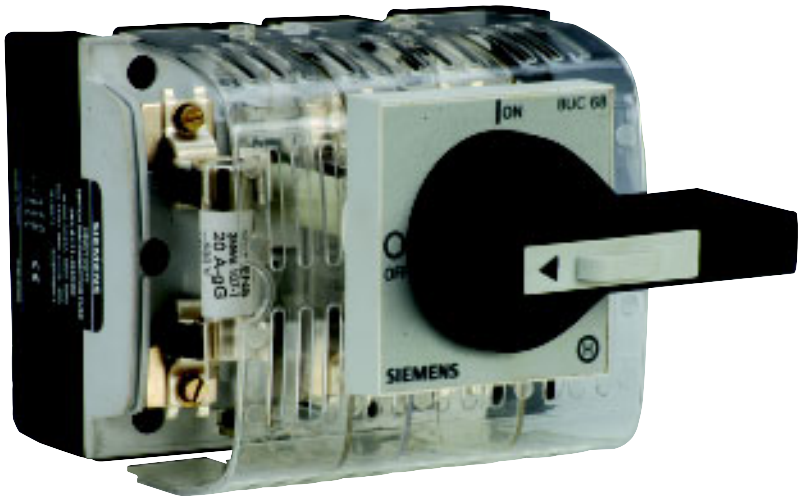
Revolution in power distribution

Sentron Superswitch 3KL8/3KA8
Datasheet

SIEMENS

Revolution in power distribution

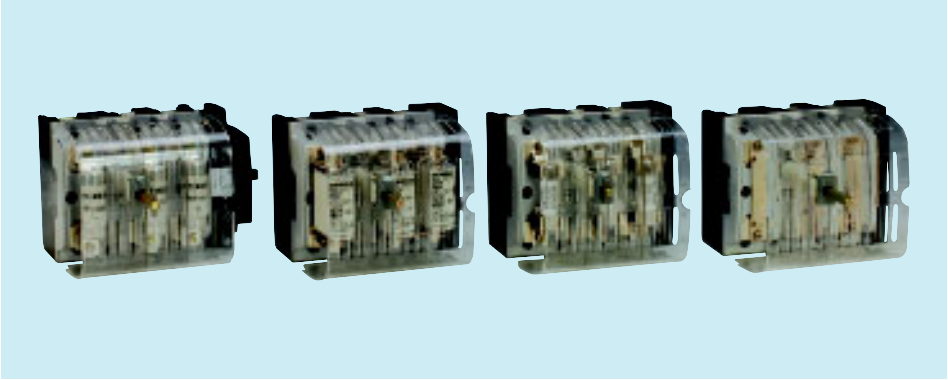
Superswitches take the industry standards of low voltage power distribution to next higher plane ...



Siemens pioneered the AC23A concept with Powerguard 3KL range, which has become an industry norm now. With Superswitch 3KL8, we take the industry standards to a higher plane. 3KL8 range is superior not only to Powerguard 3KL range but also to most other SDFs available in market today. The superiority is in terms of technical parameters such as operational and insulation voltage, life in terms of no. of switching cycles, no. of variants and ratings available. Hence this new range is called the “Sentron Superswitch”.

Benefits

- **Versatile - suitable for all applications**
  - 2 Pole, 3 Pole+N, 4 Pole executions
  - Suitable for BS, DIN and cylindrical fuses
  - New intermediate ratings
- **Rugged - lasts long, low maintenance**
  - No deration upto 60°C ambient
  - Operational voltage-690V, Insulation voltage-1000V



Range

Version / Frames	3KL8			3KA8 TPN	3KL8 in SS Enclosure TPN
	TPN	FP (SN*)	DP		
Size1	20	20	-	-	20
	32	32	-	-	32
	63	63	-	63	63
Size2	100	100	100	100	100
	125	125	125	125	125
	160	160	160	160	160
Size3	200	200	200	200	200
	250	250	250	250	250
	315	315	315	400	315
	400	400	400	630	400
Size4	500	500	500	800	500
	630	630	630	1000	630
	800	800	800	1200	800
	-	-	-	1600	-

DP = Double Pole, TPN = Triple Pole & Neutral, FP = Four Pole, (SN* = Switched Neutral)

- **Low life cycle cost - higher return on investment**
  - Very high life (upto 25000 switching cycles)
  - A unique moving contacts with roller
  - Type 2 co-ordinated combination for complete range
- **User friendly - designed for Indian conditions**
  - DIN-rail mounting upto 63A
  - Wider terminals and higher ground clearance
  - Superior ergonomics and improved aesthetics
  - Front Drive (Handle) is suitable for padlock, door interlock and castle lock
- **Safe - safety to plant and personnel**
  - Fully shrouded
  - A unique positive off indication
  - 100% rated isolable neutral

Application

3KL8 superswitches are suitable for diverse applications upto 690Vac, 50/60 Hz in motor feeders with Direct-on-line, Star-Delta, Soft starters and VVVF drive applications. They are suitable for wind mill generators, capacitor switching feeders, motor control centres and power control centres. 3KL8 is also available in special executions for operations in corrosive atmosphere. 3KL8 switches are specially designed for high ambient temprature applications and do not need any deration right upto 60°C.

Type

3KL8 superswitches are available in 2Pole, 3Pole+N, 4 Pole (Switched Neutral) versions. These switches are suitable for NFC, BS and DIN fuses.

Standards

The 3KL8 Switch Disconnector Fuse and 3KA8 Switch Disconnectors conform to IEC60947-3 and IS 13947-3. 3KL8 superswitches are environmentally friendly switches, which predominantly consist of recyclable materials conforming to Siemens norms (SN36350).

3KL8 superswitches also carry CE mark.

General information

The SDF combinations are type tested and cost effective methods of switching resistive, inductive and capacitive loads. In industry, most of the feeders can be fitted with SDFs except few very critical feeders in process plants where switching equipment has to be reinstated immediatelly to avoid loss of production. In such applications some users prefer fuseless feeders over fused feeders.

Siemens offers both fused and fuseless solutions in duly tested type 2 coordinated combinations. Some of the typical advantages of fused motor feeders are;

a) Fuse being fastest short circuit protection device as compared to even current limiting MPCB & MCCB, offers optimum sizing of contactors & overload relays. This results in cost saving in equipment selection in motor feeders.

b) Proper selection of fuses offer lower I^2t and cut off current corresponding to equivalent ratings of MCCBs and thus ensure lesser thermal and dynamic stresses and longer life of cables and downstream equipment.

c) Replacement cost of fuse is insignificant vis-a-vis MPCB and MCCB

d) Breaking capacity of fuses is very high i.e. upto 120kA, hence system can be made suitable for higher fault level at substantially lower cost

e) Proper discrimination can be achieved in fuse system and in the event of a fault, only the fuse nearest to the fault blows. This helps in increasing uptime of the overall system.

As Siemens also offers type 2 co-ordinated fuseless combinations for motor feeders too, it may be worthwhile making an optimum choice depending on the criticality of applications.

Features

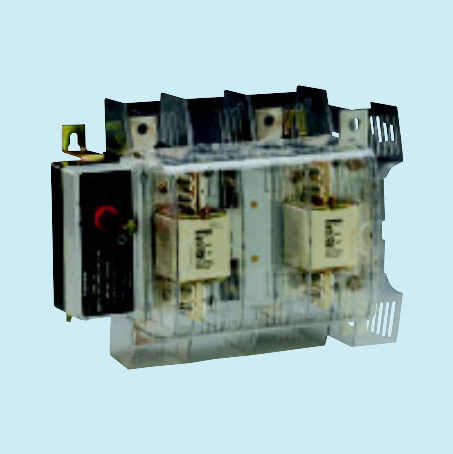
Wide Range

SDF = 20A – 800A

SD = 63A – 1600A

2Pole, 3Pole+N, 4 Pole (Switched Neutral) versions

3KL8 superswitches are available in 2 Pole, 3 Pole+Neutral and 4 Pole (Switched Neutral) version. User can select SDF as per his application and requirements. If the application is of 2 Phase switching such as rectifiers, he doesn't have to incur extra cost by selecting 3P+N SDF. This offers a great degree of flexibility and cost advantage to the user.



Compatibility to all types of fuses

3KL8 superswitches are compatible to all the three types of fuses DIN, BS and cylindrical. For the sake of flexibility and ease of maintenance most of the modern applications are with DIN type of fuses. A complete range including intermediate ratings like 160A and 500A are available in DIN range. Thus they offer the user a great deal of flexibility, overall cost saving and yet the ease of maintenance. They also conform to type 2 co-ordination with Siemens DIN fuses, contactors and overload relays. In applications due to traditional usage or in applications where machines are subjected to shocks and heavy vibrations some users prefer bolted type BS fuses. To cater to these requirements, 3KL8

superswitches offer compatibility with BS type of fuses for the entire range.

For simpler applications of lower ratings should there be requirement of SDFs with cylindrical fuses, the range is now available.

Intermediate ratings

3KL8 superswitches come in 4 Sizes and 13 ratings. There are new intermediate ratings such as 160A (for DOL starting of 55kW and star-delta starting of 75kW Motors) and 500A (for DOL starting of 200kW, 250kW and star-delta starting of 250 kW motor). Now user doesn't have to select 200A SDF incase of 55kW motor and 630A SDF incase of 200kW/ 250kW motor. This amounts to greater savings for the user in terms of equipment cost as well as panel space.

Flexibility with adjustable telescopic shaft & front drive

3KL8 superswitch SDFs come with a telescopic shaft which allows the panel builder to readily use it for varying panel depth.

In the case of other makes, the non-availability of a telescopic shaft makes the unit inflexible. Hence the panel builder has to fabricate an additional bracket to adapt unit to his panel depth.

Front Drive type 8UC 68 is supplied with size 1 & 2 (upto 160A) SDF and 8UC63 is supplied with size 3 SDF. From all ratings above 400A, drive type 8UC64 is supplied. These drives are suitable for door interlock and padlock. 8UC63/64 is also suitable for castle interlock.

Front drive type 8UC6 is common for 3VL MCCB, 3RV & 3VU MPCB and 3KL8 superswitch range. This helps users in achieving uniformity in panel looks and minimising stock of spare drives.

Very high life due to unique moving roller contact

Heart of 3KL8 superswitch is unique self cleaning roller moving contact system comprising of multiple silver plated copper rollers which are spring loaded, free to rotate around their axis and firmly anchored.

Unique self cleaning roller contacts offer higher life compared to butt contact system of other makes.

Operating life of 3KL8 superswitch is 25000 switching cycle right upto 160A SDF and 20000 operations upto 400A. This is almost 2 times the opertaing life of most of the other SDFs available in the market. It means practically no maintenance, no downtime and thus low life cycle cost.

Type-2- tested combinations

Complete range of 3KL8 Superswitch is truly tested for Type-2 combinations with 3TF and 3UA overload relay. This means that user gets optimised combination of switchgear for his application and there are no nuisance blowing of fuses and no nuisance tripping of overload relays. This also ensures minimal consumption of spares over the installed life of the equipment and lower downtime of the system.

No deration upto 60°C

3KL8 superswitches are specially designed for tropical Conditions. It is observed that in panel temprature at most locations in tropical area in summer is close to 60°C. 3KL8 is rated for utilization category AC23A and does not require any deration right upto 60°C. This offers a great saving to user as he is not required to select next higher rating of SDF as in the case of other makes. It means savings not only due to lower cost of SDF but also due to savings in panel space.

Operational voltage : 690V, Insulation voltage : 1000V

3KL8 Superswitch range is rated for operation voltage 690Vac and Insulation Voltage 1000Vac. This is specially advantageous for applications such as VVVF drive, windmill generators etc where voltage requirement is 690Vac.

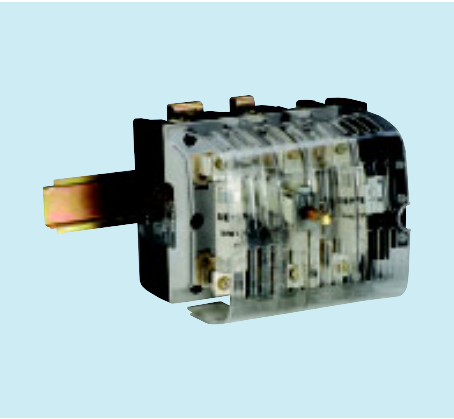
Mounting

3KL8 superswitches can be mounted at 90° in the vertical plane without compromising on technical parameters.

The mounting dimensions of 3KL8 from 100A upto 800A are same as those of 3KL powerguard range. For replacing powerguard with superswitches from 100A upto 160A, one has to make minor changes in the busbar terminations. For replacing powerguard with superswitch from 200A upto 800A no modification is required. Mounting dimensions for 3KL8 superswitches from 20A to 63A are different than those of 3KL powerguard range. For replacement of powerguard with superswitches we provide adapter plates for these ratings.

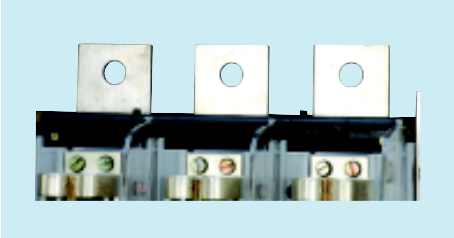
DIN rail mounting

3KL8 superswitches upto 63A can be made suitable for mounting on a 35mm DIN rail by adding a small accessory called DIN rail mounting kit.



