



2W2 Be 149 973 3000-06.02

## Contents

1. Read first and then ...	1
2. Brief description	1
3. Scope of supply	1
4. Specification and ordering information	2
5. Technical data	2
6. Mounting and commissioning	3
7. Dimensional drawings	4

Safety precautions to be strictly observed are marked with following symbols in the Operating Instructions:



## 1. Read first and then ...



The proper and safe operation of the device assumes that the Operating Instructions are **read carefully** and the safety warnings given in the various Section

### 6. Mounting and commissioning

are **observed**.

The device should only be handled by appropriately trained personnel who are familiar with it and authorised to work in control technique installations.

## 2. Brief description

The KINAX 2W2 converts the angular position of a shaft into a **load independent** direct current signal, proportional to the angular position. The unit is contact free and has minimal mechanical abrasion on the input shaft. It technically extends the delivery program of angular transmitters with a programmable version and thus creates a number of new technical application possibilities.

Explosion-proof "**Intrinsically safe EEx ia IIC T6**" version with I.S. measuring output rounds off this series of transmitters.

## 3. Scope of supply

**Transmitter**, one of the six versions (Fig. 1)

**3 clamps** (Fig. 2)

**1 ea. Operating Instructions** (Fig. 3) in English, French, German

**1 Ex approval** (Fig. 3), only for Ex version devices

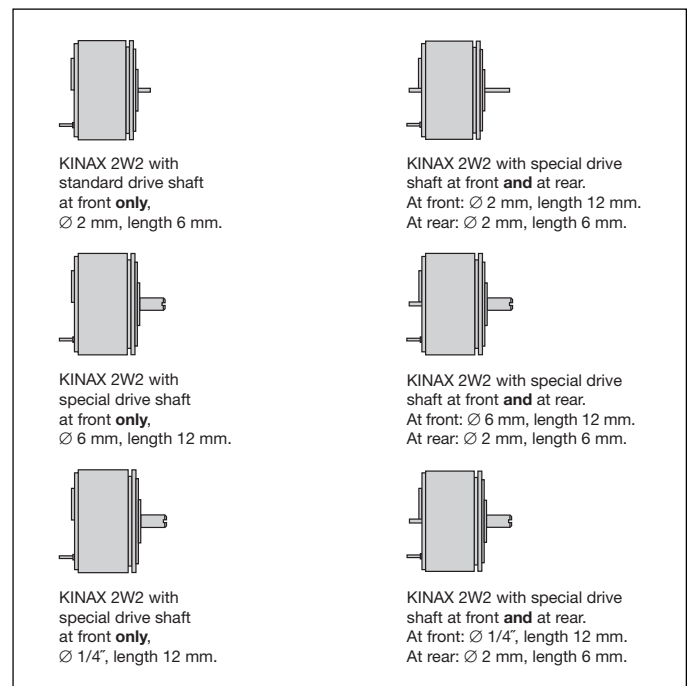


Fig. 1

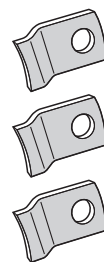


Fig. 2



Fig. 3

## 4. Specification and ordering information

Significance of the digits 1. to 7.

Order Code 760 –	
<b>1. Version of the transmitter</b>	
Standard, Measuring output non intrinsically safe	1
EEx ia IIC T6, CENELEC/ATEX, Measuring output intrinsically safe	2
<b>2. Mechanical angle range</b>	
Angle range, to 50 °	1
Angle range > 50 to 350 °	2
<b>3. Drive shaft</b>	
Standard, dia. 2 mm at front, length 6 mm	1
Special, dia. 2 mm at front, length 12 mm, dia. 2 mm at rear, length 6 mm	2
Special, dia. 6 mm at front, length 12 mm	3
Special, dia. 6 mm at front, length 12 mm, dia. 2 mm at rear, length 6 mm	4
Special, dia. 1/4", length 12 mm	5
Special, dia. 1/4", length 12 mm, dia. 2 mm at rear, length 6 mm	6
<b>4. Output variable</b>	
Current, 4 to 20 mA, 2-wire connection	1
<b>5. Electrical connection</b>	
Connection to soldering terminals	1
Connection to screw terminals	2
<b>6. Test certificate</b>	
Without test certificate	0
Test certificate in German	D
Test certificate in English	E
<b>7. Configuration</b>	
Basic configuration, programmed	0
Programmed to order	1
Programmed to order, with zero position mark on the drive shaft disk	2

### Note

The remaining order code digits concern special features.

