

MOREK

Creating a better future for You



ELECTRICAL COMPONENTS

2021



Universal terminals OTL

1000 V
AC/DC

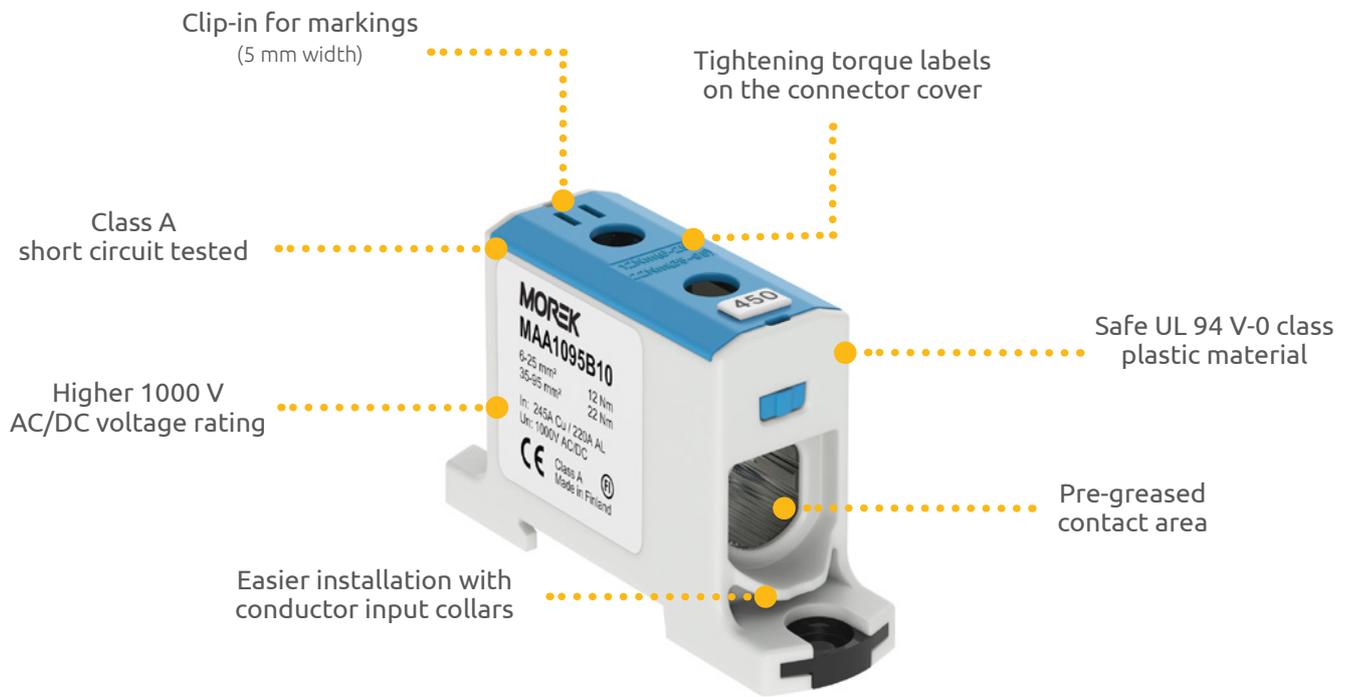
Bimetal
(Al/Cu)

Class A

Certified according to
standards EN 61238-1
and EN 60947-7-1



Universal terminals OTL are designed for copper and aluminium conductors. The terminals are suitable for all types of copper or aluminium conductors with cross-section up to 240 mm². Multiple copper wires can be placed to the universal terminals OTL blocks according to the respective terminal type (see Table of universal terminals OTL wiring connectivity on page 9). IP protection class for OTL terminals is IP20.



Certification and product safety

Universal terminals OTL are tested and certified by following standards:

EN 60947-7-1:2009 „Low-voltage switchgear and control gear - Part 7-1: Ancillary equipment - Terminal blocks for copper conductors“

EN 61238-1:2003 „Compression and mechanical connectors for power cables for rated voltages up to 30 kV (Um = 36 kV) - Part 1: Test methods and requirements“

All connectors used inside switchgears or similar appliances must fulfil these requirements.

EN 61238-1:2003 for copper and aluminium cables are divided into two classes.

Class A (heat cycle and **short-circuit tested**) - These are connectors intended for electricity distribution or industrial networks in which they can be subjected to short-circuits of relatively high intensity and duration. Therefore, Class A connectors are suitable for most applications.

Class B (heat cycle tests only, **not short-circuit tested**) - These are connectors for networks in which overloads or short-circuits are rapidly cleared by the installed protective devices, e.g. **fast-acting fuses**.

Universal terminals OTL are tested and certified class A connectors.

For choosing safe and reliable connector, always make sure that the terminal is equipped with CE and Class A markings with the symbol of certifying institute, for example FI-mark.

