

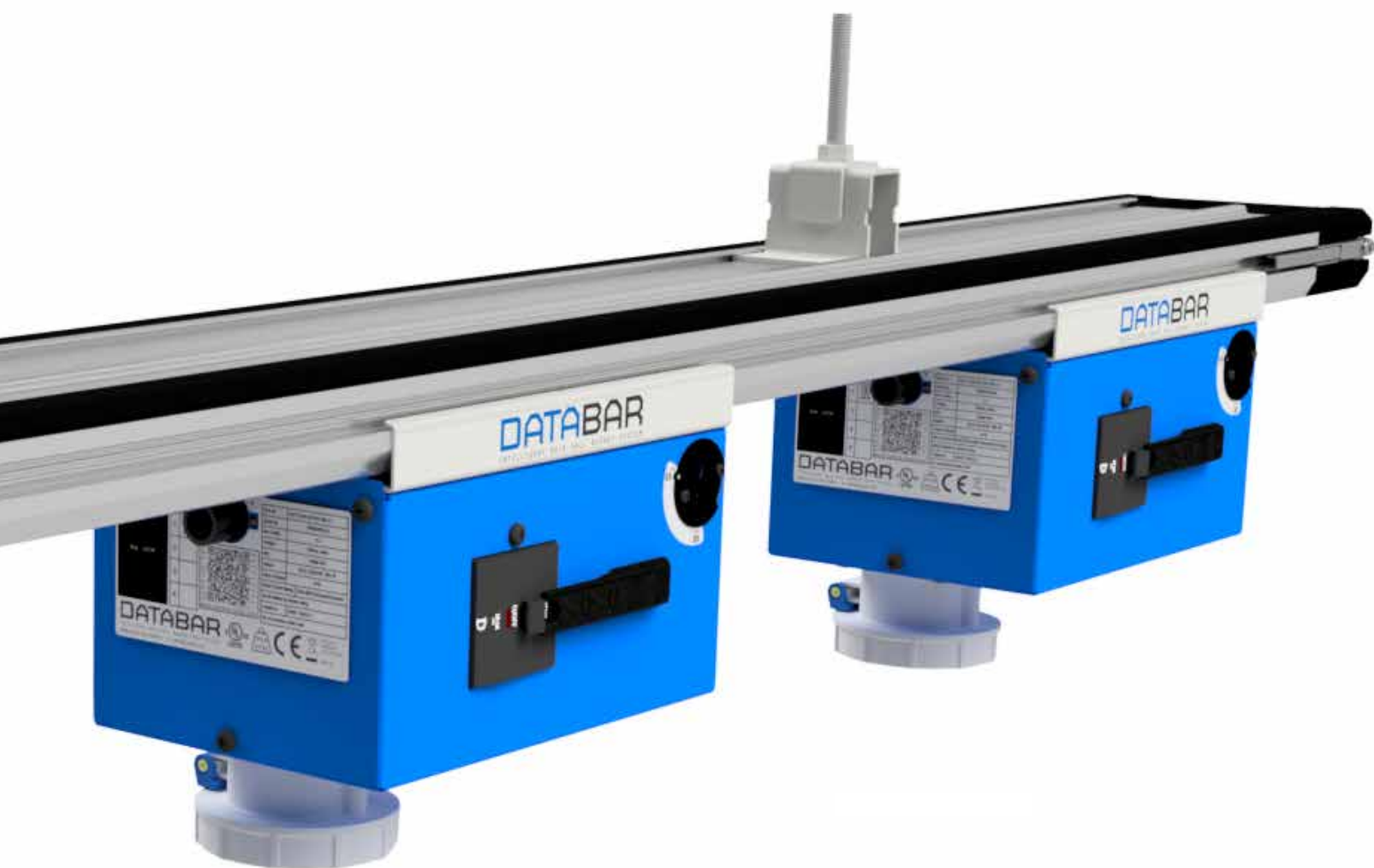
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# DATABAR<sup>®</sup>

INTELLIGENT DATA HALL BUSWAY SYSTEM



# Intelligent Data Hall Busway

The Databar busway system is a unique open channel modular busway system designed for mission critical rack power distribution in data centers. The system has been developed to be super compact and features patent pending design innovations in the integral plug & play coupling system for simpler and faster installation and in the tap-off actuator mechanisms that put safety at the forefront.

Over rack power distribution has never been so **flexible**. Data Center Operators can rest assured that they not only have the ability to add tap-offs as needed but also to **easily extend or re-configure the busway system** over their evolving white space.

Databar benefits from over fifty years of design and engineering expertise and its **seamless integration** with IBAR busbar trunking systems and Power Management systems deliver a **complete package solution**.

**Safe and simple** were at the heart of Databar's development which is why there are only two sizes that cover all ratings, one size for 160A - 400A and the second for 600A - 800A. In each size the same **low profile** housing accommodates both 4 and 5 pole configurations whilst still maintaining the **smallest footprint design**.

Installing or extending the busway requires **no separate joint pack**, fully factory tested busway assemblies feature **Anord Mardix designed specialist integrated connectors** that provide true plug-n-play functionality.

Tap-off fitting is carried out in two simple steps firstly the tap-off box is installed on the busway using our **fast fit** system then the power contacts are engaged via the **unique connection actuation system** which not only controls the tap-off contacts but interlocks with the switching device to ensure that no load is connected during the engage operation.

Databar's **market leading** range of tap-offs are super compact and thanks to the **small form factor** busway design and actuation system they require **only 1.2" of mounting clearance; the industry's smallest!**

Databar's combination of compact tap-off design and plug-n-play open-channel busway delivers a **highly flexible** solution to meet the needs of **high density, mission critical over-rack power distribution**. The compact design goes a long way towards **optimising over rack space utilisation** where low ceiling head height and IT / fibre conduits compete.