## 5. Technical data

### Measuring input $\rightarrow$

Measuring range of rotation angle: Programmable between 0 to 10 and 0 to 50 or 0 to 50 and 0 to 350 °

### Measuring output $\rightarrow$

Output variable  $I_A$ : Load-independent DC current, proportional to the input angle

Standard range: 4 to 20 mA, 2-wire

External resistance (load):  $R_{\text{ext. max.}} [\text{k}\Omega] = \frac{H [\text{V}] - 12 \text{ V}}{I_A [\text{mA}]}$

H = Power supply  
 $I_A$  = Output signal end value

### Accuracy data

Reference value: Measuring span

Basic accuracy: Error limits  $\leq 0.5\%$  with linear characteristic

### Power supply H $\rightarrow$

DC voltage<sup>1</sup>: 12 to 33 V (possible with standard version, non-Ex)  
12 to **30 V** (necessary with **Ex** version, type of protection "Intrinsically safe EEx ia IIC T6")

Max. residual ripple: 10% p.p.

### Material

Housing (main part): Metal (aluminium)  
Surface chromated

### Mechanical withstand

Permissible vibrations: 5 g every 2 h in 3 directions  
 $f \leq 200 \text{ Hz}$

Shock:  $3 \times 50 \text{ g}$   
10 shocks each in 3 directions

Admissible static loading of shaft:

Sense	Drive shafts dia.	
	2 mm	6 mm resp. 1/4"
radial max.	16 N	83 N
axial max.	25 N	130 N

Mounting position: Any

### Regulations

Test voltage: 500 Veff, 50 Hz, 1 min.  
all electrical connections against housing

Housing protection: IP 50 acc. to IEC 529

### Environmental conditions

Climatic rating: **Standard version**  
Temperature -25 to +70 °C  
Annual mean relative humidity  $\leq 90\%$   
or  
**Version with improved climatic rating**  
Temperature -40 to +70 °C  
Annual mean relative humidity  $\leq 95\%$

### Ex version

Temperature -40 to +60 °C at T6  
resp. -40 to +75 °C at T5

Transportation and storage temperature: -40 to 80 °C

<sup>1</sup> Polarity reversal protection. The voltage must not fall below 12 V.

## 6. Mounting and commissioning

### Mechanical mounting

All versions of the transmitter can be mounted either directly or by means of 3 mounting clips to the item being measured. Both methods of mounting and the relevant drilling and cut-out plans can be seen from Table 1.

Table 1:

Mounting versions <sup>1</sup>	Drilling and cut-out diagrams for mounting transmitters
<b>directly</b>	
<b>with 3 clamps</b>	

<sup>1</sup> For the example of KINAX 2W2 with standard drive shaft at front only, dia. 2 mm, length 6 mm.

### Mounting/positioning

Three **M3** screws are needed for the “**directly**” mounted versions and three **M4** screws for those “**with clamps**”. The screws are not supplied, because the required length varies according to the thickness of the mounting surface.



When deciding where to install the transmitter (measuring location), take care that the “**Ambient conditions**” given in Section “5. Technical data” are **not exceeded**.

Angular position transmitters of the KINAX 2W2 range do not require a mechanical zero position mark (however, this is made if required by the customer). After mounting, the transmitter can be moved to any position and configured using the 2W2 software. A power supply connection to the KINAX 2W2 is not required in order to use the 2W2 configuration software (Fig. 4; AUX switch on the PK 610 in the ON position).

