

PFC Systems on mounting plates / Capacitor Modules

Power Factor Correction Systems on mounting plates



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Power Factor Correction Systems on mounting plates

PFC Systems on mounting plates for installation in standard switchboards.
Type LSPN is also suitable for installation in DIN standard distribution boards.

	LSPN	LSP...-2...	LSP...-3...
			
Power range	17.5-60 kvar	68.75-100 kvar	112.5-200 kvar
Used for cabinets size (500 x 500 x 300 mm)	•		
Used for cabinets size (600 x 800 x 275 mm)		•	
Used for cabinets size (600 x 1200 x 300 mm)			•
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LSPN / LSP

Power Factor Correction Systems on mounting plates

**PFC System on mounting plates for installation in standard switchboards.
Type LSPN is also suitable for installation in DIN standard distribution boards.**

- Power Range: 17.5 to 200 kvar
- Compact design on a mounting plate
- Ready for connection (without control relay and relay cable)
- Power Factor Correction Capacitors LKT dry-type with four safety features

Application Recommendations

Power Factor Correction Systems on mounting plates type LSPN / LSP are suitable for installation in standard switchboards. Type LSPN is also suitable for installation in DIN standard distribution boards. Those systems are pre-wired. One only has to connect the Power Factor Correction Relay (not included) with the terminal strip. Those systems are suitable for power factor correction in networks without harmonic distortion.

Attention: Even low harmonic levels can be amplified by network resonances. High harmonic levels can overload or damage all electrical devices and machines in the network.

Today, networks without harmonic distortion are quite rare. Therefore we generally recommend installing fixed capacitors with Harmonic Filter Reactors (page 67 ff).

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Power Range

Power Factor Correction System on mounting plate:

- **LSPN -4:** 17.5 to 60 kvar
- **LSP -2:** 68.75 to 100 kvar
- **LSP -3:** 112.5 to 200 kvar

Construction

Mounting plate with mounted Power Factor Correction Capacitors. Capacitor Switching Contactors and fuses for installation in switchboards.

The system contains:

- Self-healing LKT type power capacitors with low-loss self-healing dielectric made from segmented metallised polypropylene film. Filled with a PCB-free filler. With discharge resistors, as per EN 60831-1 and -2 as well as IEC 60831-1 and -2
- Capacitor Switching Contactors with leading transition contact for damping of current peaks
- Fuse links, 3-pole, size NH00
- Control terminal strip with control fuse and thermal trip switch

Regulations

For installation and connection of Power Factor Correction Capacitors in Germany the following regulations must be complied with: VDE 0100, VDE 0105, VDE 0560 Part 46 and VDE 0106 Part 100 (German Association of Electrical Engineers). In other countries the equivalent local regulations must be followed.

Installation Site

The place of installation must comply with the requirements of the ingress protection and ambient temperature concerned.

Connection

The power cable is connected to the LV NH00 fuse element; The Power Factor Correction Relay (not included) as well as the cable from the current transformer has to be connected to the control terminal strip.

System Expansion

An extension of the system is possible by adding LSPZ extension units. This extension unit will be integrated in the existing control circuit via the control cable (supplied with the extension unit).

Technical Data

Rated voltage	400 V/50 Hz
Rated voltage of capacitors	440 V/50 Hz
Ambient temperature	-5 °C to +60 °C
Humidity	Max. 90 %, no condensation
Standards	EN 60831-1 and -2 IEC 60831-1 and -2 EN 61921 IEC 61921 EN 61439-1 and -2 IEC 61439-1 and 2

Important Notes

The presence of inductive and capacitive reactances in the low voltage network means that the harmonics generated there, together with those fed in from the medium voltage network, can be amplified many times over due to resonance. Particularly in industrial networks with loads that generate harmonics, the use of conventional power factor correction systems without Harmonic Filter Reactors is not advisable. Instead, detuned systems should be installed. See the LSP-P series of Power Factor Correction Systems on mounting plates.

For further information on power factor correction and harmonics please refer to our "Manual of Power Factor Correction".

