Power Factor Correction Systems

Ready to connect, automatic Power Factor Correction Systems in sheet steel cabinets for wall mounting or floor installation.

- Power Range: 17.5 to 500 kvar per cabinet
- Ready for connection
- Fully automatic and intelligent Power Factor Control Relay
- Power Factor Correction Capacitors LKT dry type with four safety features

Application Recommendations

Power Factor Correction Systems are suitable for 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.

Nowadays networks without harmonic distortion are quite rare. Therefore we generally recommend installing fixed capacitors with harmonic filter reactors.

	LSK	LSFC
		
Power range [kvar]	17.5 - 200	100 - 500
System design	Compact	Modular
Enclosure	Wall-mounting	Floor-standing
Enclosure material	Sheet steel	Sheet steel
Power Factor Control Relay	PQC	PQC
Connection option from below	•	•
Connection option from top (optional)	-	•
Extension unit	LSKZ	LSFCZ

LSK
Power Factor Correction Systems

Ready to connect, automatic Power Factor Correction Systems in sheet steel cabinets for wall mounting. Suitable for networks without harmonic distortion.

- Power Range: 17.5 to 200 kvar per cabinet
- Compact design in sheet steel enclosures
- Ready for connection
- Fully automatic and intelligent Power Factor Control Relay
- Power Factor Correction Capacitors LKT dry type with four safety features

Application Recommendations

Power Factor Correction Systems type LSK are a perfect solution for small and medium-sized firms and buildings.

Power Factor Correction Systems type LSK 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.

Power Range

Power Factor Correction System in sheet steel cabinet:

- **LSK ...-4:** 17.5 to 60 kvar
- **LSK ...-2:** 68.75 to 100 kvar
- **LSK ...-3:** 112.5 to 200 kvar

Construction

The ready-for-connection Power Factor Correction System consists of a pre-assembled mounting plate, type LSPN or LSP and suitable sheet steel enclosures.

The cabinet 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 contact for safety shutdown
- Intelligent Power Factor Control of the PQC series

Installation Site

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

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.

Connection

The power supply cable and the current transformer cable enter the bottom of the cabinet through a sliding cable gland and a cable clamp rail, the power supply being connected to the busbar system and the current transformer cable to the terminal strip provided.

System Expansion

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

Technical Data

Design	LSK Sheet steel wall cabinet LSK …-4 with door left hinged LSK …-2 /…-3 with door right hinged
Rated voltage	400 V/50 Hz
Rated voltage of capacitors	440 V/50 Hz
Ambient temperature	–5 °C to +35 °C
Humidity	Max. 90 %, no condensation
Cabinet colour	RAL 7035
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 UKCA

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 LSK-P series of Power Factor Correction Systems.

For further information on power factor correction and harmonics please refer to our “Manual of Power Quality”.

FRAKO systems are designed for connecting 5 core cables. If a 4-core cable is used, a jumper must be fitted to connect PE and N, or a control transformer must be installed.

