



Low Voltage Distribution Board



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INDKOM Engineering Sdn Bhd
An ISO 9001 company



ILV Distribution Board

Application

The ILV Distribution Board from INDKOM Engineering is designed specially for continuous operation on a 415V 3-phase 4-wire 50Hz system. These factory-assembled fuse boards and cabinets usually have one or two incoming supplies and multiple outgoing channels. Overall they are a vital link to any utility's low voltage distribution network.

INDKOM Engineering produces three types of the ILV Distribution Boards: the difference being the incoming/outgoing type; whether it is a J-slotted fuse carrier (complying to BS Standards), NH fuse-system switch type (to DIN Standards) or simply an MCCB-type.

Constructed to suit the tropical and hot climates with ambient temperature up to 50°C, the ILV units are able to withstand heavy rainfall and 100% relative humidity. However, different sizes and configurations can be designed to meet with customers' requirements.

Constituent Elements

The ILV Distribution Board is manufactured using epoxy polyester powder coated mild steel of 3mm thickness for the frame and 2mm thickness for the enclosure. The doors are lockable hinged-type, with a 180° opening for maximum access. The ILV units are also equipped with four tinned copper for the phases and neutral busbars; the sizes depend on the rating. Both the phases and neutral busbars are differentiated with standard phase colour mode, i.e. red, yellow, blue and black.

Indoor & Outdoor Usage

The indoor ILV Distribution Board is well suited to be installed inside a building's distribution substation or as a transformer mounted inside a factory-assembled compact distribution substation whilst the outdoor model is usually installed outside the substation building in a public area and supplies commercial, industrial or residential loads.

The incomings and outgoings are either grip-type fuse units (BS) or fuse-switch rails (DIN).

The overall fixtures usually includes the following to hold the incoming and outgoing cables:

- 1) three units of thermal maximum-demand meters
- 2) ring-type CTs
- 3) auxiliary supply circuits
- 4) wooden and steel clamps.



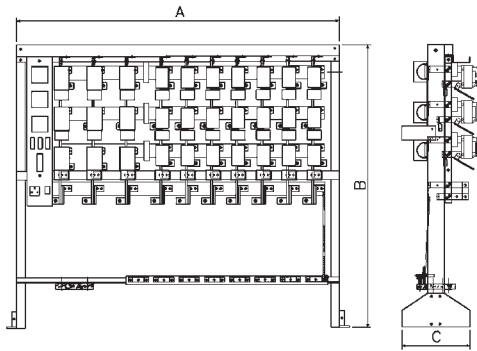
LV Distribution Board indoor BS-type



LV Distribution Board outdoor DIN-type

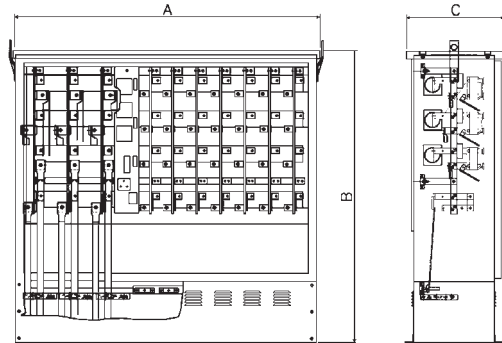


LV Board - indoor BS type



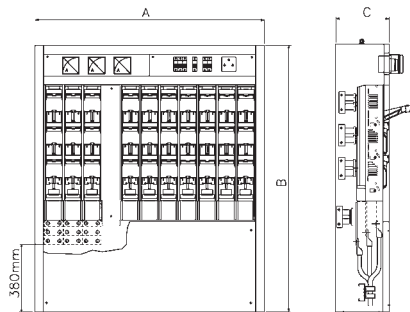
| rating (A) | dimension (mm) | | | incoming | outgoing |
|------------|----------------|------|-----|----------|----------|
| | A | B | C | | |
| 800 | 1343 | 1684 | 400 | 1 x 800A | 4 x 400A |
| 1600 | 1868 | 1684 | 400 | 2 x 800A | 8 x 400A |
| 1600 | 1868 | 1684 | 400 | 3 x 800A | 7 x 400A |

LV Board - outdoor BS type



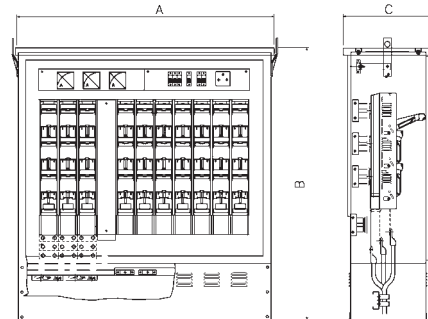
| rating (A) | dimension (mm) | | | incoming | outgoing |
|------------|----------------|------|-----|----------|----------|
| | A | B | C | | |
| 800 | 1343 | 1684 | 400 | 1 x 800A | 4 x 400A |
| 1600 | 1868 | 1684 | 400 | 2 x 800A | 8 x 400A |
| 1600 | 1868 | 1684 | 400 | 3 x 800A | 7 x 400A |

