

# *Simpact*<sup>TM</sup>

Moulded Case Circuit Breaker  
The New Generation



Longer  
Life



Economy of  
Operation.



New  
Performance Levels  
Ics=100% Icu

**Schneider**  
Electric



## Schneider Electric India

As a global specialist in energy management with operations in more than 100 countries, Schneider Electric offers integrated solutions across multiple market segments, including leadership positions in energy and infrastructure, industrial processes, building automation, and data centres/networks, as well as a broad presence in residential applications. Focused on making energy safe, reliable, and efficient, the company's 114,000 employees achieved sales of more than 18.3 billion euros in 2008, through an active commitment to help individuals and organisations

**"make the most of their energy™".**

Schneider Electric's comprehensive solutions combine hardware, software, communication & services. As specialists in the management of electricity and automation, we are committed to converting electricity into smart energy that powers the way we work, live and play. Developing technologies, processes and solutions that are so simple, efficient and environment friendly that you forget they're even there. We are making tomorrow's world a better place to be in by providing safe, reliable, productive, efficient and green power.

- Global Specialist in Energy Management
- Presence in **100 + countries**
- Specialised workforce of **1,14,000 employees**
- Consolidated revenue worth **Euro 18.3 billion**
- **25 Research and development centres**
- Investment of **5.5% of total sales in R&D**

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# Simpact™: An Introduction

At Schneider Electric, it is our constant endeavour to provide our customers products that are ahead of its time in terms of Protection, Control and Reliability.

Simpact™ MCCB's, the new generation, are a result of this initiative at Schneider Electric. Simpact™ today come with new performance levels with Ics=100% Icu, Higher electrical endurance levels and Optimised accessories and Auxiliaries for superior control and monitoring.

Simpact™ today is a step ahead in terms of product reliability and compliance to standards. The Entire Simpact™ range complies to additional mandatory tests like Shock, Tropicalisation and Vibration. These tests guarantee withstand and performance in extreme Electrical, Mechanical and Environmental conditions. Simpact™ is rightfully suitable for the ever changing and demanding requirements of the Building, Industry and Infrastructure Markets.

Simpact™ today stands for **Simplicity, Reliability, Safety and Economy of Operation.**

***Simplify your Electrical needs with Simpact™. Simple to install, Simple to Operate, Simple to Maintain.***



## Simpact™

Stands for

- Simplicity
- Reliability
- Safety and economy of operation.
- Withstand extreme electrical, mechanical and environmental conditions



NKF100K



NKF250K



NKF400K



NKF800K

# Simpact™: General characteristics

## Function of LV Switchgear

National and international standards define the manner in which electric circuits of LV installations must be realised, and the capabilities and limitations of the various switching devices which are collectively referred to as switchgear.

### The main functions of switchgear are:

- Electrical protection
- Electrical isolation of sections of an installation
- Local or remote switching

Electrical protection at low voltage is normally incorporated in Moulded case circuit-breakers, in the form of thermal-magnetic, earth fault and under voltage devices.

MCCB control functions allow system operating personnel to modify a loaded system at any moment, according to requirements, and include:

- Functional control (routine switching, )
- Emergency switching
- Maintenance operations on the power system

### Selection of a MCCB.

The choice of a MCCB is made in terms of :

- Electrical characteristics of the installation
- Short-circuit breaking and making requirements
- Load characteristics such as motor lighting, capacitor
- Need for remote control

### Fault current limitation technology:

The fault-current limitation of a MCCB concerns its ability, more or less effective, in preventing the passage of the maximum prospective fault-current, permitting only a limited amount of fault current to flow.

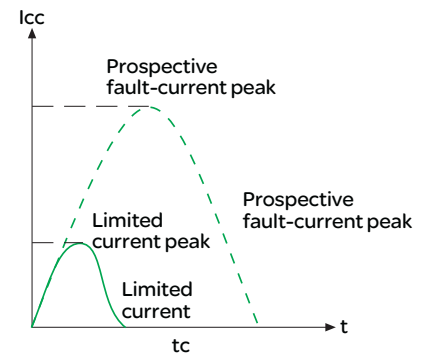
### Advantages

- Current-limiting MCCB strongly attenuate all harmful effects associated with short-circuit currents
- Reduction of thermal effects: Conductors heating is significantly reduced, which results in increase life of cables
- Reduction of mechanical and electromagnetic interference effects



## Electrical protection assures:

- Protection of circuit elements against the thermal and mechanical stresses of short-circuit currents
- Protection of devices against over load motors
- Protection of persons in the event of insulation failure



Current limitation technology

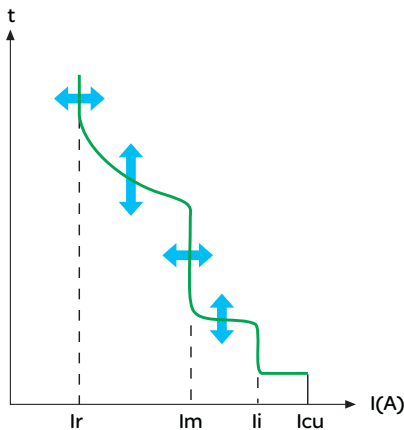
# Simpact™: General characteristics

## Compliance with standards

Merlin Gerin	
Simpact	
NKF250K	
Ui 690V	Uimp 8kV
Breaking Capacity	
Ue (V)	Icu (kA)
415	50
Ics = 100% Icu	
Cat. A	
50/60Hz	
40°C	
IEC 60947-2	
IS 13947 (Part-2)	

### Standardised characteristics indicated on the rating plate:

- Ui:** rated insulation voltage  
**Uimp:** rated impulse withstand voltage  
**Icu:** ultimate short circuit breaking capacity  
**Ics:** service breaking capacity  
**Cat:** utilisation category  
**In:** rated current



- Ir:** Overload (thermal or long-delay) relay trip-current setting  
**Im:** Short-circuit (magnetic or short-delay) relay trip-current setting  
**Ii:** Short-circuit instantaneous relay trip-current setting.  
**Icu:** Breaking capacity

### Compliance with standard

*Simpact™* circuit breakers and auxiliaries comply with the following.

- International recommendations:
  - IEC 60947-1 general rules
  - IEC 60947-2 circuit breakers
- Indian standards:
  - IS13947 (Part 1) general rules
  - IS13947 (Part 2) circuit breaker

### Pollution degree

*Simpact™* circuit breakers are certified for operation in pollution degree III environment as IEC standard IEC 60947 (industrial environment).

### Tropicalisation

*Simpact™* circuit breakers have successfully passed the tests prescribed by the following standards for extreme atmospheric conditions:

- IEC 60068-2-1 - dry cold (-55 °C)
- IEC 60068-2-2 - dry heat (+85 °C)
- IEC 60068-2-30 - damp heat (95 % relative humidity at 55 °C)

### Environmental protection

*Simpact™* circuit breakers take into account important concerns for environment protection. Most components are recyclable and the parts of *Simpact™* are marked as specified in applicable standards.

### Ambient temperature

- *Simpact™* circuit breakers may be used between -5° C to 50° C. For temperatures higher than 40° C, devices must be derated as indicated in the documentation.
- Circuit-breakers should be put into service under normal ambient operating temperature conditions.
- The permissible storage temperature range for *Simpact™* circuit breakers in the original packing is -50° C to 85° C.

### Mechanical environment

*Simpact™* circuit breakers has successfully passed the tests as per following standards for extreme mechanical environment conditions.

- IEC 68-2-6 vibration test
- IEC 68-2-27 shock test

### Power supply

*Simpact™* circuit breakers can be connected with power supply from either top or bottom (reverse feeding) without any reduction in performance. This capability facilitates connection when installed in a switchboard.

# Simpact™: Offer Presentation

Merlin Gerin	
<b>Simpact</b>	
<b>NKS100R</b>	
Ui 690V	Uimp 8kV
Breaking Capacity	
Ue (V)	Icu (kA)
415	10
Ics = 50% Icu	
Cat.A	
50/60Hz	
40°C	
IEC 60947-2	
IS 13947 (Part-2)	

Merlin Gerin	
<b>Simpact</b>	
<b>NKF100D</b>	
Ui 690V	Uimp 8kV
Breaking Capacity	
Ue (V)	Icu (kA)
415	25
Ics = 100% Icu	
Cat.A	
50/60Hz	
40°C	
IEC 60947-2	
IS 13947 (Part-2)	

## Simpact™ range presentation

Simpact™ is available from 10A to 800A in 5 Optimum frame sizes based on the Electrical and Mechanical Endurance demands. *Simpact™* comes with a host of features including Adjustable Overload and Short Circuit Setting, Line Load reversability **and optimum accessories for monitoring and control.**

The New enhanced performances enable *Simpact™* to be used in demanding applications from 10kA to 50kA in multipole variants. This feature provides the user flexibility to design an optimum system.

Merlin Gerin	
<b>Simpact</b>	
<b>NKF400C</b>	
Ui 690V	Uimp 8kV
Breaking Capacity	
Ue (V)	Icu (kA)
415	35
Ics = 100% Icu	
Cat.A	
50/60Hz	
40°C	
IEC 60947-2	
IS 13947 (Part-2)	

Merlin Gerin	
<b>Simpact</b>	
<b>NKF250K</b>	
Ui 690V	Uimp 8kV
Breaking Capacity	
Ue (V)	Icu (kA)
415	50
Ics = 100% Icu	
Cat.A	
50/60Hz	
40°C	
IEC 60947-2	
IS 13947 (Part-2)	

The rating plates on the front face of the circuit breakers indicate the following:

### Basic Range:

NKS: *Simpact™* from 10A to 200A

NKF: *Simpact™* from 20A to 800A (Ics=100%Icu)

### Breaking capacity

Breaking capacity in *Simpact™* is indicated by

R: 10 kA

D: 25 kA

C: 35 kA

K: 50 kA

Standard Breaking Capacity

High Breaking Capacity

## Range Presentation

basic offer and salient features



### NKS 100-160-200R

- Single Frame size from 10A - 200A with Compact dimension for 1P, 3P Applications
- Trip units with Integrated Fixed Magnetic Settings
- 10kA with Ics = 50% Icu
- Suitable for industrial and building feeder protection application



# Simpact™: Offer Presentation



## NKS/NKF 10A-800A DC Range

- Special DC Range from 10A to 800A with 1P, 2P, 3P and 4P Variants
- High breaking capacities, with three performance levels of 5kA, 10kA and 40kA
- Accessory Compatibility and Common Frames size of AC Range.



