

## *Horizontal fuse disconnects*



### **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 for panel mounting*



### **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 86)**

### 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 for busbar mounting*



### **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

**Terminal covers (sold separately) are required for all disconnects (refer to page 86)**

**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/ AU/F57/5

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

## Horizontal fuse disconnects - Special versions



### 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 disconnector 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 86)**

**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 2 Pole	Flat Terminal M12	LTT00-2/9



LTT00-1/9



LTT00-1/9R



LTT00-2/9



## 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



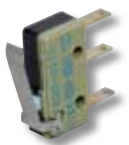
Prism clamp			
	10-70 mm <sup>2</sup> Al/Cu	LTL00	P0070
	70-150 mm <sup>2</sup> Al/Cu	LTL1	P1
	120-240 mm <sup>2</sup> Al/Cu	LTL2	P2
	120-300 mm <sup>2</sup> Al/Cu	LTL3	P3



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

## TECHNICAL INFORMATION

### LTL NH fuse switch-disconnector specification

		Unit	LTL000	LTL000 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 terminal	Bolt Diameter		M8		M16	2xM12
	Cable lug	mm <sup>2</sup>	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	mm <sup>2</sup>	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 P000-2-50			
Cu/Al	Cross section	mm <sup>2</sup>	10-35 50-70			
	Double Clamp		2x25-35Cu 2x50 Cu			
Tightening torque		Nm	4.5			
Front side IP	Closed Position		IP20			
	Open position		IP10			
Operating temperature		°C	-25/+70			
Actuation			Dependent manual operation			
Mounting position			Vertical or horizontal			
Altitude		M	Up to 2000			
Pollution degree			3			
Overvoltage category			III			

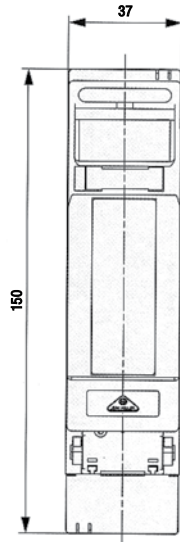
Accessories - Micro switches			
Switch Position Indicator		EV-LT00, EV-LTL123-1 K-LTL**-1/H	EV-LTL123-3, EV-LTL4A K-LTL**-3/H, K-LTL4A
Fuse Blown Position Indicator			
Rated Current @ 250V AC	A	5	5
Rated Current @ 110V DC	A	0.35	0.35

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 25-120	2 x 35-120	2 x 25-50	2 x 50-120	6 mm	40
KV2HG/2/AF30	2 x 12-185	2 x 12-185	-	-	6 mm	40

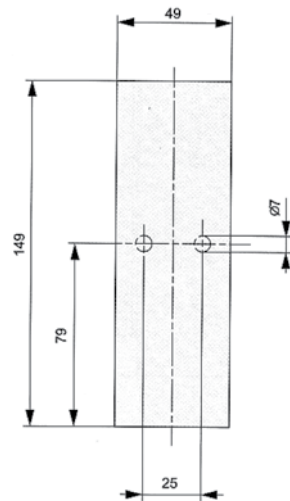
Fuse switches DIN-Rail mount			
		WH-AMB1/10 WH-AMB3/10	WH-AMB1/22 WH-AMB3/22
Rated Current @ 690V AC @ 440V DC		32A 32A	125A 125A
Application Category		AC-22B (400V)	AC-20B (690V)
Conditional Rated Short Circuit Current		50kA (400V)	100kA (500V)
Terminal Capacity		1x 0.75 - 25mm <sup>2</sup> 2x 0.75 -10mm <sup>2</sup>	1x 4 - 50mm <sup>2</sup>

## DIMENSIONS

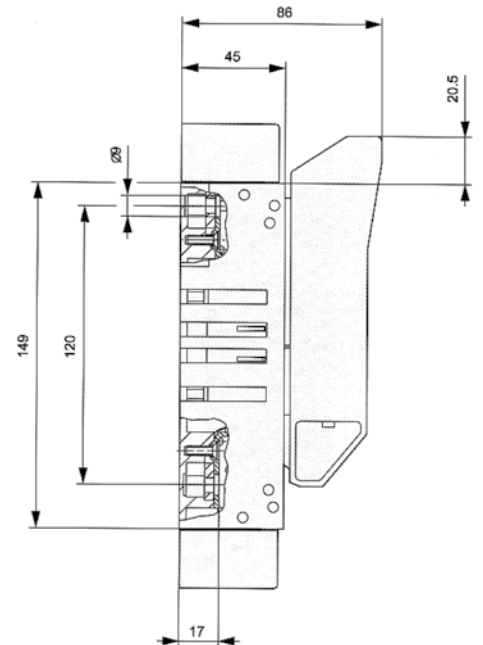
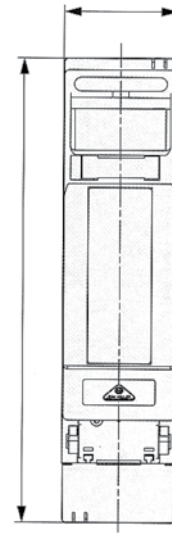
LTL000-1/9