LV Board - indoor DIN type



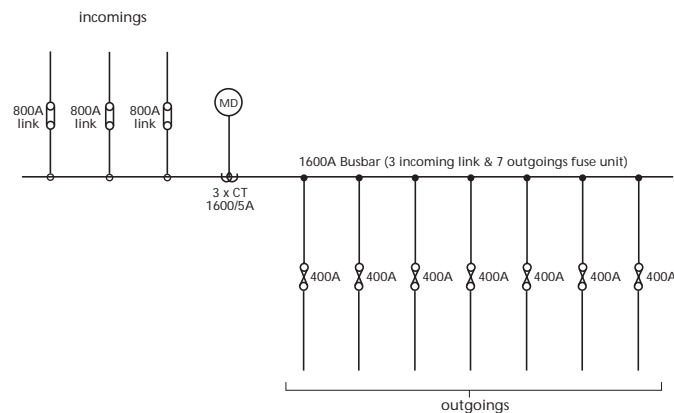
| rating (A) | dimension (mm) | | | incoming | outgoing |
|------------|----------------|------|-----|----------|----------|
| | A | B | C | | |
| 800 | 1343 | 1684 | 400 | 1 x 800A | 4 x 400A |
| 1600 | 1868 | 1684 | 400 | 2 x 800A | 8 x 400A |
| 1600 | 1868 | 1684 | 400 | 3 x 800A | 7 x 400A |

LV Board - outdoor DIN type



| rating (A) | dimension (mm) | | | incoming | outgoing |
|------------|----------------|------|-----|----------|----------|
| | A | B | C | | |
| 800 | 1343 | 1684 | 400 | 1 x 800A | 4 x 400A |
| 1600 | 1868 | 1684 | 400 | 2 x 800A | 8 x 400A |
| 1600 | 1868 | 1684 | 400 | 3 x 800A | 7 x 400A |

Single Line Diagram



LV Distribution Board MCCB-type

The Indkom LV Distribution Board MCCB- type for outdoor usage is a combination of fuse switch rails for incomings and MCCB for outgoing, or totally MCCB (for incomings and outgoing).

This type of distribution board is considered compact in size when comparing with other fuse board with the same number of outgoing and ratings.

This model provides the user the possibility of having a higher current rating for outgoing, a faster supply recovery after a transient trip and better power management as the MCCB can be motorized and remote controlled. Cable clamps are also provided.

Outdoor Mini LV Distribution Board

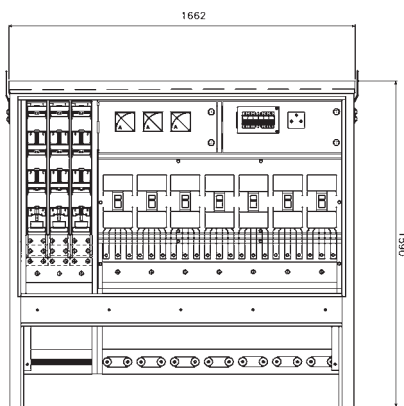
The Indkom Mini LV Distribution Board is suitable for usage in commercial and residential areas as the LV supply required is considered small loads. Providing safety and flexibility to users as the live parts are totally covered, this compact-sized model does not also take up much space and require minimal time for installation.

The incoming conductor, taken from the main distribution

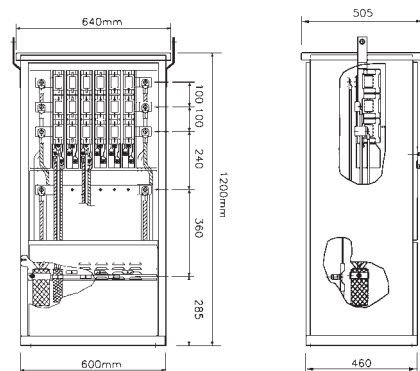
board is connected directly to the mini's busbar while the outgoing are fully-shrouded DIN-type fuse switch rails. Equipped with metal clamps, the mini allows bottom entry for cables up to 120mm².



