

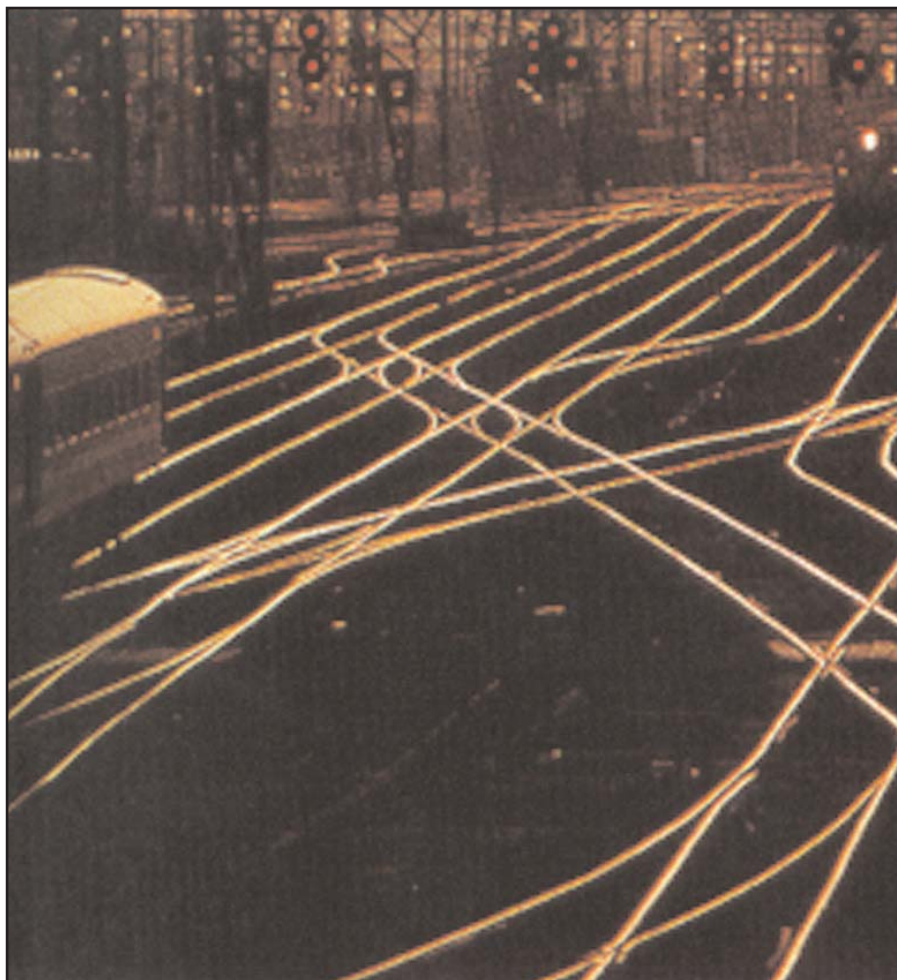


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ӨНЕРКӘСІП ЖӘНЕ ЭЛЕКТР МАТЕРИАЛДАРДЫҢ ЖАБДЫҚТАУШЫСЫ  
ПОСТАВЩИК ИНДУСТРИАЛЬНОГО И ЭЛЕКТРИЧЕСКОГО ОБОРУДОВАНИЯ И МАТЕРИАЛОВ  
SUPPLIER OF INDUSTRIAL & ELECTRICAL EQUIPMENT and MATERIALS

# ***RHT RAIL HEATER*** ***Rail & Switch Point*** ***Heating System***



*Pre-Terminated Lengths  
or Cut-to-Length from the Reel*

# RHT Rail & Switch Point Heating System

## Introduction

Rail switch points suffer during the winter months from snow and ice blocking the moving rails and switch point mechanisms, causing failures and subsequent disruption to rail traffic.

Existing heating systems vary considerably and can often be inefficient, unreliable, expensive to maintain and operate and generally unsuitable for the rigorous environment associated with rail heating.

To combat these problems, Heat Trace Ltd have developed their RHT Rail & Switch Point Heating System. Utilising the latest surface heating technology, a high power, constant watt output heater, together with a highly energy efficient control system, the RHT Rail & Switch Point Heating System is an effective, highly reliable and energy efficient system.

