



## Horizontal fuse disconnects

Horizontal fuse Disconnects are used in building installations, switchgear and controlgear as well as in power utility networks. The contact system enables safe load break operation using the fuse-links as moving contacts.

The product is safe against finger-touch in closed position and provides a safe and visible isolating distance in open position. Different versions for baseplate mounting, DIN-rail or busbar mounting are available to fit a variety of applications.





### Product definition

Horizontal fuse disconnect according to EN60947-3 are single-pole or multipole NH fuse-bases arranged horizontally and equipped with a common fuse-carrier.

Incoming and outgoing contacts are accessible from outside and fitted with terminals for the connection of cables or bars. The feeder side of fuse-switches for busbar mounting is designed to provide mechanical and electrical connection to standardised busbar systems.

### Applications

Its compact design makes the horizontal fuse disconnect a perfect feeder switch in low voltage distribution panels, as well as a protective device mounted on standardized busbar systems having 40mm, 60mm or 100mm busbar distance or for meter protection in domestic buildings. Single-pole and two-pole fuse-switches are used for UPS battery protection or in telecom power supplies e.g. 4-pole fuse-switches can be used to disconnect secondary power generators from public networks.

### Product advantages

JEAN MÜLLER offers NH fuse-switches in sizes 000 and 4a. The switch size 4a is available in single-pole up to 4-pole design. Executions for baseplate mounting as well as for busbar mounting are available in all sizes. Thanks to the wide product range, tailor-made solutions with respect to current rating, voltage rating and mode of installation can be found for nearly every application.

### Insulation parts

Similar to the vertical fuse disconnects all products from size 1 and above, contain only thermosetting materials for insulators supporting live parts because of their high dimensional stability and superior resistance to tracking.

### Current carrying parts

Products having rated currents of 400A and above, are equipped with Q-contacts for quasi-independent operation. Q-contacts ensure high short-circuit capability up to 80kA and safe load-break operation. Particularly NH fuse-switches for busbar mounting without separate adapters exhibit very low values for power loss due to their short connecting bars.

### Versions/Accessories

Monitoring components allow remote monitoring of switch-position as well as of fuse-links. Microswitches or electronic components will be used for fuse monitoring, depending on the application.

Special executions enable size 00 fuse-switches up to 800A rated current in combination with the corresponding fuse-links, thus providing significant savings in space.

1-pole and 3-pole disconnectors up to 1200V, protected against direct access to live parts and safe in operation, provide electric protection of solar power installations.

# Horizontal fuse disconnects

## Horizontal fuse disconnects for panel mounting



### Features

#### General-purpose terminal

- All sizes are equipped with general-purpose flat terminals for cable lugs and direct terminal clamps



#### Reliable overreach protection

- Optimum touch protection including when feeding from bottom side by retrofit overreach protector



#### High short-circuit capability

- Fuse protected conditional short-circuit current up to 80kA
- 35kA/1s short-circuit withstand when equipped with solid links



**Terminal covers (sold separately) are required for all disconnects (refer to page 90)**

### 1 pole horizontal fuse disconnects

| Size | For Fuses | Current Rating (A) | Terminal             | Connection Capacity(mm <sup>2</sup> ) | Part No.       |
|------|-----------|--------------------|----------------------|---------------------------------------|----------------|
| 000  | DIN 000   | 100                | Flat terminal M8     | max. 95                               | LTL000-1/9     |
| 4A   | DIN4A     | 1250               | Flat terminal M16    | max. 400                              | LTL4A-1/9/1250 |
| 4A   | DIN4A     | 1600               | Flat terminal 2x M12 |                                       | LTL4A-1/9/1600 |

### 3 pole and 4 pole horizontal fuse disconnects

| Size | For Fuses | Current Rating (A) | Terminal            | Connection Capacity(mm <sup>2</sup> ) | Part No.         |
|------|-----------|--------------------|---------------------|---------------------------------------|------------------|
| 000  | DIN000    | 160                | Flat terminal M8    | max. 95                               | LTL000-3/9       |
| 4A   | DIN4A     | 1250               | Flat terminal 1xM16 | max. 400                              | LTL4A-3x3/9/1250 |
| 4A   | DIN4A     | 1600               | Flat terminal 2xM12 |                                       | LTL4A-3x3/9/1600 |

Note: for sizes 00 (160A), 1 (250A), 2 (400A), and 3 (630A), refer Keto.