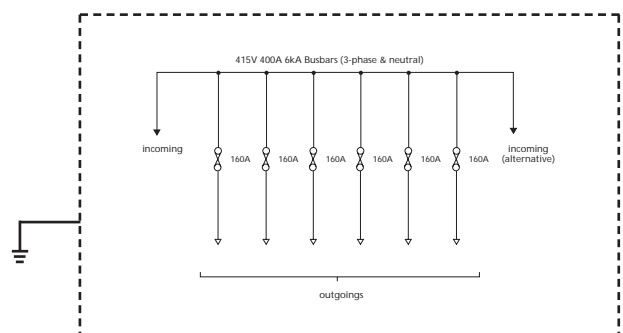
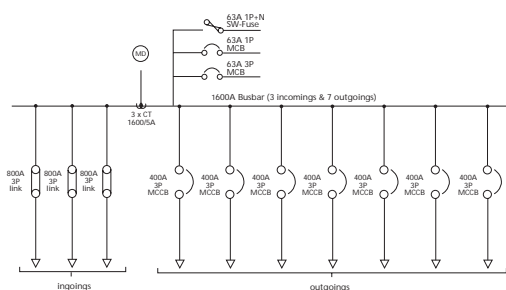
LV Distribution Board MCCB-type



Mini LV Distribution Board



Single Line Diagrams





| | | |
|---|------------------------------------|---|
| Indoor & Outdoor LV Distribution Board | Material type | mild steel |
| | Thickness (mm) | 3mm (frame) |
| | | 2mm (enclosure) for Outdoor Feeder Pillar |
| | Busbar current (A) | 800A, 1600A |
| | Rated voltage (V) | 415V |
| | Frequency (Hz) | 50Hz |
| | Incoming | 1 x 800A, 2 x 800A, 3 x 800A BS or DIN type fuse switch |
| | Outgoing | 6 x 400A, 8 x 400A, 7 x 400A BS or DIN type fuse switch |
| | Short time withstand current (rms) | 31.5kA for 3 sec |
| | Protection degree | IP2x for Indoor LV Board |
| IP54 for Outdoor Feeder Pillar | | |
| Mini LV Distribution Board | Material type | mild steel |
| | Thickness (mm) | 3mm (frame & enclosure) |
| | Busbar current (A) | 400A |
| | Rated voltage (V) | 415V |
| | Frequency (Hz) | 50Hz |
| | Incoming | 1 x 400A DIN type fuse switch |
| | Outgoing | 6 x 160A DIN type fuse switch |
| | Short time withstand current (rms) | 6kA for 1 sec |
| | Protection degree | IP54 |
| | LV Distribution Board MCCB-type | Material type |
| Thickness (mm) | | 2mm |
| Busbar current (A) | | 1600A |
| Rated voltage (V) | | 415V |
| Frequency (Hz) | | 50Hz |
| Incoming | | 2 x 800A DIN type fuse switch |
| Outgoing | | 8 x 400A MCCB |
| Short time withstand current (rms) | | 25kA for 1 sec |
| Protection degree | | IP54 |

ILV Fuse Switch / Disconnecter & Fuse Rail

Application

Compact and requiring minimal space, the ILV Fuse Switch and Fuse Rail are used in an LV distribution boards' TP&N system as incoming and outgoing units. These switches and rails are designed to be mounted directly onto the main busbar to provide safety and easy operation with a protection degree of IP2x.

Fuse Switch/Disconnecter

All insulated parts of INDKOM's ILV Fuse Switch/Disconnecter are produced from self-extinguishing thermostable plastic and polyester.

The base is made of sheet mould compound (SMC), while the body from bulk mould compound (BMC). The covers and fuse carriers are polycarbonate (PC) material which can accommodate NH2 and NH3 HRC fuse link (size to DIN 43620 standards) or copper links for the disconnecters. They are equipped with arc chutes, which are located above the closing contacts.

The busbars of the fuse switch/disconnector are made from high quality tinned copper, the contacts of silver coated copper and the contacts' springs of stainless steel.

Fuse Rail

INDKOM's ILV Fuse Rail consists of an insulated base, produced from self-extinguishing nylon and glass-filled material. The busbar and the contacts are of silver coated copper while the contacts' springs are of stainless steel. The termination is from the bottom with cables up to the maximum size of 70mm².

The Fuse Rail contacts are fully concealed to prevent accidental live parts touching; it is also equipped with a removable transparent protective fuse cover, made from polycarbonate (PC) material.

The Fuse Rail is designed to accommodate NH0 HRC fuse links (size to DIN 43620) by using a fuse extractor.

