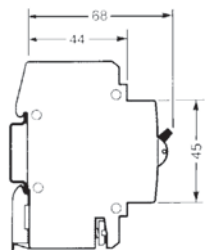


Miniature circuit breakers

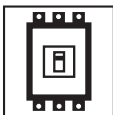
Protection and control of circuits against overloads and short circuits - in commercial and industrial electrical distribution systems



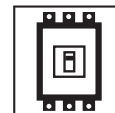
EN 60898-1
NF C 61-410
IEC 60947-2
SANS 60947-2 / SABS 156



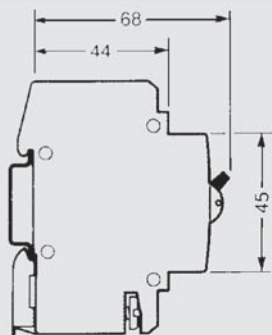
Type		MV	MJN	MC				MN			
Poles		1P	1P+N	1P	2P	3P	4P	1P	2P	3P	4P
Normal Current	A	A	A	A				A			
Rated current of release	In (A)	6	2	0.5	1	1	1	6	6	6	6
		10	6	1	2	2	2	10	10	10	10
		16	10	2	3	3	3	16	16	16	16
		20	16	3				20	20	20	20
		25	20					25	25	25	25
		32	25					32	32	32	32
		40	32					40	40	40	40
			40					50	50	50	50
								63	63	63	63
		63									
		100									
		125									
Tripping curve		B	C	C				C			
AC Application	x In	3 - 5 In	5 - 10 In	5 - 10 In				5 - 10 In			
DC Application	x In	4.5 - 7.5 In	7.5 - 15 In	7.5 - 15 In				7.5 - 15 In			
Breaking Capacity											
IEC/EN 60947-2	kA		6kA	10kA				10kA			
IEC/EN 60 898	kA	3kA	4.5kA	6kA				6kA			
Voltage ratings											
Rated operational voltage	Ue (V)	230	230	230/400				230/400			
Rated Insulation voltage	Ui (V)	500V	500V	500V				500V			
Rated Impulse voltage	Uimp (kV)	2500V	2500V	2500V				2500V			
Electrical Endurance											
0.5 - 32A	operations	20000	10000	20000				20000			
40 - 63A	operations	10000	10000					10000			
80 - 125A	operations										
Accessories (Add-On units)											
Auxiliary contact				*				*			
Alarm contact				*				*			
Shunt trip				*				*			
Undervolt release				*				*			
Motor operator				*				*			
Earth leakage module				*				*			
Dimensions											
mm											
High											
Wide	x 17.5mm	1	1	1	2	3	4	1	2	3	4
Deep											



NCN				HLF				NDN				HMD				NRN						HMC	
1P	2P	3P	4P	1P	2P	3P	4P	1P	2P	3P	4P	1P	2P	3P	4P	1P	1P	1P	3P	3P	3P	1P	3P
A				A				A				A				A						A	
6	6	6	6					6	6	6	6					6			6				
10	10	10	10					10	10	10	10					10			10				
16	16	16	16					16	16	16	16					16			16				
20	20	20	20					20	20	20	20					20			20				
25	25	25	25					25	25	25	25						25			25			
32	32	32	32					32	32	32	32					32			32				
40	40	40	40					40	40	40	40					40			40				
50	50	50	50					50	50	50	50						50				50		
63	63	63	63					63	63	63	63						63				63		
				80	80	80	80					80	80	80	80							80	80
				100	100	100	100					100	100	100	100							100	100
				125	125	125	125					125	125	125	125							125	125
C				C				D				D				C						C	
5 - 10 In				5 - 10 In				5 - 20 In				5 - 20 In				5 - 10 In						5 - 10 In	
7.5 - 15 In				7.5 - 15 In				15 - 30 In				15 - 30 In				7.5 - 15 In						7.5 - 15 In	
15kA				10kA				15kA				15kA				25kA	20kA	15kA	25kA	20kA	15kA	15kA	
10kA				10kA				10kA				15kA				25kA	20kA	15kA	25kA	20kA	15kA	15kA	
230/400				230/400				230/400				230/400				230/400						230/400	
500V				500V				500V				500V				500V						500V	
2500V				2500V				2500V				2500V				2500V						2500V	
20000								20000								20000							
								10000								10000							
				10000								10000										10000	
*				*				*				*				*						*	
*				*				*				*				*						*	
*				*				*				*				*						*	
*				*				*				*				*						*	
*				*				*				*				*						*	
*				*				*				*				*						*	
1	2	3	4	1.5	3	4.5	6	1	2	3	4	1.5	3	4.5	6	1	1	1	3	3	3	1.5	6



Miniature circuit breakers (MCBs) 3/4.5kA



MV116



MJN510



SB132



SB232



SB399



SF118



SF119F



L506



L501

Description

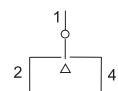
Protection and control of circuits against overload and short circuits
Specifically suitable for residential and commercial installations

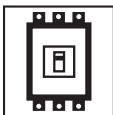
SABS IEC 60947-2 / IEC 60898 / SANS 156

voltage rating: 230/400V 50-60 Hz

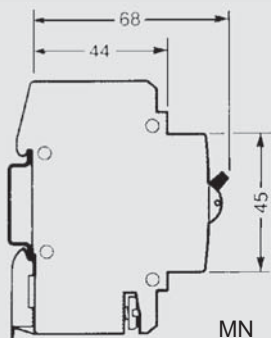
Connections

tunnel terminal
connection capacity:
-25mm² rigid conductor
-16mm² flexible conductor

designation	type	current rating	breaking capacity	description	width in 17.5mm	price
MV Series 3kA B CURVE 3-5 In						
	Single pole SP	MV106Z	6A	3 kA	miniature circuit breaker	1
		MV110Z	10A	3 kA	miniature circuit breaker	1
		MV116Z	16A	3 kA	miniature circuit breaker	1
		MV120Z	20A	3 kA	miniature circuit breaker	1
		MV125Z	25A	3 kA	miniature circuit breaker	1
		MV132Z	32A	3 kA	miniature circuit breaker	1
		MV140Z	40A	3 kA	miniature circuit breaker	1
MJN Series 4.5kA C CURVE 5-10 In						
	Double pole SP + N	MJN702	2A	4.5 kA	miniature circuit breaker	1
		MJN706	6A	4.5 kA	miniature circuit breaker	1
		MJN710	10A	4.5 kA	miniature circuit breaker	1
		MJN716	16A	4.5 kA	miniature circuit breaker	1
		MJN720	20A	4.5 kA	miniature circuit breaker	1
		MJN725	25A	4.5 kA	miniature circuit breaker	1
		MJN732	32A	4.5 kA	miniature circuit breaker	1
		MJN740	40A	4.5 kA	miniature circuit breaker	1
Isolators (switch disconnectors) SABS IEC 60947-3						
		SB132	32A	1 pole	isolator switch	1
		SB163	63A	1 pole	isolator switch	1
		SB199	100A	1 pole	isolator switch	1
		SB112	125A	1 pole	isolator switch	1
		SB232	32A	2 pole	isolator switch	1
		SB263	63A	2 pole	isolator switch	2
		SB299	100A	2 pole	isolator switch	2
		SB212	125A	2 pole	isolator switch	2
		SB332	32A	3 pole	isolator switch	2
		SB363	63A	3 pole	isolator switch	3
		SB399	100A	3 pole	isolator switch	3
		SB312	125A	3 pole	isolator switch	3
		SB432	32A	4 pole	isolator switch	2
		SB463	63A	4 pole	isolator switch	4
		SB499	100A	4 pole	isolator switch	4
		SB412	125A	4 pole	isolator switch	4
Changeover switches						
		SF118F	25A	1 pole on-on c/over sw		1
		SF119F	25A	1 pole on-off-on c/over sw		1
Fuse Holders for cylindrical (10 x 38mm) cartridge (see pg 115 for fuses)						
		L501	32A	1 pole	fuse holder	1
		L506	32A	1 P + N	fuse holder	1



Miniature circuit breakers (MCBs) 6kA



Description

Protection and control of circuits against overload and short circuits
Specifically suitable for commercial and industrial installations
Breaking capacity:
10kA IEC 60947-2 / SANS 156
6kA IEC 60898

voltage rating: 230/400V~50-60 Hz

Connections

Tunnel terminal
connection capacity: -25mm² rigid conductor
-16mm² flexible conductor

Field fittable

auxiliaries / alarm contact / shunt trip
undervoltage release / earth leakage
motor operators



MN132



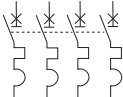
MN216

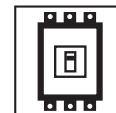


MN332



MN463

designation	type	current rating	breaking capacity	description	width in 17.5mm	price
MN/MC Series 6/10kA C CURVE 5-10 In						
Single pole 1 PP 	MC100A	0.5A	6 kA	miniature circuit breaker	1	97.00
	MC101A	1A	6 kA	miniature circuit breaker	1	91.50
	MC102A	2A	6 kA	miniature circuit breaker	1	91.50
	MC103A	3A	6 kA	miniature circuit breaker	1	91.50
	MN106Z	6A	6 kA	miniature circuit breaker	1	60.50
	MN110Z	10A	6 kA	miniature circuit breaker	1	60.50
	MN116Z	16A	6 kA	miniature circuit breaker	1	60.50
	MN120Z	20A	6 kA	miniature circuit breaker	1	60.50
	MN125Z	25A	6 kA	miniature circuit breaker	1	60.50
	MN132Z	32A	6 kA	miniature circuit breaker	1	60.50
	MN140Z	40A	6 kA	miniature circuit breaker	1	60.50
	MN150Z	50A	6 kA	miniature circuit breaker	1	84.00
	MN163Z	63A	6 kA	miniature circuit breaker	1	84.00
Double pole 2 PP 	MC202A	2A	6 kA	miniature circuit breaker	2	275.00
	MC203A	3A	6 kA	miniature circuit breaker	2	275.00
	MN206Z	6A	6 kA	miniature circuit breaker	2	217.00
	MN210Z	10A	6 kA	miniature circuit breaker	2	217.00
	MN216Z	16A	6 kA	miniature circuit breaker	2	217.00
	MN220Z	20A	6 kA	miniature circuit breaker	2	217.00
	MN225Z	25A	6 kA	miniature circuit breaker	2	217.00
	MN232Z	32A	6 kA	miniature circuit breaker	2	217.00
	MN240Z	40A	6 kA	miniature circuit breaker	2	217.00
	MN250Z	50A	6 kA	miniature circuit breaker	2	304.00
	MN263Z	63A	6 kA	miniature circuit breaker	2	304.00
Triple pole 3PP 	MC302A	2A	6 kA	miniature circuit breaker	3	439.00
	MC303A	3A	6 kA	miniature circuit breaker	3	439.00
	MN306Z	6A	6 kA	miniature circuit breaker	3	349.00
	MN310Z	10A	6 kA	miniature circuit breaker	3	349.00
	MN316Z	16A	6 kA	miniature circuit breaker	3	349.00
	MN320Z	20A	6 kA	miniature circuit breaker	3	349.00
	MN325Z	25A	6 kA	miniature circuit breaker	3	349.00
	MN332Z	32A	6 kA	miniature circuit breaker	3	349.00
	MN340Z	40A	6 kA	miniature circuit breaker	3	349.00
	MN350Z	50A	6 kA	miniature circuit breaker	3	368.00
	MN363Z	63A	6 kA	miniature circuit breaker	3	368.00
Four pole 4 PP 	MN406Z	6A	6 kA	miniature circuit breaker	4	518.00
	MN410Z	10A	6 kA	miniature circuit breaker	4	518.00
	MN416Z	16A	6 kA	miniature circuit breaker	4	518.00
	MN420Z	20A	6 kA	miniature circuit breaker	4	518.00
	MN425Z	25A	6 kA	miniature circuit breaker	4	518.00
	MN432Z	32A	6 kA	miniature circuit breaker	4	518.00
	MN440Z	40A	6 kA	miniature circuit breaker	4	518.00
	MN450Z	50A	6 kA	miniature circuit breaker	4	569.00
	MN463Z	63A	6 kA	miniature circuit breaker	4	569.00



Miniature circuit breakers (MCBs) 10kA



NC132



HLF199



NC216



NC320



HLF390

Description

Protection and control of circuits against overload and short circuits

Specifically suitable for commercial and industrial installations

Breaking capacity:

