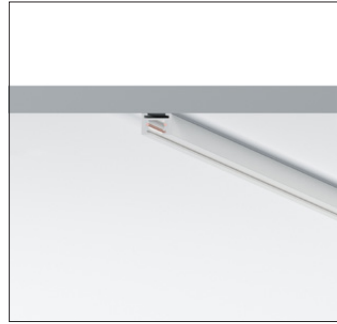


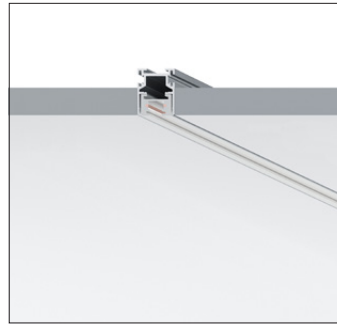


A guide for all lighting designers and technicians wanting to discover the possibilities of ERCO Minirail 48V track



Surface mounting

7



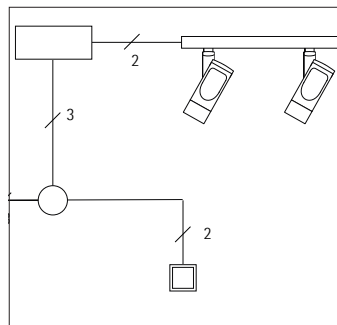
Recessed mounting

11



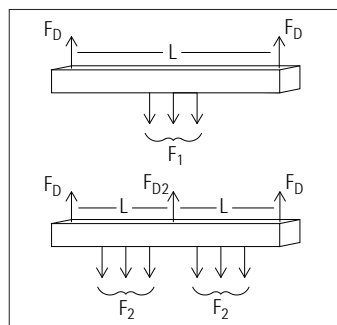
Pendant mounting

16



Electrical installation

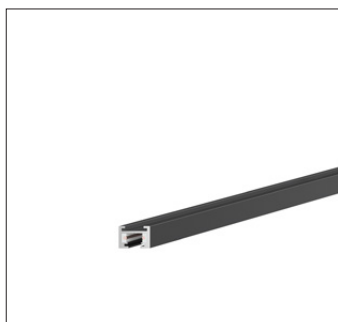
21



Static load

26

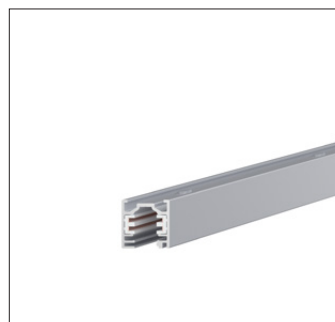
## An overview of our track



### ERCO Minirail 48V track and singlet

#### Miniaturized infrastructure

With Minirail 48V, ERCO offers a miniaturized alternative to the classic ERCO track as the basis for flexible, space-saving lighting installations. Minirail 48V with a profile width of just 22mm is ideal for all situations requiring the smallest possible system dimensions, whether for aesthetic or technical reasons.



### ERCO track, flanged track and singlet

#### Classic application

ERCO track is the flexible and sustainable infrastructure for spotlights, downlights, wallwashers, and pendant luminaires. The track can be fixed to ceilings and walls and luminaires can be moved or replaced with ease. Luminaires from other manufacturers can also be used in ERCO track – appropriate adapters as OEM components are available from ERCO.



### ERCO Hi-trac and light structure

#### For higher loads

Hi-trac and light structures are a heavy-duty track infrastructure for suspending spotlights, downlights, wallwashers, and pendant luminaires. The Hi-trac profiles with wide spans of up to 4m are particularly recommended in rooms with just a few available suspension points. Two variants of the Hi-trac profile are available: either with an empty upper profile for further cable routing or with indirect luminaires for illuminating ceilings.

	Minirail 48V	Track and flanged track	Hi-trac
Versions	Track Singlets	Track Flanged track Singlets	Track Track with indirect distribution luminaire
Types of mounting	Recessed Surface-mounted Pendant	Recessed Surface-mounted Pendant	Pendant
Control options for luminaires	Switchable Casambi Bluetooth 0-10V (via bridge) Zigbee DALI and DMX options on request	Switchable Phase dimmable Casambi Bluetooth 0-10V (via bridge) Zigbee DALI and DMX options on request	Switchable Phase dimmable Casambi Bluetooth 0-10V (via bridge) Zigbee DALI and DMX options on request
Width x height	7/8" x 5/8" (22 x 16mm)	1 5/16" x 1 3/8" (33.5 x 34mm)	1 1/2" x 2 7/8" (38 x 72mm)
Length	3.28ft (1000mm) 6.56ft (2000mm) 9.84ft (3000mm) (can be shortened on site)	4ft (1219mm) 8ft (2438mm) 12ft (3657mm) (can be shortened on site)	Track 8ft (2438mm) 12ft (3657mm) (can be shortened on site)  Luminaire 6.56 ft (2000mm) with indirect distribution
Accessories	Suspension equipment Plaster trim profiles Connectors Adapters Mounting components Power supply units	Suspension equipment Plaster trim profile Connectors Adapters Mounting components Display hook	Suspension equipment Connectors Adapters Mounting components Display hook

ERCO Minirail 48V system and accessories –  
small cross section, large flexibility



ERCO Minirail 48V tracks can be mounted directly on ceilings, walls or even on cornices.



A plaster trim profile (accessory) turns surface-mounted track into flush-mounted track.

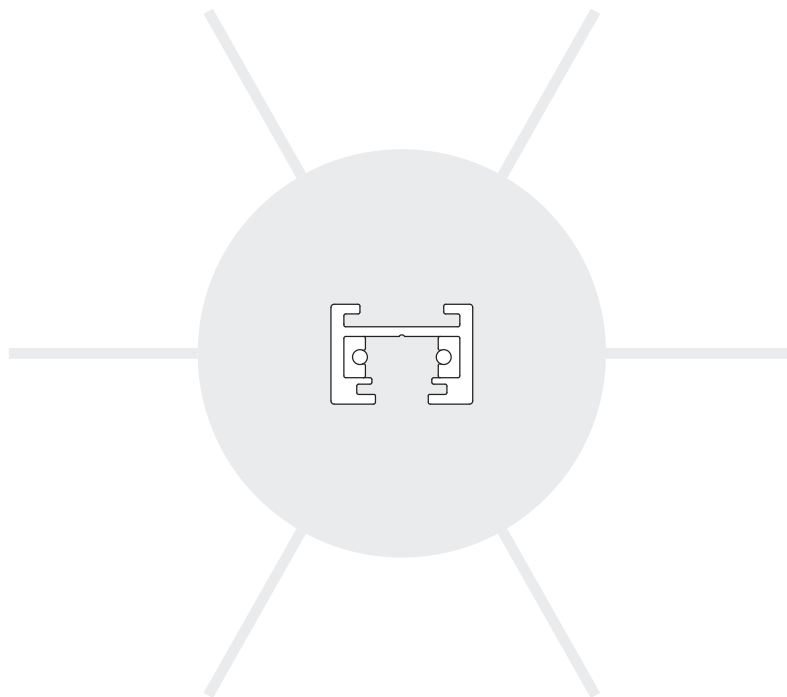
In addition to the basic colours black and white, special colour coatings are also possible to integrate the track perfectly into the ceiling design.



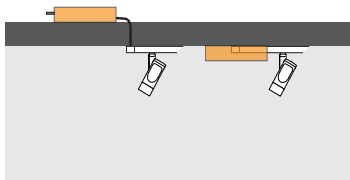
The track for a spotlight: the ERCO Minirail 48V singlet.



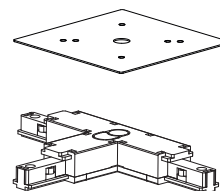
**ERCO connectors**  
Provide power and enable all types of control.



Wire suspension or pendant tube (both available as accessories) turns ERCO Minirail 48V tracks into a suspended structure.



**ERCO power supply units**  
Flexible power supply due to power supply units in three versions and for different mounting options.



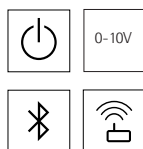
**Accessories**  
Mounting plates for easy feeding via cable outletboxes

### Benefit from a long-term investment



**Extremely stable and durable**  
ERCO Minirail 48V track is manufactured from high-quality aluminum in the ERCO light factory in Germany. Simply install lengths up to 9.84ft (3000mm) in a single piece. The spotlight adapters are similarly robust: designed for continuous use, they are not damaged by frequent insertion and removal.

### Gain planning security



**Casambi Bluetooth, Zigbee On Board Dim or simply switch on and off?**  
Common types of control can be implemented wirelessly with ERCO Minirail 48V track. The 0-10V to Casambi Gateway even allows for wireless control with 0-10V systems. DALI and DMX options on request.



**Easy combination with ERCO track or Hi-trac**  
Wireless control modes enable light control concepts that are simultaneously based on ERCO track or Hi-trac and ERCO Minirail 48V.

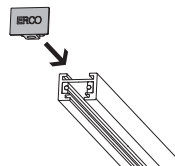


**Straight ahead, around the corner, or as a geometric shape?**  
Design your Minirail 48V track system without restrictions: X-, T-, corner flexible and Multiflex connectors enable diverse geometries. Suitable components are specified as accessories on the data sheet of the track.

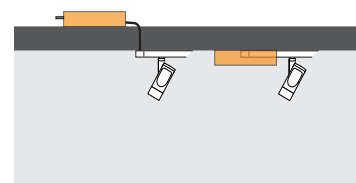
### Save time and effort through simple mounting



**Simply cut to size and install on site**  
ERCO Minirail 48V track is easily cut to size to the nearest millimeter on site using a miter saw. There is no risk of damaging the conductor paths in the process.



