

SINAMICS S120

Line Modules and line-side components

Basic Line Modules in chassis format

Overview



A Basic Line Module converts an AC source into an unregulated DC supply. Basic Line Modules are used for applications in which no energy is returned to the supply or where the energy exchange between motor and generator axes takes place in the DC link. The connected Motor Modules are precharged via the thyristor gate control which supplies a DC voltage equal to 1.35 x the line voltage. Basic Line Modules are designed for connection to grounded-neutral (TN, TT) and non-grounded (IT) supply systems.

Design

The Basic Line Modules in chassis format feature the following connections as standard:

- 1 power connection
- 1 connection for the 24 V DC electronics power supply
- 1 DC link connection
- 3 DRIVE-CLiQ sockets

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

The scope of supply of the Basic Line Modules includes:

- 0.6 m (1.97 ft) DRIVE-CLiQ cable for connection to a CU320 or SIMOTION D Control Unit
- 1.45 m (4.76 ft) DRIVE-CLiQ cable for connection between the Control Unit and first Motor Module

Selection and ordering data

| Infeed power kW (HP) | Basic Line Module in chassis format Order No. |
|---|---|
| Line voltage 380 V to 480 V 3 AC | |
| 200 (300) | 6SL3330-1TE34-2AA0 |
| 250 (400) | 6SL3330-1TE35-3AA0 |
| 400 (600) | 6SL3330-1TE38-2AA0 |
| 560 (800) | 6SL3330-1TE41-2AA0 |
| 710 (1000) | 6SL3330-1TE41-5AA0 |
| Line voltage 660 V to 690 V 3 AC | |
| 250 (400) | 6SL3330-1TH33-0AA0 |
| 355 (476) | 6SL3330-1TH34-3AA0 |
| 560 (800) | 6SL3330-1TH36-8AA0 |
| 900 (1207) | 6SL3330-1TH41-1AA0 |
| 1100 (1475) | 6SL3330-1TH41-4AA0 |

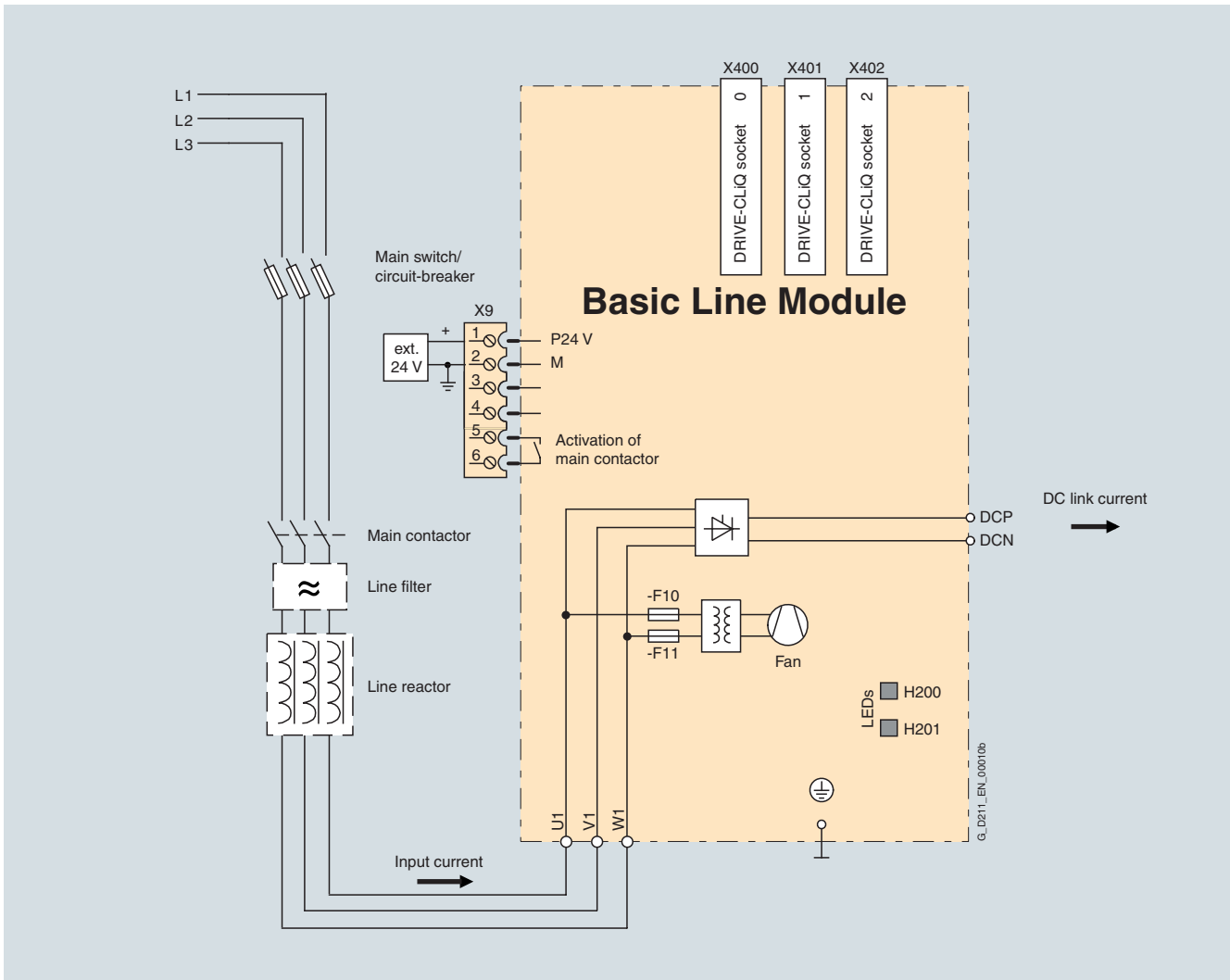
Warning signs in foreign languages

Warning signs in other languages can be placed on top of the standard warning signs in German or English.

The following signs are supplied with chassis format units: Chinese, Danish, Finnish, French, Greek, Italian, Japanese, Korean, Dutch, Polish, Portuguese, Russian, Swedish, Spanish, Czech and Turkish.

Integration

The Basic Line Module communicates with a CU320 or SIMOTION D Control Unit via DRIVE-CLiQ.



Connection example of Basic Line Module

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Basic Line Modules in chassis format

Technical data

General technical data

| Electrical data | |
|---|--|
| Line connection voltage (up to 2000 m (6563 ft) above sea level) | 380 V to 480 V 3 AC \pm 10% (– 15% < 1 min) or 660 V to 690 V 3 AC \pm 10% (– 15% < 1 min) |
| Power frequency | 47 Hz to 63 Hz |
| Line power factor at rated output | |
| • Fundamental Power factor | > 0.96 |
| • Total (λ) | 0.75 to 0.93 |
| Overvoltage category | Class III to EN 60664-1 |
| DC link voltage | approx. 1.35 x line voltage ¹⁾ |
| Electronics power supply | 24 V DC – 15%/+ 20% |
| Main contactor control | |
| • Terminal strip X9/5-6 | 240 V AC/ max. 8 A 30 V DC/ max. 1 A |
| Radio interference suppression | |
| • Standard | No radio interference suppression (Category C3 to EN 61800-3 up to 300 m (984 ft) total cable length) |
| • With line filter | Category C2 to EN 61800-3 |
| Ambient conditions | |
| Type of cooling | Forced air cooling through a built-in fan |
| Permissible ambient and coolant temperature (air) during operation for line-side components, Line Modules and Motor Modules | 0 °C to + 40 °C (32 °F to +104° F) without derating, > 40 °C to + 55 °C (> 104 °F to +131 °F)see derating characteristics |
| Installation altitude | Up to 2000 m (6563 ft) above sea level without derating, > 2000 m (6563 ft) to 4000 m (13126 ft) above sea level see derating characteristics |
| Certificates | |
| Conformity | CE (low-voltage and EMC Directives) |
| Approvals | cULus (File No.: E192450) |

¹⁾ The DC link voltage is unregulated and load-dependent. For further information see System Description.

Technical data (continued)

| Line voltage 380 V to 480 V 3 AC | | Basic Line Modules in chassis format | | | | |
|--|--|--|--|--|--|--|
| | | 6SL3330-1TE34-2AA0 | 6SL3330-1TE35-3AA0 | 6SL3330-1TE38-2AA0 | 6SL3330-1TE41-2AA0 | 6SL3330-1TE41-5AA0 |
| Infeed power P_{rated} with 400 V 3 AC with 460 V 3 AC ¹⁾ | kW (HP) | 200 (300) | 250 (400) | 400 (600) | 560 (800) | 710 (1000) |
| Infeed power for S6 duty (40%) P_{S6} | kW | On request | On request | On request | On request | On request |
| Max. infeed power P_{max} (HP) | kW | 300 (402) | 375 (503) | 600 (805) | 840 (1126) | 1065 (1428) |
| Rated DC link current I_{rated_DC} | A | 420 | 530 | 820 | 1200 | 1500 |
| DC link current I_{H_DC} | A | 328 | 413 | 640 | 936 | 1170 |
| Max. DC link current I_{max_DC} | A | 630 | 795 | 1230 | 1800 | 2250 |
| Input current at $V_{line} = 400$ V | A | 365 | 460 | 710 | 1010 | 1265 |
| Max. input current at $V_{line} = 400$ V | A | 547 | 690 | 1065 | 1515 | 1897 |
| Max. current requirement 24 V DC electronics power supply | A | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 |
| DC link capacitance | μF | 7200 | 9600 | 14600 | 23200 | 29000 |
| Max. DC link capacitance of drive group | μF | 57600 | 76800 | 116800 | 185600 | 232000 |
| Efficiency η | | 0.991 | 0.992 | 0.992 | 0.992 | 0.992 |
| Power loss | kW | 1.9 | 2.1 | 3.2 | 4.6 | 5.5 |
| Cooling air requirement | m ³ /s (ft ³ /s) | 0.17 (6) | 0.17 (6) | 0.17 (6) | 0.36 (12.71) | 0.36 (12.71) |
| Sound pressure level at 50/60 Hz | dB(A) | 67/68 | 67/68 | 67/68 | 72/73 | 72/73 |
| Power connection U1, V1, W1 | | Flange connection with M10 screw, max. cross section 2 × 185 mm ² | Flange connection with M10 screw, max. cross section 2 × 185 mm ² | Flange connection with M10 screw, max. cross section 2 × 185 mm ² | Flange connection with M12 screw, max. cross section 6 × 240 mm ² | Flange connection with M12 screw, max. cross section 6 × 240 mm ² |
| DC link connection DCP, DCN | | Flange connection with M10 screw, max. cross section 2 × 185 mm ² | Flange connection with M10 screw, max. cross section 2 × 185 mm ² | Flange connection with M10 screw, max. cross section 2 × 185 mm ² | Flange connection with M12 screw, max. cross section 2 × 240 mm ² | Flange connection with M12 screw, max. cross section 2 × 240 mm ² |
| PE connection | | On housing with M10 screw, max. cross section 2 × 185 mm ² | On housing with M10 screw, max. cross section 2 × 185 mm ² | On housing with M10 screw, max. cross section 2 × 185 mm ² | On housing with M10 screw, max. cross section 2 × 240 mm ² | On housing with M10 screw, max. cross section 2 × 240 mm ² |
| Max. cable length (total of all motor cables and DC link) | m (ft) | 1500 (4921) | 1500 (4921) | 1500 (4921) | 2250 (7382) | 2250 (7382) |
| Degree of protection | | IP00 | IP00 | IP00 | IP00 | IP00 |
| Width | mm (inch) | 305 (12) | 305 (12) | 305 (12) | 305 (12) | 305 (12) |
| Height | mm (inch) | 1160 (45.67) | 1160 (45.67) | 1160 (45.67) | 1650 (64.96) | 1650 (64.96) |
| Depth | mm (inch) | 351 (13.82) | 351 (13.82) | 351 (13.82) | 550 (21.65) | 550 (21.65) |
| Size | | FB | FB | FB | GB | GB |
| Weight, approx. | kg (lb) | 86 (190) | 86 (190) | 86 (190) | 214 (472) | 214 (472) |

1) Nominal HP ratings are provided for ease of assigning components only. The Line Module outputs are dependent on the Motor Module loading and are to be dimensioned accordingly.

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Line Modules and line-side components

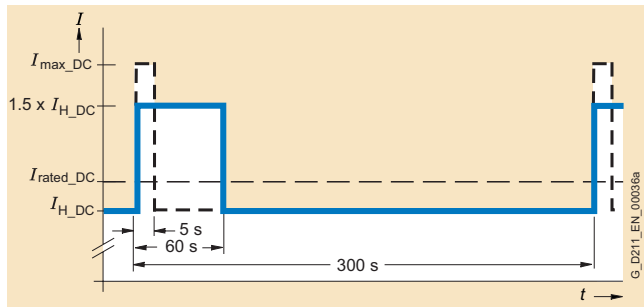
Basic Line Modules in chassis format

Technical data (continued)

| Line voltage 660 V to 690 V 3 AC | | Basic Line Modules in chassis format | | | | |
|---|--|--|--|--|---|---|
| | | 6SL3330-1TH33-0AA0 | 6SL3330-1TH34-3AA0 | 6SL3330-1TH36-8AA0 | 6SL3330-1TH41-1AA0 | 6SL3330-1TH41-4AA0 |
| Infeed power P_{rated} with 690 V 3 AC | kW | 250 | 355 | 560 | 900 | 1100 |
| Infeed power for S6 duty (40%) P_{S6} | kW | On request | On request | On request | On request | On request |
| Max. infeed power P_{max} (HP) | kW | 375 (503) | 532.5 (714) | 840 (1126) | 1350 (1810) | 1650 (2213) |
| Rated DC link current $I_{\text{rated_DC}}$ | A | 300 | 430 | 680 | 1100 | 1400 |
| DC link current I_{H_DC} | A | 234 | 335 | 530 | 858 | 1092 |
| Max. DC link current $I_{\text{max_DC}}$ | A | 450 | 645 | 1020 | 1650 | 2100 |
| Input current at $V_{\text{line}} = 690$ V | A | 260 | 375 | 575 | 925 | 1180 |
| Max. input current at $V_{\text{line}} = 690$ V | A | 390 | 562.5 | 862.5 | 1387.5 | 1770 |
| Max. current requirement 24 V DC electronics power supply | A | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 |
| DC link capacitance | μF | 3200 | 4800 | 7300 | 11600 | 15470 |
| Max. DC link capacitance of drive group | μF | 25600 | 38400 | 58400 | 92800 | 123760 |
| Efficiency η | | 0.994 | 0.994 | 0.995 | 0.994 | 0.995 |
| Power loss | kW | 1.5 | 2.1 | 3.0 | 5.4 | 5.8 |
| Cooling air requirement | m^3/s (ft^3/s) | 0.17 (6) | 0.17 (6) | 0.17 (6) | 0.36 (12.71) | 0.36 (12.71) |
| Sound pressure level at 50/60 Hz | dB(A) | 67/68 | 67/68 | 67/68 | 72/73 | 72/73 |
| Power connection U1, V1, W1 | | Flange connection with M10 screw, max. cross section $2 \times 185 \text{ mm}^2$ with adapter max. cross section $3 \times 240 \text{ mm}^2$ | Flange connection with M10 screw, max. cross section $2 \times 185 \text{ mm}^2$ with adapter max. cross section $3 \times 240 \text{ mm}^2$ | Flange connection with M10 screw, max. cross section $2 \times 185 \text{ mm}^2$ with adapter max. cross section $3 \times 240 \text{ mm}^2$ | Flange connection for busbar connection with M12 screw or with adapter max. cross section $6 \times 240 \text{ mm}^2$ | Flange connection for busbar connection with M12 screw or with adapter max. cross section $6 \times 240 \text{ mm}^2$ |
| DC link connection DCP, DCN | | Flange connection with M10 screw, max. cross section $2 \times 185 \text{ mm}^2$ with adapter max. cross section $3 \times 240 \text{ mm}^2$ | Flange connection with M10 screw, max. cross section $2 \times 185 \text{ mm}^2$ with adapter max. cross section $3 \times 240 \text{ mm}^2$ | Flange connection with M10 screw, max. cross section $2 \times 185 \text{ mm}^2$ with adapter max. cross section $3 \times 240 \text{ mm}^2$ | Flange connection for busbar connection with M12 screw or with adapter max. cross section $6 \times 240 \text{ mm}^2$ | Flange connection for busbar connection with M12 screw or with adapter max. cross section $6 \times 240 \text{ mm}^2$ |
| PE connection | | On housing with M10 screw, max. cross section $2 \times 185 \text{ mm}^2$ | On housing with M10 screw, max. cross section $2 \times 185 \text{ mm}^2$ | On housing with M10 screw, max. cross section $2 \times 185 \text{ mm}^2$ | On housing with M12 screw, max. cross section $4 \times 240 \text{ mm}^2$ | On housing with M12 screw, max. cross section $4 \times 240 \text{ mm}^2$ |
| Max. cable length (total of all motor cables and DC link) | m (ft) | 1500 (4921) | 1500 (4921) | 1500 (4921) | 2250 (7382) | 2250 (7382) |
| Degree of protection | | IP00 | IP00 | IP00 | IP00 | IP00 |
| Width | mm (inch) | 305 (12) | 305 (12) | 305 (12) | 305 (12) | 305 (12) |
| Height | mm (inch) | 1160 (45.67) | 1160 (45.67) | 1160 (45.67) | 1650 (64.96) | 1650 (64.96) |
| Depth | mm (inch) | 351 (13.82) | 351 (13.82) | 351 (13.82) | 550 (21.65) | 550 (21.65) |
| Size | | FB | FB | FB | GB | GB |
| Weight, approx. | kg (lb) | 86 (190) | 86 (190) | 86 (190) | 214 (472) | 214 (472) |

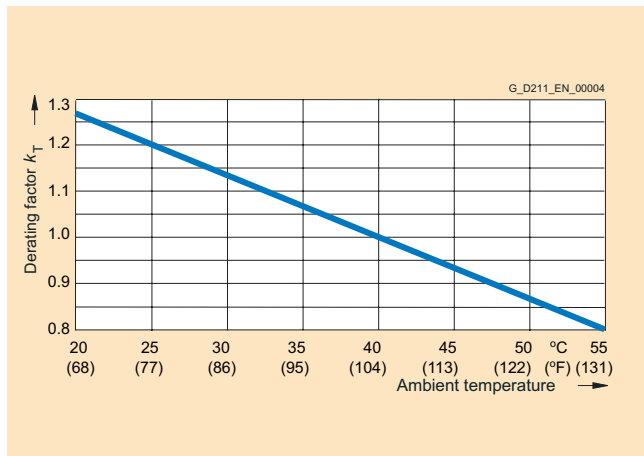
Characteristics

Overload capability



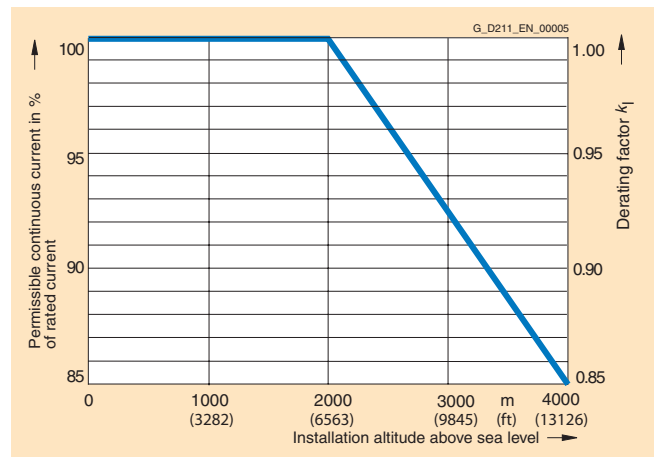
Overload capability

Derating characteristics

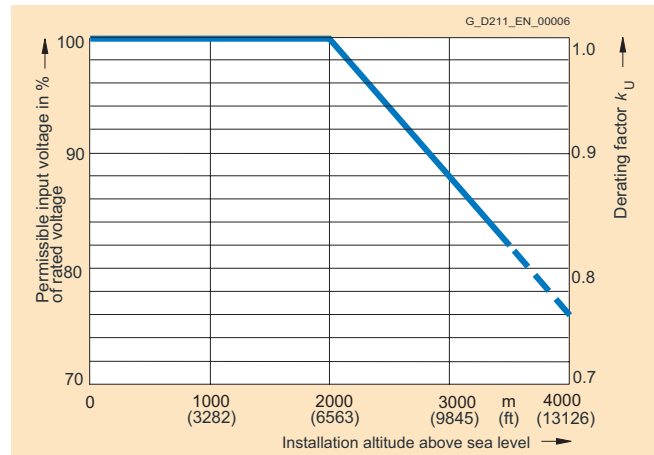


Current derating dependent on ambient temperature

Note: A derating factor $k_T > 1.0$ is to be taken into account only in conjunction with "current derating dependent on installation altitude". See also System description.



