



TECHNICAL CATALOGUE FOR **C-POWER AIR CIRCUIT BREAKER**

—ABOUT US—

Lauritz Knudsen Electrical & Automation, formerly known as L&T Switchgear, is a leading player in the electrical industry owing to its 70+ years of strong legacy and commitment to the nation's growth. The brand is dedicated to providing a wide range of electrical and automation products and solutions to vital sectors of the economy, including industries, utilities, infrastructure, buildings, and agriculture. Our extensive portfolio includes low-voltage and medium-voltage switchgear, automation solutions, tailored software, and services.

With manufacturing operations in Ahmednagar, Vadodara, and Coimbatore, we adhere to global standards of excellence. Our operations are supported by well-equipped, in-house design and development centers, as well as tooling facilities, ensuring precision in manufacturing.

We proudly operate six Switchgear Training Centers (STCs) across Pune, Lucknow, Coonoor, Vadodara, Delhi, and Kolkata. These centers offer tailor-made classroom courses and lab learning experiences for technicians, customers, engineers, professionals, and students.

With a deep national presence and one of the largest electrical distribution networks, comprising over 1500 partners across the country, we are committed to driving excellence and delivering superior products and solutions that power India's growth journey.

C-POWER Air Circuit Breakers

Lauritz Knudsen Electrical & Automation Air Circuit Breakers (ACBs) are specially designed for extreme tropical conditions and have a proven track record of more than 45 years. Presently more than 5,00,000 Air Circuit Breakers are being used for diverse applications. The C-POWER Air Circuit Breakers provide technologically driven solutions to meet customer needs.



Complete Selectivity

Unique feature of $I_{cu}=I_{cs}=I_{cw}$ for 1 second across the entire range. This ensures complete selectivity for system with time based discrimination.

Perfect for Indian Conditions

Inherent design to perform in extreme tropical conditions. Typical site conditions like high ambient temperature, humidity and dusty environment are best handled by C-POWER ACBs without compromising on performance and safety.

Optimal Compactness

Designed to ensure

- › Low inherent temperature rise
- › Adequate interface clearances

Widest Choice of over Current Protection Releases

- › Advance micro-controller based with option of communication & metering-SR71
- › Micro processor based releases-SR18/SR18G/SR18G with Display and SR18Gi with display & current metering
- › Thermo-magnetic release-DN1

Elegant Design & Rugged Construction

- › Common door cutout for entire range
- › Left aligned cutout for all ratings

Range to Meet Every Customer's Need

Various options to choose from

- › Breaking capacity from 50kA to 100kA
- › 3 Pole or 4 Pole configuration
- › Fixed or Drawout version
- › Auto reset mechanism
- › Independent manual or stored energy type, manual or electrically operated mechanism
- › Different terminal orientations : Flat, Horizontal and Vertical

New User Friendly Feature

- › Operational Counter will be standard offering from rating 4000A and above

User Friendly Features

- › **Front accessible** over current release settings, telescopic racking handle and various racking interlocks; no need to open the panel door
- › Unique '**Maintenance position**' in drawout type ACBs to facilitate maintenance & inspection without removing ACB from the panel
- › **Multitap CTs** for enhancing protection range in DN1 release
- › **Wide variety** of Amperemetric and Voltmetric releases
- › **Fully rated neutral pole** for the entire range
- › Lockable **sliding shutters** to prevent unauthorized access to "TRIP" and "CLOSE" push buttons
- › Can be used as an **ON / OFF Load Isolator**

Safety

- › Superior quality engineering grade plastics used for insulation purpose; conforms to Glow wire test(Ref: IEC 60695-2-1)
- › In-built mechanical anti-pumping to prevent auto-reclosing of ACB on persisting faults
- › In-built rating error preventor in drawout ACBs ensure correct rating of drawout portion in corresponding cradle
- › Safety shutters prevent accidental contact with live cradle terminals

Conformance to Standards

- › IEC - 60947 (Part 1 & 2)
- › IS/IEC - 60947 (Part 1 & 2)
- › IEC 60695 - 2 - 1
- › BS EN 60947 - 2

- › Extendable **Electrical Life**:
 - » By replacing the arcing contacts at site, for all ratings
 - » With changing pole assembly
- › **Programmable SICs:** Auxiliary contacts in drawout ACBs are programmable for only Service, Only Test, Test and Service, and All Positions
- › Protection releases are easily **interchangeable** at site
- › Facility for site conversion of **manually operated** ACBs to **electrically operated** ACBs
- › Jaws on breaker facilitate ease of maintenance & replacement of contact jaws

- › Variety of Safety Interlocks
- › Easily removable arc chutes without use of any tool
- › Operating voltage ranges from 10% Un to 110% Un for shunt release ensures intentional tripping even at high voltage drops during short-circuit
- › Transparent safety shutter offers easy inspection of cradle contacts & reduces the maintenance time

Special Applications

690V Application for C-Power ACB

Solution for 690V application available in C-Power Family. For further details please consult our nearest branch office.

Breakers for Corrosive Environment

Solution for harsh/corrosive environment available in C-Power Family. For further details please consult our nearest branch office.

C-POWER Range



Breaking Capacities

| Icu = Ics = Icw for 1 sec | | | | | | | | | | | | | | | | | |
|---------------------------|--|------|------|-------|-------|-------|----------------|-------|-------|-------|-------|-------|--|--|--|--|--|
| Rated Current | 400A | 630A | 800A | 1000A | 1250A | 1600A | 2000A | 2500A | 3200A | 4000A | 5000A | 6300A | | | | | |
| CN-CS : E | 50kA | 50kA | 50kA | 50kA | 50kA | 50kA | 50kA | 50kA | 50kA | 50kA | 50kA | 50kA | | | | | |
| Frame-1 | | | | | | | | | | | | | | | | | |
| CN-CS : S1 | 50kA | 50kA | 50kA | 50kA | 50kA | 50kA | 50kA | 60kA | 60kA | | | | | | | | |
| Frame-1 | | | | | | | Frame-2 | | | | | | | | | | |
| CN-CS : C | 50kA 50kA 50kA 50kA 55kA 60kA | | | | | | 95kA 95kA | | | | | | | | | | |
| CN-CS : H | 65kA 65kA 65kA 65kA 75kA 75kA | | | | | | 75kA 75kA | | | | | | | | | | |
| CN-CS : H2 | | | | | | | 100kA 100kA | | | | | | | | | | |
| CN-CS : H1/H | | | | | | | | | | | | | | | | | |
| | Frame-1 | | | | | | Frame-2 | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |

Note: 3200A H2 / 4000A H2 will replace 3200A H0 / 4000A H0. Spares for 3200 / 4000 A H0 will be available.

Technical Data Sheet



| Rating (A) | | | 400 | 630 | 400/ 630 | 800 | | | | 1000 | | | | | | | | | | |
|---|------------------|--------------|--------|-------|-------------|-------|-------|------|------|-------|-------|------|------|------|--|--|--|--|--|--|
| Type Designation | | | E# | E# | S1 | E# | S1 | C | H | E# | S1 | C | H | E# | | | | | | |
| Rated current (A) at 50°C | I _n | | 400 | 630 | | 800 | | | | 1000 | | | | | | | | | | |
| Rated operational voltage (V), 50/60Hz | U _e | | 415 | 415 | | 415 | | | | 415 | | | | | | | | | | |
| Rated insulation voltage (V), 50/60Hz | U _i | | 1000 | 1000 | | 1000 | | | | 1000 | | | | | | | | | | |
| No. of poles | | | 3 | 3 | 3/4 | 3 | 3/4 | | | 3 | 3/4 | | | 3 | | | | | | |
| Rated ultimate short circuit breaking capacity 50/60Hz (kA rms) | I _{cu} | 380/415/500V | 50 | 50 | 50 | 50 | 50 | 50 | 65 | 50 | 50 | 50 | 65 | 50 | | | | | | |
| | | 690V | - | - | - | - | - | 35 | 50 | - | - | 35 | 50 | - | | | | | | |
| Rated service short circuit breaking capacity 50/60Hz (kA rms) | I _{cs} | 380/415/500V | 50 | 50 | 50 | 50 | 50 | 50 | 65 | 50 | 50 | 50 | 65 | 50 | | | | | | |
| | | 690V | - | - | - | - | - | 35 | 50 | - | - | 35 | 50 | - | | | | | | |
| Rated short time withstand capacity 50/60Hz (kA rms) | I _{cw} | 0.5 sec | 50 | 50 | 50 | 50 | 50 | 50 | 65 | 50 | 50 | 50 | 65 | 50 | | | | | | |
| | | 1 sec | 50 | 50 | 50 | 50 | 50 | 50 | 65 | 50 | 50 | 50 | 65 | 50 | | | | | | |
| | | 3 sec | - | - | 25 | - | 25 | 35 | 50 | - | 25 | 35 | 50 | - | | | | | | |
| Rated making capacity 50/60Hz (kA peak) | I _{cm} | 380/415/500V | 105 | 105 | 105 | 105 | 105 | 105 | 143 | 105 | 105 | 105 | 143 | 105 | | | | | | |
| | | 690V | - | - | - | - | - | 73.5 | 105 | - | - | 73.5 | 105 | - | | | | | | |
| Rated impulse withstand voltage of main circuit (kV) | U _{imp} | | 8 | 8 | 12 | 8 | 12 | | | 8 | 12 | | | 8 | | | | | | |
| Rated impulse withstand voltage of aux. circuit (kV) | U _{imp} | | 4 | 4 | | 4 | | | | 4 | | | | | | | | | | |
| Typical opening time (ms) | | | 40 | 40 | | 40 | | | | 40 | | | | | | | | | | |
| Typical closing time (ms) | | | 60 | 60 | | 60 | | | | 60 | | | | | | | | | | |
| Utilization category | | | B | B | | B | | | | B | | | | | | | | | | |
| Suitability for isolation | | | ✓ | ✓ | | ✓ | | | | ✓ | | | | | | | | | | |
| Fixed | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | |
| Draw out | | | ✗ | ✗ | ✓ | ✗ | ✓ | ✓ | ✓ | ✗ | ✓ | ✓ | ✓ | ✗ | | | | | | |
| Manual | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | |
| Electrical | | | ✗ | ✗ | ✓ | ✗ | ✓ | ✓ | ✓ | ✗ | ✓ | ✓ | ✓ | ✗ | | | | | | |
| Electrical & Mechanical life (operating cycles) ‡ | | | 15000 | 15000 | 20000 | 15000 | 20000 | | | 15000 | 20000 | | | | | | | | | |
| Electrical life without maintenance | | | 6000 | 6000 | 8000 | 6000 | 8000 | 8000 | 8000 | 6000 | 8000 | 8000 | 8000 | 6000 | | | | | | |
| Dimensions (in mm) | Fixed | H | | 385 | 385 | 394 | 385 | 394 | | | 385 | 394 | | | | | | | | |
| | | W | 3 Pole | 316 | 316 | 326 | 316 | 326 | | | 316 | 326 | | | | | | | | |
| | | 4 Pole | - | - | 414 | - | 414 | | | - | 414 | | | - | | | | | | |
| | | D | | 449 | 449 | 443 | 449 | 443 | 431 | | 449 | 443 | 431 | 449 | | | | | | |
| | Draw out | H | | - | - | 468 | - | 468 | | | - | 468 | | | | | | | | |
| | | W | 3 Pole | - | - | 399 | - | 399 | | | - | 399 | | | | | | | | |
| | | 4 Pole | - | - | 487 | - | 487 | | | - | 487 | | | - | | | | | | |
| | D | | - | - | 587 | - | 587 | | | - | 587 | | | - | | | | | | |

* Please consult us for application at dc voltages & higher operational voltage upto 690V AC.

Available in Control Box version

5 • Tolerance is +20ms

‡ Electrical life = Mechanical life. However, arcing contacts need to be replaced depending upon wear & tear.

