

**OPF angle transmitter**

It is a non contact photoelectric potentiometer, which is developed as a servo systems.

The mechanical design secures the friction resistance are kept on a very low level altogether with a unique linearity. The repeatability is less than 1% on the full range (270 <math>^{\circ}</math>).

The unique sensing system in the OPF secures a reliable measuring signal even under extreme conditions such as high vibration level repeated cycles over the same working area.



**Connection – and adjustment guide**

The terminals on the OPF are meant for soldering. Supply line (+) connect to “2”, the signal line (-) Are connected in series with the load resistance  $R_L$  Which can achieve the following value:

$$R_L \text{ max} = \frac{V_{CC} - 14V}{20 \text{ mA}}$$

Note: The supply voltage at 20 mA Load

The following main measuring areas can be changed by means of the jumper as shown on the sketches.



**The potentiometer:**

The OPF can be adjusted for zero and span on top of the cover.

CWW

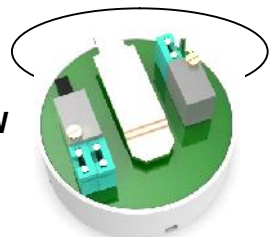


**The jumpers**

When loosen the screw on the side of the cover the two jumpers to change the direction and main measuring area.

To change the direction, the double jumpers are replaced as shown on the sketch. (CW and CCW ).

CWW



Agent/Dealer:

## Mounting

The OPF is mounted directly with the axels which are shown or it can be mounted on a fixture like the one on the sketch.

## The mechanical 0-adjustment

The axel are adjusted roughly when the OPF is fixed to the object, for the (0-dot) on the axel to be aligned to the dot on the housing.

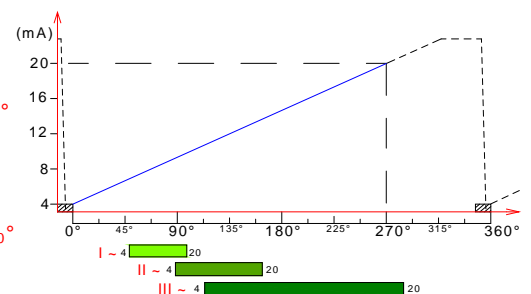
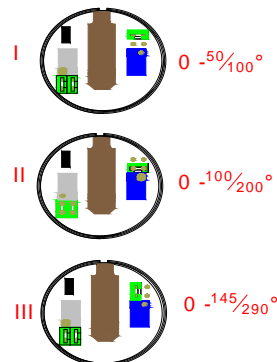


## Electronic adjustment

After the electric connection is made, the fine adjustment can be performed. 0-point adjustment is made by means of the ZERO-screw when the axel-adjustment is 4 mA and the rotating-angle is 0°.

The measuring area is adjusted by turning the SPAN screw in order for the current signal to be 20 mA at the wanted max rotating angle.

It can be necessary to repeat the adjustment a couple of times to achieve the precise values 4-20mA.



4mA is found on two areas on a turning direction.

Check that the 4 mA signal works in accordance with the “correct” 0 point.

Turn the axel in the chosen direction and make sure that the rising signal is linear from 4mA at 0° and 20 mA at the chosen axel position.

If the signal is rising or falling rapidly the 0-point are to adjusted again according to the former instruction.

## Precautions when mounting in explosive areas

The OPF angle transmitter carry the following specifications:

CE 0044 II 1 G Ex ia IIC T6 Ga

-20° C Tamb +40° C

OPFEX-4-2-P ITS11ATEX27383X

IECEX ITS 11.0045X

Ui = 28V li = 100mA Pi = 0.66W Ci = 38nF Li = 840μH

Tempress A/S – Nordlandsvej 64-66 – DK8240 Risskov

Intrinsic safety Ex i.a (IEC approval)

Flameproof Ex d



II 1 G Ex ia IIC T6 Ga (ATEX approval)

## Intrinsic Safety Parameters:

The use of the OPF transmitter in Ex environment must follow the given rules:

The transmitter must only be used together with an approved power supply or Zener barrier, which is placed outside the specified area.

The transmitter is used when the min. IP protection is "20".

Serial No. and production date are placed in the cover.

When repair is needed, the OPF must be sent to Tempress Denmark.

## The geometric measurements



## Power supplies

The following equipment can be used for power supply of the OPF, in that respect other makings may be approved for the purpose which is beyond our responsibility what so ever.

The companies:

Stahl, Ispac 9160/12-11-11s

Pepperl+Fuchs KFDO-CS-Ex1.50P

Phoenix 2924029 MACX MCR-EX-SLRPSSI-UP-SP.