15kA IEC 60947-2 / SANS 156

10kA IEC 60898

voltage rating: 230/400V~50-60 Hz

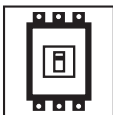
Connections - Tunnel terminal

6-63A - 25mm² rigid conductor
- 16mm² flexible conductor
80-125A - 70mm² rigid conductor
35mm² flexible conductor

Field fittable

auxiliaries / alarm contact / shunt trip
undervoltage release / earth leakage
motor operators

designation	type	current rating	breaking capacity	description	width in 17.5mm	price
NCN/HLF Series 10/15kA C CURVE 5-10 In						
Single pole 1 PP 	NCN110A	10A	10 kA	miniature circuit breaker	1	157.00
	NCN116A	16A	10 kA	miniature circuit breaker	1	157.00
	NCN120A	20A	10 kA	miniature circuit breaker	1	157.00
	NCN125A	25A	10 kA	miniature circuit breaker	1	182.00
	NCN132A	32A	10 kA	miniature circuit breaker	1	182.00
	NCN140A	40A	10 kA	miniature circuit breaker	1	182.00
	NCN150A	50A	10 kA	miniature circuit breaker	1	182.00
	NCN163A	63A	10 kA	miniature circuit breaker	1	201.00
	HLF180S	80A	10 kA	miniature circuit breaker	1.5	208.00
	HLF190S	100A	10 kA	miniature circuit breaker	1.5	241.00
	HLF199S	125A	10 kA	miniature circuit breaker	1.5	474.00
Double pole 2 PP 	NCN210A	10A	10 kA	miniature circuit breaker	2	433.00
	NCN216A	16A	10 kA	miniature circuit breaker	2	433.00
	NCN220A	20A	10 kA	miniature circuit breaker	2	433.00
	NCN225A	25A	10 kA	miniature circuit breaker	2	485.00
	NCN232A	32A	10 kA	miniature circuit breaker	2	485.00
	NCN240A	40A	10 kA	miniature circuit breaker	2	485.00
	NCN250A	50A	10 kA	miniature circuit breaker	2	485.00
	NCN263A	63A	10 kA	miniature circuit breaker	2	485.00
	HLF280S	80A	10 kA	miniature circuit breaker	3	514.00
	HLF290S	100A	10 kA	miniature circuit breaker	3	598.00
	HLF299S	125A	10 kA	miniature circuit breaker	3	875.00
Triple pole 3 PP 	NCN310A	10A	10 kA	miniature circuit breaker	3	598.00
	NCN316A	16A	10 kA	miniature circuit breaker	3	598.00
	NCN320A	20A	10 kA	miniature circuit breaker	3	598.00
	NCN325A	25A	10 kA	miniature circuit breaker	3	616.00
	NCN332A	32A	10 kA	miniature circuit breaker	3	616.00
	NCN340A	40A	10 kA	miniature circuit breaker	3	616.00
	NCN350A	50A	10 kA	miniature circuit breaker	3	616.00
	NCN363A	63A	10 kA	miniature circuit breaker	3	616.00
	HLF380S	80A	10 kA	miniature circuit breaker	4.5	813.00
	HLF390S	100A	10 kA	miniature circuit breaker	4.5	875.00
	HLF399S	125A	10 kA	miniature circuit breaker	4.5	1312.00
Four pole 4 PP 	NCN410A	10A	10 kA	miniature circuit breaker	4	1038.00
	NCN416A	16A	10 kA	miniature circuit breaker	4	1038.00
	NCN420A	20A	10 kA	miniature circuit breaker	4	1038.00
	NCN425A	25A	10 kA	miniature circuit breaker	4	1038.00
	NCN432A	32A	10 kA	miniature circuit breaker	4	1312.00
	NCN440A	40A	10 kA	miniature circuit breaker	4	1312.00
	NCN450A	50A	10 kA	miniature circuit breaker	4	1567.00
	NCN463A	63A	10 kA	miniature circuit breaker	4	1676.00
	HLF480S	80A	10 kA	miniature circuit breaker	6	1968.00
	HLF490S	100A	10 kA	miniature circuit breaker	6	1968.00
	HLF499S	125A	10 kA	miniature circuit breaker	6	2624.00



Miniature circuit breakers (MCBs) 15-25kA



NR116



HMC199



HMC399



ND116



HMD180



ND363



HMD399

Description

Protection and control of circuits against overload and short circuits
Specifically suitable for commercial and industrial installations

Breaking capacity:

10-20A 25kA
25-40A 20kA IEC 60947-2
50-125A 15kA

Connections - Tunnel terminal

6-63A - 25mm² rigid conductor
- 16mm² flexible conductor
80-125A - 70mm² rigid conductor
- 35mm² flexible conductor

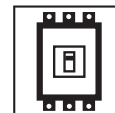
Field fittable

auxiliaries / alarm contact / shunt trip
undervoltage release / earth leakage
motor operators

voltage rating: 230/400V~50-60 Hz

designation	type	current rating	breaking capacity	description	width in 17.5mm	price
NRN/HMC Series 15-25kA		C CURVE 5-10 In				
Single pole 1 PP	NRN110	10A	25 kA	miniature circuit breaker	1	193.00
	NRN116	16A	25 kA	miniature circuit breaker	1	193.00
	NRN120	20A	25 kA	miniature circuit breaker	1	193.00
	NRN125	25A	20 kA	miniature circuit breaker	1	193.00
	NRN132	32A	20 kA	miniature circuit breaker	1	219.00
	NRN140	40A	20 kA	miniature circuit breaker	1	219.00
	NRN150	50A	15 kA	miniature circuit breaker	1	228.00
	NRN163	63A	15 kA	miniature circuit breaker	1	228.00
	HMC180	80A	15 kA	miniature circuit breaker	1	547.00
	HMC190	100A	15 kA	miniature circuit breaker	1	601.00
	HMC199	125A	15 kA	miniature circuit breaker	1	656.00
Tripple pole 3 PP	NRN310	10A	25 kA	miniature circuit breaker	1	583.00
	NRN316	16A	25 kA	miniature circuit breaker	1	583.00
	NRN320	20A	25 kA	miniature circuit breaker	1	583.00
	NRN325	25A	20 kA	miniature circuit breaker	1	583.00
	NRN332	32A	20 kA	miniature circuit breaker	1	620.00
	NRN340	40A	20 kA	miniature circuit breaker	1	620.00
	NRN350	50A	15 kA	miniature circuit breaker	1	620.00
	NRN363	63A	15 kA	miniature circuit breaker	1	620.00
	HMC380	80A	15 kA	miniature circuit breaker	1	1385.00
	HMC390	100A	15 kA	miniature circuit breaker	1	1604.00
	HMC399	125A	15 kA	miniature circuit breaker	1	2004.00
ND/HMD Series 10-15kA		D CURVE 10-20 In				
Single pole 1 PP	NDN106A	6A	10 kA	miniature circuit breaker	1	86.00
	NDN110A	10A	10 kA	miniature circuit breaker	1	86.00
	NDN116A	16A	10 kA	miniature circuit breaker	1	86.00
	NDN120A	20A	10 kA	miniature circuit breaker	1	86.00
	NDN125A	25A	10 kA	miniature circuit breaker	1	99.00
	NDN132A	32A	10 kA	miniature circuit breaker	1	99.00
	NDN140A	40A	10 kA	miniature circuit breaker	1	99.00
	NDN150A	50A	10 kA	miniature circuit breaker	1	104.00
	NDN163A	63A	10 kA	miniature circuit breaker	1	104.00
	HMD180	80A	15 kA	miniature circuit breaker	1.5	437.00
	HMD190	100A	15 kA	miniature circuit breaker	1.5	510.00
	HMD199	125A	15 kA	miniature circuit breaker	1.5	839.00
Triple pole 3 PP	NDN306A	6A	10 kA	miniature circuit breaker	3	420.00
	NDN310A	10A	10 kA	miniature circuit breaker	3	420.00
	NDN316A	16A	10 kA	miniature circuit breaker	3	420.00
	NDN320A	20A	10 kA	miniature circuit breaker	3	430.00
	NDN325A	25A	10 kA	miniature circuit breaker	3	449.00
	NDN332A	32A	10 kA	miniature circuit breaker	3	449.00
	NDN340A	40A	10 kA	miniature circuit breaker	3	456.00
	NDN350A	50A	10 kA	miniature circuit breaker	3	489.00
	NDN363A	63A	10 kA	miniature circuit breaker	3	489.00
	HMD380	80A	15 kA	miniature circuit breaker	4.5	1385.00
	HMD390	100A	15 kA	miniature circuit breaker	4.5	1603.00
	HMD399	125A	15 kA	miniature circuit breaker	4.5	2005.00

2 and 4 pole available on request



Add-on blocks and accessories

Add-on blocks and accessories for circuit breakers

Auxiliaries for MCBs (MC, MN, NC, NM, ND, HLF, HMC, HMD) and RCDs (CD, AD)

- all auxiliaries are common to both single and multi-pole circuit breakers
- these auxiliaries are fitted to the left side of devices



type			description	width in 17.5mm	price
MZ201	1NO + 1NC	6A 230VAC	auxiliary contact block	0.5	249.00
MZ202	1NO + 1NC	alarm	alarm contact block	0.5	249.00
MZ203	230 - 415 VAC		shunt tripping device	1.0	325.00
MZ204	24 - 48 VAC / 12-48VDC		shunt tripping device	1.0	272.00
MZ206	230 VAC		under voltage release	1.0	325.00

Add-on earth leakage devices

For connection to all MCBs. Designed to be mounted to the side of 2, 3 and 4 pole circuit breakers. The combined device provides effective protection against overloads, short circuits and earth leakage faults. Independent indication of "earth fault" or "overload" when tripped.



type	current rating	sensitivity (mA)	poles	description		width in 17.5mm	price
BD264	63A	30 mA	2 pole	earth leakage device		2	656.00
BD364	63A	30 mA	3 pole	earth leakage device		3	766.00
BD464	63A	30 mA	4 pole	earth leakage device		3	948.00
BP264	63A	300 mA	2 pole	earth leakage device		2	766.00
BP364	63A	300 mA	3 pole	earth leakage device		3	1020.00
BP464	63A	300 mA	4 pole	earth leakage device		3	1057.00

Add-on earth leakage devices for HLF-HMD-HMC circuit breakers

- fixed sensitivity 30mA

BDC280E	125A	30 mA	2 pole	earth leakage device	6	1276.00
BDC380E	125A	30 mA	3 pole	earth leakage device	6	1422.00
BDC480E	125A	30 mA	4 pole	earth leakage device	6	1530.00

- adjustable sensitivity 0,3 - 0,5 - 1A
- adjustable trip delay 0 - S60 - 150ms

BTC280E	125A	adjustable	2 pole	earth leakage device	6	1458.00
BTC380E	125A	adjustable	3 pole	earth leakage device	6	1603.00
BTC480E	125A	adjustable	4 pole	earth leakage device	6	1786.00

Remote control device to remotely operate (opening and closing) MCBs and RCDs

MZ901	230VAC	remote operator for MCBs and RCDs	3	2615.00
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Auto re-close device automatic reset (selectable 3 times or unlimited)

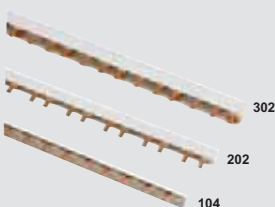
MZ911	230VAC	auto re-close operator for MCBs and RCDs	3	3280.00
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Connection accessories

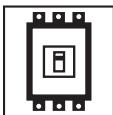
type	poles	description	section	no ways	price
KB190C	1 pole	insulated busbar system	20mm²	24	112.00
KB263C	2 pole	insulated busbar system	10mm²	24	236.00
KB363C	3 pole	insulated busbar system	10mm²	24	259.00
KB380B	3 pole	insulated busbar system	16mm²	57	471.00
KB463C	4 pole	insulated busbar system	10mm²	24	419.00
KZ022	insulated end cap for 2 pole busbar			(10pcs)	10.80
KZ023A	insulated end cap for 3 pole busbar			(10pcs)	15.50
KZ024	insulated end cap for 3 pole busbar			(10pcs)	16.20
KF81A	25mm enlarged terminal in-line entry				27.50
KF84A	25mm fully insulated enlarged terminal side entry				28.50