# Horizontal fuse disconnects

## Horizontal fuse disconnects for busbar mounting



### Features

#### Adaptor free installation

- Small installation depth and direct busbar connection ensure low power loss



#### Compact size 000 fuse-switch

- Space saving 63mm width
- Easy snap-on technique without screws
- For busbars having 5mm or 10mm thickness



### 3 pole horizontal fuse disconnects - 60mm centres busbar mount

| Size | For Fuses | Current Rating (A) | Cable Connection | Connection Capacity(mm²) | Connection to Busbars | Part No.                   |
|------|-----------|--------------------|------------------|--------------------------|-----------------------|----------------------------|
| 000  | DIN000    | 100                | Bottom clamp     | 1.5 - 50                 | Snap-on               | LTL000-3/9/60/<br>AU/F57/5 |

# Horizontal fuse disconnects

## Horizontal fuse disconnects - Special versions



### Features

#### Fuse-switch-disconnectors for baseplate monitoring

- For fuse-protected feeding of plug-in modules
- Fast module changing without cable disconnecting



#### Disconnectors rated 1000V and above

- Proven technology for reliable operation of switchgear rated 1000V and above



#### Space-saving protection of DC-systems up to 1000V

- 1-pole disconnecter for safe feeding of photovoltaic installations



#### Compact switching devices up to DC 250V rating

- Minimum space required for fuse protection up to 800A with LTT size 00
- Versions for baseplate and busbar mounting as well as feeding on rear side



**Terminal covers (sold separately) are required for all disconnects (refer to page 92)**

**1 pole horizontal fuse disconnects for telecom supplies up to 250V DC base mounting**

| Size | For Fuses | Current Rating (A) | Connection               | Terminal          | Part No.                          |
|------|-----------|--------------------|--------------------------|-------------------|-----------------------------------|
| 00   | DC        | 800                | Top and bottom           | Flat Terminal M12 | LTT00-1/9                         |
| 00   | DC        | 800                | Rear                     | Flat Terminal M12 | LTT00-1/9R                        |
| 00   | DC        | 800                | Top and bottom<br>2 Pole | Flat Terminal M12 | LTT00-2/9                         |
| 00   | DC        | 750                | Top and bottom           | Flat Terminal M12 | KETO-00-1/F/750A/250V<br>DC (LTT) |



LTT00-1/9



LTT00-1/9R



LTT00-2/9

# Horizontal fuse disconnects

## Accessories



| Description               | Size  | Part No. |
|---------------------------|-------|----------|
| Clamp terminal            |       |          |
| 1,5-70 mm <sup>2</sup> Cu | LTL00 | S00      |
| 25-150 mm <sup>2</sup> Cu | LTL1  | S1       |
| 25-240 mm <sup>2</sup> Cu | LTL2  | S2       |
| Bar 11 x 21               | LTL3  | S3       |



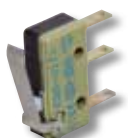
|                               |       |       |
|-------------------------------|-------|-------|
| Prism clamp                   |       |       |
| 10-70 mm <sup>2</sup> Al/Cu   | LTL00 | P0070 |
| 70-150 mm <sup>2</sup> Al/Cu  | LTL1  | P1    |
| 120-240 mm <sup>2</sup> Al/Cu | LTL2  | P2    |
| 120-300 mm <sup>2</sup> Al/Cu | LTL3  | P3    |



|                                         |      |     |
|-----------------------------------------|------|-----|
| Prism clamp for 2-conductors connection |      |     |
| 2 x 70-150 mm <sup>2</sup> Al/Cu        | LTL1 | P12 |
| 2 x 120-240 mm <sup>2</sup> Al/Cu       | LTL2 | P22 |
| 2 x 120-300 mm <sup>2</sup> Al/Cu       | LTL3 | P32 |



|                           |        |             |
|---------------------------|--------|-------------|
| Switch position indicator |        |             |
| 1- and 3- pole            | LTL00  | EV-LTL00    |
| 1- and 2-pole             | LTL1-3 | EV-LTL123-1 |
| 3-pole                    | LTL1-3 | EV-LTL123-3 |



|                                                                |       |                 |
|----------------------------------------------------------------|-------|-----------------|
| Switch position indicator or fuse blown indicating microswitch |       |                 |
| 1- and 3- pole                                                 | LTL4a | K/EV-LTL/SLTL4A |



