TRANS POWER

BLAKLEY ELECTRICS

Point Heating and Portable Tool Transformers for Rail Applications

Manufactured in accordance with Network Rail specification NR-L2-ELP-40045, we manufacture the full range of Point Heating Transformers for AC and DC heater installations, as well as Portable Tool Transformers to provide a Reduced Low Voltage (110V CTE) supply to feed power tools and temporary lighting at the trackside.

Point Heating Transformers (PHTs)

In accordance with Network Rail specification NR-L2-ELP-40045, PHTs provide an earth free, isolated supply to feed heaters that are fixed directly to the rail. In order to ensure Track Circuit immunity in most locations, all PHTs incorporate dual secondary windings, enabling heaters connected to opposite sides of the track to be fed from separate windings, thus avoiding interference with the signalling circuit under fault conditions. In recent times a range of high performance DC output PHTs has been developed, which are to be installed in areas that employ “AC Vane Relay” or “AC on rails DC immune” Track Circuits, where DC heating is required to achieve Track Circuit immunity. These new transformer rectifier sets meet the same basic requirements as traditional PHTs and the three-phase version incorporates specific measures to reduce harmonic distortion caused by the rectifiers.

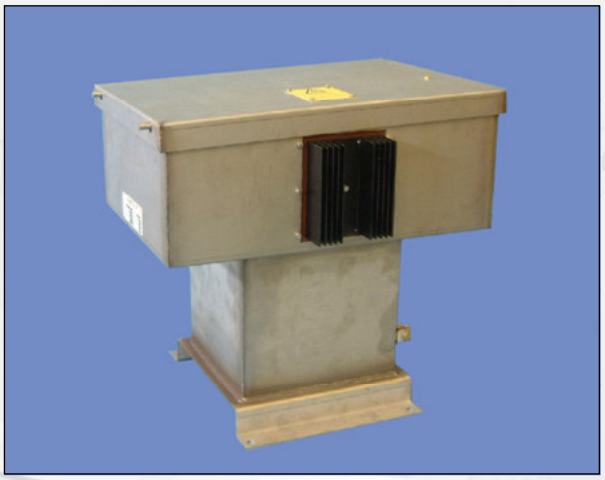
To facilitate safe maintenance, PHTs incorporate a double pole incoming isolator that can be padlocked in the OFF position. The isolator controls the feed in to the primary winding, which incorporates tappings that can be utilised to help offset the effect of volts drop on long supply runs.

PHTs form part of an automatic point heating system and, in order to be compatible with other parts of the system, they must have an inrush current that is less than 5 times the full load current, which is well beneath the normal level of 10 to 15 times full load expected from power transformers in the 5 to 10 kVA range.

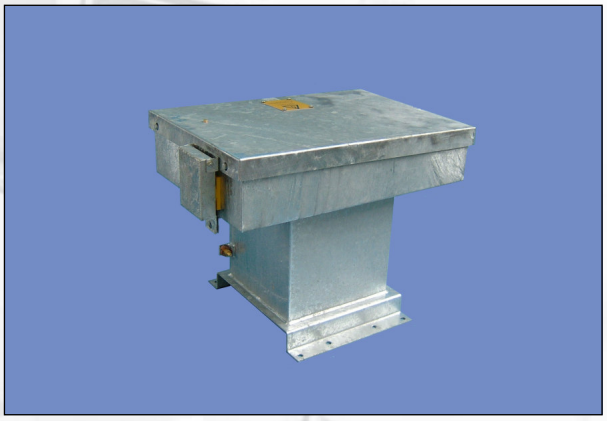
PHTs incorporate different fuse distribution configurations to suit the different types of heater used on the network. The standard heater is the Strip type but we also have arrangements to suit Pad and Cartridge heaters.

PHTs can be supplied in enclosures made from mild steel with a hot dip galvanized finish or from grade 316L stainless steel with a natural finish. The standard part numbers detailed in the attached table are for AC PHTs housed in Galvanized enclosures and for DC PHTs housed in Stainless Steel enclosures.

In addition, to ensure longevity and low maintenance, all types are filled with petroleum jelly, which aids cooling and insulates the windings from the effects of the elements.