## Installation

The RHT heater can be supplied in pre-terminated lengths of 3, 4, 5 and 6 metres, fitted with a factory terminated cold lead. These cold leads may be fitted with a moulded 2 pin anti-vibration plug, if required, or supplied plain for connecting into a track-side junction box, or directly into the track-side transformer.

The RHT heater can also be supplied in longer pre-terminated lengths up to a maximum of 23 metres (230 VAC) or 11 metres (115VAC).

### FEATURES & BENEFITS

- High power outputs up to 200 W/m
- Supplied in voltages 120VAC or 240VAC
- Flexible yet robust construction
- Parallel resistance - constant watt output
- Pre-terminated, or cut-to-length from the reel
- One heater for all applications
- Reduced stocking levels
- Compatible with existing connections and controls systems
- Reduced operating costs (when POWERMATCH system included)
- Competitively priced

Alternatively, the heater may be cut to length from the reel then terminated and installed with the minimum of effort. This facilitates a simple one product stocking capability. No special equipment is required.

## Design

The RHT Systems contain all the items necessary to provide protection against snow and ice for switch points, swing nose crossings, switch diamonds, braking areas and high speed curves. The heaters may be fitted at the base of the rail, or under the top flange, depending on the rail profile, track fittings, or user preference. The heaters apply heat directly to the rail - the most effective way to prevent snow and ice build up.

The RHT heater is jacketed in a continuous aluminium extrusion offering a high degree of mechanical strength, yet retaining more flexibility than other metal sheathed heaters.

For third, or live contact rail heating, an optional additional fluoropolymer outer sheath is available.

*(Also - See separate data sheet for CRH Self Regulating Contact Rail Heater - as used for Chicago Transit Authority 600 volt dc contact rail.)*

The specially designed heavy duty rail clip ensures continuous close contact with the rail, providing a highly effective and efficient system.

## Controls

The control system utilises automatic controllers that activate the switch point heating according to local weather conditions using a combination of rail temperature, precipitation and snow sensors.

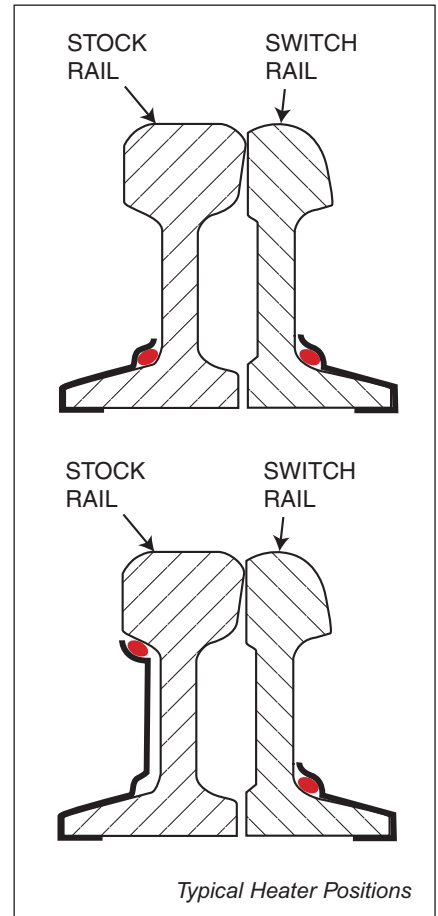
Optional remote monitoring provides automatic defect reporting to assist in providing an effective preventative maintenance strategy.

The unique POWERMATCH Controller can reduce annual operating costs by as much as 85-90 %.

The RHT heater is designed to be compatible with existing control systems and trackside equipment.

