

Position Transducers with restoring spring 10, 25, 50, 75, 100 mm

Series TR
Series TRS

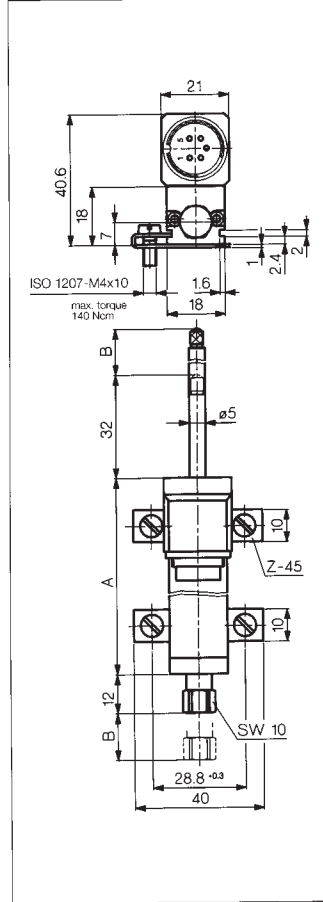
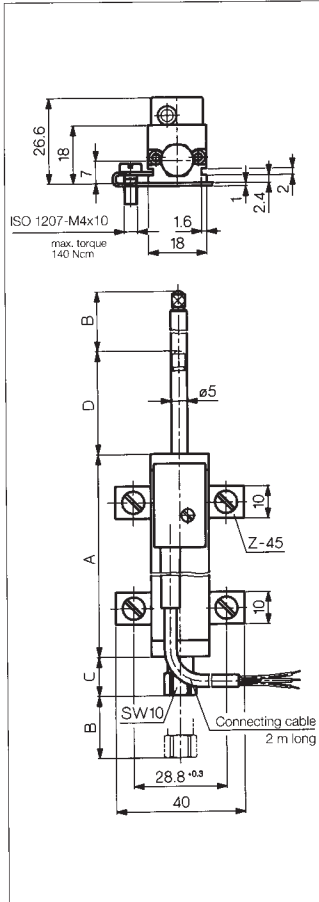


Special features

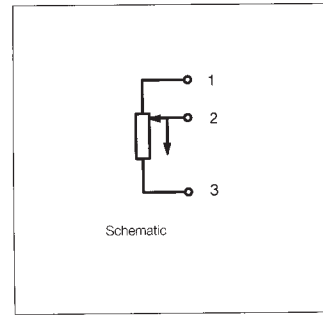
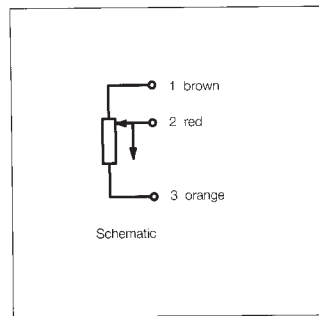
- long life - 100×10^6 operations
- outstanding linearity - up to 0.075 %
- choice of plug or cable connection
- DIN standard gauging end
- double bearing system on shaft
- insensitive to shock and vibration

Position sensors employing conductive-plastic resistance and collector tracks provide direct means of measuring position or profile, without the need of any form of solid mechanical coupling.

An important and special feature of these particular units is their robust, industry-proven method of construction. Of particular significance is the double bearing arrangement which really comes into its own when side forces (such as would be experienced in a cam-following application) are met. The rear end of the actuator shaft has a special collar fixed to it which can be very easily employed where automatic retraction by means of air cylinders or solenoid is required.

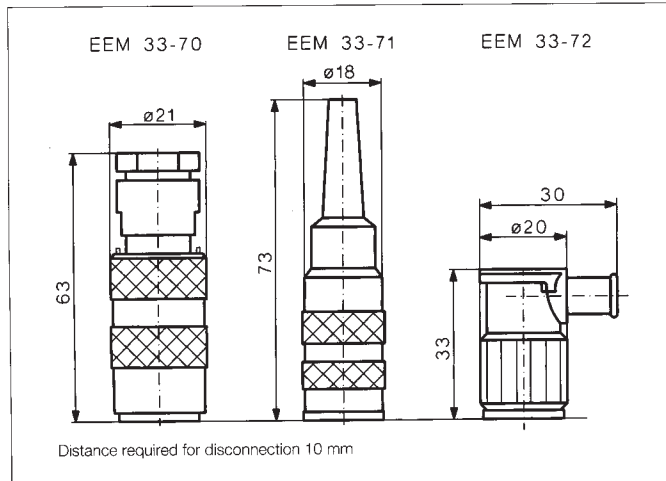


| Description | |
|------------------------|--|
| Housing | aluminium, anodized |
| Actuating shaft | stainless steel with anti-rotation device, inside thread M 2.5 |
| Fixings | adjustable clamps |
| Gauging head | stainless steel with external M 2.5 thread and hardened ball point |
| Bearings | both ends in DU sleeves |
| Resistance element | conductive plastic |
| Wiper assembly | precious metal multi-finger wiper, elastomer-damped |
| Electrical connections | 3core stress-relieved, shielded cable, 2 m plug and socket |