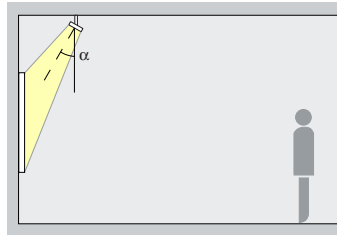
**Simple mounting**  
Pre-wired connectors allow for quick and easy installation on site. Minirail 48V is protected against polarity reversal and there is no mechanical differentiation of the connectors.



**Flexible positioning of the power supply units**  
ERCO power supply units can be installed on the track, on the ceiling, and also in the ceiling.

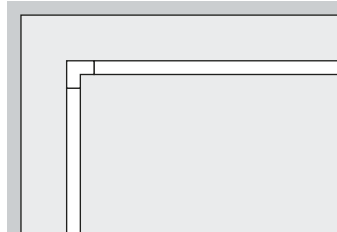
## Seven steps to your track project

### Step 1: The right arrangement



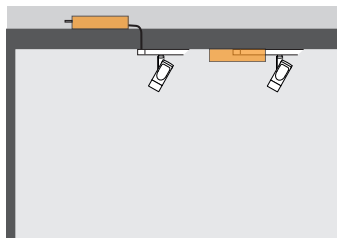
In museums and galleries, the track usually runs parallel to the walls. For uniform wallwashing, you can apply approx. one third of the wall height as wall spacing; for accent lighting, the 30° museum angle helps with positioning. In display cases, the track often runs parallel to the longitudinal axis.

### Step 2: Plan the layout



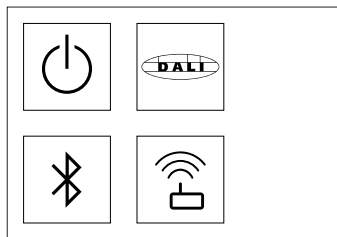
Draw the track layout in the reflected ceiling plan of the room. Non-rectangular shapes are also possible.

### Step 3: Plan the power supply units



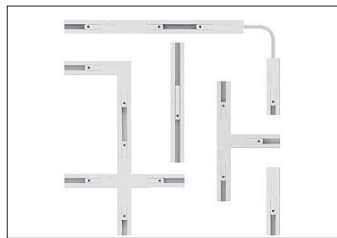
Determine the size and number of power supply units needed. Determine the positioning of the power supply units. A power supply unit can be mounted on the ceiling, above the Minirail 48V track or even in the ceiling. Installation on a display case is also possible.

### Step 4: Determine the control



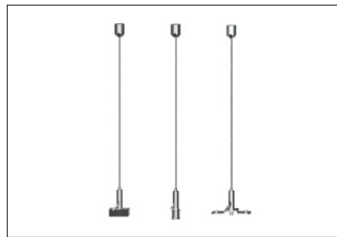
Define the control mode of your luminaires. If they are to be integrated into a 0-10V system, provide one or more 0-10V - Casambi bridges.

### Step 5: Plan the live ends and connectors



Divide the track into segments depending on length and geometry. Please also observe the maximum electrical load (see p. 21). Define the necessary live ends and connectors – and plan a polarity changer for opposing T-connectors.

### Step 6: Select accessories for the type of mounting



Determine the mounting method of the track and thus also the necessary accessories. Using accessories, such as plaster trim profiles or pendant suspensions, allows for various mounting solutions to be implemented. Take into account the mechanical load on the system (see p. 26).

### Step 7: Specify the components

Parts list for flush rectangular geometry in drywall ceiling

Number	Quantity	Description
1	4	Track
3	4	Corner connector
4	4	Plaster trim profile
5	8	Suspension
8	8	Toggle

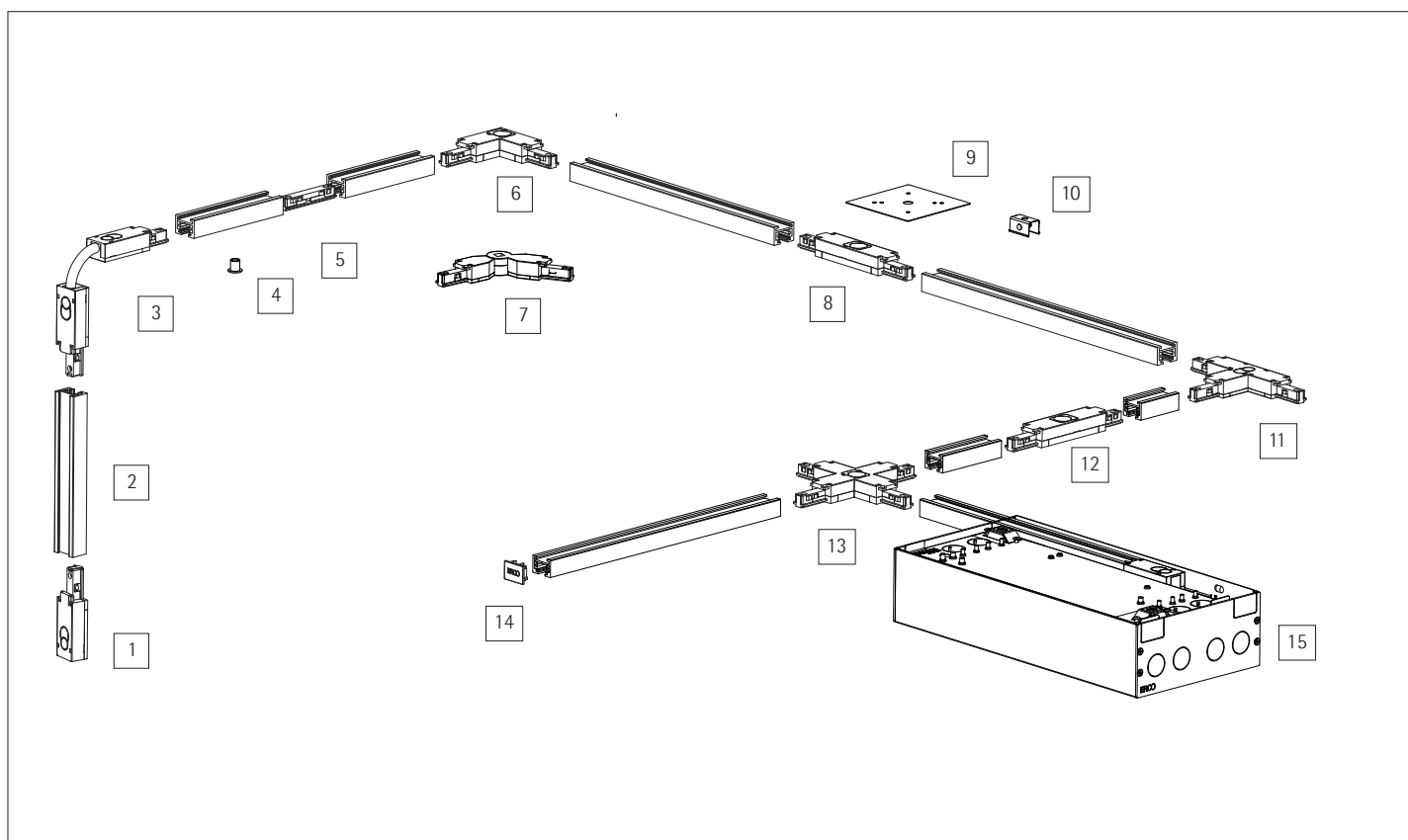
Enter the selected parts into a parts list. Accessories for the Minirail 48V track are specified on the data sheet of the track. The parts list and the planned track layout are an important basis for later installation!

## Surface mounting

Surface mounting is the most common mounting method and is suitable for most surfaces. The planning aid for surface mounting supports in planning and installation of a surface-mounted system and provides valuable tips. Many hints also apply to the other mounting methods! Please also note the information on selection and connection of the connectors.



### Overview of available components for surface mounting

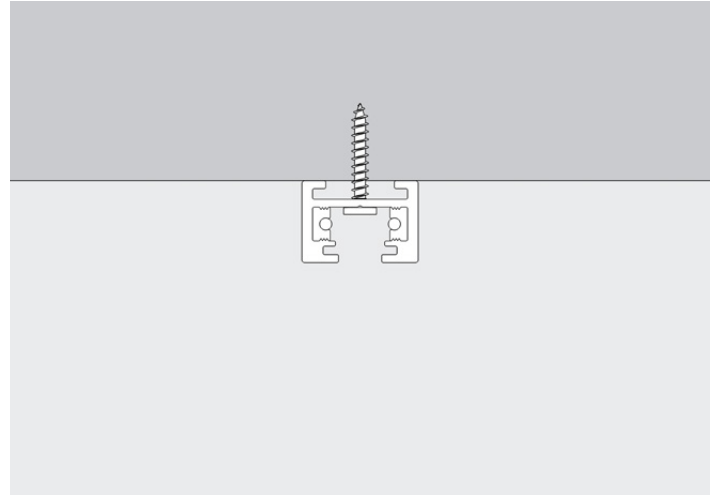


- |   |                     |    |                        |    |                   |
|---|---------------------|----|------------------------|----|-------------------|
| 1 | Live end            | 7  | Flexible connector     | 13 | X-connector       |
| 2 | Track               | 8  | Mounting plate         | 14 | End plate         |
| 3 | Multiflex connector | 9  | Longitudinal connector | 15 | Power supply unit |
| 4 | Drilling aid        | 10 | Fixing clip            |    |                   |
| 5 | Coupler             | 11 | T-connector            |    |                   |
| 6 | Corner connector    | 12 | Polarity changer       |    |                   |

## Surface mounting

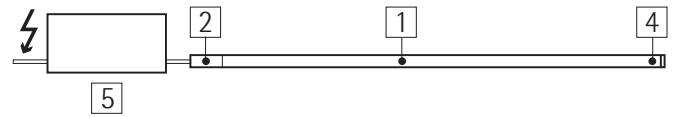
### Sample installations

As examples, we have put together three common sample installations for you. In principle, you can also install power supply units on the Minirail 48V track. In this case as well, a live end is mandatory for the electrical connection.



