

Power Quality

Components for reactive power compensation

MADE IN GERMANY

Components for reactive power compensation.



Reactive power controllers

Power capacitors

Filter circuit reactors

Capacitor contactors

Thyristor switches

Measuring devices

Active and passive filters

Current transformers

Supercapacitors

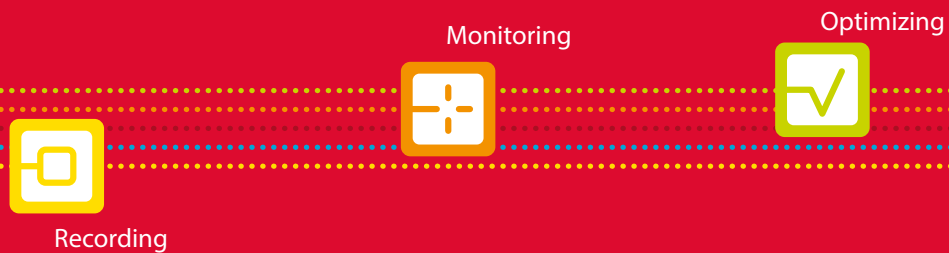


One System. Best Solutions.

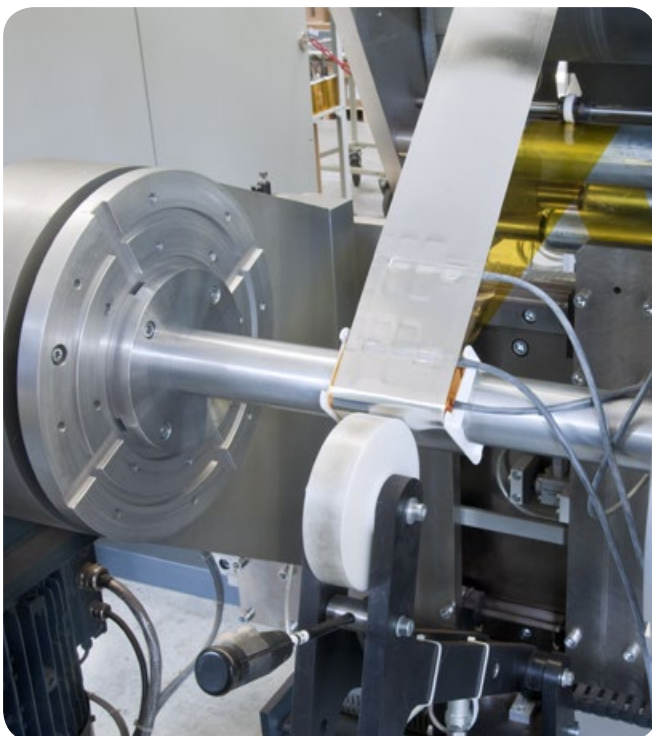
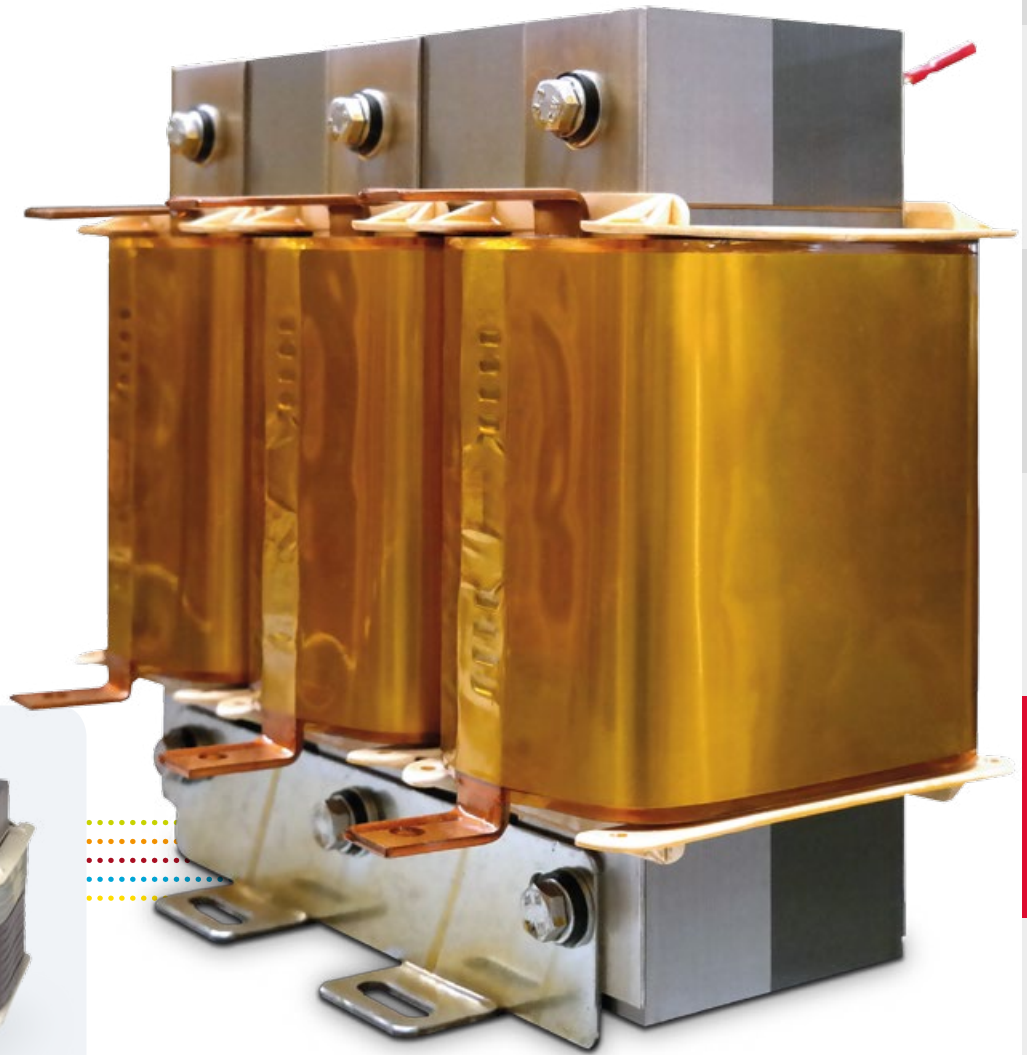


KBR
Energy Management

Filter circuit reactors



To prevent resonance phenomena caused by harmonic content in the power supply system, filter circuit reactors are required to set up detuned compensation systems. Here, high linearities guarantee the necessary functional stability even in the overload range.



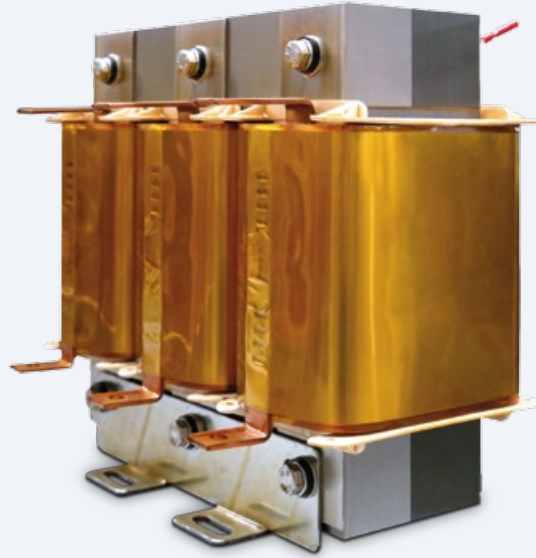
multiind 50Hz

Power

2.5 – 75 kvar

Detuning
factors

**5.5, 7 or 8 %
12.5 or 14 %**



Filter circuit reactors for reactive current compensation

Highlights

- Power from 2.5 to 75 kvar
- High linearity, low power dissipation
- Overload protection through temperature switch
- Low-noise through impregnation
- Long operating life
- Improved impedance behavior

An overview of the **technical details** is provided on pages 10-11.
Construction diagrams are provided on page 9.