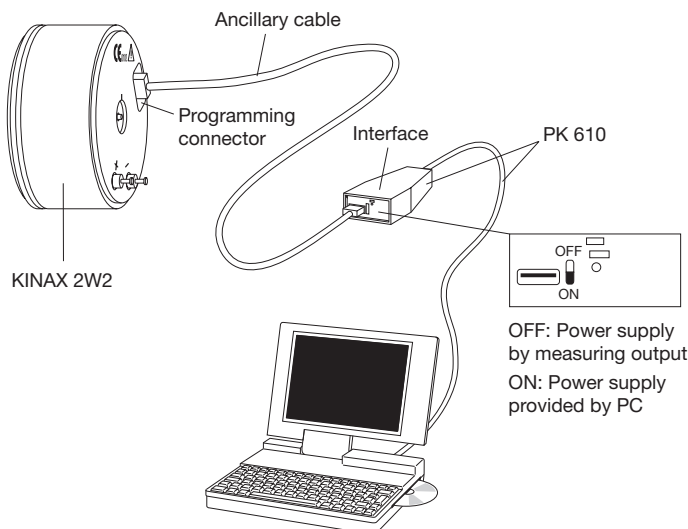


Fig. 4

#### Positioning procedure for the KINAX 2W2

1. Mount the angular position transmitter and mechanically connect it to the object to be measured. Connect the KINAX 2W2 to the programming device according to Fig. 4. Start the 2W2 configuration software. If necessary, configure the device with the required measuring range data.
2. Place the measuring device in a defined position (preferably the zero position).
3. Select the “**Adjustment**” menu item under “**SERVICE**” in den configuration software. In the “**Mechanical position**” window enter the current angle of the measuring device and then select “**Adjust**”. The measuring device is now configured for the defined angle.

### Electrical connections

For connecting the external wires, the transmitter has 2 soldering pins at the back (Fig. 5) or a connecting print with screw terminals (Fig. 6). The soldering posts suffice Protection Class IP 00 acc. to IEC 529.

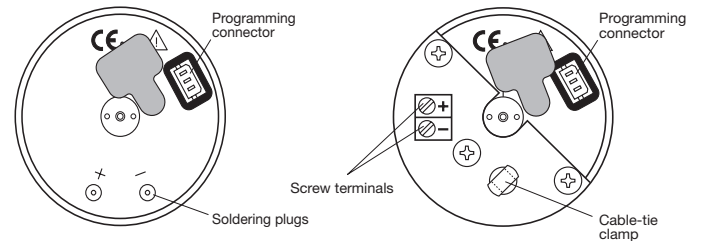


Bild 5

Bild 6



#### Note that, ...

- ... the data required to carry out the prescribed measurement must correspond to those marked on the nameplate of the KINAX 2W2 (Range, Output, Supply Voltage)!
- ... the total loop resistance connected to the output (receiver plus leads) **does not** exceed the maximum permissible value  $R_{ext}$ ! See “**Measuring output**” in Section “5. Technical data” for the maximum values of  $R_{ext}$ !
- ... twisted cores must be use for the measured variable input and output leads and routed as far away as possible from power cables!

In all other respects, observe all local regulations when selecting the type of electrical cable and installing them!

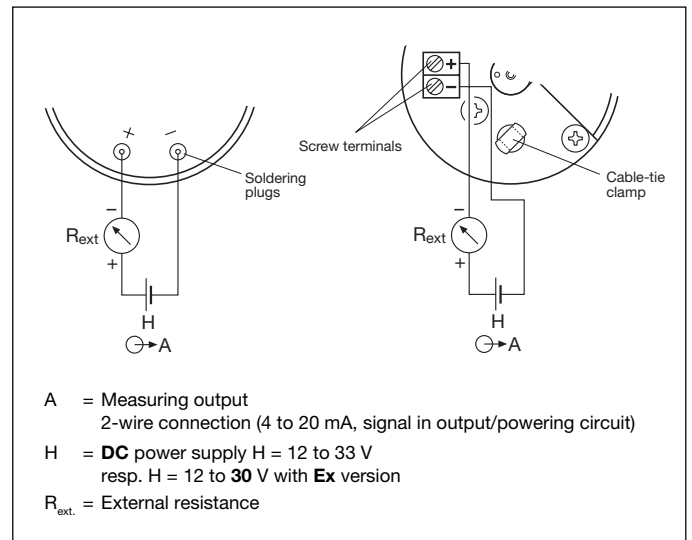
In the case of “**Intrinsically safe**” explosion-proof versions with I.S. measuring output, the supplementary information given on the Ex approval and also local regulations applicable to electrical installations in explosion hazard areas must be taken into account!