Material classification according to UL 94 V-0 standard (vertical burning test)

| Criteria Conditions | 94 V-0 | 94 V-1 | 94 V-2 |
|--|----------|-----------|-----------|
| Total flaming combustion for each specimen | ≤ 10 sec | ≤ 30 sec | ≤ 30 sec |
| Total flaming combustion for all 5 specimens of any set | ≤ 50 sec | ≤ 250 sec | ≤ 250 sec |
| Flaming and glowing combustion for each specimen after second burner flame application | ≤ 30 sec | ≤ 60 sec | ≤ 60 sec |
| Cotton ignited by flaming drips from any specimen | No | No | Yes |

Universal terminals OTL wiring connectivity

In case of Aluminum wire, only one wire is allowed to connect per connection

| Type | Conductor cross-section (mm ²) / number of copper wires per connection | | | | | | | | | | | | | | Tightening torque (Nm) | In (A) Al / Cu | | |
|-----------|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------------------------|----------------|---|-----------|
| | 1,5 | 2,5 | 4 | 6 | 10 | 16 | 25 | 35 | 50 | 70 | 95 | 120 | 150 | 185 | | | 240 | |
| OTL 16 | 3 pcs | 3 pcs | 2 pcs | 2 pcs | 1 pcs | 1 pcs | | | | | | | | | | | 1,5 Nm (1,5 - 6 mm ²) 7 Nm (10 - 16 mm ²) | 75 / 82 |
| OTL 35 | | | | | | | | | | | | | | | | | 3 Nm (2,5 - 16 mm ²) 6 Nm (25 - 35 mm ²) | 120 / 135 |
| OTL 35-2 | | 3 pcs | 3 pcs | 3 pcs | 3 pcs | 2 pcs | 1 pcs | 1 pcs | | | | | | | | | | |
| OTL 35-3X | | | | | | | | | | | | | | | | | | |
| OTL 35-5X | | | | | | | | | | | | | | | | | | |
| OTL 50 | | | | | | | | | | | | | | | | | 1,5 Nm (1,5 - 2,5 mm ²) 5 Nm (4 - 10 mm ²) 10 Nm (16 - 50 mm ²) | 145 / 160 |
| OTL 50-2 | 3 pcs | 3 pcs | 3 pcs | 3 pcs | 3 pcs | 3 pcs | 2 pcs | 1 pcs | 1 pcs | | | | | | | | | |
| OTL 50-3 | | | | | | | | | | | | | | | | | | |
| OTL 95 | | | | | | | | | | | | | | | | | 12 Nm (6 - 25 mm ²) 22Nm (35 - 95 mm ²) | 220 / 245 |
| OTL 95-2 | | | | 3 pcs | 3 pcs | 3 pcs | 3 pcs | 2 pcs | 1 pcs | 1 pcs | 1 pcs | | | | | | | |
| OTL 95-3 | | | | | | | | | | | | | | | | | | |
| OTL 150 | | | | | | | | | | | | | | | | | 14 Nm (25 - 50 mm ²) 30 Nm (70 - 150 mm ²) | 290 / 320 |
| OTL 150-2 | | | | | | | 3 pcs | 3 pcs | 3 pcs | 2 pcs | 1 pcs | 1 pcs | 1 pcs | | | | | |
| OTL 150-3 | | | | | | | | | | | | | | | | | | |
| OTL 240 | | | | | | | | | | | | | | | | | 26 Nm (35 - 120 mm ²) 40 Nm (150 - 240 mm ²) | 380 / 425 |
| OTL 240-2 | | | | | | | | 3 pcs | 3 pcs | 3 pcs | 2 pcs | 2 pcs | 1 pcs | 1 pcs | 1 pcs | | | |

We recommend using cable end sleeves, when using fine-strand wires with following cross-sections (single-wire connections):

- OTL 16:** 1,5 mm²...6 mm²
- OTL 35:** 2,5 mm²...10 mm²
- OTL 50:** 1,5 mm²...16 mm²
- OTL 95:** 6 mm²...35 mm²
- OTL 150:** 25 mm²...70 mm²
- OTL 240:** 35 mm²...120 mm²



OTL 16

OTL 35

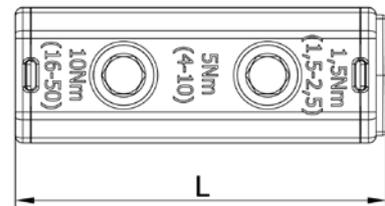
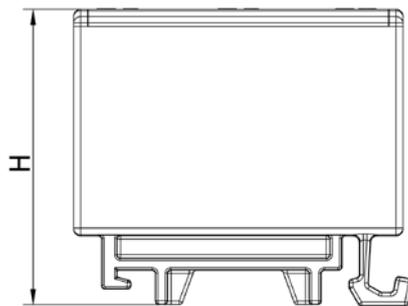
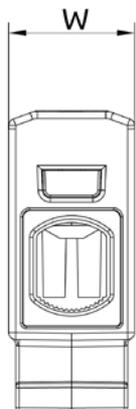
OTL 50

| | | | | |
|--------------|---|------------|------------|------------|
| Grey | ● | MAA1016A10 | MAA1035A10 | MAA1050A10 |
| Blue | ● | MAA1016B10 | MAA1035B10 | MAA1050B10 |
| Yellow-green | ● | MAA1016Y10 | MAA1035Y10 | MAA1050Y10 |
| Red | ● | MAA1016R10 | - | MAA1050R10 |
| Black | ● | MAA1016S10 | - | MAA1050S10 |

