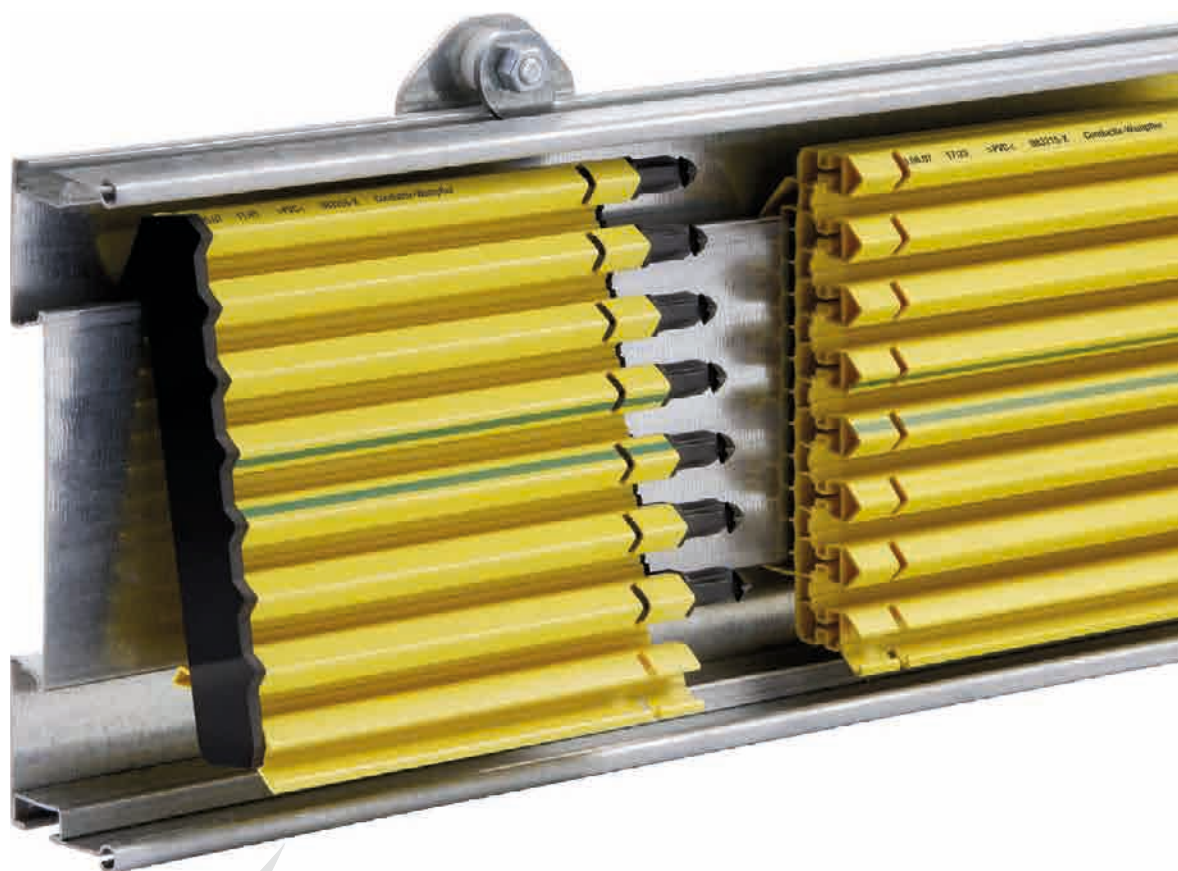


Conductor Rail System

EcoClickLine Program 0832



CONDUCTIX
wampfler

© DELACHAUX GROUP

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System and Module Concept

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Note

Images and illustrations used are examples and can vary from the product depending on the version. Subject to change without notification.

EcoClickLine - a system introduces itself!

Tailored ready made

EcoClickLine has been specially developed for the requirements of AS/RS cranes in high rack storage areas and similar linear applications such as transfer cars.

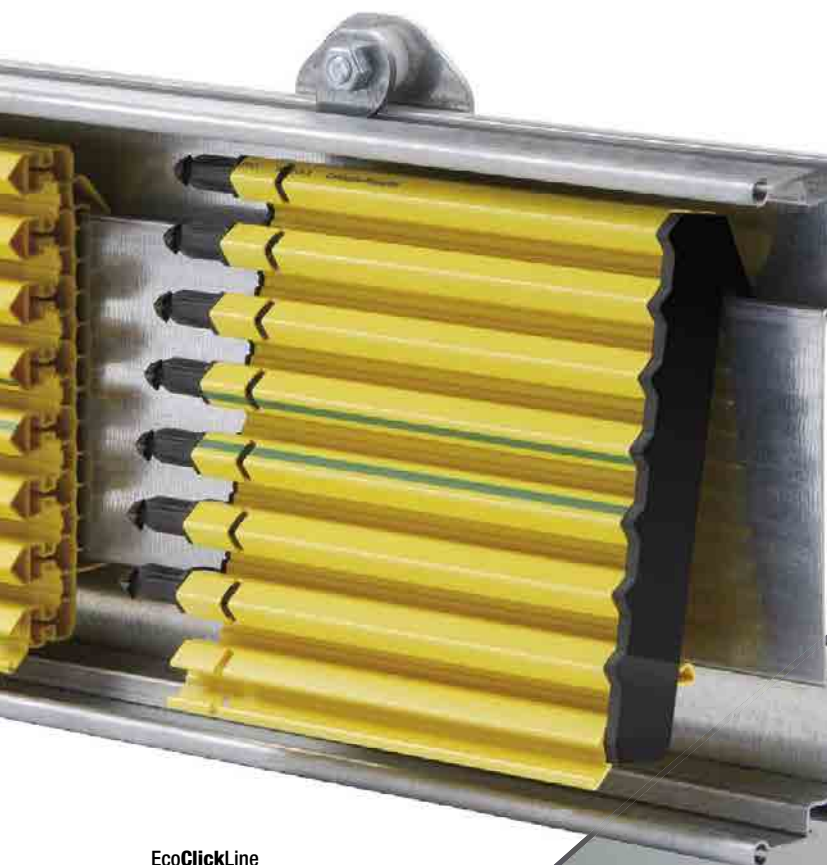
As a sturdy and reliable system **EcoClickLine** fulfills the requirements of current and future storage and retrieval systems: In addition to linking product advantages of known systems, consequent implementation of mostly tool-free assembling techniques as well as the module concept of the system are also unique.

Savings during assembly and logistics

These product characteristics can save considerable costs in the area of assembly and transport and therefore allow the entire costs for system constructors and final customers to be significantly reduced. The system greatly reduces assembly time. This is made possible by several clever detail solutions such as clip connectors and snap locks. The necessary force and form-fit connections are easily accessible. The use of small parts has been reduced to a minimum.

Advantages through module concept

Another advantage is found in the module concept of the conductor rail systems: In contrast to the usual assembly of individual parts, the system comes in modules. A module contains all of the parts needed for one section. As a result, not only is it possible to assemble your system quickly and safely, the continuous logistical procedure remains free from errors to its destination. With the exception of both modules for the conductor strips and positioning modules that are manufactured shelf aisle-specific and according to order, all modules are universally applicable standard modules.



