ERCO

Planning aid for Minirail 48V

A handout for all designers wanting to discover the possibilities of ERCO Minirail 48V track

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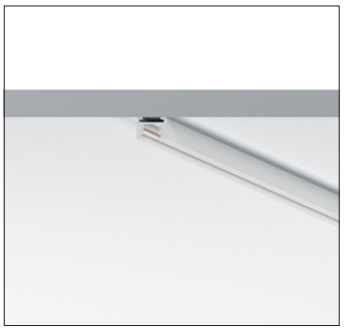
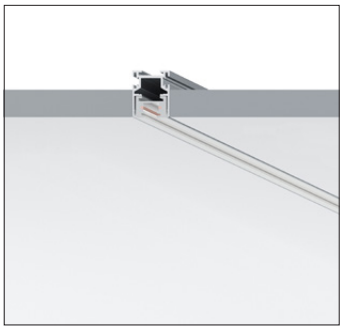
Planning aid for Minirail 48V

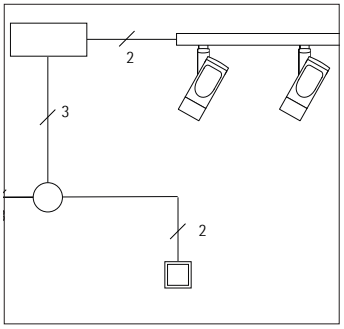


Surface mounting 7

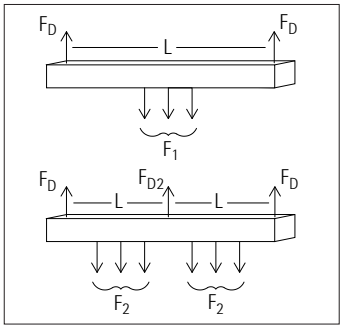


Recessed mounting 11

Pendant mounting 16



Electrical installation 21

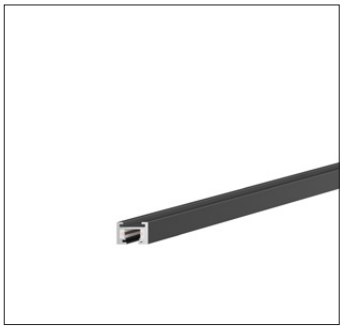


Static load 26

Appendix: Accessories 27

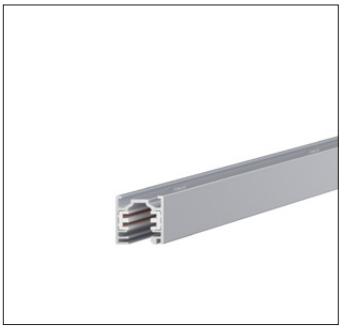
Planning aid for Minirail 48V

An overview of our track



ERCO Minirail 48V track and singlet

Miniaturised infrastructure
With Minirail 48V, ERCO offers a miniaturised 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 DALI (via Gateway) Casambi Bluetooth Zigbee	Switchable Phase dimmable Push Dim DALI Multi-Dim Casambi Bluetooth Zigbee	Switchable Phase dimmable DALI Push Dim Multi-Dim Casambi Bluetooth Zigbee
Width x height	22 x 16mm	33.5 x 34mm	38 x 72mm
Length	1m 2m 3m (can be shortened on site)	1m 2m 3m 4m (can be shortened on site)	2m 3m 4m (can be shortened on site)
Accessories	Suspension equipment Plaster trim profile Connector Adapter Mounting components Power supply units	Suspension equipment Plaster trim profile Connector Adapter Adapter for safety sockets Mounting components Display hook	Suspension equipment Connector Adapter Adapter for safety sockets Mounting components Display hook

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Planning aid for Minirail 48V

ERCO Minirail 48V system and accessories – a manufacturer-independent global standard.

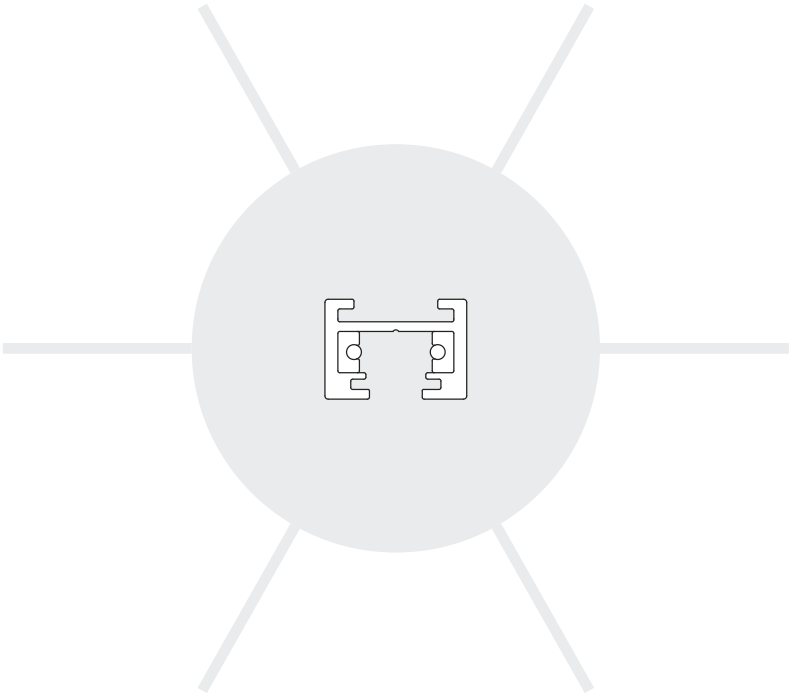
ERCO Minirail 48V tracks can be mounted directly on ceilings, walls or even on cornices.

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

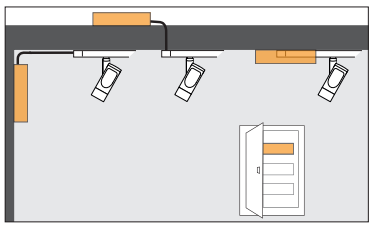
In addition to the basic colours black and white, special colour coatings are also possible to integrate the track perfectly into the ceiling design.

The track for a spotlight: the ERCO Minirail 48V singlets

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.



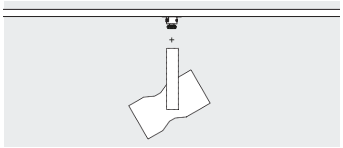
ERCO power supply units
Flexible power supply with power supply units in three versions and for different mounting options.

OEM adapter for all luminaires
Use our track as a high quality infrastructure, and not only for ERCO luminaires. We supply matching adapters, for example for spotlights and pendant luminaires, as OEM components to other luminaire manufacturers.

Planning aid for Minirail 48V

Rely on a global, manufacturer-independent standard

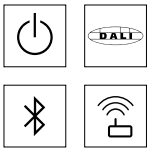
Benefit from a long-term investment



Manufacturer-independent
For Minirail 48V, ERCO also offers adapters as OEM components for any other luminaire manufacturer.

Extremely stable and durable
ERCO Minirail 48V track is manufactured from high quality aluminium in the ERCO light factory in Germany. Simply install lengths up to 3m 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



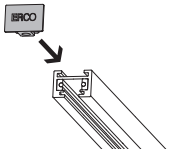
DALI, Zigbee, Casambi Bluetooth, On Board Dim or simply switch on and off?
Common types of control can be implemented wirelessly with ERCO Minirail 48V track. The DALI Casambi Gateway even allows the wireless control with DALI controls.

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.

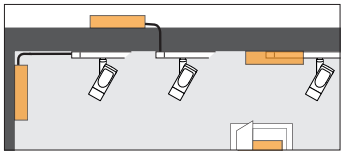
Straight ahead, around the corner or as a geometric shape?
Design your Minirail 48V track system without restrictions: L, X, T, flexible and Multiflex connectors enable diverse geometries. Suitable components are specified as accessories on the data sheet of the track.

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 millimetre on site using a mitre saw. There is no danger of damaging the conductor paths in the process.



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

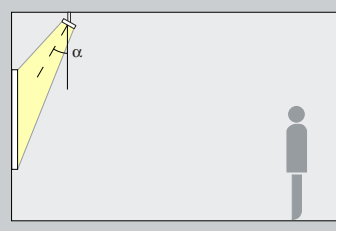


Flexible positioning of the power supply units
ERCO power supply units can be mounted above the track, on or in the ceiling or in the control cabinet.