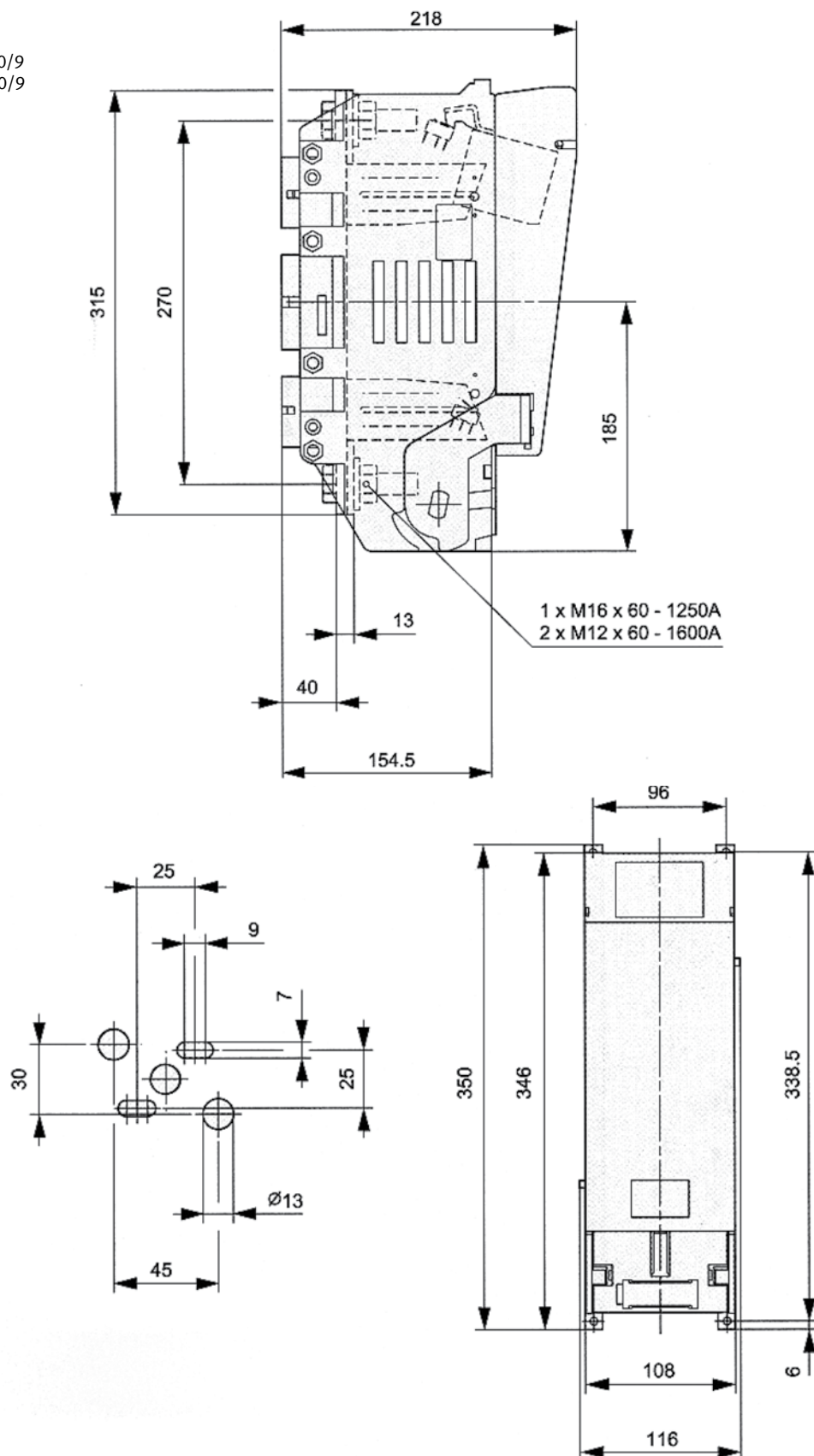
LTL00-1/9



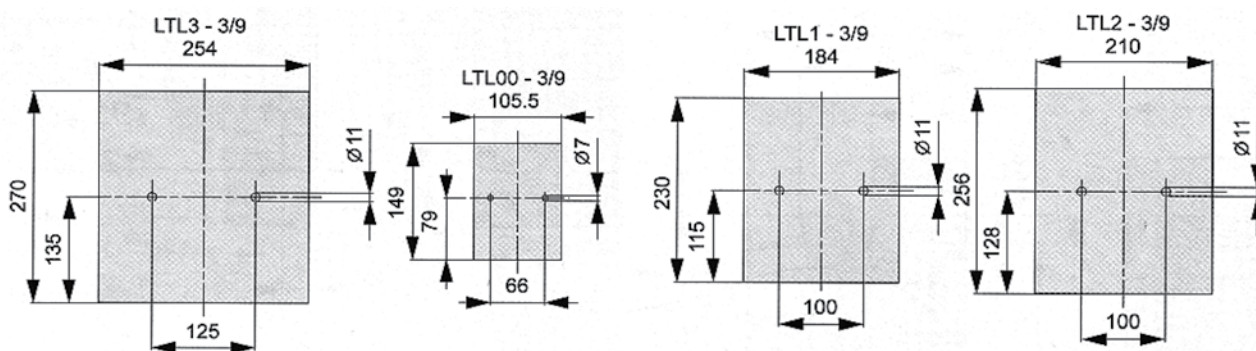
