



The Sentry range of Consumer Units from MK Electric has been stylishly designed to blend in with its environment. The curved lines and slim-line appearance mean it won't look out of place when installed in hallways, lounges or kitchens of new properties. The range expanded includes a 21-module unit for larger installations and also a 4-module unit to cater for small one-off installations and extensions to existing ones.

Attractive design

Curved lines, low profile appearance and magnolia colour let the unit blend with its environment. Available in 4 to 21 module sizes

Flush mounting versions

Flush mounting available for even neater installations

Protective lid

Opaque and downward opening lid conceals protective devices and unsightly labelling

Floating busbar system

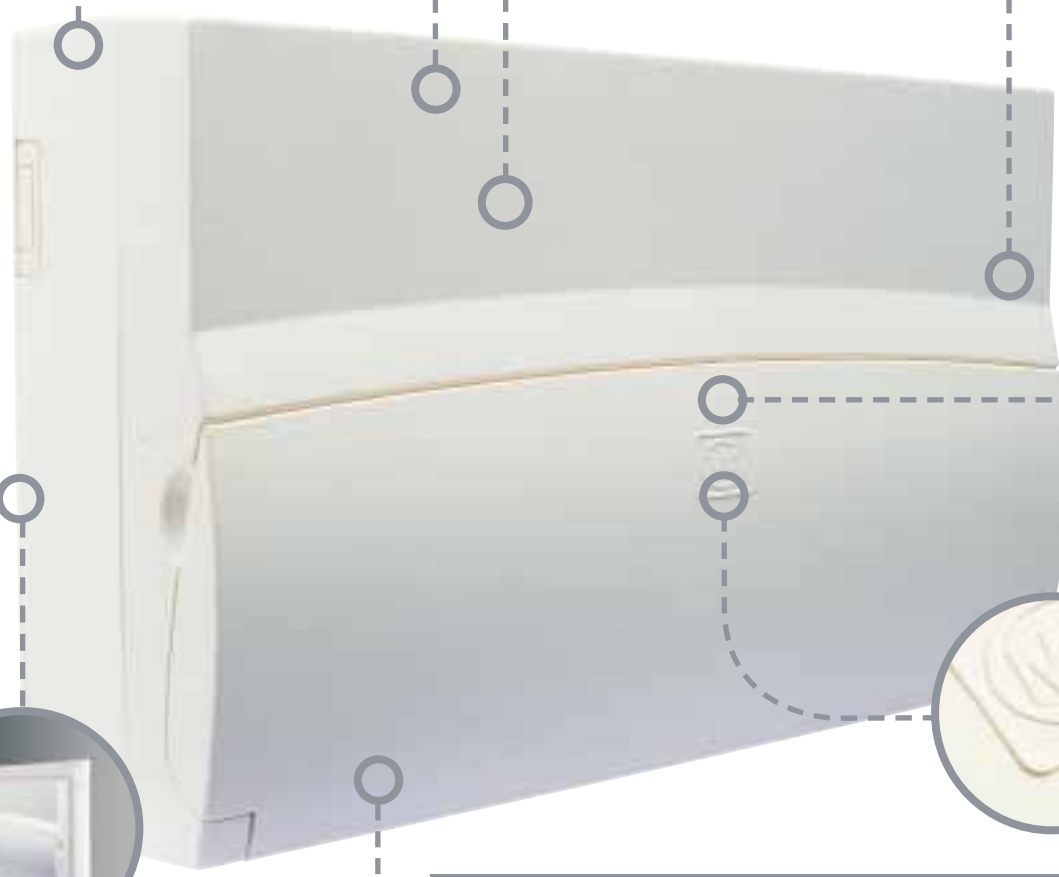
Gives maximum installation flexibility

Broad selection of pre-assembled split load units available

Suits a variety of applications and saves installation time

Stacking options

For larger installations dual rail 24, 32 and 42 module units possible in both insulated and metal



UNITS CAN BE STACKED FOR LARGER INSTALLATIONS

COMPACT SIZE
But wiring space increased where required most

MAGNOLIA COLOUR
Helps keep the unit unobtrusive

LOW PROFILE AND CURVED DESIGN
Blends unobtrusively into the environment

OPTIONAL LOCKING MECHANISM

DISCREET MOULDED IN LOGO
No visible fixing screws

FLUSH MOUNTABLE OPTIONS
For an even neater installation

OPAQUE AND DOWNWARD OPENING LID
Hides unsightly labels and devices

CONSUMER UNIT SELECTION GUIDE

STEP 1 Determine the type of consumer unit configuration required. e.g Split Load, Dual Tariff, Standard or combination of split load / dual tariff. For each Switch Disconnector or RCD to be used allow 2 modular ways.

STEP 2 Determine the number of outgoing circuits required. e.g Cooker, Lighting, Ring Main etc. For each circuit to be protected by an MCB or RCBO allow 1 modular way.

STEP 3 Determine what control products are required. e.g Bell Transformer, Time Delay Switch, contactors, timeswitches etc.

STEP 4 Determine the number of 'spare' modular ways required for future upgrades. For each 'spare' modular way select 1 Sentry blank module – 5544s or K5545s (cover mounted blanks supplied with consumer units. See page 227).

STEP 5 Now add together the total number of modular ways required.

STEP 6 Select from our range of Insulated, Metal, Flush or stacked consumer units (using standard consumer units plus stacking kits). Choose the type and size most appropriate for your requirements.



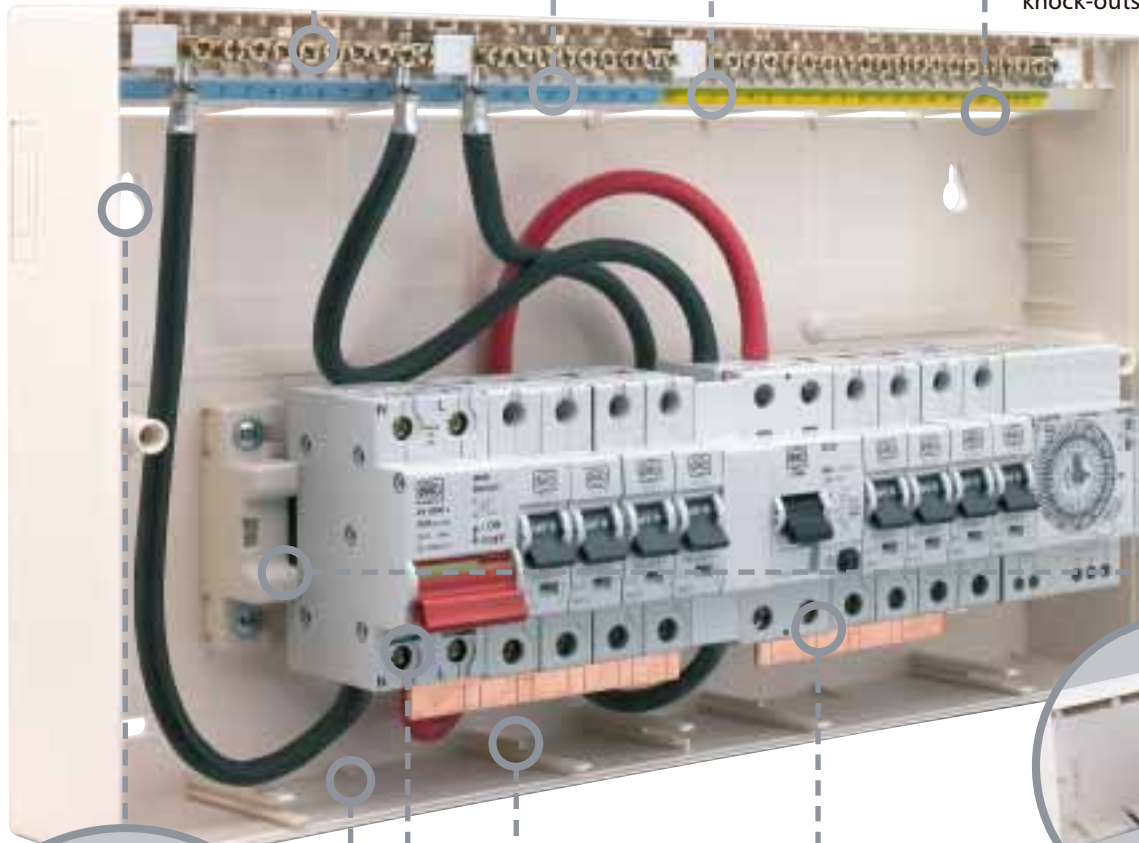
BACKED OUT AND CAPTIVE COMBI-HEAD SCREWS
Allows speedy installation



COLOUR CODED EARTH AND NEUTRAL TERMINAL LOCATED AT TOP OF UNIT FOR EASE OF WIRING



AMPLE 360° KNOCK-OUTS FOR CABLE ROUTING
Open cable entry at rear plus optional rear knock-outs



EASILY REMOVABLE DIN-RAIL
Improves first fix



FIXING HOLES
Allow tripod fixing to cope with uneven surfaces. Hole locations allow access for cordless drills and power drivers

RAISED DIN-RAIL
For improved cable routing

OFFSET INCOMER
Provides additional wiring space making mains input connections easier

FLOATING BUSBAR SYSTEM
For maximum installation flexibility including acceptance of control modules



AMPLE WIRING SPACE

Selection Chart

Switch
DisconnecterMCB
Single
Pole
Type B

Type C

RCBO
with Solid
Neutral
Type BRCD
110V
Double
PoleRCD
230V
Double
Pole

30mA

10mA

30mA

10mA

30mA

MODULES

TWO

ONE

ONE

ONE

TWO

TWO

TWO

TWO

RATING



3A

5903s

8703s

6A

5906s

8706s

6932s

10A

5910s

8710s

6933s

16A

5916s

8716s

6934s

6016s

6416s

6316s

5716s

20A

5920s

8720s

6935s

25A

32A

5932s

8732s

6936s

6032s

6730s

40A

5940s

8740s

6937s

5740s

45A

5945s

6938s

50A

5950s

8750s

6939s†

63A

5560s

5760s

80A

5780s

100A

5500s

7700s

† available early 2004

SPLIT-LOAD
CONFIGURATION

A full range of pre-assembled units are available, however if they do not fit your requirements, Sentry Consumer units can be configured to numerous split-load or multi-incomer configurations, by cutting the floating busbar and removing the 'U' links between the terminal bars.

The maximum number of switched or RCD ways available to a Consumer unit is dependent on the neutral terminal bar arrangement. eg. K5621s can become a split-load board by removing one 'U' link between neutral bars and having up to 14 ways switched and up to 3 ways protected by the RCD, or up to 17 ways protected and up to 3 ways switched.

TERMINAL BAR CONFIGURATION

List no	Modules (empty)	Earth Terminals		Neutral Terminals		Max no. of circuits with switch disconnecter or RCD as incomer	Total no. of circuits with split load / dual tariff	Max no. of circuits on main switch	Max no. of circuits on RCD or 'off-peak'	Max no. of circuits on split load / dual tariff
		Circuits	Bond	Total	Separate Blocks					
Insulated										
K5604s	4	4	1	4		2				
K5608s	8	8	2	8		6				
K5612s	12	12	2	12	2x6***	10	8	6*	6*	
K5616s	16	16	2	16	2x8***	14	12	8*	8*	
K5621s	21	21	2	21	3x7***	19	17	7 or 14**	7* or 14**	1x7, 1x7, 1x7*
Metal										
K5504s	4	4	1	4		2				
K5508s, K6508s	8	8	3	8		6				
K5512s, K6512s	12	12	3	12	2x6***	10	8	6*	6*	
K5516s, K6516s	16	16	3	16	2x8***	14	12	8*	8*	
K5521s, K6521s	21	21	3	21	3x7***	19	17	7 or 14**	7* or 14**	1x7, 1x7, 1x7*

* Combined number of circuits must not exceed number in total column. ** Dependant on which U link is removed. *** Separate blocks connected by removable U links.

		RCD Pulsating DC Fault Current Sensitive		RCD Time Delayed 230V Double Pole		RCD 230/400V Four Pole		Note: Only suitable as standalone devices, in Sentry four module enclosures and Commando Combi	
100mA	300mA	10mA	30mA	100mA	30mA	100mA	300mA		
TWO	TWO	TWO	TWO	TWO	FOUR	FOUR	FOUR		
								RATING	
								3A	
								6A	
								10A	
		6216s	6716s					16A	
								20A	
						6425s		25A	
			6630s					32A	
			5640s			6440s	6240s	40A	
								45A	
								50A	
6160s	5860s		5660s		6463s	6363s	6263s	63A	
6180s	5880s			6980s				80A	
6600s	7800s			6400s				100A	



TO BUILD A SPLIT-LOAD CONSUMER UNIT
e.g. 4+4 split-load

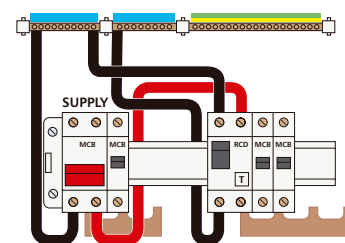
Requires:

- K5612s** Insulated Consumer unit, 12 mod
- K5563s** Split-load cable kit
- 5500s** Switch Disconnecter
- 5780s** RCD, 80A 30mA

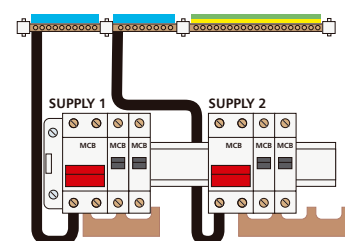
Select up to 8 MCBs.

CABLE KITS DIAGRAM

Split-load configuration



Multi-Incomer configuration



TO BUILD A MULTI-INCOMER CONSUMER UNIT

Requires:

- K5512s** Metal Consumer Unit, 12 mod
- K5565s** Multi-Incomer cable-kit
- 2 x 5500s** Switch Disconnecter, 100A

Consumer Units

METAL
SURFACE



K5504s



K5508s



K5512s



K5516s



K5521s

Stacking Kits

FOR METAL AND INSULATED
CONSUMER UNITS



K6063s



K5561s

K5504s
ACCEPTS 4
ONE MODULE PRODUCTS
(1 INTEGRAL NEUTRAL BAR)

K5508s
ACCEPTS 8
ONE MODULE PRODUCTS
(1 INTEGRAL NEUTRAL BAR)



K5512s
ACCEPTS 12
ONE MODULE PRODUCTS
(2 INTEGRAL NEUTRAL BARS
FITTED WITH LINK)



K5516s
ACCEPTS 16
ONE MODULE PRODUCTS
(2 INTEGRAL NEUTRAL BARS
FITTED WITH LINK)



K5521s
ACCEPTS 21
ONE MODULE PRODUCTS
(3 INTEGRAL NEUTRAL BARS
FITTED WITH LINKS)



K6061s
SUITABLE FOR USE WITH
12 MODULE UNITS



K6062s
SUITABLE FOR USE WITH
16 MODULE UNITS



K6063s
SUITABLE FOR USE WITH
21 MODULE UNITS



K5561s
CABLE KIT FOR STACKED
SENTRY UNITS



All units are magnolia coloured.

All units feature an enclosure box of welded construction finished in a tough coating of polyester epoxy paint containing ample knockouts in top, bottom, side and rear surfaces.

The units have an impact resistant, flame retardant, thermoplastic cover and lid.

Dual rail units are available for the 12, 16 and 21 module units to enable single tariff and split load (up to 80A) using Stacking Kits K6061s, K6062s and K6063s respectively in between the units.

Degree of Protection to BS EN 60529 to IP2X C

Precautions must be taken to maintain the IP rating, e.g. use of cable glands and knockouts BS EN 60439-3: 1991/A1: 1994

DIMENSIONS:

	WIDTH	HEIGHT	DEPTH
K5504s:	140	x 230	x 110mm
K5508s:	234	x 230	x 110mm
K5512s:	306	x 230	x 110mm
K5516s:	378	x 230	x 110mm
K5521s:	468	x 230	x 110mm

Thickness of all Stacking Kits: 15mm

Main incomer maximum rating
K5604s and K5504s: 63A

All other consumer units: 100A

Cover mounted blanks are supplied with
ALL consumer units
(2 off x 1 for 4, 8 and 12 module and
2 off x 2 for 16 and 21 module)



Assembly using a stacking kit

DUAL RAIL UNITS CAN BE CREATED USING 12, 16 AND 21 MODULE UNITS AND THE APPROPRIATE STACKING KIT.

Ideal for large applications or if additional capacity is required or for dual tariff applications.

K6061s, K6062s, K6063s
Enables two consumer units to be stacked (joined together) to form one integral consumer unit. Includes frame nuts, bolts and earth cable (for bonding earth terminal bars together).

Knockout holes in the base and top of consumer units align, allowing cables to pass through easily.

K5561s
Includes 3 cables (2 neutral and 1 live) for use when electronically connecting the upper and lower units of a stacking assembly for either main incomer or split load arrangements.

This kit must be used to ensure compliance with BS EN60439-3.

Consumer Units

INSULATED SURFACE

METAL FLUSH



K5604s



K5612s



K6508s



K6516s



K5608s



K5616s



K6512s



K6521s



K5621s

K5604s

ACCEPTS 4
ONE MODULE PRODUCTS
(1 INTEGRAL NEUTRAL BAR)

1

K5608s

ACCEPTS 8
ONE MODULE PRODUCTS
(1 INTEGRAL NEUTRAL BAR)

1

All units are magnolia coloured.
All units feature a robust base together with an all over front cover moulded in an impact resistant, flame retardant thermoplastic and a polycarbonate lid. Cable entry points are located on top, bottom, side and rear surfaces.

DIMENSIONS:

	WIDTH	HEIGHT	DEPTH
K5604s:	140	x 230	x 110mm
K5608s:	234	x 230	x 110mm
K5612s:	306	x 230	x 110mm
K5616s:	378	x 230	x 110mm
K5621s:	468	x 230	x 110mm

Main incomer maximum rating
K5604s and K5504s: 63A

All other consumer units: 100A

K5612s

ACCEPTS 12
ONE MODULE PRODUCTS
(2 INTEGRAL NEUTRAL BARS
FITTED WITH LINK)

1

K5616s

ACCEPTS 16
ONE MODULE PRODUCTS
(2 INTEGRAL NEUTRAL BARS
FITTED WITH LINK)

1

K5621s

ACCEPTS 21
ONE MODULE PRODUCTS
(3 INTEGRAL NEUTRAL BARS
FITTED WITH LINKS)

1

Degree of protection to BS EN 60529 to IP2XC.
Precautions must be taken to maintain the IP rating, e.g. use of cable glands and knockouts.
BS EN 60439-3: 1991/A1: 1994.

FACTORY BUILT SERVICE
MK can save you time and money by pre-assembling Consumer units with your required Sentry components

K6508s

ACCEPTS 8
ONE MODULE PRODUCTS
(1 INTEGRAL NEUTRAL BAR)

1

K6512s

ACCEPTS 12
ONE MODULE PRODUCTS
(2 INTEGRAL NEUTRAL BARS
FITTED WITH LINK)

1

All units feature a tough galvanised metal box for insertion into the wall cavity, which can be secured at the rear or panel-mounted using the brackets supplied. The DIN rail embodies a useful alignment adjusting mechanism to make for a speedy installation. The units have an impact resistant, flame retardant, thermoplastic cover, lid and a flush moulded frame is supplied to overlap the exposed cavity to produce a smooth line between unit and wall.

