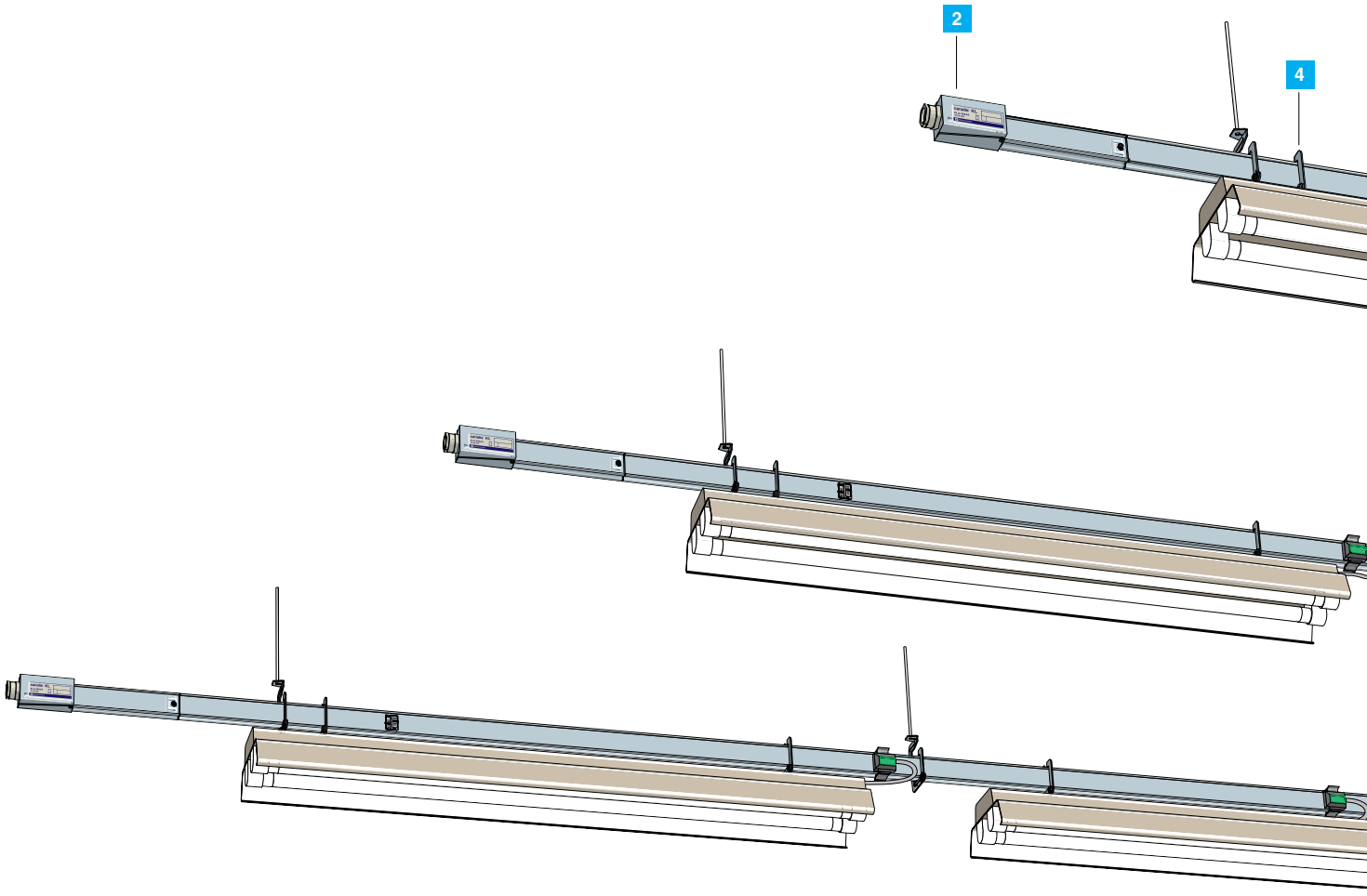
Busbar trunking for lighting

Canalis KLE 20 A
For lighting distribution in small commercial and industrial buildings. eg. small retail premises, offices etc.