△ Please consult us.



| 1250 | | | 1600 | | | 2000 | | | | 2500 | | | 3200 | | | | 4000 | | | 5000 | 6300 | | |
|-------|------|------|-------|------|------|-------|------|------|------|-------|------|------|-------|------|------|------|-------|------|------|------|------|------|------|
| S1 | C | H | E# | S1 | C | H | E# | S1 | C | H | S1 | C | H | S1 | D | H2 | H1 | H2 | H | C | C | | |
| 1250 | | | 1600 | | | 2000 | | | | 2500 | | | 3200 | | | | 4000 | | | 5000 | 6300 | | |
| 415 | | | 415 | | | 415 | | | | 415 | | | 415 | | | | 415 | | | 415 | 415 | | |
| 1000 | | | 1000 | | | 1000 | | | | 1000 | | | 1000 | | | | 1000 | | | 1000 | 1000 | | |
| 3/4 | | | 3 | 3/4 | | | 3 | 3/4 | | | 3/4 | | | 3/4 | | | | 3/4 | | | 3/4 | 3/4 | |
| 50 | 50 | 65 | 50 | 50 | 50 | 65 | 50 | 50 | 55 | 75 | 60 | 60 | 75 | 60 | 70 | 75 | 100 | 75 | 100 | 70 | 95 | 95 | |
| - | 35 | 50 | - | - | 35 | 50 | - | - | 40 | 65 | - | 40 | 65 | - | Δ | 65 | 85 | 65 | 85 | Δ | Δ | Δ | |
| 50 | 50 | 65 | 50 | 50 | 50 | 65 | 50 | 50 | 55 | 75 | 60 | 60 | 75 | 60 | 70 | 75 | 100 | 75 | 100 | 70 | 95 | 95 | |
| - | 35 | 50 | - | - | 35 | 50 | - | - | 40 | 65 | - | 40 | 65 | - | Δ | 65 | 85 | 65 | 85 | Δ | Δ | Δ | |
| 50 | 50 | 65 | 50 | 50 | 50 | 65 | 50 | 50 | 55 | 75 | 60 | 60 | 75 | 60 | 70 | 75 | 100 | 75 | 100 | 70 | 95 | 95 | |
| 50 | 50 | 65 | 50 | 50 | 50 | 65 | 50 | 50 | 55 | 75 | 60 | 60 | 75 | 60 | 70 | 75 | 100 | 75 | 100 | 70 | 95 | 95 | |
| 25 | 35 | 50 | - | 35 | 35 | 50 | - | 45 | 50 | 65 | 50 | 55 | 65 | 55 | Δ | 70 | 85 | 70 | 85 | 70 | Δ | Δ | |
| 105 | 105 | 143 | 105 | 105 | 105 | 143 | 105 | 105 | 121 | 165 | 132 | 132 | 165 | 132 | 154 | 165 | 220 | 165 | 220 | 154 | 209 | 209 | |
| - | 73.5 | 105 | - | - | 73.5 | 105 | - | - | 84 | 143 | - | 84 | 143 | - | Δ | 143 | 187 | 143 | 187 | Δ | Δ | Δ | |
| 12 | | | 8 | 12 | | | 8 | 12 | | | 12 | | | 12 | | | | 12 | | | 12 | 12 | |
| 4 | | | 4 | | | 4 | | | | 4 | | | 4 | | | | 4 | | | 4 | 4 | | |
| 40 | | | 40 | | | 40 | | | | 40 | | | 40 | | | | 40 | | | 40 | 40 | | |
| 60 | | | 60 | | | 60 | | | | 60 | | | 60 | | | | 60 | | | 60 | 60 | | |
| B | | | B | | | B | | | | B | | | B | | | | B | | | B | B | | |
| ✓ | | | ✓ | | | ✓ | | | | ✓ | | | ✓ | | | | ✓ | | | ✓ | ✓ | | |
| ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | |
| ✓ | ✓ | ✓ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| ✓ | ✓ | ✓ | ✓ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| 20000 | | | 20000 | | | 20000 | | | | 20000 | | | 10000 | | | | 10000 | | | 5000 | 5000 | 5000 | |
| 7000 | 7000 | 7000 | 6000 | 7000 | 7000 | 7000 | 4500 | 6000 | 6000 | 6000 | 5000 | 5000 | 5000 | 5000 | 2500 | 2500 | 5000 | 5000 | 2500 | 2500 | 2500 | 2500 | |
| 394 | | | 385 | 394 | | | 385 | - | 394 | | | - | 394 | | | - | 509 | Δ | | | 509 | - | - |
| 326 | | | 316 | 326 | | | 316 | - | 482 | | | - | 482 | | | - | 636 | Δ | | | 636 | - | - |
| 414 | | | - | 414 | | | - | - | 628 | | | - | 628 | | | - | 838 | Δ | | | 838 | - | - |
| 443 | 431 | 437 | 431 | 431 | | | 437 | - | 431 | | | - | 431 | | | - | 518 | Δ | | | 518 | - | - |
| 468 | | | - | 468 | | | - | 468 | 468 | | | - | 468 | | | - | 583 | 468 | | | 583 | 583 | 583 |
| 399 | | | - | 399 | | | - | 399 | 555 | | | - | 555 | | | - | 711 | 701 | | | 701 | 711 | 913 |
| 487 | | | - | 487 | | | - | 487 | 701 | | | - | 701 | | | - | 913 | 909 | | | 909 | 913 | 1182 |
| 587 | | | - | 587 | | | - | 587 | 587 | | | - | 587 | | | - | 652 | 607 | | | 607 | 678 | 691 |

New H2 range has replaced old HO range

Protection Releases

Thermo-magnetic Release Type - DN1

DN1 thermo-magnetic release offers reliable protection against overload, short-circuit and earth faults via multitap CTs. with ambient temperature compensation from -5°C to 50°C.

Overload Protection (Phase)

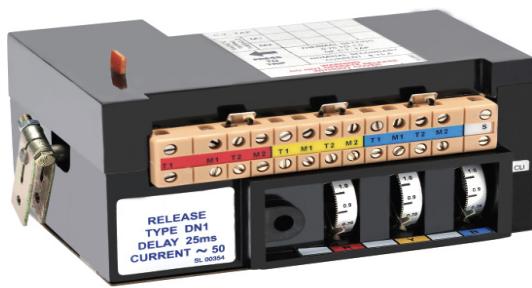
Unique individual phase O/L setting adjustment helps to avoid the nuisance tripping of ACBs in unbalance load condition (due to single phase loads) on distribution transformer. Overload pick-up range: 0.75 to 1 times In

Short-Circuit Protection

Two taps on CTs (working as rating plug) help in selecting operating threshold. Short-Circuit pickup range: 5.5 and 7.5 times In with minimum impulsion time of 25 ms to prevent nuisance tripping due to transients

Earth Fault Protection

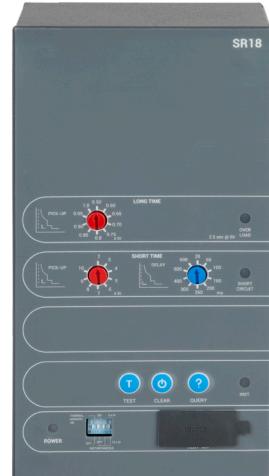
Offered with auxiliary earth fault release module. Earth-fault pick-up range: 0.2 to 0.5 times In



Microprocessor Based Release - SR18

Salient Features

- › Self-powered & true RMS sensing
- › Comprehensive protection
 - » Overload (Phase), Instantaneous and Short-Circuit
- › True Hot & Cold characteristics & switchable thermal memory
- › Multi-state LED to indicate
 - » Power ON condition
 - » Test mode
- › Individual fault annunciation through LEDs
- › AN1 module for remote fault indication through LEDs with changeover contact for each kind of fault
- › Provision for Self-diagnostic test (without tripping the breaker)
- › Universal Test kit available for testing the release
- › Conformance to EMI/EMC standards

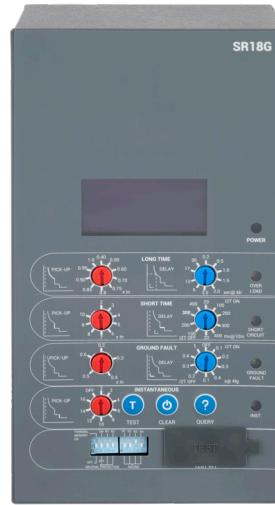


| Type of Protection | Setting Range | |
|--------------------|--|--|
| | Pick-up Current | Time Delay |
| Overload (Phase) | Ir - 0.5 to 1.0 times In Steps : 0.50, 0.60, 0.65, 0.70, 0.75, 0.80, 0.85, 0.9, 0.95, 1 | 2.5 sec at 6 times Ir |
| Short-Circuit | 2 to 10 times In Steps : 2, 3, 4, 5, 6, 7, 8, 9, 10 | 20 ms to 600 ms Steps : 20, 60, 100, 160, 200, 260, 300, 400, 500, 600 ms |
| Instantaneous | 6 & 12 In | - |

Micropocessor Based Release - SR18G

Salient Features

- › Self - powered & True RMS sensing
- › True Hot & Cold characteristics & switchable Thermal Memory
- › Offers comprehensive protection against Overload - Phase & Neutral, Short-Circuit, Instantaneous, Earth Fault
- › Settable Overload delay
- › Settable Instantaneous setting with provision of "OFF"
- › I^2t ON/OFF for Short-Circuit and Earth Fault protection
- › Individual Fault LED indication
- › Provision for Self-diagnostic test
- › Conformance to EMI/EMC standards
- › Testing through Universal Test kit



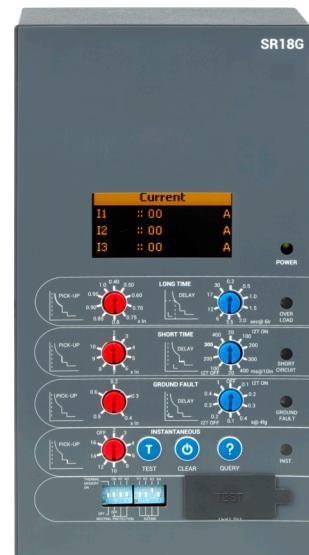
| Type of Protection | Setting Range | |
|--------------------|---|---|
| | Pick-up Current | Time Delay |
| Overload (Phase) | Ir - 0.4 to 1.0 times In Steps : 0.40, 0.50, 0.60, 0.70, 0.75, 0.80, 0.85, 0.90, 0.95, 1 | 0.2 to 30 sec at 6 times Ir Steps : 0.2, 0.5, 1, 1.5, 2, 3.5, 6, 12, 17, 30 sec |
| Overload (Neutral) | In - 50% to 200% times Ir Steps : 50%, 100%, 150%, 200% | Same as Overload (Phase) |
| Short-Circuit | 2 to 10 times In Steps : 2, 3, 4, 5, 6, 7, 8, 9, 10 | I^2t ON = 0.02, 0.1, 0.2, 0.3, 0.4 sec I^2t OFF = 0.02, 0.1, 0.2, 0.3, 0.4, sec- |
| Instantaneous | 2 to 16 times In Steps : 2, 3, 4, 6, 8, 10, 12, 14, 16, OFF | |
| Earth fault* | 0.2 to 0.6 times In Steps : 0.2, 0.3, 0.4, 0.5, 0.6 | I^2t ON = 0.1, 0.2, 0.3, 0.4 sec I^2t OFF = 0.1, 0.2, 0.3, 0.4, 1 sec |

*In 3 phase, 4 wire system, Neutral CT is required for earth fault protection

Microprocessor Based Release - SR18G with display

Salient Features

- › Self - powered & True RMS sensing
- › True Hot & Cold characteristics & switchable Thermal Memory
- › Unique 3 line O-LED display (Organic LED)
- › Offers comprehensive protection against Overload - Phase & Neutral, Short-Circuit, Instantaneous, Earth Fault
- › Settable Overload delay
- › Settable Instantaneous setting with provision of "OFF"
- › I^2t ON/OFF for Short-Circuit and Earth Fault protection
- › Individual Fault LED indication
- › Provision for Self-diagnostic test
- › Conformance to EMI/EMC standards
- › Testing through Universal Test kit
- › Separate version with Zone Selective Interlocking (ZSI) - SR18Gi with display



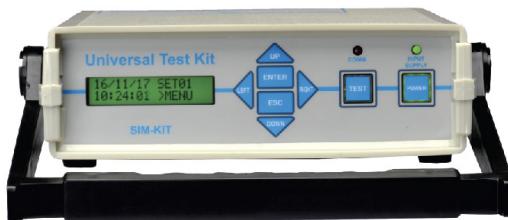
| Type of Protection | Setting Range | |
|--------------------|---|--|
| | Pick-up Current | Time Delay |
| Overload (Phase) | Ir - 0.5 to 1.0 times In Steps : 0.50, 0.60, 0.65, 0.70, 0.75, 0.80, 0.85, 0.90, 0.95, 1 | 0.2 to 30 sec at 6 times Ir Steps : 0.2, 0.5, 1, 1.5, 2, 3.5, 6, 12, 17, 30 sec |
| Overload (Neutral) | IN -50% to 200% times Ir Steps : 50%, 100%, 150%, 200% | Same as Overload (Phase) |
| Short-Circuit | 2 to 10 times In Steps : 2, 3, 4, 5, 6, 7, 8, 9, 10 | I^2t ON = 0.02, 0.1, 0.2, 0.3, 0.4 sec I^2t OFF = 0.02, 0.1, 0.2, 0.3, 0.4, sec |
| Instantaneous | 2 to 16 times In Steps : 2, 3, 4, 6, 8, 10, 12, 14, 16, OFF | |
| Earth fault* | 0.2 to 0.6 times In Steps : 0.2, 0.3, 0.4, 0.5, 0.6 | I^2t ON = 0.1, 0.2, 0.3, 0.4 sec I^2t OFF = 0.1, 0.2, 0.3, 0.4, 1 sec |

*In 3 phase, 4 wire system, Neutral CT is required for earth fault protection

Universal Test Kit

Salient Features

- › Compatible with following E&A Protection Releases:
 - » SR protection releases of C-Power ACB family
 - » UNRS protection releases of U-Power ACB family
 - » MTX and RC releases of D-Sine MCCB family
- › Operates from 240V AC supply & generates single-phase voltage test signals
- › Tests the release for
 - » Phase fault i.e. for overload, short-circuit, instantaneous and Earth Fault protection
- › ACB test current multiples
 - » For O/L, S/C and Inst - 2.5 In to 13 In in steps of 0.05
 - » For E/F - 0.25 In to 0.70 In in steps of 0.05
- › MCCB test current multiples
 - » For O/L - 2In, 4In, 6In and 8In
 - » For S/C and Inst - 2.5 In to 13 In in steps of 0.05
 - » For E/F - 0.25 In to 0.70 In in steps of 0.05
- › LCD display indicated the trip time (three places after decimal)



