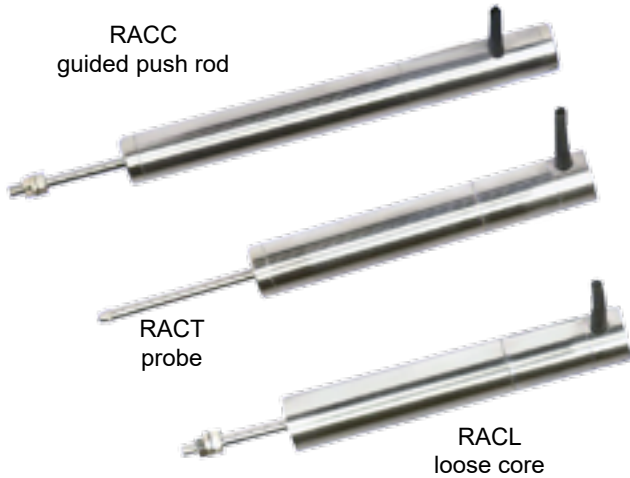


Data Sheet for Linear Sensors



Inductive (LVDT) linear transducer

Series RAC



- Measuring lengths of 25..940 mm
- Wide temperature range -50 °C up to 125 °C
- Voltage output
- In 3 designs
 - C-version with guided push rod
 - T-version with spring return and probe
 - L-version with loose core

The inductive displacement sensors of the RAC series are available in three versions: with free or guided push rod and as a probe with spring return.

| Electrical Data | RAC | | | | | | | | | |
|---|--|-----------|-----------|-----------|---------|----------------|---------|-------|---------|---------|
| | T / L / C | T / L / C | T / L / C | T / L / C | L / C | L / C | L / C | C | C | C |
| | 25 | 50 | 100 | 150 | 200 | 300 | 400 | 500 | 750 | 940 |
| Effective electrical travel middle position 1.) in mm | ±12.5 | ±25 | ±50 | ±75 | ±100 | ±150 | ±200 | ±250 | ±375 | ±470 |
| Independent linearity (best straight line) 1.) | ±0.5% (±0.25%, ±0.1%) | | | | | ±0.5% (±0.25%) | | | ±0.5% | |
| Output signal | 0.7 V/V | 0.9 V/V | 1.5 V/V | 1.5 V/V | 3.2 V/V | 2.4 V/V | 1.5 V/V | 2 V/V | 3.2 V/V | 3.6 V/V |
| Theoretical resolution 1.) | Nearly infinite | | | | | | | | | |
| Backlash (Hysteresis) 1.) | < 0,01 mm | | | | | | | | | |
| Supply voltage | nom. 5 V rms, 5 kHz (0.5..7 V rms, 2..10 kHz) | | | | | | | | | |
| Output load | 100 kOhm | | | | | | | | | |
| Temperature coefficient | ±0.01 % F.S./°C | | | | | | | | | |
| Ripple | 5 kHz | | | | | | | | | |

| Mechanical Data, Environmental Conditions, Miscellaneous | RAC | | | | | | | | | |
|---|----------------------|-----------|-----------|-----------|-------|-------|-------|-----|-----|-----|
| | T / L / C | T / L / C | T / L / C | T / L / C | L / C | L / C | L / C | C | C | C |
| | 25 | 50 | 100 | 150 | 200 | 300 | 400 | 500 | 750 | 940 |
| Mechanical stroke 1.) | see drawing | | | | | | | | | |
| Lifetime (90% effective electrical travel) 2.) | Nearly infinite | | | | | | | | | |
| Max. operational speed | < 2 m/s | | | | | | | | | |
| Operational force @RT 1.) 2.) RACT (spring return) @ X middle position | < 1.3 N | < 2 N | < 1.8 N | < 6 N | | | | | | -- |
| Spring rate RACT | 0.2N/cm | 0.3N/cm | 0.2N/cm | 0.4N/cm | | | | | | -- |
| Operational temperature | -50 °C up to +125 °C | | | | | | | | | |
| Storage temperature | -50 °C up to +125 °C | | | | | | | | | |

Data Sheet for Linear Sensors

Inductive (LVDT) linear transducer

Series RAC

| Mechanical Data, Environmental Conditions, Miscellaneous | RAC | | | | | | | | | |
|--|---|-----------|-----------|-----------|-------|-------|-------|------|------|------|
| | T / L / C | T / L / C | T / L / C | T / L / C | L / C | L / C | L / C | C | C | C |
| | 25 | 50 | 100 | 150 | 200 | 300 | 400 | 500 | 750 | 940 |
| Housing length RACT in mm | 133 | 161 | 276 | 387 | -- | -- | -- | -- | -- | -- |
| Housing length RACL in mm | 127 | 155 | 270 | 380 | 427 | 617 | 808 | -- | -- | -- |
| Housing length RACC in mm | 152 | 180 | 295 | 406 | 452 | 643 | 833 | 1030 | 1435 | 1702 |
| Mass RACT gram ca. | 184 | 227 | 398 | 483 | -- | -- | -- | -- | -- | -- |
| Mass RACL gram ca. | 170 | 227 | 320 | 454 | 568 | 824 | 1200 | -- | -- | -- |
| Mass RACC gram ca. | 284 | 340 | 511 | 653 | 710 | 1000 | 1400 | 1600 | 2100 | 2500 |
| Mounting parts (included in delivery) | None | | | | | | | | | |
| Included in delivery | Probe or nut M5 x 0,8 or loose push rod | | | | | | | | | |
| Material housing | Nickel plated steel | | | | | | | | | |
| Material push rod | Hardened steel (Mu-Metal) | | | | | | | | | |
| Electrical connection | Round cable 2 m | | | | | | | | | |

