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Earthing & Lightning

Earthing & Lightning

Should your building or property be struck by lightning, the consequences of having no earthing or lightning protection could be structural damage, fire, electric shock or damage to electrical systems and appliances. To safeguard against this lightning protection systems are specified and installed. By means of capturing and dispersing the transient over voltages safely to ground it is possible to shield and protect against these adverse effects. **Earth Bars**: Manufactured from hard drawn high conductivity copper, giving compliance to IEC 62305, Our Earth Bars provide an effective and convenient common earthing point. Off the shelf options range from small bars consisting of 4x M10 terminating studs through to 20. The option of single or double disconnecting studs is available on Earth Bars above 6-way. This is to aid when testing and carrying out maintenance on the system.

Earthing: Whatever your earthing requirements, be it earth braids, earth rods, copper tape, plastic or concrete earth pits or general earthing accessories such as rod couplers, clamps, tape junction squares or clips. You will be sure to find what you are looking for within our comprehensive accessory range

Electronic Systems Protection: Our exhaustive range of equipment bonding and transient over-voltage SPDs providing fully coordinated protection against transient over-voltages on all incoming and outgoing metallic service lines including power, data, signal & telecoms.

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Earthing & Lightning | EARTH BARS

EARTH BARS



Earth Bars Without Link

Remora Standard Earth Bars are an effective and convenient way of providing a common earthing point. Manufactured using high conductivity 50x6mm hard drawn copper bar in compliance with IEC 62305. Supplied complete with brass stud assemblies and set on a steel channel base.



Standard Earth Bars

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- 50 x 6mm Copper Bar M10 x 36mm Insulator
 - 64 x 15mm Base
 - M10 Hex Bolt/Nut/Washer Brass

HDHC Copper Bar Glass Reinforced Polyester Galvanised Steel Brass

M10 Hex Bolt/Nut/Washer BZP Mild Steel

Bar Material: C101 99.9% Copper BS EN 13601:2013 / BS EN 12167:2011 Fasteners: M10x 40mm Brass CZ121 / BS 3643-1:2007 Base: Galvanised Steel Channel Compliance: IEC 62305 / BS EN 62561-1:2012 / BS EN 7430

Compliance: IEC 62305 / BS EN 62561-1:2012 / BS EN 7430 Bar Current Rating: 815 AMP



			Stud	Bar	Base
Code	Studs	Stud Size	Spacing (A)	Length (L2)	Width
EB04	4	M10 x 35	50.0	300.0	65.0
EB06	6	M10 x 35	50.0	400.0	65.0
EB08	8	M10 x 35	50.0	550.0	65.0
EB10	10	M10 x 35	50.0	650.0	65.0
EB12	12	M10 x 35	50.0	750.0	65.0
EB16	16	M10 x 35	50.0	950.0	65.0
EB20	20	M10 x 35	50.0	1,250.0	65.0

			Stud	Bar	Base
Code	Studs	Stud Size	Spacing (A)	Length (L2)	Width
EBDC - Test Link	1	M10 x 40	50.0	125.0	65.0



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EARTH BARS | Earthing & Lightning



DISCONNECTING EARTH BARS

Earth Bars With Disconnecting Link

Earth Bars With Single or Double Disconnecting Link

Remora Disconnecting Earth Bars are an effective and convenient way of providing a common earthing point. Integral disconnecting link(s) mean the Earth Bars can be isolated for testing and maintenance purposes. Manufactured using high conductivity 50x6mm hard drawn copper bar in compliance with IEC 62305. Supplied complete with brass stud assemblies set on a steel channel base.



1 50 x 6mm Copper Bar 2

3

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5

- M10 x 36mm Insulator
- 64 x 15mm Base
 - M10 Hex Bolt/Nut/Washer Brass
- M10 Hex Bolt/Nut/Washer BZP Mild Steel

Bar Material: C101 99.9% Copper BS EN 13601:2013 / BS EN 12167:2011 Fasteners: M10x 40mm Brass CZ121 / BS 3643-1:2007 Base: Galvanised Steel Channel

HDHC Copper Bar Glass Reinforced Polyester

Galvanised Steel

Compliance: IEC 62305 / BS EN 62561-1:2012 / BS EN 7430 Bar Current Rating: 815 AMP







Junction Boxes Flexible Conduit Cable Glands Gland Accs. Cable Cleats

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Earthing & Lightning | EARTH BARS

TINNED and BESPOKE FARTH BARS

Earth Bars **Tinned & Bespoke Earth Bars**

Standard Earth Bars meet the majority of applications, however where a customer has a specific requirement we can design, manufacture and supply special earth bars tailored to your project specification. Our bespoke design service and manufacturing service allows you to consult with our design team with review and approval as required before manufacture. All our Earth Bars are manufactured in the UK from raw stock and go through rigorous manufacturing and quality control processes.

Tinned Copper Earth Bars

High quality, tinned copper earth bars are designed for external use within extremely onerous and aggressive environmental conditions. The tinning protects the copper and protects the Earth Bars from the formation of copper oxide, effectively preventing oxidation. Tinned earth bars are often used in offshore and marine projects.

Bespoke Earth Bars

From the illustration below, make your selection and we will quote to your exact requirements.



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EARTH BARS | Earthing & Lightning

BARREL EARTH INSULATORS

Barrel Insulators and Assemblies

Remora Barrel Insulators are used as insulating supports for active conductors. They can also be used as a support for electrical devices as well as a spacing and/or stiffening element in an electrical system. Manufactured from tough Glass Reinforced Polyester (GRP) they provide excellent electrical insulation and high mechanical strength.