Current derating dependent on installation altitude



Voltage derating dependent on installation altitude

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Line Modules and line-side components

Basic Line Modules in chassis format

Line reactors

Overview



Line reactors reduce harmonic currents on the supply system and limit commutating dips in the Basic Line Module. For this reason, line reactors should always be used.

Selection and ordering data

| Infeed power of the Basic Line Module kW (HP) | Suitable for Basic Line Module | Line reactor Order No. |
|--|--------------------------------|---------------------------|
| Line voltage 380 V to 480 V 3 AC | | |
| 200 (300) | 6SL3330-1TE34-2AA0 | 6SL3000-OCE35-1AA0 |
| 250 (400) | 6SL3330-1TE35-3AA0 | 6SL3000-OCE35-1AA0 |
| 400 (600) | 6SL3330-1TE38-2AA0 | 6SL3000-OCE37-7AA0 |
| 560 (800) | 6SL3330-1TE41-2AA0 | 6SL3000-OCE41-0AA0 |
| 710 (1000) | 6SL3330-1TE41-5AA0 | 6SL3000-OCE41-5AA0 |
| Line voltage 660 V to 690 V 3 AC | | |
| 250 | 6SL3330-1TH33-0AA0 | 6SL3000-OCH32-7AA0 |
| 355 | 6SL3330-1TH34-3AA0 | 6SL3000-OCH34-8AA0 |
| 560 | 6SL3330-1TH36-8AA0 | 6SL3000-OCH36-0AA0 |
| 900 | 6SL3330-1TH41-1AA0 | 6SL3000-OCH41-2AA0 |
| 1100 | 6SL3330-1TH41-4AA0 | 6SL3000-OCH41-2AA0 |

Technical data

| Line voltage 380 V to 480 V 3 AC | | Line reactor 6SL3000-OCE35-1AA0 | | | | |
|-------------------------------------|-----------|------------------------------------|---------------------|---------------------|---------------------|---------------------|
| | | | 6SL3000-OCE37-7AA0 | 6SL3000-OCE41-0AA0 | 6SL3000-OCE41-5AA0 | |
| Max. thermal current $I_{th\ max}$ | A | 508 | 508 | 773 | 1022 | 1485 |
| Power loss 50 Hz/60 Hz | kW | 0.292/0.328 | 0.323/0.365 | 0.310/0.351 | 0.441/0.498 | 0.687/0.776 |
| Line/load connection | | M12 connecting lugs | M12 connecting lugs | M12 connecting lugs | M12 connecting lugs | M12 connecting lugs |
| Degree of protection | | IP00 | IP00 | IP00 | IP00 | IP00 |
| Width | mm (inch) | 300 (11.81) | 300 (11.81) | 300 (11.81) | 350 (13.78) | 460 (18.11) |
| Height | mm (inch) | 269 (10.59) | 269 (10.59) | 269 (10.59) | 321 (12.64) | 435 (17.13) |
| Depth | mm (inch) | 212.5 (8.37) | 212.5 (8.37) | 212.5 (8.37) | 211.5 (8.33) | 235 (9.25) |
| Weight, approx. | kg (lb) | 38.0 (84) | 38.0 (84) | 51.3 (113) | 69.6 (154) | 118 (260) |
| Suitable for Basic Line Module | Type | 6SL3330-1TE34-2AA0 | 6SL3330-1TE35-3AA0 | 6SL3330-1TE38-2AA0 | 6SL3330-1TE41-2AA0 | 6SL3330-1TE41-5AA0 |

| Line voltage 660 V to 690 V 3 AC | | Line reactor | | | | |
|-------------------------------------|-----------|---------------------|---------------------|---------------------|---------------------|---------------------|
| | | 6SL3000-OCH32-7AA0 | 6SL3000-OCH34-8AA0 | 6SL3000-OCH36-0AA0 | 6SL3000-OCH41-2AA0 | |
| Max. thermal current $I_{th\ max}$ | A | 270 | 482 | 597 | 1167 | 1167 |
| Power loss 50 Hz/60 Hz | kW | 0.245/0.277 | 0.424/0.478 | 0.430/0.485 | 0.620/0.697 | 0.693/0.783 |
| Line/load connection | | M10 connecting lugs | M12 connecting lugs | M12 connecting lugs | M12 connecting lugs | M12 connecting lugs |
| Degree of protection | | IP00 | IP00 | IP00 | IP00 | IP00 |
| Width | mm (inch) | 270 (10.63) | 350 (13.78) | 350 (13.78) | 460 (18.11) | 460 (18.11) |
| Height | mm (inch) | 248 (9.76) | 321 (12.64) | 321 (12.64) | 435 (17.13) | 435 (17.13) |
| Depth | mm (inch) | 200 (7.87) | 232.5 (9.15) | 232.5 (9.15) | 235 (9.25) | 235 (9.25) |
| Weight, approx. | kg (lb) | 27.9 (62) | 55.6 (123) | 63.8 (141) | 147 (324) | 147 (324) |
| Suitable for Basic Line Module | Type | 6SL3330-1TH33-0AA0 | 6SL3330-1TH34-3AA0 | 6SL3330-1TH36-8AA0 | 6SL3330-1TH41-1AA0 | 6SL3330-1TH41-4AA0 |

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Line Modules and line-side components

Basic Line Modules in chassis format Line filters

Overview



In plants with strict EMC requirements, line filters work together with line reactors to restrict the conducted interference emanating from the power modules to the limit values of Category C2 as defined in EN 61800-3. Line filters are suited only for direct connection to TN (grounded) systems.

Selection and ordering data

| Infeed power of the Basic Line Module kW (HP) | Suitable for Basic Line Module | Line filter Order No. |
|--|--------------------------------|---------------------------|
| Line voltage 380 V to 480 V 3 AC | | |
| 200 (300) | 6SL3330-1TE34-2AA0 | 6SL3000-0BE34-4AA0 |
| 250 (400) | 6SL3330-1TE35-3AA0 | 6SL3000-0BE36-0AA0 |
| 400 (600) | 6SL3330-1TE38-2AA0 | 6SL3000-0BE41-2AA0 |
| 560 (800) | 6SL3330-1TE41-2AA0 | 6SL3000-0BE41-2AA0 |
| 710 (1000) | 6SL3330-1TE41-5AA0 | 6SL3000-0BE41-6AA0 |
| Line voltage 660 V to 690 V 3 AC | | |
| 250 | 6SL3330-1TH33-0AA0 | 6SL3000-0BG34-4AA0 |
| 355 | 6SL3330-1TH34-3AA0 | 6SL3000-0BG34-4AA0 |
| 560 | 6SL3330-1TH36-8AA0 | 6SL3000-0BG36-0AA0 |
| 900 | 6SL3330-1TH41-1AA0 | 6SL3000-0BG41-2AA0 |
| 1100 | 6SL3330-1TH41-4AA0 | 6SL3000-0BG41-2AA0 |

Technical data

| Line voltage 380 V to 480 V 3 AC | | Line filter | | | |
|--|-----------|-------------------------|--------------------------|--|--------------------------|
| | | 6SL3000-0BE34-4AA0 | 6SL3000-0BE36-0AA0 | 6SL3000-0BE41-2AA0 | 6SL3000-0BE41-6AA0 |
| Rated current | A | 440 | 600 | 1200 | 1600 |
| Power loss | kW | 0.049 | 0.055 | 0.137 | 0.182 |
| Line/load connection L1, L2, L3 / L1', L2', L3' | | M10 connecting lugs | M10 connecting lugs | M12 connecting lugs | M12 connecting lugs |
| PE connection | | On housing with M8 bolt | On housing with M10 bolt | On housing with M10 bolt | On housing with M10 bolt |
| Degree of protection | | IP00 | IP00 | IP00 | IP00 |
| Width | mm (inch) | 360 (14.17) | 400 (15.75) | 425 (16.73) | 505 (19.88) |
| Height | mm (inch) | 240 (9.45) | 265 (10.43) | 265 (10.43) | 265 (10.43) |
| Depth | mm (inch) | 116 (4.57) | 140 (5.51) | 145 (5.71) | 145 (5.71) |
| Weight, approx. | kg (lb) | 12.3 (27) | 19.0 (42) | 25.2 (56) | 28.8 (64) |
| Suitable for Basic Line Module | Type | 6SL3330-1TE34-2AA0 | 6SL3330-1TE35-3AA0 | 6SL3330-1TE38-2AA0 6SL3330-1TE41-5AA0 | 6SL3330-1TE41-5AA0 |

| Line voltage 660 V to 690 V 3 AC | | Line filter | | |
|--|-----------|--|--------------------------|--|
| | | 6SL3000-0BG34-4AA0 | 6SL3000-0BG36-0AA0 | 6SL3000-0BG41-2AA0 |
| Rated current | A | 440 | 600 | 1200 |
| Power loss | kW | 0.049 | 0.055 | 0.137 |
| Line/load connection L1, L2, L3 / L1', L2', L3' | | M10 connecting lugs | M10 connecting lugs | M12 connecting lugs |
| PE connection | | On housing with M8 bolt | On housing with M10 bolt | On housing with M10 bolt |
| Degree of protection | | IP00 | IP00 | IP00 |
| Width | mm (inch) | 360 (14.17) | 360 (14.17) | 425 (16.73) |
| Height | mm (inch) | 240 (9.45) | 240 (9.45) | 265 (10.43) |
| Depth | mm (inch) | 116 (4.57) | 116 (4.57) | 145 (5.71) |
| Weight, approx. | kg (lb) | 12.3 (27) | 19.0 (42) | 25.2 (56) |
| Suitable for Basic Line Module | Type | 6SL3330-1TH33-0AA0 6SL3330-1TH34-3AA0 | 6SL3330-1TH36-8AA0 | 6SL3330-1TH41-1AA0 6SL3330-1TH41-4AA0 |

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Line Modules and line-side components

Basic Line Modules in chassis format Recommended line-side components

Overview

Assignment of line-side power components to Basic Line Modules in chassis format

Suitable line-side power components are assigned depending on the power rating of the Basic Line Module.

The tables below list recommended components.

Further information about the main contactors, switch disconnectors, fuses and circuit-breakers specified in the tables can be found in Catalogs LV 1, LV IT and ET BI.¹⁾

| Infeed power | Input current | Suitable for Basic Line Module | Main contactor | Fixed-mounted circuit-breaker | Switch disconnector without handle and shaft | Switch disconnector with handle and shaft |
|---|---------------|--------------------------------|-----------------------------|---------------------------------|--|---|
| kW (HP) | A | Type 6SL3330-... | Type | Order No. | Order No. | Order No. |
| Line voltage 380 V to 480 V 3 AC | | | | | | |
| 200 (300) | 365 | 1TE34-2AA0 | 3RT1075-... | – | 3KL6130-1AB02 | 3KL6130-1EB02 |
| 250 (400) | 460 | 1TE35-3AA0 | 3RT1076-... | – | 3KL6130-1AB02 | 3KL6130-1EB02 |
| 400 (600) | 710 | 1TE38-2AA0 | 3RT1066-... (x 3) | – | 3KL6230-1AB02 | 3KL6230-1EB02 |
| 560 (800) | 1010 | 1TE41-2AA0 | – | 3WL1112-2BB34-4AN2-Z C22 | – | – |
| 710 (1000) | 1265 | 1TE41-5AA0 | – | 3WL1116-2BB34-4AN2-Z C22 | – | – |
| Line voltage 660 V to 690 V 3 AC | | | | | | |
| 250 | 260 | 1TH33-0AA0 | 3RT1066-... | – | 3KL5730-1AB01 | 3KL5730-1EB01 |
| 355 | 375 | 1TH34-3AA0 | 3RT1476-6AP36 | – | 3KL6130-1AB02 | 3KL6130-1EB02 |
| 560 | 575 | 1TH36-8AA0 | 3RT1476-6AP36 | – | 3KL6130-1AB02 | 3KL6130-1EB02 |
| 900 | 925 | 1TH41-1AA0 | – | 3WL1210-4BB34-4AN2-Z C22 | – | – |
| 1100 | 1180 | 1TH41-4AA0 | – | 3WL1212-4BB34-4AN2-Z C22 | – | – |

| Infeed power | Input current | Suitable for Basic Line Module | Cable protection fuse | | Cable protection fuse incl. semiconductor protection | |
|---|---------------|--------------------------------|---------------------------|-----------------|--|-----------------|
| kW (HP) | A | Type 6SL3330-... | Order No. | Rated current A | Order No. | Rated current A |
| Line voltage 380 V to 480 V 3 AC | | | | | | |
| 200 (300) | 365 | 1TE34-2AA0 | 3NA3365 | 500 | 3NE1333-2 | 450 |
| 250 (400) | 460 | 1TE35-3AA0 | 3NA3372 | 630 | 3NE1334-2 | 500 |
| 400 (600) | 710 | 1TE38-2AA0 | 3NA3475 | 800 | 3NE1448-2^{*)} | 800 |
| 560 (800) | 1010 | 1TE41-2AA0 | 3NA3482 | 1250 | 3NE1435-2 (x 2) | 2 × 560 |
| 710 (1000) | 1265 | 1TE41-5AA0 | 3NA3475 (x 2) | 2 × 800 | 3NE1437-2 (x 2) | 2 × 710 |
| Line voltage 660 V to 690 V 3 AC | | | | | | |
| 250 | 260 | 1TH33-0AA0 | 3NA3252-6 | 315 | 3NE1230-2 | 315 |
| 355 | 375 | 1TH34-3AA0 | 3NA3365-6 | 500 | 3NE1333-2^{*)} | 450 |
| 560 | 575 | 1TH36-8AA0 | 3NA3252-6 (x 2) | 2 × 315 | 3NE1436-2^{*)} | 630 |
| 900 | 925 | 1TH41-1AA0 | 3NA3365-6 (x 2) | 2 × 500 | 3NE1334-2 (x 2) | 2 × 500 |
| 1100 | 1180 | 1TH41-4AA0 | 3NA3365-6 (x 3) | 3 × 500 | 3NE1436-2^{*)} (x 2) | 2 × 630 |

¹⁾ Component selections are per IEC standards and not necessarily in accordance with UL or NEC requirements. For NEMA components please see North American Industrial Products Catalog and Speedfax Catalog.

^{*)} No semiconductor protection.

Overview



Smart Line Modules are non-regulated feed/feedback units (diode bridge for incoming supply; line-commutated feedback via IGBTs) with 100% regenerative feedback power. The regenerative feedback capability of the modules can be deactivated by means of a digital input. Smart Line Modules are designed for connection to grounded-neutral (TN, TT) and non-grounded (IT) supply systems.

The DC link is pre-charged via integrated precharging resistors.

Design

The Smart Line Modules in booksize format feature the following interfaces as standard:

- 1 power connection via screw-type terminals
- 1 connection for the 24 V DC electronics power supply via the 24 V terminal adapter included in the scope of supply
- 1 DC link connection via integrated DC link busbars
- 2 PE (protective earth) connections
- 2 digital inputs (5 kW (5 HP) and 10 kW (10 HP) on Smart Line Modules only)
- 1 x digital output (5 kW (5 HP) and 10 kW (10 HP) on Smart Line Modules only)
- 3 DRIVE-CLiQ sockets (16 kW (18 HP) and 36 kW (40 HP) on Smart Line Modules only)

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

The signal cable shield can be connected to the Line Module by means of a shield connection terminal, e.g. Weidmüller type KLBU 3-8 SC.

The scope of supply of the Smart Line Modules includes:

- DRIVE-CLiQ cable for connection to the Control Unit on the immediate left for drive control (on 16 kW (18 HP) and 36 kW (40 HP) Smart Line Modules only)
- DRIVE-CLiQ cable (length depends on module width) to connect Smart Line Modules to adjacent Motor Module
- Jumper for connecting the 24 V DC busbar to the adjacent Motor Module
- 24 V terminal adapter (X24)
- Connector X21 for digital inputs and outputs
- Connector X22 for digital inputs and outputs (5 kW (5 HP) and 10 kW (10 HP) on Smart Line Modules only)
- Connector X1 for line supply connection (5 kW (5 HP) and 10 kW (10 HP) on Smart Line Modules only)

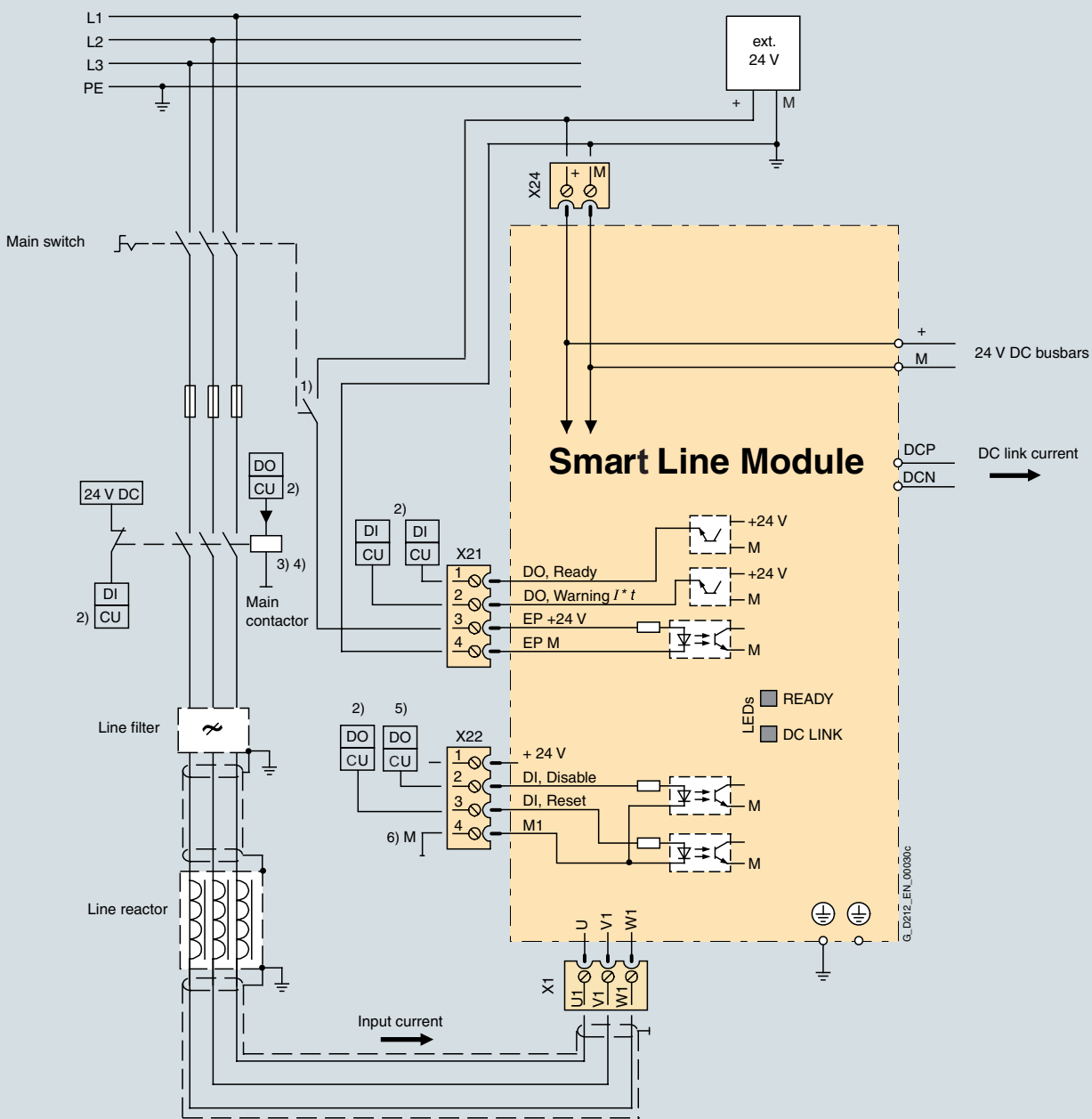
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Line Modules and line-side components

