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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.

In order to operate an Active Line Module, it is absolutely essential to use the appropriate Active Interface Module or matching line reactor.

Design

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

- 1 line 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 plates 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. type KLBÜ 3-8 SC by Weidmüller.

Design (continued)

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
- 2 blanking plugs for sealing unused DRIVE-CLiQ sockets
- Jumper for connecting the 24 V DC busbar to the adjacent Motor Module
- 24 V terminal adapter
- Connector X21 for digital inputs
- Fan insert for the 80 kW (100 HP) and 120 kW (150 HP) Active Line Modules is supplied with the modules. The voltage for the fan insert is supplied by the Active Line Module.
- 1 set of warning signs in foreign languages

Integration

The Active Line Module communicates via DRIVE-CLiQ with the CU320 Control Unit, SINUMERIK 802D sl, SINUMERIK 840D sl with NCU 710.1/NCU 720.2/NCU 730.1/ NCU 730.2 PN or with the Numeric Control Extensions NX10/NX15 and receives its control information from these sources.

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Active Line Modules in booksize format

Technical specifications

General technical specifications

Line connection voltage Up to 2000 m (6562 ft) above sea level	380 ... 480 V 3 AC ± 10% (-15% < 1 min)
Line frequency	47 … 63 Hz
Power factor	
• Active mode	
- Fundamental power factor (cos φ1)	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
- Total	0.65 … 0.90
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 ... 400 V 3 AC: 600 V (Active Mode) 400 ... 415 V 3 AC: 625 V (Active Mode) 416 ... 480 V 3 AC: 1.35 x line voltage (Smart Mode)
Electronics power supply	24 V DC -15%/+20%
Radio interference suppression	
• Active Line Module 16 kW (18 HP) and 36 kW (40 HP)	
- Standard (Active Line Module + line reactor)	no radio interference suppression
- with line filter package	Class A1 to EN 55011 and Category C2 to EN 61800-3
• Active Line Module 55 kW (60 HP), 80 kW (100 HP) and 120 kW (150 HP)	
- Standard (Active Line Module + Active Interface Module)	Category C3 to EN 61800-3 up to 350 m (1148 ft) total cable length
- with Basic Line Filter	Class A1 to EN 55011 and Category C2 to EN 61800-3 up to 350 m (1148 ft) total cable length Category C3 to EN 61800-3 from 350 m to 1000 m (1148 ft to 3281 ft) total cable length

General technical specifications (continued)

Type of cooling	Internal air cooling, power units with increased air cooling provided by integrated fan Built-on fan (with 80 kW (100 HP) and 120 kW (150 HP) Active Line Modules).
Permissible ambient or coolant temperature (air) in operation for line-side components, Line Modules and Motor Modules	0 ... 40 °C (32 ... 104 °F) without derating, > 40 ... 55 °C (104 ... 131 °F), see derating characteristics
Installation altitude	Up to 1000 m (3281 ft) above sea level without derating, > 1000 ... 4000 m (3281 ... 13124 ft) above sea level, see derating characteristics
Conformity	CE (low-voltage and EMC directives)
Approvals	cULus (File No.: E192450)

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Technical specifications (continued)