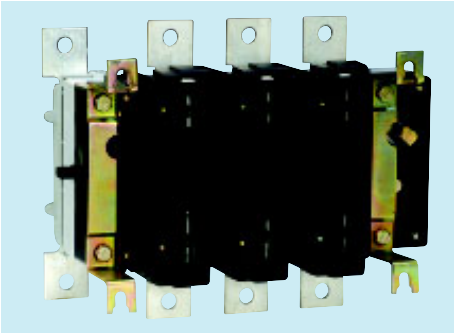
Wider terminals

Terminals of 3KL8 superswitches are wider than most other switches available in the market and are suitable for Aluminium busbars and lugs. (please refer pg. no. 10 for more details.)



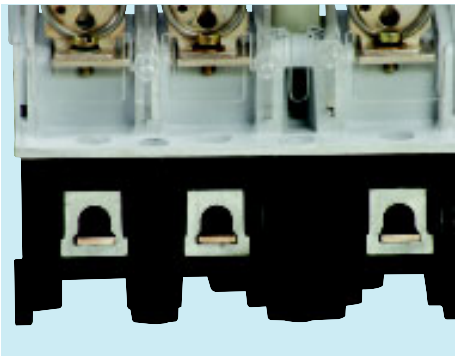
Higher ground clearance

3KL8 superswitches are totally shrouded from back side and offer very high ground clearance.



Box type terminals

Box type terminals are supplied as standard for all SDFs rated upto 63A in 3KL8 Superswitches. Cables upto 63A can directly be terminated on SDF terminals without the help of cable lug. Since cable lugs are usually crimped for these ratings the over heating due to improper crimping could be avoided. Thus the termination becomes faster and reduces overall maintenance cost.

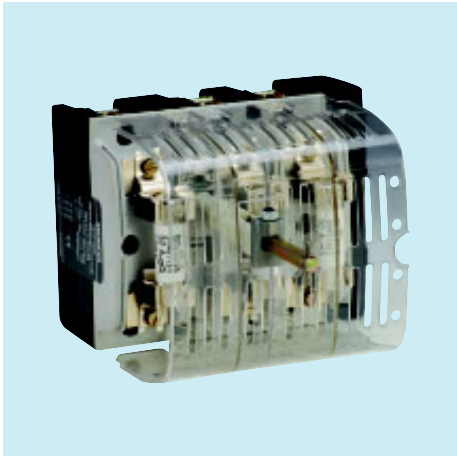


Fuse monitoring provision

All 3KL8 Superswitches have tapped holes on lyra contacts to allow monitoring of fuse state using Siemens fuse monitor type 3VU1300-MS00.

Fully shrouded

3KL8 Superswitches are supplied in IP20 execution (from front). They are supplied with Fuse Cover, Terminal Cover and Isolable neutral cover as standard and are fully finger touch proof. Terminal cover and Isolable neutral cover are integral to the SDF body in size1 i.e. upto 63A and are supplied as seperate parts in SDF upto 800A.



Fuse covers, terminal covers and isolable neutral covers are made of high flow, non hygroscopic polycarbonate material having high dielectric strength and fire retardant property.

Fuse cover

Fuse cover is provided for protection of the personnel against the accidental contact with live parts.

It is important that person who is working on the SDF doesn't touch live part of the SDF. To achieve this all 3KL8 superswitches are supplied with ***interlocking kit*** for fuse cover as standard. This means that fuse cover can not be removed when SDF is in ON position. User has to switch off the SDF to remove the fuse cover.

Terminal cover/isolable neutral cover

Terminal cover and isolable neutral cover are provided for protection of the personnel against the accidental contact with live parts. Terminal cover and isolable neutral cover are integral to the body of SDF in size 1 i.e. upto

63A. For all other ratings terminal cover and isolable neutral cover are supplied seperately.

Phase barrier

Phase barriers are provided for additional safety against possibility of phase to phase short circuit. 3KL8 superswitches are supplied with 5 phase barriers upto 160A and 4 phase barriers with SDFs from 200A to 800A as standard.

Auxilliary switch cover

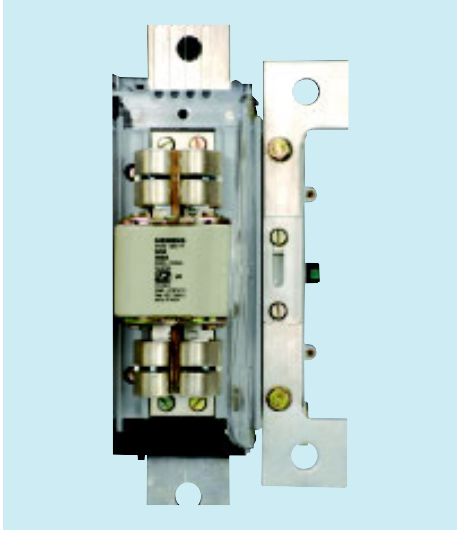
Auxiliary switch cover prevents dust and other particles from entering SDF when auxilliary switches are not installed.

3KL8 superswitches are supplied with auxilliary switch cover as standard with SDFs rated upto 160A.

Isolable neutral

Neutral of 3KL8 Superswitches are of Isolable type which means that neutral can be isolated without actually disconnecting cables or busbars from the neutral terminals. Isolation of neutral is done by just unscrewing one screw when busbars or cables are still connected to the neutral terminals.

Neutral of 3KL8 Superswitches is 100% rated. This feature is specially important incase of IT parks, SEZs and Commercial and Residential buildings where because of increased usage of electronics it is observed that harmonics levels are very high and neutral can get loaded upto 100% rated current.



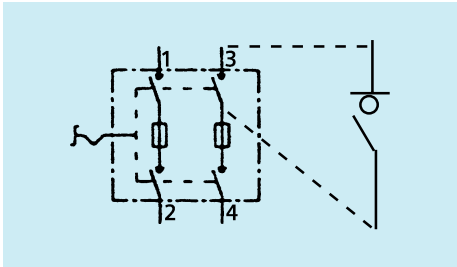
Positive off indication

3KL8 Superswitches come with a inbuilt “Positive Off” indicator which is directly coupled with the position of the moving contact. In the event that the moving contacts are welded this positive indication does not come out and operator comes to know that contacts are welded. In case OFF indicator is on handle it is sometimes possible to bring it to OFF position without physically isolating contacts inside the SDFs. This could pose danger to the person working on downstream equipment.

In makes without positive off indicator, an auxiliary switch + lamp would be required for such indications. Of course, the combination of auxiliary switch plus pilot lamp is still not as positive as an unit with built in POSITIVE OFF indicator and gives only indirect electrical indication.

Positive isolation

3KL8 superswitches satisfy the isolation requirements of IEC 60947 / IS 13947 standards. This is to ensure that contacts inside SDFs are in physically isolated position when SDF is in OFF position and isolation distance between these contacts is such that mainenance personnel can safely work on downstream equipment. In the off position of the SDF, the lyra contacts and fuses are not live because they are isolated from both sides by the moving roller contacts.

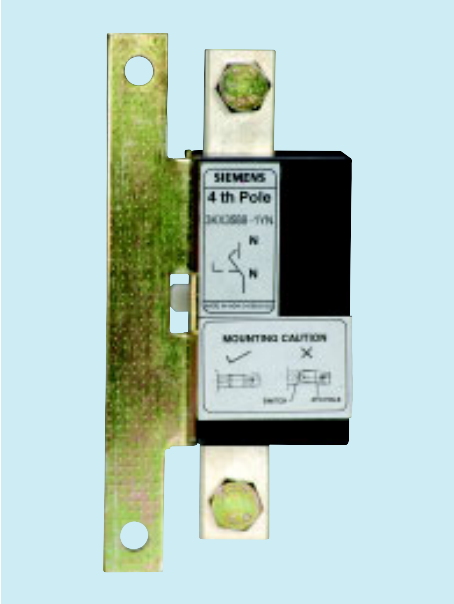


Padlock on the basic switch

3KL8 superswitches are supplied with a provision of padlocking on the basic switch in all ratings upto 160A. This is a very important safety feature because padlock on the front drive can be defeated and in critical feeders this may pose danger to the personnel working on downstream equipment.

Accessories

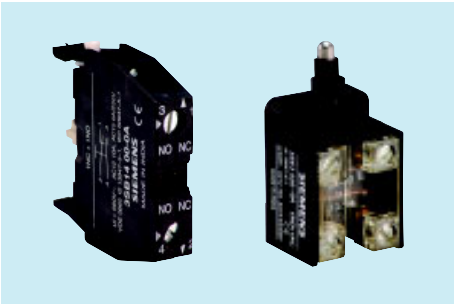
Switched 4th pole



Some applications demand that neutral pole of the SDF is also switched alongwith 3 main poles of the SDF. i.e. when SDF is switched ON, neutral pole comes to ON position and when SDF is switched OFF netural pole is also isolated.

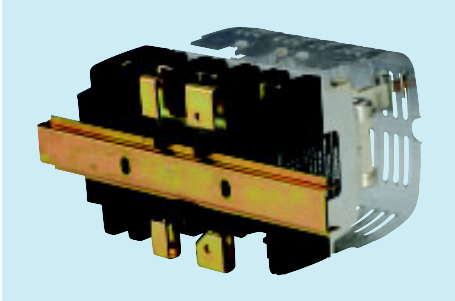
In 3KL8 Superswitch range, switched 4th pole is available as an accessory. For details of the current rating please refer datasheet on pg. 10.

Auxilliary switch



Auxiliary switches used in 3KL8 Superswitches offer higher contact reliability, increased operator safety, faster mounting & wiring, electronic compatibility and compactness. We can install maximum of 1NO + 1NC contacts in SDFs rated upto 63A and 2NO + 2NC contacts in SDFs rated above 63A and upto 800A. They conform to IS 13947-5.

DIN rail mounting kit



DIN rail mounting kit is supplied as an accessory with 3KL8 superswitch range. One can make SDF suitable for mounting on a 35mm DIN rail by installing DIN rail mounting kit. This is available for 3KL8 SDF rated upto 63A.

Castell interlock

3KL8 Superswitches can be prepared for the castell key interlock with a mounting kit. When this lock is installed, the SDF is prevented from switching on.

This castell lock is common for 3KL8 superswitches, 3VL MCCBs and 3WL/ 3WT range of ACBs.

Fuse puller

Fuse puller with special insulated handle makes it possible to change fuses even under live conditions (on load). A mechanical lock provided on the fuse puller prevents the fuse link from dropping out from the puller. The fuse link can be released by merely pressing the push button provided on a fuse puller.

SS enclosure

3KL8 superswitch in SS enclosure as factory fitted version are supplied only with DIN fuse version. If a user want to have NFC or BS fuse SDF version in enclosure, he has to procure SDF and SS enclosure separately and assemble them at site.

SS enclosure are manufactured from CRCA sheet steel of 1mm thickness for lasting strength and fine finish. Premier quality powder coating is applied to ensure anti rust finish and protection against corrosive atmosphere. Colour shade used for the door of SS enclosures is grey (RAL 7032) and for the base is dark drey (SL6711).

Depth setting template

For the convenience of panel builder, depth setting template is supplied as standard with 8UC63 and 8UC64. We provide depth setting template also as accessory. This allows perfect alignment of the front drive with the coupler mounted on the shaft of SDF.

Contact system

The heart of Siemens SDF unit type 3KL is the unique moving contact system (see illustration) comprising multiple silver plated copper rollers which are spring loaded, free to rotate around their axis and firmly anchored.

The spring loading is so designed that the contact friction is minimised and rollers rotate to avoid any tendency of locking or welding. Fixed contacts are knife blade type. Hence self cleaning feature is assured.

Advantages of the contact system

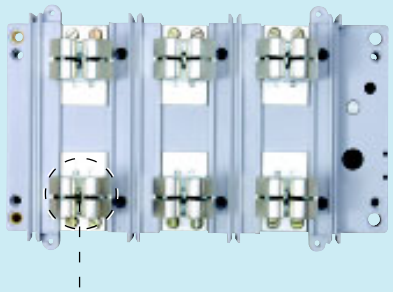
- **High short circuit making and withstand capacity**
  Due to the multiple roller design, each roller carries only a fraction of the total current. This leads to reduction of electrodynamic repelling forces when the switch is in 'ON' position. e.g., in 3KL61, there are eight rollers at each break and each roller carries 1/8th of the total current. When the switch is 'ON', the forces in each phase are reduced to 1/64 of original.

  The above feature along with the high closing speed of the unit results in high making capacity.

  At the same time, when the contacts are closed, based on the principle of increase in attraction due to electrodynamic force between parallel current paths, the opening of contacts under high short circuits [80kA (rms)] is prevented, thus leading to high short circuit withstand capacity.

- **High breaking capacity**
  The high breaking capacity corresponding to AC23A utilization category at 550V, is mainly achieved by current sharing in multiple rollers per phase.