## NKF100-800A Fixed Version

- High breaking capacities, with three performance levels of 25kA, 35kA and 50kA in 3P/4P Variants
- New performance capability with  $I_{cs}=100\% I_{cu}$  for Entire Range
- Fixed Thermal and Magnetic Setting upto 400A. Fixed Thermal and Adjustable Magnetic setting above 500A.
- Suitable for protection of distribution and generation system
- Optionally compact design



## NKF100-800A Adjustable Version

- High breaking capacities, with three performance levels of 25kA, 35kA and 50kA in 3P/4P Variants
- New performance capability with  $I_{cs}=100\% I_{cu}$  for Entire Range
- Adjustable Thermal and Fixed Magnetic Setting upto 400A. Adjustable Thermal and Adjustable Magnetic setting above 500A.
- Suitable for protection of distribution and generation system
- Optionally compact design

## Product Description example: NKF100D040AC3PF

Generic example to read a *Simpact™* catalogue number



NKF	100	D	40	AC	3P	F
<i>Simpact™</i> NKS/NKF	Frame Size	Breaking Capacity	Current Rating (A)	Alternating Current	No. of poles	Trip unit type fixed

# Functions and characteristics

Protection for distribution systems

*Simpact™* from 10A to 250A



Electrical characteristics as per IEC 60947- 2 & IS 13947 (Part 2)		
Number of Poles		
Rated current -I <sub>n</sub> (A)	40° C	
Rated insulation voltage - U <sub>i</sub>	V	
Impulse withstand voltage - U <sub>imp</sub>	kV	
Rated operational voltage	V	
Ultimate Breaking Capacity - I <sub>cu</sub> (kA)	AC 50/60 Hz	
Service Breaking Capacity - I <sub>cs</sub>	% I <sub>cu</sub>	
Utilisation category		
Endurance (CO cycles) - Mechanical		
Electrical	415V AC	
Overload Protection		
Overload release setting (A)	I <sub>r</sub> at 40°C	Adjustable x I <sub>n</sub>
Short Circuit Protection		
Short Circuit Release setting (X I <sub>n</sub> )	I <sub>m</sub>	Fixed
Installation and Connection		
Bus Bar	Max. width (mm)	Without spreaders
	Max. width (mm)	With spreaders
Cable (Crimped lugs)	Al/Cu (mm) <sup>2</sup>	Without spreaders
		With spreaders
Installation Accessories		
Spreaders		
Terminal Shroud		
Phase Barriers		
Dimensions & Weight		
Overall dimensions W X H X D (mm)	mm	1 Pole
	mm	3 Pole
	mm	4 Pole
Weight	Kg	1 Pole
	K	3 Pole
	Kg	4 Pole
Internal Accessories (Optional) Maximum 2 nos. accessories per breaker.*		
Undervoltage Release		
Shunt Trip Release		
Alarm Switch	1 C/O	
	2 C/O	
Auxillary Switch	1 C/O	
	2 C/O	
Alarm - Auxillary Switch	1 C/O each	
External Accessories (Optional)		
Rotary Hanadle	Breaker Mounted	
	Extended	

Frame 1					Frame 2					
NKS100R	NKS160R	NKS200R	NKS200R	NKF100D	NKF100C	NKF100K	NKF250D	NKF250C	NKF250K	
1/3	3	1	3	3	3/4		3	4	3/4	
10,15,20,25,30,32,35,40,50,60,63,75,90,100	110, 125, 140,150, 160	110, 125, 140,150,160, 175,200	175, 200	20,25,32,40,50,63,80,100	25, 32,40, 50, 63, 80, 100		125, 160, 200, 250	25,32,40,50,63, 80,100,125, 160,200, 250	125, 160, 200, 250	
					690					
					8					
240 / 415	415	240			415					
10	10	10	10	25	35	50	25	25	35	50
50%	50%	50%	50%	100%	100%					
A	A		A	A	A					
10000	10000	8000	10000	20000	15000					
1500	1500	1000	1500	10000	6000					
0.8-1.0 In (3P)	0.8-1.0 In		0.8-1.0 In	0.8-1.0 In	0.8-1.0 In					
11/5	12	10	10	10	10					
16				16	25					
23	23	23	23	25	-	-	25			
35				35	95					
70	95	95	95	70	-	-	185			
○(upto 63A)		○								
○	○	○	○	○	○					
●	●	○	●	●	●					
35x153x83		35x153x83								
90x153x83	90x153x83		90x153x83	90x153x83	105 X 165 X 78					
					140 X 165 X 78					
0.5		0.6								
1.2	1.6		1.6	1.4	2.2		2.4			
					2.9		3.1			
○	○		○	○	○					
○	○		○	○	○					
○	○		○	○	○					
-	-		-	-	-					
○	○		○	○	○					
-	-		-	-						
-	-		-	-						
○	○		○	○	○					
					○					

★ Not Available    ● Standard    ○ Optional Accessories

# Functions and characteristics

Protection for distribution systems

*Simpact™* from 320A to 800A



## Type

Number of Poles		
<b>Electrical characteristics as per IEC 60947- 2 &amp; IS 13947 (Part 2)</b>		
Rated current (A)		40° C
Rated insulation voltage - Ui		V
Impulse withstand voltage - Uimp		kV
Rated operational voltage		V
Ultimate Breaking Capacity - Icu		kA rms
Service Breaking Capacity - Ics		% Icu
Utilisation category		
Endurance (CO cycles) - Mechanical		
- Electrical		415V AC
<b>Overload Protection</b>		
Overload release setting (A)		Ir at 40° C
<b>Short Circuit Protection</b>		
Short Circuit Release setting (X In)		Im
<b>Installation and Connection</b>		
- Bus Bar		Max. width (mm)
- Cable (Crimped lugs)		Al/Cu (mm) <sup>2</sup>
<b>Installation Accessories</b>		
Terminal Shroud		
Phase Barriers		
<b>Dimensions &amp; Weight</b>		
Overall dimensions W X H X D (mm)		mm
		mm
Weight		Kg
		Kg
<b>Internal Accessories (OPTIONAL) Maximum 2 nos. accessories per breaker.</b>		
Undervoltage Release		
Shunt Trip Release		
Alarm Switch		1 C/O
		2 C/O
Auxillary switch		1 C/O
		2 C/O
Alarm - Auxillary Switch		1 C/O each
<b>External Accessories (OPTIONAL)</b>		
Rotary Hanadle		Breaker Mounted
		Extended

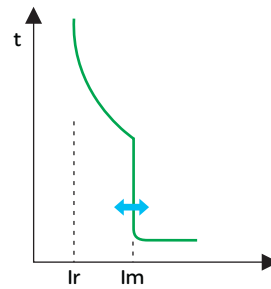
	Frame 3		Frame 4	
	NKF400C	NKF400 K	NKF800C	NKF800 K
	3/4		3/4	
	320, 400		500, 630, 700(*), 800	
	690		690	
	8		8	
	415		415	
	35	50	35	50
	100		100%	
	A		A	
	10000		8000	
	4000		2500	
Fixed	○		○	
Adjustable x In	0.8-1.0 In		0.8-1.0 In	
Fixed	10		3.5 to 10 (Independent adjustment on each pole)	
Adjustable in 4 steps				
	25		40	
	300		300x2	
	○		○	
	●		●	
3 Pole	140X 257 X 103		210X 274 X 103	
4 Pole	185X 257 X 103		280X 274 X 103	
3 Pole	5.7		10.3	
4 Pole	7.3		13.7	
	○		○	
	○		○	
	○		○	
	○		○	
	○		○	
	○		○	
	○		○	
	○		○	
	○		○	
	○		○	

● Standard    ○ Optional Accessories

# Functions and characteristics

## Trip units for *Simpact*<sup>TM</sup>

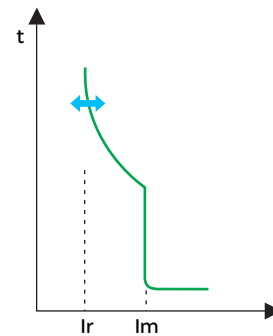
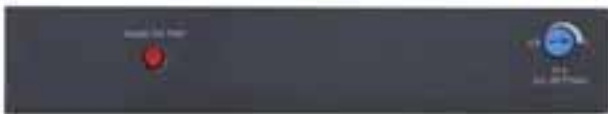
fixed thermal magnetic trip unit  
*Simpact*<sup>TM</sup> NKF100 to NKF800



trip unit for <i>Simpact</i> <sup>TM</sup> NKF100 to 800 A			Fixed																		
rating (A)	In	40°C	20	25	32	40	50	63	80	100	125	160	200	250	320	400	500	630	700*	800	
<i>Simpact</i> <sup>TM</sup> NKF100D	.....F		■	■	■	■	■	■	■	■											
<i>Simpact</i> <sup>TM</sup> NKF100C/K	.....F		■	■	■	■	■	■	■	■											
<i>Simpact</i> <sup>TM</sup> NKF250D/C/K	.....F		*	*	*	*	*	*	*	*	■	■	■	■							
<i>Simpact</i> <sup>TM</sup> NKF400C/K	.....F														■	■					
<i>Simpact</i> <sup>TM</sup> NKF800C/K	.....F																■	■	■	■	
overload protection (thermal)																					
tripping threshold (A)	In		Fixed																		
short-circuit protection (magnetic)																					
tripping threshold (A)	Im		Fixed																		
<i>Simpact</i> <sup>TM</sup> NKF100D	.....F		200	250	320	400	500	630	800	1000											
<i>Simpact</i> <sup>TM</sup> NKF100C/K	.....F			250	320	400	500	630	800	1000											
<i>Simpact</i> <sup>TM</sup> NKF250D/C/K	.....F										1250	1600	2000	2500							
<i>Simpact</i> <sup>TM</sup> NKF400C/K	.....F														3200	4000					
<i>Simpact</i> <sup>TM</sup> NKF800C/K	.....F																3.5-10 In	3.5-10 In	3.5-10 In		

\* Ratings 25-100 A only in NKF250D-4P

adjustable thermal fixed magnetic trip unit  
*Simpact*<sup>TM</sup> NKF100 to NKF400

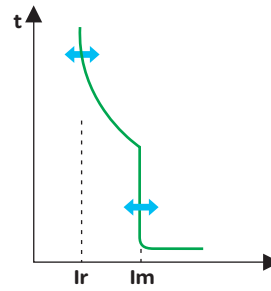


trip unit for <i>Simpact</i> <sup>TM</sup> NKF100 to 400 A			Adjustable																		
rating (A)	In	40°C	20	25	32	40	50	63	80	100	125	160	200	250	320	400					
<i>Simpact</i> <sup>TM</sup> NKF100D	.....		■	■	■	■	■	■	■	■											
<i>Simpact</i> <sup>TM</sup> NKF100C/K	.....		■	■	■	■	■	■	■	■											
<i>Simpact</i> <sup>TM</sup> NKF250C/K	.....										■	■	■	■							
<i>Simpact</i> <sup>TM</sup> NKF400C/K	.....																			■	■
overload protection (thermal)			adjustable 0.8...1 x In																		
tripping threshold (A)	In																				
short-circuit protection (magnetic)			Fixed																		
tripping threshold (A)	Im																				
rating (A)	In	40°C	20	25	32	40	50	63	80	100	125	160	200	250	320	400					
<i>Simpact</i> <sup>TM</sup> NKF100D	.....		200	250	320	400	500	630	800	1000											
<i>Simpact</i> <sup>TM</sup> NKF100C/K	.....			250	320	400	500	630	800	1000											
<i>Simpact</i> <sup>TM</sup> NKF250C/K	.....										1250	1650	2000	2500							
<i>Simpact</i> <sup>TM</sup> NKF400C/K	.....																			3200	4000

# Functions and characteristics

## Trip units for *Simpact*<sup>TM</sup>

Adjustable thermal magnetic trip unit  
*Simpact*<sup>TM</sup> NKF500 to NKF800



trip unit for <i>Simpact</i> <sup>TM</sup> NKF500 to 800 A	Adjustable		
rating (A) $I_n$ 40°C	500	630	800
<i>Simpact</i> <sup>TM</sup> NKF800C/K .....	■	■	■
<b>overload protection (thermal)</b>			
tripping threshold (A) $I_n$	adjustable 0.8...1 x $I_n$		
<b>short-circuit protection (magnetic)</b>			
tripping threshold (A) $I_m$	adjustable		
<i>Simpact</i> <sup>TM</sup> NKF800C/K .....	3.5...10 $I_n$		

# Functions and characteristics

## Accessories and Auxiliaries



### Indication contact

- Auxiliary contact indicates the position of the circuit breaker contacts (open and closed).
- Alarm contact indicates that circuit breaker has tripped due to an overload, a short circuit fault or operation of the 'push to trip' button. It resets when the MCCB is reset.

### Characteristics

Contacts		Standard	
Rated thermal current (A)		5A	
Utilisation category (IEC 60947-5-1)		AC12	AC15
Operational current (A)	24V	5	5
	48V	5	5
	125V	5	5
	250V	5	5

### Remote tripping

Under voltage or shunt release are voltage releases used to trip the circuit breaker



#### Under voltage release

- This release trips the circuit breaker when the control voltage drops below a tripping threshold.
- Tripping threshold between 0.35 and 0.7 times the rated voltage
- It shall permit closing of circuit breaker at supply voltages equal to or above 0.85 Ue. The upper limit of supply voltage will be 1.1 Ue.
- Circuit breaker tripping by an UV release meets the requirements of standard IEC 60947-2.

