

Incremental encoders

Optical and Magnetic Programming Options



Programmable Resolution 1...65.536 pulses

FNC 50B Series Programmable



Features

- Industry 50 mm standart size,
- Clamping- servo- end hollow shaft flange versions
- Robust mechanical and electrical construction
- Protection up to IP67
- Up to 65.536 PPR max.
- ≤2 MHz frequency
- Programming via FNC PT - PC Programming tool
- FNC PT - PS easy programming software

PPR Options :

1 to 65.536 programmable PPR

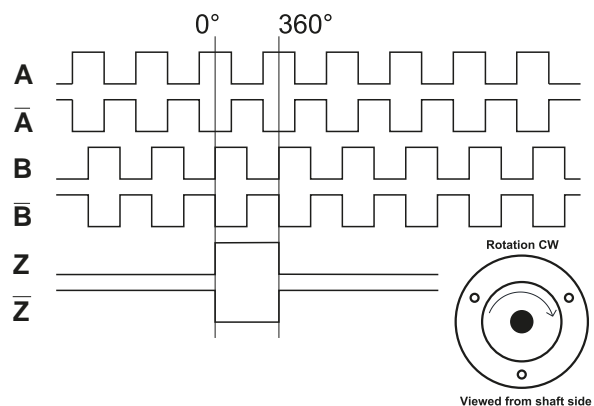
Technical data - electrical ratings

Voltage supply	4.75VDC to 30VDC 4.75VDC to 5.5VDC
Protection	Output short circuit protection. Reverse polarity protection Over voltage protection (except 5V version)
Consumption w/o load	≤60 mA (5 VDC) ≤35 mA (12 VDC) ≤26 mA (24 VDC) ≤27 mA (30 VDC)
Resolution (steps/turn)	1...65.536
Reference signal	Programmable length, 90° 180°, 270 , 360°
Output frequency	≤2 MHz
Output signals	90° shifted A and B, Z + all channels can be set indepently inverted
Output circuit	Linedriver/RS422 Push-pull short-circuit proof
Interference immunity	DIN EN 61000-6-2
Emitted interference	DIN EN 61000-6-4
Approval	CE

Technical data - mechanical design

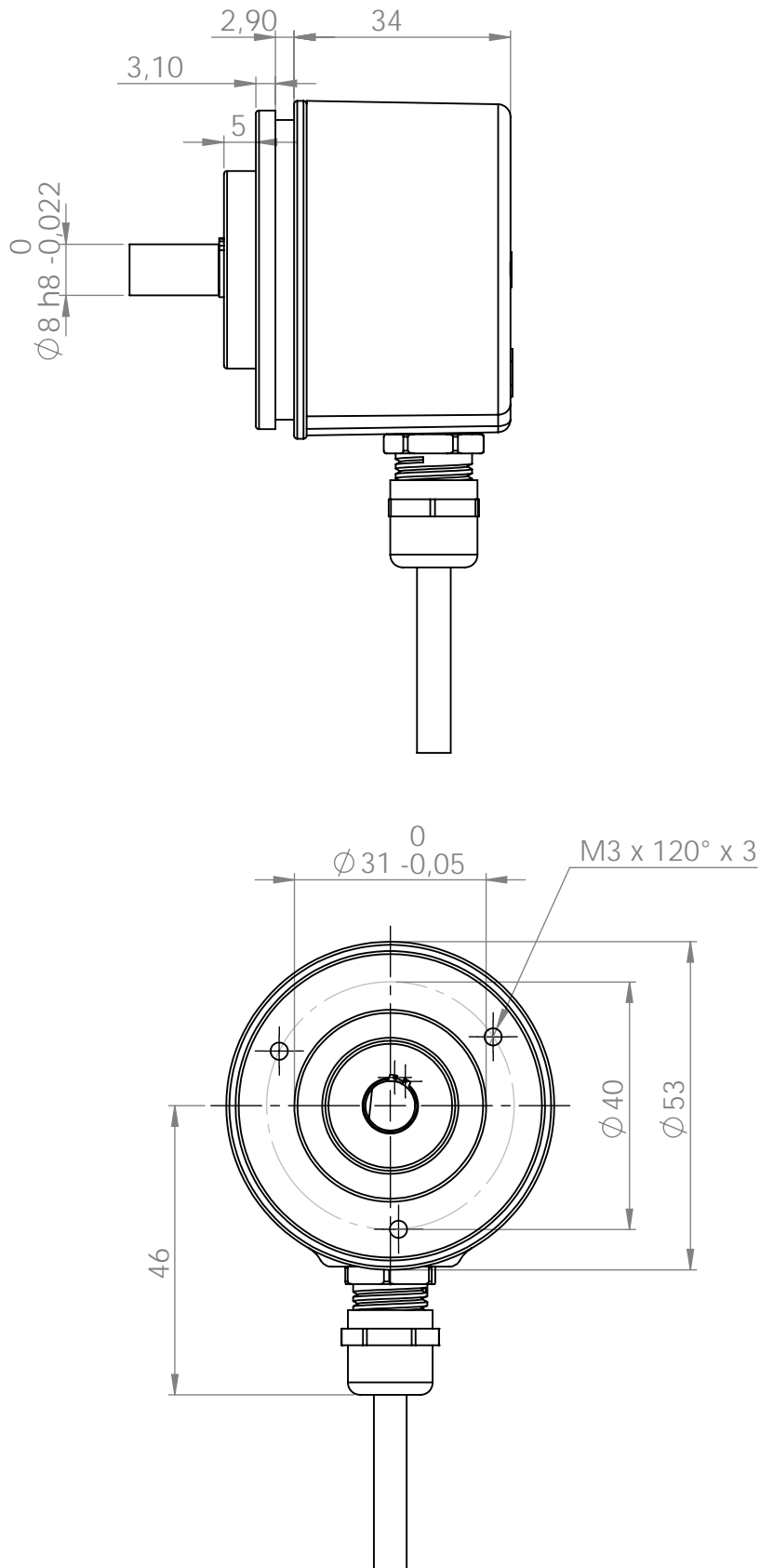
Dimensions (flange)	ø50 mm
Shaft loading	≤140 N axial ≤240 N radial
Protection DIN EN 60529	IP54, IP65
Operating speed	≤12000 rpm
Starting torque	≤0.025 Nm (IP 67)
Materials	Housing: Aluminium Flange: Aluminium Shaft : Stainless steel
Shaft diameter	6, 8, 10, 12 mm (other diameters on request)
Bearings lifetime	2x10 ⁹ rev. at 100% of full rated shaft load (minimum)
Operating temperature	-20...+85 °C
Storage temperature	-30 °C up to +90 °C
Weight approx	250 g

