

Absolute encoders - SSI / BiSS



Through Hollow Shaft

Single turn 21 bit

Multi turn 4 bit

FNC ASM / AB 80H Series

Connector Version



Cable Version



Features

- Encoder single - or multiurn / SSI - BiSS
- Magnetic and optical sensing
- Optical singleturn resolution up to 21 bit
- Magnetic singleturn resolution up to 18 bit
- Magnetic multiurn resolution 4 bit
- Through Hollow Shaft
- Permanent check of code continuity
- Extreme resistance to shock and vibration
- Encoder with electronic reset

Technical data - electrical ratings

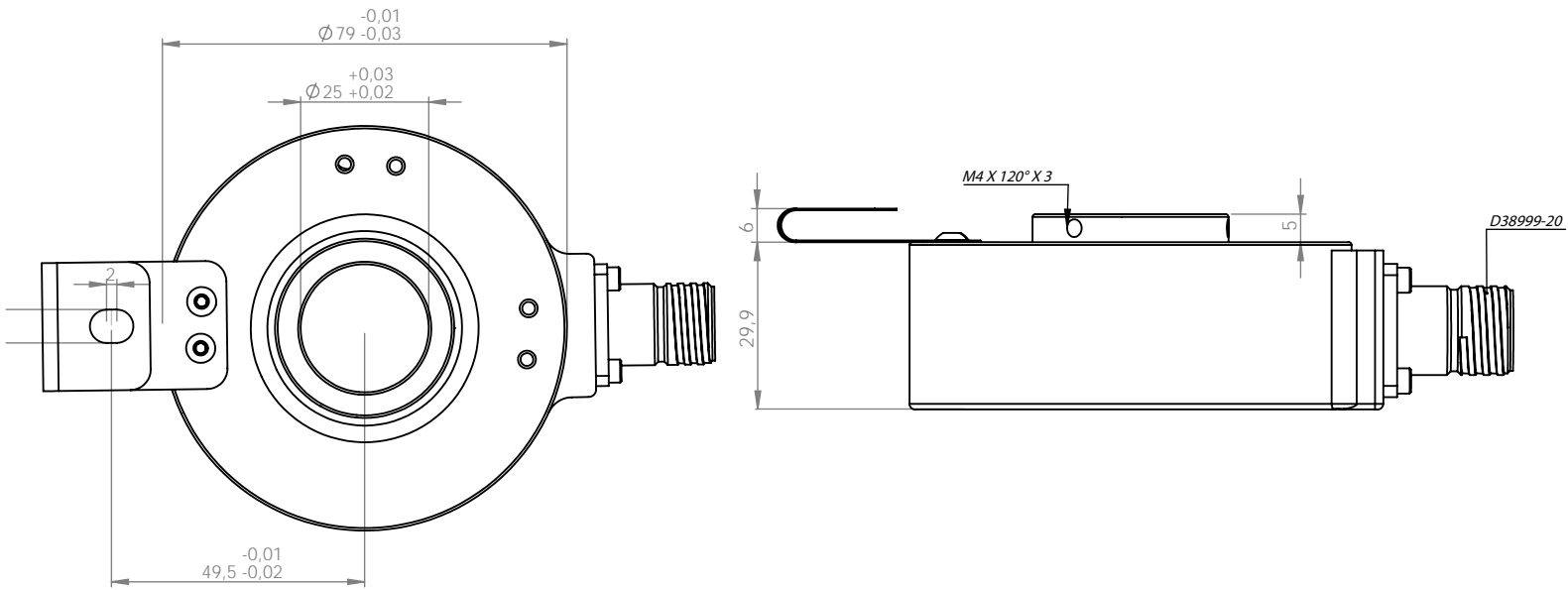
Voltage supply	8VDC to 30VDC 5 VDC
Protection:	Output short circuit protection. Reverse polarity protection (except 5V version)
Consumption w/o load	≤ 100 mA (24VDC)
Consumption w/o load	≤ 100 mA (5VDC)
Interface	SSI or BiSS
Resolution (steps/turn)	up to 18 bit
Absolute accuracy	0,1°
Optoelectronic life time	100.000 (min)
Code	Gray or binary
Inputs	SSI differential clock Direction Electronic zero setting
Output frequency	up to 2MHz (SSI) up to 10MHz (BiSS)
Output circuit	SSI data linedriver RS485
Interference immunity	DIN EN 61000-6-2
Emitted interference	DIN EN 61000-6-4
Approval	CE

