



Type 2RMH-HD

- Hollow Shaft Encoder - $\varnothing$ 24 mm
- Hollow Bore: $\varnothing$ 2 mm to $\varnothing$ 6 mm
- Resolution up to 7.500 ppr
- IP 64 rating (*IP 50 for flat cable option*)

Electrical Specifications

Code:	Incremental
Resolution:	1 to 7.500 ppr (pulses per revolution)
Supply Voltage:	4,5 Vdc min. to 30 Vdc max. (45 mA max. - no load) **
Output Voltage:	Low: 500 mV max. at 10 mA High: ($V_{in} - 0,6$) at -10 mA ($V_{in} - 1,3$) at -25 mA
Output Current:	30 mA max. load per output channel **
Frequency Response:	200 kHz max. **
Output Format:	Two channel (A, B) quadrature with Index (Z) and optional complementary (A-, B-, Z-) outputs
Phase Sense:	A leads B clockwise (CW) from the mounting end of the encoder
Index:	Gated with Channels A and B high
Accuracy:	+/- 26 arc-sec.
Outputs:	ASIC Push pull and Differential OL7272 Push-pull and Differential Line Driver 26C31 Differential Line Driver 5V output (with 5V input)
Electrical Protection:	Reverse polarity and output short circuit protected
Noise Immunity:	Tested to EN61000-6-2 : 2005 (industrial environments) Electromagnetic compatibility (EMC) and EN 61000-6-3 : 2007 (residential, commercial, and light-industrial environments) for Electromagnetic compatibility (EMC)

Mechanical Specifications

Material:	Housing: Brass Cap: Electroplated Steel Aluminum (flat cable option) Hollow Shaft: Brass
Weight:	Encoder: ~ 35 gr (1,23 oz) Cable: 50 gr / meter (1,76 oz / meter)
Bearing Life:	> $1,9 \times 10^{10}$ revolutions at rated load
Bearing Pre-Load:	1 to 3600 ppr 4 (N) 4000 to 5000 ppr 7 (N) 7500 ppr 10 (N)
Shaft Speed:	12.000 rpm (max.)
Starting Torque:	< 0,005 Nm (0,708 oz-in) at 25° C
Mass Moment of Inertia:	1,0 gcm ² ($1,42 \times 10^{-5}$ oz-in-sec ²)
Hollow Shaft Loads:	Axial: 40 N (9 lbs) max. Radial: 40 N (9 lbs) max.

Environmental Specifications

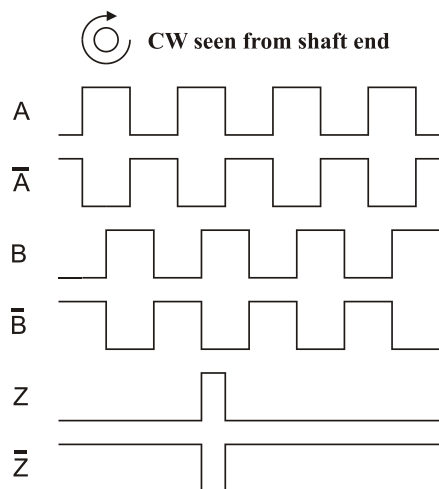
Operating Temp.:	-40° to +85° C
Storage Temp.:	-40° to +85° C
Shock:	100 G / 11 ms
Vibration:	10-2000 Hz / 10 G
Bump:	10 G / 16 ms (1000 x 3 axis)
Humidity:	98 % RH without condensation
IP Rating:	IP 64 / Nema 4 (approx.) IP 50 / Nema 5 (approx.) – flat cable

Connection Options

Cable:	8 leads (0,05 mm ² , 30 AWG) - Differential 5 leads (0,14 mm ² , 26 AWG) - Standard twisted pairs; shielded
Connector:	5-pin M9 8-pin M9
Flat Cable:	10 lead flat cable with IDC connector

**= It is recommended user not to combine max. value for all 3 parameters

Output waveform



Channel tolerance $180\text{ e}^\circ \pm 36\text{ e}^\circ$
 Phase difference tolerance $90\text{ e}^\circ \pm 18\text{ e}^\circ$
 Z channel tolerance $90\text{ e}^\circ \pm 18\text{ e}^\circ$

Disk Resolutions (pulses per revolution)