Temperature Max: 200°C (static)

Material: Glass Reinforced Polyester Colour: Grey as standard, Red available to order

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			Insert Thread	Insert Depth	Electrical Dielectric	Tensile	Torque
Code	Height (D)	A/F (A)	Size (C)		Strength	Strength	Nm
El	51	36.0	M10	14.5	10 KV/mm	3-5 Kgf/mm ²	>30
EI03	51	36.0	M10	14.5	10 KV/mm	3-5 Kgf/mm ²	>30



EI = Insulator only

EI03 = Insulator complete with 2 studs and 3 nuts

Brass Set Screws

Range of brass fixings including Brass Hex Set Screws, Brass Hex Nuts & Brass Plain Washers

Material: Brass

Standards:	Set Screw	DIN933
	Hex Nut	DIN934
	Plain Washer	DIN 125A



Code	Size	Pack QTY
BSS0616	M6 x 16	100
BSS0620	M6 x 20	100
BSS0625	M6 x 25	100
BSS0640	M6 x 40	100

Code	Size	Pack QTY
BSS0825	M8 x 25	100
BSS0835	M8 x 35	100
BSS0840	M8 x 40	100
BSS0850	M8 x 50	100



Code	Size	Pack QTY
BSS1025	M10 x 25	100
BSS1035	M10 x 35	100
BSS1040	M10 x 40	100
BSS1050	M10 x 50	100

Brass Hex Nuts

Code	Size	Pack QTY
BN06	M6 Hex Nut	100
BN08	M8 Hex Nut	100
BN10	M10 Hex Nut	100



Brass Plain Washers

Code	Size	Pack QTY	-
BW06	M6 Washer	100	
BW08	M8 Washer	100	
BW10	M10 Washer	100	

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Earthing & Lightning | EARTH POINTS

EARTHING POINTS



Earth Blocks

Remora Earth blocks allow earth conductor termination or live conductor termination (within a suitable housing). Manufactured from brass with corrosion resistant nickel plated finish. Cable Size: 16mm²

Material: Brass CZ121 Pb3 Finish: Nickel Plated



Code	Cable Entry H	ole Diameters	Length (L2)	Width
EBL004	1 x 6.5	3 x 5.5	54.0	19.0
EBL008	2 x 6.5	6 x 5.5	88.0	19.0



Earth Bosses

Remora Earth Bosses are designed to provide an earth connection point on a steel structure. The boss can be welded onto steel vessels, tanks and other structures

Material: Mild Steel to 970 230M07 grade EN1A

Fixings: Phosphor Bronze or Stainless Steel 316L to order Standards: BS 7430



Mild Steel

Code	Length	Diameter	Thread Size
EBMS2525	25.0	25.0	M8
EBMS3030	30.0	30.0	M8
EBMS3040	30.0	40.0	M10
EBMS4030	40.0	30.0	M10
EBMS4040	40.0	40.0	M12
EBMS5040	50.0	40.0	M10
EBMS5050	50.0	50.0	M10

Stainless Steel

Code	Length	Diameter	Thread Size
EBSS2525	25.0	25.0	M8
EBSS3030	30.0	30.0	M8
EBSS3040	30.0	40.0	M10
EBSS4030	40.0	30.0	M10
EBSS4040	40.0	40.0	M12
EBSS5040	50.0	40.0	M10
EBSS5050	50.0	50.0	M10

EARTH POINTS | Earthing & Lightning

FLEXIBLE COPPER EARTH BRAIDS

Flat Braid Earth Leads - Reels

High grade flexible tinned copper flat braid reels. Available in a variety of sizes to suit many different applications. Earth braids are usually used for continuous current conductors or earth straps (earth bonding cables). Material: High grade tin copper - Conforms to BS4109





Code	Current Amps Rating	Nom. Area mm ²	Dimension - Width x Height	Reel QTY
FEBR10	10	0.5	1.9 x 0.6	25m
FEBR30	30	1.7	4 x 0.75	25m
FEBR60	60	6.0	10 x 2.0	25m
FEBR90	90	10.0	12 x 2.3	25m
FEBR120	120	16.0	19 x 2.2	25m
FEBR150	150	25.0	25 x 2.8	25m
FEBR200	200	35.0	25 x 3.5	25m



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Earthing & Lightning | EARTH POINTS

CUSTOM FLEXIBLE COPPER EARTH BRAIDS

Flexible Copper Earth Braids

High grade flexible tinned copper flat and circular braid connectors. Stock ranges from simple earth strap/earth leads to complex heavy duty copper braid connectors for maximum conductivity and minimum voltage drop. **Material:** High grade tin copper - Conforms to BS4109

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Code	Length	Width	Centres	Fixing Hole	Current Rating (Amps)
FEB100	114.0	6mm ²	100.0	M6	60
FEB150	162.0	6mm ²	150.0	M6	60
FEB200	230.0	25x3	200.0	M10	150
FEB300	330.0	25x3	300.0	M10	150
FEB400	430.0	25x3	400.0	M10	150
FEB600	630.0	25x3	600.0	M10	150



Custom Flexible Connectors

Custom made flexible connectors manufactured to your exact requirements or project specifications.

Flat Tube Compressed Ferrule

- Excellent mechanical properties.
- · Maximum conductivity with minimum voltage drop.
- Ends can be drilled, milled, machined or profiled to meet precise requirements.
- Custom design configurations for individual applications.





Crimp Terminal

- Economical solution for low current applications.
 Wide range of sizes available.
- Types to meet most applications; tube, ring, sheet, bootlace.
- Insulated options available.



Swaged Ferrule

• Customised for dimensionally critical applications. Varying lengths and profiles.

• Reduced assembly costs.

• Excellent conductive performance. Minimal heat-rise.

Ultrasonically Welded Ends

- Low cost alternative to the swaged ferrule. No reduction in performance.
- · Forms solid end throughout the material. Consistent manufacturing process.
- · Lower unit costs owing to high manufacturing productivity.

Solder Dipped Ends

- Alternative to compressed ferrules.
- Suitable for low current applications



Ident & Wiring Term

Copper Lugs

Heatshrink Repair

Cable Cleats

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EARTH POINTS | Earthing & Lightning

SAFETY INSULATORS

Electrical Safety Matting

Electrical Safety Matting is designed for shock protection for worker's commonly used in front of switchboards and other high-voltage equipment. Supplied in black rubber with a fine rib on one side. 10m is the maximum continuous length.