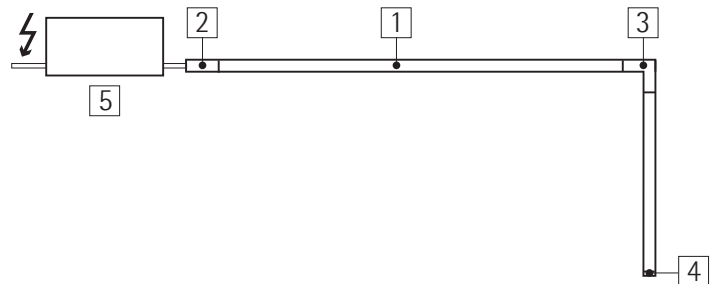
### Parts list for linear surface mounting

Number	Quantity	Description
1	1	Track
2	1	Live end
4	1	End plate
5	1	Power supply unit



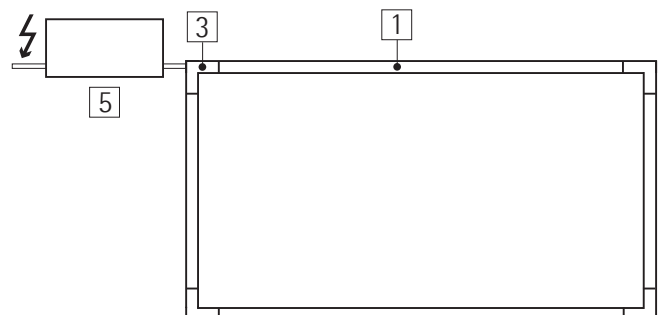
### Parts list for angular surface mounting

Number	Quantity	Description
1	2	Track
2	1	Live end
3	1	Corner connector
4	1	End plate
5	1	Power supply unit



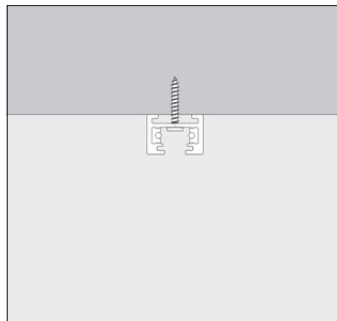
### Parts list for rectangular surface mounting

Position	Quantity	Description
1	4	Track
3	4	Corner connector
5	1	Power supply unit

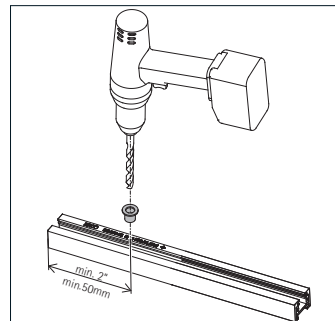




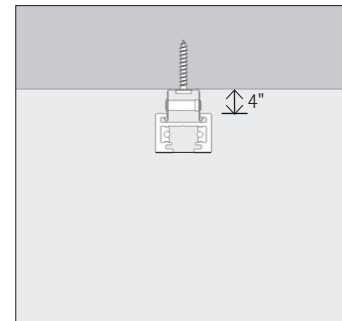
#### Mounting planning



**Surface mounting**  
To avoid mechanical stress on track connectors, fasten the track at its ends. Further fixing points may be necessary depending on the load and length. The holes for this must be drilled on site. In the case of screw fastening, a distance of 2" (50mm) from the track ends must be maintained so that the connector can still be assembled.

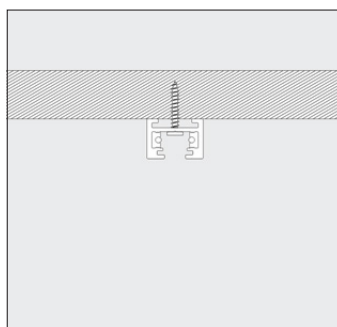


**Drill the fixing holes**  
To be able to individually determine the fixing points for the screw fastening and the fixing in the plaster trim profile, you need to drill the fixing holes in the Minirail 48V track on site. Use the drilling aid (accessory) to protect the track from damage.  
Plan the fixing points about 2" (5cm) away from the ends of the track. This will prevent the screw heads possibly interfering with the installation of live ends or connectors.

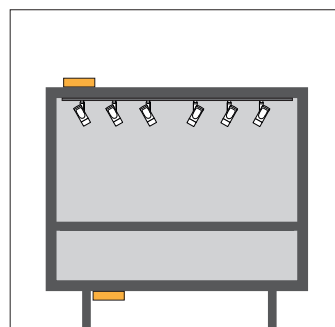


**Mounting with fixing clips**  
The optional fixing clip (accessory) enables fixing on uneven surfaces, e.g., raw concrete ceilings. You can use it to compensate for unevenness of up to 4" (10mm) in height. Position the fixing clips at the track ends and, depending on the load, between the connectors.

#### Mounting on display cases

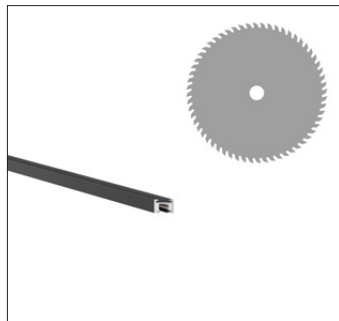


**Installation in display cases**  
Minirail 48V track can also be installed in larger furniture units such as display cases. In enclosures such as display cases, you should take into account the heat load on the interior space caused by luminaires.

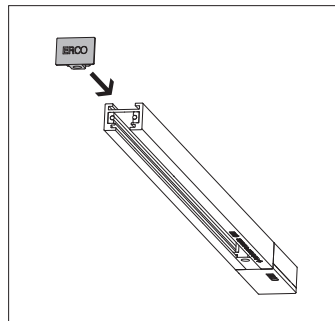


**Installation locations for power supply units in or on display cases**  
For thermal reasons, mount the power supply units outside closed display cases.  
In open display cases or shelves you can install power supplies even inside the furniture.

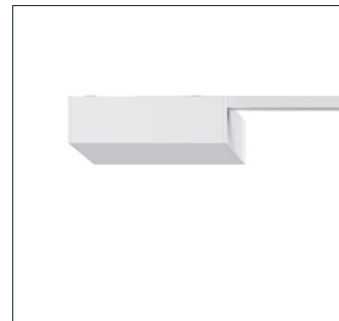
#### General planning and installation information



**Shortening the track**  
You can order track cut to size. In many cases, however, it is advisable to shorten standard lengths directly on site, e.g., with a miter saw. Make the cut square and clean so that there are no unsightly gaps at the joints.



**Using end plates**  
Always fit an end plate to the open end of a track for both safety and visual reasons.



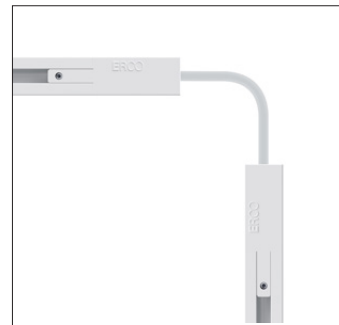
**Power supply unit mounting via the track**  
The Minirail 48V track must be disconnected for this purpose. Electrical connection is made via a live end or the longitudinal connector.



**Using connectors**  
Connectors must not bear any mechanical load. For this reason, always provide fixing points in front of and behind couplers, connectors, or at track ends. Depending on the length and planned weight load, provide additional fixing points. The load diagrams contain indications for this, see chapter "Static load" in this document. Plan a polarity changer for opposing T-connectors. Apart from the flexible connector, all other connectors also allow the 48V supply voltage to be fed from above.



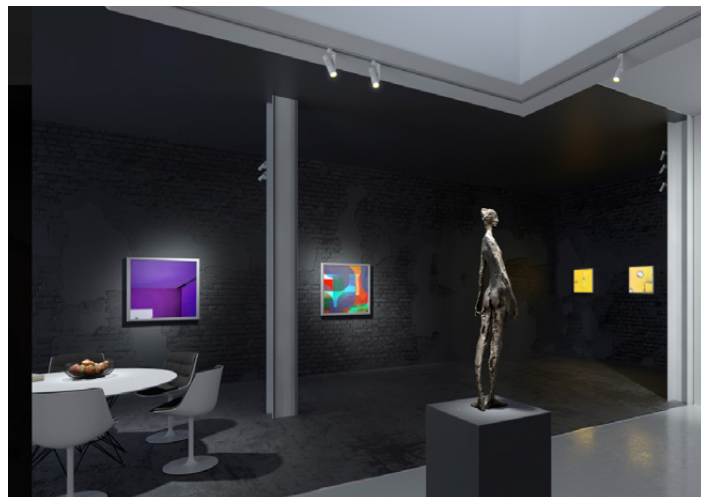
**Flexible connectors for non-rectangular systems**  
Flexible connectors allow you to install systems with non-90° angles. They are adjustable and lockable in the horizontal plane from 60° to 180°.