Line voltage 380 ... 480 V 3 AC

Order No.						
• Internal air cooling		6SL3130-7TE21-6AA3	6SL3130-7TE23-6AA3	6SL3130-7TE25-5AA3	6SL3130-7TE28-0AA3	6SL3130-7TE31-2AA3
• External air cooling		6SL3131-7TE21-6AA3	6SL3131-7TE23-6AA3	6SL3131-7TE25-5AA3	6SL3131-7TE28-0AA3	6SL3131-7TE31-2AA3
Product name		Active Line Modules in booksize format				
Feed/feedback power						
• Rated power P_{rated}						
- with 380 V 3 AC	kW	16	36	55	80	120
- with 460 V 3 AC[4]	(HP)	(18)	(40)	(60)	(100)	(150)
• for S6 duty (40%) P_{S6}	kW	21	47	71	106	158
• P_{max}	kW	35	70	91	131	175
• $P_{max,}$ maximum	kW	27	60	92	134	200
DC link current						
• at 600 V DC	V	35	79	121	176	244
• for S6 duty (40%)	A	59	117	152	218	292
Input current						
• Rated current at 380 V 3 AC	A	26	58	88	128	192
• for S6 duty (40%)	A	35	79	121	176	244
• Maximum	A	59	117	152	195	292
Current requirement 24 V DC electronics power supply, max.	A	1.1	1.5	1.9	2.0	2.5
Current capacity						
• of 24 V DC busbars	A	20	20	20	20	20
• DC link busbars	A	100	200	200	200	200
DC link capacitance						
• Smart Line Module	µF	710	1410	1880	2820	3995
• Drive group, max.	µF	20000	20000	20000	20000	20000
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
• 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
Line connection U1, V1, W1		Screw-type terminals (X1)	M6 screw studs for ring terminal ends (X1)	M8 screw studs for ring terminal ends (X1)	M8 screw studs for ring terminal ends (X1)	M8 screw studs for ring terminal ends (X1)
• Conductor cross-section	mm^2	2.5 ... 10	2.5 ... 50	2.5 ... 95, 2 x 35	2.5 ... 120, 2 x 50	2.5 ... 120, 2 x 50
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
Cable length, max. (total of all motor cables and DC link)						
• Shielded	m (ft)	350[3] (1150)	350[3] (1150)	1000 (3281)	1000 (3281)	1000 (3281)
• Unshielded	m (ft)	560[3] (1840)	560[3] (1840)	1500 (4922)	1500 (4922)	1500 (4922)
Degree of protection		IP20	IP20	IP20	IP20	IP20
Dimensions						
• Width	mm (in)	100 (3.94)	150 (5.91)	200 (7.87)	300 (11.81)	300 (11.81)
• Height	mm (in)	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 (in)	270 (10.63)	270 (10.63)	270 (10.63)	270 (10.63)	270 (10.63)
- with external air cooling on/behind mounting surface	mm (in)	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)
Weight						
• with internal air cooling, approx.	kg (lb)	7 (15)	10.3 (23)	17 (38)	23 (51)	23 (51)
• with external air cooling, approx.	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 power 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] Max. cable lengths in conjunction with HFD line reactors, see derating characteristics.

[4] Nominal HP ratings are provided for ease of assigning components only. The Line Module power is dependent on the Motor Module loading and is to be dimensioned accordingly.

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Active Line Modules in booksize format

Selection and Ordering Data

Rated infeed power	Active Line Module in booksize format	
	Internal air cooling Order No.	External air cooling Order No.
Line voltage 380 ... 480 V 3 AC		
16 kW (18 HP)	**6SL3130-7TE21-6AA3**	**6SL3131-7TE21-6AA3**
36 kW (40 HP)	**6SL3130-7TE23-6AA3**	**6SL3131-7TE23-6AA3**
55 kW (60 HP)	**6SL3130-7TE25-5AA3**	**6SL3131-7TE25-5AA3**
80 kW (100 HP)	**6SL3130-7TE28-0AA3**	**6SL3131-7TE28-0AA3**
120 kW (150 HP)	**6SL3130-7TE31-2AA3**	**6SL3131-7TE31-2AA3**

Accessories

Designation	Order No.
Shield connection kit For Line Modules and Motor Modules in booksize format	
• 150 mm (5.91 in) wide for internal air cooling	**6SL3162-1AF00-0AA1**
• 150 mm (5.91 in) wide for external air cooling	**6SL3162-1AF00-0BA0**
• 200 mm (7.87 in) wide for internal air cooling	**6SL3162-1AH01-0AA0**
• 200 mm (7.87 in) wide for external air cooling	**6SL3162-1AH01-0BA0**
• 300 mm (11.81 in) wide for internal/external air cooling	**6SL3162-1AH00-0AA0**
DC link rectifier adapter For direct infeed of DC link voltage	
• Screw-type terminals 0.5 ... 10 mm^2 for Line Modules and Motor Modules in booksize format with a width of 50 mm (1.97 in) or 100 mm (3.94 in)	**6SL3162-2BD00-0AA0**
• Screw-type terminals 35 ... 95 mm^2 for Line Modules and Motor Modules in booksize format with a width of 150 mm, 200 mm and 300 mm (5.91 in, 7.87 in and 11.81 in)	**6SL3162-2BM00-0AA0**
DC link adapters (2 units) For multi-tier configuration Screw-type terminals 35 ... 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 English or German signs. A set of signs is supplied with the units. One sign in each of the following languages is provided in each set: Chinese, Czech, Danish, Dutch, Finnish, French, Greek, Italian, Japanese, Korean, Polish, Portuguese, Russian, Spanish, Swedish and Turkish.	**6SL3166-3AB00-0AA0**