Technical data

| | | | |
|---|---|--|---|
| Conductor cross-section Cu, Al (mm ²) | 1,5 - 16 | 2,5 - 35 | 1,5 - 50 |
| Nominal voltage AC / DC (V) | 1000 | 1000 | 1000 |
| Nominal current (A) | 82 (Cu) / 75 (Al) | 135 (Cu) / 120 (Al) | 160 (Cu) / 145 (Al) |
| Width / Height / Length (mm) | 13,5 / 39,5 / 45 | 16 / 40 / 45 | 18 / 43 / 50 |
| Screw, hexagonal key | No. 4 | No. 4 | No. 5 |
| Tightening torque (Nm) | 1,5 Nm (1,5 - 6 mm ²) 7 Nm (10 - 16 mm ²) - | 3 Nm (2,5 - 16 mm ²) 6 Nm (25 - 35 mm ²) - | 1,5 Nm (1,5 - 2,5 mm ²) 5 Nm (4 - 10 mm ²) 10 Nm (16 - 50 mm ²) |
| Mounting | DIN rail | DIN rail | DIN rail |
| Weight (g) | 17 | 27 | 30 |
| Package (pcs) | 30 | 30 | ● 50 / ● ● ● ● 30 |

Dimensions





OTL 95



OTL 150



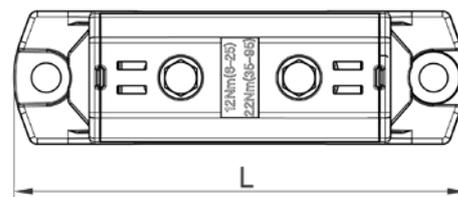
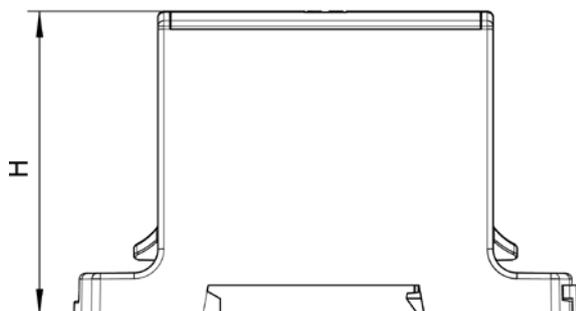
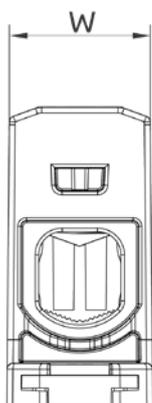
OTL 240

| | | | | |
|--------------|--|------------|------------|------------|
| Grey | | MAA1095A10 | MAA1150A10 | MAA1240A10 |
| Blue | | MAA1095B10 | MAA1150B10 | MAA1240B10 |
| Yellow-green | | MAA1095Y10 | MAA1150Y10 | MAA1240Y10 |
| Red | | MAA1095R10 | - | - |
| Black | | MAA1095S10 | - | - |

Technical data

| | | | |
|---|--|---|---|
| Conductor cross-section Cu, Al (mm ²) | 6 - 95 | 25 - 150 | 35 - 240 |
| Nominal voltage AC / DC (V) | 1000 | 1000 | 1000 |
| Nominal current (A) | 245 (Cu) / 220 (Al) | 320 (Cu) / 290 (Al) | 425 (Cu) / 380 (Al) |
| Width / Height / Length (mm) | 25 / 51 / 84 | 31 / 54 / 84 | 37 / 65 / 106 |
| Screw, hexagonal key | No. 6 | No. 6 | No. 8 |
| Tightening torque (Nm) | 12 Nm (6 - 25 mm ²) 22 Nm (35 - 95 mm ²) - | 14 Nm (25 - 50 mm ²) 35 Nm (70 - 150 mm ²) | 26 Nm (35 - 120 mm ²) 46 Nm (150 - 240 mm ²) |
| Mounting | DIN rail, screw | DIN rail, screw | DIN rail, screw |
| Weight (g) | 65 | 100 | 195 |
| Package (pcs) | 20 / 10 | 20 / 10 | 10 / 3 |

Dimensions





OTL 35-2



OTL 50-2

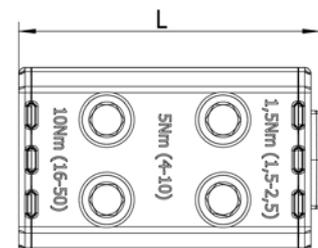
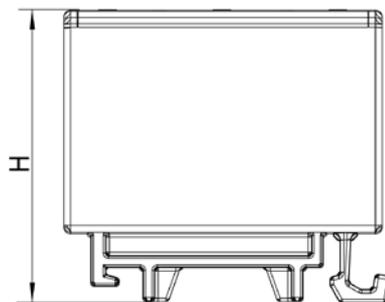
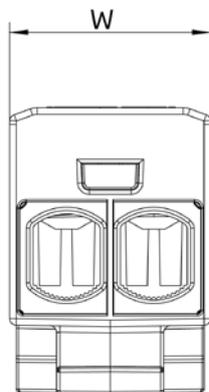