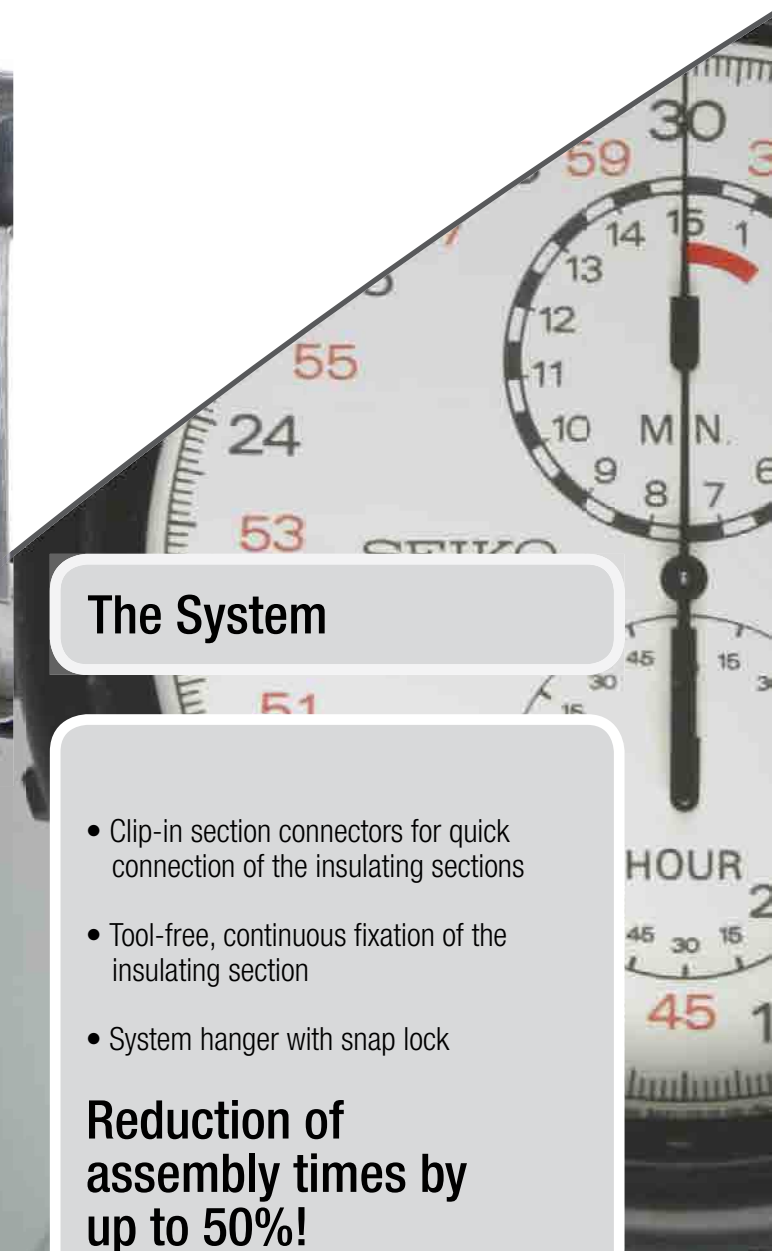
EcoClickLine

The Economical Standard for AS/RS

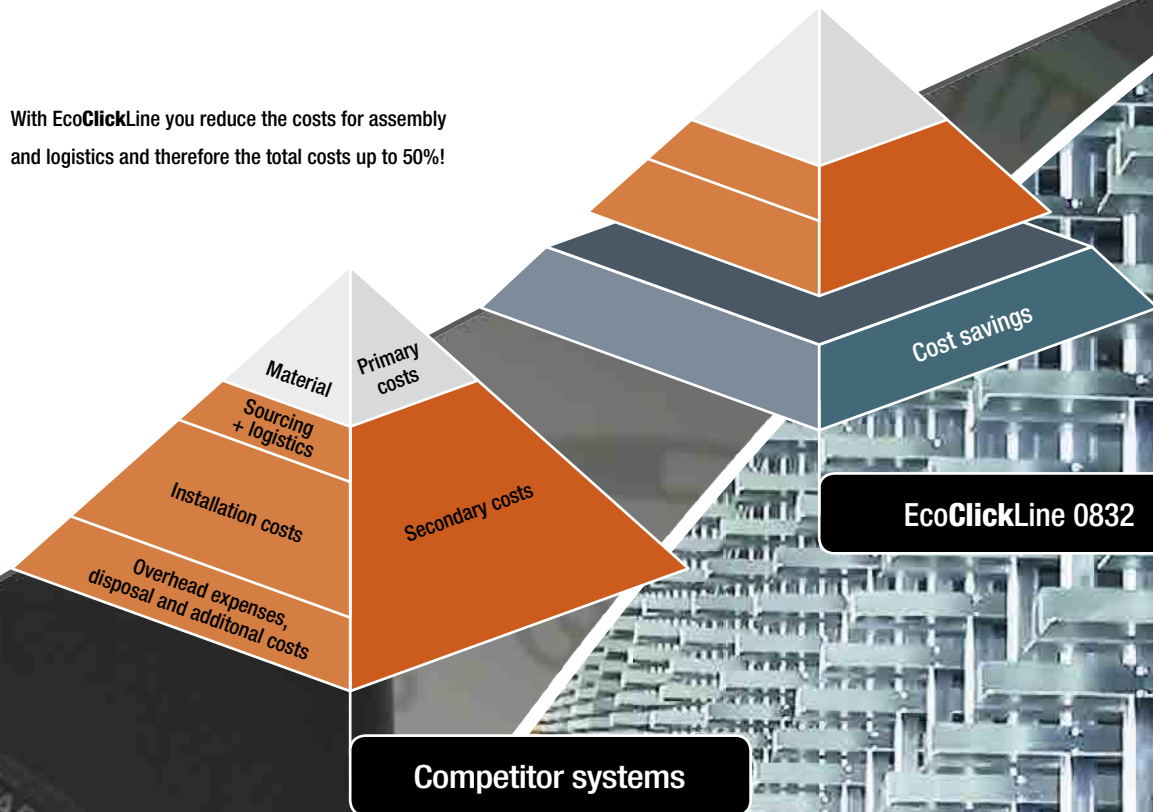
The System

- Clip-in section connectors for quick connection of the insulating sections
- Tool-free, continuous fixation of the insulating section
- System hanger with snap lock

**Reduction of
assembly times by
up to 50%!**



With EcoClickLine you reduce the costs for assembly and logistics and therefore the total costs up to 50%!



EcoClickLine 0832

Competitor systems

The Module Concept

- Easy to assemble
- Assembly-oriented logistics
- Requirement-oriented selection of additional modules such as special components, tools, transport aids, etc

**Reduction of
logistic costs by
up to 50%!**

The System



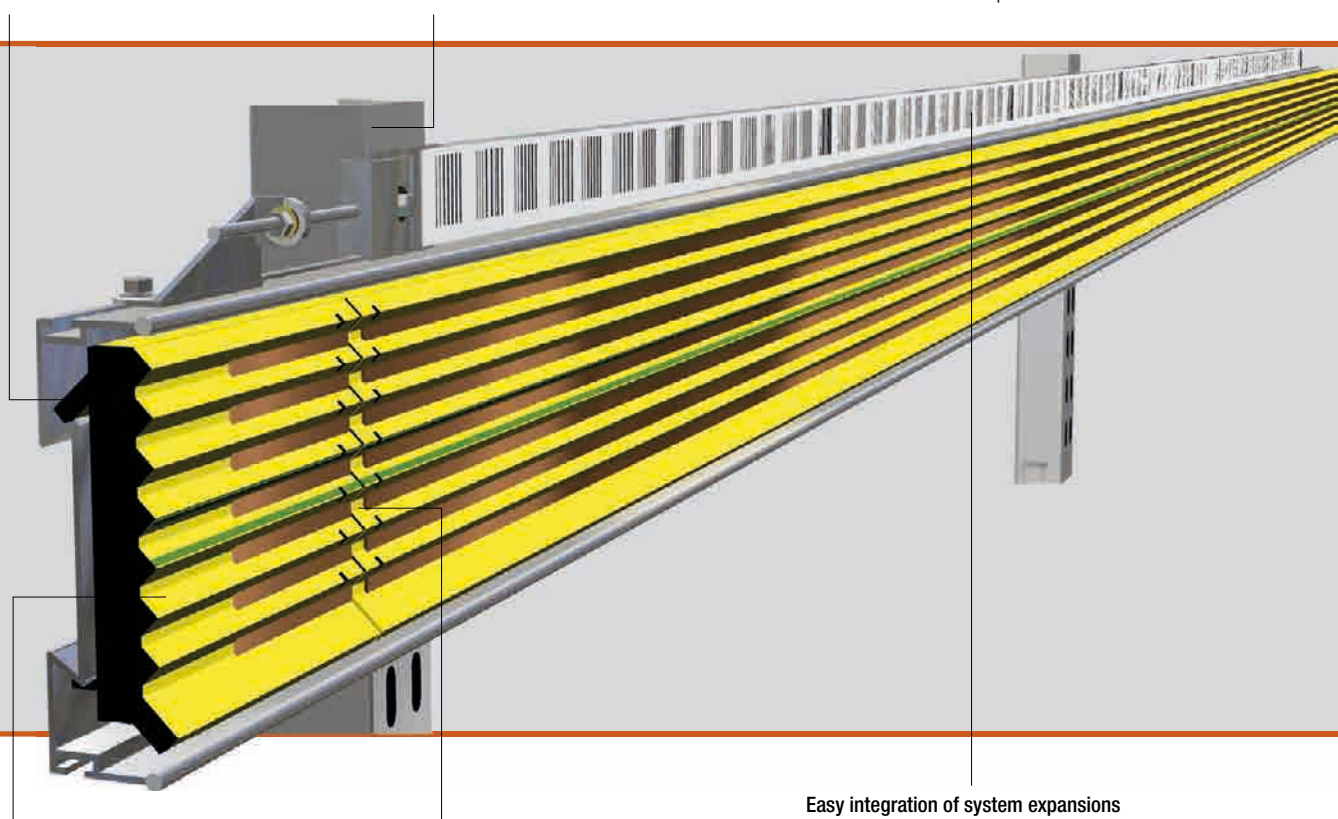
Tool-free assembly through clip-in profile connectors



Snap lock through system hanger



75% reduction of screws due to support profile connections with screw optimization



Flexible conductor strip assembly through easy manual feed

Quick connection through clip-in profile connectors

Easy integration of system expansions through integrated receptacle for bar code positioning or data transfer systems



Flexibly expandable due to continuous T notches to support switching flags, control magnets or RFID transponders

The Module Concept

EcoClickLine is based on the combination of universally applicable standard modules and a tailored-to-order, built ready-for-assembly conductor strip module. A transparent and easy to handle number of packages with compact measurements and light individual weight is directly transported to the installation site in the shelf aisle. All of the materials needed at the

installation site are therefore available in sufficient quantity and at the right place. Only a few initial data are needed to order or to select the modules.

The EcoClickLine initial data for product configuration:

- Project and shelf aisle description
- Length of the aisle
- Pole assignment / conductor cross section
- Hang-up distance and shelf type
- Number and type of current collectors
- Environmental temperature range

Standard Modules



Basic module L 1-4 m

- Support and insulation profiles
- Power feed and end caps
- Connector and spare parts



Expansion module 4 m, 8 m or 24 m

- 1, 2 or 6 support profiles each 4 m
- 1, 2 or 6 insulation profiles each 4 m
- Connector and spare parts



Conductor strip package

- Ready for assembly in desired feed length
- Including connection cables for the power feed



Current collector

- Ready for assembly
- Design up to 7 poles
- Left and right design

Additional Modules



Additional power feed



Consoles



Positioning / bar code band



Tool set

EcoClickLine | How long should it be?

With **EcoClickLine** orders with long item lists and the risk of forgetting something are a thing of the past. Broken down into a few modules identical for each order, which can be supplemented by one or two order-specific items, orders and deliveries are now straightforward and can be processed and checked within a matter of minutes.

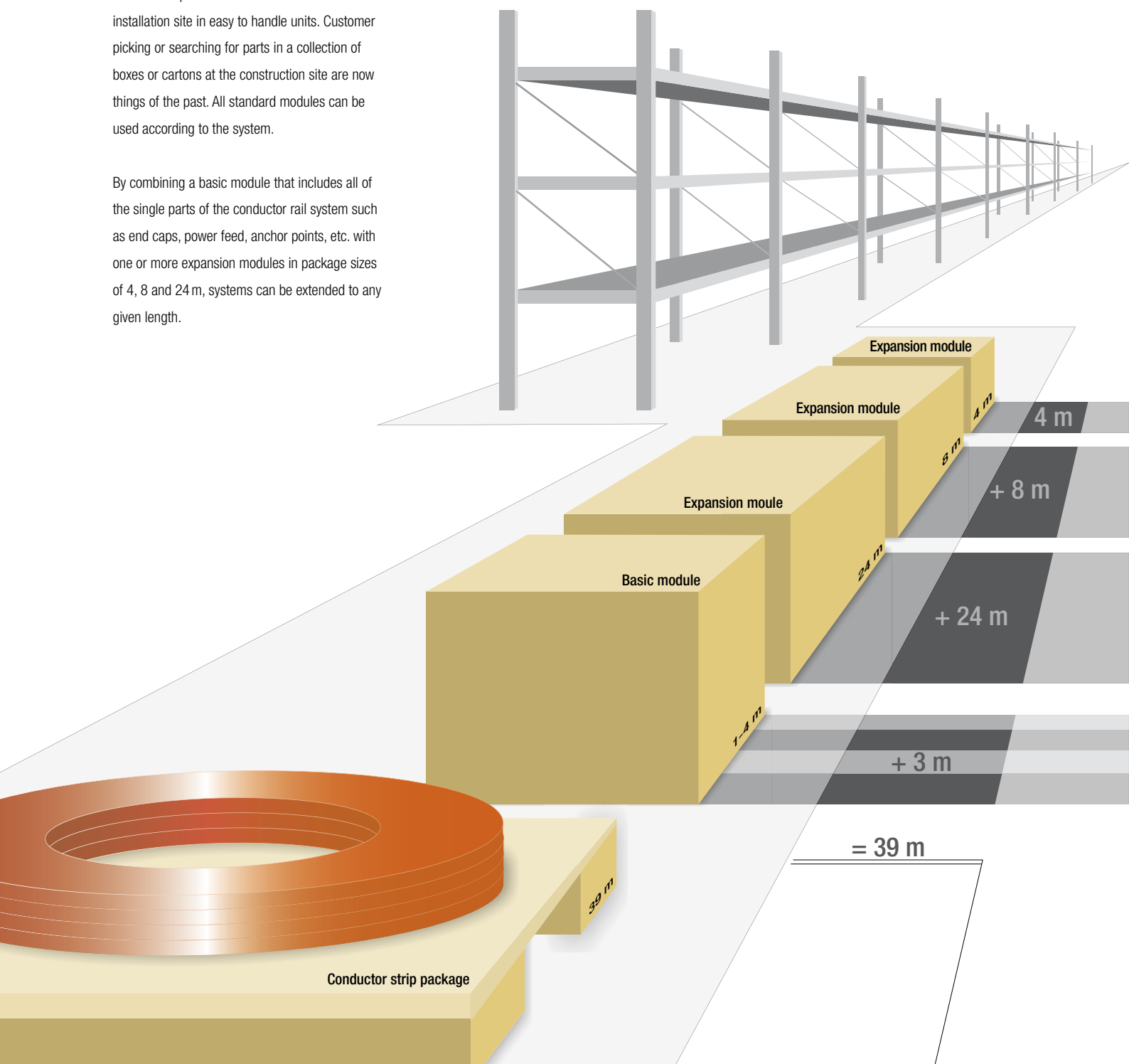
The module system by **EcoClickLine** is structured so that all materials for a lane section or a function component are packaged together and can be transported into the shelf aisles at the installation site in easy to handle units. Customer picking or searching for parts in a collection of boxes or cartons at the construction site are now things of the past. All standard modules can be used according to the system.

