



Only 16mm in diameter and up to 5000 ppr. -True lines.
Up to 20000 Counts



CHARACTERISTICS

ENCODER TYPE	Micro hollow shaft encoder (blind end hollow shaft)
SMD - TECHNOLOGY	Strong compact electronics
HIGH IP-RATING	Std. IP 64 (with IDC; IP 50)
LOW CURRENT CONSUMPTION	To be connected directly to PLC'S and counters
SHORT CIRCUIT PROTECTION	Thermal shut down at 155°C
POWER SUPPLY	5 volts to 12 Volts ± 10% (TTL) (on request up to 24 Volts)
STRONG MEC. CONSTRUCTION	Based on 2 precision ball bearings for industrial environment

ELECTRICAL SPECIFICATIONS

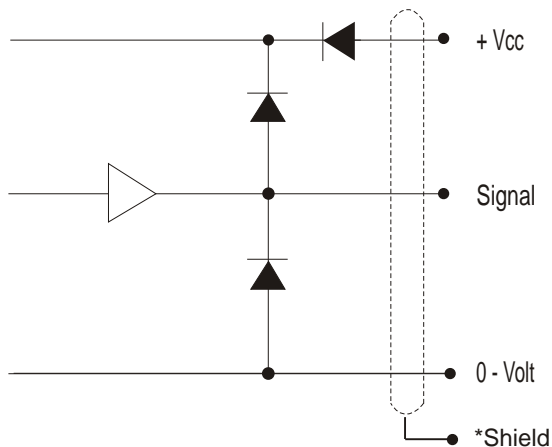
At +25°C	
Output	Totempole
Output waveform	Incremental (A, B)
Zero or index pulse	(Z) one pr./rev.
Supply-voltage	5 to 12 V (on request up to 24 Volts)
Current (no load)	35mA
Max. load pr. output	20mA (Short circuit protected)
V out low	Max. 500 mV at I out low = 10 mA
Operating temp.	-20°C to +70° C
Storage temp.	-20° C to +85°C
Max. pulse frequency	200 kHz
V out high	Min. (Vin -0,6) @ I = -10mA Min. (Vin -1,3) @ I = -25mA
Cable data	8-leads (0.05 mm ²) shielded or 10-leads flat band cable 0.10mm ²
Output signals	Differential (RS-422A compatible)
Certified acc. To	EN 50081-1 and EN 50082-2*

*NA with flat band cable

MECHANICAL SPECIFICATIONS

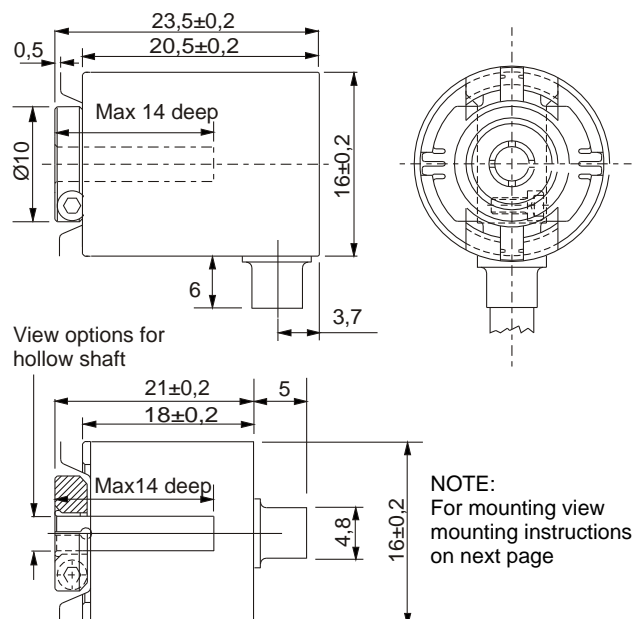
Weight, excl. Cable	About 15 g
Materials:	
Housing	Brass / Aluminum
Shaft	Brass
Bearings	Lifetime lubricated ball-bearings
Fixing clamp	Brass
H.-Shaft dimensions	ø1.5mm - ø2mm - ø3mm - 1/8"
H.-Shaft loads	Axial max. 10 N Radial max. 10 N
Max speed	12.000 rev./min.
IP-rating	IP 64 (with IDC; IP 50)
Start torque	<0,005 Nm at 25°C
Massmoment of inertia	0.25 gcm ²
Max. shock	100 G/11 ms.
Bump	10 G - 16 ms (1000 x 3axis)
Vibration	(10 - 2000 Hz)/10 G