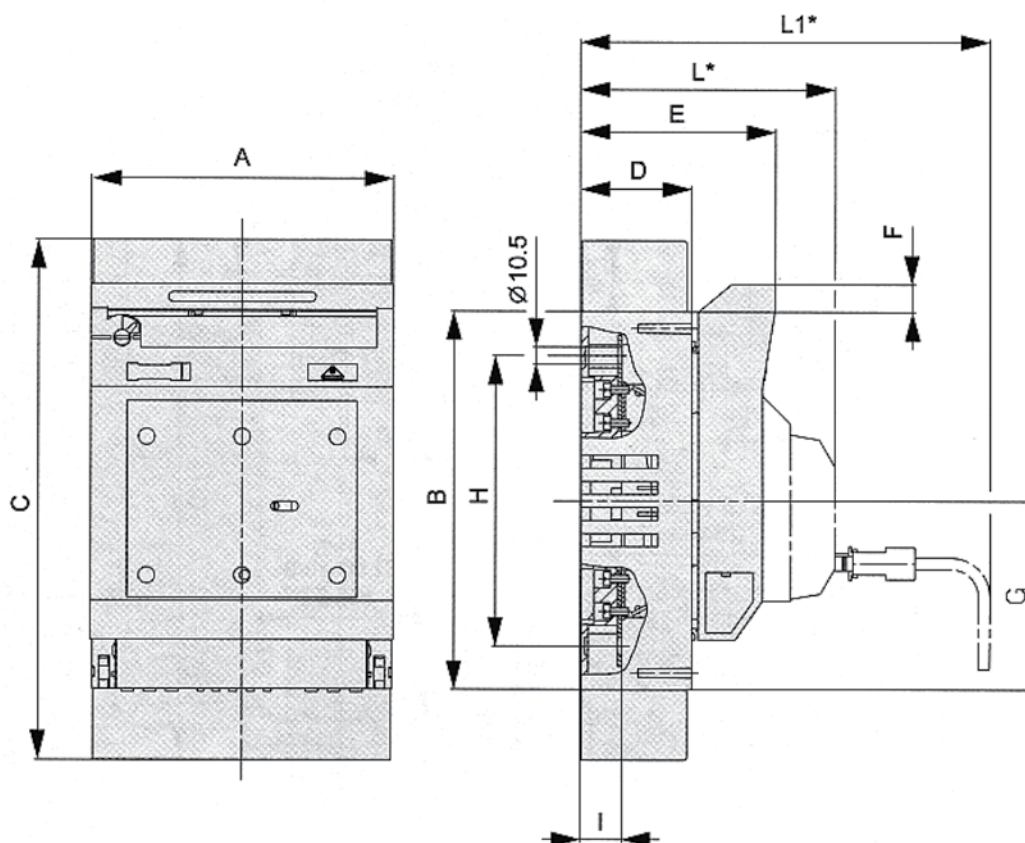
Befestigungsmasse