Planning aid for Minirail 48V

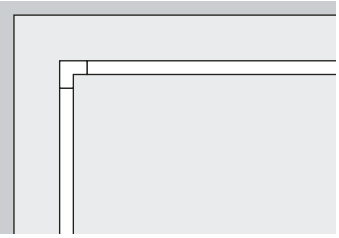
Seven steps to your track project

Step 1: The right arrangement



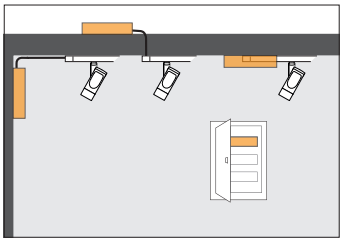
In museums and galleries, track usually runs parallel to the walls. For uniform wallwashing, you can apply approx. one third of the wall height as wall spacing; for accent lighting, the 30° museum angle helps with positioning. In display cases, the track often runs parallel to the longitudinal axis.

Step 2: Plan the layout



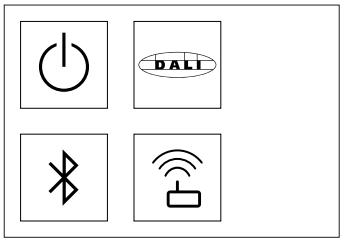
Draw the track layout in the reflected ceiling plan of the room. Non-rectangular shapes are also possible.

Step 3: Plan the power supply units



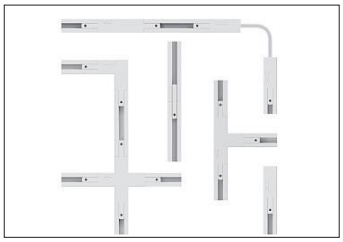
Determine the size and number of power supply units needed. Determine the positioning of the power supply units. A power supply unit can be mounted on the ceiling, above the Minirail 48V track or even in the ceiling. Installation inside or outside a showcase and in a control cabinet with a 35mm mounting rail (DIN rail) is also possible.

Step 4: Determine the control



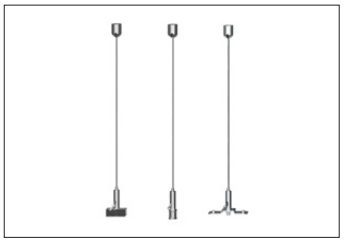
Define the control mode of your luminaires. If these are to be integrated into a DALI system, provide one or more DALI Casambi gateways.

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 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 flush linear installation in drywall ceiling

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

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 the later installation!

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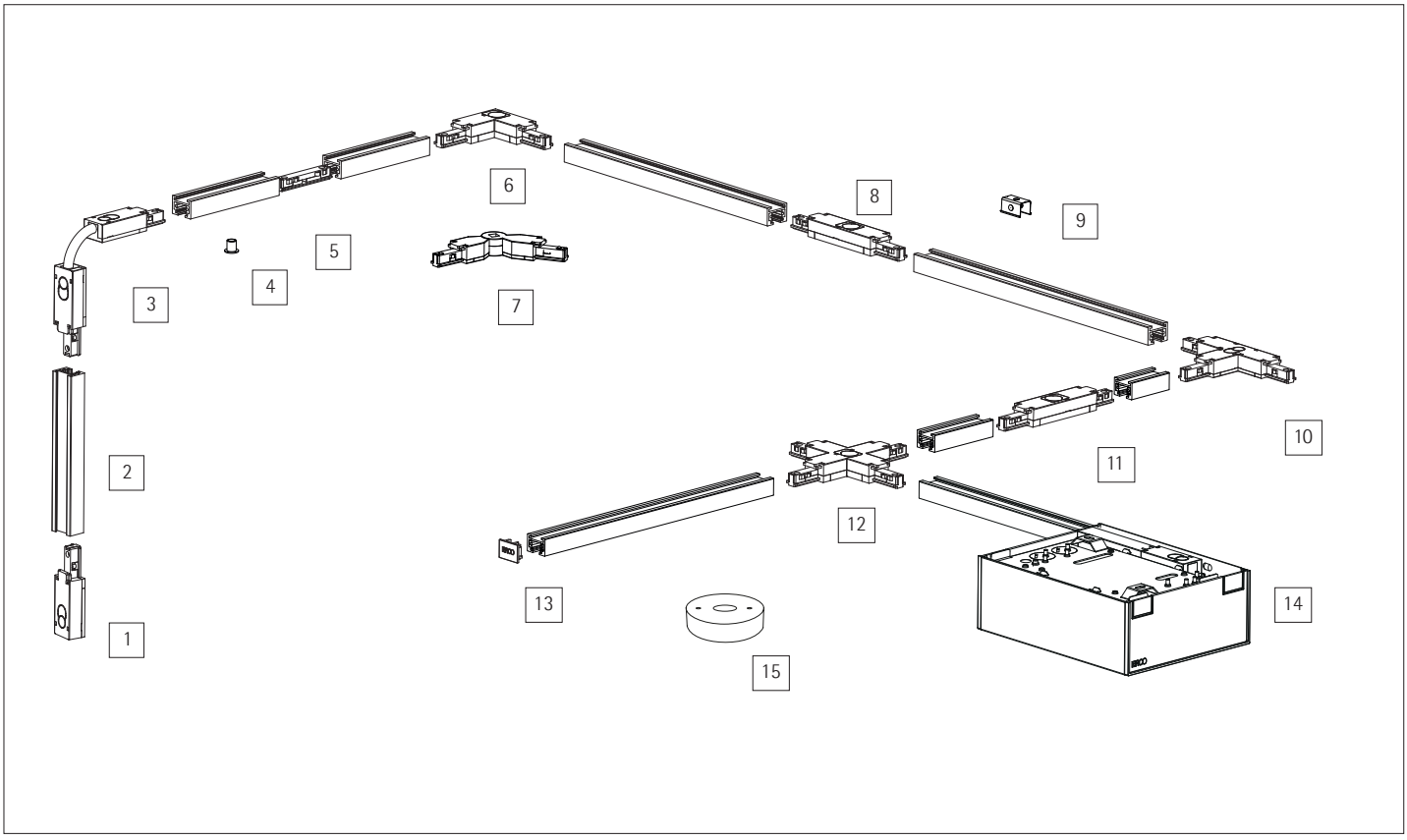
Planning aid for Minirail 48V

Surface mounting

Surface mounting is the most common mounting method and is suitable for most surfaces. The planning aid for surface mounting supports you in the planning and installation of a surface mounted system and provides valuable tips. Many hints also apply for 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	End plate
2	Track	8	Longitudinal connector	14	Power supply units
3	Multiflex connector	9	Fixing clip	15	Singlet (attachment)
4	Drilling aid	10	T-connetor		
5	Coupler	11	Polarity changer		
6	Corner connector	12	X-connector		

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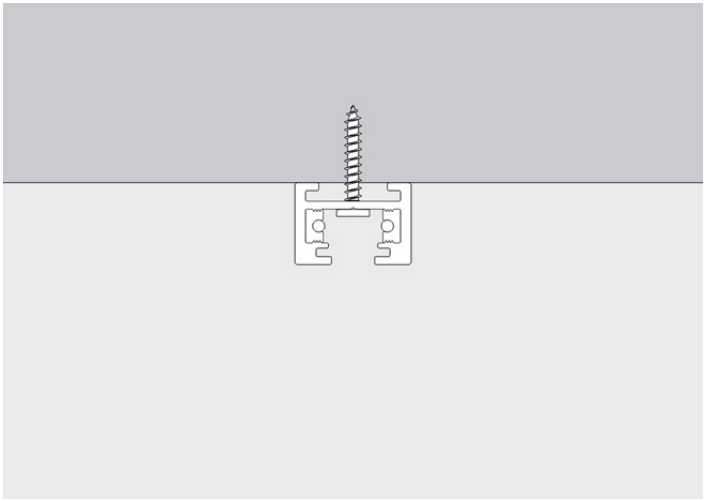
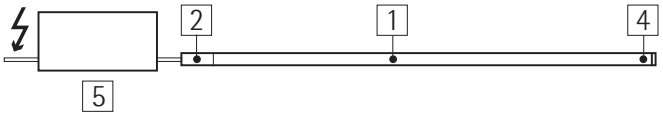
Planning aid for Minirail 48V

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.