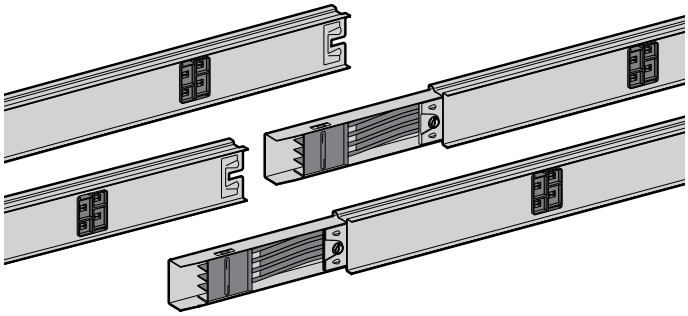
Presentation

1



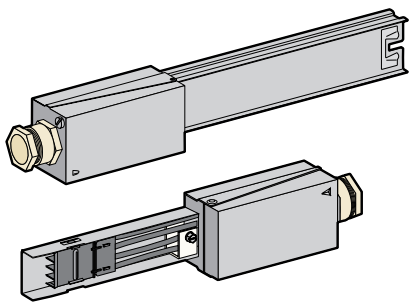
1 Straight lengths

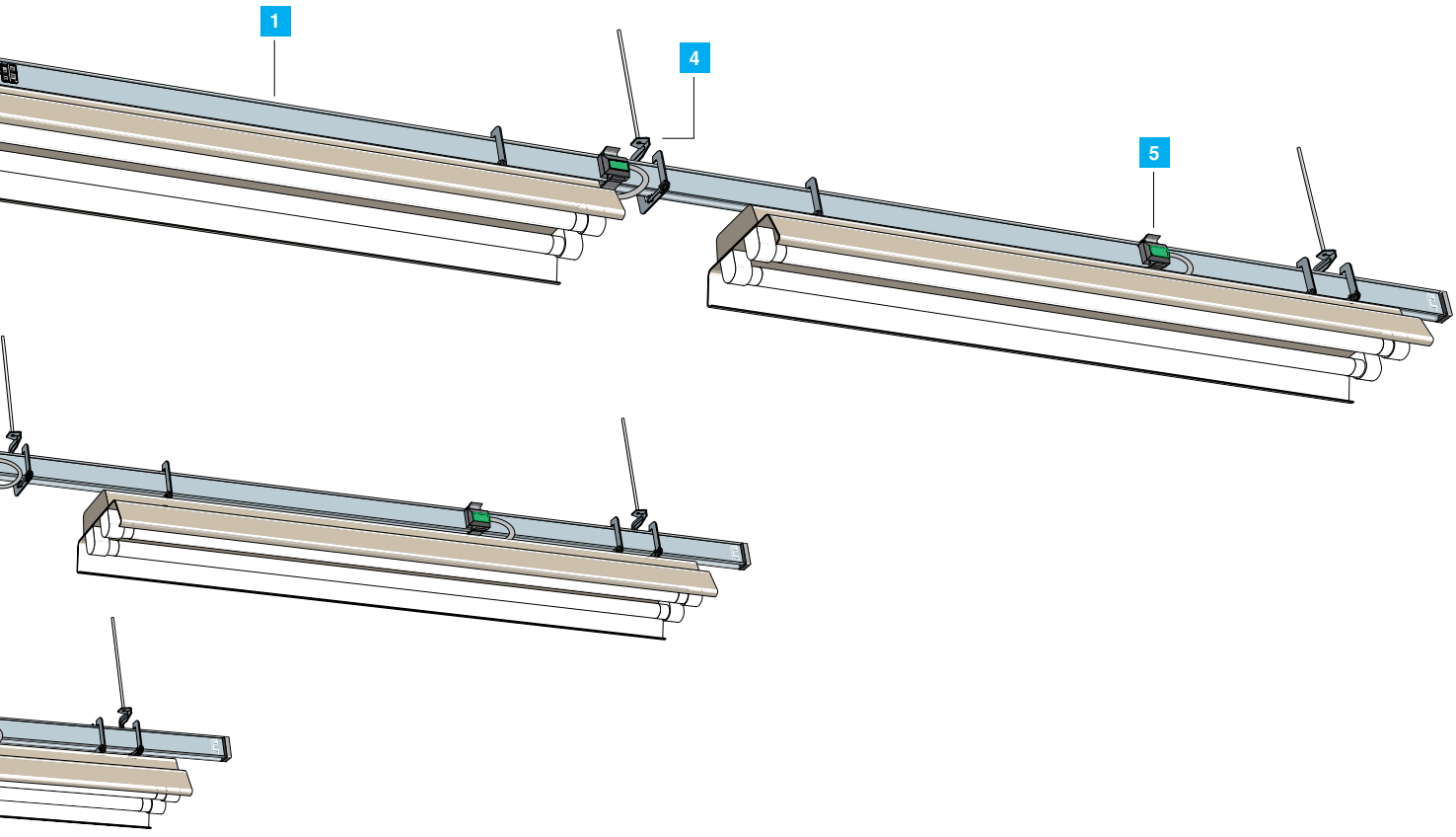
Rating : 20 A.
2 or 4 live conductors. 3 m and 2 m long.



2 Feed units

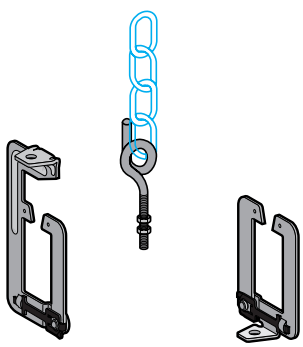
Provide an incoming cable connection point





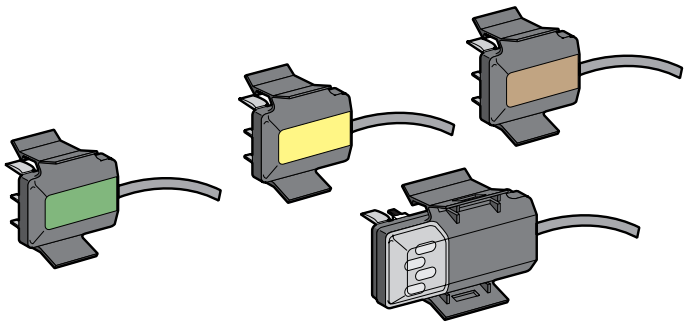
4 Fixing devices

Provide a means of mechanically
fixing the busbar trunking and luminaires



5 Tap-off units

6-10 A pre-wired L+N+PE units
with fixed polarity or phase selection



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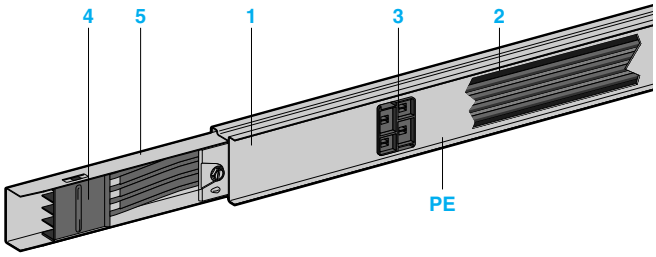
Component descriptions

Straight lengths

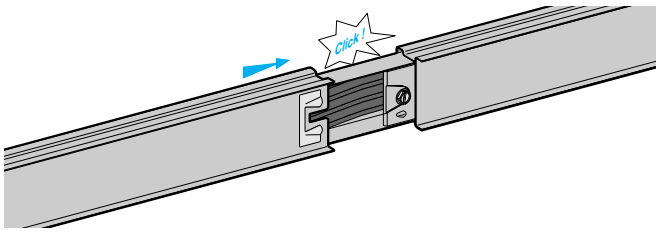
Transmits current, supports and supplies luminaires.