Smart Line Modules in booksize format

Integration

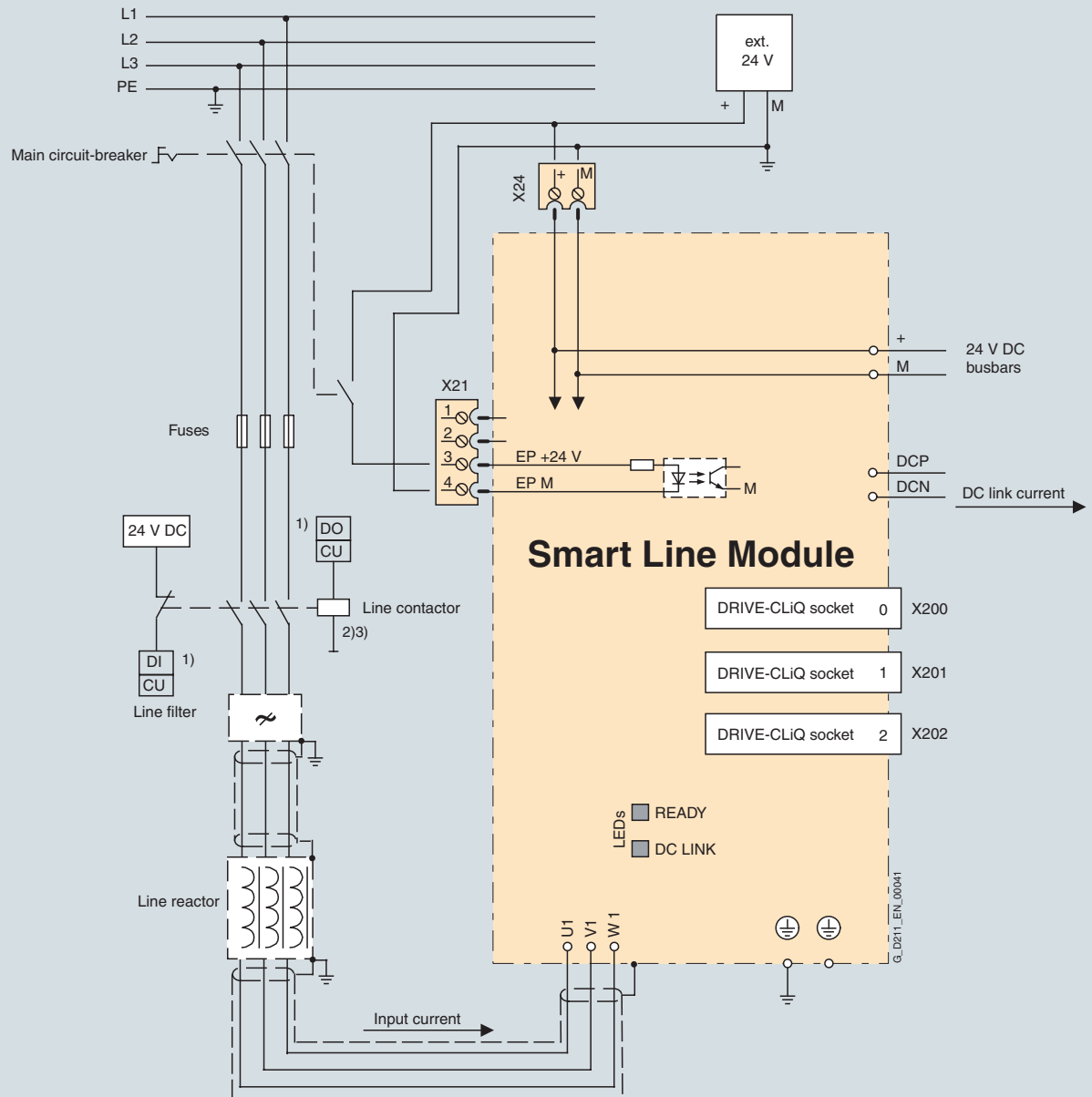
2



- 1) Leading NC contact $t > 10$ ms, 24 V DC and ground must be connected for operation.
- 2) Digital input (DI) or digital output (DO) controlled by the Control Unit.
- 3) No additional load permitted downstream of the main contactor.
- 4) The current capacity of the digital output (DO) must be taken into account; an output interface element may have to be used.
- 5) Digital output (DO) = High means: feedback deactivated (a jumper can be inserted between X22 pins 1 and 2 for permanent deactivation).
- 6) X22 pin 4 must be connected to ground (ext. 24 V).

Connection example of 5 kW (5 HP) and 10 kW (10 HP) Smart Line Modules

Integration (continued)



- 1) Digital input (DI) or digital output (DO), controlled via Control Unit.
- 2) No additional load permitted downstream of the line contactor.
- 3) The current load of the digital output (DO) must be observed; an output interface may have to be used.

Connection example of 16 kW (18 HP) and 36 kW (40 HP) Smart Line Modules

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Line Modules and line-side components

Smart Line Modules in booksize format

Technical data

General technical data

| Electrical data | |
|---|--|
| Line connection voltage (up to 2000 m (6563 ft) above sea level) | 380 V to 480 V 3 AC $\pm 10\%$ (– 15% < 1 min) |
| Power frequency | 47 Hz to 63 Hz |
| Line power factor at rated output | |
| • Fundamental Power Factor | > 0.96 |
| • Total (λ) | 0.65 to 0.90 |
| Overtoltage category | Class III to EN 60664-1 |
| DC link voltage | approx. 1.35 x line voltage ¹⁾ |
| Electronics power supply | 24 V DC – 15%/+ 20% |
| Radio interference suppression | |
| • Standard | No radio interference suppression |
| • With line filter | Class A1 to EN 55011 and Category C2 to EN 61800-3 |
| Ambient conditions | |
| Type of cooling | Forced air cooling through a built-in fan |
| Permissible ambient and coolant temperature (air) during operation for line-side components, Line Modules and Motor Modules | 0 °C to + 40 °C (32 °F to +104°F) without derating, > 40°C to + 55 °C (> 104 °F to +131 °F) see derating characteristics |
| Installation altitude | Up to 1000 m (1328 ft) above sea level without derating, > 1000 m (1328 ft) to 4000 (13126 ft) m above sea level see derating characteristics |
| Certificates | |
| Conformity | CE (low-voltage and EMC Directives) |
| Approvals | cULus (File No.: E192450) |

¹⁾ The DC link voltage is unregulated and load-dependent. For further information see System Description.

Technical data (continued)

| Line voltage 380 V to 480 V 3 AC | Smart Line Modules in booksize format | | | | |
|---|--|---|---|---|--|
| | | 6SL3130-6AE15-0AA0 | 6SL3130-6AE21-0AA0 | – | – |
| Internal air cooling | | | | | |
| Internal air cooling with varnished modules | | 6SL3130-6AE15-0AB0 | 6SL3130-6AE21-0AB0 | 6SL3130-6TE21-6AB0 | 6SL3130-6TE23-6AB0 |
| External air cooling | | 6SL3131-6AE15-0AA0 | 6SL3131-6AE21-0AA0 | – | – |
| Rated feed/feedback power P_{rated} with 380 V 3 AC with 460 V 3 AC ²⁾ | kW (HP) | 5 (5) | 10 (10) | 16 (18) | 36 (40) |
| I/RF power for S6 duty (40%) P_{S6} | kW | 6.5 | 13 | 21 | 47 |
| Max. I/RF power P_{max} | kW | 10 | 20 | 35 | 70 |
| DC link current at 600 V DC | A | 8.3 | 16.6 | 27 | 60 |
| DC link current for S6 duty (40%) | A | 11 | 22 | 35 | 79 |
| Max. DC link current | A | 16.6 | 33.2 | 59 | 117 |
| Rated input current with 380 V 3 AC | A | 12 | 24 | 26 | 58 |
| Input current for S6 duty (40%) | A | 15.6 | 31.2 | 35 | 79 |
| Max. input current | A | 22 | 44 | 59 | 117 |
| Max. current requirement 24 V DC electronics power supply | A | 1.0 | 1.3 | 1.1 | 1.5 |
| 24 V DC busbar current capacity | A | 20 | 20 | 20 | 20 |
| DC link capacitance | μF | 220 | 330 | 710 | 1410 |
| Max. DC link capacitance of drive group | μF | 6000 | 6000 | 20000 | 20000 |
| DC link busbar current capacity | A | 100 | 100 | 100 | 100 |
| Efficiency η | | 0.98 | 0.98 | 0.99 | 0.99 |
| Power loss ¹⁾ with internal air cooling | kW | 0.09 | 0.17 | 0.17 | 0.37 |
| Power loss ¹⁾ with external air cooling int./ext. | kW | 0.04/0.05 | 0.065/0.105 | – | – |
| Cooling air requirement | m ³ /s (ft ³ /s) | 0.008 (0.283) | 0.008 (0.283) | 0.016 (0.565) | 0.031 (1.095) |
| Sound pressure level | dB(A) | < 60 | < 60 | < 60 | < 60 |
| Power connection U1, V1, W1 | | Screw-type terminals 2.5 mm ² to 6 mm ² (X1) | Screw-type terminals 2.5 mm ² to 6 mm ² (X1) | Screw-type terminals 2.5 mm ² to 10 mm ² (X1) | M6 screw studs for ring terminal ends 2.5 mm ² to 50 mm ² (X1) |
| Shield connection | | Cable shield connec- tion plate integrated into the connector | Cable shield connec- tion plate integrated into the connector | Cable shield connec- tion plate integrated into the connector | see Accessories |
| PE connection | | On housing with M5 screw | On housing with M5 screw | On housing with M5 screw | On housing with M6 screw |
| Max. cable length (total of all motor power cables and DC link) | m (ft) | 350 (1150) shielded 560 (1838) unshielded | 350 (1150) shielded 560 (1838) unshielded | 350 (1150) shielded 560 (1838) unshielded | 350 (1150) shielded 560 (1838) unshielded |
| Degree of protection | | IP20 | IP20 | IP20 | IP20 |
| Width | mm (inch) | 50 (1.97) | 50 (1.97) | 100 (3.94) | 150 (5.91) |
| Height | mm (inch) | 380 (14.96) | 380 (14.96) | 380 (14.96) | 380 (14.96) |
| Depth with internal air cooling | mm (inch) | 270 (10.63) | 270 (10.63) | 270 (10.63) | 270 (10.63) |
| Depth with external air cooling on/behind mounting surface | mm (inch) | 226/66.5 (8.9/2.6) | 226/66.5 (8.9/2.6) | – | – |
| Approx. weight with internal air cooling | kg (lb) | 4.7 (10) | 4.8 (11) | 7 (15) | 10.3 (23) |
| Approx. weight with external air cooling | kg (lb) | 5.3 (12) | 5.4 (12) | – | – |

¹⁾ Power loss of Smart Line Module at rated output without losses of 24 V DC electronics power supply.

²⁾ Nominal HP ratings are provided for ease of assigning components only. The Line Module outputs are dependent on the Motor Module loading and are to be dimensioned accordingly.

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Line Modules and line-side components

Smart Line Modules in booksize format

Selection and ordering data

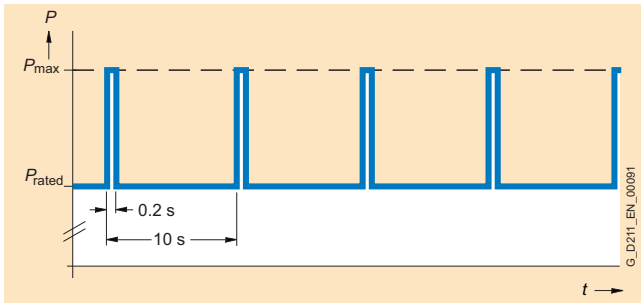
| Rated infeed power kW (HP) | Smart Line Module in booksize format | | |
|---|--------------------------------------|---|----------------------|
| | Internal air cooling | Internal air cooling with varnished modules | External air cooling |
| | Order No. | Order No. | Order No. |
| Line voltage 380 V to 480 V 3 AC | | | |
| 5 (5) | 6SL3130-6AE15-0AA0 | 6SL3130-6AE15-0AB0 | 6SL3131-6AE15-0AA0 |
| 10 (10) | 6SL3130-6AE21-0AA0 | 6SL3130-6AE21-0AB0 | 6SL3131-6AE21-0AA0 |
| 16 (18) | – | 6SL3130-6TE21-6AB0 | – |
| 36 (40) | – | 6SL3130-6TE23-6AB0 | – |

Accessories

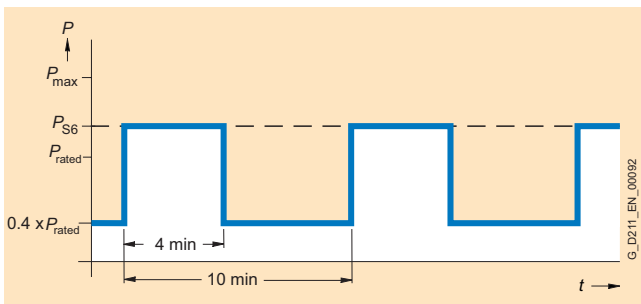
| Description | Order No. |
|--|--|
| Shield connection kit for Line/Motor Modules in booksize format with a width of 150 mm (5.91 in) | 6SL3162-1AF00-0AA0 |
| DC link supply adapter for direct infeed of DC link voltage <ul style="list-style-type: none"> Screw-type terminals 0.5 mm² to 10 mm² for Line Modules and Motor Modules in booksize format with a width of 50 mm (1.97 in) or 100 mm (3.94 in) Screw-type terminals 35 mm² to 95 mm² for Line Modules and Motor Modules in booksize format with a width of 150 mm (5.91 in), 200 mm (7.87 in) and 300 mm (11.81 in) | 6SL3162-2BD00-0AA0 6SL3162-2BM00-0AA0 |
| DC link adapters (2x) for multi-tier configuration Screw-type terminals 35 mm ² to 95 mm ² for all Line Modules and Motor Modules in booksize format | 6SL3162-2BM01-0AA0 |
| 24 V terminal adapter for all Line Modules and Motor Modules in booksize format | 6SL3162-2AA00-0AA0 |
| 24 V jumper for connection of the 24 V busbars (for booksize format) | 6SL3162-2AA01-0AA0 |
| Warning signs in foreign languages This set of foreign language warning signs can be placed on top of the standard German or English signs. One sign in each of the following languages is provided in each set: Chinese Simplified, Danish, Dutch, Finnish, French, Greek, Italian, Japanese, Korean, Portuguese, Spanish and Swedish. | 6SL3166-3AB00-0AA0 |

Characteristics

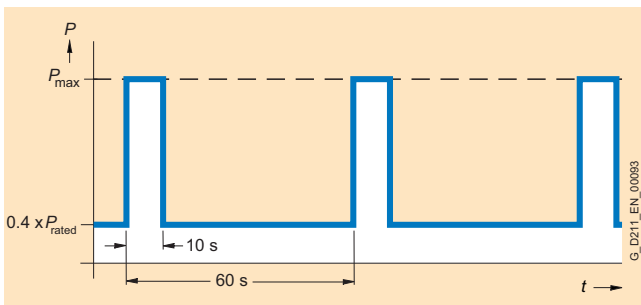
Overload capability



Load cycle with previous load

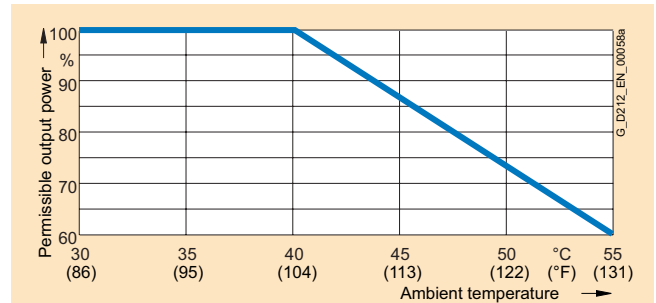


S6 load cycle with previous load

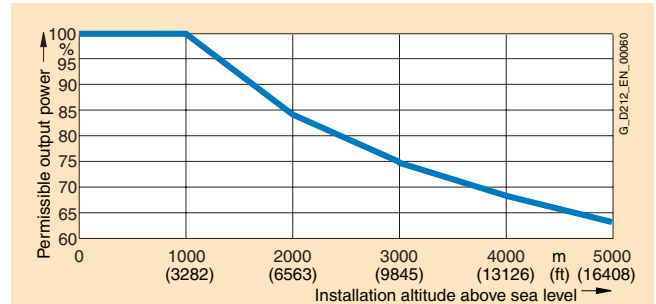


S6 load cycle with previous load

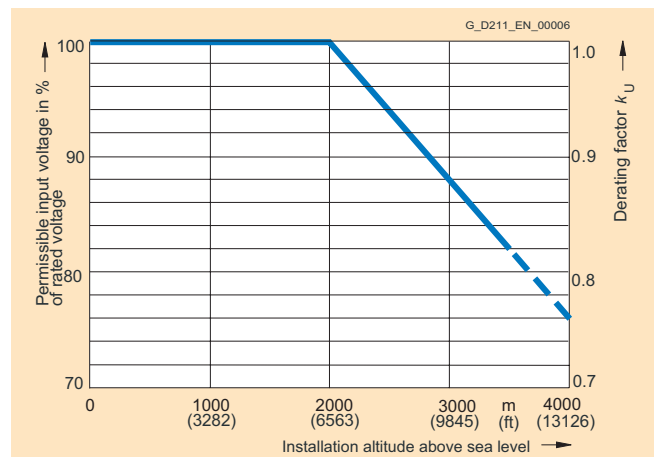
Derating characteristics



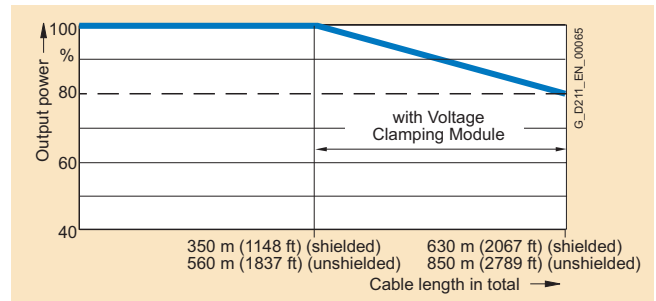
Output rating dependent on ambient temperature



Output rating dependent on installation altitude



Voltage derating dependent on installation altitude



Output rating dependent on total cable length

SINAMICS S120

Line Modules and line-side components

Smart Line Modules in booksize format Line reactors

Overview



Smart Line Modules are not warranted to operate without the specified line reactors. The use of other makes of line reactor can lead to malfunctions or irreparable damage to equipment.

