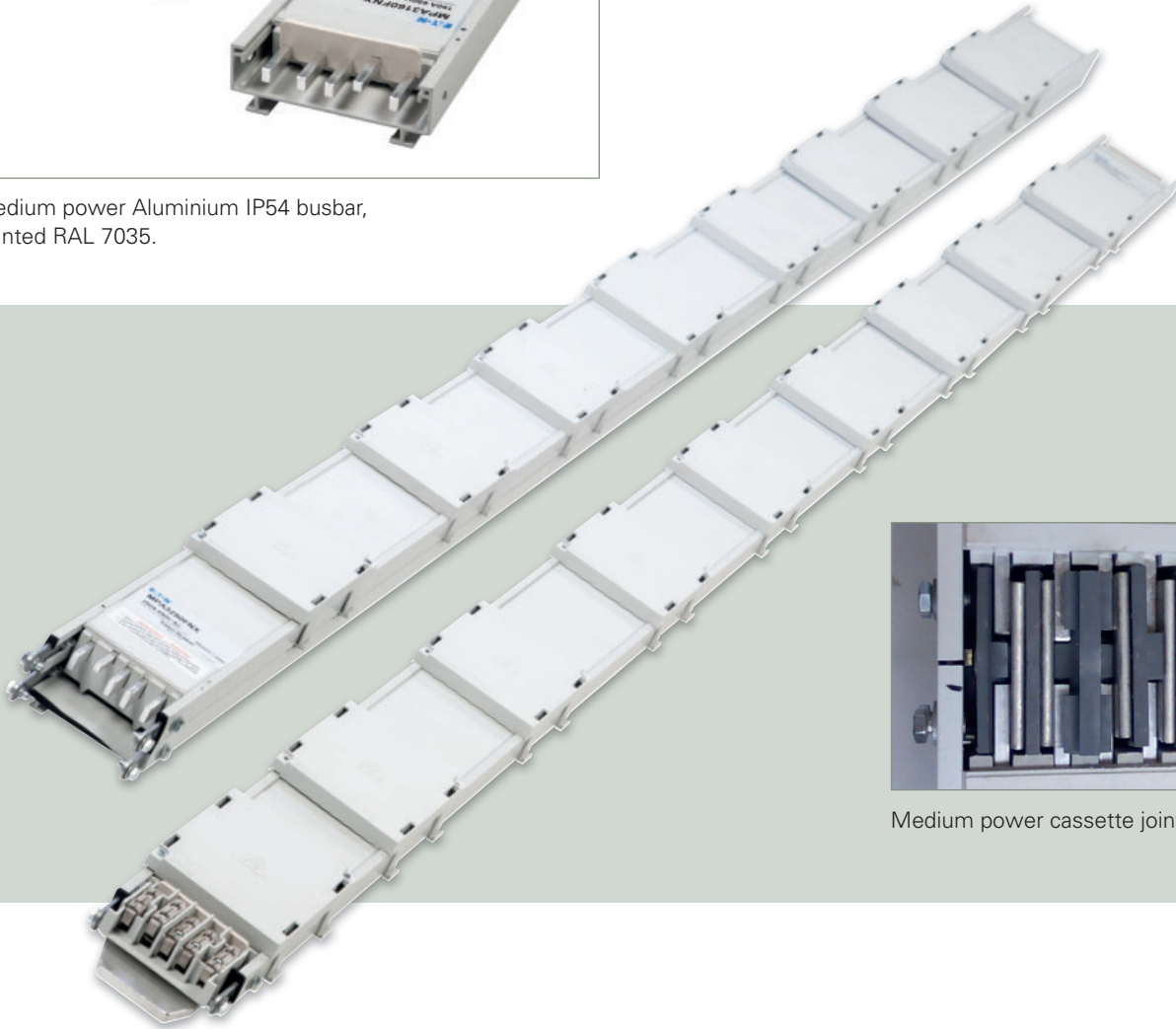


## Power Xpert® MP system overview



Medium power Aluminium IP54 busbar,  
painted RAL 7035.



Medium power cassette joint.