By combining a basic module that includes all of the single parts of the conductor rail system such as end caps, power feed, anchor points, etc. with one or more expansion modules in package sizes of 4, 8 and 24 m, systems can be extended to any given length.

System-related components are limited here to the lengths and numbers of conductor strips as well as to the connection cables of the power feed. These components are manufactured on short notice according to order and packaged ready for assembly and ready for dispatch according to shelf aisle.

An order and delivery therefore always is comprised of the same units (basic and expansion modules) as well as an assembly-ready packaging unit with the conductor strips.

Example combination of a shelf aisle length of 39 m:



Technical Data

| | |
|----------------------------|---|
| System: | 4 to 7 pole conductor rail for shelf aisle supply in high rack storage systems and for transfer cars |
| Installation position: | vertical setup (current collector contact on the side) |
| Hang-up distance: | nominal rated distance 3.2 m |
| max. length: | infinitely / expandable through conductor strip connectors |
| Speedrated: | V_{max} 600 m/min (straight strips) |
| Voltage (UL): | 690V (600V) |
| Environmental temperature: | -30°C to + 55°C (max. temperature difference $\Delta T = 50$ K) |
| Protection type: | IP 23 |
| Chemical stability: | Benzine, mineral oil, fatscaustic |
| PVC material: | soda 25%, hydrochloric acid concentrated, sulfuric acid 50% Data based on 45°C environmental temperature and temporary effect while taking damage not considered to be critical to function into consideration (e.g. traces of oxidation, discoloration) |
| Additional functions: | Path positioning (optional with bar code or slit code band), data transfer (optional) |
| Funnel function: | Tangential entry at any position possible. Entry funnel at the end of the conductor rail optional |
| Position PE: | 4th pole from above |

External measurements, weights, system grid

| | |
|----------------|---|
| Height: | 196 mm (220 mm including system hanger) |
| Depth: | 48 mm (50 mm including system hanger) |
| System length: | 4000 mm |
| System grid: | 1 m (intermediate measurement by easy cut possible) |
| Weight: | 5.4 to 6.5 kg/m (depending on conductor equipment) |

Main components

| | |
|--------------------------|---|
| Support profile | Deflection resistant, formed sheet steel sections (galvanized) |
| weight: | 1.5 kg/m |
| Insulate profile | stabilized hard PVC; color YELLOW (RAL 1018) |
| Dielectric strength: | 22.4 kV/mm according to DIN 53481 |
| Creep resistance: | 400 < CTI according to IEC 112 / VDE 0303 |
| Flammability: | corresponding the requirements for insulating materials according to UL 94 V-0; severely flammable and self-extinguishing (IEC) DIN EN 60895-11-10B |
| Weight: | 3.3 kg/m |
| Conductor strips: | E-copper strips with V profile |

| Cross Section | [mm ²] | 10 | 16 | 25 | 35 | 50 |
|--------------------------------|--------------------|------|------|------|-------------------|-------------------|
| Resistance | [Ohm/1000 m] | 1.73 | 1.08 | 0.69 | 0.49 | 0.35 |
| Impedance at 50 Hz | [Ohm/1000 m] | 1.74 | 1.11 | 0.74 | 0.53 | 0.39 |
| Rated Current According to DIN | [A] | 35 | 63 | 100 | 140 ¹⁾ | 200 ¹⁾ |
| Weight | [kg/100 m] | 9.8 | 13.9 | 22.4 | 31.6 | 42.8 |
| Max. Coil Length | [m] | 300 | 300 | 175 | 130 | 80 |

1) Mode of operation S5/80% Duty cycle

Configuration: Cross section at will according to application and feed concept

Relevant standards

| | |
|-------------------------------------|---|
| DIN EN 60664-1; VDE 0110-1:2008-01 | Insulation coordination for electrical equipment in low voltage systems - Part 1: Principles, requirements and tests (IEC 60664-1:2007); German version EN 60664-1:2007 |
| DIN EN 60204-1; VDE 0113-1:2007-06 | Machine Safety - Electrical Equipment of Machines - Part 1: General requirements (IEC 60204-1:2005, modified); German version EN 60204-1:2006 |
| DIN EN 60529; VDE 0470-1:2000-09 | Systems of protection through housing (IP-Code) (IEC 60529:1989 + A1:1999); German version EN 60529:1991 A1:2000 |
| DIN EN 60243-2; VDE 0303-22:2001-10 | Electrical puncture strength of insulating materials - Test procedures- Part 2: Additional requirements for testing with direct current (IEC 60243-2:2001); German version EN 60243-2:2001 |
| DIN IEC 60093; VDE 0303-30:1993-12 | Testing procedures for electrical insulating materials; specific puncture strength and specific surface strength of fest, electrical insulating materials (IEC 60093:1980); German version HD 429 S1:1983 |
| DIN IEC 60167; VDE 0303-31:1993-12 | Test procedures for electrical insulating materials, insulation resistance of firm insulating materials (IEC 60167:1964); German version HD 568 S1:1990 |
| DIN EN 60112; VDE 0303-11:2003-11 | Procedure for the determination of the test number and of the index number of the spark checking of firm insulating materials (IEC 60112:2003); German version EN 60112:2003 |

Module Selection

Overview Regarding the Number of Modules per Shelf Aisle

The combination of the basic module with additional expansion modules allows any aisle length in the grid of 1 m. Intermediate sizes are easily and quickly created by shortening the last section at the construction site.

Number of modules needed for aisles of up to 120 m (randomly extendable).

| Aisle Length [m] | Basic Module 1 - 4 [m] | Expansion Module | | |
|------------------|------------------------|------------------|-----------------|-----------------|
| | | 24 [m] | 8 [m] | 4 [m] |
| Order No. | 083258-710x12 | 083215-024x7x12 | 083215-008x7x12 | 083215-004x7x12 |
| 10 - 12 | 1 | 0 | 1 | 0 |
| 13 - 16 | 1 | 0 | 1 | 1 |
| 17 - 20 | 1 | 0 | 2 | 0 |
| 21 - 24 | 1 | 0 | 2 | 1 |
| 25 - 28 | 1 | 1 | 0 | 0 |
| 29 - 32 | 1 | 1 | 0 | 1 |
| 33 - 36 | 1 | 1 | 1 | 0 |
| 37 - 40 | 1 | 1 | 1 | 1 |
| 38 - 44 | 1 | 1 | 2 | 0 |
| 45 - 48 | 1 | 1 | 2 | 1 |
| 49 - 52 | 1 | 2 | 0 | 0 |
| 53 - 56 | 1 | 2 | 0 | 1 |
| 57 - 60 | 1 | 2 | 1 | 0 |
| 61 - 64 | 1 | 2 | 1 | 1 |
| 65 - 68 | 1 | 2 | 2 | 0 |
| 69 - 72 | 1 | 2 | 2 | 1 |
| 73 - 76 | 1 | 3 | 0 | 0 |
| 77 - 80 | 1 | 3 | 0 | 1 |
| 81 - 84 | 1 | 3 | 1 | 0 |
| 85 - 88 | 1 | 3 | 1 | 1 |
| 89 - 92 | 1 | 3 | 2 | 0 |
| 93 - 96 | 1 | 3 | 2 | 1 |
| 97 - 100 | 1 | 4 | 0 | 0 |
| 101 - 104 | 1 | 4 | 0 | 1 |
| 105 - 108 | 1 | 4 | 1 | 0 |
| 109 - 112 | 1 | 4 | 1 | 1 |
| 113 - 116 | 1 | 4 | 2 | 0 |
| 117 - 120 | 1 | 4 | 2 | 1 |

1 x Conductor Strip Module

page 10

n x Expansion Module

(rated length of expansion module = 1000 mm)

page 15

Additional Assemblies and Components

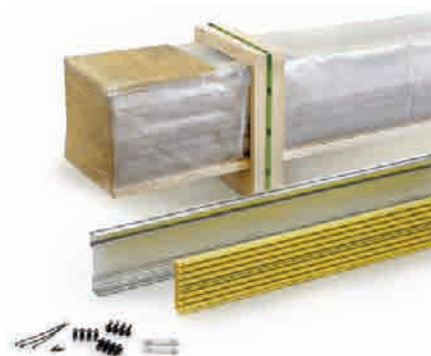
- Current collectors page 16
- System hanger page 11
- Consoles page 11
- Conductor strip connections in case the max. roll length is exceeded page 14

Additional Modules

- Positioning module (bar code band system for Leuze BPS laser) page 12
- Holder for coding strip (P+F) page 12
- Entry funnel and additional power feeds page 13
- Additional system expansions are possible (data transfer, crossing sections etc.)



3 standard modules for each aisle length



Expansion module 24 m with all assembly parts



Conductor strip package ready for assembly

Standard Modules

Basic Module 0832



Description

The basic module includes all of the single components necessary for aisle supply such as the power feed with integrated anchor point, end caps as well as material to setup a aisle of 1 to 4 m.

With the division into 4 partial sections of 1 m each, a meter grid can be assembled without extra cutting. In addition, the short part lengths can be used in case of possible collisions at connection points.

Contents

- 1 x power feed with anchor point pre-mounted including support frames for simple integration into the supporting section L = 1 m
- 3 x supporting section L = 1 m; including insulating section L = 1 m
- 1 x set of end caps (1 x RI / 1 x LE) each 150 mm
- 1 x set of assembly material
- 1 x assembly instructions
- 1 x small parts service package

| Order No. | System Length [m] | Weight [kg] |
|---------------|-------------------|-------------|
| 083258-710x12 | 1 to 4 | 20.5 |

The module can be used for all versions irrespective of the conductor strip assembly. The connection cables needed for the power feed are part of the scope of delivery of the conductor strip module and are included depending on the conductor configuration chosen and desired length.