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

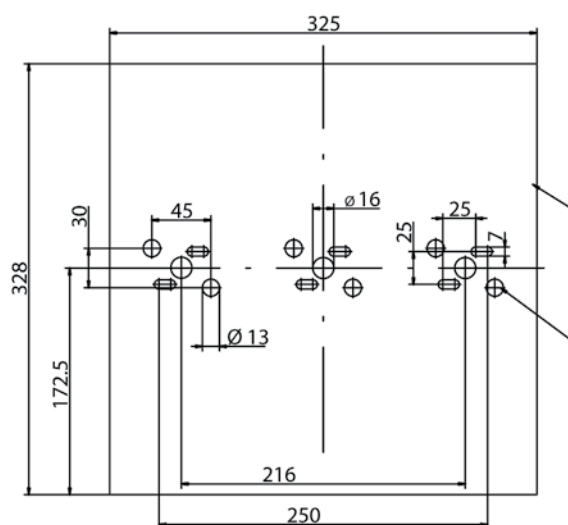
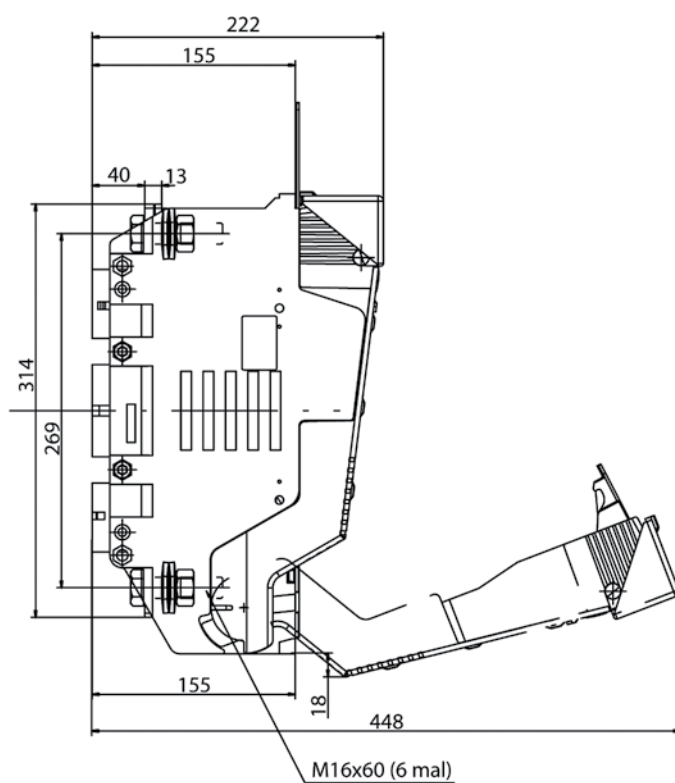
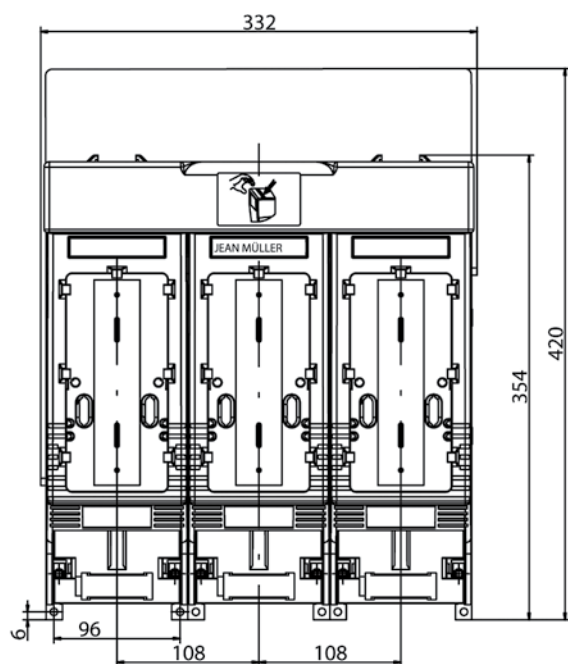


