

# SINAMICS S120 Chassis Format Units

## Air-cooled units

### Active Line Modules

#### Overview



The self-commutated infeed/regenerative feedback units with IGBTs generate a regulated DC link voltage. This means that the connected Motor Modules are decoupled from the line voltage. Line voltage fluctuations within the permissible supply tolerances have no effect on the motor voltage.

If required, the Active Line Modules can also provide reactive power compensation.

Active Line Modules are designed for connection to grounded TN/TT and non-grounded IT supply systems.

Active Line Modules are always operated together with the associated Active Interface Modules. These include the necessary pre-charging circuit as well as a Clean Power Filter.

#### Design

The Active Line Modules have the following interfaces as standard:

- 1 line supply connection
- 1 connection for the 24 V DC electronics power supply
- 1 DC link connection (DCP, DCN) for supplying the connected Motor Modules
- 1 DC link connection (DCPA, DCNA) for connecting a Braking Module
- 3 DRIVE-CLiQ sockets
- 1 temperature sensor input (KTY84-130, PTC or Pt100)
- 2 PE/protective conductor connections

The status of the Active Line Modules is indicated via two multi-color LEDs.

The scope of supply of the Active Line Modules includes:

- DRIVE-CLiQ cable for connecting to a CU320-2 or SIMOTION D4x5 Control Unit
- DRIVE-CLiQ cable to connect the Control Unit to the first Motor Module

#### Selection and ordering data

| Rated power<br>at 400 V or 690 V<br>kW | Rated<br>DC link current<br>A | Active Line Module<br>Order No. |
|----------------------------------------|-------------------------------|---------------------------------|
| <b>Line voltage 380 ... 480 V 3 AC</b> |                               |                                 |
| 132                                    | 235                           | <b>6SL3330-7TE32-1AA3</b>       |
| 160                                    | 291                           | <b>6SL3330-7TE32-6AA3</b>       |
| 235                                    | 425                           | <b>6SL3330-7TE33-8AA3</b>       |
| 300                                    | 549                           | <b>6SL3330-7TE35-0AA3</b>       |
| 380                                    | 678                           | <b>6SL3330-7TE36-1AA3</b>       |
| 450                                    | 835                           | <b>6SL3330-7TE37-5AA3</b>       |
| 500                                    | 940                           | <b>6SL3330-7TE38-4AA3</b>       |
| 630                                    | 1103                          | <b>6SL3330-7TE41-0AA3</b>       |
| 800                                    | 1412                          | <b>6SL3330-7TE41-2AA3</b>       |
| 900                                    | 1574                          | <b>6SL3330-7TE41-4AA3</b>       |
| <b>Line voltage 500 ... 690 V 3 AC</b> |                               |                                 |
| 560                                    | 644                           | <b>6SL3330-7TG35-8AA3</b>       |
| 800                                    | 823                           | <b>6SL3330-7TG37-4AA3</b>       |
| 1100                                   | 1148                          | <b>6SL3330-7TG41-0AA3</b>       |
| 1400                                   | 1422                          | <b>6SL3330-7TG41-3AA3</b>       |

| Description                                                                                                                                                                                                                                                                                                                                                                                                                                      | Order No.                 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| <b>Accessories for re-ordering</b>                                                                                                                                                                                                                                                                                                                                                                                                               |                           |
| <b>Warning labels in 16 languages</b><br>Using this set of labels, another language can be placed over the German or English labels available as standard. A set of labels is provided with the devices.<br>The following languages are available once in the set of labels:<br>Chinese (simplified), Danish, Finnish, French, Greek, Italian, Japanese, Korean, Dutch, Polish, Portuguese/ Brazilian, Russian, Swedish, Spanish, Czech, Turkish | <b>6SL3166-3AB00-0AA0</b> |
| <b>Dust protection blanking plugs</b><br>(50 units)<br>For DRIVE-CLiQ port                                                                                                                                                                                                                                                                                                                                                                       | <b>6SL3066-4CA00-0AA0</b> |

[Line-side components, Braking Modules and recommended system components \(→ System components\).](#)