- Working Voltage 1,000 volts / 1kV.
- Matting Thickness 6mm
- Withstand Test 10kV No Electrical Puncture
- Cut lengths of mats available to order
- Mechanical Puncher Resistance 70n
- Anti-slip finishHalogen free
- Sold in 10m metre rolls or by the linear metre
- Due to product weight certain lengths cannot be sent with couriers so a pallet charge may be applicable

Material: Natural Elastomer Colour: Black



Code	Supplied Thickness	Width	Roll Size (m)	Roll Weight (kg)
MAT914-6-11KV	6.0	914	10	75

Paxolin Sheets

Paxolin (P1) is a low voltage brown phenolic paper laminate with strong mechanical and electrical qualities. The material is sturdy, stiff, and cost-effective, making it excellent for terminal boards, mounting plates, busbar supports, and cable supports.

The standard 6mm sheet size is 600x600mm, 1200 by 1200mm however various sizes in thickness's ranging from 3 to 10mm are available to order.

· An inexpensive method of providing lightweight, rigid electrical insulation



Max Operating Temperature: 90°C (static) Material: P1 Paper - Phenolic Based Paper Laminate Colour: Natural Brown Tensile Strength: 1050 kg/cm2 Insulation resistance - after immersion in water: 5x10 M Ohm Specification: BS:2572:Grade P1; EN 60893-3-4-PFCE201. DIN 7735 Grade HP 2061. NEMA: L11 1989 Grade X



Code	Supplied Thickness	Size	Colour
PAX6-600-600	6.0	600 x 600	Brown
PAX6-1200-600	6.0	1200 x 600	Brown





Ident & Wiring Term

MICC Cable

Earthing & Lightning | EARTH RODS & ACCESSORIES

EARTH RODS and ACCESSORIES



Copperbond Earth Rod

Copperbond Earth Rods are the most popular type of rod due to their combination of strength, corrosion resistance and comparative low cost. Each rod has a high tensile strength, low carbon steel core. 99.95% pure copper is applied electrolytically and forms a molecular bond between the steel core and the copper. This combination makes the rod ideal for deep driving whilst also providing lasting resistance to corrosion. The threads are formed by a cold rolling process which ensures strength and maintains the molecularly bonded copper covering along the full length of the threads. **Material:** Copper Bonded Carbon Steel Core

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Copper Steel	Conductively	⊕ ເ≋ 🤇	ς 📃

Code	Rod Diameter	Thread	Length	Material
ER9.5/1200	9.5	3/8"	1200	Copperbond
ER9.5/1200COMP *	9.5	3/8"	1200	Copperbond
ER16/1200	16.0	5/8"	1200	Copperbond
ER16/1500	16.0	5/8"	1500	Copperbond
ER16/1800	16.0	5/8"	1800	Copperbond
ER19/1200	19.0	3/4"	1200	Copperbond
ER19/1500	19.0	3⁄4"	1500	Copperbond
ER19/1800	19.0	3/4"	1800	Copperbond

* ER9.5/1200COMP = 9.5 x 1200 earth rod complete with key hole clamp

Earth Rod Coupler

Earth Rod Couplers are used for joining copperbond threaded earth rods together. They facilitate deep driving and ensure continual contact between the rods both during and after installation. The coupling also protects the earth rod threads during installation with the driving head. Manufactured from high copper content alloy ensuring excellent corrosion resistance.

Material: High Copper Content Alloy

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Code	Ded Diameter

Code	Rod Diameter	Thread	Pack QTY
ERC16	16	5/8"	10
ERC19	19	3⁄4"	10



Earth Rod Driving Stud

Threaded re-usable driving heads are suitable for driving earth rods by hand or with a power hammer. The driving head screws into threaded Earth Rod Couplers allowing deep driving of the earth rods. Material: High Tensile Steel.

Waterial: High Tensile Steel

Code	Rod Diameter	Thread	Pack QTY
ERD16	16	5/8"	10
ERD19	19	3/4"	10

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EARTH RODS & ACCESSORIES | Earthing & Lightning

EARTH RODS and ACCESSORIES

Earth Rod to Cable Clamp

Earth Rod to Cable Clamps are used for joining earth rods to different sizes of stranded copper conductor. The clamps have high resistance to corrosion and are mechanically strong to ensure a long lasting connection. **Material:** Gunmetal

Standards: BS 7430

Material: Gunmetal Standards: BS 7430

Code

ERLC9.5

ERLC16

ERLC19

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Earth Rod to Cable Lug Clamp

Earth Rod to Cable Lug Clamps are used for joining earth rods to Copper Tube Lugs. The clamps have high resistance to corrosion and are

Rod Diameter

9.5 / 3/8

16 / 5/8

19 / 3/4"

mechanically strong to ensure a long lasting connection.

Code	Rod Diameter	Conductor Range (mm ²) Pack QI	Υ
ERCC0635	9.5 / 3/8"	6 - 35 10	
ERCC1670	16 / 5/8"	16 - 70 10	
ERCC3595	19 / 3/4"	35 - 95 10	

Lug Stud Size

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10

10

Pack QTY

10

10

10





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Earth Rod to Tape 'A' Clamp

Earth Rod to Tape Clamps are used for joining earth rods to different sizes of copper tape. The clamps have high resistance to corrosion and are mechanically strong to ensure a long lasting connection. Material: Gunmetal

Standards: BS 7430

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Code	Rod Diameter	Max Conductor	Pack QTY
ERTC16/25	16 / 5/8"	26 x 12	25
ERTC19/25	19 / 3/4"	26 x 10	25

'U' Bolt Rod Clamp

"U" Bolt Rod clamps are designed to join various sizes of conductor tape to the earth electrode. The clamps have a high resistance to corrosion and are mechanically strong to ensure a lasting connection.

Body Material: High strength copper alloy 'U' Bolt Material: Copper Standards: BS 7430

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Code	Rod Diameter	Hole Centres	Pack QTY
ERUB16	16 / 5/8"	37.0	10
ERUB19	19 / 3/4"	37.0	10





Earthing & Lightning | EARTH RODS & ACCESSORIES

EARTH RODS and ACCESSORIES



'B' Bond

B' type Bond connections are designed to bond either copper or aluminium conductor to flat metal surfaces Material: Gunmetal Standards: BS 7430

Code	Max Tane Width	Polt Size
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Code	Max Tape Width	Bolt Size	Conductor Material	Pack QTY
BN105	26	M10	Copper	10





RWP Bond Clamp

RWP type Bond connections are designed to connect flat conductor to circular objects ie pipework and hand rails etc. Material: Gunmetal Standards: BS 7430

Code	Max Tape Width	Bolt Size	Conductor Material	Pack QIT
BN115	26	M10	Copper	10



EC1 Earthing Clamp

EC1 earth clamp for large diameter circular objects ie. pipework and hand rails etc.