<b>KINAX 2W2</b>	Supply Voltage	Range: 0...350°	linear	Camille Bauer AG Aargauerstr. 7 CH-5610 Wohlen Switzerland
Type: 760 - 1211 1D0	12...33V DC	Output: 2-Wire 4...20 mA		
Ord: 000/041678/010/001		Rotation Sense:		

Fig. 7. Example of a nameplate.



Do not **excessively heat** the soldering posts (3)!  
Solder using a **small pencil bit** soldering iron!



- A = Measuring output  
2-wire connection (4 to 20 mA, signal in output/powering circuit)
- H = DC power supply H = 12 to 33 V  
resp. H = 12 to 30 V with Ex version
- $R_{ext}$  = External resistance

Fig. 8. Connection diagrams for 2-wire connection.

## Fine adjustment

The analog output can be finely adjusted using the 2W2 configuration software. Select the menu item **"Adjustment"** under **"SERVICE"**. In the **"Analog output"** window, the zero position and the end value can now be adjusted.

### Procedure:

1. Put the transmitter into operation and connect the programming device according to Fig. 4. (AUX switch on the PK 610 in the OFF position).
2. Place the measuring device in the zero position, i.e. in the position in which the KINAX 2W2 should output 4 mA. Adjust with the **"ZERO"** virtual knob until the output is correct.
3. Place the measuring object in the end position, i.e. in the position, in which the KINAX 2W2 should output 20 mA. Adjust with the virtual knob **"Span"** until the output signal is correct.
4. Close the adjustment with the **"Done"** button.

The adjusting range of the zero position and span is 5%. If this range is not sufficient, the span can be adapted by changing the mechanical characteristics (increase/decrease the measuring span).

## Simulation mode

The 2W2 configuration software supports the operation of the KINAX 2W2 in simulation mode. The simulation of the measured value allows the subsequent chain of devices to be tested during the installation phase.

### Procedure:

1. Select the **"Simulation"** menu item under **"Service"** in the configuration software.
2. The window displays the device configuration. After the entry of the required angle, the analog output is set in accordance with the device configuration.

## 7. Dimensional drawings

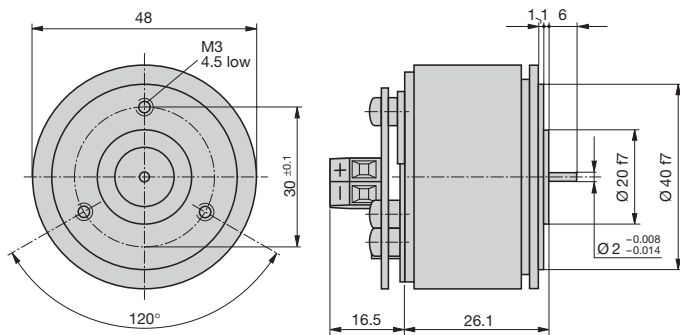


Fig. 9. KINAX 2W2 with standard drive shaft at front **only**, Ø 2 mm, length 6 mm, screw terminal version.

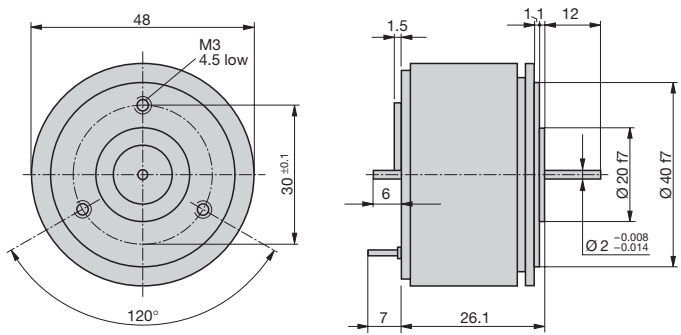


Fig. 10. KINAX 2W2 with special drive shaft at front **and** at rear. At front: Ø 2 mm, length 12 mm. At rear: Ø 2 mm, length 6 mm.