Expansion Module 0832



Description

The expansion module includes all of the track components including the assembly material for the connection of the support and insulation profiles. The insulation profile have already been implemented at the plant into the support profile and can therefore be taken out of the packaging and directly placed and fixated into the mounted system hanger.

| Order No. | 083215-024x7x12 | 083215-008x7x12 | 083215-004x7x12 |
|-----------------------|-----------------------|-----------------|-----------------|
| Contents | | | |
| Steel support profile | 6 x 4 m | 2 x 4 m | 1 x 4 m |
| Insulation profile | 6 x 4 m | 2 x 4 m | 1 x 4 m |
| Connector parts | included | included | included |
| Packaging | | | |
| Fork lift accessible | yes | no | no |
| Shape | coil | coil | carton / coil |
| Dimensions (L/B/H) | [mm] 4000 x 250 x 400 | 4050 x 215 x 90 | 4050 x 215 x 60 |
| Gross weight | [kg] 110 | 38 | 19 |

Standard Modules

Conductor Strip Module

EcoClickLine allows for flexible assembly of the conductor rail with 5 different shaped conductor strips made of E-copper.

Cross sections of 10, 16, 25, 35 and 50 mm² are available to choose from. The new shapes for continuous conductor strips are based on technology from other conductor rail programs of the Conductix-Wampfler Group. The V geometry guides the brush safely and with less wear into the conductor strip. Elaborate guide constructions prone to errors such as current collector carriers are not necessary. The tried and proven electrical supply via the single current collector allows for good accessibility and simple handling for service.

Preferred configuration

7 pole

| Configuration | 7/10 | 7/16 | 7/25 | 7/35 | 7/50 |
|---------------|------|------|------|------|------|
| 1. pole | 10 | 16 | 25 | 35 | 50 |
| 2. pole | 10 | 16 | 25 | 35 | 50 |
| 3. pole | 10 | 16 | 25 | 35 | 50 |
| 4. pole PE | 10 | 16 | 16 | 16 | 25 |
| 5. pole | 10 | 10 | 10 | 10 | 10 |
| 6. pole | 10 | 10 | 10 | 10 | 10 |
| 7. pole | 10 | 10 | 10 | 10 | 10 |

6 pole

| Configuration | 6/10 | 6/16 | 6/25 | 6/35 | 6/50 |
|---------------|------|------|------|------|------|
| 1. pole | 10 | 16 | 25 | 35 | 50 |
| 2. pole | 10 | 16 | 25 | 35 | 50 |
| 3. pole | 10 | 16 | 25 | 35 | 50 |
| 4. pole PE | 10 | 16 | 16 | 16 | 25 |
| 5. pole | 10 | 10 | 10 | 10 | 10 |
| 6. pole | 10 | 10 | 10 | 10 | 10 |

5 pole

| Configuration | 5/10 | 5/16N | 5/25N | 5/35N | 5/50N |
|---------------|------|-------|-------|-------|-------|
| 1. pole | 10 | 16 | 25 | 35 | 50 |
| 2. pole | 10 | 16 | 25 | 35 | 50 |
| 3. pole | 10 | 16 | 25 | 35 | 50 |
| 4. pole PE | 10 | 16 | 16 | 16 | 25 |
| 5. pole | 10 | 16 | 25 | 35 | 50 |

4 pole

| Configuration | 4/10 | 4/16 | 4/25 | 4/35 | 4/50 |
|---------------|------|------|------|------|------|
| 1. pole | 10 | 16 | 25 | 35 | 50 |
| 2. pole | 10 | 16 | 25 | 35 | 50 |
| 3. pole | 10 | 16 | 25 | 35 | 50 |
| 4. pole PE | 10 | 16 | 16 | 16 | 25 |

Any other assembly possible according to specifications.

Depending on the aisle length and the maximum delivery length of the conductor strips, the strips are commissioned assembly-ready ex works. The delivery of conductor strip rolls occurs according to weight, cross section and length in a pallet box or on a Europallet with shrink wrapping. The individual coils are prepared for the feed and are packaged for each aisle and delivered with pole and cross section information.

The delivery marking indicated is placed clearly visible on the outside in order to simplify the allocation of the different modules.

Notes

- Depending on the conductor strip assembly, conductor length and change of the environmental temperature, expansion elements for the PVC profile may be necessary (see expansion elements page 15)
- see technical data for max. conductor and coil length



Order No. 083214

Necessary order information

- aisle length
- conductor strip configuration
e.g. 4 x 16 + 3 x 10 mm²
- delivery marking
e.g. Storage Alpha LOG / Aisle 12

Contents

- 4 to 7 conductor strips
cross section and length according to customer specifications
- 4 to 7 connection cables to connect the power feed to the contact points of the construction. Number and cross section tailored to conductor assignment. Delivery length 1.5m standard, extra length according to customer specifications
- Including indication of assembly site
e.g. Storage Alpha LOG / Aisle 12 (max. 40 characters)

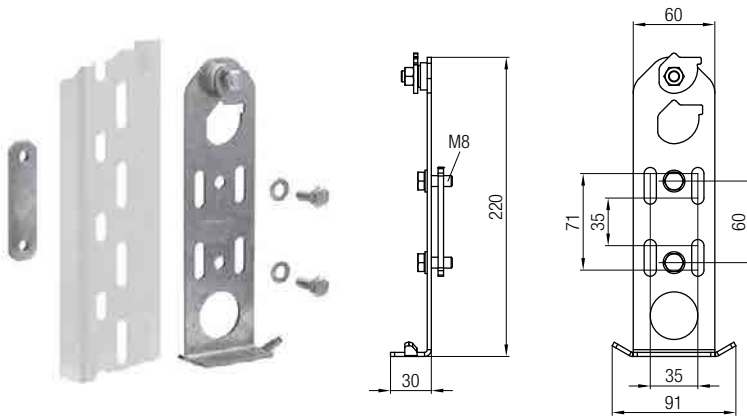
Note

Cables designed for max. environmental temperature of 35°C with nominal load.

Cables for higher environmental temperatures or cold storage applications upon request.

Additional Modules

System Hanger

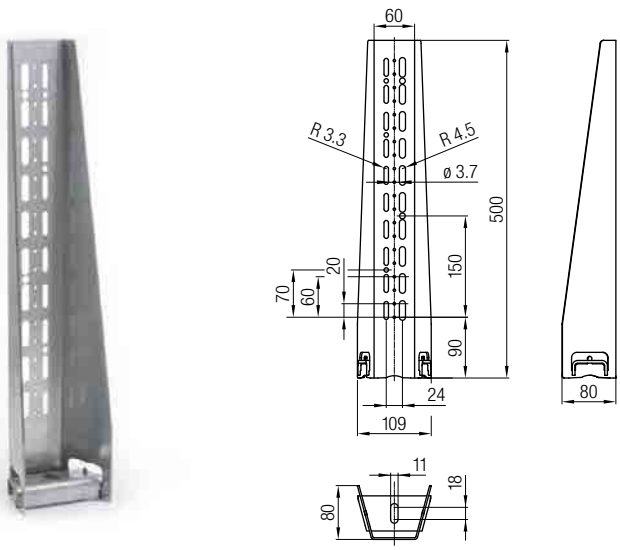


Description

The clip-technique of the system hanger allows for quick assembly of the supporting section to the shelf structure. As an alternative to direct screwing, there are several adapters for building on floor supports, section supports or shelving stands to choose from. Feel free to contact us for more information about the continuously growing selection of adapters (see below for examples).

| Order No. | Package Size [pc.] | Weight [kg/pac] |
|---|--------------------|-----------------|
| 083246-73 | 5 | 1.85 |
| Deliverable as multiple of the packaging size | | |

Consoles



Description

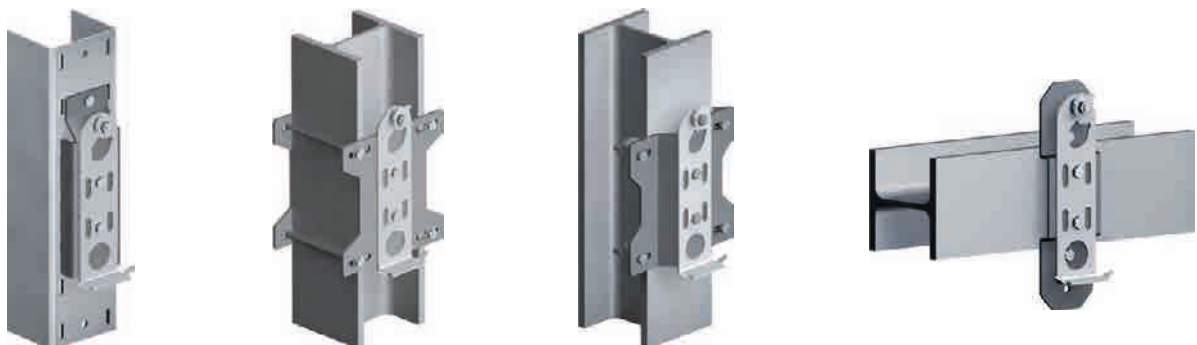
Consoles/ floor supports for quick one-hole assembly. Delivery including heavy-duty dowel M10/10x90 and washer.

| Order No. | Package Size [pc.] | Weight [kg/pac] |
|---|--------------------|-----------------|
| 080043-11x11x01 | 5 | 9.5 |
| Deliverable as multiple of the packaging size | | |

Spare Dowel: Order No. 41001

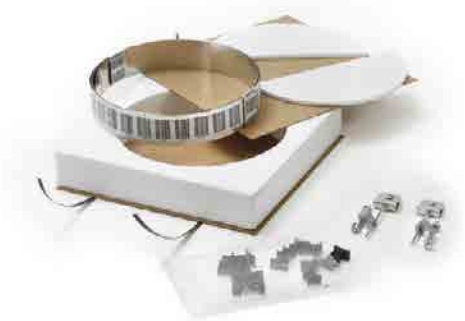
Adapter

By combining the system hangers with several adapters on-site assembly of the structure can be further optimized. Semi-standard components and customer-specific design upon request.



