



Your life,
Our work.



P&B Weir Electrical Ltd. Rail Earthing Equipment

 +44 (0) 1225 811449



 www.pentaesp.com

Rail Earthing Equipment

PRODUCT RANGE

1

RAIL EARTHING EQUIPMENT

The PENTA P&B range of equipment for use on the Rail track and the OHL network has been specifically designed with the UK rail industry and has a proven track record of many decades service. As well as supplying a standard range of approved equipment. PENTA P&B also can design new solutions for any rail portable earthing requirement.

SHORT EARTHS

PENTA P&B supply various short Earths to the rail industry ranging from 1.5mtr Short Orange Earths to Blue Jumpers.




DEP EARTHS

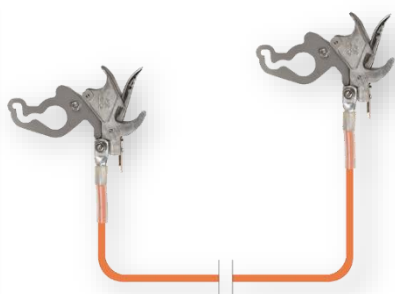
Standard DEP Earths are 1.5mtr long, with Arctic Orange Cable and CE62 Clamps at each end. However, leads can be supplied at any length if required, with either a CE62 or an S9B Clamp depending upon the application.

SHORT BONDS AND JUMPERS

Bonds and Jumpers can be supplied at any length required for non-Network Rail applications. Please contact us to discuss your requirement.

PRODUCT BENEFITS

-  Lightweight
-  Fully approved
-  Solid construction



DEP SHORT ORANGE RAIL EARTH KIT 1.5M

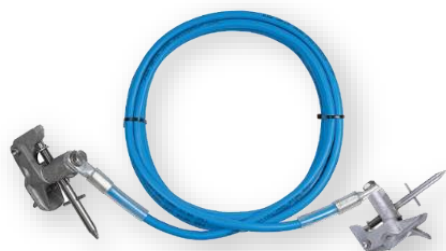
The PENTA P&B 1.5m Short Orange DEP Earth comprises two CE62 snap-on style line end clamps and an interconnecting 50 sq.mm and Arctic Orange Aluflex lead.

Part Number: MISC-00232
PADS Number: 0091/020322

RAIL BLUE LEAD CONTINUITY KIT

Comprising of 2 x CE62 with removal plates and 8m blue lead.

Part Number: MISC-00280



RAIL CONTINUITY JUMPER KIT

Comprising of 2 x S9B clamps joined by a 50 sq.mm and 8m long blue lead.

Part Number: MISC-00287
PADS Number: URLT/023549

LAST UPDATED 23/01/2024/5M

Rail Earthing Equipment

PRODUCT RANGE

2



CE62 LINE END CLAMP

The CE62 incorporates a stainless steel jaw, which is spring-loaded to reduce application and removal time associated with typical clamps of the screw type. The CE62 is suitable for a conductor range between 4mm to 20mm diameter. A stainless steel removal is added to ease the location and removal of the clamps.

Clamping Diameter:	4- 20mm
Short Circuit Rating:	12.5 kA/ 1s
Applied with:	Applicator Head
Weight:	0.434kg
Part Number:	EFD-16733
PADS Number:	0091/012306

S9B SHORT TAPER LINE END CLAMP

Clamping Diameter:	6.3 - 38mm
Short Circuit Rating:	17.5kA/ 2s
Applied with:	CEA/S2 Op. Socket
Weight:	0.519kg
Part Number:	FA1220-A
PADS Number:	0091/020527



LONG EARTHS

Long Blues are generally 8mtr in length, however, any length can be provided if specified for non-Network Rail work. Although an S9B to J117-D configuration is standard, Long Blues can also be supplied with CE62 Clamps (not Network Rail approved).

INTERLOCK EARTHS

Interlocked earths provide the same connections as a regular Long Blue, however, the Clamps utilise a lock-and-key system where the Earth End is removed using the line end. This ensures that Engineers do not accidentally disrupt the path to earth prematurely as the Earth End can only be removed by using the line end clamp. Line end clamps are available in an S9B style or CE5 style (designated S9Bi and CE5i respectively).



RAIL NON-INTERLOCK LONG BLUE

Comprising of 1x 8m blue earth lead with J117-D one end and S9B the other end.

Short Circuit Rating:	8.9kA/ 1s & 12.5kA/ 0.25s
Part Number:	MISC-00250
PADS Number:	0091/012210

LAST UPDATED 23/01/2024/SM

Rail Earthing Equipment

PRODUCT RANGE

3



S9B STYLE INTERLOCK

Long Earth comprising of CE63 Earth end and S9Bi line end clamps, interconnecting 50 sq.mm and 8m long blue Aluflex lead.