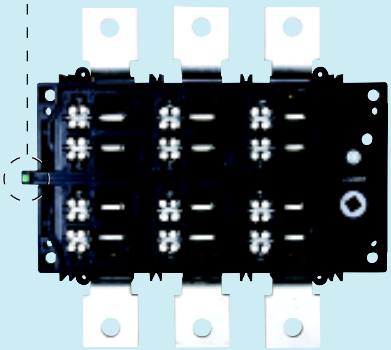
- **Long electrical life**
  Division of current loading explained earlier leads to reduction in arcing time and hence lesser erosion of contacts thus giving long electrical life.



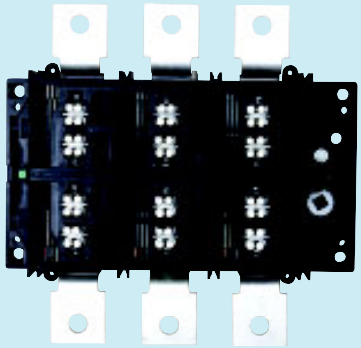
Lyra contacts

Moving contacts Fixed contacts

Positive OFF indication

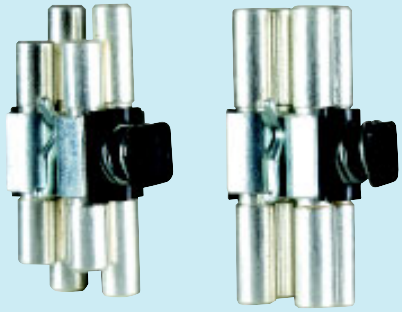


OFF position



ON position

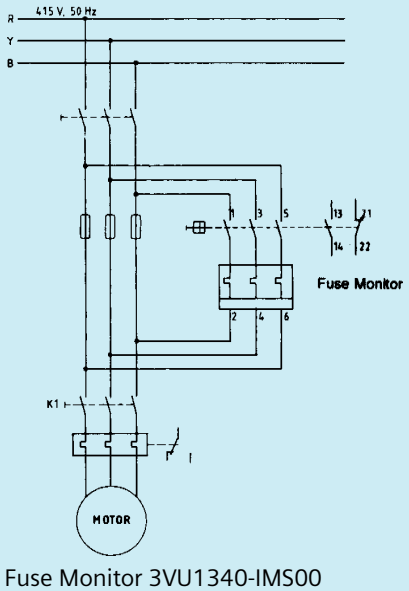
- **Long mechanical life**
  Lower operating torque, hence longer mechanical life.



Self cleaning roller moving contacts

Fuse monitoring system

3VU1340-MS00 is offered for Fuse Monitor application. The three poles of this circuit breakers can be connected in parallel to the fuses. In the event of one fuse blowing, the breaker gets actuated through its release & offers tripping signal through its auxiliary contacts, to the motor control device for switching off the motor (refer diagram below). Thus, the motors are not subjected to single phasing and costly motor burn outs are prevented. The fuse monitor can be used for AC voltages of 24 to 690V, 50/60Hz and DC voltages from 24 to 250V. For DC voltages greater than 250V & upto 600V three current paths can be connected in series.



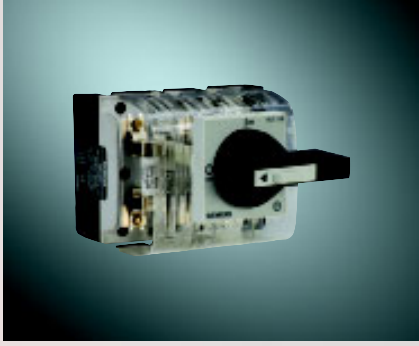
Fuse Monitor 3VU1340-IMS00

Technical data

Rating		20A	32A	63A
Technical Specifications – 3KL8				
Standards IS		13947-3	13947-3	13947-3
IEC		60947 -3	60947 -3	60947 -3
Type		**3KL811**	**3KL812**	**3KL815**
No. of Poles		TPN/FP		
Rated Operating Voltage @ 50/60Hz, Ue	V	690V	690V	690V
Rated Insulation Voltage, Ui	V	800V	800V	800V
Rated Impulse Withstand Voltage, Uimp	V	6kV	6kV	6kV
Rated Operational Current	Ie			
Ie at AC23-A, @ 550 Vac	A	20A	32A	63A
Ie at AC23-A, @ 690 Vac	A	20A	32A	63A
Ie at DC-23 at 440V (Three poles in series)	A	20A	32A	63A
Ie at DC-23 at 220V (Two poles in series)	A	20A	32A	63A
Ie at DC-22 at 440V (Two poles in series)	A	20A	32A	63A
Suitable for max. capacitor bank (415V)	KVAR	12	14	29
Rated conditional short circuit current with fuses @ 690 V	kA (rms)	80	80	80
Rated conditional short circuit current with fuses @ 500V	kA (rms)	100	100	100
Suitable for DIN Fuse Link	Sizes as per IS 13703 and IEC 269	00/00C	00/00C	00/00C
Suitable for BS 88 Fuse Link		A2/A3	A2/A3	A2/A3
Suitable for NFC Fuse Link		14x51	14x51	14x51
Permissible ambient temprature (without derating in open execution)	°C	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C
Mechanical endurance	No. of switching cycle	25000	25000	25000
Terminal Size	Box Terminal (in mm)	10	10	10
	Palm Lug (in mm)	15	15	15
Termination suitable for Al/Cu (main)	sq mm	10/6	16/10	35/25
Termination suitable for Al/Cu (Isolating Neutral)	sq mm	10/6	16/10	35/25
Termination suitable for Al/Cu (Switched Neutral)	sq mm	10/6	16/10	35/25
Neutral Pole				
Isolating Neutral (100% rated)	A	20A	32A	63A
Switched Neutral (4P)				
Rated Uninterrupted Current	A	20A	32A	63A
Rated Operational Current Ie at AC21A, @500 Vac*	A	20A	32A	63A
Auxiliary Switch 1NO+1NC	Nos.	1 Nos.	1 Nos.	1 Nos.
Degree of Protection	(from front)	IP20	IP20	IP20
DIN Rail Mounting	mm	35	35	35

Details of Auxilliary Switch				
Continuous Current	A	10	10	10
Rated Voltage, AC, 50Hz	V	500	500	500
Rated Voltage DC	V	600	600	600
Operational Current Ie/AC12 at 415V	A	10	10	10
Operational Current Ie/DC12 at 110V	A	4	4	4
Max.fuse rating for short ckt protection: delayed action cartridge type	A	10	10	10

* Rating at 690V upon enquiry



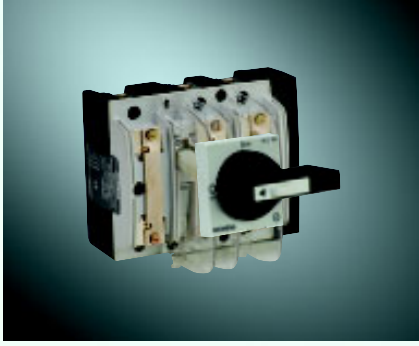
100A	125A	160A	200A	250A	315A	400A	500A	630A	800A
13947-3	13947-3	13947-3	13947-3	13947-3	13947-3	13947-3	13947-3	13947-3	13947-3
60947 -3	60947 -3	60947 -3	60947 -3	60947 -3	60947 -3	60947 -3	60947 -3	60947 -3	60947 -3
3KL821	**3KL822**	**3KL823**	**3KL831**	**3KL832**	**3KL833**	**3KL834**	**3KL841**	**3KL842**	**3KL843**
	DP/TPN/FP			DP/TPN/FP				DP/TPN/FP	
690V	690V	690V	690V	690V	690V	690V	690V	690V	690V
1000V	1000V	1000V	1000V	1000V	1000V	1000V	1000V	1000V	1000V
8kV	8kV	8kV	8kV	8kV	8kV	8kV	8kV	8kV	8kV
100A	125A	160A	200A	250A	315A	400A	500A	630A	800A
100A	125A	160A	200A	250A	315A	315A	500A	630A	710A
100A	125A	160A	-	-	-	-	-	-	-
100A	125A	160A	-	-	-	-	-	-	-
100A	125A	160A	200A	250A	250A	250A	500A	630A	630A
46	58	58	95	116	145	186	294	294	374
80	80	80	80	80	80	80	80	80	80
100	100	100	100	100	100	100	100	100	100
00/00C	00/00C	00/00C	1-2	1-2	1-2	1-2	3	3	3
A4	A4	A4	B2/B3/B4	B2/B3/B4	B2/B3/B4	B2/B3/B4	C1/C2/C3	C1/C2/C3	C1/C2/C3
-	-	-	-	-	-	-	-	-	-
-20°C to +60°C	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C
25000	25000	25000	20000	20000	20000	20000	15000	15000	15000
-	-	-	-	-	-	-	-	-	-
20	20	25	30	30	30	40	55	55	55
95/70	95/70	150/120	1x300	1x300	1x300	2x300	2X400	2X400	2X630
95/70	95/70	150/120	2x150	2x150	2x150	2x150	2x400	2x400	2x400
1x35	1x35	1x35	2x150	2x150	2x150	2x150	1x300	1x300	1x300
100A	125A	160A	200A	250A	315A	400A	500A	630A	800A
125A	125A	125A	315A	315A	315A	315A	400A	400A	400A
125A	125A	125A	315A	315A	315A	315A	400A	400A	400A
2 Nos.	2 Nos.	2 Nos.	2 Nos.	2 Nos.	2 Nos.	2 Nos.	2 Nos.	2 Nos.	2 Nos.
IP20	IP20	IP20	IP20	IP20	IP20	IP20	IP20	IP20	IP20
-	-	-	-	-	-	-	-	-	-
10	10	10	10	10	10	10	10	10	10
500	500	500	500	500	500	500	500	500	500
600	600	600	600	600	600	600	600	600	600
10	10	10	10	10	10	10	10	10	10
4	4	4	4	4	4	4	4	4	4
10	10	10	10	10	10	10	10	10	10

Technical data

Ratings		63A	100A	125A
Technical Specifications – 3KA8				
Standards IS		13947-3	13947-3	13947-3
IEC		60947 -3	60947 -3	60947 -3
Type		**3KA815**	**3KA821**	**3KA822**
No. of Poles		TPN	TPN/FP	TPN/FP
Rated Operating Voltage @ 50/60Hz, Ue	V	690V	690V	690V
Rated Insulation Voltage, Ui	V	800V	1000V	1000V
Rated Impulse Withstand Voltage, Uimp	V	6kV	8kV	8kV
Rated Uninterrupted Current	Iu	80A	100A	125A
Rated Operational Current	Ie			
Ie at AC23-A, @ 690 Vac	A	63A	100A	125A
Ie at AC21-A, @ 500 Vac	A	80A	125A	125A
Ie at AC21-A, AC22-A, @ 690 Vac	A	80A	125A	125A
Ie at DC-22 at 440V (Two poles in series)	A	-	-	-
Ie at DC-23 at 440V (Three poles in series)	A	63A	125A	125A
Ie at DC-23 at 220V (Two poles in series)	A	63A	125A	125A
Rated conditional short circuit current with back up fuses @ 690 V	kA (rms)	80	80	80
Rated conditional short circuit current with back up fuses @ 500 V	kA (rms)	100	100	100
Rated Short Time Current (1 s current)	kA (rms)	2	8	8
Permissible ambient temprature (without derating in open execution)		-20°C to +60°C	-20°C to +60°C	-20°C to +60°C
Mechanical endurance	No. of switching cycle	25000	25000	25000
Terminal Size	Palm Lug (mm)	15	20	20
	Box Terminal (mm)	10	-	-
Termination suitable for Al/Cu (main)	mm^2	35/25	95/70	95/70
Termination suitable for Al/Cu (Isolating Neutral)	mm^2	35/25	95/70	95/70
Termination suitable for Al/Cu (Switched Neutral)	mm^2	35/25	1x35	1x35
Neutral Pole				
Isolating Neutral	A	63A	125A	125A
Switched Neutral (4P)				
Rated Operational Current Ie at AC21A, @500 Vac*	A	-	125	125
Auxiliary Switch 1NO+1NC	Nos.	1 Nos.	2 Nos.	2 Nos.
DIN Rail Mounting	mm	35	-	-

Details of Auxilliary Switch				
Continuous Current	A	10	10	10
Rated Voltage, AC, 50Hz	V	500	500	500
Rated Voltage DC	V	600	600	600
Operational Current Ie/AC12 at 415V	A	10	10	10
Operational Current Ie/DC12 at 110V	A	4	4	4
Max.fuse rating for short ckt protection: delayed action cartridge type	A	10	10	10