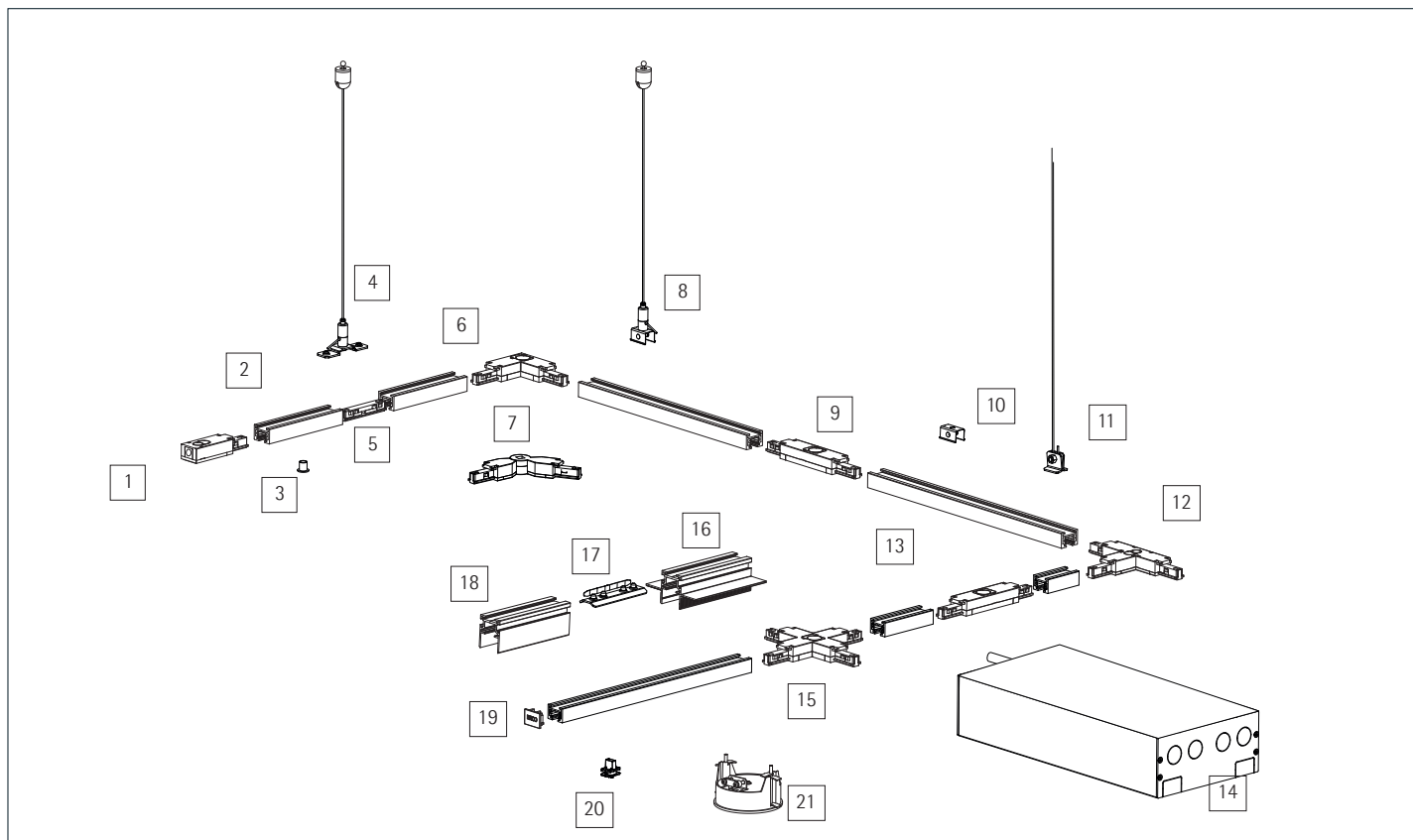
**Multiflex connectors for special cases**  
Multiflex connectors enable vertical and horizontal angles and are therefore ideal for the transition between straight and sloping ceiling sections. You can also use Multiflex connectors for the transition from ceiling to wall installations. The cable length of approx. 4" (100mm) also allows for ceiling projections to be bridged.

## Recessed mounting

Recessed mounting allows elegant installation of the track in the ceiling or wall. This is usually carried out using plaster trim profiles (accessories). This and other recessed mounting variants can be found in the corresponding sections. When planning, always coordinate with the trades involved, such as drywall or concrete construction.



### Overview of available components for recessed mounting



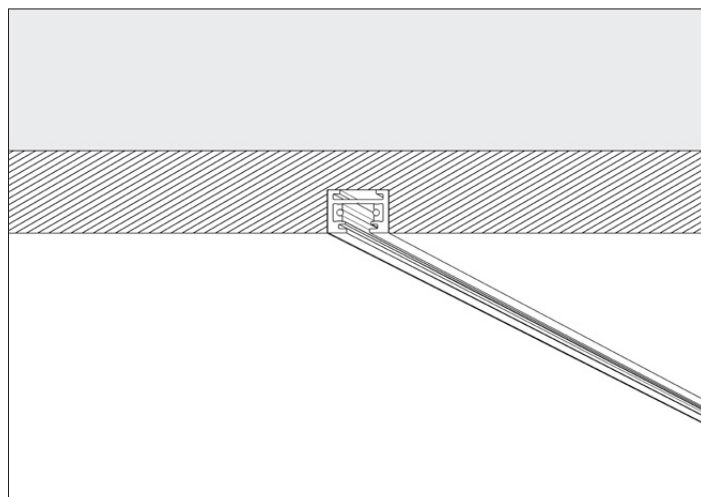
- |                                |                                |   |              |
|--------------------------------|--------------------------------|---|--------------|
| 1 Live end                     | 7 Flexible connector           | 13 Polarity changer                     | 19 End plate |
| 2 Track                        | 8 Wire rope suspension (track) | 14 Power supply unit                    | 20 Toggle    |
| 3 Drilling aid                 | 9 Longitudinal connector       | 15 X-connector                          | 21 Singlet   |
| 4 Wire rope suspension (joint) | 10 Fixing clip                 | 16 Plaster trim profile (with supports) |              |
| 5 Coupler                      | 11 Suspension                  | 17 Mechanical bridge                    |              |
| 6 Corner connector             | 12 T-connector                 | 18 Plaster trim profile                 |              |

## Recessed mounting

### Sample installations

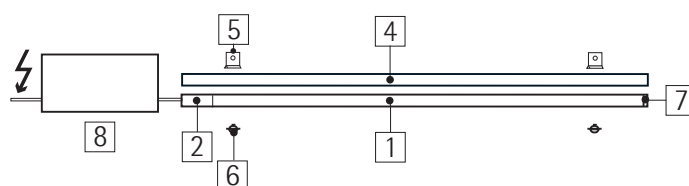
As examples, we have put together three common sample installations for you. The number of fixing points depends on the specific size and load of the system. The information below shows a minimum configuration.

The number of fixing points depends on the specific size and load of the system. The information below shows a minimum configuration.



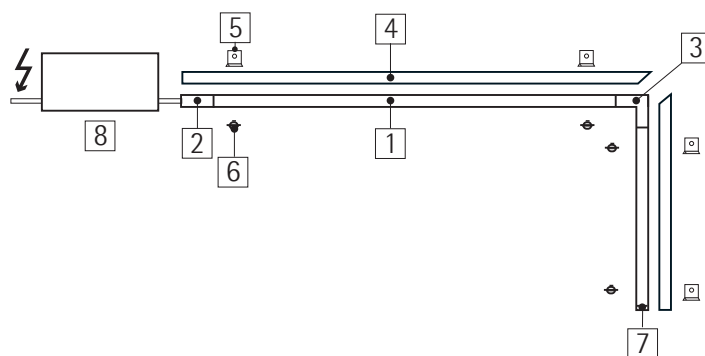
### Parts list flush linear installation in drywall ceiling

Number	Quantity	Description
1	1	Track
2	1	Live end
4	2	Plaster trim profile
5	2	Suspension
6	2	Toggle
7	1	End plate
8	1	Power supply unit



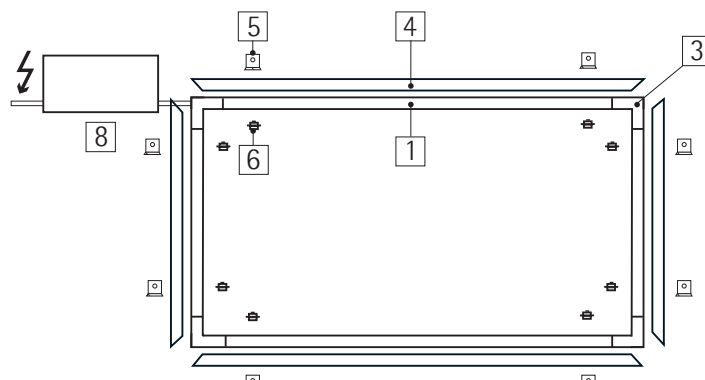
### Parts list for flush L-installation in drywall ceiling

Number	Quantity	Description
1	2	Track
2	1	Live end
3	1	Corner connector
4	2	Plaster trim profile
5	4	Suspension
6	4	Toggle
7	1	End plate
8	1	Power supply unit



### Parts list for flush rectangular geometry in drywall ceiling

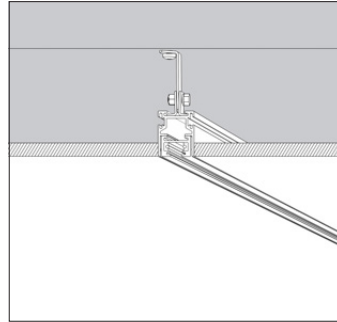
Number	Quantity	Description
1	4	Track
3	4	Corner connector
4	4	Plaster trim profile
5	8	Suspension
6	8	Toggle
8	1	Power supply unit



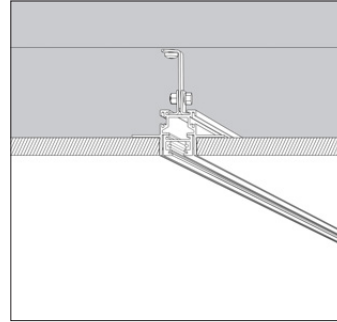
## Recessed mounting

### What to consider during planning and installation

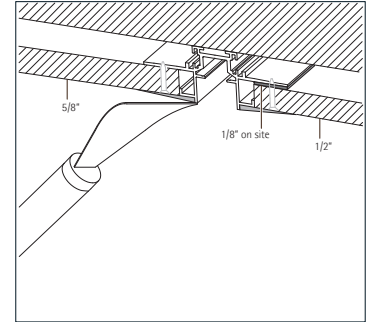
#### Drywall ceiling, paneled ceiling



**Flush installation with plaster trim profile and slotted iron**  
 Minirail 48V plaster trim profiles (accessories) are suitable for flush installation. In terms of separating the trades, the plaster trim profiles can be installed by the drywall contractors whilst the electrical contractor only has to install the power cable beforehand. In this way, the track is protected from soiling caused by cleaning and grinding work.

