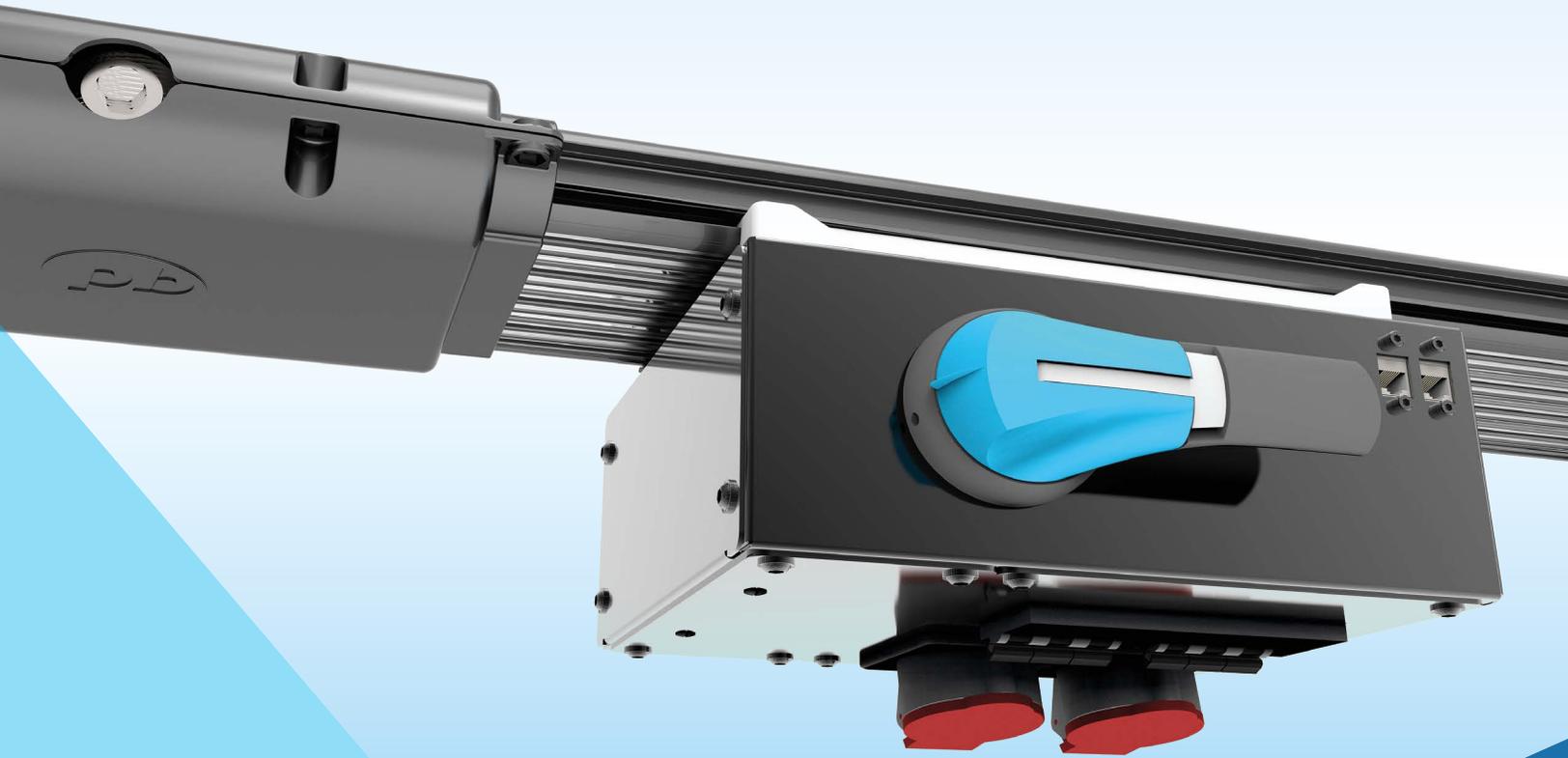




E+I ENGINEERING GROUP

# INTELLIGENT MEDIUM POWERBAR

iMPB



PowerBar

E+I Engineering’s Intelligent Medium Powerbar (iMPB) is a 600 Volt encased track busway available with copper conductors. The range is available in two bar configurations from 160A to 600A. The bar is housed in an aluminium casing rated IP2X.

