Type SCH16F

- **Hollow Shaft Encoder - ø 16 mm**
- **Hollow Bore: ø 1,5 mm to ø 1/8 inch**
- **Resolution up to 5.000 ppr**
- **IP 50 rating**
- ***Formerly named 2MCH***

Electrical Specifications

Code:	Incremental
Resolution:	100 to 5.000 ppr (pulses per revolution)
Supply Voltage:	4,5 Vdc min. to 30 Vdc max. (35 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:	20 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 Differential or Inverted
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)

**= It is recommended, not to combine max. Value for all 3 parameters

Mechanical Specifications

Material:	Housing: Aluminum / Brass Cap: Aluminum Hollow Shaft: Brass
Weight:	Encoder: ~ 15 gr (0,53 oz) Cable: 50 gr / meter (1,76 oz / meter)
Bearing Life:	> 1,9 x 10^{10} revolutions at rated load
Bearing Pre-Load:	1 to 3.600 ppr 2 (N) 4.000 to 5.000 ppr 7 (N)
Shaft Speed:	12.000 rpm (max.)
Starting Torque:	< 0,005 Nm (0,708 oz-in) at 25° C
Mass Moment of Inertia:	0,25 gcm² (3,54 x 10^{-6} oz-in-sec²)
Hollow Shaft Loads:	Axial: 10 N (2,25 lbs) max. Radial: 10 N (2,25 lbs) max.

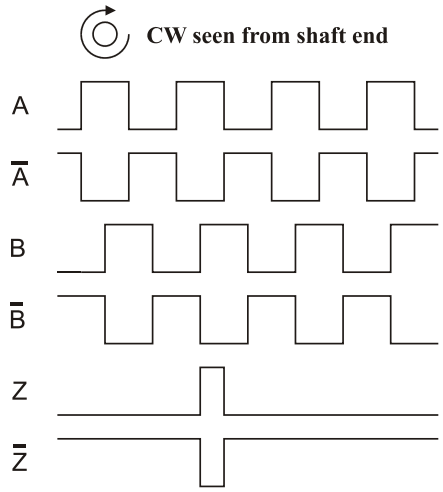
Environmental Specifications

Operating Temp.:	-20° to +70° C
Storage Temp.:	-20° 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 50 / Nema 5 (approx.)

Connection Options

Cable:	8 leads (0,05 mm², 30 AWG) twisted pairs; shielded
Flat Cable:	10 lead flat cable with IDC connector

Output waveform



Channel tolerance	**180 e°**	**+/-**	**36 e°**
Phase difference tolerance	**90 e°**	**+/-**	**18 e°**
Z channel tolerance	**90 e°**	**+/-**	**18 e°**

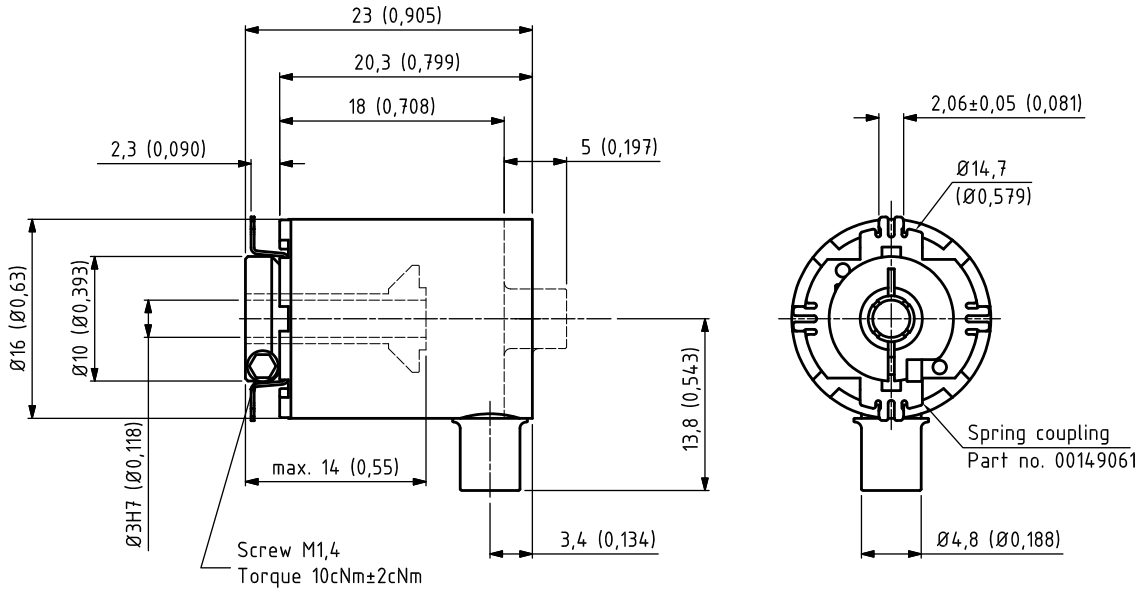
Disk Resolutions (pulses per revolution)