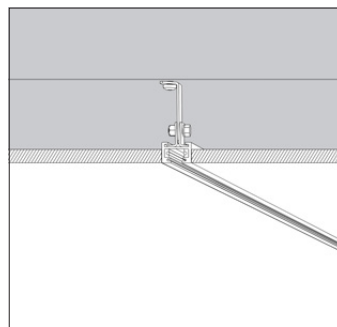


For a secure hold, you should attach the plaster trim profile with slotted irons or similar fastening material that is available and approved on site. Suspensions (accessories) are available for the mounting, and the track is fastened in the plaster trim profile with toggles (accessories). Please also note the instructions for drilling the fixing holes. A mechanical bridge (accessory) is available for lengthening the plaster trim profiles.

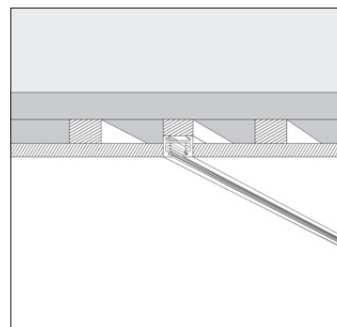


Plaster trim profiles are available in two variants:

- with lateral supports for drywall panels or wood panels, suitable for material thicknesses of 5/8" and 1/2"
- with smooth sides for various applications



**Direct mounting with slotted iron**  
 You can also install the track directly in a drywall ceiling. Here as well, use sturdy slotted irons or similar material for mounting. The plaster trim profile and track have the same mechanical interface – this means that fastening accessories can in principle be used for both the track and the plaster trim profile.

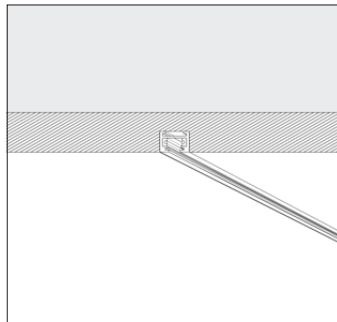


**Mounting on substructure**  
 For these ceiling types, it is recommended to mount the track directly on the substructure. Suspensions are not needed in this case. Mounting is the same as for surface mounting. You can also use the plaster trim profile. In this way you avoid soiling of the track. Please also note the information for installation in drywall ceilings. Tip: the fixing clips are also suitable for fastening the plaster trim profiles.

## Recessed mounting

### What to consider during planning and installation

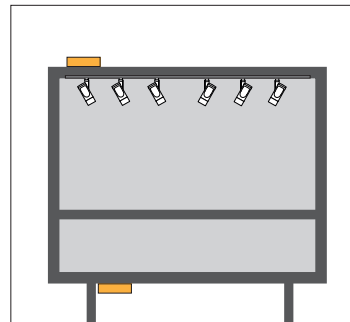
#### Installation in display cases



##### Installation in display cases

Minirail 48V track can also be installed in larger furniture units such as display cases. The compact dimensions of the track enable it to be milled into a wooden base.

When planning, take into account the heat load on the interior space caused by luminaires and power supply units.



##### Installation locations for power supply units in or on display cases

For thermal reasons, mount the power supply units outside closed display cases. In open display cases or shelves you can install power supplies even inside the furniture.

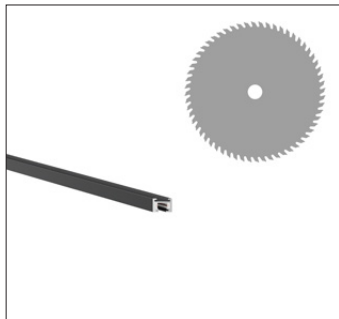
#### Singlet



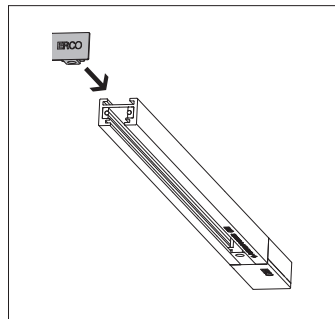
##### Flush or covered mounting

To make the ceiling opening, use a 2 11/16" (68mm) diameter drill bit. Using the plaster ring (accessory) and the reliable ERCO mounting principle, the singlet can be easily installed flush with the ceiling.

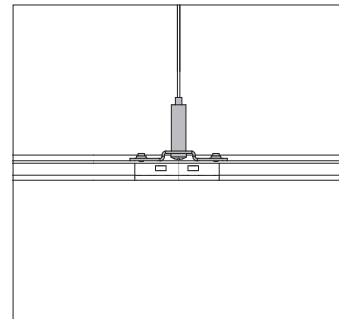
#### General planning and installation information



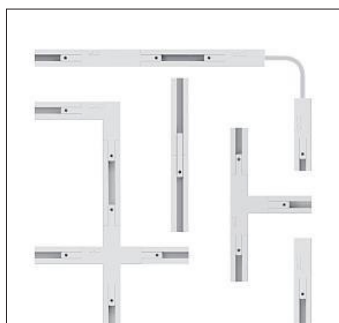
**Shortening the track**  
You can order track cut to size. In many cases, however, it is advisable to shorten standard lengths directly on site, e.g., with a miter saw. Make the cut square and clean so that there are no unsightly gaps at the joints.



**Using end plates**  
Always fit an end plate to the open end of a track for both safety and visual reasons.



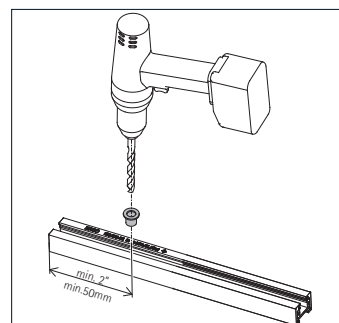
**Extending the track**  
If you need to lengthen a track, use the coupler for flush mounting and position a wire rope suspension over the joint. This ensures that the coupler is not mechanically stressed, and at the same time you still have a fixing point. Alternatively, you may also secure the joint with the mechanical bridge (accessory).



**Using connectors**  
Connectors must not bear any mechanical load. For this reason, always provide fixing points in front of and behind couplers, connectors, or at track ends. Depending on the length and planned weight load, provide additional fixing points. The load diagrams contain indications for this, see chapter "Static load" in this document. Plan a polarity changer for opposing T-connectors. Apart from the flexible connector, all other connectors also allow the 48V supply voltage to be fed from above.



**Flexible connectors for non-rectangular systems**  
Flexible connectors allow you to install systems with non-90° angles. They are adjustable and lockable in the horizontal plane from 60° to 180°.



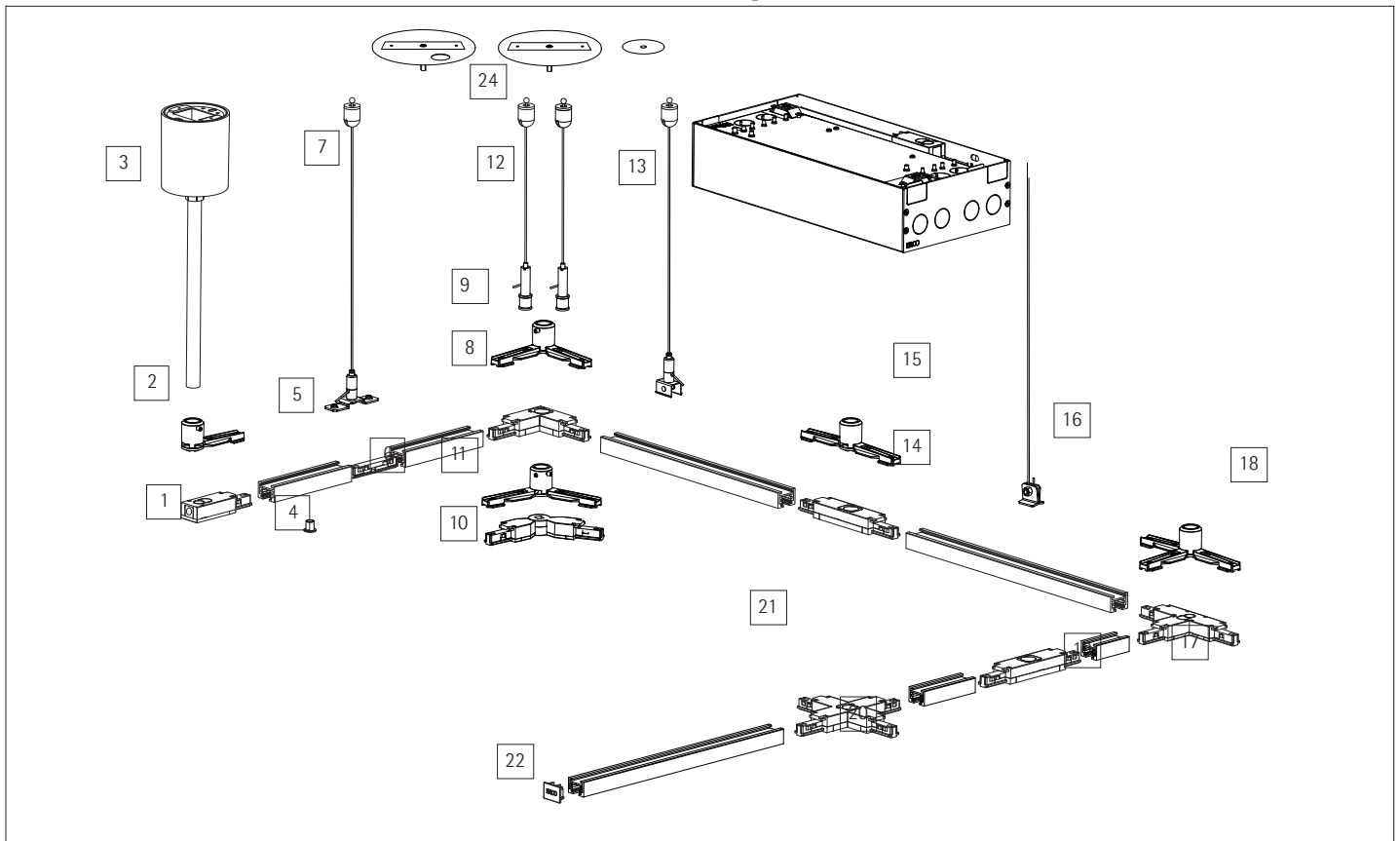
**Drill the fixing holes**  
To be able to individually determine the fixing points for the screw fastening and the fixing in the plaster trim profile, you need to drill the fixing holes in the Minirail 48V track on site. Use the drilling aid (accessory) to protect the track from damage. Plan the fixing points about 5cm away from the ends of the track. This will prevent the screw heads possibly interfering with the installation of live ends or connectors.

