

Incremental encoders

Optical and Magnetic Programming Options



Programmable Resolution 1...100.000 pulses

FNCP 50H Series Programmable



Features

- Industry 50 mm standard size,
- Hollow shaft version
- Robust mechanical and electrical construction
- Protection up to IP67
- Up to 100.000 PPR max.
- ≤ 2 MHz frequency
- Programming FNC PT - PC Programming tool
- FNC PT - PS easy programming software

PPR Options :

1 to 65.536 ppr for magnetic version
 1 to 100.000 ppr for optical version
 up to 2.000.000 on request

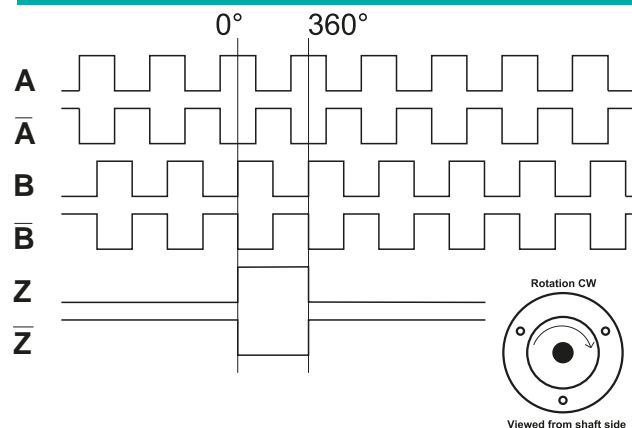
Technical data - electrical ratings

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)
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 independtly 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

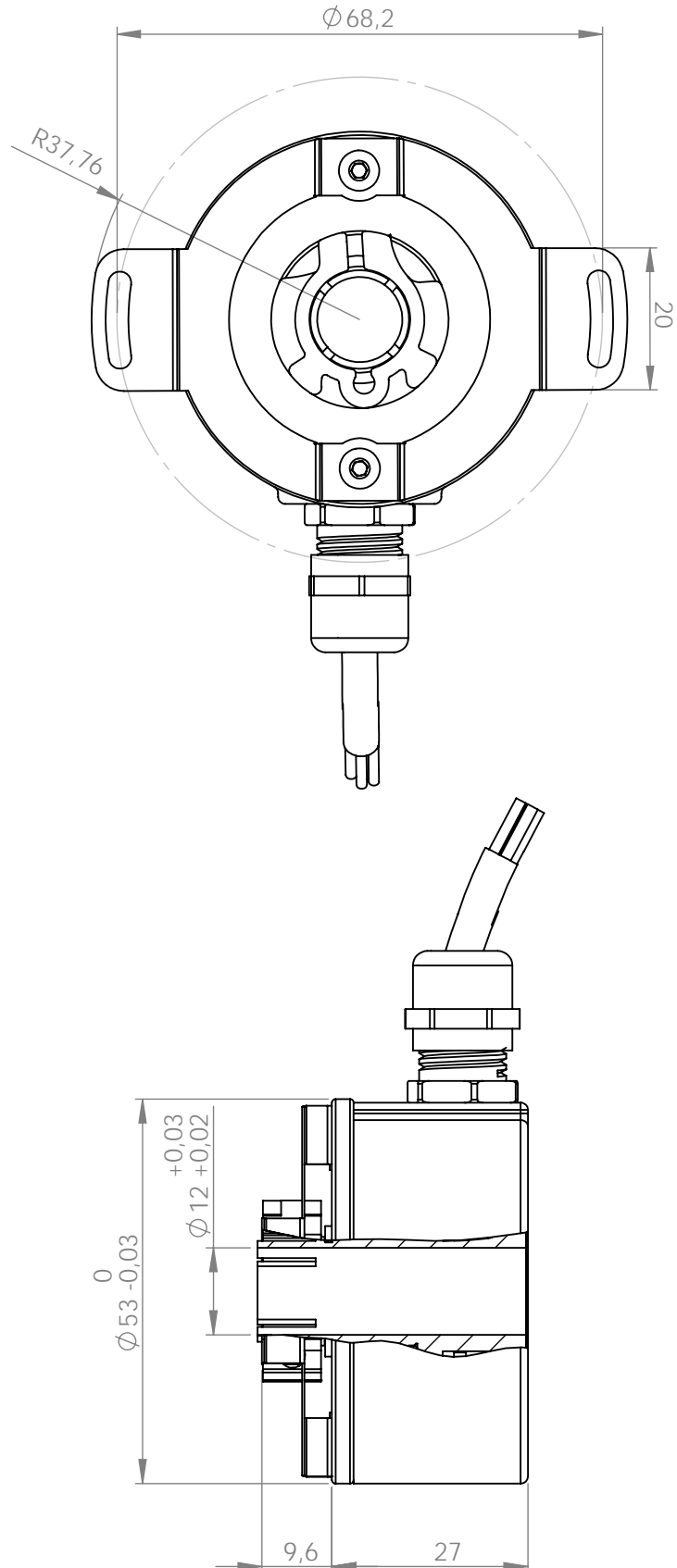
Dimensions (flange)	ø50 mm
Shaft loading	≤ 140 N axial ≤ 240 N radial
Protection DIN EN 60529	IP54, IP65
Operating speed	≤ 12000 rpm
Starting torque	≤ 0.025 Nm (IP67)
Materials	Housing: Aluminum Flange: Aluminum Shaft : Stainless steel
Shaft diameter	6, 8, 10, 12 mm (other diameters on request)
Bearings 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