#### Shunt trip

- This release is used to trip the circuit breaker from remote.
- The operating voltage of the release shall be 70 ~ 110 Ue

### Rotary handle



- Three position OFF, ON and Tripped
- Circuit breaker locking capabilities in the OFF position by one to three padlocks
- Direct rotary handle IP40 and IK07
- Extended rotary handle IP54 and IK07. Includes door interlock

### Phase barriers / Spreaders

Phase barriers provide safety for maximum insulation at the power connection points.

- Slots provided to slide onto the circuit breaker.
- Spreaders are provided as standard for range above 63 A upto 800 A\*



Pole distance(mm)	NKF 100	NKF 250	NKF 400	NKF 630/800	NKS 100R	NKS 160/200R	NKF 100C/K
Without spreaders	30	35	-	-	30	30	35
With spreaders	36.5	47	56	70	36.5	40	-

\* Not available for NKF100C/K and 125/160 A for NKF250C/K



# Functions and characteristics

## Accessories and Auxiliaries



### Earth Fault Relay (EFR)

Earth Fault Relay in combination with MCCBs is used for human safety and to prevent fires due to low level faults resulting from a deterioration of electrical insulation or from highly resistive faults.

#### *Earth Fault relay should be installed in the following installations :*

- Line Voltage to Ground exceeds 150V AC
- Buildings housing inflammable or explosive material
- Portable Electrical tools like Welding Torches.
- Electrical Equipments used in locations where in there is contact with water or metal.
- Cable protection when distance between source and load is high

#### *Selection for EFR is based on the following :*

- Current Sensitivity required
- Rated voltage, rated current and frequency
- Operation time
- Short circuit and Earth fault interrupting current capacity
- Detection device and protective device co-ordination

# Communication with *Simpact™*



*Simpact™*



Advantys OTB Modbus



Power Meter PM Series



MPS Gateway

With Growing needs of the Market towards solutions based on Energy Efficiency, it is important to monitor and control the Electrical Network to reduce energy costs, improve power quality & improve continuity of service for optimal management of the electrical installation and for better productivity. Schneider Electric with its expertise in Power Metering and Control is able to establish a Communication Network with *Simpact™*.

**Communication on a Electrical Network has to broad goals :**

- Communication of Electrical System Parameters
- Control and Status Indication

**These 2 goals can be implemented with *Simpact™* with the following Hardware Solutions :**

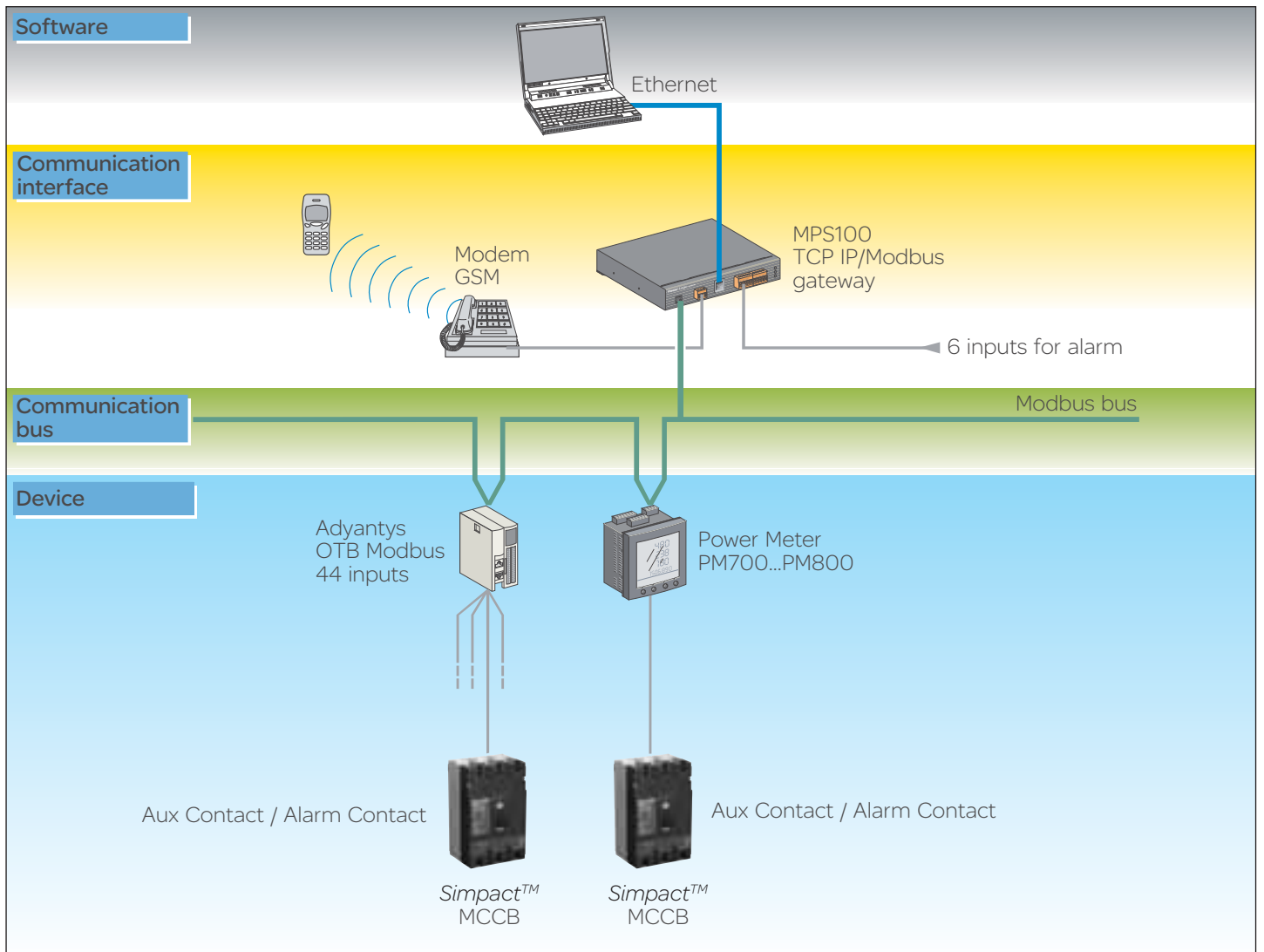
- Advantys OTB Modbus Interface Module with built in Input/Output: With the Advantys Solution, we can communicate the *Simpact™* Status ( ON/OFF and Control ) to the Communication Network.
- Power Meter Units (PM700, PM800) : With the Power Metering Solution, Local and Remote display of Currents, Voltages, Power, Power factor, Energy and Harmonics over a Network are possible. Digital I/O of power meters can be extended to act as control and status indicators of *Simpact™*

The above solutions can be connected to a Modbus-Ethernet Gateway to get the system on Ethernet. Once on Ethernet, the common LAN, we control and monitor *Simpact™* with SMS software or local monitoring software.

**A Broad Architecture and the possible control and monitoring options are tabulated as follows :**

		Compact equipped with:	
		Advantys OTB Modbus	PM700/800 + interfaces
<b>Device identification</b>			
Address		■	■
<b>Indication of status conditions</b>			
Auxiliary contact (on/off)		■	■
Fault Alarm contact		■	■
<b>Controls</b>			
OFF		-	■
<b>Operating and maintenance aids</b>			
Measurements	Current	-	■
	Voltages, power, power factors, energy, THD	-	■
		-	■

# Communication with *Simpact*<sup>TM</sup>

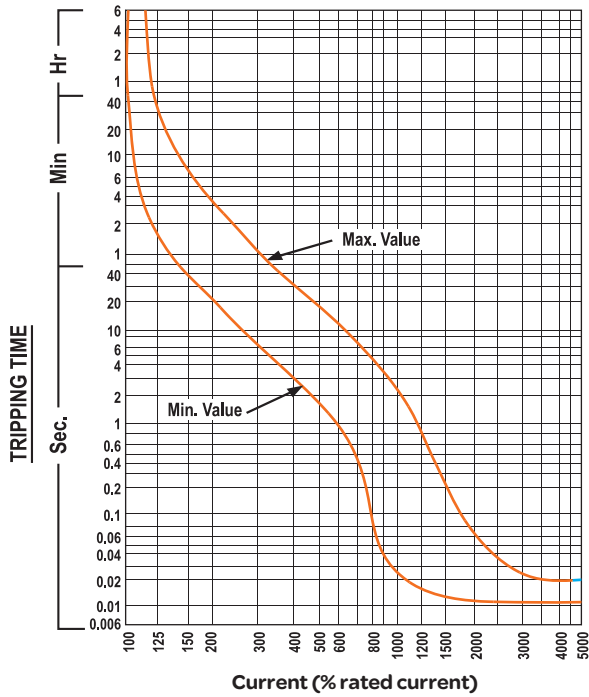


# Tripping curves *Simpact*<sup>TM</sup>

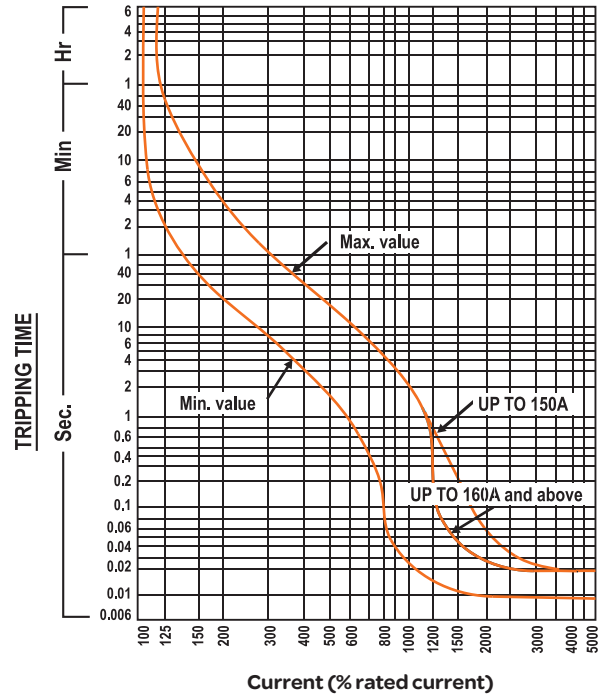
## NKF 100A to 250A

Fixed / Full magnetic trip units

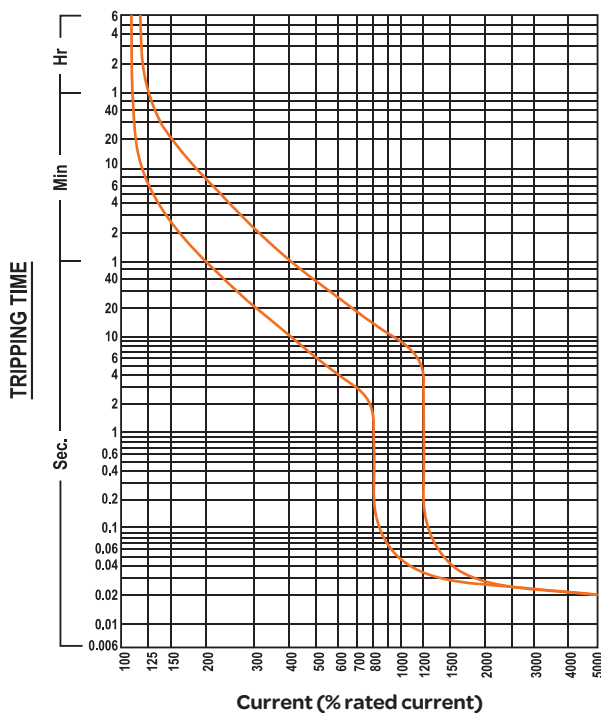
### NKS100R/160R (upto 150A)