OTL 95-2

| | | | | |
|--------------|--|------------|------------|------------|
| Grey | | MAA2035A10 | MAA2050A10 | MAA2095A10 |
| Blue | | MAA2035B10 | MAA2050B10 | MAA2095B10 |
| Yellow-green | | MAA2035Y10 | MAA2050Y10 | MAA2095Y10 |
| Red | | - | MAA2050R10 | MAA2095R10 |
| Black | | - | MAA2050S10 | MAA2095S10 |

| Technical data | | | |
|---|--|---|--|
| Conductor cross-section Cu, Al (mm ²) | 2,5 - 35 | 1,5 - 50 | 6 - 95 |
| Nominal voltage AC / DC (V) | 1000 | 1000 | 1000 |
| Nominal current (A) | 135 (Cu) / 120 (Al) | 320 (Cu) / 290 (Al) | 245 (Cu) / 220 (Al) |
| Width / Height / Length (mm) | 27 / 40 / 46 | 30 / 43 / 49 | 42 / 51 / 84 |
| Screw, hexagonal key | No. 4 | No. 5 | No. 6 |
| Tightening torque (Nm) | 3 Nm (2,5 - 16 mm ²) 6 Nm (25 - 35 mm ²) - | 1,5 Nm (1,5 - 2,5 mm ²) 5 Nm (4 - 10 mm ²) 10 Nm (16 - 50 mm ²) | 12 Nm (6 - 25 mm ²) 22 Nm (35 - 95 mm ²) - |
| Mounting | DIN rail | DIN rail | DIN rail, screw |
| Weight (g) | 44 | 90 | 125 |
| Package (pcs) | 18 | 15 | |

Dimensions





OTL 150-2



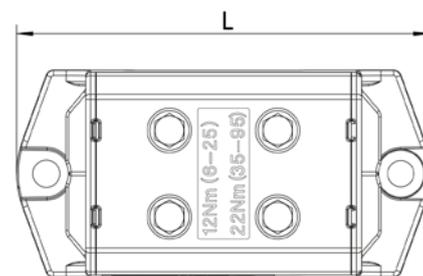
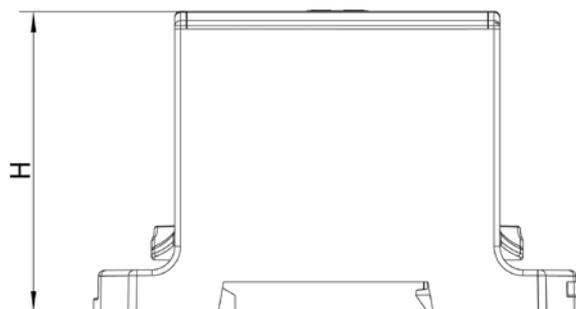
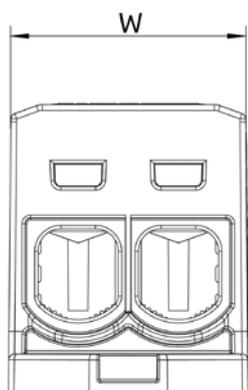
OTL 240-2

| | | | |
|--------------|--|------------|------------|
| Grey | | MAA2150A10 | MAA2240A10 |
| Blue | | MAA2150B10 | MAA2240B10 |
| Yellow-green | | MAA2150Y10 | MAA2240Y10 |
| Red | | - | - |
| Black | | - | - |

Technical data

| | | |
|---|--|--|
| Conductor cross-section Cu, Al (mm ²) | 25 - 150 | 35 - 240 |
| Nominal voltage AC / DC (V) | 1000 | 1000 |
| Nominal current (A) | 320 (Cu) / 290 (Al) | 425 (Cu) / 380 (Al) |
| Width / Height / Length (mm) | 51 / 54 / 84 | 60 / 65 / 106 |
| Screw, hexagonal key | No. 6 | No. 8 |
| Tightening torque (Nm) | 14 Nm (25 - 50 mm ²) 30 Nm (70 - 150 mm ²) - | 26 Nm (35 - 120 mm ²) 40 Nm (150 - 240 mm ²) - |
| Mounting | DIN rail, screw | DIN rail, screw |
| Weight (g) | 170 | 340 |
| Package (pcs) | 10 / 5 | 6 / 3 |

Dimensions





OTL 50-3



OTL 95-3



OTL 150-3



OTL 300-3

| | | | | | |
|--------------|--|------------|------------|------------|------------|
| Grey | | MAA3050A10 | MAA3095A10 | MAA3150A10 | MAA3300A10 |
| Blue | | MAA3050B10 | MAA3095B10 | MAA3150B10 | MAA3300B10 |
| Yellow-green | | MAA3050Y10 | MAA3095Y10 | MAA3150Y10 | MAA3300Y10 |