Degree of protection to BS EN 60529 to IP2XC.
Precautions must be taken to maintain the IP rating, e.g. use of cable glands and knockouts.
BS EN 60439-3: 1991/A1: 1994.

Cover mounted blanks are supplied with ALL consumer units
(2 off x 1 for 4, 8 and 12 module and 2 off x 2 for 16 and 21 module)

K6516s

ACCEPTS 16
ONE MODULE PRODUCTS
(2 INTEGRAL NEUTRAL BARS
FITTED WITH LINK)

1

K6521s

ACCEPTS 21
ONE MODULE PRODUCTS
(3 INTEGRAL NEUTRAL BARS
FITTED WITH LINKS)

1

DIMENSIONS:

	WIDTH	HEIGHT	DEPTH
K6508s:	234	x 230	x 106.5mm
K6512s:	306	x 230	x 106.5mm
K6516s:	378	x 230	x 106.5mm
K6521s:	468	x 230	x 106.5mm

Flush frame adds 38mm per side to the unit

WALL CAVITY DIMENSIONS:

	WIDTH	HEIGHT	DEPTH(min)
K6508s:	245	x 235	x 68mm
K6512s:	315	x 235	x 68mm
K6516s:	390	x 235	x 68mm
K6521s:	480	x 235	x 68mm

Depth of flush consumer unit visible on wall: 50mm

Consumer Units

WITH SPLIT-LOAD
ARRANGEMENTS
METAL
SURFACE

WITH TIME DELAY
SPLIT-LOAD
ARRANGEMENTS
METAL
SURFACE

WITH SPLIT-LOAD
ARRANGEMENTS
INSULATED
SURFACE



K5582s



K5586s



K5531s



K5682s



K5566s



K5581s



K5662s



K5666s

K5582s

100A SWITCH DISCONNECTOR AND 63A 30mA RCD. ACCEPTS A FURTHER 8 ONE MODULE PRODUCTS IN ANY CONFIGURATION OF RCD PROTECTED AND UNPROTECTED CIRCUITS BETWEEN 1/6 AND 6/1

1

K5566s

100A SWITCH DISCONNECTOR AND 63A 30mA RCD. ACCEPTS A FURTHER 12 ONE MODULE PRODUCTS IN ANY CONFIGURATION OF RCD PROTECTED AND UNPROTECTED CIRCUITS BETWEEN 1/8 AND 8/1

1

K5586s

100A SWITCH DISCONNECTOR AND 80A 30mA RCD. ACCEPTS A FURTHER 12 ONE MODULE PRODUCTS IN ANY CONFIGURATION OF RCD PROTECTED AND UNPROTECTED CIRCUITS BETWEEN 1/8 AND 8/1

1

K5581s

100A SWITCH DISCONNECTOR AND 80A 30mA RCD. ACCEPTS A FURTHER 17 ONE MODULE PRODUCTS IN ANY CONFIGURATION OF RCD PROTECTED AND UNPROTECTED CIRCUITS BETWEEN 1/14 AND 14/1

1

K5531s

100A 100mA TIME DELAY RCD AND 80A 30mA RCD. ACCEPTS A FURTHER 17 ONE MODULE PRODUCTS IN ANY CONFIGURATION OF RCD PROTECTED AND UNPROTECTED CIRCUITS BETWEEN 1/14 AND 14/1

1

K5682s

100A SWITCH DISCONNECTOR AND 63A 30mA RCD. ACCEPTS A FURTHER 8 ONE MODULE PRODUCTS IN ANY CONFIGURATION OF RCD PROTECTED & UNPROTECTED CIRCUITS BETWEEN 1/6 AND 6/1

1

K5662s

100A SWITCH DISCONNECTOR AND 80A 30mA RCD. ACCEPTS A FURTHER 8 ONE MODULE PRODUCTS IN ANY CONFIGURATION OF RCD PROTECTED & UNPROTECTED CIRCUITS BETWEEN 1/6 AND 6/1

1

K5666s

100A SWITCH DISCONNECTOR AND 63A 30mA RCD. ACCEPTS A FURTHER 12 ONE MODULE PRODUCTS IN ANY CONFIGURATION OF RCD PROTECTED & UNPROTECTED CIRCUITS BETWEEN 1/8 AND 8/1

1

All units are magnolia coloured.

All units are pre-fitted with a switch disconnector and RCD together with all necessary split-load cabling. The flexibility of design allows the RCD to be positioned to suit the required configuration of RCD protected and non-protected circuits, subject to the rating of either the switch or RCD not being exceeded.

DIMENSIONS:

	WIDTH	HEIGHT	DEPTH
K5582s:	306	x 230	x 110mm
K5566s:	378	x 230	x 110mm
K5586s:	378	x 230	x 110mm
K5581s:	468	x 230	x 110mm
K5531s:	468	x 230	x 110mm

Degree of Protection to BS EN 60529 to IP2XC

Precautions must be taken to maintain the IP rating e.g. use of cable glands and knockouts BS EN 60439-3: 1991/A1: 1994

The unit is pre-fitted with a time delay RCD and 80A 30mA RCD together with all necessary split-load cabling. The flexibility of design allows the RCD to be positioned to suit the required configuration, subject to the rating of either RCD's not being exceeded.

Cover mounted blanks are supplied with ALL consumer units
(2 off x 1 for 4, 8 and 12 module and 2 off x 2 for 16 and 21 module)

All units are magnolia coloured.

All units are pre-fitted with a switch disconnector and RCD together with all necessary split load cabling. The flexibility of design allows the RCD to be positioned to suit the required configuration of RCD protected and non-protected circuits, subject to the rating of either the switch or RCD not being exceeded.

WITH TIME DELAY
SPLIT-LOAD
ARRANGEMENTS
INSULATED
SURFACE

FOR HEATING CONTROL
METAL / INSULATED
SURFACE



K5686s

K5681s



K5632s

K5626s



K5636s

K5631s



K5556s

K5656s

K5686s 1
100A SWITCH DISCONNECTOR AND 80A 30mA RCD. ACCEPTS A FURTHER 12 ONE MODULE PRODUCTS IN ANY CONFIGURATION OF RCD PROTECTED & UNPROTECTED CIRCUITS BETWEEN 1/8 AND 8/1

K5681s 1
100A SWITCH DISCONNECTOR AND 80A 30mA RCD. ACCEPTS A FURTHER 17 ONE MODULE PRODUCTS IN ANY CONFIGURATION OF RCD PROTECTED & UNPROTECTED CIRCUITS BETWEEN 14/1 AND 1/14

DIMENSIONS:

	WIDTH	HEIGHT	DEPTH
K5682s:	306	x 230	x 110mm
K5662s:	306	x 230	x 110mm
K5666s:	378	x 230	x 110mm
K5686s:	378	x 230	x 110mm
K5681s:	468	x 230	x 110mm

Degree of protection to BS.EN 60529: 1992 IP2XC
Precautions must be taken to maintain the IP rating. eg. correct use of cable glands and knockouts
BS.EN 60439-3:1994

K5632s 1
100A 100mA TIME DELAY RCD. ACCEPTS A FURTHER 8 ONE MODULE PRODUCTS IN ANY CONFIGURATION OF RCD PROTECTED & UNPROTECTED CIRCUITS BETWEEN 1/6 AND 6/1

K5626s 1
100A 100mA TIME DELAYED RCD. ACCEPTS A FURTHER 12 ONE MODULE PRODUCTS IN ANY CONFIGURATION OF RCD PROTECTED & UNPROTECTED CIRCUITS BETWEEN 1/8 AND 8/1

DIMENSIONS:

	WIDTH	HEIGHT	DEPTH
K5632s:	306	x 230	x 110mm
K5626s:	378	x 230	x 110mm
K5636s:	378	x 230	x 110mm
K5631s:	468	x 230	x 110mm

Degree of protection to BS.EN 60529: 1992 IP2XC
Precautions must be taken to maintain the IP rating. eg. correct use of cable glands and knockouts
BS.EN 60439-3:1994

K5636s 1
100A 100mA TIME DELAY RCD. ACCEPTS A FURTHER 12 ONE MODULE PRODUCTS IN ANY CONFIGURATION OF RCD PROTECTED & UNPROTECTED CIRCUITS BETWEEN 1/8 AND 8/1

K5631s 1
100A 100mA TIME DELAY RCD. ACCEPTS A FURTHER 17 ONE MODULE PRODUCTS IN ANY CONFIGURATION OF RCD PROTECTED & UNPROTECTED CIRCUITS BETWEEN 1/14 AND 14/1

Cover mounted blanks are supplied with ALL consumer units (2 off x 1 for 4, 8 and 12 module and 2 off x 2 for 16 and 21 module)

K5556s 1
METAL CONSUMER UNIT ONE 63A SWITCH DISCONNECTOR TWO 100A SWITCH DISCONNECTORS AND 3 INTEGRAL NEUTRAL BARS ACCEPTS A FURTHER 10 ONE MODULE PRODUCTS

K5656s 1
INSULATED CONSUMER UNIT ONE 63A SWITCH DISCONNECTOR TWO 100A SWITCH DISCONNECTORS AND 3 INTEGRAL NEUTRAL BARS ACCEPTS A FURTHER 10 ONE MODULE PRODUCTS

The unit is pre-fitted with 3 switch disconnectors for use in multi-tariff heating applications.

DIMENSIONS:

	WIDTH	HEIGHT	DEPTH
K5556s:	378	x 230	x 110mm
K5656s:	378	x 230	x 110mm

Degree of Protection to BS EN 60529 to IP2XC
Precautions must be taken to maintain the IP rating e.g. use of cable glands and knockouts
BS EN 60439-3: 1991/A1: 1994

FACTORY BUILT SERVICE
MK can save you time and money by pre-assembling Consumer units with your required Sentry components

Skeleton Units

FOR MOUNTING IN A
MANTEL/CLIFTON TYPE
ENCLOSURE



6000s



6001s

6000s
ACCEPTS 14
ONE MODULE PRODUCTS
(1 INTEGRAL NEUTRAL BAR)

6001s
100A SWITCH DISCONNECTOR
AND 63A 30mA RCD.
ACCEPTS A FURTHER 10
ONE MODULE PRODUCTS
IN ANY CONFIGURATION OF
RCD PROTECTED
AND UNPROTECTED CIRCUITS
BETWEEN 2/8 AND 8/2

These units are suitable for use in
most Mantel and Clifton type
enclosures.

Factory assembled units are available
for specific installations.

DIMENSIONS:

	WIDTH	HEIGHT	DEPTH
6000s:	222 x	333 x	90mm
6001s:	222 x	333 x	90mm

Degree of Protection to
BS EN 60529: 1992 IP30

Precautions must be taken to maintain
the IP rating, eg. correct use of cable
glands and knockouts.

BS EN 60439-3: 1994

Enclosures

IP65
WEATHERPROOF
ENCLOSURE



5702s



5704s

5702s
WEATHERPROOF
COMPLETE WITH NEUTRAL AND
EARTH TERMINAL BLOCK
ACCEPTS UP TO 4 MODULES

5704s
WEATHERPROOF
COMPLETE WITH NEUTRAL AND
EARTH TERMINAL BLOCK
ACCEPTS UP TO 8 MODULES

Typical applications for enclosures
are house extensions, garages and
small workshops.

These enclosures will accommodate
two or four module Sentry RCDs or
a combination of Sentry modules,
excluding contactors.

DIMENSIONS:

	WIDTH	HEIGHT	DEPTH
5702s:	200 x	123 x	112mm
5704s:	200 x	195 x	112mm
5502s:	149 x	76 x	76mm
5504s:	188 x	121 x	74mm
5604s:	160 x	85 x	68mm
K5592s:	185 x	119 x	66mm

Degree of Protection to

BS EN 60529: 1992

5702s: IP65

5704s: IP65

5502s: IP30

5504s: IP30

5604s: IP30

K5592s: IP30

IP30 ENCLOSURE



5502s



5504s

5502s
INSULATED COMPLETE WITH
MOUNTING RAIL, NEUTRAL
AND EARTH TERMINALS
TWO MODULE

K5592s
RCBO ENCLOSURE – METAL
TWO AVAILABLE MODULES
SUITABLE FOR LIST NOS.
6932s, 6933s, 6934s, 6935s,
6936s, 6937s, 6938s
WITH MOUNTING RAIL,
EARTH TERMINALS AND
METAL FRONT PLATE

5504s
METAL
WITH MOUNTING RAIL,
EARTH TERMINALS AND
MOULDED FRONT PLATE
FOUR MODULE

5604s
INSULATED
WITH MOUNTING RAIL,
TWO INTEGRAL BLANKING PLATES
AND TAMPER-PROOFING
COMPONENTS
FOUR MODULE

K5592s suitable for Sentry Single
Module RCBO.

Precautions must be taken to
maintain the IP rating, eg. correct
use of cable glands and knockouts
IP65 enclosures to EN 60670

Switch
Disconnectors
Double Pole

TWO MODULE



5500s



5560s

5500s
100A 230V

5560s
63A 230V

Suitable for installation in Sentry
Consumer Units and two or four
module enclosures. Accepts direct
to busbar or cable-in / cable-out
connection. Category of duty:
AC22A for switching of resistive
and inductive loads.

Positive contact status indication in
accordance with 16th Edition IEE
Wiring Regulations
(537-02-03 and 537-03-02)

DIMENSIONS:
81 x 36 x 76mm

CABLE CAPACITY:
50mm²

BS EN 60947-3: 1992

MCBs
Single Pole

TYPE B
ONE MODULE



5903s



5910s



5906s



5916s

5903s
3A 230V

5906s
6A 230V

5910s
10A 230V

5916s
16A 230V

Suitable for installation in Sentry
Consumer Units and two or four
module enclosures.

Positive contact status indication in
accordance with 16th Edition IEE
Wiring Regulations
(537-02-03 and 537-03-02)

DIMENSIONS:
83 x 18 x 74mm

CABLE CAPACITY:
3, 6, 10, 16A: 35mm²

Short-circuit breaking capacity: 6KA

BS EN 60898: 1991

RCBOs With Solid Neutral Single Pole

TYPE C ONE MODULE

TYPE B ONE MODULE



5920s 5940s



8703s 8706s



8720s 8732s



6932s 6934s 6936s 6938s



5945s 5950s



8710s 8716s



8740s 8750s



6933s 6935s 6937s 6939s

5920s
20A 230V

10
5932s
32A 230V

10
5940s
40A 230V

10
5945s
45A 230V

10
5950s
50A 230V

10

Suitable for installation in Sentry Consumer Units and two or four module enclosures.

Positive contact status indication in accordance with 16th Edition IEE Wiring Regulations (537-02-03 and 537-03-02)

 DIMENSIONS:
83 x 18 x 74mm

 CABLE CAPACITY:
20, 32, 40, 50A : 35mm²

 Short-circuit breaking capacity: 6KA
BS EN 60898: 1991

8703s
3A 230V

10
8706s
6A 230V

10
8710s
10A 230V

10
8716s
16A 230V

10

Suitable for installation in Sentry Consumer Units and two or four module enclosures.

Positive contact status indication in accordance with 16th Edition IEE Wiring Regulations (537-02-03 and 537-03-02)

 DIMENSIONS:
83 x 18 x 74mm

 CABLE CAPACITY:
3, 6, 10, 16A : 35mm²

 Short-circuit breaking capacity: 6KA
BS EN 60898: 1991

8720s
20A 230V

10
8732s
32A 230V

10
8740s
40A 230V

10
8750s
50A 230V

10

Suitable for installation in Sentry Consumer Units and two or four module enclosures.

Positive contact status indication in accordance with 16th Edition IEE Wiring Regulations (537-02-03 and 537-03-02)

 DIMENSIONS:
83 x 18 x 74mm

 CABLE CAPACITY:
20, 32, 40, 50A : 35mm²

 Short-circuit breaking capacity: 6KA
BS EN 60898: 1991

6932s
6A 230V
30mA
TRIPPING CURRENT

1
6933s
10A 230V
30mA
TRIPPING CURRENT

1
6934s
16A 230V
30mA
TRIPPING CURRENT

1
6935s
20A 230V
30mA TRIPPING CURRENT

1
6936s
32A 230V
30mA TRIPPING CURRENT

1
6937s
40A 230V
30mA TRIPPING CURRENT

1
6938s
45A 230V
30mA TRIPPING CURRENT

1
6939s*
50A 230V
30mA TRIPPING CURRENT

1

Suitable for installation in Sentry Consumer Units and K5592s enclosure.

Positive contact status indication in accordance with 16th Edition IEE Wiring Regulations (537-02-03 and 537-03-02)

 DIMENSIONS:
112 x 18 x 73mm

 CABLE CAPACITY:
Live 25mm², Neutral 16mm²

 Pulsating d.c.fault current sensitive
Short circuit breaking capacity: 6KA
BS EN 61009-1
BS IEC 61009-2-2

*Available early 2004

MCB Retrofit Kit

RCDs Double Pole

16 AMP
TWO MODULE

32 AMP
TWO MODULE

40 AMP
TWO MODULE

63 AMP
TWO MODULE



5567s



6016s



6032s



5740s



5760s



6416s



6730s



5860s

5567s
MCB RETROFIT KIT
FOR MOUNTING IN OLD
SENTRY CONSUMER UNITS

1

6016s
16A 110V
10mA TRIPPING CURRENT

1

6032s
32A 110V
30mA TRIPPING CURRENT

1

5740s
40A 230V
30mA TRIPPING CURRENT

1

5760s
63A 230V
30mA TRIPPING CURRENT

1

6416s
16A 110V
30mA TRIPPING CURRENT

1

6730s
32A 230V
30mA TRIPPING CURRENT

1

6160s
63A 230V
100mA TRIPPING CURRENT

1

6316s
16A 230V
10mA TRIPPING CURRENT

1

5860s
63A 230V
300mA TRIPPING CURRENT

1

5716s
16A 230V
30mA TRIPPING CURRENT

1

For use when installing MCBs into old Sentry Consumer Units with fork style busbar (non 's' suffix or 'K' prefix).

Kit contains a busbar, extension terminal (5562s), a 100A rated cable and a 25mm² capacity spade connector terminal with clamp screw.

May be used to fit up to 3 new Sentry MCBs. If more need to be installed please use 5511s busbar with kit.

Suitable for installation in Sentry Consumer Units and two or four module enclosures.

Positive contact status indication in accordance with 16th Edition IEE Wiring Regulations (537-02-03 and 537-03-02)

DIMENSIONS:
85 x 36 x 75mm

CABLE CAPACITY:
50mm²

BS EN 61008:1995



RCDs
Pulsating D.C.
Fault Current Sensitive
Double Pole

RCDs
Time Delayed
Double Pole

80 AMP
TWO MODULE

100 AMP
TWO MODULE

TWO MODULE

TWO MODULE



5780s



7700s



6216s



6716s



5640s



6980s



5880s



6600s



6630s



5660s



6400s

5780s
80A 230V
30mA TRIPPING CURRENT

1 **7700s**
100A 230V
30mA TRIPPING CURRENT

1 **6216s**
16A 230V
10mA TRIPPING CURRENT

1 **6630s**
32A 230V
30mA TRIPPING CURRENT

1 **6980s**
80A 230V
100mA TRIPPING CURRENT
TIME DELAYED

6180s
80A 230V
100mA TRIPPING CURRENT

1 **6600s**
100A 230V
100mA TRIPPING CURRENT

1 **6716s**
16A 230V
30mA TRIPPING CURRENT

1 **5640s**
40A 230V
30mA TRIPPING CURRENT

1 **6400s**
100A 230V
100mA TRIPPING CURRENT
TIME DELAYED

5880s
80A 230V
300mA TRIPPING CURRENT

1 **7800s**
100A 230V
300mA TRIPPING CURRENT

1 **5660s**
63A 230V
30mA TRIPPING CURRENT

1 **NOT TO BE USED FOR
PERSONAL PROTECTION
AGAINST ELECTRIC SHOCK**

6080s
80A 110V
30mA TRIPPING CURRENT

Suitable for installation in Sentry Consumer Units and two or four module enclosures.