OUTPUT CIRCUIT



*Shield connected to housing

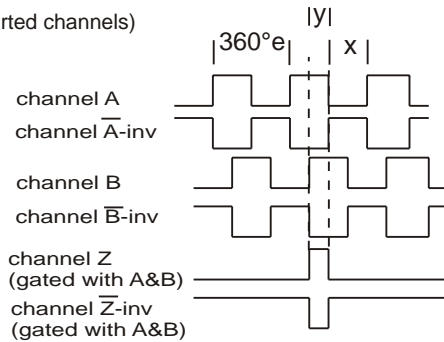
MECHANICAL DIMENSIONS



OUTPUT WAVEFORM

Rotation: Clockwise (cw) from shaftside

(inv = inverted channels)



$X = 180^\circ \pm 36^\circ$ and $Y = 90^\circ \pm 18^\circ$
Z puls: Gated with A and B (standard)

Options: Open Collector NPN or PNP
Gated Z-puls or none-gated Z-puls.
View more Output options in section 15 - page 1

CONNECTIONS

8 leads cable

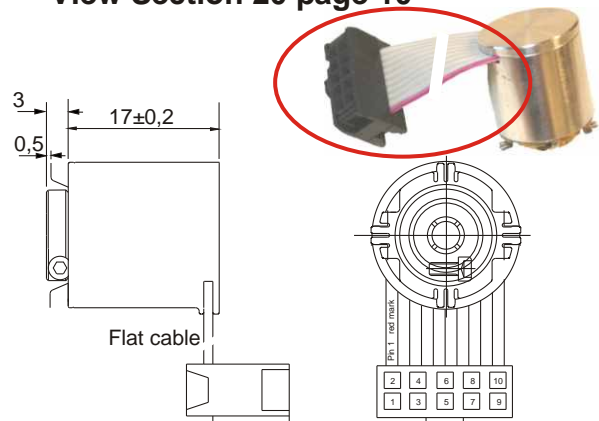
Color code	Differential
Pink	Ch A
Grey	Ch A inv
Green	Ch B
Yellow	Ch B inv
White	Ch Z
Brown	Ch Z inv
Red	Vcc
Blue	0-Volt

PULSES/REV.

100	300	500	2000	3600
125	360	1024	2500	5000

Flat Ribbon Cable and/or Connector

View Section 20 page 10



ORDERING CODES

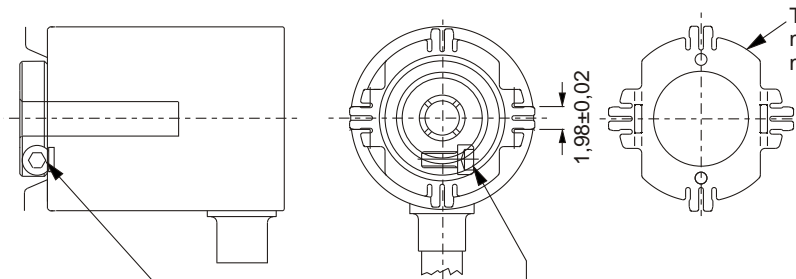
	Options	Order code
Pulses pr. Rev.:	No. of pulses	XXXX
Output signal:	TP-Differential, 6 channel A, B, Z and A-inv, B-inv, Z-inv	D
H-Shaft dimensions:	$\varnothing 1,5\text{mm}$ $\varnothing 2,0\text{mm}$ $\varnothing 3,0\text{mm}$ 1/8"	1,5 2,0 3,0 1/8
IP-rating:	IP 64 Standard	64
Length of cable:	Standard 1 meter No. of meters	01 XX
Cable take out:	Side Back	S B
Anti rotation spring coupling Or Flange / Plate:	View Section 9 page 1 to 6	
Flat Ribbon Cable + IDC.	View Section 20 page 10	

Advanced Output Options:

Options	Ordering codes
Normal Open Collector NPN	NON
Differential Open Collector NPN	DON
Normal Open Collector PNP	NOP
Differential Open collector PNP	DOP

To order replace with
Output signal

Mounting instructions



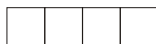
Warning: M1,4(hex.key 1,27mm)Max. Torque 5Ncm

Torsionally stiff spring coupling
max. movement axial= $\pm 0,1$
max. movement radial= $\pm 0,05$

When using motors with axial play, encoder should be mounted with motor shaft pushed as far as possible into the hollow shaft, while supplying the back cover of the encoder with slight pressure, when tightening the fixing clamp.

Remark:
Short circuit protection / reverse polarity protection

2MCH



Pulses



Output signal



Shaft



IP-rating



Length of round cable



Cable take out



Anti Rotation Spring Coupling
Or Flange / Plate Order Number