## Pendant mounting

Pendant mounting is a good solution for high rooms or for rooms with irregular ceiling heights, e.g., vaulted ceilings. Several options are available as described in this section.



### Overview of available components for pendant mounting



1	Live end	7	Wire rope suspension (joint)	13	Wire rope suspension (track)	19	Polarity changer
2	Mounting device for live end	8	Corner connector	14	Longitudinal connector	20	X-connector
3	Pendant tube suspension with/without mounting plate	9	Mounting device for corner connector	15	Mounting device for longitudinal connector	21	Mounting device for X-connector
4	Drilling aid	10	Flexible connector	16	Suspension	22	End plate
5	Track	11	Mounting device for flexible connector	17	T-connector	23	Power supply unit
6	Coupler	12	Wire rope suspension with / without cable gland	18	Mounting plate for T-connector	24	Canopies (cover) 5" with / without cable gland; 2"



## Pendant mounting

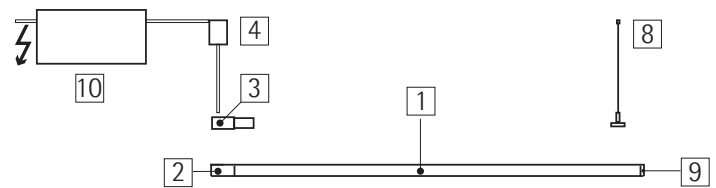
### Sample installations

As examples, we have put together three common sample installations for you. The number of fixing points depends on the specific size and load of the system. The information below shows a minimum configuration.



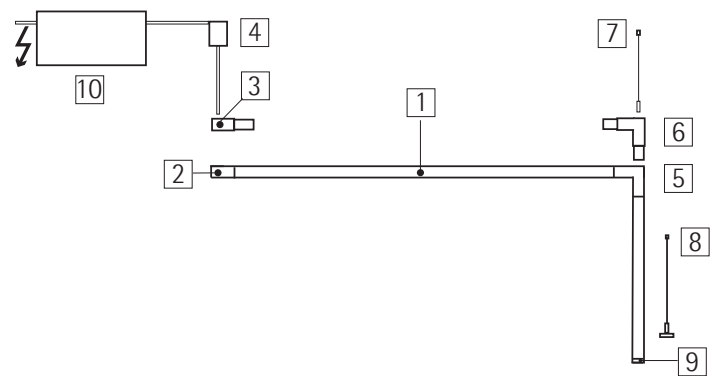
### Parts list for linear pendant mounting

Number	Quantity	Description
1	1	Track
2	1	Live end
3	1	Mounting device for live end
4	1	Pendant tube suspension
8	1	Wire rope suspension with mounting device
9	1	End plate
10	1	Power supply unit



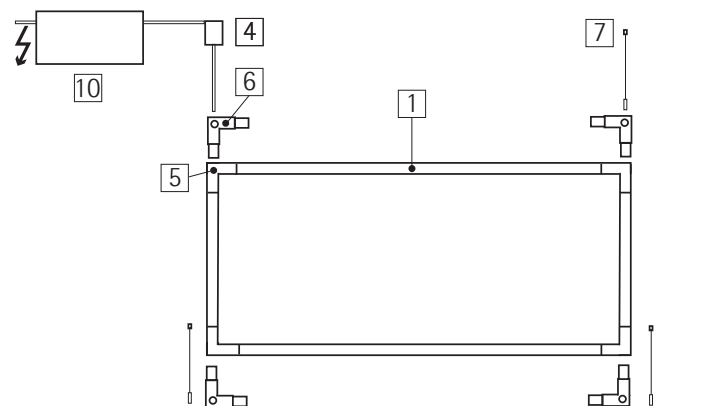
### Parts list for angled pendant mounting

Number	Quantity	Description
1	2	Track
2	1	Live end
3	1	Mounting device for live end
4	1	Pendant tube suspension
5	1	Corner connector
6	1	Mounting device for corner connector
7	1	Wire rope suspension
8	1	Wire rope suspension with mounting device
9	1	End plate
10	1	Power supply unit



### Parts list for rectangular pendant mounting

Number	Quantity	Description
1	4	Track
4	1	Pendant tube suspension
5	4	Corner connector
6	4	Mounting device for corner connector
7	3	Wire rope suspension
10	1	Power supply unit

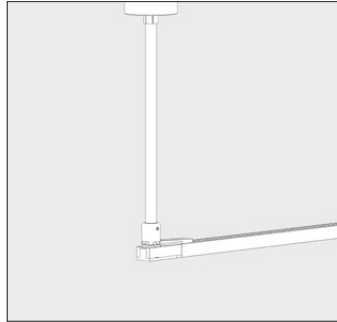


## Pendant mounting

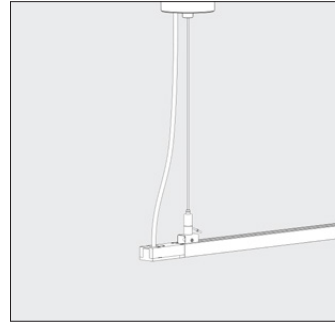
### What to consider during planning and installation

#### Pendant tube or wire?

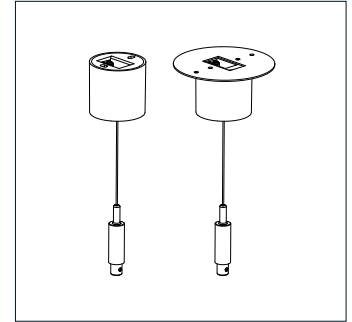
With suspended track installations, a dynamic load must be taken into account in addition to the static load. A draft, for example, may move the system. Asymmetric loads, e.g., caused by spotlights aligned to one side, may cause the track to tilt slightly, especially with linear systems. With a pendant tube suspension, you incorporate stiffness into the system and prevent such effects.



**Live end with pendant tube**  
Pendant tube suspensions enable power supply of the track system without visible cables.



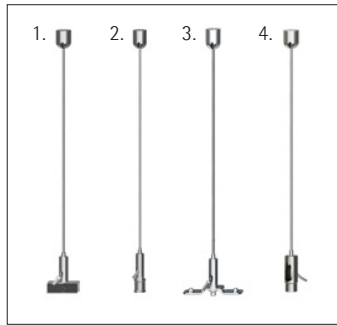
**Live end with wire rope suspension**  
With wire rope suspensions, the connection is made via the canopy. The opening in the base of the canopy allows the connection cable to be fed through to the track.



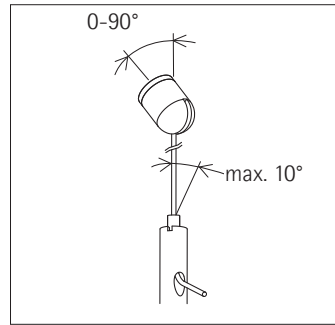
**Wire rope suspension with canopy**  
All canopy suspensions are also available with mounting plate. These can be mounted over cable outlet boxes.

#### Wire suspensions with point fixing

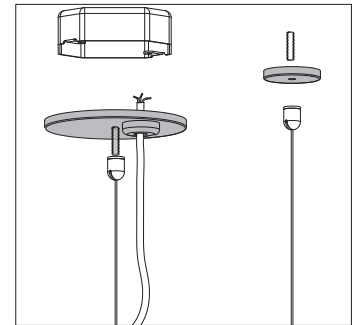
These suspensions are characterized by a discreet visual appearance.



**Versions**  
Wire suspensions with point fixings are available in 4 versions:  
1. Version with pre-assembled fixing clip for retrofitting on the track  
2. Version with rapid connector for fixing to mounting devices.  
3. Version with mounting device for direct mounting on the track.  
4. Version with rapid connector and cable gland for cables up to 9,3mm (3/8"). Supplied with 6 fixing clips  
The length of the wire rope is 2500mm. Longer lengths are available on request. For versions 2 and 4, you require a separate mounting device to be ordered separately.

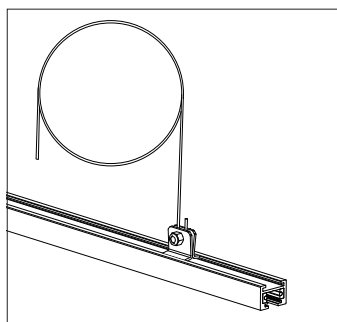


**Mounting on sloping ceiling**  
All point suspensions are suitable for sloping ceilings up to 10°. Rapid connectors ensure tool-free and particularly simple height adjustment.



