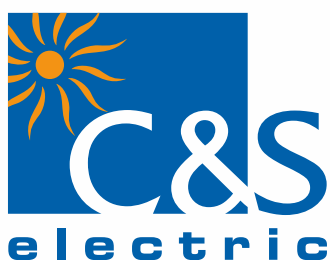


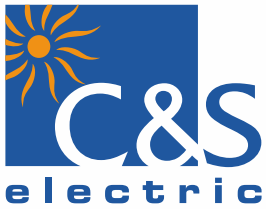
We touch
your **electricity**
everyday!



RoHS
Compliant



D Range Contactors



C&S Electric Ltd. is a leading manufacturer of electrical and electronic equipment in India. It is one of India's largest exporters of industrial switchgear & power busbar products. C&S Electric products are used in applications ranging from power generation, transmission and distribution, protection and final consumption.

C&S Electric has the following product verticals:

- LV Switchgear
- LV Switchboards
- Power Busbars
- Protection and Measurement Devices

MANUFACTURING FACILITIES



C&S Controlgear Plant at Noida



C&S Switchgear Plant at Noida



World-Class Manufacturing Plants at SIDCUL, Haridwar

MARKET LEADER

C&S is one of the leading supplier in the LV Switchgear business segment and a market leader in the busbar business with more than 50% share in Indian market.

11 MANUFACTURING PLANTS

C&S Electric have 11 state-of-the-art manufacturing facilities in Noida, Haridwar & Guwahati, which are equipped with latest tools and systems to ensure highest level of quality and services.

600+ STOCKISTS

A dedicated network of channel partners, ensuring access to the farthest corners of India, with an obsession for customer services. In addition C&S products are available in 8000+ retail counters nationally.

EXPORTS TO OVER 85 COUNTRIES

C&S exports the entire range of products across all 7 continents, thus reaffirming its position as one of India's largest exporters of industrial electrical products.

5000+ WORKFORCE

5000+ Workforce including over 371 engineers, dedicated sales team of 424 people & millions of satisfied customers.

R&D

4 Govt. approved labs/centres, over 20,000 sqft. space dedicated to R&D, 70 R&D engineers, state of the art testing & design facilities ... & most of the all a passion for innovation & excellence.

We touch your electricity everyday!

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| Technical Information & Dimensional Details | 06-07 |
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| - Relay Selection | |
| - Tripping Curve | |
| - Dimensional Details | |

Features

D Range 3 Pole Contactor are modular design with embedded auxiliary contacts providing common accessories:

- Front mounted add-on blocks
- Pneumatic timer
- Latch block

D Range Contactor are available as Control Relay in 3 contact configuration; Power Contactor rating 9A ~ 80A conforming to IS 13947-4-1 and IEC 60947-4-1, accredited with Global Certification & 3 decades trusted and proven performance.

D Range Contactor are manufactured in our state-of-the art fully integrated ISO 9001 certified manufacturing facility possessing comprehensive infrastructure inclusive of Research & Development, tooling, component manufacturing, assembly & testing to ensure World Class Product.

Benefits

- Modular design for flexibility in cost effective solutions
- Saves inventory cost - Common Add-on Accessories
- High Mechanical & Electrical life
- Short Circuit Protection, Type -1 & 2 Co-ordination

Industrial Applications

- Motor Controls
- Pumps
- Machine Tools
- Printing & Packaging Machines
- Compressors
- Power Supply Solutions
- HVAC
- Cranes
- Elevator & Escalators
- Wind Mills
- Solar System