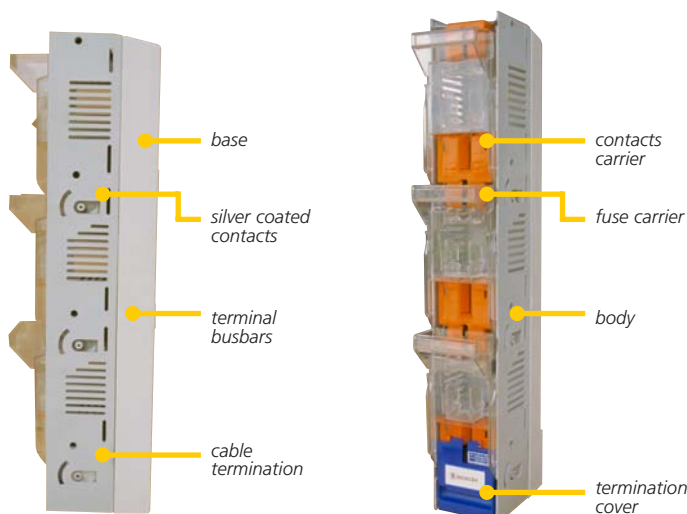
Incoming Link and Outgoing Fuse Switch Rails

The incoming link and outgoing fuse switch rails are 3-pole disconnectors/fuse switches fixed onto the busbar via a low conductor connection. The link/fuse cartridges are removable and their lower section configures the switching components; each pole may switch separately. The fuse cartridge is able to hold fuse of NH system (DIN 43620 standards).

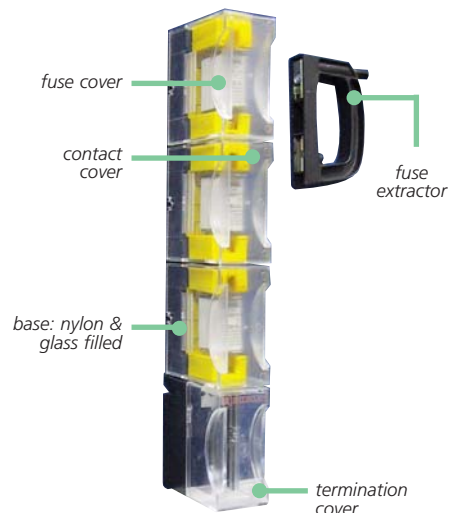
Grip-type Incoming Link and Outgoing Fuse Units

The incoming link and outgoing fuse units have 3 units of grip-type link/fuse carriers, each made of dough moulding compound (DMC) and fitted with insulated thumbscrews. The carriers are designed to provide a hinge action at the bottom contact for circuit closing. Equipped with brass contacts, they are able to hold the J-slotted type HRC fuses (BS88 standards).

Fuse Switch/Disconnecter

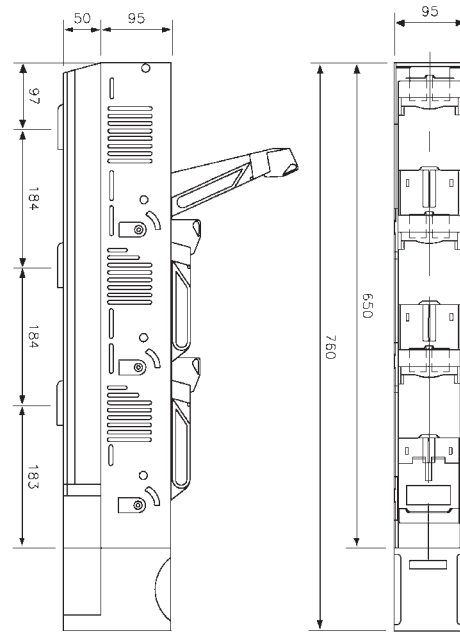


Fuse Rail



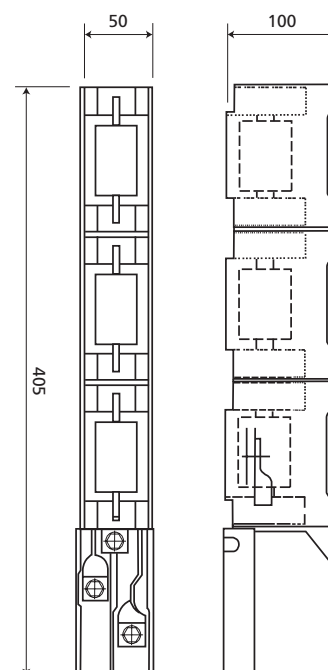
Fuse Switch/Disconnecter

| | |
|------------------------------|--------------|
| Rated insulation voltage (V) | 660 |
| Rated operation voltage (V) | 415 |
| Rated current (A) | 400/800/1000 |
| Short circuit current (kA) | 50 |
| Rated Frequency (Hz) | 50 |
| Protection degree | IP2x |



Fuse Rail

| | |
|------------------------------|------|
| Rated insulation voltage (V) | 660 |
| Rated operation voltage (V) | 415 |
| Rated current (A) | 160 |
| Short circuit current (kA) | 6 |
| Rated Frequency (Hz) | 50 |
| Protection degree | IP2x |



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