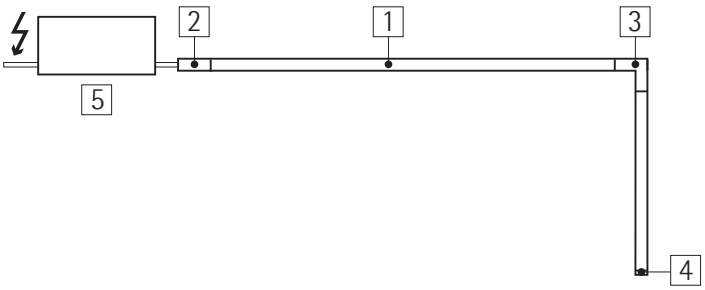


Parts list for linear surface mounting



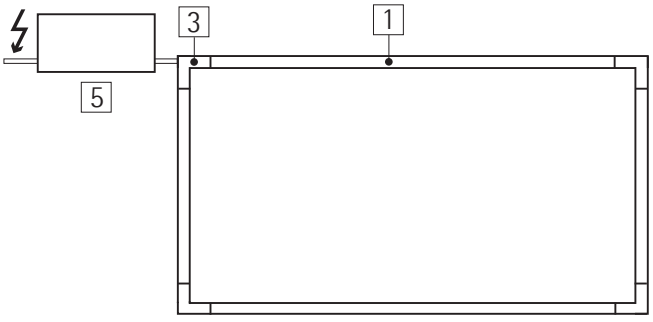
Number	Quantity	Description
1	1	Track
2	1	Live end
4	1	End plate
5	1	Power supply unit

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

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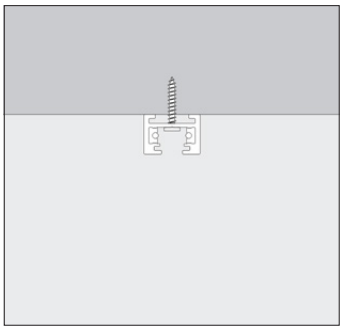
Planning aid for Minirail 48V

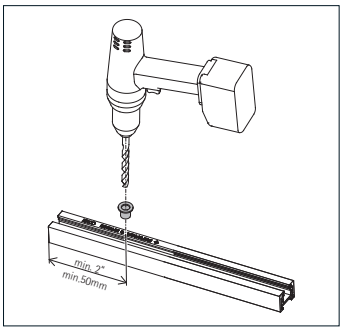
Surface mounting

What to consider during planning and installation

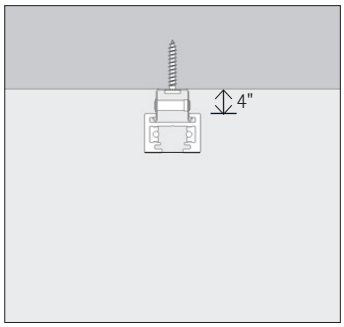
Mounting planning



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 5cm from the track ends must be maintained so that the connector can still be assembled.

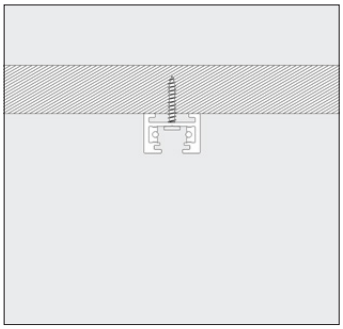


Drill the fixing holes
To be able to individually determine the fixing points for the screw fastening, you need to drill the fixing holes in the Minirail 48V track on site. Use the drilling aid (accessory) to protect the track from damage.
Plan the fixing points about 5cm away from the ends of the track.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

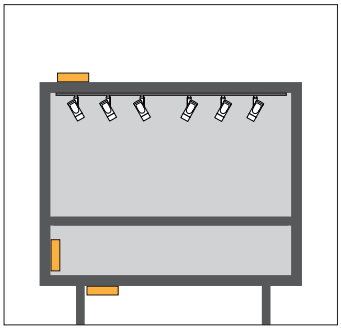


Mounting with fixing clips
The optional fixing clip (accessory) enables fixing on uneven surfaces, e.g. raw concrete ceilings. You can use it to compensate for unevenness of up to 10mm in height. Position the fixing clips at the track ends and, depending on the load, between the connectors.

Mounting in furniture



Installation in furniture
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 and power supply units.



Installation locations in or on furniture
For visual reasons or to reduce the heat load, you can also mount power supply units outside the display case.

Singlet

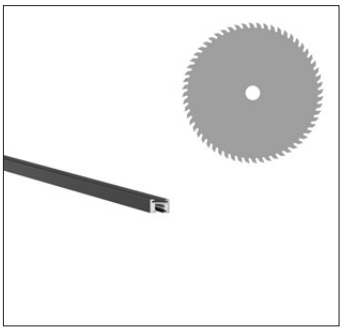
Mounting on the ceiling
Use the singlet for mounting a single Minirail 48V luminaire.

Planning aid for Minirail 48V

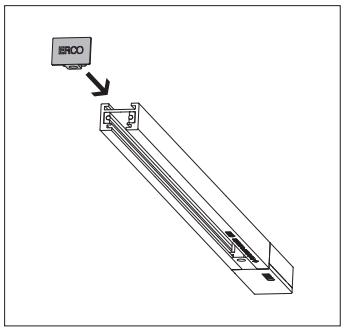
Surface mounting

What to consider during planning and installation

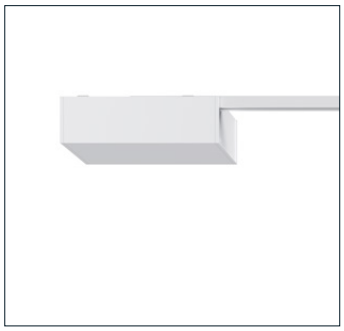
General planning and installation information



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 mitre 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 here 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.

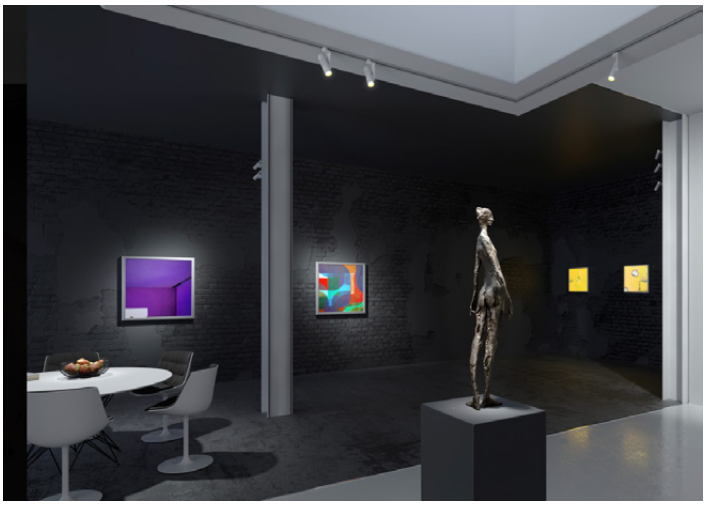
Flexible connectors for non-rectangular systems
Flexible connectors allow you to install systems with angles different to 90°. They are adjustable and lockable in the horizontal plane from 60° to 180°.

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. 100mm also allows ceiling projections to be bridged.