Positive contact status indication in accordance with 16th Edition IEE Wiring Regulations (537-02-03 and 537-03-02)

DIMENSIONS:
85 x 36 x 75mm

CABLE CAPACITY:
50mm²

BS EN 61008:1995

Suitable for installation in Sentry Consumer Units and two or four module enclosures.

Positive contact status indication in accordance with 16th Edition IEE Wiring Regulations (537-02-03 and 537-03-02)

DIMENSIONS:
85 x 36 x 75mm

CABLE CAPACITY:
50mm²

BS EN 61008:1995

Suitable for installation in Sentry Consumer Units and Four Module enclosures. When used as a mains incomer these units will provide discrimination with downstream instantaneously operating 10mA or 30 mA RCD's. For example, they can be used as main incomers on split load consumer units where it is not desirable, because of the possibility of unwanted tripping, to place all of the circuits on an instantaneous 30mA RCD, but where earth leakage protection is still required for these circuits or where compliance is required to the indirect contact protection requirements of the IEE wiring regulations.

DIMENSIONS: 81 x 36 x 76mm

CABLE CAPACITY: 50mm²
BS EN 61008: 1994

FACTORY BUILT SERVICE

MK can save you time and money by pre-assembling Consumer units with your required Sentry components

RCDs Four Pole

25 AMP
FOUR MODULE



6425s

40 AMP
FOUR MODULE



6440s

63 AMP
FOUR MODULE



6463s

RCD Pulsating D.C. Fault Current Sensitive Four Pole

FOUR MODULE



6640s

Time Delay Switch

ONE MODULE



5650s

6425s
25A 230/400V
30mA TRIPPING CURRENT

1

Suitable for installation in Sentry four module enclosures and Commando Combi.

Positive contact status indication in accordance with 16th Edition IEE Wiring Regulations (537-02-03 and 537-03-02)

DIMENSIONS:
85 x 72 x 75mm

CABLE CAPACITY:
50mm²

BS EN 61008: 1995

6440s
40A 230/400V
30mA TRIPPING CURRENT

6240s
40A 230/400V
100mA TRIPPING CURRENT

1

1

6463s
63A 230/400V
30mA TRIPPING CURRENT

6363s
63A 230/400V
100mA TRIPPING CURRENT

6263s
63A 230/400V
300mA TRIPPING CURRENT

1

1

1

6640s
40A 230/400V
30mA TRIPPING CURRENT

1

5650s
DELAY RANGE
1 - 7 MINUTES (APPROX)

1



Suitable for installation in Sentry two or four module enclosures.

Positive contact status indication in accordance with 16th Edition IEE Wiring Regulations (537-02-03 and 537-03-02)

DIMENSIONS:
85 x 72 x 75mm

CABLE CAPACITY:
50mm²

BS EN 61008: 1995

Suitable for installation in Sentry Consumer Units and two or four module enclosures.

Offers time delay control for complete circuits of either tungsten or fluorescent lighting with any number of standard push switches. It can also be used to control fans in bathrooms without a window. Delay setting can be over-ridden by setting to 'Perm-on' mode, or by fitting a remote overriding switch. Switch has a switching capacity of 16A Resistive loads (upf).

Fluorescent lamps uncompensated /
Series compensated 1300W
Parallel compensated 480W
Incandescent lamps 2000W

Neon glow lamp load (locating lamp for Push Switch) 50mA max.

VOLTAGE RATING: 230V 50Hz

DIMENSIONS: 84 x 18 x 70mm

CABLE CAPACITY: 1 x 4mm² or 2 x 1.5mm²

Contactors

Bell Transformer

ONE MODULE

TWO MODULE

THREE MODULE

TWO MODULE



6220s



6720s



7240s



7263s



7440s



7463s



7301s



7302s



5711s

6220s
20A
DOUBLE POLE

1

6720s
20A
DOUBLE POLE
WITH MANUAL OVERRIDE

1

6420s
20A
FOUR POLE

7240s
40A
DOUBLE POLE

7263s
63A
DOUBLE POLE

1

7440s
40A
FOUR POLE

1

7463s
63A
FOUR POLE

1

1

7301s
AUXILIARY CONTACT

1

7302s
SUPPRESSION BLOCK

1

5711s
RATING 1A AT 8V
PRIMARY
220 – 240V A.C.50Hz

1

Suitable for installation in Sentry Consumer Units and two or four module enclosures. Automatically switches higher loads than possible with a time switch eg; off peak tariffs.

A manual override enables the temporary setting of the contactor in either the on or off position in addition to normal automatic operation.

When a contactor is mounted alongside an MCB of greater than 10 amp current rating or two contactors are mounted alongside an MCB or side by side, it is necessary to insert a blank module between them (list No.5544s)

CONTACTOR RATINGS:

List no	6220s 6420s 6720s	7240s 7440s	7263s 7463s
RATED CURRENT Ith	20A	40A	63A
HEATING: Single phase 230V Three phase 400V	5.4kW 16kW	8.6kW 26kW	13.6kW 41kW
MOTORS: Single phase 230V Three phase 400V	1.1kW 4kW	2.2kW 7.5kW	4kW 11kW
LIGHTING: Incandescent and Halogen lamps: Fluorescent Lamps: (Electronic Ballast)	2,800W 2,000W	7,000W 4,200W	10,000W 6,300W
VOLTAGE RATING: (coil)	230V 50Hz	230V 50Hz	230V 50Hz
CABLE CAPACITY:	6mm ² rigid	25mm ² rigid	25mm ² rigid

BS EN 61095

7301s Auxiliary Contact

Suitable for connection to all Sentry contactors, the auxiliary contacts enable remote indication of contactor status. Auxiliary contact is provided with 1 open and 1 closed contact. 7301s is a half module width, a half module blank is supplied to complete the installation,

RATED CURRENT Ith 5A

7302s Suppression Block

Suitable for installations where contactor controls are not bounce free. 7302s connects across the coil terminals.

DIMENSIONS:

6220s: 84 x 18 x 66mm

6420s: 84 x 36 x 66mm

6720s: 84 x 18 x 66mm

7240s: 84 x 36 x 66mm

7263s: 84 x 36 x 66mm

7440s: 84 x 54 x 66mm

7463s: 84 x 54 x 66mm

7301s: 84 x 18 x 66mm

(including half module blank)

7302s: 84 x 18 x 66mm

Suitable for installation in Sentry Consumer Units and two or four module enclosures.

Note: When installed in a consumer unit, ensure that output cables inside the enclosures are suitable for a 230V environment, either by sleeving the bell wire to BS. 2848 or using 230V cable.

Complete with terminal covers. Also suitable for surface mounting.

DIMENSIONS:
88 x 36 x 67mm

CABLE CAPACITY:
1 x 2.5mm²

EN 61558-2-8

Time Switches

**SYNCHRONOUS
THREE MODULE**

**QUARTZ
STABILISED
THREE MODULE**

**SYNCHRONOUS
ONE MODULE**

**DIGITAL
ONE CHANNEL
TWO MODULE**

**DIGITAL
ONE CHANNEL
ONE MODULE**

**DIGITAL
TWO CHANNEL
TWO MODULE**



5707s



5807s



5833s



5731s



5733s



5732s



5724s



5824s

5707s 1
7 DAY DIAL
MIN SETTING 3 HOURS

5724s 1
24 HOUR DIAL
MIN SETTING 30 MINUTES

Suitable for DIN rail mounting in Sentry Consumer Units or four module enclosures.

VOLTAGE RATING:
220-240Va.c. 50Hz

CURRENT RATING:
Resistive load 16A
Inductive load 4A
Tungsten lamps 6A (1350W)
Fluorescent lamps 1350W

DIMENSIONS:
85 x 54 x 68mm

CABLE CAPACITY:
2 x 2.5mm² or 4 x 1.5mm²

5807s 1
7 DAY DIAL
MIN SETTING 3 HOURS

5824s 1
24 HOUR DIAL
MIN SETTING 30 MINUTES

Suitable for DIN rail mounting in Sentry Consumer Units and two or four module enclosures. Power reserve 150 hours

VOLTAGE RATING:
220-240Va.c. 50-60Hz

CURRENT RATING:
Resistive load 16A
Inductive load 4A
Tungsten lamps 6A (1350W)
Fluorescent lamps 1350W

DIMENSIONS:
85 x 54 x 68mm

CABLE CAPACITY:
2 x 2.5mm² or 4 x 1.5mm²
EN 60730-2-7: 1993

5833s 1
24 HOUR DIAL
MIN SETTING 30 MINUTES

Suitable for DIN rail mounting in Sentry Consumer Units and two or four module enclosures

VOLTAGE RATING:
240V 50Hz

CURRENT RATING:
Resistive load 16A
Inductive load 4A
Tungsten lamps 6A (1350W)
Fluorescent lamps 1350W

DIMENSIONS:
90 x 18 x 68mm

CABLE CAPACITY:
2 x 2.5mm² or 4 x 1.5mm²

EN 60730-2-7: 1993

5731s 1
24 HOUR/7 DAY DISPLAY
MIN SETTING 1 MINUTE

Pre-programmed with UK time and automatic summer/winter adjustment.

Provides 20 programming selections. Freely selectable day grouping facility. Manual override, winter/summer time adjustment.

Power reserve of 3 years Suitable for DIN-rail mounting in Sentry Consumer Units and two or four module enclosures.

VOLTAGE RATING:
240V 50/60Hz

CURRENT RATING:
Resistive load 16A
Inductive load 2.5A
Tungsten lamps 5A (1000W)
Fluorescent lamps 1000W

DIMENSIONS:
85 x 36 x 68mm

CABLE CAPACITY:
2 x 2.5mm² or 4 x 1.5mm²

EN 60730-2-7: 1993

5733s 1
24 HOUR DIAL
MIN SETTING 1 MINUTE

Provides 42 programming selections. Freely selectable day grouping facility. Manual override, winter/summer time adjustment, holiday programme and random generator are standard facilities.

Power reserve of 150 hours.

Suitable for DIN rail mounting in Sentry Consumer Units and two or four module enclosures

VOLTAGE RATING:
240V 50/60Hz

CURRENT RATING:
Resistive load 16A
Inductive load 2.5A
Tungsten lamps 5A (1000W)
Fluorescent lamps 1000W

DIMENSIONS:
90 x 18 x 74mm

CABLE CAPACITY:
2 x 2.5mm² or 4 x 1.5mm²

EN 60730-2-7: 1993

5732s 1
24 HOUR/7 DAY DISPLAY
MIN SETTING 1 MINUTE

Pre-programmed with UK time and automatic summer/winter adjustment.

Provides 42 programming selections. Freely selectable day grouping facility. Manual override, winter/summer time adjustment.

Power reserve of 3 years. Suitable for DIN-rail mounting in Sentry Consumer Units and two or four module enclosures.

VOLTAGE RATING:
240V 50/60Hz

CURRENT RATING:
Resistive load 16A
Inductive load 2.5A
Tungsten lamps 5A (1000W)
Fluorescent lamps 1000W

DIMENSIONS:
85 x 36 x 68mm

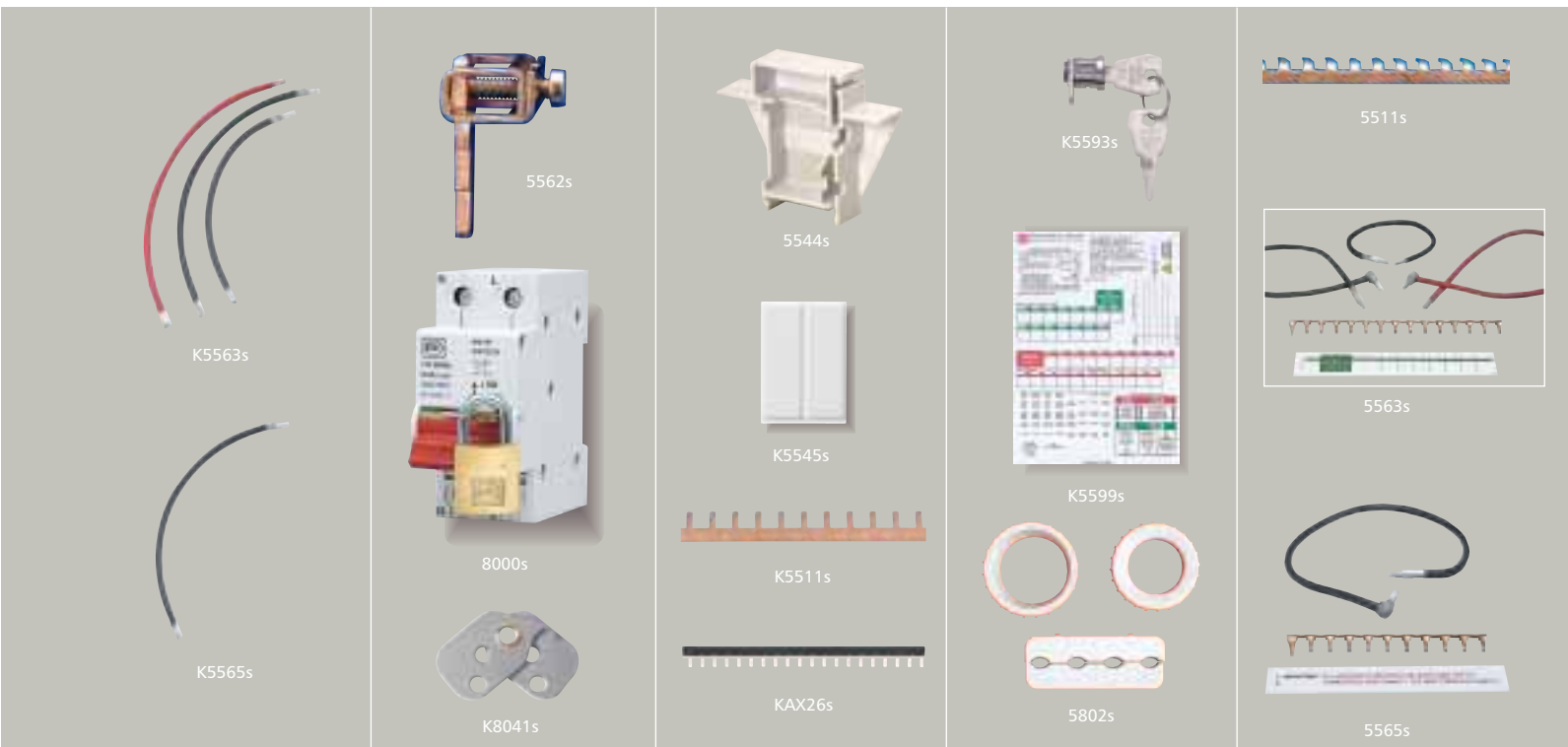
CABLE CAPACITY:
2 x 2.5mm² or 4 x 1.5mm²

EN 60730-2-7: 1993

Consumer Unit Cable Kits

Accessories

RETRO FIT OLD NON 'K' SERIES ACCESSORIES



K5563s new 'K' series **5**
SPLIT-LOAD KIT
Consists of 3 cables (2 neutral and 1 live) for use when assembling a split load arrangement.

K5564s new 'K' series **5**
MAIN SWITCH AND 2 X RCD CABLE KIT
Consists of all necessary split load cabling (complete with terminals/ferrules), circuit identification labelling.

K5565s new 'K' series **5**
MULTI-INCOMER KIT
Consists of a black flexible cable with pre-fitted terminal for the neutral return from switch or RCD to second or third neutral bar.

K5563s
For use when assembling split-load arrangement.

K5564s
For use when assembling a switch and twin RCD arrangement.

K5565s
For use when assembling a consumer unit in a multi-incomer arrangement with separate supply to each incomer.

These kits must be used to ensure compliance with BS EN 60439-3

5562s
EXTENSION TERMINAL
For use when assembling a consumer unit as a distribution board. Enables direct connection of cables to the neutral bar. Consists of a 25mm² capacity terminal with clamp screw.

8000s
PADLOCK
For use when locking the non 'K' series Sentry Consumer Unit transparent lid or in conjunction with 8041s, when locking an MCB, RCBO, RCD or switch disconnector. Supplied with two keys.

K8041s
LOCKING DEVICE
For use when locking a Sentry MCB, RCBO, RCD or switch disconnector in either the on or off position.

1 **5544s**
MCB BLANK – GREY
Designed to fill unused modules in Sentry Consumer Units and small enclosures. DIN-rail mounted.

10 **K5545s**
COVER MOUNTED BLANK
For filling spaces in the 'K' series Sentry consumer unit cover, where there are unused modules.

1 **K5511s** new 'K' series **1**
BUSBAR
11 module.

1 **K5590s** new 'K' series **1**
BUSBAR
20 module.

10 **KAX26s** new 'K' series **10**
BUSBAR COVER
Suitable for insulating the busbars K5511s and K5590s 20 module.

1 **K5593s**
BARREL LOCK AND KEY KIT
Suitable for securing 'K' series Sentry Consumer Unit lids.

5 **K5599s**
CONSUMER UNIT LABELS
Additional printed and blank labels, for identifying devices and circuits.

1 **5802s**
RCD INSULATION KIT
For use when an RCD is installed in a metal enclosure in an area of high earth loop impedance. Kit consists of male and female screwed ring for fitting into a 32mm knockout and clamp to hold cables secure

1 **5511s** old non 'K' series **1**
BUSBAR
Featuring 10 MCB ways and one main incomer finger.

5 **5590s** old non 'K' series **1**
BUSBAR
Featuring 20 MCB ways and one main incomer finger.

1 **5563s** old non 'K' series **1**
SPLIT-LOAD KIT
Consists of all necessary split load cabling (complete with terminals/ferrules) busbar and circuit identification labelling.

1 **5565s** old non 'K' series **1**
MULTI INCOMER KIT
For use when assembling a consumer unit in a multi incomer arrangement with separate supply to each incomer. This kit must be used to ensure compliance with BS EN 60439-3

These kits must be used to ensure compliance with BS EN 60439-3

MK offer a service to provide fully assembled consumer units.

FACTORY BUILT ASSEMBLY (FBA)

Using standard Sentry components we can build and supply fully assembled units to an agreed design. E.g. Have your split-load boards supplied with all the devices fitted, busbars cut and fitted with neutral and live cables terminated.

SPECIALS

To provide fully assembled custom built boards with standard and non-standard components.

- Ideal for housing developers, or any application requiring typically more than ten units.
- Quick installation time for Contractors.
- Short manufacturing lead time.
- Fast quotation, design turnaround.
- The process is simple:
 - i) Discuss the application with your Novar Business Development Manager.
 - ii) Agree the design with Novar Technical Services.
 - iii) Agree the price and delivery date.

MK Electric – Technical Services

Tel: (+44) 01268 563720

Fax: (+44) 01268 563064





Sentrysocket provides a high level of protection against electrocution and is available in eight MK wiring device ranges to suit most applications.

