Inductive Transducers

11
Product group

A WE X

Application

The inductive transducer is a linear system for measuring travel. It can either be flanged to a solenoid or to any other object to be measured. The core, which can be moved within the coils, has to be connected to the object to be measured via the threaded pin. Special features of MSM transducers are high resolution, good linearity and long service life.

In connection with control electronics and a proportional solenoid you get a complete travel-control system. Mounting by centre thread. For applications under pressure, sealing between pressure-tight tube and the solenoid or valve through O-ring.

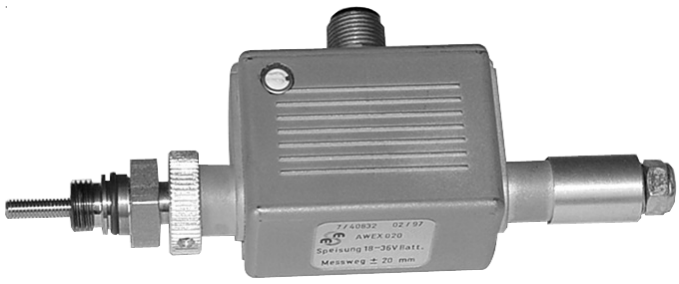

Fig. 1: Type A WE X 020 A01

Function

Function of the inductive transducer is based on the principle function of a differential transformer. The electronics integrated in the device supply the primary coil, evaluate the voltage induced in the secondary coils and provide a defined output signal.

Design features

- Suitable for dry and pressure-tight applications.
- Pressure-tight tube, designed for 350 bar static pressure.
- Centre mounting via hexagonal flange with srew-in thread
- Transducer housing made of plastic reinforced with glass fibre, encapsulated with cast resin
- Electrical connection and protection rating if mounted properly:
  - Connection with built-on plug by Messrs. Binder M 12 x 1 – 713 series
  - Protection rating to VDE 0470/EN 60529 – IP 54
- Mechanical zero-point adjustment via knurled nut
- Threaded pin for fastening the core to the object to be measured
- EMC: EMC guideline 89/336/EWG

Technical data

A WE X 020 A01	
Measuring path	± 20 mm
Supply voltage	18 V ... 36 V, ripple < 10 %
Current consumption	< 50 mA
Sensitivity	175 mV/mm, ± 1 % in the range of ± 8 mm
Tolerance of the output voltage at stroke + 8, - 8 and 0 mm	± 1 % ± 0.028 V (υ_{11} = 20° C, U_N = 36 V, 100 kΩ resistance)
Ambient temperature	- 20°C ... + 55°C
Temperature drift of output voltage	< + 0.05 % / °C
Output voltage	2.5 V ... 9.5 V
Maximum output load	
Load resistance	short-circuit proof
Inductive load	10 mH
Capacity load	100 nF
Declaration of conformity	DC 009406

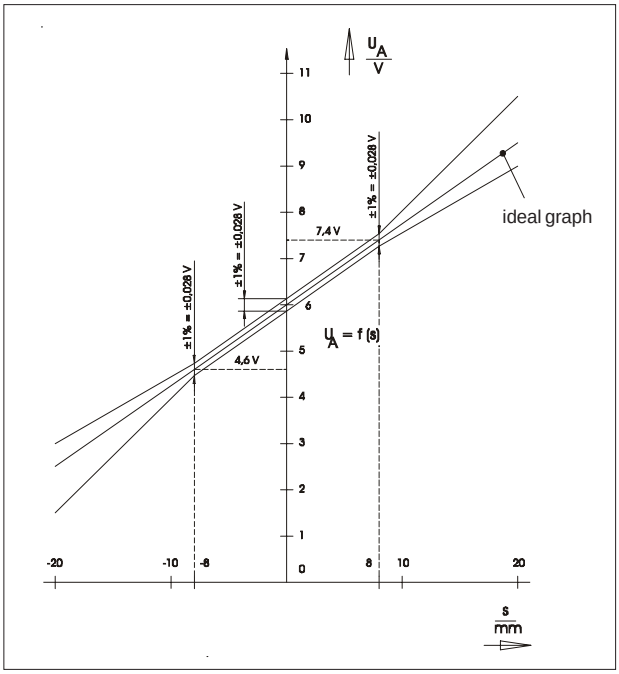

Fig. 2: graph A WE X 020 A01

Sensitivity

Sensitivity is the change in the output signal with reference to the change in the measuring path (indicated in V/mm).

$$\text{Sensitivity} = \frac{\Delta U}{\Delta s}$$

Linearity error

The linearity error indicates the deviation of the output signal from the ideal graph in per cent.

$$\text{Deviation}_{Lin} = \frac{(U_{actual} - U_{nominal})}{U_{voltage\ stroke}} \times 100\ \%$$

Temperature drift

Temperature drift indicates in per cent the deviation of the output signal per degree of temperature change (shown in % / °C).

$$\text{Deviation}_{Temp.} = \frac{(U_{Temp} - U_{20^\circ C})}{U_{voltage\ stroke} \times \Delta T} \times 100\ \%$$

Note on the technical harmonisation guidelines within the EU: CE

The device has been EMC tested and conforms with the regulations of EU guideline 89/336/EWG.

On request, conformance with standards can be confirmed.

High-voltage test: Short-circuited connector pins (1, 2, 3, 4) against housing (pin 5) to DIN VDE 0580.