* Rating at 690V upon enquiry
++ Flats



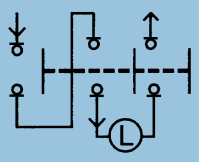
	160A	200A	250A	400A	630A	800A	1000A	1200A	1600A
	13947-3	13947-3	13947-3	13947-3	13947-3	13947-3	13947-3	13947-3	13947-3
	60947 -3	60947 -3	60947 -3	60947 -3	60947 -3	60947 -3	60947 -3	60947 -3	60947 -3
	3KA823	**3KA831**	**3KA832**	**3KA834**	**3KA835**	**3KA843**	**3KA844**	**3KA845**	**3KA846**
	TPN/FP	TPN/FP	TPN/FP	TPN/FP	TPN/FP	TPN/FP	TPN	TPN	TPN
	690V	690V	690V	690V	690V	690V	690V	690V	690V
	1000V	1000V	1000V	1000V	1000V	1000V	1000V	1000V	1000V
	8kV	8kV	8kV	8kV	8kV	8kV	8kV	8kV	8kV
	160A	250A	315A	500A	630A	800A	1000A	1200A	1600A
	160A	200A	250A	400A	630A	800A	1000A	-	-
	160A	200A	250A	400A	630A	800A	1000A	1200A	1600A
	160A	200A	250A	400A	630A	800A	1000A	-	-
	-	200A	250A	250A	250A	630A	630A	-	-
	160A	-	-	-	-	-	-	-	-
	160A	-	-	-	-	-	-	-	-
	80	80	80	80	80	80	80	80	80
	100	100	100	100	100	100	100	100	100
	8	14	14	20	25	50	50	50	50
	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C
	25000	20000	20000	20000	15000	5000	5000	5000	5000
	25	30	30	40	40	55	55	50	50
	-	-	-	-	-	-	-	-	-
	150/120	1x300	1x300	2x300	2x400	2x630	2x60x10^{++}	4x60x10^{++}	4x60x10^{++}
	150/120	2x150	2x150	2x150	2x150	2x300	2x300	2x300	2x300
	1x35	2x150	2x150	2x150	2x150	1x300	-	-	-
	160A	200A	250A	400A	400A	400A	500A	625A	800A
	125	315	315	315	315	400	-	-	-
	2 Nos.	2 Nos.	2 Nos.	2 Nos.	2 Nos.	2 Nos.	2 Nos.	2 Nos.	2 Nos.
	-	-	-	-	-	-	-	-	-
	10	10	10	10	10	10	10	10	10
	500	500	500	500	500	500	500	500	500
	600	600	600	600	600	600	600	600	600
	10	10	10	10	10	10	10	10	10
	4	4	4	4	4	4	4	4	4
	10	10	10	10	10	10	10	10	10

DC ratings of switch disconnector fuse unit and switch disconnector unit

Rating	Type	Type of connection	DC rating	Connection Diagram
20A	3KL811	Two poles in series	Ie/DC23 at 220V = 20A	
		Three poles in series	Ie/DC23 at 440V = 20A	
32A	3KL812	Two poles in series	Ie/DC23 at 220V = 32A	
		Three poles in series	Ie/DC23 at 440V = 32A	
63A	3KL815	Two poles in series	Ie/DC23 at 220V = 63A	
	3KA815	Three poles in series	Ie/DC23 at 440V = 63A	
100A	3KL821	Two poles in series Three poles in series	Ie/DC23 at 220V = 100A Ie/DC23 at 440V = 100A	
	3KA821	Two poles in series Three poles in series	Ie/DC23 at 220V = 125A Ie/DC23 at 440V = 125A	
125A	3KL822	Two poles in series	Ie/DC23 at 220V = 125A	
	3KA822	Three poles in series	Ie/DC23 at 440V = 125A	
160A	3KL823	Two poles in series	Ie/DC23 at 220V = 160A	
	3KA823	Three poles in series	Ie/DC23 at 440V = 160A	
200A	3KL831	Two poles in series	Ie/DC22 at 220V = 200A	
	3KA831	Two poles in series	Ie/DC22 at 440V = 200A	
250A	3KL832	Two poles in series	Ie/DC22 at 440V = 250A	
	3KA832	Two poles in series	Ie/DC22 at 440V = 250A	
315A	3KL833	Two poles in series	Ie/DC22 at 440V = 250A	
400A	3KL834 3KA834	Two poles in series	Ie/DC22 at 440V = 250A	
500A	3KL841	Two poles in series	Ie/DC22 at 440V = 500A	
630A	3KL842	Two poles in series	Ie/DC22 at 440V = 630A	
	3KA835	Two poles in series	Ie/DC22 at 440V = 250A	
800A	3KL843	Two poles in series	Ie/DC22 at 440V = 630A	
	3KA843	Two poles in series	Ie/DC22 at 440V = 630A	
1000A	3KA844	Two poles in series	Ie/DC22 at 440V = 630A	
1200A	3KA845	Upon enquiry	–	
1600A	3KA846	Upon enquiry	–	

Two poles in series

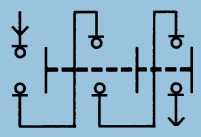
+ve -ve



L = Load

Three poles in series

+ve



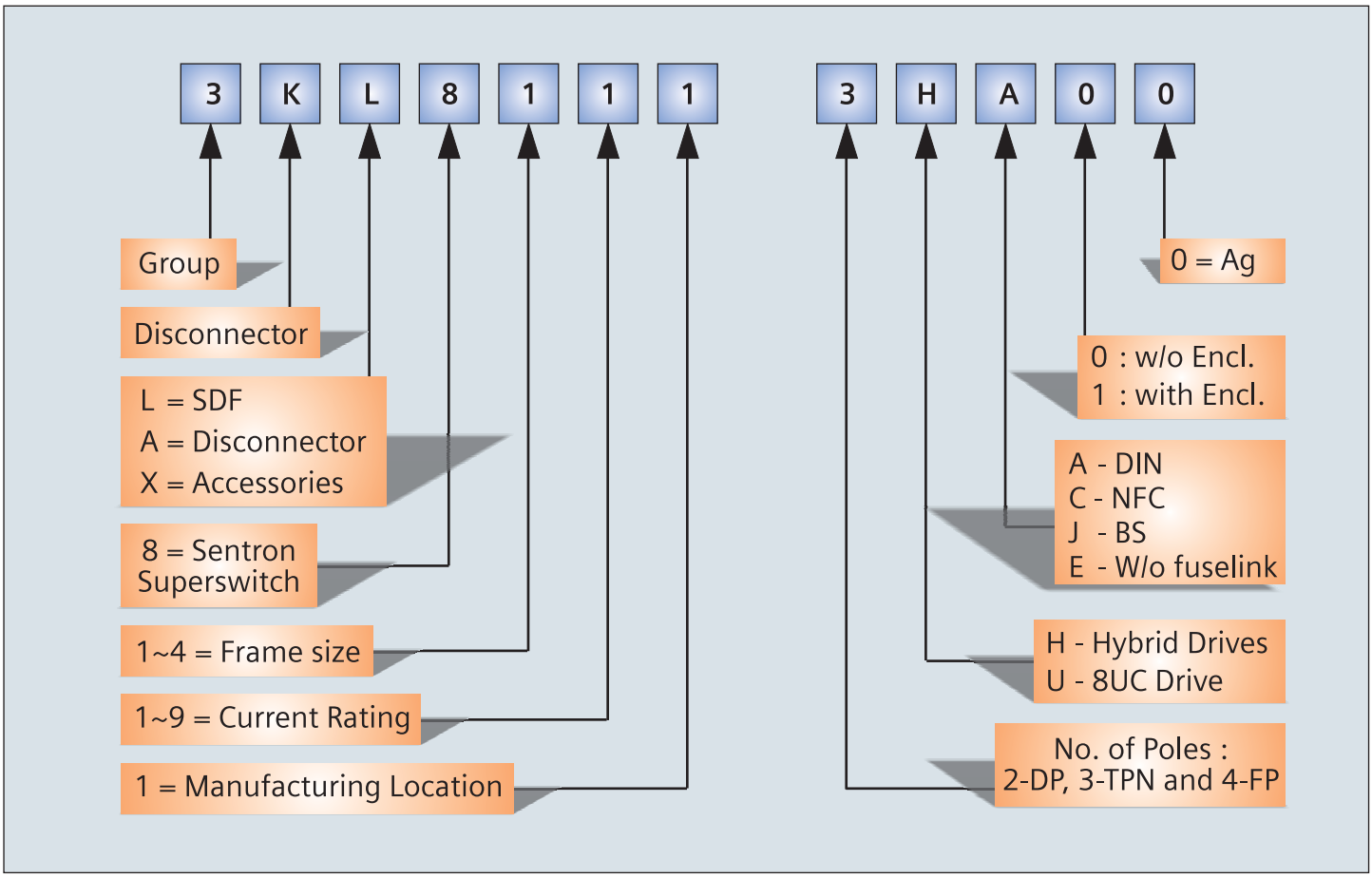
To Load

Utilization categories

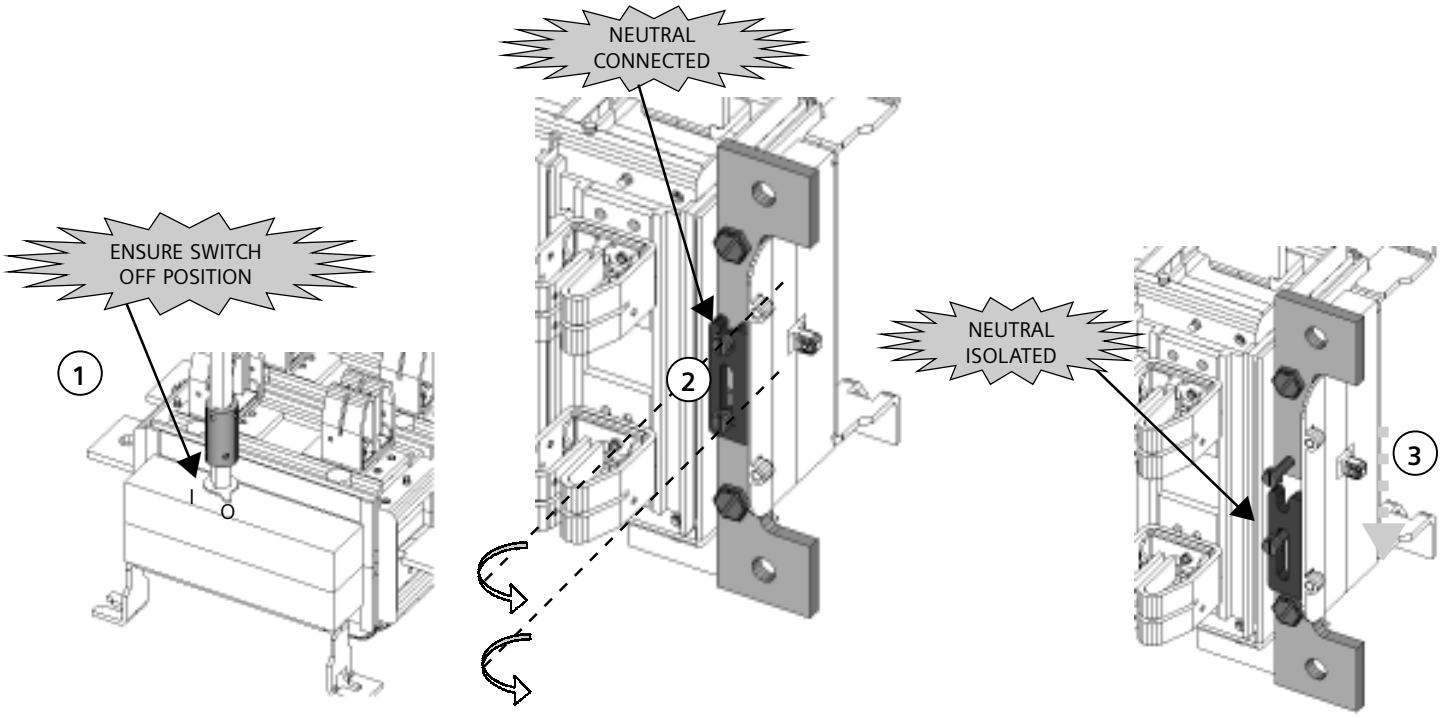
Nature of current	Utilization category		Typical applications
	Category A	Category B	
Alternating current	AC-20A	AC-20B	- Connecting and disconnecting under no-load conditions
	AC-21A	AC-21B	- Switching of resistive loads including moderate overloads
	AC-22A	AC-22B	- Switching of mixed resistive and inductive loads, including moderate overloads
	AC-23A	AC-23B	- Switching of motor loads or other highly inductive loads
Direct current	DC-20A	DC-20B	- Connecting and disconnecting under no-load conditions
	DC-21A	DC-21B	- Switching of resistive loads including moderate overloads
	DC-22A	DC-22B	- Switching of mixed resistive and inductive loads, including moderate overloads (e.g. shunt motors)
	DC-23A	DC-23B	- Switching of highly inductive loads (e.g. series motors)