1.) According IEC 60393

2.) Determined by climatic conditions according to IEC 68-1, para. 5.3.1 without load collectives

Order Code

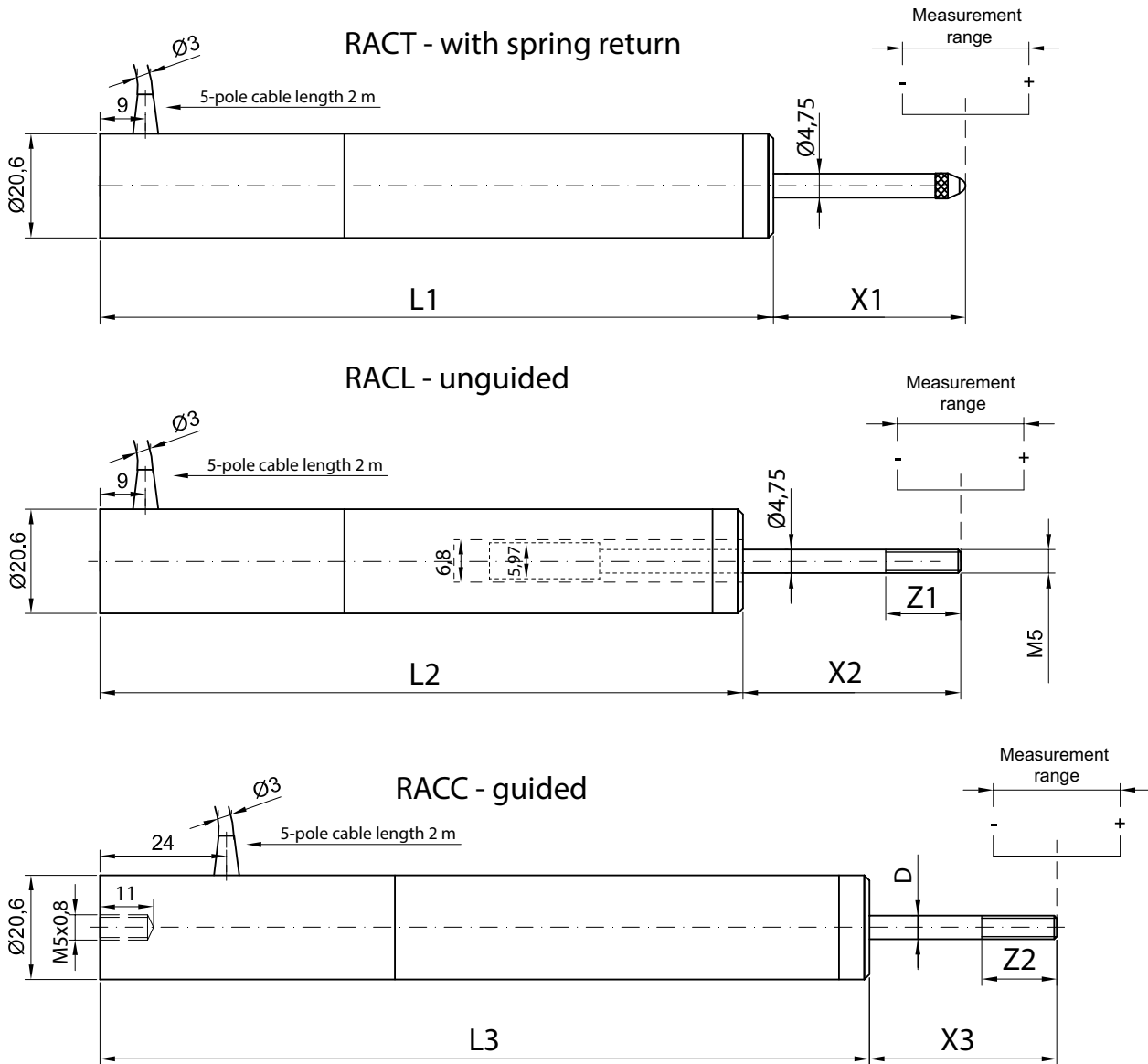
| Description | Selection: standard=black/bold , possible <i>options=grey/italic</i> | | | | | |
|--|---|----------------------------------|--|--|-----------------|----------------------------------|
| Series: | RAC | | | | | |
| Design: With guided push rod As a probe with spring return With loose push rod | | C T L | | | | |
| Effective electrical travel: ±12,5 mm ±25 mm ±50 mm ±75 mm ±100 mm (not version T) ±150 mm (not version T) ±200 mm (not version T) ±250 mm (only version C) ±375 mm (only version C) ±470 mm (only version C) | | | | 25 50 100 150 200 300 400 500 750 940 | | |
| Electrical connection: Round cable 2 m <i>Option customer-specific cable length in m</i> | | | | | - <i>Kxx</i> | |
| Protection Class IP 40 <i>Option Protection Class IP44</i> | | | | | | - <i>IP44</i> |
| Independent linearity: Standard ±0,5 % <i>Option ±0,25% (±12,5..±250 mm el. travel)</i> <i>Option ±0,1% (±12,5..±1000 mm el. travel)</i> | | | | | | - <i>L0,25</i> <i>L0,1</i> |