Strap Material: Stainless Steel (304 grade) Body Material: Phosphorus Bronze Label Material: Aluminium

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	Code	Terminal Size	Strap Length	Pipe Diameter
	EC1	2.5 - 10.0mm ²	1600 (63")	50.0 to 450.0



Earth Electrode Box

Earth Electrode protects the connection to an earth electrode. Designed for use with 20mm conduit, suitable for countersunk installation that provides easy access for inspection.

Material: PVC

Colour: Black Body / White Lid with Red Printing Print: 'SAFETY ELECTRICAL CONNECTION DO NOT REMOVE'

Non- Metallic	<€ ■		
Code	Description	Dimensions	Conduit Size
ERB	Black Round Earth Electrode Box	65 x 65 x 85	20

Cable Glands

Cable

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EARTH RODS & ACCESSORIES | Earthing & Lightning

EARTH RODS and ACCESSORIES

Oxide Inhibiting Compound

Oxide inhibiting compound is designed to prevent galvanic corrosion and to enhance connection in electrical joints. The compound inhibitor is a non-water soluble, naturalpetroleum based polymer grease that seals electrical connections from oxygen and moisture. Can be used at any interface between different metals to prevent oxide build up.

Code	Description	Weight (g)
CM005	Plastic 8oz Bottle	230

Earth Plates - Solid

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Solid Copper Earth Plates provide a long lasting earthing solution in places where driving earth rods may be impractical. They are often installed in conjunction with Soil Conditioning compound.

Material: Copper to BS EN 1652:1998 Standards: BS EN 62561-2



Code	Description	Dimensions	Total surface area	Weight (Kg)
EM600	Solid Copper	600 x 600 x 3	0.73m2	9.6
EM900	Solid Copper	900 x 900 x 3	1.63m2	21.6

Earth Plates - Lattice

Lattice Earth Plates offer a more economical option to installing solid copper plates. They are often used for potential grading and are a preferred option on telecommunications towers. Material: Copper to BS EN 13601 (formerly BS 1432) Standards: BS EN 162561-2

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Code	Description	Dimensions	Total surface area	Weight (Kg)	
EMLAT600	Lattice	600 x 600 x 3	0.31m2	4.0	
EMLAT900	Lattice	900 x 900 x 3	0.65m2	7.2	



Copper Fixing Band

Temperature Range: -15°C to 50°C Material: Copper / Brass



Copper		Dimensions				Max Working
Code	Length (m)	(W)	(F)	(L1)	Thickness	Load (Kg)
ARB12C	10.0	12.0	5.0	5.0	0.8	65.0
ARB17C	10.0	17.0	7.0	7.0	0.8	85.0



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Call the Remora sales team at 01226 352 000

Challenge us - We find a solution

Earthing & Lightning | EARTH INSPECTION PITS

LIGHTWEIGHT INSPECTION PIT

Plastic Lightweight Earth Inspection Pit

Remora Plastic Inspection Pits are designed to protect the earth rod connection while allowing secure access for later inspection of electrodes and conductors. The lightweight heavy duty plastic pit with its unique design results in performance capabilities superior to traditional concrete pits, at a similar cost. Providing an improved working area, the high-performance polymer material UV stable and chemical resistant, providing an impressive load rating of 5,000kg while weighing only 1.8kg.





Plastic Inspection Pit

Supplied complete with base, lid and two stainless steel allen-key locking bolts. • Lockable Jam-Free Lid: Once installed the lid can be locked with the supplied allen-key bolts preventing vandalism. Once locked the design of the lid ensures

- debris cannot become jammed between the lid and surround. • Screw Retention: Retention tabs on the underside of the lid prevent loss of
- Screw Retenuor: Retenuor tabs on the underside of the lid prevent loss of screws while in storage or transit. The screws may also be used to lift the lid.
 Shatterproof Material: The high-performance polymer is significantly less brittle
- Snatterproof material: The high-performance polymer is significantly less brittle than concrete, reducing the likelihood of wastage due to breakages.
 Chamiad Bosistat: Reported to most substances including partial dised ail
- Chemical Resistant: Resistant to most substances including petrol, diesel, oil, bitumen and concrete.
- UV Stable: UV additive minimising the effects of direct sunlight.
- Rod Locating Hole: Central 70mm diameter hole ensuring the earth rod is centrally positioned, simplifying the connection of earthing clamps.

Standards: BS EN 62305-3 Tested to IEC 62561-5 Material: UV and Chemical Resistant Polymer

Non- Metallic	B Lightnesight	C	E		

Code Description EPP205 Lightweight inspection pit with grey polymer lid	Load Rating (Kg)	Weight (Kg)	
EPP205	Lightweight inspection pit with grey polymer lid	5,000.0	1.8
PT004	5 hole copper earth pit bar	230 x 25 x 6	0.4



Soil Conditioning - Bentonite

Bentonite is a moisture retaining clay used as an earth electrode back-fill to help lower soil resistivity. The clay is a sodium activated montmorillonite, which when mixed with water swells to many times its original volume. Bentonite is supplied in granular form. The granular form is easier to handle as the powder can cause dust in windy conditions. The typical expansion ratio when mixed with water is 2:1.



Code	Description	Weight each (Kg)
BENT01	Bentonite Powder	25.0
BENT02	Bentonite Granules	25.0

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EARTH INSPECTION PITS | Earthing & Lightning

diagonal earth bar with 5 or 7 terminations.



Concrete

Earth Inspection Pit Concrete inspection pits are load rated to 4,500kg, suitable for most types of earthing and lightning protection installations. The base is designed to accept a

Concrete Inspection Pit

Concrete inspection pits are load rated to 4,500kg, suitable for most types of earthing and lightning protection installations. The base is designed to accept a diagonal earth bar with 5 or 7 terminations (PT006 and PT007).

• Suitable for most types of earthing and lightning protection installations.