Category A: Frequent Operation Category B: Infrequent Operation

Type number

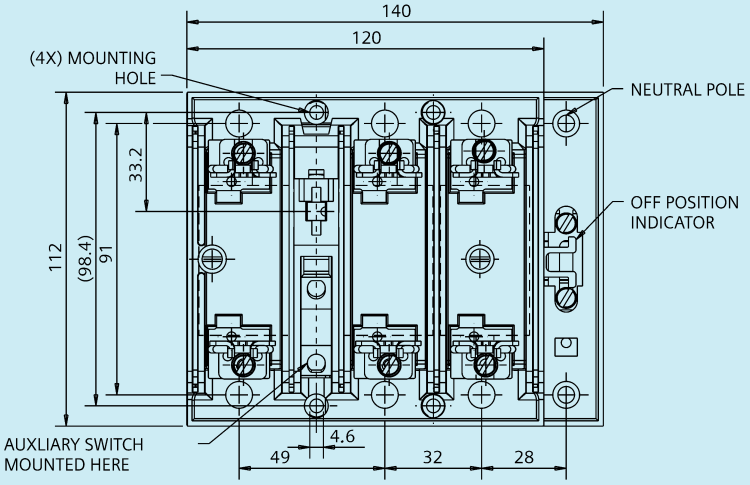


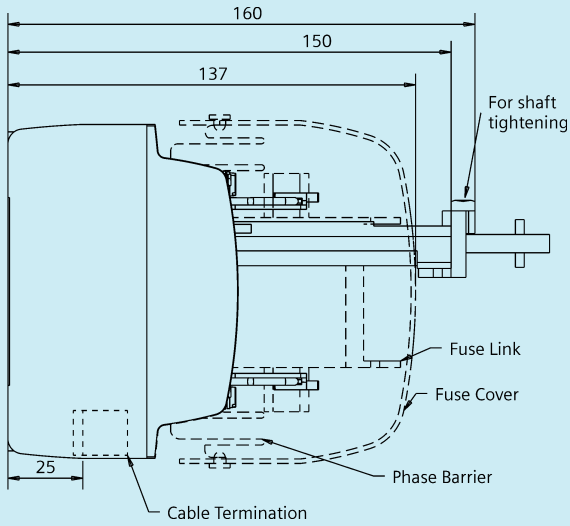
Neutral connection

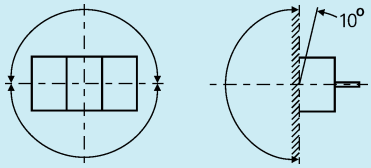


Dimensional Diagrams

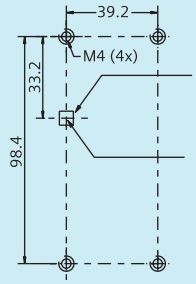
3KL811/2/5







Permissible mounting position

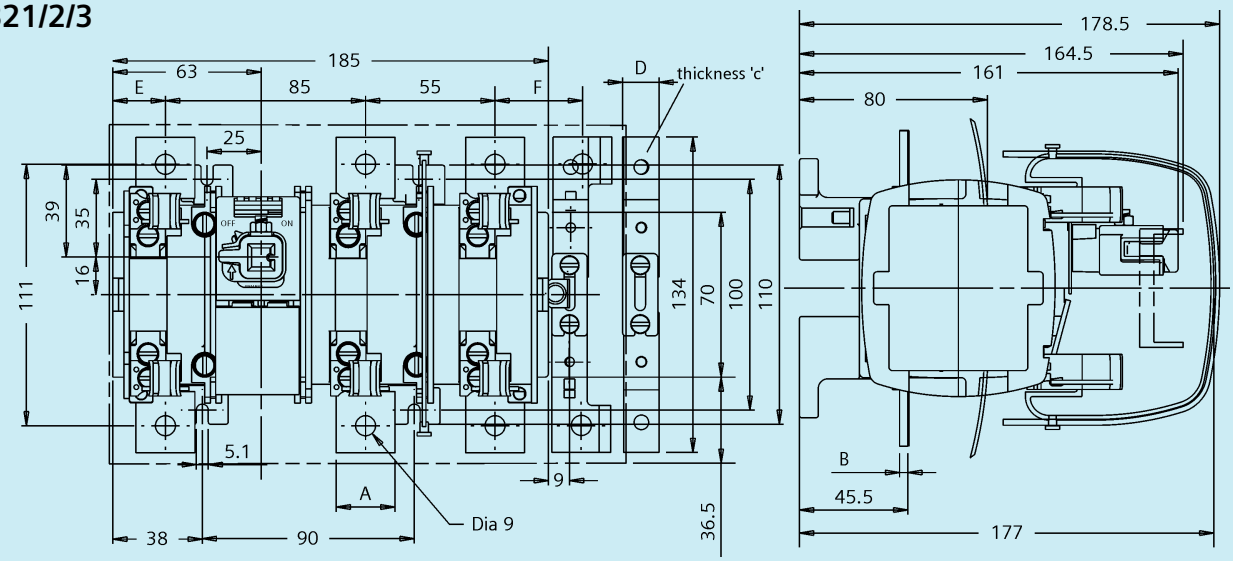


6 mm sq shaft

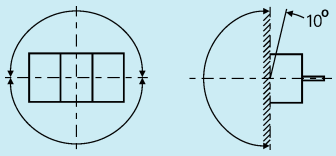
Center of shaft

Drilling Plan for mounting plate

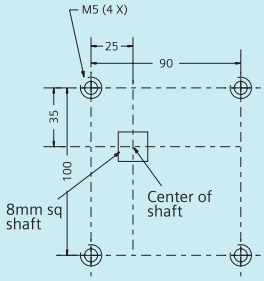
3KL821/2/3



Type	A	B	C	D	E	F
3KL821/22 (100% TPN)	20	3	3	20	17	37
3KL823 (100% TPN)	25	3	3	25	19.5	37



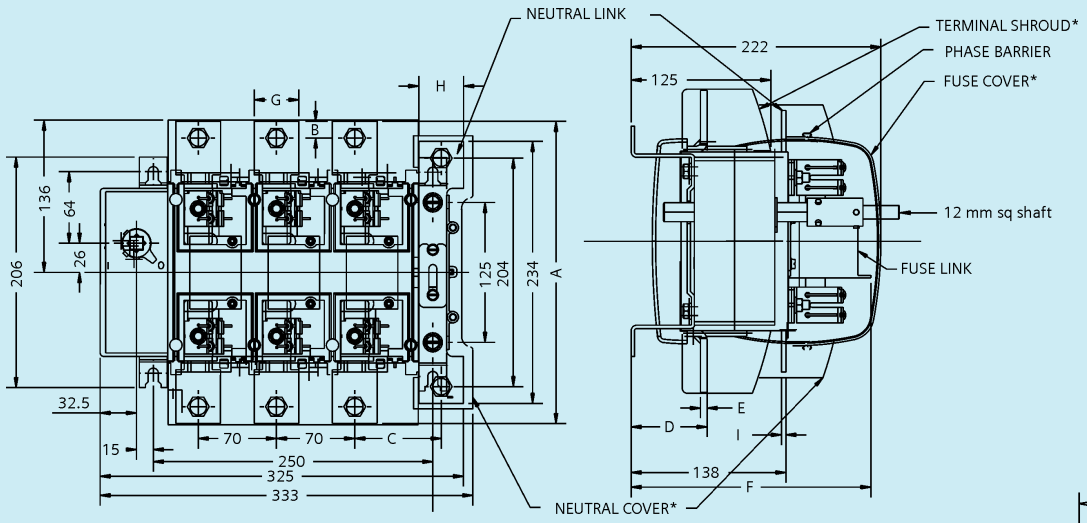
Permissible mounting position



Drilling Plan for mounting plate

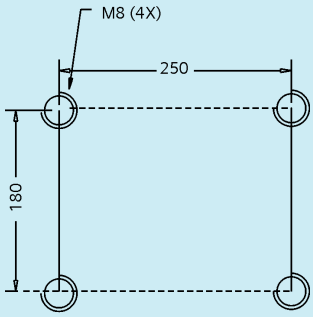
Dimensional Diagrams

3KL831/2/3/4



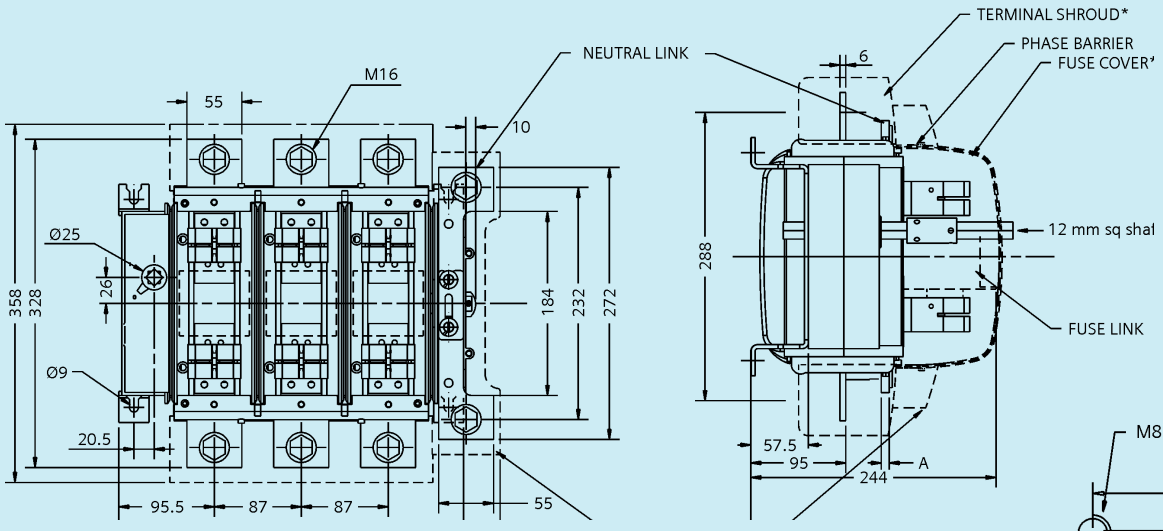
* STANDARD FEATURE IN 3KL8

Type	A	B	C	D	E	F	G	H	I
3KL831/2/3	234	12.5	72	72	4	203/217	30	30	4
3KL834	270	15	77	68	6	217			

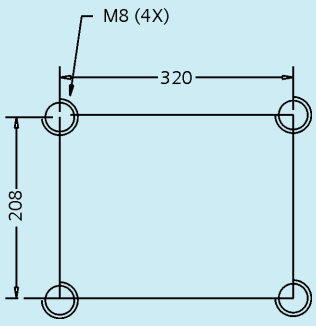


Drilling Plan for mounting plate

3KL841/2/3



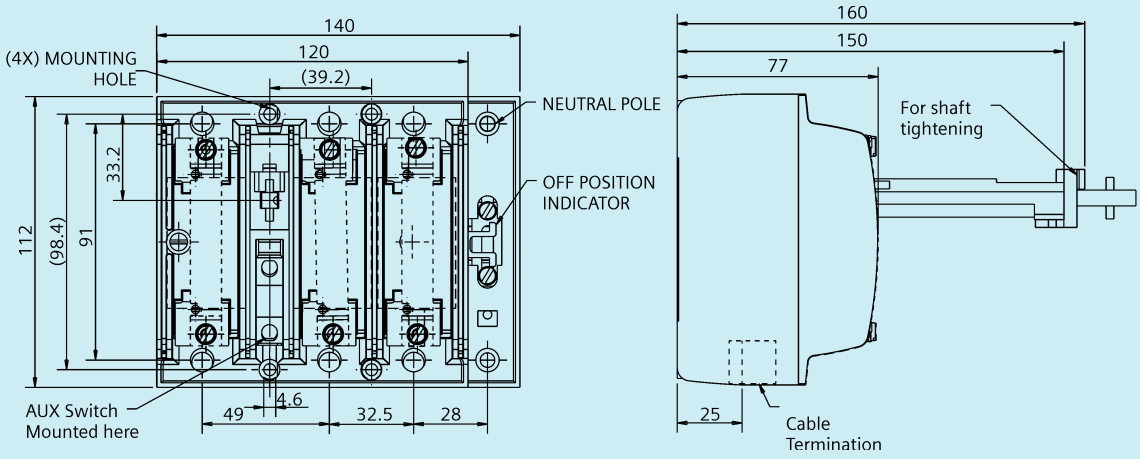
Type	A
3KL841/2	6
3KL843	8

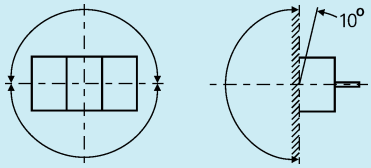


Drilling Plan for mounting plate

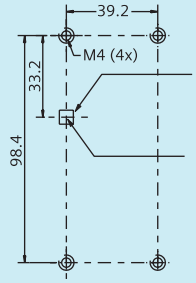
Dimensional Diagrams

3KA815



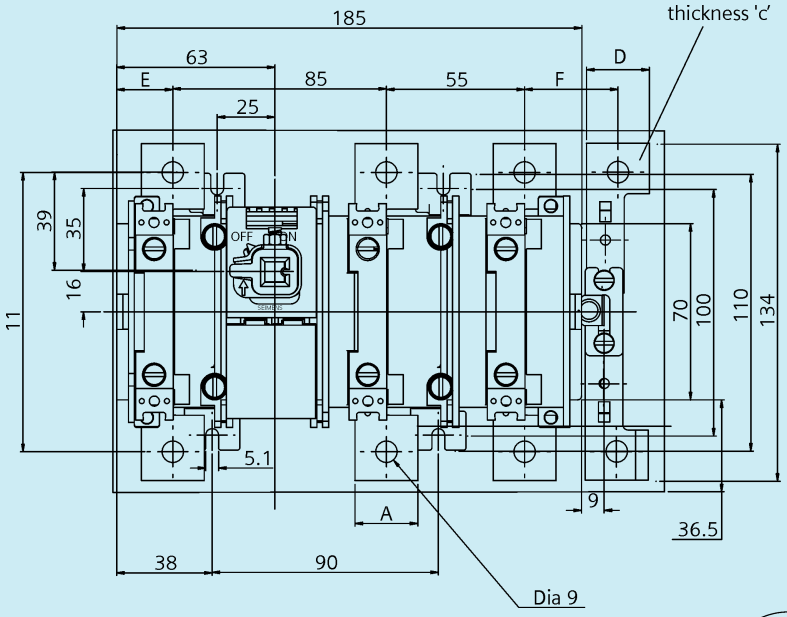


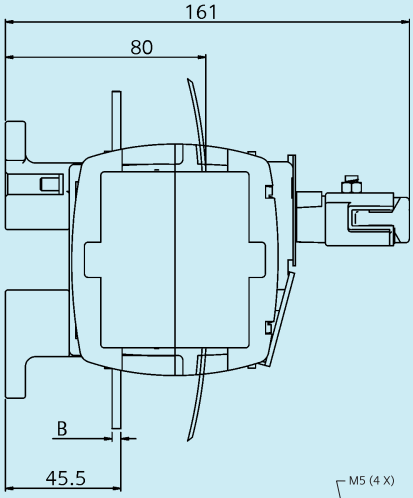
Permissible mounting position

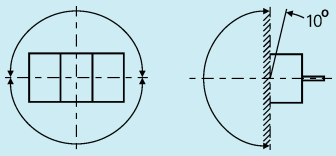


Drilling Plan for mounting plate

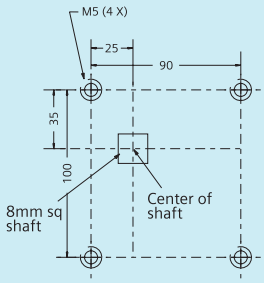
3KA821/2/3







Permissible mounting position

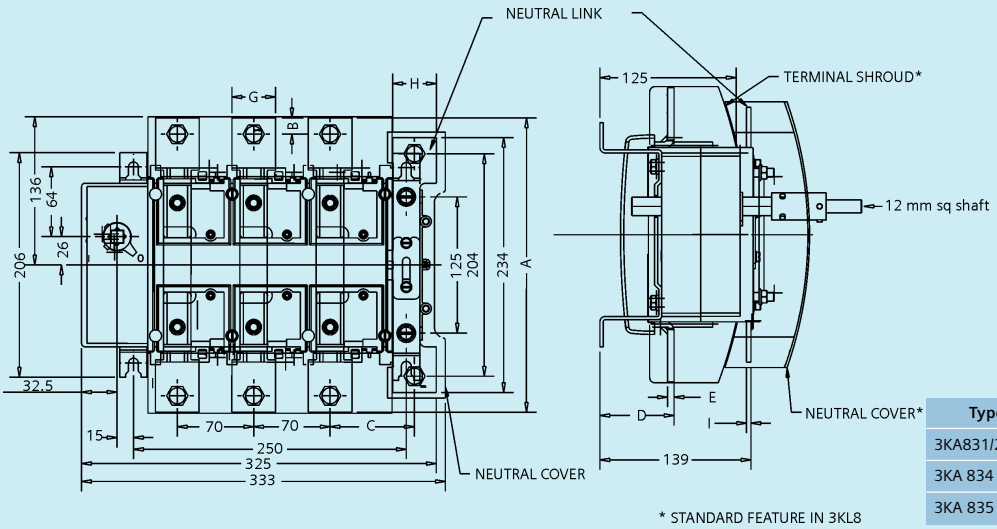


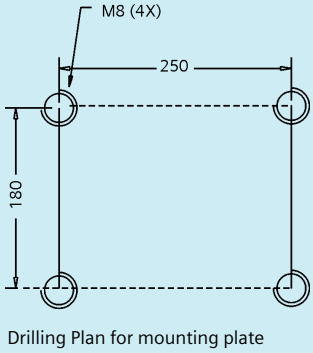
Drilling Plan for mounting plate