DC Point Heating Transformer, 10 kVA, 3 Phase

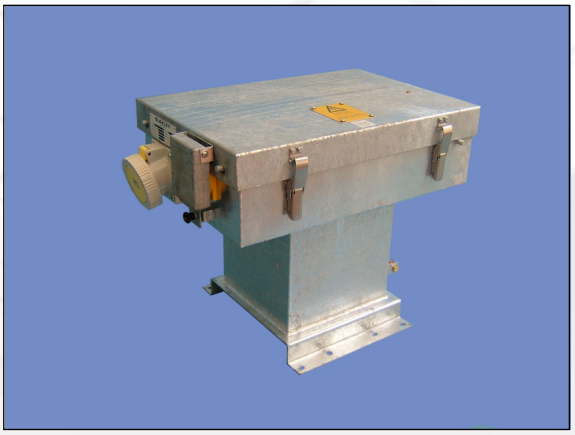


AC Point Heating Transformer, 5 kVA, 1 phase

Standard Strip Heater Models	
Item	Description
S170835	5 kVA, AC output, 230:110V
S170836	10 kVA, AC output, 230:110V
S170887	5 kVA, DC output, 230:99V
S170889	5 kVA, DC output, 400:99V (2 wire)
S170888	10 kVA, DC output, 230:99V
S170892	10 kVA, DC output, 400:99V (2 wire)
S170890	10 kVA DC output, 400:110V, 3 phase

Portable Tool Transformers (PTTs)

PTTs are also manufactured In accordance with Network Rail specification NR-L2-ELP-40045, although the output is Reduced Low Voltage in accordance with BS7671 and is not earth free.
The primary purpose of PTTs is to provide a permanent source of 110V power that can be used whilst Point Heating installations are initially carried out and can then be used in the long term for all types of track maintenance related activities. The installation of a permanent source of temporary power then removes the logistical burden of providing generators to feed temporary works in remote locations.
The feeds from PTTs can be hardwired to remote socket outlets or, alternatively, socket outlets can be fitted directly to the PTT.
A range of overcurrent and residual current devices can be incorporated to suit the different arrangements, including DC immune RCDs that are suitable for installation in the DC electrified “third rail” areas found predominantly in the old Southern Region.
In order to meet the 15 year design life, PTTs are housed in heavy duty, sheet steel enclosures with a hot dip galvanized finish. In addition, to ensure longevity and low maintenance, all types are filled with petroleum jelly, which aids cooling and insulates the windings from the effects of the elements.
To facilitate safe maintenance, PTTs incorporate a double-pole incoming isolator that can be padlocked in the OFF position.
The isolator controls the feed in to the primary winding, which incorporates tappings that can be utilised to help offset the effect of volts drop on long supply runs.



Portable Tool Transformer, 4 kVA, 230:110V

Tunnel Power Transformers

In addition to traditional PTTs, we have also designed and manufactured power transformers with 110V Reduced Low Voltage outputs for installation in tunnels and bridges. These follow the same general design philosophy as the standard PTT but are usually supplied in wall mounting enclosures and incorporate loop-in / out incoming terminals, enabling a run of assemblies to be fed from a single source.

Tunnel Power Transformer, 6 kVA, 400:110VAC

The design of these assemblies is generally developed with the customer to meet specific installation requirements and we welcome the opportunity to be involved early in the design process, where our unrivalled experience in this field can help ensure that the optimum product for each project is supplied. Our involvement in projects of this nature include the supply of 5000 no. 6 kVA transformers to London Underground, as well as many smaller projects such as Heathrow Express, Medway Bridge and CTRL.
Assemblies can also be developed to provide mains voltage sources and other facilities such as lighting control.

Power & Lighting Tunnel Assembly, 400/230/110V

- **SOUTH** 1 Thomas Road, Optima Park, Crayford, Kent DA1 4GA Tel: 0845 074 0084 Fax: 0845 074 0085
- **NORTH** Unit 55, Monckton Road Ind Estate, Wakefield WF2 7AL Tel: 0845 074 0086 Fax: 0845 074 0087

www.blakley.co.uk • sales@blakley.co.uk

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