**Key features:**

- Unique open channel system allows tap offs to be placed anywhere along the bar
- Solid joint pack construction
- Up to 12ft lengths
- busplugs have mechanical/ electrical interlocks and secure to the bar with an ‘earth first, break last’ safety feature.

# TECHNICAL FEATURES

**iMPB is constructed from either high density 99.99% conductivity copper. The conductors are insulated with a custom UL certified thermoplastic material with outstanding heat characteristics. The insulation has excellent dielectric strength and is impact resistant.**

iMPB is constructed with an aluminium housing providing a durable structure which also acts as a ground path.

The iMPB range can be engineered with an over-rated neutral option for busbar systems with non-linear loads. The additional neutral capacity prevents overloading caused by zero sequence harmonic currents.

E+I Engineering offer a 100% fully isolated ground for systems where earth isolation is required e.g. systems with heavy microprocessors, based loads or large computer based installations.

Busbar Rating (Amps)	Housing Size (inches)	
	4 Pole	5 Pole
160A	6.89 x 1.73	8.27 x 1.73
250A	6.89 x 1.73	8.27 x 1.73
400A	6.89 x 1.73	8.27 x 1.73
500A	7.09 x 2.05	8.46 x 2.05
600A	7.09 x 2.05	8.46 x 2.05

**Phase Configurations**

Configuration	Phases	Neutral	Earth
TP/N	100%	100%	Case
TP/ON	100%	170%	Case
TP/NE	100%	100%	100%
TP/ONE	100%	170%	100%

# LENGTHS AND JOINTS



Distribution Lengths

### Distribution lengths

Distribution lengths are designed as an open track system; busplugs can be plugged in anywhere along the bar. The opening is finger safe meeting a rating of IP2X.

Straight lengths can be supplied at any length from 2ft - 12ft.

The iMPB joint pack securely locks two feeder lengths together with a traditional busduct bolted joint. No special tooling is required and joints may be disassembled and reassembled easily.

iMPB uses custom designed thermally and electrically secure joint packs. Temperature monitoring of joints is available as an option.