The straight lengths form the structure of the run and comprise :

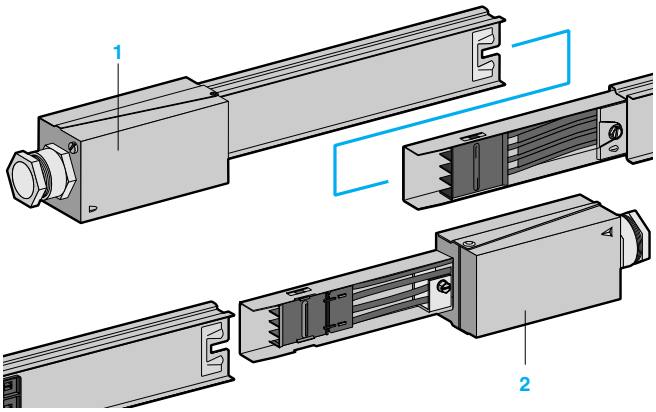
1 An all-in-one, crimped closed carrier rail, forming a beam (rectangular cross-section 40 x 25), in sheet steel hot-galvanised on both sides. This rail also acts as a protective earth conductor (**PE**) with a copper equivalent cross-section of 11 mm².
2 A ribbon cable with 2 or 4 copper conductors which is protected against corrosion by tinning.
3 Three tap-off outlets per length.
4 An electrical connection ensuring the automatic and simultaneous connection of all the live conductors.
5 A mechanical connection (galvanised sheet steel) with a locking spring which ensures that the connection of 2 lengths is rigid and resistant to bending. Continuity of the protective earth conductor (**PE**) is also ensured.
The degree of protection is IP 31.
All the insulating and plastic material used has an increased fire tolerance : resistance to incandescent wire test ≥ 850 °C (IEC 695-2-1).

Assembly



Two straight lengths are assembled by clicking them together. The mechanical and electrical connections of all live and earth conductors are made automatically in a single movement.
Tightening the captive screw completes assembly.

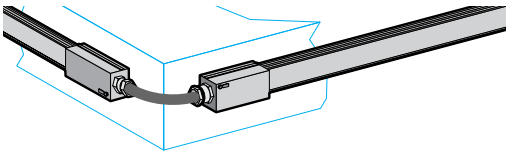
Feed units and end covers

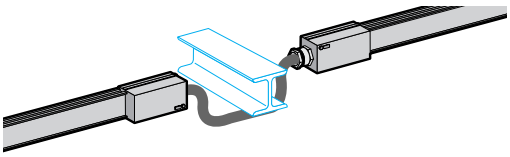


Provide an incoming cable connection point.
Assembly by clicking together (jointing) at the end of the run.
Feed units have terminals for solid (10 mm²) or multicore (6 mm²) cables.
Supplied with a cable gland.

1 Left feed box. Supplied with end cover.
2 Intermediate terminal box supplied without end cover. Also allows feeding the run from the right.

Joining the 2 components by a flexible cable makes it possible to change level and go around obstacles.





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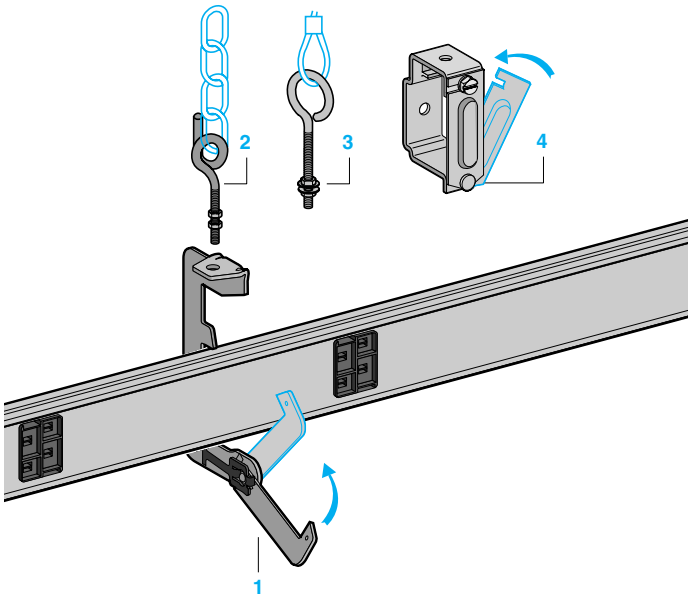
Component descriptions

Fixing devices

Trunking

To attach the busbar trunking to the structure of the building, either directly or via a threaded rod, a chain or steel cable (using a pigtail hook or closed ring for the latter two).
Designed to relieve the installer of the weight of the busbar trunking when placed in the bracket.
The hinged part of the bracket locks automatically on closing (unlocking requires a tool).
Maximum advised fixing distance : 3 m.



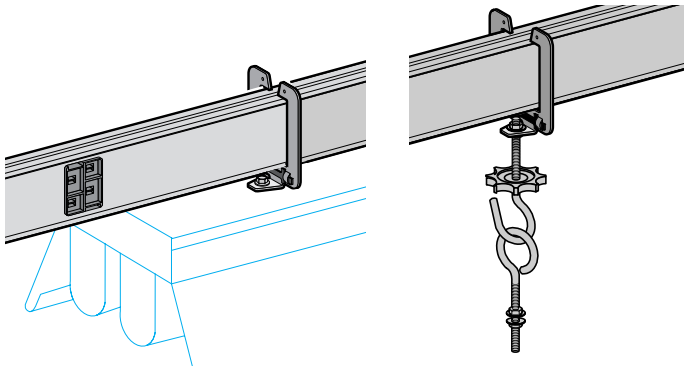
1 C stirrup bracket
- For suspension on Ø 6 mm threaded rod.
- This bracket can be used for mounting the additional cable duct (see below) if and when required.