IMPORTANT

ACTIVE CONTROL CIRCUIT

This version of Sentrysocket incorporates a 'RE-SET' mechanism and is mains failure sensitive i.e. it will function under all normal conditions expected of an RCD but it will also trip in the event of a power cut or a dramatic reduction in mains voltage. This makes it ideal for use where hazardous situations could occur due to equipment such as rotating machinery and heat developing apparatus becoming suddenly energised after a power cut.

PASSIVE CONTROL CIRCUIT

This version of Sentrysocket incorporates a 'STAY-SET' mechanism and is mains failure proof i.e. it will function under all normal conditions expected of an RCD but will not trip in the event of a power cut. This makes it suitable for freezers or use in inaccessible or unmanned locations.

ALL SENTRYSOCKETS ARE PULSATING D.C. AND A.C. FAULT CURRENT SENSITIVE PRODUCTS

RCD Protected Switchsocket Outlets

13 AMP
LOGIC PLUS
FLUSH

ALBANY PLUS
FLUSH



K6100 WHI



K6101 MCO



K6300 WHI



K6301 MCO



K6211 WHI



K6301 SAB



K6233 WHI



K6304 MCO

K6100 WHI 1
1 GANG, 10mA RATED, TRIPPING CURRENT, ACTIVE CONTROL CIRCUIT

K6300 WHI 1
1 GANG, 30mA RATED, TRIPPING CURRENT, ACTIVE CONTROL CIRCUIT

K6303 WHI 1
1 GANG, 30mA RATED, TRIPPING CURRENT, PASSIVE CONTROL CIRCUIT

K6211 WHI 1
2 GANG, 10mA RATED, TRIPPING CURRENT, ACTIVE CONTROL CIRCUIT

K6231 WHI 1
2 GANG, 30mA RATED, TRIPPING CURRENT, ACTIVE CONTROL CIRCUIT

K6233 WHI 1
2 GANG, 30mA RATED, TRIPPING CURRENT, PASSIVE CONTROL CIRCUIT

MOUNTING BOXES
FLUSH: 886 ZIC - 35mm deep
SURFACE: K2140 WHI, 30mm deep

These a.c. and pulsating d.c. fault current sensitive products have up to 15mm thick frontplates and are suitable for 35mm deep boxes and supply voltages of 240V a.c., 50Hz.

Boxes must have a minimum depth of 30mm

A 25mm deep box (862 ZIC) can be used but conduit entry is restricted.

Refer to Sentrysocket section for more information on active and passive control circuits.

DIMENSIONS: 86 x 146mm
FIXING CENTRES: 120.6mm
BS.7288: 1990

K6101 MCO 1
K6101 SAB 1
1 GANG

10mA RATED TRIPPING CURRENT ACTIVE CONTROL CIRCUIT

K6301 MCO 1
K6301 SAB 1
1 GANG

30mA RATED TRIPPING CURRENT ACTIVE CONTROL CIRCUIT

K6304 MCO 1
K6304 SAB 1
1 GANG

30mA RATED TRIPPING CURRENT PASSIVE CONTROL CIRCUIT

MOUNTING BOXES

FLUSH: 886 ZIC
Boxes must have a minimum depth of 30mm

SURFACE (MCO)
WITH KNOCKOUTS: K897 ALM
WITHOUT KNOCKOUTS: K830 ALM

It is important to ensure that the correct control circuit, active or passive, is selected for each application.

Only suitable for supply voltage of 240V a.c., 50Hz.

DIMENSIONS: 86 x 146mm

FIXING CENTRES: 120.6mm

BS.7288: 1990

RCD Protected Switchsocket Outlets

13 AMP
CHROMA PLUS
FLUSH

GROSVENOR PLUS
SAVOY PLUS
FLUSH

METALCLAD PLUS
SURFACE

MASTERSEAL
SURFACE



K6101 PCR



K6306 POB



K6211 ALM



K6102 ALM



56301 GRY



K6301 PCR



K6307 PBS



K6231 ALM



K6302 ALM



56231 WHI



K6233 ALM



K6305 ALM

K6101 PCR **1**
1 GANG
10mA RATED TRIPPING CURRENT
ACTIVE CONTROL CIRCUIT

K6301 PCR **1**
1 GANG
30mA RATED TRIPPING CURRENT
ACTIVE CONTROL CIRCUIT

K6306 POB **1**
1 GANG
30mA RATED TRIPPING CURRENT
ACTIVE CONTROL CIRCUIT

K6307 PBS **1**
1 GANG
30mA RATED TRIPPING CURRENT
ACTIVE CONTROL CIRCUIT

K6211 ALM **1**
2 GANG
10mA RATED TRIPPING CURRENT
ACTIVE CONTROL CIRCUIT

K6231 ALM **1**
2 GANG
30mA RATED TRIPPING CURRENT
ACTIVE CONTROL CIRCUIT

K6233 ALM **1**
2 GANG
30mA RATED TRIPPING CURRENT
PASSIVE CONTROL CIRCUIT

K6102 ALM **1**
1 GANG
10mA RATED TRIPPING CURRENT
ACTIVE CONTROL CIRCUIT

K6302 ALM **1**
1 GANG
30mA RATED TRIPPING CURRENT
ACTIVE CONTROL CIRCUIT

K6305 ALM **1**
1 GANG
30mA RATED TRIPPING CURRENT
PASSIVE CONTROL CIRCUIT

56301 GRY **1**
56301 WHI **1**
1 GANG DP
30mA RATED TRIPPING CURRENT
ACTIVE CONTROL CIRCUIT

56231 GRY **1**
56231 WHI **1**
2 GANG
30mA RATED TRIPPING CURRENT
ACTIVE CONTROL CIRCUIT

56233 GRY **1**
56233 WHI **1**
2 GANG
30mA RATED TRIPPING CURRENT
PASSIVE CONTROL CIRCUIT

MOUNTING BOXES
FLUSH: 886 ZIC
Boxes must have a minimum depth of 30mm

Suitable for supply voltage of 240V a.c., 50Hz.

DIMENSIONS: 86 x 146mm

FIXING CENTRES: 120.6mm

BS 7288: 1990

BS 1363 Pt.2: 1995

MOUNTING BOXES
FLUSH: 886 ZIC
Boxes must have a minimum depth of 30mm

Suitable for supply voltage of 240V a.c., 50Hz.

DIMENSIONS: 87.5 x 149.5mm

FIXING CENTRES: 120.6mm

BS 7288: 1990

BS 1363 Pt.2: 1995

It is important to ensure that the correct control circuit, active or passive, is selected for each application.

Suitable for supply voltage of 240V a.c., 50Hz.

DIMENSIONS: 86 x 147 x 54mm

KNOCKOUTS:

7 x 20mm.
Three in top side, two in bottom side, and one in each end.

SPARE BOX
K897 ALM

BS 7288: 1990

BS 1363 Pt.2: 1995

It is important to ensure that the correct control circuit, active or passive, is selected for each application.

Suitable for supply voltage of 240V a.c., 50Hz.

DIMENSIONS: 86 x 147 x 54mm

KNOCKOUTS:

7 x 20mm.
Three in top side, two in bottom side, and one in each end.

SPARE BOX
K897 ALM

BS 7288: 1990

BS 1363 Pt.2: 1995

Fixing holes are for No.8 woodscrews (not supplied).
Supplied with an earth terminal in the back box. The Sentrysocket has 5 entries. Suitable for supply voltage of 240V a.c. 50Hz

DIMENSIONS: 175 x 115 x 80mm

BS 7288: 1990

BS 1363 Pt.2: 1995

Sentrysocket

Compliance with EC Directives, Standards and approvals

All Sentrysockets comply with the following EC Directives and are CE marked:

Low Voltage Directive (73/23/EEC)
Electromagnetic Compatibility Directive (89/336/EEC)

Sentrysocket RCD Single Sockets comply with the requirements of the following standards:

BS 7288: 1990 (1993)
BS 2011 Part 2.1 Db (Damp Heat - cyclic)
BS 2011 Part 2.1 Ka (Salt mist)
BS EN 50082-1

Sentrysocket RCD Double Socket also complies with the requirements of BS EN 61543: 1996

Technical specification

Electrical

Rated Voltage:
240V a.c.

Current rating:
13A resistive

Rated tripping current
30mA and 10mA versions

Terminal capacity:
3 x 4mm² for 1 gang
2 x 4mm² for 2 gang

Physical

Ambient operating temperature:
-5°C to +40°C

IP rating:
IP4X

Max. installation altitude:
2000 metres

Single socket Sentrysockets are only suitable for use in TN-S system where the Supply Neutral Connection is connected to the Supply Earth.

They are not suitable for connection across two lines of a 127V line to Neutral Voltage System.



Description

Sentrysocket provides a high level of protection against electrocution and gives further protection when used with appliances vulnerable to insulation damage, particularly when they are in damp environments or outdoors. These Sentrysocket units are not suitable for mounting in damp environments or outdoors.

Sentrysocket, incorporating an RCD, is part of a complete range of fixed and portable wiring devices and circuit protection devices suitable for use in domestic, commercial and light industrial applications.

Active control circuits

Incorporate a 'Re-set' mechanism and are mains failure sensitive, ie they will function under all the normal conditions expected of an RCD, but will also trip in the event of a power cut or a sudden, dramatic reduction in mains voltage. This makes them ideal for use where it would be hazardous for equipment to suddenly energise after return of mains power, such as use with rotating machinery and heat developing apparatus.

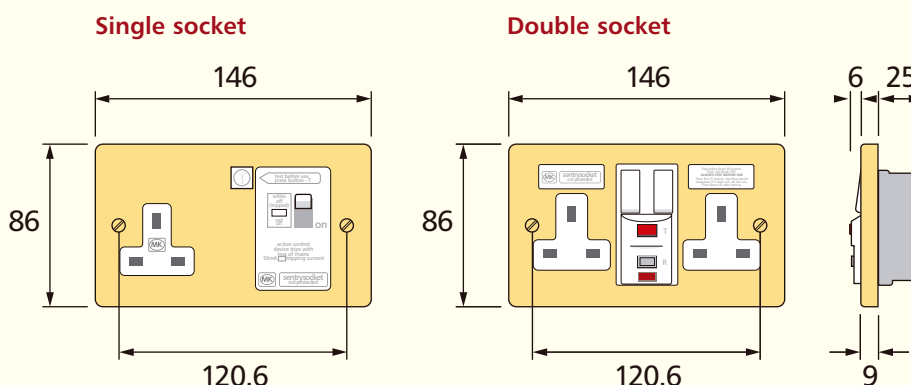
Passive control circuits

Incorporate a 'Stay-set' mechanism and is mains failure proof, ie it will function under all the normal conditions expected of an RCD and will not trip in the event of a power cut. This makes it suitable for use with freezers or in inaccessible or unmanned locations.

Features

- Suitable for most residential, commercial and light industrial applications
- Active and passive control circuit applications
- Comply fully with current Wiring Regulations
- Double pole switching
- Flexible and versatile in use
- Ideal for use with equipment subject to wet weather or high humidity
- Part of a complete range of MK circuit protection devices
- They are a.c. and pulsating d.c. sensitive for residual current

Dimensions (mm)



Cable management

Decorative finish Sentrysockets can be mounted in a variety of MK trunking systems.

Installation

Flush mounting steel wall box

It should be noted that some of the conduit entries may be restricted, depending upon their positions and the depth of box used.

TECHNICAL HOTLINE +44 (0)1268 563720

West India Quay, London



No 1 West India Quay is a £220 million, 36-storey mixed development comprising more than 150 luxury private apartments and a 4.5-star Marriott Hotel, which has over 300 guest rooms and 47 serviced apartments. The hotel occupies the first twelve floors. The developers are MWB Group plc and Manhattan Loft Corporation, and the main contractor Multiplex Construction UK Ltd. The £21million contract for the building services was awarded to Shepherd Engineering Services (SES).

In addition to a number of MK wiring devices and consumer units, MK timeclocks have been installed to control the apartments' air conditioning saving considerably on wiring, as they are able to take their power directly from the MK Sentry consumer units.

Consumer Units and Enclosures

Standards and approvals

All Sentry consumer units are designed to fully comply with the requirements of BS EN 60439-3.

Weatherproof enclosures are designed to fully comply with the requirements of EN 60670.



Technical specification

Electrical

Maximum current rating:

All Sentry consumer units have a maximum rating of 100A except K5504s, K5604s, which are rated at 63A

Terminal capacity: 16mm² earth and neutral

Rated frequency: 50Hz

Rated operational voltage:

Consumer unit: 220-250V

2 module enclosure: 220-250V

4 module enclosure: 220-415V

Rated insulation voltage:

Consumer unit: 300V

2 module enclosure: 300V

4 module enclosure: 660V

Short circuit withstand:

16kA rms (based on the use of a BS 1361 Type 2 fuse of rating not exceeding 100A)

Earthing system:

Suitable for use with TN-S, TN-C-S and TT systems

Split load

Split load units are supplied with a pre-fitted switch, RCD and suitable cables.

The following versions are offered:

	Main Incomer	RCD
K5682s	100A Switch	63A
K5662s	100A Switch	80A
K5632s	100A TD RCD	63A
K5666s	100A Switch	63A
K5686s	100A Switch	80A
K5636s	100A TD RCD	80A
K5681s	100A Switch	80A
K5631s	100A TD RCD	80A
K5626s	100A TD RCD	63A
K5582s	100A Switch	63A
K5566s	100A Switch	63A
K5586s	100A Switch	80A
K5581s	100A Switch	80A
K5531s	100A TD RCD	80A

Description

Sentry consumer units and enclosures are available in various surface metal, surface insulated and flush metal types, designed on a modular basis, with 2 to 21 module enclosures in the range, to accommodate the range of MK modular protection and control products. In addition 24, 32, 42 module surface metal and insulated dual rail consumer units can be assembled using a suitable stacking kit.

Surface insulated units provides an all insulated housing. Metal units provide a housing with facility for earthing the metal box.

The enclosures are provided with ample wiring space and cable entry points. The lids can be locked with a barrel lock & key (accessory K5593s).

Colours / finishes

All insulated and metal consumer units have a textured magnolia cover and lid. The surface metal consumer unit bases are in magnolia (powder coated paint). The flush bases are of galvanized steel. All 2 and 4 module and weatherproof enclosures are available in light grey.

Certain models are provided with a pre-assembled split load arrangement with switch and RCD. The range is complemented by a versatile selection of small, two and four module enclosures suitable for housing RCDs or other combinations of Sentry products. A 2 module enclosure K5592s is suitable for housing the one module RCBO.

All Sentry Consumer Units have neutral and earth terminal bars with 16mm² capacity for solid stranded copper cables.

For enquiries where large number of similarly designed consumer units i.e. specified. MK can provide complete pre-assembled factory built units, subject to certain conditions. For further information please contact the MK Technical Sales Services Department.

Features

- Attractive styling
- Modular design
- Suitable for most residential, commercial and light industrial applications
- Fully comply with British and European Harmonised Standards
- Available as an empty enclosure or pre-fitted with switch disconnector and RCD
- Factory built options available



Technical specification

Electrical (weatherproof enclosures only)

Maximum current rating:

5702s	2 pole devices	up to 100A
5704s	4 pole devices	up to 63A

Note:

5702s – Can accept up to 4 module ways with removal of moulded blanks.

5704s – Can accept up to 8 module ways with removal of moulded blanks.

Terminal capacity:

5702s:	4 x 6mm ² earth and neutral
5704s:	2 x 6mm ² and 6 x 4mm ² earth and neutral

Rated operational voltage: 220-415V

Rated insulation voltage: 660V

Technical specification

Physical

Ambient operating temperature:

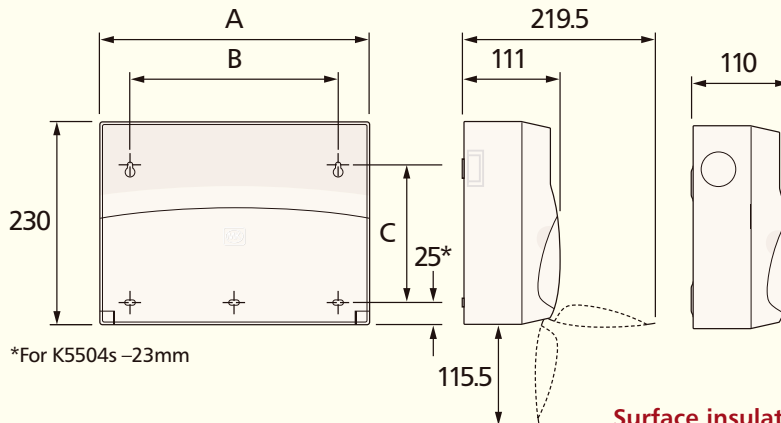
-5°C to +40°C (not to exceed an average of more than +35°C in any 24 hour period)

IP ratings: (see also 'Service Conditions', below)

Consumer unit	IP2XC
2 module enclosure 5502s:	IP3X
2 module enclosure 5702s:	IP65
2 module enclosure K5592s:	IP30
4 module enclosure 5504s:	IP3X
4 module enclosure 5604s:	IP3X
4 module enclosure 5704s:	IP65
Max. installation altitude:	2000m

Dimensions (mm) Note: Knockout details on following page

Consumer unit



Surface insulated
K5604s to K5686s

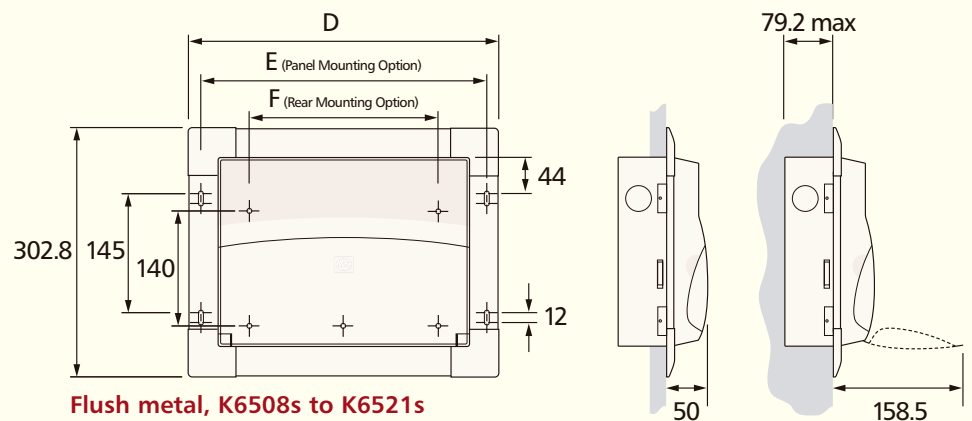
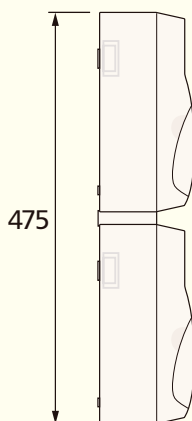
Unit	Modules	Dimensions		
		A	B	C
Surface Insulated	4	140	70	156
	8	234	164	156
	12	306	236	156
	16	378	308	156
Surface Metal	4	140	75	149
	8	234	168	147
	12	306	240	147
	16	378	308	147
	21	468	400	147

Unit	Modules	Dimensions		
		E	F	D
Flush Metal	8	307	276	160
	12	379	348	230
	16	451	420	300
	21	541	510	390

Stacked assemblies K5504s to K5586s

Dual Rail (Insulated or Metal) using stacking kits K6061s, K6062s and K6063s.