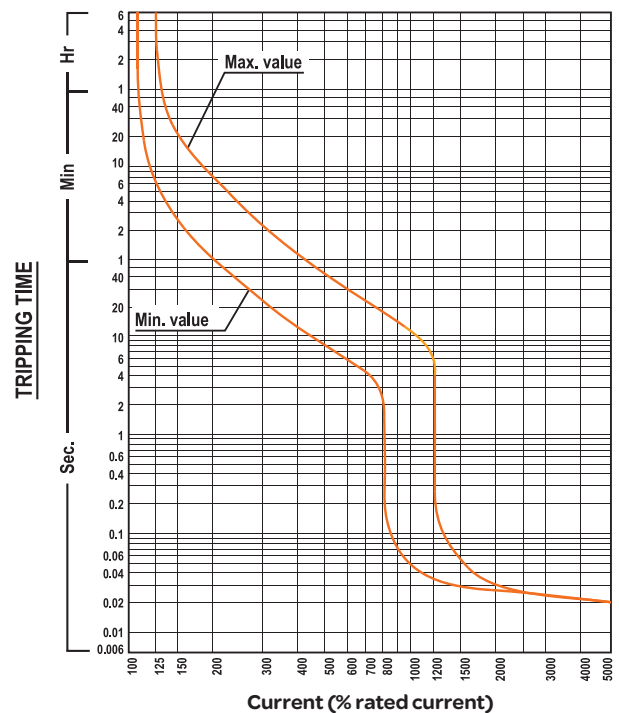
### NKS160R (160A) / NKS 200R



### NKF100D



### NKF100/250 C/K

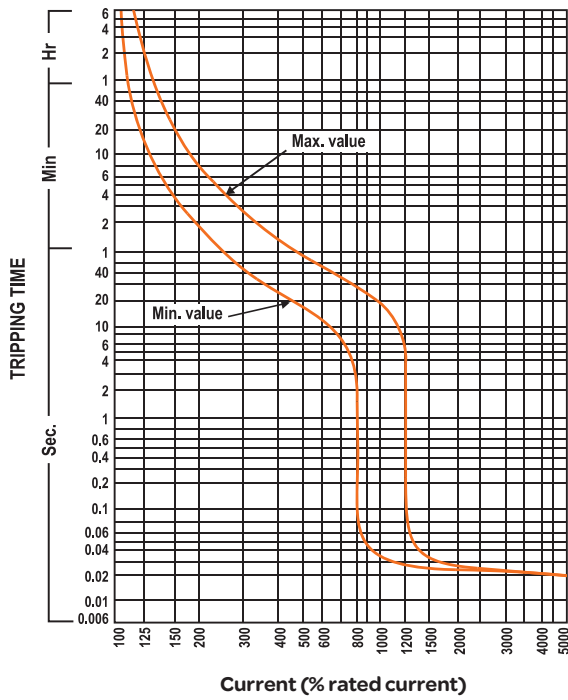


# Tripping curves *Simpact*<sup>TM</sup>

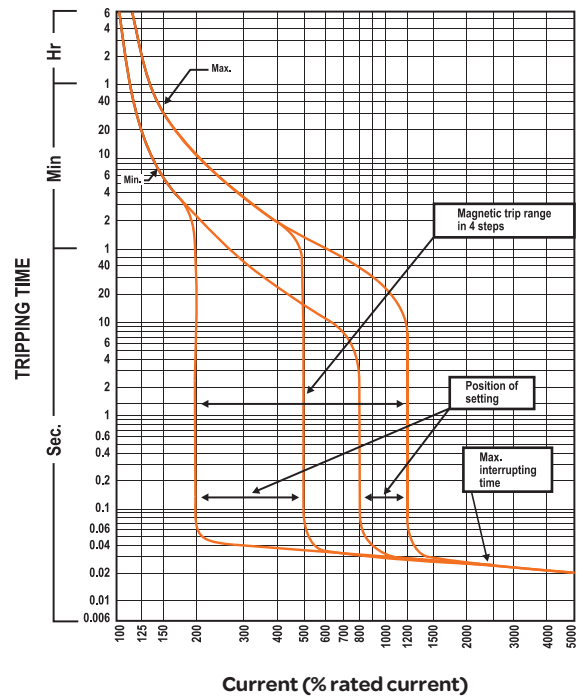
NKF 320A to 800A

Fixed / TM magnetic trip units

## NKF400 C/K 3/4P



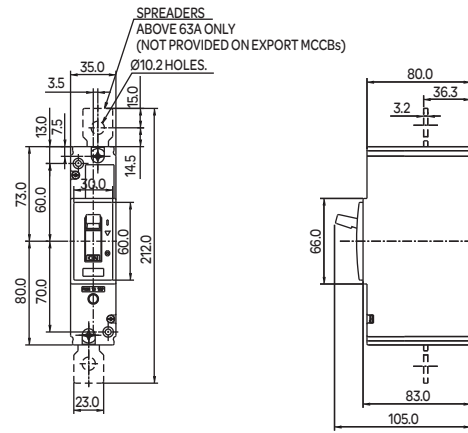
## NKF800 C/K 3/4P



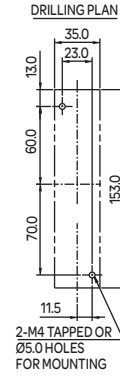
# Installation recommendation

## Dimensions and Mounting

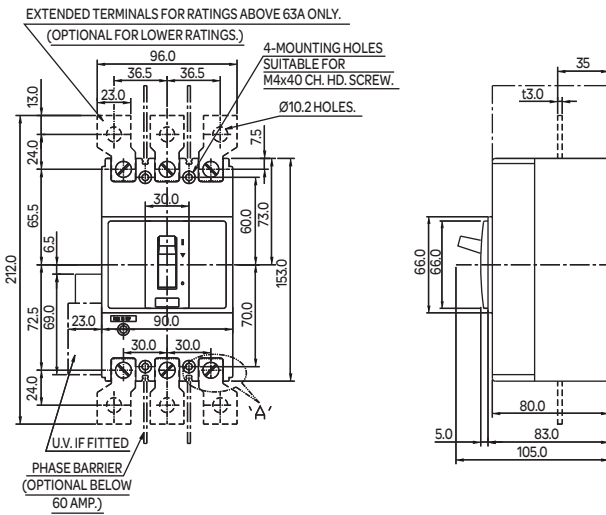
### NKS 100R SP



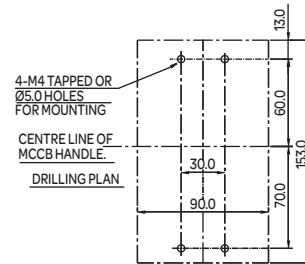
### Mounting



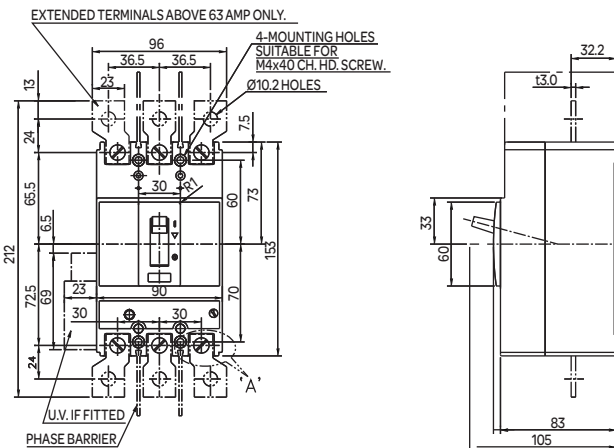
### NKS 100...200R



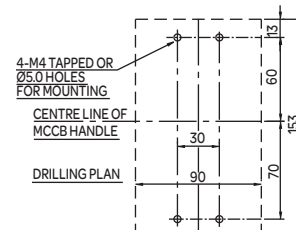
### Mounting



### NKF 100D



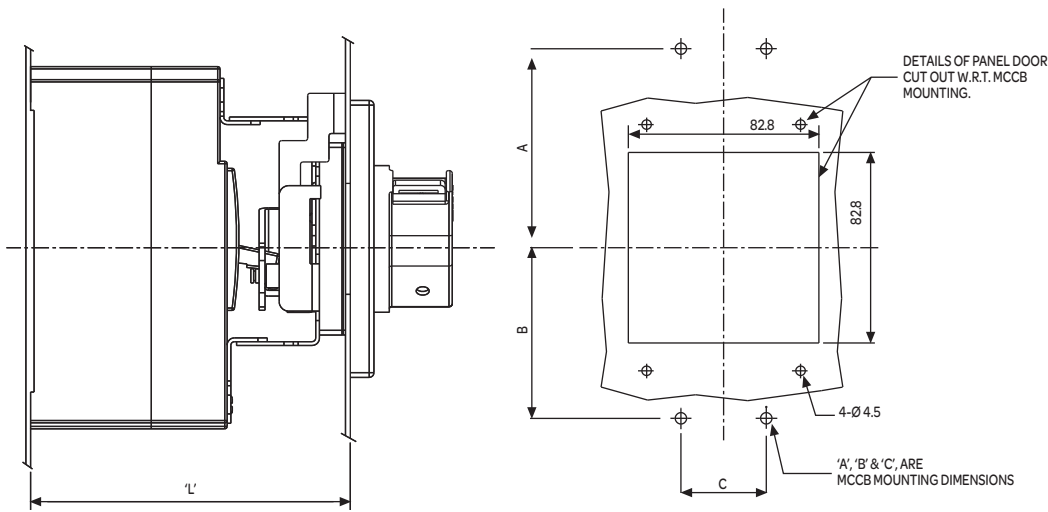
### Mounting



# Installation recommendation

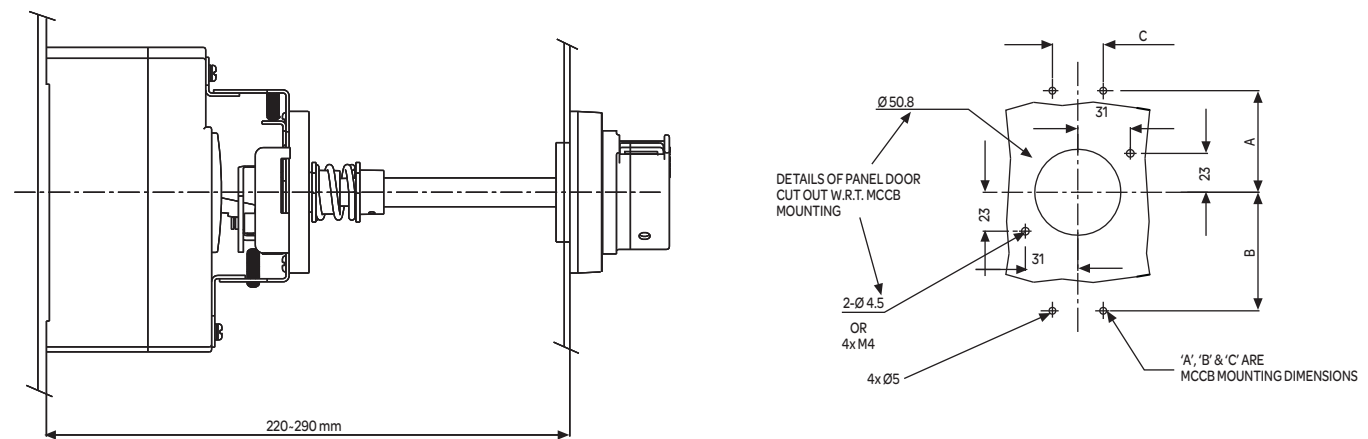
## Dimensions and Mounting

### Rotary HOM details for RHOMT1, RHOMT1N & RHOMT2N

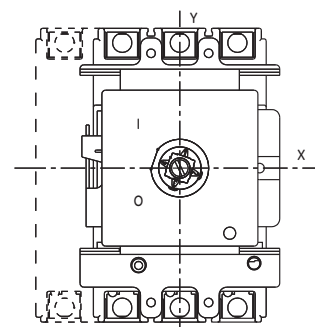


Rotary HOM Type	MCCB Frames	Dimension			Panel Depth 'L'
		A	B	C	
NRHOM T1	NKS100R, NKS160R, NKS200R	60	70	30	133±1
NRHOM T1N	NKF100D 60	60	70	30	133±1
NRHOM T2N	NKF100C/K, NKF250C/K, NKF250D	63.5	71.5	35	128±1
	NKF100C/K-4P, NKF250C/K-4P	63.5	71.5	35	128±1

