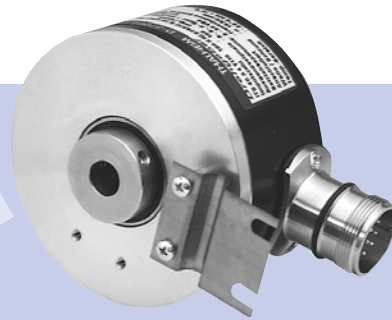


Incremental encoder *with hollow shaft*

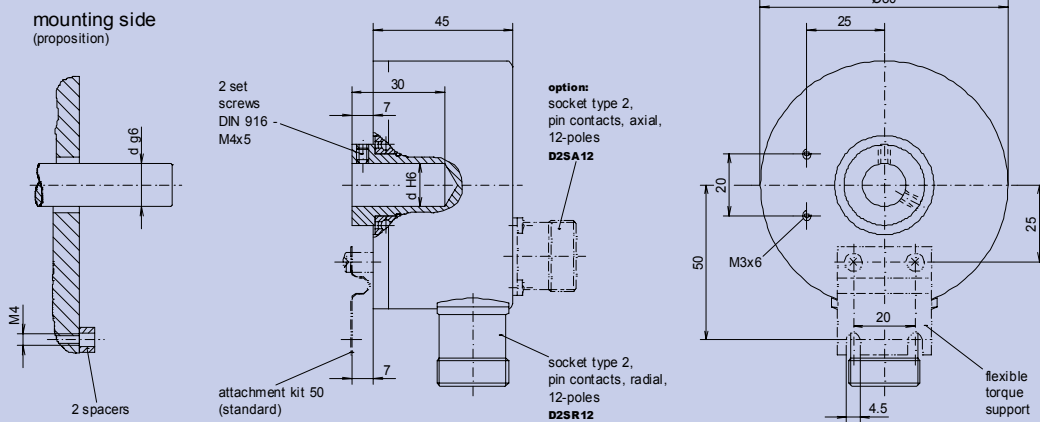
ITD 40 A 4 Y110

up to -40 °C



Features

- Incremental encoder with **integrated heating** (-40 °C to +70 °C)
- **Number of pulses** up to **2048** pulses/rev.
- Mounting at torque support
- TTL- or HTL- Output signals
- Socket radial or axial



drawing-no.: 026- 5 Y110

Mechanical data

| | | | |
|------------------------------|--|---|-------------|
| Design | A 4 | | A 4 |
| Attachment kit | 50 | standard, (ref. datasheet »Attachment kit's ...«) | 50 |
| Housing | aluminium, black, powder coated | | |
| Protection | IP 65 | according to DIN EN 60 529 | IP65 |
| Construction principle | OPSIC with slotdisc | | |
| max. revolution (mechanical) | $n_{max} \leq 8000$ rpm | (observe limit frequency) | |
| Permissible motor-shaft play | axial ≤ 0.25 mm radial ≤ 0.1 mm | | |
| Starting torque | at 20 °C ≤ 1 Ncm | | |
| Vibration | 55... 2.000 Hz ≤ 100 m/s ² | according to DIN IEC 60 068, part 2-6 | |
| Shock | 11 ms ≤ 1000 m/s ² | according to DIN IEC 60 068, part 2-27 | |
| Hollow shaft diameter | d 15 mm | (standard), 10 mm to 16 mm possible | 15 |
| Weight | approx. 600 g | | |