2 Pigtail hook
For suspension by chain.

3 Closed ring
For suspension by steel cable.

4 Wall bracket
For horizontal or vertical mounting on a beam, wall-mounting, etc.

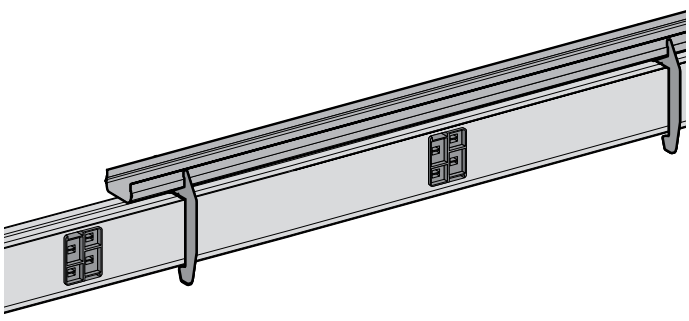
Luminaires



Attached to the luminaires before mounting, these fixing devices enable direct and fast fixing to Canalis KLE.
The design is similar to the C stirrup bracket used for busbar trunking.
The hinged part of the bracket locks automatically on closing.
The use of an open hook and/or closed ring allows mounting by a chain, etc.

Additional metal cable duct

For routing adjacent circuit cables such as emergency lighting, audible alarm cables, etc.



Can be mounted quickly without the need for any tools, by clicking onto the support brackets.
Effective cross-section 26 x 14 mm.

Cables (Ø 12 mm max.) can simply be slotted into place.
Perforations enable them to be held in position using nylon ties.

Due to its metallic composition, it can be used with a category CR1 flame resistant cable, enabling emergency lighting usage from a central source.

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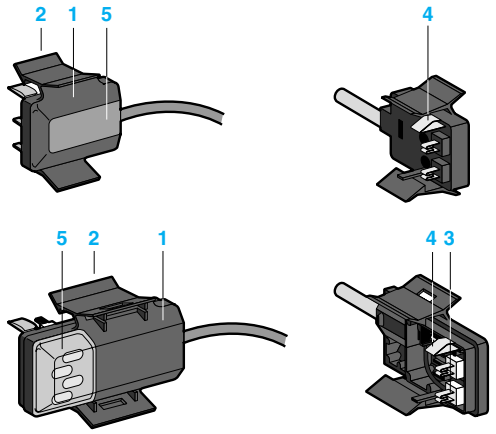
Component descriptions

Tap-off units

For instant connection of lighting equipment to the Canalis KL run.

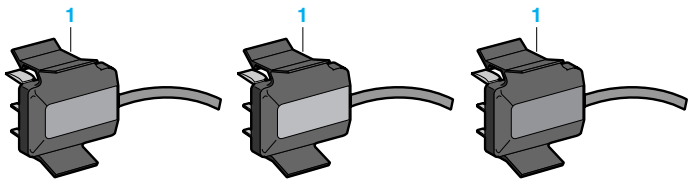


- They are always 2-pole L + N + PE.
- They can be handled when powered up and under load.
- The live conductor contacts are clip type (with no pressure on the plastic).
- They are provided with an inter-locking device preventing incorrect connection.
- The PE connection is established before the phase or neutral connection, on the internal panel casing of the straight length.
- The body and all the insulation parts have an increased fire resistance : resistance to incandescent wire test ≥ 850 °C (IEC 695-2-1).

1 Casing
2 Attachment foot
3 Live conductor contacts
4 Protective conductor contacts
5 Displays the phase selected
- By the colour of the centre (fixed polarity connector)
- By the transparent window (phase selection connector)

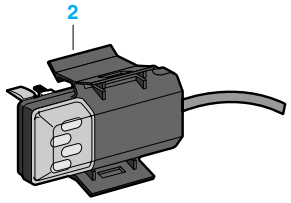
2-pole pre-wired units

Pre-wired with H05VV-F cable, 3 x 1 mm^2. The end of the cable, where the luminaire is connected, is pre-stripped.

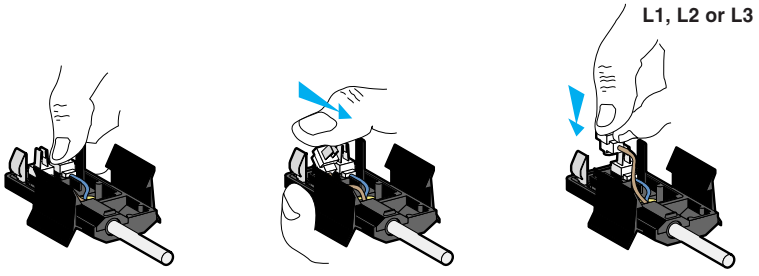


1 6 A unit, fixed polarity, cable length 0.6 m

They can be identified from a distance by the colour at the centre of the connector :
- green **L1/N**
- yellow **L2/N**
- brown **L3/N**



2 10 A unit, L + N with phase selection, cable length 0.8 m or 2 m.