. The inspection pits protects the earth rod connection and makes it accessible for inspection

• Due to product weight and construction concrete earth pits are shipped by pallet only and charges may be applicable.

Standards: BS EN 62561-8-2011 Material: Concrete





CONCRETE INSPECTION PIT

Code	Description Concrete inspection pit		Load Rating (Kg)	Weight each (Kg)
EPC280			4,500.0	16.0
Code	Description	Dimensions	Hole Size	Weight (Kg)
PT006	5 hole copper earth pit bar	300 x 25 x 6	11	0.58

Soil Conditioning - FurseCEM (Marconite)

FurseCem is a granulated conductive medium designed to replace the conventional aggregate in concrete and thereby provide a medium with good electrical conductivity and high strength. This formulation of compound is widely know as 'Marconite' throughout the industry.

It can provide a permanent solution to problems in electrical/constructional situations. FurseCEM is a dark grey, granular material that replaces traditional sand and aggregate materials used within concretes mixes. It should be mixed in the ratio of 3 parts of FurseCEM to 1 part cement by weight with the addition of 1 litre of water per 5 Kg of total mix. FurseCEM forms a relatively dry material with an 'as poured' density of around 1300kg/m3. The water content may be adjusted as the application requires, but this will affect the concretes final compressive strength and the drying times accordingly. Typically FurseCEM concretes are touch dry within hours but can be several days before being fully cured.

Standards: BS EN 50164-7

Code	Description	Weight each (Kg)	
MARC01	Marconite	25.0	
MARC02	Marconite (Cement Premix)	25.0	



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Copper Lugs

Earthing & Lightning | COPPER EARTH TAPE & BAR

COPPER FARTH TAPE and BAR

Copper Tape High Conductivity

High Conductivity, Annealed, Soft Drawn Flat Copper Tape

Copper Tape is by far the most important component of any earth or structural lightning protection system. All our Bare Copper Tape is manufactured in accordance with BS EN 13601 (formerly BS 1432) and can be used in a variety of earthing and lightning protection assemblies. Available in coils of bare copper or finished in PVC or Zero Halogen coating.





Copper Earth Tape

High Conductivity soft drawn flat copper tape made in accordance to BS EN 13601 (BS 1432-C101). Annealed for ultimate ductility, all sizes have radiused edges and are available in the coil lengths below. Certain sizes can also be supplied fully-tinned for use in areas of high soil contamination or where dissimilar metals will be in contact with each other. PVC covered Tape is stocked in Green but also available to order in Grey, Stone, White, Brown & Green/Yellow. Material: High Conductivity Copper

Standard: BS EN 13601 / IEC/BS EN 62561-2 / BS 5252 / BS 67460

		Cu 🖉 🗡 🐨 🗐 🤇 🧲		
Code	Width	Thickness	Coil Length (m)	Weight per Coil (Kg)
CT12x1.5-100	12.5	1.5	100	17.00
CT12x3-100	12.5	3.0	100	33.00
CT20x1.5-100	20.0	1.5	100	27.00
CT25x3-10	25.0	3.0	10	6.70
CT25x3-25	25.0	3.0	25	16.75
CT25x3-50	25.0	3.0	50	33.50
CT25x4-50	25.0	4.0	50	44.50
CT25x6-40	25.0	6.0	40	53.20
CT40x4-30	40.0	4.0	30	42.60
CT50x6-20	50.0	6.0	20	53.60

Code (PVC Covered)	Width	Thickness	Coil Length (m)	Weight per Coil (Kg)
CTPVC25x3-25 *	25.0	3.0	25	19.25
CTPVC25x3-50 *	25.0	3.0	50	38.50
CTPVC25x6-40 *	25.0	6.0	40	61.20
CTPVC50x6-20 *	50.0	6.0	20	59.00

* For PVC Covered - Specify colour when ordering

Hard Drawn Copper Bar

Hard Drawn Copper Bar is manufactured from high conductivity stock to BS EN 12163, suitable for busbars and earthbars. Supplied by the metre, max 4 metre. Material: High Conductivity Copper

Standard: BS EN 12163 <u>cu</u> Ø ≯ ☜ ⊑ (€

Code	Width	Thickness	Weight per Metre (Kg)	
CB2503	25.0	3.0	0.67	
CB2506	25.0	6.0	1.33	
CB3806	38.0	6.0	2.03	
CB5006	50.0	6.0	2.67	

Cable

Cable Ties & Acc

Tooling & Cable Prep

COPPER EARTH TAPE & BAR | Earthing & Lightning

COPPER FARTH TAPE ACCESSORIES

Tape Junction Square

These four-way connectors are suitable for making cross, straight through or tee joints in flat tape. The base has a countersunk hole in the middle for securing the clamp to the building surface and the lid is fixed by means of four screws.

Material: Gunmetal Standards: IEC/BS EN 62561-1 Class H

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Code	Width	Thickness	Pack QTY
CTSQ2503	25.0	3.0	10
CTSQ2506	25.0	6.0	10
CTSQ5006	50.0	6.0	5



Tape Test Junction Clamp

Designed to join a range of tape sizes in a straight through position. In many applications the clamp enables tapes to be overlapped and secured by the two set screws. The clamped connection is easily made/remade to allow for periodic testing. 15Nm Tightening torque. Material: Gunmetal

Standards: IEC/BS EN 62561-4

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Code	Width	Thickness
CTTC2503	26.0	8.0



Not Suitable for PVC covered tape

Non-Metallic Tape Clips

High grade Polypropylene, UV stabilized against degradation by sunlight and non-brittle to prevent cold weather damage. Available in five colours to match bare and PVC covered copper tape.