|                                                            |       |             |
|------------------------------------------------------------|-------|-------------|
| Fuse blown indicating microswitch (use with striker fuses) |       |             |
| 1-pole                                                     | LTL00 | K-LTL00-1/H |
| 1-pole                                                     | LTL1  | K-LTL1-1/H  |
| 1-pole                                                     | LTL3  | K-LTL3-1/H  |
| 3-pole                                                     | LTL00 | K-LTL00-3/H |
| 3-pole                                                     | LTL1  | K-LTL1-3/H  |
| 3-pole                                                     | LTL2  | K-LTL2-3/H  |
| 3-pole                                                     | LTL3  | K-LTL3-3/H  |



|                                              |        |              |
|----------------------------------------------|--------|--------------|
| Protective cover, 3-pole, baseplate mounting |        |              |
| Top and bottom side                          | LTL000 | GOU-LTL000-3 |
| Top and bottom side                          | LTL4   | GOU-LTL4-3   |



|                                                                            |       |           |
|----------------------------------------------------------------------------|-------|-----------|
| DIN Rail Mounting Kit                                                      |       |           |
| For mounting of NH fuse-switch-disconnectors on DIN rails acc. to EN 50022 | LTL00 | Z-LTL00-3 |



# Horizontal fuse disconnects - Technical Information

## LTL NH fuse switch-disconnector specification

|                                                          |                   | Unit         | LTL000                              | LTL000<br>Busbar | LTL4a-1250 | LTL4a-1600 |
|----------------------------------------------------------|-------------------|--------------|-------------------------------------|------------------|------------|------------|
| Accord to standard                                       |                   |              | EN60947-3                           |                  |            |            |
| For NH fuse link                                         |                   |              | 000                                 | 000              | 4a         |            |
| Rated operational Voltage                                |                   | V            | AC690 DC220                         | AC500 DC220      | AC690      | AC690      |
| Rated operational Current                                |                   | A            | 160                                 | 125              | 1250       | 1600       |
| Thermal rating with fuse links                           |                   | A            | 160                                 | 125              | 1250       | 1600       |
| Thermal rating with solid links                          |                   | A            | 160                                 | 160              | 1250       | 1600       |
| Rated frequency                                          |                   | Hz           | 40-60                               |                  |            |            |
| Rated AC insulation                                      |                   | V            | AC690                               | AC500            | AC800      |            |
| Power loss at max current not including fuse or link     |                   | W            | 7                                   | 18               | 32         | 52         |
| Power loss at 80% max current not including fuse or link |                   | W            | 4.5                                 | 11.5             | 20.5       | 33.3       |
| Rated withstand voltage                                  |                   | kV           | 8                                   |                  |            |            |
| Utilisation category                                     | AC-22B 400V       |              | 160A                                |                  |            |            |
|                                                          | AC-22B 500V       |              | 100A                                | 125A             | 1250A      | 1600A      |
|                                                          | AC-22B 690V       |              |                                     |                  |            |            |
|                                                          | AC-21B 690V       |              | 125A                                |                  | 1000A      | 1000A      |
|                                                          | DC-21B 440V       |              |                                     |                  |            |            |
|                                                          | DC-22B 220V       |              |                                     | 100A             |            |            |
| No switching under load                                  |                   | DC-20B 1000V |                                     |                  | 1250A      | 1600A      |
| Rated conditional short circuit current                  |                   | kA           | 63                                  | 50               | 35         | 35         |
| Max. power loss per fuse link                            |                   | W            | 10                                  | 8                | 110        | 164        |
| Flat Bolt<br><br>terminal                                | Bolt Diameter     |              | M8                                  |                  | M16        | 2xM12      |
|                                                          | Cable lug         | mm2          | 1x10-70                             |                  | 400        | 400        |
|                                                          | Flat bar          | mm           |                                     |                  | 80x30      | 80x30      |
|                                                          | Tightening Torque | Nm           | 12-15                               |                  | 50-60      | 35-40      |
| Clamp S type copper                                      |                   |              | S000-16 S000-50                     | F50              |            |            |
| Cu                                                       | Cross Section     | mm2          | 6-16 25-50                          | 1.5-50           |            |            |
| Tightening torque                                        |                   | Nm           | 2.6                                 | 2.6              |            |            |
| Clamp P type copper & aluminium                          | Single            |              | P000-35 P000-70                     |                  |            |            |
|                                                          | Double            |              | P000-2-35<br>P000-2-50              |                  |            |            |
| Cu/Al                                                    | Cross section     | mm2          | 10-35 50-70<br>2x25-35Cu<br>2x50 Cu |                  |            |            |
|                                                          | Double Clamp      |              |                                     |                  |            |            |
| Tightening torque                                        |                   | Nm           | 4.5                                 |                  |            |            |
| Front side IP                                            | Closed Position   |              | IP20                                |                  |            |            |
|                                                          | Open position     |              | IP10                                |                  |            |            |
| Operating temperature                                    |                   | ℃            | -25/+70                             |                  |            |            |
| Actuation                                                |                   |              | Dependent manual operation          |                  |            |            |
| Mounting position                                        |                   |              | Vertical or horizontal              |                  |            |            |
| Altitude                                                 |                   | M            | Up to 2000                          |                  |            |            |
| Pollution degree                                         |                   |              | 3                                   |                  |            |            |
| Overvoltage category                                     |                   |              | III                                 |                  |            |            |

