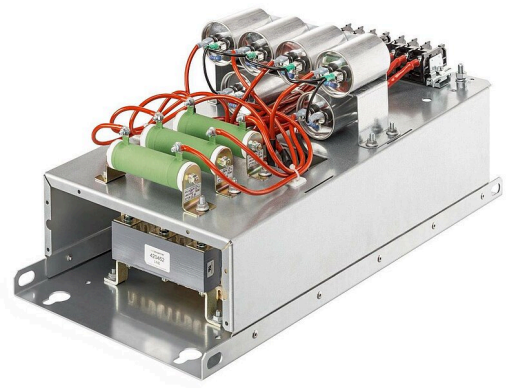
LCL Filter for Active Front End Motor Drives / Active Infeed Converter



- Line side LCL filtering for AFE/AIC applications
- Mandatory interface to connect the AFE/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

Technical Specifications

Maximum continuous operating voltage	3x530 VAC
Nominal operating voltage	480 VAC
Rated currents	25A @ 50°C available Other current ratings on request 25A @ 50°C available
Overload capability	1.6 x rated current for 1 min., ones per hour
Rated inductance L1 (grid/line side)	4% @ 400V, 50 Hz and rated current
Rated inductance L2 (inverter/converter side)	8% @ 400V, 50 Hz and rated current
Switching frequency	fPWM min. 3 kHz up to max. 10 kHz
Creepage and clearance distances	According UL 61800-5-1
Temperature range (operation and storage)	-25°C to +50°C full operation >50°C to 70°C derated operation -25°C to 85°C storage and transportation
Protection category	IP00 (IP20 on request)
Flammability corresponding to	UL 94 V-0
Design corresponding to	Filter: UL61800-5-1, EN61800-5-1 Chokes: EN61558-2-20 or EN60076-6
Insulation class	EIS 200

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

Approvals & Compliances

RoHS CE UKCA

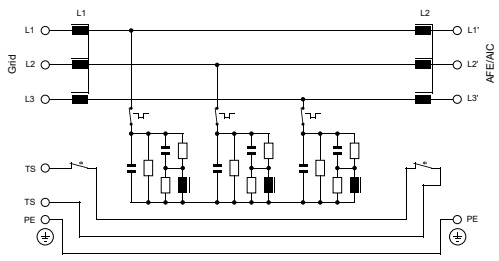
Features and Benefits

- Improves the power quality for AFE (Active Front End) / 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 AFE/AIC
- Motor drives and -systems with braking energy
- Special machines with high inertia
- Centrifuges
- Transportation systems, e.g. chair lifts etc

Typical electrical schematic

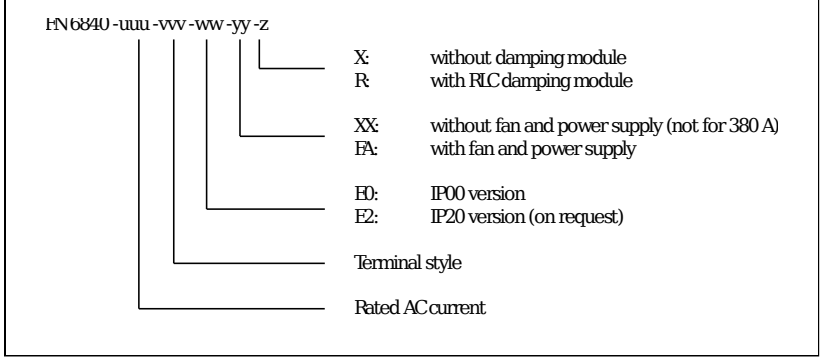


Filter Selection Table

Filter*	Rated current @ 50°C [A]	Typical motor drive** 400 V/50 Hz [kVA]	Frame size	Nominal inductance L2 [mH]	Nominal inductance L1 [mH]	Nominal C capacity [µF]	Typical power loss*** [W]	Input/ Output connections	Weight [kg]
with RLC damping module:									
FN 6840-50-113-E0XXR	50	35	E	1.18	0.61	60	580	-115	47
without damping module:									
FN 6840-50-113-E0XXX	50	35	E	1.18	0.61	60	525	-115	46

* Other current ratings on request.
** 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.

Product selector



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.

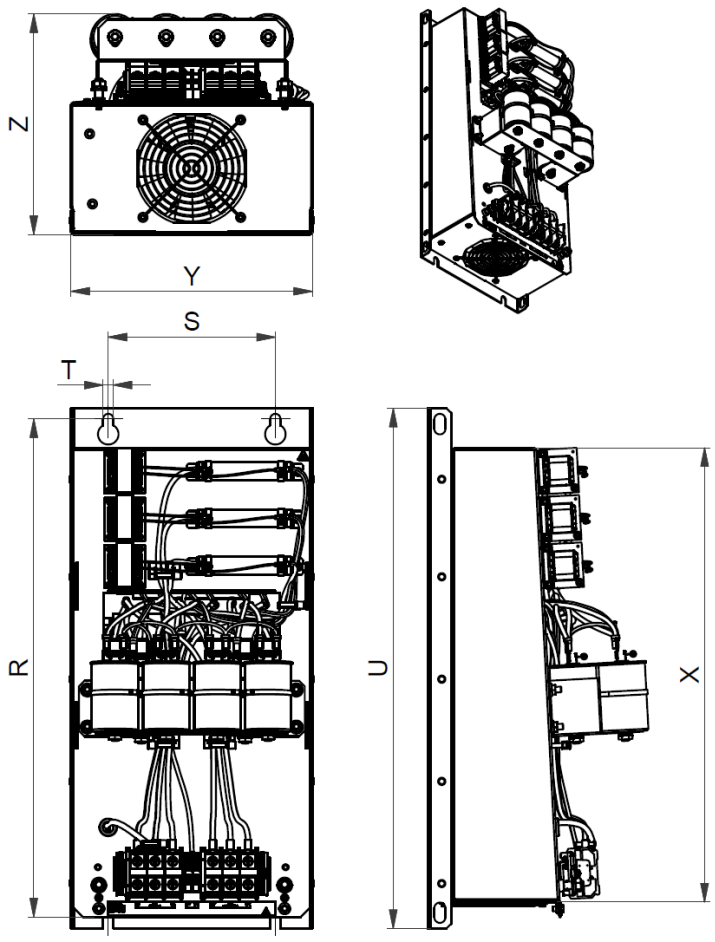
Required Drive Settings And Grid Considerations

Ensure the drive's switching frequency is set between the required minimum and maximum switching frequency.
The max. permissible motor drive DC link voltage is 850 VDC.
Check the drive manufacturer manual whether special settings are necessary. In any doubt contact the drive manufacturer.

CAUTION: There is a risk of damaging the filter if the settings are not correct on the Active Front End (AFE) motor drive, also called Active Infeed Converter (AIC).

FN 6840 Mechanical Data Of IP00 Design

Frame size E



Dimensions

	R	S	T	U	X	Y	Z
Frame size E	680	220	11	705	633	290	285

All dimensions in mm
Tolerances according: ISO 2768-m/EN 22768-m, if not stated otherwise

Filter Power Terminals

	Screw thread	Cross section [mm2]	Flex wire AWG	Screw torque value [Nm]	Max width** cable lug [mm]	Frame size
-115*	M8	10-50	1/0-8	8	22	E

* 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	E

* Max width cable lug = 7 mm

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

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