Selection and ordering data

| Rated infeed power of the Smart Line Module kW (HP) | Suitable for Smart Line Module | Line reactor Order No. |
|--|--|---------------------------|
| Line voltage 380 V to 480 V 3 AC | | |
| 5 (5) | 6SL3130-6AE15-0AA0 6SL3130-6AE15-0AB0 6SL3131-6AE15-0AA0 | 6SL3000-OCE15-0AA0 |
| 10 (10) | 6SL3130-6AE21-0AA0 6SL3130-6AE21-0AB0 6SL3131-6AE21-0AA0 | 6SL3000-OCE21-0AA0 |
| 16 (18) | 6SL3130-6TE21-6AB0 | 6SL3000-OCE21-6AA0 |
| 36 (40) | 6SL3130-6TE23-6AB0 | 6SL3000-OCE23-6AA0 |

Technical data

| Line voltage 380 V to 480 V 3 AC | | Line reactor | | | |
|--|-----------|--|--|---|---|
| | | 6SL3000-OCE15-0AA0 | 6SL3000-OCE21-0AA0 | 6SL3000-OCE21-6AA0 | 6SL3000-OCE23-6AA0 |
| Rated current | A | 14 | 28 | 35 | 69 |
| Power loss | kW | 0.062 | 0.116 | 0.11 | 0.17 |
| Line/load connection 1U1, 1V1, 1W1 / 1U2, 1V2, 1W2 | | 4 mm ² screw-type terminals | 10 mm ² screw-type terminals | 10 mm ² screw-type terminals | 16 mm ² screw-type terminals |
| PE connection | | 4 mm ² screw-type terminals | 10 mm ² screw-type terminals | 10 mm ² screw-type terminals | 16 mm ² screw-type terminals |
| Degree of protection | | IP20 | IP20 | IP20 | IP20 |
| Width | mm (inch) | 150 (5.91) | 177 (6.97) | 219 (8.62) | 228 (8.98) |
| Height | mm (inch) | 175 (6.89) | 196 (7.72) | 180 (7.09) | 235 (9.25) |
| Depth | mm (inch) | 90 (3.54) | 110 (4.33) | 144 (5.67) | 224 (8.82) |
| Weight, approx. | kg (lb) | 3.7 (8) | 7.5 (17) | 9.5 (21) | 17 (38) |
| Suitable for Smart Line Module | Type | 6SL3130-6AE15-0AA0 6SL3130-6AE15-0AB0 6SL3131-6AE15-0AA0 | 6SL3130-6AE21-0AA0 6SL3130-6AE21-0AB0 6SL3131-6AE21-0AA0 | 6SL3130-6TE21-6AB0 | 6SL3130-6TE23-6AB0 |

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Line Modules and line-side components

Smart Line Modules in booksize format
Line filters

Overview



In plants with strict EMC requirements, line filters work together with line reactors to restrict the conducted interference emanating from the Power Modules to the limit values of Class A1 as defined in EN 55011 and Category C2 as defined in EN 61800-3. Line filters are suited only for direct connection to TN (grounded) systems.

Selection and ordering data

| Rated infeed power of the Smart Line Module kW (HP) | Suitable for Smart Line Module | Line filter Order No. |
|--|--|---------------------------|
| Line voltage 380 V to 480 V 3 AC | | |
| 5 (5) | 6SL3130-6AE15-0AA0 6SL3130-6AE15-0AB0 6SL3131-6AE15-0AA0 | 6SL3000-0HE15-0AA0 |
| 10 (10) | 6SL3130-6AE21-0AA0 6SL3130-6AE21-0AB0 6SL3131-6AE21-0AA0 | 6SL3000-0HE21-0AA0 |
| 16 (18) | 6SL3130-6TE21-6AB0 | 6SL3000-0BE21-6DA0 |
| 36 (40) | 6SL3130-6TE23-6AB0 | 6SL3000-0BE23-6DA0 |

Technical data

| Line voltage 380 V to 480 V 3 AC | | Line filter | | | |
|--|-----------|--|--|---|---|
| | | 6SL3000-0HE15-0AA0 | 6SL3000-0HE21-0AA0 | 6SL3000-0BE21-6DA0 | 6SL3000-0BE23-6DA0 |
| Rated current | A | 16 | 25 | 36 | 65 |
| Power loss | W | 20 | 20 | 6 | 10 |
| Line/load connection L1, L2, L3 / U, V, W | | 10 mm ² screw-type terminals | 10 mm ² screw-type terminals | 10 mm ² screw-type terminals | 35 mm ² screw-type terminals |
| PE connection | | On housing with M6 bolt | On housing with M6 bolt | On housing with M6 bolt | On housing with M6 bolt |
| Degree of protection | | IP20 | IP20 | IP20 | IP20 |
| Width | mm (inch) | 60 (2.36) | 60 (2.36) | 50 (1.97) | 75 (2.95) |
| Height | mm (inch) | 285 (11.22) | 285 (11.22) | 420 (16.54) | 420 (16.54) |
| Depth | mm (inch) | 122 (4.8) | 122 (4.8) | 226 (8.9) | 226 (8.9) |
| Weight, approx. | kg(lb) | 3.8 (8) | 5.7 (13) | 5.0 (11) | 6.5 (14) |
| Suitable for Smart Line Module | Type | 6SL3130-6AE15-0AA0 6SL3130-6AE15-0AB0 6SL3131-6AE15-0AA0 | 6SL3130-6AE21-0AA0 6SL3130-6AE21-0AB0 6SL3131-6AE21-0AA0 | 6SL3130-6TE21-6AB0 | 6SL3130-6TE23-6AB0 |

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Line Modules and line-side components

Smart Line Modules in booksize format Recommended line-side components

Overview

Assignment of line-side power components to Smart Line Modules in booksize format

Suitable line-side power components are assigned depending on the power rating of the Smart Line Module.

The tables below list recommended components.

Further information about the main contactors, switch disconnectors, fuses and circuit-breakers specified in the tables can be found in Catalogs LV 1, LV 1T and ET B1. ¹⁾

| Rated infeed power kW (HP) | Assignment to Smart Line Module Type 6SL3... | Main contactor Type | Circuit-breaker Order No. | Main switch Order No. | Fuse switch disconnecter Order No. |
|---|--|------------------------|------------------------------|--------------------------|---------------------------------------|
| Line voltage 380 V to 480 V 3 AC | | | | | |
| 5 (5) | 130-6AE15-0AA0 130-6AE15-0AB0 131-6AE15-0AA0 | 3RT1023-... | 3RV1031-4BA10 | 3LD2003-0TK51 | 3NP4010-0CH01 |
| 10 (10) | 130-6AE21-0AA0 130-6AE21-0AB0 131-6AE21-0AA0 | 3RT1026-... | 3RV1031-4FA10 | 3LD2203-0TK51 | 3NP4010-0CH01 |
| 16 (18) | 130-6AE21-6AB0 | 3RT1035-... | 3RV1031-4FA10 | 3LD2504-0TK51 | 3NP4010-0CH01 |
| 36 (40) | 130-6AE23-6AB0 | 3RT1045-... | 3RV1041-4LA10 | 3LD2704-0TK51 | 3NP4010-0CH01 |

| Rated infeed power kW (HP) | Assignment to Smart Line Module Type 6SL3... | Switch disconnecter with fuse holders Order No. | NH fuse (gL/gG) | | |
|---|--|--|-----------------|--------------------|------|
| | | | Order No. | Rated current A | Size |
| Line voltage 380 V to 480 V 3 AC | | | | | |
| 5 (5) | 130-6AE15-0AA0 130-6AE15-0AB0 131-6AE15-0AA0 | 3KL5030-1EB01 | 3NA3805 | 16 | 000 |
| 10 (10) | 130-6AE21-0AA0 130-6AE21-0AB0 131-6AE21-0AA0 | 3KL5030-1EB01 | 3NA3814 | 35 | 000 |
| 16 (18) | 130-6AE21-6AB0 | 3KL5030-1EB01 | 3NA3814 | 35 | 000 |
| 36 (40) | 130-6AE23-6AB0 | 3KL5230-1EB01 | 3NA3824 | 80 | 000 |

1) Component selections are per IEC standards and not necessarily in accordance with UL or NEC requirements. For NEMA components please see North American Industrial Products Catalog and Speedfax Catalog.

Overview



The self-commutated feed/feedback units (with IGBTs in infeed and regenerative feedback directions) 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. Active Line Modules are designed for connection to grounded-neutral (TN, TT) and non-grounded (IT) supply systems.

The DC link is pre-charged via integrated precharging resistors.

Design

The Active Line Modules in booksize format feature the following interfaces as standard:

- 1 power connection via screw-type terminals
- 1 connection for the 24 V DC electronics power supply via the 24 V terminal adapter included in the scope of supply
- 1 DC link connection via integrated DC link busbars
- 3 DRIVE-CLiQ sockets
- 2 PE (protective earth) connections

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

On the 100 mm (3.94 in) wide Active Line Module, the shield for the power supply cable can be connected to the integrated shield connection plate via a shield connection terminal or tube clip, e.g., Weidmüller type KLBÜ CO 4. The shield connection terminal must not be used for strain relief. Shield connection kits are available for the 150 mm (5.91 in), 200 mm (7.87 in) and 300 mm (11.81 in) wide modules.

The signal cable shield can be connected to the Line Module by means of a shield connection terminal, e.g. Weidmüller type KLBÜ 3-8 SC.

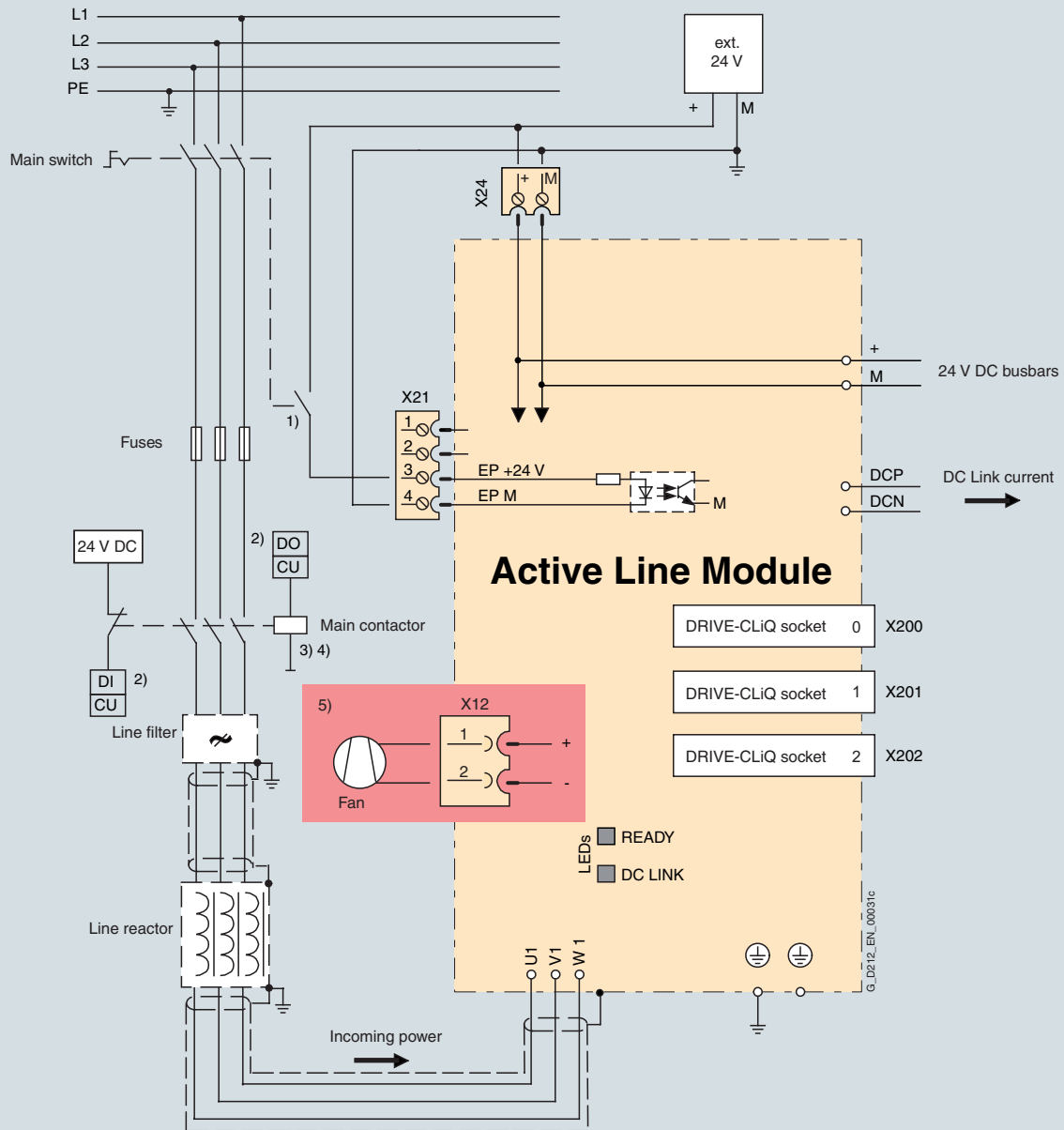
The scope of supply of the Active Line Modules includes:

- DRIVE-CLiQ cable for connection to the Control Unit for drive control on the immediate left
- DRIVE-CLiQ cable (length depends on module width) to connect Active Line Module to adjacent Motor Module
- Jumper for connecting the 24 V DC busbar to the adjacent Motor Module
- 24 V terminal adapter (X24)
- Connector X21 for digital inputs

Integration

The Active Line Module communicates with the CU 320 Control Unit via DRIVE-CLiQ and receives its control information via this route.

2



- 1) Leading NC contact $t > 10$ ms, 24 V DC and ground must be connected for operation.
- 2) Digital Input (DI) or digital output (DO) controlled by the Control Unit.
- 3) No additional load permitted downstream of the main contactor.
- 4) The current capacity of the digital output (DO) must be taken into account; an output interface element may have to be used.
- 5) Fan insert for Active Line Module 80 kW and 120 kW. The fan insert is supplied with the Active Line Module.

Connection example of Active Line Module in booksize format

Technical data

General technical data

| Electrical data | |
|---|--|
| Line connection voltage (up to 2000 m (6563 ft) above sea level) | 380 V to 480 V 3 AC $\pm 10\%$ ($-15\% < 1 \text{ min}$) |
| Power frequency | 47 Hz to 63 Hz |
| Power factor | |
| • Active mode | |
| - Fundamental Power Factor | 1.0 (factory setting), can be altered by input of a reactive current setpoint |
| - Total (λ) | 1.0 (factory setting) |
| • Smart mode | |
| - Fundamental mode | > 0.96 |
| - Overall | 0.65 to 0.90 |
| Overtoltage category | Class III to EN 60664-1 |
| DC link voltage V_d | In "Active Mode" the DC link voltage is regulated and can be adjusted as a voltage decoupled from the line voltage. In "Smart Mode" the DC link voltage is regulated in proportion to the line voltage to the mean rectified line voltage value. Factory setting for DC link voltage: 380 V to 400 V 3 AC: 600 V (Active Mode) 400 V to 415 V 3 AC: 625 V (Active Mode) 416 V to 480 V 3 AC: 1.35 x line voltage (Smart Mode) |
| Electronics power supply | 24 V DC – 15%/+ 20% |
| Radio interference suppression | |
| • Standard | No radio interference suppression |
| • With line filter | Class A1 to EN 55011 and Category C2 to EN 61800-3 |
| Ambient conditions | |
| Type of cooling | Forced air cooling through a built-in fan |
| Permissible ambient and coolant temperature (air) during operation for line-side components, Line Modules and Motor Modules | 0 °C to + 40 °C (32° F to +104 °F) without derating, > 40°C to + 55 °C (> 104 °F to +131 °F) see derating characteristics |
| Site altitude | Up to 1000 m (1328 ft) above sea level without derating, > 1000 m (1328 ft) to 4000 m (13126 ft) above sea level see derating characteristics |
| Certificates | |
| Conformity | CE (low-voltage and EMC Directives) |
| Approvals | cULus (File No.: E192450) |

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Line Modules and line-side components

Active Line Modules in booksize format

Technical data (continued)

| Line voltage 380 V to 480 V 3 AC | | Active Line Modules in booksize format | | | | |
|---|--|---|--|---|--|--|
| Internal air cooling | | 6SL3130-7TE21-6AA1 | 6SL3130-7TE23-6AA1 | 6SL3130-7TE25-5AA2 | 6SL3130-7TE28-0AA1 | 6SL3130-7TE31-2AA1 |
| Internal air cooling with varnished modules | | 6SL3130-7TE21-6AB0 | 6SL3130-7TE23-6AB0 | 6SL3130-7TE25-5AB0 | 6SL3130-7TE28-0AB0 | 6SL3130-7TE31-2AB0 |
| External air cooling | | 6SL3131-7TE21-6AA0 | 6SL3131-7TE23-6AA0 | 6SL3131-7TE25-5AA0 | 6SL3131-7TE28-0AA0 | 6SL3131-7TE31-2AA0 |
| Rated feed/feedback power P_{rated} with 380 V 3 AC with 460 V 3 AC ³⁾ | kW (HP) | 16 (18) | 36 (40) | 55 (60) | 80 (100) | 120 (150) |
| I/RF power for S6 duty (40%) P_{S6} | kW | 21 | 47 | 71 | 106 | 158 |
| Max. I/RF power P_{max} | kW | 35 | 70 | 91 | 131 | 175 |
| DC link current at 600 V DC | A | 27 | 60 | 92 | 134 | 200 |
| DC link current for S6 duty (40%) | A | 35 | 79 | 121 | 176 | 244 |
| Max. DC link current | A | 59 | 117 | 152 | 218 | 292 |
| Rated input current with 380 V 3 AC | A | 26 | 58 | 88 | 128 | 192 |
| Input current for S6 duty (40%) | A | 35 | 79 | 121 | 176 | 244 |
| Max. input current | A | 59 | 117 | 152 | 195 | 292 |
| Max. current requirement 24 V DC electronics power supply | A | 1.1 | 1.5 | 1.9 | 2.0 | 2.5 |
| 24 V DC busbar current capacity | A | 20 | 20 | 20 | 20 | 20 |
| DC link capacitance | μF | 710 | 1410 | 1880 | 2820 | 3995 |
| Max. DC link capacitance of drive group | μF | 20000 | 20000 | 20000 | 20000 | 20000 |
| DC link busbar current capacity | A | 100 | 100 | 200 | 200 | 200 |
| Efficiency η | | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Power loss ¹⁾ with internal air cooling | kW | 0.26 | 0.63 | 0.90 | 1.35 | 2.20 |
| Power loss ¹⁾ with external air cooling int./ext. | kW | 0.06/0.2 | 0.135/0.495 | 0.2/0.7 | 0.305/1.045 | 0.49/1.71 |
| Cooling air requirement | m ³ /s (ft ³ /s) | 0.016 (0.565) | 0.031 (1.095) | 0.044 (1.554) | 0.144 (5.085) | 0.144 (5.085) |
| Sound pressure level | dB(A) | < 60 | < 65 | < 60 | < 75 | < 75 |
| Power connection U1, V1, W1 | | Screw-type terminals 2.5 mm ² to 10 mm ² (X1) | M6 screw studs for ring terminal ends 2.5 mm ² to 50 mm ² (X1) | M8 screw studs for ring terminal ends 2.5 mm ² to 95 mm ² , 2 x 35 mm ² (X1) | M8 screw studs for ring terminal ends 2.5 mm ² to 120 mm ² , 2 x 50 mm ² (X1) | M8 screw studs for ring terminal ends 2.5 mm ² to 120 mm ² , 2 x 50 mm ² (X1) |
| Shield connection | | Integrated into the connector | see Accessories | see Accessories | see Accessories | see Accessories |
| PE connection | | On housing with M5 screw | On housing with M6 screw | On housing with M6 screw | On housing with M8 screw | On housing with M8 screw |
| Max. cable length (total of all motor power cables and DC link) | m (ft) | 350 (1150) shielded 560 (1840) unshielded | 350 (1150) shielded 560 (1840) unshielded | 350 (1150) shielded 560 (1840) unshielded | 350 (1150) shielded 560 (1840) unshielded | 350 (1150) shielded 560 (1840) unshielded |
| Degree of protection | | IP20 | IP20 | IP20 | IP20 | IP20 |
| Width | mm (inch) | 100 (3.94) | 150 (5.91) | 200 (7.87) | 300 (11.81) | 300 (11.81) |
| Height | mm (inch) | 380 (14.96) | 380 (14.96) | 380 (14.96) | 380 (14.96) with fan ²⁾ : 629 (24.8) | 380 (14.96) with fan ²⁾ : 629 (24.8) |
| Depth with internal air cooling | mm (inch) | 270 (10.63) | 270 (10.63) | 270 (10.63) | 270 (10.63) | 270 (10.63) |
| Depth with external air cooling on/behind mounting surface | mm (inch) | 226/66.5 (8.9/2.6) | 226/71 (8.9/2.8) | 226/92 (8.9/3.6) | 226/82 (8.9/3.2) | 226/82 (8.9/3.2) |
| Approx. weight with internal air cooling | kg (lb) | 7 (15) | 10.3 (23) | 17 (38) | 23 (51) | 23 (51) |
| Approx. weight with external air cooling | kg (lb) | 8.8 (19) | 13.8 (30) | 18.5 (41) | 27.7 (61) | 30.7 (68) |

¹⁾ Power loss of Active Line Module at rated output without losses of 24 V DC electronics power supply.