Technical data

| | | | | |
|---|---|--|--|--|
| Conductor cross-section Cu, Al (mm ²) | 1.5 - 50 | 6 - 95 | 25 - 150 | 95 - 300 |
| Nominal voltage AC / DC (V) | 1000 | 1000 | 1000 | 1000 |
| Nominal current (A) | 160 (Cu) / 145 (Al) | 245 (Cu) / 220 (Al) | 320 (Cu) / 290 (Al) | 630 (Cu) / 630 (Al) |
| Width / Height / Length (mm) | 46 / 41 / 80 | 59 / 51 / 84 | 71 / 54 / 84 | 101 / 78 / 120 |
| Screw, hexagonal key | No. 5 | No. 6 | No. 6 | No. 8 |
| Tightening torque (Nm) | 1,5 Nm (1,5 - 2,5 mm ²) 5 Nm (4 - 10 mm ²) 10 Nm (16 - 50 mm ²) | 12 Nm (6 - 25 mm ²) 22 Nm (35 - 95 mm ²) - | 14 Nm (25 - 50 mm ²) 30 Nm (70 - 150 mm ²) - | 35 Nm (95 - 150 mm ²) 45 Nm (180 - 300 mm ²) - |
| Mounting | DIN rail, screw | DIN rail, screw | DIN rail, screw | DIN rail, screw |
| Weight (g) | 109 | 178 | 246 | 730 |
| Package (pcs) | 20 | 6 | 6 | 1 |

* 630A achievable by connecting multiple input cables.

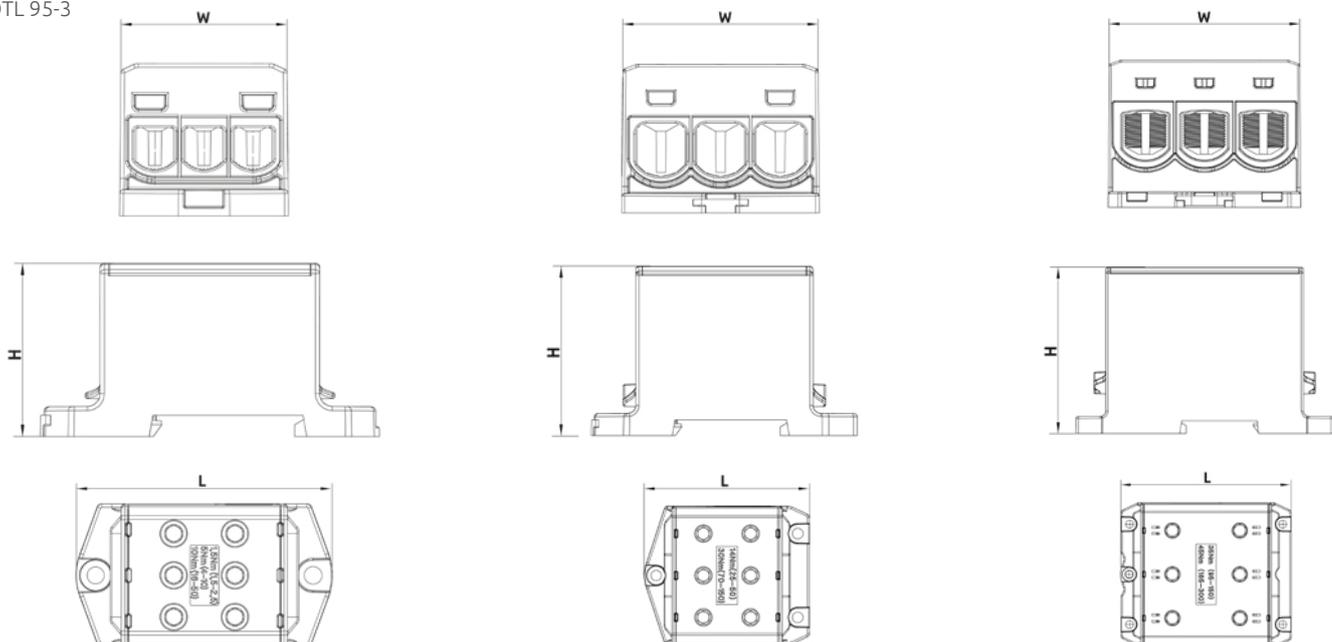
Dimensions

OTL 50-3

OTL 95-3

OTL 150-3

OTL 300-3





OTL 35-3X



OTL 50-3X



OTL 35-5X

| | | | | |
|--------------------------|--|------------|------------|------------|
| Grey | | MAA1335A10 | MAA1350A10 | - |
| Grey, Blue, Yellow-green | | - | - | MAA5035A10 |
| Yellow-green | | - | - | - |