See page 216 for details.



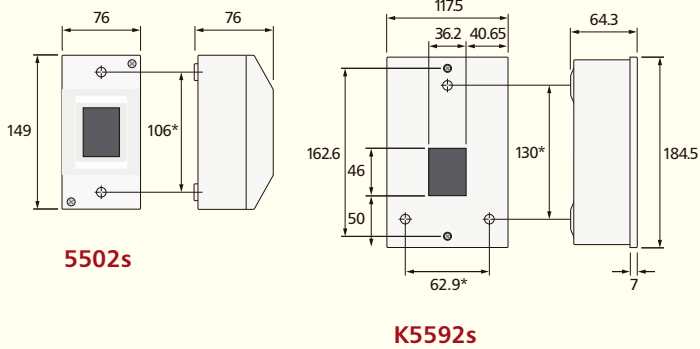
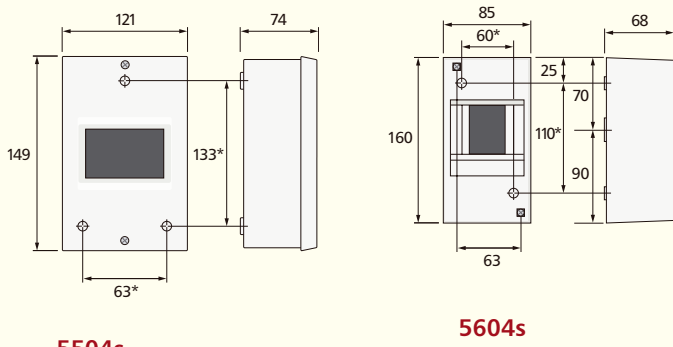
Flush metal, K6508s to K6521s

Flush-mount cavity dimensions, K6508s to K6521s			
	Height	Width	Depth*
8 module	236-246	242-252	69-79
12 module	236-246	314-324	69-79
16 module	236-246	386-396	69-79
21 module	236-246	476-486	69-79

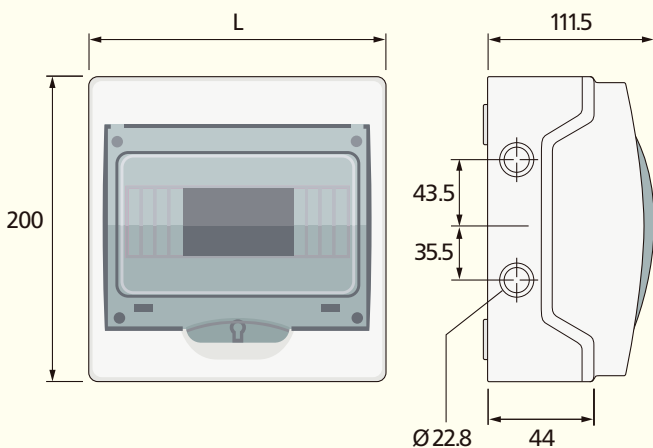
*Depth does not apply if panel-mounted

Flush metal K6508s to K6521s
Panel mounted

Flush metal K6508s to K6521s
Rear mounted

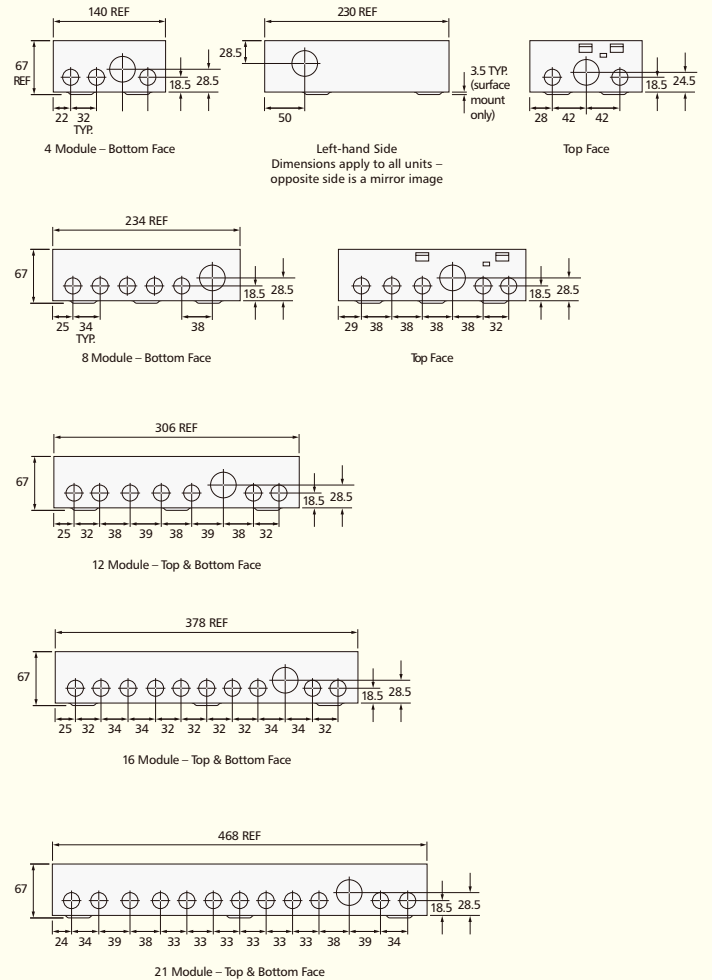
Dimensions (mm)
Two module enclosures

Four module enclosures


*Fixing centre for mounting

IP65 enclosures


5702s L = 123

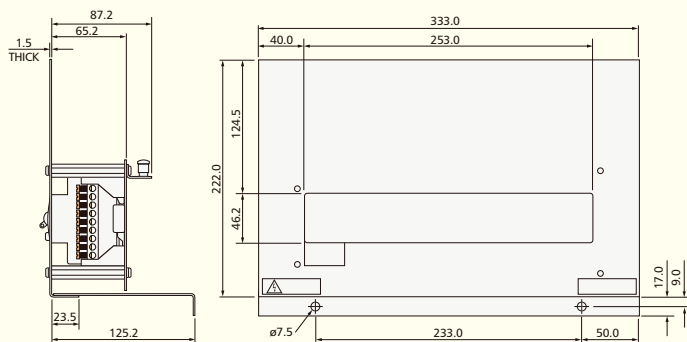
5704s L = 195

Dimensions (mm)
Knockout details for Surface and Flush-Mount Sentry Ranges


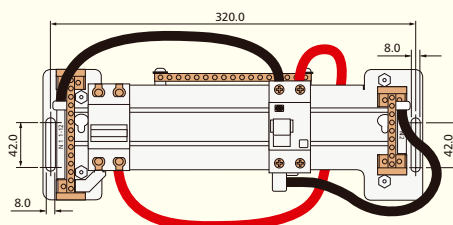
Unit	Top Face	Bottom Face	Sides
4 module	2 x 20mm 1 x 32mm	3 x 20mm 1 x 32mm	1 x 32mm per side
8 module	5 x 20mm 1 x 32mm	5 x 20mm 1 x 32mm	1 x 32mm per side
12 module	7 x 20mm 1 x 32mm	7 x 20mm 1 x 32mm	1 x 32mm per side
16 module	10 x 20mm 1 x 32mm	10 x 20mm 1 x 32mm	1 x 32mm per side
21 module	12 x 20mm 1 x 32mm	12 x 20mm 1 x 32mm	1 x 32mm per side

Dimensions (mm)

Skeleton units



Front



Front with plate removed

Installation

Consumer units

The Consumer units are provided with internal busbar shields or covers.

Front covers have lockable lid (using barrel lock & key accessory K5593s), which masks the front cover retaining screw. Removal of the front cover for internal access requires the use of tools.

Cover mounted blanks are provided with each Sentry Consumer unit to fill unused ways.

4,8 and 12 module – 1 off x 2

16 and 21 module – 2 off x 2

If additional unused ways are required, the DIN rail mounted blank 5544s or cover mounted blank K5544s must be used to complete the installation.

Skeleton Units

The Skeleton unit is a spine backplate assembly designed to fit the majority of Mantel / Clifton enclosures, as used in Local Authority housing.

The Skeleton unit is provided with an internal busbar shield.

Removal of the front cover for internal access requires the use of tools.

If any unused ways are required the DIN rail mounted blank 5544s must be used to complete the installation.

Two / four module enclosures

Front covers require tools to enable removal and gain internal access.

5604s has provision for tamper-proofing.

If there are any unused ways required the DIN rail mounted blank 5544s must be used to complete the installation. 5604s, 5702s, 5704s are provided with moulded blanks.

Note: Only the K5592s enclosure will accept the one module RCBOs.

Service conditions

Wiring of these products must comply with current IEE regulations.

Consumer units and two and four module enclosures are intended for indoor use in dry conditions and are not suitable for locations where high humidity and/or high temperatures may be experienced.

It is important that during installation of any Sentry enclosure, steps are taken to ensure that the IP rating is maintained, e.g. correct use of cable glands and knockouts / cutouts.

Testing

Site assembled consumer units using MK components comply fully with BS EN 60439-3 so do not require further site testing other than normal routine installation tests.

Split load and multi-incomer arrangements

Such assemblies must utilise the relevant Sentry kit in order to comply with BS EN 60439-3 and to avoid the need for additional testing.

Stacking kits

Accessory kits (stacking frame, fittings and earth cable) can be used to produce stacked dual rail units in the insulated and surface metal ranges for the 12, 16 and 21 module units.

K6061s – for 12 module units to create 24 module dual rail consumer unit.

K6062s – for 16 module units to create 32 module dual rail consumer unit.

K6063s – for 21 module units to create 42 module dual rail consumer unit.

Weatherproof enclosures

The weatherproof enclosures may be used for outdoor applications up to the level of the IP65 rating.

The cable entry position on the top and bottom of the enclosure is at the discretion of the installer and can be achieved with suitable tools. Knockouts/cutouts are provided for side entry.

Precautions must be taken to maintain the IP rating, e.g. correct use of cable glands and knockouts. The caps provided must be used to cover the mounting screws.

Note: IP65 rating only achieved with lid in the closed position. These enclosures will not accept the one module RCBOs.

Switch Disconnectors

Standards and approvals

Sentry switch disconnectors are designed to fully comply with the requirements of BS EN 60947-3.

They feature positive contact status indication in accordance with the 16th edition IEE Wiring Regulations 537-02-03 and 537-03-02. The Sentry switch disconnector may therefore be used as an isolating switch.



Technical specification

Electrical

Category of duty:	AC22A
Load type capability:	Both resistive and inductive
Operating voltage:	240V a.c.
Operating frequency:	50Hz

	5560s	5500s
Rated operational current I _e	63A	100A
Rated duty	Uninterrupted	Uninterrupted
Rated making capacity I	189A rms	3000 rms
Rated breaking capacity I _c	189A rms	3000 rms
Rated short time withstand current I _{cs} for 1 sec	2kA rms	2kA rms
Rated short circuit making capacity I _{cm}	3kA peak	3kA peak
Rated conditional short circuit current	6kA rms prospective	6kA rms prospective

Physical

Ambient operating temperature:
-5°C to +40°C

IP rating:
Front face IP3X, screw IP2X

Max installation altitude:
2000 metres

Rating specification

Switch disconnector	Rating
5500s	100A
5560s	63A

Description

The Sentry range offers a choice of switch disconnector rated at either 100A or 63A.

The operating dolly is capable of being locked in either the ON or OFF position. When locked in the ON position it will no longer operate as an isolator. Positive indication of the opening of the contacts is only given when the green stripe can be seen on the dolly.

The terminals are of a tunnel design and offer a generous cable capacity of 50mm² for solid stranded conductors and 35mm² for flexible conductors, on both current ratings.

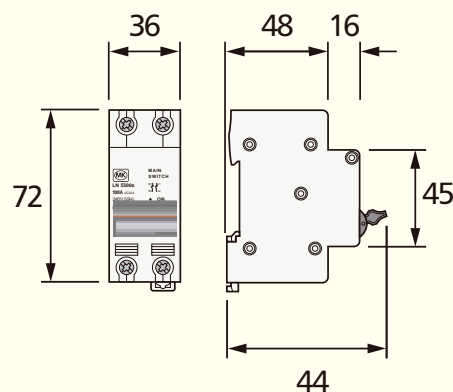
Category of duty

The Sentry switch disconnector is capable of switching both resistive and inductive loads and has a category of duty of AC22A.

Features

- Meet BS EN and IEE Wiring Regulation requirements
- Choice of current ratings
- Tunnel design terminals for ease of wiring
- Generous cable capacity
- Lockable operating dolly
- Make first, break last on neutral

Dimensions (mm)



Installation

The Sentry switch disconnector is designed to accept both cable-in/cable-out and direct-to-busbar connections.

The terminal screws are touch-proof to IP2X, captive and feature combination heads.

Miniature Circuit Breakers (MCBs)

Standards and approvals

Sentry MCBs are designed to fully comply with the relevant requirements of BS EN 60898: 1991.

The MCBs feature positive contact status indication in accordance with 16th edition IEE Wiring regulations (537-02-03 and 537-03-02).

Technical specification

Electrical

Voltage rating:
230V/400V a.c.

Operating frequency:
50Hz

Rated short circuit capacity I_{cn}:
6000A

Service short circuit capacity I_{cs}:
6000A

When backed up by a BS 1361, 100A fuse, then the breaking capacity of the MCB is increased to 16,000A.

Energy limiting class: **3**

Physical

Ambient operating temperature:
-5°C to +40°C

Calibration temperature:
+30°C

IP rating:
Front face IP4X, screw IP2X

Terminal capacity:
35mm²

Tightening torque:
3Nm

Max. installation altitude:
2000 metres



Description

Sentry MCBs are of the thermo-magnetic, current limiting type and are available with either Type B or Type C operating characteristics.

The operating dolly may be locked in either the ON or OFF position without affecting the ability of the trip mechanism to operate. The contacts themselves are manufactured from carefully chosen materials, selected specifically for their low electrical resistance and low propensity to weld under fault conditions.

Positive contact status indication

When the green indicator is visible, then a contact gap of 4mm has been achieved. Sentry MCBs may therefore be used as single pole isolating switches where appropriate.

Terminals

The Sentry MCB features tunnel terminals of 35mm² capacity on all ratings. The terminal screws are touch proof to IP2X, captive and feature combination heads.

Retrofit kit 5567s

The Sentry MCB/RCBO retrofit kit is designed for use when installing MCBs/RCBOs into old Sentry Consumer Units with fork style busbar (non 's' suffix or 'K' prefix). The kit contains a busbar extension terminal (5562s), a 100A rated cable and a 25mm² capacity spade connector terminal with clamp screw. It may be used to fit up to 3 Sentry MCBs/RCBOs. If more need to be installed, then use the 5511s busbar with kit.

Modes of operation

The mechanism of the Sentry MCB has been carefully designed and engineered using thermal and magnetic elements to detect overcurrents due to both overload and fault currents. The MCB will operate and interrupt the supply to prevent damage to the installation.

The thermal component is a carefully calibrated, thermally operated bi-metal element.

Larger overloads and fault current situations are dealt with using the magnetic tripping mode of the MCB. This acts very quickly, overriding the thermal operation.

BS EN 60898 requires the tripping to occur within 100 milliseconds and the design of the Sentry MCB allows fault currents of up to 6000A (M6) to be safely interrupted well within this time scale.

Miniature Circuit Breakers (MCBs)

Rating specification

Type B Single pole	Rating
5903s	3A
5906s	6A
5910s	10A
5916s	16A
5920s	20A
5932s	32A
5940s	40A
5945s	45A
5950s	50A
Type C Single pole	Rating
8703s	3A
8706s	6A
8710s	10A
8716s	16A
8720s	20A
8732s	32A
8740s	40A
8750s	50A
Retrofit kit 5567s	

Description (continued)

Operating characteristics

TYPE B

The magnetic operating limits are between 3 and 5 times the current rating of the MCB. Under these conditions the mechanism of a 10A MCB will operate between 30A and 50A in an overcurrent situation.

TYPE C

In the case of Type C MCBs, the magnetic operating limits are between 5 and 10 times the current rating of the MCB. Under these conditions the mechanism of a 10A MCB will operate between 50A and 100A in an overcurrent situation.

Type C devices are capable of supplying the majority of inductive and capacitive loads such as motors, transformers and tungsten or fluorescent lighting.

Time/Current and Energy let through characteristics of Sentry MCBs are shown graphically on the Time current characteristics chart (See separate document).

TYPE D

The Type D MCB is suitable for applications involving equipment generating very high inrush currents, e.g. x-ray equipment, transmitters and computer power supplies. The magnetic operating limits are between 10 and 20 times the current rating of the MCB. **(For Modular Combi use only)**

Features

- Meet BS EN and IEE Wiring Regulation requirements
- 'Trip-free' mechanism
- Positive contact status indicator
- Tunnel type, touch-proof, captive terminals
- Generous terminal capacity
- Can be used as single pole isolating switch

Installation

Selection of the most suitable MCB should take into account the following considerations:

1. Operating voltage and frequencies

It is possible to use the Sentry MCB on other voltages than 230/400V a.c. 50Hz, but it should be noted that this takes the MCB outside the scope of BS EN 60898.

2. Type of load

RESISTIVE

No derating is required in the case of resistive loads.

INDUCTIVE

In the case of inductive loads from direct-on-line motors, the surge on energisation can produce up to 5 times full load current, which may be present for several seconds. It is therefore recommended that Type C MCBs are used for such circuits.

When using assisted start motors, the usually quoted figures are 2.5 times the full load current, for periods generally longer than those for direct-on-line starters. It is thus important to establish the degree of inrush current in order to select a suitable MCB. In all instances, reference should be made to both the motor manufacturer's curves and MK's circuit breaker curves in order to select the compatible miniature circuit breaker.

CAPACITIVE

Surges on energisation, for example with discharge lighting, may well reach 25 times the rated current of the device, but only for very short duration. Type B devices will often be adequate, but for more specialised circuits, a Type C may be required. The lighting fitting manufacturer's recommendations should be observed.

Miniature Circuit Breakers (MCBs)

3. Fault breaking capacity

All Sentry MCBs have a short circuit breaking capacity of 6,000A (M6).

For applications where the prospective fault current is in excess of this, a BS 1361, 100A (maximum) fuse should be used upstream of the MCB to provide a system breaking capacity of 16,000A (in accordance with BS EN 60439-3).

4. Discrimination

A Sentry MCB consumer unit will normally be supplied via an HRC fuse. The HRC in such instances will be the major device and remain unaffected by any fault current which causes the MCB to operate.

The level of fault current up to which this can be assured is determined by comparing the I^2t characteristics of the two devices. Discrimination will theoretically occur up to the level at which the value of the total operating I^2t of the MCB is below the minimum pre-arcing I^2t of the fuse, although in practice, discrimination will be achieved at higher levels than this.