Technical data - mechanical design

Dimensions (flange)	Ø80 mm
Shaft loading	≤20 N axial ≤40 N radial
Protection DIN EN 60529	IP 67
Operating speed	≤10000 rpm
Starting torque	≤0.001 Nm (IP 67)
Materials	Housing, Flange : Aluminium Shaft : Stainless steel
Shaft diameter:	25 mm (other diameters on request)
Bearings lifetime:	2x10 ⁹ rev. at 100% of full rated shaft load (minimum)
Operating temperature	-40...+90°C -40 °F ... +180 °F
Weight approx.	250 g

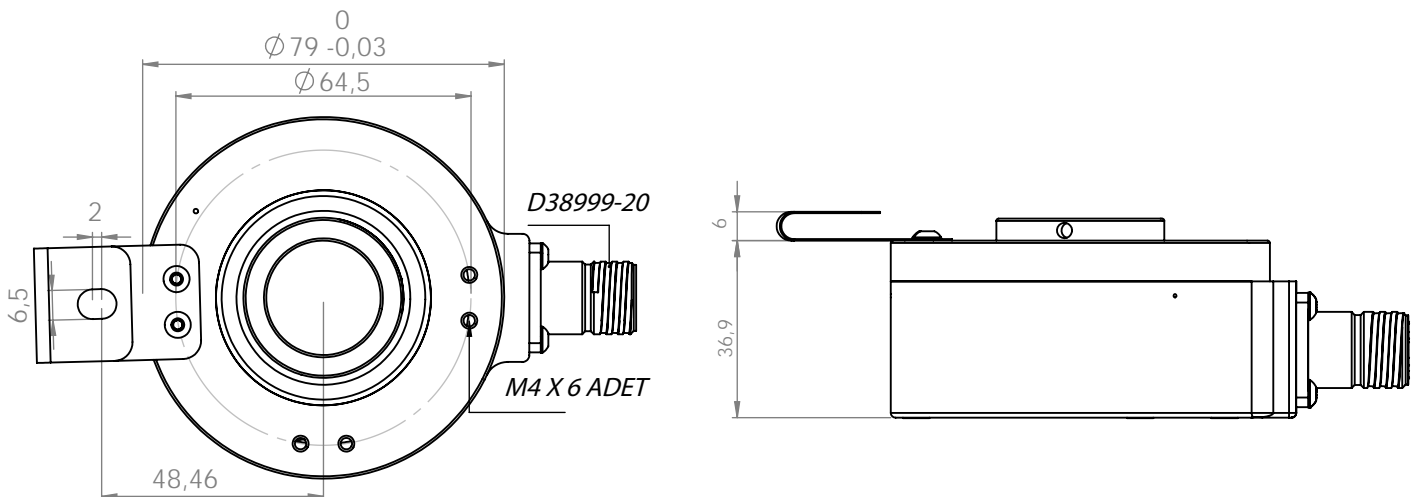
Mechanical Dimensions

Connector Version, Single Bearing



R00/11.01.22

Connector Version, Double Bearing



R00/09.02.22

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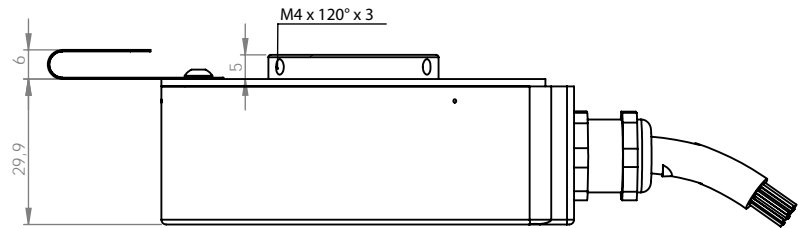
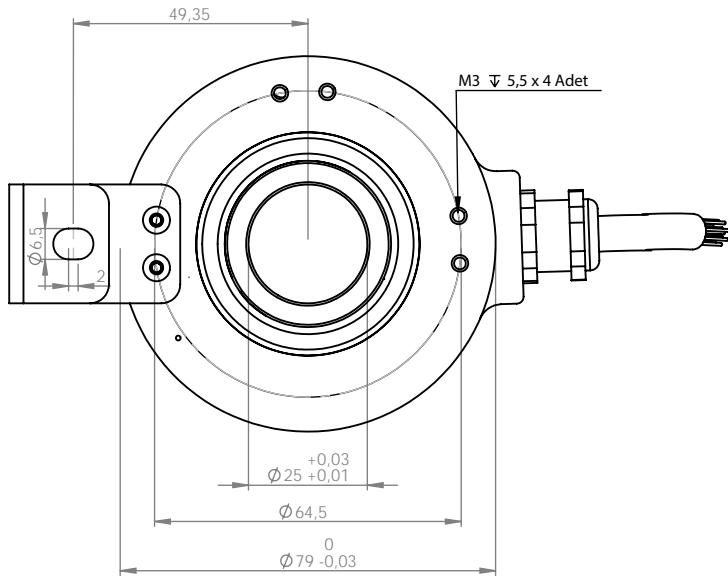
Through Hollow Shaft
Single turn 21 bit
Multi turn 4 bit



FNC AS / AB 80H Series

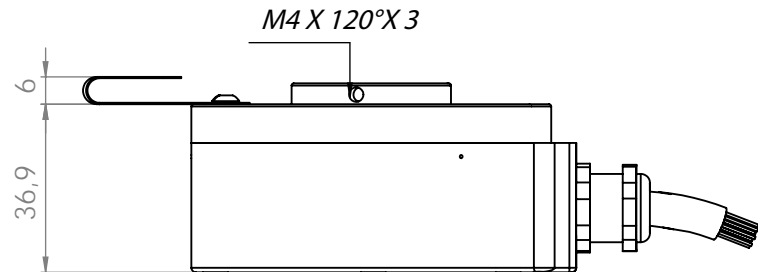
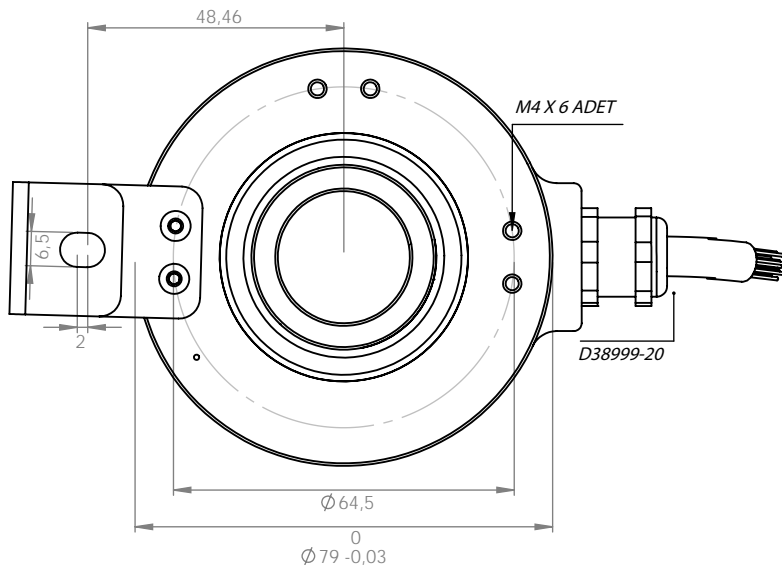
Mechanical Dimensions