**Mounting on junction boxes**  
With the appropriate accessories, the wire suspensions can also be mounted on a junction box. Depending on the design, the 5" accessories are suitable for feeding. The cable cross section must be between 9.5 and 11mm (0.370" and 0.430"). The small 2" canopy can be used for covering the fixation point of the wire rope suspensions.

#### Special room and mounting situations



**Using an additional wire**  
For special room situations, the ERCO accessories range includes the wire and turnbuckle. You can mount these to the Minirail 48V track with the suspension for retrofitting. The turnbuckle enables fine adjustment of the suspension.

## Pendant mounting

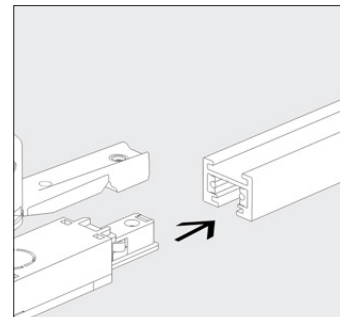
### What to consider during planning and installation

#### Fixing pendant accessories to the connector



#### Using devices for connectors

Track connectors must not bear any mechanical load. Mounting devices are available to support such loads. With the mounting devices, you reduce the number of fixing points required to one fixing point per connector.



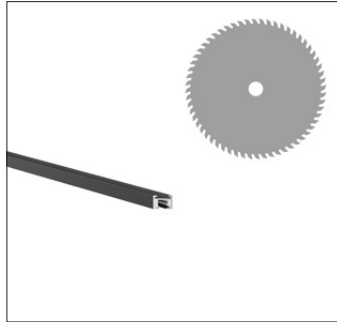
#### Installation

Mounting devices above the connectors must always be mounted together with the connectors.

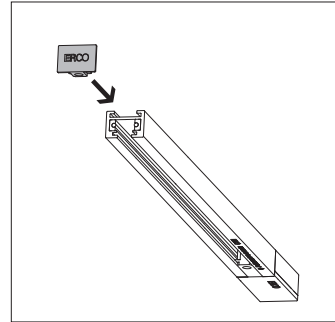
## Pendant mounting

### What to consider during planning and installation

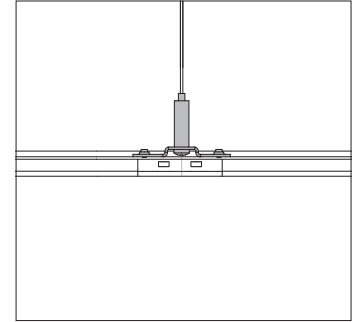
#### General planning and installation information



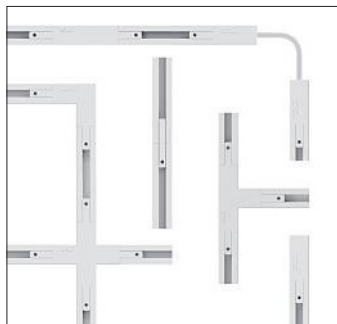
**Shortening the track**  
 You can order track cut to size. In many cases, however, it is advisable to shorten standard lengths directly on site, e.g., with a miter saw. Make the cut square and clean so that there are no unsightly gaps at the joints.



**Using end plates**  
 Always fit an end plate to the open end of a track for both safety and visual reasons.



**Extending the track**  
 If you need to lengthen a track, use the coupler for flush mounting and position a wire rope suspension over the joint. This ensures that the coupler is not mechanically stressed, and at the same time you still have a fixing point. Alternatively, you can also secure the joint with the mechanical bridge (accessory).



**Using connectors**  
 Connectors must not bear any mechanical load. Therefore, always provide fixings in front of, above, or behind connectors and at the track ends. Depending on the length and planned weight load, plan additional fixing points. Indications for this are contained in the load diagrams in the "Static load" section of this document. Plan a polarity changer for opposing T-connectors. Apart from the flexible connector, all other connectors also allow the 48V supply voltage to be fed from above.



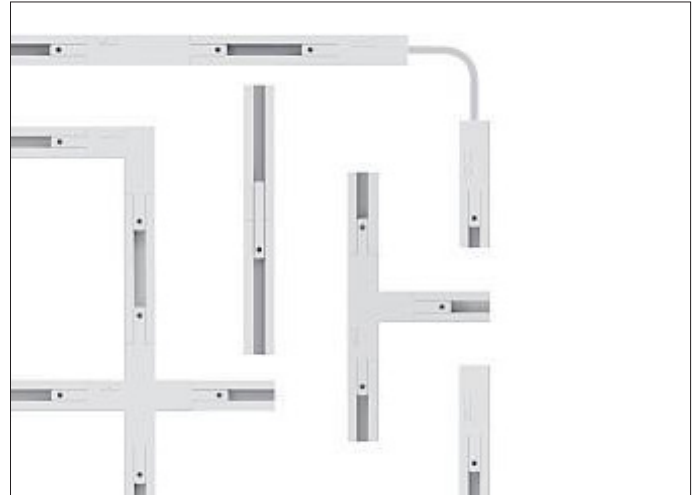
**Flexible connectors for non-rectangular systems**  
 Flexible connectors allow you to install systems with non-90° angles. They are adjustable and lockable in the horizontal plane from 60° to 180°. Due to the firm connection of the two arms, the suspended system remains just as stable as when using the corner connector.

## Electrical installation

A variety of geometric shapes can be realized with different electrical connectors. The Minirail 48V system blends discreetly into the architecture of a room. Use in furniture, e.g., in display cases, is also simple.

Apart from the flexible connector, all other connectors also allow for the 48V supply voltage to be fed from above.

The connectors are pre-wired and thus ready for direct installation on the ceiling. Suitable mounting parts and electrical feed options are available for pendant mounting. Please note that the Minirail 48V system may be loaded with max. 2A.



Operating mode	Circuits	Control
48V	1	Switchable On-board Dim Casambi Zigbee DALI (via DALI Casambi Gateway) DALI or DMX control options on request

## Electrical installation

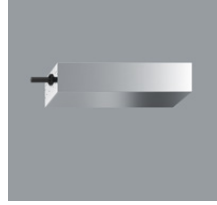
### Electrical connection of the Minirail 48V track

This section informs about the installation and use of ERCO 48V power supply units.

### Specifying a suitable power supply unit



96W 13975.023



96W (13976.024)



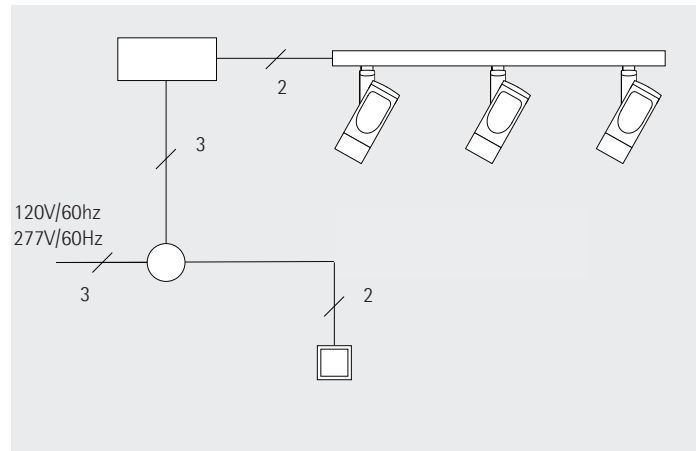
96W (13966.023 white)  
96W (13967.023 black)

Depending on the installation situation and supply voltage, different Class 2 power supply units are available. The recessed versions have a temperature sensor and are suitable for 120V or 277V depending on the version. The surface-mount version can be connected to 120V and 277V networks. For fire protection reasons the surface-mount version is not permitted to be installed e.g. in the ceiling. Always observe local regulations and the installation instructions of the power supply units.

### Features of the available power supply units

Power Art. No.	120V/277V	Through-wiring	Short circuit-proof	Thermal protection	Recessed mounting	Surface mounting	Mounting above track
96W 13975.023	●/-	●	●	●	●	-	-
96W 13976.024	-/●	●	●	●	●	-	-
96W 13966.023 13967.023	●/●	●	●	-	-	●	●

### Installation



### Installation notes:

The maximum length of the connection cable from the power supply unit to the track depends on:

- the power supply unit
- the cross section of the connection cable
- the length of the track

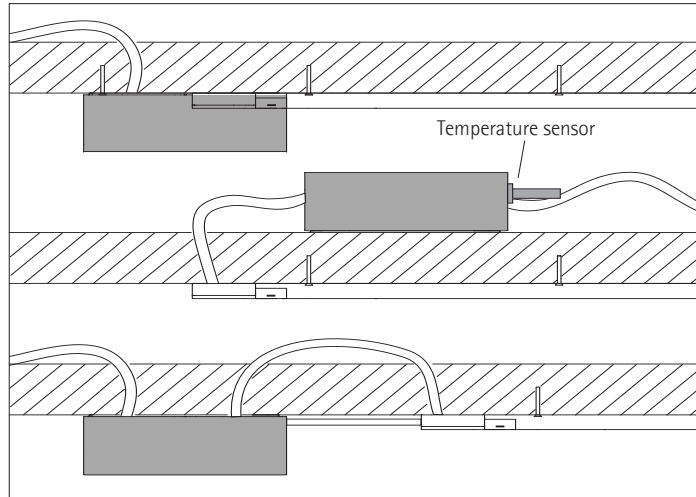
See the table below for specific values for your application. The cross sections should not be fallen below, otherwise the voltage drop may be so great that the connected luminaires will not function properly.

### Maximum lengths of supply cable and track

The maximum length of the supply cable to the track is different depending on the combination of power supply units, length of track and cable cross-section. This table helps with initial planning – a professional check during the project is mandatory.

