Incremental Hollow shaft

- Miniature industry encoder for high number of pulses
- Short mounting length
- Easy mounting procedure
- Applications: motors, machine tools, robots, automated SMD equipment

NUMBER OF PULSES

5 / 10 / 20 / 25 / 50 / 60 / 100 / 200 / 250 / 300 / 360 / 500 / 600 / 720 / 1000 / 1024 / 1250 / 1500 / 2000 / 2048 / 2500 / 3000 / 3600
Other number of pulses on request

TECHNICAL DATA
mechanical

Housing diameter	36 mm
Shaft diameter	4 mm / 6 mm / 8 mm / 10 mm (Hubshaft)
Flange (Mounting of housing)	Tether
Mounting of shaft	Front clamping ring
Protection class shaft input (EN 60529)	IP64
Protection class housing (EN 60529)	IP64
Axial endplay of mounting shaft (hubshaft)	± 0.5 mm
Radial runout of mating shaft (hubshaft)	± 0.15 mm
Max. speed	max. 10 000 rpm
Starting torque typ.	≤ 1 Ncm
Moment of inertia	approx. 3 gcm²
Vibration resistance (DIN EN 60068-2-6)	100 m/s² (10 ... 2000 Hz)
Shock resistance (DIN EN 60068-2-27)	1000 m/s² (6 ms)
Operating temperature	-10 °C ... +70 °C
Storage temperature	-25 °C ... +85 °C
Material housing	Aluminum
Weight	approx. 80 g
Connection	Cable, axial or radial

TECHNICAL DATA
electrical

General design	as per DIN EN 61010-1, protection class III, contamination level 2, overvoltage class II
Supply voltage [1]	RS422 + Alarm (R), RS422 + Sense (T): DC 5 V ±10 % Push-pull (K), Push-pull antivalent (I): DC 10-30 V
Current w/o load typ.	40 mA (DC 5 V), 60 mA (DC 10 V), 30 mA (DC 24 V)
Max. pulse frequency	RS422: 300 kHz Push-pull: 200 kHz
Standard output versions [2]	RS422 + Sense (T): A, B, N, $\overline{A}$, $\overline{B}$, $\overline{N}$, Sense RS422 + Alarm (R): A, B, N, $\overline{A}$, $\overline{B}$, $\overline{N}$, $\overline{Alarm}$ Push-pull (K): A, B, N, $\overline{Alarm}$ Push-pull complementary (I): A, B, N, $\overline{A}$, $\overline{B}$, $\overline{N}$, $\overline{Alarm}$
Pulse width error	± max. 25° electrical

Incremental Hollow shaft

TECHNICAL DATA
electrical (continued)

Number of pulses	5 ... 3600
Alarm output	NPN-O.C., max. 5 mA
Pulse shape	Square wave
Pulse duty factor	1:1

[1] With push-pull (K) and push-pull complementary (I): pole protection
[2] Output description and technical data see chapter "Technical basics"