²⁾ The fan is supplied with the Active Line Module and must be installed before the Active Line Module is commissioned.

³⁾ Nominal HP ratings are provided for ease of assigning components only. The Line Module outputs are dependent on the Motor Module loading and are to be dimensioned accordingly.

Selection and ordering data

| Rated infeed power kW (HP) | Active Line Module in booksize format | | |
|---|---------------------------------------|---|---------------------------|
| | Internal air cooling | Internal air cooling with varnished modules | External air cooling |
| | Order No. | Order No. | Order No. |
| Line voltage 380 V to 480 V 3 AC | | | |
| 16 (18) | 6SL3130-7TE21-6AA1 | 6SL3130-7TE21-6AB0 | 6SL3131-7TE21-6AA0 |
| 36 (40) | 6SL3130-7TE23-6AA1 | 6SL3130-7TE23-6AB0 | 6SL3131-7TE23-6AA0 |
| 55 (60) | 6SL3130-7TE25-5AA2 | 6SL3130-7TE25-5AB0 | 6SL3131-7TE25-5AA0 |
| 80 (100) | 6SL3130-7TE28-0AA1 | 6SL3130-7TE28-0AB0 | 6SL3131-7TE28-0AA0 |
| 120 (150) | 6SL3130-7TE31-2AA1 | 6SL3130-7TE31-2AB0 | 6SL3131-7TE31-2AA0 |

Accessories

| Description | Order No. |
|--|---|
| Shield connection kit for Line/Motor Modules in booksize format <ul style="list-style-type: none"> • 150 mm (5.91 in) wide for internal air cooling • 150 mm (5.91 in) wide for external air cooling • 200 mm (7.87 in) wide for internal air cooling • 200 mm (7.87 in) wide for external air cooling • 300 mm (11.81 in) wide | 6SL3162-1AF00-0AA1 6SL3162-1AF00-0BA0 6SL3162-1AH01-0AA0 6SL3162-1AH01-0BA0 6SL3162-1AH00-0AA0 |
| DC link supply adapter for direct infeed of DC link voltage <ul style="list-style-type: none"> • Screw-type terminals 0.5 mm² to 10 mm² for Line Modules and Motor Modules in booksize format with a width of 50 mm (1.97 in) or 100 mm (3.94 in) • Screw-type terminals 35 mm² to 95 mm² for Line Modules and Motor Modules in booksize format with a width of 150 mm (5.91 in), 200 mm (7.87 in) and 300 mm (11.81 in) | 6SL3162-2BD00-0AA0 6SL3162-2BM00-0AA0 |
| DC link adapters (2x) for multi-tier configuration Screw-type terminals 35 mm ² to 95 mm ² for all Line Modules and Motor Modules in booksize format | 6SL3162-2BM01-0AA0 |
| 24 V terminal adapter for all Line Modules and Motor Modules in booksize format | 6SL3162-2AA00-0AA0 |
| 24 V jumper for connection of the 24 V busbars (for booksize format) | 6SL3162-2AA01-0AA0 |
| Warning signs in foreign languages This set of foreign language warning signs can be placed on top of the standard German or English signs. One sign in each of the following languages is provided in each set: Simplified Chinese, Danish, Dutch, Finnish, French, Greek, Italian, Japanese, Korean, Portuguese, Spanish and Swedish. | 6SL3166-3AB00-0AA0 |

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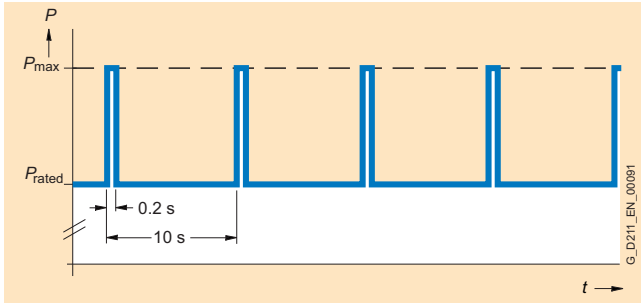
Line Modules and line-side components

Active Line Modules in booksize format

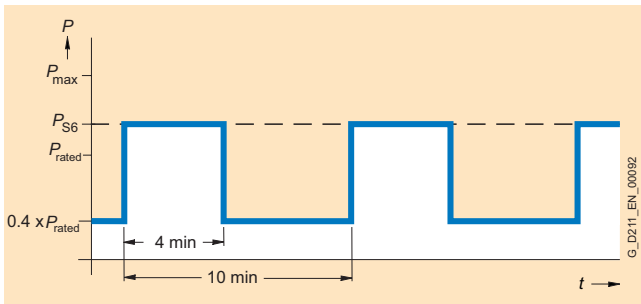
2

Characteristics

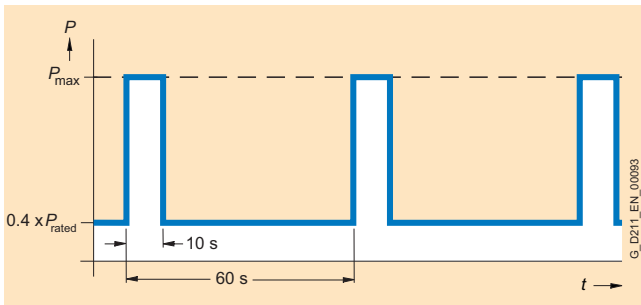
Overload capability



Load cycle with previous load

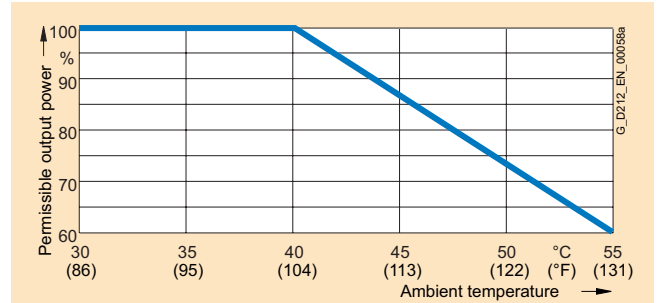


S6 load cycle with previous load

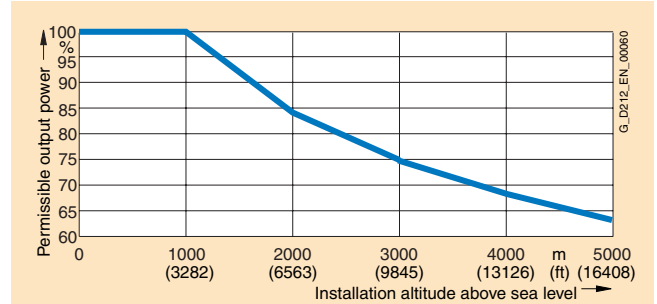


S6 load cycle with previous load

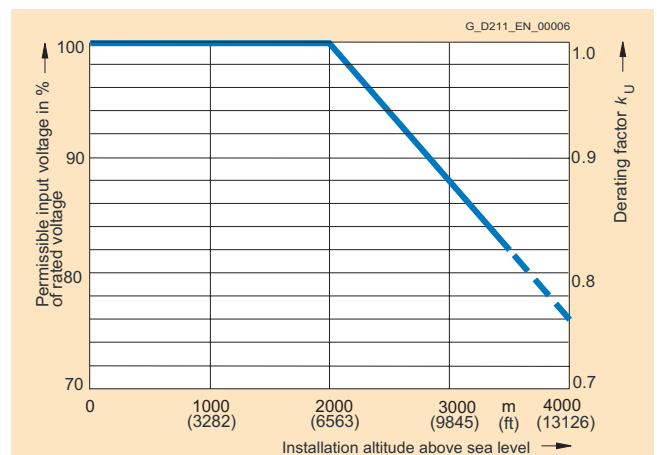
Derating characteristics



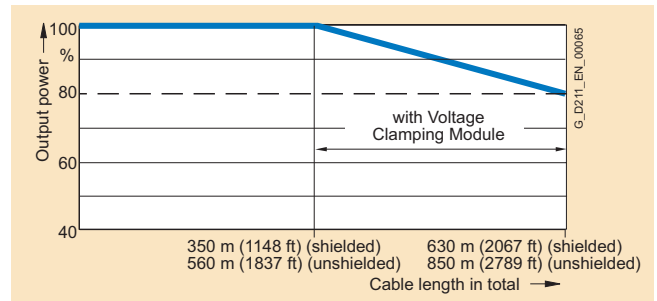
Output rating dependent on ambient temperature



Output rating dependent on installation altitude



Voltage derating dependent on installation altitude



Output rating dependent on total cable length

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Line Modules and line-side components

Active Line Modules in booksize format
Line reactors

Overview



Active Line Modules cannot operate without the specified line reactors. The use of other makes of line reactor can lead to malfunctions or irreparable damage to equipment.

Selection and ordering data

| Rated input power of the Active Line Module kW (HP) | Suitable for Active Line Module | Line reactor Order No. |
|--|--|---------------------------|
| Line voltage 380 V to 480 V 3 AC | | |
| 16 (18) | 6SL3130-7TE21-6AA1 6SL3130-7TE21-6AB0 6SL3131-7TE21-6AA0 | 6SN1111-0AA00-0BA1 |
| 36 (40) | 6SL3130-7TE23-6AA1 6SL3130-7TE23-6AB0 6SL3131-7TE23-6AA0 | 6SN1111-0AA00-0CA1 |
| 55 (60) | 6SL3130-7TE25-5AA2 6SL3130-7TE25-5AB0 6SL3131-7TE25-5AA0 | 6SN1111-0AA00-0DA1 |
| 80 (100) | 6SL3130-7TE28-0AA1 6SL3130-7TE28-0AB0 6SL3131-7TE28-0AA0 | 6SN1111-0AA00-1EA0 |
| 120 (150) | 6SL3130-7TE31-2AA1 6SL3130-7TE31-2AB0 6SL3131-7TE31-2AA0 | 6SL3000-0DE31-2BA0 |

Technical data

| Line voltage 380 V to 480 V 3 AC | | Line reactor 6SN1111-0AA00-0BA1 | 6SN1111-0AA00-0CA1 | 6SN1111-0AA00-0DA1 | 6SN1111-0AA00-1EA0 | 6SL3000-0DE31-2BA0 |
|---|-----------|--|--|--|--|--|
| Rated current | A | 30 | 67 | 103 | 150 | 225 |
| Power loss | kW | 0.17 | 0.25 | 0.35 | 0.45 | 0.59 |
| Line/load connection 1U1, 1V1, 1W1 / 1U2, 1V2, 1W2 | | 16 mm ² screw-type terminals | 35 mm ² screw-type terminals | 70 mm ² screw-type terminals | M10 connecting lugs | M10 connecting lugs |
| PE connection | | 16 mm ² screw-type terminals | 35 mm ² screw-type terminals | 70 mm ² screw-type terminals | M10 connecting lugs | M10 connecting lugs |
| Degree of protection | | IP20 | IP20 | IP20 | IP00 | IP00 |
| Width | mm (inch) | 150 (5.91) | 150 (5.91) | 150 (5.91) | 225 (8.86) | 225 (8.86) |
| Height | mm (inch) | 330 (12.99) | 330 (12.99) | 330 (12.99) | 380 (14.96) | 490 (19.29) |
| Depth | mm (inch) | 145 (5.71) | 230 (9.05) | 280 (11.02) | 220 (8.66) | 250 (9.84) |
| Weight, approx. | kg (lb) | 8.5 (19) | 13 (29) | 18 (40) | 40 (88) | 64 (141) |
| Suitable for Active Line Module | Type | 6SL3130-7TE21-6AA1 6SL3130-7TE21-6AB0 6SL3131-7TE21-6AA0 | 6SL3130-7TE23-6AA1 6SL3130-7TE23-6AB0 6SL3131-7TE23-6AA0 | 6SL3130-7TE25-5AA2 6SL3130-7TE25-5AB0 6SL3131-7TE25-5AA0 | 6SL3130-7TE28-0AA1 6SL3130-7TE28-0AB0 6SL3131-7TE28-0AA0 | 6SL3130-7TE31-2AA1 6SL3130-7TE31-2AB0 6SL3131-7TE31-2AA0 |

Overview

In plants which have strict EMC requirements, line filters work together with line reactors to restrict the conducted interference emanating from the Power Modules to the limit values of Class A1 as defined in EN 55011 and Category C2 as defined in EN 61800-3. Line filters are suited only for direct connection to TN (grounded) systems.

Optional line filter ranges that are coordinated with the power range are available for the SINAMICS S120 drive system:

- Wideband Line Filters
- Basic Line Filters

These line filters differ with regard to the frequency range in which they reduce the conducted emissions.

Note: According to product standard IEC 61800-3 or EN 50370-1, RI suppression commensurate with the relevant operating conditions must be provided and is a legal requirement in the EU (EMC Directive). Line filters and line reactors are required for this purpose. The use of filters of other makes can lead to limit value violations, resonance, overvoltages and irreparable damage to motors or other equipment. The machine manufacturer must provide verification that the machinery to be operated with the drive products and the installed suppression elements, e.g. line filters, are CE/EMC-compliant before the machines are approved for delivery.

Active Line Modules in booksize format Wideband Line Filters (in line filter package)

Overview



The damping characteristics of Wideband Line Filters for Active Line Modules not only conform with the requirements of EMC standards for the frequency range of 150 kHz to 30 MHz but also include low frequencies of 2 kHz and above. As a result, these line filters have an extended functional range, allowing a certain independence with respect to the machine installation location in cases where the line properties are generally unknown (e.g., line impedance).

Selection and ordering data

Line filters for Active Line Modules in booksize format are available only in combination with the relevant line reactor as a line filter package. The order number for the line filter package includes the Wideband Line Filter and the line reactor.

| Rated input power of the Active Line Module kW (HP) | Suitable for Active Line Module | Line filter package (Wideband Line Filter and line reactor) Order No. |
|--|--|--|
| Line voltage 380 V to 480 V 3 AC | | |
| 16 (18) | 6SL3130-7TE21-6AA1 6SL3130-7TE21-6AB0 6SL3131-7TE21-6AA0 | 6SL3000-0FE21-6AA0 |
| 36 (40) | 6SL3130-7TE23-6AA1 6SL3130-7TE23-6AB0 6SL3131-7TE23-6AA0 | 6SL3000-0FE23-6AA0 |
| 55 (60) | 6SL3130-7TE25-5AA2 6SL3130-7TE25-5AB0 6SL3131-7TE25-5AA0 | 6SL3000-0FE25-5AA0 |
| 80 (100) | 6SL3130-7TE28-0AA1 6SL3130-7TE28-0AB0 6SL3131-7TE28-0AA0 | 6SL3000-0FE28-0AA0 |
| 120 (150) | 6SL3130-7TE31-2AA1 6SL3130-7TE31-2AB0 6SL3131-7TE31-2AA0 | 6SL3000-0FE31-2AA1 |

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Line Modules and line-side components

Active Line Modules in booksize format
Wideband Line Filters (in line filter package)

Technical data

| Line voltage 380 V to 480 V 3 AC | | Wideband Line Filter (included in each line filter package) | | | | |
|--|-----------|--|--|--|--|--|
| | | 6SL3000-0FE21-6AA0 | 6SL3000-0FE23-6AA0 | 6SL3000-0FE25-5AA0 | 6SL3000-0FE28-0AA0 | 6SL3000-0FE31-2AA1 |
| Rated current | A | 30 | 67 | 103 | 150 | 225 |
| Power loss | kW | 0.07 | 0.09 | 0.11 | 0.15 | 0.20 |
| Line/load connection L1, L2, L3 / U, V, W | | 10 mm ² screw-type terminals | 50 mm ² screw-type terminals | 50 mm ² screw-type terminals | 95 mm ² screw-type terminals | M10 connecting lugs |
| PE connection | | On housing with M5 bolt | On housing with M8 bolt | On housing with M8 bolt | On housing with M8 bolt | On housing with M8 bolt |
| Degree of protection | | IP20 | IP20 | IP20 | IP20 | IP00 |
| Width | mm (inch) | 130 (5.12) | 130 (5.12) | 130 (5.12) | 200 (7.87) | 300 (11.81) |
| Height | mm (inch) | 480 (18.9) | 480 (18.9) | 480 (18.9) | 480 (18.9) | 480 (18.9) |
| Depth | mm (inch) | 150 (5.91) | 245 (9.65) | 260 (10.24) | 260 (10.24) | 260 (10.24) |
| Weight, approx. | kg (lb) | 9 (20) | 16 (35) | 19 (42) | 22 (49) | 32 (71) |
| Suitable for Active Line Module | Type | 6SL3130-7TE21-6AA1 6SL3130-7TE21-6AB0 6SL3131-7TE21-6AA0 | 6SL3130-7TE23-6AA1 6SL3130-7TE23-6AB0 6SL3131-7TE23-6AA0 | 6SL3130-7TE25-5AA2 6SL3130-7TE25-5AB0 6SL3131-7TE25-5AA0 | 6SL3130-7TE28-0AA1 6SL3130-7TE28-0AB0 6SL3131-7TE28-0AA0 | 6SL3130-7TE31-2AA1 6SL3130-7TE31-2AB0 6SL3131-7TE31-2AA0 |

Accessories



Line filter package assembled with an adapter set

The adapter sets for units in booksize format are designed for very compact mounting. They enable line filters and line reactors to be installed compactly one above the other in the control cabinet.

| Active Line Module power output kW (HP) | Line filter package | Adapter set Order No. |
|---|---------------------|---------------------------|
| 16 (18) | 6SL3000-0FE21-6AA0 | 6SL3060-1FE21-6AA0 |
| 36 (40) | 6SL3000-0FE23-6AA0 | 6SN1162-0GA00-0CA0 |

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Line Modules and line-side components

Active Line Modules in booksize format Basic Line Filters

Overview



Basic Line Filters are used on machines on which conducted interference emissions in the frequency range between 150 kHz and 30 MHz need to be damped in accordance with the requirements of CE-EMC legislation.