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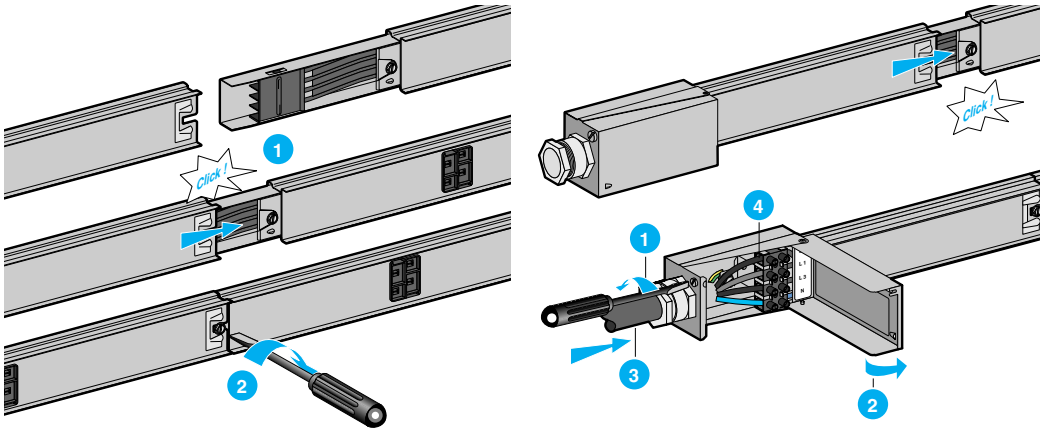
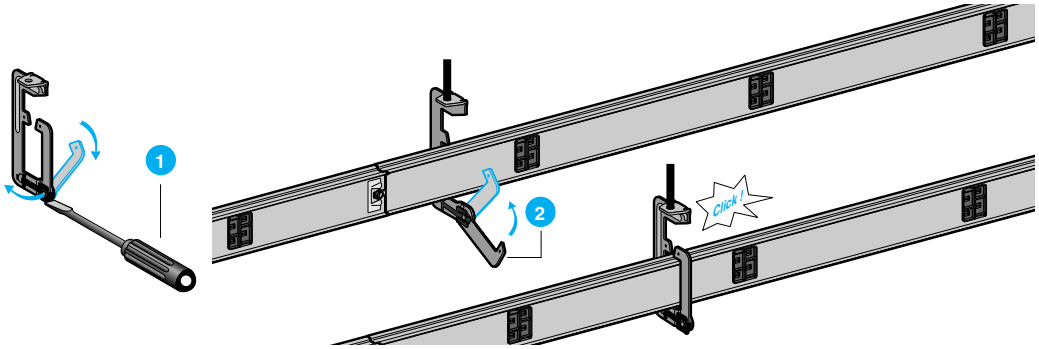
Mounting

Mounting instructions detailing the various stages of assembly are included with the trunking.
However, the main operations outlined below illustrate how easily and quickly it can be put together.

Assembling the straight lengths and feed units

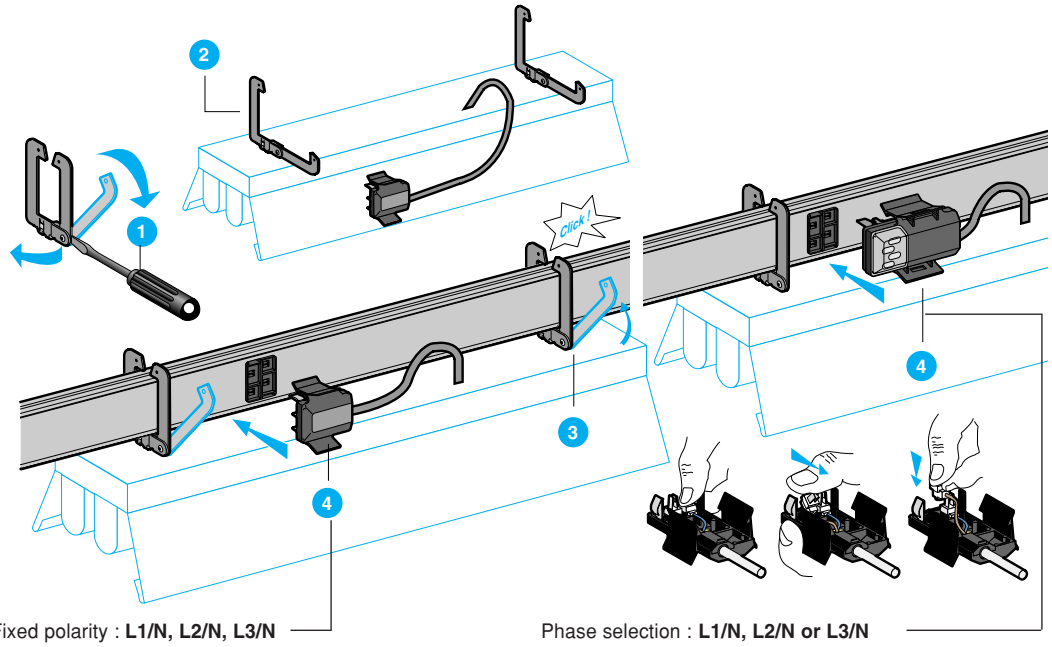


Installing the busbar trunking



Installing and connecting the luminaires

The luminaires are fitted with suspension brackets and tap-off unit at ground level before mounting.



Fixed polarity : **L1/N, L2/N, L3/N**

Phase selection : **L1/N, L2/N or L3/N**

Busbar trunking for lighting

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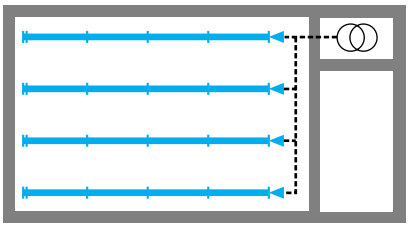
Selection

1

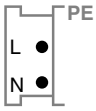
A selection guide



You should determine :
- The type of luminaire (types of lamp, power, compensated or not), its weight, number and distribution
- The structure of the premises (to determine the busbar trunking mounting method)
- External influences (IP rating required)
- Guidance on mechanical and electrical loading is provided in this document.