Additional Modules

Positioning Module



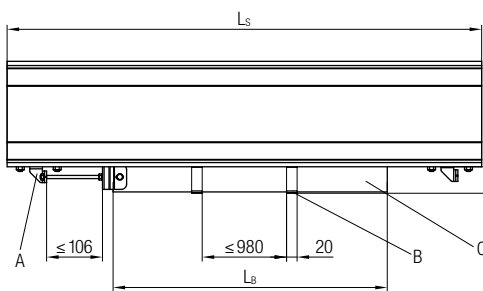
Positioning module

Description

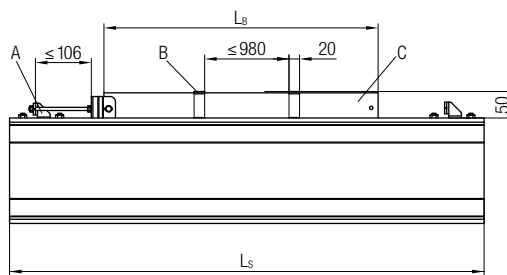
The positioning module allows for quick and flexible integration of the LEUZE bar code band for determining the position with the bar code readers BPS 34 and 37. The bar code band is fixed at the plant according to customer specifications on a stainless steel strip and fastened via clip holders and two tension elements onto the **EcoClickLine** – System. The assembly of the band with a width of 50 mm can occur during this below, above and with 4 to 6 pole systems also before the 7th pole. The module is assembled according to order and contains all of the components necessary for assembly at the supporting section of the conductor rail. The code band is automatically glued under ideal conditions in order to avoid line expansion and therefore also associated measurement errors. Due to the separation of the supporting section and the strip support assembly error corrections and code band repairs are simple and quick, especially in cool storage systems.

| Order No. | Length [m] | Weight [kg/m] |
|-----------|------------|---------------|
| 080243-1 | 10 bis 150 | 0.08 |

Layout PO (below the support profile)

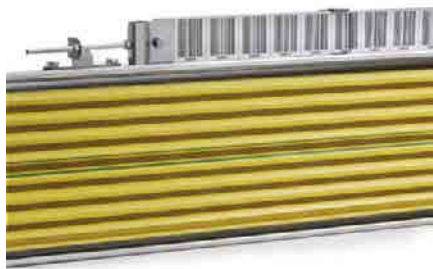
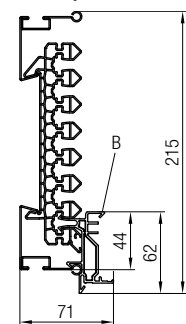


Layout PO (above the support profile)



L_b = Length of bar code strip | L_s = System length
 A = Tension unit | B = Strip holder | C = Bar code band

Layout P7



Code band and tension unit

Content of the packaging unit

- 1 x stainless steel band 50 x 0.2mm with applied code tape of up to 150 m in length
- 2 x tension unit for attachment to the supporting section as well as clip holders for guiding of the code band (1 piece per meter)
- Delivery includes indication of delivery marking / installation situation

Necessary order information

- Installation position (above or below the supporting section = Layout PO, before 7 pole = Layout P7)
- Length of the code band
- Desired initial or final code
- Delivery marking e.g. Storage Alpha LOG / Aisle 12

Notes

- Bar code reader not included in scope of delivery
- For positioning and installation position of the bar code reader please observe information and tolerances indicated by the manufacturer

Overview of Bar Code Assembly

| Assembled with Code Band ¹⁾ | Length [m] | Standard coding | Special coding ²⁾ |
|--|-------------------|------------------|--|
| BCB 020 | 20 | ascending from 0 | Start position according to specifications |
| BCB 030 | 30 | | |
| BCB 040 to 130 | in a grid of 10 m | | |
| BCB 150 | 150 | | |

1) Code strip layout according to the product identification and specifications of the company Leuze electronic GmbH + Co. KG

2) Special coding upon request (beginning with a total quantity of 150m, not on stock)

3) In-between length are possible e.g. 47 m (minimum order length 30 m)

The attachment set for the laminated strip of the positioning system WCS by Pepperl + Fuchs is available upon request.

Additional Modules

Funnel / Pick Up Guide

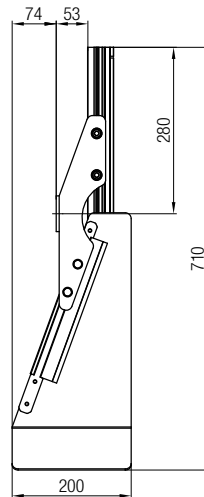
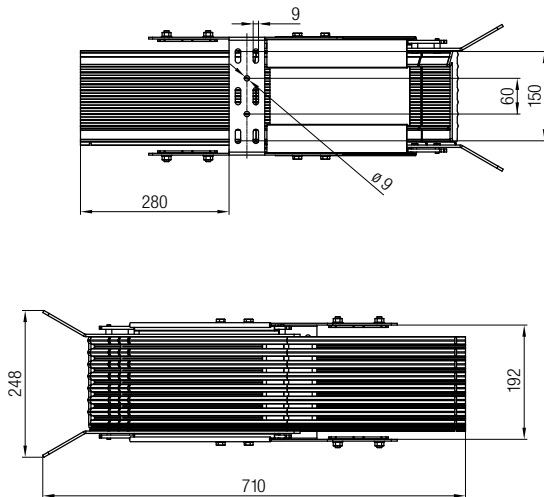


Description

Entrance and exit aids for the current collector e.g. for building divisions or fire protection facilities

| Order No. | Design | Max. speed [m/min] | Weight [kg] |
|-------------------------------|--------|--------------------|-------------|
| 083281-72x25x12 ¹⁾ | left | 80 | 5.5 |
| 083281-71x25x12 ¹⁾ | right | | 5.5 |

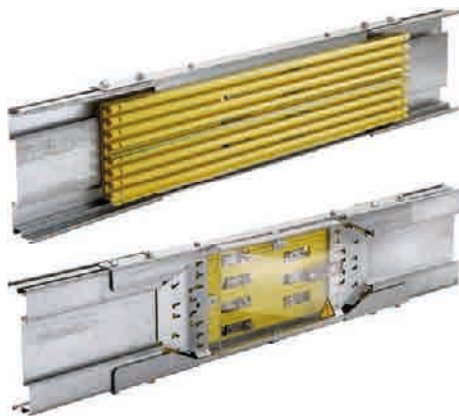
¹⁾ available starting in 2009



Note

For tolerances and other project-related information, see the Technical Information: Funnel **EcoClickLine**

Power Feed



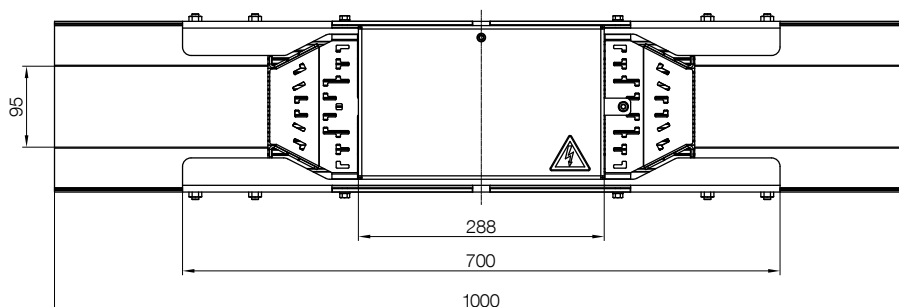
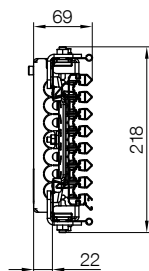
Description

For compensation of the potential difference or constructional sectioning of the aisles additional power feeds may be useful. The feed is integrated before the conductor strips are put in between the two insulating sections. The connecting line set is delivered ready for assembly according to pole assignment and line lengths. Flexible single wires L = 1.5 m + optional multiple lengths connect the feed with the contact points of the construction.

| Order No. | Description | Weight [kg] |
|---------------|--------------|-------------|
| 083252-710x12 | feed 0832 7P | 4.1 |

Notes

- The basic module 0832 7P (083258-710x12) already includes a feed
- The connecting lines are to be ordered separately When ordering indicate quantity, cross section and length of the desired line
- When using 2 or more feeds the expansion behavior of the system in correlation to the layout and temperature changes must also be taken into consideration. Layout and project support upon request.



Additional Modules

Conductor Strip Connector



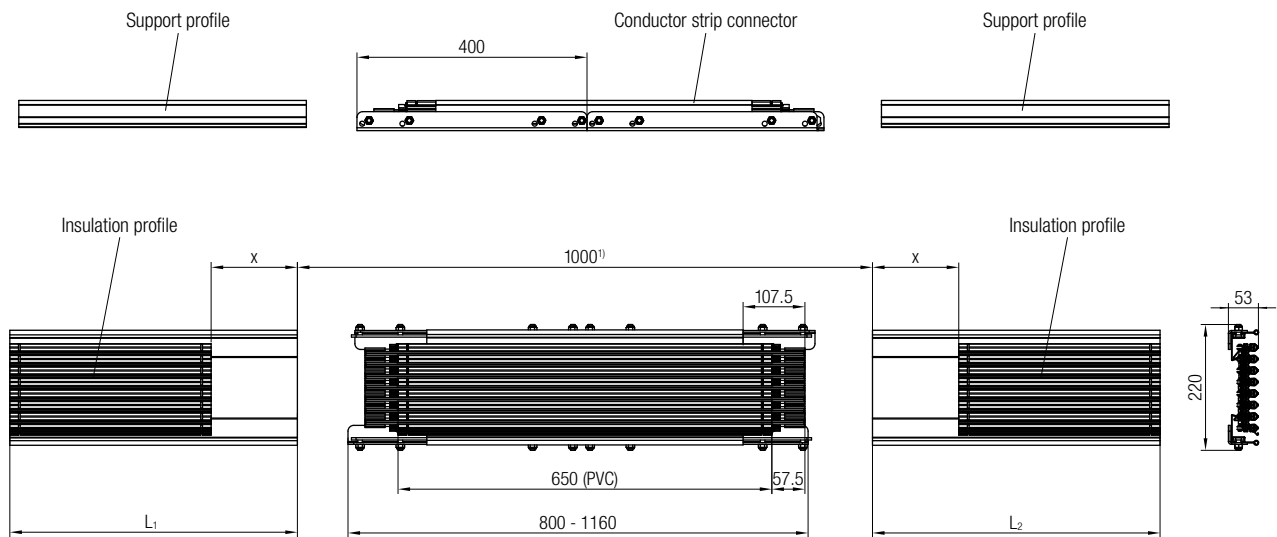
Description

Module unit for connecting the conductor strips. Use for installations with system lengths exceeding the maximum roll length or for system extensions. The conductor assignment occurs according to customer specifications. Delivery including all connector parts as well as supporting frame for rear access to the connection joints.

| Order No. | Rated Length [mm] | Weight [kg] |
|-------------|-------------------|-------------|
| 083221-31x7 | 1000 | 6.0 - 8.2 |

Notes

- In order to make assembly easier it is recommended to use one expansion element mounted next to the connection joints.
- Access to the rear side is necessary at the connection joints



x = depending on assembly and operating temperatures

1) Distance of the assembled support sections

Additional Modules

Expansion Module

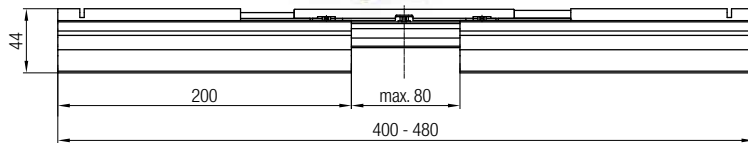


Description

Unit to compensate the expansion of the insulation profiles during temperature changes. The expansion element is premounted and integrated as a standard insulation profiles.