Microprocessor-based Communication-capable Release - SR71

Salient Features

- › True RMS sensing
- › Offers comprehensive protection for overload, short-circuit, instantaneous, earth fault and neutral overload
- › High resolution backlit LCD display
- › Intelligent Pre-trip alarm to prevent system shutdown
- › Password protected settings and commands
- › MODBUS RTU protocol with intrinsic RS 485 port
- › LED indication for POWER ON, different faults and Pre-trip alarm
- › 2 sets of storable protection settings
- › Last 5 trips & 128 Event records with time & date stamping
- › 3 programmable contacts-1 for micro controller failure, 2 for basic fault annunciation
- › 4 relay contacts for indication of exceeding maximum demand, Pre-trip alarm and control on breaker (closing and opening)
- › Rating-plug for precise protection at lower load currents
- › Auto-doubling features to prevent nuisance tripping 2
- › Selectable I²t based current for short-time and earth fault zones
- › Thermal reflectivity enables faster tripping on recurrent overloads
- › Inbuilt Zone Selective Interlocking
- › Provision for Self-diagnostic test
- › Conformance to EMI/EMC standards



Microprocessor-based Communication-capable Release - SR71

| Parameter | | | Screen Abbreviation | Details | Factory Settings |
|-------------------|---|------------|---------------------|---|------------------|
| Overload (Phase) | Current Settings (A), $I_r = I_n \times \dots$ | | PICK-UP | 0.4 to 1.0 In in steps of 0.05 In | 1.0 In |
| | Time Delay, T_r (sec) at $6 \times I_r$ | | TMS-Tr | 0.5-1-2-4-6-12-18-24-30 | 30 sec |
| | Pre-trip Alarm Settings | | PREALAR | 0.5 to 0.95 I_r in steps of 0.05 I_r | 0.95 I_r |
| | Thermal Reflectivity | | THM-MEM | ON / OFF | OFF |
| | Function | | FUNC | Enable / Disable | |
| Neutral Fault | Current Settings (A), $I_n = I_{rx} \dots$ | | PICK-UP | 0.5-1.0 | 1.0 I_r |
| | Time Delay (sec) | | DELAY | Same as 'Overload (Phase)' | 30 sec |
| Short-Circuit | Current Settings (A), $I_{sd} = I_n \times \dots$ | | PICK-UP | 2 to 10 In in steps of 0.5 In | 10 In |
| | Time Delay, t_{sd} (msec) at $10 \times I_n$ | I^2t OFF | DELAY | 20-100-200-300-400 | 400 msec |
| | | I^2t ON | DELAY | 20-100-200-300-400 | 400 msec |
| | Pre-trip Alarm Settings | | PREALAR | 0.5 to 0.95 I_s in steps of 0.05 I_s | 0.95 I_s |
| | I^2t | | I^2t | ON / OFF | |
| | Cold-load Pick-up | | COLDPIC | Enable / Disable | Disable |
| | Cold-load Pick-up Delay | | CP-DLY | 0.1 to 10 sec in steps of 0.1 sec | 0.1 sec |
| Instantaneous | Function | | FUNC | Enable / Disable | Enable |
| | Current Settings (A), $I_i = I_n \times \dots$ | | PICK-UP | 2 to 16 In in steps of 0.1 In | 16 In |
| Earth Fault | Function | | FUNC | Enable / Disable | Enable |
| | Current Settings (A), $I_g = I_n \times \dots$ | | PICK-UP | 0.1 to 0.6 in steps of 0.05 In for I^2t ON | 0.6 In |
| | | | | 0.1 to 0.6 in steps of 0.01 In for I^2t OFF | |
| | Time Delay (sec), t_g | | DELAY | 100 to 400 msecs in steps of 100 msec for I^2t ON | 3 sec |
| | | | | 0.1 to 5 sec in steps of 100 msec for I^2t OFF | |
| | Pre-trip Alarm Settings | | PREALAR | 0.5 to 0.95 I_g in steps of 0.05 I_g | 0.95 I_g |
| | I^2t | | I^2t | ON / OFF | OFF |
| Cold-load Pick-up | | COLDPIC | Enable / Disable | Disable | |

Note: Both Protection Groups 1 & 2 carry the same factory settings.

Additional Protections

| Parameter | | Screen Abbreviation | Details | Factory Settings |
|--------------------|----------------------------------|---------------------|--|------------------|
| Under Current | Function | FUNC | Enable / Disable | Disable |
| | Current Setting (A) x In | PICK-UP | 15% to 80% in steps of 5% In | 0.8 In |
| | Time Delay (secs) | DELAY | 1 to 255 in steps of 1 second | 1 second |
| | Trip / Alarm | MODE | Either / Both | Alarm |
| Current Unbalance | Function | FUNC | Enable / Disable | Disable |
| | Current Setting (A) x In | PICKUP | 10% to 95% in steps of 5% In | 0.2 In |
| | Time Delay (secs) | DELAY | 1 to 10 in steps of 5 secs | 2.0 secs |
| Over Voltage # | Function | FUNC | Enable / Disable | Disable |
| | Voltage Setting (V) Vs = Vn x .. | PICK-UP | 105% to 150% in steps of 5% Vn | 1.2 Vn |
| | Time Delay (secs) | DELAY | 0.1 to 100 in steps of 0.1 secs | 5.0 secs |
| | Reset Voltage | RSTSET | 85% to 98% in steps of 1% Vs | 0.95 Vs |
| | Trip / Alarm | MODE | Either / Both | Alarm |
| Under Voltage # | Function | FUNC | Enable / Disable | Disable |
| | Voltage Setting (V) Vn x .. | PICK-UP | 45% to 65% in steps of 5% Vn | 0.6 Vn |
| | Time Delay (secs) | DELAY | 0.1 to 5 in steps of 0.1 secs | 1 second |
| | Reset Voltage | RSTSET | 102% to 115% in steps of 1% Vs | 1.02 Vs |
| | Trip / Alarm | MODE | Either / Both | Alarm |
| Over Frequency # | Function | FUNC | Enable / Disable | Disable |
| | Frequency Setting (Hz) | PICK-UP | 50 to 55Hz for 50Hz in steps of 0.01Hz | 52.0Hz |
| | | | 60 to 62Hz for 60Hz in steps of 0.01Hz | 61.0Hz |
| | Time Delay (secs) | DELAY | 0.1 to 100 secs in steps of 0.1 second | 0.2 secs |
| | Drop Off Frequency | DRPOFF | 0.02 to 0.10Hz in steps of 0.1Hz | 0.1Hz |
| Reverse Power # | Trip / Alarm | MODE | Either / Both | Alarm |
| | Function | FUNC | Enable / Disable | Disable |
| | Settings (kW) | PICK-UP | 0.02 to 0.4 in steps of 0.01 Pn | 0.2 Pn |
| | Time Delay (secs) | DELAY | 1 to 100 in steps of 0.1 secs | 2.0 secs |
| Phase Sequence # | Trip Alarm | MODE | Either / Both | Alarm |
| | Function | FUNC | Enable / Disable | Disable |
| | Settings | PICK-UP | 123 - 132 | 123 |
| | Time Delay (secs) | DELAY | 0 to 5 in steps of 0.5 secs | 2 secs |
| Breaker Failure | Trip / Alarm | MODE | Either / Both | Alarm |
| | Function | FUNC | Enable / Disable | Disable |
| Maximum Demand | Time Delay (secs) | DELAY | 0.05 to 2 secs in steps of 0.01 secs | 1.0 second |
| | Function | FUNC | Enable / Disable | Disable |
| | Exceed | PICK-UP | 40 kW - 1600 kW | 100 kW |
| i - Discrimination | Step | DELAY | 10 kW - 1000 kW | 10 kW |
| | i - Discrimination | i - Discrimination | Enable / Disable | Disable |

Requires SR71-PM module

Metering

| Parameter | Screen Abbreviation | Details |
|--------------------|---------------------|---|
| Current | I | Phase, Earth and Neutral |
| | Imax | Maximum running Current per Phase |
| | %Load | Percent Loading |
| Voltage# | V | Phase-Neutral |
| | Vph-Vph | Phase-Phase |
| Frequency # | F | System Frequency |
| Power Factor # | PF | System Power Factor |
| Power # | kW | Active Power per Phase and Total (kW) |
| | kVAr | Reactive Power per Phase and Total (kVAr) |
| | kVA | Apparent Power per Phase and Total (kVA) |
| | kW | Maximum Demand (kW) |
| Energy # | kWh | Total Active Energy (kWh) |
| | kVArh | Total Reactive Energy (kVArh) |
| | kVAh | Total Apparent Energy (kVAh) |
| Harmonic-Current | I1HAR | R-Phase Current Harmonics |
| | I2HAR | Y-Phase Current Harmonics |
| | I3HAR | B-Phase Current Harmonics |
| Harmonic-Voltage # | V1HAR | R-Phase Voltage Harmonics |
| | V2HAR | Y-Phase Voltage Harmonics |
| | V3HAR | B-Phase Voltage Harmonics |
| Display | | High Resolution Backlit LCD |

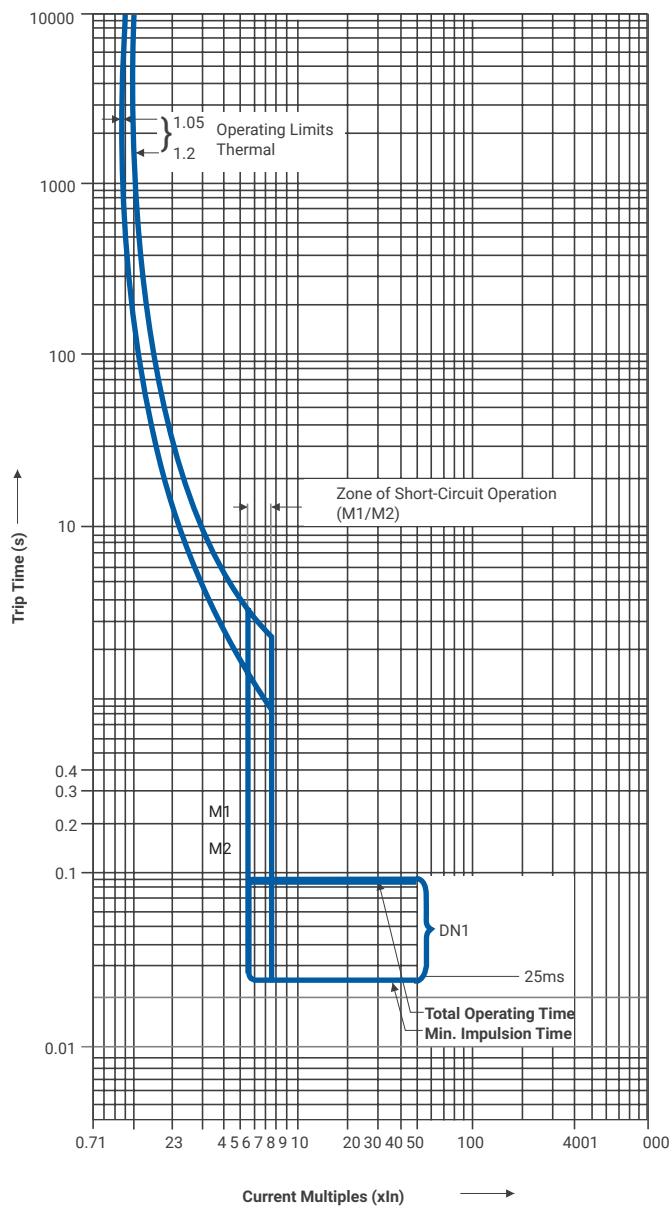
Requires SR71-PM module

Additional Features

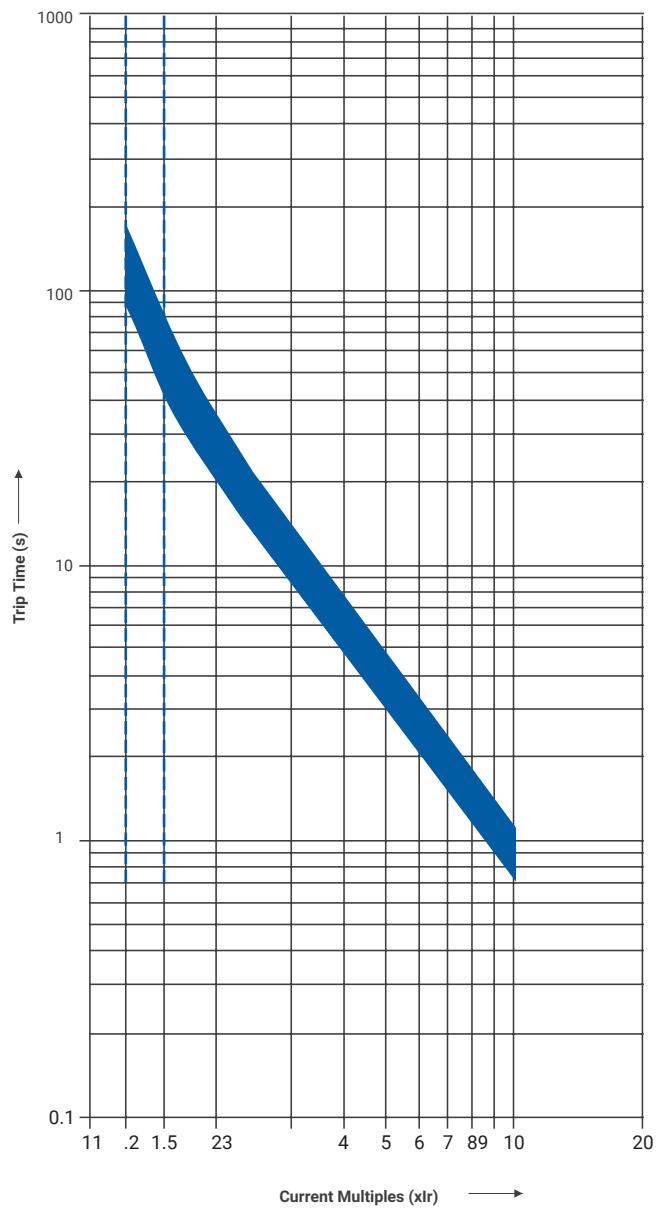
| Parameter | Screen Abbreviation | Details |
|--------------------------|---------------------------------|---|
| LED Indications | Auxiliary Power ON | ✓ |
| | Overload | ✓ |
| | Short-Circuit | ✓ |
| | Instantaneous | ✓ |
| | Earth Fault | ✓ |
| | Neutral Fault | ✓ |
| | Trip | ✓ |
| | Alarm | ✓ |
| Auxiliary Supply | | 24V DC |
| Digital Inputs | | 4 Nos. |
| Output Relays | | 3 Internal + 4 External Relays |
| | | 240V AC / 5A, 30V DC / 5A (resistive load) |
| Rating Plug | In Multiplier | 630-800-1000-1250-2000-3200-5000 |
| Communication | Protocol | MODBUS RTU |
| | Link used | RS 485 |
| Maintenance Indication | | I ² t based |
| Event Records (128) | | Pick-up, Alarm, Trip, Date, Time and Cause of Event, voltage and current readings in all phases |
| Trip Records | | Last 5 records with date and time stamping, |
| Testing | Self-Diagnostic Test | P |
| Supplementary Modules | Communication Module (SR71-COM) | MODBUS RTU using RS 485 |
| | Power Supply Module (UN-PS) | Input : 26V to 60V DC, 90 to 300V AC/DC Output : 24V DC |
| | Power Metering Module (SR71-PM) | 240V AC, 415V AC |
| | Relay Module (SR71-REL) | 4 Relay Outputs (Breaker OPEN, Breaker CLOSE, Pre Trip alarm and MD Exceed) |
| No. of Storable Settings | | 2 |