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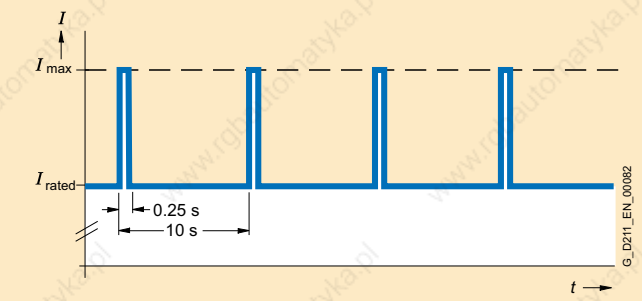
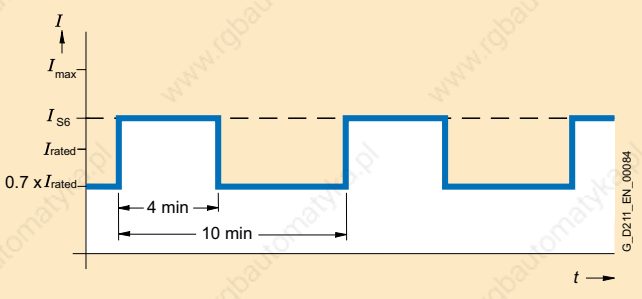
Characteristic curves