Article-No.	Type	Rated power [kvar]	Stage power [kvar]	Switching sequence	Dimensions Width [mm]	Height [mm]	Depth [mm]	Weight approx. [kg]	Protection IP
Power Factor Correction Systems in sheet steel wall cabinets, rated mains voltage: 400 V / 50 Hz Type series: LSK …-4									
34-14819	LSK 17,5-2,5-111-400-4-620-54	17.5	2.5	1:2:4	500	500	300	26	54
34-14820	LSK 27,5-2,5-112-400-4-620-54	27.5	2.5	1:2:4:4	500	500	300	29	54
34-14821	LSK 30-5-11A-400-4-620-54	30	5	1:2:3	500	500	300	29	54
34-14822	LSK 37,5-2,5-1111-400-4-620-54	37.5	2.5	1:2:4:8	500	500	300	31	54
34-14823	LSK 37,5-7,5-12-400-4-620-54	37.5	7.5	1:2:2	500	500	300	29	54
34-14824	LSK 43,75-6,25-111-400-4-620- 54	43.75	6.25	1:2:4	500	500	300	30	54
34-14836	LSK 46,88-3,13-1111-400-4-620-54	46.88	3.13	1:2:4:8	500	500	300	31	54
34-14837	LSK 50-5-11A1-400-4-620-54	50	5	1:2:3:4	500	500	300	32	54
34-14838	LSK 50-10-12-400-4-620-54	50	10	1:2:2	500	500	300	30	54
34-14839	LSK 52,5-7,5-111-400-4-620-54	52.5	7.5	1:2:4	500	500	300	31	54
34-14840	LSK 60-10-11A-400-4-620-54	60	10	1:2:3	500	500	300	33	54
Power Factor Correction Systems in sheet steel wall cabinets, rated mains voltage: 400 V / 50 Hz Type series: LSK …-2									
34-14841	LSK 68,75-6,25-112-400-2-620	68.75	6.25	1:2:4:4	600	811	286	43	20
34-14842	LSK 75-6,25-212-400-2-620	75	6.25	1:1:2:4:4	600	811	286	44	20
34-14843	LSK 75-12,5-11A-400-2-620	75	12.5	1:2:3	600	811	286	44	20
34-14844	LSK 87,5-12,5-111-400-2-620	87.5	12.5	1:2:4	600	811	286	45	20
34-14845	LSK 93,75-6,25-1111-400-2-620	93.75	6.25	1:2:4:8	600	811	286	46	20
34-14846	LSK 100-12,5-211-400-2-620	100	12.5	1:1:2:4	600	811	286	49	20
Power Factor Correction Systems, extension units in sheet steel wall cabinets, rated mains voltage: 400 V / 50 Hz Type series: LSKZ …-2									
34-14080	LSKZ 50-50-1-400-2	50	50	1	600	811	286	42	20
34-14078	LSKZ 75-25-11-400-2	75	25	1:2	600	811	286	51	20
34-14076	LSKZ 100-50-2-400-2	100	50	1:1	600	811	286	55	20
Power Factor Correction System in sheet steel wall cabinets, rated mains voltage: 400 V / 50 Hz Type series: LSK …-3									
34-14825	LSK 112,5-6,25-11AB-400-3-620	112.5	6.25	1:2:3:6:6	600	1211	311	88	20
34-14826	LSK 125-12,5-221-400-3-620	125	12.5	1:1:2:2:4	600	1211	311	88	20
34-14827	LSK 143,75-6,25-1112-400-3-620	143.75	6.25	1:2:4:8:8	600	1211	311	91	20
34-14847	LSK 150-12,5-212-400-3-620	150	12.5	1:1:2:4:4	600	1211	311	92	20
34-14828	LSK 150-25-22-400-3-620	150	25	1:1:2:2	600	1211	311	90	20
34-14848	LSK 175-25-13-400-3-620	175	25	1:2:2:2	600	1211	311	94	20
34-14849	LSK 187,5-12,5-113-400-3-620	187.5	12.5	1:2:4:4:4	600	1211	311	101	20
34-14850	LSK 200-12,5-213-400-3-620	200	12.5	1:1:2:4:4:4	500	1211	311	93	20
34-14851	LSK 200-25-23-400-3-620	200	25	1:1:2:2:2	600	1211	311	98	20
Power Factor Correction Systems, extension units in sheet steel wall cabinets, rated mains voltage: 400 V / 50 Hz Type series: LSKZ …-3									
34-14054	LSKZ 150-50-3-400-3	150	50	1:1:1	600	1211	311	91	20
34-14074	LSKZ 200-50-4-400-3	200	50	1:1:1:1	600	1211	311	97	20

Options and accessories for Power Factor Correction Systems type LSK 400V, 50 Hz

Options, mounted and wired ready for operation

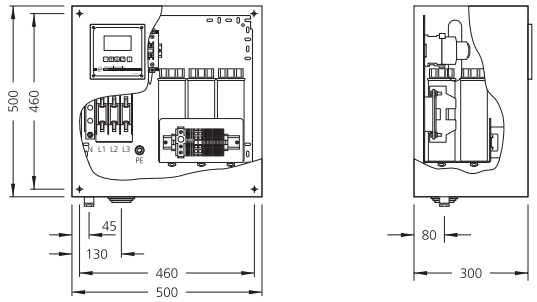
Article-No.	Type	Description	LSK ...-4	LSK ...-3	LSK ...-2
S34-5540	-650- (instead of -620)	Power Factor Control Relay PQC-12/1 instead of PQC-6/1	•	•	•
S34-5508	-Li	Cabinet with door left hinged		•	•
S34-0060	-SO	Special painting outside (RAL-Scale)	•	•	•
S34-5032	-54	Ingress protection IP 54		•	
S34-5511	-S131	Fuse switch disconnector instead of fuse base per 50 kvar	•	•	•
S34-0103	-LSA	Switch disconnector* three-pole, 160 A in cable entry compartment		•	
S34-5538	-LSA	Switch disconnector* three-pole, 250 A in cable entry compartment, size of the cabinet changes for LSK…-3			•
S34-0105	-LSA	Switch disconnector* three-pole, 400 A in cable entry compartment		•	
S34-0039	-S56	Control switch (On/Off) fitted and connected (requirement for power factor correction systems installed in Switzerland)	•	•	•
S34-5535	-S19	Control phase + N via a protective motor switch (option for France)	•	•	•
S34-5537	-S119 (+ Power)	Control transformer set 315 VA incl. primary and secondary fuses	•	•	•
S34-0040	-S66	Summation current transformer 5+5/5A	•	•	•
S34-0081	-S66	Summation current transformer 5+5+5/5A	•	•	•