Protection Characteristic

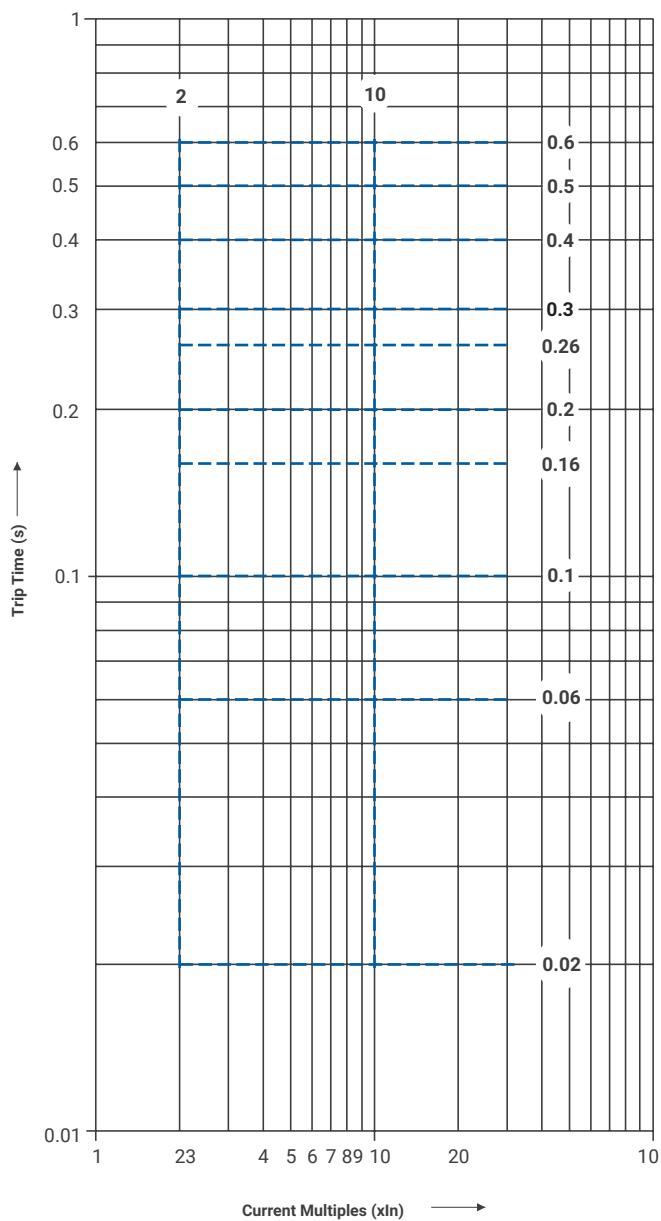
Time-current (DN1)



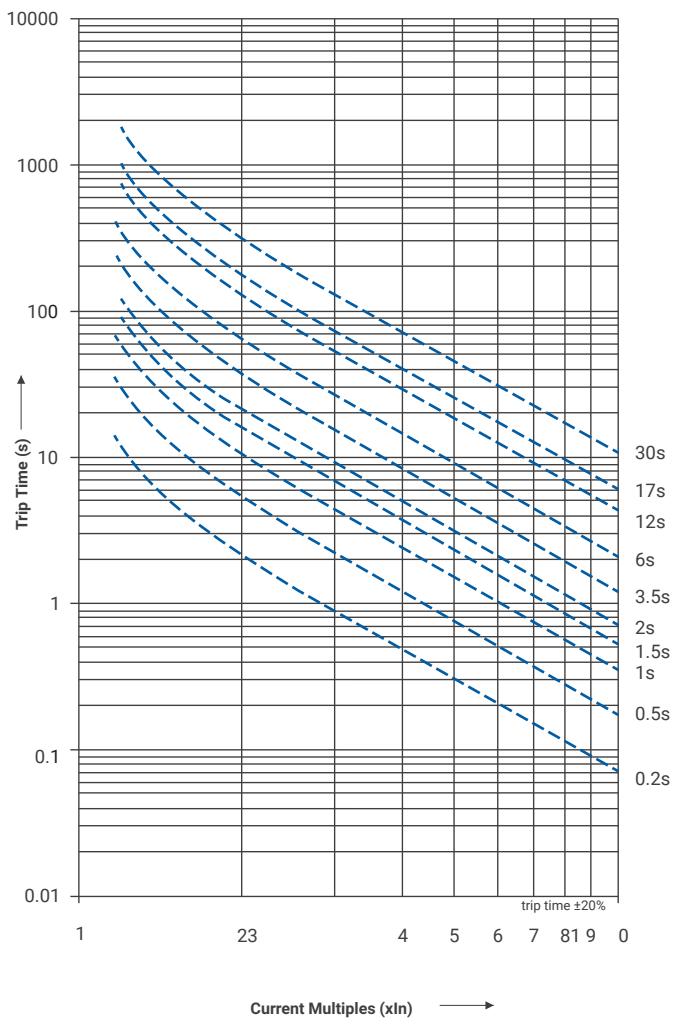
Overload (SR18)



Short-Circuit (SR18)

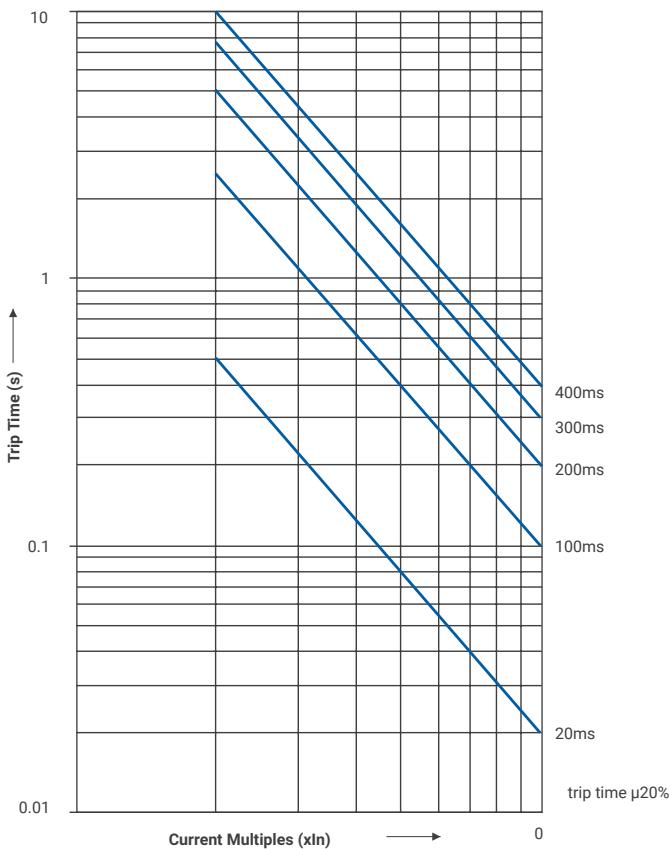


Overload (SR18G, SR18G with display/SR18Gi with display)



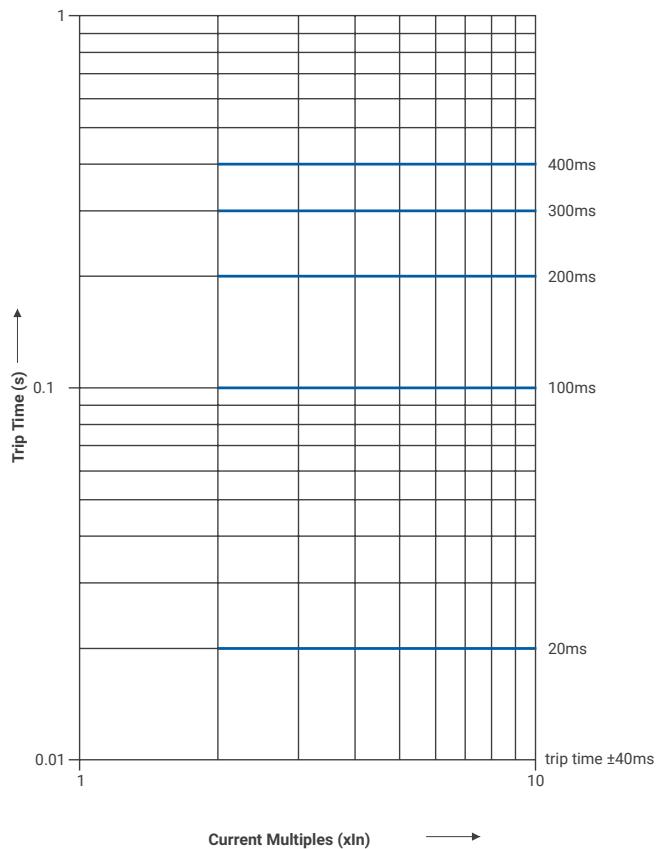
Short-Circuit I²t ON

(SR18G, SR18G with display/SR18Gi with display)



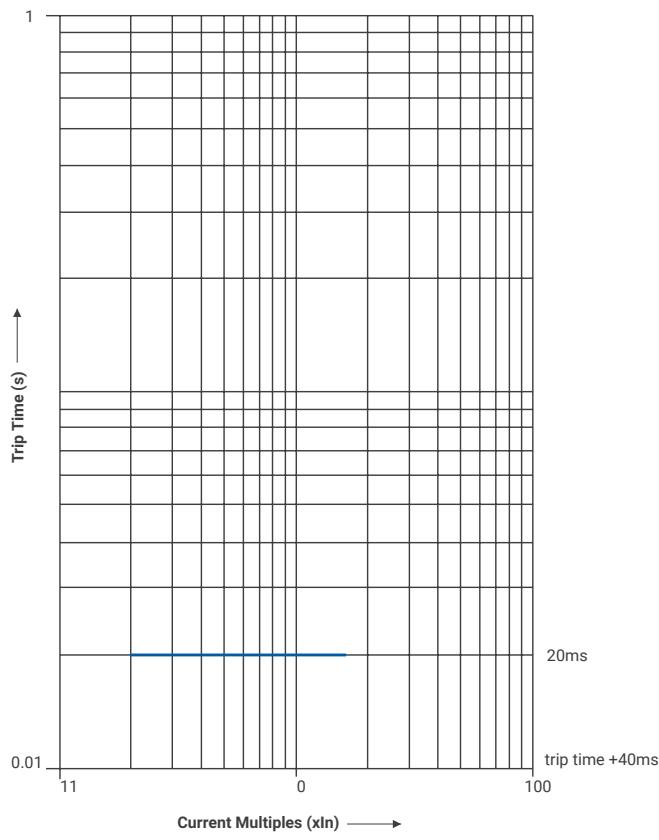
Short-Circuit I²t OFF

(SR18G, SR18G with display/SR18Gi with display)



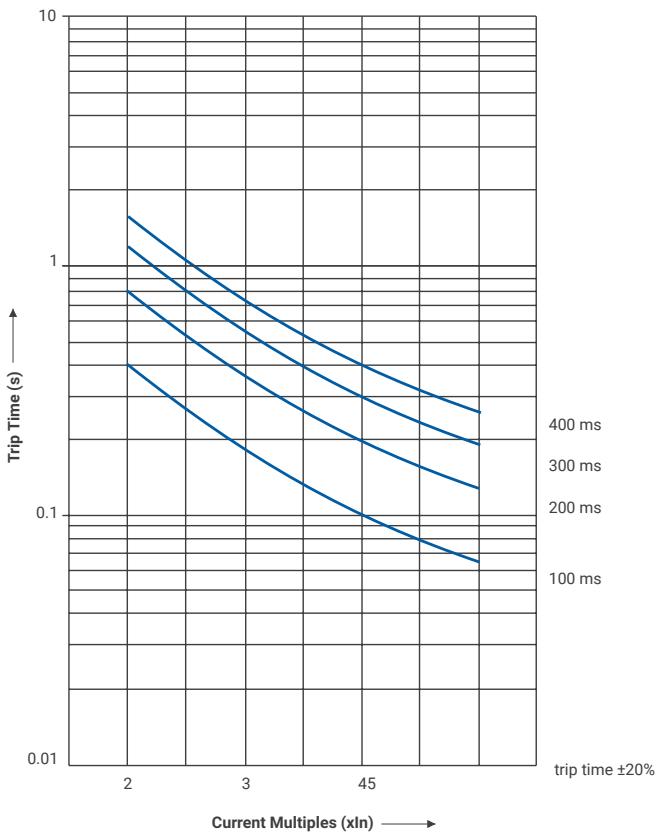
Instantaneous

(SR18G, SR18G with display/SR18Gi with display)