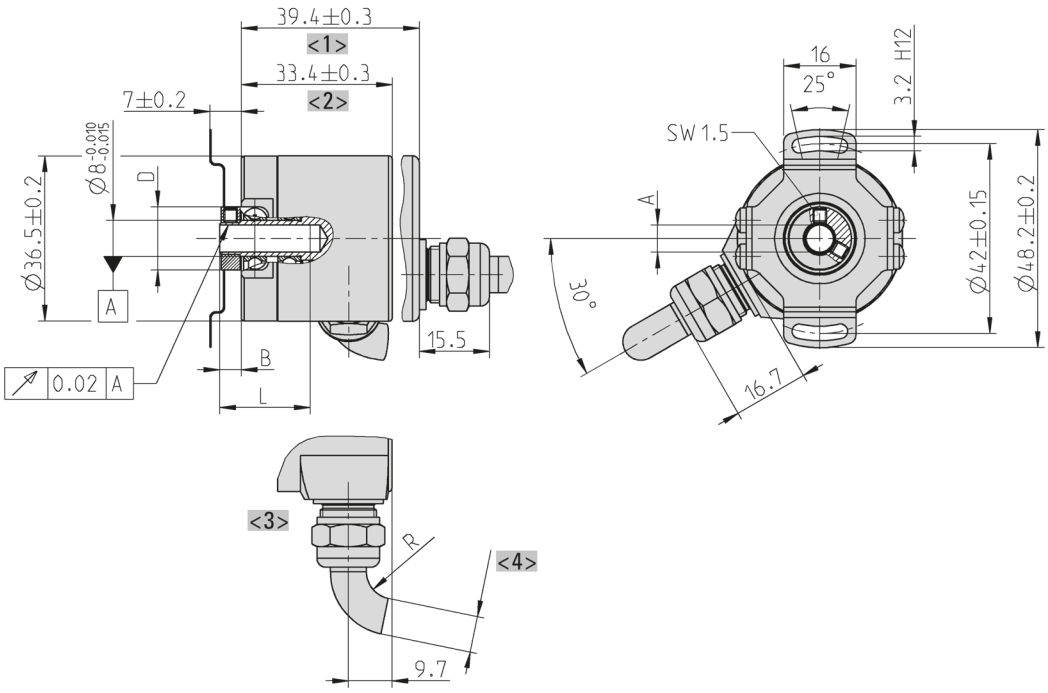
ELECTRICAL CONNECTIONS
Cable PVC

Cable PVC (A, B)		**Output**		
Colour	**Litze mm [2]**	**RS422 (R, T)**	**push-pull (K)**	**push-pull complementary (I)**
red	0.5	DC 5 V	DC 10 - 30 V	DC 10 - 30 V
yellow/red	0.14	Sense V_{CC}		Sense V_{CC}
white	0.14	Channel A	Channel A	Channel A
white/brown	0.14	Channel $\overline{A}$		Channel $\overline{A}$
green	0.14	Channel B	Channel B	Channel B
green/brown	0.14	Channel $\overline{B}$		Channel $\overline{B}$
yellow	0.14	Channel N	Channel N	Channel N
yellow/brown	0.14	Channel $\overline{N}$		Channel $\overline{N}$
black	0.5	GND	GND	GND
yellow/black	0.14	$\overline{Alarm}$/Sense GND [1]	$\overline{Alarm}$	$\overline{Alarm}$
screen [2]		screen [2]	screen [2]	screen [2]

[1] depending on ordering code
[2] connected with encoder housing

DIMENSIONED DRAWINGS

Torque support "J"



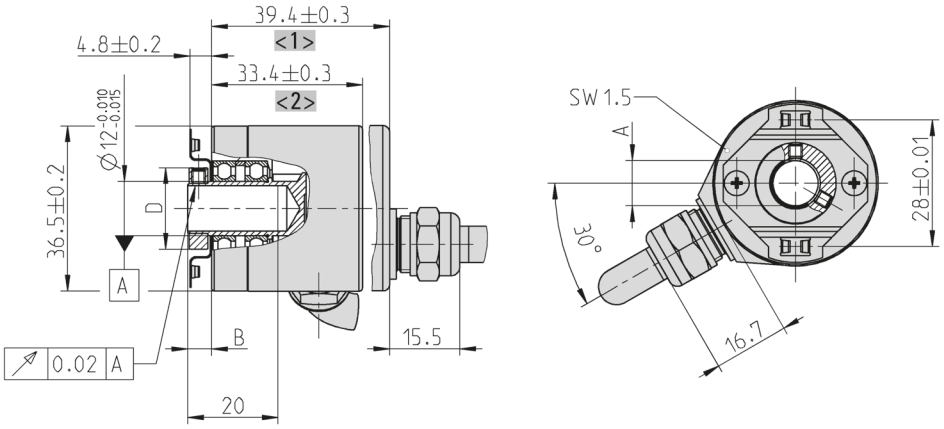
Dim.	Hollow shaft Ø				Unit
A	4 +0.01	6 +0.01	8 +0.01	10 +0.01	mm
A*	4 g7	10 g7	8 g7	10 g7	mm
B	4.8 ± 0.2	4.8 ± 0.2	4.8 ± 0.2	4.8 ± 0.2	mm
D	12	14	16	18	mm
L min	6	9	12	15	mm
L max	20	20	20	20	mm
A* = diameter of connection shaft					
B = space between housing and shaft					
D = diameter clamping ring					
L = length of connection shaft					

