

# SINAMICS S120 drive system

## Supplementary system components

### Encoder system connection > SME120/SME125 Sensor Modules External

#### Overview



SME120/SME125 Sensor Module External

The SME120/SME125 Sensor Modules External are encoder evaluation units with degree of protection IP67, especially suitable for use in linear and torque motor applications. They can be installed close to the motor systems and encoders in the machine.

Sensor Modules External evaluate the encoder signals and motor temperature sensors specifically and convert the information obtained for DRIVE-CLiQ. The motor temperature signals are safely electrically separated.

A Hall-effect sensor box can be connected for the SME120 to determine the commutation position of a linear motor.

Neither motor nor encoder data are saved in the SME120/SME125.

The SME120 and SME125 can be operated on Control Units with firmware release V2.4 and later.

The following encoder signals can be evaluated depending on the type of Sensor Module:

- Incremental encoder sin/cos 1 V<sub>pp</sub>
- Absolute encoder EnDat 2.1
- SSI absolute encoder <sup>1)</sup> with sin/cos 1 V<sub>pp</sub> incremental signals, but without reference signal

The motor temperature can also be measured using KTY84-130, Pt1000 or PTC thermistors.

#### Design

SME120/SME125 Sensor Modules External feature the following connections and interfaces as standard:

- 1 encoder connection via circular connector
- 1 temperature sensor connection via circular connector
- 1 Hall-effect sensor connection via circular connector (SME120 only)
- 1 DRIVE-CLiQ interface with integrated 24 V DC electronics power supply from the Control Unit or Motor Module
- 1 PE (protective earth) connection

#### Selection and ordering data

| Description                                                                                           | Article No.               |
|-------------------------------------------------------------------------------------------------------|---------------------------|
| <b>SME120 Sensor Module External</b><br>For incremental measuring systems<br>Without DRIVE-CLiQ cable | <b>6SL3055-0AA00-5JA3</b> |
| <b>SME125 Sensor Module External</b><br>For absolute measuring systems<br>Without DRIVE-CLiQ cable    | <b>6SL3055-0AA00-5KA3</b> |
| <b>Accessories</b>                                                                                    |                           |
| <b>Connector for temperature sensor input</b><br>(connector kits, 6+1-pole)                           | <b>6FX2003-0SU07</b>      |
| <b>Connector for Hall sensor input</b><br>(connector kits, 9-pole)                                    | <b>6FX2003-0SU01</b>      |
| <b>Connector for SME120 encoder system interface</b><br>(connector kits, 12-pole)                     | <b>6FX2003-0SA12</b>      |
| <b>Connector for SME125 encoder system interface</b><br>(connector kits, 17-pole)                     | <b>6FX2003-0SA17</b>      |

<sup>1)</sup> For SME125, only SSI encoders with 5 V supply voltage.

<sup>2)</sup> For length code, see section MOTION-CONNECT connection systems.

# Motion Control Encoder measuring systems

Built-on optoelectronic rotary encoders

## Accessories

### Selection and ordering data

| Description                                                                                                                                                                                                                                                                                                                                                                                       | Article No.                                  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|
| <b>Spring disk coupling</b><br>For shaft diameter: <ul style="list-style-type: none"> <li>• 6 mm/6 mm (0.24 in/0.24 in)</li> <li>• 6 mm/5 mm (0.24 in/0.20 in)</li> </ul>                                                                                                                                                                                                                         | <b>6FX2001-7KF10</b><br><b>6FX2001-7KF06</b> |
| <b>Plug-in coupling</b><br>For shaft diameter: <ul style="list-style-type: none"> <li>• 6 mm/6 mm (0.24 in/0.24 in)</li> <li>• 10 mm/10 mm (0.39 in/0.39 in)</li> </ul>                                                                                                                                                                                                                           | <b>6FX2001-7KS06</b><br><b>6FX2001-7KS10</b> |
| <b>Clamp</b><br>(1 unit)<br>For built-on encoder with Synchro flange<br>(3 units are required.)                                                                                                                                                                                                                                                                                                   | <b>6FX2001-7KP01</b>                         |
| <b>Signal connector with cap nut</b><br>(1 unit)<br>Mating connector for incremental encoder with sin/cos 1 V <sub>pp</sub> , RS422 (TTL) and HTL and absolute encoder with SSI<br>12-pole, insulator each with 12 socket contacts 0.08 ... 0.22 mm <sup>2</sup> and 0.20 ... 0.56 mm <sup>2</sup> ,<br>2 × cable clamping 6.5 ... 10 mm (0.26 ... 0.39 in) and 10.1 ... 13 mm (0.40 ... 0.51 in) | <b>6FX2003-0SU12</b>                         |
| <b>Signal connector with cap nut</b><br>(1 unit)<br>Mating connector for absolute encoder with EnDat<br>17-pole, insulator with 17 socket contacts 0.20 ... 0.56 mm <sup>2</sup> ,<br>2 × cable clamping 6.5 ... 10 mm (0.26 ... 0.39 in) and 10.1 ... 13 mm (0.40 ... 0.51 in)                                                                                                                   | <b>6FX2003-0SU17</b>                         |
| <b>Signal connector with external thread for encoders with cable</b><br>(1 unit)<br>Replacement connector for incremental encoders with sin/cos 1 V <sub>pp</sub> , RS422 (TTL) and HTL<br>12-pole, insulator with 12 pin contacts 0.20 ... 0.56 mm <sup>2</sup> ,<br>2 × cable clamping 6.5 ... 10 mm (0.26 ... 0.39 in) and 10.1 ... 13 mm (0.40 ... 0.51 in)                                   | <b>6FX2003-0SA12</b>                         |