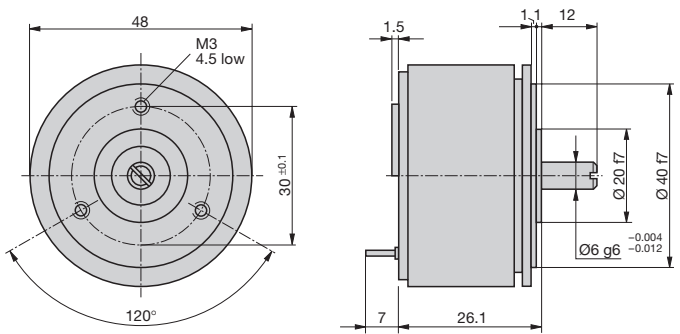


Fig. 11. KINAX 2W2 with special drive shaft at front **only**, Ø 6 mm, length 12 mm.

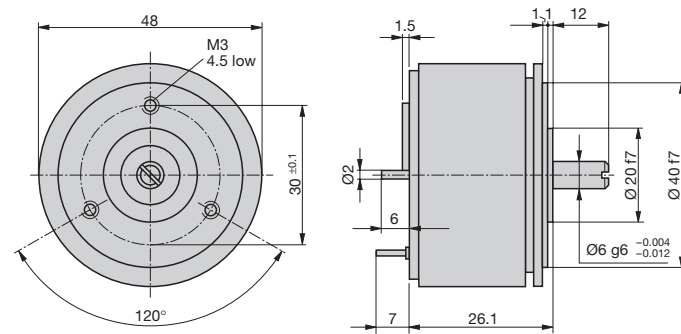


Fig. 12. KINAX 2W2 with special drive shaft at front **and** at rear. At front: Ø 6 mm, length 12 mm. At rear: Ø 2 mm, length 6 mm.

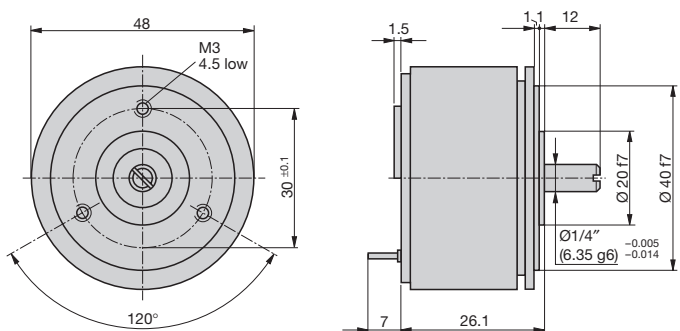


Fig. 13. KINAX 2W2 with special drive shaft at front **only**, Ø 1/4", length 12 mm.

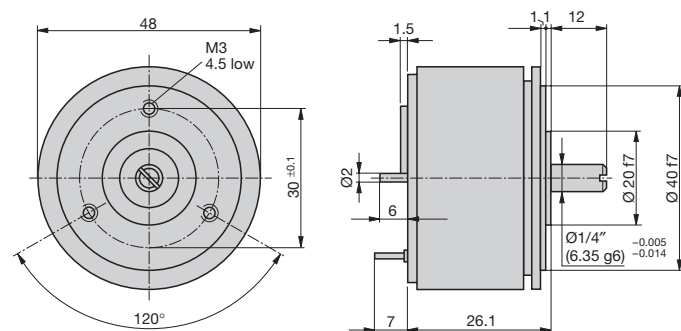


Fig. 14. KINAX 2W2 with special drive shaft at front **and** at rear. At front: Ø 1/4", length 12 mm. At rear: Ø 2 mm, length 6 mm.