Busway Joints

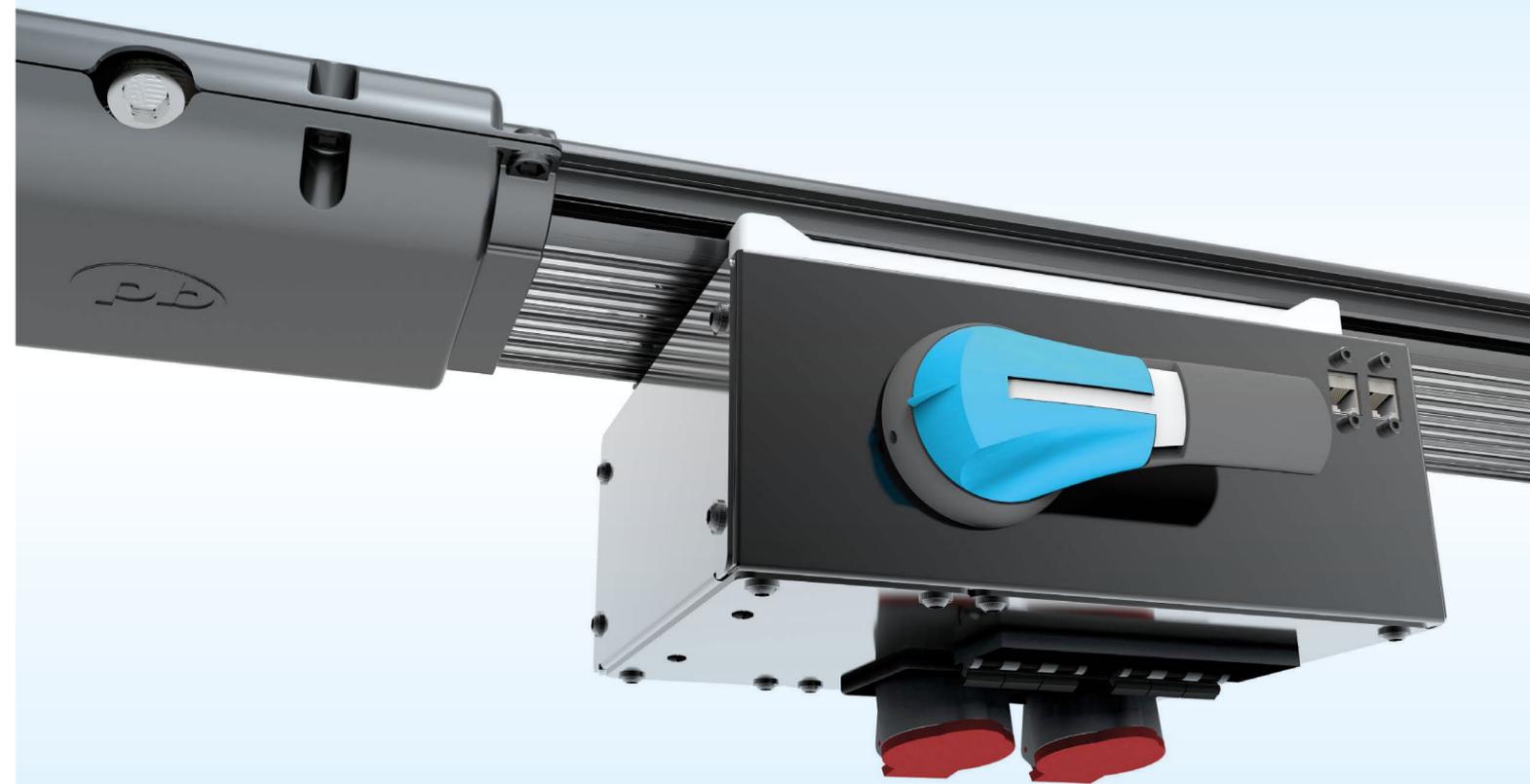
### End Feeds

E+I Engineering can provide standard cable end boxes with options for cable entry from various points.

Centre feeds and load bank feeds can also be supplied to meet specific project requirements.



Cable End Feed



# INSTALLATION



Typical Underfloor Arrangement



'Hot Aisle Cold Aisle' Arrangement



HPB to iMPB Connection

The modular design of iMPB allows it to be easily installed horizontally or vertically depending on specific project requirements.

Hanger brackets are supplied per length. These can be easily attached to drop rods for a seamless installation process.

iMPB can be connected directly to E+I Engineering's High Powerbar (HPB) to provide a full power solution.

iMPB busplugs are engineered with the safety of the installer and user as the key criteria.

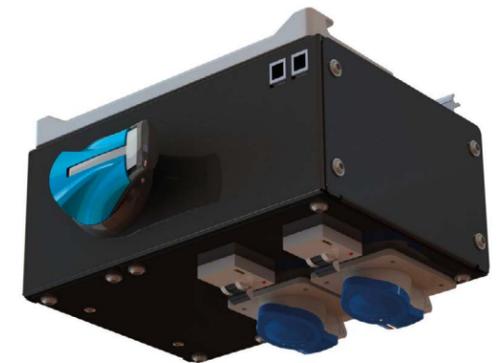
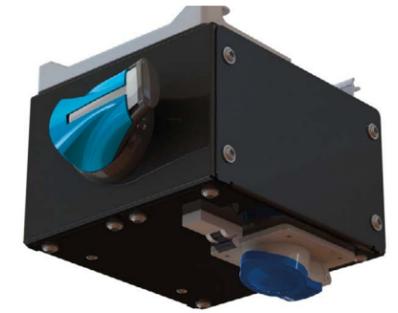
All busplugs have an 'earth first, break last' safety feature and can be safely installed using Powerbar's SafeWork Technology.

1. The units interlock onto the busway with a ground strip. This ensures that the ground is the first point of contact with the busbar system during installation.
2. The mechanical interlock secures the unit to the bar using high tensile strength lockable hardware which cannot be fitted incorrectly.
3. Once fitted to the bar, the engager handle can be turned. This lifts the contacts into the busway and has a positive lock once fully rotated.