## Testing / Certification

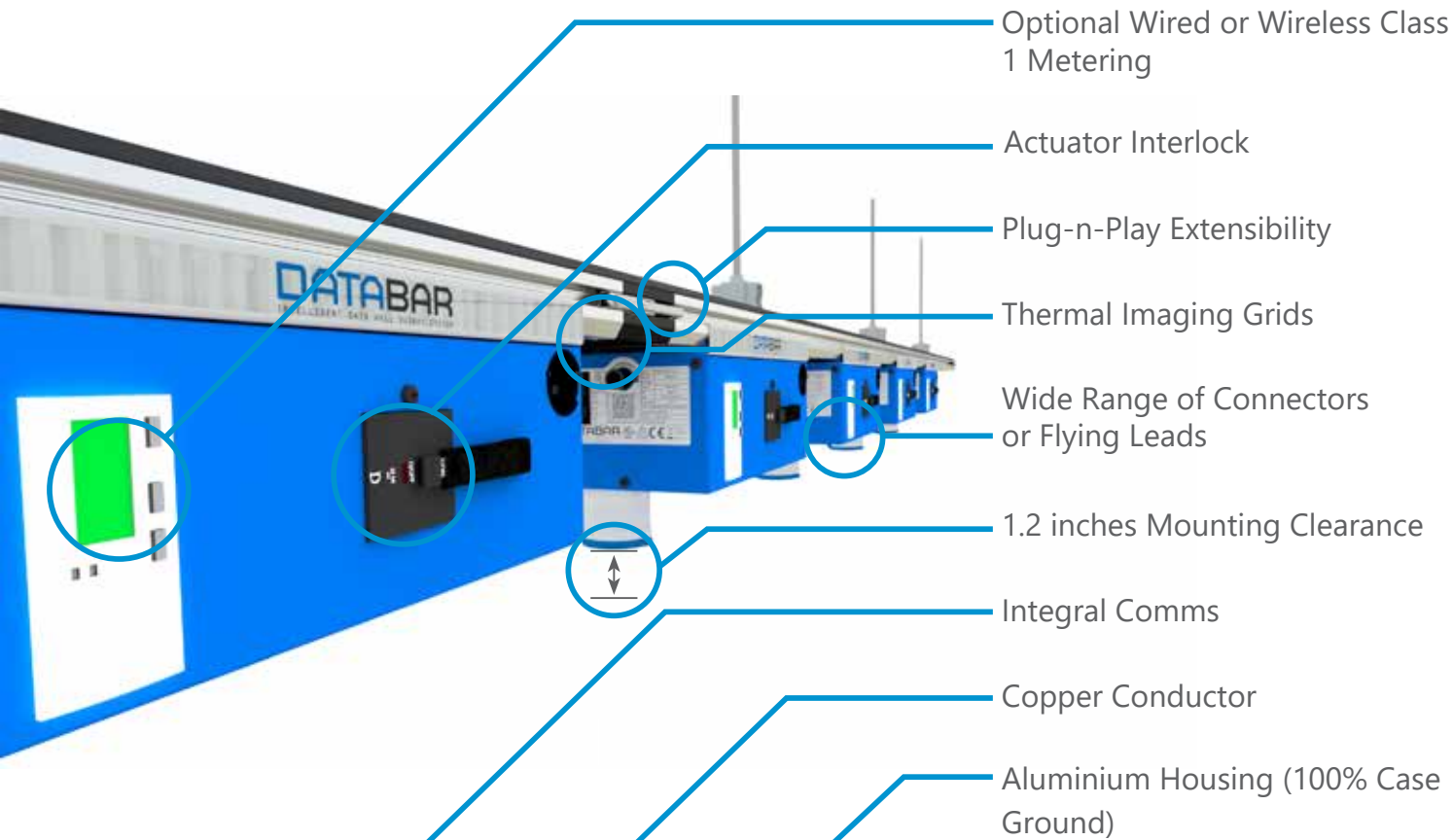
The Databar product has undergone extensive testing which has been independently certified by Underwriters Laboratories in accordance with UL857.

Additionally the busbar trunking system has been independently tested for resistance to Arc Flash in accordance with IEEE 1584 and major seismic events in accordance with IEEE Std 344-2013 & IEC 60068-3-3 (Richter magnitude 7.0-7.9).

## Busway key features

- Independently tested and listed by Underwriters Laboratories to UL857
- 160, 250, 400, 600 or 800A systems with 4 or 5 poles in the same footprint design
- Continuous open channel permits tap-offs to be installed anywhere along the bar (Finger Safe, IP2X)
- Ships in standard lengths up to 10ft (3m)
- Integral plug-n-play jointing system with miniature busway joint zone (no separate joint parts)
- Optional over-rated neutrals (see Technical Overview) or 100% integral ground conductor
- 100% ground path via the one piece extruded aluminium housing (see Technical Overview)