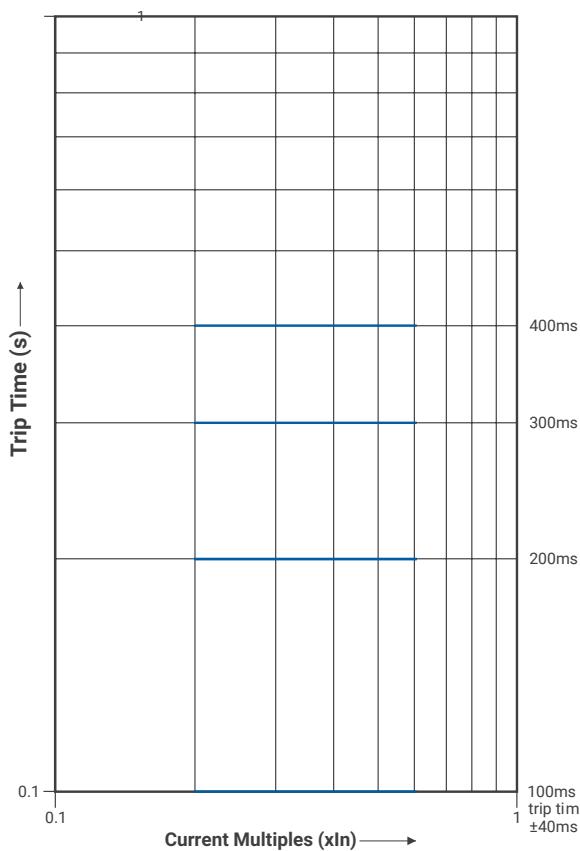


Earth Fault I²t ON

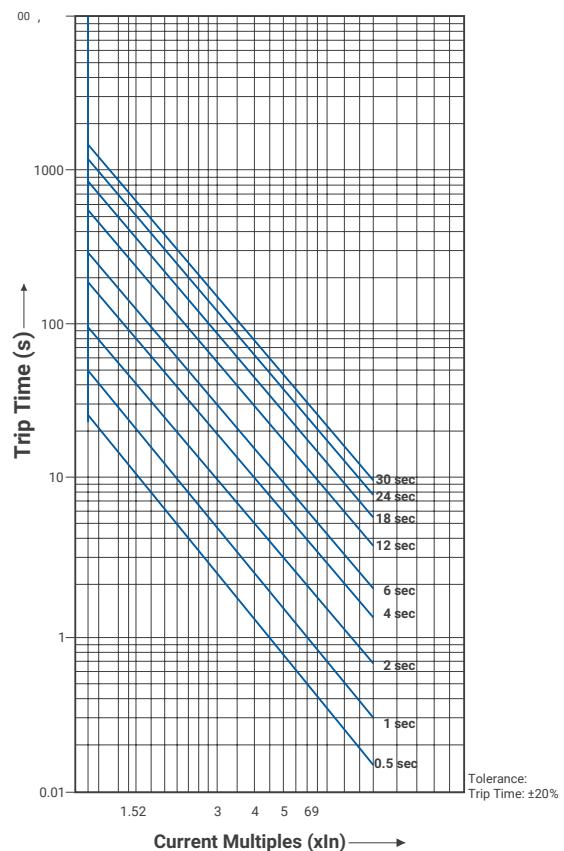
(SR18G, SR18G with display/SR18Gi with display)



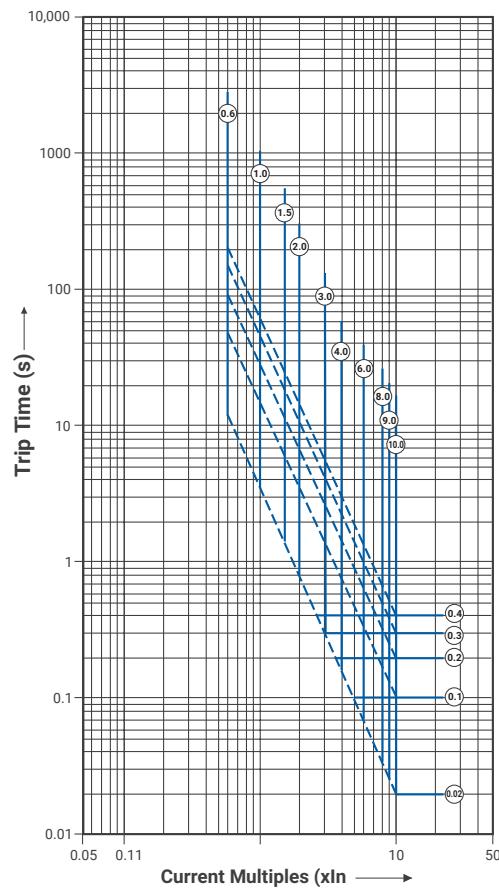
Earth Fault I²t OFF (SR18G, SR18G with display/SR18Gi with display)



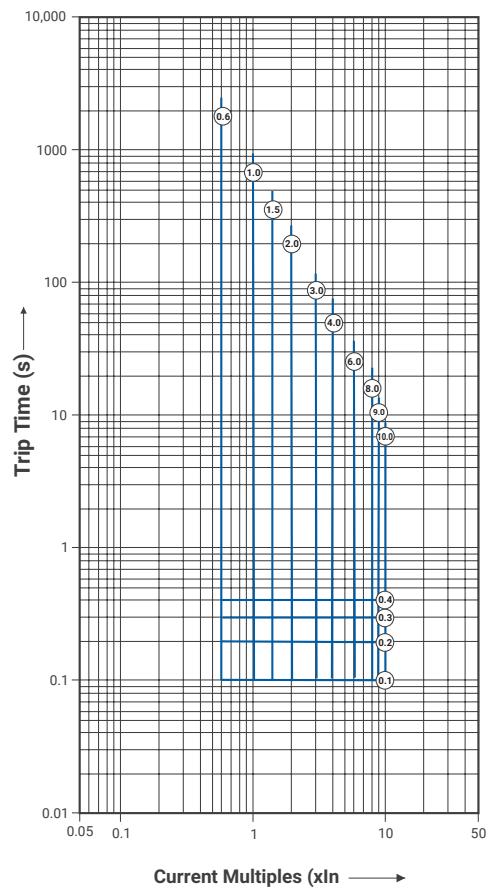
Overload Curve (SR71)



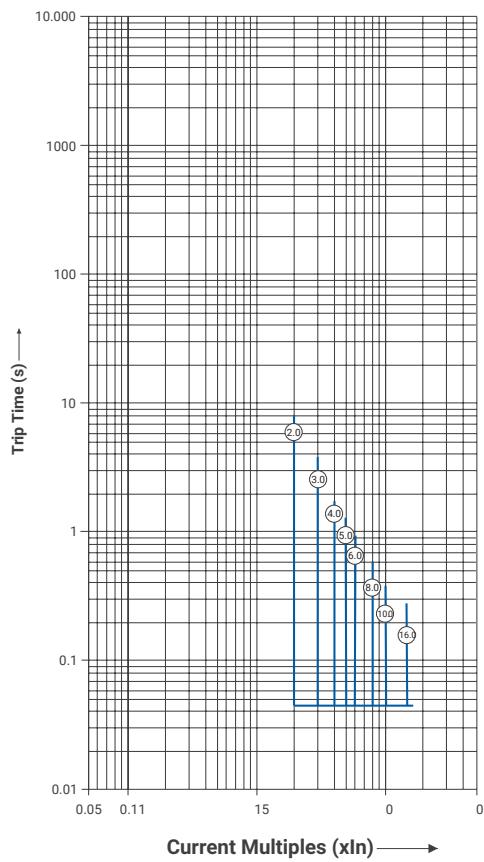
Short-Circuit - I²t ON (SR71)



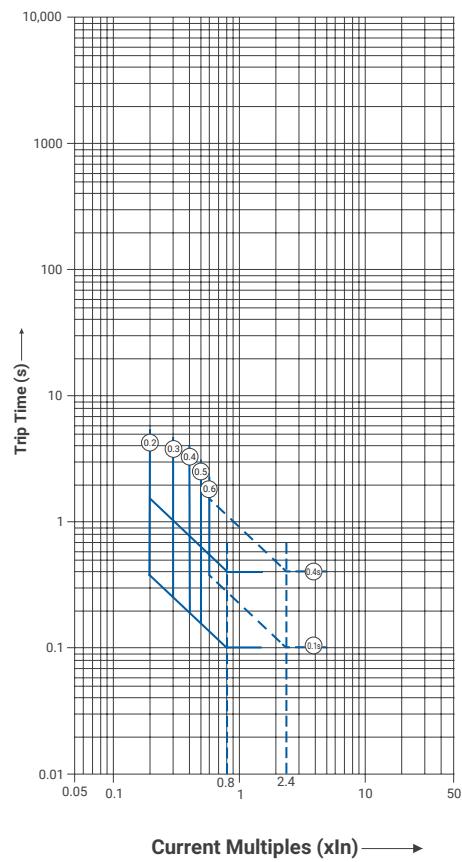
Short-Circuit - I²t OFF (SR71)



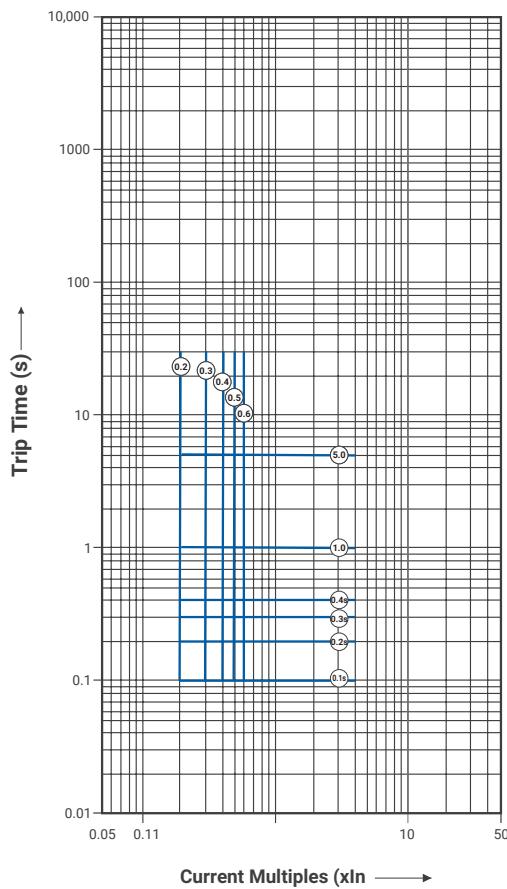
Instantaneous (SR71)



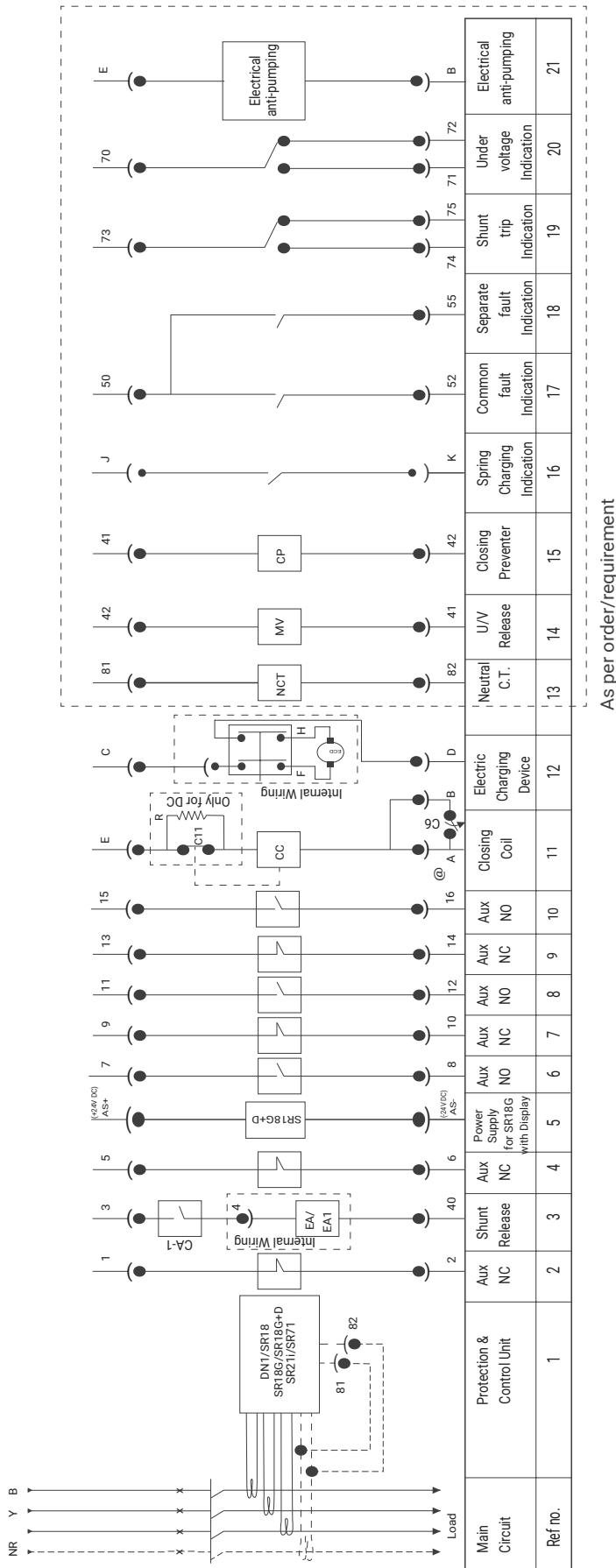
Earth Fault - I^2t ON (SR71)



Earth Fault - I^2t ON (SR71)



Wiring Diagram



The above drawing is for EDO breakers.