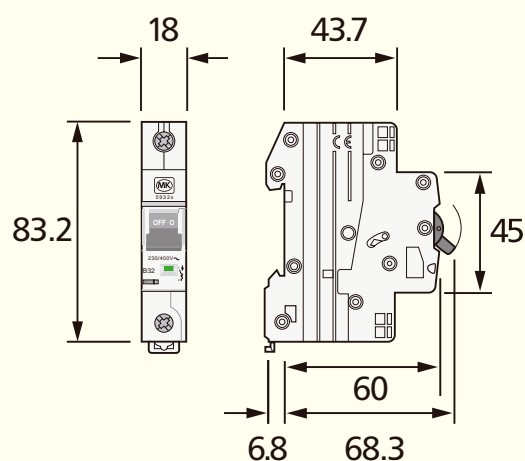
5. Cable protection

The current carrying capacity of the cable should always exceed the current rating of the MCB to prevent damage.

However, should this not be the case, a further calculation may show that the MCB can still interrupt the current in a sufficiently short time to prevent overheating of the cable insulation. Although this will prevent mechanical damage to the cables, further overload protection should be provided by a separate device, e.g. a motor overload relay.

In case of doubt please contact the MK Technical Sales and Service Department.

Dimensions (mm)

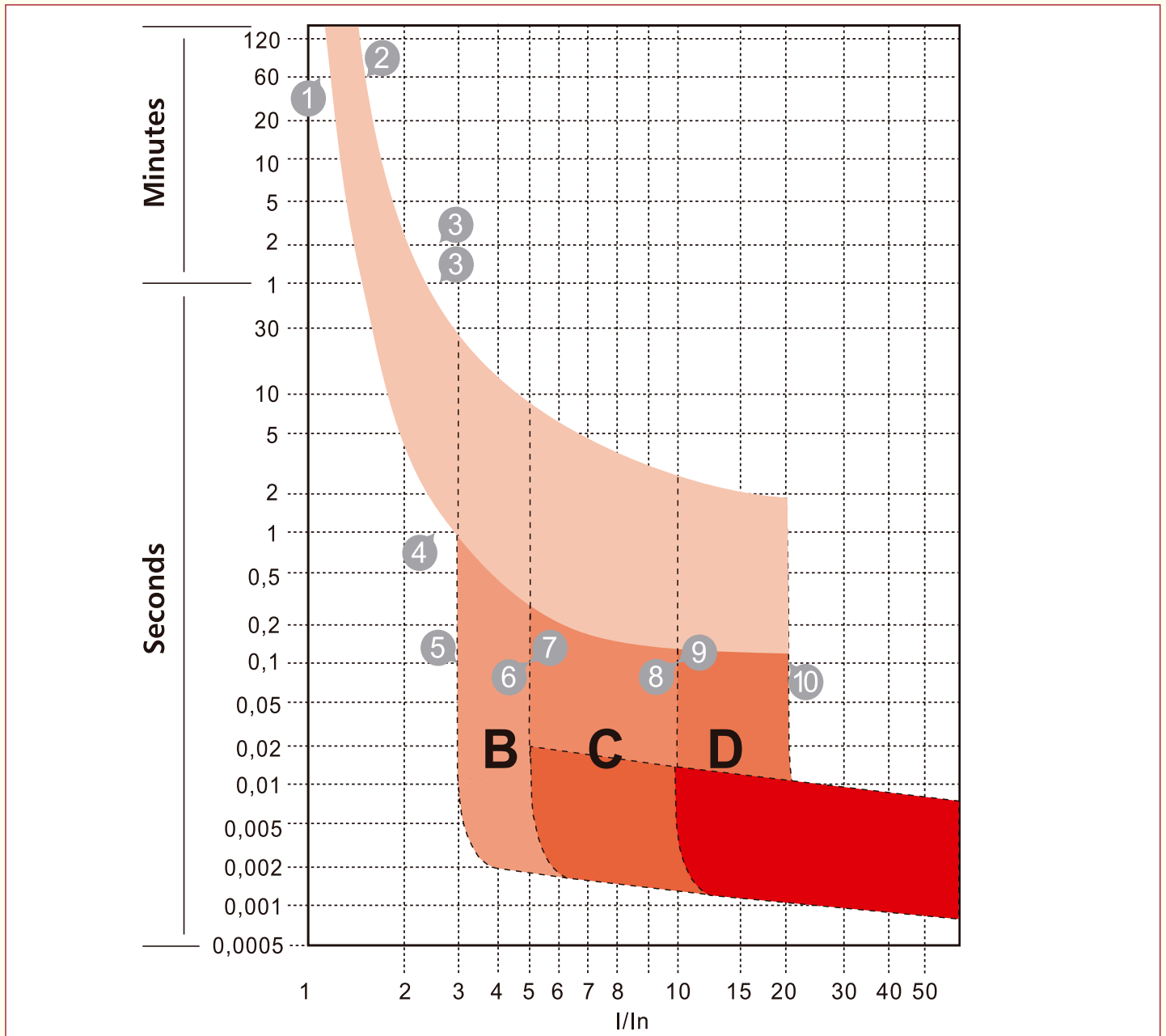


Miniature Circuit Breaker Time Current Characteristics

Sentry miniature circuit breaker

Type: B and C to BS EN 60898 Ref. calib. temp 30°C

(Type D shown for reference only)



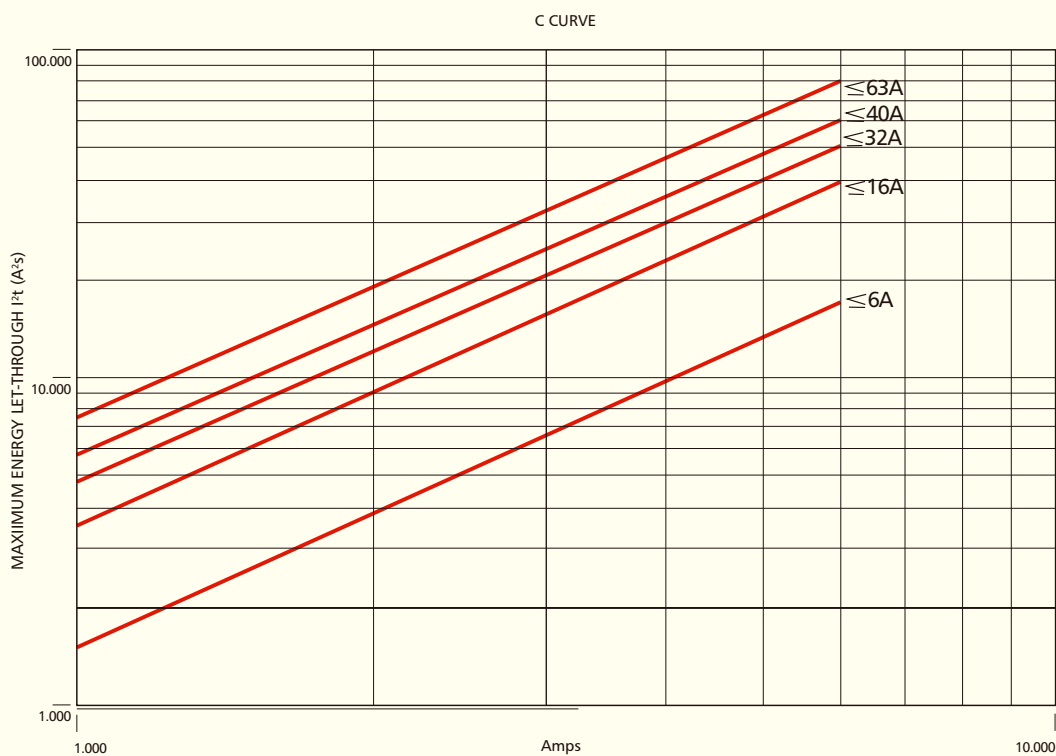
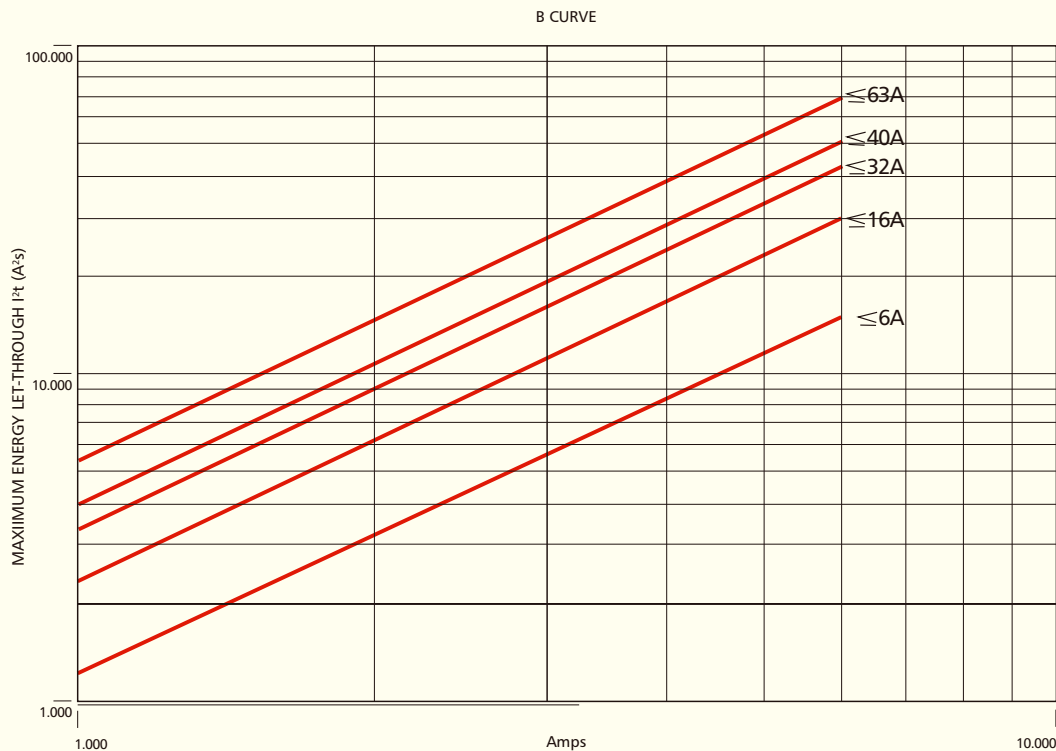
Reference values for time current operating characteristics, BS EN 60898

1	Steady Current Value $I_{nt} = 1,13 I_n : t > 1h$
2	Steady Current Value $I_{nt} = 1,45 I_n : t < 1h$
3	$2,55 I_n : t < 1m (I_n \leq 32A)$ $t < 2m (I_n > 32A)$
4	$2,55 I_n : t > 1s$

5	Curve B
	$3 I_n : 0,1 < t < 45s (I_n \leq 32A)$ $0,1 < t < 90s (I_n > 32A)$
6	$5 I_n : t < 0,1s$
7	Curve C
	$5 I_n : 0,1 < t < 15s (I_n \leq 32A)$ $0,1 < t < 30s (I_n > 32A)$
8	$10 I_n : t < 0,1s$

9	Curve D
	$10 I_n : 0,1 < t < 4s (I_n \leq 32A)$ $0,1 < t < 8s (I_n > 32A)$
10	$20 I_n : t < 0,1s$

I²t curves



Residual Current Breakers with Overcurrent Protection (RCBOs)

Standards and approvals

All Sentry RCBOs are designed to fully comply with the relevant requirements of BS EN 61009-1, BS IEC 61009-2-2, BS 61543 for EMC.

The RCBOs feature positive contact status indication in accordance with 16th edition IEE Wiring Regulations (537-02-03 and 537-03-02).



Technical specification

Electrical

Operating voltage:
230V a.c.

Operating frequency:
50Hz

Rated Short circuit capacity Icn:
6,000A

Service short circuit capacity Ics:
6,000A

When backed up by a BS 1361, 100A fuse, then the breaking capacity of the RCBO is increased to 16,000A.

Type A (a.c. as well as pulsating d.c.)

Physical

Ambient operating temperature:
-25°C to +40°C

IP rating:
Front face IP4X, screw IP2X

Terminal capacity:
Line in 25mm²
Line and neutral out 16mm²

Tightening torque:
Load line and neutral 1.5Nm
Supply 2.5Nm

Max. installation altitude:
2000 metres

Description

The Sentry range features solid neutral type single pole RCBOs in one module format.

The one module Sentry RCBOs are a combination of a Type B MCB and a Residual Current Device. This enables both overcurrent protection and earth fault current protection to be provided by a single unit.

This combination allows earth fault protection to be restricted to a single circuit, thus ensuring that only the circuit with the fault is interrupted. (When groups of circuits are protected by an RCD, all circuits would be interrupted under fault conditions, which may cause unnecessary inconvenience).

The operating dolly on all Sentry RCBOs may be locked in either the ON or OFF position without affecting the ability of the trip mechanism to operate.

The Sentry RCBO features tunnel terminals of generous capacity, with 25mm² for live supply and 10mm² for live and neutral load terminals. The neutral supply (blue) and earth supply (white/cream) are provided via flying leads.

Mode of operation

As the RCBO is a combination of an MCB and RCD, reference should be made to the relevant technical information regarding these devices.

Features

- Single module
- Meet BS EN and IEE Wiring Regulation requirements
- Allows both overcurrent and earth fault protection and detection
- Available in a range of current ratings
- Tunnel type terminals
- Generous terminal capacity
- Positive contact status indication

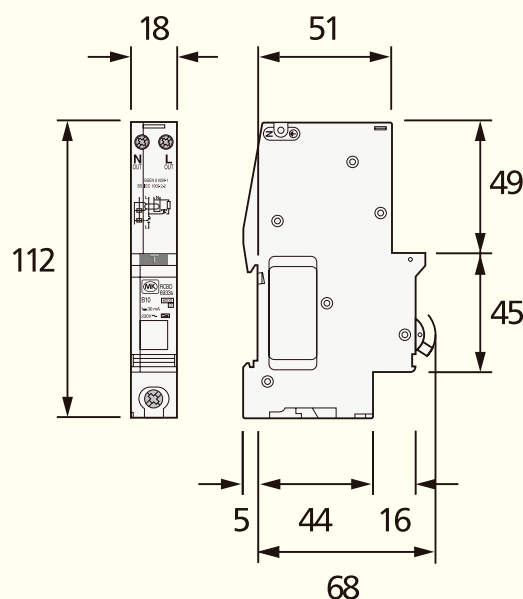
Residual Current Breakers with Overcurrent Protection (RCBOs)

Rating specification

Rating RCBO	Tripping Current	List No.
6A, 230V	30mA	6932s
10A, 230V	30mA	6933s
16A, 230V	30mA	6934s
20A, 230V	30mA	6935s
32A, 230V	30mA	6936s
40A, 230V	30mA	6937s
45A, 230V	30mA	6938s
50A, 230V	30mA	6939s*

* Available early 2004

Dimensions (mm)



Installation

The Sentry RCBOs may be installed anywhere along the length of the busbar and will occupy one outgoing way.

Selection of the most suitable RCBO should take into account the following considerations:

1. Operating voltage and frequencies

2. Fault breaking capacity

For applications where the prospective fault current is in excess of this, a BS 1361, 100A (maximum) fuse should be used upstream of the RCBO to provide a system breaking capacity of 16,000A.

3. Cable protection

The current carrying capacity of the cable should always exceed the current rating of the RCBO, to prevent damage. However, should this not be the case, a further calculation may show that the RCBO can still interrupt the current in a sufficiently short time to prevent overheating of the cable insulation. Although this will prevent mechanical damage to the cables, further overload protection should be provided by a separate device, e.g. a motor overload relay.

In case of doubt please contact the Technical Sales and Service Department.

Residual Current Devices (RCDs)

Standards and approvals

All Sentry RCDs are designed to fully comply with the requirements of BS EN 61008: 1995, IEC 1008:1990

They all feature positive contact status indication in accordance with 16th edition IEE Wiring Regulations (537-02-03 and 537-03-02).

Technical specification

Electrical

Rated making and breaking capacity /m:

16 - 40A = 500A

63 - 80A = 800A

100A = 1000A

Rated short-circuit current /Inc:

16 - 80A = 10,000A (100A fuse)

100A = 6,000A (125A fuse)

Rated residual short-circuit current /I Δ m:

16 - 80A = 10,000A

100A = 6,000A

Rated voltages:

2 pole devices, 110V and 230V

4 pole devices, 230V to 440V

Operating voltages:

2 pole devices, 110V - 100V to 250V

230V - 100V to 250V

4 pole devices, 185V - 440V

Tripping Time:

1 x I Δ n \leq 300ms

5 x I Δ n \leq 40ms

Time delay version

1 x I Δ n - 350-500ms

Physical

Ambient operating temperature:

-25°C to +40°C

IP rating:

Front face after installation of enclosure IP40

Terminal capacity:

Solid standard - 1 x 1.5 - 50mm²

Flexible with female - 1 x 1.5 - 35mm²

Tightening torque:

3Nm

Max. installation altitude:

2000 metres



Description

The Sentry range of RCDs offers a comprehensive selection of devices designed to meet most residential, commercial and light industrial requirements.

The range includes two and four pole, a.c., d.c. fault current sensitive and time delayed models and a selection of current ratings from 16 to 100A is available in a variety of tripping sensitivities.

When in the OFF position a contact gap of 4mm is present, enabling Sentry RCDs to be used as isolating switches where appropriate.

Positive indication of the opening of the contacts is only given when contact status indicator shows green.

The operating dolly may be locked in either the ON or OFF position without affecting the ability of the trip mechanism to operate, i.e. the RCD is 'trip-free'. It is not possible to hold the contacts closed when a fault condition exists.

All Sentry RCDs incorporate a filtering device to provide protection against transient surges in the supply to the unit, thus reducing the occurrence of unwanted tripping.

Features

- Meet BS EN and IEE Wiring Regulation requirements
- Extensive range to suit all specifications
- Protect against unwanted tripping
- Positive contact status indication
- Suitable for most residential, commercial and light industrial applications
- Offer a high degree of protection against electrocution in accidental shock hazard situations
- Two module, double pole units available up to 100A
- Indication of earth fault, via central dolly position

Residual Current Devices (RCDs)

Rating specification

Double pole, 2 module

Rating	Tripping current	List No.
16A, 110V	10mA	6016s
16A, 110V	30mA	6416s
16A, 230V	10mA	6316s
16A, 230V	30mA	5716s
32A, 110V	30mA	6032s
32A, 230V	30mA	6730s
40A, 230V	30mA	5740s
63A, 230V	30mA	5760s
63A, 230V	100mA	6160s
63A, 230V	300mA	5860s
80A, 230V	30mA	5780s
80A, 110V	30mA	6080s
80A, 230V	300mA	5880s
80A, 230V	100mA	6180s
100A, 230V	30mA	7700s
100A, 230V	100mA	6600s
100A, 230V	300mA	7800s

Double pole, pulsating d.c., fault current sensitive, 2 module

16A, 230V	10mA	6216s
16A, 230V	30mA	6716s
32A, 230V	30mA	6630s
40A, 230V	30mA	5640s
63A, 230V	30mA	5660s

Time delayed, 2 module

80A, 230V	100mA	6980s
100A, 230V	100mA	6400s

Four pole, 4 module

25A, 230/400V	30mA	6425s
40A, 230/400V	30mA	6440s
40A, 230/400V	100mA	6240s
63A, 230/400V	30mA	6463s
63A, 230/400V	100mA	6363s
63A, 230/400V	300mA	6263s

Four pole, pulsating d.c., fault current sensitive, 4 module

40A, 230/400V	30mA	6640s
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Installation

Sentry RCDs must never be used as the sole method of direct contact protection, but are invaluable in providing supplementary protection in high risk environments where damage may occur.