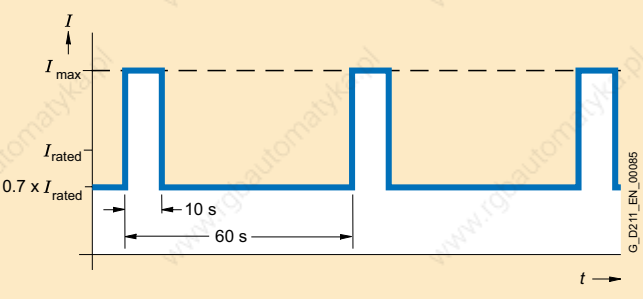
Overload capability



Duty cycle with previous load

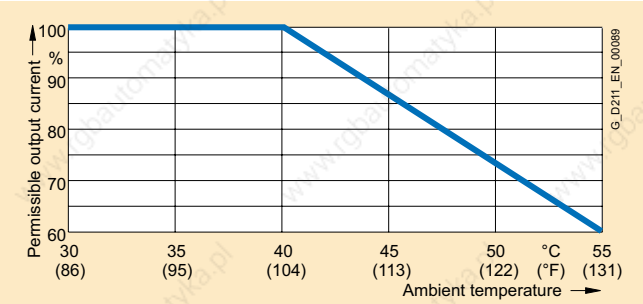


S6 duty cycle with previous load

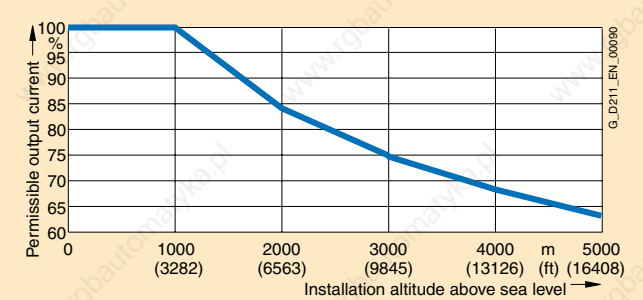


S6 duty cycle with previous load

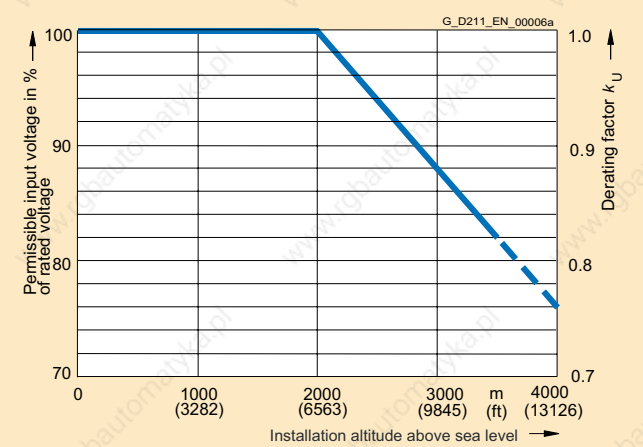
Derating characteristics



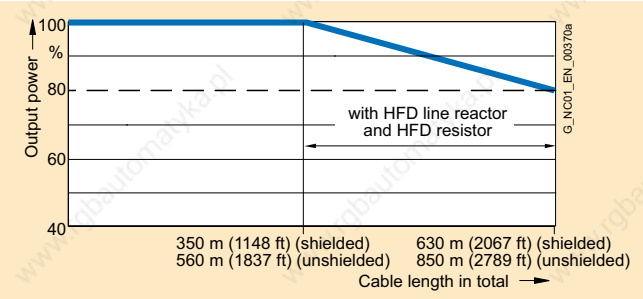
Output power dependent on ambient temperature



Output power dependent on installation altitude



Voltage derating dependent on installation altitude



Output power with Active Line Module dependent on total cable length

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Booksize format for Line and Motor Modules

Active Line Modules in booksize format HF/HFD line reactors

Overview

Line reactors with HF properties are essential for operation of Active Line Modules. The use of other makes of line reactor can lead to malfunctions or irreparable damage to equipment.

The HFD line reactors must be used in combination with the HFD resistor (or alternatively the braking resistor Plus, see braking resistors for booksize format) when there are direct drives in the drive group, such as linear motors, torque motors, spindle motors as well as non-Siemens motors, or when resonant effects are to be expected. The risk of failures due to premature ageing of drive components can be reduced in this way.

Benefits

- Limitation of mains and HF harmonic effects
- Stores energy for boosting voltage for step-up converter mode at high frequency with Active Line Modules

Application

HF/HFD line reactors can be used for 400 V 3 AC -10% to 480 V 3 AC +10%; 50/60 Hz ±10%.

Selection and Ordering Data

Rated infeed power of the Active Line Module	Suitable for Active Line Module Order No.	**HF line reactor** Order No.
Line voltage 380 ... 480 V 3 AC		
16 kW (18 HP)	6SL3130-7TE21-6AA3 6SL3131-7TE21-6AA3	**6SN1111-0AA00-0BA1**
36 kW (40 HP)	6SL3130-7TE23-6AA3 6SL3131-7TE23-6AA3	**6SN1111-0AA00-0CA1**
55 kW (60 HP)	6SL3130-7TE25-5AA3 6SL3131-7TE25-5AA3	**6SN1111-0AA00-0DA1**
80 kW (100 HP)	6SL3130-7TE28-0AA3 6SL3131-7TE28-0AA3	**6SN1111-0AA00-1EA0**
120 kW (150 HP)	6SL3130-7TE31-2AA3 6SL3131-7TE31-2AA3	**6SL3000-0DE31-2BA0**