Accessories

1320401	clip-in modular blanking strip (plain to be cut to length)				1 meter	24.00
JP002	clip-in blanking strip 24 way module breakable sections				420mm	29.00
LZ060	dummy module/heat dissipation unit				0.5 module	5.00
MZN175	padlock attachment for MCBs and RCDs (on or off)					90.00



new



Earth leakage protection



CD241J



CD441J



AD890J



HR500



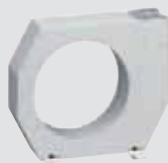
HR510



HR520



HR700



HR743

Residual current devices (RCDs) without overload protection

Description

To automatically open a circuit in the event of an earth leakage fault
Suitable for domestic, commercial and industrial installations
- nominal voltage: (2 pole) 110/240V 50Hz
(4 pole) 240/415V 50Hz

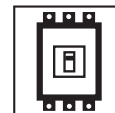
Nuisance tripping

Hager earth leakage devices are protected against nuisance tripping caused by transient leakage current

Field fittable (see page 61)

auxiliaries & remote operators (CD RCDs only)
- mechanical life: 40,000 operations
- specification SABS IEC 601008 / SANS767-1

type	overload rating (A)	sensitivity (mA)	poles	description	width in 17.5mm	price
30mA sensitivity						
CD226J	25A	30 mA	2 pole	earth leakage device	2	426.00
CD241J	40A	30 mA	2 pole	earth leakage device	2	437.00
CD264J	63A	30 mA	2 pole	earth leakage device	2	452.00
CD285Z	100A	30 mA	2 pole	earth leakage device	2	802.00
CD464J	63A	30 mA	4 pole	earth leakage device	4	1064.00
CD485Z	100A	30 mA	4 pole	earth leakage device	4	1276.00
100 / 300mA sensitivity (selective type)						
CE264J	63A	100 mA	2 pole	earth leakage device	2	489.00
CF264J	63A	300 mA	2 pole	earth leakage device	2	583.00
CF285Z	100A	300 mA	2 pole	earth leakage device	4	875.00
CF464J	63A	300 mA	4 pole	earth leakage device	4	1202.00
CF485Z	100A	300 mA	4 pole	earth leakage device	4	2122.00
Combination MCB/RCD (circuit breaker and earth leakage combination)						
<i>(with overload protection)</i>						
AD Series	4.5kA	C curve 5-10In				
AD 866J	16A	30 mA	2 pole	earth leakage + MCB	2	692.00
AD 870J	20A	30 mA	2 pole	earth leakage + MCB	2	692.00
AD 875J	25A	30 mA	2 pole	earth leakage + MCB	2	692.00
AD 882J	32A	30 mA	2 pole	earth leakage + MCB	2	692.00
AD 890J	40A	30 mA	2 pole	earth leakage + MCB	2	692.00
Industrial electronic earth Leakage relay with separate toroid						
<i>Incorporating "test" and "reset" buttons and LED indication</i>						
Fixed sensitivity, instantaneous trip						
HR500	220/240V	30 mA	4 pole	entry level e/leakage relay	1	1021.00
HR502	220/240V	300 mA	4 pole	entry level e/leakage relay	1	986.00
Adjustable sensitivity and trip delay						
• Selectable I _{Δn} threshold : 0.03A/0.1A/0.3A/0.5/1A/10A (30mA - 10A) • Selectable trip delay : 0/0.15/0.35/0.55/1sec/3sec (0-3sec)						
HR510	220/240V	selectable	4 pole	earth leakage relay	3	1375.00
HR520	as above	as above with fault current indication and 50% pre-alarm output			3	1585.00
Separate torroid sensors						
HR700	round hole torroid	dia 30mm		DIN rail mountable		634.00
HR742	round hole torroid	dia 70mm		standard torroid		670.00
HR743	round hole torroid	dia 105mm		standard torroid		1232.00
HR745	round hole torroid	dia 210mm		standard torroid		2465.00
HR830	rectangular hole torroid	dia 70 x 175mm		standard torroid		6160.00



Control and indicating devices

Control relays

- 16A 250V 1 NO + 1 NC (for low power circuits max 16A)
- Manual override selector (1 - Auto - 0)

type	description	supply	contact	width in 17.5mm	price
ER120	16A (AC1) modular relay	230 VAC	1NO + 1NC	1	177.00
ER123	16A (AC1) modular relay	24 VAC	1NO + 1NC	1	182.00
EP071	2A clip-on auxiliary for above		1NO + 1NC	0.5	246.00

Stepping relays (pulse - "on" - pulse - "off")

EP515	modular stepping relay	230 VAC	1NO + 1NC	1	177.00
EP518	modular stepping relay	24 VAC/12 VDC	1NO + 1NC	1	177.00
EP519	modular stepping relay	12 VAC	1NO + 1NC	1	177.00
EP051	clip-on auxiliary for above		1NO + 1NC	0.5	151.00
EP053	impulse converter for maintained contact		1 changeover	0.5	151.00

Contactors (230 VAC 50/60 Hz)

type	rating AC1	poles	description	contact	price
ES110	25A	1	modular contactor	1 NO	190.00
ES210	25A	2	modular contactor	1 NO + 1 NC	227.00
ES220	25A	2	modular contactor	2 NO	220.00
ES220A	25A	2	modular contactor (man.override)	2 NO	226.00
ES230	25A	2	modular contactor	2 NC	220.00
ES420	25A	4	modular contactor	4 NO	285.00
ES420A	25A	4	modular contactor (man.override)	4 NO	290.00
ES430	25A	4	modular contactor	4 NC	285.00
ES440	40A	4	modular contactor	4 NO	493.00
ES480	40A	4	modular contactor	4 NC	493.00
ES463	63A	4	modular contactor	4 NO	568.00
EP071	auxiliary (for above contactors)			1 NO + 1 NC	246.00

Control and indicating devices

Indicator lights (LED 10,000 Hrs)

SVN121	green	230VAC	LED indicating light	1	93.00
SVN122	red	230VAC	LED indicating light	1	93.00
SVN123	amber	230VAC	LED indicating light	1	93.00
SVN126	grn + red	230VAC	(double) indicating light	1	131.00
SVN131	green	12-48VAC/DC	LED indicating light	1	93.00
SVN132	red	12-48VAC/DC	LED indicating light	1	93.00

Pushbuttons

SVN351	pushbutton (momentary) 1NO + 1NC	1	131.00
SVN391	double pushbutton green (NO) red (NC)	1	131.00
SVN411	pushbutton (NO) + LED indicating light (green)	1	121.00

Control transformers

ST303	230V - 8/12V	8VA	modular rail mount transformer	2	227.00
ST305	230V - 8/12V	16VA	modular rail mount transformer	3	378.00
ST312	230V - 12/24V	25VA	modular rail mount transformer	4	364.00
ST314	230V - 12/24V	40VA	modular rail mount transformer	4	409.00
ST315	230V / 12/24V	63VA	modular rail mount transformer	6	549.00

Audible devices

SU213	230V	~ modular bell	1	138.00
SU214	8/12V AC	~ modular buzzer	1	138.00
SU215	230V	~ modular buzzer	1	138.00



ER120



EP071



EP518



EP051



ES220



ES420



ES463



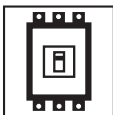
SVN.....



ST314



SU213



Modular accessories



EH010

EH211



EH111



EH191



EG103B



EG103E



EG004



EG005



EG493E

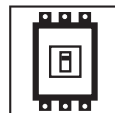


EZ006

new

new

type	time range	min. setting	reserve	contact	width in 17.5mm	price
Time switches 16A 250V electro-mechanical 230 VAC 50 Hz AC1						
Slimline 1 module wide (18mm)						
EH010	24 hr	15 min	-	1 NO	1	347.00
EH011	24 hr	15 min	200 hrs	1 NO	1	391.00
Standard 2 module wide (36mm) (clock hands indicate time)						
EH210	24 hr	30 min	-	1 c/over	2	360.00
EH211	24 hr	30 min	200 hrs	1 c/over	2	572.00
Standard 3 module (54mm) (clock hands indicate time)						
EH110	24 hr	15 min	-	1 c/over	3	360.00
EH111	24 hr	15 min	200 hrs	1 c/over	3	570.00
EH171	7 day	2 hr	200 hrs	1 c/over	3	674.00
Dual dial (1 dial 7 day/1 dial 24hr)						
EH191	7 day / 24 hr	15 min / 2 hr	200 hrs	1 c/over	5	973.00
Digital time switches (programmable via buttons or via P.C. programmable key)						
2 module (35mm wide) incorporate many innovative facilities to accommodate ease of programming even without the supply voltage						
• indicates date and time (pre-programmed at factory) • visualisation of daily profile via incorporated bar-graph display • programmable via front keypad or program key "EG005" • up to 56 program steps						
Basic version (programming key to be ordered separately) 230VAC						
EG103B	7 day	1 min	5 years	1 c/over	2	777.00
Exclusive version (supplied with programming key) 230 VAC 50 / 60 Hz						
Impulse time switch (suitable for school-bell ringing / lunch-tea break)						
• programmable pulses of 1 sec - 30 min duration • "holiday" mode programmable (between two dates) • backlit display (for indication in badly illuminated places)						
EG103E	7 day	1 sec	5 years	1 c/over	2	1114.00
EG203E	7 day + 7 day	1 sec	5 years	2 c/over	2	1232.00
12 / 24V AC/DC (supplied with programming key)						
EG103V	7 day	1 sec	5 years	1 c/over	2	1138.00
4 Channel yearly time switch (102 program steps)						
EG403E	week/year	1 min	10 years	2 c/o + 2 NC	4	4920.00
Accessories						
EG003	PC interface module and programming software for EG series					1516.00
EG004	locking key (for disabling front keypad)					95.00
EG005	programming key (for down / up loading of program) EG103/203E					144.00
EG002	programming key (for down / up loading of program) EG400					530.00
Modular electronic timers						
• multi-range 0.1s-10h • multi-voltage 12-48VDC 12-230VAC ±10% • 10A 230V changeover output						
EZN001	on-delay multi-range (modular electronic timer)				1	619.00
EZN002	delay-on-de-energisation (modular electronic timer)				1	706.00
EZN003	interval / (modular electronic timer)				1	619.00
EZN004	pulse controlled interval (modular electronic timer)				1	696.00
EZN006	multi-function on-delay / off-delay / interval / repeat timer				1	772.00



Surge protection and Kwh meters

SABS IEC 61643-1

new



SPN802



SPN240D



SPN440R



SPN040D



EC150

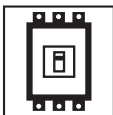


EC350

type	poles	Up	limp (10/350µs)	Imax (8/20µs)	description	width in 17.5mm	price
Hagerventil class 1 and Class 2 combination surge protection							
3-phase + neutral in one device - for installation in class 1 and class 2 application according to IEC61643-1 - plug-in replaceable cartridges - operating state/fault indication on front facia							
SPN802	4(3ph+n)	≤1.5kV	100kA	-	class 1 & 2 surge protector	8	14210.00
SPN802R	as above but with remote signalling contact for monitoring					8	16710.00
Class 2 heavy duty surge protection devices with high discharge capacity							
- with plug-in replaceable cartridge - high discharge current capacity 8/20µs waveform - protection for domestic, industrial and commercial buildings - operating state/fault indication on front facia							
SPN140D	1p	≤1.5kV	-	40kA	class 2 surge protector	1	685.00
SPN140R	as above but with remote signalling contact for monitoring					1	1173.00
SPN240D	2(1ph+n)	≤1.5kV	-	40kA	class 2 surge protector	2	1478.00
SPN240R	as above but with remote signalling contact for monitoring					2	1671.00
SPN440D	4(1ph+n)	≤1.5kV	-	40kA	class 2 surge protector	4	2729.00
SPN440R	as above but with remote signalling contact for monitoring					4	3555.00
SPN215D	2(1ph+n)	≤1.5kV	-	15kA	class 2 surge protector	2	1326.00
SPN415D	4(3ph+n)	≤1.5kV	-	15kA	class 2 surge protector	4	1857.00
Replacement cartridges for above devices							
SPN040D	phase replacement cartridge for			protectors SPN240/440		1	570.00
SPN015D	phase replacement cartridge for			protectors SPN215/415		1	570.00
SPN040N	neutral replacement cartridge for			protectors SPN215/415/240/440		1	644.00
Kwh meters							
- class 1 according to IEC62-053-21 and EN50470 - modular DIN rail mounting - impulse output - total and partial display							
type	current	operation	description			width in 17.5mm	price
Single phase Kwh meter 63/100A (direct reading)							
- displays consumption of active energy - displays instantaneous power consumption - accuracy 1% - total and partial counter - LED indication blinking according to consumption impulse output 1 pulse=100wH - back light LCD - unlimited memory of measurement information							
EC150	63A	direct reading	single phase Kwh meter			3	1350.00
Three phase Kwh meter up to 63A (direct reading)							
- displays consumption of active energy - displays instantaneous power consumption - accuracy 1% - total and partial counter - LED indication blinking according to consumption impulse output 1 pulse=100wH - back light LCD - fault indication (current sense not respected, phase order) - protected against phase/neutral inversion - adapted to various networks (3ph with or without neutral, 230 or 400V between lines) - unlimited memory of measurement information							
EC350	63A	direct reading	three phase Kwh meter			4	2700.00
EC360	100A	direct reading	three phase Kwh meter			7	4440.00