### Extended Rotary HOM details for NDHOMT1, NDHOMT1N & NDHOMT2N



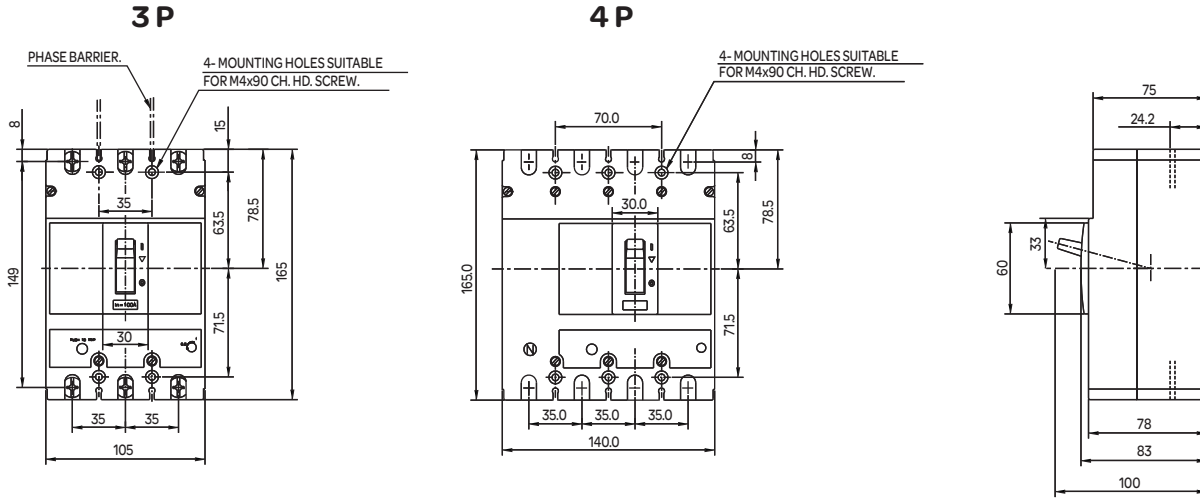
Rotary HOM Type	MCCB Frames	Dimension		
		A	B	C
NDHOM T1	NKS100R, NKS160R, NKS200R	60	70	30
NDHOM T1N	NKF100D	60	70	30
NDHOM T2N	NKF100C/K, NKF250C/K, NKF250D	63.5	71.5	35
	NKF100C/K-4P, NKF250C/K-4P, NKF250D-4P			



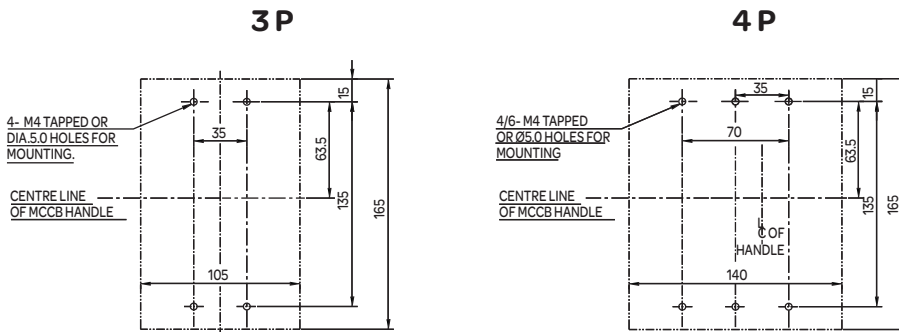
# Installation recommendation

## Dimensions and Mounting

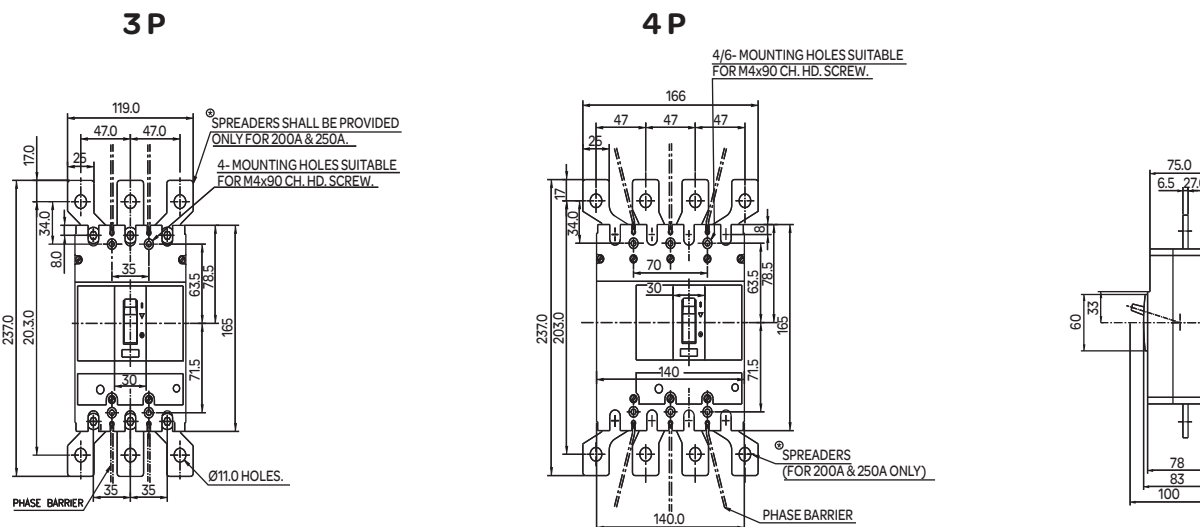
### NKF 100C/K



### NKF 100C/K...250CK Mounting



### NKF 250C/K

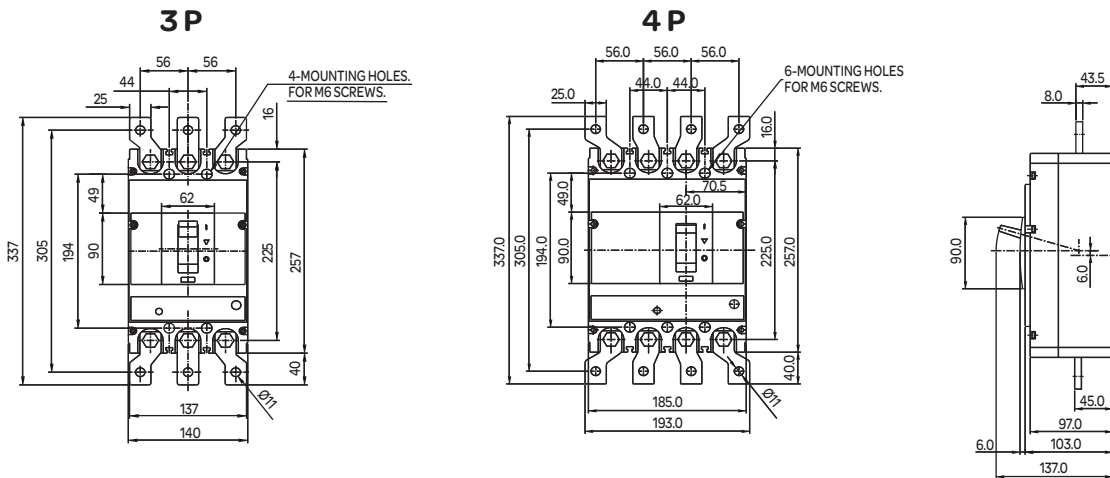




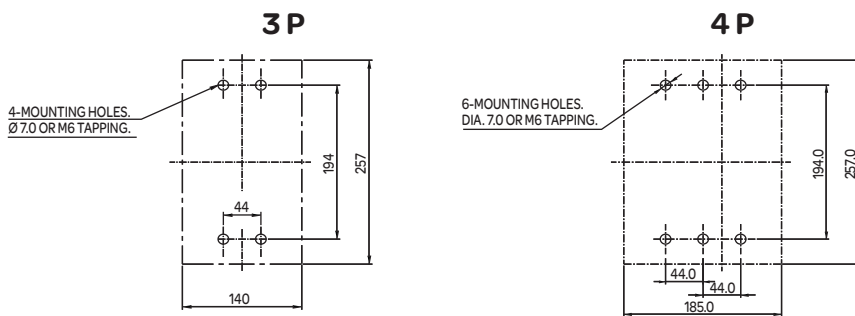
# Installation recommendation

## Dimensions and Mounting

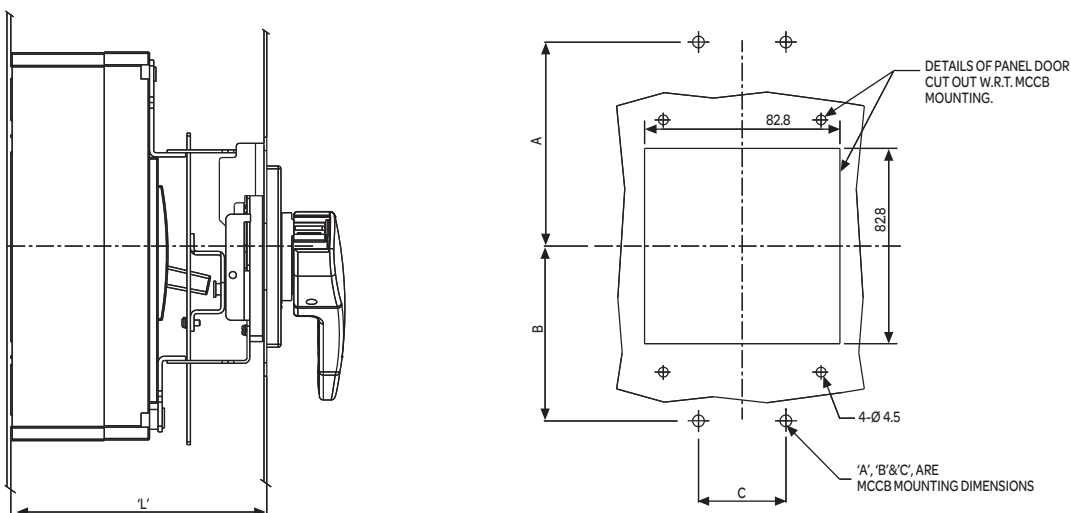
### NKF 400C/K



### NKF 400C/K Mounting



### Rotary Hom details for RHOMT3 & RHOMT4N

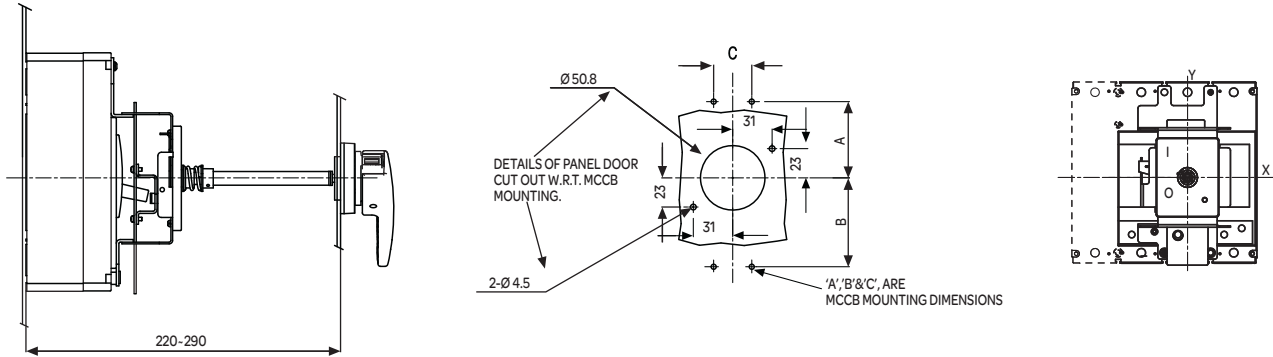


Rotary HOM Type	MCCB Frames	Dimension			Panel Depth 'L'
		A	B	C	
NRHOM T3	NKF400C/K	97	97	44	179±1
	NKF400C/K-4P				
NRHOM T4N	NKF800C/K	129	114	70	179±1
	NKF800C/K-4P				

