

# Special Encoders & Sensors

Sensing range 15°, 30°, 60°, 360°

CANopen / Profibus-DP

## GNAMG



GNAMG with mounting plate 99 x 60 mm

### Features

- Inclination sensor / CANopen / Profibus
- Measuring range two-dimensional: 15°, 30° and 60°
- Measuring range one-dimensional: 360°
- Resolution: 0.001° to 1°
- Precision: ±0.1° to 0.5°
- Programmable parameters
- Protection IP 66

### Optional

- Stainless steel

### Technical data - electrical ratings

Voltage supply	10...30 VDC
Reverse polarity protection	Yes
Consumption w/o load	≤100 mA (24 VDC)
Initializing time (typ.)	250 ms after power on
Interfaces	CANopen, Profibus-DP V0
User address	Rotary switch in bus cover
Measuring range	15°, 30°, 60° (two-dimensional) 360° (one-dimensional)
Resolution	0.001...1° (measuring range 15°) 0.01...1° (measuring range 30°) 0.01...1° (measuring range 60°) 0.1...1° (measuring range 360°)
Accuracy	±0.1° (measuring range 15°) ±0.2° (measuring range 30°) ±0.5° (measuring range 60°) ±0.5° (measuring range 360°)
Build-up time max.	0.5 s
Measuring cycle	10 Hz
Code	Binary
Interference immunity	DIN EN 61000-6-2
Emitted interference	DIN EN 61000-6-4
Programmable parameters	Resolution Preset and offset Moving average filter
Diagnostic function	Parameter error
Status indicator	DUO-LED integrated in bus cover
Approval	UL approval / E63076

### Technical data - mechanical design

Housing	Mounting plate with bus cover
Dimensions mounting plate	99 x 60 x 5 mm
Protection DIN EN 60529	IP 66
Materials	Bus cover: zinc die-cast Mounting plate: aluminium
Operating temperature	-25...+85 °C -40...+85 °C (optional)
Relative humidity	95 % non-condensing
Resistance	DIN EN 60068-2-6 Vibration 10 g, 16-2000 Hz DIN EN 60068-2-27 Shock 200 g, 6 ms
Weight approx.	250 g
E-connection	Cable gland or connector M12

# Special Encoders & Sensors

Sensing range 15°, 30°, 60°, 360°

CANopen / Profibus-DP

GNAMG

## Part number

GNAMG. 0

		<u>Interface</u>
	5P32	CANopen / cable gland
	5PA2	CANopen / connector M12
	3P32	Profibus-DPV0 / cable gland
	3PA2	Profibus-DPV0 / connector M12
		<u>Measuring range</u>
	21	Dual axes ±15°
	22	Dual axes ±30°
	23	Dual axes ±60°
	15	Single axis 360° (no end stop)
		<u>Housing</u>
0		Bus cover with mounting plate 99 x 60 mm

CD with file descriptions is not included in the delivery. You may order them on CD as accessory free-of-charge.

## Accessories

### Connectors and cables (page %S)

Z 180.005	Female connector M12, 5-pin, 5 m cable
Z 180.007	Female connector M12, 5-pin, 10 m cable
Z 181.005	Cable connector M12, 5-pin, 5 m cable Connection M2 / M3, continuative bus

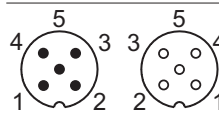
### Programming accessories (page %S)

Z 150.022	CD with describing files & manuals
-----------	------------------------------------

## Terminal assignment

### CANopen – M12 connector

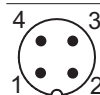
Connector Assignment		Description
Pin 1	GND	Ground connection relating to UB
Pin 2	UB	Voltage supply 10...30 VDC
Pin 3	–	–
Pin 4	CAN_H	CAN bus signal (dominant High)
Pin 5	CAN_L	CAN bus signal (dominant Low)



M12 connector (male / female)  
A-coded

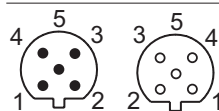
### Profibus – M12 connector

Pin 1	UB	Voltage supply 10...30 VDC
Pin 3	GND	Ground connection relating to UB



M12 connector (male)  
A-coded

Pin 2	A	Negative data line
Pin 4	B	Positive data line



M12 connector (male / female)  
B-coded

Terminals of the same significance are internally connected and identical in their functions. Max. load on the internal terminal connections UB-UB and GND-GND is 1 A each.