new

new



Kwh meters / enclosures



EC370

new



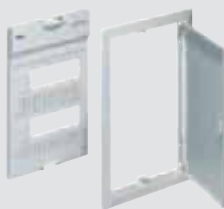
GD106A



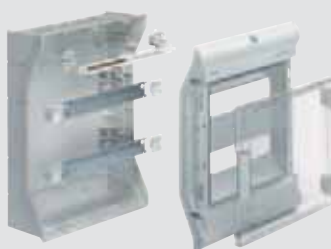
GD110T



GZ04N



VU24D



VE212

type	current	operation	description	17.5mm width in	price
Three phase Kwh meter up to 6000A (connection via current transformer)					
• displays consumption of active energy • displays consumption of reactive energy • displays instantaneous power consumption • accuracy 1% • LED indication blinking according to consumption impulse output 1 pulse=100wH • back light LCD • fault indication (current sense not respected, phase order) • no polarity for CT connection • adapted to various networks (3ph with or without neutral, 230 or 400V between lines) • unlimited memory of measurement information					
EC370	6000A	CT operated	three phase Kwh meter	4	2738.00

type	no. of ways	description	dimensions H x W x D	price
Surface shrouds IP30 (incorporates DIN rail profile - lead sealable)				
• incorporated labelling facility • hinge doors available (see below)				
GD102B	2 way	IP30 surface mount shroud	160 x 55 x 82	32.00
GD104B	4 way	IP30 surface mount shroud	180 x 110 x 82	44.00
GD106B	6 way	IP30 surface mount shroud	180 x 146 x 82	52.00
GD110B	10 way	IP30 surface mount shroud	180 x 218 x 82	106.00
GP102T		transparent horizontally hinged door for GD102	GD102	57.00
GP104T		transparent horizontally hinged door for GD104	GD104	64.00
GP106T		transparent horizontally hinged door for GD106	GD106	68.00
GP110T		transparent horizontally hinged door for GD110	GD110	75.00
GZ104S		terminal support bracket (clip-in) for (GZ04E/N)	GD104	11.30
GZ106S		terminal support bracket (clip-in) for (GZ04E/N)	GD106	11.30
GZ110S		terminal support bracket (clip-in) for (GZ04E/N)	GD110	15.30
GZ04E		insulated earth terminal (2 x 16 + 2 x 10 ²) clip onto bracket		21.00
GZ04N		insulated neutral terminal (2 x 16 + 2 x 10 ²) clip onto bracket		21.00

Volta series exclusive flush mount boards IP41 (Class II)

- high quality, aesthetically pleasing
- sheet-metal front frame and door - robust wall tray
- complete with fully insulated earth and neutral bars (quick connect)

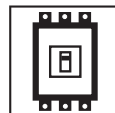
VU12NR	12	flush mount distribution board	336 x 348 x 96	454.00
VU24NR	24 (2x12)	flush mount distribution board	461 x 348 x 96	530.00
VU36NR	36 (3x12)	flush mount distribution board	586 x 348 x 96	644.00
VU48NR	48 (4x12)	flush mount distribution board	711 x 348 x 96	720.00

Vector IP65 weatherproof surface mount (standard transparent door)

- rear adjustment screws for mounting on uneven surfaces
- can be connected side by side
- knock-out cable entries top, bottom, sides
- adjustable DIN rail depth (to accomodate MCCBs up to 160A)
- supplied complete with earth and neutral terminals

VE103L	3 way	IP65 surface distribution board	111 x 175 x 93	191.00
VE106L	6 way	IP65 surface distribution board	190 x 165 x 113	223.00
VE110L	10 way	IP65 surface distribution board	210 x 237 x 114	251.00
VE112L	12 way	IP65 surface distribution board	302 x 310 x 151	353.00
VE118L	18 way	IP65 surface distribution board	302 x 418 x 151	513.00
VE212L	24 way	IP65 surface distribution board	452 x 418 x 151	582.00
VE218L	36 way	IP65 surface distribution board	602 x 418 x 151	804.00
VE318L	54 way	IP65 surface distribution board	602 x 418 x 151	1009.00

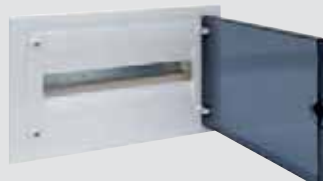
VZ711	empty support for earth/neutral/phase terminals for Volta/Vector (see pg 73 for terminals)			23.00
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Distribution boards / enclosures

New Golf series flush and surface mount enclosures

- stylish trendsetting design, sophisticated appearance
- unbreakable door hinges (left or right hinged)
- new extra clear patented marking system



VF118T

new



VF218T



VS118T

new



VS318T



VZ794N



VZ789N



VZ696N

new



VZXXXX

type	no. of ways	description	dimensions H x W x D	price
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New VF range enclosures (flush mounting) IP40 (with door)

- from 8 way - 54 way boards (8/12/18 way rows)
- 70mm installation depth.
- incorporates hollow wall anchor supports (hollow wall mounting brackets optional)
- opaque door (transparent door available on request)
- door opening 180° hinge left or right mountable (optional key lock facility)
- pre-cut, progressively sized knock-outs for cable and conduit entry
- cable tie fixing posts (incorporated)
- accepts (optional) cable retaining clips
- cable can be run in space behind circuit breaker mounting rail
- earth/neutral terminals included
- colour: RAL 9010 glow wire test: 650°C according to UNE 60595-2-1
- conforms to IEC60493-3 and RoHs directives

VF108TJ	8	flush mount distribution board	189 x 242 x 72	188.00
VF112TJ	12	flush mount distribution board	257 x 318 x 72	222.00
VF118TJ	18	flush mount distribution board	257 x 426 x 72	240.00
VF212TJ	24(2x12)	flush mount distribution board	382 x 318 x 72	298.00
VF218TJ	36(2x18)	flush mount distribution board	382 x 426 x 72	374.00
VF318TJ	54(3x18)	flush mount distribution board	507 x 426 x 72	433.00

New VS range enclosures (surface mount) IP40 (with door)

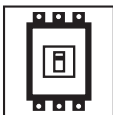
- from 4 way - 54 way surface boards 4/12/18 way rows
- ample wiring space 125mm between DIN profiles (side cable channel).
- opaque door (transparent door available on request)
- door opening 180° hinge left or right mountable (optional key lock facility)
- enclosures can be joined together (horizontally or vertically)
- cable tie fixing posts (incorporated)
- accepts (optional) cable retaining clips
- pre-cut, progressively sized knock-outs for cable and conduit entry
- pre-cut profiles for trunking entry
- earth/neutral terminals included
- colour: RAL 9010 glow wire test: 650°C according to UNE 60595-2-1

VS104TJ	4	surface mount distribution board	184 x 138 x 99	146.00
VS108TJ	8	surface mount distribution board	184 x 210 x 99	176.00
VS112TJ	12	surface mount distribution board	252 x 282 x 99	240.00
VS118TJ	18	surface mount distribution board	257 x 390 x 99	257.00
VS212TJ	24(2x12)	surface mount distribution board	377 x 282 x 99	327.00
VS218TJ	36(2x18)	surface mount distribution board	377 x 390 x 99	403.00
VS318TJ	54(3x18)	surface mount distribution board	500 x 390 x 99	493.00

Accessories

VZ794N	key lock facility for golf range enclosures	(2pcs)	183.00
VZ696N	hollow wall mounting brackets for flush enclosures	(4pcs)	106.00
VZ699N	cable retaining guides for all enclosures 12 - 54 way	(4pcs)	88.00
VZ789N	mounting screw cover caps + horizontal assembly kit for VS		28.00
VZ786N	brick wall fixing brackets for fixing flush enclosures VF	(4pcs)	39.00
VZ787N	transparent label holder for VF/VS enclosures	(5 pcs)	106.00
VZ788N	labelling sticker for VF/VS enclosures	(10 pcs)	106.00

VZ603N	plain door (polycarbonate) for enclosures	VF/VS 112	67.00
VZ604N	plain door (polycarbonate) for enclosures	VF/VS 212	95.00
VZ607N	plain door (polycarbonate) for enclosures	VF/VS 118	95.00
VZ608N	plain door (polycarbonate) for enclosures	VF/VS 218	120.00
VZ609N	plain door (polycarbonate) for enclosures	VF/VS 318	137.00



Distribution boards / enclosures



VP72G



VP54M



VP54M



FD42A



FU62A



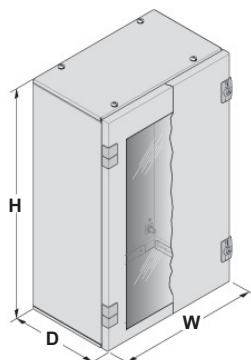
UK22A2

new

type	no. of ways	IP	description	dimensions H x W x D	price
Polycarbonate enclosures IP65					
- IP65 protection / insulation class II - plain door 140°opening - complete with chassis plate and mounting brackets - colour: RAL 7035 (grey)					
VP20G	empty	IP65	polycarbonate enclosure	350 x 250 x 160	924.00
VP36G	empty	IP65	polycarbonate enclosure	500 x 300 x 160	1238.00
VP54G	empty	IP65	polycarbonate enclosure	550 x 400 x 210	1598.00
VP72G	empty	IP65	polycarbonate enclosure	650 x 400 x 210	1742.00
Distribution board (as above but with following accessories)					
- fitted with DIN rail and modular covers (accepts modular devices and MCBs) - with smoked transparent hinge door - includes earth and neutral terminals					
VP36M	36(3 x 12)	IP65	polycarbonate distribution board	500 x 300 x 160	1490.00
VP54M	54(3 x 18)	IP65	polycarbonate distribution board	550 x 400 x 210	1866.00
VP72M	72(4 x 18)	IP65	polycarbonate distribution board	650 x 400 x 210	2120.00
Accessories					
VP03Z	blank front modular cover		for VP36M	150 x 300 -	67.00
VP04Z	blank front modular cover		for VP54/72M	150 x 400 -	79.00
VP01Z	replacement key type locking handle				112.00
Quadro series surface and flush mounting distribution boards					
- designed for electrical installations up to 250A - sheet metal and injected plastic IP41 (with door fitted) - doors (transparent) supplied seperately - internal support for additional neutral / phase terminals					
type	no. rows (24 way)		description	dimensions H x W x D	price
Surface mounting boards					
FD22D	2 (48)		surface mount distribution board	400 x 550 x 185	2280.00
FD32D	3 (72)		surface mount distribution board	550 x 550 x 185	2540.00
FD42D	4 (96)		surface mount distribution board	700 x 550 x 185	2950.00
FD52D	5 (120)		surface mount distribution board	850 x 550 x 185	3130.00
FD62D	6 (144)		surface mount distribution board	1000 x 550 x 185	3715.00
FD72D	7 (168)		surface mount distribution board	1150 x 550 x 185	3980.00
Flush mounting board					
FU22D	2 (48)		flush mounting distribution board	500 x 600 x 152	2610.00
FU32D	3 (72)		flush mounting distribution board	650 x 600 x 152	3190.00
FU42A*	4 (96)		flush mounting distribution board	800 x 600 x 172	3190.00
FU52A*	5 (120)		flush mounting distribution board	950 x 600 x 172	3610.00
FU62A*	6 (144)		flush mounting distribution board	1100 x 600 x 172	3815.00
FU72A*	7 (168)		flush mounting distribution board	1250 x 600 x 172	3990.00
* supplied without top two rows. To be completed with internal module to accept: main switch-MCCB (up to 250A)-modular devices mounting on chassis					
Doors sheet metal with transparent glass front (hinged left or right)					
FD22T	transparent sheet metal door (hinged "L" or "R") for		FD/FU22	682.00	
FD32T	transparent sheet metal door (hinged "L" or "R") for		FD/FU32	720.00	
FD42T	transparent sheet metal door (hinged "L" or "R") for		FD/FU42	832.00	
FD52T	transparent sheet metal door (hinged "L" or "R") for		FD/FU52	910.00	
FD62T	transparent sheet metal door (hinged "L" or "R") for		FD/FU62	986.00	
FD72T	transparent sheet metal door (hinged "L" or "R") for		FD/FU72	1099.00	
Internal modules (to fill upper 2 row spaces on FD/FU 42, 52, 62, 72)					
UD22B3	2 row standard chassis with modular DIN cover			460.00	
UK22A2	for MCCBs 16-160A (up to 5 3pole)			840.00	
UK22B3	for MCCBs 250A (mounted sideways)			880.00	
UD22C2	perforated adjustable chassis (W415 x H235mm) with plain front cover			1230.00	
JP002	24 way blanking strip with breakable modular sections			29.00	
UT90B	spare plastic quarter turn screws for front covers (ea)			6.20	