## Technical data

| Line voltage 380 ... 480 V 3 AC                                                    |                 | Active Line Modules |                    |                    |                    |                    |
|------------------------------------------------------------------------------------|-----------------|---------------------|--------------------|--------------------|--------------------|--------------------|
|                                                                                    |                 | 6SL3330-7TE37-5AA3  | 6SL3330-7TE38-4AA3 | 6SL3330-7TE41-0AA3 | 6SL3330-7TE41-2AA3 | 6SL3330-7TE41-4AA3 |
| <b>Rated power</b>                                                                 |                 |                     |                    |                    |                    |                    |
| • For $I_{N\ DC}$ (50 Hz 400 V)                                                    | kW              | <b>450</b>          | <b>500</b>         | <b>630</b>         | <b>800</b>         | <b>900</b>         |
| • For $I_{H\ DC}$ (50 Hz 400 V)                                                    | kW              | 400                 | 465                | 545                | 690                | 780                |
| • For $I_{N\ DC}$ (60 Hz 460 V)                                                    | hp              | 600                 | 700                | 900                | 1000               | 1250               |
| • For $I_{H\ DC}$ (60 Hz 460 V)                                                    | hp              | 600                 | 700                | 800                | 900                | 1000               |
| <b>DC link current</b>                                                             |                 |                     |                    |                    |                    |                    |
| • Rated current $I_{N\ DC}$                                                        | A               | 835                 | 940                | 1103               | 1412               | 1574               |
| • Base load current $I_{H\ DC}$ <sup>1)</sup>                                      | A               | 700                 | 837                | 982                | 1255               | 1401               |
| • Maximum current $I_{max\ DC}$                                                    | A               | 1252                | 1410               | 1654               | 2120               | 2361               |
| <b>Infeed/regenerative feedback current</b>                                        |                 |                     |                    |                    |                    |                    |
| • Rated current $I_{N\ E}$                                                         | A               | 745                 | 840                | 985                | 1260               | 1405               |
| • Maximum current $I_{max\ E}$                                                     | A               | 1117                | 1260               | 1477               | 1890               | 2107               |
| <b>Current demand</b>                                                              |                 |                     |                    |                    |                    |                    |
| • 24 V DC auxiliary power supply                                                   | A               | 1.4                 | 1.4                | 1.5                | 1.7                | 1.7                |
| • 400 V AC                                                                         | A               | 3.6                 | 3.6                | 5.4                | 5.4                | 5.4                |
| <b>DC link capacitance</b>                                                         |                 |                     |                    |                    |                    |                    |
| • Active Line Module                                                               | μF              | 15600               | 16800              | 18900              | 26100              | 28800              |
| • Drive line-up, max.                                                              | μF              | 134400              | 134400             | 230400             | 230400             | 230400             |
| <b>Power loss, max. <sup>2)</sup></b>                                              |                 |                     |                    |                    |                    |                    |
| • At 50 Hz 400 V                                                                   | kW              | 7.3                 | 7.7                | 10.1               | 12.1               | 13.3               |
| • At 60 Hz 460 V                                                                   | kW              | 7.7                 | 8.2                | 10.8               | 13                 | 14.2               |
| <b>Cooling air requirement</b>                                                     |                 | m <sup>3</sup> /s   | 0.78               | 0.78               | 1.08               | 1.08               |
| <b>Sound pressure level <math>L_{pA}</math> <sup>3)</sup></b><br>(1 m) at 50/60 Hz |                 | dB                  | 70/73              | 70/73              | 71/73              | 71/73              |
| <b>Line supply connection</b><br>U1, V1, W1                                        |                 |                     | 2 × M12 screw      | 2 × M12 screw      | 3 × M12 screw      | 3 × M12 screw      |
| • Conductor cross-section, max. (IEC)                                              | mm <sup>2</sup> | 4 × 240             | 4 × 240            | 6 × 240            | 6 × 240            | 6 × 240            |
| <b>DC link connection</b><br>DCP, DCN                                              |                 |                     | 4 × hole for M12   | 4 × hole for M12   | 4 × hole for M12   | 4 × hole for M12   |
| • Conductor cross-section, max. (IEC)                                              | mm <sup>2</sup> | Busbar              | Busbar             | Busbar             | Busbar             | Busbar             |
| <b>PE1/GND connection</b>                                                          |                 |                     | M12 screw          | M12 screw          | M12 screw          | M12 screw          |
| • Conductor cross-section, max. (IEC)                                              | mm <sup>2</sup> | 240                 | 240                | 240                | 240                | 240                |
| <b>PE2/GND connection</b>                                                          |                 |                     | 2 × M12 screw      | 2 × M12 screw      | 3 × M12 screw      | 3 × M12 screw      |
| • Conductor cross-section, max. (IEC)                                              | mm <sup>2</sup> | 2 × 240             | 2 × 240            | 3 × 240            | 3 × 240            | 3 × 240            |
| <b>Cable length, max. <sup>4)</sup></b>                                            |                 |                     |                    |                    |                    |                    |
| • Shielded                                                                         | m               | 3900                | 3900               | 3900               | 3900               | 3900               |
| • Unshielded                                                                       | m               | 5850                | 5850               | 5850               | 5850               | 5850               |
| <b>Degree of protection</b>                                                        |                 |                     | IP00               | IP00               | IP00               | IP00               |
| <b>Dimensions</b>                                                                  |                 |                     |                    |                    |                    |                    |
| • Width                                                                            | mm              | 503                 | 503                | 704                | 704                | 704                |
| • Height                                                                           | mm              | 1475                | 1475               | 1480               | 1480               | 1480               |
| • Depth                                                                            | mm              | 540                 | 540                | 550                | 550                | 550                |
| <b>Weight, approx.</b>                                                             |                 | kg                  | 290                | 290                | 450                | 450                |
| <b>Frame size</b>                                                                  |                 |                     | HX                 | HX                 | JX                 | JX                 |

<sup>1)</sup> The base load current  $I_{H\ DC}$  is the basis for a duty cycle of 150 % for 60 s or  $I_{max\ DC}$  for 5 s with a duty cycle duration of 300 s.