100	125	160	256	300
360	500	1000	1024	2000
2500	3600	5000*		

Other options on request
Pulses per revolution,
min. 1 – max. 5.000

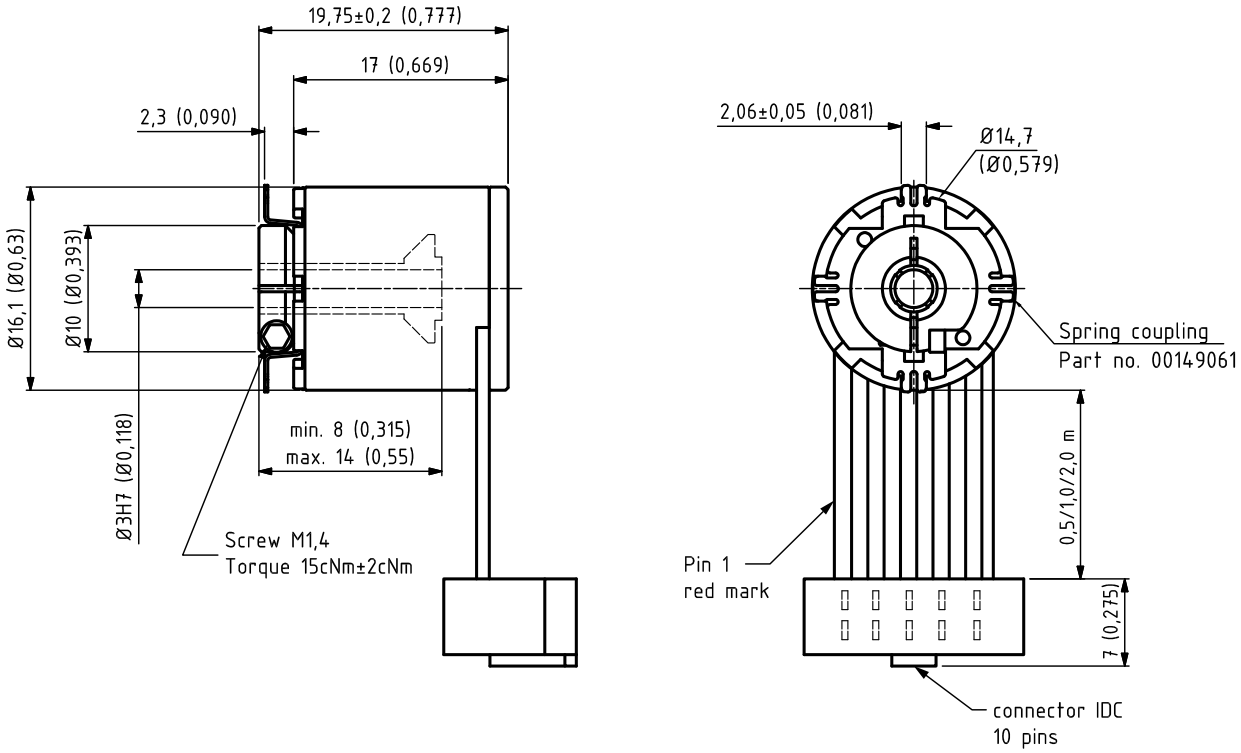
** Operating temperature: -20° C to +50° C*