FNCP 50H 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	Wei	Белый	白色的	pin 10
A	Green	Yeil	Grn	Зеленый	绿	pin 5
A'	Green-Black	Yeil-Siyah	Grn-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



FNCP 50HO 6630VX-R2

FNC PT-PC Programming Device



Programming Device - PC Cable

Encoder Part Number

FNCP 50 H O 6 6 30V X - R2

Housing: 40 : 40 mm	Electrical Connections: Cable R2 : radial 2m, shield not connected (standart) A2 : axial 2m, shield not connected (standart)
Flange Type H : Hollow Shaft	PPR Options : 1 to 65.536 ppr for magnetic version 1 to 100.000 ppr for optical version up to 2.000.000 on request
O : Optical programmable M : Magnetic programmable	Supply Voltage and output circuit : 5V : 5V in / out 245V : 5-30V in 5V out 30V : 5-30V in / out
Shaft diameter: 6, 8, 10, 12 mm Other dimensions on request	
Output Channels 3 : ABZ 4 : AB+A' B' 6 : ABZ+A' B' Z'	

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FNC PT-PC Programming Device

Magnetic 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', 'MAGNETIC PROGRAMMABLE ENCODER', and 'ANGLE'.
- **INCREMENTAL PARAMETERS:** Resolution is set to 2048, Index Pulse Length is 360°, and Direction of Rotation is CW.
- **MAGNETIC PROGRAMMABLE ENCODER:** Features a diagram of a magnetic encoder disk with two Hall sensors and a corresponding pulse diagram showing square waves for channels A, B, and Z.
- **ANGLE:** A circular gauge showing the current angle as 184.3 degrees.
- **OPERATION:** Includes buttons for READ, WRITE, and STOP TEST.
- **STATUS:** Shows PROGRAMMER and ENCODER status indicators, both with green lights, and a 'TESTING' label.
- **ENCODER:** Displays ENCODER PULSE: 1049 and ENCODER ANGLE: 184,39.
- **CONFIG FILE:** Includes OPEN and SAVE buttons.
- **Logo:** FENAC Automation Control logo is visible in the bottom right corner.

Optical Programming PC view

The screenshot shows the 'ENCODER PROGRAMMER UTILITY V1.6.14.06.2020' window for an optical encoder. It is divided into three main columns: 'INCREMENTAL PARAMETERS', 'OPTICAL PROGRAMMABLE ENCODER', and 'ANGLE'.
- **INCREMENTAL PARAMETERS:** Resolution is set to 1000000, Z Gate is 360°(A), and Direction of Rotation is CW.
- **OPTICAL PROGRAMMABLE ENCODER:** Features a diagram of an optical encoder disk with a light source and a light detector.
- **ANGLE:** A circular gauge showing the current angle as 359.9 degrees.
- **OPERATION:** Includes buttons for READ, WRITE, and STOP TEST.
- **STATUS:** Shows PROGRAMMER and ENCODER status indicators, both with green lights, and a 'TESTING' label.
- **ENCODER:** Displays ENCODER PULSE: 999986 and ENCODER ANGLE: 359,99.
- **CONFIG FILE:** Includes OPEN and SAVE buttons.
- **Logo:** FENAC Automation Control logo is visible in the bottom right corner.