Electrical data

| | | | |
|-------------------------------------|-------------------|--|--------|
| Number of pulses | Z | 100, 180, 200, 360, 500, 512, 720, 1000, 1024, 2000, 2048 pulses/revolution | XXXX |
| Electronic version (output signals) | TTL | Line driver-output stage, supply voltage: $U_B = 5 \text{ VDC} \pm 5\%$ (polarity protected) output amplitude: $U_{\text{LOW}} \leq 0.5 \text{ V}$, $U_{\text{HIGH}} \geq 2.5 \text{ V}$ | T |
| | HTL | Push pull-output stage (short-circuit proof), supply voltage: $U_B = 8\text{-}30 \text{ VDC}$ (polarity protected) H output amplitude: $U_{\text{LOW}} \leq 1.5 \text{ V}$, $U_{\text{HIGH}} \geq U_B - 3 \text{ V}$ | H |
| Output signals | A, B + Inv. | 2 square wave pulse trains, electr. phase shifted $90^\circ \pm 10^\circ$ + signal inverting * | BI |
| Pulse ratio | | pulse : pause = 1 : 1, $\pm 10\%$ at 30 kHz | |
| Edge steepness | | $\geq 15 \text{ V}/\mu\text{s}$ | |
| Limit frequency | f_G | 120 kHz | |
| Output load current | I_{Load} | $\leq 70 \text{ mA}$ | |
| Current consumption (no-load) | I_{max} | $\leq 100 \text{ mA}$ | |
| Permissible cable length | | $\leq 100 \text{ m}$ (Thalheim-cable) | |
| Type of connection | | socket type 2, pin contacts, radial, 12-poles | D2SR12 |
| Operating temperature range | | -40°C to $+70^\circ \text{C}$ | H |
| Permissible relative humidity | | $\leq 90\%$ | |

Options

| | | | |
|--------------------|----------------|--|--------|
| Electronic version | | TTL-output signals, Line driver-output stage supply voltage: $U_B = 8\text{-}30 \text{ VDC}$ (polarity protected) | R |
| Output signals | A, B, N + Inv. | 2 square wave pulse trains + zero pulse, electr. length $90^\circ \pm 9^\circ$ + signal inverting * | NI |
| Type of connection | connector | socket type 2, pin contacts, axial, 12-poles | D2SA12 |

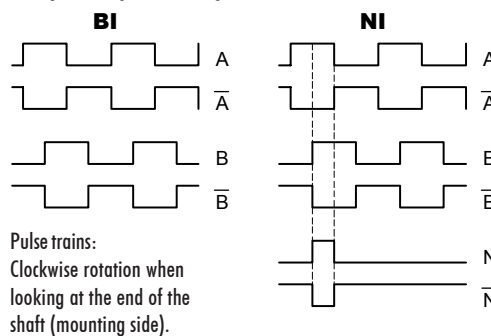
Accessories

| | | | |
|-------------------------------|--|--|--------|
| Connector, for version D2S.12 | | connector type 2, bush contacts, straight 12-poles | S2BG12 |
|-------------------------------|--|--|--------|

Connection table

| PIN-no. | signals |
|---------|---|
| PIN 5 | A |
| PIN 6 | A inv. |
| PIN 8 | B |
| PIN 1 | B inv. |
| PIN 3 | N |
| PIN 4 | N inv. |
| PIN 12 | + U_B |
| PIN 10 | 0 V |
| PIN 2 | + U_{Sensor} |
| PIN 11 | 0 V ^{Heating} |
| PIN 7 | 24 VDC ^{Heating} , max. 1.1 A |
| PIN 9 | NC |

Output signal diagram



Ordering example:

| | | | | | | | | | | |
|--|-----------------------------|---|---|---|---|---|---|---|-----------------------------------|---|
| ITD 40 Incremental encoder ITD 40 | A 4 Design A 4 | Y110 Mechanical variant Y110 = look at the drawing | 1024 Number of pulses 1024 pulses/revolution | H Electronic version $U_B = 8\text{-}30 \text{ VDC HTL}$ | BI Output signals A-, B-track + inv. | D2SR12 Type of connection socket type 2, pin contacts, radial, 12-poles | H Operating temperature -40°C to $+70^\circ \text{C}$ | 15 Hollow shaft diameter 15 mm | IP65 Protection IP65 | 50 Attachment kit variant 50 |
|--|-----------------------------|---|---|---|---|---|---|---|-----------------------------------|---|

* ref. output signal diagram