

- Heavy duty incremental Encoder
- Hybrid ball bearings
- Standard IP Rating 66
- Paint on Chromital TCP passivation
- Built-in Transient Suppression Module and with Support for Long Cables
- Diagnostics as Standard



Electrical Specifications

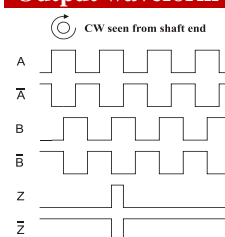
Code:	Incremental Magnetic
Resolution:	See table below
Supply Voltage:	5 VDC or 9 – 30 VDC
Current Consumption:	60 mA max. (no load)
Supply Voltage and Output Specifications for various Output Standards:	TTL: $V_{sup} = 5\text{ V} \pm 5\%$ and 5L $V_{high} \geq 4.2\text{ V} @ I_{out} = -16\text{ mA}$ $V_{low} \leq 0.5\text{ V} @ I_{out} = 16\text{ mA}$
	RS422: $V_{sup} = 5\text{ V} \pm 5\%$ and 5L Min. differential load (Z_o): 100 Ω $V_{diff} \geq 3.4\text{ V} @ Z_o = 100\ \Omega$ $V_{high} \geq 4.3\text{ V} @ Z_o = 100\ \Omega$ $V_{low} \leq 0.9\text{ V} @ Z_o = 100\ \Omega$
	HTL & $V_{sup} = 9\text{ V to } 30\text{ V}$
	HCHTL: $V_{high} \geq V_{sup} - 1.2\text{ V} @ I_{out} = -20\text{ mA}$ $V_{low} \leq 1.0\text{ V} @ I_{out} = 20\text{ mA}$
Output Current:	60 mA max. load per output channel
Output Frequency:	200 kHz max. – Depending on cable length
Output Format:	Two channel (A, B) quadrature with Index (Z) and complementary (A-, B-, Z-) outputs
Phase Sense:	A leads B clockwise (CW) seen from the shaft end of the encoder
Index:	Gated with Channels A and B high
Max. Cable Length:	MT Output: 100 meter @ 150 kHz
	5L Output: 100 meter @ 150kHz
	MS Output: 30 meter @ 150 kHz
	3MS Output: 200 meter @ 150 kHz
Output:	MT, MS and 5L: iC-DL Line Driver 3MS: OL7272 Line Driver
Electrical Protection:	Output short circuit, reverse polarity and transient surge protected through built-in protection module. Miswiring safe (except 3MS output).
Noise Immunity:	Tested to EN61000-6-2 : 2019 and EN 61000-6-3 : 2007 for Electromagnetic Compatibility (EMC)

Mechanical Specifications

Material:	Housing: Aluminum Cap: Aluminum Hollow shaft: Stainless Steel (AISI 303)
Weight:	Approx. 900 g. (32 oz)
Bearing Life:	$> 1.9 \times 10^{10}$ revolutions at rated load
Shaft Speed:	3,000 rpm continuous (max.)
Starting Torque:	$< 0.2\text{ Nm}$ (28.3 oz-in) at 25° C
Mass Moment of Inertia:	90 gcm ² (1.3×10^{-3} oz-in-sec ²)
Shaft Loads:	Axial 400 N (90 lbs) max. Radial 800 N (180 lbs) max.
Operating Temperature:	-40° to +105° C for 3MS -40° to +105° C for terminal block connection -40° to +115° C for cable and M23 connection
Storage Temperature:	-40° to +105° C
Shock:	100 G @ 11 ms
Vibration:	10 G @ 10-2000 Hz
Bump:	10 G @ 16 ms (1000 x 3 axis)
Humidity:	98 % RH without condensation
Enclosure Rating:	IP 66 / Nema 6 (approx.)

