

Inductive transducers

11

Product group

A WE X

Application

The inductive transducer is a linear stroke measuring system. It can both be flange-mounted at a solenoid and at other measuring objects. The core which can be moved inside the coils has to be connected to the measuring object via a threaded rod. The MSM transducers are characterized by high resolution, good linearity and long service life.

If the sensor is coupled to a control electronic system and a proportional solenoid, a complete stroke control system is created. Fastening is made with central thread. For applications under pressurisation the sealing between the pressure-tight tube and the solenoid or valve is made through an o-ring.

Function

The function of the inductive transducer bases on the principle of the 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.

Construction characteristics

- Suitable for dry and pressure-tight applications
- Pressure-tight tube, designed for 350 bar static
- Central mounting via hexagon flange with thread
- Transducer housing made of glass fibre reinforced plastic, encapsulated with casting resin
- Electrical connection and protection class for duly executed mounting:
 - connection via surface-mounted plug Messrs. Binder M12 x 1 series 713
 - Protection class according to DIN VDE 0470 / EN 60529 – EP 54
- (Mechanical) Zero adjustment via knurled nut
- Threaded rod for fastening the core with the measuring object
- EMC directive: EMC directive 2004 /108 EC
- Design according to ATEX: on request



Fig. 1: Type A WE X 020 A01



Technical data

A WE X 020 A01		
Measurement 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 of + 8, - 8 and 0 mm	$\text{Abw.} = \frac{ \text{Target value} - \text{actual value} }{U_{\text{Voltage stroke}}} \cdot 100\%$ ± 1 % ± 0.028 V ($U_{11} = 20^\circ \text{C}$, $U_N = 36 \text{ V}$, 100 kΩ load)	
Ambient temperature	- 20°C ... + 55°C	
Temperature drift of output voltage	< + 0.05 % / °C	
Output voltage	2.5 V ... 9.5 V	
Max. output load	Short-circuit proof	
Ohmic load		10 mH
Inductive load		100 nF
Capacitive load		
Declaration of conformity (EMC)	DC 009406	

Sensitivity

The sensitivity is the change of the output signal referring to the change of the measurement path (indicated in V/mm)

$$\text{Sens.} = \frac{\Delta U}{\Delta s}$$

Tolerance of the output voltage

The tolerance of the output voltage indicates the deviation in per cent of the output signal of the ideal straight line.

$$\text{Dev.}_{\text{Lin}} = \frac{(U_{\text{actual}} - U_{\text{target}})}{U_{\text{voltage stroke}}} \times 100 \%$$