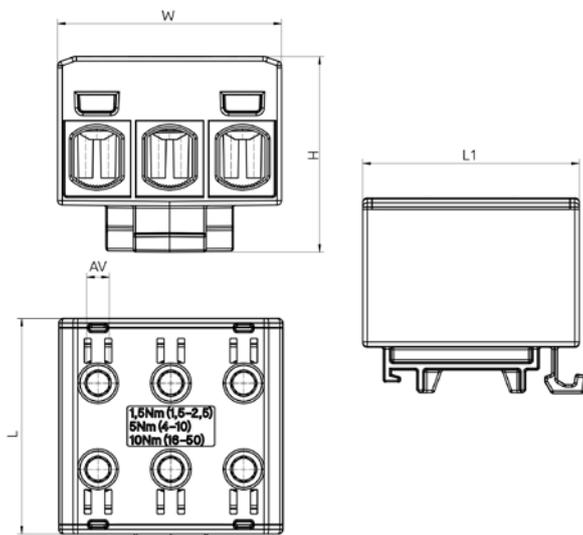
Technical data

| | | | |
|---|---|---|---|
| Conductor cross-section Cu, Al (mm ²) | 2,5 - 35 | 1,5 - 50 | 2,5 - 35 |
| Nominal voltage AC / DC (V) | 1000 | 1000 | 1000 |
| Nominal current (A) | 3 x 135 (Cu) / 3 x 120 (Al) | 3 x 160 (Cu) / 3 x 145 (Al) | 3 x 135 (Cu) / 3 x 120 (Al) |
| Width / Height / Length (mm) | 46 / 40 / 46 | 49 / 43 / 49 | 79 / 40 / 65 |
| Screw, hexagonal key | No. 4 | No. 5 | No. 4 |
| Tightening torque (Nm) | 3 Nm (2,5 - 16 mm ²) 6 Nm (25 - 35 mm ²) | 1,5 Nm (1,5 - 2,5 mm ²) 5 Nm (4 - 10 mm ²) 10 Nm (16 - 50 mm ²) | 3 Nm (2,5 - 16 mm ²) 6 Nm (25 - 35 mm ²) |
| Mounting | DIN rail | DIN rail | DIN rail, screw |
| Weight (g) | 70 | 81 | 120 |
| Package (pcs) | 20 | 20 | 10 |