Type	A	B	C	D	E	F
3KA821/22 (100% TPN)	20	3	3	20	17	37
3KA823 (100% TPN)	25	3	3	25	19.5	37

Dimensional Diagrams

3KA831/2/4/5

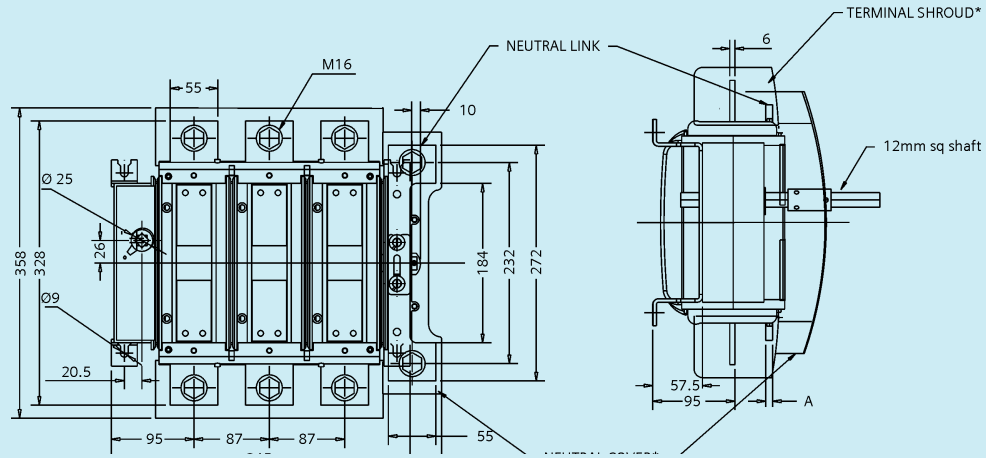


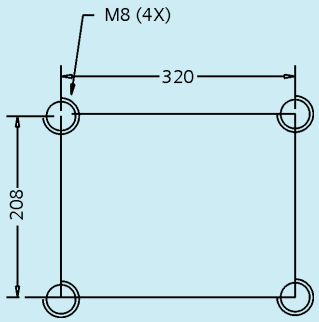


Drilling Plan for mounting plate

Type	A	B	C	D	E	F	G	H	I
3KA831/2	234	12.5	72	72	4	–	30	30	4
3KA 834	270	15	72	72	4	–	40	40	4
3KA 835	270	15	77	68	6	–	40	40	4

3KA843/4

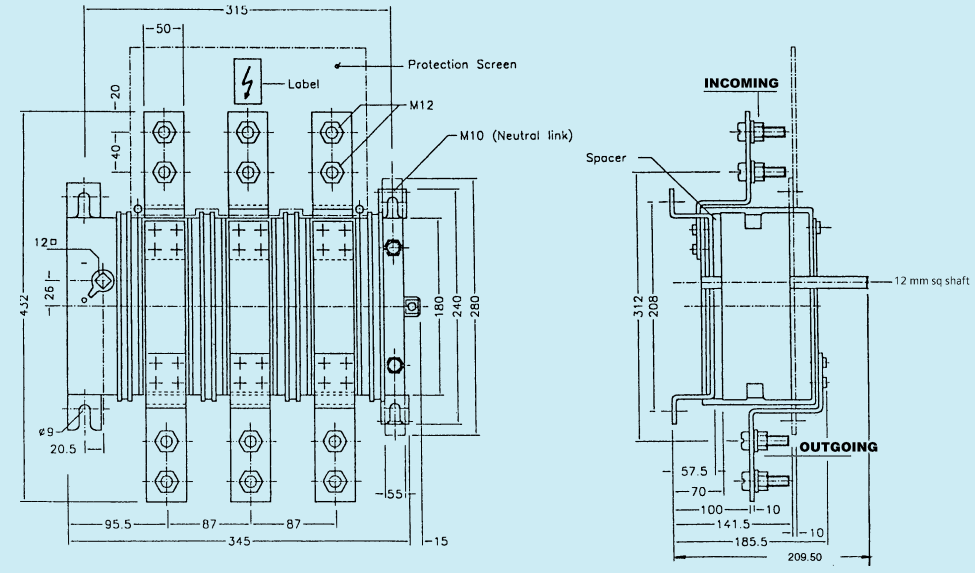


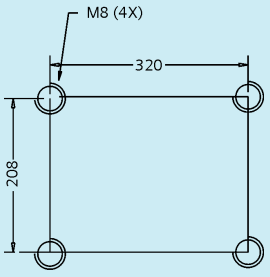


Drilling Plan for mounting plate

Type	A
3KA843/4	5

3KA845/6

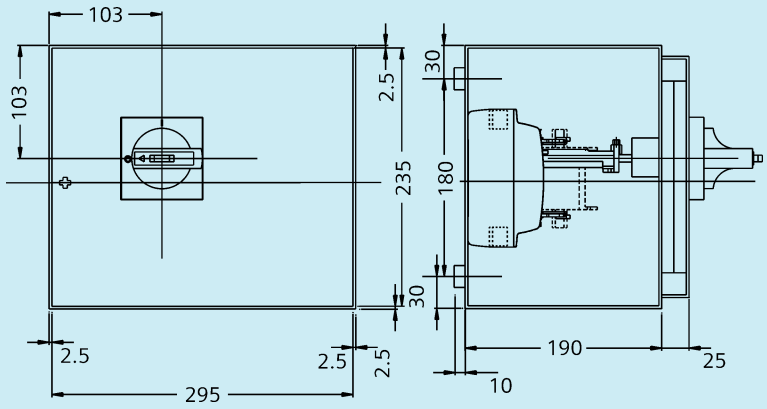




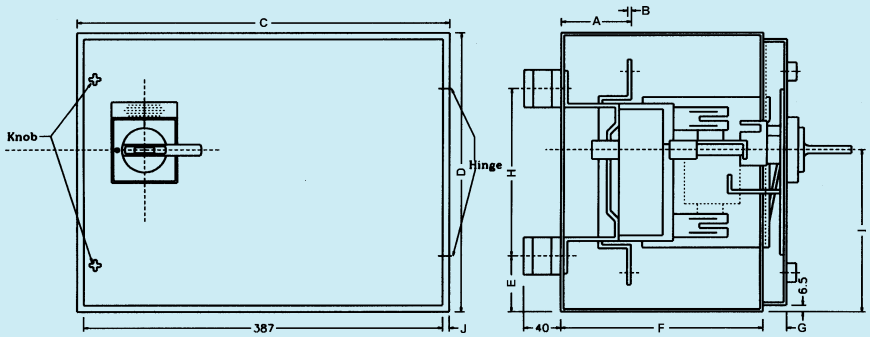
Drilling Plan for mounting plate

Dimensional Diagrams

Enclosure for 3KL811/2/5, 3KL821/2/3

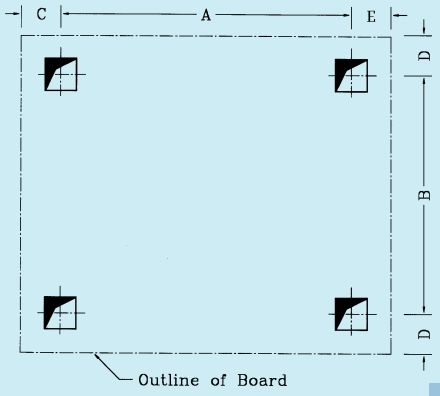


Enclosure for 3KL831/2/3/4, 3KL841/2/3



Type of Switch disconnector fuse	A	B	C	D	E	F	G	H	I	J
3KL831/2	80	4	425	300	60	215	26.5	180	176	6.5
3KL834	75	6	425	300	60	215	26.5	180	176	6.5
3KL842	95	6	425	395	96	262	25	208	223.5	2.5

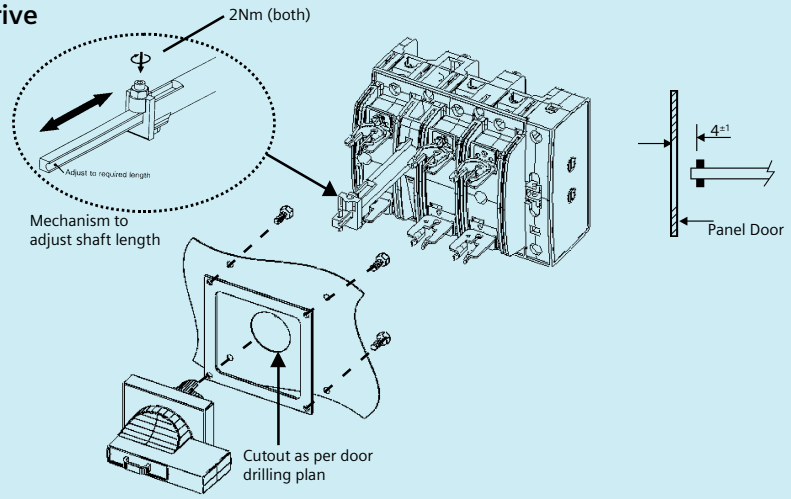
Mounting Dimensions



Type of Switch disconnector fuse	A	B	C	D	e
3KL81/82	240	180	30	30	30
3KL831/2/3/4	370	180	15	60	40
3KL841/2/3	320	208	40	96	40

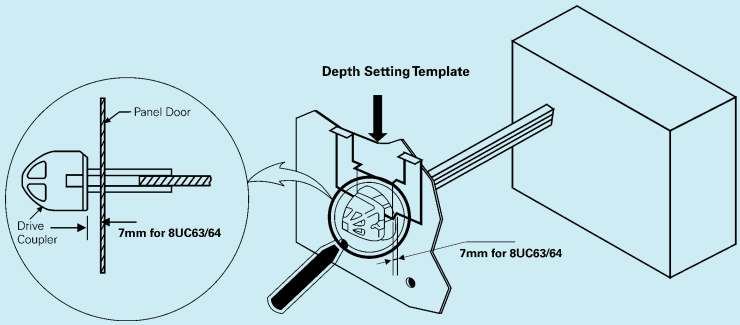
Sequence for mounting the 8UC68 hybrid drive

1. Mount the SDF (OFF position) on the base plate, inside panel.
2. Mark the projection point of shaft on the door & make the cutouts on the panel door. (Door drilling template provided).
3. Close the panel door fully, as in case during operation.
4. Adjust the length of the shaft, as shown in fig. 1 (Refer fig2 for shaft adj. mechanism) & tighten the grub screw & nut.
5. Mount the rubber gasket & handle on the door, as shown in picture.