Technical specifications

Line voltage 380 ... 480 V 3 AC						
Order No.		**6SN1111-0AA00-0BA1**	**6SN1111-0AA00-0CA1**	**6SN1111-0AA00-0DA1**	**6SN1111-0AA00-1EA0**	**6SL3000-0DE31-2BA0**
Product name		HF line reactor				
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		Screw-type terminals 16 mm^2	Screw-type terminals 35 mm^2	Screw-type terminals 70 mm^2	M10 connection lugs	M10 connection lugs
PE connection		Screw-type terminals 16 mm^2	Screw-type terminals 35 mm^2	Screw-type terminals 70 mm^2	M10 connection lugs	M10 connection lugs
Degree of protection		IP20	IP20	IP20	IP00	IP00
Dimensions						
• Width	mm (in)	150 (5.91)	150 (5.91)	150 (5.91)	225 (8.86)	275 (10.83)
• Height	mm (in)	125 (4.92)	217 (8.54)	277 (10.91)	220 (8.66)	265 (10.43)
• Length	mm (in)	330 (12.99)	330 (12.99)	330 (12.99)	380 (14.96)	480 (18.90)
Weight, approx.	kg (lb)	13 (28.67)	20 (44.10)	27 (59.54)	35 (77.18)	67 (147.74)
Approvals		cURus (File No.: E257852)	cURus (File No.: E257852)	cURus (File No.: E257852)	cURus (File No.: E257852)	cURus (File No.: E257852)
Suitable for Active Line Module in booksize format	Type	6SL3130-7TE21-6AA3 6SL3131-7TE21-6AA3	6SL3130-7TE23-6AA3 6SL3131-7TE23-6AA3	6SL3130-7TE25-5AA3 6SL3131-7TE25-5AA3	6SL3130-7TE28-0AA3 6SL3131-7TE28-0AA3	6SL3130-7TE31-2AA3 6SL3131-7TE31-2AA3
• Rated infeed power of the Active Line Module	kW (HP)	16 (18)	36 (40)	55 (60)	80 (100)	120 (150)

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Technical specifications (continued)

Line voltage 380 ... 480 V 3 AC						
Order No.		**6SL3000-0DE21-6AA0**	**6SL3000-0DE23-6AA0**	**6SL3000-0DE25-5AA0**	**6SL3000-0DE28-0AA0**	**6SL3000-0DE31-2AA0**
Product name		HFD line reactor				
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		Screw-type terminals 16 mm^2	Screw-type terminals 35 mm^2	Screw-type terminals 70 mm^2	M10 connection lugs	M10 connection lugs
PE connection		Screw-type terminals 16 mm^2	Screw-type terminals 35 mm^2	Screw-type terminals 70 mm^2	M10 connection lugs	M10 connection lugs
Degree of protection		IP20	IP20	IP20	IP00	IP00
Dimensions						
• Width	mm (in)	150 (5.91)	150 (5.91)	150 (5.91)	200 (7.87)	275 (10.83)
• Height	mm (in)	125 (4.92)	235 (9.25)	290 (11.42)	210 (8.27)	265 (10.43)
• Length	mm (in)	330 (12.99)	330 (12.99)	330 (12.99)	380 (14.96)	480 (18.90)
Weight, approx.	kg (lb)	13 (29)	21 (46)	27 (60)	37 (82)	67 (148)
Suitable for Active Line Module in booksize format	Type	6SL3130-7TE21-6AA3 6SL3131-7TE21-6AA3	6SL3130-7TE23-6AA3 6SL3131-7TE23-6AA3	6SL3130-7TE25-5AA3 6SL3131-7TE25-5AA3	6SL3130-7TE28-0AA3 6SL3131-7TE28-0AA3	6SL3130-7TE31-2AA3 6SL3131-7TE31-2AA3
• Rated infeed power of the Active Line Module	kW (HP)	16 (18)	36 (40)	55 (60)	80 (100)	120 (150)

Selection and Ordering Data

Rated infeed power of the Active Line Module	Suitable for Active Line Module Order No.	**HFD line reactor** Order No.
Line voltage 380 ... 480 V 3 AC		
16 kW (18 HP)	6SL3130-7TE21-6AA3 6SL3131-7TE21-6AA3	**6SL3000-0DE21-6AA0**
36 kW (40 HP)	6SL3130-7TE23-6AA3 6SL3131-7TE23-6AA3	**6SL3000-0DE23-6AA0**
55 kW (60 HP)	6SL3130-7TE25-5AA3 6SL3131-7TE25-5AA3	**6SL3000-0DE25-5AA0**
80 kW (100 HP)	6SL3130-7TE28-0AA3 6SL3131-7TE28-0AA3	**6SL3000-0DE28-0AA0**
120 kW (150 HP)	6SL3130-7TE31-2AA3 6SL3131-7TE31-2AA3	**6SL3000-0DE31-2AA0**

HFD line reactor

For vibration damping, the HFD line reactor must be used in combination with the HFD resistor.