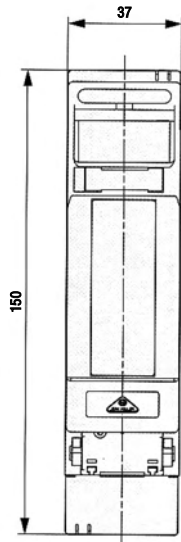
| Accessories - Micro switches                               |   |                                     |                                               |
|------------------------------------------------------------|---|-------------------------------------|-----------------------------------------------|
| Switch Position Indicator<br>Fuse Blown Position Indicator |   | EV-LT00, EV-LTL123-1<br>K-LTL**-1/H | EV-LTL123-3, EV-LTL4A<br>K-LTL**-3/H, K-LTL4A |
| Rated Current @ 250V AC                                    | A | 5                                   | 5                                             |
| Rated Current @ 110V DC                                    | A | 0.35                                | 0.35                                          |

| Terminal with connecting lug |                                |                 |              |               |           |                        |
|------------------------------|--------------------------------|-----------------|--------------|---------------|-----------|------------------------|
|                              | AL/Cu Cable [mm <sup>2</sup> ] |                 |              |               | Allen Key | Tightening Torque (Nm) |
|                              | Rounded Stranded               | Sector Stranded | Round Solid  | Sector Solid  |           |                        |
| K2G/A                        | 50-185                         | 70-240          | 50-185       | 70-240        | 6 mm      | 40                     |
| KM2G/AF3040                  | 25-300                         | 25-240          | 25-150       | 25-240        | 6 mm      | 32                     |
| K2HG/2/AF30                  | 2 x<br>25-120                  | 2 x<br>35-120   | 2 x<br>25-50 | 2 x<br>50-120 | 6 mm      | 40                     |
| KV2HG/2/AF30                 | 2 x<br>12-185                  | 2 x<br>12-185   | -            | -             | 6 mm      | 40                     |

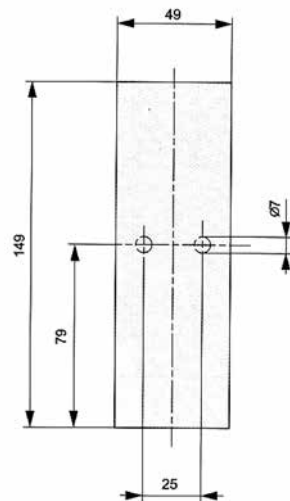
| Fuse switches DIN-Rail mount            |  |                                |                                |
|-----------------------------------------|--|--------------------------------|--------------------------------|
|                                         |  | WH-AMB1/10 JM<br>WH-AMB3/10 JM | WH-AMB1/22 JM<br>WH-AMB3/22 JM |
| Rated Current @ 690V AC                 |  | 32A                            | 100A                           |
| Application Category                    |  | AC-22B (650V)                  | AC-21B (690V)                  |
| Conditional Rated Short Circuit Current |  | 100kA (400V)                   | 120kA (500V)                   |
| Terminal Capacity                       |  | 1x 1.5 - 25mm <sup>2</sup>     | 1x 4 - 50mm <sup>2</sup>       |