Busbar trunking with 2 live conductors : L + N + PE

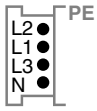
Application ⇒ Single phase/circuit distribution



Note : For
- 3L (no N) distribution (3 X 230 V)
- 2 single phase circuits L + N distribution on busbar trunking with 4 conductors
- tap-offs on 3L + N receivers

Busbar trunking with 4 live conductors : 3L + N + PE

Application ⇒ Luminaires balanced on 3 phases
⇒ 3 light circuit distribution

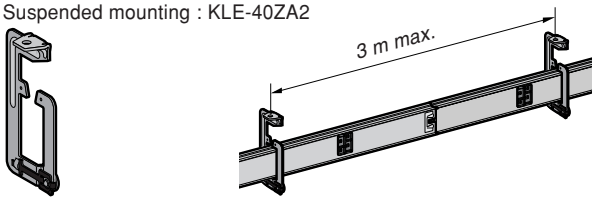


Change your selection to Canalis **KBA** busbar trunking.

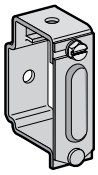
Fixing the busbar trunking

The normal position for mounting is edgewise. For flat mounting, please consult us.
The fixing distance depends on the weight of the luminaires suspended between 2 fixing points and must not exceed 3 metres.

Suspended mounting : KLE-40ZA2



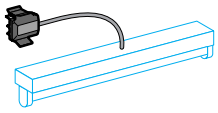
Edge mounting : KLE-40ZA4



Tap-off units

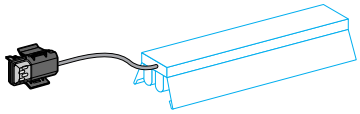
Tap-off units are always **single-phase : L + N** (fixed) + **PE** and pre-wired with H05VVF 3 X 1 mm².
The choice of unit depends on the type of lighting equipment :

- for tube lighting with top cable entry and central terminal block.
KLC-06CS2●● 6 A, fixed polarity, pre-wired, 0.6 m long.



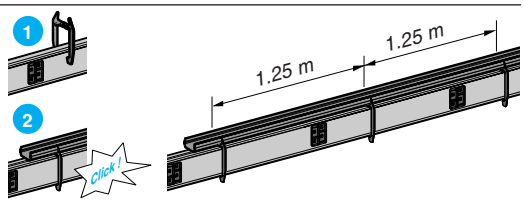
- for any type of lighting.

KLC-10CC21● 10 A, with phase selection, pre-wired, 0.80 or 2 m long.



Additional cable duct

The KBB-40ZG2 additional cable duct can be assembled during or after the main installation.
3 x 3 m KLE-40ZG1 support brackets are required.



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Characteristics

Type of busbar trunking			**KLE-20**

General electrical characteristics

Conformity to standards			IEC 439-2 and BSEN 60439-2
Number of live conductors			2 or 4
Rated nominal current	Inc (average ambient temperature 35 °C)	**A**	20
Type of current/rated frequency	F	**Hz**	∼ 50/60
Rated insulation voltage	Ui	**V**	500
Rated operating voltage	Ue	**V**	230...400
Degree of protection to IEC 529/BSEN60529			IP 31

Electrical characteristics of conductors

Live conductors (per conductor)	R20 or Rb0 ph average resistance, cold state (ambient temperature 20 °C)	**mΩ/m**	6.83
	R1 or Rb1 ph average resistance at Inc (ambient temperature 35 °C)	**mΩ/m**	7.93
	X1 or Xb ph average reactance at Inc and at 50 Hz rated frequency	**mΩ/m**	0.21
Protective conductor	Average resistance, cold state (ambient temperature 20 °C)	**mΩ/m**	1.57

Fault loop characteristics

Average loop resistance between live conductors	Rb1 ph ph or ph N (at thermal stabilisation temperature θ 1)	**mΩ/m**	15.86
	Rb2 ph ph or ph N (1) (at conventional short-circuit temperature)	**mΩ/m**	19.03
Average loop reactance	Xb ph ph	**mΩ/m**	1.68
	Xb ph N	**mΩ/m**	2.08
Average loop resistance between live and PE conductors	Rb1 ph PE (at thermal stabilisation temperature θ 1)	**mΩ/m**	9.90
	Rb2 ph PE (1) (at conventional short-circuit temperature)	**mΩ/m**	11.88
Average loop reactance	Xb ph PE	**mΩ/m**	1.30