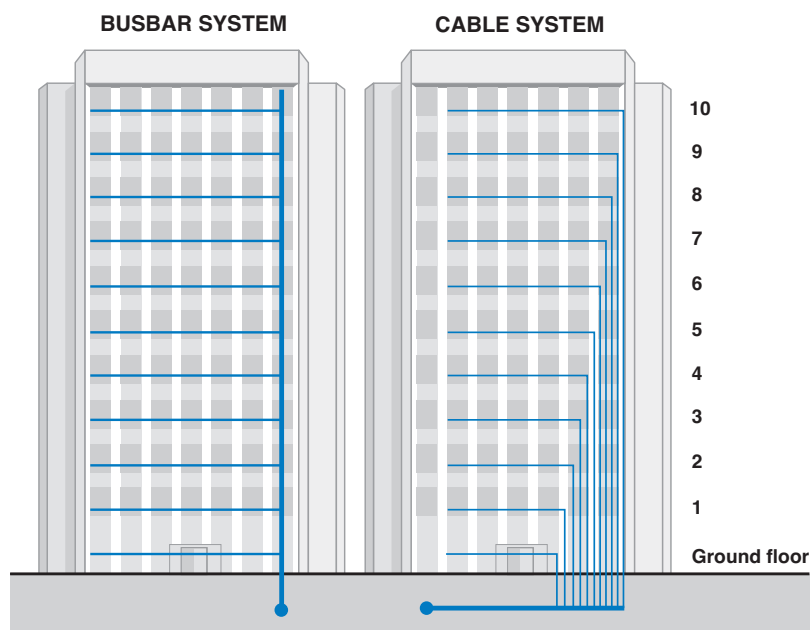
Tap-off unit fitted with CE sockets and MCBs.



Tap-off mounted to busbar.

### Advantages of using Busbar in place of cables

- Busbars are a cost effective alternative to cabling. The initial purchase of cable can be less expensive compared to busbar and hence should not be compared purely on purchase price. It must be noted that as current ratings increase the advantages of using busbar increase. As current increases the busbar rating can increase in size however cable sizes are limited and multiple cables may have to be used to carry the equivalent of one busbar.
- Busbar replaces multiple cable runs with associated supporting metal work.
- Busbar require less termination space in switchboards and transformers.
- Busbars have short installation time compared to cables. Cable can be difficult and timely to install requiring in some instance specialist cable pulling teams to pull the cable around a building resulting in high labour costs. Busbars do not need cable trays and have no requirement for multiple cable runs (Installation Cost savings for contractor). Busbar has less fixings per metre run than for cable.
- Busbars have greater mechanical strength than cables, with minimal fixings.
- Busbar systems can be installed by non-specialist installers. The competent person is the one that tests the installation.
- Due to the Low impedance the busbars have a low heat dissipation. This reduces the cost of energy losses and also implies that busbars are a sustainable product.
- Busbar is manufactured to fit the building resulting in minimum wastage. i.e. busbar can be made with 90 degree bends but cable has to be installed to regulation with strict adherence to bending radius rules and hence will use more material and space. Busbar connections are there for compact and take up less space.
- Busbar elements in the systems are certified and type tested products.
- Busbar systems are easily extendible. Busbar can be easily modified and circuits can be added easily by means of plug-in tap-off boxes.
- Busbars have a facility for multiple Tap-off outlets (Flexibility to accommodate power requirement changes).
- Busbars have type tested short circuit fault ratings.
- Voltage drop for busbars is lower than the equivalent cable arrangement.



Busbar vs cable in rising main applications



Centre feed made to accommodate multiple cables.

## Power distribution for Datacenter applications

### Current situation

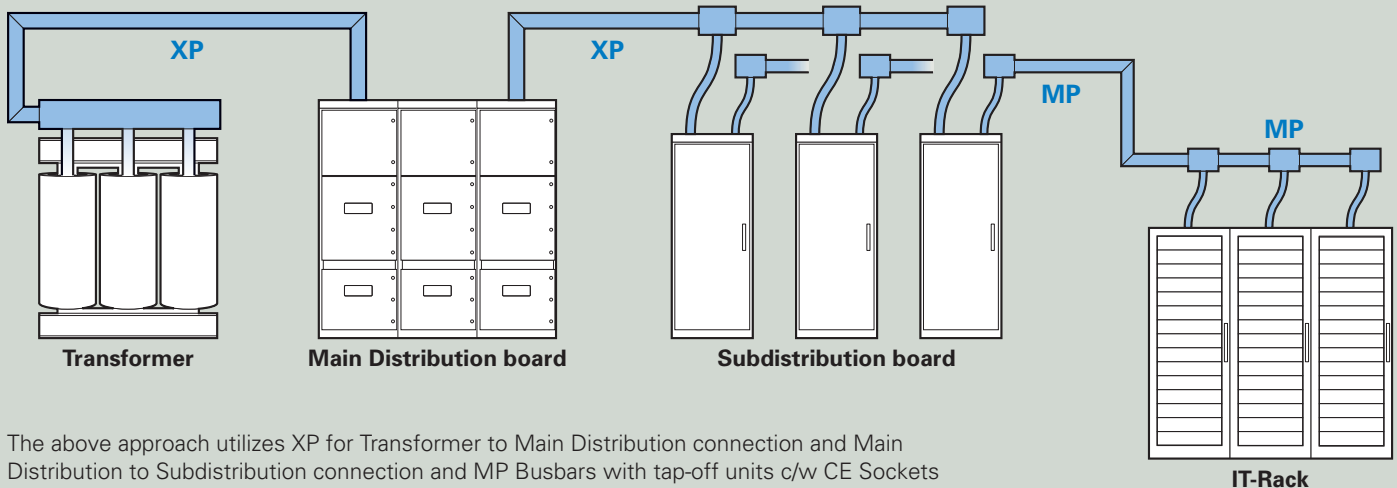
With the continued increase in power and cooling requirements for Data Centers, there has been a shift in facilities design to utilize overhead power distribution in recent years. Why?