Additional earth/neutral/phase terminals (see pg 73)

Enclosures IP65 (sheetmetal and polyester)



IP65
Colour: RAL 7035 (light grey)
Surface mounting
Sheet steel 15/10 thick

Chassis supplied separately
CEI EN 60439-1



Dimensions(mm)			Modular		Enclosures		
H	W	D	Height (mm)	Rows 150mm(H)	Sheet metal	Polyester	Chassis Plate
300	250	160	-	-	FL102A	-	FL402A
350	300	160	300	2	FL104A	FL204B	FL404A
500	300	200	450	3	FL110A	FL209B	FL407A
500	400	200	450	3	FL112A	FL213B	FL408A
650	400	200	600	4	FL117A	FL216B	FL412A
650	500	250	600	4	FL120A	FL221B	FL413A
800	600	300	750	5	FL124A	FL229B	FL415A
950	800	300	900	6	FL128A	-	FL417A
1250	800	300	1200	8	FL130A	-	FL419A

Sheet metal enclosures (surface mounting) IP65, colour: RAL 7035 (light grey)

- IP65 protection, insulation class I (powder coated epoxy polyester)
- front door with foamed gasket opening 140°, hinged left or right
- interior kits for conversion to distribution facility (for mounting MCBs and modular products)
- full sized top and bottom gland plates (enclosures can be mounted on top of each other)

type	protection	description	dimensions H x W x D	price
FL102A	IP65	surface mount sheet metal enclosure	300 x 250 x 160	835.00
FL104A	IP65	surface mount sheet metal enclosure	350 x 300 x 160	940.00
FL110A	IP65	surface mount sheet metal enclosure	500 x 300 x 200	1125.00
FL112A	IP65	surface mount sheet metal enclosure	500 x 400 x 200	1270.00
FL117A	IP65	surface mount sheet metal enclosure	650 x 400 x 200	1415.00
FL120A	IP65	surface mount sheet metal enclosure	650 x 500 x 250	1670.00
FL124A	IP65	surface mount sheet metal enclosure	800 x 600 x 300	1960.00
FL128A	IP65	surface mount sheet metal enclosure	950 x 800 x 300	2500.00
FL130A	IP65	surface mount sheet metal enclosure	1250 x 800 x 300	2900.00

*Above enclosures with transparent door (Add suffix T to part no.)

+20%
on above

Polyester enclosures (surface mounting) IP65, colour: RAL 7035 (light grey)

- IP65 protection, insulation class II
- waterproof hood top and bottom (incorporated)
- front door with foamed gasket opening 180°, hinged left or right

FL204B	IP65	surface mount polyester enclosure	350 x 300 x 160	1240.00
FL209B	IP65	surface mount polyester enclosure	500 x 300 x 200	1410.00
FL213B	IP65	surface mount polyester enclosure	500 x 400 x 200	1560.00
FL216B	IP65	surface mount polyester enclosure	650 x 400 x 200	1960.00
FL221B	IP65	surface mount polyester enclosure	650 x 500 x 250	2390.00
FL229B	IP65	surface mount polyester enclosure	800 x 600 x 300	3120.00

Chassis plates

FL402A	internal sheetmetal chassis plate for enclosure	FL102	127.00
FL404A	internal sheetmetal chassis plate for enclosure	FL104/204	132.00
FL407A	internal sheetmetal chassis plate for enclosure	FL110/209	199.00
FL408A	internal sheetmetal chassis plate for enclosure	FL112/213	218.00
FL412A	internal sheetmetal chassis plate for enclosure	FL117/216	276.00
FL413A	internal sheetmetal chassis plate for enclosure	FL120/221	330.00
FL415A	internal sheetmetal chassis plate for enclosure	FL124/229	470.00
FL417A	internal sheetmetal chassis plate for enclosure	FL128	690.00
FL419A	internal sheetmetal chassis plate for enclosure	FL130	870.00



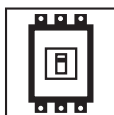
FL117A



FL110+547



FL404A



Internal Door	Functional Chassis (complete) (*) no. ways	Blank Covers		Plinth
		H 150mm	H 300mm	
-	-	-	-	-
FL544A	FL979A (24)	FL711E	-	-
FL547A	FL981A (36)	FL711E	-	-
FL548A	FL982A (54)	FL712E	-	-
FL551A	FL983A (72)	FL712E	-	-
FL552A	FL994A (96)	FL713E	FL733E	FL958A
FL555A	FL996A (140)	FL714E	FL734E	FL960A
FL557A	FL998A (216)	FL715E	FL735E	FL962A
FL559A	FL000A (288)	FL715E	FL735E	FL962A



Internal door assembly				
FL544A	internal door and mounting kit	for enclosure	FL104/204	800.00
FL547A	internal door and mounting kit	for enclosure	FL110/209	870.00
FL548A	internal door and mounting kit	for enclosure	FL112/213	910.00
FL551A	internal door and mounting kit	for enclosure	FL117/216	980.00
FL552A	internal door and mounting kit	for enclosure	FL120/221	1020.00
FL555A	internal door and mounting kit	for enclosure	FL124/229	1270.00
FL557A	internal door and mounting kit	for enclosure	FL128	1490.00
FL559A	internal door and mounting kit	for enclosure	FL130	1670.00
Functional chassis (complete) for mounting modular products and MCB'S				
FL979A	24 way (2x12)	complete modular chassis system	FL104/204	436.00
FL981A	36 way (3x12)	complete modular chassis system	FL110/209	510.00
FL982A	54 way (3x18)	complete modular chassis system	FL112/213	650.00
FL983A	72 way (4x18)	complete modular chassis system	FL117/216	950.00
FL994A	96 way (4x24)	complete modular chassis system	FL120/221	1090.00
FL996A	140 way (5x28)	complete modular chassis system	FL124/229	1460.00
FL998A	216 way (6x36)	complete modular chassis system	FL128	1890.00
FL000A	288 way (8x36)	complete modular chassis system	FL130	2270.00
Blank front covers (1 row - 50/150/300mm)				
FL711E	150mm	blank front cover for	FL104/10/FL204/9	91.00
FL712E	150mm	blank front cover for	FL112/17/FL213/16	127.00
FL713E	150mm	blank front cover for	FL120/221	138.00
FL714E	150mm	blank front cover for	FL124/229	164.00
FL715E	150mm	blank front cover for	FL128/130	210.00
FL733E	300mm	blank front cover for	FL112/17/FL213/16	470.00
FL734E	300mm	blank front cover for	FL120/221	510.00
FL735E	300mm	blank front cover for	FL124/229	550.00
Plinths				
FL958A	base mount plinth system for enclosures		FL120/221	1090.00
FL960A	base mount plinth system for enclosures		FL124/229	1230.00
FL962A	base mount plinth system for enclosures		FL128/130	1420.00
Accessories				
FL670A	seal kit for mounting enclosures one above another			128.00
FL85Z	metallic mounting brackets for sheet metal enclosures			57.00
FL863E	plastic mounting brackets for polyester enclosures			68.00
FL96ZX01	lever handle door lock (without key) for all enclosures			73.00
FL96Z	lever handle door lock (with key) for all enclosures			80.00

Quadro 5 distribution board system (IP55)



FM208



FM108 / 208



FM429



FM569

Quadro 5 accepts equipment kits for the assembly of devices and power distribution up to 630A.

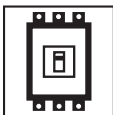
Quadro 5 floor standing distribution board system, requires:

- 1) main frame (high 2010mm / wide 450-700-900mm / deep 260-400mm)
- 2) side plates (left and right)
- 3) door (plain or transparent) hinged from left or right
- 4) required front covers and assembly rails
 - for miniature circuit breakers and modular devices
 - moulded case circuit breakers

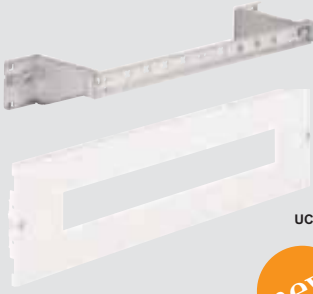
The system offers a sophisticated aesthetically pleasing protected (IP55 with door) enclosure which can be attached side-by-side to one another horizontally to satisfy most distribution board requirements.

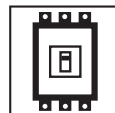
- class of protection:
 - IP30, IK 08 without door to EN60529
 - IP55, IK 10 with door to EN60529
 - indirect contacts class 1,
- normal insulation voltage: $U_i = 690V\sim$
- short circuit current rating: 35kA
- colour: RAL9010, plinth (150mm) is in RAL7042 (grey)

type	description	dimensions H x W x D	price
Height 2010mm (1800mm interior equipment height)			
• suitable for 12 rows (10/24 way) 150mm high or 9 rows 200mm high			
Depth 260mm (back/top plate/plinth)			
FM109	upright basic frame (narrow)	2010 x 450 x 260	5560.00
FM209	upright basic frame (standard)	2010 x 700 x 260	6130.00
FM309*	upright basic frame (wide) with cable compart.	2010 x 900 x 260	7130.00
* requires cable compartment kit FM429 (below)			
• comprising: back support plate / pillar for front plate / full front plate			
FM429	cable compartment kit for (wide)	FM309 2010 x 200 x 260	1615.00
Depth 400mm (requires functional upright kit FM479 for mounting modular devices)			
FM119	upright basic frame (narrow)	2010 x 450 x 400	6350.00
FM219*(1)	upright basic frame (standard)	2010 x 700 x 400	7425.00
FM319*(1/2)	upright basic frame (wide)	2010 x 900 x 400	7800.00
*(1) requires functional upright kit FM479			
*(2) requires cable compartment kit FM429 (below)			
FM439	cable compartment kit for (wide)	FM319 2010 x 200 x 400	1310.00
comprising: back support plate / pillar for front plate / full front plate			
FM479	functional upright kit for	FM219/319 2010	910.00
to bring devices forward in 400mm deep enclosure			
Side panels (set of 2 panels) for right and left sides			
FM409	pair of side panels for 260mm deep enclosures	2010 x 260	1070.00
FM419	pair of side panels for 400mm deep enclosures	2010 x 400	1490.00
Doors (hinged from right or left)			
FM519	plain sheet metal hinged door for	FM109/119 2010 x 450	1790.00
FM539	plain sheet metal hinged door for	FM209/219 2010 x 700	2280.00
FM559	plain sheet metal hinged door for	FM309/319 2010 x 900	2610.00
FM549	transparent metal hinged door for	FM209/219 2010 x 700	3080.00
FM569	transparent metal hinged door for	FM309/319 2010 x 900	3960.00