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

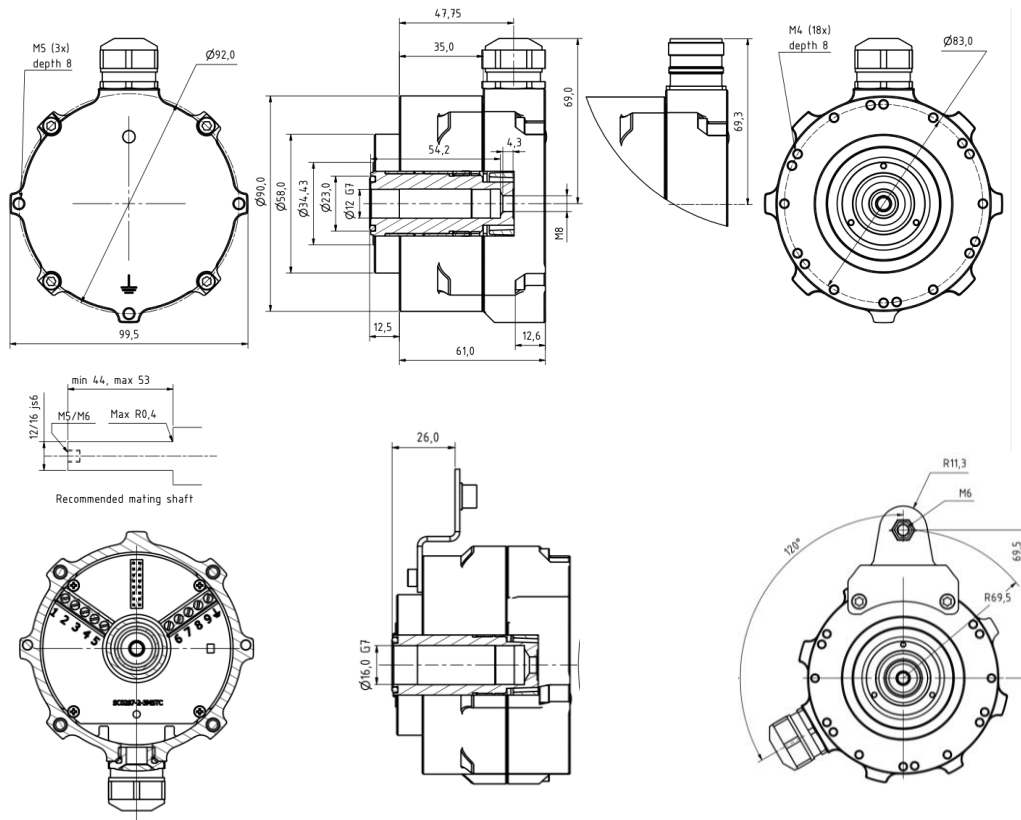
Output waveform



pulses per revolution

50	1024	3072
500	1250	4096
512	1600	8192
746	2000	
800	2048	
1000	2500	

Mechanical Dimensions



M23 Connector

Pin	Channel
1	B -
2	N/C
3	Z
4	Z -
5	A
6	A -
7	N/C
8	B
9	N/C
10	GND
11	Error
12	Vsup

Connect Cable Shield to mating Connector Housing

SCH98M - - - - - - **66** - -

1 2 3a 3b 4 5 6

1: Pulses per Revolution

See table on page 1

2: Output

HCHTL - 9-30 V supply/9-30 V output – Long cables *).....**3MS**

HTL - 9-30 V supply/9-30 V output**MS**

TTL and RS422 - 5 V supply/5 V output.....**MT**

TTL and RS422 - 9-30 V supply/5 V output.....**5L**

*) Not miswiring safe

3a and b: Hollow Shaft

12 mm x 54 mm**12 - 54**

16 mm x 54 mm**16 - 54**

17 mm x 20 mm Cone.....**17 - 20**

4: IP Rating

IP66.....**66**

5: Cable length

Standard - 1 meter.....**01**

Specify cable length.....**XX**

No Cable - Cable Gland or Connector.....**00**

6: Cable, Cable Gland, Connector

Cable

Side (radial) takeout.....**S**

Cable Gland (Terminal Block - no cable)

$\varnothing 8$ to $\varnothing 11$ mm cable.....**CG1**

$\varnothing 11$ to $\varnothing 14$ mm cable**CG2**

M23 12-pin Connector

Clockwise pins.....**CW**

Counter clockwise pins **CCW**