# Horizontal fuse disconnects - Dimensions

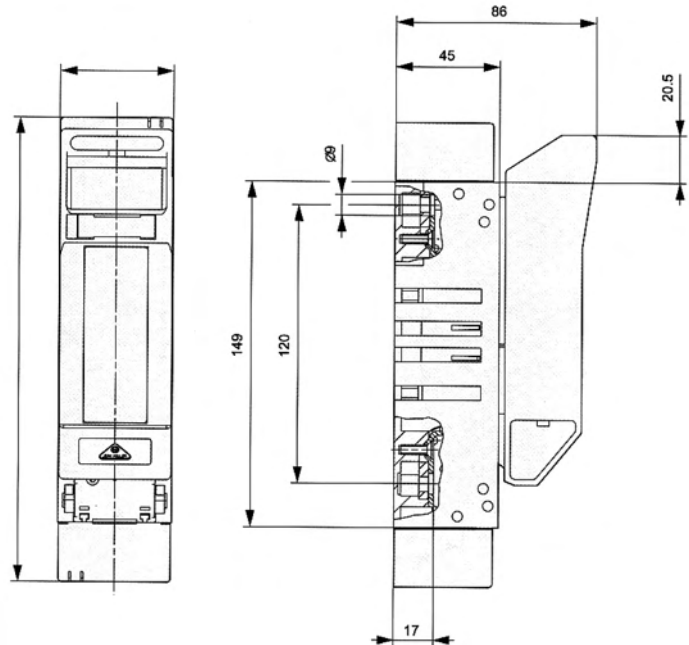
LTL000-1/9



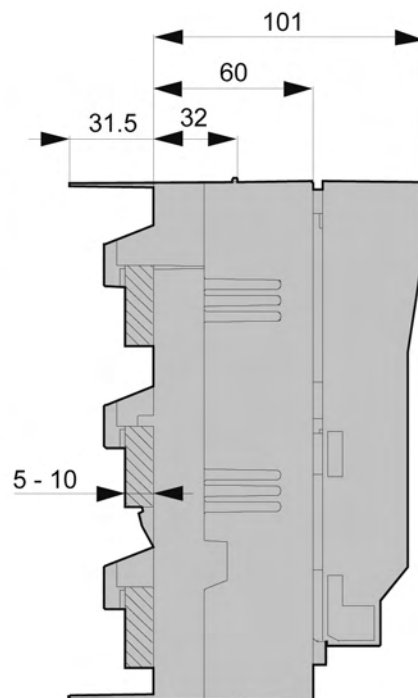
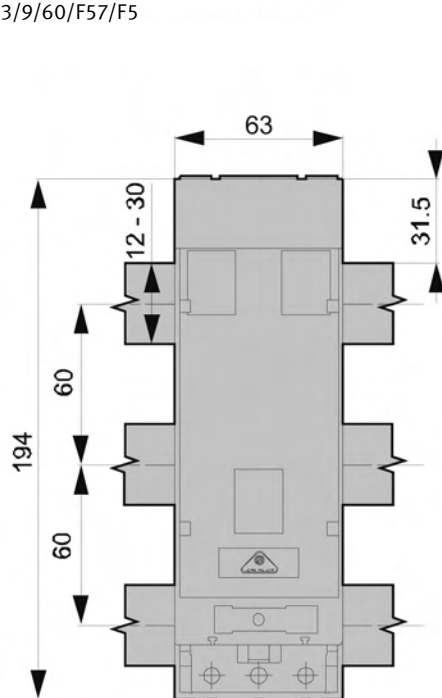