- Wiring to the IT enclosures was typically located beneath the raised floor:
  - Not uncommon to remove a floor tile and find hundreds of wires running in various directions
  - Servicing, rerouting, or adding cables can be difficult and expensive
  - Identification and disconnecting can be difficult
- Air circulation can become restricted due to too many cables
- Pre-existing under floor cabling may be undersized to handle increased power loads

### Benefits of using busbars to distribute power overhead

- Clears the floor of cables and wiring
- Reduces the number of panelboards (RPP's)
- Instead of having the overcurrent protection at the panelboard for the receptacles that serve the racks, it is located at the overhead drop
- More useable floor space
- Total installed cost is less
- Addition or relocation of cord drops is very fast, easy, and less costly
- Servicing an individual cabinet can be done at the point of use without having to go to a remote panelboard to turn off the circuit or human error of shutting off the wrong circuit
- Re-configurable, easy to re-locate

### Power Distribution Moving Overhead



The above approach utilizes XP for Transformer to Main Distribution connection and Main Distribution to Subdistribution connection and MP Busbars with tap-off units c/w CE Sockets for plug-in connection.

### Power Xpert® XP – high power Transformer to Switchboard connection and/or Switchboard to Subdistribution connection

- Copper & Aluminium conductors
- Ingress protection IP4X to IP55 for indoor use
- Class B 130° C Mylar wrapped Insulation
- Sandwich Design throughout Feeder and Plug-In Sections
- Standard Phasing from Left to Right E, L1, L2, L3, N1 and N2
- The make-up of the product allows for varying configurations
  - 3 Bar (Case PE)
  - 4 Bar (Case PE)
  - 5 Bar (Internal Earth)
  - 5 Bar + 200% Neutral (Case PE)
  - 6 Bar includes 200%N & Internal Earth
- Complete range from 800 A to 6300 A
- Fully 3rd Party Certified Trunking & Tap-offs
- Tap-offs utilising Eaton's full range of Circuit Protection devices

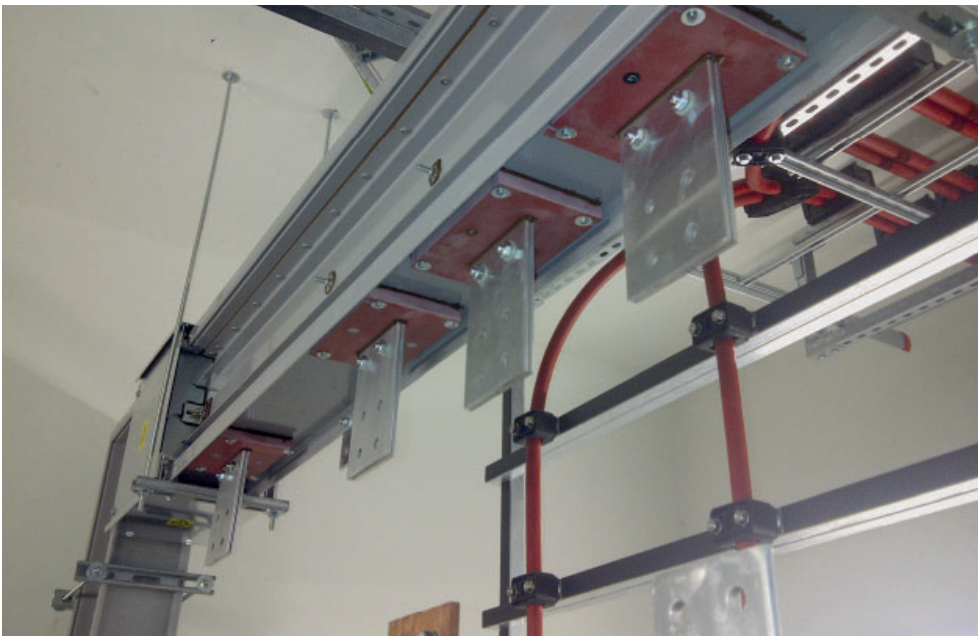
### Power Xpert® MP – medium power Data Center Server Rack distribution busbar