1) For MDO/MF versions

Ref no. 3, 10, 11 are not applicable
E, B, C, D, A, 15 are applicable only in electrical breakers.

2) For EF versions

The ref. no. 12, 13, 14, 15, 16, 17, 18, 19, 20, 21 are provided as per customer requirement.

3) When using AN1 Announcer Module with SR18G/18Gi (with display releases)

A) AS+ & AS- always appear after 5,6 nos. of the SIC.

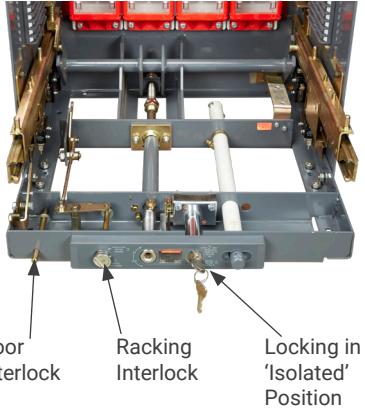
B) If 1,2,3,4,5,6 nos. of SICs are not there, AS+ & AS- will appear first.

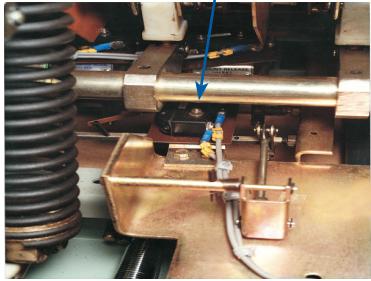
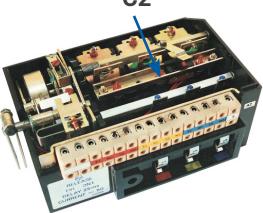
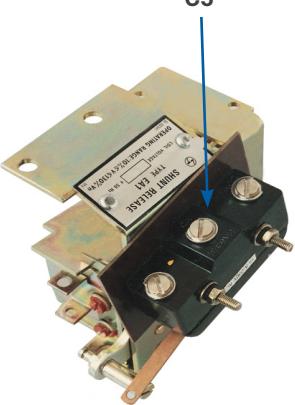
C) SIC 13 and 14 Nos. are not offered in 3P EDO and 3P MDO standard breakers.

FCA Limit switch(Shown in breaker reset condition)
R Economy Resistor
C11 Limit switch operates when closing electromagnet is held on
C6 'Service' position microswitch for withdrawable circuit breakers
(shown in 'test' position)

For SR18Gi+D & SR21i release (P&C unit)
SI, SO i discrimination
GI, G i discrimination
G Short circuit i/p & o/p
Earth fault i/p & o/p
Earth

Accessories

| Type | Data |
|--|---|
| Lockable Trip Push Button (LTPB)  | <p>Mounted in place of normal trip push button. With this, ACB can be locked in trip condition. For interlocking, LTPBs are offered in the following combinations:</p> <ul style="list-style-type: none"> › 4 different types of keys i.e. AA, BB, CC and DD suitable for 2 I/C & 1 B/C schemes › Combination of L, M, N, LM and MN locks, which are suitable for 3 I/C & 2 B/C schemes › Combination of K, L, M, N, KL, LM and MN locks, which are suitable for 4 I/C & 3 B/C schemes › Combination of J, K, L, M, N, JK, KL, LM and MN locks, which are suitable for 5 I/C & 4 B/C schemes |
| View of the Cradle  <p>Door Interlock Racking Interlock Locking in 'Isolated' Position</p> | <p>Locking in Isolated Position (LIP) The facility of locking the ACB in Isolated position is available in Drawout ACBs. This is useful to achieve interlocking between Main & Standby source. Similar lock is available as LOCK IN ANY POSITION.</p> <p>Door Interlock This ensures:</p> <ul style="list-style-type: none"> › Unless the panel door is closed, breaker cannot be racked in or out › Unless the breaker is in Isolated Position, it is not possible to open the panel door <p>Racking Interlock This ensures that breaker cannot be racked in/out unless the ACB is in tripped/open condition.</p> |
| Mechanical Interlock  | <p>It is possible to provide "Mechanical Interlock" between two breakers of the same or different ratings in vertical or horizontal configurations. Mechanical interlock is available for ACBs upto 4000A by flexible cables of 2 metres.</p> |

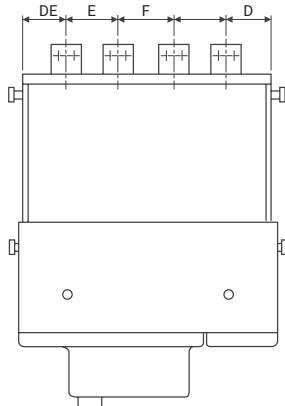
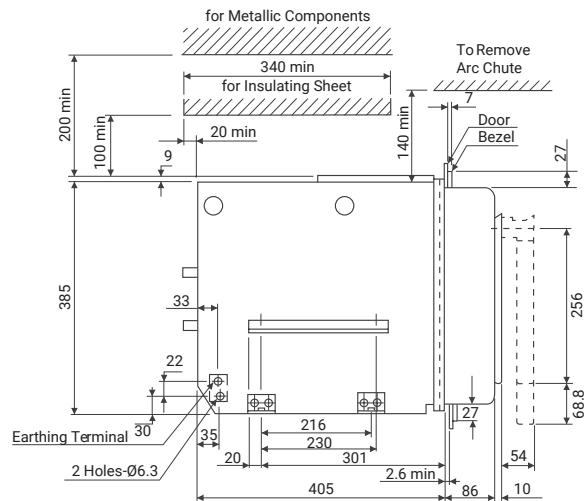
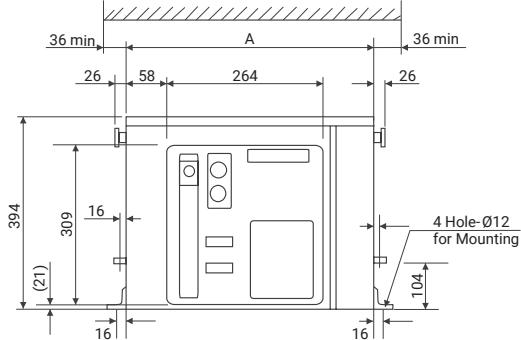
| Type | Data |
|---|--|
|  <p>C1</p> | <p>Common indication of tripping due to overload, short-circuit and earth faults.</p> <ul style="list-style-type: none"> › Provided by micro-switch C1 fitted inside the ACB › Available as an option in all releases |
|  <p>C2</p> | <p>Separate indication of tripping due to overload, short-circuit and earth faults.</p> <ul style="list-style-type: none"> › For release type DN1, this is provided by micro-switch C1 & C2 (C2 fitted inside release) |
| AN1-Annunciator Module  | <p>Remote indication of tripping due to overload, short-circuit and earth faults.</p> <ul style="list-style-type: none"> › Can be used with releases type SR18/SR18G/SR21i/SR18G & SR18Gi with display › Individual fault indication provided by three separate LEDs for <ul style="list-style-type: none"> » Long time faults » Short time fault/instantaneous fault » Earth fault › One potential free contact rated 5A at 230V AC available for each type of fault › Flush mounting on panel (H-W-D=92mm x 46mm x 105mm) › Operating voltage: 240V AC |
|  <p>C5</p> | <p>Indication for operation of shunt release or undervoltage release.</p> <ul style="list-style-type: none"> › Provided by micro-switch C5 fitted on the shunt release or undervoltage release |

| Type | Data | Technical Data | | | | |
|---|--|--|--------------------------|--|---------------------------|--|
| Shunt Release | <ul style="list-style-type: none"> > For remote tripping of the breaker > Shunt release coil is short time rated and is disconnected from the circuit by an auxiliary contact when the ACB trips (Refer to wiring diagram) > Low power consumption > Two types available: <ul style="list-style-type: none"> » EA for DC application » EA1 for AC application | Type of Release EA1 EA | Nominal Voltage Use (V) | Power consumption at pick-up | Operation Limit | |
|  | | | 110 AC | 800 VA | 10-130% V | |
| | | | 240 AC | 800 VA | | |
| | | | 415 AC | 800 VA | | |
|  | <p>Type MV With no intentional time delay</p> <p>Notes: When under voltage release is provided, the ACB can be closed only when supply is available to the under voltage release.</p> | | 24V DC | 32 W | 65-130% V | |
| | | | 48V DC | 125 W | | |
| | | | 110 DC | 45 W | | |
| | | | 220 DC | 30 W | | |
| Note: Other voltages available on request | | | | | | |
| Under Voltage Release | <ul style="list-style-type: none"> > Type MV With no intentional time delay <p>Notes: When under voltage release is provided, the ACB can be closed only when supply is available to the under voltage release.</p> | Parameter | | Specification | | |
|  | Closing release remotely closes the circuit breaker if the mechanism spring is already charged. | Nominal voltage | | 240V & 415V 50Hz AC, 220V & 415V 60Hz AC, & 24V DC | | |
| | | Pick up (V) | | 80% Ue | | |
| | | Drop off (V) | | 35-65% Ue | | |
| | | VA Consumption | | Pick up - 23 VA Hold on - 8.5 VA | | |
| | | Watt loss | | 6 W | | |
| Closing Release | | Rated voltage (Us) | Power consumption | | Range of operation | |
|  | | 110V, 50Hz 240V, 50Hz 220V, 60Hz | 320 VA | | 85-110% Us | |
| | | 110V DC, 220V DC 24V, 30V, 48V DC | 300 W | | | |
| Spring Charging Motor | Electrical charging device automatically charges the mechanism spring of the circuitbreaker. After circuit-breaker closing, the geared motor immediately recharges the closing spring. Thus instantaneous reclosing of the circuit-breaker is possible following opening operation. | Rated operational voltage (Ue) | Power consumption | Range of operation | | |
|  | Two combinations available: <ul style="list-style-type: none"> > 2 NO + 2 NC > 6 NO + 6 NC | 240V AC | 320 VA | 85-110% Ue | | |
| | | 110V DC | 154 W | | | |
| | | 220V DC | | | | |
| Auxiliary Contacts | | Electrical circuit | Voltage (V) | Rated current (A) | | |
| | | Resistive | 24 to 415 AC 250V DC | 16 1.2 | | |
| | | Nonresistive | 24 to 415 AC 250V DC | 16 1.0 # | | |
| # L/R = 15 ms with 2NO or 2NC contacts in series | | | | | | |

OVERALL DIMENSIONS

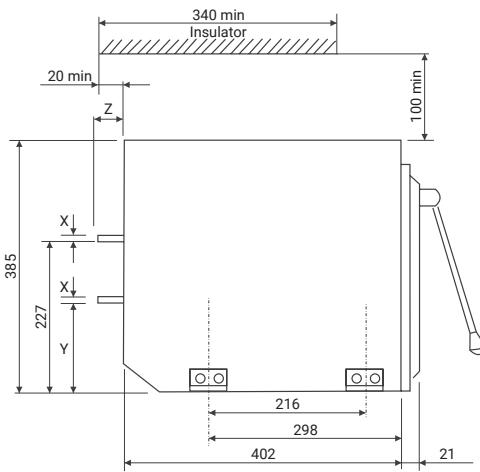
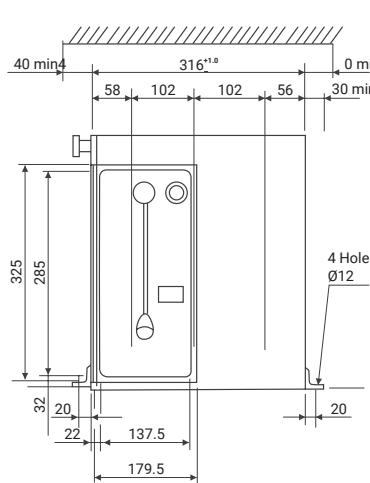
Fixed Breakers

For 800A to 2500A 3P/4P C/H & 400A to 1600A 3P/4P S1



| Ratings CN - CS | | | Dimensions (mm) | | | |
|-----------------|-----|----|-----------------|-----|--|--|
| | A | D | E | F | | |
| 400/630A | 326 | 57 | 102 | - | | |
| 800/1000A | 414 | 56 | 98 | 98 | | |
| 1250/1600A | 482 | 83 | 154 | - | | |
| 2000/2500A | 628 | 82 | 150 | 156 | | |

For CN-CS...E 400A-2000A 3P

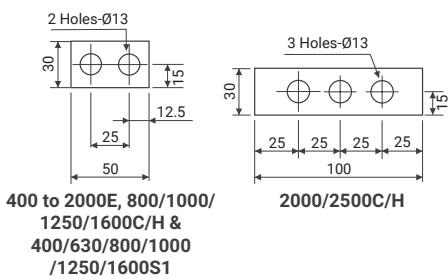


| Rating Type | X | Y | Z |
|-------------|----|-----|------|
| 400E -1250E | 5 | 150 | 35.5 |
| 1600E | 10 | 145 | 23.5 |
| 2000E | 15 | 140 | 23.5 |

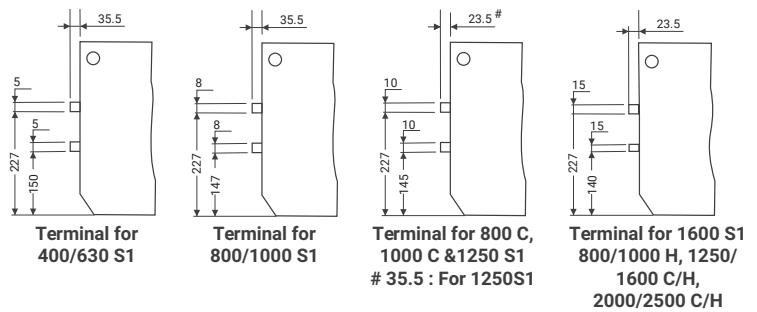
Note: All Dimensions are in mm.