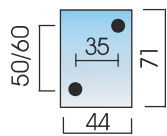
D-Range Control Relays



Technical Information

| | | | |
|---|------------------|-------|--|
| Type | | | CA2-DN |
| Rated Operational Voltage (Ue) | V | | 660 |
| Rated Thermal Current (Ith) ≤40°C | A | | 10 |
| Rated Operational Current / Power (Ie) ≤55°C | A | | AC 15 Duty as per IEC 60947 |
| Rated making capacity at 415V | A | | AC 15 Duty as per IEC 60947 |
| Rated breaking capacity at 415V | A | | AC 15 Duty as per IEC 60947 |
| Power rating for motor control AC 3 duty | 220V | kW/HP | - |
| | 415V | kW/HP | - |
| | 500V | kW/HP | - |
| | 660V | kW/HP | - |
| Coil Rating | Supply Frequency | Hz | 50/60 |
| (Cold Coil) 1.0 x U AC operation 50Hz | In-rush | VA | 70 |
| | p.f. | | 0.75 |
| | Sealed | VA | 8 |
| | p.f. | | 0.3 |
| Overall Dimension | mm | | |
| Auxiliary Contact thermal current rating (Ith) | VA | | 10 |
| Rated operational power at AC 15 up to (One million operations) | 125V | VA | 500 |
| | 220V | VA | 500 |
| | 415V | VA | 500 |
| Auxiliary contact terminal capacity | mm ² | | Min. 1 cable of 1mm ² and Max. 2 cable of 2.5 mm ² |
| Rated Insulation Voltage (Ui) | V | | 660 |
| Rated impulse withstand voltage (Uimp) | kV | | 8 |
| Ambient Air Temperature | Storage | °C | -60 ~ +80 |
| | Operation | °C | -50 ~ +70 |
| Operating Altitude | meters | | 3000 |
| Operating Position | | | ±30° possible in relation to normal vertical mounting plane |
| Mechanical Life (million operation on no-load) | Cycles | | 20 |

Technical Information

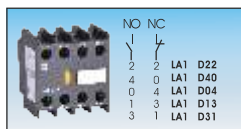
| Type | 3 Pole | AC | LC1-D09 | LC1-D12 | |
|--|---------------------|-----------------|---|-----------|--|
| Rated Operational Voltage | (Ue) | V | 660 | 660 | |
| Rated Thermal Current | (Ith)≤40°C | A | 25 | 25 | |
| Rated Operational Current / Power | (Ie) | A/kW | 9/4 | 12/5.5 | |
| 3 Phase, 415/440V, 50-60Hz, AC 3 duty | ≤55°C | | | | |
| Rated making capacity at 415V | | A | 250 | 250 | |
| Rated breaking capacity at 415V | | A | 250 | 250 | |
| Power rating for motor control | 220V | kW/HP | 2.2/3 | 3/4 | |
| AC 3 duty | 4150V | kW/HP | 4/5.5 | 5.5/7.5 | |
| | 500V | kW/HP | 5.5/7.5 | 7.5/10 | |
| | 660V | kW/HP | 5.5/7.5 | 7.5/10 | |
| Coil Rating | Supply Frequency | Hz | 50/60 | 50/60 | |
| (Cold Coil) 1.0 x U | In-rush | VA | 70 | 70 | |
| AC operation 50Hz | p.f. | | 0.75 | 0.75 | |
| | Sealed | VA | 8 | 8 | |
| | p.f. | | 0.3 | 0.3 | |
| Overall Dimension | | mm |  | | |
| Mechanical Interlock | Horizontal Mounting | | | | |
| Auxiliary Contact thermal current rating | (Ith) | VA | 10 | 10 | |
| Rated operational power at AC 15 up to | 125V | VA | 500 | 500 | |
| (One million operations) | 220V | VA | 500 | 500 | |
| | 415V | VA | 500 | 500 | |
| Auxiliary contact terminal capacity | | mm ² | | | |
| Rated Insulation Voltage | (Ui) | V | 660 | 660 | |
| Rated impulse withstand voltage | (Uimp) | kV | 8 | 8 | |
| Ambient Air Temperature | Storage | °C | -60 ~ +80 | -60 ~ +80 | |
| | Operation | °C | -50 ~ +70 | -50 ~ +70 | |
| Operating Altitude | | meters | 3000 | 3000 | |
| Operating Position | | | | | |
| Mechanical Life (million operation on no-load) | Cycles | | 20 | 20 | |

Front mounted Add-on Blocks

Auxiliary Contact Blocks

Time Delay Relay Blocks

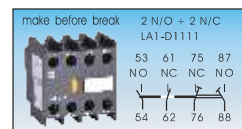
Latch Add-on Blocks



Auxiliary
Contact Block



Auxiliary
Contact Block

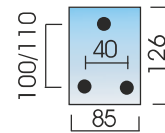
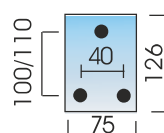
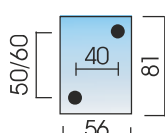
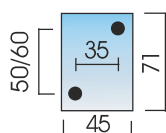