- Full product offering designed to meet the demanding requirements of data center customers
- Copper & Aluminium conductors
- Standard finish or customer specific on request
- Multiple tapoff units for power monitoring
- Fully 3rd Party Certified busbars & Tap-offs
- Tap-offs utilising Eaton's full range of Circuit Protection devices



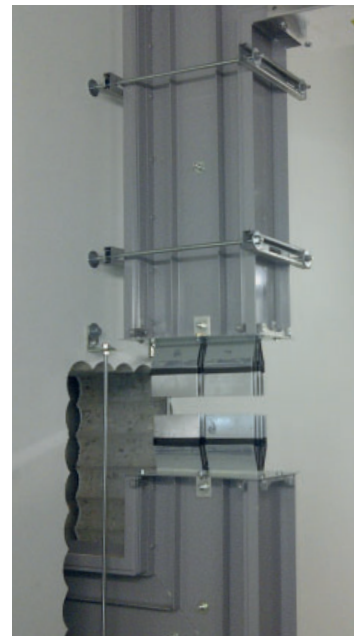
**Previder (Datacenter), Hengelo (The Netherlands)**

Power Xpert® XP (Alu) 1600 A, 3200 A, 4000 A for Transformer to switchboard connection.



**Avebe (food industry), Ter Apelkanaal (The Netherlands)**

Power Xpert® XP (Alu) at 2500 A, transformer connection.



Power Xpert® XP system before cassette joint has been installed (construction picture).





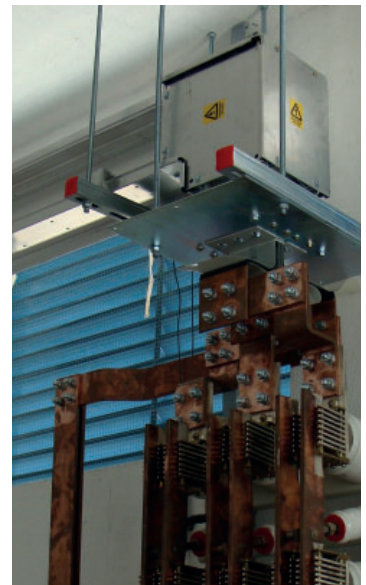
**Pepsi Cola, Romania**  
Power Xpert® XP (Cu) at 1350 A.



Centre feed made to accommodate multiple cables.



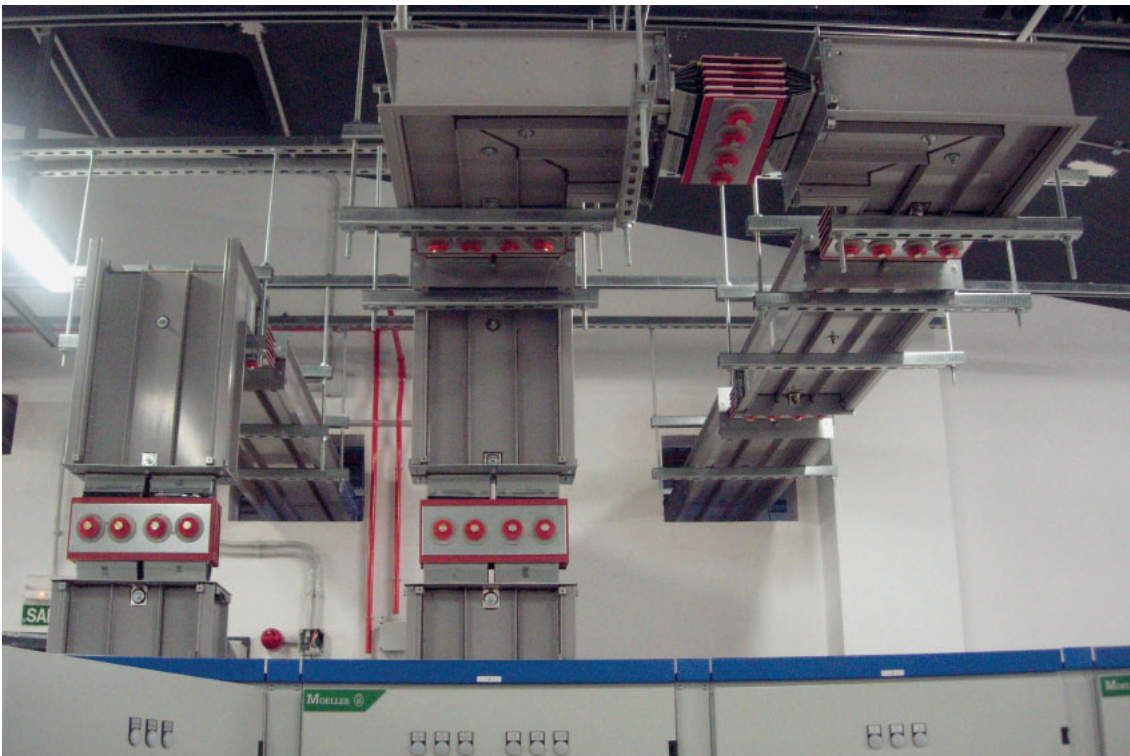
Type 1 busbar transformer connection and flexible braids.