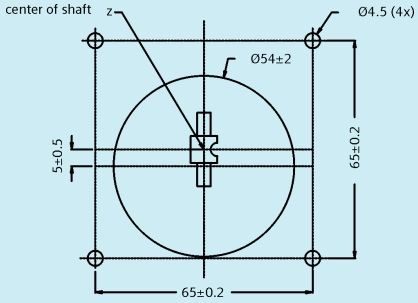


Sequence for mounting the 8UC63/64 drive.

1. Mount the product inside the panel.
2. Make the cut-outs on the panel door.
3. Mount drive coupler on the shaft of the unit.
4. Close the panel door fully, as is the case during operation.
5. Adjust the drive coupler with the help of Depth Setting Template as shown.
6. Mount the handle of the 8UC on the panel door.

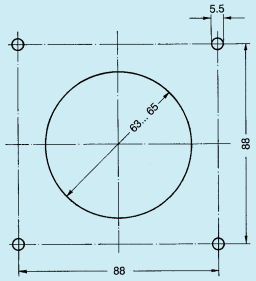


8UC68 (Door drilling dimensions)



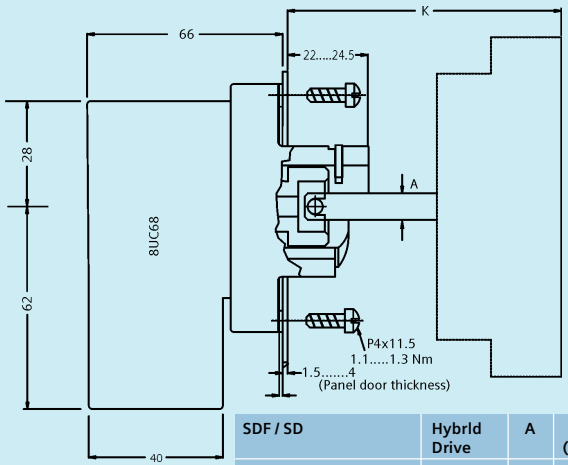
(Not to scale)

8UC63/64 (Door drilling dimensions)



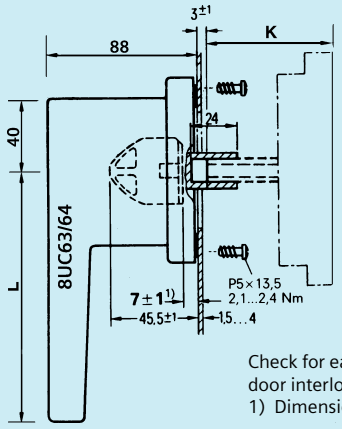
(Not to scale)

8UC68 - Installation & Adjustment Dimensions



SDF / SD	Hybrid Drive	A	K (Min)	K (Max)
3KL811/2/5, 3KA815	8UC 68	6sq	190	240
3KL821/2/3, 3KA821/2/3	8UC 68	8sq	180	240

8UC63/64 - Installation & Adjustment Dimensions

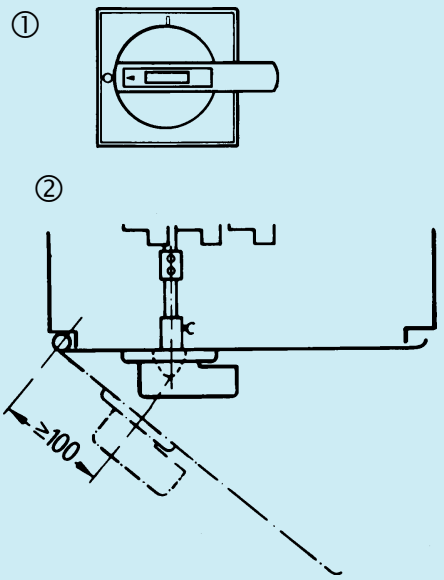


Check for easy movement of door interlock
1) Dimension to be adjusted

SDF/SD	Front Drive	L	K (Min)	K (Max)
3KL831/2/3/4, 3KA831/2/4/5	8UC63	140	285	310
3KL841/2/3, 3KA843/4/5/6	8UC64	200	285	310

All dimensions are in mm.

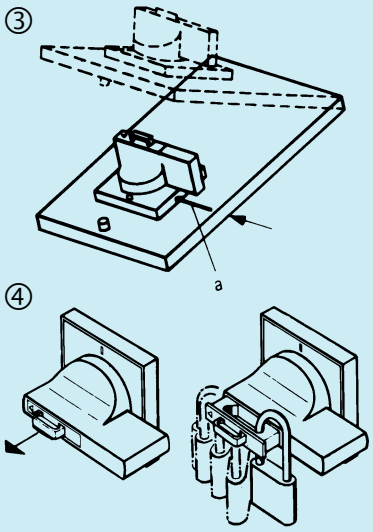
8UC6 front drive – some features



Installation

① Mounting position for switches and rotary mechanisms with "0" position.

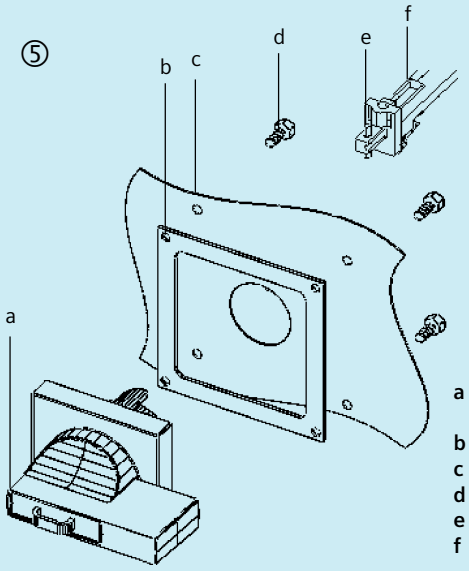
② Door hinge spacing.



③ Door interlock defeat facility
Push through knockout (a) and actuate with any pin to defeat door interlock.

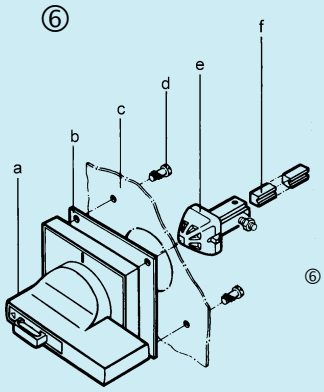
④ Locking facility in "OFF" position.

Mounting sequence of 8UC68

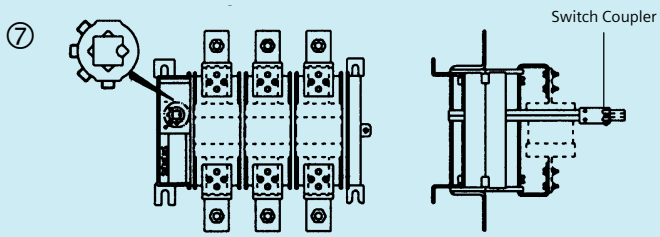


a Handle with masking frame
b Gasket
c Door
d Fixing screws
e Drive coupler
f Operating shaft

Mounting sequence of 8UC63/64



⑥ Basic design
a Handle with masking frame
b Gasket
c Door
d Fixing screws
e Drive coupler
f Operating shaft



⑦ Mounting position of **Switch Coupler** for 3KL831/2/3/4, 3KL841/2/3 for coupling with 8UC63 and 8UC64 drives.

Disposal Guidelines

Siemens SDF's are environmentally friendly products, which predominantly consist of recyclable materials.

For Disposal we recommend a disassembling and separation into the following material components:

- METALS: Segregate into Copper Steel for recycling through authorized dealer.
- PLASTICS: Segregate as per material type (marked on parts) for recycling through authorized dealer.

Because of the long lifetime of Siemens SDF's the disposal guidelines may be inaccurate or replaced by other national regulations when taking the switch out of service.

The local customer care service is available at any time to answer disposal-related questions.

Fuse protected selection type 2, Iq = 50kA, IS13947

- The selection is valid only for complete Siemens combinations i.e. SDF + DIN Fuse + Contactor + Birelay (+ timer).
- **In case this combination is changed to accommodate another brand/rating of SDF/DIN Fuse/Contactor/BMR, it shall be the responsibility of the person making such a change to assure type 2 performance.**
- Selection is for **normal starting** conditions with starting time £ 6 seconds. For **heavy starting** applications, please **consult Siemens**.
- At 60°C service temperature the bi-relay has to be derated. The bi-relay can be used upto the maximum current setting indicated. For example - A bi-relay with setting 32-50A, at 60°C can be used only upto 47A. This however does not mean that at 60°C, the 50A setting corresponds to 47A. It means that, the bi-relay should not be set beyond 47A.
- **The electronic star-delta timer type 3RP should be used in star-delta feeders.**
- SDF: Switch Disconnector Fuse. **All contactors are with 2NO + 2NC. All fuses are proper DIN HRC type.**
- Truly tested Type 2 combinations
- Low LCC = Low Life Cycle Cost

Direct-on-line Feeder, for Low LCC

SL Motor	Motor	SDF		HRC Fuse		Contactor		Bi-Relay		Bi-Relay	
kW/HP 415V, 3ph, 50Hz	I_L Amp	Type	Rating	Type 3NA3	Amp	Type	Amp	Type (50°C)	Set-Range Amp	Type (60°C)	Available Set-Range Amp
0.37/0.5	1	3KL811	20	3NA3804	4	3TF30	9	3UA5000-0K	0.8 - 1.25	3UA5000-0K	0.8 - 1.17
0.55/0.75	1.3	3KL811	20	3NA3804	4	3TF30	9	3UA5000-1A	1 - 1.6	3UA5000-1A	1 - 1.5
0.75/1	1.9	3KL811	20	3NA3801	6	3TF30	9	3UA5000-1B	1.25 - 2	3UA5000-1C	1.6 - 2.3
1.1/1.5	2.6	3KL811	20	3NA3801	6	3TF30	9	3UA5000-1D	2 - 3.2	3UA5000-1D	2 - 3
1.5/2	3.7	3KL811	20	3NA3803	10	3TF30	9	3UA5000-1E	2.5 - 4	3UA5000-1E	2.5 - 3.7
2.2/3	4.8	3KL811	20	3NA3805	16	3TF30	9	3UA5000-1F	3.2 - 5	3UA5000-1G	4 - 5.9
3.7/5	7.8	3KL811	20	3NA3807	20	3TF30	9	3UA5000-1H	5 - 8	3UA5000-1J	6.3 - 9.4
5.5/7.5	11.2	3KL812	32	3NA3810	25	3TF31	12	3UA5000-1K	8 - 12.5	3UA5000-1K	8 - 11.7
7.5/10	16	3KL812	32	3NA3812	32	3TF32	16	3UA5200-2A	10 - 16	3UA5200-2B	12.5 - 18.7
9.3/12.5	19	3KL815	63	3NA3820	50	3TF34	32	3UA5500-2B	12.5 - 20	3UA5500-2C	16 - 23.4
11/15	20.8	3KL815	63	3NA3820	50	3TF34	32	3UA5500-2C	16 - 25	3UA5500-2C	16 - 23.4
15/20	28	3KL815	63	3NA3822	63	3TF34	32	3UA5500-2D	20 - 32	3UA5500-2D	20 - 30
18.5/25	34	3KL815	63	3NA3822	63	3TF35	38	3UA5500-2Q	25 - 36	3UA5500-2R	32 - 37.4
22/30	40	3KL821	100	3NA3824	80	3TF46	45	3UA5800-2FZ1	32 - 50	3UA5800-2FZ1	32 - 47
30/40	53	3KL821	100	3NA3830	100	3TF47	63	3UA5800-2TZ1	40 - 57	3UA5800-2PZ1	50 - 59
37/50	65	3KL822	125	3NA3832	125	3TF477	70	3UA5800-2VZ2	57 - 70	3UA5800-2VZ2	57 - 65.5
45/60	78	3KL822	125	3NA3832	125	3TF49	85	3UA5800-8YZ1	70 - 95	3UA5800-8YZ1	70 - 88.9
55/75	96	3KL823	160	3NA3836	160	3TF50	110	3UA5830-5C	85 - 105	3UA5830-5C	85 - 98.2
75/100	131	3KL831	200	3NA3140	200	3TF51	140	3UA6230-5A	85 - 135	3UA6230-5B	115 - 168
90/125	156	3KL832	250	3NA3144	250	3TF52	170	3UA6230-5B	115 - 180	3UA6230-5B	115 - 168
110/150	189	3KL832	250	3NA3144	250	3TF53	205	3UA6230-5C	160 - 250	3UA6230-5C	160 - 234
132/180	227	3KL833	315	3NA3252	315	3TF54	250	3UA6230-5C	160 - 250	3UA6230-5C	160 - 234
160/215	271	3KL834	400	3NA3260	400	3TF55	300	3UA6230-5D	200 - 320	3UA6230-5D	200 - 299
200/270	339	3KL841	500	3NA3365	500	3TF56	400	3UA6230-5E	250 - 400	3UA6230-5E	250 - 374
250/335	398	3KL841	500	3NA3365	500	3TF57	475	3UA6830-3F	320 - 500	3UA6830-3F	320 - 468