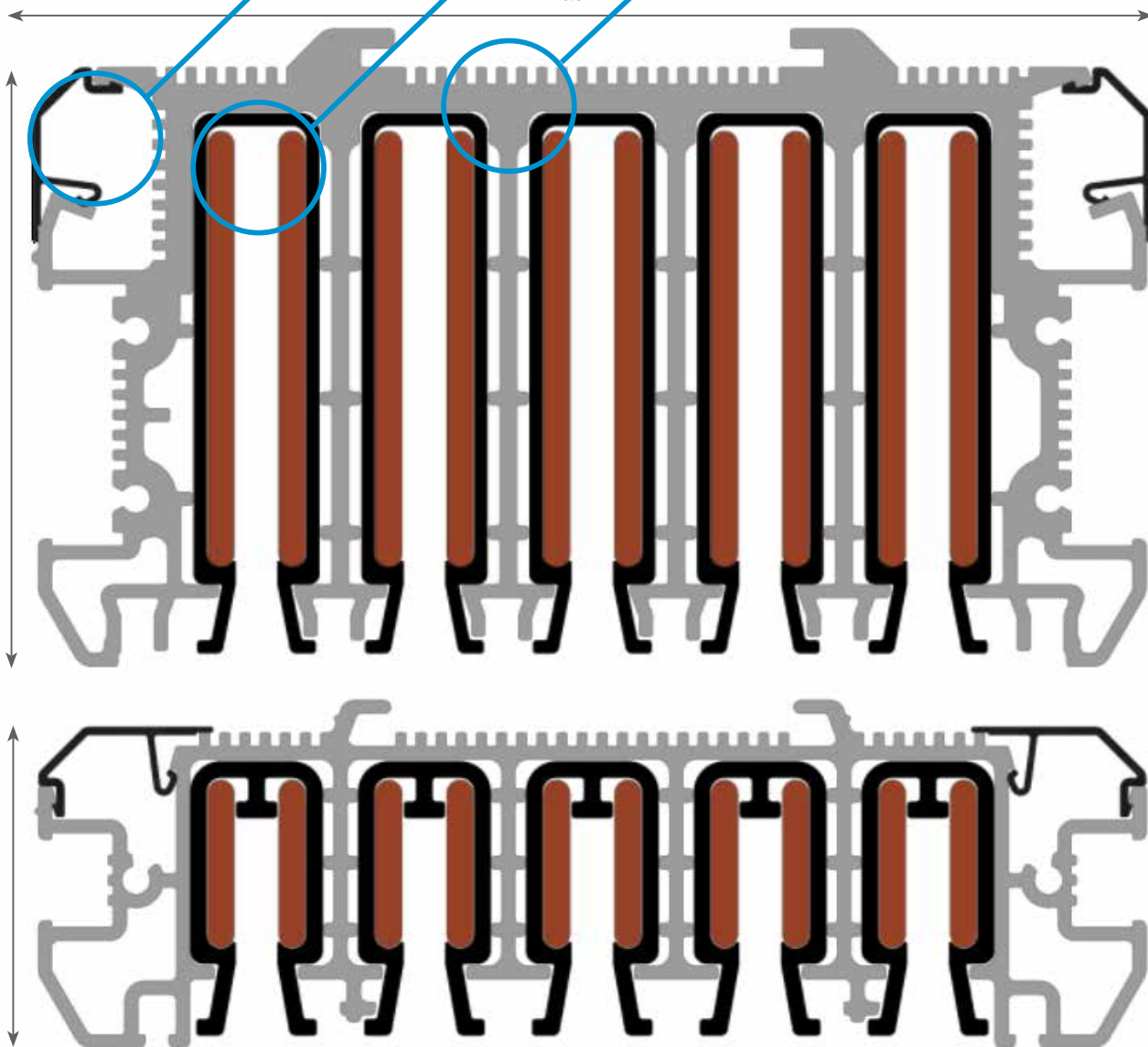
600A & 800A

3.5in

6.5in

160A, 250A & 400A

1.9in





# DATA BAR

INTELLIGENT DATA HALL BUSWAY SYSTEM





Torque to  
9 lbf.in



UNIQUE

INTEGRAL

COUPLING

SYSTEM

# Technical Overview

Specification		System Ratings				
System ampacity	A	160	250	400	600*	800*
Operating voltage	V	Up to 600V				
Frequency	Hz	50/60 Hz				
Degree of protection		Finger Safe (IP2X)				
Casing material		Aluminium				
Conductor material		Copper				
Conductor finish		Plain (Plated Opt.)		Plated		
Short Circuit Current Rating (unprotected)		42 kAIC up to 208VAC**			50 kAIC up to 600VAC	
		35 kAIC up to 600VAC				

Dimensions		160	250	400	600*	800*
Case overall dimensions (4P & 5P)	in	6.5 x 1.9	6.5 x 1.9	6.5 x 1.9	6.5 x 3.5	6.5 x 3.5
	mm	165 x 47	165 x 47	165 x 47	165 x 90	165 x 90
Phase Conductor CSA	in <sup>2</sup>	0.3	0.3	0.3	0.8	0.8
	mm <sup>2</sup>	194	194	194	514	514
Neutral Conductor CSA	in <sup>2</sup>	0.3	0.3	0.3	0.8	0.8
	mm <sup>2</sup>	194	194	194	514	514
Isolated Ground Conductor CSA	in <sup>2</sup>	0.3	0.3	0.3	0.8	0.8
	mm <sup>2</sup>	194	194	194	514	514
Housing CSA (Ground)	in <sup>2</sup>	2.26	2.26	2.26	4.94	4.94
	mm <sup>2</sup>	1457	1457	1457	3189	3189
System Weight (4 pole)	lbs/ft	8.7	8.7	8.7	19.6	19.6
	kg/m	12.9	12.9	12.9	29.1	29.1
System Weight (5 pole)	lbs/ft	9.7	9.7	9.7	22.9	22.9
	kg/m	14.5	14.5	14.5	34.1	34.1

System Configurations						
Ampacity	Phase configuration	Total No. Poles	Phases [3 Poles]	Neutral [No. Poles]	Ground	
160	TP/N	4	100%	100% [1]	100% Case	
	TP/1.5N	4	100%	150% [1]	100% Case	
	TP/2N	4	100%	200% [1]	100% Case	
	TP/E	4	100%	-	100% Isolated	
	TP/N/E	5	100%	100% [1]	100% Isolated	
	TP/1.5N/E	5	100%	150% [1]	100% Isolated	
	TP/2N/E	5	100%	200% [1]	100% Isolated	
250	TP/N	4	100%	100% [1]	100% Case	
	TP/1.5N	4	100%	150% [1]	100% Case	
	TP/2N	5		200% [2]	100% Case	
	TP/E	4	100%	-	100% Isolated	
	TP/N/E		100%	100% [1]	100% Isolated	
	TP/1.5N/E	5	100%	150% [1]	100% Isolated	
400	TP/N	4	100%	100% [1]	100% Case	
	TP/1.5N	4		150% [2]	100% Case	
	TP/2N	5	100%	200% [2]	100% Case	
	TP/E	4	100%	-	100% Isolated	
	TP/N/E	5	100%	100% [1]	100% Isolated	
600* & 800*	TP/N	4	100%	100% [1]	100% Case	
	TP/1.5N	4	100%	150% [2]	100% Case	
	TP/2N	5	100%	200% [2]	100% Case	
	TP/E	4	100%	-	100% Isolated	
	TP/N/E	5	100%	100% [1]	100% Isolated	

Case refers to aluminium casing used as ground. Isolated refers to internal insulated pole for ground. \*Available Q4 2018, all values TBC.