Custom made connection.



**OTP Airport, Romania**  
Power Xpert® XP.



Power Xpert® XP (Alu) 3200 A Busbar.





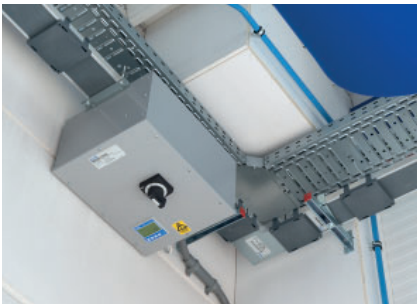
**Galvano Techniek (industry), Hengelo (The Netherlands)**  
Power Xpert® MP (Cu) at 160 A and Power Xpert XP (Alu) at 2000 A.



Eaton Capitole 20 switchboard.



Power Xpert® XP flange unit for connection to switchboard.



Power Xpert® MP Tap-off with metering unit.



Power Xpert® MP Tap-off.



Power Xpert® XP Tap-off units feeding the switchboards with process control equipment.

### Fire Barrier considerations

MP & XP trunking have been 3rd party tested and achieved a 240 min fire integrity rating to clause 8.2.15 of IEC 60439-2:2000, testing against ISO834.

MP Trunking is factory-fitted with internal fire-barriers, for when the trunking passes through walls or ceilings where fire integrity needs to be maintained. Eaton's internal fire barriers are of the intumescent gasket type giving a 4hr rated to BS476 Part 20.

MP trunking is fitted with interlocking Low Smoke Halogen Free covers, flammability grade UL94 V-O, for additional safety in not permitting toxic smoke in the event of fire.

XP trunking due to its sandwich configuration does not need an internal fire barrier.

### Fire Barrier & Block Bar Fitted

- Fire Barriers are 4hour rated to BS476 Part 20
- Block Bar is used to prevent slippage of the bars. Recommendations for fitment every 9 m in a vertical application
- 630 A & 800 A lengths are fitted with Block Bar as standard

### Power Xpert® XP and MP – Fire testing

#### Testing according EN 1366-3 / DIN 4102-9

The EN 1366-3 / DIN 4102-9 is the standard for Fire Safety and Fire spread prevention. Without any means a fire can spread horizontally or vertically from one room or floor to another through the hole that has been created to pass the busbar system through. To prevent this, the Eaton busbar system is fitted with an external fire barrier kit which is passed through a floor or wall and sealed in place to prevent the spread of fire.

Recent 3rd party tests confirmed both "Integrity E120" and "Insulation I120" values by achieving 120 minute ratings. Our Eaton busbar did for both indicators in fact better than the published standard by 10% and were verified at 132 minutes.



#### BS EN 1366-3 & DIN4102-9 Fire resistance tests for Penetration seals

- Penetration seals used to seal gaps around busbar trunking when passing through walls and ceiling
- Eaton Busbar has passed this test with 2 hour ratings S120 & I120

#### DIN 4102-12 to determine circuit integrity

- To determine circuit integrity when exposed to a fire as specified in DIN4102-12
- The busbar is fully enclosed in promatect L500 and tested to E120