# Installation recommendation

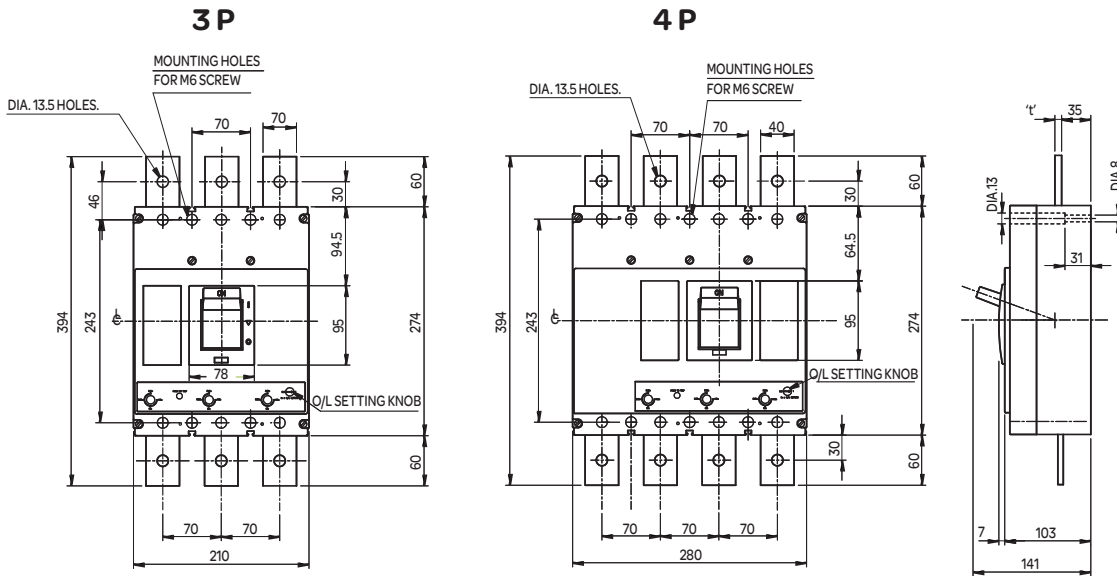
## Dimensions and Mounting

### Extended Rotary Hom details for NDHOMT3 & NDHOMT4N

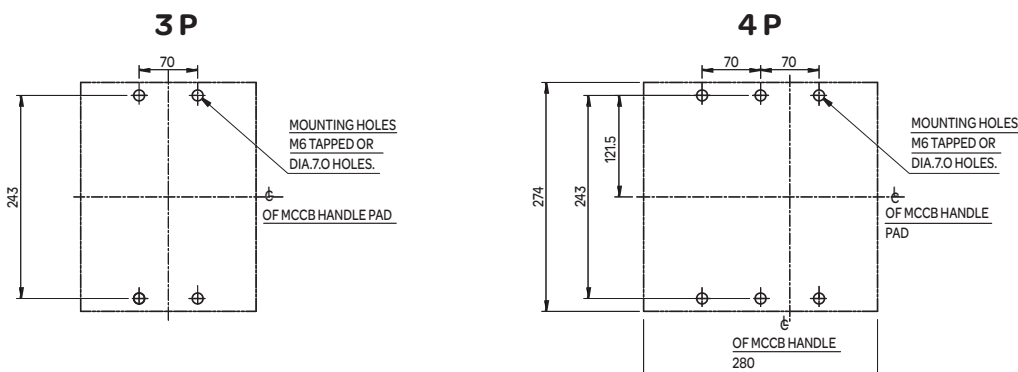


Rotary HOM Type	MCCB Frames	Dimension		
		A	B	C
NDHOM T3	NKF400C/K	97	97	44
	NKF400C/K-4P	97	97	44
NDHOM T4N	NKF800C/K	129	114	70
	NKF800C/K-4P	129	114	70

### NKF 800C/K



### NKF 800C/K Mounting



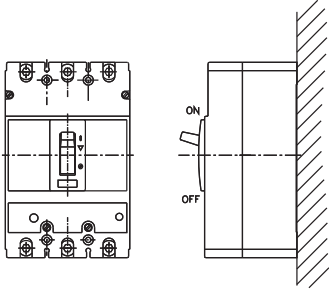
Rating	Dimn, 't'
500A & 630A	6.5mm
700A & 800A	8.0mm

# Installation recommendation

## MCCB Mounting orientation

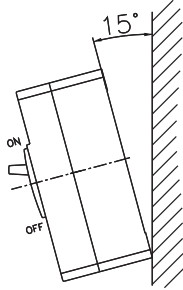
### MCCB Mounting positions

VERTICAL PLANE



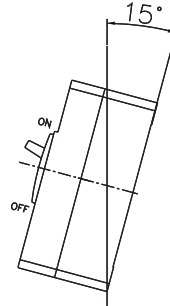
OK

VERTICAL PLANE



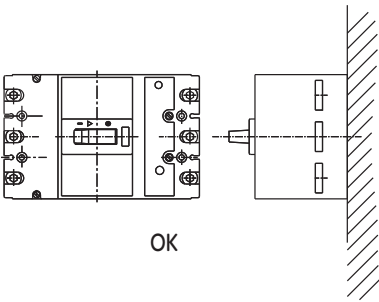
OK

VERTICAL PLANE



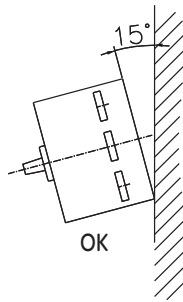
OK

VERTICAL PLANE



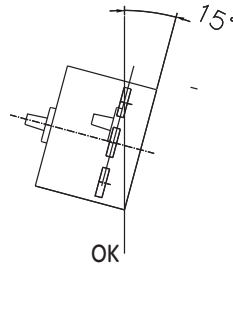
OK

VERTICAL PLANE



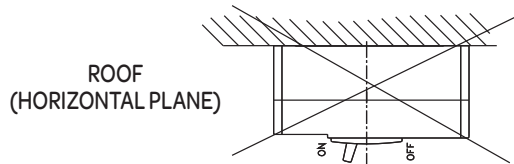
OK

VERTICAL PLANE



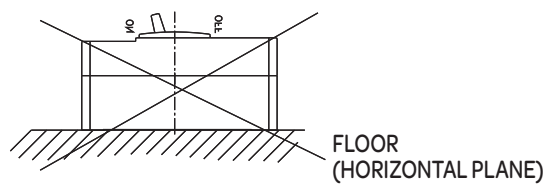
OK

NOT PERMISSIBLE FOR NADPs FITTED WITH U/V & SHUNT TRIP IN THIS POSITION.



ROOF  
(HORIZONTAL PLANE)

NOT OK



FLOOR  
(HORIZONTAL PLANE)

NOT OK

# Installation recommendation

Framewise termination connections facility

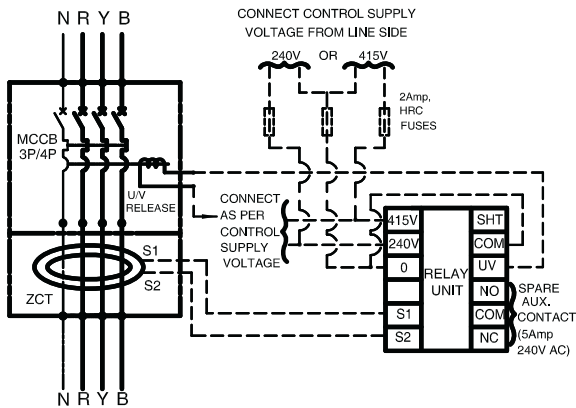
## Framewise termination connections facility

S.NO.	FRAME REF.	TERMINALS WITH DIRECT PRESSURE BARE CABLE CONNECTOR	DIRECT PRESSURE BARE CABLE CONNECTOR ON SPREADERS	BUS BAR CONNECTION WITH SPREADERS	LUG CONNECTION WITH SPREADERS	DIRECT CONNECTION CABLE LUG OR BUS BAR WITHOUT SPREADERS	BUSBAR MAX.SIZE	SCREW
1	NKF100C/K	70 sq mm M14	- -	- -	- -	50 Sq. mm CABLE LUG (MAX. PALM WIDTH W=25mm)	25x3 BUSBAR	M8
2a	NKF250C/K/D (UP TO 160A)	120 sq mm M14	- -	- -	- -	95 Sq. mm CABLE LUG (MAX. PALM WIDTH W = 25mm)	25x8 BUSBAR	M8
2b	NKF250C/K/D (ABOVE 160 TO 250A)	120 sq mm M14	- -	30x6mm M10	185 Sq. mm (Single hole Lug) M10	120 Sq. mm CABLE LUG (MAX. PALM WIDTH W = 25mm)	25x8 BUSBAR	M8
3	NKF400C/K	- -	240 sq mm M18	30x10mm M10	300 Sq. mm (Single hole Lug) M10	240 Sq. mm CABLE LUG (MAX. PALM WIDTH W = 30.5mm)	30x10 BUSBAR	M10
4	NKF800C/K	- -	- -	50x5mm x 2 M12	2x240 Sq. mm (Single hole Lug) M12	- -	- -	- -
5	NKF100D	- -	- -	20x3mm M8	50 Sq. mm (Single hole Lug) M8	35 Sq. mm CABLE LUG (MAX. PALM WIDTH W=16mm)	16x5mm BUSBAR	- -
6	NKS100R 3P/1P	- -	- -	20x3mm M8	50 Sq. mm (Single hole Lug) M8	35 Sq. mm CABLE LUG (MAX. PALM WIDTH W=16mm)	16x5mm BUSBAR	M6
7	NKS160/200R	- -	- -	25x6mm M10	150 Sq. mm (Single hole Lug) M10	- -	- -	- -

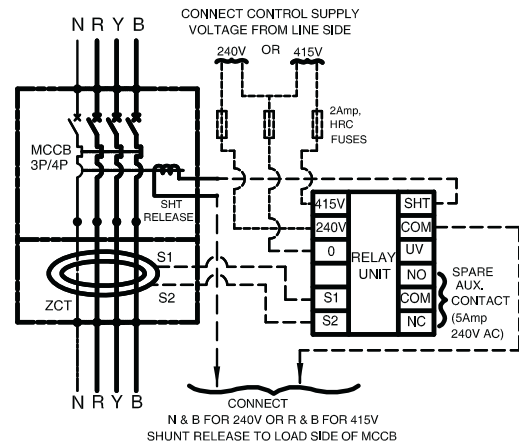
# Electrical Wiring Diagram *Simpact*<sup>TM</sup>

## 3 Phase 3 Wire and 3 Phase 4 Wire operated EFR

Wiring diagram for under voltage release operated EFR



Wiring diagram for shunt release operated EFR

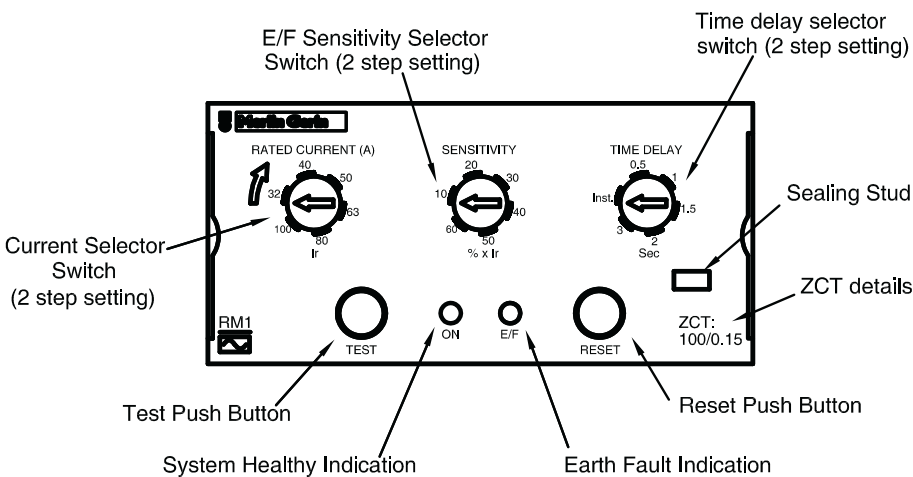


- Supply to RELAY UNIT & UNDER VOLTAGE RELEASE shall be taken from SUPPLY SIDE of MCCB.