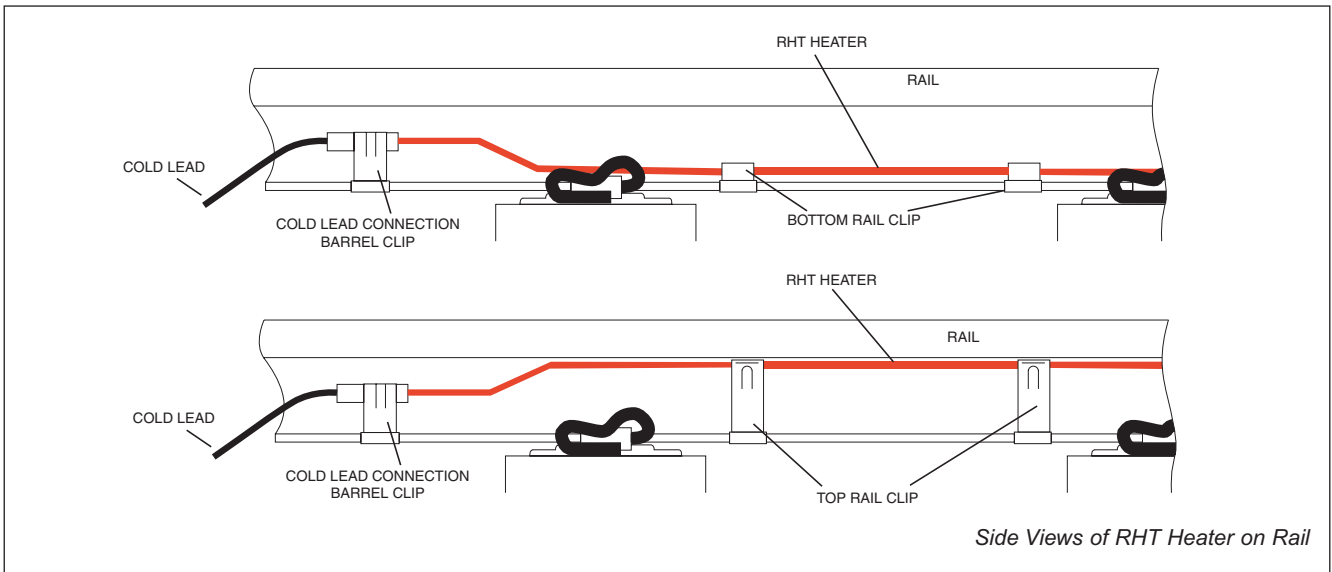
## Heater Positions

The RHT heater is suitable for use on both the stock rail and switch rail and can be mounted either at the top or bottom of the rail. Heavy duty clips are available for most rail profiles.



# RHT Rail & Switch Point Heating System

## Heater Layout



The size of the switch point will dictate the number and length of the RHT heaters deployed. RHT heaters are supplied in a range of lengths - 3m, 4m, 5m and 6m as standard, each fitted with a 2 core cold lead power cable. Heaters may be fitted in sets of 4, 8 or 12, depending on the heated length of the switch point. The heater is usually fitted to both the (fixed) stock rail and the (moving) switch rail.

The flexible cold lead cable can be connected to a moulded connection block located either in the centre, or at the side of the track. Alternatively, the cold lead may be connected directly into a track-side mounted junction box, or directly into the track-side isolating transformer. The track-side transformer is fed from a suitable local power supply.

The RHT heater is normally located at the base of the rail using the special heavy duty spring clips provided.

*(Where J blocks are used on the rail, as with the old 113A rail profile, the heater is located behind the J block and runs along the bottom flange. Where it is not possible to locate the heater behind the J block, top rail clips may be used to position the heater along the top flange of the rail.)*

A barrel clip is used to secure the cold lead connection to the rail.

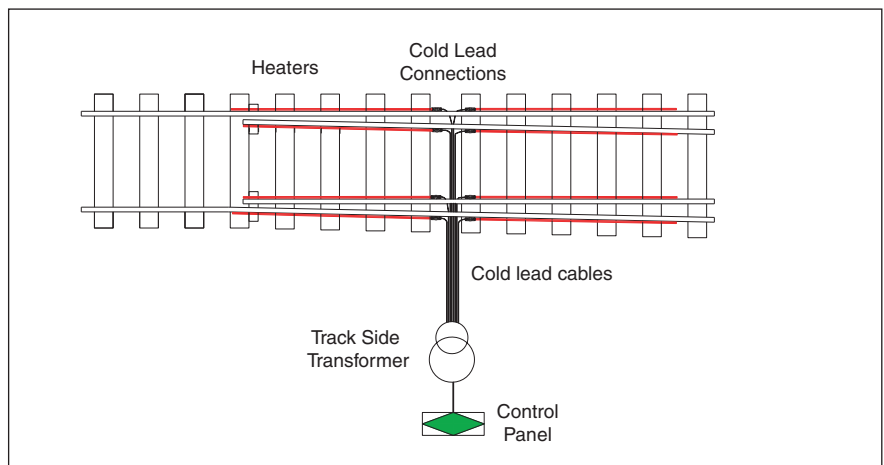
All RHC rail clips are approved for use with rail and switch point heating applications. Their robust design means:

Excellent weathering resistance.