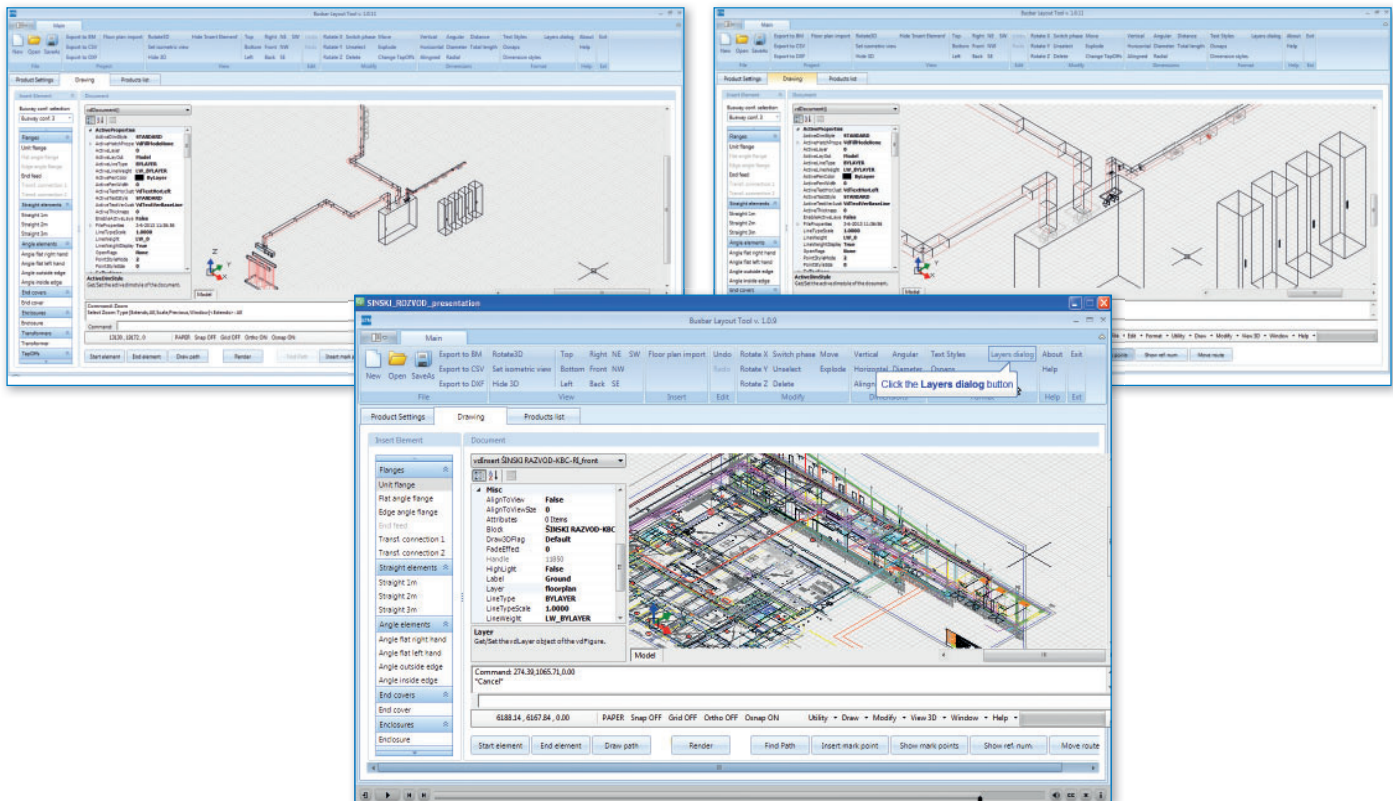
### Welcome to Busbar Layout Tool

Busbar Layout Tool is Eaton's configuration software for electrical distribution products. With this tool, you can build complex busbar configurations and visualize them in customized CAD environment. This automation tool makes short work of a manual, labour-intensive process. It's much faster than working on paper or with any other CAD add-on – you can create alternate versions of your project in a snap!

Busbar Layout Tool is designed to help you move fast, be accurate, and look professional, a valuable resource that gives you a strategic advantage.

The application is based on fully CAD environment. Most of standard CAD features are also implemented in Busbar Layout Tool. Additionally a lot of customizations and assembling algorithms were added to improve a configuration process. All you need to do is to set start and end point of a busbar. Next the tool will provide you with a whole configuration, easy and quickly to give you an impressive visualization and a list of products.

- Supports Eaton's Power Xpert® busbar system
- Standalone CAD software
- Graphically oriented tool
- All well-known CAD features are supported
- Advanced configuration algorithm
- Three configuration methods
- Product list in a second



2.1	LUX lighting .....	24
2.2	LUX lighting accessories .....	25

# 2.1

## LUX lighting range, 25 - 63 A

### LUX lighting

Eaton's LUX lighting range is available in 25, 40 and 63 A ratings in both 4 and 6 pole (63 A, 4 pole, lighting application only – details on request), the LUX range gives a varied choice of trunking lengths and pole configurations. With an IP41 rating (IP55 available) the strong aluminium housing supports both suspended or bolt-on lighting.

The tap-off unit is a simple plug-in arrangement, can be supplied with or without cable fitted and is phase interchangeable – a useful feature of Eaton's LUX Lighting system.