Quadro 5 distribution board system (IP55)

	type	description	dimensions H x W	price
 UC201  UC830  50280410  FM635  FM640  UC990  UC915  FM653	Equipment kits for modular devices			
	• includes mounting brackets, DIN rail and modular front cover			
	For narrow boards FM109/119 (450mm wide)			
	UC200	distribution front cover (10 x modular devices)	150 x 250	260.00
	UC010H	main device front cover for MCCBs 16-160A	300 x 250	458.00
	UC020H	main device front cover for MCCBs 250A	300 x 250	774.00
	UC140H	main device front cover for MCCBs 400/630A	400 x 250	950.00
	UC224	plain front cover 300mm for FM109/119	300 x 250	183.00
	UC225	plain front cover 400mm for FM109/119	400 x 250	299.00
	UC226	plain front cover 600mm for FM109/119	600 x 250	286.00
	For standard and wide boards FM209/309/219/319 (700/900mm wide)			
	UC201	distribution front cover (24 x modular devices)	150 x 500	420.00
	UC205	distribution front cover (24 x modular devices)	200 x 500	498.00
	UC011H	main device front cover for MCCBs 16-160A	300 x 500	757.00
	UC021H	main device front cover for MCCBs 250A	300 x 500	933.00
	UC141H	main device front cover for MCCBs 400/630A	400 x 500	1090.00
	UC050H	main device front cover for MCCBs 800/1000A	600 x 500	1750.00
	UC231	plain front cover 50mm for FM209/219/309/319	50 x 500	195.00
	UC239	plain front cover 100mm for FM209/219/309/319	100 x 500	210.00
	UC232	plain front cover 150mm for FM209/219/309/319	150 x 500	230.00
	UC233	plain front cover 200mm for FM209/219/309/319	200 x 500	320.00
	UC234	plain front cover 300mm for FM209/219/309/319	300 x 500	240.00
	UC235	plain front cover 400mm for FM209/219/309/319	400 x 500	330.00
	UC236	plain front cover 600mm for FM209/219/309/319	600 x 500	420.00
	UC951	adjustable DIN rail for terminals (inclined 20°)		195.00
	Chassis plates (plain) for standard boards (700/900mm wide)			
	FM483	plain chassis plates for FM207/219/319	200 x 500	206.00
	FM484	plain chassis plates for FM207/219/319	300 x 500	248.00
	FM485	plain chassis plates for FM207/219/319	400 x 500	362.00
	FM486	plain chassis plates for FM207/219/319	600 x 500	440.00
	Busbar supports			
	UC830	250A 4 pole side mount stepped busbar support (ea) side vertical mounting 250A (simply clips onto vertical profile) - supports 4 x staged bars 20 x 5mm 250A 35kA		84.00
	5028 0410	250A 4 pole horizontal mount stepped busbar support (ea) horizontal mounting 250A (bolts onto vertical profile) - supports 4 x staged bars 20-32 x 5mm 250A 35kA		125.00
	01485	630A 4 pole horizontal/vertical mount flat busbar support (ea) flat bar support 160 - 630A (requires brackets UC811/UC812 to mount) - supports 4 x flat bars 15-30mm x 5(or)10mm 630A 35kA		206.00
	UC811	support bracket for 01485 supports (ea) - vertical mounting bars for (narrow) panel 450mm(w) - horizontal mounting bars for (narrow/standard) panels		152.00
	UC812	support bracket for 01485 supports (ea) - vertical mounting bars for (standard) panel 700mm(w)		180.00
	Accessories			
	FM635	horizontal joining kit (side by side mounting of frames)		343.00
	FM640	wall mounting bracket (lugs) (2pcs)		84.00
	FM653	screw in lifting ring set (2pcs)		96.00
	UC268	hinged set for modular covers (hinged from left or right)		58.00
	UC990	clip-in M6 cage nuts for base plate vertical profile		12.00
	UC915	clip-in cable trunking support (60m vertical/40m horizontal)		30.00
	UZ25V1	rail mount cable clamp / guide		89.00
	JP002	blanking strip (24 modules wide) breakable sections		30.00
	FZ516	replacement square 6 x 6mm key lock insert		20.00
	JE003	spare transparent self-adhesive marking strips (24 way)		23.00
	UC988	universal crossbars for mounting accessories (250mm wide)		113.00
	UC289	universal crossbars for mounting accessories (500mm wide)		172.00



Termination systems



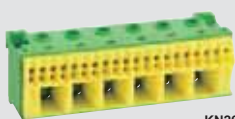
KM13E



KM13N



KN00A



KN26E



KN22N



KN99



KJ02C



KJ02A



KJ01B



KJ02E

Rail mountable earth/neutral terminals (clips vertically onto rail)

KM13N	rail mountable neutral terminal (blue)	6x16 + 7x10mm ²	30.00
KM13E	rail mountable earth terminal (green)	6x16 + 7x10mm ²	30.00

Busbar system and accessories

type	supply 1.5...25mm ²	out 1.5...4mm ²	description	price
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Terminal support (clips into various distribution boards)

KN00A	universal terminal support	DIN rail mount (horizontal or vertical) 105mm	19.00
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Distribution terminals fully insulated clips onto above support

Incoming	1.5...25mm ² screw clamp terminal
outgoing	1.5... 4mm ² quick connect cage clamp terminals (push-in)

KN10E	63A	2 x 25mm ²	8 x 4mm ²	insulated earth terminal (green)	44.00
KN18E	63A	4 x 25mm ²	14 x 4mm ²	insulated earth terminal (green)	53.00
KN26E	63A	6 x 25mm ²	20 x 4mm ²	insulated earth terminal (green)	64.00
KN99E	earth insulated bridge piece for above terminals (10 pcs)				95.00
KN10N	63A	2 x 25mm ²	8 x 4mm ²	insulated neutral terminal (blue)	44.00
KN18N	63A	4 x 25mm ²	14 x 4mm ²	insulated neutral terminal (blue)	53.00
KN26N	63A	6 x 25mm ²	20 x 4mm ²	insulated neutral terminal (blue)	64.00
KN99N	neutral insulated bridge piece for above terminals (10 pcs)				95.00
KN10P	63A	2 x 25mm ²	8 x 4mm ²	insulated phase terminal (brown)	44.00
KN18P	63A	4 x 25mm ²	14 x 4mm ²	insulated phase terminal (brown)	53.00
KN26P	63A	6 x 25mm ²	20 x 4mm ²	insulated phase terminal (brown)	64.00
KN99P	phase insulated bridge piece for above terminals (10 pcs)				95.00
KN04N	90A	4 x 25mm ²	screw clamp	insulated neutral terminal (blue)	29.00
KN07N	90A	7 x 25mm ²	screw clamp	insulated neutral terminal (blue)	30.00
KN04P	90A	4 x 25mm ²	screw clamp	insulated phase terminal (brown)	29.00
KN07P	90A	7 x 25mm ²	screw clamp	insulated phase terminal (brown)	30.00

Single pole distribution blocks (fully protected) lcc: 36kA

- space saving
- IP20 protection
- DIN rail or bolt down mounting
- one main cable input - various cable outputs

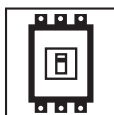
type	amps	incoming terminals	outgoing terminals (per phase) mm ²					lcc kA	poles	price
			1.5...6	2.5...10	2.5...16	2.5...25	6...35			
KJ02D	125A	1x35/1x16mm ²			6			36	1 pole	220.00
KJ02C	160A	70mm ²			6			36	1 pole	352.00
KJ02A	250A	95mm ²		4	5	2		36	1 pole	455.00
KJ02B	400A	150mm ²		4	5	2		36	1 pole	493.00

Multi-pole distribution blocks (3Ph+N distribution bars in modular format)

- modular DIN rail mounting (mounts through modular front cut-out)
- high fault level
- IEC 60947-1

type	amps	incoming terminals	outgoing terminals (per phase) mm ²					lcc kA	poles	price
			1.5...6	2.5...10	2.5...16	2.5...25	6...35			
KJ01A	100A	35mm ²			10	1		29	2 pole	318.00
KJ01B	80A	16mm ²		8				21	4 pole	318.00
KJ01C	125A	35mm ²			10	1		29	4 pole	360.00
KJ01D	160A	50mm ²			8		3	20	4 pole	1098.00
KJ02E	100A	25mm ²	5/4*	2/6*				20	4 pole	341.00

* = neutral terminals



Occupancy sensors

	type	description		price
 EE804  EE805		If the sensor detects movement and if the ambient light level is below the preset limit, lights are switched on for a preset time period. EE804 and EE805 are 360° indoor movement detectors with a built-in light-sensitive switching function. They are ideal for use in interior circulation areas such as corridors, entrance halls, bathrooms etc. supply voltage 230V ~50Hz switching current 8A AC1 (1000W incandescent) lux adjustment 5 - 1000 lux operating time 5s - 15min detection range 6 meters		
	EE804	surface mount occupancy sensor	10A (AC1)	291.00
	EE805	flush mount occupancy sensor	10A (AC1)	310.00
	Basic sensors IP55			
		EE820 and EE830 offer numerous mounting possibilities and are suitable for both indoor and outdoor applications. They provided comfort and enhanced security and guarantee significant savings in lighting power consumption by illuminating only when necessary. supply voltage 230V ~ 50Hz switching current 10A AC1 (1500W incandescent) lux adjustment 5 - 1000 lux operating time (ADJ) pulse, 5s - 15min detection range 16 meters mounting wall, ceiling (with accessory), corner - inner or outer		
 EE820  EE860	EE820	140° surface mount occupancy sensor	10A (AC1)	391.00
	EE830	200° flush mount occupancy sensor	10A (AC1)	444.00
	Enhanced sensors IP55			
 EE870  EE825  EE806		EE850, EE860 and EE870 also offer numerous mounting possibilities, with vertical and horizontal adjustment and area limitation with shutters. They are suitable for both indoor and outdoor applications. Settings for lux, time and sensitivity are adjustable using concealed potentiometers or with an optional IR remote control. supply voltage 230V +10%/-15% switching current 16AAC1 lux adjustment 5 - 1000 lux (2300W incandescent) operating time (ADJ) pulse, 5s - 15min (up to 30min with remote control) sensitivity adjustment min 20%, max 100% detection range 16 meters (+6m for twin model EE870) mounting wall, ceiling (with accessory), corner - inner or outer		
	EE850	140° surface mount occupancy sensor	16A (AC1)	604.00
	EE860	220° surface mount occupancy sensor	16A (AC1)	622.00
	EE870	220° + 360° surface mount occupancy sensor	16A (AC1)	675.00
	Accessories			
	EE825	corner mount accessory (inner/outer)	for EE820/830	43.00
	EE827	ceiling mount accessory	for EE820/830	50.00
	EE855	corner mount accessory (inner/outer)	for EE850/860/870	43.00
	EE806	IR remote control for enhanced series	for EE850/860/870	356.00
<i>permits setting of time, sensitivity, lux, detection angle, lock, unlock settings, test, override, on/off</i>				

Moulded case circuit breakers (MCCB) 16-1600A

H3 Circuit Breakers conform to standards IEC/EN 60947-2 and to all major international standards and performance categories.

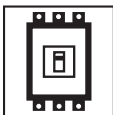
- suitable for co-ordinated installations in all applications
- thermal magnetic and electronic release
- calibrated at 50°C

Cascading with MCBs (see cascading chart on pg 225)

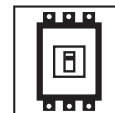
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			Fixed type	Fixed type	Fixed type	Standard	Standard
Type			HHA...Z	HHB...Z	HHD...U	HNA...U	HNB...U
No. of poles			1-2-3-4	3-4	3-4	3-4	3-4
Electrical Ratings (IEC 60947-2)			TM	TM	TM	TM	TM
Rated uninterrupted current	I _u (A) at 50°C		160	250	400	160	250
Rated voltage	U _e V a.c.		440	440	690	690	690
Rated voltage	U _e V d.c.		250	250	250	250	250
Rated insulation voltage	U _i (V a.c.)		690	800	800	800	800
Rated impulse withstand voltage	U _{imp} (kV)		8	8	8	8	8
Utilization category			A	A	A	A	A
Rated current of release	I _n (A)		16	200	400	25	250
			20	250		40	
			25			63	
			32			100	
			40			125	
			50			160	
			63				
			80				
			100				
			125				
			160				
Performance	220/230V a.c.	(I _{cu}) kA	35	35	35	85	85
Rated ultimate short-circuit, breaking capacity, (I _{cu}) 50-60Hz	380/415V a.c.	(I _{cu}) kA	25	25	25	40	40
	480/525V a.c.	(I _{cu}) kA	18	25	22	25	25
	660/690V a.c.	(I _{cu}) kA	6	6	-	6	6
	250V d.c. (2P)	(I _{cu}) kA	25	25	25	25	25
Service breaking capacity	I _{cs} (%I _{cu})		100%	100%	100%	50%	50%
Rated making capacity	I _{cm} (kA) @ 400VAC		52.5	52.5	52.5	84	84
Durability	mechanical	operations	20 000	20 000	15 000	20 000	20 000
	electrical	operations	10 000	10 000	4500	10 000	10 000
Adjustable thermal release			fixed 1 x I _n	fixed 1 x I _n	0,63-1 I _n	0,63-0,8-1 I _n	0,63-0,8-1 I _n
Adjustable magnetic			>10 I _n (No adj.)	>10 I _n (No adj.)	6-12 I _n	>10 I _n	5-11 I _n
Time delay (Electronic release)			-	-	-	-	-
Suitability for isolation			•	•	•	•	•
Thermal magnetic release			•	•	•	•	•
Electronic release							
Accessories							
Auxiliary/shunt trip/under volt. release			•	•	•	•	•
motor operator/mechan. interlocks				•	•		•
Dimensions	frame		x160	x250	h400	x160	x250
High (with extended terminals)	mm		130	165	260	130	165
Wide (3 pole)	mm		75	105	140	75	105
Deep (without toggle)	mm		68	68	97	68	68