Mechanical Dimensions

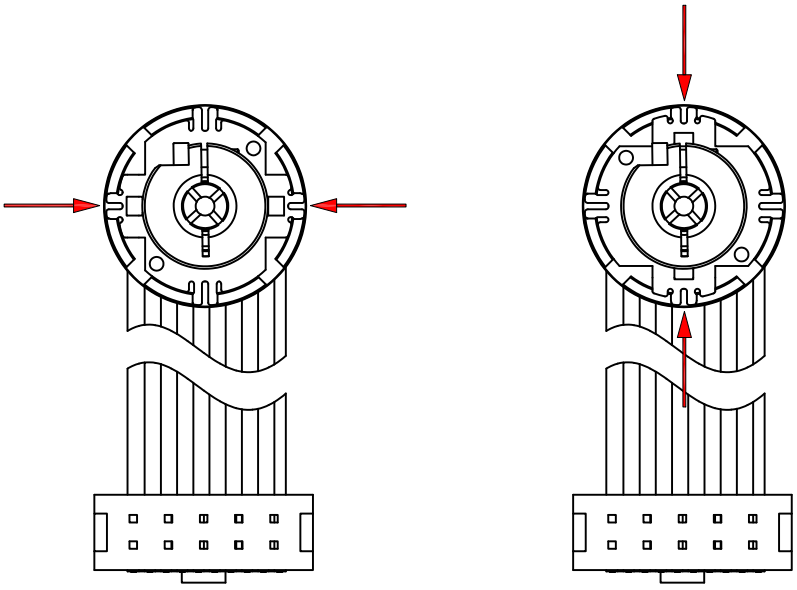


Standard Cable Gland
Side (S) or Back (B)

mm (inches)



Flat Ribbon Cable with IDC connector mm (inches)



Horizontal - **H** Vertical - **V**

Spring Coupling Orientation

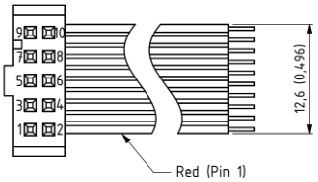
Output Terminations

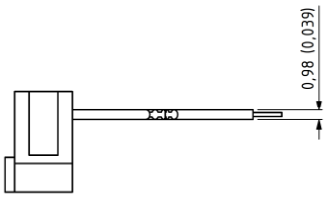
Standard Cable	
	Differential Output
Channel	Wire Color
A	Pink
A -	Gray
B	Green
B -	Yellow
Z	White
Z -	Brown
Vsup	Red
GND	Blue

GND = Circuit Ground

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

* *Hewlett Packard (HP) compatible*
** ***ID # required for ordering***





- **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

Ordering Code

Example: SCH16F – 1024 – D – 03 – 14 – 50 – 01 – S – 00 – S3

SCH16F	-		-		-		-		-		-		-		-	

Pulses per Revolution

See table

Output

Differential	**D**
Inverted *(Flat cable option only)*	**I**

Hollow Shaft Dia. / Hollow Shaft Length

1,5 mm x 14 mm	**1,5**	**-**	**14**
2,0 mm x 14 mm	**02**	**-**	**14**
3,0 mm x 14 mm	**03**	**-**	**14**
1/8 in x 14 mm	**1/8**	**-**	**14**

IP Rating

IP 50	**50**

Cable Length

Standard Cable

Standard is 1 meter	**01**
Specify length	**XX**
No Cable	**00**

Flat Cable w/ IDC

0,5 meter	**0,5**
1 meter	**01**
2 meters	**02**

Cable Takeout

Side (radial)	**S**
Back (axial)	**B**
Flat Cable (radial)	**SF**

Connector

IDC *on flat cable*	***IDC***
No connector	***00***

Spring Coupling

For Scancon Motor Flanges

80149061	0,25 mm	**V**	**S1**
80149061	0,25 mm	**H**	**S3**
80142773	0,25 mm	**V**	**S7**
80142773	0,25 mm	**H**	**S8**
No spring coupling			**00**

For Maxon Motor Flanges

80142626	0,15 mm	**V**	**S2**
80142626	0,15 mm	**H**	**S4**
80142665	0,25 mm	**V**	**S5**
80142665	0,25 mm	**H**	**S6**
No spring coupling			**00**

See Accessories for drawings

Other options on request:
Please contact Scancon A/S