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Dimensions sheet

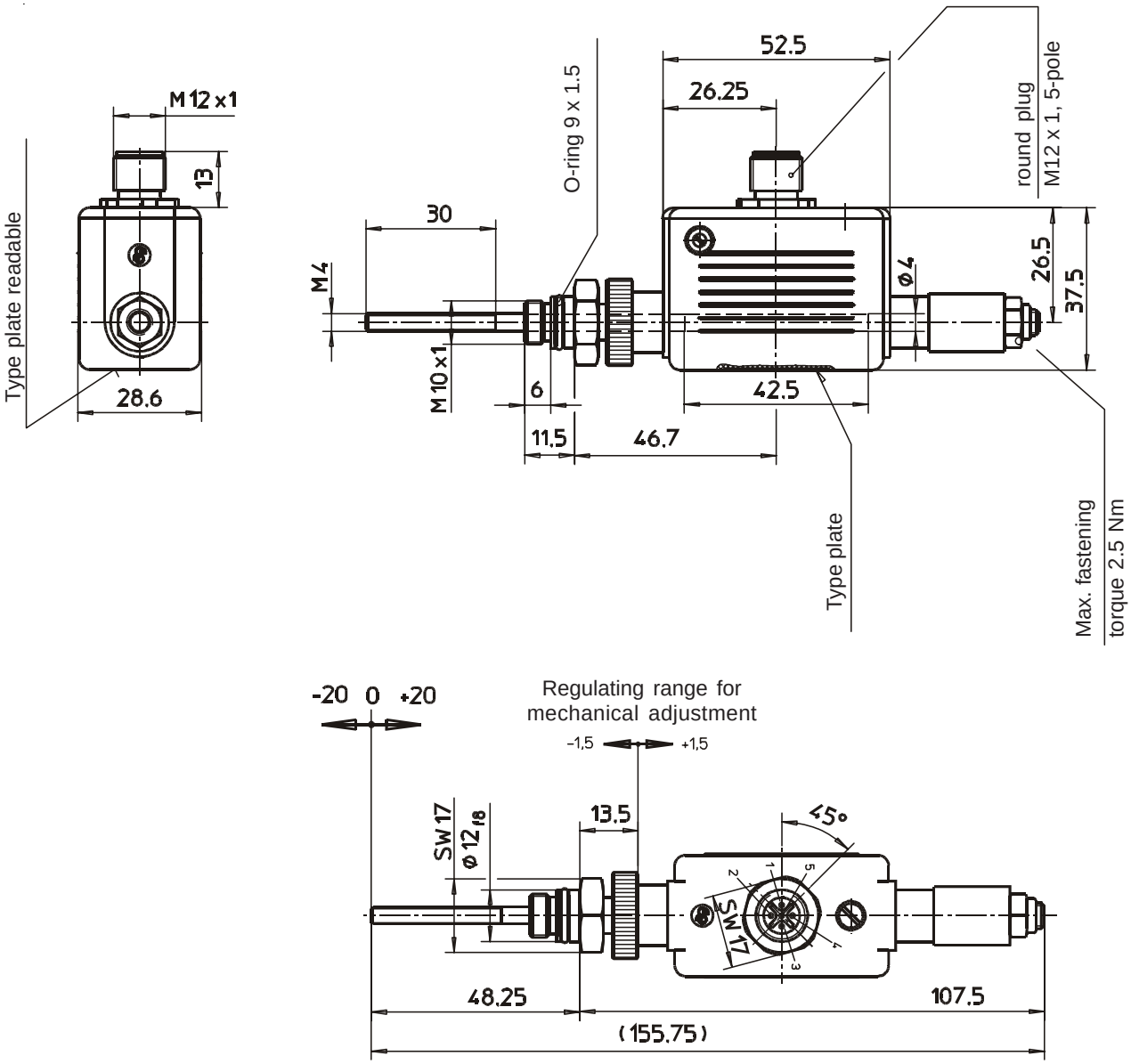

Fig. 3: Type A WE X 020 A01

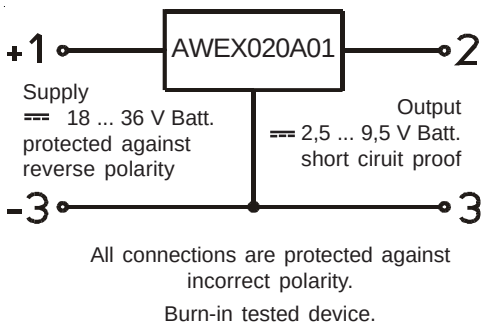

Fig. 4: wiring diagram A WE X 020A01

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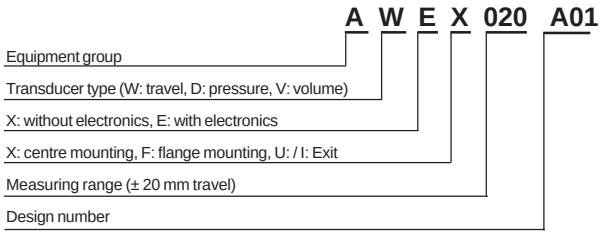
Type code



Order Example

Type A WE X 020 A01

Specials

Please do not hesitate to ask us for application-oriented problem solutions. In order to find rapidly a reliable solution we need complete details about your application conditions. The details should be specified as precisely as possible in accordance with the relevant - technical explanations.

If necessary, please request the support of our corresponding technical office.