

# SIEMENS

## Product data sheet

**6FX2001-5FP12**

product brand name

Measuring systems

 ABS. VALUE ENCODER SINGLETURN 13 BIT  
 SYNCHRONE WITH PROFIBUS DP OPERATING  
 VOLTAGE 10-30 V SYNCHROFLANGE SHAFT 6MM  
 WITH HOOD AND PG RADIAL


Fig. similar

Measuring method / for position feedback	Absolute
Operating principle of absolute encoder	Singleturn
Operating voltage VP at the encoder / min.	10 V
Operating voltage VP at the encoder / max.	30 V
Design of the interface	PROFIBUS DP-V2
Clock input	Differential line receiver according to EIA Standard RS 485
Data output	Differential line driver according to EIA Standard RS 485
Short-circuit strength	Yes
LED for diagnostics	Yes (green/red)
Transfer rate	12 Mbit/s
Speed	
• electrical	

<ul style="list-style-type: none"> <li>• with <math>\pm 1</math> bit accuracy / max.</li> </ul>	5800 1/min
<ul style="list-style-type: none"> <li>• mechanical / max.</li> </ul>	12000 1/min
Digital resolution	13 bit
<ul style="list-style-type: none"> <li>• note</li> </ul>	(8192 increments)
Code type	
<ul style="list-style-type: none"> <li>• Sampling</li> </ul>	Gray
<ul style="list-style-type: none"> <li>• Transfer</li> </ul>	Binary, PROFIBUS
Parameterization capability	
<ul style="list-style-type: none"> <li>• Preset</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Preset</li> </ul>	Any
<ul style="list-style-type: none"> <li>• Counting direction</li> </ul>	Yes
Accuracy	79 "
<ul style="list-style-type: none"> <li>• note</li> </ul>	with 8192 increments ( $\pm 1/2$ LSB)
Friction torque at 20°C / max.	0.01 N·m
Starting torque at 20 °C / max.	0.01 N·m
Shaft load capacity	
<ul style="list-style-type: none"> <li>• at <math>n &gt; 6000</math> rpms <ul style="list-style-type: none"> <li>• axially, max.</li> </ul> </li> </ul>	10 N
<ul style="list-style-type: none"> <li>• radially on shaft end, max.</li> </ul>	20 N
<ul style="list-style-type: none"> <li>• at <math>n \leq 6000</math> rpms <ul style="list-style-type: none"> <li>• axially, max.</li> </ul> </li> </ul>	40 N
<ul style="list-style-type: none"> <li>• radially on shaft end, max.</li> </ul>	110 N
Length / of rotary encoder shaft	10 mm
Angular acceleration / maximum	100000 rad/s <sup>2</sup>
Moment of inertia of rotor	
<ul style="list-style-type: none"> <li>• Solid shaft</li> </ul>	0.0000019 kg·m <sup>2</sup>
Vibration 55 to 2000 Hz according to DIN IEC 60068-2-6 / max.	100 m/s <sup>2</sup>
Shock according to EN 60068-2-27	
<ul style="list-style-type: none"> <li>• 2ms, max.</li> </ul>	2000 m/s <sup>2</sup>
<ul style="list-style-type: none"> <li>• 6ms, max.</li> </ul>	1000 m/s <sup>2</sup>
IP degree of protection	
<ul style="list-style-type: none"> <li>• without shaft input</li> </ul>	IP67
<ul style="list-style-type: none"> <li>• with shaft input</li> </ul>	IP64
Ambient temperature	

• during operating	-40 ... +85 °C
Weight, approx.	0.4 kg
EMC	Tested to DIN EN 50081 and EN 50082
Approval, accord. to	CE, cULus
Current consumed	100 ... 300 mA
• maximum / note	Differential line receiver
Length of cable to subsequent electronics	
• up to 12 Mbit/s, max.	100 m
• up to 1,5 Mbit/s, max.	200 m
• up to 93,75 kbit/s, max.	1200 m
Number of nodes	99
Design of the electrical connection	Terminal block with address selector switch and bus terminating resistor in removable cover with radial cable glands (3 units) terminating resistor in removable cover with radial cable glands (3 units)
Telegram	Telegram 81
Direction of connection opening	Radial
Connection	
• Cable diameter	6.5 ... 9 mm
Connection / Cable diameter / maximal / note	Tube dismantling possible without bus interruption
Network load, approx.	20 µs
• note	Per encoder at 12 Mbit/s
Cycle time	667 µs
Parameterization capability	
• Resolution per revolution	Yes
• note	Any 1 ... 8192
• Total resolution	Yes
• note	Any 1 ... 16384
• Speed signal	Yes
• Limit switches	Yes
• note	2 pieces
• Isochronous mode	Yes
• Slave-to-slave communication	Yes
Online parameterization	Yes
Approval, accord. to	Yes

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Profile / is supported	PNO encoder profile V4.1
Flange type	Synchro flange
Design of rotary encoder shaft	Solid shaft

**Further information**

[Information and download center for Industry Automation and Drives](#)

[Technical documentation \(Motion Control\)](#)

[Industry Mall \(online ordering system\)](#)

[Service & Support \(FAQs, manuals, operating instructions, certificates, ...\)](#)

**last change:**

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