Selection and ordering data

| Rated input power of the Active Line Module kW (HP) | Suitable for Active Line Module | Basic Line Filter Order No. |
|--|--|--------------------------------|
| Line voltage 380 V to 480 V 3 AC | | |
| 16 (18) | 6SL3130-7TE21-6AA1 6SL3130-7TE21-6AB0 6SL3131-7TE21-6AA0 | 6SL3000-0BE21-6DA0 |
| 36 (40) | 6SL3130-7TE23-6AA1 6SL3130-7TE23-6AB0 6SL3131-7TE23-6AA0 | 6SL3000-0BE23-6DA0 |
| 55 (60) | 6SL3130-7TE25-5AA2 6SL3130-7TE25-5AB0 6SL3131-7TE25-5AA0 | 6SL3000-0BE25-5DA0 |

Further information

You must follow the instructions in the Equipment Manual when using Basic Line Filters in conjunction with Active Line Modules on your machine: SINAMICS S120 booksize power units.

Technical data

| Line voltage 380 V to 480 V 3 AC | Basic Line Filters | | | |
|--|--------------------|--|--|--|
| | | 6SL3000-0BE21-6DA0 | 6SL3000-0BE23-6DA0 | 6SL3000-0BE25-5DA0 |
| Rated current | A | 36 | 65 | 105 |
| Power loss | kW | 0.006 | 0.010 | 0.015 |
| Line/load connection L1, L2, L3 / U, V, W | | 10 mm ² screw-type terminals | 35 mm ² screw-type terminals | 50 mm ² screw-type terminals |
| PE connection | | On housing with M6 bolt | On housing with M6 bolt | On housing with M8 bolt |
| Degree of protection | | IP20 | IP20 | IP20 |
| Width | mm (inch) | 50 (1.97) | 75 (2.95) | 100 (3.94) |
| Height | mm (inch) | 420 (16.54) | 420 (16.54) | 420 (16.54) |
| Depth | mm (inch) | 226 (8.9) | 226 (8.9) | 226 (8.9) |
| Weight, approx. | kg (lb) | 5 (11) | 6.5 (14) | 11.5 (25) |
| Suitable for Active Line Module | Type | 6SL3130-7TE21-6AA1 6SL3130-7TE21-6AB0 6SL3131-7TE21-6AA0 | 6SL3130-7TE23-6AA1 6SL3130-7TE23-6AB0 6SL3131-7TE23-6AA0 | 6SL3130-7TE25-5AA2 6SL3130-7TE25-5AB0 6SL3131-7TE25-5AA0 |

Overview

Assignment of line-side power components to Active Line Modules in booksize format

Suitable line-side power components are assigned depending on the power rating of the Active Line Modules.

The tables below list recommended components.

Further information about the main contactors, switch disconnectors, fuses and circuit-breakers specified in the tables can be found in Catalogs LV 1 and LV 1T.¹⁾

| Rated infeed power kW (HP) | Assignment to Active Line Module Type 6SL3... | Main contactor Type | Output interface for main contactor (relay coupler) Order No. | Main switch (switch disconnector) Order No. | Leading auxiliary circuit switch for main switch Order No. |
|---|--|------------------------------|--|--|---|
| Line voltage 380 V to 480 V 3 AC | | | | | |
| 16 (18) | 130-7TE21-6AA1 130-7TE21-6AB0 131-7TE21-6AA0 | 3RT1035-... | 3TX7004-1LB00 | 3LD2504-0TK51 | 3LD9200-5B |
| 36 (40) | 130-7TE23-6AA1 130-7TE23-6AB0 131-7TE23-6AA0 | 3RT1045-... | 3TX7004-1LB00 | 3LD2704-0TK51 | 3LD9200-5B |
| 55 (60) | 130-7TE25-5AA2 130-7TE25-5AB0 131-7TE25-5AA0 | 3RT1054-... | 3TX7004-1LB00 | 3KA5330-1EE01 | 3KX3552-3EA01 |
| 80 (100) | 130-7TE28-0AA1 130-7TE28-0AB0 131-7TE28-0AA0 | 3RT1056-... | 3TX7004-1LB00 | 3KA5330-1EE01 | 3KX3552-3EA01 |
| 120 (150) | 130-7TE31-2AA1 130-7TE31-2AB0 131-7TE31-2AA0 | 3RT1065-... | 3TX7004-1LB00 | 3KA5730-1EE01 | 3KX3552-3EA01 |
| Rated infeed power kW (HP) | Assignment to Active Line Module Type 6SL3... | Circuit-breaker Order No. | Fuse switch disconnector Order No. | Switch disconnector with fuse holders Order No. | Leading auxiliary switch for switch disconnector with fuse holders Order No. |
| Line voltage 380 V to 480 V 3 AC | | | | | |
| 16 (18) | 130-7TE21-6AA1 130-7TE21-6AB0 131-7TE21-6AA0 | 3RV1031-4FA10 | 3NP4010-0CH01 | 3KL5030-1EB01 | 3KX3552-3EA01 |
| 36 (40) | 130-7TE23-6AA1 130-7TE23-6AB0 131-7TE23-6AA0 | 3RV1041-4LA10 | 3NP4010-0CH01 | 3KL5230-1EB01 | 3KX3552-3EA01 |
| 55 (60) | 130-7TE25-5AA2 130-7TE25-5AB0 131-7TE25-5AA0 | 3VL2712-3DC33-0AA0 | 3NP4270-0CA01 | 3KL5530-1EB01 | 3KX3552-3EA01 |
| 80 (100) | 130-7TE28-0AA1 130-7TE28-0AB0 131-7TE28-0AA0 | 3VL2716-3DC33-0AA0 | 3NP4270-0CA01 | 3KL5530-1EB01 | 3KX3552-3EA01 |
| 120 (150) | 130-7TE31-2AA1 130-7TE31-2AB0 131-7TE31-2AA0 | 3VL3725-3DC36-0AA0 | 3NP5360-0CA00 | 3KL5730-1EB01 | 3KX3552-3EA01 |

1) Component selections are per IEC standards and not necessarily in accordance with UL or NEC requirements. For NEMA components please see North American Industrial Products Catalog and Speedfax Catalog.

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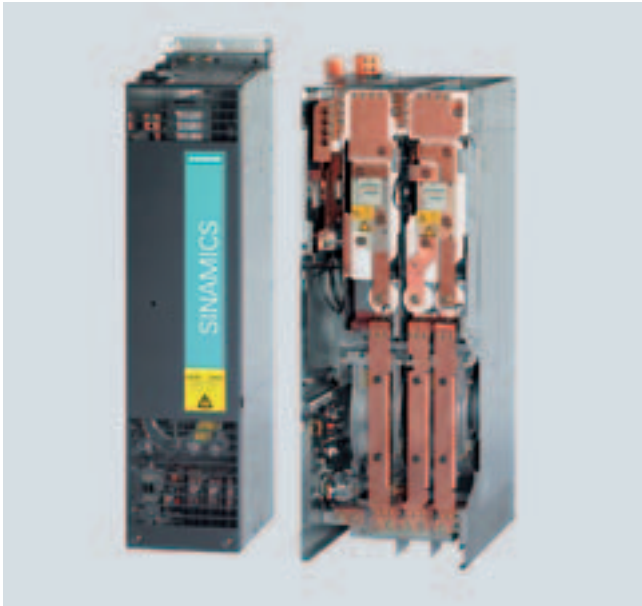
Line Modules and line-side components

Active Line Modules in booksize format Recommended line-side components

Overview (continued)

| Rated infeed power | Assignment to Active Line Module | NEOZED fuse (gL/gG) | | | DIAZED fuse (gL/gG) | | | NH fuse (gL/gG) | | | UL/CSA fuse, Class J Available from: Ferraz Shawmut http://www.ferrazshawmut.com | | |
|---|--|---------------------|---------------|------|---------------------|---------------|------|-----------------|---------------|------|--|---------------|----------|
| | | Order No. | Rated current | Size | Order No. | Rated current | Size | Order No. | Rated current | Size | Reference No. | Rated current | Size |
| kW (HP) | Type 6SL3... | | | | | | | | | | | | |
| Line voltage 380 V to 480 V 3 AC | | | | | | | | | | | | | |
| 16 (18) | 130-7TE21-6AA1 130-7TE21-6AB0 131-7TE21-6AA0 | 5SE2335 | 35 A | D02 | 5SB411 | 35 A | DIII | 3NA3814 | 35 A | 000 | AJT35 | 35 A | 27 × 60 |
| 36 (40) | 130-7TE23-6AA1 130-7TE23-6AB0 131-7TE23-6AA0 | – | – | – | 5SC211 | 80 A | DIVH | 3NA3824 | 80 A | 000 | AJT80 | 80 A | 29 × 117 |
| 55 (60) | 130-7TE25-5AA2 130-7TE25-5AB0 131-7TE25-5AA0 | – | – | – | – | – | – | 3NA3132 | 125 A | 1 | AJT125 | 125 A | 41 × 146 |
| 80 (100) | 130-7TE28-0AA1 130-7TE28-0AB0 131-7TE28-0AA0 | – | – | – | – | – | – | 3NA3136 | 160 A | 1 | AJT175 | 175 A | 41 × 146 |
| 120 (150) | 130-7TE31-2AA1 130-7TE31-2AB0 131-7TE31-2AA0 | – | – | – | – | – | – | 3NA3144 | 250 A | 1 | AJT250 | 250 A | 54 × 181 |

Overview



The self-commutated feed/feedback units (with IGBTs in infeed and regenerative feedback directions) 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-neutral (TN, TT) and non-grounded (IT) supply systems.

Design

The Active Line Modules in chassis format feature the following interfaces as standard:

- 1 power connection
- 1 connection for the 24 V DC electronics power supply
- 1 DC link connection
- 3 DRIVE-CLiQ sockets
- 2 PE (protective earth) 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:

- Types FX and GX:
 - 0.60 m (1.97 ft) DRIVE-CLiQ cable for connection to the CU320 or SIMOTION D Control Unit
- Types HX and JX
 - 0.35 m (1.15 ft) DRIVE-CLiQ cable for connection to the CU320 or SIMOTION D Control Unit
 - 2.10 m (6.89 ft) DRIVE-CLiQ cable for connection to the first Motor Module

Selection and ordering data

| Infeed power kW (HP) | Active Line Modules in chassis format Order No. |
|---|--|
| Line voltage 380 V to 480 V 3 AC | |
| 132 (200) | 6SL3330-7TE32-1AA0 |
| 160 (225) | 6SL3330-7TE32-6AA0 |
| 235 (350) | 6SL3330-7TE33-8AA0 |
| 300 (450) | 6SL3330-7TE35-0AA0 |
| 380 (550) | 6SL3330-7TE36-1AA0 |
| 500 (700) | 6SL3330-7TE38-4AA0 |
| 630 (800) | 6SL3330-7TE41-0AA0 |
| 900 (1150) | 6SL3330-7TE41-4AA0 |
| Line voltage 660 V to 690 V 3 AC | |
| 560 | 6SL3330-7TH35-8AA0 |
| 800 | 6SL3330-7TH37-4AA0 |
| 1100 | 6SL3330-7TH41-0AA0 |
| 1400 | 6SL3330-7TH41-3AA0 |

Warning signs in foreign languages

Warning signs in other languages can be placed on top of the standard warning signs in German or English.

The following signs are supplied with chassis format units: Chinese, Danish, Finnish, French, Greek, Italian, Japanese, Korean, Dutch, Polish, Portuguese, Russian, Swedish, Spanish, Czech and Turkish.

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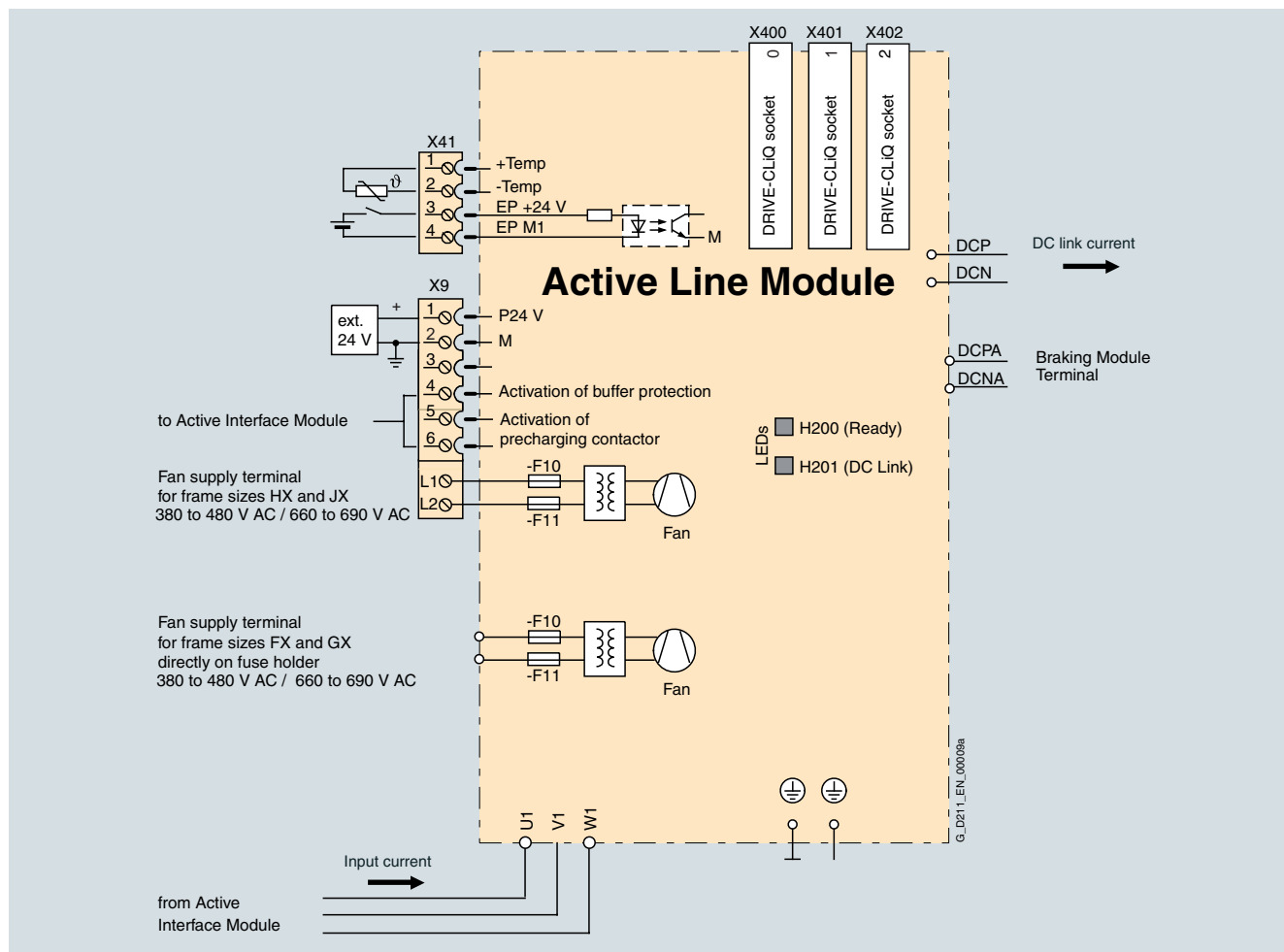
Line Modules and line-side components

Active Line Modules in chassis format

Integration

The Active Line Module communicates with the CU320 or SIMOTION D Control Unit via DRIVE-CLiQ.

2



Connection example of Active Line Module in chassis format

Technical data

General technical data

| Electrical data | |
|---|---|
| Line connection voltage (up to 2000 m (6563 ft) above sea level) | 380 V to 480 V 3 AC ± 10% (– 15% < 1 min) or 660 V to 690 V 3 AC ± 10% (– 15% < 1 min) |
| Power frequency | 47 Hz to 63 Hz |
| Power factor | |
| • Fundamental Power Factor | 1.0 (factory setting), can be altered by input of a reactive current setpoint |
| • Total (λ) | 1.0 (factory setting) |
| Overvoltage category | Class III to EN 60664-1 |
| DC link voltage U_d | The DC link voltage is regulated and can be adjusted as a voltage decoupled from the line voltage. Factory setting for DC link voltage: 1.5 x line voltage |
| Electronics power supply | 24 V DC – 15%/+ 20% |
| Radio interference suppression | |
| • Standard (with Active Interface Module) | Category C3 to EN 61800-3 |
| • With line filter (and Active Interface Module) | Class A1 to EN 55011 and Category C2 to EN 61800-3 |
| Ambient conditions | |
| Type of cooling | Forced air cooling through a built-in fan |
| Permissible ambient and coolant temperature (air) during operation for line-side components, Line Modules and Motor Modules | 0 °C to + 40 °C (32 °F to +104 °F) without derating, > 40 °C to + 55 °C (> 104 °F to +131 °F) see derating characteristics |
| Installation altitude | Up to 2000 m (6563 ft) above sea level without derating, > 2000 m (6563 ft) to 4000 m (13126 ft) above sea level see derating characteristics |
| Certificates | |
| Conformity | CE (low-voltage and EMC Directives) |
| Approvals | cULus (File No.: E192450) |

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Line Modules and line-side components

Active Line Modules in chassis format

Technical data (continued)

| Line voltage 380 V to 480 V 3 AC | | Active Line Modules in chassis format | | | |
|---|--|---|---|---|---|
| | | 6SL3330-7TE32-1AA0 | 6SL3330-7TE32-6AA0 | 6SL3330-7TE33-8AA0 | 6SL3330-7TE35-0AA0 |
| Feed/feedback power P_{rated} with 400 V 3 AC with 460 V 3 AC ¹⁾ | kW (HP) | 132 (200) | 160 (225) | 235 (350) | 300 (450) |
| Feed/feedback power for S6 duty (40%) P_{S6} | kW | On request | On request | On request | On request |
| Max. I/RF power P_{max} | kW | 198 | 240 | 352.5 | 450 |
| Rated DC link current $I_{\text{rated_DC}}$ | A | 235 | 291 | 425 | 549 |
| DC link current $I_{\text{H_DC}}$ | A | 209 | 259 | 378 | 489 |
| Max. DC link current $I_{\text{max_DC}}$ | A | 352 | 436 | 637 | 823 |
| Input current for 3 AC 400 V | A | 210 | 260 | 380 | 490 |
| Input current for S6 duty (40%) | A | On request | On request | On request | On request |
| Max. input current | A | 315 | 390 | 570 | 735 |
| Max. current requirement 24 V DC electronics power supply | A | 1.1 | 1.1 | 1.35 | 1.35 |
| DC link capacitance | μF | 4200 | 5200 | 7800 | 9600 |
| Max. current requirements (fan supply) at 400 V 2 AC | A | 0.63 | 2.0 | 2.6 | 2.6 |
| Efficiency η | | 0.98 | 0.98 | 0.98 | 0.98 |
| Power loss | kW | 2.2 | 2.7 | 3.9 | 4.8 |
| Cooling air requirement | m ³ /s (ft ³ /s) | 0.17 (6) | 0.23 (8.12) | 0.36 (12.71) | 0.36 (12.71) |
| Sound pressure level ²⁾ 50 Hz/60 Hz | dB(A) | 74/76 | 75/77 | 76/78 | 76/78 |
| Power connection U1, V1, W1 | | Flange connection with M10 screw, max. cross section 2 × 185 mm ² | Flange connection with M10 screw, max. cross section 2 × 185 mm ² | Flange connection with M10 screw, max. cross section 2 × 185 mm ² | Flange connection with M10 screw, max. cross section 2 × 185 mm ² |
| DC link connection DCP, DCN | | Flange connection with M10 screw, max. cross section 2 × 185 mm ² | Flange connection with M10 screw, max. cross section 2 × 185 mm ² | Flange connection with M10 screw, max. cross section 2 × 185 mm ² | Flange connection with M10 screw, max. cross section 2 × 185 mm ² |
| PE connection | | On housing with M10 screw, max. cross section PE1/GND 1 × 185 mm ² PE2/GND 2 × 185 mm ² | On housing with M10 screw, max. cross section PE1/GND 1 × 185 mm ² PE2/GND 2 × 185 mm ² | On housing with M10 screw, max. cross section PE1/GND 1 × 185 mm ² PE2/GND 2 × 185 mm ² | On housing with M10 screw, max. cross section PE1/GND 1 × 185 mm ² PE2/GND 2 × 185 mm ² |
| Max. cable length (total of all motor cables and DC link) | m (ft) | 1000 (1328) | 1000 (1328) | 1000 (1328) | 1000 (1328) |
| Degree of protection | | IP20 | IP20 | IP20 | IP20 |
| Width | mm (inch) | 326 (12.83) | 326 (12.83) | 326 (12.83) | 326 (12.83) |
| Height | mm (inch) | 1400 (55.12) | 1400 (55.12) | 1533 (60.35) | 1533 (60.35) |
| Depth | mm (inch) | 356 (14.02) | 356 (14.02) | 543 (21.38) | 543 (21.38) |
| Size | | FX | FX | GX | GX |
| Weight, approx. | kg (lb) | 88 (194) | 88 (194) | 152 (335) | 152 (335) |

¹⁾ Nominal HP ratings are provided for ease of assigning components only. The Line Module outputs are dependent on the Motor Module loading and are to be dimensioned accordingly.