<sup>2)</sup> The specified power loss represents the maximum value at 100 % utilization. The value is lower under normal operating conditions.

<sup>3)</sup> Total sound pressure level of Active Interface Module and Active Line Module.

<sup>4)</sup> Sum of all motor cables and DC link. Longer cable lengths for specific configurations are available on request. [For additional information, please refer to the SINAMICS Low Voltage Engineering Manual.](#)

## Overview



Active Interface Modules are used in conjunction with Active Line Modules. Active Interface Modules contain a Clean Power Filter with basic RI suppression, the pre-charging circuit for the Active Line Module, the line supply voltage sensing circuit and monitoring sensors. The bypass contactor is an integral component in frame sizes FI and GI, thereby making the module very compact. The bypass contactor must be provided separately for frame sizes HI and JI.

Line harmonics are largely suppressed by the Clean Power Filter.

## Design

The scope of supply of the Active Interface Modules includes:

- DRIVE-CLiQ cable for the connection between Active Interface Module and Active Line Module
- DRIVE-CLiQ cable for the connection between the Control Unit and first Motor Module

## Selection and ordering data

| Suitable for<br>Active Line Module<br>chassis format, <u>air-cooled</u> | Suitable for<br>Active Line Module<br>chassis format, <u>liquid-cooled</u> | Rated power<br>of the Active Line Modules<br>at 400 V or 690 V<br>kW | Active Interface Module<br><br>Order No. |
|-------------------------------------------------------------------------|----------------------------------------------------------------------------|----------------------------------------------------------------------|------------------------------------------|
| <b>Line voltage 380 ... 480 V 3 AC</b>                                  |                                                                            |                                                                      |                                          |
| 6SL3330-7TE32-1AA3                                                      | –                                                                          | 132                                                                  | <b>6SL3300-7TE32-6AA0</b>                |
| 6SL3330-7TE32-6AA3                                                      | –                                                                          | 160                                                                  | <b>6SL3300-7TE32-6AA0</b>                |
| 6SL3330-7TE33-8AA3                                                      | –                                                                          | 235                                                                  | <b>6SL3300-7TE33-8AA0</b>                |
| 6SL3330-7TE35-0AA3                                                      | 6SL3335-7TE35-0AA3                                                         | 300                                                                  | <b>6SL3300-7TE35-0AA0</b>                |
| 6SL3330-7TE36-1AA3                                                      | –                                                                          | 380                                                                  | <b>6SL3300-7TE38-4AA0</b>                |
| 6SL3330-7TE37-5AA3                                                      | –                                                                          | 450                                                                  | <b>6SL3300-7TE38-4AA0</b>                |
| 6SL3330-7TE38-4AA3                                                      | 6SL3335-7TE38-4AA3                                                         | 500                                                                  | <b>6SL3300-7TE38-4AA0</b>                |
| 6SL3330-7TE41-0AA3                                                      | –                                                                          | 630                                                                  | <b>6SL3300-7TE41-4AA0</b>                |
| 6SL3330-7TE41-2AA3                                                      | –                                                                          | 800                                                                  | <b>6SL3300-7TE41-4AA0</b>                |
| 6SL3330-7TE41-4AA3                                                      | –                                                                          | 900                                                                  | <b>6SL3300-7TE41-4AA0</b>                |
| <b>Line voltage 500 ... 690 V 3 AC</b>                                  |                                                                            |                                                                      |                                          |
| 6SL3330-7TG35-8AA3                                                      | 6SL3335-7TG35-8AA3                                                         | 560                                                                  | <b>6SL3300-7TG35-8AA0</b>                |
| 6SL3330-7TG37-4AA3                                                      | –                                                                          | 800                                                                  | <b>6SL3300-7TG37-4AA0</b>                |
| 6SL3330-7TG41-0AA3                                                      | –                                                                          | 1100                                                                 | <b>6SL3300-7TG41-3AA0</b>                |
| 6SL3330-7TG41-3AA3                                                      | 6SL3335-7TG41-3AA3                                                         | 1400                                                                 | <b>6SL3300-7TG41-3AA0</b>                |