Short Circuit Rating: 8.9kA/ 1s & 12.5kA/ 0.25s

Part Number: EFT-16726

PADS Number: 0091/012188

CE5 STYLE INTERLOCK

Line Earth comprising of CE63 Earth end and CE5i line end clamp and interconnecting 50 sq.mm blue Aluflex lead x 8m long.

Short Circuit Rating: 8.9kA/ 1s & 12.5kA/ 0.25s

Part Number: EFT-16741

PADS Number: 0091/012568



J117-D RAIL CLAMP

The J117-D clamp is designed for fitting to all types of rail commonly used throughout the UK. The clamp is ruggedly constructed from steel, which is zinc galvanised to protect from site atmospheres. Busbar material aluminium. The J117-D clamp contact arrangement allows for the use upon both 'flat-Bottomed' and 'Bull-Head' rail types.

Part Number: EFT-16736

PADS Number: 0091/002251

J117 NSE CLAMP

The J117-NSE clamp is designed for fitting to all types of rail commonly used throughout the UK. The clamp is ruggedly constructed from steel, which is zinc galvanised to protect from site atmospheres. Copper busbar tin-plated. The J117-NSE clamp contact arrangement allows for the use upon both 'Flat-Bottomed' and 'Bull-Head' rail types.

Part Number: EFT-16729

PADS Number: 0050/001303



LAST UPDATED 23/01/2024/SM

Rail Earthing Equipment

PRODUCT RANGE

4

SHORT CIRCUITING STRAPS

Short-Circuiting Straps are used to short the positive and negative circuit of a d.c Feeder section. Each Strap consists of three J117-NSE clamps fitted with insulated flexible copper leads. Short circuit straps have been fully tested and approved by Network Rail.

The body of the J117-NSE has an insulating shield to prevent welding to the Rail in the event of a fault current. Clamps are suitable for fitting to both Bull-Head and Flat-Bottomed rails and use a hardened steel tip to penetrate corrosion. Network Rail approved alternative lengths and tamperproof clamp variants can also be provided if required.



SHORT CIRCUITING STRAP

Each strap consists of three J117-NSE clamps fitted with flexible insulated copper leads.

Part Number: EFT-16732/1

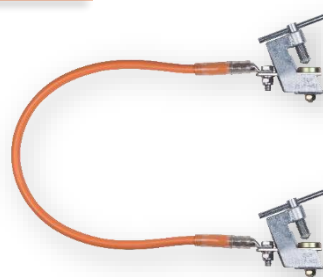
PADS Number: 0091/012196

RAIL SHORTING BOND

Two off J117-NSE clamps interconnected by 70mm insulated tinned copper cable assy x 1.8mm long. Alternative lengths are available.

Part Number: EFT-16735/1

PADS Number: 0050/001303



NEW

TEMPORARY RAIL JUMPER KIT

A temporary jumper to be used in emergency feeding scenarios in the event of broken jumpers or isolators. The Temporary Rail Jumper Kit is accepted for use on Network Rail controlled 25kV OLE infrastructure.

Part Number: EFT-19319

PADS Number: 0006/120053



LAST UPDATED 23/01/2024/SM

Rail Earthing Equipment

PRODUCT RANGE

5

OPERATING POLE KIT

PENTA P&B supply Operating Pole kits which are fully approved for use upon the Rail Network. Sections are manufactured from a lightweight resin-impregnated electrical insulation grade fibreglass.



NETWORK RAIL POLE KIT (PARTS AVAILABLE SEPARATELY)

The kit comprises of 1 x Top Section Pole, 1 x Primary Insulator Pole, 3 x Intermediate Section Poles, 1 x Applicator Head + Adaptor, 1 x Bottom Section Pole and 1 x Carry Bag.

Part Number: MISC-00341

PADS Number: 0091/012305

PRIMARY INSULATOR POLE

Primary insulator pole conforming to Network Rail specification NR/PS/ELP/27188.

Part Number: EFT-17451

PADS Number: 0091/002470

4' TOP SECTION RAIL POLE STYLE 1 (P&B PATTERN)

Material: Glass Cloth reinforced epoxy resin tubing.