1*	36*	150*	512	3000
4*	50*	180*	600	3600
10*	60*	200*	1000	5000
11*	64*	250*	1024	7500**
12*	75*	256*	1250	
15*	90*	300*	1800	
20*	100*	360*	2000	
25*	125*	400	2048	
30*	128*	500	2500	

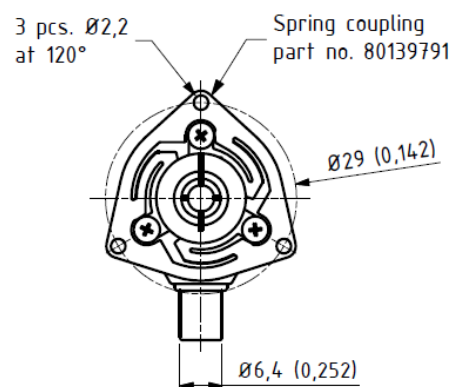
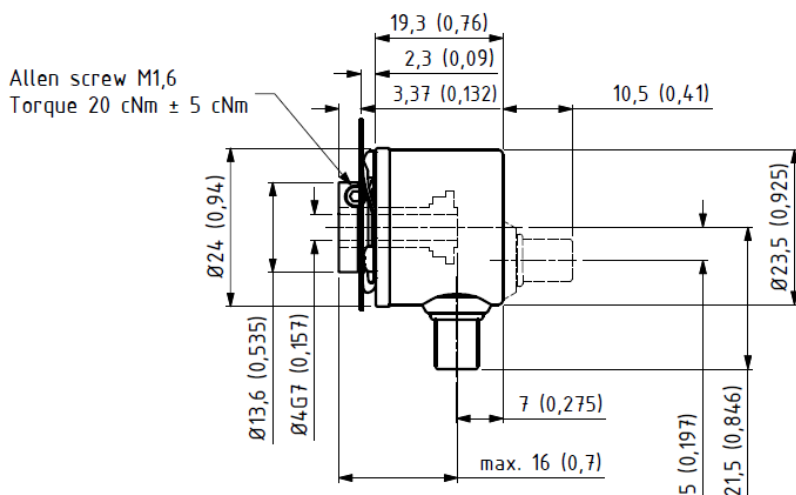
Other options on request

Pulses per revolution,
 min. 1 – max. 7.500

* Delivery time: 6 weeks

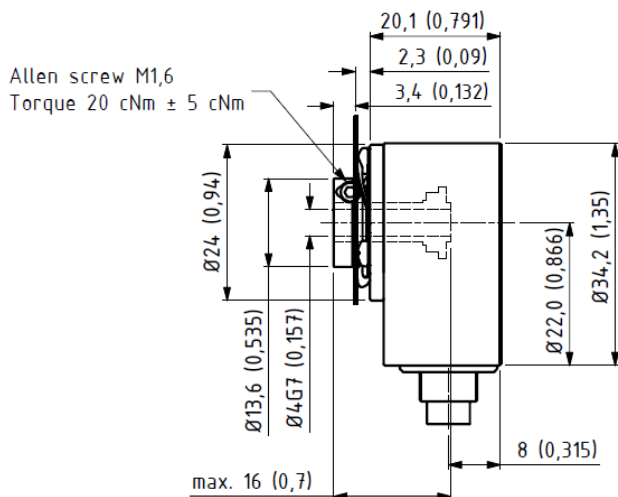
** Operating temperature: -20°C to 50°C

Mechanical Dimensions

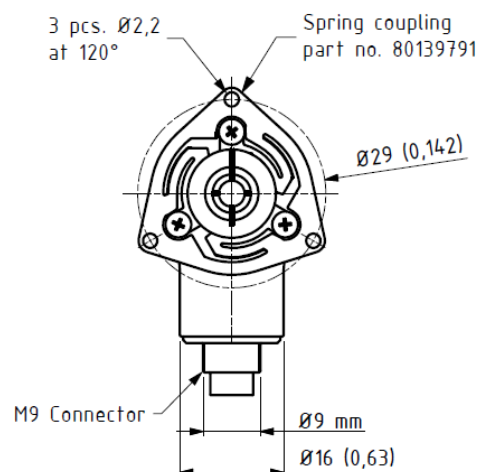


Standard Cable Gland
 Side (S) or Back (B)