A simple push fit electromechanical joint with single screw fixing, reliant on alignment for minimum electrical interference makes

installation fast and simple. This is very effective due to its simple method of jointing with flexibility for commercial installations. It is recommended that a universal fixing bracket is used every 2m maximum. The LUX range influences a choice of end feeds, flexible lengths and accessories.

The maximum recommended run length for the LUX product is 99 metres. Where building movement is a consideration, then a flexible joint is recommended every 30 metres to prevent movement of lengths.

See page 102 for dimensional drawings and technical details.

LUX3425



### Lengths

Description	Pole configuration	IP rating	Eaton list number 25 A	Eaton list number 40 A	Eaton list number 63 A
Straight length 3 m	4 pole	IP41	LUX3425	LUX3440	LUX3463
Straight length 1 m	4 pole	IP41	LUX1625	LUX1640	–
Straight length 3 m	6 pole	IP41	LUX3625	LUX3640	LUX3663
Straight length 1 m	6 pole	IP41	LUX1625	LUX1640	–

LUX425EF



### Feed units

Description	Pole configuration	IP rating	Eaton list number 25 A	Eaton list number 40 A	Eaton list number 63 A
End feed	4 pole	IP41	LUX425EF	LUX640EF	LUX463EF
	6 pole	IP41	LUX625EF	LUX640EF	LUX663EF
Reverse end feed	4 pole	IP41	LUX425REF	LUX640REF	LUX463REF
	6 pole	IP41	LUX625REF	LUX640REF	LUX663REF
Centre feed	4 pole	IP41	LUX425CF	LUX640CF	LUX463CF
	6 pole	IP41	LUX625CF	LUX640CF	–

LUXT6F



### Tap-off units – 4 pole

Description	Pole configuration	IP rating	Phase indication	Phase	Eaton list number
Tap-off unit	4 pole	IP55	–	–	LUXT6F
Tap-off unit	4 pole	IP55	Red	L1+N	LUXT6FCR
Tap-off unit	4 pole	IP55	Yellow	L2+N	LUXT6FCY
Tap-off unit	4 pole	IP55	Blue	L3+N	LUXT6FCB

LUXT6F5P



### Tap-off units – 6 pole

Description	Technical characteristics	Pole configuration	IP rating	Phase indication	Phase	Eaton list number
Tap-off unit c/w 800 mm cable	10 A SP&N unfused	6 pole	IP55	Red	L1+N	LUXT10CR
				Yellow	L2+N	LUXT10CY
				Blue	L3+N	LUXT10CB
Tap-off unit c/w 800 mm cable	10 A SP&N unfused		IP55	Green	L4, L5	LUXT10C3P
Tap-off unit	6 A SP&N fusible, phase selectable		IP55	–	–	LUXT6F5P
Tap-off unit	16 A SP&N unfused, phase selectable		IP55	–	–	LUXT165P



LUX640FJ



## LUX accessories

Description	Pole configuration	IP rating	Eaton list number 25 A	Eaton list number 40 A	Eaton list number 63 A
End cover		IP55	LUXEC	LUXEC	LUXEC
Universal fixing bracket		—	LUXUFB	LUXUFB	LUXUFB
Flexible joint	4 pole	IP41	LUX425FJ	LUX640FJ	—
	6 pole	IP41	LUX640FJ	LUX640FJ	—
Tapping outlet seal		IP55 <sup>1)</sup>	LUXOS	LUXOS	LUXOS
Joint reinforcement cover, rubber		IP55 <sup>1)</sup>	LUXJC	LUXJC	LUXJC
Joint reinforcement cover, metal		IP55 <sup>1)</sup>	LUXJCL	LUXJCL	LUXJCL63

<sup>1)</sup> To upgrade straight lengths to IP55. Support spacing 2 m intervals maximum.

## LUX Tap-off unit accessories

Description	Rating	Eaton list number
Neutral link	16 A	LUXNL
Spare fuse carrier	6 A	LUXTF
Fuse carrier	16 A	LUXTF16A



3.1	LP range & accessories .....	28
3.2	Moulded plastic enclosure tap-off units .....	29
3.3	Steel enclosed tap-off units.....	31
3.4	European standard tap-off units .....	35



Eaton's Power Xpert® LP range is available in 40, 63, 80, 100 & 125 A ratings. The attractively styled housing is manufactured from extruded aluminium giving a degree of protection to IP4X. The LP range is tested according to BSEN 60439-2, EN 60439-2 and IEC 60439-2

Supplied in 1 m, 2 m and 3 m (other lengths available on request) the system can be end or centre fed and is supplied complete with

connection blocks for jointing to adjacent lengths or fittings. Eight positions for tapping are provided on every 3 m length allowing easy access to tap-off locations via a range of switches and overcurrent protective devices which include MCBs, HRC fuses and RCBOs. Tap-off units can be provided with sockets conforming to BSEN 60309-2, BS 1363 and IEC 60309-2.