Application

The choice of the most suitable RCD for a particular application should take into account the following considerations:

1. Sensitivity

10mA RCDs offer a high degree of protection against electrocution in an accidental shock hazard situation. They are of particular value in a high risk area where resistances external to the body are likely to restrict the earth fault current flowing through the body to less than 30mA and where 110V supply is being used.

30mA RCDs offer a high degree of protection in an accidental shock hazard situation and are by far the most popular sensitivity used in the United Kingdom. In a shock situation, the current flowing through the human body at 240V 50Hz could be between 80 and 240mA, depending on the resistance of the body in question. To ensure that there are no harmful physiological effects in such a situation, it is necessary for the RCD to operate within 300ms at 30mA and 40ms at 150mA. As the Sentry RCD typically operates well below these times, it clearly more than satisfies this requirement.

100mA RCDs may, in some circumstances, provide protection against electrocution in an accidental shock hazard situation. However, it is important to note that there is a likelihood that the earth fault current may be below the sensitivity of the RCD. This becomes increasingly likely if additional resistances to that of the human body are in the current path.

300mA RCDs provide protection against the risk of fire only. They do not provide protection against electrocution in an accidental shock hazard situation. A typical application would be lighting circuits where it is deemed that the risk of electric shock is small.

It is important to note that a current of less than 500mA flowing in a high resistance path is sufficient to bring metallic parts to incandescence and, potentially, initiate a fire.

2. Requirements of the IEE Wiring Regulations BS 7671

RCDs may be used to provide additional protection against both Indirect and Direct Contact.

RCDs with residual tripping current in excess of 30mA should not be used to provide personal shock protection.

Indirect Contact

Defined as the "contact of persons or livestock with exposed conductive parts made live by a fault and which may result in electric shock".

Effective earthing in conjunction with automatic disconnection should always be employed to protect against the effects of indirect contact. The provision of a low resistance path back to the supply from the fault should ensure that the overcurrent device operates before damage occurs. This is the earth fault loop impedance.

In circumstances where the earth fault loop impedance in the circuit is too high to ensure operation of the overcurrent device, then the IEE Wiring Regulations allow the installation of an RCD. To comply with the Regulations, the earth loop impedance of the circuit (in ohms), multiplied by the rated tripping current of the RCD (in amperes) must not produce a value greater than 50. With this in mind, the maximum values of earth loop impedance permissible when installing an MK Sentry RCD are as follows:

$$Z_s (\text{max}) = \frac{50}{I_{\Delta n}} = \frac{50}{0.03} = 1666 \text{ ohms}$$

Rated Tripping Current of RCD	Maximum Permissible Earth Fault Loop Impedance
10mA	5000 ohms
30mA	1666 ohms
100mA	500 ohms
300mA	166 ohms

(Regulations 413-02-15 and 16 apply). RCDs are further specified for protection against indirect contact on TT systems. (Regulations 413-02-19 and 20 apply.)

Residual Current Devices (RCDs)

Application (continued)

Direct Contact

Defined as "contact of persons or livestock with live parts which may result in electric shock".

The Regulations recognise four main means of providing protection against direct contact which include enclosures and the use of extra low voltage systems.

However, the use of RCDs is specified by the Regulations in the following instances:

- A socket outlet rated at 32A or less which may reasonably be expected to supply portable equipment for use outdoors shall be protected by an RCD having the characteristics specified in Regulation 412-06-02. (Regulation 471-16-01 applies.)
- Where socket outlets are used to supply caravans on caravan sites, then they must be protected by an RCD having the characteristics specified in Regulation 412-06-02.

Regulation 412-06-02 stipulates among other things that where supplementary protection is provided by residual current devices, their rated residual operating current must not exceed 30mA and that they must trip within 40ms at 5 times rated operating current.

Although RCDs must never be used as the sole method of direct contact protection, they are invaluable in providing supplementary protection in high risk environments where damage may occur. Typical applications include situations where equipment may be used outside or fed by trailing sockets, equipment accessible to children or equipment used in wet areas. For these reasons RCDs are commonly found in schools, hospitals and residential installations.

3. Types of fault current

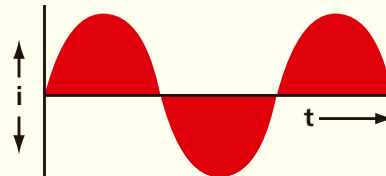
In an installation different types of fault current can occur. MK offer RCDs to suit these conditions.

Sentry Type AC RCDs are suitable for situations where there are residual sinusoidal alternating currents, whether applied suddenly or rising slowly. This is the most commonly used type of RCD in the UK.

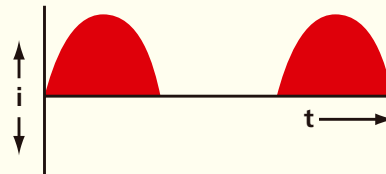
Sentry Type A RCDs (i.e. pulsating d.c. fault current sensitive) are suitable for situations where there are residual sinusoidal alternating currents, whether suddenly applied or slowly rising. These situations can occur with the use of semiconductor devices in modern electrical and electronic equipment, such as computers, printers, plotters, televisions, video cassette recorders and hi-fi equipment, is growing.

Such devices may result in the normal sinusoidal a.c. waveform generated by the mains electrical supply being 'modified'. For example, the waveform may be rectified or, as in asymmetric phase control devices, the waveform may be chopped. The resulting waveforms are said to contain a pulsating d.c. component as illustrated below.

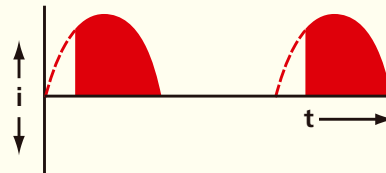
Normal a.c. waveform



Pulsating d.c. waveform
Half wave rectified



Pulsating d.c. waveform
Typical asymmetrical
phase control



Residual Current Devices (RCDs)

Application (continued)

Pulsating d.c. fault current sensitive RCDs


Should a waveform containing a pulsating d.c. component develop an earth fault, then it is possible that it may not be detected by an "a.c. only" sensitive RCD. For this reason, the Sentry range contains RCDs designed to be sensitive to pulsating d.c. fault currents thus maintaining the intended degree of protection.


Type B RCDs are suitable for situations where there are residual sinusoidal alternating currents, residual pulsating direct currents and smooth d.c. and a.c. residual current of various frequencies, which would not trip Type AC or A RCDs.

These situations can occur in 50Hz a.c. installations with electronic equipment, e.g. frequency converters, UPS installations, power supply unit or high-frequency power converters.


The following symbols are used on the front plate of the device to indicate the type of RCD.

 – type AC RCD.

 – type A RCD.

 – type B RCD.

4. Temperature

All Sentry RCDs are suitable for use in the temperature range -25°C to $+40^{\circ}\text{C}$. This is indicated on the RCD by the symbol .

5. Time Delayed RCDs Type S (or selective)


When two or more Sentry RCDs are installed in series with one another, measures must be taken to ensure that they discriminate properly. In event of an earth fault, only the RCD immediately upstream from the fault should operate.

RCDs do not discriminate on rated tripping current alone, i.e. a 100mA rated RCD situated upstream from a 30mA rated RCD, will not offer inherent discrimination.

In order to ensure that discrimination is achieved, a Sentry Time Delayed RCD should be used. The in-built time delay period ensures that the downstream RCD opens the circuit before the upstream RCD starts to operate.

The maximum tripping time of a Sentry Time Delayed RCD is 500ms. Typical applications are:

- i) as main incomers on TT systems where all sockets are already protected by a 30mA instantaneous RCD, but where unwanted tripping may become a problem.
- ii) as the main in-comer of split load consumer unit arrangement where all circuits are protected by a 10 or 30mA instantaneous RCD or otherwise comply with the direct and indirect contact protection requirements of the Wiring Regulations.

The Sentry Time Delay RCDs are clearly identified with the internationally agreed representative symbol .

6. 3 phase, 3 wire systems

Sentry 4 pole RCDs may be used to provide earth fault protection on 3 phase, 3 wire systems, as the current balance mechanism does not require a neutral to be connected in order to operate effectively.

Residual Current Devices (RCDs)

Operation

The RCD provides an indication of an earth fault and contact status as detailed below.

The operating dolly provides the following indication:

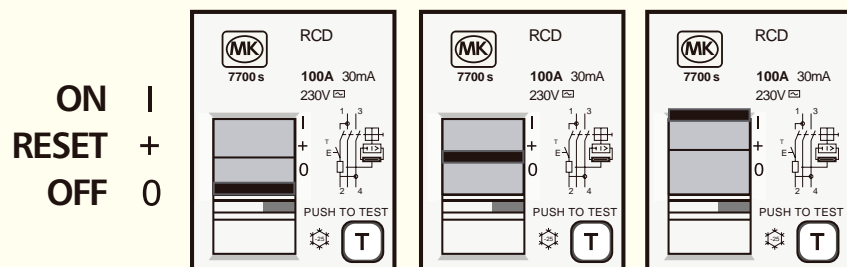
- I** = Switched ON
- +** = Switched OFF due to Earth Fault or test button operation
- 0** = Switched OFF

The contact status is shown through the window.

Red = contact closed

Green = contact open (RCD is switched off)

In the event of an Earth Fault in the installation or the operation of the test button, the dolly will move to the central position (+) and the contact status indicator shows green. To re-connect the supply the dolly must be reset by moving to the off position before switching on.



Testing

If an RCD is installed for additional protection against indirect contact, it is a requirement of the IEE Regulations that the effectiveness of the RCD be verified. This must be achieved by a test simulating an appropriate fault condition and be independent of any test facility incorporated in the RCD. The test currents to be applied are as follows:

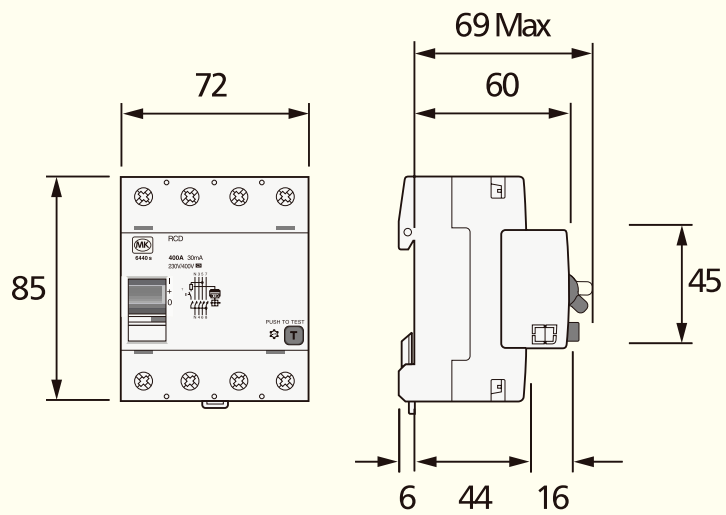
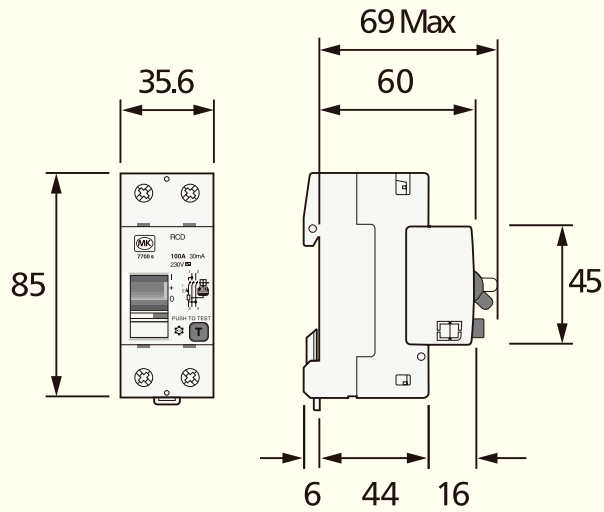
Test current	Condition
$0.5 \times I_{\Delta n}$	RCD must not trip
$1.0 \times I_{\Delta n}$	RCD must trip within 300mS
$5.0 \times I_{\Delta n}$	RCD must trip within 40mS

Where $I_{\Delta n}$ is the RCD's rated tripping current in accordance with wiring regulations and product standard BS EN 61008.

For time delay RCD $1.0 \times I_{\Delta n}$ RCD must trip between 350-500mS.

Residual Current Devices (RCDs)

Dimensions (mm)



Contactors

Standards and approvals

All Sentry contactors in the range are designed to fully comply with BS EN 61095

Rating specification

Type	Width	List No.
20A, double pole	1 module	6220s
20A, double pole, with manual override	1 module	6720s
20A, four pole	2 module	6420s
40A, double pole	2 module	7240s
63A, double pole	2 module	7263s
40A, four pole	3 module	7440s
63A, four pole	3 module	7463s
Auxiliary Contact	1 module (including ½ module blank)	7301s
Suppression block	1 module	7302s



Description

Sentry contactors provide a method of remotely switching single and three phase loads. In this regard, they are particularly useful for switching heating, lighting and ventilation circuits, in particular when used in conjunction with REC supply off-peak tariffs.

The Auxiliary Contact is suitable for fitting to all Sentry Contactors and allows remote indication of contactor status, one normally open and one normally closed contact is provided. The Auxiliary Contact is a half module width, a half module blank is supplied to complete installation.

The suppression block is suitable where contractor controls are not bounce free and connects across the coil terminals. It can be used in conjunction with one or two contactors.

They are suitable for mounting on a standard DIN rail and are therefore fully compatible with all Sentry Consumer Units and small enclosures. (5504s, 5604s, 5704s, 5702s.)

Functions

CONTROL

Achieved by energising and de-energising the contactor coil, via an MK Time Switch or REC meter during 'off peak' hours as set by supply authorities. A coil status indicator is visible through the small window on the front of the contactor.

MANUAL OVERRIDE (6720s only)

An extra function is offered by the Sentry Contactor with manual override. This performs in the same way, but has a switch on the front face to give the following extra facilities:

1. AUTO START MODE

This gives the same performance as above.

2. 'STOP' (0)

In this position the user is able to switch the load off when required, eg during periods of absence. The load remains off until manually reset.

3. MANUAL START MODE (1)

A manual override which allows the load to be energised outside the normal timed period when required. When the contactor is used via an MK Time Switch or by an REC supply meter, the override switch can either be reset manually or allowed to return to the 'auto' position at the commencement of the next timed period. During the 'manual' period, electricity will be used at the standard rate.

4. 'PERMANENTLY ON' MODE

The manual override switch features a locking mechanism which allows the contactor to be fixed in a 'permanently on' state. Note: this will not now reset at the commencement of the next timed period.

Contactors

Features

- Compatible with all Sentry Consumer Units (single phase only) and the following Sentry enclosures: 5504s, 5604s, 5704s, 5702s (for single and three phase).
- Suitable for heating, lighting and ventilation circuits
- Choice of functions
- Ideal for use with REC supply off-peak tariffs

Installation

a) When a contactor is mounted alongside an MCB of greater than 10 amp current rating, or two contactors are mounted alongside an MCB of any current rating, it is advisable to insert a module blank between them. (List No. 5544s.)

b) When mounting more than two contactors side by side, it is necessary to insert a module blank between every two contactors, to give ventilation.

c) When using dual rail consumer units, it is advisable to mount electronic products on the lower rail and contactors on the upper rail. If mounting in a single rail consumer unit, it is advisable to mount electronic products as far away as possible from contactors. As a minimum they should be spaced by a single module width blank.

d) Ensure the load to be controlled is protected against short circuit and overload conditions by a suitable rated Sentry MCB.

e) Contactors and Suppression Module are mounted into Sentry Consumer Units and enclosures, by clipping onto the DIN rail mounted in the base by means of the spring clip. If the contactor is required to be removed for any reason, unclip the contactor from the DIN rail by means of the spring clip on the contactor.

f) When using a single Auxiliary Contact, the half module blank supplied must be fitted to the DIN rail, to provide protection against access to the internal parts.

g) The suppression module can be used in conjunction with one or two contactors and should be fitted, in parallel with the contactor controls, when they are not bounce free. The module is suitable for 220/240A operation.

Technical specification

All Contactor List Nos. are designed to operate at either 20, 40 or 63 amps continuous current (AC1-AC7b) 50Hz and have a mechanical life of 1,000,000 operations. The coil voltages are 220/240V 50Hz.

List No.	6220s	6420s	6720s	7240s	7263s	7440s	7463s	7301s	7302s
Description	Contactor			Contactor				Auxiliary Contact	Suppression Module
Contactor rating (Ith)	20A	20A	20A	40A	63A	40A	63A	5A	n/a
Includes manual override?	No	No	Yes	No	No	No	No	n/a	n/a
No. of poles (normally open only)	2	4	2	2	2	4	4		n/a
Width in 18mm modules	1	2	1	2	2	3	3	1 (inc ½ mod blank)	1
Rated Voltage (V)									
(i) Insulation (Ui)	500	500	500	500	500	500	500	500	
(ii) Max. operating (Ue)	250	415	250	250	250	415	415	250	
Average consumption of control circuit coil (VA)	– inrush – closed		15 3.8	34 4.6	15 3.8	53 6.5	53 6.5	53 6.5	53 6.5
Terminal cable capacity (max.)	Controls							2.5mm ² flexible rigid	
	2 x 2.5mm ² flexible 2 x 1.5mm ² rigid								
	Power			2 x 4mm ² flexible 2 x 25mm ² rigid				n/a n/a	
	2 x 2.5mm ² flexible 2 x 6mm ² rigid								
Torque for terminals	1.4Nm			3.5Nm				1.4Nm	

Contactors

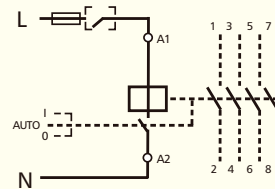
Terminal Layout

i) Contactor

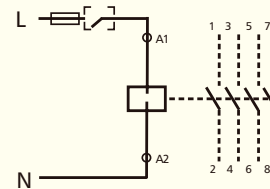
- a) The coil connections to control energisation should be made between terminals A1 and A2.
- b) One normally open main contact is between terminals 1 and 2.
- c) A second normally open main contact is between terminals 3 and 4.
- d) In the case of four pole contactors, the other main contacts are between terminals 5 and 6, and 7 and 8 respectively.

Typical schematic layouts of modular contactors.

With Manual Override

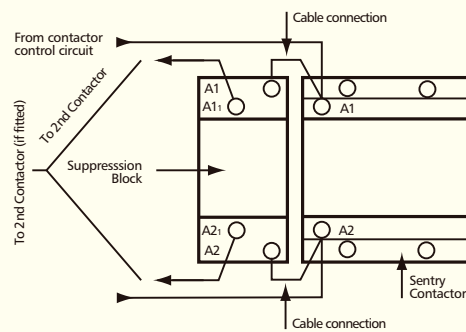


Without Manual Override



ii) Suppression module

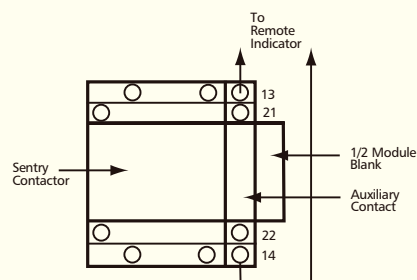
The suppression module should be connected with suitable cable (1.5mm²) across the coil terminals A1 and A2 or A1' and A2'.



iii) Auxiliary contact

Connection of cables should be made between terminals of auxiliary contact.