²⁾ Total sound pressure level of Active Interface Module and Active Line Module.

Technical data (continued)

| Line voltage 380 V to 480 V 3 AC | | Active Line Modules in chassis format | | | |
|---|--|---|---|---|---|
| | | 6SL3330-7TE36-1AA0 | 6SL3330-7TE38-4AA0 | 6SL3330-7TE41-0AA0 | 6SL3330-7TE41-4AA0 |
| Feed/feedback power P_{rated} with 400 V 3 AC with 460 V 3 AC ¹⁾ | kW (HP) | 380 (550) | 500 (700) | 630 (800) | 900 (1150) |
| Feed/feedback power for S6 duty (40%) P_{S6} | kW | On request | On request | On request | On request |
| Max. I/RF power P_{max} | kW | 570 | 750 | 945 | 1350 |
| Rated DC link current $I_{\text{rated_DC}}$ | A | 678 | 940 | 1103 | 1574 |
| DC link current $I_{\text{H_DC}}$ | A | 603 | 837 | 982 | 1401 |
| Max. DC link current $I_{\text{max_DC}}$ | A | 1017 | 1410 | 1654 | 2361 |
| Input current for 3 AC 400 V | A | 605 | 840 | 985 | 1405 |
| Input current for S6 duty (40%) | A | On request | On request | On request | On request |
| Max. input current | A | 907 | 1260 | 1477 | 2107 |
| Max. current requirement 24 V DC electronics power supply | A | 1.4 | 1.4 | 1.5 | 1.7 |
| DC link capacitance | μF | 12600 | 16800 | 18900 | 28800 |
| Max. current requirements (fan supply) at 400 V 2 AC | A | 5.2 | 5.2 | 7.8 | 7.8 |
| Efficiency η | | 0.98 | 0.98 | 0.98 | 0.98 |
| Power loss | kW | 6.2 | 7.7 | 10.1 | 13.3 |
| Cooling air requirement | m ³ /s (ft ³ /s) | 0.78 (27.55) | 0.78 (27.55) | 1.08 (38.14) | 1.08 (38.14) |
| Sound pressure level ²⁾ 50 Hz/60 Hz | dB(A) | 78/80 | 78/80 | 78/80 | 78/80 |
| Power connection U1, V1, W1 | | Flange connection with M12 screw, max. cross section 4 × 240 mm ² | Flange connection with M12 screw, max. cross section 4 × 240 mm ² | Flange connection with M12 screw, max. cross section 6 × 240 mm ² | Flange connection with M12 screw, max. cross section 6 × 240 mm ² |
| DC link connection DCP, DCN | | Flange connection for busbar connection | Flange connection for busbar connection | Flange connection for busbar connection | Flange connection for busbar connection |
| PE connection | | On housing with M12 screw, max. cross section PE1/GND 1 × 240 mm ² PE2/GND 2 × 240 mm ² | On housing with M12 screw, max. cross section PE1/GND 1 × 240 mm ² PE2/GND 2 × 240 mm ² | On housing with M12 screw, max. cross section PE1/GND 1 × 240 mm ² PE2/GND 2 × 240 mm ² | On housing with M12 screw, max. cross section PE1/GND 1 × 240 mm ² PE2/GND 2 × 240 mm ² |
| Max. cable length (total of all motor cables and DC link) | m (ft) | 1500 (4921) | 1500 (4921) | 1500 (4921) | 1500 (4921) |
| Degree of protection | | IP00 | IP00 | IP00 | IP00 |
| Width | mm (inch) | 503 (19.8) | 503 (19.8) | 704 (27.72) | 704 (27.72) |
| Height | mm (inch) | 1475 (58.07) | 1475 (58.07) | 1475 (58.07) | 1475 (58.07) |
| Depth | mm (inch) | 540 (21.26) | 540 (21.26) | 540 (21.26) | 540 (21.26) |
| Size | | HX | HX | JX | JX |
| Weight, approx. | kg (lb) | 290 (640) | 290 (640) | 450 (992) | 450 (992) |

¹⁾ Nominal HP ratings are provided for ease of assigning components only. The Line Module outputs are dependent on the Motor Module loading and are to be dimensioned accordingly.

²⁾ Total sound pressure level of Active Interface Module and Active Line Module.

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Line Modules and line-side components

Active Line Modules in chassis format

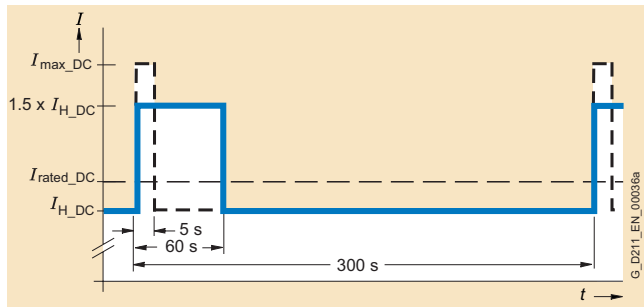
Technical data (continued)

| Line voltage 660 V to 690 V 3 AC | | Active Line Modules in chassis format | | | |
|---|--|---|---|---|---|
| | | 6SL3330-7TH35-8AA0 | 6SL3330-7TH37-4AA0 | 6SL3330-7TH41-0AA0 | 6SL3330-7TH41-3AA0 |
| Feed/feedback power P_{rated} with 690 V 3 AC | kW | 560 | 800 | 1100 | 1400 |
| Feed/feedback power for S6 duty (40%) P_{S6} | kW | On request | On request | On request | On request |
| Max. I/RF power P_{max} | kW | 840 | 1200 | 1650 | 2100 |
| Rated DC link current $I_{\text{rated_DC}}$ | A | 644 | 823 | 1148 | 1422 |
| DC link current $I_{\text{H_DC}}$ | A | 573 | 732 | 1022 | 1266 |
| Max. DC link current $I_{\text{max_DC}}$ | A | 966 | 1234 | 1722 | 2133 |
| Input current for 3 AC 690 V | A | 575 | 735 | 1025 | 1270 |
| Input current for S6 duty (40%) | A | On request | On request | On request | On request |
| Max. input current | A | 862 | 1102 | 1537 | 1905 |
| Max. current requirement 24 V DC electronics power supply | A | 1.4 | 1.5 | 1.7 | 1.7 |
| DC link capacitance | μF | 7400 | 11100 | 14400 | 19200 |
| Max. current requirements (fan supply) at 690 V 2 AC | A | 3 | 4.5 | 4.5 | 4.5 |
| Efficiency η | | 0.98 | 0.98 | 0.98 | 0.988 |
| Power loss | kW | 6.8 | 10.2 | 13.6 | 16.5 |
| Cooling air requirement | m^3/s (ft ³ /s) | 0.78 (27.55) | 1.1 (38.85) | 1.1 (38.85) | 1.1 (38.85) |
| Sound pressure level ¹⁾ 50 Hz/60 Hz | dB(A) | 78/80 | 78/80 | 78/80 | 78/80 |
| Power connection U1, V1, W1 | | Flange connection with M12 screw, max. cross section 4 × 240 mm ² | Flange connection with M12 screw, max. cross section 6 × 240 mm ² | Flange connection with M12 screw, max. cross section 6 × 240 mm ² | Flange connection with M12 screw, max. cross section 6 × 240 mm ² |
| DC link connection DCP, DCN | | Flange connection for busbar connection | Flange connection for busbar connection | Flange connection for busbar connection | Flange connection for busbar connection |
| PE connection | | On housing with M12 screw, max. cross section PE1/GND 1 × 240 mm ² PE2/GND 2 × 240 mm ² | On housing with M12 screw, max. cross section PE1/GND 1 × 240 mm ² PE2/GND 2 × 240 mm ² | On housing with M12 screw, max. cross section PE1/GND 1 × 240 mm ² PE2/GND 2 × 240 mm ² | On housing with M12 screw, max. cross section PE1/GND 1 × 240 mm ² PE2/GND 2 × 240 mm ² |
| Max. cable length (total of all motor cables and DC link) | m (ft) | 1500 (4921) | 1500 (4921) | 1500 (4921) | 1500 (4921) |
| Degree of protection | | IP00 | IP00 | IP00 | IP00 |
| Width | mm (inch) | 503 (19.8) | 704 (27.72) | 704 (27.72) | 704 (27.72) |
| Height | mm (inch) | 1475 (58.07) | 1475 (58.07) | 1475 (58.07) | 1475 (58.07) |
| Depth | mm (inch) | 540 (21.26) | 540 (21.26) | 540 (21.26) | 540 (21.26) |
| Size | | HX | JX | JX | JX |
| Weight, approx. | kg (lb) | 290 (640) | 450 (992) | 450 (992) | 450 (992) |

¹⁾ Total sound pressure level of Active Interface Module and Active Line Module.

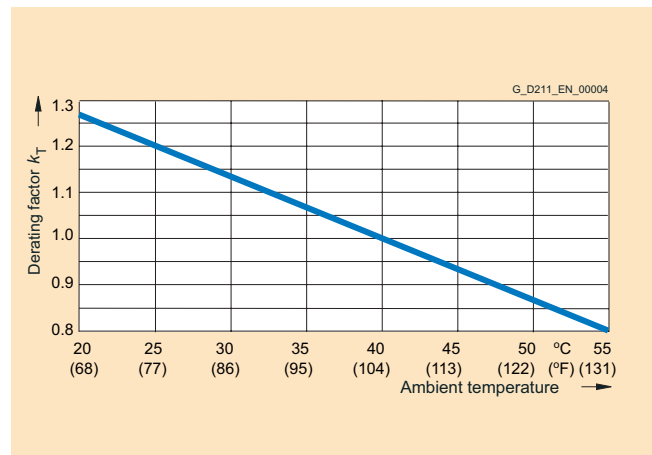
Characteristics

Overload capability



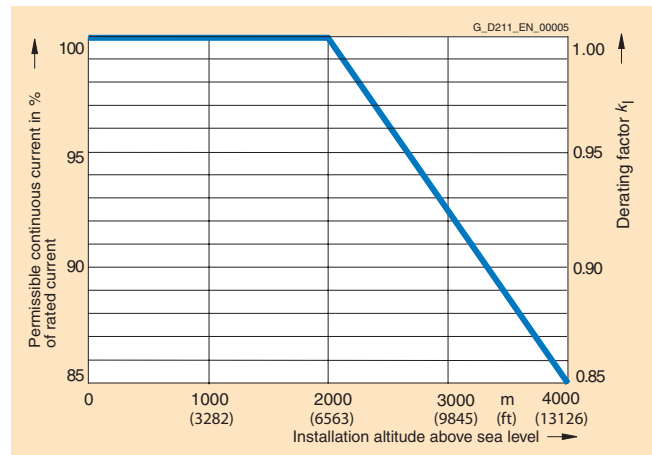
High overload

Derating characteristics

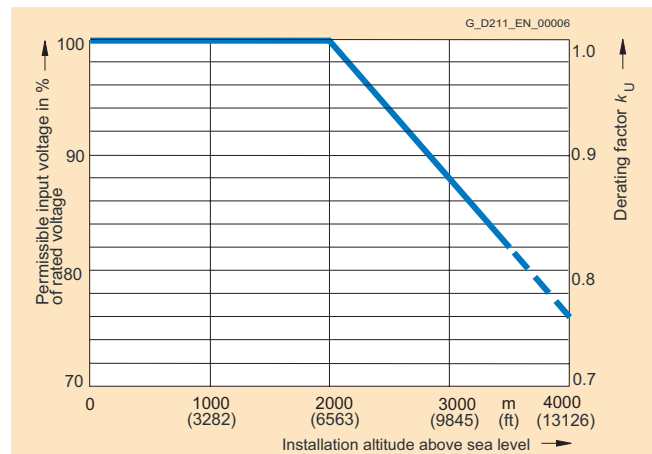


Current derating dependent on ambient temperature

Note: A derating factor k_T 1.0 is only possible in connection with the "current derating depending on the installation altitude". See also System description.



Current derating dependent on installation altitude



Voltage derating dependent on installation altitude

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Line Modules and line-side components

Active Interface Modules

Overview



Active Interface Modules are used in combination with Active Line Modules in chassis format. Active Interface Modules contain a clean power filter with basic RI suppression, the pre-charging circuit for the Active Line Module, the line voltage sensing circuit and monitoring sensors. The bypass contactor is an integral component in types FI and GI, thereby making the module very compact. The bypass contactor must be provided separately for types HI and JI.

The vast majority of line harmonics are suppressed by the clean power filter.

The scope of supply of the Active Interface Modules includes:

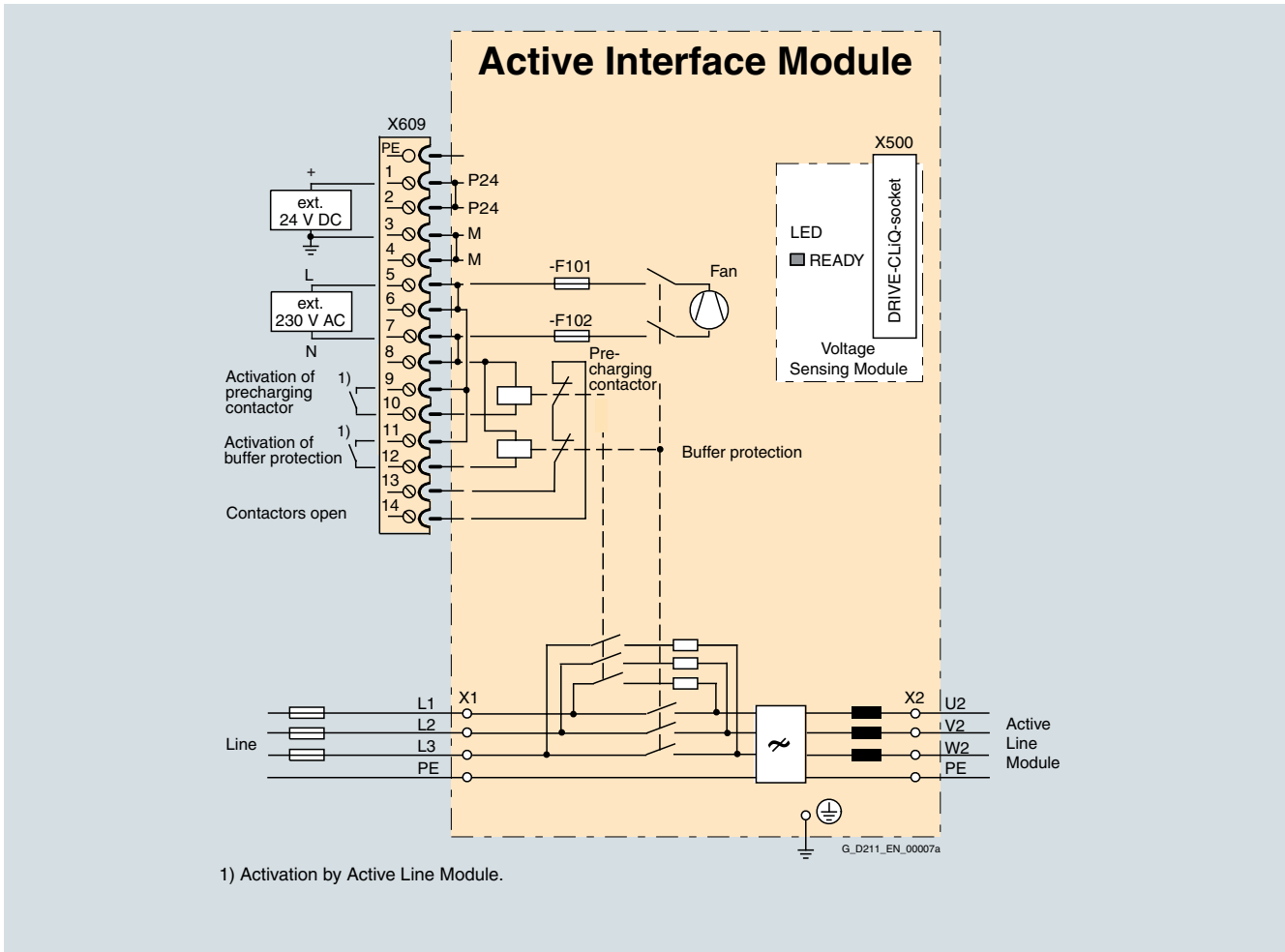
- Type FI:
 - 0.60 m (1.97 ft) DRIVE-CLiQ cable for connection between Active Interface Module and Active Line Module
 - 1.45 m (4.76 ft) DRIVE-CLiQ cable for connection between the CU320 or SIMOTION D Control Unit and first Motor Module.
- Type GI:
 - 0.95 m (3.12 ft) DRIVE-CLiQ cable for connection between Active Interface Module and Active Line Module
 - 1.45 m (4.76 ft) DRIVE-CLiQ cable for connection between the CU320 or SIMOTION D Control Unit and first Motor Module.
- Types HI and JI:
 - 2.40 m (7.88 ft) DRIVE-CLiQ cable for connection between Active Interface Module and Active Line Module