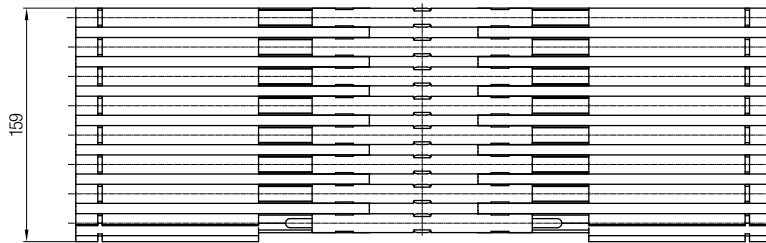
| Order No. | Description | Length [mm] | Expansion Distance [mm] | Weight [kg] |
|----------------|----------------------------|---------------------------|-------------------------|-------------|
| 083266-2x07x12 | expansion distance 0832 7P | 1000 / 1080 ¹⁾ | 80 | 0.8 |

1) length extended



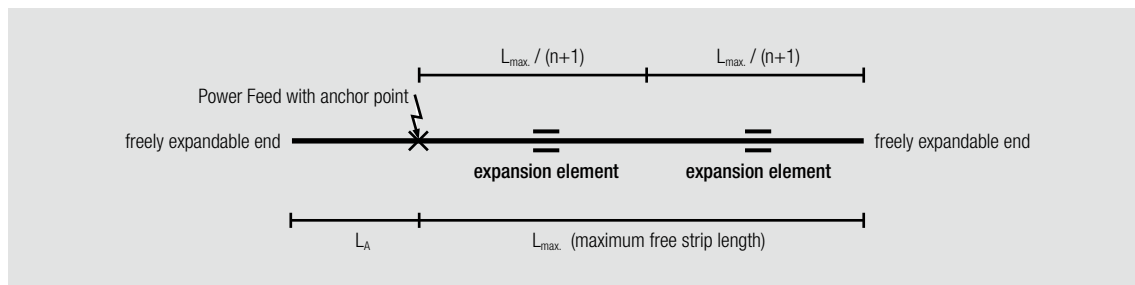
Delivery

- 1 x support profile 1000 mm
- 1 x expansion element 400 mm
- 1 x PVC profile 200 mm
- 1 x PVC profile 400 mm
- Connecting material



Overview of the number of expansion elements required

Depending on a change in temperature and the length of the conductor strip lengths the expansion elements are to be included to compensate the different expansions. The table below shows the number of elements in correlation to the conductor strip assembly.



Example

Aisle length (L_{ges}): 105 m
 Position of power feed (L_A): 10 m offset
 Conductor strip assembly: 7/25
 Temperature difference: 20 K

Test L_A (step 1)

$L_A = 10$ m
 Table with 20 k temperature difference
 Line for configuration 7/25
 $\Rightarrow L_{max} (10 \text{ m}) \leq 50$ m
 $\Rightarrow n = 0$

Test L_{max} (step 2)

$L_{max} = L_{ges} - L_A$
 $= 105 \text{ m} - 10 \text{ m}$
 $= 95 \text{ m}$

Table with 20 k temperature difference
 Line for configuration 7/25
 $\Rightarrow L_{max} (95 \text{ m}) \leq 100$ m
 $\Rightarrow n = 1$

No. of Expansion Elements required

$n = 0 + 1 = 1$

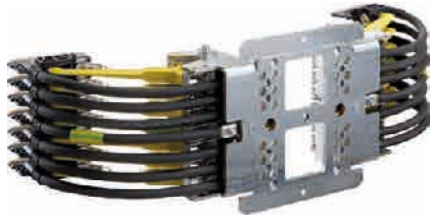
| Temperature difference | Configuration | Max. Free Strip Length L_{max} [m] | | | |
|------------------------|---------------|--------------------------------------|------------|------------|------------|
| | | n = 0 | n = 1 | n = 2 | n = 3 |
| 20 k | 7/10 and 7/16 | ≤ 57 | ≤ 114 | ≤ 150 | - |
| | 7/25 | ≤ 50 | ≤ 100 | ≤ 150 | - |
| | 7/35 | ≤ 35 | ≤ 70 | ≤ 105 | ≤ 140 |
| | 7/50 | ≤ 30 | ≤ 60 | ≤ 90 | ≤ 120 |
| 30 k | 7/10 and 7/16 | ≤ 38 | ≤ 76 | ≤ 114 | ≤ 150 |
| | 7/25 | ≤ 38 | ≤ 76 | ≤ 114 | ≤ 150 |
| | 7/35 | ≤ 35 | ≤ 70 | ≤ 100 | ≤ 140 |
| | 7/50 | ≤ 30 | ≤ 60 | ≤ 80 | - |
| 50 k | 7/10 and 7/16 | ≤ 23 | ≤ 46 | ≤ 69 | ≤ 92 |
| | 7/25 | ≤ 23 | ≤ 46 | ≤ 69 | ≤ 92 |
| | 7/35 | ≤ 23 | ≤ 46 | ≤ 69 | ≤ 92 |
| | 7/50 | ≤ 23 | ≤ 46 | ≤ 69 | ≤ 92 |

Conductor strip configuration see page 12

n = no. of expansion elements required

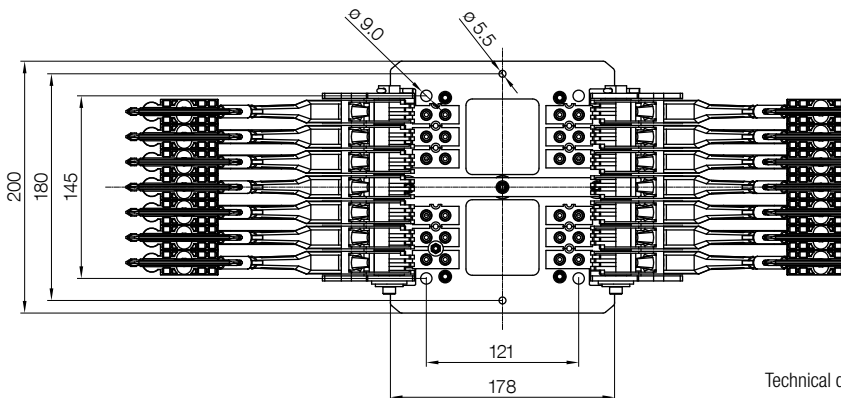
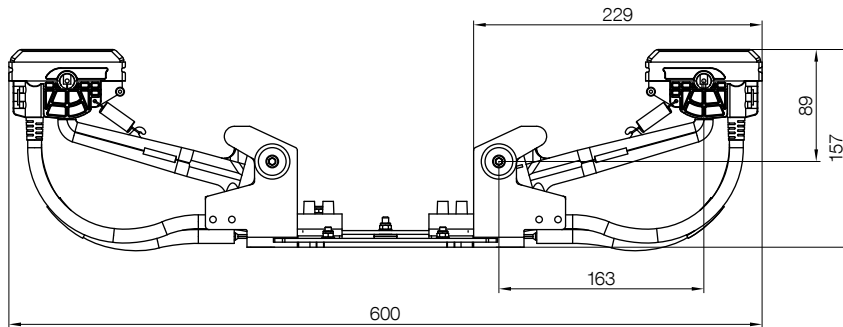
Current Collector

Current Collector 2 x 80A



Description

Current collector unit including highly flexible connection cables wired to strip terminals at the assembly section. For easy and quick service, a change support is available (see below).



Current collector assignment

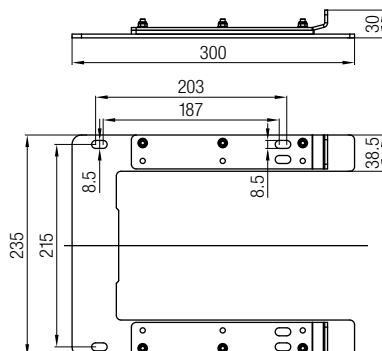
| 7 pole | 6 pole | 5 pole | 4 pole |
|---|---|---|---|
| L ₁ <input type="checkbox"/> | L ₁ <input type="checkbox"/> | L ₁ <input type="checkbox"/> | L ₁ <input type="checkbox"/> |
| L ₂ <input type="checkbox"/> | L ₂ <input type="checkbox"/> | L ₂ <input type="checkbox"/> | L ₂ <input type="checkbox"/> |
| L ₃ <input type="checkbox"/> | L ₃ <input type="checkbox"/> | L ₃ <input type="checkbox"/> | L ₃ <input type="checkbox"/> |
| PE <input type="checkbox"/> | PE <input type="checkbox"/> | PE <input type="checkbox"/> | PE <input type="checkbox"/> |
| S ₁ <input type="checkbox"/> | S ₁ <input type="checkbox"/> | N <input type="checkbox"/> | |
| S ₂ <input type="checkbox"/> | S ₂ <input type="checkbox"/> | | |
| S ₃ <input type="checkbox"/> | | | |

S = control pole

Technical drawings available as download

| Order No. | Description | Number of Terminals | Rated Current [A] | Connection Cross Section | PE | No. of Poles | Weight [kg] |
|----------------|-----------------------------------|---------------------|-------------------|--|------------------------|--------------|-------------|
| 083204-0710420 | current collector 0832 7P 2 x 80A | 2 per pole | 2 x 80 | 16 mm ² (fine strand) 25 mm ² (massive) | on Item 4 (from above) | 7 | 8.6 |
| 083204-0610420 | current collector 0832 6P 2 x 80A | | | | | 6 | 7.6 |
| 083204-0510420 | current collector 0832 5P 2 x 80A | | | | | 5 | 6.6 |
| 083204-0410420 | current collector 0832 4P 2 x 80A | | | | | 4 | 5.6 |

Change Support for Current Collector 1 x 80A and 2 x 80A



Description

Change support for quick and easy service.

| Order No. | Weight [kg] |
|-----------|-------------|
| 083051 | 1.5 |

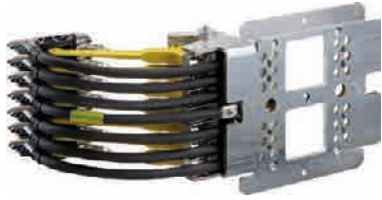
Delivery

- Frame/ change support
- Access including lock to attach to the current collector unit (not illustrated)

Technical drawings available as download

Current Collector

Current Collector 1 x 80A



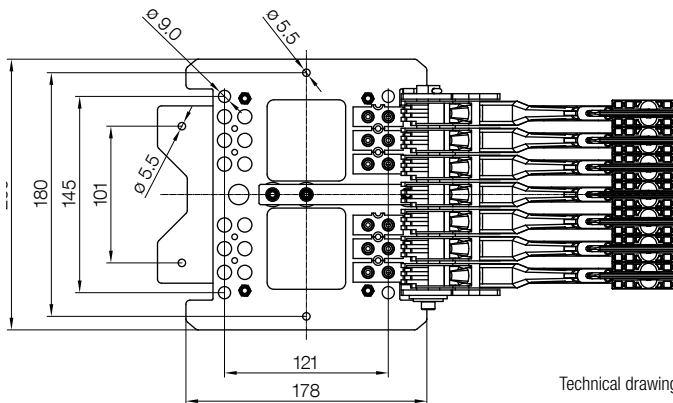
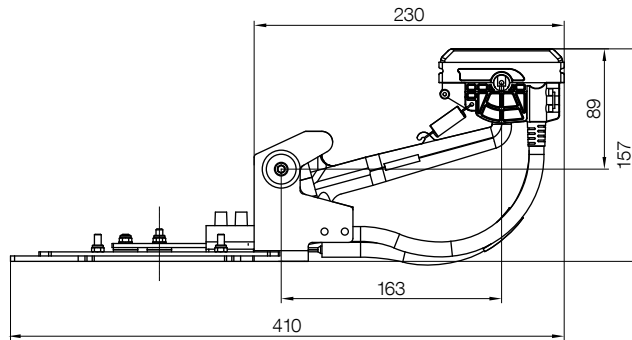
Design LE (left)

Description

Current collector unit including highly flexible connection cables wired to strip terminals at the assembly section.

