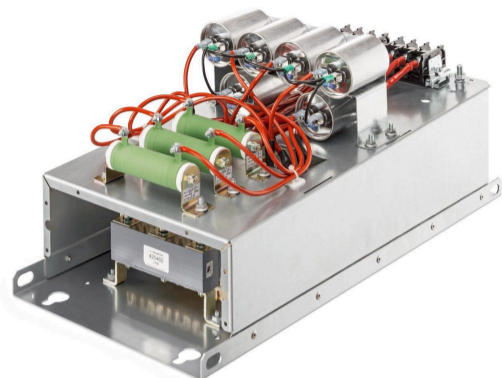


# LCL Filter for Active Front End Motor Drives / Active Infeed Converter



- 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

<b>Nominal operating voltage</b>	3 x 380...480 VAC
<b>Rated operating voltage</b>	3 x 340...530 VAC
<b>Nominal line frequency</b>	50/60 Hz
<b>Switching frequency fPWM</b>	min. 3 kHz up to max. 10 kHz
<b>Rated currents</b>	25A @ 50°C available Other current ratings on request
<b>Rated inductance L2 (inverter/converter side)</b>	8% @ 400V, 50 Hz and rated current
<b>Rated inductance L1 (grid/line side)</b>	4% @ 400V, 50 Hz and rated current
<b>Overload capability</b>	1.6 x rated current for 1 min., ones per hour
<b>Protection category</b>	IP00 (IP20 on request)
<b>Ambient temperature range</b>	-25°C to +50°C full operation >50°C to 70°C derated operation -25°C to 85°C storage and transportation
<b>Insulation class</b>	EIS 200
<b>Flammability corresponding to</b>	UL 94 V-0
<b>Design corresponding to</b>	Filter: UL61800-5-1, EN61800-5-1 Chokes: EN61558-2-20 or EN60076-6
<b>Creepage and clearance distances</b>	According UL 61800-5-1

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

## Approvals & Compliances



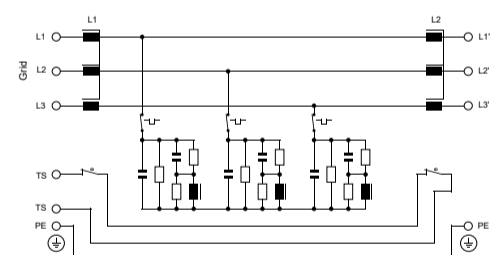
## Features and Benefits

- 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



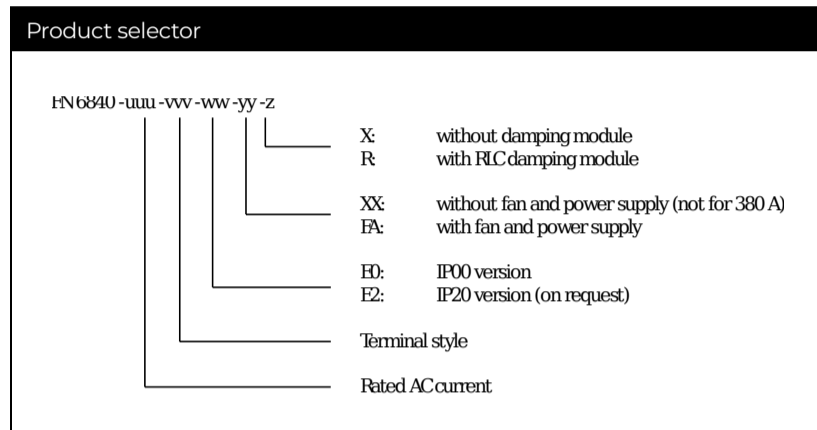
## Filter Selection Table

Filter*	Rated current @ 50°C [A]	Typical motor drive** 400 V/50 Hz [kVA]	Frame size	Nominal inductance		Nominal C capacity [μF]	Typical power loss*** [W]	Input/ Output connections	Weight [kg]
				L2 [mH]	L1 [mH]				
<b>with RLC damping module:</b>									
<b>FN 6840-25-113-E0XXR</b>	25	17	D	2.35	1.22	30	510	-113	26
<b>without damping module:</b>									
<b>FN 6840-25-113-E0XXX</b>	25	17	D	2.35	1.22	30	360	-113	24

\* 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.



## 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

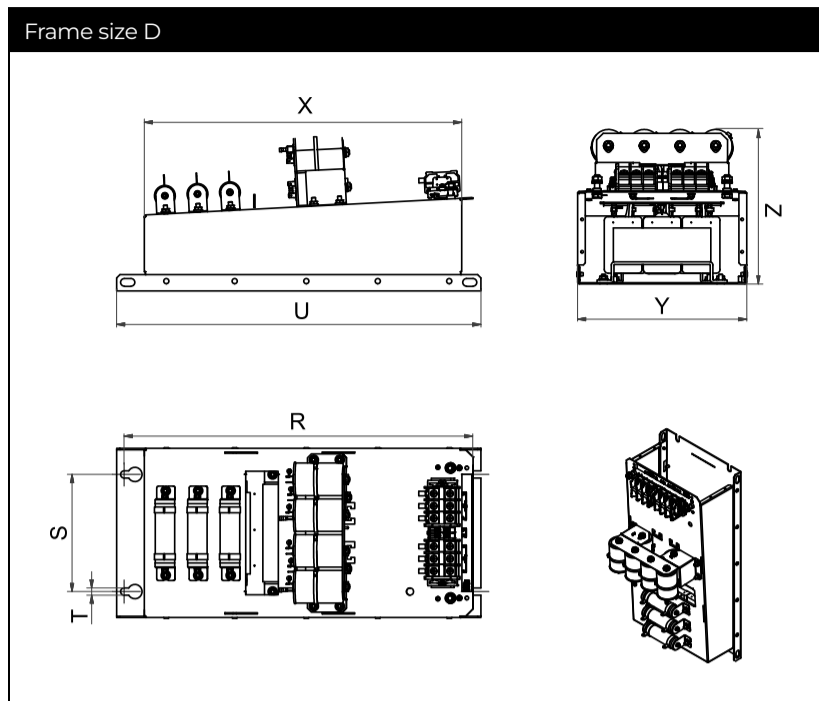
Ensure the drive's switching frequency is set between the required minimum and maximum switching frequency.

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



### Dimensions

Frame size D	R	S	T	U	X	Y	Z
	540	180	11	560	489	260	238

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

### Filter Power Terminals

	Screw thread	Cross section [mm <sup>2</sup> ]	Flex wire AWG	Screw torque value [Nm]	Max width** cable lug [mm]	Frame size
-113*	M6	0.75-16	6-18	3	16	D

\* 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

\* Max width cable lug = 7 mm

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

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