Selection and ordering data

| Active Line Module infeed power kW (HP) | Suitable for Active Line Module | Active Interface Module Order No. |
|---|---------------------------------|-----------------------------------|
| Line voltage 380 V to 480 V 3 AC | | |
| 132 (200) | 6SL3330-7TE32-1AA0 | 6SL3300-7TE32-6AA0 |
| 160 (225) | 6SL3330-7TE32-6AA0 | 6SL3300-7TE32-6AA0 |
| 235 (350) | 6SL3330-7TE33-8AA0 | 6SL3300-7TE33-8AA0 |
| 300 (450) | 6SL3330-7TE35-0AA0 | 6SL3300-7TE35-0AA0 |
| 380 (550) | 6SL3330-7TE36-1AA0 | 6SL3300-7TE38-4AA0 |
| 500 (700) | 6SL3330-7TE38-4AA0 | 6SL3300-7TE38-4AA0 |
| 630 (800) | 6SL3330-7TE41-0AA0 | 6SL3300-7TE41-4AA0 |
| 900 (1150) | 6SL3330-7TE41-4AA0 | 6SL3300-7TE41-4AA0 |
| Line voltage 660 V to 690 V 3 AC | | |
| 560 | 6SL3330-7TH35-8AA0 | 6SL3300-7TH35-8AA0 |
| 800 | 6SL3330-7TH37-4AA0 | 6SL3300-7TH37-4AA0 |
| 1100 | 6SL3330-7TH41-0AA0 | 6SL3300-7TH41-3AA0 |
| 1400 | 6SL3330-7TH41-3AA0 | 6SL3300-7TH41-3AA0 |

Integration

2



Connection example of Active Interface Module with integrated bypass contactor (types FI and GI)

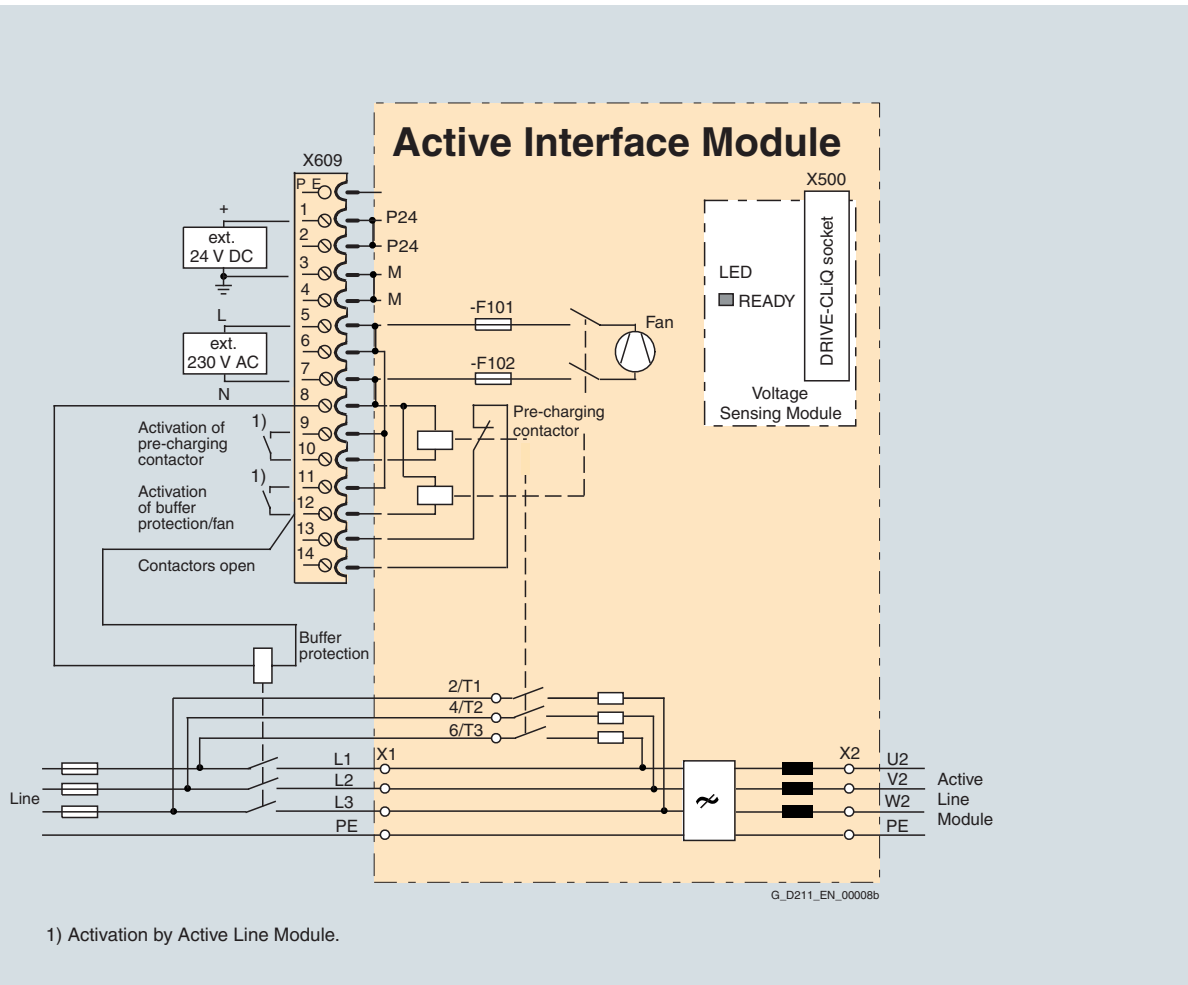
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Line Modules and line-side components

Active Interface Modules

Integration (continued)

2



Connection example of Active Interface Module with externally mounted bypass contactor (types HI and JI)

Technical data

| Line voltage 380 V to 480 V 3 AC | | Active Interface Modules in chassis format | | | |
|--|--|--|---|---|---|
| | | 6SL3300-7TE32-6AA0 | | 6SL3300-7TE33-8AA0 | 6SL3300-7TE35-0AA0 |
| Rated current | A | 210 | 260 | 380 | 490 |
| Bypass contactor | | included | included | included | included |
| Max. DC link capacitance of drive group | | | | | |
| • at 400 V/50 Hz | μF | 31200 | 31200 | 57600 | 57600 |
| • at 480 V/60 Hz | μF | 20800 | 20800 | 38400 | 38400 |
| Max. current requirement 24 V DC electronics power supply | A | 0.17 | 0.17 | 0.17 | 0.17 |
| Max. current requirement 230 V AC | A | 0.6 | 0.6 | 1.2 | 1.2 |
| Power loss | kW | 2.1 | 2.2 | 3.0 | 3.9 |
| Cooling air requirement | m ³ /s (ft ³ /s) | 0.24 (8.48) | 0.24 (8.48) | 0.47 (16.6) | 0.47 (16.6) |
| Sound pressure level ¹⁾ 50 Hz/60 Hz | dB(A) | 74/76 | 75/77 | 76/78 | 76/78 |
| Line/load connection L1, L2, L3 / U2, V2, W2 | | Flange connection with M10 screws | Flange connection with M10 screws | Flange connection with M10 screws | Flange connection with M10 screws |
| Max. conductor cross section | | 2 × 185 mm ² per connection | 2 × 185 mm ² per connection | 2 × 185 mm ² per connection | 2 × 185 mm ² per connection |
| PE connection | | M10 screw | M10 screw | M10 screw | M10 screw |
| Max. conductor cross section | | 2 × 185 mm ² | 2 × 185 mm ² | 2 × 185 mm ² | 2 × 185 mm ² |
| Degree of protection | | IP20 | IP20 | IP20 | IP20 |
| Width | mm (inch) | 325 (12.8) | 325 (12.8) | 325 (12.8) | 325 (12.8) |
| Height | mm (inch) | 1400 (55.12) | 1400 (55.12) | 1533 (60.35) | 1533 (60.35) |
| Depth | mm (inch) | 355 (13.98) | 355 (13.98) | 544 (21.42) | 544 (21.42) |
| Size | | FI | FI | GI | GI |
| Weight, approx. | kg (lb) | 135 (298) | 135 (298) | 190 (419) | 190 (419) |
| Suitable for Active Line Module | Type | 6SL3330-7TE32-1AA0 | 6SL3330-7TE32-6AA0 | 6SL3330-7TE33-8AA0 | 6SL3330-7TE35-0AA0 |
| Active Line Module infeed power | kW (HP) | 132 (200) | 160 (225) | 235 (350) | 300 (450) |

¹⁾ Total sound pressure level of Active Interface Module and Active Line Module.

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Line Modules and line-side components

Active Interface Modules

Technical data (continued)

| Line voltage 380 V to 480 V 3 AC | | Active Interface Modules in chassis format | | | |
|--|--|--|---|---|---|
| | | 6SL3300-7TE38-4AA0 | 840 | 6SL3300-7TE41-4AA0 | 1405 |
| Rated current | A | 605 | 840 | 985 | 1405 |
| Bypass contactor | | 3RT1476-6AP36 | 3WL1110-2BB34-4AN2-Z C22 | 3WL1112-2BB34-4AN2-Z C22 | 3WL2226-2BB34-4AN2-Z C22 |
| Max. DC link capacitance of drive group | | | | | |
| • at 400 V/50 Hz | μF | 100800 | 100800 | 172800 | 172800 |
| • at 480 V/60 Hz | μF | 67200 | 67200 | 115200 | 115200 |
| Max. current requirement 24 V DC electronics power supply | A | 0.17 | 0.17 | 0.17 | 0.17 |
| Max. current requirement 230 V AC | A | 4.6 | 4.6 | 4.9 | 4.9 |
| Power loss | kW | 5.5 | 6.1 | 7.5 | 8.5 |
| Cooling air requirement | m ³ /s (ft ³ /s) | 0.4 (14.13) | 0.4 (14.13) | 0.4 (14.13) | 0.4 (14.13) |
| Sound pressure level ¹⁾ 50 Hz/60 Hz | dB(A) | 78/80 | 78/80 | 78/80 | 78/80 |
| Line/load connection L1, L2, L3 / U2, V2, W2 | | Flange connection with M12 screws | Flange connection with M12 screws | Flange connection with M12 screws | Flange connection with M12 screws |
| Max. conductor cross section | | 4 × 240 mm ² per connection | 4 × 240 mm ² per connection | 6 × 240 mm ² per connection | 6 × 240 mm ² per connection |
| PE connection | | M12 screw | M12 screw | M12 screw | M12 screw |
| Max. conductor cross section | | 2 × 240 mm ² | 2 × 240 mm ² | 4 × 240 mm ² | 4 × 240 mm ² |
| Degree of protection | | IP00 | IP00 | IP00 | IP00 |
| Width | mm (inch) | 305 (12) | 305 (12) | 505 (19.88) | 505 (19.88) |
| Height | mm (inch) | 1750 (68.9) | 1750 (68.9) | 1750 (68.9) | 1750 (68.9) |
| Depth | mm (inch) | 545 (21.46) | 545 (21.46) | 545 (21.46) | 545 (21.46) |
| Size | | HI | HI | JI | JI |
| Weight, approx. | kg (lb) | 390 (860) | 390 (860) | 620 (1367) | 620 (1367) |
| Suitable for Active Line Module | Type | 6SL3330-7TE36-1AA0 | 6SL3330-7TE38-4AA0 | 6SL3330-7TE41-0AA0 | 6SL3330-7TE41-4AA0 |
| Active Line Module infeed power | kW (HP) | 380 (550) | 500 (700) | 630 (800) | 900 (1150) |

¹⁾ Total sound pressure level of Active Interface Module and Active Line Module.

Technical data (continued)

| Line voltage 660 V to 690 V 3 AC | | Active Interface Modules in chassis format | | | |
|---|--|--|---|---|---|
| | | 6SL3300-7TH35-8AA0 | 6SL3300-7TH37-4AA0 | 6SL3300-7TH41-3AA0 | |
| Rated current | A | 575 | 735 | 1025 | 1270 |
| Bypass contactor | | 3RT1476-6AP36 | 3WL1210-4BB34-4AN2 ^{*)} | 3WL1212-4BB34-4AN2-Z C22 | 3WL1216-4BB34-4AN2-Z C22 |
| Max. DC link capacitance of drive group | μF | 29600 | 76800 | 76800 | 76800 |
| Max. current requirement 24 V DC electronics power supply | A | 0.17 | 0.17 | 0.17 | 0.17 |
| Max. current requirement 230 V AC | A | 4.6 | 4.9 | 4.9 | 4.9 |
| Power loss | kW | 6.8 | 9.0 | 9.6 | 9.6 |
| Cooling air requirement | m ³ /s (ft ³ /s) | 0.4 (14.13) | 0.4 (14.13) | 0.4 (14.13) | 0.4 (14.13) |
| Sound pressure level ¹⁾ 50 Hz/60 Hz | dB(A) | 78/80 | 78/80 | 78/80 | 78/80 |
| Line/load connection L1, L2, L3 / U2, V2, W2 | | Flange connection with M12 screws | Flange connection with M12 screws | Flange connection with M12 screws | Flange connection with M12 screws |
| Max. conductor cross sec- tion | | 4 × 240 mm ² per connection | 6 × 240 mm ² per connection | 6 × 240 mm ² per connection | 6 × 240 mm ² per connection |
| PE connection | | M10 fixing screw | M10 fixing screw | M10 fixing screw | M10 fixing screw |
| Max. conductor cross sec- tion | | 2 × 240 mm ² | 4 × 240 mm ² | 4 × 240 mm ² | 4 × 240 mm ² |
| Degree of protection | | IP00 | IP00 | IP00 | IP00 |
| Width | mm (inch) | 305 (12) | 505 (19.88) | 505 (19.88) | 505 (19.88) |
| Height | mm (inch) | 1750 (68.9) | 1750 (68.9) | 1750 (68.9) | 1750 (68.9) |
| Depth | mm (inch) | 545 (21.46) | 545 (21.46) | 545 (21.46) | 545 (21.46) |
| Size | | HI | JI | JI | JI |
| Weight, approx. | kg (lb) | 390 (860) | 620 (1367) | 620 (1367) | 620 (1367) |
| Suitable for Active Line Module | Type | 6SL3330-7TH35-8AA0 | 6SL3330-7TH37-4AA0 | 6SL3330-7TH41-0AA0 | 6SL3330-7TH41-3AA0 |
| Active Line Module infeed power | kW | 560 | 800 | 1100 | 1400 |

¹⁾ Total sound pressure level of Active Interface Module and Active Line Module.

^{*)} Alternatively 3x 3RT1466-6AP36.

SINAMICS S120

Line Modules and line-side components

Active Line Modules in chassis format Recommended line-side components

Overview

Assignment of line-side power components to Active Line Modules in chassis format

Suitable line-side power components are assigned depending on the power rating of the Active Line Modules.

The tables below list recommended components.

Further information about the main contactors, switch disconnectors, fuses and circuit-breakers specified in the tables can be found in Catalogs LV 1, LV 1T and ET B1. ¹⁾

| Infeed power | Input current | Assignment to Active Interface Module | Assignment to Active Line Module | Bypass contactor | Fixed-mounted circuit-breaker |
|---|---------------|---------------------------------------|----------------------------------|-------------------------------------|---------------------------------|
| kW (HP) | A | Typ 6SL3300-... | Type 6SL3330-... | Order No. | Order No. |
| Line voltage 380 V to 480 V 3 AC | | | | | |
| 132 (200) | 210 | 7TE32-6AA0 | 7TE32-1AA0 | included in Active Interface Module | – |
| 160 (225) | 260 | 7TE32-6AA0 | 7TE32-6AA0 | included in Active Interface Module | – |
| 235 (350) | 380 | 7TE33-8AA0 | 7TE33-8AA0 | included in Active Interface Module | – |
| 300 (450) | 490 | 7TE35-0AA0 | 7TE35-0AA0 | included in Active Interface Module | – |
| 380 (550) | 605 | 7TE38-4AA0 | 7TE36-1AA0 | 3RT1476-6AP36 | – |
| 500 (700) | 840 | 7TE38-4AA0 | 7TE38-4AA0 | 3WL1110-2BB34-4AN2 | 3WL1110-2BB34-4AN2-Z C22 |
| 630 (800) | 985 | 7TE41-4AA0 | 7TE41-0AA0 | 3WL1112-2BB34-4AN2 | 3WL1112-2BB34-4AN2-Z C22 |
| 900 (1150) | 1405 | 7TE41-4AA0 | 7TE41-4AA0 | 3WL1116-2BB34-4AN2 | 3WL1116-2BB34-4AN2-Z C22 |
| Line voltage 660 V to 690 V 3 AC | | | | | |
| 560 | 575 | 7TH35-8AA0 | 7TH35-8AA0 | 3RT1476-6AP36 | – |
| 800 | 735 | 7TH37-4AA0 | 7TH37-4AA0 | 3WL1210-4BB34-4AN2 | 3WL1210-4BB34-4AN2-Z C22 |
| 1100 | 1025 | 7TH41-3AA0 | 7TH41-0AA0 | 3WL1212-4BB34-4AN2 | 3WL1212-4BB34-4AN2-Z C22 |
| 1400 | 1270 | 7TH41-3AA0 | 7TH41-3AA0 | 3WL1216-4BB34-4AN2 | 3WL1216-4BB34-4AN2-Z C22 |

| Infeed power | Input current | Assignment to Active Interface Module | Switch disconnector without handle and shaft | Switch disconnector with handle and shaft | Cable protection fuse | | Cable protection fuse incl. semiconductor protection | |
|---|---------------|---------------------------------------|--|---|-----------------------|---------------|--|---------------|
| | | | Order No. | Order No. | Order No. | Rated current | Order No. | Rated current |
| Line voltage 380 V to 480 V 3 AC | | | | | | | | |
| 132 (200) | 210 | 7TE32-6AA0 | 3KL5530-1AB01 | 3KL5530-1EB01 | 3NA3242 | 224 A | 3NE1230-2 | 315 A |
| 160 (225) | 260 | 7TE32-6AA0 | 3KL5730-1AB01 | 3KL5730-1EB01 | 3NA3252 | 315 A | 3NE1331-2 | 350 A |
| 235 (350) | 380 | 7TE33-8AA0 | 3KL5730-1AB01 | 3KL5730-1EB01 | 3NA3260 | 400 A | 3NE1334-2 | 500 A |
| 300 (450) | 490 | 7TE35-0AA0 | 3KL6130-1AB02 | 3KL6130-1EB02 | 3NA3365 | 500 A | 3NE1436-2 | 630 A |
| 380 (550) | 605 | 7TE38-4AA0 | 3KL6230-1AB02 | 3KL6230-1EB02 | 3NA3372 | 630 A | 3NE1437-2 | 710 A |
| 500 (700) | 840 | 7TE38-4AA0 | – | – | 2 × 3NA3362 | 2 × 425 A | 2 × 3NE1334-2 | 2 × 500 A |
| 630 (800) | 985 | 7TE41-4AA0 | – | – | 2 × 3NA3365 | 2 × 500 A | 2 × 3NE1436-2 | 2 × 630 A |
| 900 (1150) | 1405 | 7TE41-4AA0 | – | – | 3 × 3NA3365 | 3 × 500 A | 3 × 3NE1448-2 | 2 × 850 A |
| Line voltage 660 V to 690 V 3 AC | | | | | | | | |
| 560 | 575 | 7TH35-8AA0 | 3KL6130-1AB02 | 3KL6130-1EB02 | 2 × 3NA3352-6 | 2 × 315 A | 3NE1447-2 | 670 A |
| 800 | 735 | 7TH37-4AA0 | 3KL6230-1AB02 | 3KL6230-1EB02 | 2 × 3NA3360-6 | 2 × 400 A | 3NE1448-2 | 850 A |
| 1100 | 1025 | 7TH41-3AA0 | – | – | 3 × 3NA3354-6 | 3 × 355 A | 2 × 3NE1436-2 | 2 × 630 A |
| 1400 | 1270 | 7TH41-3AA0 | – | – | 3 × 3NA3365-6 | 3 × 500 A | 2 × 3NE1438-2 | 2 × 800 A |

1) Component selections are per IEC standards and not necessarily in accordance with UL or NEC requirements. For NEMA components please see North American Industrial Products Catalog and Speedfax Catalog.