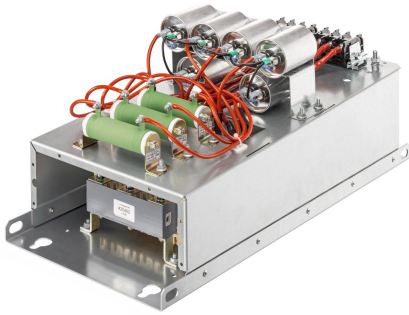


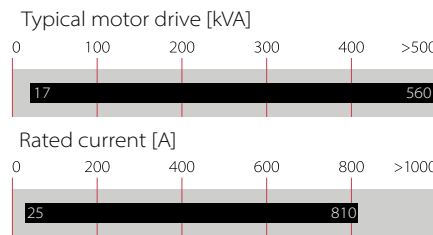
LCL Filter for Active Front End Motor Drives and Active Infeed Converter



- Line side LCL filtering for AFE and AIC applications
- Mandatory interface to connect the AFE or AIC-system to the grid
- Helps to improve the power quality on the grid side
- Reduces ripple currents and voltage distortions
- All LCL components in one package
- Compact design and ready to be connected



Performance indicators



Approvals & Compliances



Features and benefits

- Improves the power quality for AFE (Active Front End) or AIC (Active Infeed Converter)
- Effective attenuation of converter switching frequency to the grid/line side
- Reduces the current and voltage ripples to acceptable levels for the grid/line side
- Version with passive RLC damping module for system stability
- Compact and user friendly design for ease of installation

Typical applications

- Hoists and cranes
- Elevators
- Test stands
- Winder/Unwinder
- Multiple motor drive systems with active infeed converter
- Motor drives and -systems with braking energy
- Special machines with high inertia
- Centrifuges
- Transportation systems, e.g. chair lifts etc

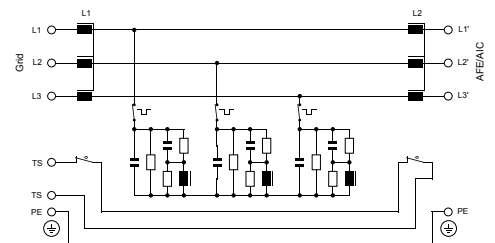
Technical specifications

Nominal operating voltage	3 x 380...480 VAC
Rated operating voltage	3 x 340...530 VAC
Nominal line frequency	50/60 Hz
Switching frequency fPWM	min. 3 kHz up to max. 10 kHz
Rated currents	25 to 380 A @ 50°C
Rated inductance L2 (inverter/converter side)	8% @ 400V, 50 Hz and rated current
Rated inductance L1 (grid/line side)	4% @ 400V, 50 Hz and rated current
Overload capability	1.6 x rated current for 1 min., ones per hour
Protection category	IP 00/IP 20 on request
Ambient temperature range	-25°C to +50°C full operation >50°C to 70°C derated operation -25°C to 85°C storage and transportation
Insulation class	EIS 200
Flammability corresponding to	UL 94 V-0
Design corresponding to	Filter: UL61800-5-1, EN61800-5-1 Chokes: EN61558-2-20 or EN60076-6
Creepage and clearance distances	According UL 61800-5-1

* Note: for detailed resulting ripple current, please contact your local Schaffner office or partner.

Typical RLC electrical schematic

With RLC damping module:



Note: Versions without damping module only to be used with motor drive active damping in function.

Filter selection table

Filter	Rated current @ 50°C [A]	*Typical motor drive 400 V/50 Hz [kVA]	Frame size	Nominal inductance		Nominal C capacity [µF]	Typical power loss** [W]	Input/ Output connections	Weight [kg]
				L2 [mH]	L1 [mH]				
with RLC damping module:									
FN 6840-25-113-E0XXR	25	17	D	2.35	1.22	30	390	-113	26
FN 6840-50-115-E0XXR	50	35	E	1.18	0.61	60	580	-115	47
FN 6840-80-115-E0XXR	80	55	F	0.74	0.33	100	750	-115	79
FN 6840-160-118-E0XXR	160	110	H	0.37	0.17	200	1430	-118	125
FN 6840-250-118-E0XXR	250	170	H	0.24	0.11	300	1880	-118	153
FN 6840-380-118-E0FAR	380	260	H	0.07	0.15	500	3005	-118	164
without damping module:									
FN 6840-25-113-E0XXX	25	17	D	2.35	1.22	30	360	-113	24
FN 6840-50-115-E0XXX	50	35	E	1.18	0.61	60	525	-115	46
FN 6840-80-115-E0XXX	80	55	F	0.74	0.33	100	660	-115	77
FN 6840-160-118-E0XXX	160	110	H	0.37	0.17	200	1250	-118	123
FN 6840-250-118-E0XXX	250	170	H	0.24	0.11	300	1595	-118	148
FN 6840-380-118-E0FAX	380	260	H	0.07	0.15	500	2625	-118	159
Versions on special request***									
FN6840-580-99-E0XX	580	400	S****	0.066	0.104	600	4890	-99	
FN6840-810-99-E0XX	810	560	S****	0.041	0.073	1000	5553	-99	

* Rated current @ 400 VAC/50 Hz. The proper power selection depends upon the drive specification, the motor and the application requirements.