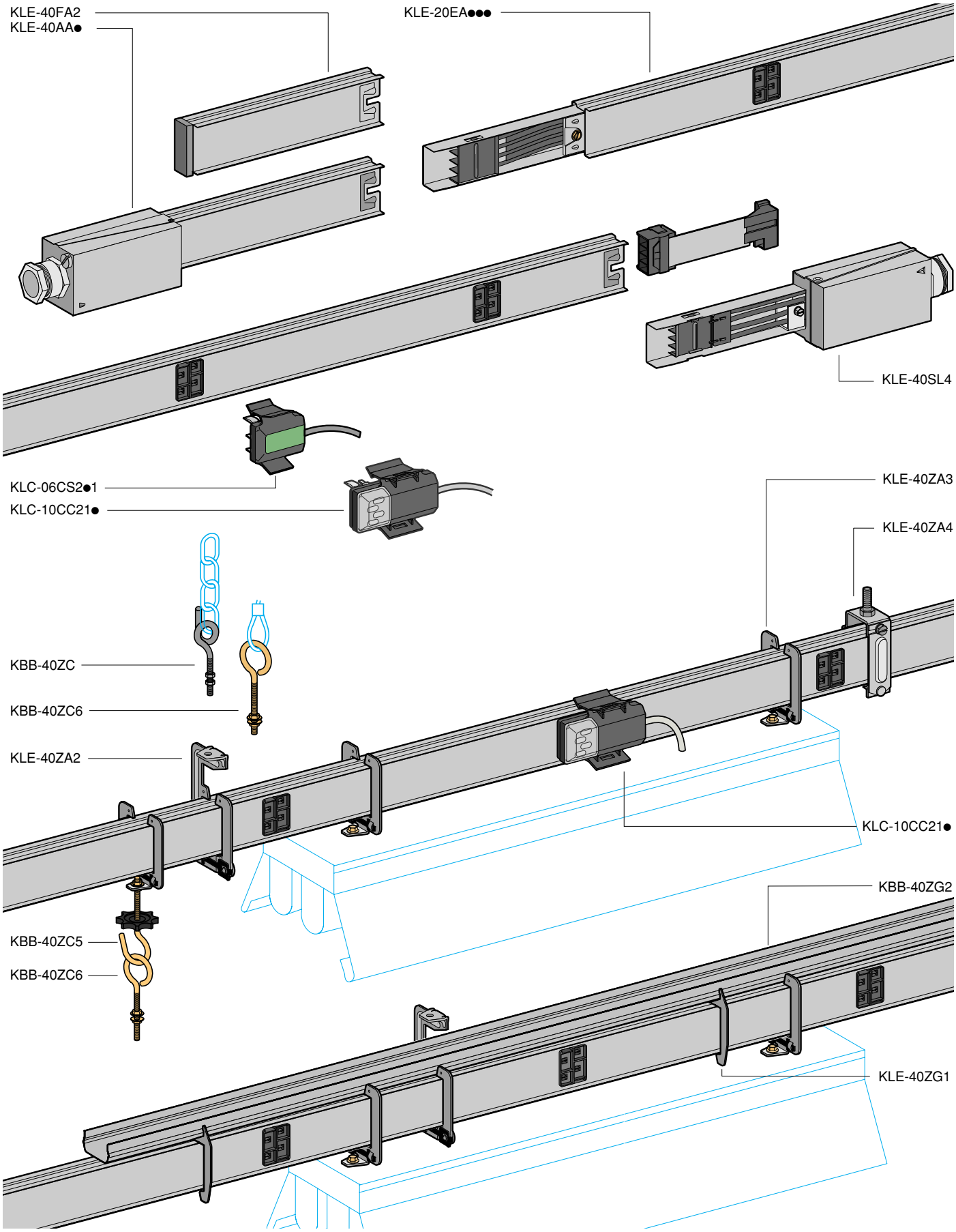
Other characteristics

Short-circuit current withstand	Ipk permissible rated peak current	**kA**	4.40
	I²t maximum thermal limit	**A²s**	195.10^3
Voltage drop	Voltage drop, **for single-phase current** 50 Hz, in volts per 100 m and per ampere with loads evenly distributed along the run (general case for lighting). Voltage drop for 3-phase : multiply these values by 0.866.		
	For Cos.φ = 0.8	**V/100m/A**	0.65
	For Cos.φ = 0.9	**V/100m/A**	0.72
	For Cos.φ = 1	**V/100m/A**	0.79
Normal mounting position	Edgewise		

Permissible current depending on the temperature

k1 multiplying factor to be applied to the desired rated current Inc of the busbar trunking for an average daily ambient temperature different to 35 °C.

Ambient temperature	°C	15	20	25	30	35	40	45	50
k1 factor		1.13	1.10	1.07	1.04	1.00	0.96	0.93	0.89


KLE-40FA2
KLE-40AA●
KLE-20EA●●●
KLE-40SL4
KLC-06CS2●1
KLC-10CC21●
KLE-40ZA3
KLE-40ZA4
KBB-40ZC
KBB-40ZC6
KLE-40ZA2
KLC-10CC21●
KBB-40ZG2
KBB-40ZC5
KBB-40ZC6
KLE-40ZG1

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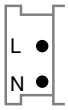
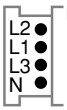
References

Straight lengths

Type of trunking	Polarity	Length **m**	Number of tap-offs	Order in multiples of	Unit reference	Weight kg
	L + N + PE	3	3	6	**KLE-20EA203**	2.300
		2	2	6	**KLE-20EA402**	1.700
	3L + N + PE	3	3	6	**KLE-20EA403**	2.500
		2	2	6	**KLE-20EA402**	1.700

Feed units and end covers

Description	Mounting	For trunking	Reference	Weight kg
Feed unit (with end cover)	Left	2 conductors	**KLE-40AA2**	0.400
		4 conductors	**KLE-40AA4**	0.400
Feed unit or terminal box (without end cover)	Right	2 or 4 conductors	**KLE-40SL4**	0.250
End cover	Left	Fed from the right by KLE-40SL4	**KLE-40FA2**	0.130

Fixing devices and accessories

For fixing	Description	For mounting	Maximum load **kg**	Order in multiples of	Unit reference	Weight kg
Busbar trunking	**C stirrup bracket**	Suspended on threaded rod directly under ceiling	30	10	**KLE-40ZA2**	0.070
	Pigtail hook	Suspended on chain or steel cable (to be used with KLE-40ZA2)	30	10	**KBB-40ZC**	0.020
	Wall bracket	Edge, wall, surface mounting	30	10	**KLE-40ZA4**	0.070
Luminaire	**Suspension bracket**	Directly under trunking	30	10	**KLE-40ZA3**	0.050
	Open hook	Suspended on chain, etc. (to be used with KLE-40ZA3)	30	10	**KBB-40ZC5**	0.020
	Ring	On luminaire	30	10	**KBB-40ZC6**	0.020

Additional cable duct

Description	Use	Length **m**	Eff. cross section **mm**	Order in multiples of	Unit reference	Weight kg
Metal cable duct	Routing cables	3	26 X 14	6	**KBB-40ZG2**	0.800
Support bracket	3 x 3 m brackets are required			10	**KLE-40ZG1**	0.030

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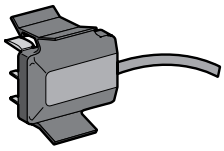
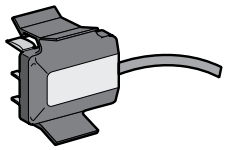
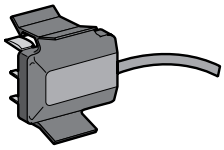
6 A tap-off units (L + N + PE) pre-wired with fixed polarity