Fixed Breakers

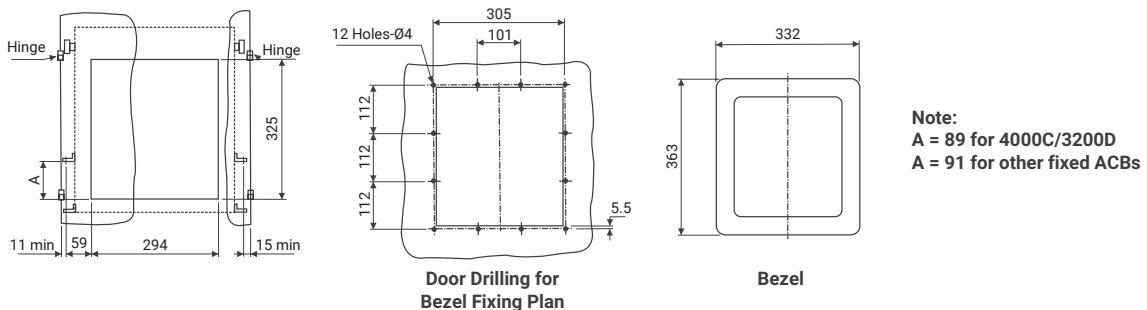
Terminal



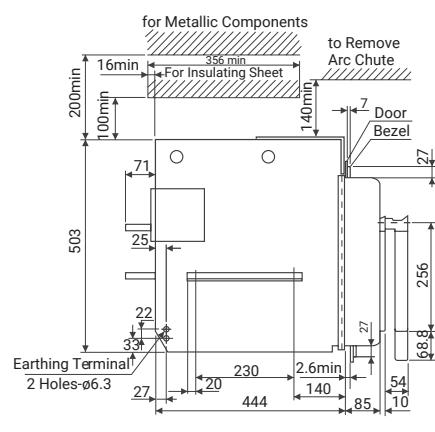
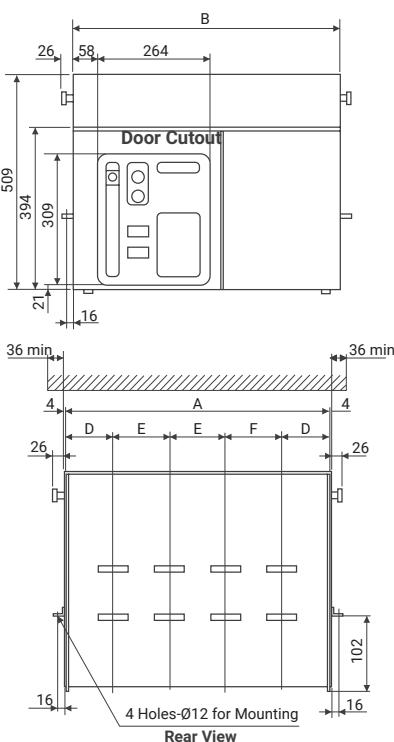
Terminal Connections



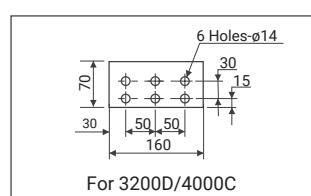
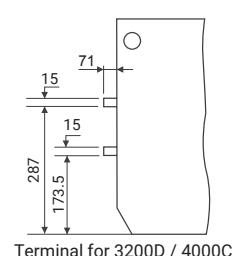
Bezel Fixing Plan for all Fixed Breakers



For 3200D/4000C 3P/4P



Terminal Connections

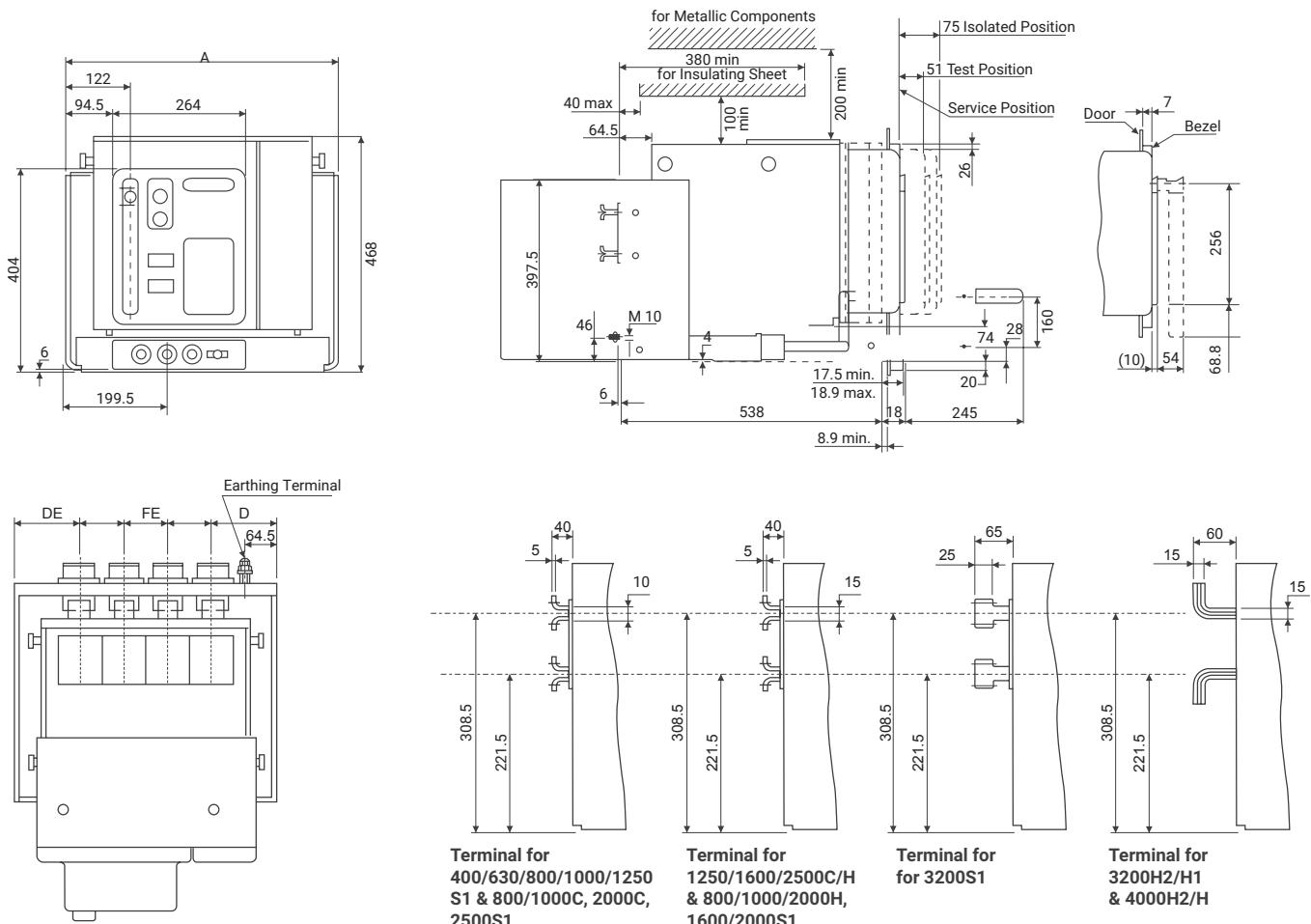


| Rating CN-CS | Dimensions (mm) | | | | |
|------------------|-----------------|-----|-----|-----|-----|
| | A | B | C | E | F |
| 3200D/4000A C 3P | 628 | 636 | 112 | 202 | - |
| 3200D/4000A C 4P | 830 | 838 | 112 | 202 | 202 |

Note: All Dimensions are in mm.

Drawout Breakers

For 800A to 2500A C/H, 3200A H2/H1, 4000A H2/H, 400A to 3200A S1 3P/4P

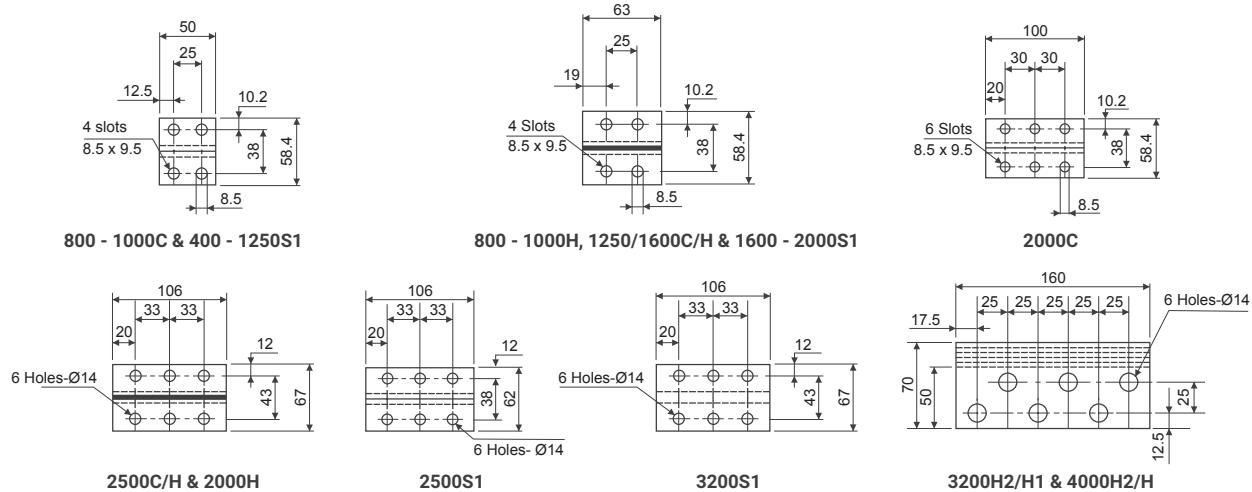


| Ratings CN - CS | | | Dimensions (mm) | | | |
|-------------------|--------|----|-----------------|-------|-----|-----|
| | | | A | D | E | F |
| 400/630/800/1000A | C/H/S1 | 3P | 399 | 97.5 | 102 | - |
| 2000A | S1 | 3P | | | | |
| 1250/1600A | C/H/S1 | 3P | | | | |
| 400/630/800/1000A | C/H/S1 | 4P | 487 | 96.5 | 98 | 98 |
| 2000A | S1 | 4P | | | | |
| 1250/1600A | C/H/S1 | 4P | | | | |
| 2000/2500A | C/H | 3P | 555 | 123.5 | 154 | - |
| 2500/3200A | S1 | 3P | | | | |
| 2000/2500A | C/H | 4P | | | | |
| 2500/3200A | S1 | 4P | 701 | 122.5 | 150 | 156 |
| 3200A | H2/H1 | 3P | | | | |
| 4000A | H2/H | 3P | | | | |
| 3200A | H2/H1 | 4P | 909 | 148.5 | 202 | - |
| 4000A | H2/H | 4P | | | | |

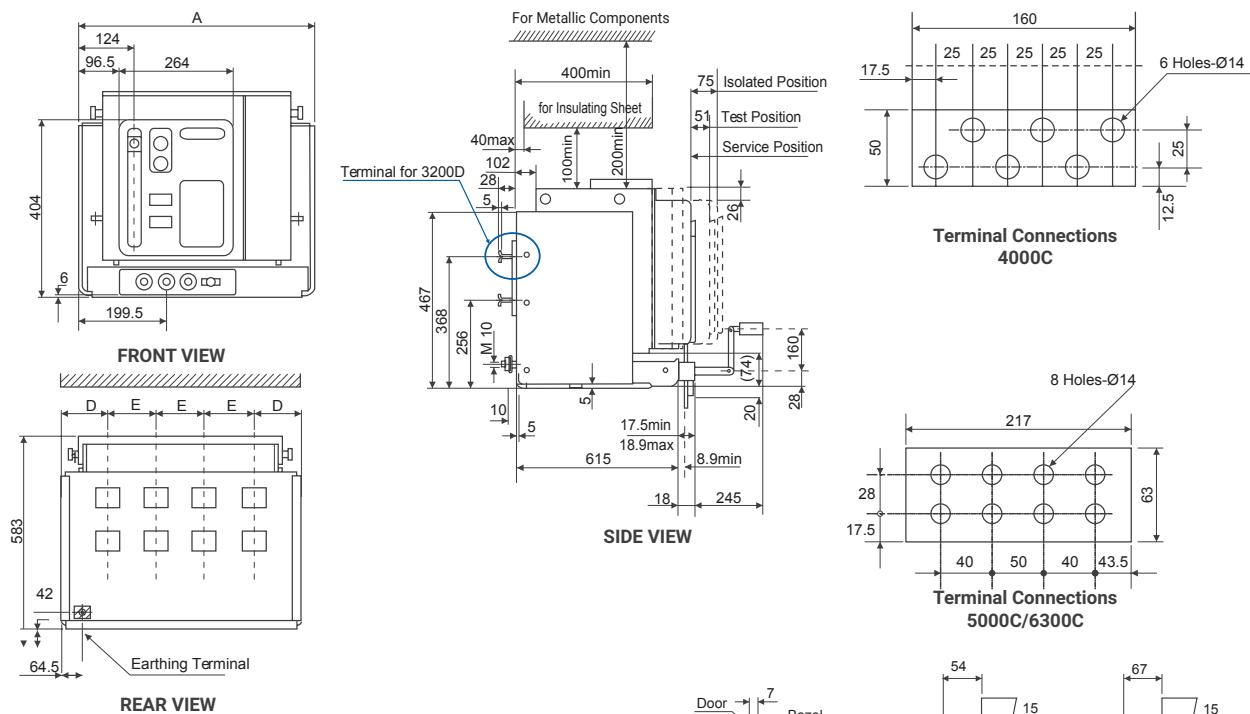
Note: All Dimensions are in mm.