** Losses calculated at 400 VAC/50 Hz and 3 kHz switching frequency.

*** Please contact your local sales office or partner for further information or fill in the questionnaire on <https://products.schaffner.com/en/lcl-filter>

**** Active cooling required (>1'000m3/h)

Product selector	
FN 6840 -uuu -vvv -ww -yy -z	
X:	without damping module
R:	with RLC damping module
XX:	without fan and power supply (not for 380 A)
FA:	with fan and power supply
E0:	IP00 version
E2:	IP20 version (on request)
	Terminal style
	Rated AC current

Temperature monitoring function

The temperature monitoring device opens a potential-free contact in the case of filter overtemperature (>180°C). The maximum switching capability is 5 A/240 V. **Important Note:** The switch **MUST** be used, for example, as an input of a logic controller (e.g. PLC, CNC etc.) or as the trip of a circuit breaker in order to interrupt the mains power supply.

Required drives settings and grid considerations

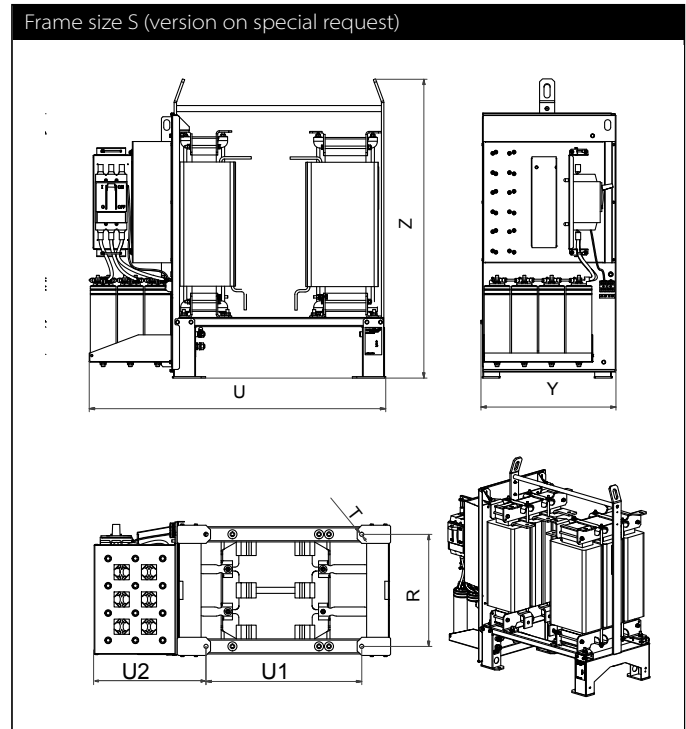
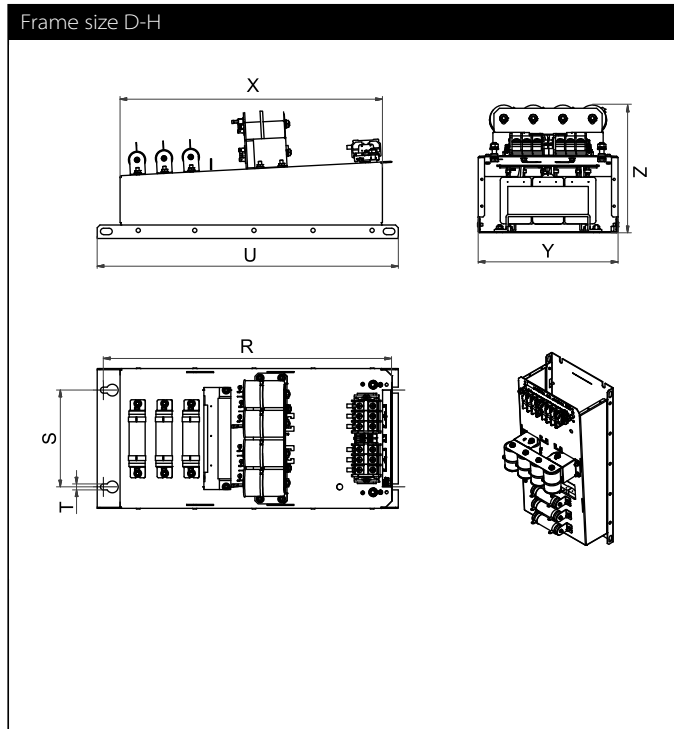
Ensure the drive's switching frequency is set between the required minimum and maximum switching frequency.

The max. permissible motor drives DC link voltage is 850 VDC.

Check the drives manufacturer manual whether special settings are necessary. In any doubt contact the drives manufacturer.

CAUTION: If the Active Front End (AFE) motor drives or Active Infeed Converter (AIC) settings are not correct the filter may be damaged.

FN 6840 Mechanical data of IP00 design



Dimensions

	R	S	T	U	U1	U2	X	Y	Z
Frame size D	540	180	11	560			489	260	238
Frame size E	680	220	11	705			633	290	285
Frame size F	730	250	11	752			682	340	326
Frame size H	1115	390	11	1150			1051	462	500
Frame size S	370		13.5	980	514	370		450	990

All dimensions in mm

Tolerances according to: ISO 2768-m/EN 22768-m, if not stated otherwise

Filter power terminals

	Screw thread	Cross section [mm ²]	Flex wire AWG	Screw torque value [Nm]	Max width** cable lug [mm]	Frame size
-113*	M6	0.75-16	6-18	3	16	D
-115*	M8	10-50	1/0-8	8	22	E, F
-118*	M10	70-240	3/0-500 kcmil	10	30	H

* Recommended connector type: wire or cable lug for 110 to 115, only cable lug for 115 to 118

** Proof final installation for clearance and creepage

Filter signal and earth terminals

Terminal type	Screw thread	Screw torque value [Nm]	Frame size
Signal	M3*	0.5	All
Earth (PE)	M8	9	D
Earth (PE)	M8	9	E
Earth (PE)	M10	17	F
Earth (PE)	M10	17	H
Earth (PE)	M12	20	S

* Max width cable lug = 7 mm

Note: For additional information please contact your local Schaffner office or partner.



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