# Special Encoders & Sensors

Sensing range 15°, 30°, 60°, 360°

CANopen / Profibus-DP

## GNAMG

### Installation position

#### Measuring range 15°, 30°, 60°



The two-dimensional inclination sensor with a configured range of 15°, 30° and 60° must be mounted with the base plate in horizontal position, i.e. parallel to the horizontal line. The inclination sensor may also be installed upside down, i.e. turned by 180°.

The sensor can be inclined both towards the X and Y axis at the same time. For each axis a separate measured value is provided. Default on delivery the inclination sensor will apply the selected sensing range to both axis, for example ±15° with the zero passage being precisely in the horizontal line.



Default 0°



Measured inclination -30°

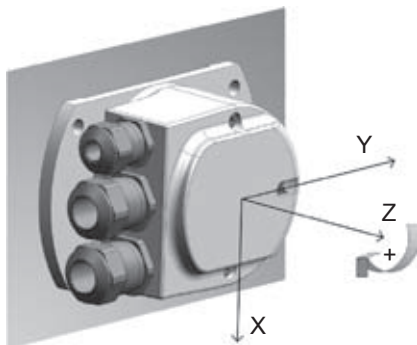


Default 0°



Measured inclination 30°

#### Measuring range 360°



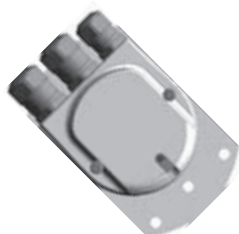
The inclination sensor with a configured range of 360° must be mounted in a way that the X-axis as in the following sketch is directed in a parallel way towards gravity. The deflection may not be more than ±3°.

Please note also that the inclination sensor must evenly touch the contact surface and during inclination/rotation must not be subject to any inclination in X- or Y-direction since this would have a negative impact on the measuring accuracy.

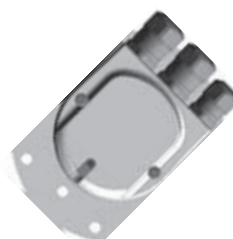
The 360° inclination sensor default position is 0° as shown in the following illustration but may be configured at will by help of the preset function. The measuring direction may also be inverted. Default on delivery the inclination sensor's sensing direction is clockwise from 0...360°, in case of active inversion counter-clockwise.



Default 0°



Measured inclination 45°



Measured inclination 135°



Measured inclination 180°

# Special Encoders & Sensors

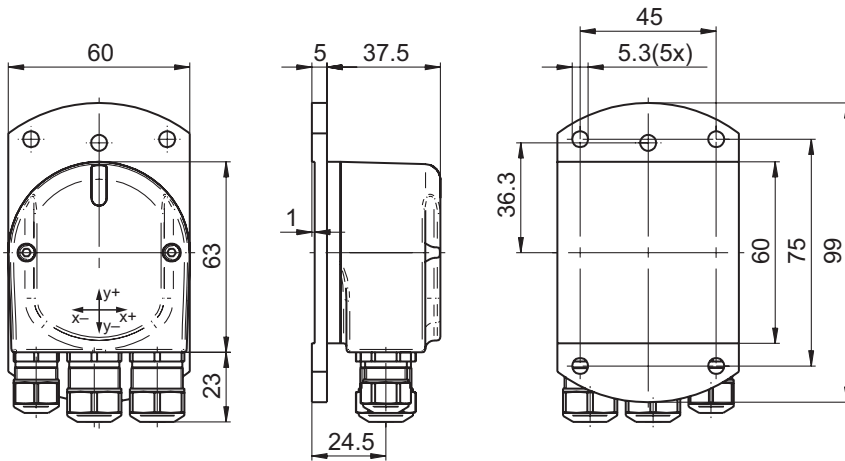
Sensing range 15°, 30°, 60°, 360°

CANopen / Profibus-DP

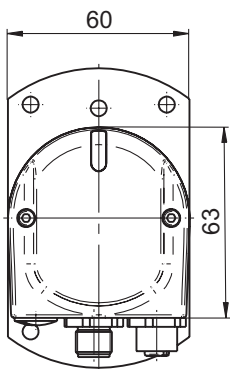
GNAMG

## Dimensions

### GNAMG cable gland



### CANopen connector M12



### Profibus connector M12