- Control Voltage supply to RELAY UNIT shall be taken from LINE SIDE of MCCB.
- Supply to SHUNT RELEASE shall be taken from LOAD SIDE of MCCB.

### Notes:

- Connections shown in dotted lines shall be made by customer.
- HRC fuses are not in SEIPL's scope of supply.
- Remove BOTTOM SIDE SPREADERS (if Fitted) of MCCB before mounting 'ZCT' on MCCB.



- To change any setting switch 'OFF' the MCCB. Remove protective cover from Relay Module. Replace cover after changing setting.
- To change any setting the setting knob has to be rotated by 2 steps (The setting will change after the 2nd 'click' is heard).
- To test E/F relay press test Push Button. E/F relay will operate according to the Time Delay Selection. Keep the Test Push Button pressed till the relay trips (indicated by red lamp).

# Catalogue Numbers *Simpact™*

## Simpact™ Moulded case circuit breaker

### With fixed thermal magnetic setting

Breaking Capacity (Icu)	Rating (A) 415V 50Hz	Three Pole Reference	Single Pole Reference
10 kA	10	NKS100R010AC3P	NKS100R010AC1P
	15	NKS100R015AC3P	NKS100R015AC1P
	20	NKS100R020AC3P	NKS100R020AC1P
	25	NKS100R025AC3P	NKS100R025AC1P
	30	NKS100R030AC3P	NKS100R030AC1P
	32	NKS100R032AC3P	NKS100R032AC1P
	40	NKS100R040AC3P	NKS100R040AC1P
	50	NKS100R050AC3P	NKS100R050AC1P
	60	NKS100R060AC3P	NKS100R060AC1P
	63	NKS100R063AC3P	NKS100R063AC1P
	75	NKS100R075AC3P	NKS100R075AC1P
	90	NKS100R090AC3P	NKS100R090AC1P
	100	NKS100R100AC3P	NKS100R100AC1P
	110	NKS160R110AC3P	NKS200R110AC1P
	125	NKS160R125AC3P	NKS200R125AC1P
	140	NKS160R140AC3P	NKS200R140AC1P
	150	NKS160R150AC3P	NKS200R150AC1P
160	NKS160R160AC3P	NKS200R160AC1P	
175	NKS200R175AC3P	NKS200R175AC1P	
200	NKS200R200AC3P	NKS200R200AC1P	

### With fixed thermal magnetic Setting

Breaking Capacity (Icu) Ics=100%Icu	Rating (A) 415V 50Hz	Three Pole Reference	Four Pole Reference
25 kA	25	NKF100D025AC3PF	NKF250D025AC4PF
	32	NKF100D032AC3PF	NKF250D032AC4PF
	40	NKF100D040AC3PF	NKF250D040AC4PF
	50	NKF100D050AC3PF	NKF250D050AC4PF
	63	NKF100D063AC3PF	NKF250D063AC4PF
	80	NKF100D080AC3PF	NKF250D080AC4PF
	100	NKF100D100AC3PF	NKF250D100AC4PF
	125	NKF250D125AC3PF	NKF250D125AC4PF
	160	NKF250D160AC3PF	NKF250D160AC4PF
	200	NKF250D200AC3PF	NKF250D200AC4PF
	250	NKF250D250AC3PF	NKF250D250AC4PF

# Catalogue Numbers *Simpact™*

## Simpact™ Moulded case circuit breaker

Fixed thermal magnetic setting		Adjustable magnetic setting from 500A (3.5-10In)	
Breaking Capacity (Icu)	Rating (A) 415V 50Hz	Three Pole Reference	Four Pole Reference
35 kA	25	NKF100C025AC3PF	NKF100C025AC4PF
	32	NKF100C032AC3PF	NKF100C032AC4PF
	40	NKF100C040AC3PF	NKF100C040AC4PF
	50	NKF100C050AC3PF	NKF100C050AC4PF
	63	NKF100C063AC3PF	NKF100C063AC4PF
	80	NKF100C080AC3PF	NKF100C080AC4PF
	100	NKF100C100AC3PF	NKF100C100AC4PF
	125	NKF250C125AC3PF	NKF250C125AC4PF
	160	NKF250C160AC3PF	NKF250C160AC4PF
	200	NKF250C200AC3PF	NKF250C200AC4PF
	250	NKF250C250AC3PF	NKF250C250AC4PF
	320	NKF400C320AC3PF	NKF400C320AC4PF
	400	NKF400C400AC3PF	NKF400C400AC4PF
	500	NKF800C500AC3PF*	NKF800C500AC4PF*
	630	NKF800C630AC3PF*	NKF800C630AC4PF*
700	NKF800C700AC3PF*	NKF800C700AC4PF*	
800	NKF800C800AC3PF*	NKF800C800AC4PF	
Fixed thermal magnetic setting			
Breaking Capacity (Icu)	Rating (A) 415V 50Hz	Three Pole Reference	Four Pole Reference
50 kA	25	NKF100K025AC3PF	NKF100K025AC4PF
	32	NKF100K032AC3PF	NKF100K032AC4PF
	40	NKF100K040AC3PF	NKF100K040AC4PF
	50	NKF100K050AC3PF	NKF100K050AC4PF
	63	NKF100K063AC3PF	NKF100K063AC4PF
	80	NKF100K080AC3PF	NKF100K080AC4PF
	100	NKF100K100AC3PF	NKF100K100AC4PF
	125	NKF250K125AC3PF	NKF250K125AC4PF
	160	NKF250K160AC3PF	NKF250K160AC4PF
	200	NKF250K200AC3PF	NKF250K200AC4PF
	250	NKF250K250AC3PF	NKF250K250AC4PF
	320	NKF400K320AC3PF	NKF400K320AC4PF
	400	NKF400K400AC3PF	NKF400K400AC4PF
	500	NKF800K500AC3PF	NKF800K500AC4PF
	630	NKF800K630AC3PF	NKF800K630AC4PF
700	NKF800K700AC3PF	NKF800K700AC4PF	
800	NKF800K800AC3PF	NKF800K800AC4PF	

# Catalogue Numbers *Simpact™*

Simpact™ Moulded case circuit breaker			
Adjustable thermal magnetic trip unit (0.8 - 1In)			
Breaking Capacity (Icu) Ics=100%Icu	Rating (A) 415V 50Hz	Three Pole Reference	
25 kA	20 - 25	NKF100D025AC3P	
	25 - 32	NKF100D032AC3P	
	32 - 40	NKF100D040AC3P	
	40 - 50	NKF100D050AC3P	
	50 - 63	NKF100D063AC3P	
	63 - 80	NKF100D080AC3P	
	80 - 100	NKF100D100AC3P	
Adjustable thermal magnetic trip unit (0.8 - 1In)			
Breaking Capacity (Icu)	Rating (A) 415V 50Hz	Three Pole Reference	Adjustable magnetic setting from 500A (3.5-10In) Four Pole Reference
35 kA	20 - 25	NKF100C025AC3P	NKF100C025AC4P
	25 - 32	NKF100C032AC3P	NKF100C032AC4P
	32 - 40	NKF100C040AC3P	NKF100C040AC4P
	40 - 50	NKF100C050AC3P	NKF100C050AC4P
	50 - 63	NKF100C063AC3P	NKF100C063AC4P
	63 - 80	NKF100C080AC3P	NKF100C080AC4P
	80 - 100	NKF100C100AC3P	NKF100C100AC4P
	100 - 125	NKF250C125AC3P	NKF250C125AC4P
	125 - 160	NKF250C160AC3P	NKF250C160AC4P
	160 - 200	NKF250C200AC3P	NKF250C200AC4P
	200 - 250	NKF250C250AC3P	NKF250C250AC4P
	250 - 320	NKF400C320AC3P	NKF400C320AC4P
	320 - 400	NKF400C400AC3P	NKF400C400AC4P
	400 - 500	NKF800C500AC3P	NKF800C500AC4P
500 - 630	NKF800C630AC3P	NKF800C630AC4P	
630 - 800	NKF800C800AC3P	NKF800C800AC4P	
Adjustable thermal magnetic trip unit (0.8 - 1In)			
Breaking Capacity (Icu)	Rating (A) 415V 50Hz	Three Pole Reference	Adjustable magnetic setting from 500A (3.5-10In) Four Pole Reference
50 kA	20 - 25	NKF100K025AC3P	NKF100K025AC4P
	25 - 32	NKF100K032AC3P	NKF100K032AC4P
	32 - 40	NKF100K040AC3P	NKF100K040AC4P
	40 - 50	NKF100K050AC3P	NKF100K050AC4P
	50 - 63	NKF100K063AC3P	NKF100K063AC4P
	63 - 80	NKF100K080AC3P	NKF100K080AC4P
	80 - 100	NKF100K100AC3P	NKF100K100AC4P
	100 - 125	NKF250K125AC3P	NKF250K125AC4P
	125 - 160	NKF250K160AC3P	NKF250K160AC4P
	160 - 200	NKF250K200AC3P	NKF250K200AC4P
	200 - 250	NKF250K250AC3P	NKF250K250AC4P
	250 - 320	NKF400K320AC3P	NKF400K320AC4P
	320 - 400	NKF400K400AC3P	NKF400K400AC4P
	400 - 500	NKF800K500AC3P	NKF800K500AC4P
500 - 630	NKF800K630AC3P	NKF800K630AC4P	
630 - 800	NKF800K800AC3P	NKF800K800AC4P	



# Catalogue Numbers *Simpact™*

Simpact™ Moulded case circuit breaker			
<b>DC MCCB</b>			
<b>Breaking Capacity (Icu)</b>	<b>Fixed setting Rating (A)</b>	<b>Single Pole Reference</b>	
5 kA  (125 V DCL/R =10 ms)	10	NKS100R010DC1P	
	15	NKS100R015DC1P	
	20	NKS100R020DC1P	
	30	NKS100R030DC1P	
	40	NKS100R040DC1P	
	50	NKS100R050DC1P	
	60	NKS100R060DC1P	
	75	NKS100R075DC1P	
	100	NKS100R100DC1P	
<b>DC MCCB</b>			
<b>Breaking Capacity (Icu)</b>	<b>Fixed Setting Rating (A)</b>	<b>Two Pole Reference*</b>	<b>Three Pole Reference</b>
10 kA  250V DC* L/R =10 ms	10	NKS100R010DC2P	NKS100R010DC3P
	15	NKS100R015DC2P	NKS100R015DC3P
	20	NKS100R020DC2P	NKS100R020DC3P
	25	NKS100R025DC2P	NKS100R025DC3P
	30	NKS100R030DC2P	NKS100R030DC3P
	40	NKS100R040DC2P	NKS100R040DC3P
	50	NKS100R050DC2P	NKS100R050DC3P
	60	NKS100R060DC2P	NKS100R060DC3P
	75	NKS100R075DC2P	NKS100R075DC3P
	100	NKS100R100DC2P	NKS100R100DC3P
	110	NKS160R110DC2P	NKS160R110DC3P
	125	NKS160R125DC2P	NKS160R125DC3P
	140	NKS160R140DC2P	NKS160R140DC3P
	150	NKS160R150DC2P	NKS160R150DC3P
	160	NKS160R160DC2P	NKS160R160DC3P
	175	NKS200R175DC2P	NKS200R175DC3P
	200	NKS200R200DC2P	NKS200R200DC3P
* 2 Pole breakers shall be in 3 Pole dimensions			
<b>DC MCCB</b>			
	<b>Adjustable Setting Rating (A)</b>	<b>Three Pole Reference</b>	<b>Four Pole Reference</b>
Breaking Capacity (Icu)  40 kA  250V DC* L/R = 10 ms	25 - 32	NKF100K032DC3P	NKF100K032DC4P
	32 - 40	NKF100K040DC3P	NKF100K040DC4P
	40 - 50	NKF100K050DC3P	NKF100K050DC4P
	50 - 63	NKF100K063DC3P	NKF100K063DC4P
	63 - 80	NKF100K080DC3P	NKF100K080DC4P
	80 - 100	NKF100K100DC3P	NKF100K100DC4P
	100 - 125	NKF250K125DC3P	NKF250K125DC4P
	125 - 160	NKF250K160DC3P	NKF250K160DC4P
	160 - 200	NKF250K200DC3P	NKF250K200DC4P
	200 - 250	NKF250K250DC3P	NKF250K250DC4P
	250 - 320	NKF400K320DC3P	NKF400K320DC4P
	320 - 400	NKF400K400DC3P	NKF400K400DC4P
	400 - 500	NKF800K500DC3P	NKF800K500DC4P
	500 - 630	NKF800K630DC3P	NKF800K630DC4P
	630 - 800	NKF800K800DC3P	NKF800K800DC4P