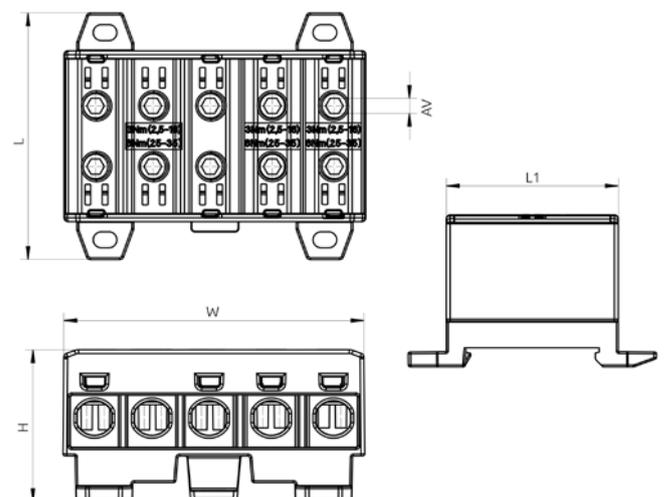
Dimensions

OTL 35-3X

OTL 50-3X



OTL 35-5X





OTL 50-2



OTL 95-2



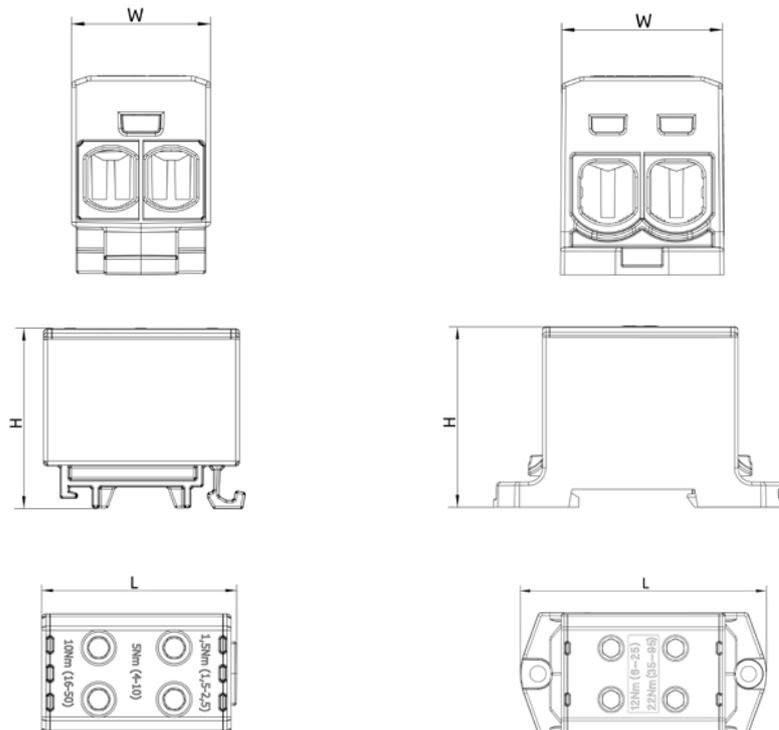
OTL 150-2



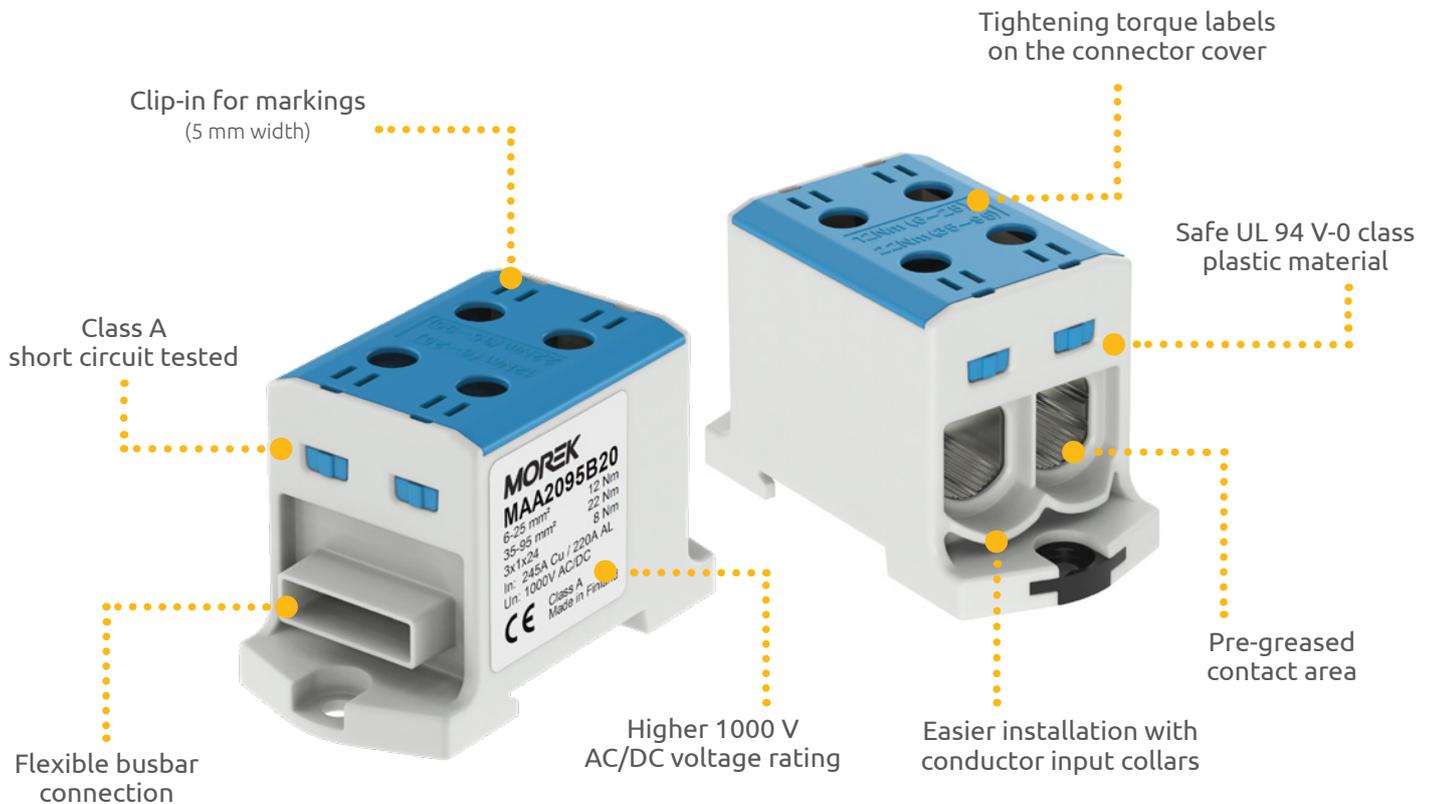
OTL 240-2

| | | | | | |
|---|---|---|--|--|--|
| Yellow-green-blue |  | MAA2050P10 | MAA2095P10 | MAA2150P10 | MAA2240P10 |
| Technical data | | | | | |
| Conductor cross-section Cu, Al (mm ²) | | 1,5 - 50 | 6 - 95 | 25 - 150 | 35 - 240 |
| Nennspannung AC/DC [V] | | 1000 | 1000 | 1000 | 1000 |
| Nominal current (A) | | 320 (Cu) / 290 (Al) | 245 (Cu) / 220 (Al) | 320 (Cu) / 290 (Al) | 425 (Cu) / 380 (Al) |
| Width / Height / Length (mm) | | 30 / 43 / 49 | 42 / 51 / 84 | 51 / 54 / 84 | 60 / 65 / 106 |
| Screw, hexagonal key | | No. 5 | No. 6 | No. 6 | No. 8 |
| Tightening torque (Nm) | | 1,5 Nm (1,5 - 2,5 mm ²) 5 Nm (4 - 10 mm ²) 10 Nm (16 - 50 mm ²) | 12 Nm (6 - 25 mm ²) 22 Nm (35 - 95 mm ²) - | 14 Nm (25 - 50 mm ²) 30 Nm (70 - 150 mm ²) - | 26 Nm (35 - 120 mm ²) 40 Nm (150 - 240 mm ²) - |
| Mounting | | DIN rail | DIN rail, screw | DIN rail, screw | DIN rail, screw |
| Weight (g) | | 90 | 125 | 170 | 340 |
| Package (pcs) | | 15 | 18 | 5 | 3 |

Dimensions



New OTL terminals for flexible busbars are designed for connection of copper (bare or tinned) flexible busbars to copper or aluminium cable, with cable cross-sections of up to 300 mm² and flexible busbar dimensions of up to 6x1x40 mm. The terminals retain all the benefits of OTL terminals, including 1000V rating, UL94 V0 class plastic, Class A certification and many others!