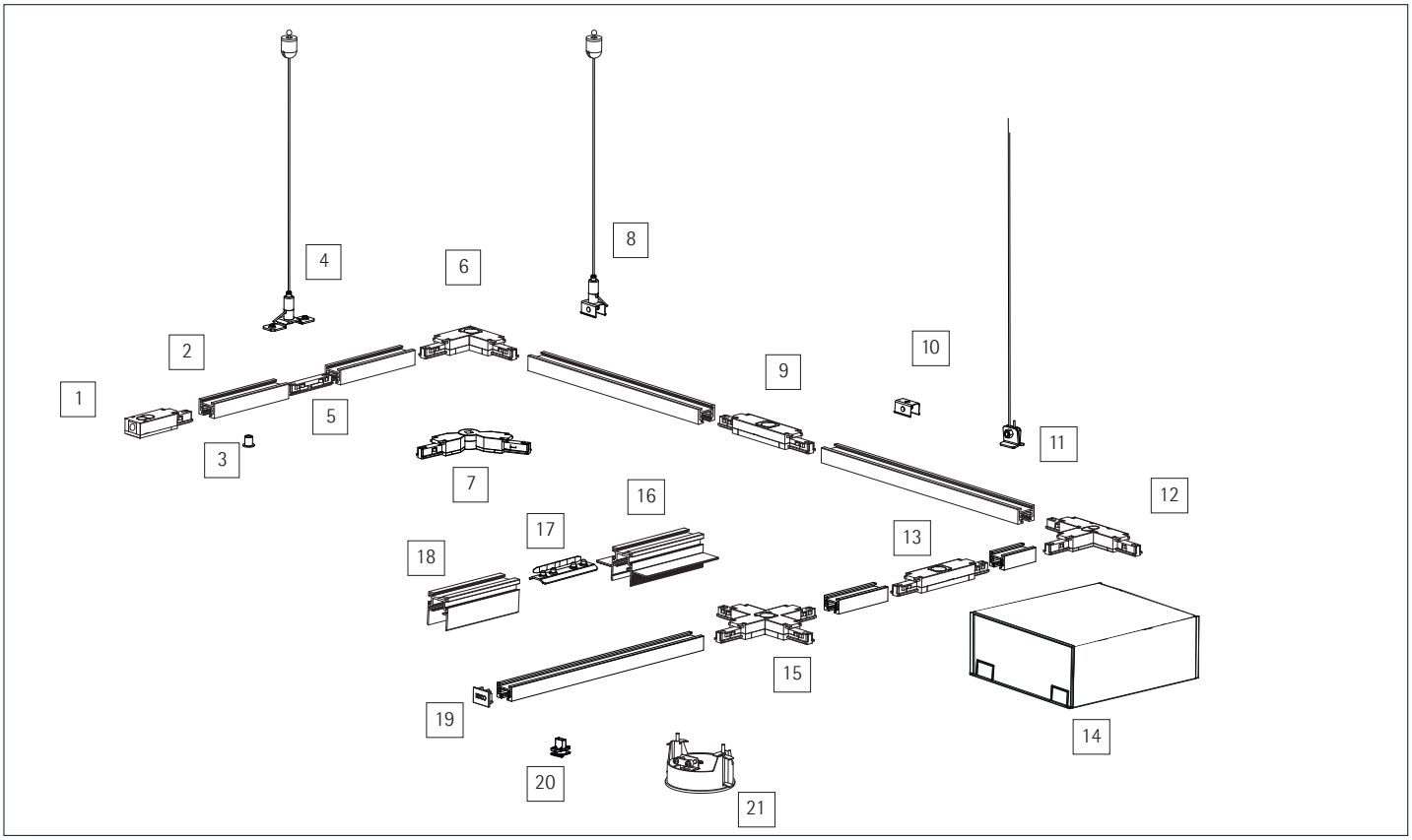
Planning aid for Minirail 48V

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	Endplate
2	Track	8	Wire rope suspension (track)	14	Power supply units	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		

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Planning aid for Minirail 48V

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.

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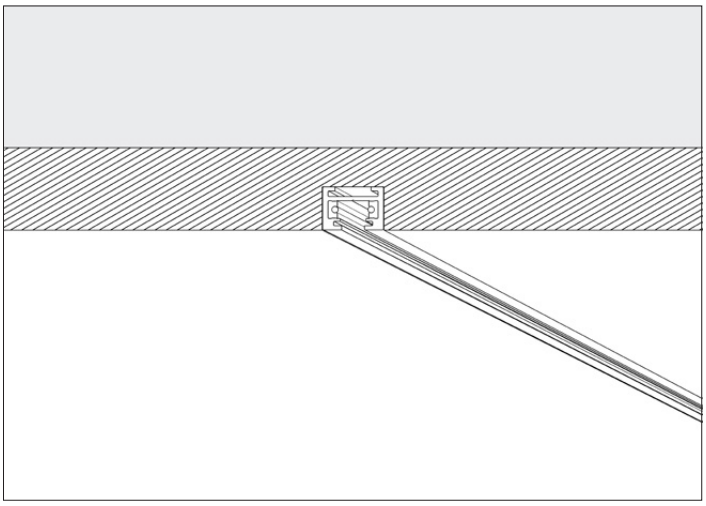
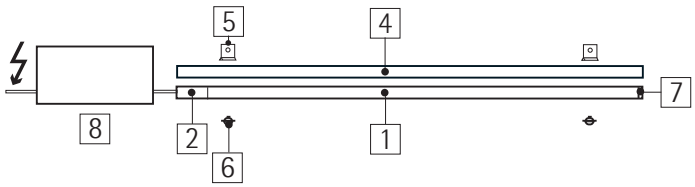


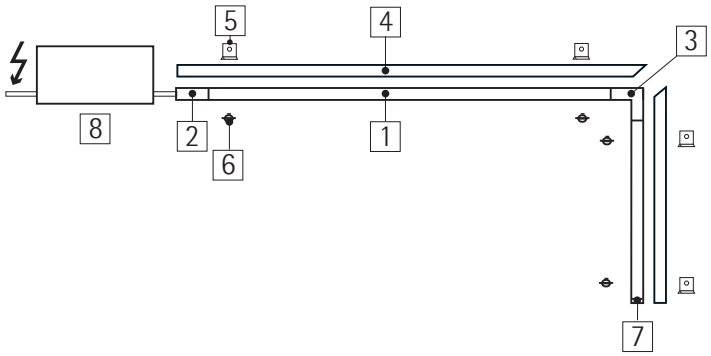
Parts list flush linear installation in drywall ceiling

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



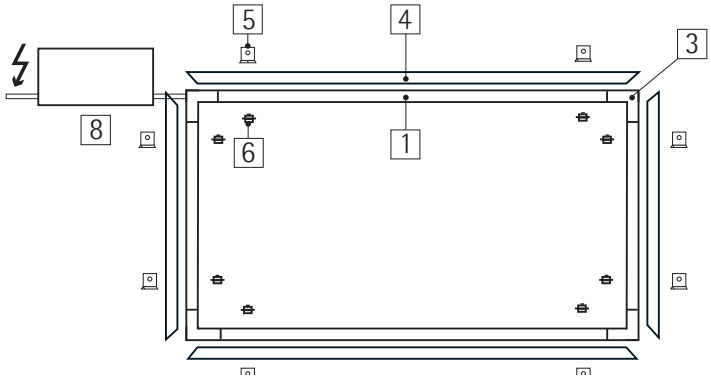
Parts list for flush L-installation in drywall ceiling

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



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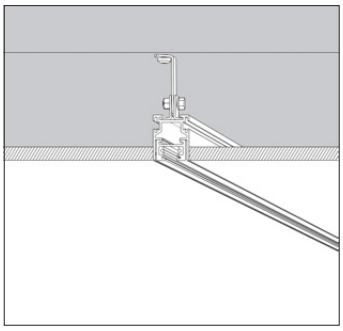
Planning aid for Minirail 48V

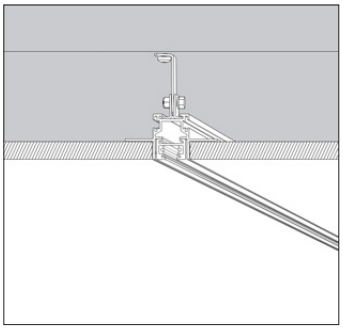
Recessed mounting

What to consider during planning and installation

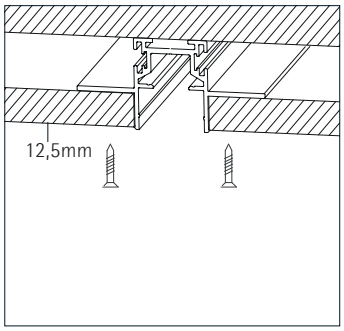
Drywall ceiling, panelled ceiling



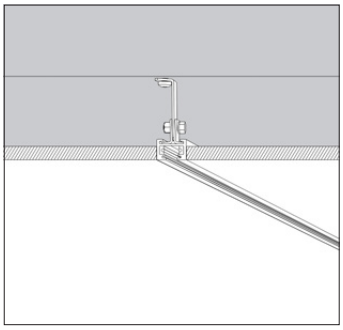
Flush installation with plaster trim profile and slotted iron
Minirail 48V plaster trim profiles (accessories) are suitable for flush installation. In terms of separating the trades, the plaster trim profiles can be installed by the drywall contractors whilst the electrical contractor only has to install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



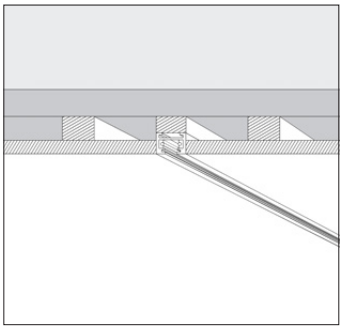
For a secure hold, you should attach the plaster trim profile with slotted irons or similar fastening material that is available and approved on site. Suspensions (accessories) are available for the mounting, and the track is fastened in the plaster trim profile with toggles (accessories). You require 1 set with 3 toggles per metre.
Please also note the instructions for drilling the fixing holes.
A mechanical bridge (accessory) is available for lengthening the plaster trim profiles.



Plaster trim profile types:
Plaster trim profile with side supports (flange) for drywall or wooden ceiling panels (material thickness <12.5 mm). The advantage of this profile is that you can use it to firmly connect the ceiling panels and the profile, thus preventing cracks from forming along the profile. The plaster trim profile with flanges cannot be retrofitted without damaging the ceiling. It cannot perform any static function in the ceiling.
Plaster trim profile for flush ceiling mounting. This profile is suitable, for example, for installation in a suitable ceiling opening in a fixed ceiling or in a drywall ceiling.