Note

For use of the current collector 083203 with the change support 083251 the adapter Order No. 08-B020-6755 is required.



Current collector assignment design LE (left)

| 7 pole | 6 pole | 5 pole | 4 pole |
|----------------|----------------|----------------|----------------|
| L ₁ | L ₁ | L ₁ | L ₁ |
| L ₂ | L ₂ | L ₂ | L ₂ |
| L ₃ | L ₃ | L ₃ | L ₃ |
| PE | PE | PE | PE |
| S ₁ | S ₁ | N | |
| S ₂ | S ₂ | | |
| S ₃ | | | |

S = control pole

Technical drawings available as download

| Order No. | Description | Design | Number of Terminals | Rated Current [A] | Connection Cross Section | No. of Poles | Weight [kg] |
|----------------|-------------------------------------|--------|---------------------|-------------------|--|--------------|-------------|
| 083203-0740420 | current collector 0832 7P 1x 80A LE | LE | 1 per pole | 1 x 80 | 16 mm ² (fine strand) 25 mm ² (massive) | 7 | 5.2 |
| 083203-0640420 | current collector 0832 6P 1x 80A LE | | | | | 6 | 4.7 |
| 083203-0540420 | current collector 0832 5P 1x 80A LE | | | | | 5 | 4.1 |
| 083203-0440420 | current collector 0832 4P 1x 80A LE | | | | | 4 | 3.6 |
| 083203-0650420 | current collector 0832 6P 1x 80A RI | RI | 1 per pole | 1 x 80 | 16 mm ² (fine strand) 25 mm ² (massive) | 6 | 4.7 |
| 083203-0550420 | current collector 0832 5P 1x 80A RI | | | | | 5 | 4.1 |
| 083203-0450420 | current collector 0832 4P 1x 80A RI | | | | | 4 | 3.6 |
| 08-B020-6755 | adapter for exchange support | - | - | - | - | - | 0.2 |

Tools and Assembly Aids

General Information

EcoClickLine is designed for assembly that for the most part is tool free and can be performed by one person. For several assembly steps the support of a second person is recommended. The tools and aids required for efficient assembly are available in 2 versions. For the assembly of several aisles or lengths >20m the use of an uncoil device (Tool set PROFI) is recommended.

Tool Set STANDARD and PROFI



Description

The tool set include aids that are required for quick material installation and effective assembly.



| | STANDARD | PROFI | Remarks / Use |
|--|---------------------|---------------------|--|
| Order No. | 08-W100-0589 | 08-W100-0590 | |
| Dimensions | | | |
| Gross Weight | | | |
| Content | | | |
| Uncoil Device 0832 | - | • | for uncoiling and support the conductor strips |
| Straightening Device 0832 | • | • | for sighting in the conductor strips |
| Feed in Aid 0832 | • | 2 pieces | for manual feeding of the strip |
| Small Parts Service Package | • | • | connectors, pins, nuts, etc. |
| Transport Roller Set | - | • | transport aid for 24m module in the aisle |
| Saw Jig | • | • | use of PVC insulation profiles |
| Disassembly Tool PVC | • | • | separation PVC connector (set = 2 pcs.) |
| Ratchet/ Flat Wrench 13 mm Wrench Size | - | • | system hanger / uncoil device / supporting section |
| Transport Box | - | • | tool storage |

Wear and Spare Parts

Repair Module



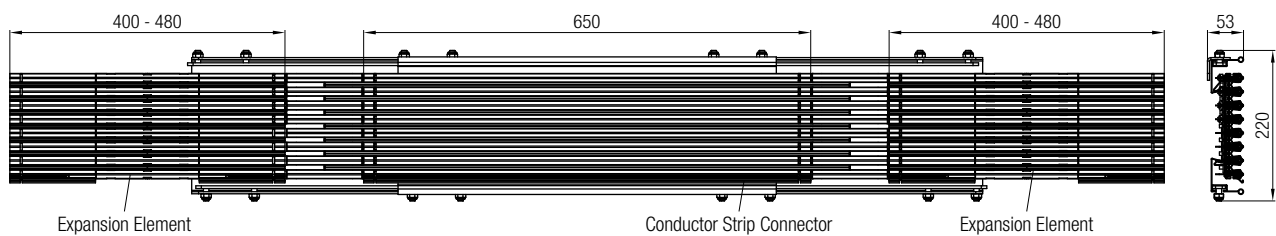
Description

Repair module for the exchange of a part of the conductor rail system. Accident damage can therefore be quickly eliminated despite the continuous conductor strips. For the exchange of longer row sections, the module can be extended with standard modules e.g. Expansion Module 4 m and conductor strips sections.

| Order No. | Weight [kg] |
|-------------|-------------|
| 083222-31x7 | 28 |

Content

- 1 x support profile with assembly frame
- 1 x insulation profiles with connection units
- 1 x expansion element
- 7 x conductor strip sections
- 1 x set of disassembly tools for PVC connector



Small Parts Service Package



Description

Spare part package with all of the small parts and assembly parts required in the standard system for simple assembly use. The small parts service package is a part of the basic module and tool sets.

| Order No. | Weight [kg] |
|--------------|-------------|
| 08-B055-0005 | 0.4 |

Content

- 2 x clamps
- 10 x Connecting pins for the supporting section
- 12 x Connectors for the insulation profiles (4 part component)
- 2 x grub screws feed/ Cu- connector
- 10 x nut M8 with integrated washer
- 1 x assembly instructions / spare part use

Current Collector - Spare Parts



Description

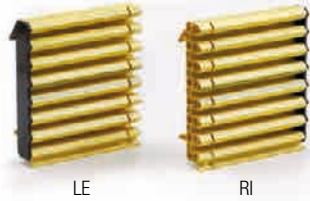
For simple and safe exchange there are complete current collector heads available including highly flexible connecting cables. Brush changing according to specifications only possible together with the cable (safety-relevant wear part).

| Order No. | Spare Heads Complete | Pole Number | Weight [kg] |
|------------------------------------|---------------------------|-------------|-------------|
| 083003-0x47 | (SET) 6 x 2 PH + 1 x 2 PE | 7 | 2.1 |
| 083003-1x41 | 1 x PH | 1 | 0.1 |
| 083003-2x41 | 1 x PE | | |
| Current Collector Arm without Head | | | |
| 08-S265-2001 | 1 x PH | 1 | 0.4 |
| 08-S265-2002 | 1 x PE | | |

Note
PE spare head cannot be used for phase (wrong placement safety provided)

Wear and Spare Parts

End Cap



Description

End cap for termination and contact protection at the end of the insulation profile. Delivery includes insulating connectors.

| Order No. | Design | Weight [kg] |
|-----------|------------|-------------|
| 083271-7 | RI (right) | 0.3 |
| 083272-7 | LE (left) | |

Insulating Connector



Description

Connector components for insulation profile.

| Order No. | Weight [kg] |
|-------------|-------------|
| 083229-10x7 | 0.2 |

Content

12 x 4-part component (sufficient for 6 section connections)

Connector Set



Description

Connector set for a system connection (support and insulation profile).

| Order No. | Weight [kg] |
|-------------|-------------|
| 083229-31x0 | 0.2 |

Contents

- 2 x clamps complete
- 2 x centering pins
- 2 x 4-part component insulating connectors

Insulation and Support Profiles



Description

Insulating and supporting section segments for replacement requirements.

| Order No. | Design | | Weight [kg] |
|-----------------|-------------------------|------------|-------------|
| | Profile | Length [m] | |
| 083210-001x7x12 | Insulation profile 0832 | 1 | 1.5 |
| 083210-004x7x12 | Insulation profile 0832 | 4 | 6.1 |
| 083219-001x7x40 | Support profile 0832 | 1 | 3.3 |
| 083219-004x7x40 | Support profile 0832 | 4 | 13.2 |

Bar Code Band - Spare Parts



Description

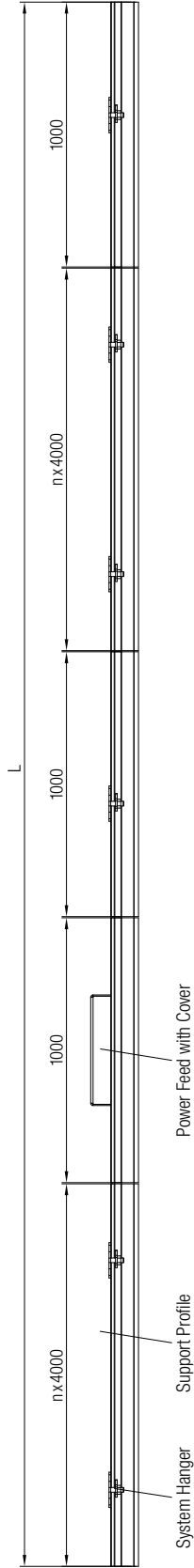
Components for the replacement and/or equipping of an alternative installation position.

| Order No. | Design | Weight [kg] |
|--------------|---|-------------|
| 08-H016-0257 | Bar code band holder package unit with 20 pcs | 0.2 |
| 08-S008-0303 | Tension set for assembly version P0 | 0.3 |
| 08-S008-0304 | Tension set for assembly version P7 | 0.6 |