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Power Factor Correction Systems on mounting plates

Article- No.	Type	Rated power [kvar]	Step power [kvar]	Switching sequence	Dimensions			Weight (gross) approx. [kg]	Protection IP
					Width [mm]	Height [mm]	Depth [mm]		

Power Factor Correction Systems on mounting plates, rated mains voltage: 400 V / 50 Hz

Type series: LSPN ...-4

34-57530	LSPN 17,5-2,5-111-400/440-4	17.5	2.5	1:2:4	450	450	260	13	00
34-57531	LSPN 27,5-2,5-112-400/440-4	27.5	2.5	1:2:4:4	450	450	260	14	00
34-57532	LSPN 30-5-11A-400/440-4	30	5	1:2:3	450	450	260	14	00
34-57533	LSPN 37,5-2,5-1111-400/440-4	37.5	2.5	1:2:4:8	450	450	260	16	00
34-57534	LSPN 37,5-7,5-12-400/480-4	37.5	7.5	1:2:2	450	450	260	15	00
34-57535	LSPN 43,75-6,25-111-400/440-4	43.75	6.25	1:2:4	450	450	260	15	00
34-57536	LSPN 46,88-3,13-1111-400/440-4	46.88	3.13	1:2:4:8	450	450	260	16	00
34-57537	LSPN 50-5-11A1-400/440-4	50	5	1:2:3:4	450	450	260	17	00
34-57538	LSPN 50-10-12-400/440-4	50	10	1:2:2	450	450	260	16	00
34-57539	LSPN 52,5-7,5-111-400/440-4	52.5	7.5	1:2:4	450	450	260	17	00
34-57540	LSPN 60-10-11A-400/440-4	60	10	1:2:3	450	450	260	18	00

Power Factor Correction Systems on mounting plates, rated mains voltage: 400 V / 50 Hz

Type series: LSP ...-2

34-57051	LSP 68,75-6,25-112-400/440-2	68.75	6.25	1:2:4:4	550	567.5	235	23	00
34-57052	LSP 75-6,25-212-400/440-2	75	6.25	1:1:2:4:4	550	567.5	235	25	00
34-57088	LSP 75-12,5-11A-400/440-2	75	12.5	1:2:3	550	567.5	235	24	00
34-57053	LSP 75-12,5-22-400/440-2	75	12.5	1:1:2:2	550	567.5	235	24	00
34-57054	LSP 87,5-12,5-111-400/440-2	87.5	12.5	1:2:4	550	567.5	235	25	00
34-57055	LSP 93,75-6,25-1111-400/440-2	93.75	6.25	1:2:4:8	550	567.5	235	25	00
34-57056	LSP 100-12,5-211-400/440-2	100	12.5	1:1:2:4	550	567.5	235	26	00

Power Factor Correction Systems, extension units on mounting plates, rated mains voltage: 400 V / 50 Hz

Type series: LSPZ ...-2

34-57100	LSPZ 50-50-1-400/440-2	50	50	1	550	567.5	235	18	00
34-57101	LSPZ 75-25-11-400/440-2	75	25	1:2	550	567.5	235	23	00
34-57102	LSPZ 100-50-2-400/440-2	100	50	1:1	550	567.5	235	25	00

Power Factor Correction Systems on mounting plates, rated mains voltage: 400 V / 50 Hz

Type series: LSP ...-3

34-57060	LSP 112,5-6,25-11AB-400/440-3	112.5	6.25	1:2:3:6:6	550	1157	240	55	00
34-57061	LSP 125-12,5-221-400/440-3	125	12.5	1:1:2:2:4	550	1157	240	55	00
34-57062	LSP 143,75-6,25-1112-400/440-3	143.75	6.25	1:2:4:8:8	550	1157	240	57	00
34-57063	LSP 150-12,5-212-400/440-3	150	12.5	1:1:2:4:4	550	1157	240	56	00
34-57064	LSP 150-25-22-400/440-3	150	25	1:1:2:2	550	1157	240	58	00
34-57065	LSP 175-25-13-400/440-3	175	25	1:2:2:2	550	1157	240	60	00
34-57066	LSP 187,5-12,5-113-400/440-3	187.5	12.5	1:2:4:4:4	550	1157	240	61	00
34-57067	LSP 200-12,5-213-400/440-3	200	12.5	1:1:2:4:4:4	550	1157	240	64	00
34-57068	LSP 200-25-23-400/440-3	200	25	1:1:2:2:2	550	1157	240	64	00

Power Factor Correction Systems, extension units on mounting plates, rated mains voltage: 400 V / 50 Hz

Type series: LSPZ ...-3

34-57103	LSPZ 150-50-3-400/440-3	150	50	1:1:1	550	1157	240	59	00
34-57104	LSPZ 200-50-4-400/440-3	200	50	1:1:1:1	550	1157	240	67	00

Other rated voltages, frequencies and power ratings on request

Recommended supply lead cross sections: please refer to the technical annex (page 141 ff.)

