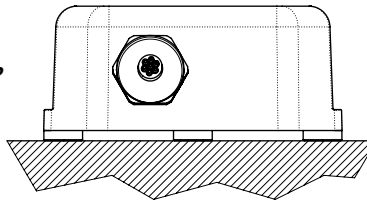


ELECTRICAL CONNECTIONS

CABLE VERSION , SINGLE CIRCUIT



TOP



ANALOG CONNECTIONS DUAL AXIS X-Y

1. WHITE + SUPPLY
2. YELLOW GROUND
3. GREY OUTPUT X
4. BLUE OUTPUT Y
5. PINK n.c.
6. GREEN n.c.
7. BROWN n.c.

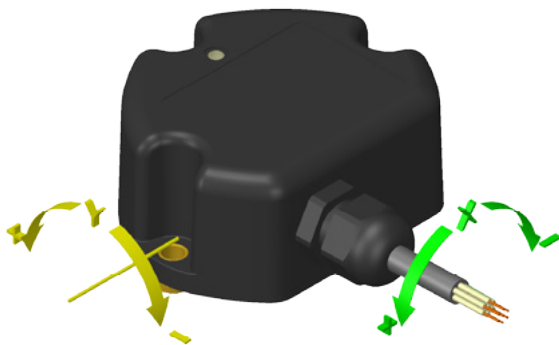
ANALOG CONNECTIONS SINGLE AXIS Z

1. WHITE + SUPPLY
2. YELLOW GROUND
3. GREY OUTPUT Z
4. BLUE n.c.
5. PINK n.c.
6. GREEN n.c.
7. BROWN n.c.

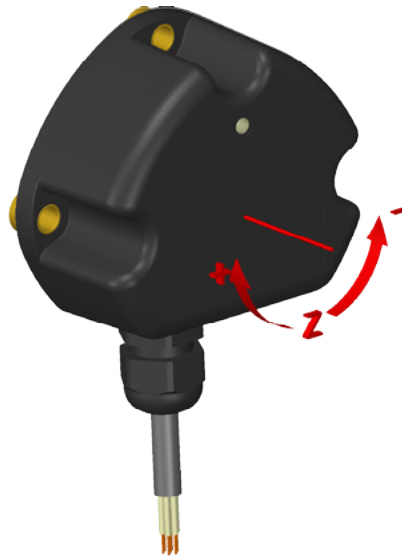
CAN CONNECTIONS

1. WHITE + SUPPLY
2. YELLOW GROUND
3. GREY CAN H
4. BLUE CAN L
5. PINK n.c.
6. GREEN n.c.
7. BROWN n.c.

DUAL AXIS, SINGLE CIRCUIT

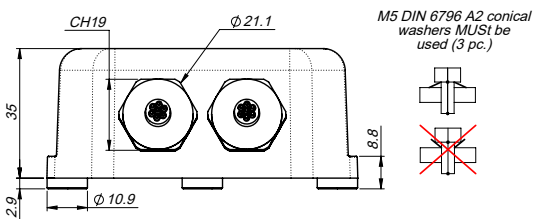


SINGLE AXIS, SINGLE CIRCUIT

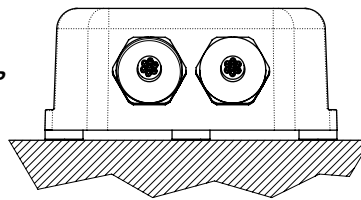


ITEMS MARKED "n.c." MUST NOT BE CONNECTED

CABLE VERSION , REDUNDANT CIRCUIT



TOP



ANALOG CONNECTIONS DUAL AXIS X-Y

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3. GREY OUTPUT X
4. BLUE OUTPUT Y
5. PINK n.c.
6. GREEN n.c.
7. BROWN n.c.