Note on the temperature switch

For smooth operation and a long operating life, the integrated temperature sensor must interrupt the main circuit of the filter circuit reactor in case of overload.

Notes on installation

- Observe the applicable DIN / VDE regulations.
- Power supply connection, setup and device operation must be performed by qualified personnel only.
- Maintain maximum current, voltage and temperature ranges.
- Ensure sufficient ventilation.
- Tighten connections with the right torque.

Specifications multiind-basic ... 5.5 %

Detuning factor: **5.5 %** Resonance frequency: **214 Hz**

POWER	TYPE			INDUC-	RATED	DIMENSIONS						CONNECTION			DIA-	WEIGHT	CAPACI-	CAPACITOR
kvar	multiind-basic ... 5.5 %	Cu	Al	TIVITY	CURRENT	in mm						L	AW	RK	GRAM	kg	TANCE	multicond
				mH	A	H	B	T	W1	W2	LL						μF	UHPC ... -440-3P
2.5	multiind-basic 400-02.5-5.5-Cu-L-S	x		12.11	3.5	165	180	86	95	62.5	9	x			A	5.3	3 x 15.4	4.0 / 525
5	multiind-basic 400-05.0-5.5-Cu-L-S	x		6.06	7.2	165	180	106	95	82.5	9	x			A	8.1	3 x 30.8	8.0 / 525
7.5	multiind-basic 400-07.5-5.5-Cu-L-S	x		3.74	11.4	165	180	106	95	83	9	x			A	9.5	3 x 50.0	13.0 / 525
10	multiind-basic 400-10.0-5.5-Cu-L-S	x		2.80	15.3	195	210	109	95	86	9	x			A	12.9	3 x 66.3	12.1
12.5	multiind-basic 400-12.5-5.5-Cu-L-S	x		2.24	19.1	220	240	95	95	71	9	x			A	14.5	3 x 82.8	15.1
15	multiind-basic 400-15.0-5.5-Cu-L-S	x		1.98	21.6	220	240	105	95	81	9	x			A	17.0	3 x 93.7	17.1
20	multiind-basic 400-20.0-5.5-Cu-L-S	x		1.40	30.6	220	240	125	95	81	9	x			A	18.5	3 x 132.6	24.2
25	multiind-basic 400-25.0-5.5-Cu-L-S	x		1.21	35.5	220	240	135	95	91	9	x			A	21.0	3 x 154.0	28.1
30	multiind-basic 400-30.0-5.5-Cu-L-S	x		0.99	43.2	220	240	125	95	81	9	x			A	19.4	3 x 187.4	2 x 17.1
40	multiind-basic 400-40.0-5.5-Cu-L-S	x		0.75	57.4	220	240	135	95	91	9	x			A	20.8	3 x 248.8	1 x 21.1 + 1 x 24.2
50	multiind-basic 400-50.0-5.5-Cu-L-S	x		0.60	71.0	220	240	155	95	82	9	x			A	26.6	3 x 308.0	2 x 28.1
60	multiind-basic 400-60.0-5.5-Cu-L-S	x		0.51	84.0	270	300	145	95	145	9	x			A	31.5	3 x 364.7	1 x 10.0 / 525 + 2 x 3 0.3 / 120
75	multiind-basic 400-75.0-5.5-Cu-L-S	x		0.40	106.3	270	300	150	95	107	9	x			A	38.0	3 x 461.7	3 x 28.1

Specifications multiind-light ... 7 %

Detuning factor: **7 %** Resonance frequency: **189 Hz**

POWER	TYPE			INDUC-	RATED	DIMENSIONS						CONNECTION			DIA-	WEIGHT	CAPACI-	CAPACITOR
kvar	multiind-light... 7 %	Cu	Al	TIVITY	CURRENT	in mm						L	AW	RK	GRAM	kg	TANCE	multicond
				mH	A	H	B	T	W1	W2	LL						μF	UHPC ... -440-3P
2.5	multiind-light 400-02.5-7-Cu-L-S	x		15.42	3.6	165	180	86	95	62.5	9	x			A	5.1	3 x 15.4	4.0 / 525
5	multiind-light 400-05.0-7-Cu-L-S	x		7.71	7.8	165	180	86	95	62.5	9	x			A	6.1	3 x 30.8	8.0 / 525
7.5	multiind-light 400-07.5-7-Cu-L-S	x		4.76	11.6	165	180	96	95	72.5	9	x			A	7.8	3 x 50.0	13.0 / 525
10	multiind-light 400-10.0-7-Cu-L-S	x		3.56	15.5	165	180	106	95	82.5	9	x			A	9.2	3 x 66.3	12.1
12.5	multiind-light 400-12.5-7-Cu-L-S	x		2.85	18.0	195	210	109	95	86	9	x			A	12.4	3 x 83.0	15.1
15	multiind-light 400-15.0-7-Cu-L-S	x		2.52	21.9	195	210	109	95	86	9	x			A	12.9	3 x 93.7	17.1
20	multiind-light 400-20.0-7-Cu-L-S	x		1.78	28.8	195	210	109	95	86	9	x			A	14.0	3 x 132.7	24.2
25	multiind-light 400-25.0-7-Cu-L-S	x		1.54	36.0	220	240	115	95	91	9	x			A	19.1	3 x 154.0	28.1
25	multiind-light 400-25.0-7-Al-AW-S	x		1.54	36.0	220	240	145	95	91	9		x		C	17.4	3 x 154.0	28.1
30	multiind-light 400-30.0-7-Cu-L-S	x		1.26	43.2	220	240	135	95	91	9	x			A	20.2	3 x 187.3	2 x 17.1
30	multiind-light 400-30.0-7-Al-AW-S	x		1.26	43.2	220	240	145	95	91	9		x		C	17.4	3 x 187.3	2 x 17.1
40	multiind-light 400-40.0-7-Cu-L-S	x		0.95	57.6	220	240	145	95	101	9	x			A	35.0	3 x 248.7	1 x 21.2 + 1 x 24.2
40	multiind-light 400-40.0-7-Al-AW-S	x		0.95	57.6	240	260	167	95	112	9		x		C	27.0	3 x 248.7	1 x 21.2 + 1 x 24.2
50	multiind-light 400-50.0-7-Cu-L-S	x		0.77	72.0	270	300	145	95	95	9	x			A	32.0	3 x 308.0	2 x 28.1
50	multiind-light 400-50.0-7-Al-AW-S	x		0.77	72.0	240	260	167	95	112	9		x		C	26.0	3 x 308.0	2 x 28.1
60	multiind-light 400-60.0-7-Cu-L-S	x		0.65	86.4	270	300	145	95	95	9	x			A	39.4	3 x 364.7	1 x 6.1 + 2 x 30.3
60	multiind-light 400-60.0-7-Al-AW-S	x		0.65	86.4	270	300	180	95	95	9		x		C	36.0	3 x 364.7	1 x 6.1 + 2 x 30.3
75	multiind-light 400-75.0-7-Cu-L-S	x		0.51	108.0	270	300	180	95	122	9	x			A	47.1	3 x 461.7	3 x 28.1
75	multiind-light 400-75.0-7-Al-AW-S	x		0.51	108.0	270	300	180	95	122	9		x		C	36.0	3 x 461.7	3 x 28.1