Technical specifications

Order No.	**6SL3100-1BE21-3AA0**
Product name	HFD resistor 15R 800 W for HFD line reactor only
Power	0.8 kW
Dimensions	
• Width	270 mm (10.6 in)
• Height	75 mm (2.95 in)
• Depth	555 mm (21.8 in)
Degree of protection to EN 60529 (IEC 60529)	IP51
Connecting cable Included in scope of supply	5 m (16.4 ft)

Selection and Ordering Data

Designation	**Order No.**
HFD resistor 15R 800 W Suitable for all HFD line reactors	**6SL3100-1BE21-3AA0**

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Active Line Modules in booksize format
Line filters

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, radio interference 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.

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Overview

The damping characteristics of Wideband Line Filters for 16 kW and 36 kW (18 HP and 40 HP) 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).

Line filter packages are available for Active Line Modules in booksize format. These line filter packages that must be installed by the customer comprise a Wideband Line Filter and an HF/HFD commutating reactor.

Note:
Radio interference suppression is required in accordance with EMC standards (product standard IEC 61800-3, EN 61800-3; VDE 0160 T 100). In the EU, this is mandatory by law. The line filter packages consisting of commutating reactor and line filter are required for this purpose. The Wideband Line Filter with the commutating reactor forms a unit specially matched to the step-up converter principle of the Active Line Modules. Use of other filters can lead to exceeding of limit values, resonances, overvoltages and irreparable damage to motor or other equipment.

Technical specifications

Line voltage 380 ... 480 V 3 AC

Order No.		**6SL3000-0FE21-6AA0**	**6SL3000-0FE23-6AA0**	**6SL3000-0FE25-5AA0**	**6SL3000-0FE28-0AA0**	**6SL3000-0FE31-2AA1**
Product name		Wideband Line Filter included in each line filter package				
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		Screw-type terminals 10 mm^2	Screw-type terminals 50 mm^2	Screw-type terminals 50 mm^2	Screw-type terminals 95 mm^2	M10 connection 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
Dimensions						
• Width	mm (in)	130 (5.12)	130 (5.12)	130 (5.12)	200 (7.87)	300 (11.81)
• Height	mm (in)	480 (18.9)	480 (18.9)	480 (18.9)	480 (18.9)	480 (18.9)
• Depth	mm (in)	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)
Approvals		cURus	cURus	cURus	cURus	cURus
Suitable for Active Line Module in booksize format	Type	6SL3130-7TE21-6AA3 6SL3131-7TE21-6AA3	6SL3130-7TE23-6AA3 6SL3131-7TE23-6AA3	6SL3130-7TE25-5AA3 6SL3131-7TE25-5AA3	6SL3130-7TE28-0AA3 6SL3131-7TE28-0AA3	6SL3130-7TE31-2AA3 6SL3131-7TE31-2AA3
• Rated infeed power of the Active Line Module	kW (HP)	16 (18)	36 (40)	55 (60)	80 (100)	120 (150)

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Active Line Modules in booksize format
Line filters – Wideband Line Filters/Adapter set

Selection and Ordering Data

Line filters for Active Line Modules in booksize format should be ordered in combination with the appropriate 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 infeed power of the Active Line Module	Suitable for Active Line Module Order No.	**HF line filter package** Wideband Line Filter and HF line reactor Order No.
Line voltage 380 ... 480 V 3 AC		
16 kW (18 HP)	6SL3130-7TE21-6AA3 6SL3131-7TE21-6AA3	**6SL3000-0FE21-6AA0**
36 kW (40 HP)	6SL3130-7TE23-6AA3 6SL3131-7TE23-6AA3	**6SL3000-0FE23-6AA0**
55 kW (60 HP)	6SL3130-7TE25-5AA3 6SL3131-7TE25-5AA3	**6SL3000-0FE25-5AA0**
80 kW (100 HP)	6SL3130-7TE28-0AA3 6SL3131-7TE28-0AA3	**6SL3000-0FE28-0AA0**
120 kW (150 HP)	6SL3130-7TE31-2AA3 6SL3131-7TE31-2AA3	**6SL3000-0FE31-2AA1**