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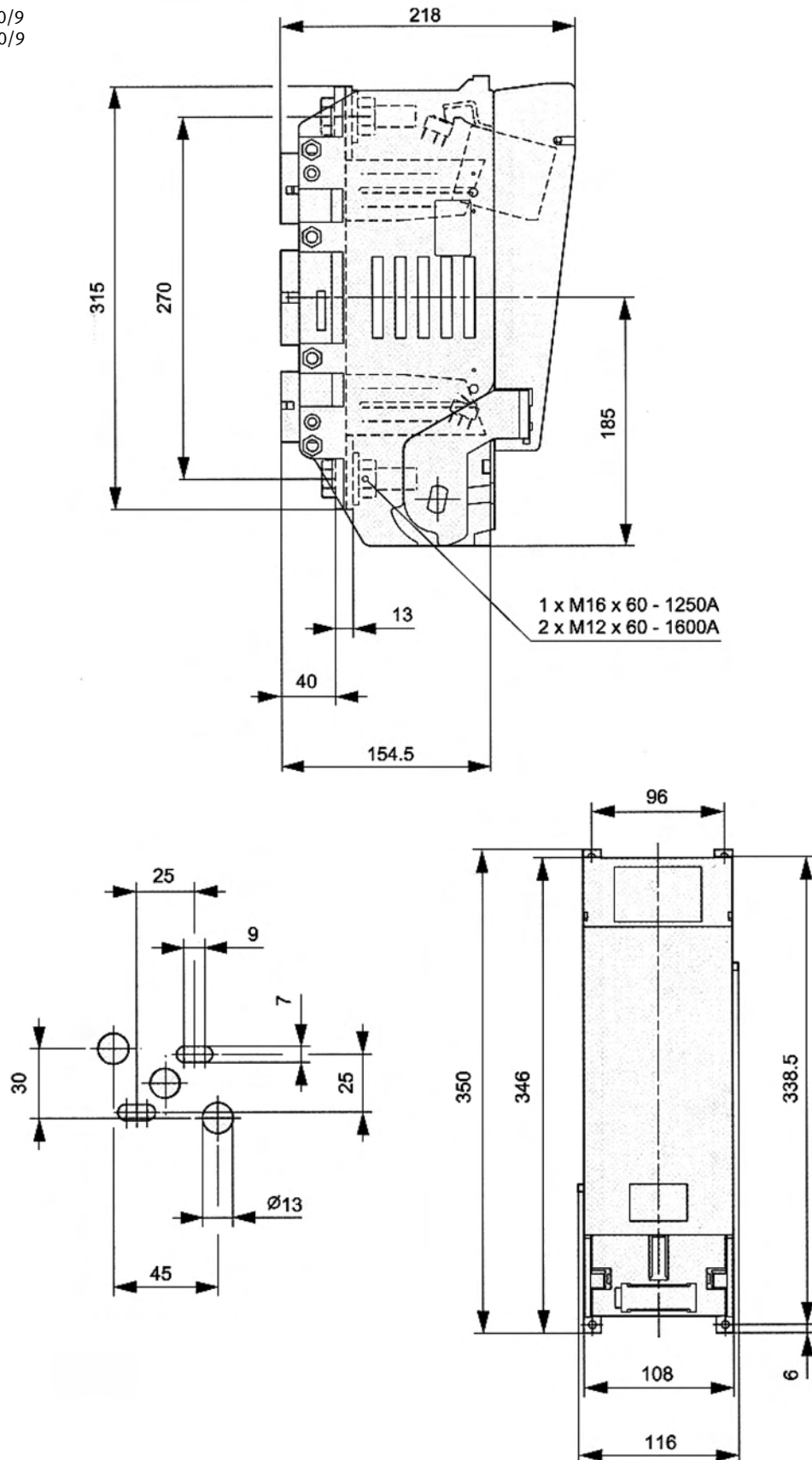
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LTL000-3/9/60/F57/F5