Standard	Standard	Standard	Standard	Standard	High Fault	High Fault	High Fault	High Fault
HND...U	HND...U	HNE...U	HNE...U	HNH...U	HEG...U	HED...U	HEE...U	HEF...U
3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4
TM	LSI	LSI	LSI	LSI	TM	LSI	LSI	LSI
400	630	800	1000	1250/1600	250	630	800/1000	1250/1600
690	690	690	690	690	690	690	690	690
250	250	250	250	250	250	250	250	250
690	690	690	690	690	690	690	690	690
8	8	8	8	8	6	8	8	8
A	A	A	A	A	A	A	A	A
400	630	800	1000	1250	63	630	800	1250
				1600	100		1000	1600
					160			
					250			
85	85	85	85	100	85	100	100	100
50	50	50	50	50	65	70	70	70
30	30	30	30	45	25	65/75	65	70
20	20	20	20	25	7.5	20	20	45
40	-	-	-	-	40	-	-	-
100%	100%	100%	100%	100%	55%	85%	70%	70%
110	110	110	110	110	143	154	154	154
15 000	15 000	15 000	15 000	15 000	30 000	15 000	15 000	15 000
4500	4500	4500	4500	4500	10 000	4500	4500	4500
0,63-1 In	0,4-1 In	0,4-1 In	0,4-1 In	0,4-1 In	0,63-1 In	0,4-1 In	0,4-1 In	0,4-1 In
6-12 In	2,5-8 In	2,5-10 In	2,5-8 In	2,5-10 In	6-8-11-13 x In	2,5-10 In	2,5-10 In (800A)/2,5-8 In (1000A)	2,5-10 In
-	0,1-0,2 sec	0,1-0,2 sec	0,1-0,2 sec	0,1-0,2 sec	-	0,1-0,2 sec	0,1-0,2 sec	0,1-0,2 sec
•	•	•	•	•	•	•	•	•
•					•			
	•	•	•	•		•	•	•
•	•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•	•
h400	h630	h1000	h1000	h1600	h250	h630	h1000	h1600
260	260	273/433	273/433	370/570	165	260	273/433	370/570
140	140	210	210	210	105	140	210	210
97	97	100	145	140	68	97	100	140



Moulded case circuit breakers (MCCBs)

Standard range 40/50kA (adjustable)

Standards IEC60947-2

Mechanical "test" button on facia

Lockable thermal / magnetic settings

x160/250 - integrated padlock facility on toggle
- window indicating presence of Aux, shunt trip, UV release

Cascading with MCBs (see cascading chart on pg 225)

"Clip-in" Accessories

- auxiliary contacts
- alarm contacts
- shunt trip device
- undervoltage release



HNA025U



HNB250U



HND630U



HNE970U



HCF990U

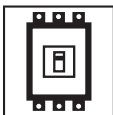
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new

new

type	frame	rated kA 415V(lcu)	poles	description	thermal current	price
x160 Frame (H) 130 x (W) 75 x (D) 96mm						
TM: adjustable thermal 0.63 - 0.8 - 1 x In / fixed magnetic >10 x In						
HNA025U	x160	40kA	3 P	moulded case CB	16-25A	1050.00
HNA040U	x160	40kA	3 P	moulded case CB	25-40A	1050.00
HNA063U	x160	40kA	3 P	moulded case CB	40-63A	1050.00
HNA100U	x160	40kA	3 P	moulded case CB	63-100A	1050.00
HNA125U	x160	40kA	3 P	moulded case CB	80-125A	1180.00
HNA160U	x160	40kA	3 P	moulded case CB	101-160A	1296.00
x250 Frame (H) 165 x (W) 105 x (D) 96mm (including toggle)						
TM: adjustable thermal 0.63 - 0.8 - 1 x In / adjustable magnetic 5-7-9-11 x In						
HNB250U	x250	40kA	3 P	moulded case CB	160-250A	2690.00
h400 Frame (H) 260 x (W) 135 x (D) 145mm (including toggle)						
TM: adjustable thermal 0.63 - 1 x In / adjustable magnetic 6-12 x In						
HND400U	h400	50kA	3 P	moulded case CB	252-400A	5950.00
Electronic release						
h630 Frame (H) 260 x (W) 135 x (D) 145mm (including toggle)						
LSI: adjustable thermal 0.4 - 1 x In / magnetic 2.5-8 x Ir / time 0,1-0.2sec						
HND630U	h630	50kA	3 P	moulded case CB	252-630A	8950.00
h1000 Frame (H) 433 x (W) 210 x (D) 145mm (supplied with extended terminals)						
LSI: adjustable thermal 0.4 - 1 x In / magnetic 2.5-10 x Ir / time 0,1-0.2sec						
HNE800U	h1000	50kA	3 P	moulded case CB	320-800A	12620.00
HNE970U	h1000	50kA	3 P	moulded case CB	400-1000A	15800.00
h1600 Frame (H) 433 x (W) 210 x (D) 145mm (supplied with extended terminals)						
LSI: adjustable thermal 0.4 - 1 x In / magnetic 2.5-10 x Ir / time 0,1-0.2sec						
HNF980U	h1600	50kA	3 P	moulded case CB	500-1250A	20900.00
HNF990U	h1600	50kA	3 P	moulded case CB	640-1600A	26600.00
Load break switches (isolators)						
HCA125Z	x160	-	3 P	load break switch (isolator)	125A	780.00
HCA160Z	x160	-	3 P	load break switch (isolator)	160A	960.00
HCB250Z	x250	-	3 P	load break switch (isolator)	250A	1780.00
HCD400U	h400	-	3 P	load break switch (isolator)	400A	3300.00
HCD630U	h630	-	3 P	load break switch (isolator)	630A	6300.00
HCE800H	h1000	-	3 P	load break switch (isolator)	800A	8900.00
HCE970H	h1000	-	3 P	load break switch (isolator)	1000A	13550.00
HCF980U	h1600	-	3 P	load break switch (isolator)	1250A	19800.00
HCF990U	h1600	-	3 P	load break switch (isolator)	1600A	22700.00

4 pole MCCBs available list price x 1.40



Moulded case circuit breakers (MCCBs)



HEG063U

new



HED630U

new



HEE970U



HHA025Z

new



HHA025Z



HHD400U

High fault level
Standards

65/70kA
IEC60947-2

type	frame	rated kA 415V(Icu)	poles	description	thermal current	price
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h250 Frame (H) 165 x (W) 105 x (D) 96

TM: adjustable thermal 0.63 - 1 x In / magnetic 6-8-11-13 x In

HEG063U	h250	65kA	3 P	moulded case CB	40-63A	2750.00
HEG100U	h250	65kA	3 P	moulded case CB	63-100A	2750.00
HEG160U	h250	65kA	3 P	moulded case CB	100-160A	2880.00
HEG250U	h250	65kA	3 P	moulded case CB	160-250A	3300.00

Electronic release

h630 Frame (H) 260 x (W) 140 x (D) 145mm

LSI: adjustable thermal 0.4 - 1 x In / magnetic 2.5-10 x Ir / time 0,1-0.2sec

HED400U	h630	70kA	3 P	moulded case CB	160-400A	8800.00
HED630U	h630	70kA	3 P	moulded case CB	252-630A	9860.00

h1000 Frame (H) 433 x (W) 210 x (D) 145mm

LSI: adjustable thermal 0.4 - 1 x In / magnetic 2.5-10 x Ir / time 0,1-0.25sec

HEE800U	h1000	70kA	3 P	moulded case CB	320-800A	16200.00
HEE970U	h1000	70kA	3 P	moulded case CB	400-1000A	19360.00

h1600 Frame (H) 570 x (W) 210 x (D) 191mm

LSI: adjustable thermal 0.40 - 1 x In / magnetic 2.5-10 x Ir / time 0,1-0.25sec

HEF980U	h1600	70kA	3 P	moulded case CB	500-1250A	23920.00
HEF990U	h1600	70kA	3 P	moulded case CB	640-1600A	33400.00

Fixed type 25kA thermal / magnetic trip (TM)

Standards

IEC60947-2

x160 Frame (H) 130 x (W) 75 x (D) 96mm (including toggle)

Fixed: thermal 1 x In / fixed magnetic >10 x In

HHA016Z	x160	25kA	3 P	moulded case CB	16A	898.00
HHA020Z	x160	25kA	3 P	moulded case CB	20A	898.00
HHA025Z	x160	25kA	3 P	moulded case CB	25A	898.00
HHA032Z	x160	25kA	3 P	moulded case CB	32A	898.00
HHA040Z	x160	25kA	3 P	moulded case CB	40A	898.00
HHA050Z	x160	25kA	3 P	moulded case CB	50A	898.00
HHA063Z	x160	25kA	3 P	moulded case CB	63A	898.00
HHA080Z	x160	25kA	3 P	moulded case CB	80A	898.00
HHA0100Z	x160	25kA	3 P	moulded case CB	100A	898.00
HHA0125Z	x160	25kA	3 P	moulded case CB	125A	960.00
HHA0160Z	x160	25kA	3 P	moulded case CB	160A	1160.00

x250 Frame (H) 165 x (W) 105 x (D) 96mm (including toggle)

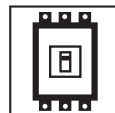
Fixed: thermal 1 x In / fixed magnetic >10 x In

HHB200Z	x250	25kA	3 P	moulded case CB	200A	2150.00
HHB250Z	x250	25kA	3 P	moulded case CB	250A	2150.00

h400 Frame (H) 260 x (W) 185 x (D) 145mm (including toggle)

adjustable thermal 0.63 - 1 x In / adjustable magnetic 6-12 x In

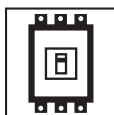
HHD400U	h400	25kA	3 P	moulded case CB	252-400A	5250.00
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Moulded case circuit breakers (MCCBs)



type			description			price
Accessories for MCCBs						
Auxiliaries contacts INO + INC						
HXA021H	INO + INC	auxiliary contact	(AX)	x160-250	618.00	
HXC021H	INO + INC	auxiliary contact	(AX)	h250-1600	618.00	
HXA024H	INO + INC	alarm contact	(AL)	x160-250	618.00	
HXC024H	INO + INC	alarm contact	(AL)	h250-1600	618.00	
Shunt trip units						
HXA00*H	*see below	shunt trip device	(SH)	x160-250	435.00	
HXC00*H	*see below	shunt trip device	(SH)	h250-1600	520.00	
* 1=24VDC / 3=110VDC / 4=230VAC / 5=400VAC (other voltages on request)						
Undervoltage release (UV)						
HXA01*H	*see below	undervoltage release	(UV)	x160-250	806.00	
HXC01*H	*see below	undervoltage release	(UV)	h250-630	806.00	
HXE01*H	*see below	undervoltage release	(UV)	h1000-1600	806.00	
* 1=24VDC / 3=110VAC / 4=230VAC / 5=440VAC (other voltages on request)						
Rotary handles (padlockable in “off” position)						
HXA030H	direct front mounting rotary handle max ø 6mm			x160	830.00	
HXB030H	direct front mounting rotary handle			x250	830.00	
HXD030H	direct front mounting rotary handle			h400/630	990.00	
HXE030H	direct front mounting rotary handle			h1000	1220.00	
HXF030H	direct front mounting rotary handle			h1600	1680.00	
HXA031H	vary-depth door interlocking rotary handle			x160	890.00	
HXB031H	vary-depth door interlocking rotary handle			x250	990.00	
HXD031H	vary-depth door interlocking rotary handle			h400/630	1150.00	
HXE031H	vary-depth door interlocking rotary handle			h1000	3750.00	
HXF031H	vary-depth door interlocking rotary handle			h1600	4250.00	
Terminals and mounting accessories						
HYB001H	collar terminal (set of 3)	150mm²	for breaker	x250	1320.00	
HYD003H	collar terminal (set of 3)	240mm²	for breaker	h630	1480.00	
HYA014H	spreader link terminals	(3 pole)	for breaker	x160	490.00	
HYB011H	spreader link terminals	(3 pole)	for breaker	x250	560.00	
HYC011H	spreader link terminals	(3 pole)	for breaker	h250	598.00	
HYD014H	spreader link terminals	(3 pole)	for breaker	h400/630	1025.00	
HYA019H	interphase barriers (3 per set)		for breaker	x160	198.00	
HYB019H	interphase barriers (3 per set)		for breaker	x250	231.00	
HYA027H	terminal cover	(3 pole)	for breaker	x160	297.00	
HYB021H	extended terminal cover	(3 pole)	for breaker	x250	297.00	
HYG021H	extended terminal cover	(3 pole)	for breaker	h250	365.00	
HYD021H	extended terminal cover	(3 pole)	for breaker	h400/630	462.00	
HYE021H	extended terminal cover	(3 pole)	for breaker	h1000	925.00	
HYA033H	DIN rail adaptor for MCCBs		for breaker	x160	198.00	
Special contained palm cable lugs for MCCBs						
A12-M6/15	50mm²	M6 x	contained palm cable lug	x/h250	12.00	
A17-M6/17	70mm²	M6 x	contained palm cable lug	x/h250	19.00	
A19-M8/19	95mm²	M6 x	contained palm cable lug	x/h250	28.00	
A24B-M8/19	120mm²	M6 x	contained palm cable lug	x/h250	39.00	
A30B-M8/19	150mm²	M6 x	contained palm cable lug	x/h250	58.00	
A37-M12/31	185mm²	M6 x	contained palm cable lug	x/h250	78.00	
A48-M12/31	240mm²	M6 x	contained palm cable lug	x/h250	110.00	



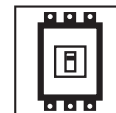
Air circuit breakers (ACBs)

Hager's ACBs conform to standards IEC/EN 60947-2 and to all major international standards and performance categories.