<1> axial
<2> radial
<3> Cable radial
<4> Ø 6 or Ø 8
Cable bending radius R for flexible installation ≥ 100 mm
Cable bending radius R for fixed installation ≥ 40 mm
Tightening torque of set screw: 15 Ncm

Dimensions in mm

DIMENSIONED DRAWINGS (continued)

Torque support "F"



Dim.	Hollow shaft Ø				Unit
A	4 +0.01	6 +0.01	8 +0.01	10 +0.01	mm
A*	4 g7	10 g7	8 g7	10 g7	mm
B	4.8 ± 0.2	4.8 ± 0.2	4.8 ± 0.2	4.8 ± 0.2	mm
D	12	14	16	18	mm
L min	6	9	12	15	mm
L max	20	20	20	20	mm
A* = diameter of connection shaft					
B = space between housing and shaft					
D = diameter clamping ring					
L = length of connection shaft					

<1> axial
<2> radial
Cable bending radius R for flexible installation ≥ 100 mm
Cable bending radius R for fixed installation ≥ 40 mm
Tightening torque of set screw: 15 Ncm
The hubshaft with tether (F) as torque supportmust be fixed by a cylindric pin (2.4 mm ◘) at the machine side.

Dimensions in mm

Incremental Hollow shaft

ORDERING INFORMATION

Type	Number of pulses	Supply voltage [1]	Flange, Protection, Shaft [3,4]	Output [2]	Connection
☐	☐	☐	☐	☐	☐
RI36-H	**5 ... 3600**	**A** DC 5 V **E** DC 10 - 30 V	**F.30** Spring tether "F" with clamping ring front, IP64, 4 mm **F.31** Spring tether "F" with clamping ring front, IP64, 6 mm **F.3C** Spring tether "F" with clamping ring front, IP64, 8 mm **F.32** Spring tether "F" with clamping ring front, IP64, 10 mm **J.30** Spring tether "J" with clamping ring front, IP64, 4 mm **J.31** Spring tether "J" with clamping ring front, IP64, 6 mm **J.3C** Spring tether "J" with clamping ring front, IP64, 8 mm **J.32** Spring tether "J" with clamping ring front, IP64, 10 mm	**R** RS422 +Alarm **T** RS422 +Sense **K** Push-pull **I** Push-pull complementary	**A** Cable, axial **B** Cable, radial **E-I** M23 connector (Conin) at 1 m TPE cable, cw **E-D** M23 connector (Conin) at 1 m TPE cable, ccw

[1] DC 10 - 30 V only with push-pull
[2] Output code "K" and "I": short-circuit-proof
[3] Fixing of hubshaft with tether by cylindrical pin
[4] Fixing of hubshaft with tether by oblong hole

ORDERING INFORMATION
Selection of cable length

Versions with cable outlet (connection A, B, E or F) are available with various lengths of cable. To order your desired cable length, please add the respective code to the end of your ordering code. For variants with connector on cable end please add cable length code in between. Further cable lengths on request.

Code	Cable length
without code	1.5 m
-D0	3 m
-F0	5 m
-K0	10 m
-P0	15 m
-U0	20 m
-V0	25 m

Example:
Cable 3 m length: ... B - D0
Cable mit 3 m length and M23 connectorr, cw: ... B - D0 - I

ACCESSORIES

see chapter "Accessories"