See page 104 for dimensional drawings.

See page 106 for technical details.

LP380



### Lengths

Description	Eaton list number				
	40 A	63 A	80 A	100 A	125 A
1 m straight length feeder	LP140 <sup>1)</sup>	LP163 <sup>1)</sup>	LP180 <sup>1)</sup>	LP1100 <sup>1)</sup>	LP1125 <sup>1)</sup>
2 m straight length feeder	LP240 <sup>1)</sup>	LP263 <sup>1)</sup>	LP280 <sup>1)</sup>	LP2100 <sup>1)</sup>	LP2125 <sup>1)</sup>
3 m straight length feeder	LP340 <sup>1)</sup>	LP363 <sup>1)</sup>	LP380 <sup>1)</sup>	LP3100 <sup>1)</sup>	LP3125 <sup>1)</sup>

<sup>1)</sup> Add 'T' for Tin plated Copper bars

LP125EF



### Feeders

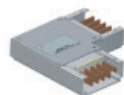
Description	Eaton list number				
	40 A	63 A	80 A	100 A	125 A
End feed unit	LP80 <sup>1)</sup> EF	LP80 <sup>1)</sup> EF	LP80 <sup>1)</sup> EF	LP125 <sup>1)</sup> EF	LP125 <sup>1)</sup> EF
Reverse end feed unit	LP80 <sup>1)</sup> REF	LP80 <sup>1)</sup> REF	LP80 <sup>1)</sup> REF	LP125 <sup>1)</sup> REF	LP125 <sup>1)</sup> REF
Switched end feed	LP80 <sup>1)</sup> EFS	LP80 <sup>1)</sup> EFS	LP80 <sup>1)</sup> EFS	LP125 <sup>1)</sup> EFS	LP125 <sup>1)</sup> EFS
Switched reverse end feed	LP80 <sup>1)</sup> REFS	LP80 <sup>1)</sup> REFS	LP80 <sup>1)</sup> REFS	LP125 <sup>1)</sup> REFS	LP125 <sup>1)</sup> REFS
Centre feed	LP80 <sup>1)</sup> CF	LP80 <sup>1)</sup> CF	LP80 <sup>1)</sup> CF	LP125 <sup>1)</sup> CF	LP125 <sup>1)</sup> CF

<sup>1)</sup> Add 'T' for Tin plated Copper bars

LP80EFS



LP125AFRH



### Angles

Description	Type	Eaton list number				
		40 A	63 A	80 A	100 A	125 A
Angle	Flat left hand	LP80 <sup>1)</sup> AFLH	LP80 <sup>1)</sup> AFLH	LP80 <sup>1)</sup> AFLH	LP125 <sup>1)</sup> AFLH	LP125 <sup>1)</sup> AFLH
Angle	Flat right hand	LP80 <sup>1)</sup> AFRH	LP80 <sup>1)</sup> AFRH	LP80 <sup>1)</sup> AFRH	LP125 <sup>1)</sup> AFRH	LP125 <sup>1)</sup> AFRH
Angle	Inside edge	LP80 <sup>1)</sup> AIE	LP80 <sup>1)</sup> AIE	LP80 <sup>1)</sup> AIE	LP125 <sup>1)</sup> AIE	LP125 <sup>1)</sup> AIE
Angle	Outside edge	LP80 <sup>1)</sup> AOE	LP80 <sup>1)</sup> AOE	LP80 <sup>1)</sup> AOE	LP125 <sup>1)</sup> AOE	LP125 <sup>1)</sup> AOE

<sup>1)</sup> Add 'T' for Tin plated Copper bars

### Intersections

Description	Eaton list number				
	40 A	63 A	80 A	100 A	125 A
4 way Intersections	LP80 <sup>1)</sup> IS	LP80 <sup>1)</sup> IS	LP80 <sup>1)</sup> IS <sup>1)</sup>	LP125 <sup>1)</sup> IS	LP125 <sup>1)</sup> IS

<sup>1)</sup> Add 'T' for Tin plated Copper bars

LP125UFB



### Accessories

Description	Eaton list number				
	40 A	63 A	80 A	100 A	125 A
End cover	LP125EC	LP125EC	LP125EC	LP125EC	LP125EC
Reverse end cover	LP125REC	LP125REC	LP125REC	LP125REC	LP125REC
Universal fixing bracket	LP125UFB	LP125UFB	LP125UFB	LP125UFB	LP125UFB
Joint cover	LP80CB	LP80CB	LP80CB	LP125JC	LP125JC

LP125JC