Cable Version, Single Bearing



R00/01.06.22

Cable Version, Double Bearing



R00/01.06.22

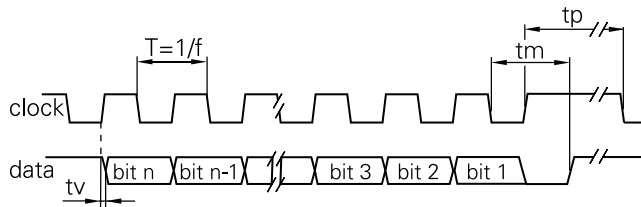
Cable wiring

Signals	Core colour	Description
Clock+	Green	Clock signal
Clock-	Red	Clock signal
Data+	Yellow	Data signal
Data-	Pink	Data signal
0 V	White	GND
+Vs	Brown	Supply voltage
Shield	Black	Connected to housing
Cable data: 4 x 2 x 0.5 mm ² Cable length : 1m		

Connector wiring

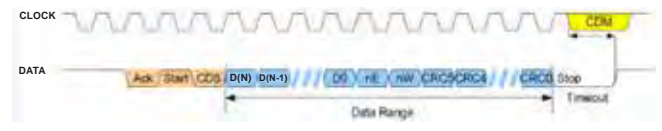
Signals	Pin	Description
Clock+	3	Clock signal
Clock-	4	Clock signal
Data+	5	Data signal
Data-	6	Data signal
0 V	2	GND
+Vs	1	Supply voltage
Shield	Case	Connected to housing
Connector Model : D38999-20WA35PN		

Pulse diagram for SSI



Clock frequency, f	50...2000 kHz for SSI up to 10MHz for BiSS
Code	Binary or gray
Status and parity bit	On request
Monoflop time tm	>15µs
Clock time out	Programmable at factory

Pulse diagram for BiSS



Clock frequency, f	up to 10MHz for BiSS
Code	Binary
BiSS time out	12,5...40 µs
nE	Error bit (low active)
nW	Warning bit (low active)
CRC polynomial	6 bit 0x43

Terminal significance

+Vs	Encoder supply voltage.
0 V	Encoder ground connection relating to +Vs.
Data+	Positive data output.
Data-	Negative data output.
Clock+	Positive SSI clock input.
Clock-	Negative SSI clock input.
Note	If needed, Include termination resistor R=120 Ohm between Data+ and Data- on control side.

Absolute encoders - SSI / BiSS

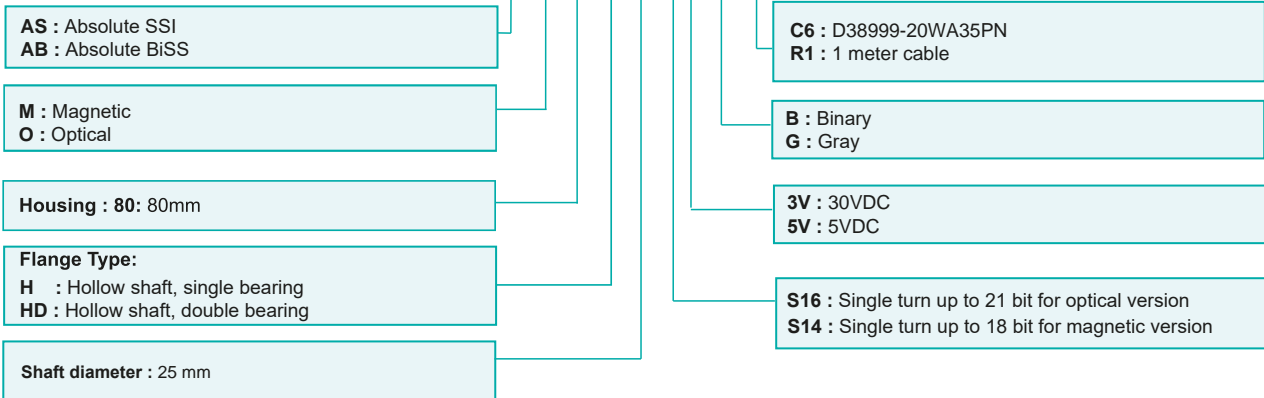
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Encoder Part Number for Singleturn Version

FNC **AB** **O** **80** **H** **25** **S16** **3V** **B** — **C6**



Encoder Part Number for Multiturn Version (Only Magnetic Sensing)

FNC **AB** **M** **80** **H** **25** **S14** **MG4** **3V** **B** — **C6**