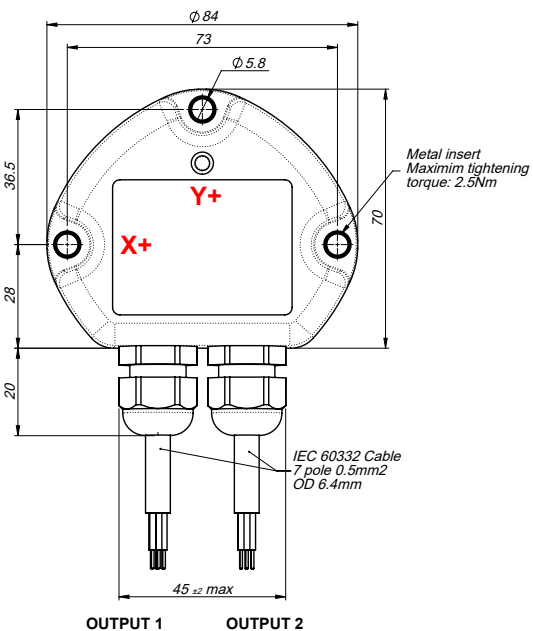
ANALOG CONNECTIONS SINGLE AXIS Z

1. WHITE + SUPPLY
2. YELLOW GROUND
3. GREY OUTPUT Z
4. BLUE n.c.
5. PINK n.c.
6. GREEN n.c.
7. BROWN n.c.

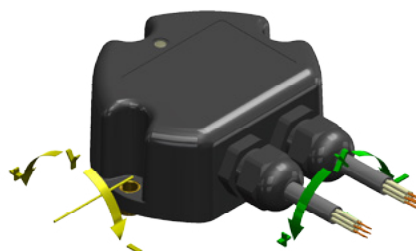
CAN CONNECTIONS

1. WHITE + SUPPLY
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5. PINK n.c.
6. GREEN n.c.
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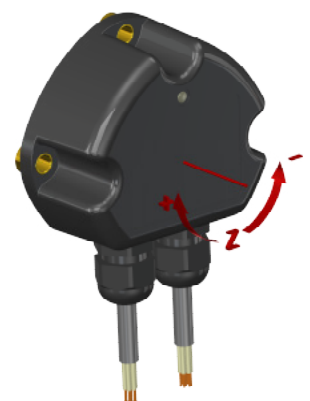
ITEMS MARKED "n.c." MUST NOT BE CONNECTED



DUAL AXIS REDUNDANT CIRCUIT



SINGLE AXIS REDUNDANT CIRCUIT



AUTOZERO FUNCTION (additional function)

available for analog single circuit versions in **GIG-XY** configuration (dual axis)




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

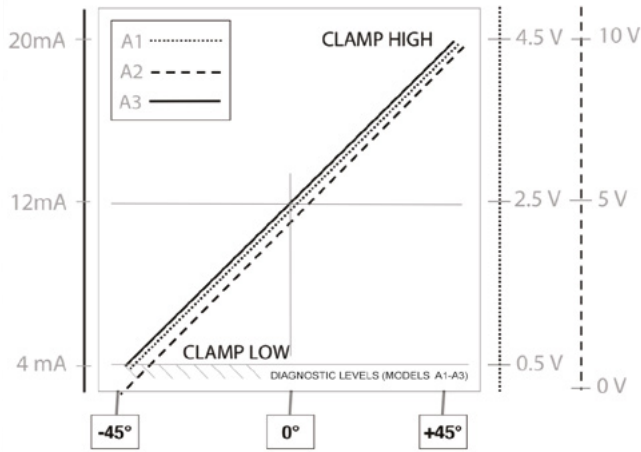


②

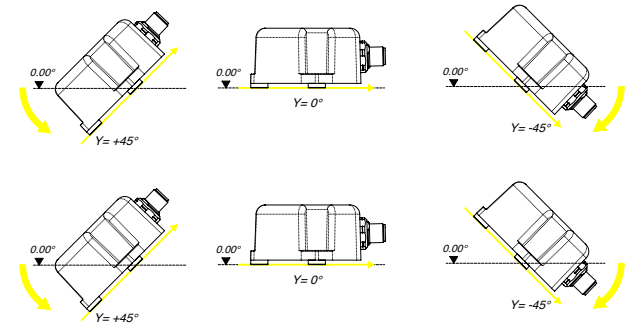
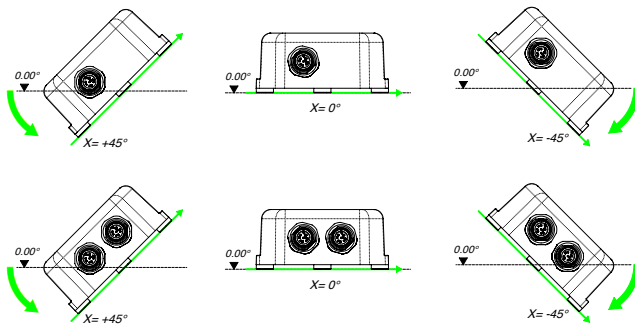
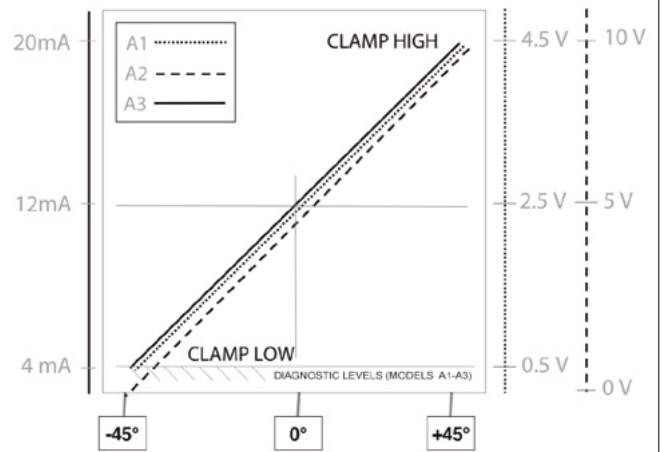