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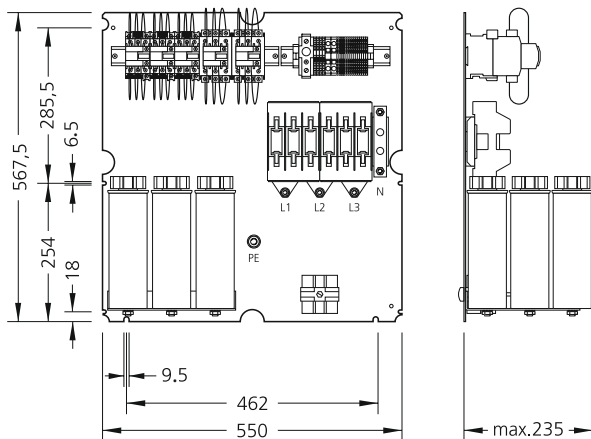
Options and accessories for Power Factor Correction Systems type LSPN / LSP 400V, 50 Hz

Accessories

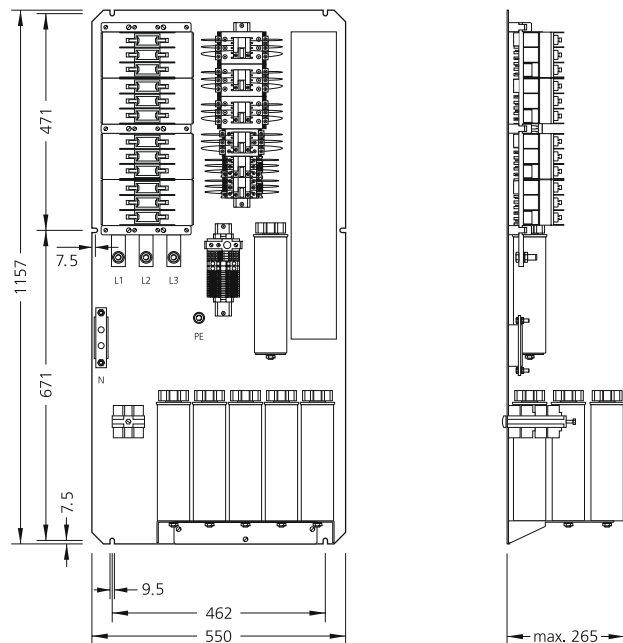
Article-No.	Type	Description
38-00100	RM 9606	Power Factor Control Relay RM 9606 - German
38-00103	RM 9606	Power Factor Control Relay RM 9606 - English
38-00300	EMR 1100 S	Power Factor Control Relay EMR 1100 S - German
38-00301	EMR 1100 S	Power Factor Control Relay EMR 1100 S - English
89-20557	RK-RM 9606-1150	Control cable for RM 9606, length = 1150 mm
89-20558	RK-RM 9606-1500	Control cable for RM 9606, length = 1500 mm
89-20622	RK-RM 9606-2600	Control cable for RM 9606, length = 2600 mm
89-20555	RK-EMR 1100 S-1150	Control cable for EMR 1100 S, length = 1150 mm
89-20556	RK-EMR 1100 S-1500	Control cable for EMR 1100 S, length = 1500 mm
89-20621	RK-EMR 1100 S-2600	Control cable for EMR 1100 S, length = 2600 mm

Other options and accessories on request

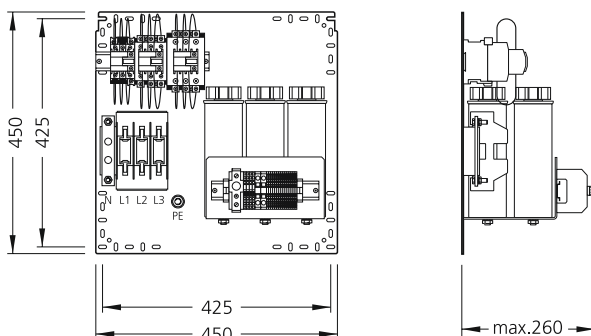
Dimensions



Dimensional drawing LSP-2 (68.75-100 kvar)



Dimensional drawing LSP-3 (112.5-200 kvar)



Dimensional drawing LSPN-4 (17.5-60 kvar)

All dimensions in mm