multiind 50Hz

Specifications multiind-basic ... 7 %

Detuning factor: **7 %** Resonance frequency: **189 Hz**

POWER	TYPE			INDUC-	RATED	DIMENSIONSin mm						CONNECTION			DIA-	WEIGHT	CAPACI-	CAPACITOR
kvar	multiind-basic ... 7 %	Cu	Al	mH	A	H	B	T	W1	W2	LL	L	AW	RK		kg	µF	multicond
																		UHPC ... -440-3P
2.5	multiind-basic 400-02.5-7-Cu-L-S	x		15.42	3.6	165	180	86	95	62.5	9	x			A	5.2	3 x 15.4	4.0 / 525
5	multiind-basic 400-05.0-7-Cu-L-S	x		7.709	7.2	165	180	86	95	62.5	9	x			A	6.4	3 x 30.8	8.0 / 525
7.5	multiind-basic 400-07.5-7-Cu-L-S	x		4.76	11.6	165	180	96	95	72.5	9	x			A	8.1	3 x 50.0	13.0 / 525
10	multiind-basic 400-10.0-7-Cu-L-S	x		3.56	15.5	165	180	106	95	82.5	9	x			A	9.2	3 x 66.3	12.1
12.5	multiind-basic 400-12.5-7-Cu-L-S	x		2.85	19.4	195	210	109	95	86	9	x			A	12.5	3 x 82.8	15.1
15	multiind-basic 400-15.0-7-Cu-L-S	x		2.52	21.9	195	210	109	95	86	9	x			A	13.0	3 x 93.7	17.1
20	multiind-basic 400-20.0-7-Cu-L-S	x		1.78	31.1	195	210	109	95	86	9	x			A	14.0	3 x 132.7	24.2
25	multiind-basic 400-25.0-7-Cu-L-S	x		1.54	36	220	240	115	95	91	9	x			A	20.0	3 x 154.0	28.1
25	multiind-basic 400-25.0-7-Al-AW-S		x	1.54	36	220	240	145	95	91	9		x		C	17.1	3 x 154.0	28.1
30	multiind-basic 400-30.0-7-Cu-L-S	x		1.26	43.2	220	240	135	95	91	9	x			A	20.2	3 x 187.4	2 x 17.1
30	multiind-basic 400-30.0-7-Al-AW-S		x	1.26	43.2	220	240	145	95	91	9		x		C	17.8	3 x 187.3	2 x 17.1
40	multiind-basic 400-40.0-7-Cu-L-S	x		0.95	58.2	220	240	145	95	101	9	x			A	26.5	3 x 248.8	1 x 21.2 + 1 x 24.2
40	multiind-basic 400-40.0-7-Al-AW-S		x	0.95	58.2	240	260	167	95	112	9		x		C	26.0	3 x 248.7	1 x 21.2 + 1 x 24.2
50	multiind-basic 400-50.0-7-Cu-L-S	x		0.77	72	270	300	145	95	95	9	x			A	32.5	3 x 308.0	2 x 28.1
50	multiind-basic 400-50.0-7-Al-AW-S		x	0.77	72	240	260	167	95	112	9		x		C	26.0	3 x 308.0	2 x 28.1
60	multiind-basic 400-60.0-7-Cu-L-S	x		0.65	86.8	270	300	145	95	95	9	x			A	35.0	3 x 364.7	1 x 10 / 525 + 2 x 30.3 / 440
60	multiind-basic 400-60.0-7-Al-AW-S		x	0.65	86.8	270	300	180	95	95	9		x		C	35.0	3 x 364.7	1 x 10 / 525 + 2 x 30.3 / 440
75	multiind-basic 400-75.0-7-Cu-L-S	x		0.51	108	270	300	180	95	122	9	x			A	47.1	3 x 461.7	3 x 28.1
75	multiind-basic 400-75.0-7-Al-AW-S		x	0.51	108	270	300	180	95	122	9		x		C	37.5	3 x 461.7	3 x 28.1

Specifications multiind-light ... 8 %

Detuning factor: **8 %** Resonance frequency: **177 Hz**

POWER	TYPE			INDUC-	RATED	DIMENSIONS							CONNECTION			DIA-	WEIGHT	CAPACI-	CAPACITOR
	multiind-light... 8 %			TIVITY	CURRENT	in mm									GRAM			TANCE	multicond
kvar		Cu	Al	mH	A	H	B	T	W1	W2	LL	L	AW	RK		kg	μF	UHPC ... -440-3P	
2.5	multiind-light 400-02.5-8-Cu-L-S	x		17.62	3.6	165	180	86	95	62.5	9	x			A	5.1	3 x 15.4	4.0 / 525	
5	multiind-light 400-05.0-8-Cu-L-S	x		8.811	7.3	165	180	86	95	62.5	9	x			A	6.1	3 x 30.8	8.0 / 525	
7.5	multiind-light 400-07.5-8-Cu-L-S	x		5.44	11.8	165	180	96	95	72.5	9	x			A	7.8	3 x 50.0	13.0 / 525	
10	multiind-light 400-10.0-8-Cu-L-S	x		4.073	15.7	195	210	92	95	68.5	9	x			A	9.2	3 x 66.3	12.1	
12.5	multiind-light 400-12.5-8-Cu-L-S	x		3.26	19.6	195	210	109	95	86	9	x			A	12.4	3 x 82.8	15.1	
15	multiind-light 400-15.0-8-Cu-L-S	x		2.88	22.2	195	210	109	95	86	9	x			A	12.7	3 x 93.7	17.1	
20	multiind-light 400-20.0-8-Cu-L-S	x		2.04	31.4	220	240	105	95	81	9	x			A	14.0	3 x 132.7	24.2	
25	multiind-light 400-25.0-8-Cu-L-S	x		1.75	36.4	220	240	115	95	91	9	x			A	19.1	3 x 154.0	28.1	
30	multiind-light 400-30.0-8-Cu-L-S	x		1.44	44.3	220	240	135	95	91	9	x			A	20.3	3 x 187.4	2 x 17.1	
30	multiind-light 400-30.0-8-Al-AW-S		x	1.44	43.2	220	240	145	95	91	9		x		C	18.1	3 x 187.3	2 x 17.1	
40	multiind-light 400-40.0-8-Cu-L-S	x		1.09	58.8	220	240	155	95	105	9	x			A	25.0	3 x 248.8	1 x 21.2 + 1 x 24.2	
40	multiind-light 400-40.0-8-Al-AW-S		x	1.09	57.6	220	240	185	95	105	9		x		C	27.0	3 x 248.7	1 x 21.2 + 1 x 24.2	
50	multiind-light 400-50.0-8-Cu-L-S	x		0.88	72.9	270	300	145	95	95	9	x			A	32.0	3 x 308.0	2 x 28.1	
50	multiind-light 400-50.0-8-Al-AW-S		x	0.88	72.0	240	260	167	95	112	9		x		C	26.0	3 x 308.0	2 x 28.1	
60	multiind-light 400-60.0-8-Cu-L-S	x		0.74	86.4	270	300	145	95	95	9	x			A	39.4	3 x 364.7	1 x 10 / 525 + 2 x 30.3 / 440	
60	multiind-light 400-60.0-8-Al-AW-S		x	0.74	86.4	270	300	210	95	122	9		x		C	36.0	3 x 364.7	1 x 10 / 525 + 2 x 30.3 / 440	
75	multiind-light 400-75.0-8-Cu-L-S	x		0.59	109.2	270	300	180	95	122	9	x			A	47.1	3 x 461.7	3 x 28.1	
75	multiind-light 400-75.0-8-Al-AW-S		x	0.59	108.0	270	300	210	95	122	9		x		C	36.0	3 x 461.7	3 x 28.1	