ERCO Power supply unit 95W	Minirail 48V track length	Maximum length of supply cable for cable cross-section		
		AWG 14 / 2.5mm <sup>2</sup>	AWG 16 / 1.5mm <sup>2</sup>	AWG 18 / 1.0mm <sup>2</sup>
13975.023	70ft / 20m	200ft / 60m	100ft / 30m	65ft / 20m
13976.024				
13966.023				
13967.023				

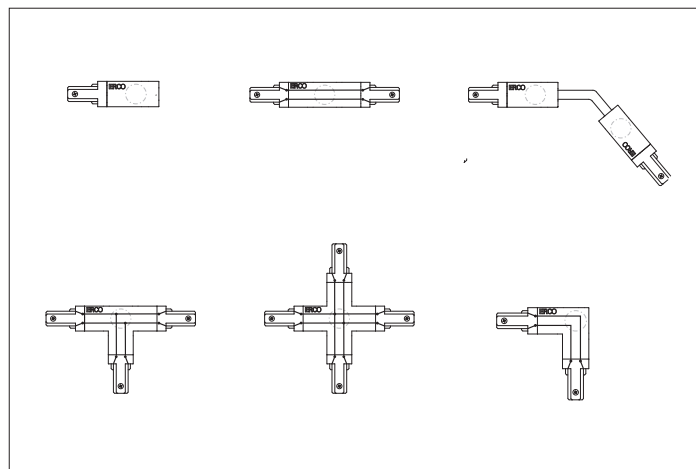
#### Installation location for power supply unit



The installation location for the ERCO power supply unit must be complied with the following points:

- The location must be dry and the power supply unit should not be exposed to direct heat radiation, e.g., a heat source or the sun.
- Observe the maximum distances and cable cross sections between the power supply unit and the Minirail 48V track specified in the Installation section.
- Power supply units without thermal protection are not suitable for mounting in ceilings or closed display cases.
- Power supply units with thermal protection are suitable for operation in ceilings only.
- All power supply units must not be installed in a vertical orientation e.g. on a wall.

#### Reverse polarity tolerant



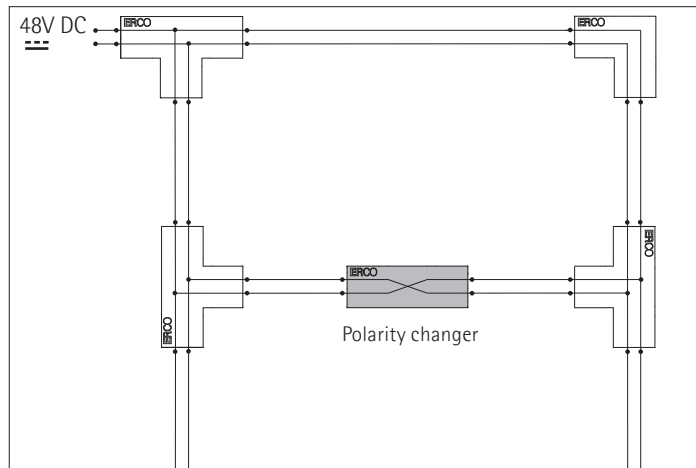
The planning and installation of a Minirail 48V system is simplified by the fact that the system is reverse polarity tolerant and short circuit-proof.

Although it is a DC system, there is no right and left variant for the connectors and live ends. ERCO 48V luminaires automatically adjust to the polarity applied.

#### Exception

For opposing T-connectors, install the Minirail polarity changer. See the following section "Short circuit-proof and overload-protected"

### Short circuit-proof and overload-protected

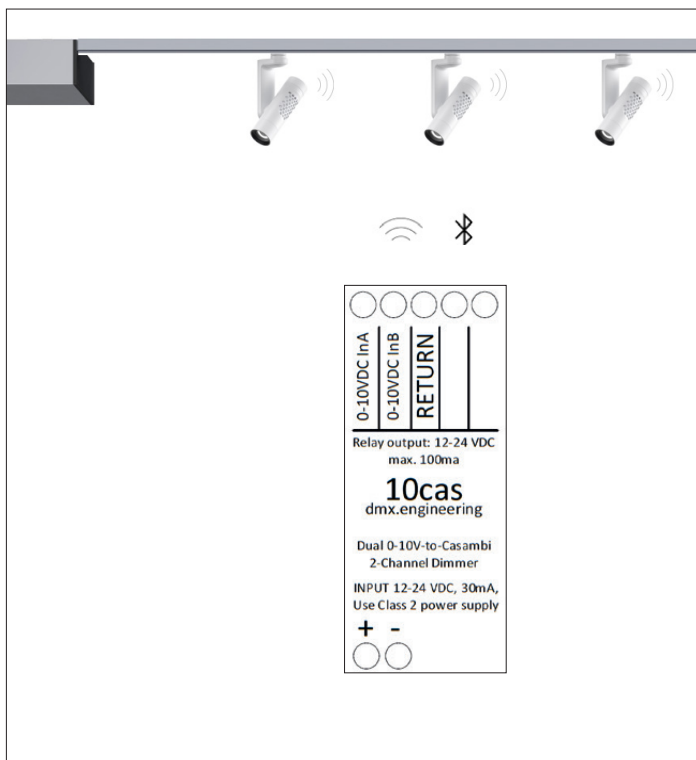


Short circuits or overloads have no serious consequences – the system only has to be restarted after troubleshooting.

### T-connector

With opposing T-connectors, there is a possibility of short-circuiting. To avoid this, plan a polarity changer as shown in the example on the left.

### Integrating the Minirail 48V system in 0-10V light controls



**Integration into 0-10V systems**  
The 0-10V Casambi bridge (available on request) enables the integration of luminaires with Casambi Bluetooth into a 0-10V system system.

### Preconditions

To set up and operate the gateway, you need:

- 12-24VDC Class 2 power supply (on site)
- Casambi app (Download from Casambi Homepage)
- 0-10V control (on site). According to the installation location, you need a suitable mounting enclosure and, if necessary, a strain relief.

You can use all Casambi-compatible luminaires and devices, they do not have to be 0-10V luminaires or devices. Observe the installation instructions for the luminaires and the 0-10V Casambi Gateway.



## Electrical installation

### Adapters for ERCO track and flanged track used on ERCO luminaires

All ERCO adapters are mounted in the track without tools.

#### Minirail 48V adapter



#### **Minirail 48V adapter**

The adapter establishes the electrical and mechanical connection to the luminaire. It has a disconnect device so that you can remove or reinsert the luminaire without risk even when the power supply unit is switched on. You can insert the adapter into the track in any direction. The adapter is suitable for mounting in the ERCO Minirail 48V singlet.

## Static load

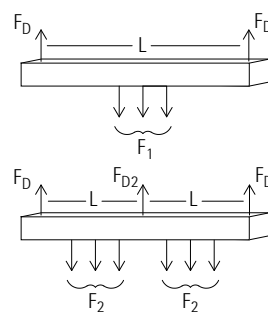
When planning a track system, determination of the static load is important. It has a direct influence on the fixing points and on the subsequent equipping with luminaires. To avoid re-working, you should also take into account any planned future changes.



The maximum permissible weight load of the track results from the maximum permissible deflection of the profiles and the maximum permissible load of the suspensions. The load distribution is composed of the system's own weight and evenly distributed individual loads (point loads). You can determine the maximum permissible weights using the adjacent illustration and the associated table.

Here are the necessary parameters

L	(ft/mm)	Length
$f_e$	(ft/mm)	Deflection due to weight of profile
$F_D$	(lbs/kg)	Max. load of one suspension
$F_e$	(lbs/kg)	Weight of profile
$F_1$	(lbs/(kg))	Max. permissible load with two-point suspension and permissible deflection (L/250) of 4mm per meter length
$F_2$	(lbs/(kg))	Max. permissible load with multi-point suspension and permissible deflection (L/250) of 4mm per meter length



### Values for Minirail 48V

L	(mm)	500	1000	1500	2000
	(ft)	1.64	3.28	4.92	6.56
$F_e$	(kg)	0.25	0.50	0.75	1.00
	(lbs)	0.55	1.10	1.65	2.20
$f_e$	(mm)	0.02	0.29	1.48	4.69
	(inch)	0.0008	0.01	0.06	0.18
FD = 5kg 11lbs (FD2 = 10kg / 22lbs)					
$F_1$	(kg)	9.63	4.00	1.50	0.50
	(lbs)	21.23	8.82	3.31	1.10
$F_2$	(kg)	9.63	4.00	1.50	0.50
	(lbs)	21.23	8.82	3.31	1.10

### Notes

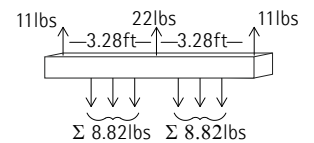
The values given apply to horizontal mounting below the ceiling. All luminaires approved for the ERCO track system can be used.

For wall mounting, which is possible in principle, only luminaires with a limited weight may be used. Observe the installation instructions of the luminaire.

### Sample calculation

See below how to apply the load tables.

### Example determination of the maximum number of luminaires for an already installed track



A track of 6.56 ft/2m length suspended at 3 points is to be equipped with Eclipse size S.

What is the maximum number of luminaires that can be mounted on this track? Proceed as follows:

#### 1. Determine the weights

Weight of 1 luminaire	0.99lbs
Weight of track (Fe)	2.20lbs

#### 2. Number of suspensions and distances

Number of suspensions	3
Distance btw. suspensions (L)	3.28ft

#### 3. Maximum weight between 2 suspensions with L=1000mm

According to load table (F2):	8.82lbs less track
(Fe: 1000mm)	1.10lbs
Remaining for luminaires	7.72lbs

#### 4. Determine the maximum number of luminaires

At 0.99lbs/luminaire	7 luminaires
For the complete track	14 luminaires

### Result:

A maximum of 14 luminaires can be installed here.

Check the possible combinations of the Minirail 48V accessories in the adjacent diagram.