- a) Normally closed contact between terminals 21 and 22.
- b) Normally open contact between terminals 13 and 14.



Contactors

For a full range of corresponding products, see pages 225 in the product selector.

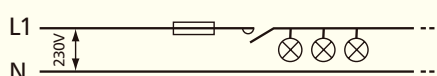
Applications and Maximum Ratings

LIGHTING – Maximum number of lamps

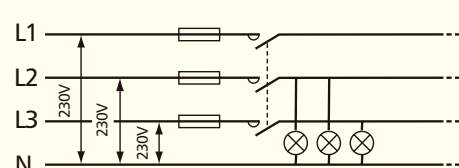
Presentation of installations according to type of supply.

The maximum number of lamps which can be operated per phase is equal to the total number of lamps in the "Single-Phase 230V" table.

Single-phase circuit, 230V



3-phase circuit, 400V (with neutral)

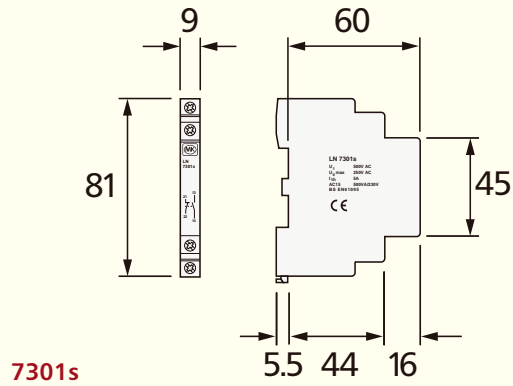
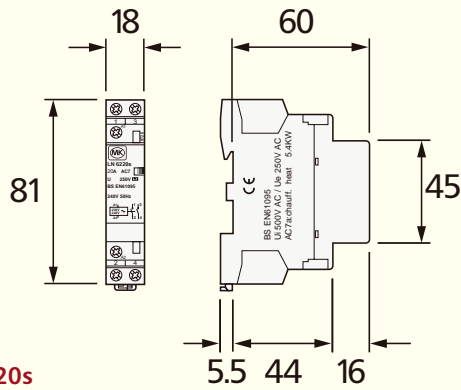
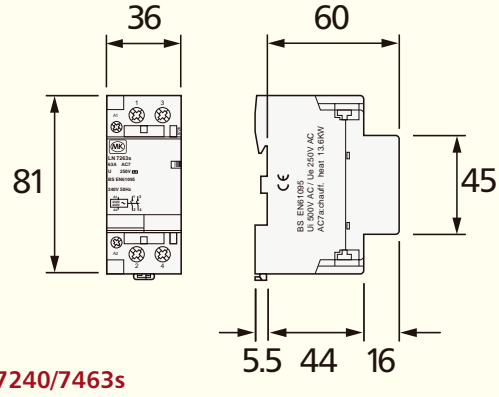


SINGLE-PHASE 230V TABLE						
Type of lighting application (AC5a and AC5b categories)	6220s/6420s/6720s Maximum No. of lamps		7240s/7440s Maximum No. of lamps		7263s/7463s Maximum No. of lamps	
Incandescent and halogen lamps						
40 W	57		115		172	
60 W	45		85		125	
100W	28		70		100	
Halogen lamps used with transformer						
60 W	14		27		40	
80 W	12		23		35	
Fluorescent lamp with starter (single fitting with parallel correction)						
15 W	20		40		60	
20 W	20		40		60	
40 W	20		40		60	
Fluorescent lamp with starter (single fitting non-corrected)						
15 W	30		70		100	
20 W	30		70		100	
40 W	28		70		100	
Electronic ballast (fluorescent lamp single setting)						
18 W	111		222		333	
36 W	58		117		176	
Electronic compact lamp (low consumption)						
7 W	200		400		600	
11 W	120		240		360	
15 W	88		176		264	
20 W	66		132		200	
MOTORS – Maximum Power						
Type of small motor application (AC1 – AC7a categories)						
220/240V single phase with capacitor	1.1kW		2.2kW		4kW	
400V three phase motor	4kW		7.5kW		11kW	
HEATING – Maximum Power						
Type of small heating application (AC7b category)						
Number of operating cycles	230V	400V	230V	400V	230V	
	Single Ph	3 Ph	Single Ph	3 Ph	Single Ph	
	100,000	5.4kW	16kW	8.6kW	26kW	13.6kW
	150,000	4.6kW	14kW	7.4kW	22kW	11.6kW
	200,000	3.5kW	10kW	5.6kW	17kW	8.8kW
500,000	1.6kW	5kW	2.6kW	7.5kW	4kW	12kW
1,000,000	1.2kW	3.5kW	1.9kW	6kW	3kW	9kW
ELECTRICAL ENDURANCE						
AC1 and AC7a categories	250,000 operations					

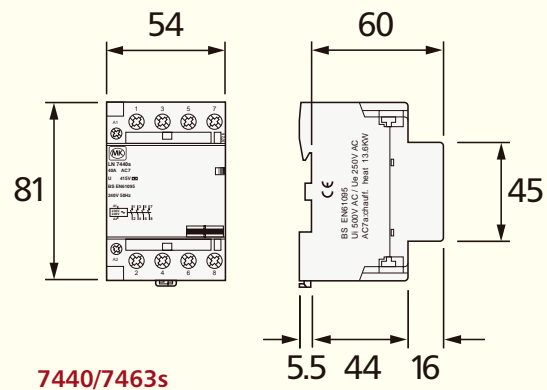
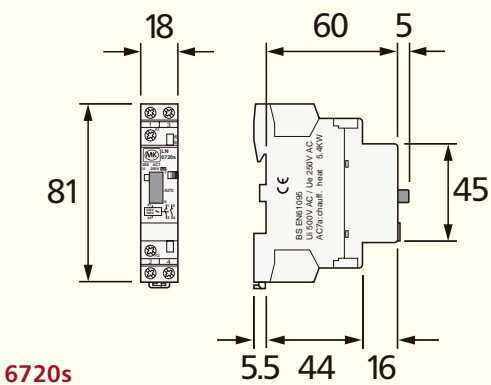
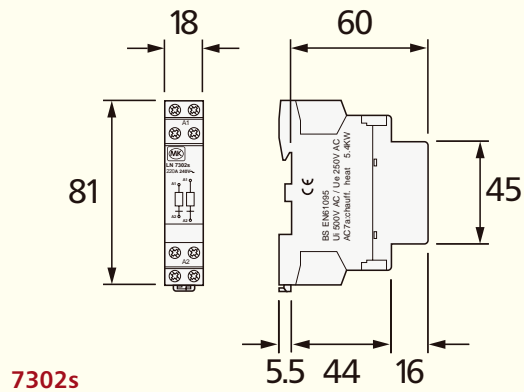
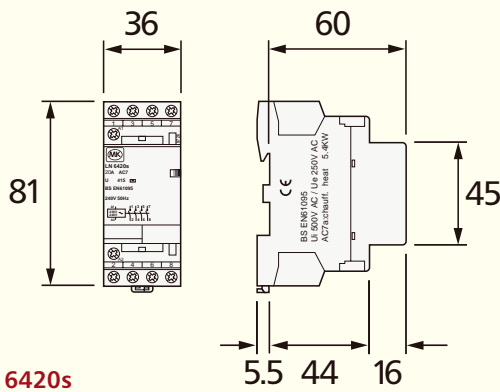
Contactors

Dimensions (mm)

For a full range of corresponding products, see page 226 in the product selector.



(a half module blank is included with this product to complete installation)



Bell Transformer

Standards and approvals

The Sentry Bell Transformer is designed to comply fully with the requirements of EN 60558-2-8.

Technical specification

Electrical

Primary voltage: 220V/240V a.c. 50Hz

Secondary voltage: 8V a.c.

Rated output current: 1A

Physical

Width: 2 modules (36mm)

Terminal capacity: 1 x 2.5mm²

Ambient operating temp: -5°C to +40°C

IP rating: Front face IP4X

Max installation altitude: 2000 metres



Description

The Bell Transformer is of the safety isolating, fail safe type. The construction is all insulated, Class II.

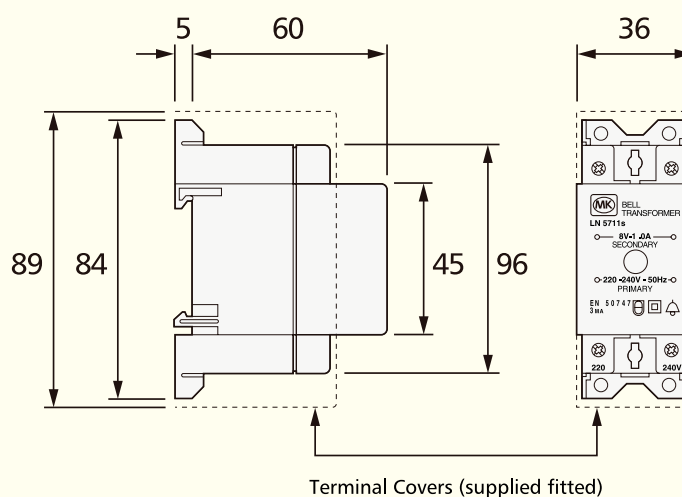
It may be mounted within a Sentry Consumer Unit within 2 or 4 module enclosures alongside MCBs, RCDs and RCBOs or surface mounted.

Installation

The Sentry Bell Transformer should always be connected in series with an MCB or other type of protective device of rating not exceeding 6A.

When installed in a 230V environment, i.e. inside a consumer unit, the cables used to connect the bell or chime to the transformer must have a 230V rated voltage. If bell wire is used, suitable sleeving must be provided to increase its insulation rating to 230V.

Dimensions (mm)



Electromechanical & Digital Timeswitches & Time Delay Switch

Standards and approvals

EN 60730-1, EN 60730-2-7

Features

- Ideal for independent programmable control of lighting, heating and other functions
- Can be mounted in Sentry Consumer Units and appropriate Sentry enclosures, or surface mounted
- Integral resistance to normal electrical interference
- Manual override of programmed commands
- Display indication of switch position for each Channel, i.e. ON or OFF (Digital only)
- Simple summer time to winter time (and vice versa) adjustment facility (Digital only)
- Random and holiday setting programme (5733s only)



Description

Sentry electromechanical and digital timeswitches enable pre-programmed commands to be executed on a given circuit. The Sentry time delay switches can be installed on circuits to energise suitable equipment for between 1 to 7 minutes.

Note: Inductive loads, particularly fluorescent lamps or energy saving lamps, place a heavy stress on the switching contacts. If in doubt about the ability of the timeswitches to directly switch a particular load it is advisable to install the timeswitch in conjunction with a suitable relay or contactor. If in doubt please consult the Technical Sales and Service Department for assistance.

Electromechanical

All Sentry electromechanical timeswitches are suitable for DIN rail mounting in Sentry Consumer Units and appropriate Sentry enclosures.

Quartz controlled units (5807s, 5824s) contain a power reserve of 150 hrs for accurate time keeping in the event of a mains failure.

3 module timeswitches have an additional insulated 'parking' terminal for earth or other connections.

24 hr units have a minimum switching time of 30 mins and 7 day units 3 hrs.

Digital

All Sentry digital timeswitches are suitable for DIN rail mounting in Sentry Consumer Units and 2 and 4 module Sentry enclosures.

Sentry digital timeswitches are available in both 1 and 2 module widths.

The 1 channel 1 module digital timeswitch (5733s) provides 42 programming selections, with random and holiday options. A simple summer to winter time (and vice versa) adjustment facility is provided. The timeswitch contains a power reserve of 150 hrs for accurate time keeping in the event of mains failure.

The two module digital timeswitches are available in both one channel (5731s) and 2 channel (5732s) versions. The units are supplied pre-programmed to UK time, and will automatically change from winter to summer time. The integral battery (with a 3 year power reserve) maintains the settings until the mains supply is connected. This feature will allow programming of switching commands prior to installation, if required.

The 1 channel 2 module digital timeswitch (5731s) provides for 20 programming selections.

The 2 channel 2 module digital timeswitch (5732s) provides a facility for independent control of two circuits. A maximum of 30 switching commands can be programmed for each channel.

All digital timeswitches have a minimum programming time of 1 minute and a manual override. Commands can be programmed for individual days or for groups of days.

Time delay

The Sentry time delay switch (5650s) is suitable for mounting in Sentry Consumer units and 2 and 4 module Sentry enclosures. The unit offers time delay control of complete circuits within the range of 1 to 7 minutes in increments of 15 seconds.

Note: The time delay switch is not applicable for control of low energy lamps.

Override of the time delay function is only possible by the use of the switch provided on the device and should not be achieved by remote 'switches'.

The use of PIR is not a recommended method of activating the time delay switch.

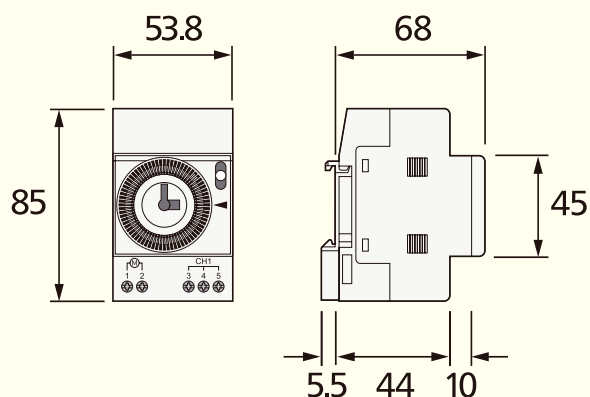
The time delay switch may be used to switch on an extractor fan if the fan does not have an over-run facility.

Technical specification					
Electromechanical	5707s	5724s	5833s	5807s	5824s
Supply voltage	220-240V a.c. 50Hz	220-240V a.c. 50Hz	220-240V a.c. 50Hz	220-240V a.c. 50-60Hz	220-240V a.c. 50-60Hz
Maximum power consumption	1VA	1VA	1VA	1VA	1VA
Switching capacity per channel – Resistive – Inductive – Fluorescent	16A 4A (Cos.Ø 0.6) 1350W	16A 4A (Cos.Ø 0.6) 1350W	16A 4A (Cos.Ø 0.6) 1350W	16A 4A (Cos.Ø 0.6) 1350W	16A 4A (Cos.Ø 0.6) 1350W
Switching arrangement	1 x c/o	1 x c/o	1 x n/o	1 x c/o	1 x c/o
No. of switching commands	56	48	48	56	48
Minimum programme time	3hrs	30mins	30mins	3hrs	30mins
Operating temperature range	–25°C to +55°C	–25°C to +55°C	–25°C to +55°C	–20°C to +55°C	–20°C to +55°C
Running reserve	–	–	–	*150hrs	*150hrs
Width of unit	54mm (3 mods)	54mm (3 mods)	18mm (1 mod)	54mm (3 mods)	54mm (3 mods)
Terminal capacity	2 x 2.5mm ²	2 x 2.5mm ²	2 x 4mm ²	2 x 2.5mm ²	2 x 2.5mm ²
Digital and Time delay	5731s	5732s	5733s	5650s	
Supply voltage	220-240V a.c. 50-60Hz	220-240V a.c. 50-60Hz	220-240V a.c. 50-60Hz	220-240V a.c. 50Hz	
Maximum power consumption	1VA	1VA	5VA	–	
Switching capacity per channel – Resistive – Inductive – Fluorescent	16A 2.5A (Cos.Ø 0.6) 1000W	16A 2.5A (Cos.Ø 0.6) 1000W	16A 2.5A (Cos.Ø 0.6) 1000W	16A 2A (Cos.Ø 0.6) uncompensated/ series compensated = 1300W, Parallel compensated = 480W	
Switching arrangement	1 x c/o	2 x c/o	1 x c/o	1 x n/o	
No. of switching commands	20	30	42	–	
Programme options	–	–	R/H	–	
Minimum programme time	1min	1min	1min	15sec	
Operating temperature range	–25°C to +55°C	–25°C to +55°C	–10°C to +55°C	–10°C to +55°C	
Operating accuracy @ 20°C	2.5sec/day	2.5sec/day	2.5sec/day	–	
Running reserve	3 years from factory	3 years from factory	*150hrs	–	
Width of unit	36mm (2 mods)	36mm (2 mods)	18mm (1 mod)	18mm (1 mod)	
Terminal capacity	2 x 2.5mm ²	2 x 2.5mm ²	2 x 4mm ²	1 x 4mm ²	
Summer/winter changeover	Yes	Yes	Yes	–	
Neon indicator lamp load	–	–	–	50mA max	

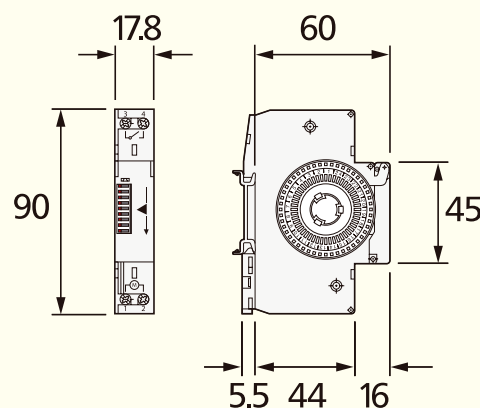
R/H = Random/holiday C/O = Changeover switch N/O = Normally open contact * = after 140hr charging time

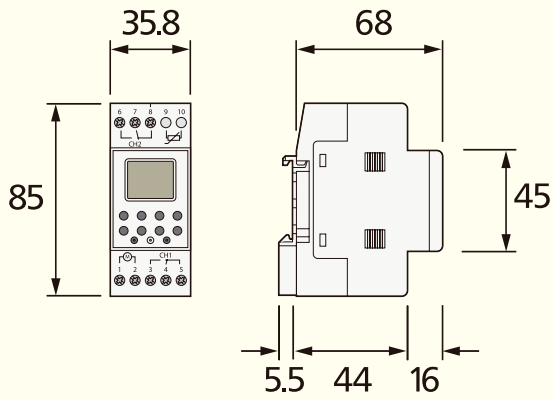
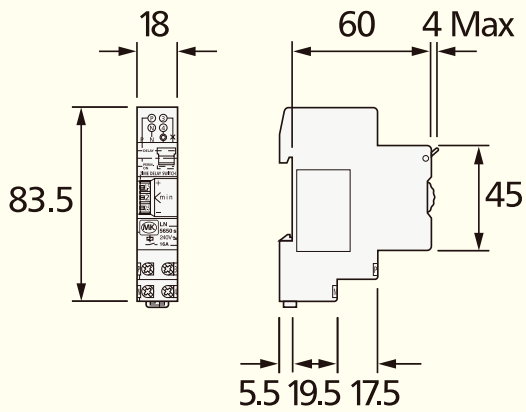
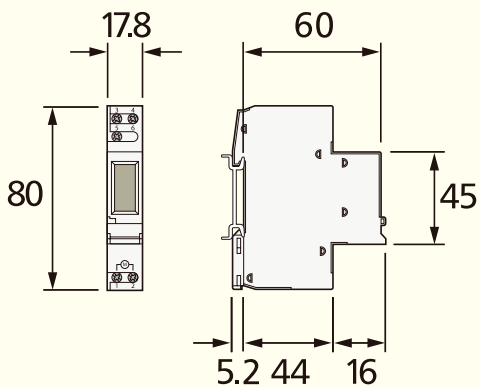
Dimensions (mm)

5707/5724/5807/5824s



5833s



**5731/5732s****5650s****5733s**