

Points Heating Transformers

We manufacture Points Heating Transformers (PHTs) in accordance with Network Rail specification NR-L2-ELP- 40045, and they are approved by Network Rail for use across the UK rail system (PADS Certificate PA05/01802 Issue 8). PHTs are rated at 5kVA and 10kVA single-phase and provide an earth free, isolated supply to feed heaters that are fixed directly to the rail. Versions are offered with 110V AC or 99V full wave rectified DC outputs.

To achieve Track Circuit immunity, all PHTs incorporate two secondary windings, enabling heaters fixed to opposite sides of a track to be fed from separate sources, thus avoiding the risk of interference with the signalling circuit under fault conditions. The incorporation of dual secondary windings requires the load to be shared evenly between the two secondaries. Wiring diagrams of the different versions can be supplied.

PHTs form part of an automatic points heating system. To ensure compatibility with the overall system, they 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 current expected from power transformers in the range of 5 to 10 kVA.

To facilitate safe maintenance, PHTs incorporate a double pole incoming isolator that can be padlocked in the OFF position. The isolator controls the feed to the primary winding, which incorporates tapplings that can be utilised to help offset the effects of volt drop on long supply runs. Incoming terminals accept cable with a cross section of up to 35mm² and an M16 traction earth stud is also provided.

PHTs incorporate multiple outgoing fused ways and different configurations are offered to suit the various types of heater installations. The main heaters are Strip type and these are supplied from double-pole fused ways rated at 12A (up to 1200 watts). Each PHT also incorporates 2 no. sets of 2A double-pole fuses to supply Clamplock heaters and part S171154 also incorporates 2 no. sets of 4A double-pole fuses to supply Bearer heaters. Fuses with a gG characteristic are fitted but the fuse carriers will accept aM fuses.

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. 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.

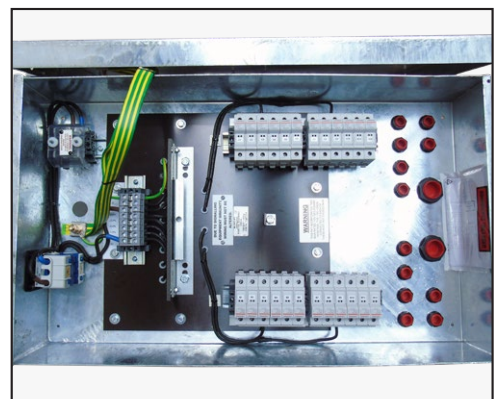
Details of the PADS approved PHTs are detailed on page 2 of this data sheet. These now include configurable versions, which allow elements of the PHT specification to be tailored to meet different requirements that exist across the network.



DC Points Heating Transformer, 10 kVA



AC Points Heating Transformer, 5 kVA



AC Points Heating Transformer, 10 kVA ,
showing additional gland holes and optional
supplementary canopy bond

Core PHTs

Part Number	Type Number	Description
S171152	PHT/5/DUAL/PJ/230V/110VAC/F6/GALV	5kVA, 230:110V AC, 6 x DP fused ways
S171153	PHT/10/DUAL/PJ/230V/110VAC/F10/GALV	10kVA, 230:110V AC, 10 x DP fused ways
S171154	PHT/10/DUAL/PJ/230V/110VAC/F12/GALV	10kVA, 230:110V AC, 12 x DP fused ways
S171157	PHT/5/DUAL/PJ/230V/99VDC/F6/SS	5kVA, 230:99V DC, 6 x DP fused ways
S171158	PHT/10/DUAL/PJ/230V/99VDC/F10/SS	10kVA, 230:99V DC, 10 x DP fused ways
GALV = Galvanized Enclosure; SS - Stainless Steel enclosure (316L)		

As can be seen from the above table, core PHTs with a 110V AC output are housed in enclosures with a hot dip galvanized finish and core PHTs with a 99V DC output are housed in enclosures made from grade 316L stainless steel with a natural finish.

Incoming terminals can terminate cables with a cross section of 35mm². Primary windings are 230V with tapplings of +2.5% and -2.5%, -5%, -7.5% and -10%.

All 5kVA PHTs incorporate 2 no. 2.5kVA secondary windings. Each winding supplies 2 no. sets of 12A double-pole fuses and 1 no. set of 2A double-pole fuses (a total of 4 x 12A and 2 x 2A sets of double-pole fuses).

All 10kVA PHTs incorporate 2 no. 5kVA secondary windings.

Each winding in part numbers S171153 and S171158 supplies 4 no. sets of 12A double-pole fuses and 1 no. set of 2A double-pole fuses (a total of 8 x 12A and 2 x 2A sets of double-pole fuses).

Each secondary winding of part number S171154 feeds 4 no. sets of 12A double-pole fuses, 1 no. set of 4A double-pole fuses and 1 no. set of 2A double-pole fuses (a total of 8 x 12A, 2 x 4A and 2 x 2A sets of double-pole fuses).

All enclosures are pre-punched with a 25mm incoming gland hole.

Enclosures for 5kVA PHTs are punched with 6 no. 20mm and 1 no. 32mm gland holes for outgoing circuits.

Enclosures for 10kVA PHTs are punched with 12 no. 20mm and 2 no. 32mm gland holes for outgoing circuits.

All gland holes are blanked off.

Configurable PHTs

If the specifications of the core PHTs does not meet the requirements of an installation, the PADS certificate allows for certain options. These are referred to as Configurable PHTs. There are 5 no. base configurable PHTs and the buyer has a choice of 5 options for each, as detailed below.

Part No.	Description	
A7350086	5kVA AC, galvanized or stainless enclosure, 6 x DP fused ways, 230:110V, 35mm ² incoming terminals, 6mm ² canopy supplementary bond. Refer to drawing B35084 Rev A and Wiring Diagram WD3158 Rev A	
A7350087	10kVA AC, galvanized or stainless enclosure, 10 x DP fused ways, 230:110V, 35mm ² incoming terminals, 6mm ² canopy supplementary bond. Refer to drawing B35085 Rev A and Wiring Diagram WD3159 Rev A	
A7350088	10kVA AC, galvanized or stainless enclosure, 12 x DP fused ways, 230:110V, 35mm ² incoming terminals, 6mm ² canopy supplementary bond. Refer to drawing B35086 Rev A and Wiring Diagram WD3160 Rev A	
A7350089	5kVA DC, galvanized or stainless enclosure, 6 x DP fused ways, 230:99V, 35mm ² incoming terminals, 6mm ² canopy supplementary bond. Refer to drawing B35239 and Wiring Diagram WD3171.	
A7350090	10 kVA DC, galvanized or stainless enclosure, 10 x DP fused ways, 230:99V, 35mm ² incoming terminals, 6mm ² canopy supplementary bond. Refer to drawing B35240 Rev A and Wiring Diagram WD3172.	
Options		
Suffix	Description	Type Ref Identifier
A	Galvanized enclosure	GALV
B	Stainless steel enclosure	SS
C	400V primary winding (single phase, 2 wire)	400V
D	70mm ² incoming terminals	70IT
E	50mm ² canopy supplementary bond	50CB

Please refer enquiries for Configurable PHTs to our Customer Service Centres, who will be pleased to assist with part numbers, lead times, etc.