Specifications multiind-basic ... 8 %

Detuning factor: **8 %** Resonance frequency: **177 Hz**

POWER	TYPE			INDUC-	RATED	DIMENSIONS						CONNECTION			DIA-	WEIGHT	CAPACI-	CAPACITOR
kvar	multiind-basic ... 8 %	Cu	Al	TIVITY	CURRENT	in mm						L	AW	RK	GRAM	kg	TANCE	multicond
				mH	A	H	B	T	W1	W2	LL						μF	UHPC ... -440-3P
2.5	multiind-basic 400-02.5-8-Cu-L-S	x		17.62	3.6	165	180	86	95	62.5	9	x			A	5.2	3 x 15.4	4.0 / 525
5	multiind-basic 400-05.0-8-Cu-L-S	x		8.811	7.3	165	180	96	95	72.5	9	x			A	7.6	3 x 30.8	8.0 / 525
7.5	multiind-basic 400-07.5-8-Cu-L-S	x		5.44	11.8	165	180	96	95	72.5	9	x			A	8.3	3 x 50.0	13.0 / 525
10	multiind-basic 400-10.0-8-Cu-L-S	x		4.07	15.7	195	210	92	95	68.5	9	x			A	10.0	3 x 66.3	12.1
12.5	multiind-basic 400-12.5-8-Cu-L-S	x		3.26	19.6	195	210	109	95	86	9	x			A	13.0	3 x 82.8	15.1
15	multiind-basic 400-15.0-8-Cu-L-S	x		2.88	22.2	195	210	109	95	86	9	x			A	14.0	3 x 93.7	17.1
20	multiind-basic 400-20.0-8-Cu-L-S	x		2.04	31.4	220	240	105	95	86	9	x			A	19.0	3 x 132.7	24.2
25	multiind-basic 400-25.0-8-Cu-L-S	x		1.75	36.4	220	240	115	95	91	9	x			A	20.5	3 x 154.0	28.1
30	multiind-basic 400-30.0-8-Cu-L-S	x		1.44	44.3	220	240	135	95	91	9	x			A	21.0	3 x 187.4	2 x 17.1
30	multiind-basic 400-30.0-8-Al-AW-S		x	1.44	44.3	220	240	145	95	91	9		x		C	17.8	3 x 187.3	2 x 17.1
40	multiind-basic 400-40.0-8-Cu-L-S	x		1.09	58.8	220	240	155	95	105	9	x			A	25.5	3 x 248.8	1 x 21.2 + 1 x 24.2
40	multiind-basic 400-40.0-8-Al-AW-S		x	1.09	58.8	220	240	167	95	105	9		x		C	26.0	3 x 248.7	1 x 21.2 + 1 x 24.2
50	multiind-basic 400-50.0-8-Cu-L-S	x		0.88	72.9	270	300	145	95	95	9	x			A	33.0	3 x 308.0	2 x 28.1
50	multiind-basic 400-50.0-8-Al-AW-S		x	0.88	72.9	220	240	167	95	112	9		x		C	26.0	3 x 308.0	2 x 28.1
60	multiind-basic 400-60.0-8-Cu-L-S	x		0.74	86.4	270	300	145	95	95	9	x			A	37.0	3 x 364.7	1 x 10 / 525 + 2 x 30.3 / 440
60	multiind-basic 400-60.0-8-Al-AW-S		x	0.74	86.4	270	300	210	95	122	9		x		C	35.6	3 x 364.7	1 x 10 / 525 + 2 x 30.3 / 440
75	multiind-basic 400-75.0-8-Cu-L-S	x		0.59	109.2	270	300	180	95	122	9	x			A	38.8	3 x 461.7	3 x 28.1
75	multiind-basic 400-75.0-8-Al-AW-S		x	0.59	109.2	270	300	210	95	122	9		x		C	38.7	3 x 461.7	3 x 28.1

Specifications multiind-basic ... 12.5 %

Detuning factor: **12.5 %** Resonance frequency: **142 Hz**

POWER	TYPE			INDUC-	RATED	DIMENSIONS						CONNECTION			DIA-	WEIGHT	CAPACI-	CAPACITOR
kvar	multiind-basic ... 12.5 %	Cu	Al	TIVITY	CURRENT	in mm						L	AW	RK	GRAM	kg	TANCE	multicond
				mH	A	H	B	T	W1	W2	LL						μF	UHPC ... -525-3P
2.5	multiind-basic 400-02.5-12.5-Cu-L-S	x		27.53	3.8	165	180	86	95	62.5	9	x			A	5.3	3 x 15.3	4.0
5	multiind-basic 400-05.0-12.5-Cu-L-S	x		13.77	7.6	165	180	96	95	72.5	9	x			A	8.7	3 x 30.7	8.0
7.5	multiind-basic 400-07.5-12.5-Cu-L-S	x		8.44	12.4	195	210	92	95	68.5	9	x			A	9.9	3 x 43.1	11.2
10	multiind-basic 400-10.0-12.5-Cu-L-S	x		7.32	14.3	195	210	109	95	86	9	x			A	14.0	3 x 57.7	15.0
12.5	multiind-basic 400-12.5-12.5-Cu-L-S	x		6.089	17.3	220	240	105	95	71	9	x			A	15.1	3 x 69.3	18.0
15	multiind-basic 400-15.0-12.5-Cu-L-S	x		5.23	20.1	220	240	95	95	71	9	x			A	15.1	3 x 80.7	21.0
20	multiind-basic 400-20.0-12.5-Cu-L-S	x		3.65	28.8	220	240	125	95	101	9	x			A	23.9	3 x 115.7	30.0
20	multiind-basic 400-20.0-12.5-Al-AW-S		x	3.65	28.8	240	260	167	95	112	9			x	C	23.2	3 x 115.7	30.0
25	multiind-basic 400-25.0-12.5-Cu-L-S	x		2.97	35.4	220	240	145	95	101	9	x			A	24.7	3 x 142.3	37.0
25	multiind-basic 400-25.0-12.5-Al-AW-S		x	2.97	35.4	240	260	167	95	112	9		x		C	26.7	3 x 142.3	37.0
30	multiind-basic 400-30.0-12.5-Cu-L-S	x		2.44	43.1	220	240	145	95	101	9	x			A	24.7	3 x 173.3	1 x 15.0 + 1 x 30.0
30	multiind-basic 400-30.0-12.5-Al-AW-S		x	2.44	43.1	240	260	167	95	112	9		x		C	25.7	3 x 173.3	1 x 15.0 + 1 x 30.0
40	multiind-basic 400-40.0-12.5-Cu-L-S	x		1.83	57.5	270	300	145	95	95	9	x			A	39.4	3 x 231.0	2 x 30.0
40	multiind-basic 400-40.0-12.5-Al-AW-S		x	1.83	57.5	270	300	180	95	107	9		x		C	36.2	3 x 231.0	2 x 30.0
50	multiind-basic 400-50.0-12.5-Cu-L-S	x		1.48	70.8	270	300	150	95	107	9	x			A	45.9	3 x 284.7	2 x 37.0
50	multiind-basic 400-50.0-12.5-Al-AW-S		x	1.48	70.8	270	300	210	95	112	9		x		C	41.3	3 x 284.7	2 x 37.0
60	multiind-basic 400-60.0-12.5-Cu-L-S	x		1.22	86.2	270	300	180	95	112	9	x			A	48.6	3 x 346.7	3 x 30.0
75	multiind-basic 400-75.0-12.5-Al-AW-S		X	0.988	106.3	260	300	175	95	122	9		X		C	49.7	3 x 462.0	3 x 37.0

