AUMA EM7.005
Electronic Position Transducer

Supplement operating instructions for DREHMO actuators with electronic position transducer

Part No. 385981
Revision 1.00
Date: 02.09.2020

Installation instructions
Operating instructions
Service instructions
for electronic position transducer

NOTE
This instruction is part of the supply and should be kept for future use.

DREHMO GmbH
Zum Eichstruck 10
57482 Wenden / Germany
Phone: 02762 9850-206
Fax: 02762 9850-210
Internet: www.drehmo.com
eMail: drehmo@drehmo.com

1 Application

The EM7.005 electronic measuring amplifier converts – with the aid of a precision potentiometer with protection IP 65 as pick-up – the mechanical dimension of distance or angle of rotation linearly into an impressed DC signal.

Thus the distances travelled or positions reached by DREHMO actuators can be displayed directly, even over long lines, as an appropriate current value on an indicating instrument.

2 Version

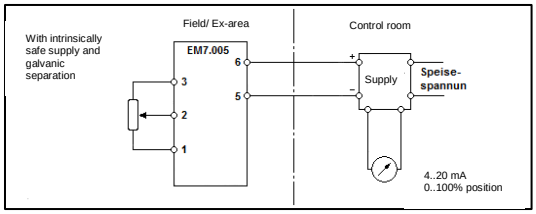
The offset potentiometer is used to adjust the 4 mA start value of the current signal for the end stop CLOSE.
The amplifying potentiometer allows setting of the 20 mA current signal corresponding to travel distance in the range from 45 %...100 %.
The current-distance characteristic can be reversed by exchanging connections 1 and 3.

When using the explosion-proof version (type EM7.005) of the electronic position transducer, the current valid standards for the installation of intrinsically safe circuits must be followed without fail (DIN EN 60079-14 / VDE 0165 Teil 1).

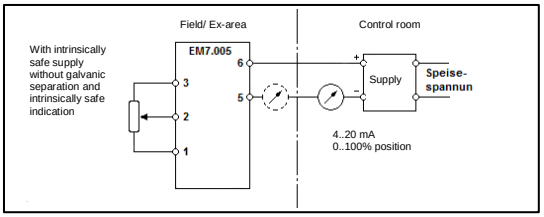
3 Connection details

Explosion-proof version type EM7.005

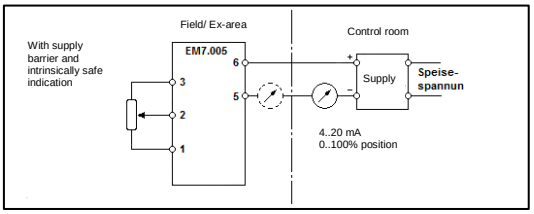
Explosion-proof type EM7.005: Ex ib IIC T4 applicable for zone 1



Picture 3.1:
Intrinsically safe supply and galvanic separateion



Picture 3.2:
Intrinsically safe supply without galvanic separation



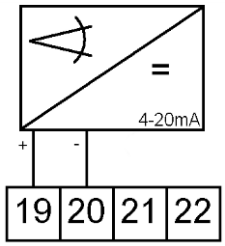
Picture 3.3:
Supply barrier and intrinsically safe indication

4 Notes for application

1. To set up the electronic position transducer, remove the DREHMO actuator limit switch compartment cover. The reduction gear or pick-off gear resp. has to be set to suit the valve stroke. (See installation instructions for DREHMO actuators.)
2. Explosion-proof type EM 7.005: Connect the intrinsically safe supply unit and intrinsically safe indicating instrument as shown in the connection diagram.
3. Connect the electronic position transducer as 2- wire system. See schematic diagrams of current flow, page 3.
4. The indication instrument has to indicate 3.95…4.0 mA at valve end position CLOSED. This can be adjusted using the offset potentiometer (factory setting is 4 mA).
5. In the valve end position OPEN use the amplifying potentiometer to adjust the current value to 20 mA.

5 Electircal connection

2-wire-system

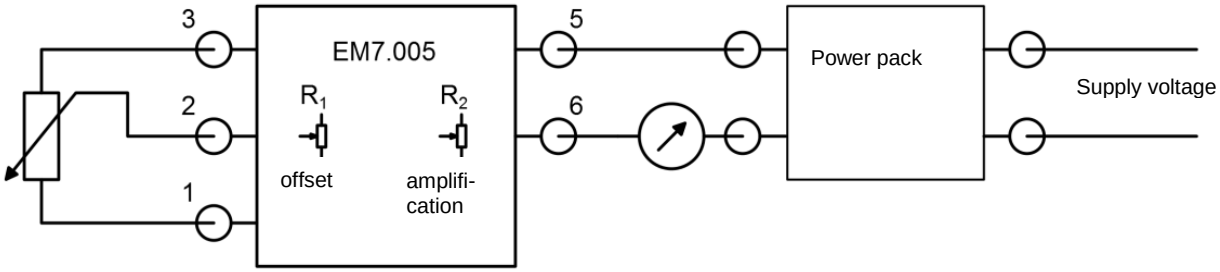


Actuators with wiring diagram KD 102 are connected as follows using an EM7.005 with max. 28.5 V intrinsically safe supply.

Picture 5.1:
Connection of EM7.005

6 Schematic Diagrams of Current Flow

2-wire-system



Picture 6.1: Current flow diagram EM7.005

7 Technical Data

	Typ EM 7.005 **2-wire-system only**
Ignition enclosure type	II 2G Ex ib IIC T4
Temperature range	Refer to name plate

transducer

Precision potentiometer

Slider	precious metals, spinning
Mechanical life	Ca. 50 x 10^6 axis movements
Linearity	± 0.3%
Resolution error	< 0.01°
Measuring range	293°

Electronic section

Output current[1]	4…20 mA
Operating voltage[1]	+10…+28.5 V
Max. short circuit current[1]	<200 mA
Permissible load	$R_{Load} = \frac{U_{opperation} - 10\ V}{0.02\ A}$
Potentiometerresistance	5 kΩ
External capacitance inductance	C_i: ≈ 0F L_i: ≈ 0H
Temperature drift	$< \frac{0.1‰}{K}$
Effect of altering operating voltage	≤0.1%
Effect of altering voltage	≤0.1% ($R_{Load} = 0 \dots 600\Omega$)
Power P[1]	≤0.9 W

Table 7.1:Technical Data

[1] Power supply via an Intirnsically safe power adapter (Ex ia or Ex ib) with certificate according to technical data of EM7.005.