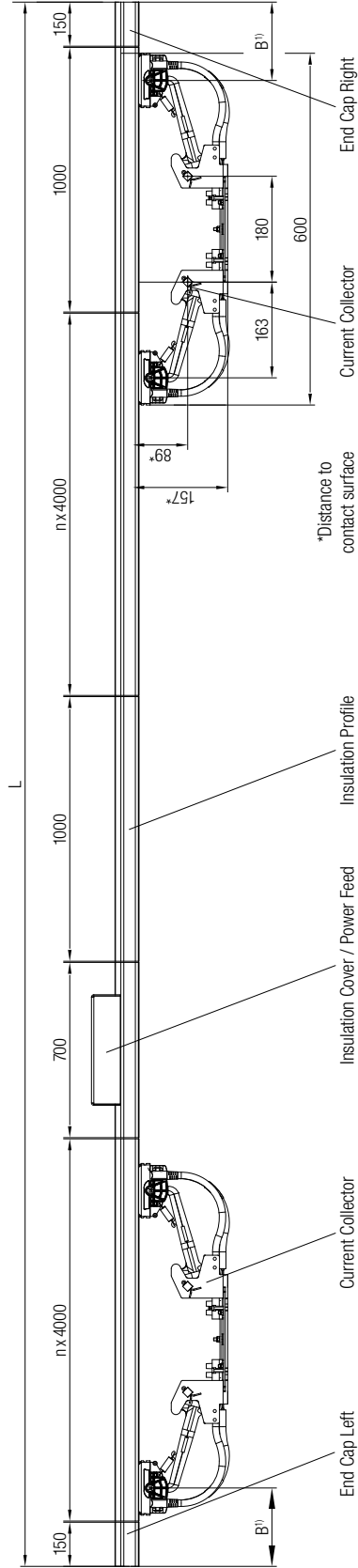
System

System Dimensions / Installation Instructions

Sketch of supporting section

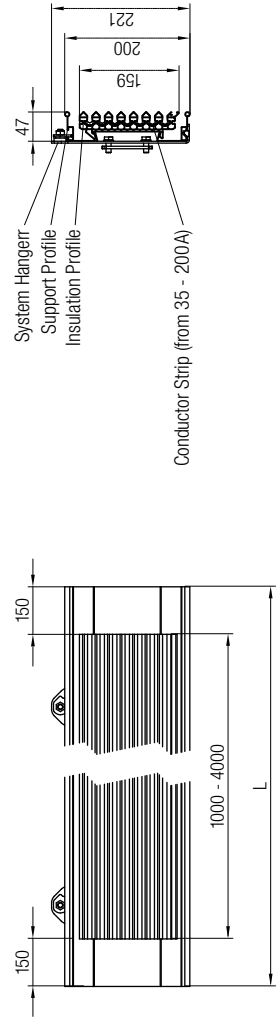


Sketch of insulating section



1) min. 200 + expansion distance

Nominal Offset PVC and Supporting Section joint



Frequently Asked Questions

Up to what length can the system be used?

Theoretically the system can be expanded to any length. For lengths of more than the maximum coil length of the conductor strips, the conductor strip connectors as well as additional expansion elements may be necessary. The coil lengths have been designed for practical handling and coverage of the most frequently used aisle lengths. For conductor cross sections of less than 50 mm² lengths of 100 m and more are possible. In connection with a conductor strip connection aisles with 50 mm² and 160 m are possible.

Can the system also be built vertically at the pole?

The system has been designed for horizontal assembly and uses this to its benefit. Vertical assembly is possible with cut backs (upon request). For vertical installation e.g. at the AS/RS crane, conductor rail system 0831 is technically better suited in design as a connector system.

Can this be used in cold storage warehouses and can the same components be used here?

The system can be used also for cold storage systems. Several points such as additional expansion elements are to be taken into consideration during selection and assembly (see technical guidelines and operating instructions).

Can the system be used also without the supporting section in order to save costs?

The system has been designed so that the supporting and insulating sections work together and they should not be used separately. Omitting the supporting section causes assembly costs to increase and at the same time limits the essential advantages of the system.

Can the modules also be bought in individual parts?

The module concept allows for standardization. Separating the module means more expense and higher system costs. Individual parts can be purchased as spare parts.

Is it possible to mount the system hanging (with operation going downward) - e.g. under the ceiling of the hall?

The system has been designed for lateral operation with simple clip-in assembly for the insulating section. Assembly with operation from below requires additional securing of the system. As of early 2008, the system has not been released yet for this type of installation position. The extra charges for the feed (depending on the height of the assembly) are also to be taken into consideration here.

Is it possible to buy the system also as a 4 or 5 pole system?

A pole number of 7 covers the requirements of current and future AS/RS cranes applications. Equipping the system with 4, 5 or 6 lines is possible.

Is parallel switching of the conductors possible?

Parallel switching of the conductors is only allowed to reduce the potential difference. Parallel switching to increase the current is controversial from an engineering perspective especially with regard to insurance and is therefore not permitted as a general rule. Irrespective of whether it is permitted or not, lines and conductor rails are to be fused in such a manner that in the event that one conductor is defect the remaining cross section is not overloaded. When fusing the conductor rails it should also be taken into consideration that this does not involve a fixed connection between current collector and conductor rail and that these contact points can vary greatly with regard to their quality, depending on age and environmental factors.

Can the system be repaired after an accident?

Yes. Repair with a repair kit as well as extension with a connector is possible.

Which tools are required for assembly?

The system has been created in such a way that it is self-explanatory and few tools are needed. Only one screw wrench (wrench size 13) is needed as a tool for the screw connections. For the feed of the conductor strips a uncoil device with aligning tool as well as feed aid are available. These tools can be bought or leased.

What is the maximum assembly distance of the system?

The system can have a maximum distance of 4 m. The recommended distance is between 2.5 and 3.2 m. This value is based on a mean load of 100 kg or 1000 N. It is possible to extend the system by limiting the weight load. A typical distance selected for pallet storage is often a distance of 3.2 m for 3 Europallets (net 800 mm).

Are there also conductor strip materials other than copper?

The system has been designed as standard for copper strips of up to a nominal cross section of 50 mm². Other conducting materials are available upon request.

Which nominal cross sections are available?

5 cross sections are available for the system: 10, 16, 25, 30 and 50 mm²

Can the system also be delivered curved?

The system is designed for straight strips. If necessary other programs can be used.

Questionnaire

If you would like us to make you an offer, please fill out the following information: If you have any questions please do not hesitate to contact a sales representative.

General project information

Project: _____

Number: _____ aisles Length: _____ m

Configuration

| Pole | 10 mm ² | 20 mm ² | 30 mm ² | 40 mm ² | 50 mm ² |
|------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 1 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| PE | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Number: _____ aisles Length: _____ m

Configuration

| Pole | 10 mm ² | 20 mm ² | 30 mm ² | 40 mm ² | 50 mm ² |
|------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 1 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| PE | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Environmental Temperature Range

- +10 ... +35°C
 _____ °C to _____ °C Cold storage

Installation Position

- In the floor area lateral access (standard) Hight lower edge _____ mm

Installation

- Floor supports
 Shelf assembly

Electrical Parameters

- Operational voltage 3 Ph 400 VAC

- Supply frequency 50Hz 60Hz
- Mean current load _____ A
- AS/RS mode of operation S _____ / _____ %
- Drive performance per AS/RS crane _____ kW
- Max. permissible voltage drop 5% _____ %
 _____ V

Feed

- 1 x system power feed
 (1 m to L/2 from aisle end)
 _____ additional power feeds

Number of Consumer Loads / Current Collector Type

- 1 x RBG 2 x RBG No. of current collectors per RBG _____
 Double current collectors 2 x 80A with change support
 Single current collector 1 x 80A with change support

Options/ other System Requirements

- Dividers e.g. Fire vents or gates
 Converters or curve goers
 Leuze BPS coding strip option (please indicate coding, see below)
 WCS –Laminate strip (Pepperl+Fuchs)

Assembly Performed

- by customer
 by Conductix-Wamplfer Service

Assembly Tools

- EcoClickLine tool set existing
 Offer tools for sale
 Leasing of tool set desired

Additional Information; e.g. Coding

Please mail your offer to the following address

Company: _____ Cust. No.: _____
 Dept./ Attn: _____
 Address: _____

 Phone: _____ Fax: _____
 Email: _____

Tailored Service

Would you like a bit more?

When it comes to conductor rail systems, we think of more! Regardless of whether you want information, a solution for your task or on-site support. We speak your language. Feel free to contact us! We've got your solution.

Project management

- Admission of the assignment list and engineering of the system

Consignment sale and pre-assembly

- Pre-assembly and assembly-oriented packaging
- Pre-built material transport up to the storage aisle

Assembly and commissioning

- Installation, commissioning and instruction by a specialist up to handover to the customer



Leasing service and supervisor

- Provision of the assembly facilities and special tools for efficient assembly of our systems
- Upon request also support by an experienced supervisor from our service team

Maintenance & Service

- Regular inspections of the system, exchange of wear parts, cleaning and testing
- Assembly and maintenance training
- Supervising



From project management, to pre-assembly up to on-site installation. Conductix-Wampfler specialists will accompany you all over the world!



Your Applications – our Solutions

Conductor rails from Conductix-Wampfler represent only one of the many solutions made possible by the broad spectrum of Conductix-Wampfler components for the transport of energy, data and fluid media. The solutions we deliver for your applications are based on your specific requirements. In many cases, a combination of several different Conductix-Wampfler systems can prove advantageous. You can count on all of Conductix-Wampfler's Business Units for hands-on engineering support – coupled with the perfect solution to meet your energy management and control needs.



Cable reels

Motorized reels and spring reels by Conductix-Wampfler hold their own wherever energy, data and media have to cover the most diverse distances within a short amount of time - in all directions, fast and safe.



Festoon systems

It's hard to imagine Conductix-Wampfler cable trolleys not being used in virtually every industrial application. They're reliable and robust and available in an enormous variety of dimensions and designs.



Conductor rails

Whether they're enclosed conductor rails or expandable single-pole systems, the proven conductor rails by Conductix-Wampfler reliably move people and material.



Non-insulated conductor rails

Extremely robust, non-insulated conductor rails with copper heads or stainless steel surfaces provide the ideal basis for rough applications, for example in steel mills or shipyards.



Energy guiding chains

The "Jack of all trades" when it comes to transferring energy, data, air and fluid hoses. With their wide range, these energy guiding chains are the ideal solution for many industrial applications.



Slip ring assemblies

Whenever things are really "moving in circles", the proven slip ring assemblies by Conductix-Wampfler ensure the flawless transfer of energy and data. Here, everything revolves around flexibility and reliability!



Inductive Power Transfer IPT®

The no-contact system for transferring energy and data. For all tasks that depend on high speeds and absolute resistance to wear.



Reels, retractors and balancers

Whether for hoses or cables, as classical reels or high-precision positioning aids for tools, our range of reels and spring balancers take the load off your shoulders.



Jib boom

Complete with tool transporters, reels, or an entire media supply system – here, safety and flexibility are key to the completion of difficult tasks.



Conveyor systems

Whether manual, semiautomatic or with Power & Free – flexibility is achieved with full customization concerning layout and location.

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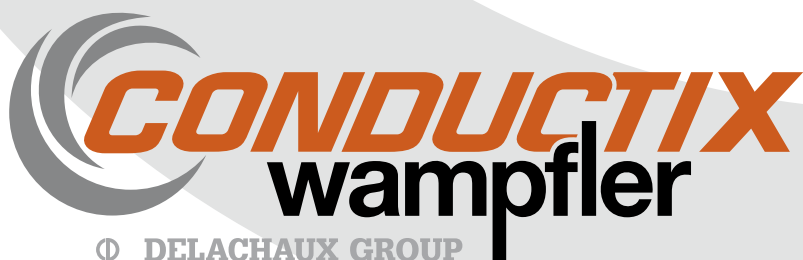
Conductix-Wampfler

has just one critical mission:

To provide you with energy and data transmission systems that will keep your operations up and running 24/7/365.

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