Overlapping Auxiliary
Contact Block

D-Range Contactor



| | LC1-D17 | LC1-D25 | LC1-D32 | LC1-D40 | LC1-D50 | LC1-D63 | LC1-D80 |
|--|---------|---------|---------|---------|---------|---------|---------|
| | 660 | 660 | 660 | 660 | 660 | 660 | 660 |
| | 32 | 40 | 50 | 60 | 80 | 80 | 125 |
| | 17/9 | 25/11 | 32/15 | 40/22 | 50/25 | 63/37 | 80/45 |
| | 320 | 450 | 550 | 800 | 900 | 1000 | 1100 |
| | 320 | 450 | 550 | 800 | 900 | 1000 | 1100 |
| | 4/5.5 | 5.5/7.5 | 7.5/10 | 11/15 | 15/20 | 18.5/25 | 22/30 |
| | 9/12 | 11/15 | 15/20 | 22/30 | 25/35 | 37/50 | 45/60 |
| | 10/13 | 15/20 | 18.5/25 | 22/30 | 30/40 | 37/50 | 55/75 |
| | 10/10 | 15/20 | 18.5/25 | 30/40 | 33/45 | 37/50 | 45/60 |
| | 50/60 | 50/60 | 50/60 | 50/60 | 50/60 | 50/60 | 50/60 |
| | 70 | 110 | 110 | 200 | 200 | 200 | 200 |
| | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 |
| | 8 | 11 | 11 | 20 | 20 | 20 | 20 |
| | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 |



Available

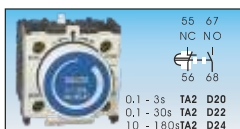
| | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|
| | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| | 500 | 500 | 500 | 500 | 500 | 500 | 500 |
| | 500 | 500 | 500 | 500 | 500 | 500 | 500 |
| | 500 | 500 | 500 | 500 | 500 | 500 | 500 |

Min. 1 cable of 1mm² and Max. 2 cable of 2.5 mm²

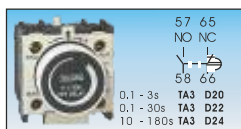
| | | | | | | | |
|--|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| | 660 | 660 | 660 | 660 | 660 | 660 | 660 |
| | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| | -60 ~ +80 | -60 ~ +80 | -60 ~ +80 | -60 ~ +80 | -60 ~ +80 | -60 ~ +80 | -60 ~ +80 |
| | -50 ~ +70 | -50 ~ +70 | -50 ~ +70 | -50 ~ +70 | -50 ~ +70 | -50 ~ +70 | -50 ~ +70 |
| | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 |

±30° possible in relation to normal vertical mounting plane

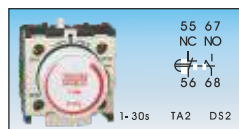
| | | | | | | | |
|--|----|----|----|----|----|----|----|
| | 16 | 16 | 16 | 16 | 16 | 16 | 10 |
|--|----|----|----|----|----|----|----|



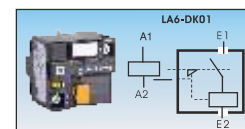
ONDelay
Timer Block



Off Delay
Timer Block



On Delay Timer Block with switching
time of 40ms+15ms between opening
of N/C contact to closing of N/O
contact (front mounted)



Latch Add-on Block
(Front mounted use up to
32A)

Overload Relays

LR1-D type Overload are triple pole adjustable with built-in single phasing protection. These relays provide accurate & reliable protection against overloads, unbalanced voltages field, manual reset type, single phasing as per "Class 10" in conformity to IEC 60947-4-1 & IS 13947-4-1. They are available in 22 relay ranges from 0.1A ~ 80A. It must be provided with recommended back up fuses for short circuit protection for Type 2 co-ordination requirements.

Salient Features

- Overload Relays are designed to give protection only against overloads. These can withstand currents up to 10 times the maximum setting of the range.
- Overload Relays are ambient temperature compensated. Relay can be utilised from -40°C to +60°C.
- D-Range Relays can not be reset manually immediately after tripping (hot condition) thus ensuring that the motor cannot be restarted inadvertently without investigating the cause of the overloading
- A unique feature in Relays is the provision of a flag indication - you can get a positive indication when the motor stoppage is due to relay tripping
- D-Range Relays are provided with two independent electrically insulated from each other control contacts 1NO and 1NC. These can be used at different voltages for more sophisticated control schemes. Control contacts have a thermal capacity of 10A.
- D-Range Relays up to 80A are suitable for direct mounting on contactors thus reducing the labour cost for wiring. However, if you wish to mount these relays separately, special kits are provided for independent mounting.
- D-Range Relays up to 80A can also be used DC circuits. Relays up to 80A have an insulation level of 660V.