For higher quantities or on-going demand, additional options are available as described below on request

For example:

- Cable assemblies with and without connector
- Special probe, special axis length and much more

Drawing

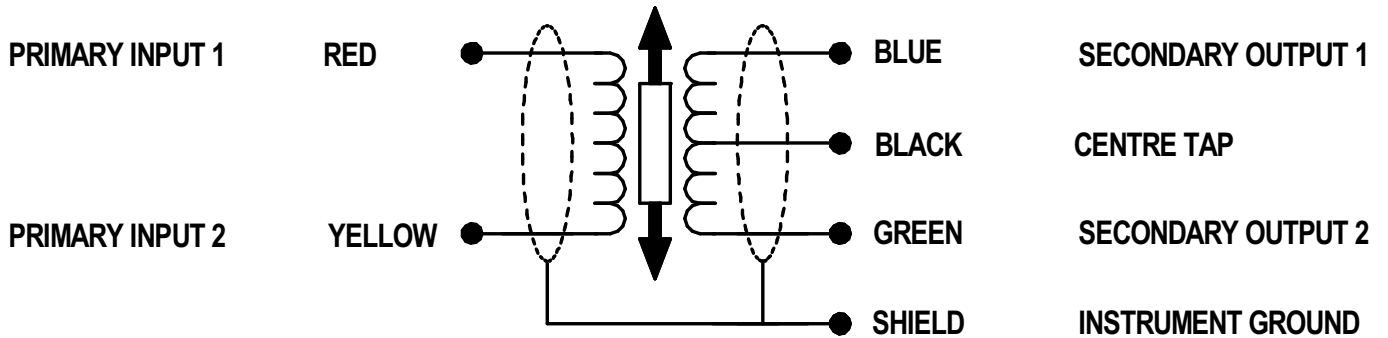


Dimensions in mm

| Dimensions / Series RAC (T/L/C) | 25 | 50 | 100 | 150 | 200 | 300 | 400 | 500 | 750 | 940 |
|--|-------|------|------|------|------|------|------|------|------|------|
| Effective electrical travel middle position RAC (T/L/C) [mm] | ±12,5 | ±25 | ±50 | ±75 | ±100 | ±150 | ±200 | ±250 | ±375 | ±470 |
| L1 Housing Length (RACT) [mm] | 133 | 161 | 276 | 387 | - | - | - | - | - | - |
| L2 Housing Length (RACL) [mm] | 127 | 155 | 270 | 380 | 427 | 617 | 808 | - | - | - |
| L3 Housing Length (RACC) [mm] | 152 | 180 | 295 | 406 | 452 | 643 | 833 | 1030 | 1435 | 1702 |
| X1 Middle Position (RACT) [±0,2 mm] | 38 | 63 | 75 | 114 | - | - | - | - | - | - |
| X2 Middle Position (RACL) [±0,2 mm] | 46 | 68 | 81 | 120 | 132 | 183 | 259 | - | - | - |
| X3 Middle Position (RACC) [±0,2 mm] | 38 | 63 | 76 | 114 | 127 | 178 | 254 | 305 | 406 | 508 |
| RACT inward over travel [mm] | 1 | 3 | 8 | 15 | - | - | - | - | - | - |
| RACL inward over travel [mm] | 16 | 22 | 16 | 29 | 16 | 16 | 27 | - | - | - |
| RACC inward over travel [mm] | 10 | 13 | 10 | 24 | 8 | 12 | 22 | 34 | 13 | 5 |
| RACT outward over travel [mm] | 13 | 10 | 14 | 15 | - | - | - | - | - | - |
| RACL outward over travel [mm] | - | - | - | - | - | - | - | - | - | - |
| RACC outward over travel [mm] | 12 | 10 | 14 | 15 | 14 | 17 | 25 | 35 | 13 | 33 |
| D Ø push rod [mm] | 4,75 | 4,75 | 4,75 | 4,75 | 4,75 | 4,75 | 4,75 | 4,75 | 4,75 | 6 |
| Z1 [mm] | 15 | 15 | 15 | 15 | 15 | 15 | 29 | - | - | - |
| Z2 [mm] | 15 | 15 | 15 | 15 | 15 | 15 | 32 | 27 | 19 | 27 |

Electrical connection

CONNECTION DETAILS



NOTE : If not used the BLACK wire should be insulated from any other wires or connections including the cable shield.