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. Here, 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.

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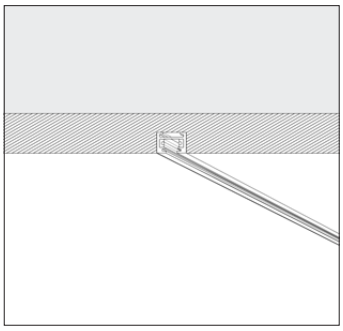
Planning aid for Minirail 48V

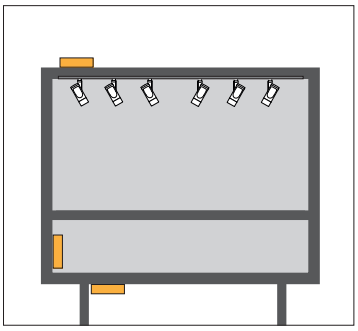
Recessed mounting

What to consider during planning and installation

Installation in furniture



Installation in furniture
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 in or on furniture
For visual reasons or to reduce the heat load, you can also mount power supply units outside the display case.

Singlet

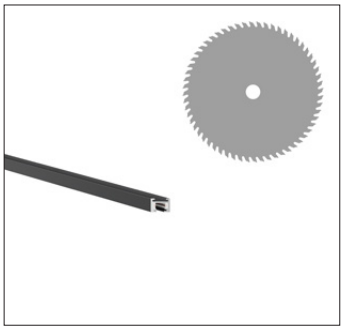
Flush or covered mounting
To make the ceiling opening, use a 68mm diameter drill bit.
Using the plaster ring (accessory) and the reliable ERCO mounting principle, the singlet can be easily installed flush with the ceiling.

Planning aid for Minirail 48V

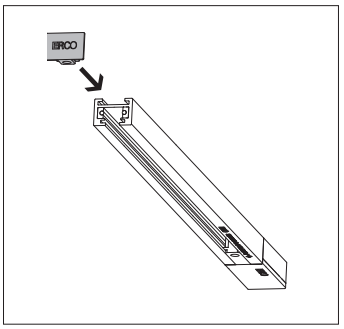
Recessed mounting

What to consider during planning and installation

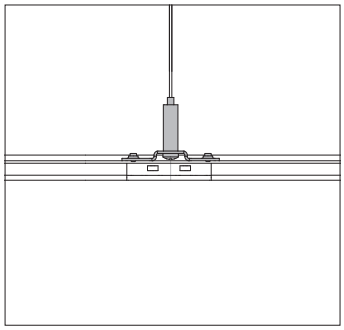
General planning and installation information



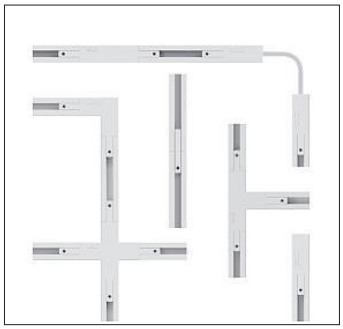
Shortening the track
You can order track cut to size. In many cases however it is advisable to shorten standard lengths directly on site, e.g. with a mitre saw. Make the cut square and clean so that there are no unsightly gaps at the joints.



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

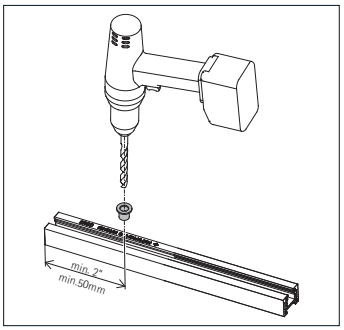


Extending the track
If you need to lengthen a track, use the coupler for flush mounting and position a wire rope suspension over the joint. This ensures that the coupler is not mechanically stressed, and at the same time you still have a fixing point. Alternatively, you can also secure the joint with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



Using connectors
Connectors must not bear any mechanical load. 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.

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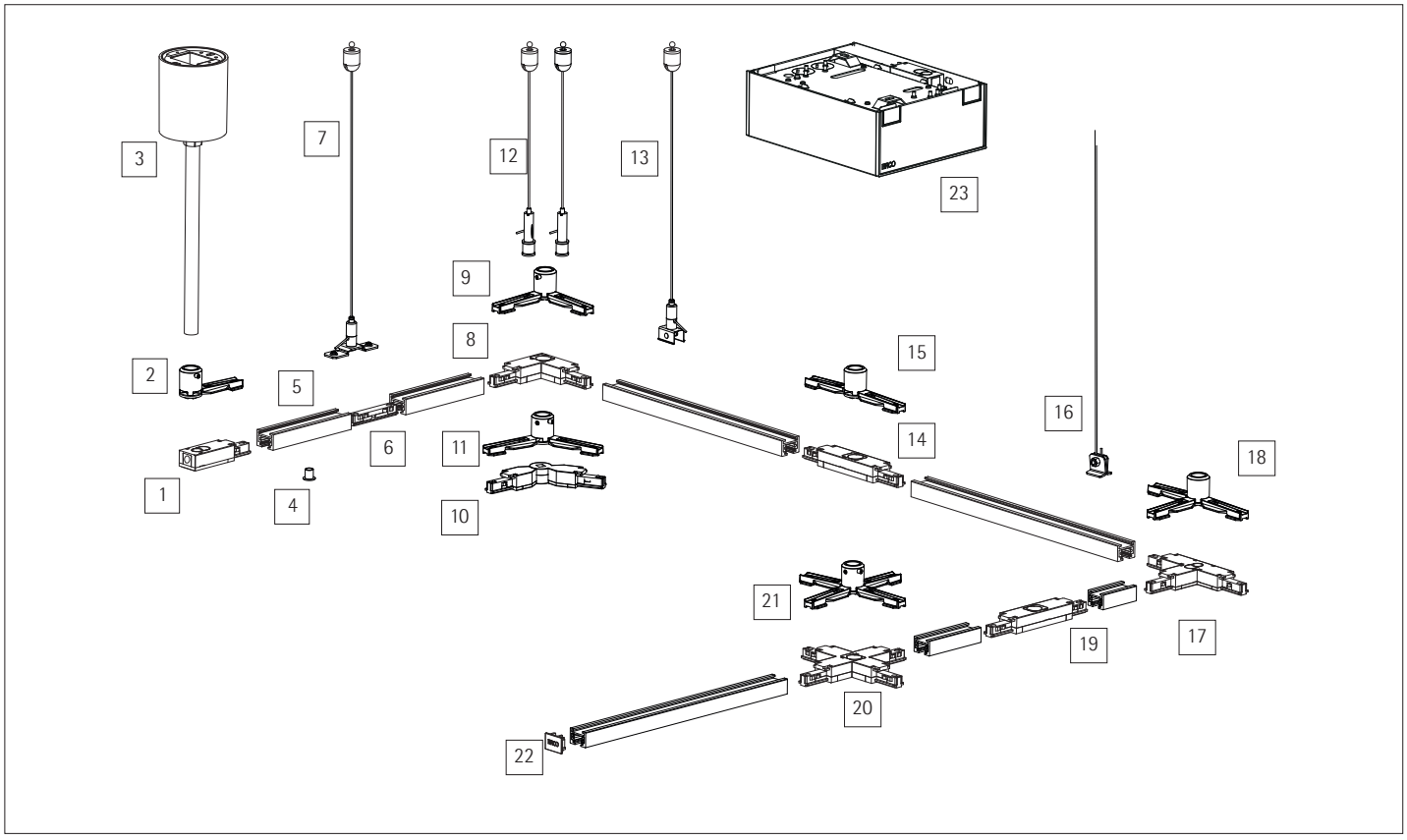
Planning aid for Minirail 48V

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, 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	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 units
6	Coupler	12	Wire rope suspension with/without cable gland	18	Mounting plate for T-connector		

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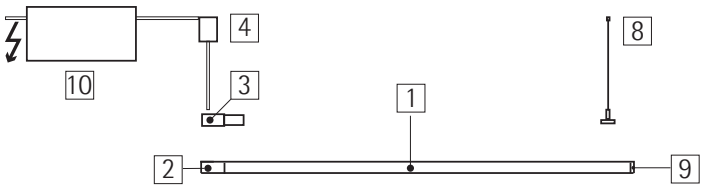
Planning aid for Minirail 48V

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.

