

# SIEMENS

## Product data sheet

6FX2001-5WP24

product brand name

Measuring systems

ABSOLUTE ENCODER MT 27 BIT WITH PROFIBUS  
DP CLOCK SYNCHRONIZED OPERATING  
VOLTAGE 10-30 V WITH HOLLOW SHAFT  
/8/10/12/15MM WITH COVER AND PG RADIAL



Fig. similar

|                                            |                                                             |
|--------------------------------------------|-------------------------------------------------------------|
| Measuring method / for position feedback   | Absolute                                                    |
| Operating principle of absolute encoder    | Multiturn                                                   |
| 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>                                                               | 6000 1/min                            |
| Digital resolution                                                                                                                  | 27 bit                                |
| <ul style="list-style-type: none"> <li>• note</li> </ul>                                                                            | (8192 increments x 16384 rpms)        |
| 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</li> </ul>                                                |                                       |
| <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>• axially, max.</li> </ul> </li> </ul>               | 10 N                                  |
| <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>• radially on shaft end, max.</li> </ul> </li> </ul> | 20 N                                  |
| <ul style="list-style-type: none"> <li>• at <math>n \leq 6000</math> rpms</li> </ul>                                                |                                       |
| <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>• axially, max.</li> </ul> </li> </ul>               | 40 N                                  |
| <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>• radially on shaft end, max.</li> </ul> </li> </ul> | 110 N                                 |
| Angular acceleration / maximum                                                                                                      | 100000 rad/s <sup>2</sup>             |
| Moment of inertia of rotor                                                                                                          |                                       |
| <ul style="list-style-type: none"> <li>• Hollow shaft</li> </ul>                                                                    | 0.0000028 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                                                                                                                 |                                       |
| <ul style="list-style-type: none"> <li>• during operating</li> </ul>                                                                | -40 ... +85 °C                        |

|                                              |                                                                                                                                                                                                           |
|----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Weight, approx.                              | 0.5 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                                                                                                                                                                                                       |
| Profile / is supported                       | PNO encoder profile V4.1                                                                                                                                                                                  |

|                                |                |
|--------------------------------|----------------|
| Flange type                    | Torque bracket |
| Design of rotary encoder shaft | Hollow shaft   |
| Further information            |                |

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**last change:**

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