- easy terminal conversion horizontal - vertical
- many built in safety features
- easy inspection and maintenance facilities



Type				HWG	HWN	HWS	HWP
No. of poles				3/4			
Frame				1	2		3
Rated uninterrupted current at	40°C		A	1000,1250	1250, 1600,2000	2000, 2500, 3200	3200, 4000
Rated operational voltage at	50/60Hz	Ue	V	690			
Rated insulation voltage at	50/60Hz	Ui	V	1000			
Rated impulse withstand voltage		Uimp	kV	12			
Utilization category				B			
Compliance				EN60947-2, IEC60947-2, GB14048-2			
Rated ultimate	400/415V - 50/60Hz	Icu	KA	50	65	80	100
Short circuit	500/550V - 50/60Hz	Icu	KA	42	55	70	85
Breaking capacity	660/690V - 50/60Hz	Icu	KA	42	50	50	75
Rated service short circuit breaking capacity		Ics	(% Icu)	100%	100%	100%	100%
Rated short time	0.5 Sec	Icw	KA	50	65	80	100
Withstand	1.0 Sec	Icw	KA	42	65	65	70
Capacity	3.0 Sec	Icw	KA	25	26	35	50
Rated short	400/415V - 50/60Hz	Icw	KA	105	143	176	220
Circuit making	500/550V - 50/60Hz	Icw	KA	88	121	154	187
Capacity	660/690V - 50/60Hz	Icw	KA	88	105	121	165
Opening time		Nt	ms	40	40	40	40
Closing time			ms	60	60	60	60
Overload	Current setting	I _r = I _n x...	A	0.4-0.5-0.6-0.7-0.75-0.8-0.85-0.9-0.95-1.0			
	Time delay	T _r at 6 x I _r	Sec	0.5-1-2-4-6-8-12-18-24-30			
Short-circuit	Current setting	I _s = I _n x...	A	0.6-1.0-1.5-2-3-4-6-8-9-10			
	Time delay, T _s OFF		ms	20-100-200-300-400			
	Time delay, T _s ON	10xI _n -I ² t	ms	20-100-200-300-400			
Instantaneous	Current setting	I _p = I _n x...	A	1.5-2-3-4-5-6-8-10-12-MAX			
Mechanical life			no. of cycles	20 000	20 000	15 000	10 000
Frequency of operation		Mechanical	cycles/hour	60			
Electrical life			no. of cycles	10 000	8 000	5 000	5 000
Frequency of operation		Electrical	cycles/hour	40	40	30	20
Pitch I/C - O/G			mm	105			
Pitch	Ph-Ph		mm	100	100	133.3	200
Terminal width			mm	80	80	100	165
Dimensions	Width 3 pole	Fixed	mm	347	347	447	647
	Width 4 pole		mm	447	447	581	847
	Depth		mm	355			
	Height		mm	430			
	Width 3 pole	Drawout	mm	347	347	347	647
	Width 4 pole		mm	447	447	447	847
	Depth		mm	418	421		
	Height		mm	433			
Weight	3 pole	Fixed	kg	39	39	59	86
	4 pole		kg	48	48	71	108
	3 pole	Drawout	kg	70	70	88	124
	4 pole		kg	84	84	106	160



Air circuit breakers (ACBs)

Air circuit breakers supplied standard with:

	fixed	draw-out
Auxiliary contacts (4NO + 4NC)	•	•
Panel door ingress seal (flange for compartment door)	•	•
Contact for closing spring loaded indication	•	•
Cradle of draw-out circuit breaker		•
Operation (racking) crank handle		•
Shroud for on/off buttons (padlockable)	•	•
Safety shutters (padlockable top and bottom)		•
LSI microprocessor protection and control unit (mechanical trip indication)	•	•

current setting $I_r = I_n \times \dots$	A	0.4-0.5-0.6-0.7-0.8-0.85-0.9-0.95-1.0
time delay at $6 \times I_r$	s	0.5-1-2-4-6-8-12-18-24-30
short circuit $I_s = I_n \times \dots$	A	0.6-1.0-1.5-2-3-4-6-8-9-10
time delay $T_s 10 \times I_n - I^2 t$	ms	20-100-200-300-400
instantaneous trip $I_p = I_n \times \dots$	A	1.5-2-3-4-5-6-8-10-12-MAX
LED indications		power on, overload, short-circuit, instantaneous, percentage load

(LSIG) control unit including earth fault protection available on request

type	breaking capacity kA rms 415V	description	frame	thermal adjustment	price
Draw-out type air circuit breakers 3 pole (Supplied with cradle)					
HWG310A3	50kA	3 pole air circuit breaker (draw-out)	1	400 - 1000A	32200.00
HWG312A3	50kA	3 pole air circuit breaker (draw-out)	1	500 - 1250A	32720.00
HWN312A3	65kA	3 pole air circuit breaker (draw-out)	1	500 - 1250A	33850.00
HWN316A3	65kA	3 pole air circuit breaker (draw-out)	1	640 - 1600A	34100.00
HWN320A3	65kA	3 pole air circuit breaker (draw-out)	1	800 - 2000A	44990.00
HWS320A3	80kA	3 pole air circuit breaker (draw-out)	2	800 - 2000A	51560.00
HWS325A3	80kA	3 pole air circuit breaker (draw-out)	2	1000 - 2500A	54250.00
HWS332A3	80kA	3 pole air circuit breaker (draw-out)	2	1280 - 3200A	70150.00
HWP340A3	100kA	3 pole air circuit breaker (draw-out)	3	1600 - 4000A	85925.00
Draw-out type air circuit breakers 4 pole (Supplied with cradle)					
HWN416A3	65kA	4 pole air circuit breaker (draw-out)	1	640 - 1600A	44450.00
HWN420A3	65kA	4 pole air circuit breaker (draw-out)	1	800 - 2000A	59720.00
HWS425A3	80kA	4 pole air circuit breaker (draw-out)	2	1000 - 2500A	68550.00
HWS432A3	80kA	4 pole air circuit breaker (draw-out)	2	1280 - 3200A	93180.00
HWP440A3	100kA	4 pole air circuit breaker (draw-out)	3	1600 - 4000A	114260.00
Fixed type air circuit breakers 3 pole					
HWG310C3	50kA	3 pole air circuit breaker (fixed type)	1	400 - 1000A	22470.00
HWG312C3	50kA	3 pole air circuit breaker (fixed type)	1	500 - 1250A	23510.00
HWN312C3	65kA	3 pole air circuit breaker (fixed type)	1	500 - 1250A	25100.00
HWN316C3	65kA	3 pole air circuit breaker (fixed type)	1	640 - 1600A	25800.00
HWN320C3	65kA	3 pole air circuit breaker (fixed type)	1	800 - 2000A	32120.00
HWS320C3	80kA	3 pole air circuit breaker (fixed type)	2	800 - 2000A	38520.00
HWS325C3	80kA	3 pole air circuit breaker (fixed type)	2	1000 - 2500A	45250.00
HWS332C3	80kA	3 pole air circuit breaker (fixed type)	2	1280 - 3200A	52250.00
HWP340C3	100kA	3 pole air circuit breaker (fixed type)	3	1600 - 4000A	64500.00
Fixed type air circuit breakers 4 pole					
HWN416C3	65kA	4 pole air circuit breaker (fixed type)	1	640 - 1600A	34250.00
HWN420C3	65kA	4 pole air circuit breaker (fixed type)	1	800 - 2000A	46820.00
HWS425C3	80kA	4 pole air circuit breaker (fixed type)	2	1000 - 2500A	54230.00
HWS432C3	80kA	4 pole air circuit breaker (fixed type)	2	1280 - 3200A	72750.00
HWP440A3	100kA	4 pole air circuit breaker (fixed type)	3	1600 - 4000A	83390.00



HWP432C3



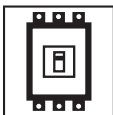
HWN320A3



HWP432A3



HWN320C3



Air circuit breakers (ACBs) accessories



HWX213



HWX253



HWX233



HWX313



HWY121



HWY321



HWW211

type	voltages	description	price
Shunt opening release			
HWX213	240 VAC	shunt opening release for all air circuit breakers	1050.00
HWX214	415 VAC	shunt opening release for all air circuit breakers	1050.00
HWX215	24 VDC	shunt opening release for all air circuit breakers	1050.00
Shunt closing release			
HWX253	240 VAC	shunt closing release for all air circuit breakers	1050.00
HWX254	415 VAC	shunt closing release for all air circuit breakers	1050.00
HWX255	24 VDC	shunt closing release for all air circuit breakers	1050.00
Under voltage release			
HWX233	240 VAC	undervoltage release for all air circuit breakers	2660.00
HWX234	415 VAC	undervoltage release for all air circuit breakers	2660.00
HWX235	24 VDC	undervoltage release for all air circuit breakers	2660.00
HWX243	240 VAC	undervoltage release for all ACBs (with delay 1-3s)	3025.00
HWX244	415 VAC	undervoltage release for all ACBs (with delay 1-3s)	3025.00
Electric charging device (motor)			
HWX313	240 VAC	motor for automatic charging of closing spring	5570.00
HWX314	415 VAC	motor for automatic charging of closing spring	5570.00
HWX315	24 VDC	motor for automatic charging of closing spring	5570.00
Protection and control units (LSI supplied standards with ACBs)			
HWW322	LSI std advanced microprocessor based control and protection unit		6250.00
HWW324	LSIG (as above but with earth fault protection)		7250.00
Mechanical interlocking kits (cable type for horizontal or vertical interlocking)			
Up to three circuit breakers fixed/drawout/mixed versions can be mechanically interlocked in horizontal or vertical configurations			
HWY121	mechanical interlock (kit)	(for two incommers)	1550.00
HWY122	mechanical interlock (kit)	(for three incommers)	2550.00
HWY123	mechanical interlock (kit)	(for two incommers and one standby)	2550.00
HWY124	mechanical interlock (kit)	(for two incommers and one bus coupler)	2550.00
HWY112	door interlock mechanism for all air circuit breakers		480.00
HWY211	mechanical operation counter for all air circuit breakers		786.00
Accessories			
HWY141	OFF button key lock facility		325.00
HWY131	key locking arrangement (for all positions)		325.00
HWY151	key locking arrangement (for isolated position)		325.00
HWY114	spare door ingress seal for fixed ACB		396.00
HWY115	spare door ingress seal for drawout ACB		396.00
Terminals adaptors (convertable from horizontal to vertical)			
HWY311*	terminal adaptor for frame 1 1000-2000A (ea)		616.00
HWY321	terminal adaptor for frame 2 2000-2500A (ea)		830.00
HWY324	terminal adaptor for frame 2 3200A (ea)		1660.00
One adaptor required per ACB terminal * 2 adaptors required per 4000A terminal			
Neutral current transformer (external) for use with LSIG release			
HWW216	1600A	external neutral CT for air circuit breakers (frame 1)	3750.00
HWW217	2000A	external neutral CT for air circuit breakers (frame 1)	3750.00
HWW227	2500A	external neutral CT for air circuit breakers (frame 2)	4920.00
HWW233	3200A	external neutral CT for air circuit breakers (frame 3)	9800.00
HWW234	4000A	external neutral CT for air circuit breakers (frame 3)	9800.00