Material: Polypropylene Standards: IEC/BS EN 62561-4



			Bare Copper	Conductor	
Code	Туре	Colour	Width	Thickness	Pack QTY
CTPC2003	Bare Tape	Brown	20.0	3.0	50
CTPC2503	Bare Tape	Brown	25.0	3.0	50
CTPC5006	Bare Tape	Brown	50.0	6.0	50
CTPCC2503-Colour	Covered Tape	Optional	25.0	3.0	50



Metallic Tape Clips

High guality copper alloys manufacture these metallic tape clips designed to secure flat bare and PVC covered copper tape. Material: High Quality Copper Alloys

Standards: IEC/BS EN 62561-4



Bare Copper Conductor

Code	Туре	Width	Thickness	Pack QTY
CTC2503	Bare Tape	25.0	3.0	10
CTC2506	Bare Tape	25.0	6.0	10
CTC5006	Bare Tape	50.0	6.0	10
CTCC2503	Covered Tape	25.0	3.0	10
CTCC2506	Covered Tape	25.0	6.0	10
CTCC5006	Covered Tape	50.0	6.0	10





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ELECTRONIC SYSTEM PROTECTION

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ESP 240D1

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ESP 240D1

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Parallel

Connection

ESP 240 D1

(fuses not

shown for

clarity)

Series

Connection

ESP 240 D1

(fuses not

shown for

clarity)

0	
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0	
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Fixing & Security

ESP D1 Series (Single Phase) System Protection

Combined Type 1, 2 and 3 tested protector (to BS EN 61643) for use on the main distribution board, particularly where structural Lightning Protection System (LPS) is employed, for equipotential bonding. For use at the boundaries up to LPZ 0 to protect against flashover (typically the main distribution board location) through to LPZ 3 to protect electrical equipment from damage.



ESP D1 (Single Phase)

- Very low let-through voltage (enhanced protection to BS EN 62305) between all sets of conductors (phase to neutral, phase to earth, neutral to earth – full Mode protection)
- Full mode design capable of handling partial lightning currents as well as allowing continual operation of protected equipment
- · Repeated protection in lightning intense environments
- Innovative multiple thermal disconnect technology for safe disconnection from faulty or abnormal supplies
- Three way visual indication of protection status and advanced pre-failure warning so you need never be unprotected
- Remote indication facility allows pre-failure warning to be linked to a building management systems, buzzer or light
- Changeover active volt-free contact enables the protector to be used to warn of phase loss (i.e power failure, blown fuse etc)
- Flashing warning of potentially fatal neutral to earth supply faults (due to incorrect earthing, wiring errors or unbalanced conditions)
- Through terminal facility allows series connection on low current supplies to eliminate high additive voltage associated with connecting lead on units installed in parallel
- Compact space saving DIN housing

Short Circuit Withstand Capability: 25 kA, 50 Hz Frequency Range: 47-63 Hz Max. Back-rup Fuse: 125 A Leakage Current (to earth): <250 µA Indicator Circuit Current: <10 mA Volt Free Contact²: Screw Terminal / Current rating 1 A / Nominal Voltage (RMS) 250 V Temperature Range: -40°C to + 80°C Connection Type: Screw Terminal (Max Torque 4.5Nm) Conductor Size (stranded): 25mm² Earth Connection: Screw Terminal (Max Torque 4.5Nm) Volt Free Contact: Connect via screw terminal with conductor up to 1.5mm² (stranded) Protection: IP20

		Nom Voltage	Max Voltage	Temporary			
		Phase Neutral	Phase Neutral	Overvoltage	Working	WBX Enclosure	
Code	Description	Uo (RMS)	Uc (RMS)	TOV U 1	Voltage (RMS)	Size	Weight (Kg)
ESP240D1	Single phase, full mode	240 V	280 V	350 V	200 - 280 V	WBX D4	0.40

ELECTRONICSYSTEMPROTECTION Earthing Lightning

ELECTRONIC SYSTEM PROTECTION



ESP D1 Series (Three Phase) System Protection

Combined Type 1, 2 and 3 tested protector (to BS EN 61643) for use on single phase mains power distribution systems primarily to protect connected electronic equipment from transient overvoltages on the mains supply, e.g. computer, communications or control equipment. For use at boundaries up to LPZ 0 to protect against flashover (typically the main distribution board location, with multiple metallic services entering) through to LPZ 3 to protect sensitive electronic equipment.

ESP D1 (Three Phase)

- Very low let-through voltage (enhanced protection to BS EN 62305) between all sets of conductors (phase to neutral, phase to earth, neutral to earth – Full Mode protection)
- Full mode design capable of handling partial lightning currents as well as allowing continual operation of protected equipment
- Repeated protection in lightning intense environments
- Innovative multiple thermal disconnect technology for safe disconnection from faulty or abnormal supplies (without compromising protective performance)
- Three way visual indication of protection status and advanced pre-failure warning so you need to be unprotected
- ESP XXX D1R or ESP XXX D1R/LCD units (where XXX = 208, or 415, or 480) have a remote display that allows the protector to be mounted close to the incoming feed or distribution board with the display being mounted in a visible position e.g. at the front of the panel
- ESP XXX D1/LCD or ESP XXX D1R/LCD units have a backlit LCD intelligent display offering clear status information that can be rotated for the side mounting to facilitate short connecting leads
- Flashing warning of potentially fatal neutral to earth supply faults (due to incorrect earthing, wiring errors or unbalanced conditions)
- Through terminal facility allows series connection on low current supplies to eliminate high additive voltage associated with the connecting leads on units installed in parallel
- Compact space saving DIN housing

Short Circuit Withstand Capability: 25 kA, 50 Hz Frequency Range: 47-63 Hz Max. Back-up Fuse: 125 A Leakage Current (to earth): <250 µA Indicator Circuit Current: <10 mA Volt Free Contact² : Screw Terminal / Current rating 1 A / Nominal Voltage (RMS) 250 V Temperature Range: -40°C to + 80°C Connection Type: Screw Terminal (Max Torque 4.5Nm) Conductor Size (stranded): 25mm² Earth Connection: Screw Terminal (Max Torque 4.5Nm)

Volt Free Contact: Connect via screw terminal with conductor up to 1.5mm² (stranded) Display (D1R& D1R/LCD Version): HD-D Type 1 Metre Interconnection Cable 2 Metre Cable (ESP RLA HD-2) or 4 Metre Cable Interconnection Cable (ESP RLA HD-4) optional Protection: IP20

		Nom Voltage	Max Voltage	Temporary			
		Phase Neutral	Phase Neutral	Overvoltage	Working	WBX Enclosure	
Code	Description	Uo (RMS)	Uc (RMS)	TOV U 1	Voltage (RMS)	Size	Weight (Kg)
ESP415D1	Three phase, full mode	240 V	280 V	350 V	200 - 280 V	WBX D8	0.85
ESP415D1R	Three phase, full mode with remote display	240 V	280 V	350 V	200 - 280 V	WBX D8	1.10



 Parallel Connection ESP 415 D1 (fuses not shown for clarity)

MICC Cable

Ident & Wiring Term

Copper Lugs

Heatshrink Repair

Cable Jointing

Junction Boxes

Flexible Conduit

Cable Glands

Gland Accs.