multiind 50Hz

Specifications multiind-light ... 14 %

Detuning factor: **14 %** Resonance frequency: **134 Hz**

POWER	TYPE			INDUCTIVITY	RATED CURRENT	DIMENSIONS						CONNECTION			DIA-GRAM	WEIGHT	CAPACITANCE	CAPACITOR
kvar	multiind-light... 14 %	Cu	Al	mH	A	H	B	T	W1	W2	LL	L	AW	RK		kg	µF	multicond
2.5	multiind-light 400-02.5-14-Cu-L-S	x		30.84	3.9	165	180	86	95	62.5	9	x			A	5.3	3 x 15.3	4.0
5	multiind-light 400-05.0-14-Cu-L-S	x		15.42	7.8	165	180	96	95	72.5	9	x			A	8.3	3 x 30.7	8.0
7.5	multiind-light 400-07.5-14-Cu-L-S	x		9.46	12.7	195	210	109	95	86	9	x			A	13.4	3 x 43.1	11.2
10	multiind-light 400-10.0-14-Cu-L-S	x		8.20	14.6	195	210	109	95	86	9	x			A	14.1	3 x 57.7	15.0
12.5	multiind-light 400-12.5-14-Cu-L-S	x		6.82	17.6	220	240	105	95	81	9	x			A	16.9	3 x 69.3	18.0
15	multiind-light 400-15.0-14-Cu-L-S	x		5.86	20.4	220	240	105	95	81	9	x			A	17.9	3 x 80.7	21.0
20	multiind-light 400-20.0-14-Cu-L-S	x		4.09	29.3	220	240	125	95	101	9	x			A	24.3	3 x 115.7	30.0
25	multiind-light 400-25.0-14-Cu-L-S	x		3.32	36.0	220	240	145	95	101	9	x			A	24.2	3 x 142.3	37.0
25	multiind-light 400-25.0-14-Al-AW-S		x	3.32	36.0	240	260	167	95	112	9		x		C	24.9	3 x 142.3	37.0
30	multiind-light 400-30.0-14-Cu-L-S	x		2.73	43.9	220	240	145	95	101	9	x			A	24.6	3 x 173.3	1 x 15.0 + 1 x 30.0
30	multiind-light 400-30.0-14-Al-AW-S		x	2.73	43.9	240	260	167	95	112	9		x		C	23.9	3 x 173.3	1 x 15.0 + 1 x 30.0
40	multiind-light 400-40.0-14-Cu-L-S	x		2.05	58.5	270	300	145	95	95	9	x			A	37.1	3 x 231.0	2 x 30.0
40	multiind-light 400-40.0-14-Al-AW-S		x	2.05	58.5	270	300	180	95	107	9		x		C	36.2	3 x 231.0	2 x 30.0
50	multiind-light 400-50.0-14-Cu-L-S	x		1.66	72.1	270	300	150	95	107	9	x			A	46.5	3 x 284.7	2 x 37.0
50	multiind-light 400-50.0-14-Al-AW-S		x	1.66	72.1	270	300	210	95	112	9		x		C	39.0	3 x 284.7	2 x 37.0
60	multiind-light 400-60.0-14-Cu-L-S	x		1.36	87.7	270	300	180	95	112	9	x			A	50.0	3 x 346.7	3 x 30.0

Specifications multiind-basic ... 14 %

Detuning factor: **14 %** Resonance frequency: **134 Hz**

POWER	TYPE			INDUCTIVITY	RATED CURRENT	DIMENSIONS						CONNECTION			DIA-GRAM	WEIGHT	CAPACITANCE	CAPACITOR
kvar	multiind-basic ... 14 %	Cu	Al	mH	A	H	B	T	W1	W2	LL	L	AW	RK		kg	µF	multicond
2.5	multiind-basic 400-02.5-14-Cu-L-S	x		30.84	3.9	165	180	86	95	62.5	9	x			A	5.3	3 x 15.3	4.0
5	multiind-basic 400-05.0-14-Cu-L-S	x		15.42	7.8	165	180	96	95	72.5	9	x			A	8.3	3 x 30.7	8.0
7.5	multiind-basic 400-07.5-14-Cu-L-S	x		9.46	12.7	195	210	109	95	86	9	x			A	13.4	3 x 43.1	11.2
10	multiind-basic 400-10.0-14-Cu-L-S	x		8.20	14.6	195	210	109	95	86	9	x			A	14.4	3 x 57.7	15.0
12.5	multiind-basic 400-12.5-14-Cu-L-S	x		5.86	17.6	220	240	105	95	81	9	x			A	17.9	3 x 80.7	21.0
15	multiind-basic 400-15.0-14-Cu-L-S	x		5.86	20.4	220	240	105	95	81	9	x			A	17.9	3 x 80.7	21.0
20	multiind-basic 400-20.0-14-Cu-L-S	x		4.09	29.3	220	240	125	95	101	9	x			A	23.5	3 x 115.7	30.0
25	multiind-basic 400-25.0-14-Cu-L-S	x		3.32	36.0	220	240	145	95	101	9	x			A	24.2	3 x 142.3	37.0
25	multiind-basic 400-25.0-14-Al-AW-S		x	3.32	36.0	240	260	167	95	112	9		x		C	24.9	3 x 142.3	37.0
30	multiind-basic 400-30.0-14-Cu-L-S	x		2.73	43.9	220	240	145	95	101	9	x			A	24.6	3 x 173.3	1 x 15.0 + 1 x 30.0
30	multiind-basic 400-30.0-14-Al-AW-S		x	2.73	43.9	270	300	180	95	112	9		x		C	23.9	3 x 173.3	1 x 15.0 + 1 x 30.0
40	multiind-basic 400-40.0-14-Cu-L-S	x		2.05	58.5	270	300	145	95	95	9	x			A	37.1	3 x 231.0	2 x 30.0
40	multiind-basic 400-40.0-14-Al-AW-S		x	2.05	58.5	270	300	180	95	107	9		x		C	36.2	3 x 231.0	2 x 30.0
50	multiind-basic 400-50.0-14-Cu-L-S	x		1.66	72.1	270	300	150	95	107	9	x			A	46.5	3 x 284.7	2 x 37.0
50	multiind-basic 400-50.0-14-Al-AW-S		x	1.66	72.1	270	300	210	95	112	9		x		C	39.0	3 x 284.7	2 x 37.0
60	multiind-basic 400-60.0-14-Cu-L-S	x		1.36	87.7	270	300	210	95	112	9	x			A	47.6	3 x 346.7	3 x 30.0