\*\*Option to upgrade to 42kA, standard rating is 35kA

# Installation and Busway Accessories

## Installation

Busway is typically suspended on drop rods from supporting 'T-slot' ceilings or Uni-strut style support hardware. Three hangers are supplied with each length. Our team of installers can offer a one-stop-shop for install, testing (including load bank testing), commissioning and power management systems integration. Alternative underfloor or server rack-top supports are available to meet project specific requirements.



## Cable End Feeds

Busway is typically fed by cable from switchboards or high power busbar tap-offs. End feeds accommodate cable terminations and can be configured to left hand or right hand feed locations. Optional end-feed metering, indication or integral switch isolators are available to meet the specific project requirements. Other customisation options include custom RAL colours and pre-punched glanding plates to suit specific cable requirements.



## End Caps

Each length of busway is terminated with an end-cap, if there is a later requirement to extend / reduce the busway this end cap can be removed and re-fitted to the end of the run. Male and female end caps allow for left or right hand fed systems.



## Elbows

The vast majority of installations are straight runs but where there is a requirement to change direction the system can employ elbows which are available in left and right 90 degree angles as standard. Combinations of elbows can be used to circumnavigate building supports. Breaks in runs can also be engineered with cable connections between end feed units.



**Channel Closure Strip** is a clip in cover supplied in 10ft (3m) lengths, is typically cut to length on-site and provides a blanking cover to the open channel busway. It can be fitted between tap-offs or across unutilised lengths.

**Comm's Channel Cover** clips on to the housing to retain Ethernet cables in wired metering applications. Supplied in 10ft (3m) lengths with options to colour code for different power streams.





# Tap-offs

Databar tap-offs have been designed for simple and safe installation. The range includes unique features which have been developed to vastly improve speed and ease of installation and reduce risk whilst maintaining a super compact design.

Tap-off units can be installed on the busway in just a few seconds using the fast fit system, a **unique tool free mounting mechanism**.

The units are available with a **range of devices** including MCBs and MCCBs. The standard range employs MCBs and these are typically available in 10, 14, 22 and 50kAIC variants in ratings of 15, 20, 30, 50 and 60A and in Single Pole (SP), Double Pole (DP) and Triple Pole (TP); either with or without metering.

**Outlet connector options include;**

- Panel mounted straight or angled IEC 309 receptacles
- NEMA Twist Lock and straight blade receptacles
- Drop cords / flying leads terminated with the required coupler



## Tap-off Installation Overview

The **tap-off actuator** cannot be operated without the tap-off first being mounted on the busway. This feature works in combination with the switching device interlock which is fitted as standard; the interlock prevents the switching device(s) from being turned on before installation / actuation.

Both the tap-off and busway have **mechanical features which control orientation** to ensure that the tap-off cannot be mounted incorrectly. The tap-off conductor connection springs are fully shrouded throughout the mounting operation which also provides for the **make first, break last** of the case ground.

Once installed on the busway the **patent applied for actuator** can then be operated with the supplied

**actuator key**. With the actuator turned ON the interlock is released and can be retracted to allow the switching device to be turned ON.

## Tap-off box key features

- Mechanically and electrically interlocked with the busway
- Case ground - make first, break last
- Vendor neutral 15, 20, 30, 50 and 60A SP/DP/TP MCBs or MCCBs
- Fast fit; takes only seconds to install on busway
- Requires only 1.2" mounting clearance
- Same Tap Offs fit all Databar ratings from 160A - 800A
- A wide range of options can be added including LED supply available / phase indication and breaker status monitoring

Example Tap-off - Single Pole 30A MCB with Straight IEC 309 Receptacle

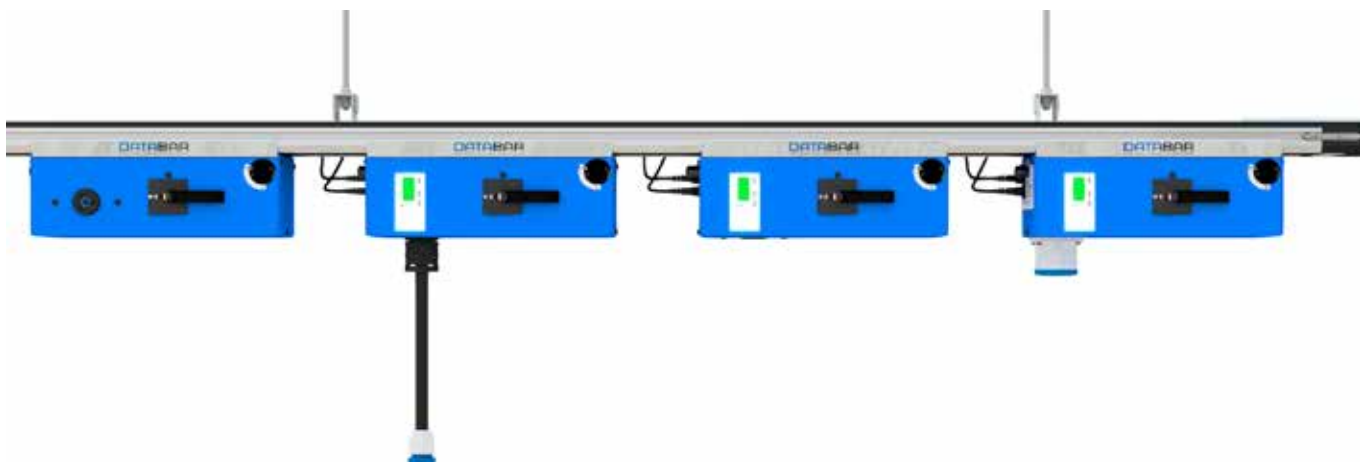
Front View



Side View



Bottom View



Nema Twistlock  
(Front Mount)