Cable Cleats

Earthing & Lightning lelectronic system protection

ELECTRONIC SYSTEM PROTECTION

protector (to BS EN 61643) for use on the main distribution board, particularly where a structural Lightning Protection System (LPS) is employed, for equipotential bonding. For use at boundaries up to LPZ 0 to protect against

flashover (typically the main distribution board location) through to LPZ 2 to protect electrical equipment from damage.

TN-S earthing system



TN-C earthing system



ESP 415/XXX

ESP 415T1

Electronic System Protection

ESP 415T1 Surge Protection Series are a Combined Type 1 and 2 tested

- . Enhanced protection (to BS EN 62305) offering low let-through voltage further minimizing the risk of flashover creating dangerous sparking or electric shock
- · Repeated protection in lightning intense environments
- · Pluggable module design (with anti-vibration locking clips) allows for simple replacement at end-of-life
- Compact space saving design
- Indicator shows when the protector requires replacement
- · Remote signal contact can indicate the protector's status through interfacing with a building management systems
- Use on three phase supplies and power distribution systems for protection against partial direct or indirect lightning strikes
- ESP 415T1/25/XXX versions for use with Class I or II LPS
- ESP 415T1/12.5/XXX versions for use with Class III or IV LPS; or exposed overhead three phase power lines where no LPS is fitted
- ESP 415T1/X/TNS versions also cover TN-C-S earthing systems

Nominal Voltage - Phase-Neutral Uo (RMS): 240 V Maximum Voltage - Phase-Neutral Uc (RMS): 415T1/25-275V. 415T1/12.5-300V Temporary Over-voltage TOV U, (1): 337 V / 442 V Short Circuit Withstand Capability: 50Ka / 50Hz Frequency Range: 47-63 Hz Max. Back-up Fuse: 415T1/25 315A, 415T1/12.5 250A Leakage Current (to earth): 415T1/25 5µA, 415T1/12.5 600µA Volt Free Contact: Push-fit connection for conductor up t0 1.5mm2, rated AC 250V, 1A Temperature Range: -40°C to + 80°C Connection Type: Screw Terminal Conductor Size (solid/stranded): 35mm² Earth Connection: Screw Terminal Protection: IP20

Transient Spec-
ification Type
1 (BS EN/EN),
Class I (IEC)

		Class I (IEC)				Type 2 (BS EN/EI	N), Class II (IE	C)	
		Nom discharge	Let-through	Impulse discharge	Let-through	Nom discharge	Let-through	Max discharge	
		current 8/20 up	voltage	current	voltage	current 8/20 up	voltage	current /max	
Code	For Use With	(per mode)/n	up at /n2 ²	10/350 us /imp	up at /imp ²	(per mode)In	up at /n2	(per mode)3	Enclosure
ESP415T1/25/TNS	Class I or II LPS	25kA	< 1.5kV	25kA	< 1.5kV	25kA	< 1.5kV	65kA	WBXD4
ESP415T1/12.5/TNS	Class III or IV LPS	20kA	< 1.5kV	12.5kA	< 1.5kV	20kA	< 1.5kV	50kA	WBXD4
ESP415T1/25/TNC	Class I or II LPS	25kA	< 1.5kV	25kA	< 1.5kV	25kA	< 1.5kV	65kA	WBXD4
ESP415T1/12.5/TNC	Class III or IV LPS	20kA	< 1.5kV	12.5kA	< 1.5kV	20kA	< 1.5kV	50kA	WBXD4

Cable Ties & Acc

Tooling & Cable Prep

ELECTRONIC SYSTEM PROTECTION Earthing & Lightning

FI ECTRONIC SYSTEM PROTECTION



ESP M1 Series Electronic System Protection

ESP M1 Series are an combined Type 1, 2 and 3 tested protector (to BS EN 61643) for use on mains power distribution systems primarily to protect connected electronic equipment from transient over voltages on the mains supply, e.g. computer, communications or control equipment. For use at boundaries up to LPZ 0 to protect against flashover (typically the main distribution board location, with multiple metallic services entering) through to LPZ 3 to protect sensitive electronic equipment ..

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Working

200-280 V

346-484 V

Voltage (RMS)

Short circuit withstand

Temporary Overvoltage

TOVU

350 V

350 V

ESP M1

- . Very low let-through voltage (enhanced protection to BS EN 62305) between all sets of conductors (phase to neutral, phase to earth, neutral to earth - Full Mode protection)
- Full mode design capable of handling partial lightning currents as well as allowing continual operation of protected equipment
- Repeated protection in lightning intense environments
- Innovative multiple thermal disconnect technology for safe disconnection from faulty or abnormal supplies (without compromising protective performance)
- Three way visual indication of protection status and advanced pre-failure warning so you need to be unprotected
- · Remote indication facility allows pre-failure warning to be linked to a building management system, buzzer or light
- Changeover active volt-free contact enables the protector to be used to warn of phase loss(i.e. power failure, blown fuses etc)
- Flashing warning of potentially fatal neutral to earth supply faults (due to incorrect earthing, wiring errors or unbalanced conditions)
- Robust steel housing

Code

ESP240M1

ESP415M1

ESP415M1R

- · Base provides ultra-low inductance earth bond to metal panels
- Compact size for installation in the power distribution board
- ESP 120 M1 and ESP 240 M1 have Network Rail Approval PA05/02700 and PA05/01832 respectively. NRS PADS reference 086/000556 (ESP 120 M1) and 086/047149 (ESP 240 M1)