# Catalogue Numbers *Simpact*<sup>TM</sup>

		Accessories		
		Internal	Reference Number	
<b>Shunt Trip</b>  	<b>NKS 100/160/200R</b> <b>NKF100D</b>	110VAC	SHT110ACT1L	
		240VAC	SHT240ACT1L	
		415VAC	SHT415ACT1L	
		440VAC	SHT440ACT1L	
		24VDC	SHT24DCT1L	
		48VDC	SHT48DCT1L	
		110VDC	SHT110DCT1L	
		220VDC	SHT220DCT1L	
		<b>NKF100C/K</b> <b>NKF250D/C/K</b>	110VAC	SHT110ACT2L
			240VAC	SHT240ACT2L
			415VAC	SHT415ACT2L
			440VAC	SHT440ACT2L
	24VDC		SHT24DCT2L	
	48VDC		SHT48DCT2L	
	<b>NKF400C/K</b>	110VAC	SHT110ACT3	
		220/240VAC	SHT220/240ACT3	
		415VAC	SHT415ACT3	
		440VAC	SHT440ACT3	
		24VDC	SHT24DCT3	
		48VDC	SHT48DCT3	
		110VDC	SHT110DCT3	
		220VDC	SHT220DCT3	
	<b>NKF800C/K</b>	110VAC	SHT110ACT4NL	
		220/240VAC	SHT220/240ACT4NL	
415VAC		SHT415ACT4NL		
440VAC		SHT440ACT4NL		
24VDC		SHT24DCT4NL		
48VDC		SHT48DCT4NL		
110VDC		SHT110DCT4NL		
220VDC		SHT220DCT4NL		
<b>Under Voltage Release</b>  	<b>NKS 100/160/200R</b> <b>NKF100D</b> <b>NKF100C/K</b>	110VAC	UVT110ACT1	
		220/240VAC	UVT220/240ACT1	
		415VAC	UVT415ACT1	
	<b>NKF250D/C/K</b>	110VAC	UVT110ACT2	
		220/240VAC	UVT220/240ACT2	
		415VAC	UVT415ACT2	
	<b>NKF400C/K</b>	110VAC	UVT110ACT3	
		220/240VAC	UVT220/240ACT3	
		415VAC	UVT415ACT3	
	<b>NKF800C/K</b>	110VAC	UVT110ACT4NL	
		220/240VAC	UVT220/240ACT4NL	
		415VAC	UVT415ACT4NL	
<b>Auxilliary switch 1 c/o</b>  	<b>NKS 100/160/200R</b> <b>NKF100D</b> <b>NKF100C/K</b> <b>NKF250D/C/K</b> <b>NKF400C/K</b> <b>NKF800C/K</b>		AX1CT1L	
			AX1CT1R	
			AX1CT2L	
			AX1CT2R	
			AX1CT3R	
			AX1CT4NR	
<b>Auxilliary switch 2 c/o</b>	<b>NKS 100/160/200R</b> <b>NKF100D</b> <b>NKF100C/K</b> <b>NKF250D/C/K</b> <b>NKF400C/K</b> <b>NKF800C/K</b>		NA	
			NA	
			NA	
			AX2CT3R	
			AX2CT4NR	
			AX2CT4NR	

# Catalogue Numbers *Simpact™*

	Accessories	
	Internal	Reference Number
<b>Alarm switch 1 c/o</b>	NKS 100/160/200R	AL1CT1NR
	NKF100D	AL1CT1NR
	NKF100C/K	AL1CT2NR
	NKF250D/C/K	AL1CT2NR
	NKF400C/K	AL1CT3R
	NKF800C/K	AL1CT4NR
<b>Alarm switch 2 c/o</b>	NKS 100/160/200R	NA
	NKF100D	NA
	NKF100C/K	NA
	NKF250D/C/K	NA
	NKF400C/K	AL2CT3R
	NKF800C/K	AL2CT4NR
<b>Alarm Auxillary Switch</b> 	NKS 100/160/200R	NA
	NKF100D	NA
	NKF100C/K	NA
	NKF250D/C/K	NA
	NKF400C/K	ALAXT3R
	NKF800C/K	ALAXT4NR
<b>Rotary Handle (MCCB mounted) RHOM</b> 	NKS 100/160/200R	NRHOMT1
	NKF100D	NRHOMT1N
	NKF100C/K	NRHOMT2N
	NKF250D/C/K	NRHOMT2N
	NKF400C/K	NRHOMT3N
	NKF800C/K	NRHOMT4N
<b>Rotary Handle (Door mounted) DHOM</b> 	NKS 100/160/200R	NDHOMT1
	NKF100D	NDHOMT1N
	NKF100C/K	NDHOMT2N
	NKF250D/C/K	NDHOMT2N
	NKF400C/K	NDHOMT3
	NKF800C/K	NDHOMT4N
<b>"Earth Fault, 3Ph-3W"</b> 	3 Pole	
	NKS 100R	NEFR100T1N3P
	NKF100D	NEFR100T1N3P
	NKS 160/200R	NEFR200T5N3P
	NKF 100C/K	NEFR100T2N3P
	NKF 250D/C/K	NEFR250T2N3P
	NKF 400C/K	NEFR400T3N3P
NKF 800C/K	NEFR800T4N3P	
<b>"Earth Fault, 3Ph-4W"</b> 	4 Pole	
	NKS 100R	NA
	NKF100D	NA
	NKS 160/200R	NA
	NKF 100C/K	NEFR100T2N4P
	NKF 250C/K	NEFR250T2N4P
	NKF 400C/K	NEFR400T3N4P
	NKF 800C/K	NEFR800T4N4P
<b>Spreader 3P</b> 	3 Pole	
	NKS 100/160/200R	NKSP13
	NKF100D	NKSP13
	NKF100C/K	NKSP33
	NKF250D	NKSP33
	NKF 250C/K	NKSP33
	NKF400C/K	NA
NKF800C/K	NA	

# Catalogue Numbers *Simpact™*

Accessories		
	Internal	Reference Number
	<b>4 Pole</b>	
	<b>NKS 100/160/200R</b>	NA
	<b>NKF100D</b>	NA
	<b>NKF100C/K</b>	NKSP44
	<b>NKF250D</b>	NKSP44
	<b>NKF400C/K</b>	NKSP44
	<b>NKF800C/K</b>	NA

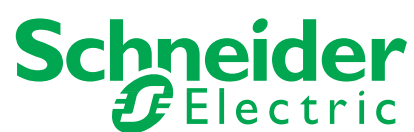
## Relay module & ZCT Combination Data

Relay Module Type	ZCT Reference	MCCB Frame
<b>RM1</b>	ZCT1A	NKS100R/NKF100D
	ZCT2A	NKF100C/K
	ZCT5A	NKF100C/K-4P
<b>RM2</b>	ZCT2B	NKF250C/K
	ZCT5B	NKF250C/K-4P
<b>RM3</b>	ZCT3	NKF400C/K
	ZCT6	NKF400C/K-4P
<b>RM4</b>	ZCT4	NKF630/800C/K
	ZCT7	NKF630/800C/K-4P
<b>RM5</b>	ZCT1B	NKS200R

Parameter	Definition as per applicable Standard
1 <b>Circuit breaker (IEC 60947-2)</b>	"Mechanical switching device, capable of making, carrying and breaking currents under normal circuit conditions and also making, carrying for a specified time and breaking currents under specified abnormal circuit conditions such as those of short circuit. Circuit breakers are the device of choice for protection against overloads and short-circuits"
2 <b>Rated current (In)</b>	This is the current that the device can carry continuously with the contacts closed and without abnormal temperature rise.
3 <b>Rated impulse withstand voltage (Uimp)</b>	The peak value of an impulse voltage of prescribed form and polarity which the equipment is capable of withstanding without failure under specified conditions of test and to which the values of the clearances are referred. The rated impulse withstand voltage of an equipment shall be equal to or higher than the values stated for the transient overvoltages occurring in the circuit in which the equipment is fitted.
4 <b>Rated insulation voltage (Ui)</b>	The rated insulation voltage of an equipment is the value of voltage to which dielectric tests and creepage distances are referred. In no case shall the maximum value of the rated operational voltage exceed that of the rated insulation voltage.
5 <b>Rated operational voltage (Ue)</b>	"A value of voltage which, combined with a rated operational current, determines the application of the equipment and to which the relevant tests and the utilisation categories are referred. For multipole equipment, it is generally stated as the voltage between phases." This is the maximum continuous voltage at which the equipment may be used.
6 <b>Breaking capacity</b>	Value of prospective current that a switching device is capable of breaking at a stated voltage under prescribed conditions of use and behaviour. Reference is generally made to the ultimate breaking capacity (Icu) and the service breaking capacity (Ics).
7 <b>Making capacity Icm</b>	Value of prospective making current that a switching device is capable of making at a stated voltage under prescribed conditions of use and behaviour. Reference is generally made to the short-circuit making capacity Icm.
8 <b>Ultimate breaking capacity (Icu)</b>	"Expressed in kA, it indicates the maximum breaking capacity of the circuit breaker. It is confirmed by a test with one opening and one closing/opening at Icu, followed by a check that the circuit is properly isolated. This test ensures user safety."
9 <b>Service breaking capacity (Ics) Protocol / Internet Protocol)</b>	"Expressed as a percentage of Icu, it provides an indication on the robustness of the device under severe conditions. It is confirmed by a test with one opening and one closing/opening at Ics, followed by a check that the device operates correctly at its rated current, i.e. 50 cycles at In, where temperature rise remains within tolerances and the protection system suffers no damage."
<b>Parameter</b>	<b>Definition as per applicable Standard</b>

<b>10 Degree of protection (IP) IEC 60529</b>  > 50 mm, 6 corresponds to total protection against dust." Second digit (0 to 8): protection against penetration of liquids (water). "1 (condensation),"	"Defines device protection against the penetration of solid objects and liquids, using two digits specified in standard IEC 60259. Each digit corresponds to a level of protection, where 0 indicates no protection." First digit (0 to 6): protection against penetration of solid foreign objects. "1 corresponds to protection against objects with a diameter > 50 mm, 6 corresponds to total protection against dust." Second digit (0 to 8): protection against penetration of liquids (water). "1 (condensation)," 8 corresponds to continuous immersion.
<b>11 Ethernet TCP/IP (Transmission Control</b>	Ethernet is a very common network protocol and complies with IEEE standard 802.3. Ethernet TCP/IP is the protocol that brings web functions to Ethernet networks. Most PCs have an Ethernet 10/100 card (10 or 100 Mbit/s) for connection to the internet.
<b>12 Electrical durability IEC 60947-1</b>	"With respect to its resistance to electrical wear, equipment is characterised by the number of on-load operating cycles, corresponding to the service conditions given in the relevant product standard, which can be made without replacement."





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Schneider Electric India Pvt. Ltd. (A 100% subsidiary of Schneider Electric Industries SAS)  
Corporate office : A-29, Mohan Co-operative Industrial Estate, New Delhi-110044.  
Tel: 39404000. Fax: 41678010/11  
**Customer Care Centre:** Toll Free: **1800 111 341** (BSNL/MTNL), **1800 103 0011** (Airtel)  
Phone: **+91 11 4168 2434/35**, email: [in-care@in.schneider-electric.com](mailto:in-care@in.schneider-electric.com)