Pulse Diagram



FNC 50B Series Programmable

Mechanical Dimensions



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Cable Wiring

Function	Color	Renk	Farbe	Цвет	颜色	M2312 Connector
+VB	Brown	Kahve	Braun	Коричневый	棕色的	pin 2
GND	White	Beyaz	Weiß	Белый	白色的	pin 10
A	Green	Yeşil	Grün	Зеленый	绿	pin 5
A'	Green-Black	Yeşil-Siyah	Grün-Schwarz	Зелено-черный	绿-蓝色的	pin 6
B	Yellow	Sarı	Gelb	Желтый	黄色的	pin 8
B'	Yellow-Black	Sarı-Siyah	Gelb-Schwarz	Желто-черный	黄色的-蓝色的	pin 1
Z	Gray	Gri	Grau	Серый	灰色的	pin 3
Z'	Gray-Black	Gri-Siyah	Grau-Schwarz	Серо-черный	灰色的-蓝色的	pin 4
NSS	Blue-Black	Mavi-Siyah	Blau-Schwarz	Сине-черный	蓝色的-蓝色的	pin 7
SCK	Blue	Mavi	Blau	Синий	蓝色的	pin 9
MISO	Orange	Turuncu	Orange	Оранжевый	橙	pin 11
MOSI	Orange-Black	Turuncu-Siyah	Orange	Оранжево-черный	橙-蓝色的	pin 12
CLK	Blue	Mavi	Blau	Синий	蓝色的	pin 7
DAT	Orange	Turuncu	Orange	Оранжевый	橙	pin 9

Programming Wires
Optical
Magnetic



FNC PT-PC Programming Device

FNCP 50BO 10630VX-R2

Programming Device - PC Cable

Encoder Part Number



Housing:
50 : 50mm

Flange Type:
S : Servo flange
B : Clamping flange
H : Through hollow shaft

O : Optical programmable M : Magnetic programmable

Shaft diameter : 4, 6, 8, 10, 12, 14
Other dimensions on request

Output Channels
3 : ABZ
4 : AB+A' B'
6 : ABZ+A' B' Z'

Electrical Connections:
Cable
R2 : radial 2m, shield not connected (standart)
A2 : axial 2m, shield not connected (standart)
Connector:
R1204 R1607 R1208 R2312R
R1205 R1614 R1212 R2312L

PPR Options :
1 to 65.536 Programmable

Supply Voltage and output circuit :
5V : 5V in / out
245V : 5-30V in 5V out
30V : 5-30V in / out

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Optical Programming Options



FNC PT-PC Programming Device

Optical Programming PC view

The screenshot shows the 'ENCODER PROGRAMMER UTILITY V1.6.14.06.2020' window. It is divided into three main columns: 'INCREMENTAL PARAMETERS', 'OPTICAL PROGRAMMABLE ENCODER', and 'ANGLE'.
- **INCREMENTAL PARAMETERS:** Resolution is set to 1000000, Z Gate to 360°(A), and Direction of Rotation to CW. Below this is a 'PULSE DIAGRAM' showing waveforms for channels A, B, and Z over 360 degrees.
- **OPTICAL PROGRAMMABLE ENCODER:** A 3D diagram shows a disc with a light source and a light detector.
- **ANGLE:** A circular scale shows the current angle is 359.9 degrees.
- **OPERATION:** Buttons for 'READ', 'WRITE', and 'STOP TEST' are present.
- **CONFIG FILE:** Buttons for 'OPEN' and 'SAVE' are present.
- **STATUS:** 'PROGRAMMER' and 'ENCODER' are both indicated as active with green lights. The status is 'TESTING'.
- **ENCODER:** Encoder pulse is 999986 and encoder angle is 359.99. The FENAC logo is at the bottom right.

Magnetic Programming PC view

The screenshot shows the 'ENCODER PROGRAMMER UTILITY V1.6.14.06.2020' window for a magnetic encoder.
- **INCREMENTAL PARAMETERS:** Resolution is set to 2048, Index Pulse Length to 360°, and Direction of Rotation to CW. Below this is a 'PULSE DIAGRAM' showing waveforms for channels A, B, and Z.
- **MAGNETIC PROGRAMMABLE ENCODER:** A diagram shows a disc with magnetic segments and two Hall sensors.
- **ANGLE:** A circular scale shows the current angle is 184.3 degrees.
- **OPERATION:** Buttons for 'READ', 'WRITE', and 'STOP TEST' are present.
- **CONFIG FILE:** Buttons for 'OPEN' and 'SAVE' are present.
- **STATUS:** 'PROGRAMMER' and 'ENCODER' are both indicated as active with green lights. The status is 'TESTING'.
- **ENCODER:** Encoder pulse is 1049 and encoder angle is 184.39. The FENAC logo is at the bottom right.