Length: 4ft (1.22m)

Weight: 0.700kg

Part Number: EFR-18180

PADS Number: 0091/002062

4' TOP SECTION RAIL POLE STYLE 2 (BOWTHORPE PATTERN)

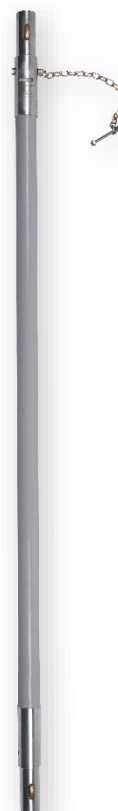
Material: Glass Cloth reinforced epoxy resin tubing.

Length: 4ft (1.22m)

Weight: 0.700kg

Part Number: EFR-18181

PADS Number: 0091/002356



LAST UPDATED 23/01/2024/SM

Rail Earthing Equipment

PRODUCT RANGE

6

4' INTERMEDIATE SECTION POLE RAIL

Material: Glass cloth reinforced epoxy resin tubing.
Length: 4ft (1.22m)
Weight: 0.700kg
Part Number: **EFR-18182**
PADS Number: **0091/002061**

4' BOTTOM SECTION POLE RAIL

Material: Glass cloth reinforced epoxy resin tubing.
Length: 4ft (1.22m)
Weight: 0.700kg
Part Number: **EFR-18183**
PADS Number: **0091/002480**
Can be used in conjunction with 8ft sections to make up the required length

CATU DISPENSING HEAD WITH P&B ADAPTOR

Pole Type: Bowthorpe Pole
Part Number: **EFT-20126**
PADS Number: **0091/001986**

CATU DISPENSER HEAD MT630C M/C

Part Number: **EBT-20128**
PADS Number: **0091/001987**

RAIL OPERATING POLE KIT BAG

Material: Nylon Reinforced PVC
Part Number: **EBB-18514**
PADS Number: **0111/196948**



Pole kits can also be supplied with a range of fittings such as CEA/S2 socket, P331 socket, alternative adaptors for applicator heads or additional pole sections. Please enquire for details.

TREE PRUNING EQUIPMENT

The PENTA P&B range of tree pruning equipment is ideal for removing branches and tree debris from near overhead lines.



SAW PRUNING HEAD ASSEMBLY

Suitable for fitting to standard Bowthorpe type top section poles.

The curved 6-TPI blade is 355mm long and manufactured from lacquered stainless steel to ensure long service life.

Part Number: EFS-18324



BRANCH CLEARANCE SAW

Suitable for fitment to middle section Bowthorpe style poles.

The curved 6-TPI blade is 355mm long and manufactured from lacquered stainless steel to ensure long service life.

Part Number: EFD-18404



TREE PRUNING HEAD

High quality steel side action cutting blade. Suitable for fitting upon a standard Bowthorpe type top section operating pole. Able to cut branches up to 44mm diameter. Fitted with a nylon operating cord, for ease of use from ground level.

Part Number: SK130296-0/1 (Top pole fitting)



PRUNING SAW ADAPTER

Pole type: Spigot Pole
Application: Allows fitting of Pruning Saw
Part Number: EMS-18320

Rail Earthing Equipment

PRODUCT RANGE

8

RAIL HEADS AND SOCKETS



CEA/S2: ESI-S2 OPERATING SOCKET

Sprung bayonet socket recommended for use with S9Bi and CE5i clamps. Provides greater control of clamp. Fits PENTA P&B Top Pole directly or Bowthorpe Top Pole using Adapter 4927.

Weight: 0.385kg

Part Number: EFS-11203

FEMALE SPIGOT ADAPTOR

Pole Type: Bowthorpe Top Pole
Application: Allows fitting of PENTA P&B heads to Bowthorpe Poles

Part Number: 4927

PADS Number: 0054/003008



P331 OPERATING SOCKET

Pole Type: Bowthorpe Top Pole
Taper Type: Long or Short Taper

Part Number: EFS-18314

PADS Number: 0091/020526

P3313 OPERATING SOCKET

Pole Type: Bowthorpe Top Pole
Fuse Type: LEL or S&E Fuses

Part Number: EFS-18319

PADS Number: 0091/002477



DISPENSING HEAD WITH PENTA P&B ADAPTOR

Pole Type: Bowthorpe Top Pole

Part Number: EFT-20126

PADS Number: 091/001986



SIGNAL SIGHTING TARGET

The PENTA P&B Signal Sighting Target features a flashing white LED light array, to aid signal sighting in poor visibility conditions. Developed with Network Rail. Suitable for sighting ground and standard signals.



SIGNAL SIGHTING TARGET COMPLETE KIT

SST LED target unit, ground signal foot, standard signal foot, primary insulator pole & high visibility durable fabric reinforced pvc carrying bag.