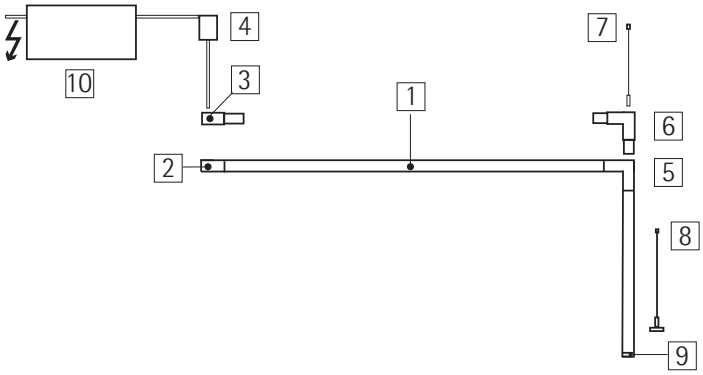
Parts list for linear pendant mounting

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



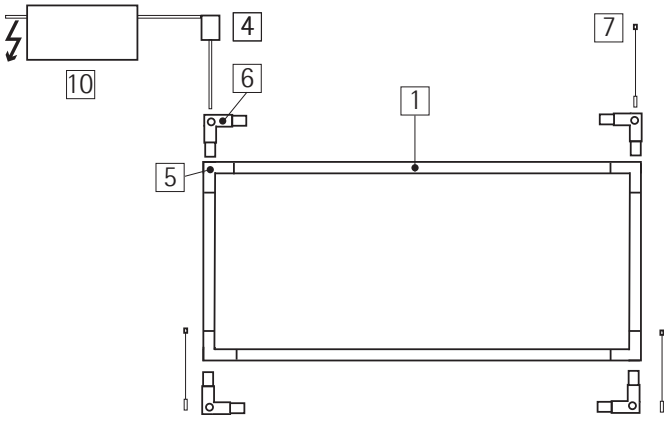
Parts list for angled pendant mounting

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



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Planning aid for Minirail 48V

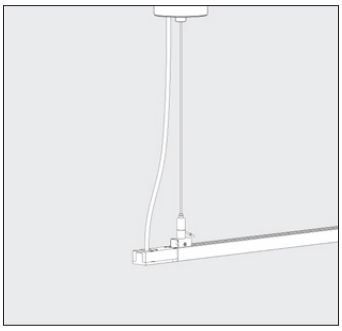
Pendant mounting

What to consider during planning and installation

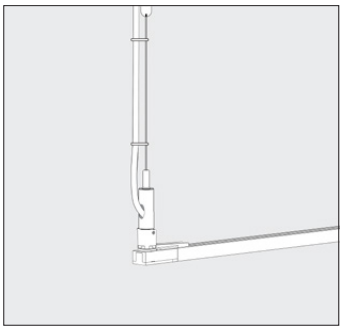
Pendant tube or wire?

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

Concealed cable routing
Pendant tube suspensions enable discreet power supply to your system. The pendant can take a sheathed cable up to a diameter of max. 10mm. Supply is without a cable. Pendants longer than 1,040mm are also available on request.



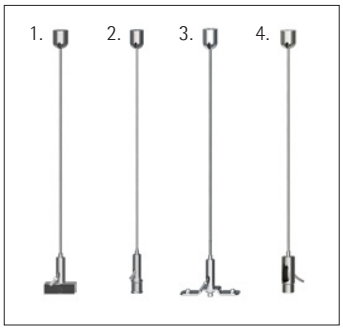
Feed with wire rope suspension and canopy
With wire rope suspensions, the connection is made via the canopy. The opening in the base of the canopy allows the connection cable to be fed through to the track.



Feed with wire rope suspension and cable gland
These wire rope suspensions allow the connection cable to be inserted into the connector via the rapid connector. You can attach the cable to the wire rope using the clips provided.

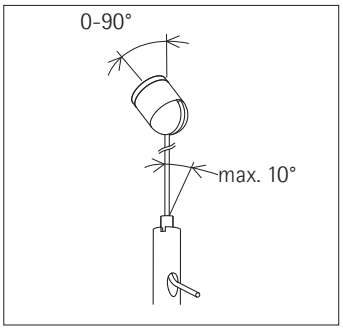
Wire suspensions with point fixing

These suspensions are characterised by a discreet visual appearance.



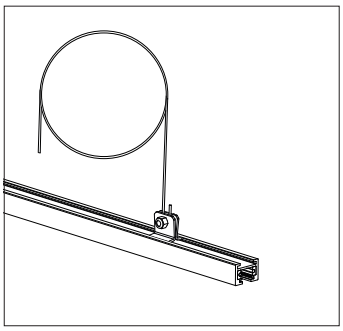
Versions
Wire suspensions with point fixings are available in 4 versions:
1. Version with pre-assembled fixing clip for retrofitting on the track
2. Version with rapid connector for fixing to mounting devices.
3. Version with mounting device for direct mounting on the track.
4. Version with rapid connector and cable gland for cables up to d 9.3mm. 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.

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.

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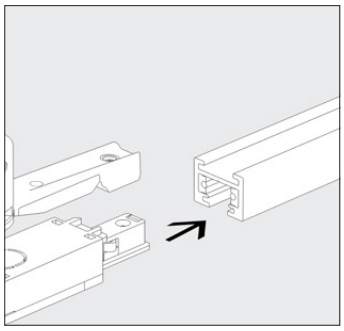
Planning aid for Minirail 48V

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.

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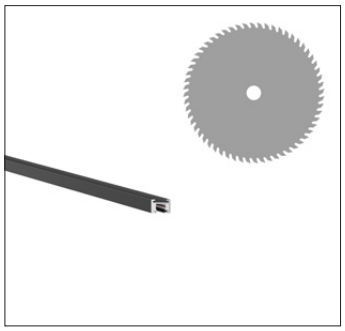
Planning aid for Minirail 48V

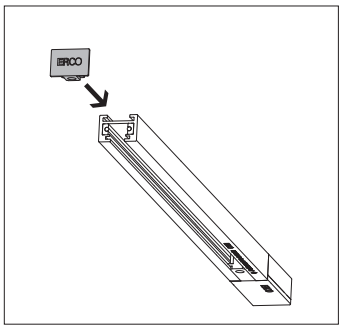
Pendant mounting

What to consider during planning and installation

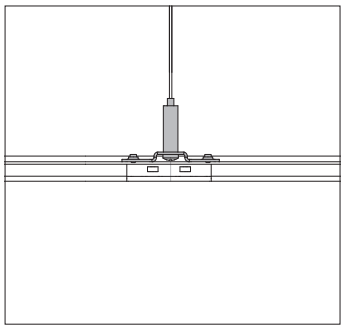
General planning and installation information



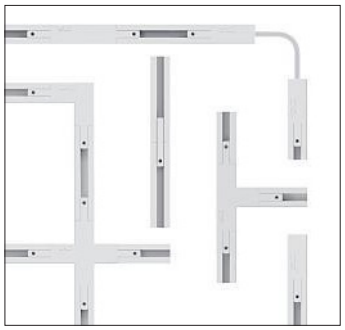
Shortening the track
You can order track cut to size. In many cases however it is advisable to shorten standard lengths directly on site, e.g. with a mitre saw. Make the cut square and clean so that there are no unsightly gaps at the joints.



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.

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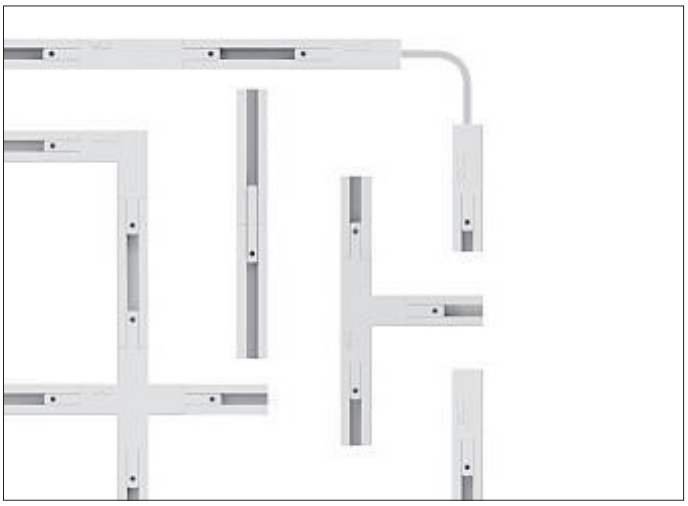
Planning aid for Minirail 48V

Electrical installation

A variety of geometric shapes can be realised 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 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.
There are 3 power supply unit types to choose from for connection to the power supply: ceiling installation, ceiling mounting and control cabinet installation.