LTL00-3/9  
LTL1-3/9  
LTL2-3/9  
LTL3-3/9

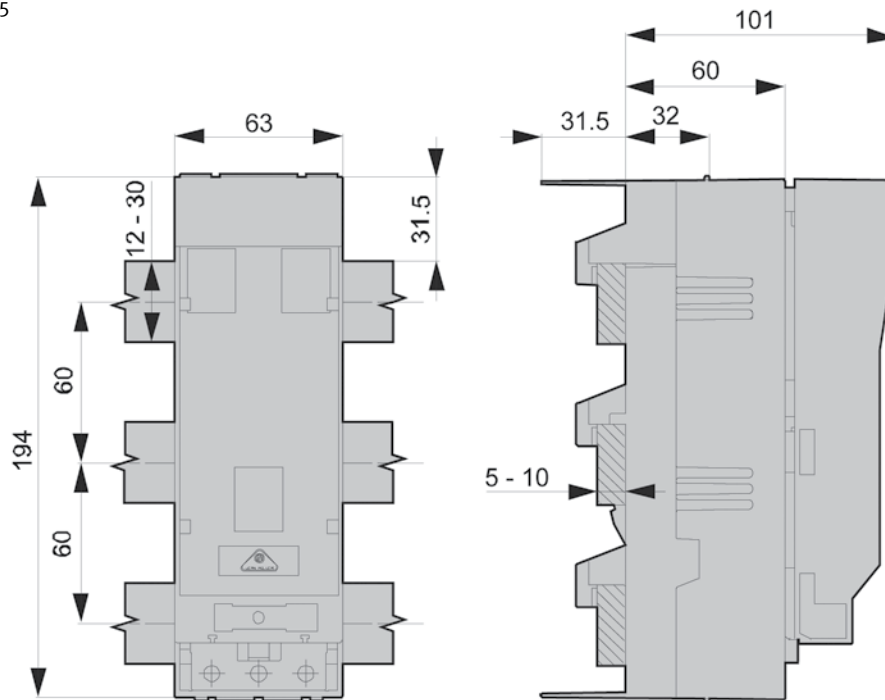


	A	B	C	D	E	F	G	H	I
<b>LTL000-3/9</b>	89	139	150	48	78.5	0	70	112	15
<b>LTL00-3/9</b>	105.5	149	200	45	86	20.5	74.5	120	17
<b>LTL1-3/9</b>	184	230	317	68	119	16.5	115	177	25
<b>LTL2-3/9</b>	210	256	397	81	133	16.5	128	205	25
<b>LTL3-3/9</b>	254	270	430	96	147	9	135	220.5	30.5

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



LTL000-3/9/60/F57/F5





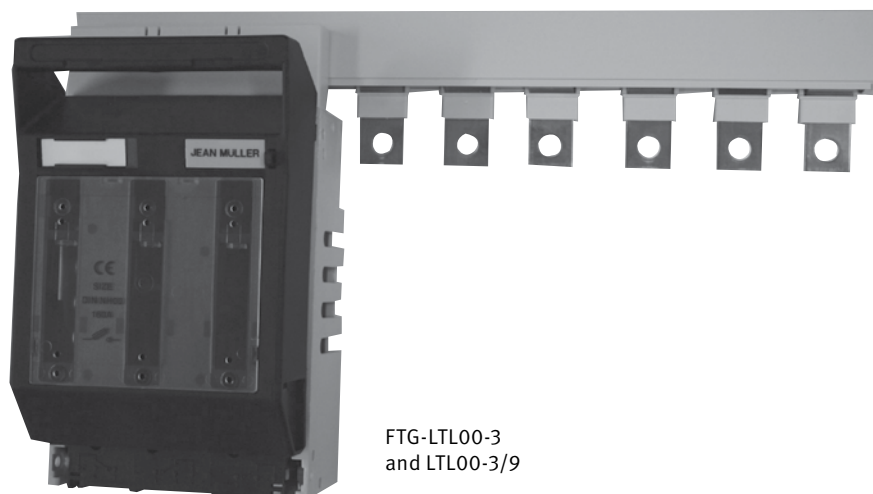
## Comb busbars

FTG comb type busbars are constructed of three copper conductors within a single moulding for connection to Jean Müller LTL000-3/9\* or LTL00-3/9\* horizontal fuse disconnects.

The busbar is rated at 250amps.

Removable end caps allow the busbar to be shortened to intermediate sizes if required.

Description		Part No.
Busbar for LTL000-3/9 100A disconnects		
For connection to 3 disconnects*		FTG-LTL000-3
For connection to 5 disconnects*		FTG-LTL000-5
*(Bottom Feed Only)		
Busbar for LTL00-3/9 160A disconnects		
For connection to 3 disconnects		FTG-LTL00-3
For connection to 5 disconnects		FTG-LTL00-5
*(Top and Bottom Feed)		
Feed terminal		
For cables up to 95mm <sup>2</sup> (3x required per disconnect)		FTG-LTL00/F
Terminal covers		
To provide finger protection to disconnect terminals fitted with FTG Busbars		
For LTL00		GO-LTL00-FTG
For LTL000		Cover not available



FTG-LTL00-3  
and LTL00-3/9

Also available in KETO Range. Refer to page 58