Rated infeed power of the Active Line Module	Suitable for Active Line Module Order No.	**HFD line filter package** Wideband Line Filter and HFD line reactor Order No.
Line voltage 380 ... 480 V 3 AC		
16 kW (18 HP)	6SL3130-7TE21-6AA3 6SL3131-7TE21-6AA3	**6SL3000-0FE21-6BA0**
36 kW (40 HP)	6SL3130-7TE23-6AA3 6SL3131-7TE23-6AA3	**6SL3000-0FE23-6BA0**
55 kW (60 HP)	6SL3130-7TE25-5AA3 6SL3131-7TE25-5AA3	**6SL3000-0FE25-5BA0**
80 kW (100 HP)	6SL3130-7TE28-0AA3 6SL3131-7TE28-0AA3	**6SL3000-0FE28-0BA0**
120 kW (150 HP)	6SL3130-7TE31-2AA3 6SL3131-7TE31-2AA3	**6SL3000-0FE31-2BA0**

Accessories

Line filter package assembled with an adapter set

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

Selection and Ordering Data

Active Line Module power output	Suitable for HF line filter package Order No.	**Adapter set** Order No.
Line voltage 380 ... 480 V 3 AC		
16 kW (18 HP)	6SL3000-0FE21-6AA0	**6SL3060-1FE21-6AA0**
36 kW (40 HP)	6SL3000-0FE23-6AA0	**6SN1162-0GA00-0CA0**

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Overview

Basic Line Filters are designed for use 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.

The use of Basic Line Filters is subject to the following general conditions:

- The machine/system must only be used in industrial power systems
- No. of axes <12
- Total cable length <150 m (492 ft)
- The machine manufacturer (OEM) must have the CE conformity of the machine/system confirmed by an accredited EMC test laboratory (e.g. by EPCOS; e-mail: emv.labor@epcos.com).

Technical specifications

Line voltage 380 ... 480 V 3 AC				
Order No.		**6SL3000-0BE21-6DA0**	**6SL3000-0BE23-6DA0**	**6SL3000-0BE25-5DA0**
Product name		Basic Line Filter		
Rated current	A	36	65	105
Power loss	kW	0.006	0.010	0.015
Line/load connection L1, L2, L3/U, V, W		Screw-type terminals	Screw-type terminals	Screw-type terminals
• Conductor cross-section	mm^2	10	35	50
PE connection		On housing with M6 screw stud	On housing with M6 screw stud	On housing with M8 screw stud
Degree of protection		IP20	IP20	IP20
Dimensions				
• Width	mm (in)	50 (1.97)	75 (2.95)	100 (3.94)
• Height	mm (in)	420 (16.54)	420 (16.54)	420 (16.54)
• Depth	mm (in)	226 (8.9)	226 (8.9)	226 (8.9)
Weight, approx.	kg (lb)	5 (11)	6.5 (14)	11.5 (25)
Approvals		cURus (File No.: E70122)	cURus (File No.: E70122)	cURus (File No.: E70122)
Suitable for Active Line Module in booksize format	Type	6SL3130-7TE21-6AA3 6SL3131-7TE21-6AA3	6SL3130-7TE23-6AA3 6SL3131-7TE23-6AA3	6SL3130-7TE25-5AA3 6SL3131-7TE25-5AA3
• Rated infeed power of the Active Line Module	kW (HP)	16 (18)	36 (40)	55 (60)

Selection and Ordering Data

Rated infeed power of the Active Line Module	Suitable for Active Line Module Order No.	**Basic Line Filter** Order No.
Line voltage 380 ... 480 V 3 AC		
16 kW (18 HP)	6SL3130-7TE21-6AA3 6SL3131-7TE21-6AA3	**6SL3000-0BE21-6DA0**
36 kW (40 HP)	6SL3130-7TE23-6AA3 6SL3131-7TE23-6AA3	**6SL3000-0BE23-6DA0**
55 kW (60 HP)	6SL3130-7TE25-5AA3 6SL3131-7TE25-5AA3	**6SL3000-0BE25-5DA0**

More information

You must follow the instructions in the Equipment Manual when using Basic Line Filters in conjunction with 16 kW to 55 kW (18 HP to 60 HP) Active Line Modules: SINAMICS S120 – Power units in booksize format.