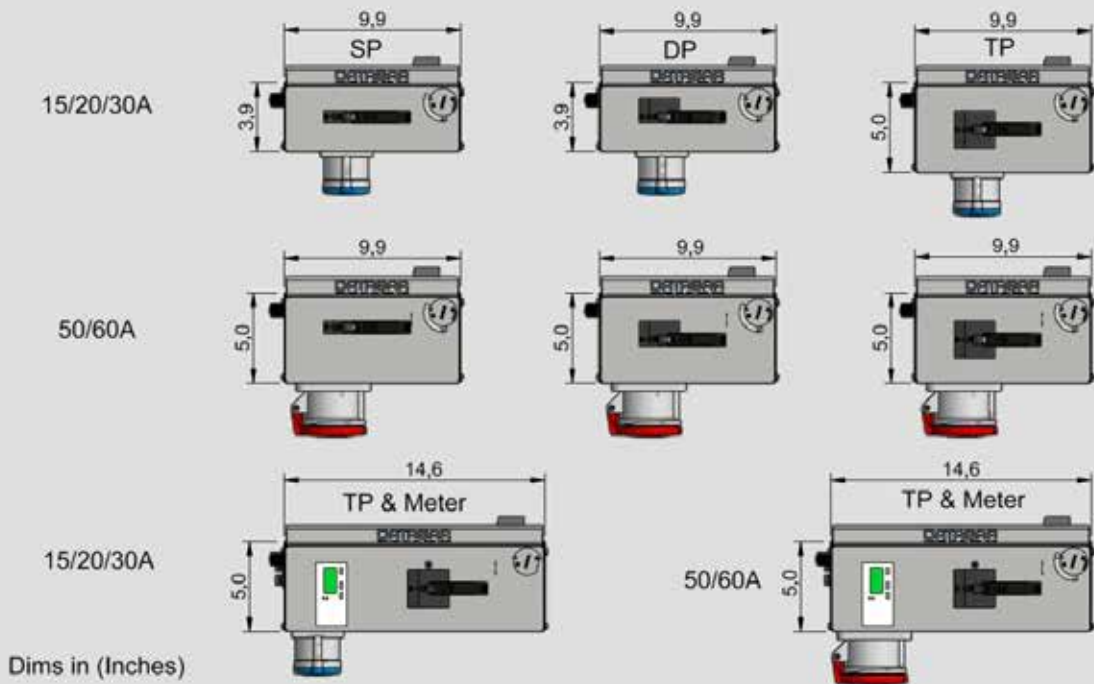
Nema Twistlock  
(Drop Cord)

Nema Twistlock  
(Bottom Mount )

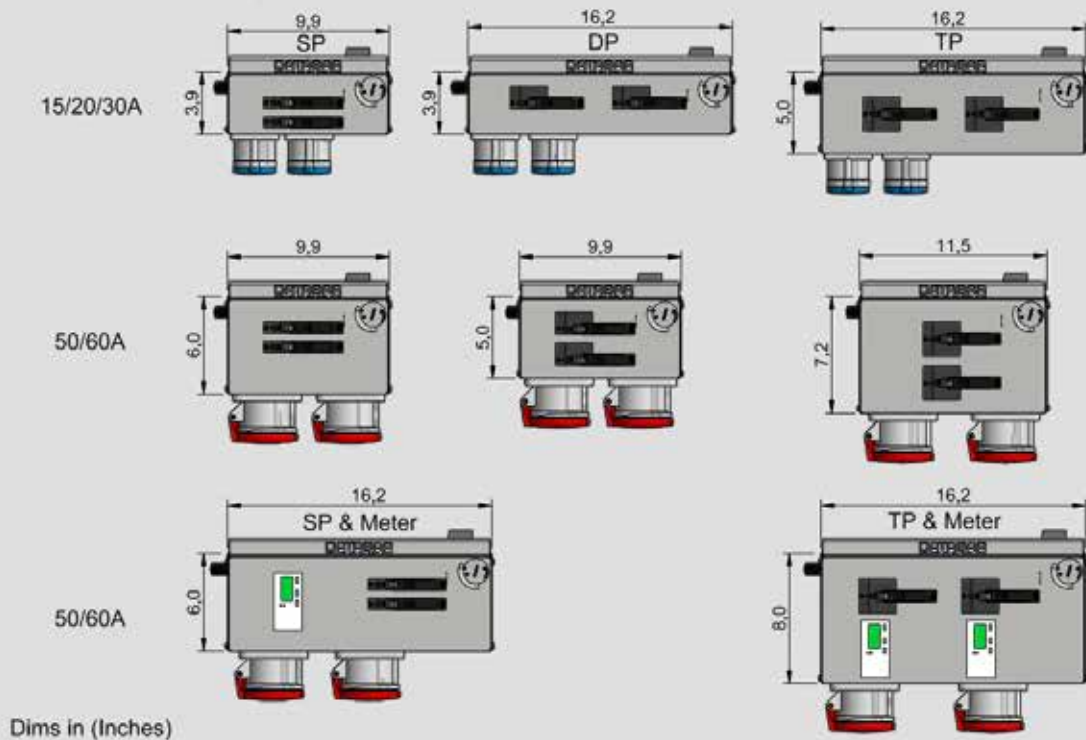
IEC 309  
(Bottom Mount )