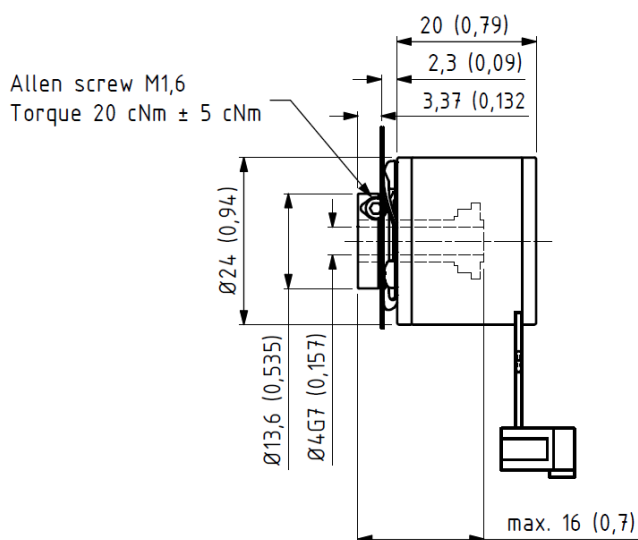
mm (inches)



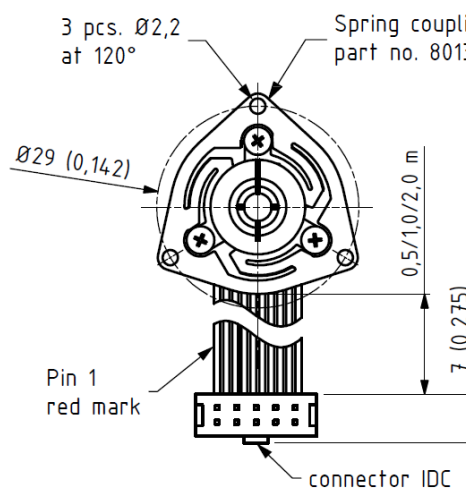
M9 Connector



mm (inches)



Flat Ribbon Cable with IDC connector



mm (inches)

Output Terminations

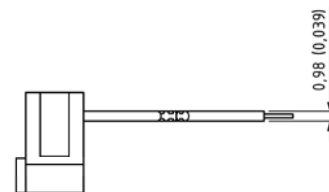
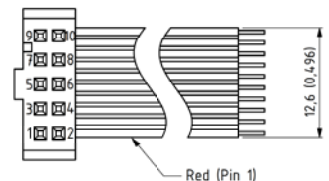
Channel	Standard Cable	
	Standard Output	Differential Output
Wire Color		
A	Green	Pink
A -	NC*	Gray
B	Yellow	Green
B -	NC*	Yellow
Z	Gray	White
Z -	NC*	Brown
Vsup	Brown	Red
GND	White	Blue

GND = Circuit Ground

* Internally connected as GND

Flat Cable w/ IDC Connector	
Differential Output *	
Position	Channel
1	NC
2	Vsup
3	GND
4	NC
5	A
6	A -
7	B
8	B -
9	Z -
10	Z

* Hewlett Packard (HP) compatible

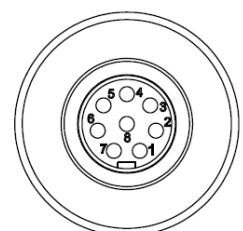
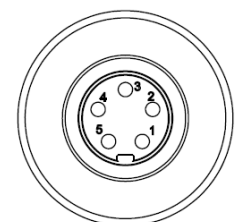


- IP 50 rating
- CE mark not available
- 0,5 m, 1 m, or 2 m cable length only

Cable Tolerances		
	Cable Length	Tolerances
Flat Cable	0,5 (= 0,5 m)	+/- 10 mm
	01 (= 1 m)	+/- 15 mm
	02 (= 2 m)	+/- 20 mm
Round Cable	01 (= 1 m)	Min. XX - 15 mm
	XX (specified length)	
	XX ≤ 500 mm w/ connector	Min. XX - 10 mm
	500 ≤ XX ≤ 1000 mm w/ connector	Min. XX - 15 mm
	XX > 1000 mm w/ connector	Min. XX - 20 mm



Position	M9 5 - pin	M9 8 - pin
	Standard Output	Differential Output
	Channel	Channel
1	VDD	VDD
2	GND	GND
3	A	A
4	B	A -
5	Z	B
6		B -
7		Z
8		Z -



GND = Circuit Ground

Example: 2RMH-HD – 1024 – D – 04 – 16 – 64 – 01 – S – 00 – S5

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