Operating mode	Circuits	Control
48V	1	Switchable On-board Dim Casambi Zigbee DALI (via DALI Casambi Gateway)

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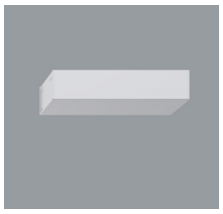
Planning aid for Minirail 48V

Electrical installation – planning power supply units

ERCO power supply units
For a reliable 48V system, you should only use ERCO power supply units that are optimised for ERCO 48V systems.

Specifying a suitable power supply unit

Recessed 75W, 120W



Surface-mounted 250W

Installation control cabinet
120W, 240W, 480W

Power supply units with different wattages are available for a variety of requirements. Proceed as follows to find the right power supply unit:
- Determine the number of luminaires required
- Add up the connected loads (Note: not the module connected loads!)
- For future planning changes, add at least the connected load of one additional luminaire
- Select the power supply unit with the next higher wattage.
- Use only ERCO power supply units

Art. No.	Power (W)	Dimensions l x w x h (mm)	Length of free cable end (mm)	Parallel connection (Output)	Through-wiring (Input)	Output adjustable	Recessed mounting	Mounting on 35mm DIN rail	Surface mounting	Mounting above track
13969.000	75	180 x 52 x 30	-	-	-	-	●	-	-	-
13968.000	120	300 x 40 x 30	-	-	-	-	●	-	-	-
13961.000 13951.000	250	330 x 165 x 68	-	●	●	-	●	-	●	●
AC01600100	120	220 x 68 x 39	300	-	-	●	●	●	-	-
AC01600200	240	244 x 68 x 39	300	-		●	●	●	-	-
AC01600300	480	262 x 125 x 44	300	-		●	●	●	-	-

Dimensioning connecting cables

In addition to the power of the power supply unit and the length of the tracks/profiles, the length and cross-section of the supply cable to the 48V system are factors that impact the reliable operation of your 48V system:
The following table shows the most important planning-relevant data for the power supply units.

Note: The units for control cabinet installation are farther away from the actual 48V system. The power supply units for control cabinet installation are optimised for long cable lengths. You may also compensate for the voltage drop by increasing the output voltage V_0.

Art. No.	Power (W)	Safety class	Minirail 48V track length (m)	Maximum length of the supply cable with cable cross-section (m) 2.5mm²	1.5mm²	1.0mm²	V_0 max. (V)	Number of power supply units per circuit breaker B10	B16
13969.000	75	II	10m 20 (max.)	70 60	40 35	25 25	-	9	15
13968.000	120	II	10m 20 (max.)	35 25	20 15	10 7.5	-	9	15
13961.000 13951.000	250	I	20 (max.)	12	5	-	-	8	8
13961.000 (2x) 13951.000 (2x)	2x250	I	20 (max.)	10	-	-	-	4	4
AC01600100	120	I	20 (max.)	320	200	130	53.0		5
AC01600200	240	I	20 (max.)	120	70	48	51.2		2
AC01600300	480	I	20 (max.)	40	24	16	50.4		2

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Observe data sheets and instructions for use.

Always find the latest information at www.erco.com

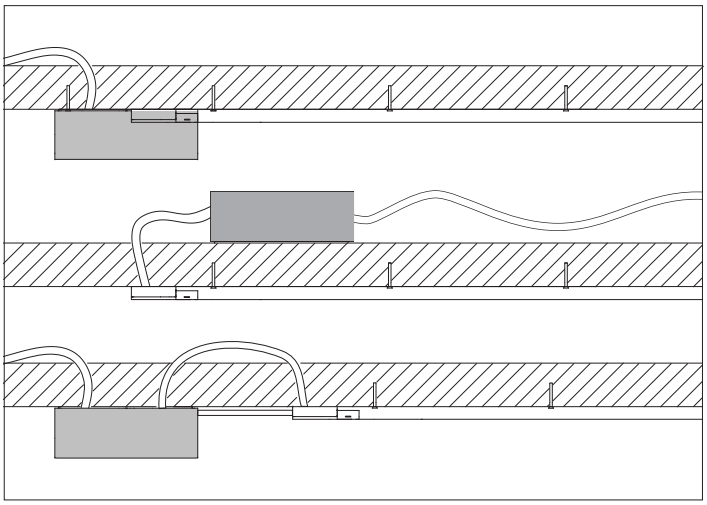
Planning aid for Minirail 48V

Electrical installation

Electrical connection of the Minirail 48V track

Installation location for power supply unit Surface-mounted / Recessed

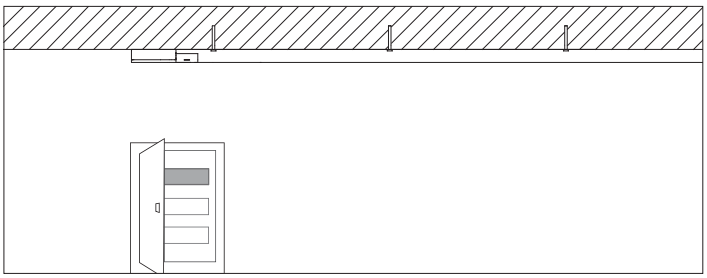
Power supply units
13969.000 (75W Recessed)
13968.000 (120W Recessed)
13961.000 (250W Surface-mounted)
13951.000 (250W Surface-mounted)



The installation location for the 250W ERCO power supply unit is almost freely selectable. Only the following main points must be complied with:
- 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.
- Wattages below 250W are only suitable for ceiling installation or installation in housings.

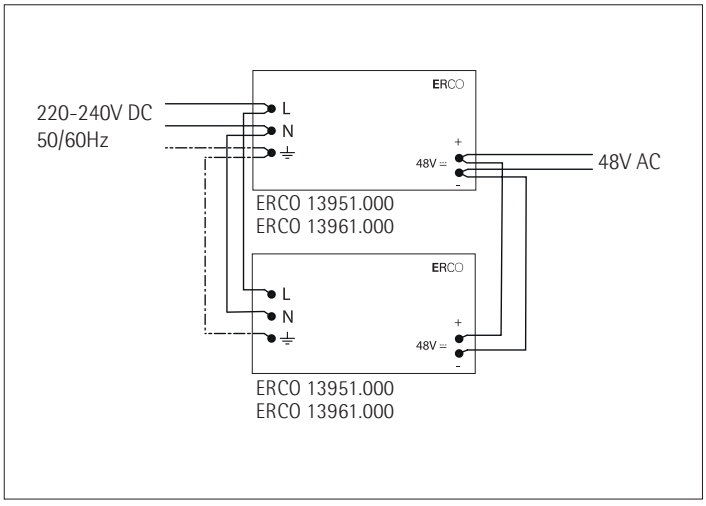
Control cabinet installation

Power supply units
AC01600100 (120W)
AC01600200 (240W)
AC01600300 (480W)



- These power supply units are suitable for control cabinet installation and may be mounted on a 35mm mounting rail (DIN rail). Alternatively, mounting on a mounting plate is also possible.

Planning security



Extend supply unit (only 250W ERCO supply unit 13951.000 / 13961.000!)
If 250W power is not sufficient, you can connect a maximum of one additional ERCO 250W power supply unit in parallel. ERCO power supply units with lower wattages are not suitable for parallel connection.
Never connect power supply units in series as the voltage will add up in this case. Ensure you follow the installation instructions for the power supply unit.

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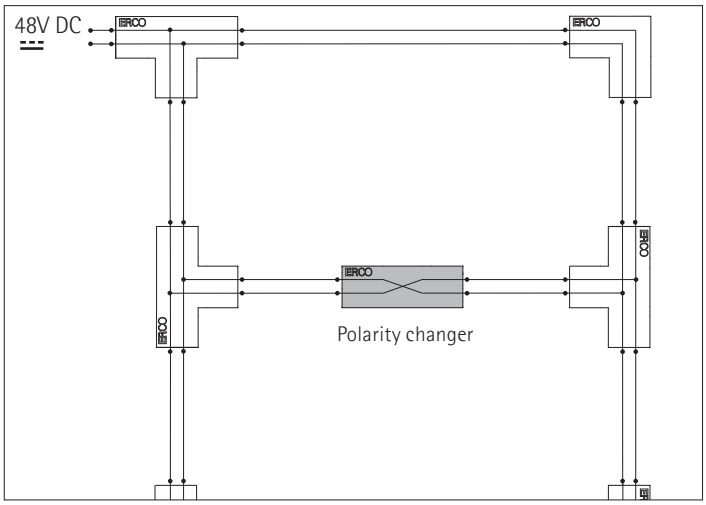
Planning aid for Minirail 48V

Electrical installation

Electrical connection of the Minirail 48V track

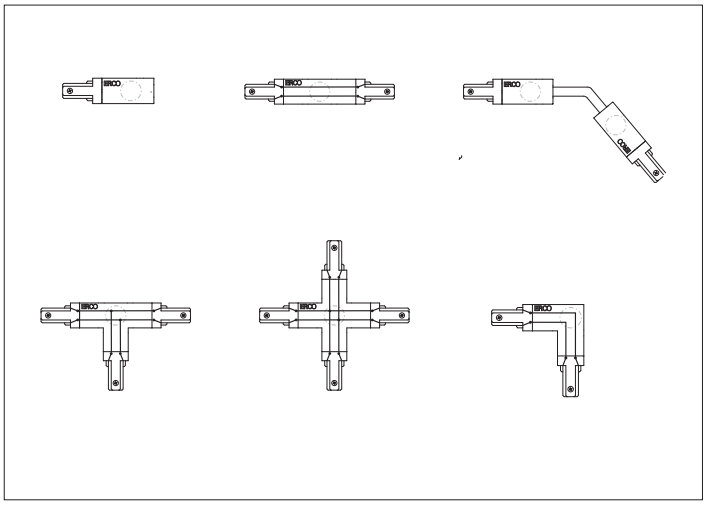
Short-circuit proof and overload protected



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.