Star-Delta Feeder, for Low LCC

SL Motor	Motor		SDF		HRC Fuses		Contactor Line/Delta		Contactor Star		Bi-Relay		Bi-Relay		Timer
kW/HP 415V, 3ph, 50Hz	I_L Amp.	Iph Amp	Type	Rating	Type 3NA3	Amp	Type	Amp	Type	Amp	Type (50°C)	Set-Range Amp	Type (60°C)	Available Set-Range Amp	Type
2.2/3	4.8	2.8	3KL811	20	3NA3801	6	3TF30	9	3TF30	9	3UA5000-1D	2-3.2	3UA5000-1D	2-3	3RP15
3.7/5	7.8	4.5	3KL811	20	3NA3803	10	3TF30	9	3TF30	9	3UA5000-1F	3.2-5	3UA5000-1F	3.2-4.7	3RP15
5.5/7.5	11.2	6.5	3KL811	20	3NA3805	16	3TF30	9	3TF30	9	3UA5000-1H	5-8	3UA5000-1H	5-7.5	3RP15
7.5/10	16	9.2	3KL811	20	3NA3807	20	3TF31	12	3TF30	9	3UA5000-1J	6.3-10	3UA5000-1J	6.3-9.4	3RP15
9.3/12.5	19	11	3KL812	32	3NA3810	25	3TF31	12	3TF30	9	3UA5000-1K	8-12.5	3UA5000-1K	8-11.7	3RP15
11/15	20.8	12	3KL812	32	3NA3810	25	3TF31	12	3TF30	9	3UA5000-1K	8-12.5	3UA5000-2S	10-13.6	3RP15
15/20	28	16.2	3KL812	32	3NA3812	32	3TF33	22	3TF32	16	3UA5200-2B	12.5-20	3UA5200-2B	12.5-18.7	3RP15
18.5/25	34	19.7	3KL815	63	3NA3820	50	3TF34	32	3TF34	32	3UA5500-2B	12.5-20	3UA5500-2C	16-23.4	3RP15
22/30	40	23.2	3KL815	63	3NA3820	50	3TF34	32	3TF34	32	3UA5500-2C	16-25	3UA5500-2D	22-30	3RP15
30/40	53	30.6	3KL815	63	3NA3822	63	3TF34	32	3TF34	32	3UA5500-2D	20-32	3UA5500-2Q	25-33.7	3RP15
37/50	65	37.5	3KL821	100	3NA3824	80	3TF35	38	3TF34	32	3UA5500-2R	32-40	3UA5500-8M	36-45	3RP15
45/60	78	45	3KL821	100	3NA3830	100	3TF46	45	3TF34	32	3UA5800-2FZ1	32-50	3UA5800-2FZ1	32-47	3RP15
55/75	96	55.4	3KL821	100	3NA3830	100	3TF47	63	3TF34	32	3UA5800-2TZ1	40-57	3UA5800-2PZ1	50-59	3RP15
75/100	131	75.6	3KL823	160	3NA3836	160	3TF49	85	3TF47	63	3UA5800-8YZ1	70-95	3UA5800-8YZ1	70-88.9	3RP15
90/125	156	90.1	3KL823	160	3NA3836	160	3TF50	110	3TF47	63	3UA5830-5B	70-95	3UA5830-5C	85-98.2	3RP15
110/150	189	109	3KL831	200	3NA3140	200	3TF50	110	3TF50	110	3UA5830-5D	95-120	3UA5830-5D	95-112	3RP15
132/180	227	131.1	3KL832	250	3NA3144	250	3TF51	140	3TF50	110	3UA6230-5B	115-180	3UA6230-5B	115-168	3RP15
160/215	271	156.5	3KL833	315	3NA3252	315	3TF52	170	3TF50	110	3UA6230-5B	115-180	3UA6230-5B	115-168	3RP15
200/270	339	195.7	3KL834	400	3NA3260	400	3TF54	250	3TF52	170	3UA6230-5C	160-250	3UA6230-5C	160-234	3RP15
250/335	398	243.1	3KL841	500	3NA3260	400	3TF54	250	3TF54	250	3UA6230-5C	160-250	3UA6230-5D	200-299	3RP15

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  Tower B / 701 - 705, ICC Trade Tower
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  ☎ : +91 20 2570 6000
  Fax: +91 20 2570 6060

Territory managers :

- **Aurangabad**
  Mobile: +91 9822193204
  E-mail: siemens_nsk@sancharnet.in
- **Bareilly** - 243001
  Flat no. T1, 129, Civil Lines
  Mobile: +91 9897679061
  E-mail: siemens.bly@gmail.com
- **Baroda -** 390007
  1st Floor Vanijya Bhavan, Race Course Road
  Mobile: +91 98255 06963
  E-mail: sreejagannath.mohanta@siemens.com
- **Belgaum** - 590005
  C/o "Shrihari", 1st Floor, Plot No. 61
  5th Cross, Bhagya Nagar
  ☎ & Fax: +91 831 2495156
  Mobile: +91 9880290835
  E-mail: m.imran@siemens.com
- **Bhilai** - 490001
  C/o. Mr. S. H. Siddiqui
  Sector -1, Street- 9, Quarter No.1A
  Mobile: +91 9826127525
  E-mail: siemens_chg@sify.com
- **Bhopal** - 462023
  C/o. Mr. A.K. Sundrani, Sector - D
  Plot No. B-204, Meenal Residency, J.K. Road
  ☎ : +91 755 2688662
  Mobile: +91 9425057945
  E-mail: siemens@sancharnet.in
- **Bhubaneswar** - 751003
  Flat No. 4C, Aditya Palace, 218/219, Paika Nagar
  ☎ : +91 674 2563124
  Mobile: +91 9437013124
  E-mail: angshumanrc@yahoo.com
- **Bokaro**
  Mobile: +91 9934352756
  E-mail: siemens_bokaro@yahoo.co.in
- **Chandigarh** - 160019
  SCO - 188-190, 2nd Floor
  Sector 34A, Gurunanak Complex
  ☎ : +91 172 2666618, 2666619
  Mobile: +91 9417121990
  E-mail: siemenschd@satyam.net.in
- **Cochin** - 682016
  K.G. Oxford Business Centre
  39/4609, 3rd Floor, Sreekandath Road, Ravipuram
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  E-mail: kumchn@satyammail.com
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  Mobile: +91 9832172046
  E-mail: dgp_sldgp@sancharnet.in
- **Guwahati** - 781003
  G1, Hill View Apartment
  Navagraha Path, Chenikuthi Hill Side
  ☎ : +91 361 2663988
  Mobile: +91 9864037562
  E-mail: amarnath.karmakar@vsnl.net
- **Hardwar** - 249407
  758, 1st Floor, Model Colony
  Awas Vikas, Jwalapur, Uttaranchal
  ☎ & Fax: +91 1334 265491
  Mobile: +91 9897070133
  E-mail: siemens_hwd@datainfosys.net
- **Indore** - 452001
  521 Suniket Apartments
  Shri Nagar Extension, Main Khajrana Road
  Mobile: +91 98266 41970
  E-mail: siemens_indore@yahoo.com
- **Jaipur** - 302016
  Flat No.101, Mahiraj Apartment
  Basant Marg, Bani Park, Rajasthan
  ☎ & Fax: +91 141 2203058
  Mobile: +91 9829244313
  E-mail: siemens_jpr@dil.in
- **Jallandhar** - 144002
  635L, 1st Floor, Model Town, Punjab
  ☎ & Fax: +91 181 2460547
  Mobile: +91 9814306636
  E-mail: siemensjal@vsnl.net
- **Jamshedpur** - 831005
  1511, Kirthar Apartment, Vijaya Heritage, Uliyan, Kadma
  ☎ : +91 657 2311352
  Mobile: +91 9934311352
  E-mail: siemens.jsr@rediffmail.com
- **Kanpur** - 208001
  Flat No.19-B, 4th Floor, Prabhu Vatika
  7/109, Swarup Nagar, U.P.
  ☎ & Fax: +91 512 2548765
  Mobile: +91 9839102434
  E-mail: siemens_knp@satyam.net.in
- **Kolhapur** - 416001
  B-7, Mahagaonkar Complex
  1147/E, Rajaram Road, Opp. Kamala College
  ☎ : +91 231 2536626
  Mobile: +91 9822558876
  E-mail: amol.pandit@siemens.com
- **Lucknow** - 226001
  28/45, Ashok Marg
  ☎ : +91 522 2231219, 2280305
  Mobile: +91 9415012500
  E-mail: siemens_lko@satyam.net.in
- **Ludhiana** - 141004
  Flat No.5 (GF), HIG Flats, Opp. Milk Plant
  Bhai Randhir Singh Nagar, Ferozpur Road, Punjab
  ☎ : +91 161 2457199
  Mobile: +91 9417045273
  E-mail: siemens_ldh@satyam.net.in
- **Ludhiana** - 141004
  House No.228, 2nd Floor, B.R.S.Nagar
  ☎ : +91 161-4610776
  Mobile: +91 9872000936
  E-Mail: siemens.ludhiana@sify.com
- **Madurai** - 625016
  Flat No, 210, II Floor, Arunachalam Apartment
  Bharathiyar 5th street, S.S.Colony
  ☎ & Fax: +91 452 2601305
  Mobile: +91 9443369375
  E-Mail: k.shankar@siemens.com
- **Nashik** - 422013
  5, Vistaar Apts. Above Hari OM Super Market
  Pumping Station, Gangapur Road
  Mobile: +91 9822193204
  E-mail: siemens_nsk@sancharnet.in
- **Raipur** - 492 001
  C/o Mr.Shahpurkar
  280, Samta Colony, Near Gayatri Mandir
  Mobile: +91 93297 07579
  E-mail: siemens_chg@hotmail.com
- **Rajkot** - 360005
  House No 97, Street No 3, Panchvati Park
  Bh: Panchvati Hall, Panchvati Society
  Mobile: +91 98258 18864
  E-mail: vinod_naik_sl@yahoo.co.in
- **Rourkela** - 769004
  T-15 Civil Town
  ☎ : +91 661 2400880
  Mobile: +91 9437041724
  E-mail: gangulys_sl@yahoo.co.in
- **Renukoot** - 231217
  Room No.1 - 2, Adjacent Jain Complex, Murdhawa
  Mobile: +91 9838007897
  E-mail: siemens_upeast@sify.com
- **Surat** - 395009
  Flat No: 104, A5 Block, Green Avenue Apartment, Adajan
  Mobile: +91 98255 06962
  E-mail: siemens.surat@gmail.com
- **Udaipur** - 313001
  Oasis Park, Flat No.303, P.P. Singhal Marg, Ambavgarh
  ☎ : +91 294 2430345
  Mobile: +91 9829039120
  E-mail: siemens@datainfosys.net
- **Vapi** - 396195
  Flat No. 302, Samrajaya IV
  Royal Residency, Charwada Road
  ☎ : +91 260 6451156
  Mobile: +91 98251 47957
  E-Mail: siemens_vapi@sancharnet.in
- **Vijayawada** - 520010
  G-2, Shreya Towers, Moghalrajapuram
  Near Jammichettu Centre
  ☎ : +91 866 5529933
  Mobile: +91 9866690935
  E-mail: srisachandra.kartikeya@siemens.com
  kartikeya_p@rediffmail.com
- **Visakhapatnam** - 530017
  Flat No. 101, Shripal Towers, Kiralampudi Layout
  Mobile: +91 9849077719
  E-mail: siemensvizag@rediffmail.com

Siemens Ltd.
Automation and Drives Division
LV Control & Distribution Products
Thane Belapur Road
Thane 400601
Fax: +91 22 27623729
e-mail: lvsgr-mktg.india@siemens.com

Siemens Ltd.
SGR-01-109-045