KLC-06CS211



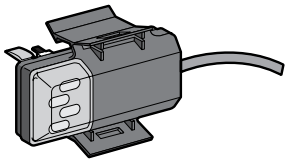
KLC-06CS221



KLC-06CS231

For trunking	Polarity	Centre/body colour	Length of cable **m**	Order in multiples of	Unit reference	Weight kg
PE, L1, N	L1 + N	Green/black	0.6	10	**KLC-06CS211**	0.060
PE, L2, L1, L3, N	L1 + N	Green/black	0.6	10	**KLC-06CS211**	0.060
	L2 + N	Yellow/black	0.6	10	**KLC-06CS221**	0.060
	L3 + N	Brown/black	0.6	10	**KLC-06CS231**	0.060

10 A tap-off units (L + N + PE) pre-wired with phase selection



KLC-10CC21●

For trunking	Polarity	Length of cable **m**	Order in multiples of	Unit reference	Weight kg
PE, L2, L1, L3, N	L1 + N or L2 + N or L3 + N	0.8	10	**KLC-10CC211**	0.100
		2	10	**KLC-10CC212**	0.200

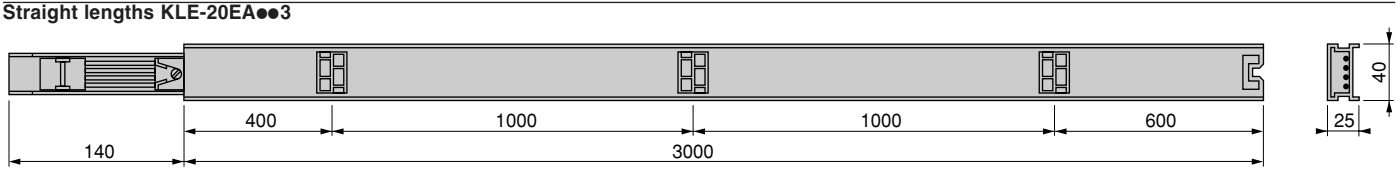
Busbar trunking for lighting

Canalis KLE 20 A

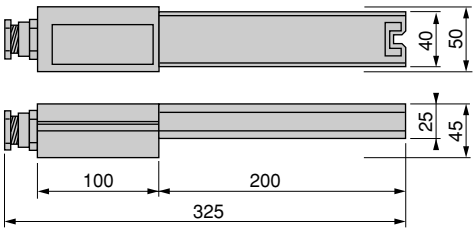
Dimensions

Description :
pages 1/2 to 1/4
Characteristics :
page 1/7
Mounting - Selection :
pages 1/5 and 1/6
References :
pages 1/8 to 1/10

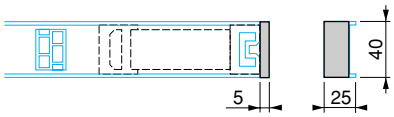
Straight lengths KLE-20EA●●3



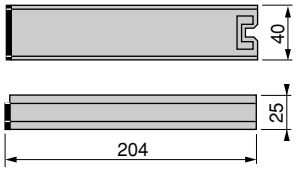
Feed unit and end cover
KLE-40AA●



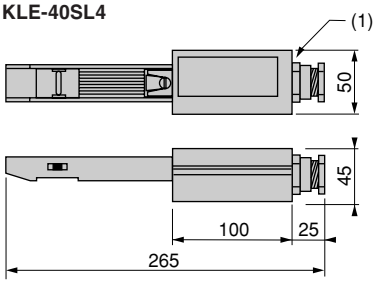
End cover (supplied with feed unit)



KLE-40FA2

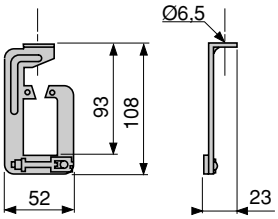


KLE-40SL4

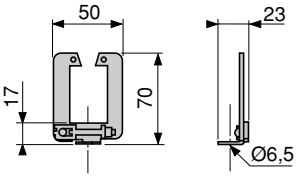


(1) 21P cable gland

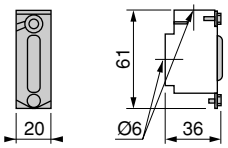
Fixing brackets
KLE-40ZA2



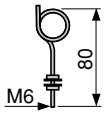
KLE-40ZA3



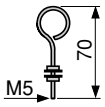
KLE-40ZA4



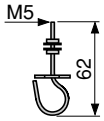
KBB-40ZC



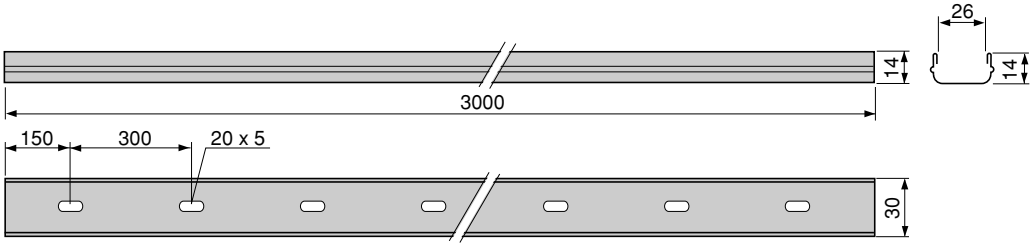
KBB-40ZC6



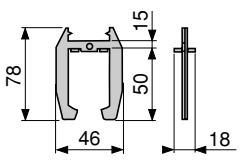
KBB-40ZC5



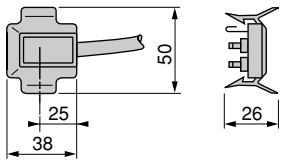
Cable duct and support bracket
KBB-40ZG2



KLE-40ZG1



Tap-off units
KLC-06CS2●1



KLC-10CC21●