**Key features:**

- SafeWork Technology
- Individual busplugs rated up to 125A
- Interlock feature ensures polarities do not mismatch
- Busplugs can be fitted with IEC 309 receptacles, NEMA receptacles or whip cords as required
- Circuit breakers or fused disconnects are fitted to the busplug according to the installation requirements

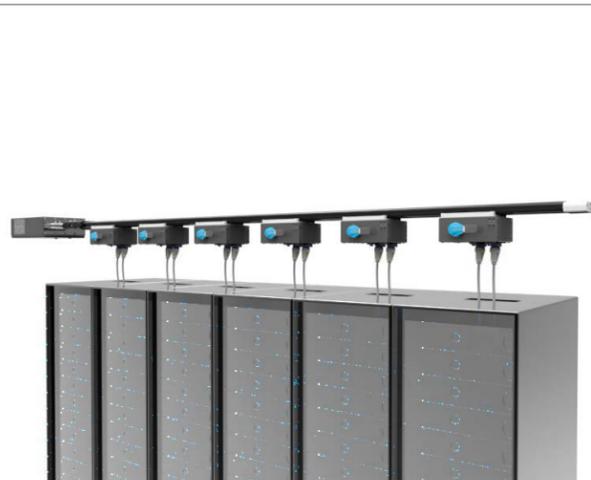
# BUSPLUGS



Busplugs

# METERING

iMPB offers advanced metering which allows the user to monitor, integrate and display data centre power information via RJ45 Ethernet plug-in connections.



Daisy Chaining Meters

Final circuit monitoring is integrated into the busway to measure the total load of the bar and busplugs. Power calculations of total input power for each busway run can also be provided.

**Options:**

- Voltage for all three phases
- Current - phase, ground and neutral
- kW, KVa, kVAR, power factor, kWh