Selection Chart for Type LR 1 D

| Relay Reference | Relay Setting Range (A) | Standard Power Rating of 3 Phase Motors 50/60Hz, AC3 | | | | | Back-up Fuse Rating g1 (A) |
|-----------------|-------------------------|--|---------|---------|---------|---------|----------------------------|
| | | 220V kW | 380V kW | 415V kW | 440V kW | 660V kW | |
| LR1-D09301 | 0.10 ~ 0.16 | * | * | * | * | * | 2 |
| LR1-D09302 | 0.16 ~ 0.25 | * | * | * | * | * | 2 |
| LR1-D09303 | 0.25 ~ 0.40 | * | * | * | * | * | 2 |
| LR1-D09304 | 0.40 ~ 0.63 | * | * | * | * | 0.37 | 2 |
| LR1-D09305 | 0.63 ~ 1.00 | * | * | * | * | 0.55 | 4 |
| LR1-D09306 | 1.00 ~ 1.60 | * | 0.37 | * | 0.55 | 1.10 | 4 |
| LR1-D09307 | 1.60 ~ 2.50 | 0.37 | 0.75 | 1.10 | 1.10 | 1.50 | 6 |
| LR1-D09308 | 2.50 ~ 4.00 | 0.75 | 1.50 | 1.50 | 1.50 | 3.00 | 10 |
| LR1-D09310 | 4.00 ~ 6.00 | 1.10 | 2.20 | 2.20 | 2.20 | 4.00 | 16 |
| LR1-D09312 | 5.50 ~ 8.00 | 1.50 | 3.00 | 3.70 | 3.70 | 5.50 | 20 |
| LR1-D09314 | 7.00 ~ 10.00 | 2.20 | 4.00 | 4.00 | 4.00 | 7.50 | 20 |
| LR1-D12316 | 10.00 ~ 13.00 | 3.00 | 5.50 | 5.50 | 5.50 | 10.00 | 25 |
| LR1-D16321 | 13.00 ~ 18.06 | 4.00 | 7.50 | 9.00 | 9.00 | 15.00 | 32 |
| LR1-D25322 | 18.00 ~ 25.00 | 5.50 | 11.00 | 11.00 | 11.00 | 18.50 | 50 |
| LR1-D32353 | 23.00 ~ 32.00 | 7.50 | 15.00 | 15.00 | 15.00 | - | 63 |
| LR1-D32355 | 28.00 ~ 40.00 | - | 15.00 | 15.00 | - | - | 80 |
| LR1-D40353 | 23.00 ~ 32.00 | 7.50 | 15.00 | 15.00 | 15.00 | 22.00 | 63 |
| LR1-D40355 | 30.00 ~ 40.00 | 10.00 | 18.50 | 22.00 | 22.00 | 30.00 | 80 |
| LR1-D63357 | 38.00 ~ 50.00 | 11.00 | 22.00 | 25.00 | 25.00 | 37.00 | 100 |
| LR1-D63359 | 48.00 ~ 57.00 | 15.00 | 25.00 | 30.00 | 30.00 | - | 100 |
| LR1-D63361 | 57.00 ~ 66.00 | 18.50 | 30.00 | 37.00 | 37.00 | - | 100 |
| LR1-D80363 | 63.00 ~ 80.00 | 22.00 | 33.00 | 40.00 | 40.00 | 59.00 | 125 |

NOTE:

- 1 Select and set the Overload Relay according to the current value on the motor Overload manufacturer's rating plate.
- 2 "*" There is not standard power rating for these motors; select the Relay according to current drawn.
- 3 Terminals protected against direct Finger Contact and Relay-to-Wire terminals. To order replace "A60" in the codes mentioned above by "65".
- 4 (1) - For Direct Mounting on the Contactor. (2) - For Independent Mounting of the Contactor.
- 5 Adopter plate is required to mount Overload relay with LC1D80.