Construction diagrams

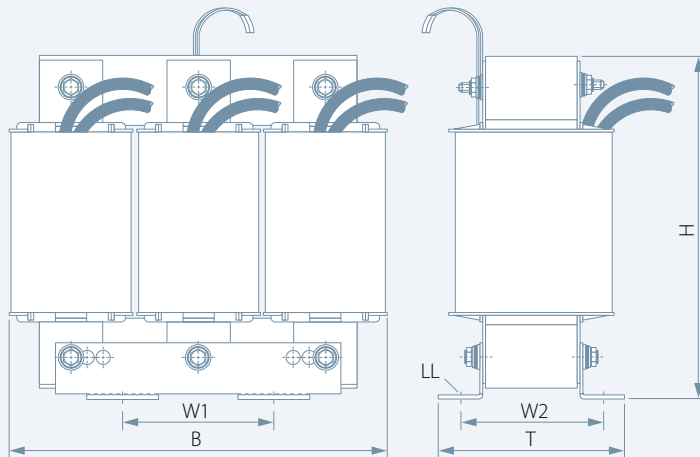


Diagram A

Design with connection lines
Type L

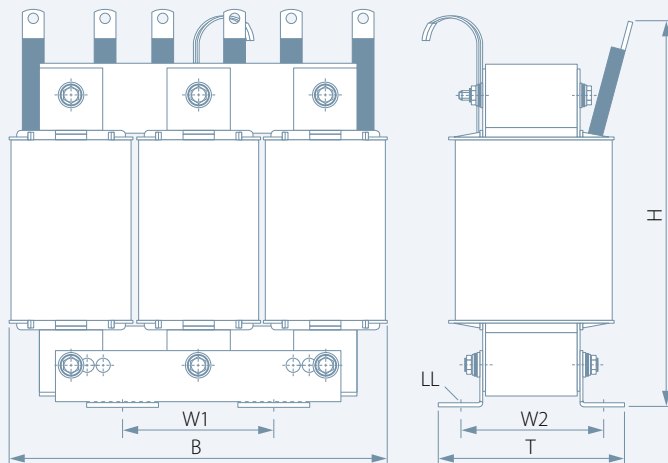


Diagram B

Design with tubular cable lug
Type RK

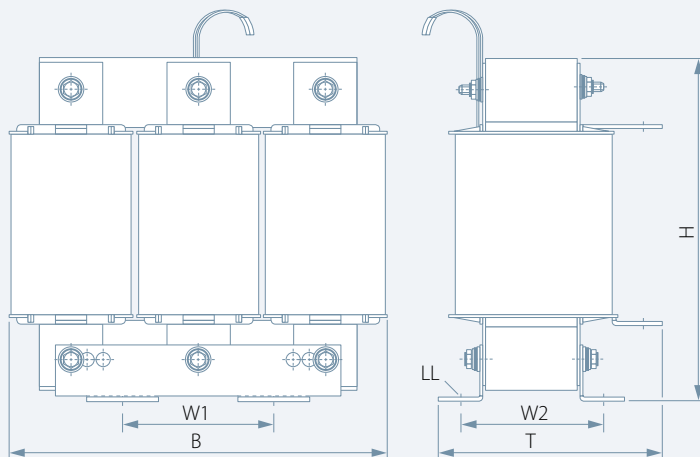


Diagram C

Design with connection angle
Type AW

multiind 50Hz Technical details

DEVICE TYPE	multiind 5.5	multiind 7.0	
	basic $p = 5.5 \%$	light $p = 7 \%$	basic $p = 7 \%$
Rated voltage frequency	$U_n = 400 \text{ V} \mid 50\text{Hz}$	$U_n = 400 \text{ V} \mid 50\text{Hz}$	$U_n = 400 \text{ V} \mid 50\text{Hz}$
Maximum permissible operating voltage	$U_n = 400 \text{ V} \pm 10 \%$	$U_n = 400 \text{ V} \pm 10 \%$	$U_n = 400 \text{ V} \pm 10 \%$
Power	2.5 – 75 kvar	2.5 – 75 kvar	2.5 – 75 kvar
Inductive stability Inductive tolerance	$L(I_{Lin}) \geq 0.95 L_N \mid \pm 3 \%$	$L(I_{Lin}) \geq 0.95 L_N \mid \pm 3 \%$	$L(I_{Lin}) \geq 0.95 L_N \mid \pm 3 \%$
Overtemperature protection	Break contact at 125 °C (250 V – 50 Hz – 2.5 A), temperature class B	Break contact at 125 °C (250 V – 50 Hz – 2.5 A), temperature class B	
Protection type	IP 00	IP 00	IP 00
Protection class	I	I	I
Ambient temperature	maximum 40 °C	maximum 40 °C	maximum 40 °C
Cooling type	Natural cooling	Natural cooling	Natural cooling
Impregnation	vacuum-impregnated	vacuum-impregnated	vacuum-impregnated
Detuning factor Resonance frequency	5.5 % 214 Hz	7 % 189 Hz	7 % 189 Hz
Linearity	$2.1 \times I_{rated}$	$1.6 \times I_{rated}$	$1.85 \times I_{rated}$
Standards	DIN EN 60076-6 (VDE 0532-76-6) DIN EN 61558-1-A1 (VDE 0570-1-A1) DIN EN 61558-2-20 (VDE 0570-2-20)	DIN EN 60076-6 (VDE 0532-76-6) DIN EN 61558-1-A1 (VDE 0570-1-A1) DIN EN 61558-2-20 (VDE 0570-2-20)	
Designs	Cu = copper Al = aluminum L = cable connection AW = connection angle RK = tubular cable lug	Cu = copper Al = aluminum L = cable connection AW = connection angle RK = tubular cable lug	

multiind 8.0		multiind 12.5		multiind 14.0	
light p = 8 %	basic p = 8 %	basic p = 12.5 %	light p = 14 %	basic p = 14 %	
$U_n = 400 \text{ V} \mid 50 \text{ Hz}$	$U_n = 400 \text{ V} \mid 50 \text{ Hz}$	$U_n = 400 \text{ V} \mid 50 \text{ Hz}$	$U_n = 400 \text{ V} \mid 50 \text{ Hz}$	$U_n = 400 \text{ V} \mid 50 \text{ Hz}$	
$U_n = 400 \text{ V} \pm 10 \%$	$U_n = 400 \text{ V} \pm 10 \%$	$U_n = 400 \text{ V} \pm 10 \%$	$U_n = 400 \text{ V} \pm 10 \%$	$U_n = 400 \text{ V} \pm 10 \%$	
2.5 – 75 kvar	2.5 – 75 kvar	2.5 – 50 kvar	2.5 – 50 kvar	2.5 – 50 kvar	
$L(I_{Lin}) \geq 0.95 L_N \mid \pm 3 \%$	$L(I_{Lin}) \geq 0.95 L_N \mid \pm 3 \%$	$L(I_{Lin}) \geq 0.95 L_N \mid \pm 3 \%$	$L(I_{Lin}) \geq 0.95 L_N \mid \pm 3 \%$	$L(I_{Lin}) \geq 0.95 L_N \mid \pm 3 \%$	
Break contact at 125 °C (250 V – 50 Hz – 2.5 A), temperature class B		Break contact at 125 °C (250 V – 50 Hz – 2.5 A), temperature class B		Break contact at 125 °C (250 V – 50 Hz – 2.5 A), temperature class B	
IP 00	IP 00	IP 00	IP 00	IP 00	
I	I	I	I	I	
maximum 40 °C	maximum 40 °C	maximum 40 °C	maximum 40 °C	maximum 40 °C	
Natural cooling	Natural cooling	Natural cooling	Natural cooling	Natural cooling	
vacuum-impregnated	vacuum-impregnated	vacuum-impregnated	vacuum-impregnated	vacuum-impregnated	
8 % $\mid$ 176 Hz	8 % $\mid$ 176 Hz	12.5 % $\mid$ 142 Hz	14 % $\mid$ 134 Hz	14 % $\mid$ 134 Hz	
$1.6 \times I_{rated}$	$1.85 \times I_{rated}$	$1.5 \times I_{rated}$	$1.4 \times I_{rated}$	$1.5 \times I_{rated}$	
DIN EN 60076-6 (VDE 0532-76-6) DIN EN 61558-1-A1 (VDE 0570-1-A1) DIN EN 61558-2-20 (VDE 0570-2-20)		DIN EN 60076-6 (VDE 0532-76-6) DIN EN 61558-1-A1 (VDE 0570-1-A1) DIN EN 61558-2-20 (VDE 0570-2-20)		DIN EN 60076-6 (VDE 0532-76-6) DIN EN 61558-1-A1 (VDE 0570-1-A1) DIN EN 61558-2-20 (VDE 0570-2-20)	
Cu = copper Al = aluminum L = cable connection AW = connection angle RK = tubular cable lug		Cu = copper Al = aluminum L = cable connection AW = connection angle RK = tubular cable lug		Cu = copper Al = aluminum L = cable connection AW = connection angle RK = tubular cable lug	