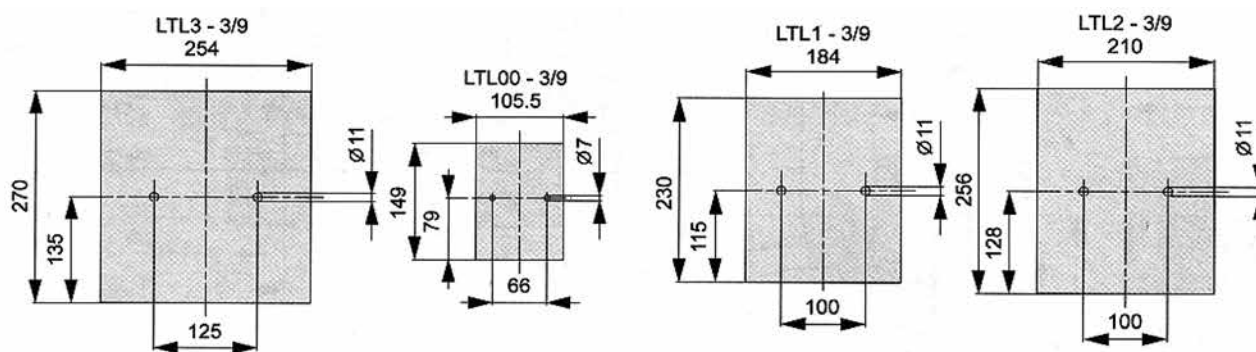
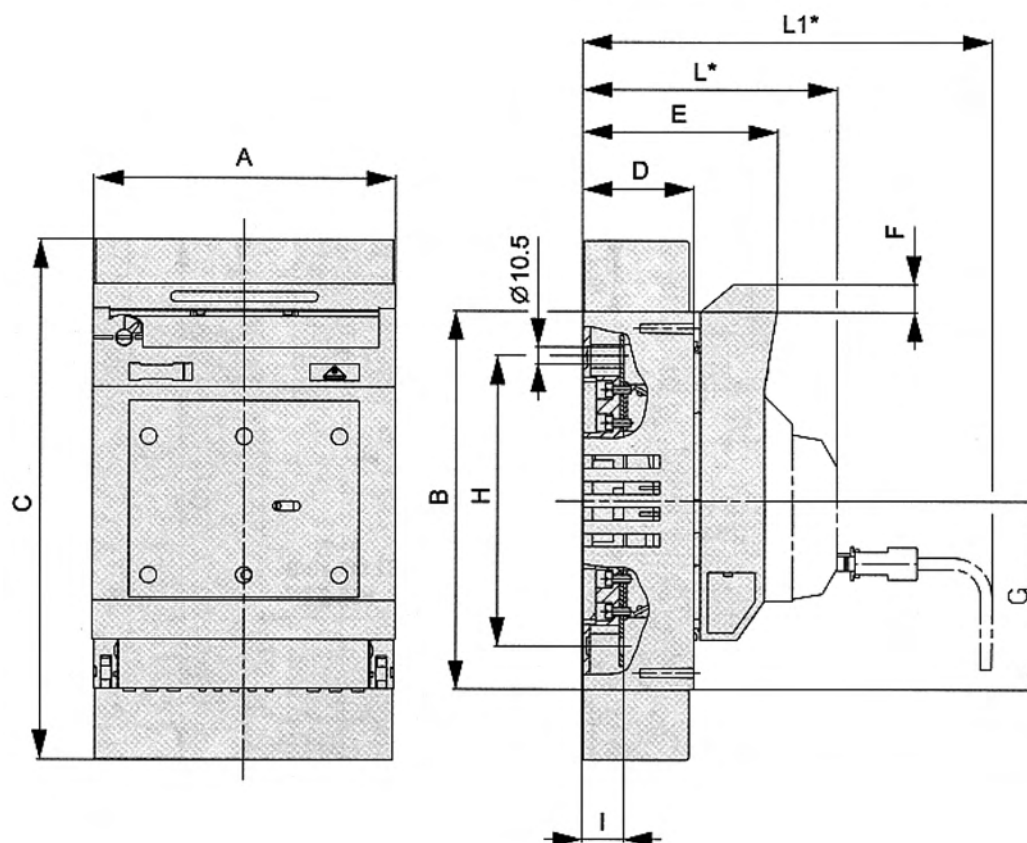


LTL4a-1/1250/9  
LTL4a-1/1600/9



# Horizontal fuse disconnects - Dimensions

LTL00-3/9  
LTL1-3/9  
LTL2-3/9  
LTL3-3/9



|            | A     | B   | C   | D  | E    | F    | G    | H     | I    |
|------------|-------|-----|-----|----|------|------|------|-------|------|
| LTL000-3/9 | 89    | 139 | 150 | 48 | 78.5 | 0    | 70   | 112   | 15   |
| LTL00-3/9  | 105.5 | 149 | 200 | 45 | 86   | 20.5 | 74.5 | 120   | 17   |
| LTL1-3/9   | 184   | 230 | 317 | 68 | 119  | 16.5 | 115  | 177   | 25   |
| LTL2-3/9   | 210   | 256 | 397 | 81 | 133  | 16.5 | 128  | 205   | 25   |
| LTL3-3/9   | 254   | 270 | 430 | 96 | 147  | 9    | 135  | 220.5 | 30.5 |

LTL4A-3X3/1250/9  
LTL4A-3X3/1600/9