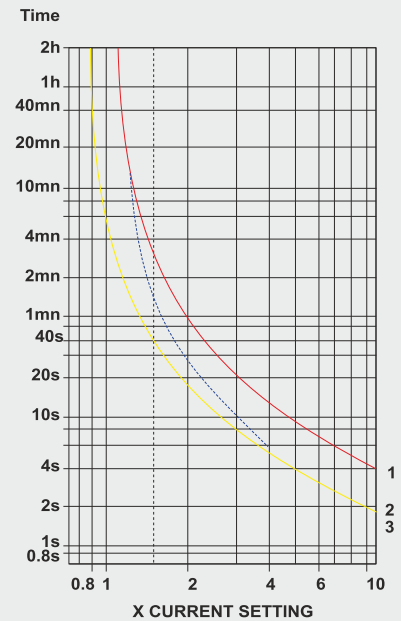
Tripping Curve - Overload Relays

LR 1 - D09 ~ D80



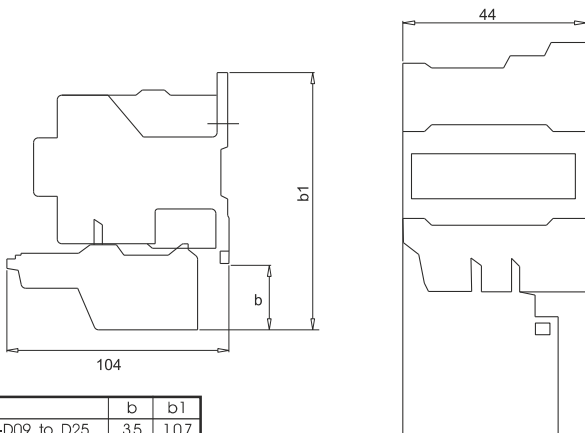
1. Balanced operation 3 phase, from cold state.
2. Balanced operation 3 phase, after a long period at the set current (hot state).
3. Operation following the loss of one phase (single phase tripping) from cold state.

LR1-D09 to D80



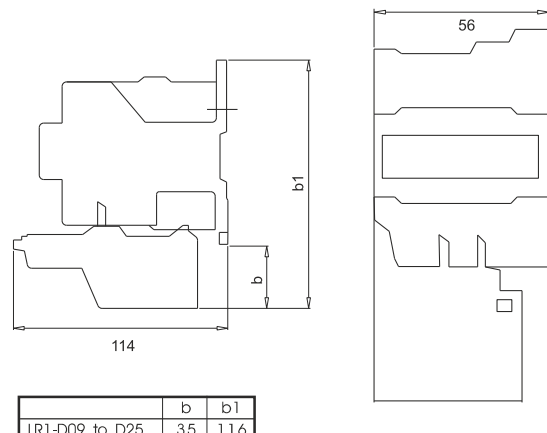
Dimensional Details - Overload Relays

LR D09 ~ D32 mounted directly on LC1-D09 ~ D17



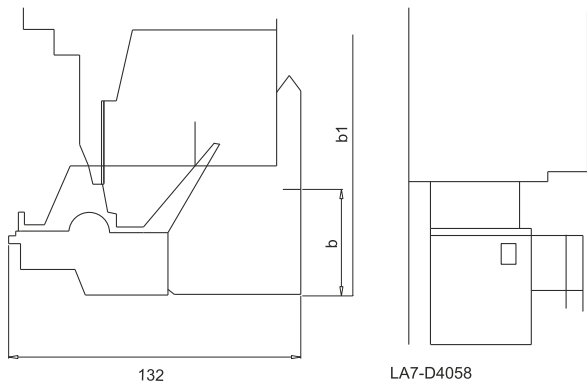
| | b | b1 |
|----------------|----|-----|
| LR1-D09 to D25 | 35 | 107 |
| LR1-D32 | 38 | 110 |

Mounted directly on LC1-D25 and D32



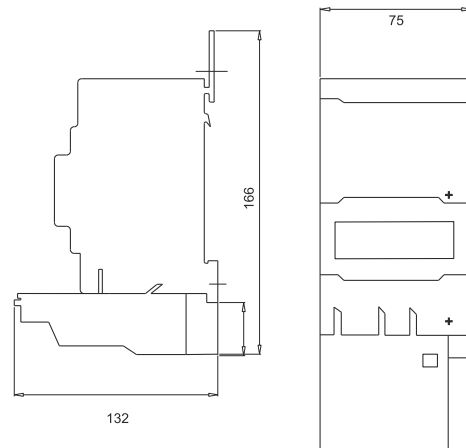
| | b | b1 |
|----------------|----|-----|
| LR1-D09 to D25 | 35 | 116 |
| LR1-D32 | 38 | 119 |

LR D09 ~ D32 mounted directly on LC1-D40, D50 & D63



| | b | b1 |
|----------------|----|-----|
| LR1-D09 to D25 | 53 | 179 |
| LR1-D32 | 56 | 182 |

LR1 D40 to D60 Contactors LC1-D40, D50, D63



All Dimensions are in mm

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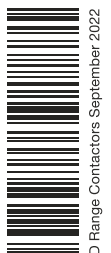
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D Range Contactors September 2022