# MCB Tap-offs

## Single Outlet Tap-Offs

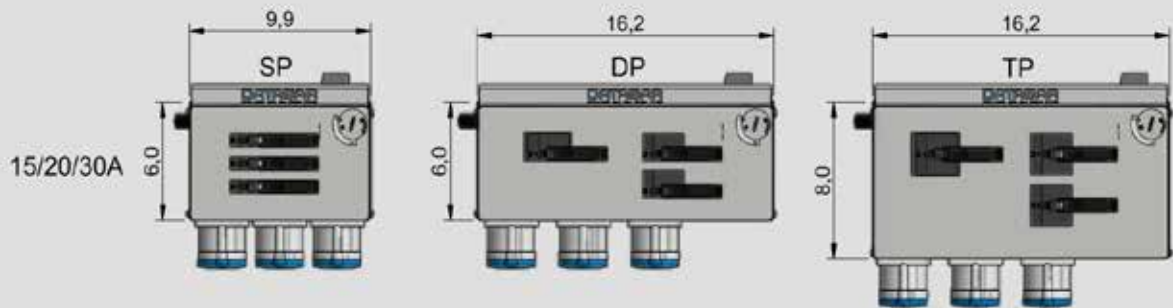


## Double Outlet Tap-Offs



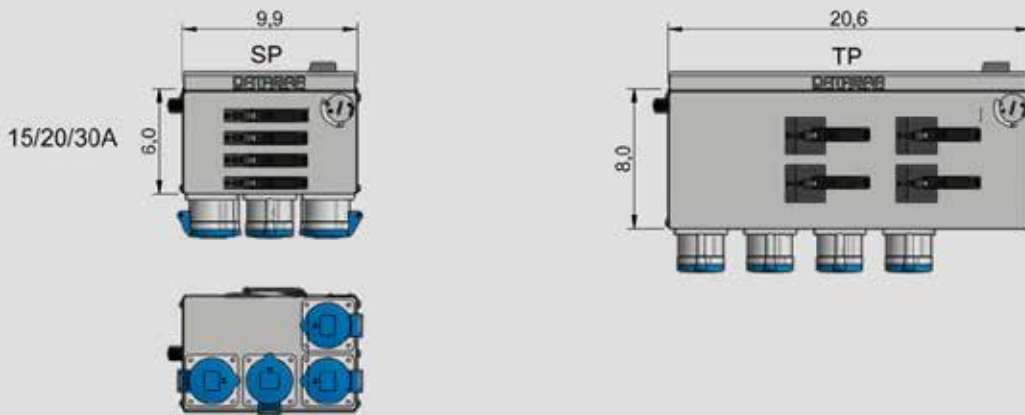
# MCB Tap-offs

## Triple Outlet Tap-Offs



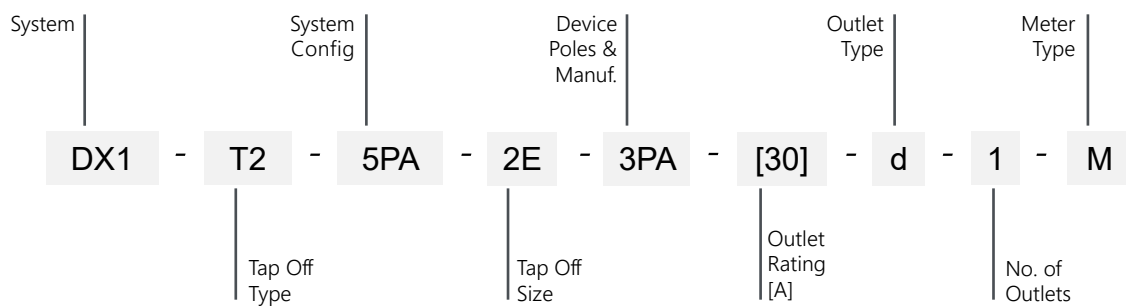
Dims in (Inches)