multiind 60Hz

Specifications multiind-basic ... 6%

Detuning: **6%** Resonance frequency: **245 Hz**

VOLTAGE V	POWER kvar	TYPE multiind-basic ... 6 %	INDUCTIV- ITY		RATED CURRENT A	DIMENSIONS						CONNECTION			DIAGRAM	WEIGHT kg	CAPACITANCE μF	CAPACITOR multicond UHPC
			Cu	Al		H	W	D	W1	W2	LL	L	AW	RK				
380V/60Hz	12.5	multiind-basic 380-60-12.5-6-CU-RK-S	x		1.8280	20.3	215	210	109	95	85	9		x	B	13.5	231	1x 20.0-525-3P
380V/60Hz	13.4	multiind-basic 380-60-13.4-6-CU-RK-S	x		1.8250	20.3	215	210	109	95	85	9		x	B	13.5	231	1x 16.7-480-3P
380V/60Hz	25	multiind-basic 380-60-25.0-6-AL-AW-S		x	0.9490	39.2	240	260	167	95	112	9		x	C	24.5	445	1x 17.9-480-3P 1x 14.3-480-3P
380V/60Hz	26.7	multiind-basic 380-60-26.7-6-CU-RK-S	x		0.9160	40.6	250	240	115	95	92	9		x	B	21	461	1x 33.4-480-3P
380V/60Hz	50	multiind-basic 380-60-50.0-6-CU-RK-S	x		0.484	76.8	305	300	150	95	117	9		x	B	34.1	873	1x 29.8-480-3P 2x 33.4-480-3P
440V/60Hz	12.5	multiind-basic 440-60-12.5-6-CU-RK-S	x		2.4403	17.6	215	210	109	95	85	9		x	B	11.8	173	1x 15.0-525-3P
440V/60Hz	25	multiind-basic 440-60-25.0-6-AL-AW-S		x	1.2166	35.4	220	240	145	95	92	9		x	C	17.6	347	1x 30.0-525-3P
440V/60Hz	50	multiind-basic 440-60-50.0-6-AL-AW-S		x	0.6416	67	270	300	180	95	117	9		x	C	33	658	1x 20.0-525-3P 1x 37.0-525-3P

Specifications multiind-basic ... 7%

Detuning: **7%** Resonance frequency: **227Hz**

VOLTAGE V	POWER kvar	TYPE multiind-basic ... 7 %	INDUCTIV- ITY		RATED CURRENT A	DIMENSIONS						CONNECTION			DIAGRAM	WEIGHT kg	CAPACITANCE μF	CAPACITOR multicond UHPC
			Cu	Al		H	W	D	W1	W2	LL	L	AW	RK				
230V/60Hz	10	multiind-basic 230-60-10-7-CU-RK-S	x		1.0661	24.9	215	210	109	95	85	9		x	B	13.8	462	1x 28.1-440-3P
230V/60Hz	20	multiind-basic 230-60-20-7-CU-RK-S	x		0.5319	49.9	250	240	129	95	105	9		x	B	22.2	925.5	1x 20.0-440-3P 1x 36.3-440-3P
480V/60Hz	25	multiind-basic 480-60-25.0-7-AL-AW-S		x	1.7043	32.5	220	240	145	95	92	9		x	C	17.3	289	1x 25.0-525-3P
480V/60Hz	50	multiind-basic 480-60-50.0-7-AL-AW-S		x	0.9276	59.7	240	260	167	95	112	9		x	C	27.0	531	1x 21.0-525-3P 1x 25.0-525-3P

Specifications multiind-basic ... 13%

Detuning: **13%** Resonance frequency: **167 Hz**

VOLTAGE V	POWER kvar	TYPE multiind-basic ... 13 %	INDUCTIV- ITY		RATED CURRENT A	DIMENSIONS						CONNECTION			DIAGRAM	WEIGHT kg	CAPACITANCE μF	CAPACITOR multicond UHPC
			Cu	Al		H	W	D	W1	W2	LL	L	AW	RK				
380V/60Hz	12.5	multiind-basic 380-60-12.5-13-CU-RK-S	x		4.3976	19.8	250	240	105	95	82	9		x	B	16	207.9	1x 18.0-525-3P
380V/60Hz	25	multiind-basic 380-60-25.0-13-AL-AW-S		x	2.1988	39.5	270	300	180	95	117	9		x	C	32	416	2x 18.0-525-3P
380V/60Hz	50	multiind-basic 380-60-50.0-13-AL-AW-S		x	1.0698	81.3	270	300	180	95	117	9		x	C	33	855	2x 37.0-525-3P
440V/60Hz	12.5	multiind-basic 440-60-12.5-13-CU-RK-S	x		6.0980	16.5	215	210	109	95	85	9		x	B	15	150	1x 13.0-525-3P
440V/60Hz	25	multiind-basic 440-60-25.0-13-AL-AW-S		x	3.0490	33	240	260	167	95	112	9		x	C	24	300	2x 13.0-525-3P
440V/60Hz	50	multiind-basic 440-60-50.0-13-AL-AW-S		x	1.5250	66	270	300	180	95	117	9		x	C	33	600	1x 15.0-525-3P 1x 37.0-525-3P