OPERATING SPECIFICATIONS: OUTPUT SIGNAL GRAPHS

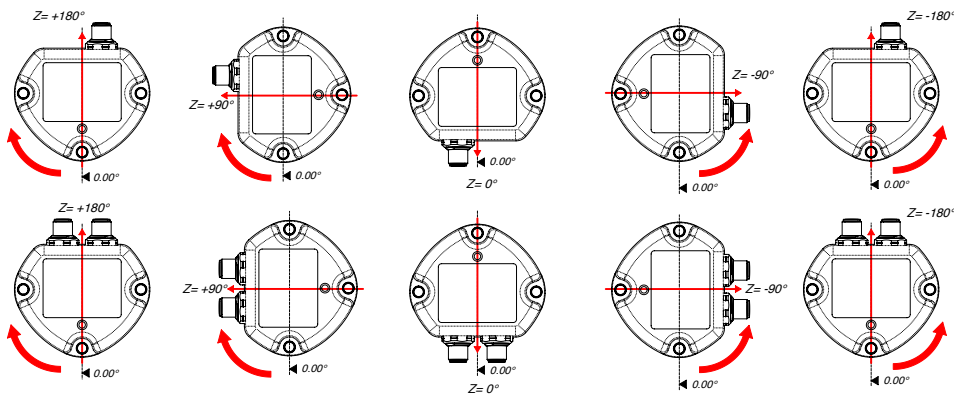
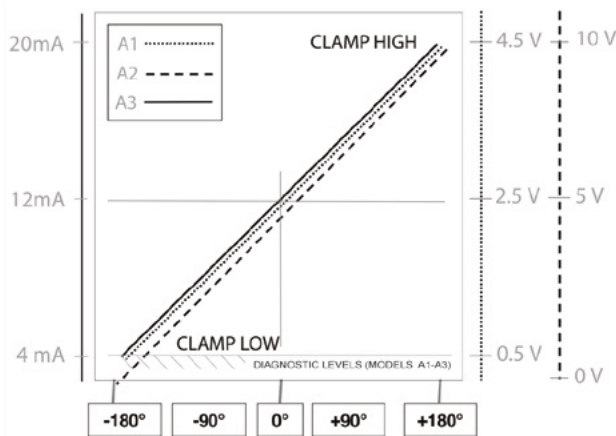
DUAL AXIS INCLINOMETER (XY) – X AXIS



DUAL AXIS INCLINOMETER (XY) – Y AXIS



SINGLE AXIS INCLINOMETER ($\pm 180^\circ$) – Z AXIS



LOAD CONDITIONS

+0.5Vdc...+4.5 Vdc output with supply +10...36Vdc and +0..10Vdc output with supply +11..36Vdc: apply a load resistance > 100kohm

+0.5Vdc...+4.5Vdc output (with supply +5Vdc): apply a load resistance > 100kohm

4..20mA output (with supply < 15 Vdc to 10 Vdc): maximum allowed load resistance is 200 ohm

4..20mA output (with supply > 15 Vdc to 36 Vdc): maximum allowed load resistance is 500 ohm

ORDERING CODE

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

AXIS TYPE	
Dual axis (XY axis)	O
Single axis 360° (Z axis)	V

CIRCUIT TYPE	
Single	S
Redundant	R

OUTPUT 1 MEASURING RANGE (output for single circuit)	
measuring range (indicate) ±10° ±15° ±20° ±30° ±45° ±60° ±85° (single Z axis for analog output-XY dual axis); 360° (±180°) only for single Z axis	XXX

OUTPUT 2 MEASURING RANGE (only for redundant version)	
measuring range (indicate) ±10° ±15° ±20° ±30° ±45° ±60° ±85° (single Z axis for analog output-XY dual axis); 360° (±180°) only for single Z axis	XXX

SUPPLY VOLTAGE	
+5Vdc (only for A1 output)	L
+10...+36Vdc (see output signal for right supply voltage)	H

OUTPUT TYPE	
+0.5...+4.5Vdc (available with supply L = ratiometric output and with supply H = +0.5...4.5Vdc output)	A1
0...+10Vdc (powered at +11...36Vdc)	A2
4...20mA output (powered at +10...36Vdc)	A3
CANopen output (powered at +10...36Vdc)	C1

CABLE	
Cable without connector (always "0" in case of GIG-M version)	0

CERTIFICATES	
0	No certificate enclosed
L	Linearity curve enclosed

ACCESSORIES	
X	No accessory
Y	Magnetic pen (PKIT312) - for single circuit type only

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

EXAMPLE OF DESCRIPTION: GIGFOS030000HA30 000X01

GIG	F	O	S	030	000	H	A3	0	0	000	X	01
	cable output	dual axis XY	single	± 30°	ND	+10...36Vdc	4...20mA output	cable only	no certificate attached	special execution	no accessories	100mm cable

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