| Type designations | TR 10 | TR 25 TRS 25 | TR 50 TRS 50 | TR 75 TRS 75 | TR 100 TRS 100 | with cable with plug |
|--|------------|-----------------|-----------------|-----------------|-------------------|-------------------------|
| Electrical Data | | | | | | |
| Defined electrical range | 10 | 25 | 50 | 75 | 100 | mm |
| Nominal resistance | 1 | 1 | 5 | 5 | 5 | k Ω |
| Resistance tolerance | 20 | | | | | \pm % |
| Independent linearity | 0.25 | 0.2 | 0.15 | 0.1 | 0.075 | \pm % |
| Repeatability | 0.002 | | | | | mm |
| Recommended operating wiper current | <1 | | | | | μ A |
| Max. wiper current in case of malfunction | 10 | | | | | m |
| Max. permissible applied voltage | 42 | | | | | V |
| Effective temperature coefficient of the output-to-applied voltage ratio | typical 5 | | | | | ppm/ $^{\circ}$ C |
| Insulation resistance (500 VDC, 1 bar, 2 s) | \geq 10 | | | | | M Ω |
| Dielectric strength (50 Hz, 2 s, 1 bar, 500 VAC) | \leq 100 | | | | | μ A |
| Mechanical Data | | | | | | |
| Length housing (dimension A) | 48 | 63 | 94.4 | 134.4 | 166 | +1mm |
| Mechanical stroke (dimension B) | 15 | 30 | 55 | 80 | 105 | \pm 1.5 mm |
| Dimension C (at TR) | 7 | 12 | 12 | 12 | 12 | mm |
| Dimension D (at TR) | 21 | 32 | 32 | 32 | 32 | mm |
| Weight with cable | 80 | 120 | 150 | 180 | 200 | g |
| with plug | | 74 | 100 | 128 | 150 | g |
| Weight of the actuating shaft with coupling and wiper block | 18 | 25 | 36 | 48 | 57 | g |
| Operating force (horizontal) | \leq 5 | | | | | N |
| Operating frequency max. (In critical applications mount the transducer with the gauging head upwards.) | 20 | 18 | 14 | 11 | 10 | Hz |
| Maximum permitted torque for fixing screws | 140 | | | | | Ncm |

| | | |
|---------------------------|------------------------------|--------------|
| Environmental Data | | |
| Temperature range | -30...+100 | $^{\circ}$ C |
| Vibration | 5...2000 | Hz |
| | A_{\max} = 0.75 | mm |
| | a_{\max} = 20 | g |
| Shock | 50 | g |
| | 11 | ms |
| Life | > 100 x 10 ⁶ | operations |
| Protection class | IP 40 (DIN 400 50 / IEC 529) | |



| Order designations | |
|--------------------|---------|
| Type | Art.no. |
| TR 10 | 002360 |
| TR 25 | 002361 |
| TRS 25 | 002371 |
| TR 50 | 002362 |
| TRS 50 | 002372 |
| TR 75 | 002363 |
| TRS 75 | 002373 |
| TR 100 | 002364 |
| TRS 100 | 002374 |

Included in delivery

2 fixing clamps Z-45 incl.
4 screws M4x10,
1 gauging head with hardened ball point

Recommended accessories

Plug type EEM 33-70, protection class IP 65
Plug type EEM 33-71, protection class IP 40
Plug type EEM 33-72, protection class IP 63
1 roller head Z 50
Process-controlled indicators MAP... with display,
Signal conditioner MUP.../
MUK ... for standardized output signals

Important

All the values given in this data sheet for linearity, lifetime, micro-linearity, resistance to external disturbances and temperature coefficient in the voltage dividing mode are quoted for the device operating with the wiper voltage driving on operational amplifier working as a voltage follower, where virtually no load is applied to the wiper ($I_e \leq 1 \mu A$).

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