multiind 60Hz Technical details

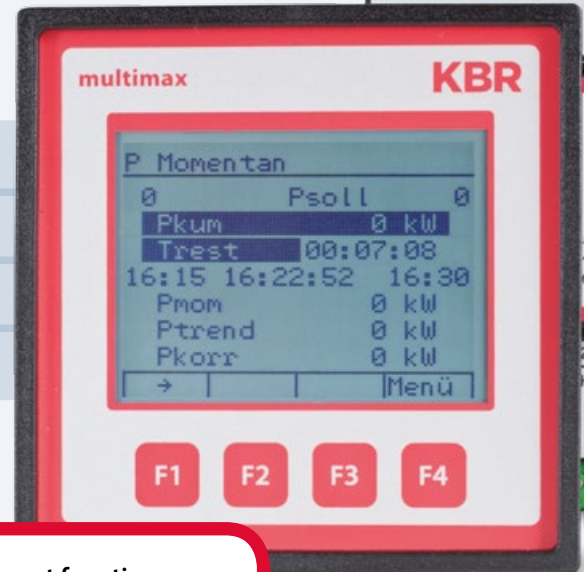
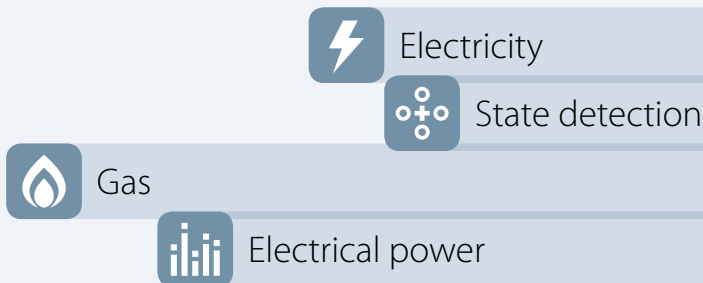
DEVICE TYPE	multiind 6 %		multiind 7 %		multiind 13 %	
	basic p = 6 %	basic p = 6 %	basic p = 7 %	basic p = 7 %	basic p = 13 %	basic p = 13 %
Rated voltage	U _n = 380 V	U _n = 440 V	U _n = 230 V	U _n = 480 V	U _n = 380 V	U _n = 440 V
Frequency	60 Hz	60 Hz	60 Hz	60 Hz	60 Hz	60 Hz
Maximum permissible operating voltage	U _n = 380 V ± 10 %	U _n = 440 V ± 10 %	U _n = 230 V ± 10 %	U _n = 480 V ± 10 %	U _n = 380 V ± 10 %	U _n = 440 V ± 10 %
Power	12.5 x 13.4, 25; 26.7; x 50 kvar	12.5 x 25; 50 kvar	10; 20 kvar	25; 50 kvar	12.5 x 25; 50 kvar	12.5 x 25; 50 kvar
Inductive stability	L (I _{Lin}) ≥ 0.95 L _N		L (I _{Lin}) ≥ 0.95 L _N		L (I _{Lin}) ≥ 0.95 L _N	
Inductive tolerance	± 3 %		± 3 %		± 3 %	
Overtemperature protection	Break contact at 125 °C (250 V – 50 Hz – 2.5 A)		Break contact at 125 °C (250 V – 50 Hz – 2.5 A)		Break contact at 125 °C (250 V – 50 Hz – 2.5 A)	
Protection type	IP 00		IP 00		IP 00	
Protection class	I		I		I	
Ambient temperature	Maximum 40 °C		Maximum 40 °C		Maximum 40 °C	
Cooling type	Natural cooling		Natural cooling		Natural cooling	
Impregnation	Vacuum-impregnated		Vacuum-impregnated		Vacuum-impregnated	
Detuning	6 %	6 %	7 %	7 %	13 %	13 %
Resonance frequency	245 Hz	245 Hz	227 Hz	227 Hz	167 Hz	167 Hz
Linearity	1.85 x I _{rated}	1.85 x I _{rated}	1.85 x I _{rated}	1.85 x I _{rated}	1.5 x I _{rated}	1.5 x I _{rated}
Standards	DIN EN 60289 (VDE 0532-289)		DIN EN 60289 (VDE 0532-289)		DIN EN 60289 (VDE 0532-289)	
Designs	Cu = copper Al = aluminum L = cable connection AW = connection angle RK = tubular cable lug					

THE MULTIMAX FACTOR: HIGHLY FLEXIBLE AND EXTREMELY EFFICIENT.



Modular system

With the **multimes** and **multisio modules**, you can expand the load management system to control up to 80 consumers.



Intelligent functions

Target value and instantaneous value monitoring, target value tracking, prewarning contact (alarm), timer programs, emergency shut-down, etc.

multimax D6 base device
with multimax F96-DS display

Energy optimization is an important aspect of modern energy management. We will be happy to advise you personally.

Product consulting:
+49 (0) 9122 6373-0
info@kbr.de

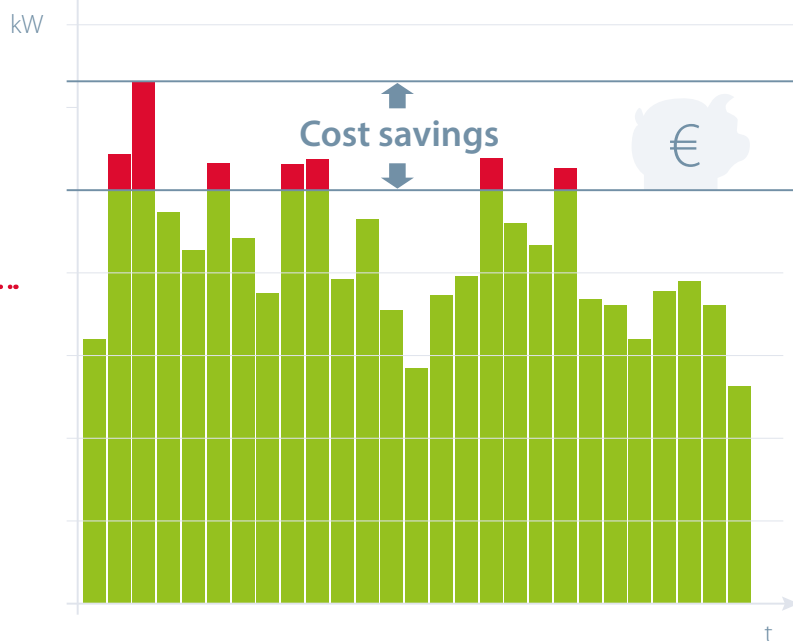
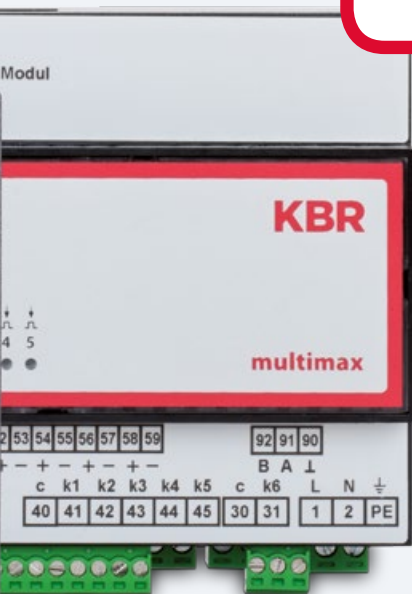
The key to successful energy optimization is the perfect coordination of reliable product technology and flexible load control.

With its modular system architecture and comprehensive functionality, the multimax energy optimization system is easy to expand and highly efficient for the most diverse applications.



Analog outputs

For consumers that are controlled continuously, the **multio D2-2AO** module is the right choice. Inputs and outputs can be linked.



Use the enormous savings potential wisely with our energy flow and consumption optimization measures.

Meter inputs with pulse totalizer function
multimax D6 can capture the values of up to 5 meters. You can connect additional meters with the **multio D2-4DI** module.



KBR is your reliable energy management partner.
With precision technology, efficient solutions and a comprehensive range of services, the KBR system helps companies from the plant engineering, industry or craft sector maintain their technical edge.
For a sustainable and future-proof energy supply.

Our services:

- Planning and consulting
- Energy measuring devices
- Analysis software
- System integration
- Seminars & workshops
- First-class services from one source



KBR Kompensationsanlagenbau GmbH

Am Kieferschlag 7
D-91126 Schwabach,
Germany

T +49 (0) 9122 6373-0
F +49 (0) 9122 6373-83
E info@kbr.de

www.kbr.de