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Active Line Modules in booksize format
Recommended line-side components

Overview

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 1 T.

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

Rated infeed power	Assignment to Active Line Module	**Main contactor** Type	**Output interface for main contactor** Order No.	**Main switch** Order No.	**Leading auxiliary circuit switch for main switch** Order No.
Line voltage 380 ... 480 V 3 AC					
16 kW (18 HP)	6SL3130-7TE21-6AA3 6SL3131-7TE21-6AA3	**3RT1035-...**	**3TX7004-1LB00**	**3LD2504-0TK51**	**3LD9200-5B**
36 kW (40 HP)	6SL3130-7TE23-6AA3 6SL3131-7TE23-6AA3	**3RT1045-...**	**3TX7004-1LB00**	**3LD2704-0TK51**	**3LD9200-5B**
55 kW (60 HP)	6SL3130-7TE25-5AA3 6SL3131-7TE25-5AA3	**3RT1054-...**	**3TX7004-1LB00**	**3KA5330-1EE01**	**3KX3552-3EA01**
80 kW (100 HP)	6SL3130-7TE28-0AA3 6SL3131-7TE28-0AA3	**3RT1056-...**	**3TX7004-1LB00**	**3KA5330-1EE01**	**3KX3552-3EA01**
120 kW (150 HP)	6SL3130-7TE31-2AA3 6SL3131-7TE31-2AA3	**3RT1065-...**	**3TX7004-1LB00**	**3KA5730-1EE01**	**3KX3552-3EA01**

Rated infeed power	Assignment to Active Line Module	**Circuit-breaker** Type	**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 ... 480 V 3 AC					
16 kW (18 HP)	6SL3130-7TE21-6AA3 6SL3131-7TE21-6AA3	**3RV1031-4FA10**	**3NP4010-0CH01**	**3KL5030-1EB01**	**3KX3552-3EA01**
36 kW (40 HP)	6SL3130-7TE23-6AA3 6SL3131-7TE23-6AA3	**3RV1041-4LA10**	**3NP4010-0CH01**	**3KL5230-1EB01**	**3KX3552-3EA01**
55 kW (60 HP)	6SL3130-7TE25-5AA3 6SL3131-7TE25-5AA3	**3VL2712-3DC33-0AA0**	**3NP4270-0CA01**	**3KL5530-1EB01**	**3KX3552-3EA01**
80 kW (100 HP)	6SL3130-7TE28-0AA3 6SL3131-7TE28-0AA3	**3VL2716-3DC33-0AA0**	**3NP4270-0CA01**	**3KL5530-1EB01**	**3KX3552-3EA01**
120 kW (150 HP)	6SL3130-7TE31-2AA3 6SL3131-7TE31-2AA3	**3VL3725-3DC36-0AA0**	**3NP5360-0CA00**	**3KL5730-1EB01**	**3KX3552-3EA01**

Rated infeed power	Assignment to Active Line Module	**NEOZED fuse (gL/gG)**			**DIAZED fuse (gL/gG)**			**LVHRC 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
Line voltage 380 ... 480 V 3 AC													
16 kW (18 HP)	6SL3130-7TE21-6AA3 6SL3131-7TE21-6AA3	**5SE2335**	35 A	D02	**5SB411**	35 A	DIII	**3NA3814**	35 A	000	**AJT35**	35 A	27 × 60
36 kW (40 HP)	6SL3130-7TE23-6AA3 6SL3131-7TE23-6AA3	–			**5SC211**	80 A	DIVH	**3NA3824**	80 A	000	**AJT80**	80 A	29 × 117
55 kW (60 HP)	6SL3130-7TE25-5AA3 6SL3131-7TE25-5AA3	–			–			**3NA3132**	125 A	1	**AJT125**	125 A	41 × 146
80 kW (100 HP)	6SL3130-7TE28-0AA3 6SL3131-7TE28-0AA3	–			–			**3NA3136**	160 A	1	**AJT175**	175 A	41 × 146
120 kW (150 HP)	6SL3130-7TE31-2AA3 6SL3131-7TE31-2AA3	–			–			**3NA3144**	250 A	1	**AJT250**	250 A	54 × 181