## Quad Outlet Tap-Offs

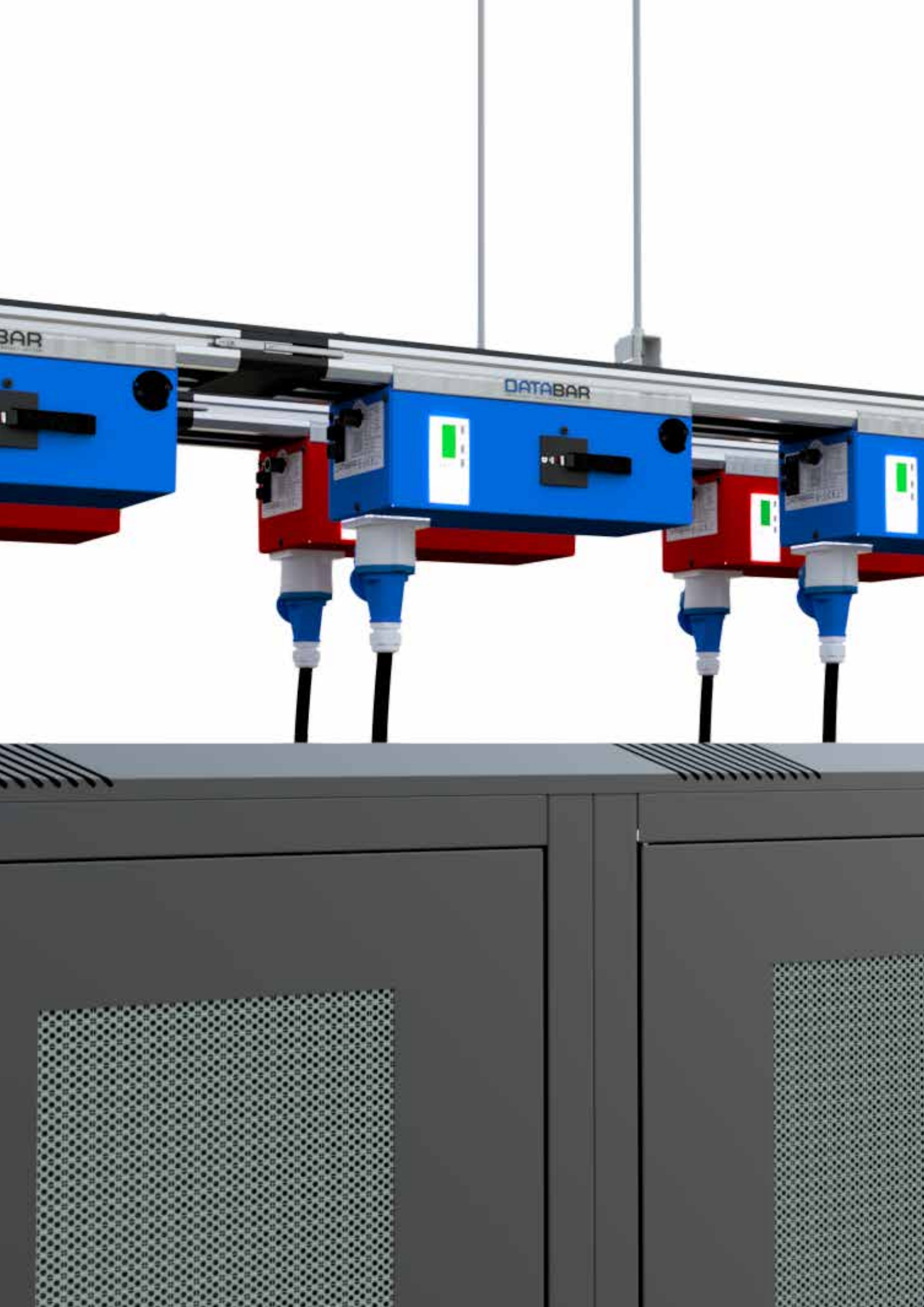


Dims in (Inches)

## Part Numbering Overview

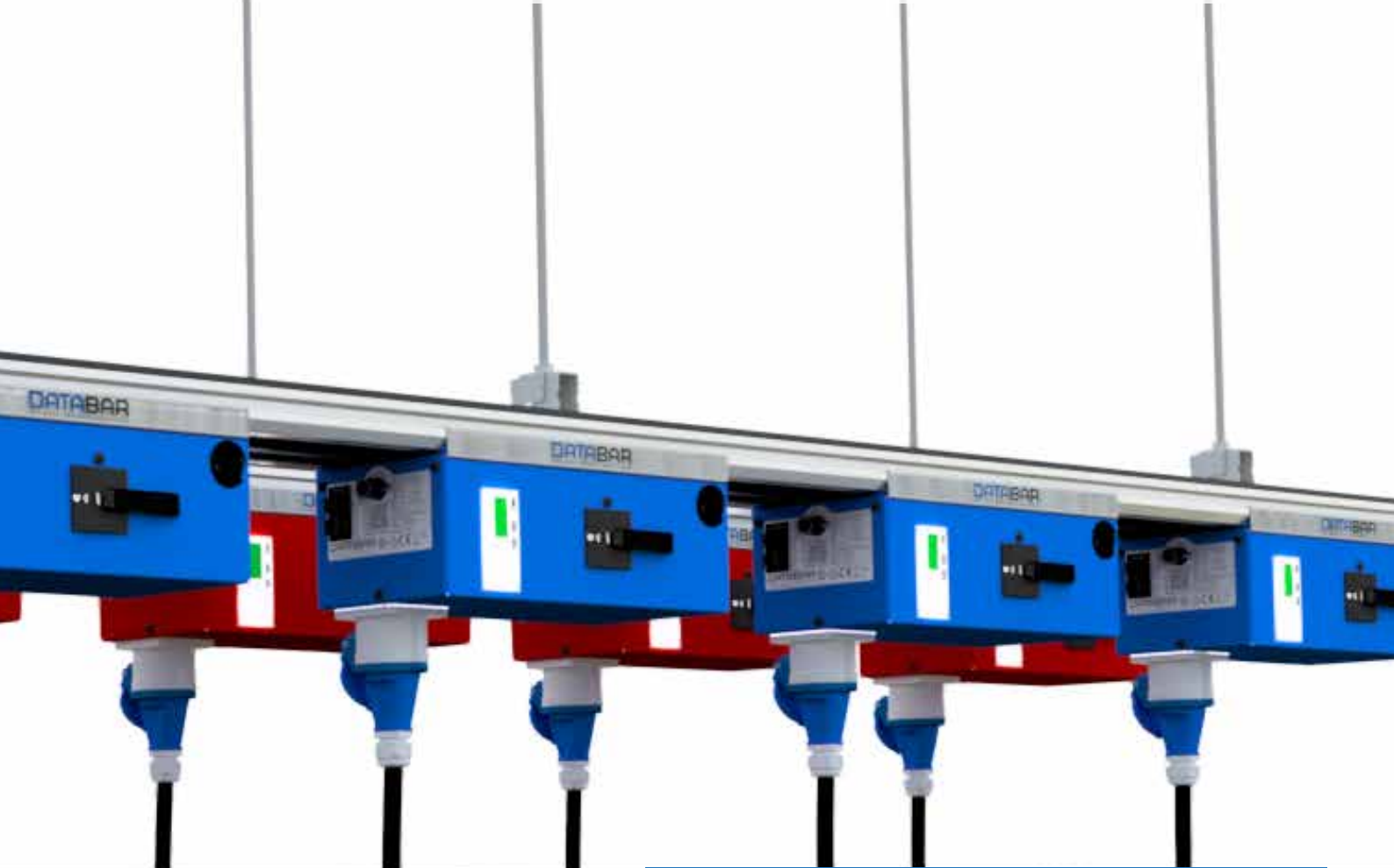






# DATA BAR

INTELLIGENT DATA HALL BUSWAY SYSTEM



FLEXIBLE

INTELLIGENT

RACK POWER

DISTRIBUTION

# Power & Environmental Monitoring

Databar offer a fully vendor neutral approach to provide the very latest technologies in full power branch circuit metering. Fully integrated systems which include tap-off circuit and end-feed power monitoring or circuit breaker status' are available alongside a range of environmental monitoring solutions.