Certification and product safety

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EN 61238-1:2003 „Compression and mechanical connectors for power cables for rated voltages up to 30 kV (Um = 36 kV) - Part 1: Test methods and requirements“

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Class B (heat cycle tests only, **not short-circuit tested**) - These are connectors for networks in which overloads or short-circuits are rapidly cleared by the installed protective devices, e.g. **fast-acting fuses**.

Universal terminals OTL are tested and certified class A connectors.

For choosing safe and reliable connector, always make sure that the terminal is equipped with CE and Class A markings with the symbol of certifying institute, for example FI -mark.



OTL 95-2B



OTL 300-3B

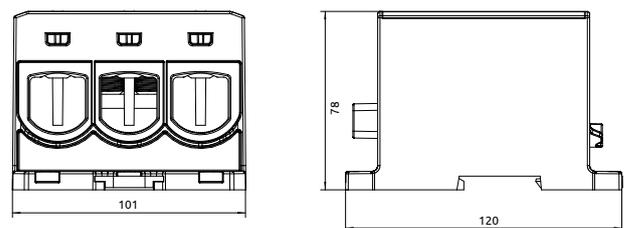
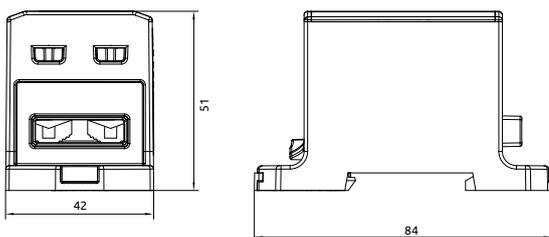
| | | | |
|--------------|---|------------|------------|
| Grey | ● | MAA2095A20 | MAA3300A20 |
| Blue | ● | MAA2095B20 | MAA3300B20 |
| Yellow-green | ● | MAA2095Y20 | MAA3300Y20 |

| Technical data | | |
|---|---|---|
| Conductor cross-section Cu, Al (mm ²) | 6 - 95 | 95 - 300 |
| Busbar cross-section, Cu (mm ²) | 3x1x24 | 3x1x32 - 6x1x40 |
| Nominal voltage AC / DC (V) | 1000 | 1000 |
| Nominal current (A) | 245 (Cu) / 220 (Al) | 630 (Cu) / 630 (Al) |
| Width / Height / Length (mm) | 42 / 51 / 84 | 101 / 78 / 120 |
| Screw, hexagonal key | No. 6 | No. 6, No. 8 |
| Tightening torque (Nm) | 12 Nm (6 - 25 mm ²) 22 Nm (35 - 95 mm ²) 8 Nm (3x1x24 mm) | 35 Nm (95 - 150 mm ²) 45 Nm (180 - 300 mm ²) 15 Nm (3x1x32 - 6x1x40 mm) |
| Mounting | DIN rail, screw | DIN rail, screw |
| Weight (g) | 125 | 499 |
| Package (pcs) | 15 | 1 |

Dimensions

OTL 95-2B

OTL 300-3B





Protective plastic covers are offered as accessories for universal terminals OTL. They are used for blanking unused connection space or for maintaining IP20 protection class when using wire with smaller cross-section. These accessories are offered for terminals series OTL 50, OTL 95, OTL 150 and OTL 240.



**Finger guard
OTL 50**



**Finger guard
OTL 95**



**Finger guard
OTL 150**



**Finger guard
OTL 240**

| | | | | |
|------|------------|------------|------------|------------|
| Grey | MAA0050A10 | MAA0095A10 | MAA0150A10 | MAA0240A10 |
|------|------------|------------|------------|------------|

Technical data

| | | | | |
|------------------------------|----------------|----------------|----------------|----------------|
| Width / Height / Length (mm) | 14 / 31,5 / 10 | 18,3 / 45 / 10 | 22 / 47,5 / 10 | 28 / 57,5 / 10 |
| Material | PA 66 | PA 66 | PA 66 | PA 66 |
| Weight (g) | 0,8 | 1,4 | 1,7 | 2,7 |
| Package (pcs) | 10 | 10 | 10 | 10 |

Contact grease SR-1

- Lubrication grease & rust inhibitor for electrical connectors
- Used both indoors and outdoors

Materials

- Lithium thickened grease, containing antioxidants and corrosion inhibitors

Warning: prolonged or repeated skin contact may irritate the skin and produce dermatitis.

Advantages

- Good protection against both copper and steel corrosion
- Prevention of oxidation of aluminium surfaces
- Reduction of transition resistance while used with wire brush

Standards

- DIN 51502 K2K-30
- ISO 6743 ISO-L-XCCHA2

Contact grease SR-1 250 ml



SR-1

| | |
|---------------------------|------------|
| Contact grease SR-1 250ml | MYA0001A10 |
|---------------------------|------------|

Technical data

| | |
|--|------------|
| Base oil viscosity / cSt at 40 °C | 112 |
| Base oil viscosity / cSt at 100 °C | 10 |
| Dropping point / °C | >180 |
| Temperature range / °C | -30 to 110 |
| Thickener | Lithium |
| SKF Emcor WWO distilled water / ISO 11007mod | 0-0 |
| Copper corrosion 24h / 100 °C / ASTM D4048 | 1b |
| Water resistance / DIN 51807 / 1 | 0-90 |
| Oil separation 168h / 40 °C / IP121 | 6% |