## Technical data

| Line voltage 380 ... 480 V 3 AC                                                                                       |                   | Active Interface Modules |                                          |                          |                                          |
|-----------------------------------------------------------------------------------------------------------------------|-------------------|--------------------------|------------------------------------------|--------------------------|------------------------------------------|
|                                                                                                                       |                   | 6SL3300-7TE38-4AA0       |                                          | 6SL3300-7TE41-4AA0       |                                          |
| <b>Suitable for Active Line Module</b>                                                                                |                   |                          |                                          |                          |                                          |
| <ul style="list-style-type: none"> <li>Rated power at 400 V</li> <li>- Air-cooled</li> <li>- Liquid-cooled</li> </ul> | kW                | <b>380</b>               | <b>450/500</b>                           | <b>630</b>               | <b>800/900</b>                           |
|                                                                                                                       |                   | 6SL3330-7TE36-1AA3       | 6SL3330-7TE37-5AA3<br>6SL3330-7TE38-4AA3 | 6SL3330-7TE41-0AA3       | 6SL3330-7TE41-2AA3<br>6SL3330-7TE41-4AA3 |
|                                                                                                                       |                   | –                        | 6SL3335-7TE38-4AA3                       | –                        | –                                        |
| <b>Rated current</b>                                                                                                  | A                 | 605                      | 840                                      | 985                      | 1405                                     |
| <b>Bypass contactor</b>                                                                                               |                   | 3RT1476-6AP36            | 3WL1110-2BB34-4AN2-Z C22                 | 3WL1112-2BB34-4AN2-Z C22 | 3WL1116-2BB34-4AN2-Z C22                 |
| <b>Current demand</b>                                                                                                 |                   |                          |                                          |                          |                                          |
| • 24 V DC auxiliary power supply                                                                                      | A                 | 0.17                     | 0.17                                     | 0.17                     | 0.17                                     |
| • 230 V 2 AC                                                                                                          |                   |                          |                                          |                          |                                          |
| - Making current                                                                                                      | A                 | 9.9                      | 9.9                                      | 10.5                     | 10.5                                     |
| - Holding current                                                                                                     | A                 | 4.6                      | 4.6                                      | 4.9                      | 4.9                                      |
| <b>DC link capacitance</b><br>of the drive line-up, max. <sup>1)</sup>                                                | µF                | 134400                   | 134400                                   | 230400                   | 230400                                   |
| <b>Power loss, max. <sup>2)</sup></b>                                                                                 |                   |                          |                                          |                          |                                          |
| • At 50 Hz 400 V                                                                                                      | kW                | 5.5                      | 6.1                                      | 7.5                      | 8.5                                      |
| • At 60 Hz 460 V                                                                                                      | kW                | 5.5                      | 6.1                                      | 7.5                      | 8.5                                      |
| <b>Cooling air requirement</b>                                                                                        | m <sup>3</sup> /s | 0.4                      | 0.4                                      | 0.4                      | 0.4                                      |
| <b>Line supply/load connection</b><br>L1, L2, L3/U2, V2, W2                                                           |                   | 4 × hole for M12         | 4 × hole for M12                         | 3 × hole for M12         | 3 × hole for M12                         |
| • Conductor cross-section, max. (IEC)                                                                                 | mm <sup>2</sup>   | 4 × 240                  | 4 × 240                                  | 6 × 240                  | 6 × 240                                  |
| <b>PE/GND connection</b>                                                                                              |                   | 2 × M12 nut              | 2 × M12 nut                              | 4 × M12 nut              | 4 × M12 nut                              |
| • Conductor cross-section, max. (IEC)                                                                                 | mm <sup>2</sup>   | 2 × 240                  | 2 × 240                                  | 4 × 240                  | 4 × 240                                  |
| <b>Degree of protection</b>                                                                                           |                   | IP00                     | IP00                                     | IP00                     | IP00                                     |
| <b>Dimensions</b>                                                                                                     |                   |                          |                                          |                          |                                          |
| • Width                                                                                                               | mm                | 305                      | 305                                      | 505                      | 505                                      |
| • Height                                                                                                              | mm                | 1750                     | 1750                                     | 1750                     | 1750                                     |
| • Depth                                                                                                               | mm                | 544                      | 544                                      | 544                      | 544                                      |
| <b>Weight, approx.</b>                                                                                                | kg                | 390                      | 390                                      | 620                      | 620                                      |
| <b>Frame size</b>                                                                                                     |                   | HI                       | HI                                       | JI                       | JI                                       |

<sup>1)</sup> Information on higher capacities is included in the SINAMICS Low Voltage Engineering Manual.

<sup>2)</sup> The specified power loss represents the maximum value at 100 % utilization. The value is lower under normal operating conditions.