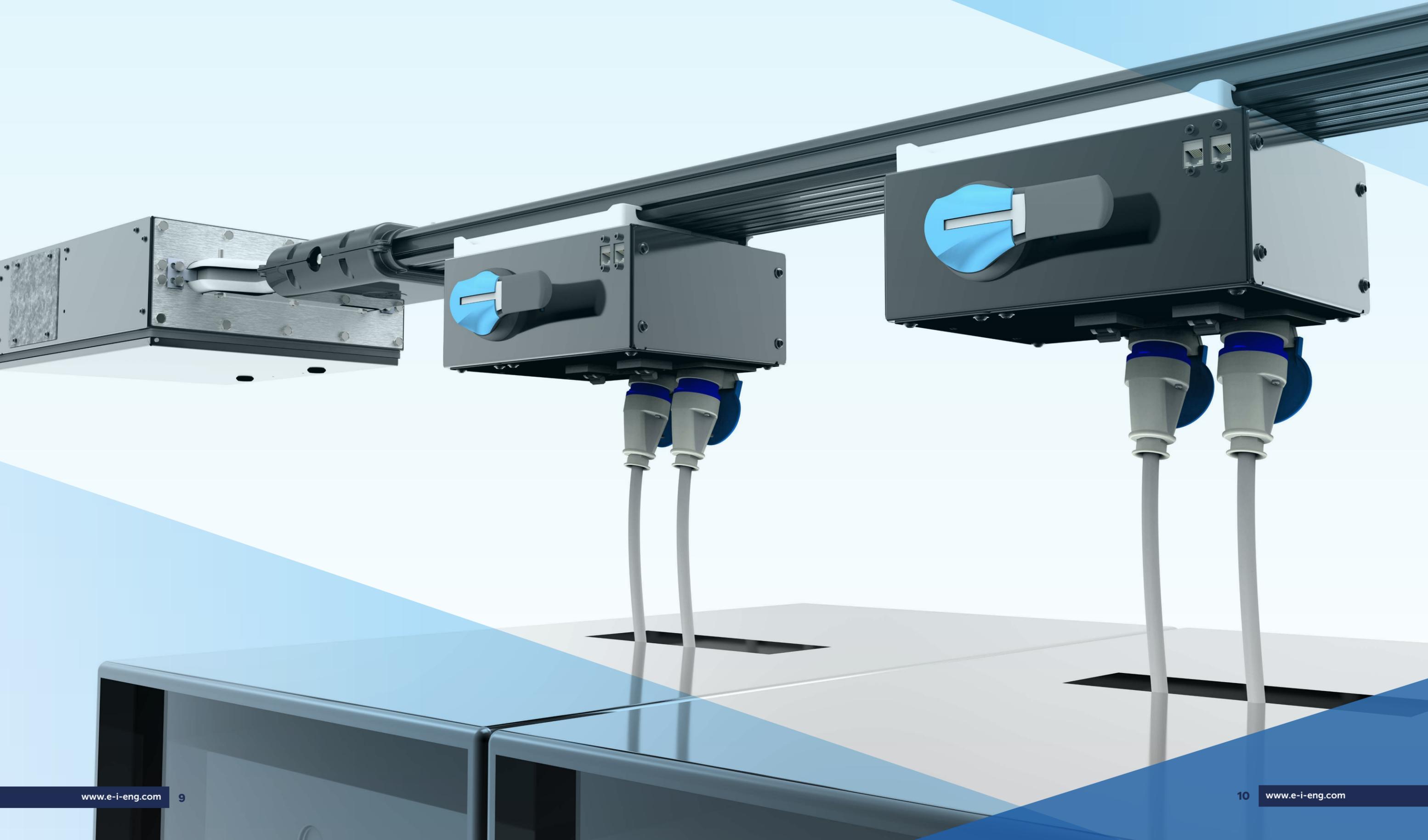
**Advanced options:**

- Voltage total harmonic distortion
- Overvoltage/ undervoltage alarm threshold
- Minimum and maximum current
- Demand and percentage load current
- Crest factor
- Warning and alarm threshold

It is also possible to monitor closed and trip status for each MCB. The status signals are fed back to the end feed using the integrated Ethernet cabling. The modules run in a daisy chain from meter to meter utilising the side channel in the housing for cabling.

# TECHNICAL DATA

Technical Data					
<b>Rated Current (A)</b>	<b>160</b>	<b>250</b>	<b>400</b>	<b>500</b>	<b>600</b>
Rated Operational Voltage (V)	600	600	600	600	600
Rated Insulation Voltage (V)	1000	1000	1000	1000	1000
<b>Short Circuit</b>					
Short Circuit Rating (KAIC)	50	50	50	65	65
<b>Phase Conductor</b>					
Cross Sectional Area (inches <sup>2</sup> )	0.1891	0.1891	0.3255	0.3952	0.4960
<b>Neutral Conductor</b>					
Cross Sectional Area (inches <sup>2</sup> )	0.1891	0.1891	0.3255	0.3952	0.4960
<b>Isolated Ground Conductor</b>					
100% Earth Cross Sectional Area (inches <sup>2</sup> )	0.1891	0.1891	0.3255	0.3952	0.4960
<b>Housing Ground Path</b>					
Cross Sectional Area (inches <sup>2</sup> )	2.1886	2.1886	2.1886	3.1465	3.1465
<b>Overall Dimensions</b>					
Height x Width of 4 pole System (inches)	6.89 x 1.73	6.89 x 1.73	6.89 x 1.73	7.09 x 2.05	7.09 x 2.05
<b>Weight</b>					
Weight of 4 Bar System (lbs/ft)	6.35	6.35	9.54	13.07	15.59
<b>Resistance (R)</b>					
Resistance (mΩ/m)	<b>0.173</b>	<b>0.173</b>	<b>0.108</b>	<b>0.098</b>	<b>0.078</b>
<b>Reactance (X)</b>					
Reactance (mΩ/m)	<b>0.116</b>	<b>0.116</b>	<b>0.094</b>	<b>0.078</b>	<b>0.069</b>
<b>Impedance (Z)</b>					
Impedance (mΩ/m)	<b>0.208</b>	<b>0.208</b>	<b>0.143</b>	<b>0.125</b>	<b>0.104</b>
<b>Voltage Drop at Full Load</b>					
Power Factor = 0.7 (V/m)	<b>0.088</b>	<b>0.088</b>	<b>0.097</b>	<b>0.135</b>	<b>0.142</b>
Power Factor = 0.8 (V/m)	<b>0.087</b>	<b>0.087</b>	<b>0.096</b>	<b>0.134</b>	<b>0.141</b>
Power Factor = 0.9 (V/m)	<b>0.084</b>	<b>0.084</b>	<b>0.093</b>	<b>0.131</b>	<b>0.138</b>
Power Factor = 1.0 (V/m)	<b>0.090</b>	<b>0.090</b>	<b>0.099</b>	<b>0.137</b>	<b>0.144</b>





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