| Description                                                                                                                                                                                                                                                                                                                                                                               | Article No.                                                                                                          |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| <b>Power connecting cable</b><br>Pre-assembled cable for power supply of the absolute encoders with PROFINET IO with M12 plug connector and M12 plug socket,<br>A-coded, 4-pin <ul style="list-style-type: none"> <li>• Length 2 m (6.56 ft)</li> <li>• Length 3 m (9.84 ft)</li> <li>• Length 5 m (16.4 ft)</li> <li>• Length 10 m (32.8 ft)</li> <li>• Length 15 m (49.2 ft)</li> </ul> | <b>6XV1801-5DH20</b><br><b>6XV1801-5DH30</b><br><b>6XV1801-5DH50</b><br><b>6XV1801-5DN10</b><br><b>6XV1801-5DN15</b> |
| <b>IE connecting cable</b><br>Pre-assembled signal cable for absolute encoders PROFINET IO with M12 plug connector and RJ45, D-coded, 4-pole <ul style="list-style-type: none"> <li>• Length 2 m (6.56 ft)</li> <li>• Length 3 m (9.84 ft)</li> <li>• Length 5 m (16.4 ft)</li> <li>• Length 10 m (32.8 ft)</li> <li>• Length 15 m (49.2 ft)</li> </ul>                                   | <b>6XV1871-5TH20</b><br><b>6XV1871-5TH30</b><br><b>6XV1871-5TH50</b><br><b>6XV1871-5TN10</b><br><b>6XV1871-5TN15</b> |
| <b>IE FC RJ45 Plug 145</b><br>(1 unit)<br>2 × 2 RJ45 connector with rugged metal enclosure and FC connection technology, 145° cable outlet                                                                                                                                                                                                                                                | <b>6GK1901-1BB30-0AA0</b>                                                                                            |
| <b>IE FC M12 Plug PRO</b><br>(1 unit)<br>M12 connector with metal enclosure and FC connection technology, axial cable outlet, D-coded                                                                                                                                                                                                                                                     | <b>6GK1901-0DB20-6AA0</b>                                                                                            |
| <b>IE POWER M12 CABLE CONNECTOR PRO</b><br>(3 units)<br>Connection socket for connecting SCALANCE W-700/X208pro for 24 V DC supply voltage, 4-pole, A-coded, including assembly instructions                                                                                                                                                                                              | <b>6GK1907-0DC10-6AA3</b>                                                                                            |
| <b>IE FC TP Trailing Cable 2 × 2 (PROFINET Type C)</b><br>4-wire, shielded, PROFINET-compliant, TP installation cable for use in cable carriers, sold by the meter<br>Max. length 2000 m (6562 ft)<br>Minimum order 20 m (65.6 ft)                                                                                                                                                        | <b>6XV1840-3AH10</b>                                                                                                 |
| <b>MOTION-CONNECT DRIVE-CLiQ signal cable</b> <sup>1)</sup><br>For encoder systems with DRIVE-CLiQ and M12 connection                                                                                                                                                                                                                                                                     | <b>6FX.002-2DC3.-1..0</b>                                                                                            |

<sup>1)</sup> For complete Article No. and length code, refer to "MOTION-CONNECT connection systems".