Databar power metering provides for multi-tariff sub-billing at Class 1 accuracy.

Communication protocols include Modbus RTU, Ethernet and SNMP.

## Power measurements include;

- Active and reactive power
- Active and reactive energy
- Voltage per phase
- Current per phase

Circuit breaker status' are also available via a range of auxiliaries which can then provide open / closed / tripped status.

Typical arrangements include Modbus chains for the tap-offs returning to Ethernet gateways in the End Feeds or application specific power / energy management outstations / HMI.

## Power Management from Mardix

Anord Mardix holds approvals as a Schneider Electric EcoXpert Critical Power Master for supply and system integration of Power Monitoring Expert, PowerSCADA Expert/ CitectSCADA solutions and also as a Janitza Approved System Integration Partner for GridVis solutions.



## ANORD MARDIX DCIM MODULES

### Anord Mardix IMS™ - Data Hall Rack Power Management and Billing

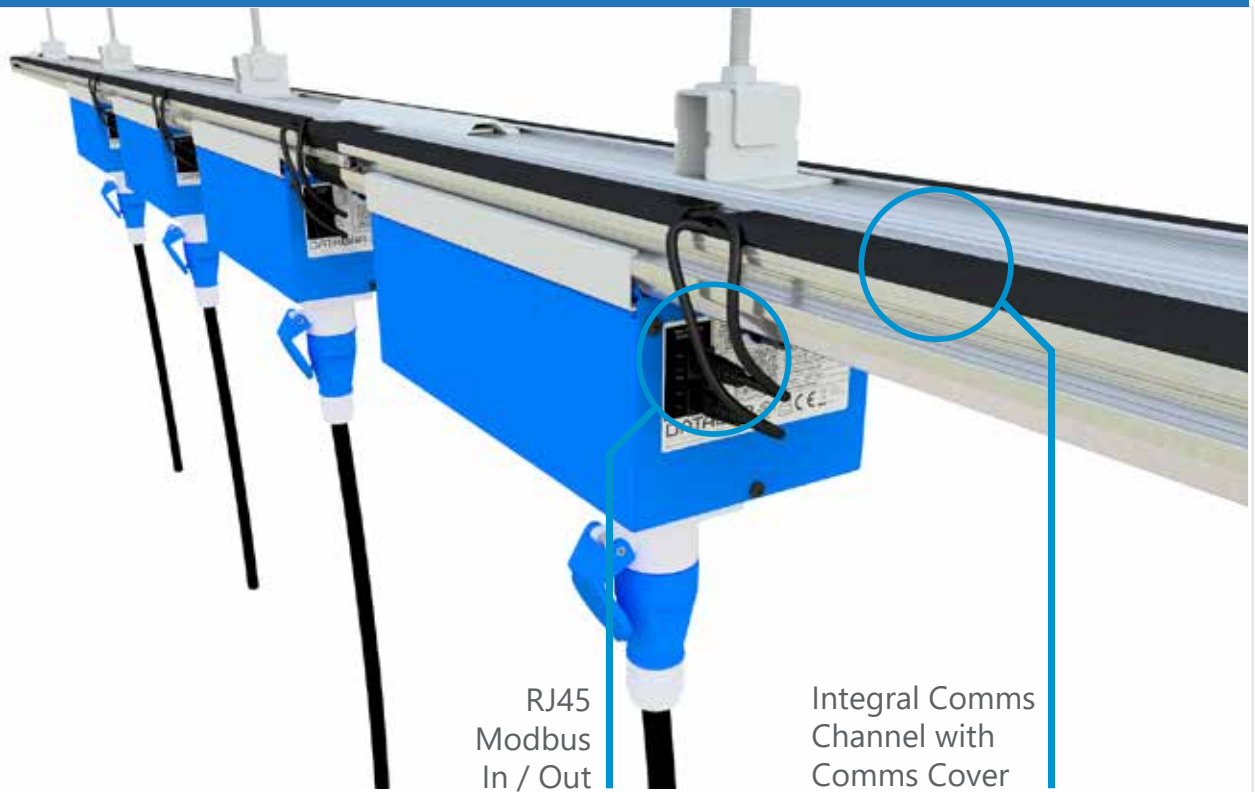
The IMS system has been developed by Anord Mardix to sit above data harvesting applications such as EMS, BMS and other suitable databases.

IMS provides users with a secure web based portal to manage customer or departmental billing through a wealth of standard or custom reporting tools and innovative graphic interfaces.

Employed by some of the world's largest data centers in private financial and colocation sectors this powerful tool provides reporting and management of over 21 million points of data and annual billing of \$350 million.



# Typical Meter Connection Arrangement



## Modbus Wired Metering

In wired metering solutions CAT5e/CAT6 cabling is employed to 'daisy chain' tap-offs back to Ethernet gateways.

The aluminium housing has dedicated cabling channels on both the front and back faces, each can carry up to four cables and a comms channel closure strip is provided for cable containment. Metered tap-offs are supplied with RJ45 terminals for linking out the Modbus chain.