*) Switch disconnector can be operated from the outside

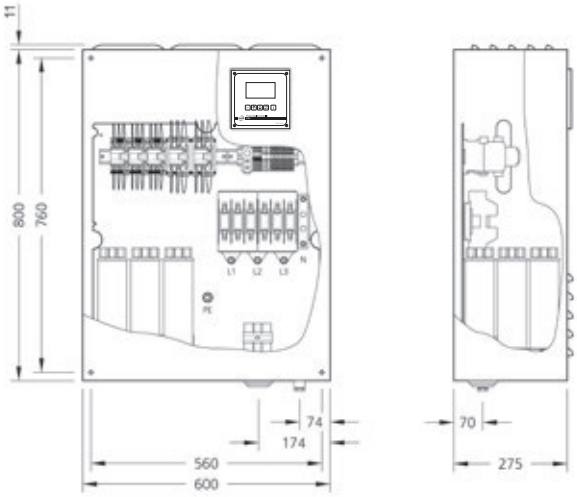
Accessories

Article-No.	Type	Description	LSK ...-4	LSK ...-3	LSK ...-2
34-80021	WB LSK-10	Wall distance assembly set 10 mm	•	•	•
34-80018	WB LSK-40	Wall distance assembly set 40 mm	•	•	•
34-80196	KR-LSK-2/LKND/ LKNS-200-RIT	Floor standing base (Height = 200 mm; Depth = 270 mm)			•
34-80194	KR-LSK-3-200	Floor standing base (Height = 200 mm; Depth = 300 mm)		•	

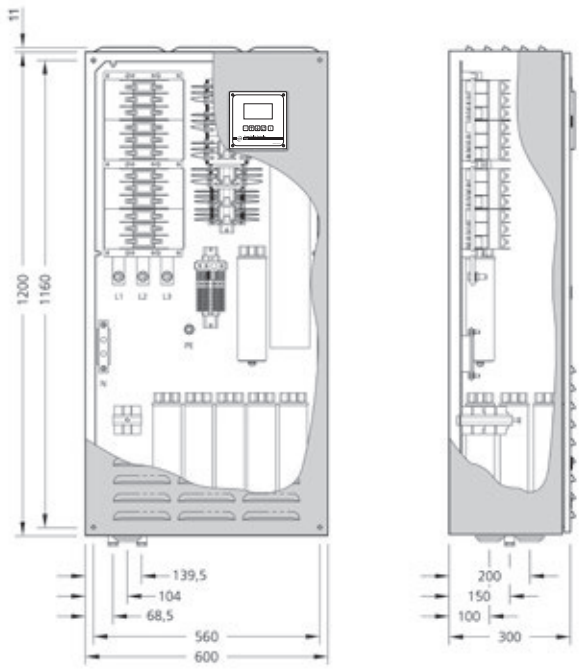
Dimensions



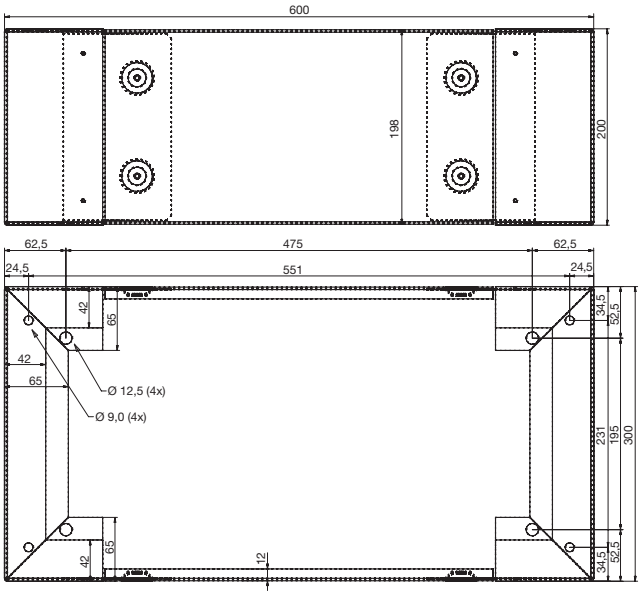
Dimensional drawing LSK-4 (17.5 to 60 kvar)



Dimensional drawing LSK-2 (68.75 to 100 kvar)



Dimensional drawing LSK-3 (112.5 to 200 kvar)



Dimensional drawing base LSK-3

All dimensions in mm