Part Number: EFT-17479

PADS Number: 0086/011540



LAST UPDATED 23/01/2024/SM

Rail Earthing Equipment

PRODUCT RANGE

10



SST LED TARGET UNIT

Part Number: EAT-17480
PADS Number: 0086/011542

SST FOOT LONG BOTTOM POLE

For sighting standard signals.

Part Number: EFT-17400
PADS Number: 0086/011541



SST FOOT SHORT BOTTOM POLE

For sighting ground signals.

Part Number: EFT-17477
PADS Number: 0086/011543



SST CARRY BAG

Size: 1550mm x 420mm
Specification: with velcro fastening top flap and 50mm webbing strap with outside pocket.

Part Number: EBB-18512
PADS Number: 0086/011545



LAST UPDATED 23/01/2024/SM









D3/LLI LIVE LINE INDICATOR

The D3/LLI Live Line Indicator is a resistive type voltage detector designed for use on overhead a.c. rail electrification systems operating at 25kV nominal voltage. The 'LLI' threshold is specified as $12\text{kV} \pm 5\%$, however, it should be noted that induced voltages could reach 10kV.

The unit is designed to be mounted on approved fibreglass earth poles with the pole immediately below the indicator being the primary insulator (ref EFT-17451 - 0091/012470). The signal emitted by the D3/LLI is both audible and visible. Power is provided by a rechargeable battery, housed within the main unit. The battery can be charged in situ using the charger supplied.

The D3/LLI comprises a main unit and a contact probe. The contact is manufactured from lightweight fibreglass tubing and houses the calibrated resistor stack. The pole section is foam-filled to increase the voltage that it can withstand. The probe is connected to the overhead line by an aluminium hook. The top of the pole is coated in a special high reflectivity paint to ease visibility when applying the indicator in poor lighting conditions and a limiting collar is fitted to demark the limit of any electrified lines. The Earth connecting lead is designed to fuse should the unit be misused by applying the main unit directly to traction current and the cable is housed in a protective jacket to shield the operator.

PRODUCT BENEFITS

-  True $12\text{kV} \pm 5\%$ Threshold
-  Audible and visual warning
-  Self-test Function
-  Fully interchangeable
-  Insulation tested
-  Compatible with primary insulator poles

D3/LLI LIVE LINE INDICATOR COMPLETE KIT

Kit consisting of main unit assembly, contact probe assembly, magnet & lead assembly, battery charger, Westminster rail bag and rechargeable battery.

Part Number: EFT-17413



Rail Earthing Equipment

PRODUCT RANGE

12



D3/LLI CONTACT PROBE ASSEMBLY

Replacement probe assembly

Part Number: EAT-17417

D3/LLI MAIN UNIT

Replacement main unit, supplied with a magnet and lead assembly.

Part Number: EAT-17415



D3/LLI BATTERY CHARGER

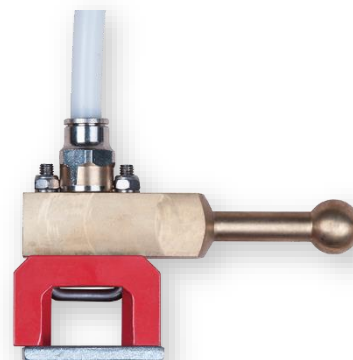
D3/LLI Battery charger for use with nickel-metal hydride PP3 rechargeable battery within the D3/LLI main body.

Part Number: EFT-17437

MAGNET & LEAD ASSEMBLY

Requires factory replacement within main unit.

Part Number: EAT-17429



WESTMINSTER RAIL BAG

Material: Orange PVC Fabric Re-enforced

Dimensions: 1310mm long x 400mm wide

With Velcro fastening top flap & 25mm webbing shoulder strap.

Part Number: EBT-18505

LAST UPDATED 23/01/2024/SM

Rail Earthing Equipment

PRODUCT RANGE

13

OTHER PARTS AVAILABLE

Part Number	Product Description
EBT-17405	Replacement Battery (Rechargeable)
EMT-17404	Battery Removal Tool
EAT-17417	Contact Probe
EMT-17433	Magnet (Only)
EFR-18183	Standard Bottom Insulated Pole Section with Rainshield
EFR-18184	Standard Bottom Insulated Pole Section without Rainshield

LAST UPDATED 23/01/2024/SM



P&B WEIR ELECTRICAL LIMITED, UNIT 1, LEAFIELD WAY, LEAFIELD IND. EST.
CORSHAM, WILTSHIRE, SN13 9SW

☎ +44 (0) 1225 811449



www.pentaesp.com