Temperature drift

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

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

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

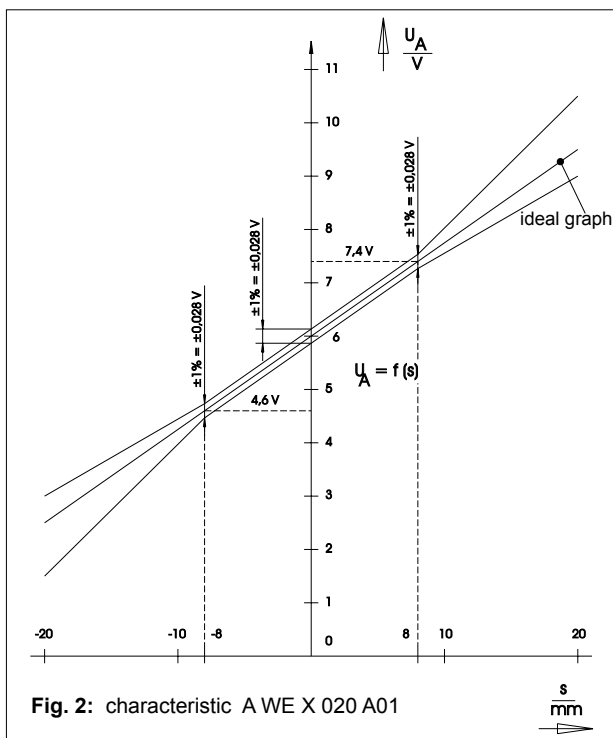


Fig. 2: characteristic A WE X 020 A01

Dimensional drawing

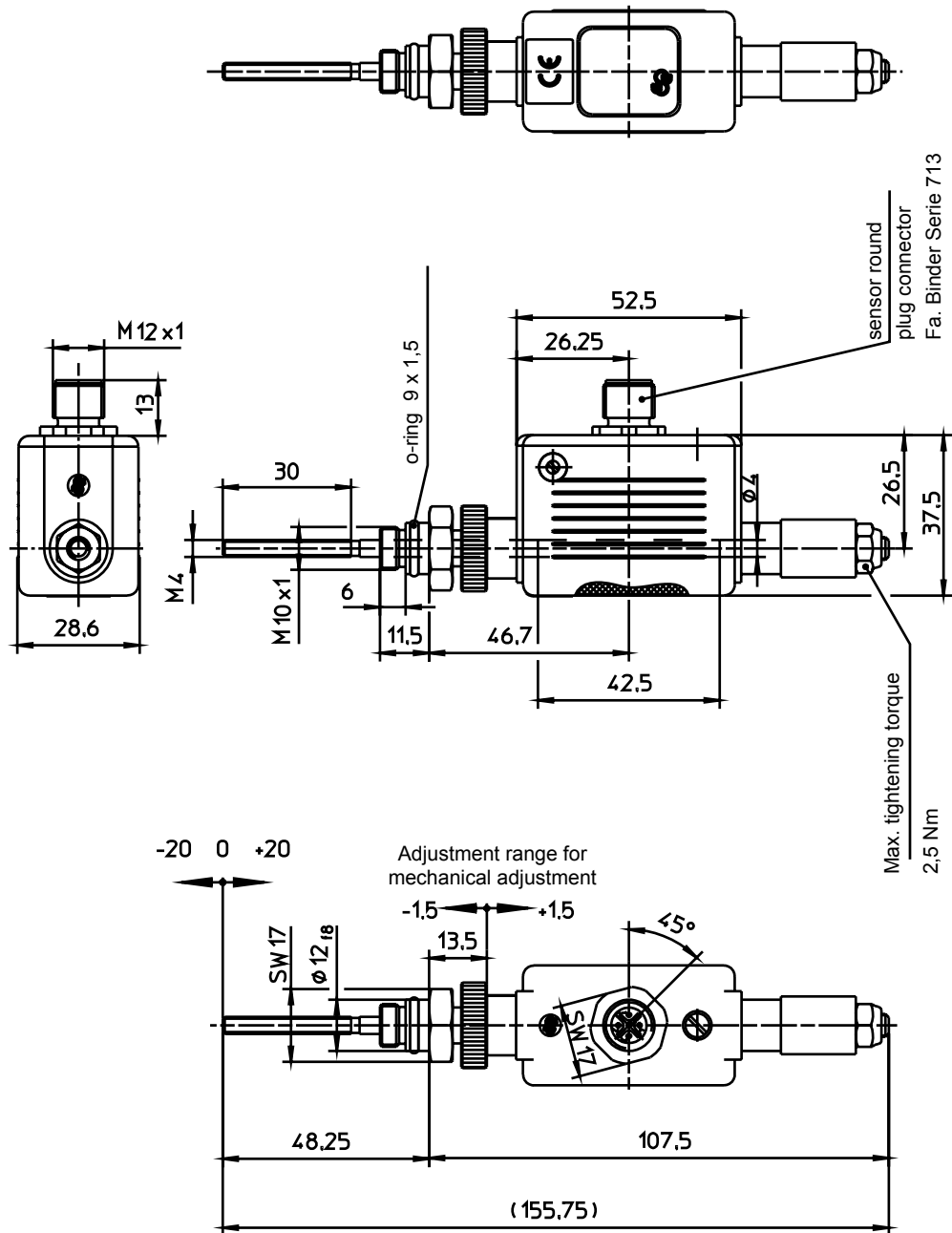
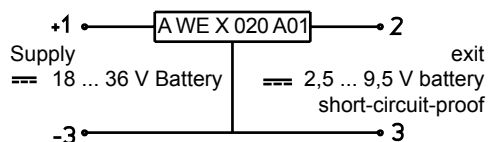


Fig. 3: Type A WE X 020 A01




All connections protected against accumulation errors
Device burn-in tested

Fig. 4: block diagram A WE X 020 A01



This part list is a document for technically qualified personnel. The present publication is for informational purposes only and shall not be construed as mandatory illustration of the products unless otherwise confirmed expressly.

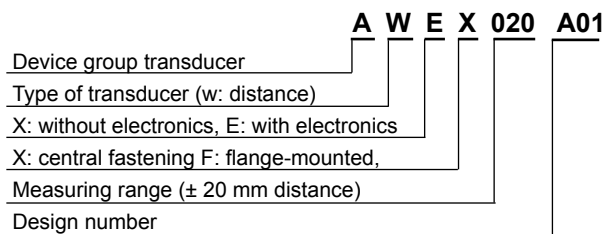
Please make sure that the described devices are suitable for your application. Supplementary information concerning its duly assembly can be found also in -Technical Explanations, in the effective DIN VDE0580 as well as in the relevant specifications.

Information and remarks concerning European directives can be taken from the correspondent information sheet which is available under *Produktinfo.Magnet-Schultz.com*.

Note on the RoHS Directive

The devices presented in this document do not fall into the scope of RoHS Directive and to our knowledge they do not become part of products which fall into this scope. In case of surfaces zinc coating with yellow chromating and zinc iron with black chromating separate agreements are necessary for applications within the scope of RoHS.


Type code



Order examples:

Type A WE X 020 A01

Specials designs

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.