Drawout Breakers

Flat Terminal Connections



For 3200D/4000/5000/6300C 3P/4P



| Rating CN-CS | | Dimensions (mm) | | |
|--------------|----|-----------------|-------|-----|
| | | A | D | E |
| 3200D/4000C | 3P | 711 | 155.5 | 200 |
| 3200D/4000C | 4P | 913 | 156.5 | 200 |
| 5000A/6300A | 3P | 913 | 187.5 | 269 |
| 5000A/6300A | 4P | 1182 | 187.5 | 269 |

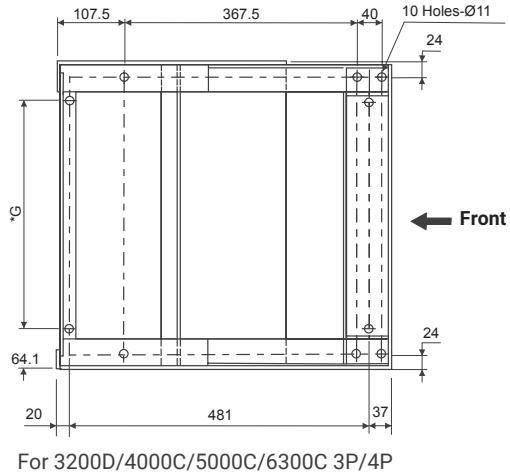
Note: All Dimensions are in mm.

Overall Dimensions

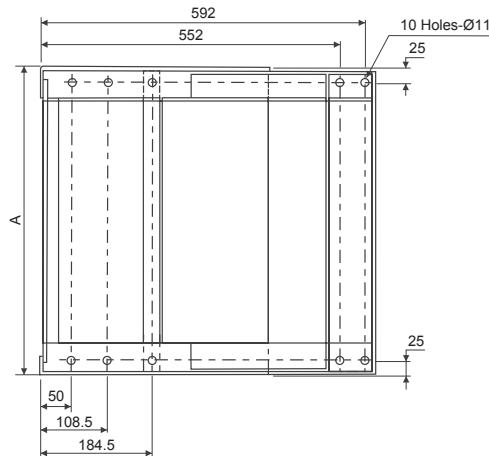
Mounting Details

For Horizontal Mounting of all Draw-out Breakers

For 400A to 3200A C/H/ S1 3P/4P 3200 H2/H1, 4000 H2/H 3P/4P

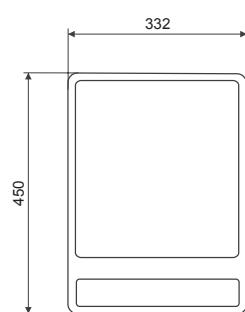
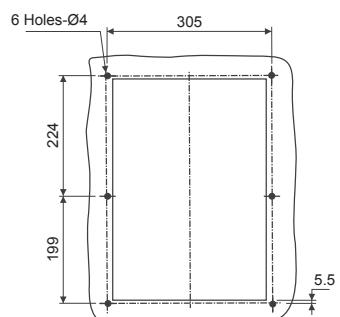
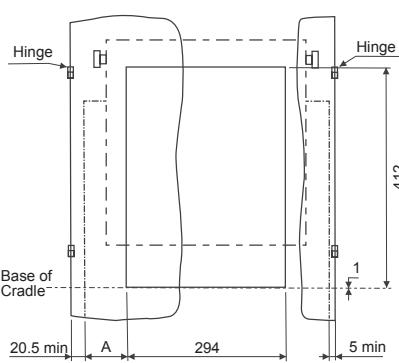


| Ratings | Type | G (mm) | |
|--------------|------|---------|-------|
| 800A - 1600A | 3P | C/H | 280.3 |
| 400A - 2000A | 3P | S1 | 280.3 |
| 800A - 1600A | 4P | C/H | 368.3 |
| 400A - 2000A | 4P | S1 | 368.3 |
| 2000 / 2500A | 3P | C/H | 436.3 |
| 2000 / 2500A | 4P | C/H | 582.3 |
| 2500 / 3200A | 3P | S1 | 436.3 |
| 2500 / 3200A | 4P | S1 | 582.3 |
| 3200A | 3P | H2 / H1 | 582.3 |
| 3200A | 4P | H2 / H1 | 790.3 |
| 4000A | 3P | H2 / H | 582.3 |
| 4000A | 4P | H2 / H | 790.3 |



| Ratings CN-CS | Dimensions |
|---------------|------------|
| | A |
| 3200D/4000C | 711 |
| 3200D/4000C | 913 |
| 5000C/6300C | 913 |
| 5000C/6300C | 1182 |

Bezel Fixing Plan for all Draw-out Breakers

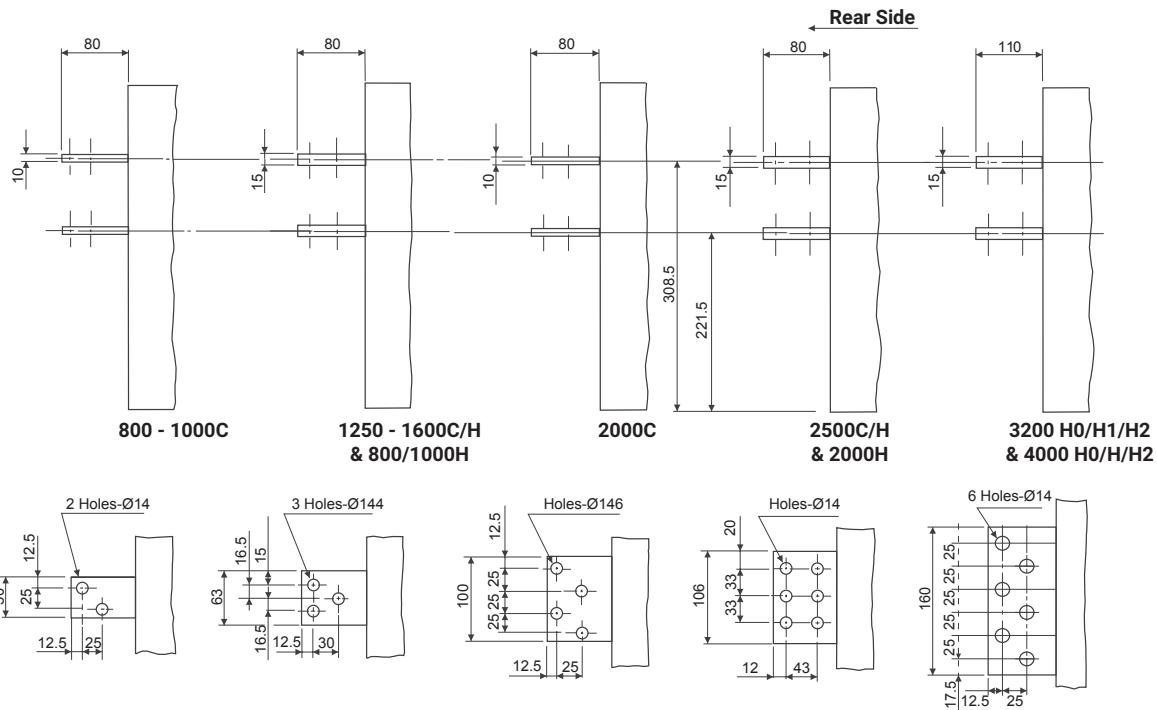


Note: All Dimensions are in mm.

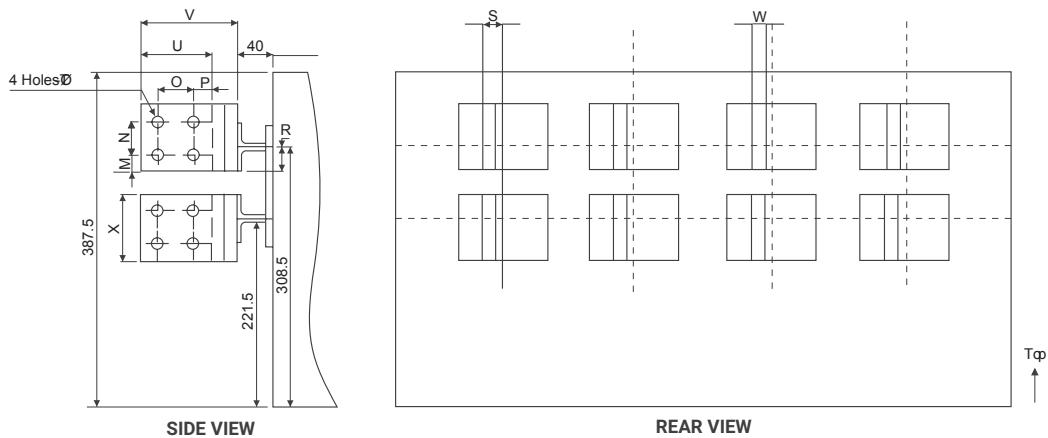
Note: For 3200A D 3P/4P, 4000A C 3P/4P, 5000C/6300C 3P/4P ACB, A=81.5
For other Drawout Breakers A=79.5

Terminals

Horizontal Terminals



Vertical Terminals

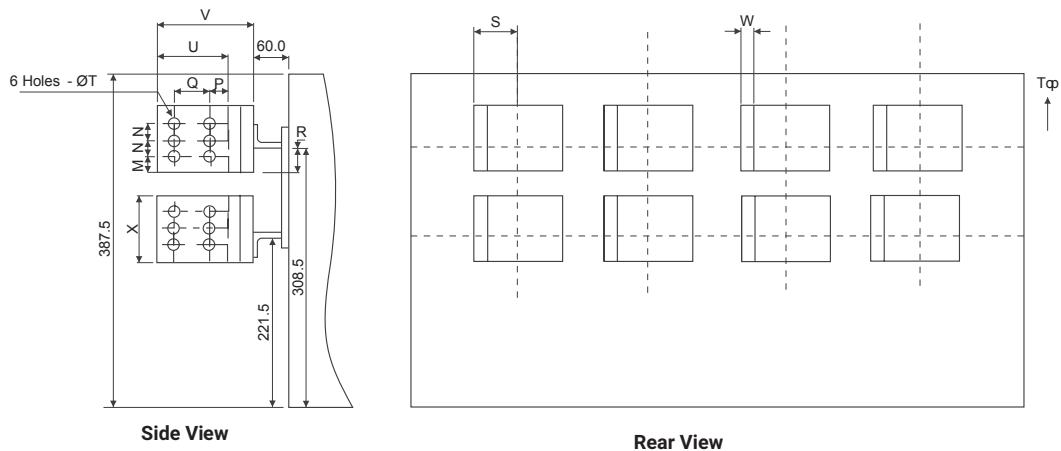


| Ratings | M | N | P | Q | R | S | T | U | V | W | X |
|------------------------------|------|----|----|----|------|------|----|----|-----|----|------|
| 400-1250 S1 & 800-1000 C | 10.2 | 38 | 20 | 25 | 29.2 | 5 | 9 | 65 | 95 | 10 | 58.4 |
| 1600-2000 S1 & 1250-1600 C/H | 20 | 40 | 20 | 25 | 29.2 | 5 | 9 | 65 | 95 | 10 | 80 |
| 800-1000 H | | | | | | | | | | | |
| 2000 C | 20 | 40 | 20 | 40 | 29.2 | 22.5 | 14 | 80 | 110 | 15 | 80 |
| 2500 S1/ C/H | 20 | 40 | 20 | 40 | 33.5 | 7.5 | 14 | 80 | 110 | 15 | 80 |
| 2000 H | | | | | | | | | | | |
| 3200 S1 | 30 | 60 | 20 | 40 | 33.5 | 7.5 | 14 | 80 | 110 | 15 | 120 |

Note: 1) All Dimensions are in mm. 2) Consult us for other Terminal Orientations.

Terminals

Vertical Terminals 3200 H2/H1, 4000 H2/H



The dimensions for 3200 H2/H1 and 4000 H2/H are as under:

| Ratings | M | N | P | Q | R | S | T | U | V | W | X |
|------------------------|----|----|----|----|------|----|----|-----|-----|----|-----|
| 3200 H2/H1, 4000A H2/H | 30 | 50 | 45 | 40 | 22.5 | 95 | 14 | 105 | 135 | 15 | 160 |