Short Circuit Withstand Capability: 25 kA, 50 Hz

Description

Single phase, full mode

3 phase, full mode with

3 phase, full mode

remote display

Frequency Range: 47-63 Hz Max. Back-up Fuse: 125 A Leakage Current (to earth): <250 µA Indicator Circuit Current: <10 mA Volt Free Contact²: Screw Terminal / Current rating 1 A / Nominal Voltage (RMS) 250 V Temperature Range: -40°C to + 80°C Connection Type: Screw Terminal (Max Torque 2.65Nm) Conductor Size (stranded): 16mm² Earth Connection: Screw Terminal (Max Torque 2.65Nm) Volt Free Contact: Connect via screw terminal with conductor up to 2.5mm² (stranded) Protection: IP20

Nom Voltage

Uo (RMS)

240 V

240 V

240 V

Phase Neutral

Max Voltage

Uc (RMS)

280 V

280 V

280

Phase Neutral



 Parallel Connection ESP 415 M1 (fuses not shown for

Parallel

Connection

(fuses not

shown for

ESP 240 M1

Cable Cleats

Ident & Wiring Term

Copper Lugs

Heatshrink Repair

Cable Jointing

Junction Boxes

Flexible Conduit

Cable Glands

Gland Accs.



Tooling & Cable Ties Cable Prep & Acc

MICC Cable

V	350 V	346-484 V	WBX 4	1.1

WBX Enclosure

Size

WBX 3

WBX 4

Weight (Kg)

0.6

1.0

Earthing & Lightning | ELECTRONIC SYSTEM PROTECTION

ELECTRONIC SYSTEM PROTECTION

ESP 5A & 16A

5A/BX & 16A/BX System Protection

Combined Type 2 and 3 tested protector (to BS EN 61643- for use on low current (up to 5 or 16A) single phase systems to protect connected electronic

equipment from transient over-voltages on the mains supply, e.g. fire/intruder alarm panels. Protectors with /BX suffix come ready-boxed, to IP66, for use in dirty or damp environments. Available for 90-150 volts, 200-280 volts and 232-350 volts supplies. For use at boundaries LPZ 1 through to LPZ 3 to protect



ESP 5A & 16A

- Very low let-through voltage (enhanced protection to BS EN 62305) between all sets of conductors (phase to neutral, phase to earth, neutral to earth – Full Mode protection) allowing continuous operation of equipment
- Repeated protection in lightning intense environments
- · Compact size for easy incorporation in the protected system
- Removable DIN rail foot for simple clip-on mounting to top hat DIN rails (unboxed versions)
- Colour coded terminals give quick and easy installation check grey for the dirty (line) end and
 green for the clean end
- · Available ready-boxed to IP66 for use in dirty or damp environments (protectors with /BX suffix)
- Robust housing and substantial earth stud
- Fixing holes ready for flat mounting
- Maintenance free
- ESP 240-5A/BX has network Rail Approved PA05/02896. NRS PADS reference 087/037285

Temperature Range: -40°C to 80°C

Connection Type: Screw Terminal (Max Torque 0.5Nm)

Conductor Size (solid): 4mm²

Earth Connection: Via Earth Terminal or M6 Stud (Max Torque 0.5Nm)

Volt Free Contact: Connect via screw terminal with conductor up to 4.0mm² (stranded) Protection: IP20 / IP66 Boxed Version

		Nom Voltage	Maximum			
		Phase Neutral	Voltage Phase	Working	Current	
Code	Description	Uo (RMS)	Neutral Uc (RMS)	Voltage (RMS)	Rating (supply)	Max back-up fuse
ESP240-5A	In-Line protector 5A	240	280	200-280 V	5 A or less	5 A
ESP240-5A/BX	Boxed in-Line protector 5A	240	280	200-280 V	5 A or less	5 A
ESP240-16A	In-Line protector 16A	240	280	200-280 V	16 A or less	16 A
ESP240-16A/BX	Boxed in-Line protector 16A	240	280	200-280 V	16 A or less	16 A

• Connect in-line on supplies fused up to 5A (ESP 240 5A) or 16A (ESP 240 16A). Note how the protector can also be earthed from its earth stud.



All dimensions in mm except where stated

230

• If your supply is fused at more than 16 Amps the ESP 240 M1 are suitable

• Connect in-line on supplies fused up to 5A (ESP 240 5A/BX) or 16A (ESP 240 16A/BX). Note how the protector can also be earthed from its earth stud.



Fixing & Security

Cable Cleats sensitive electronic equipment.

ELECTRONIC SYSTEM PROTECTION Earthing Lightning



ELECTRONIC SYSTEM PROTECTION

WBX Enclosures

A range of moisture and dirt resistant enclosures for the convenient installation of ESP protectors and their associated CME with grey base and either a see through or grey (part number /G or /GS) lid.

WBX Series

WBX enclosures are used when your ESP protector(s) can't be installed within the existing equipment panel or enclosure and for added protection in damp and dirty environments.

- Tough polycarbonate enclosures
- •Weatherproof with IP resistance to dirt and water of IP56 or more

•Clear lid enables easy visual inspection of the protectors visual status indication (WBX 3, WBX 4, WBX 04, WBX 8, WBX 08, WBX M2, WBX M4) •Grey lid for applications not needing regular protector inspection (WBX 2/G, WBX 3/G, WBX 4/GS, WBX 8/GS and WBX 16/2/G)

•For external CCTV and other installations requiring added security the WBX 4/ GS and WBX 8/GS are supplied with an opaque lid and special secure head screws (plus tool)

•Supplied complete with metal base (mounting) plate with pre-prepared mounting positions and fixing hardware for easy installation (except WBX 2/G which has a plain metal base)

Protection: IP65 / IP66 / IP67 Material: Polycarbonate

		Length		Width		Depth		
Code	Lid Style	Internal	External	Internal	External	Internal	External	IP Rating
WBX3	Clear	222.0	230.0	72.0	80.0	79.0	85.0	IP67
WBX4	Clear	246.0	255.0	171.0	180.0	119.0	125.0	IP66
WBXD4	Clear		174.0		104.0		112.0	IP65
WBXD8	Clear		220.0		235.0		140.0	IP65
WBXM2	Clear	254.0	280.0	254.0	280.0	115.0	130.0	IP67

MICC Cable

Tooling & Cable Ties Cable Prep & Acc