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.

Exceptions
- Observe the polarity when connecting a maximum of two 250W power supply units 13951.000 in parallel!
- For opposing T-connectors, install the Minirail polarity changer. See the following section "Short-circuit proof and overload protected"

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Planning aid for Minirail 48V

Electrical installation

Adapters for ERCO track and flanged track used on ERCO luminaires

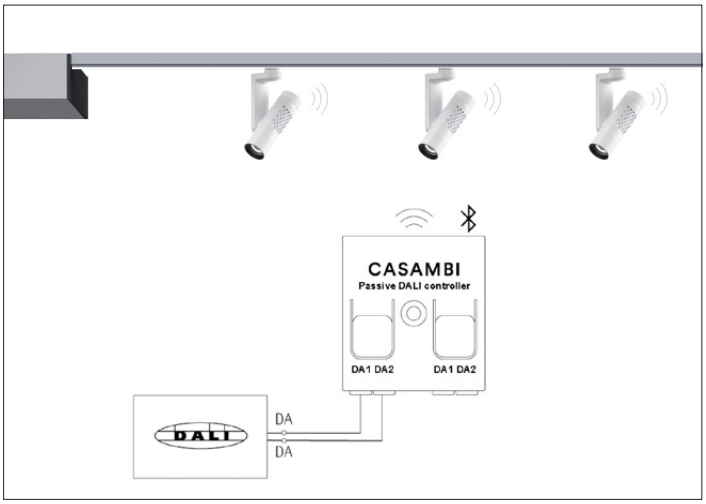
All ERCO adapters are mounted in the track without tools.

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.

OEM Minirail 48V adapter
The adapter enables operation of luminaires from other manufacturers with the ERCO Minirail 48V system. The precondition is that these luminaires, like the Minirail 48V system, are reverse polarity tolerant. Since the OEM adapter does not have a disconnect device, the luminaire used must be hot-plug capable. The interface consists of an M10 threaded sleeve with length of 5mm. The wires passing through the threaded sleeve do not have a strain relief, therefore do not use this adapter for pendant luminaires. You can insert the adapter into the track in any direction. The adapter is suitable for mounting in the ERCO Minirail 48V singlet.

Integrating the Minirail 48V system in DALI light controls



Notes on the function and application of the DALI Casambi Gateway
- The DALI Casambi Gateway converts wired DALI signals into Casambi Bluetooth wireless signals. Luminaires or sensors/switches with Casambi can thus be integrated into DALI networks. They are shown in the DALI control as DALI devices with an address. The gateway does not need a DALI address for itself.
- A broadcast command to all luminaires is possible. In this case the gateway requires an address and up to 249 luminaires can be addressed.
- The gateway supports Device Type 6 (dimming) and 8 (colour control) as well as Casambi sensors and switches/push-buttons.
- The maximum number of individually controllable luminaires/devices depends on the DALI system, i.e. 64 luminaires/devices; with DALI Broadcast you can address up to 249 luminaires simultaneously.

Integration into DALI systems
The DALI Casambi Gateway enables the integration of luminaires with Casambi Bluetooth into a DALI system.

Preconditions
- To set up and operate the gateway you need the app provided by Casambi as well as a DALI control with integrated power supply for the DALI bus. 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 DALI devices or luminaires. You can set the addressability of a luminaire for DALI commands and the command hierarchy in the Casambi app.

Observe the installation instructions for the luminaires and the DALI Casambi Gateway.

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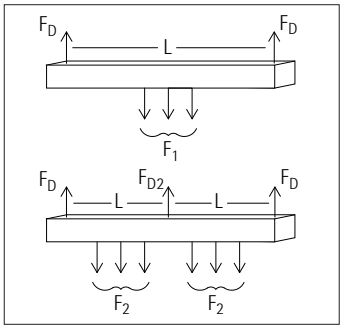
Planning aid for Minirail 48V

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

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.

ERCO Minirail 48V

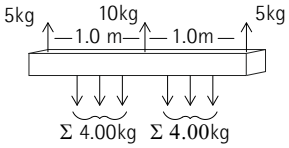
L	(mm)	500	1000	1500	2000
F_e	(kg)	0.25	0.5	0.75	1.00
f_e	(mm)	0.02	0.29	1.48	4.69

F_D = 5 kg / F_{D2}=10kg

F_1	(kg)	9.63	4	1.5	0.5
F_2	(kg)	9.63	4	1.5	0.5

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 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 0.45kg

2. Number of suspensions and distances
Number of suspensions 3
Distance btw. suspensions (L) 1000mm

3. Maximum weight between 2 suspensions with L=1000mm
According to load table (F2): 4.00kg

4. Determine the maximum number of luminaires
At 0.45kg/luminaire 8 luminaires
For the complete track 16 luminaires

Result:
A maximum of 16 luminaires can be installed here.

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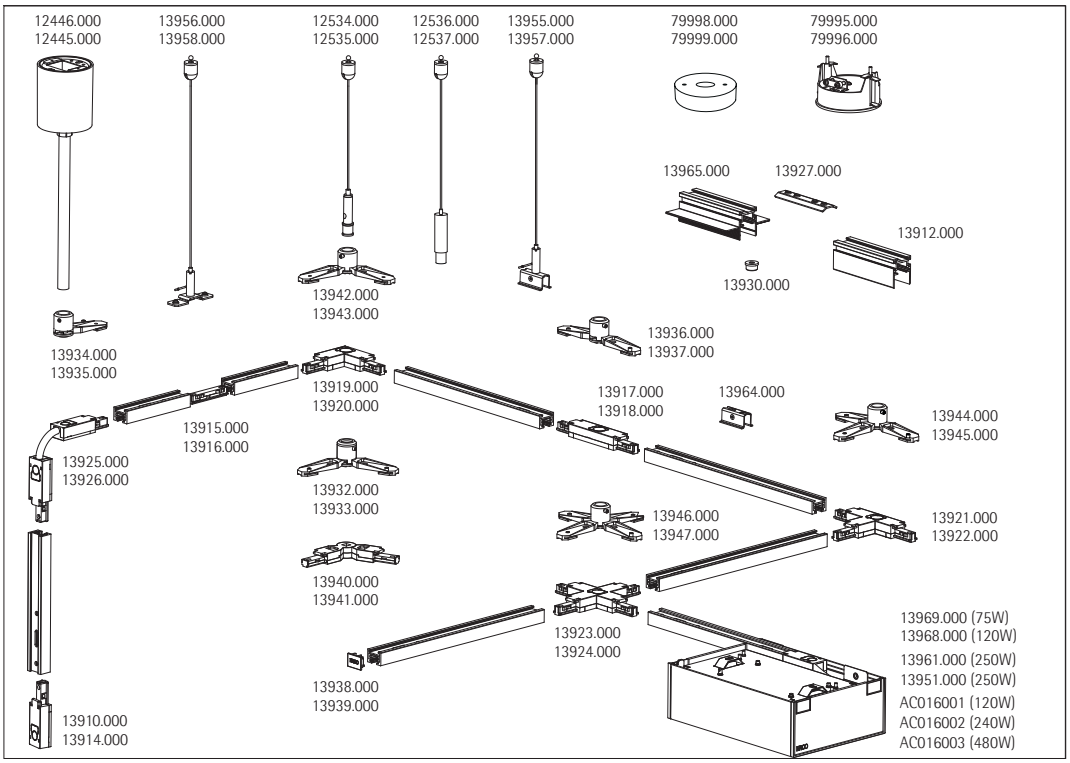
Planning aid for Minirail 48V

Appendix: The ERCO Minirail 48V system – accessories

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