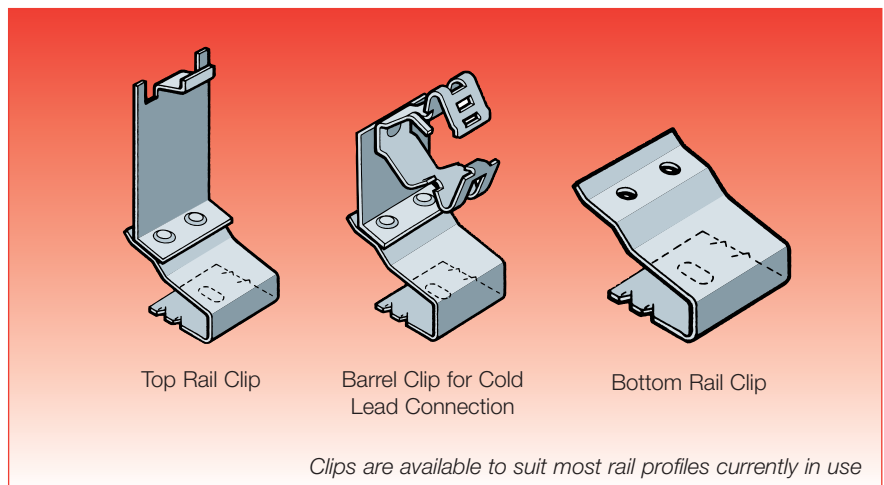
Resistance to corrosion by chemicals.

High electrical insulation properties giving protection against bi-metallic contact corrosion.

## Typical Switch point Layout



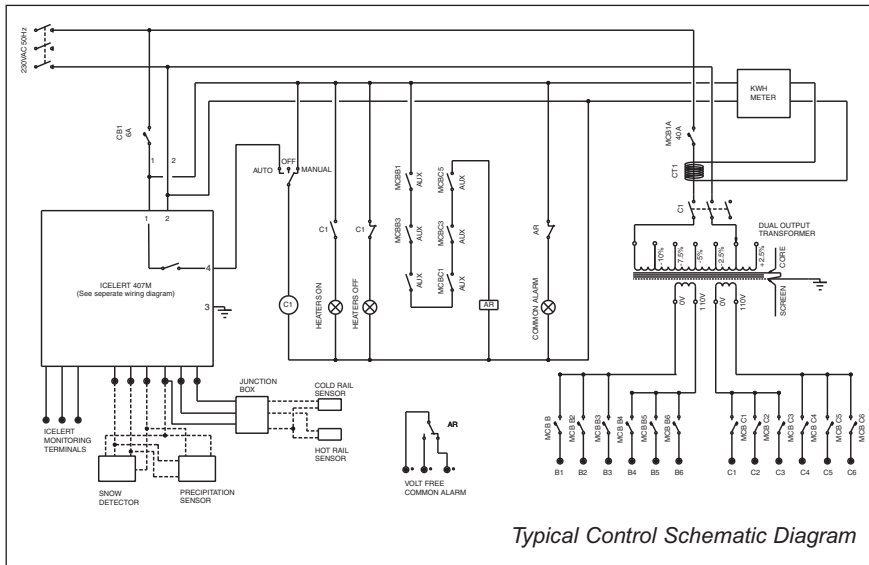
## Typical heater Clips for use on UIC60 Rail Profile





# RHT Rail & Switch Point Heating System

## Control System



Control Systems will vary, depending on the complexity of the system. Control systems may be for a single switch point, or multiple switch point systems, with or without remote monitoring capabilities.

The control cubicle generally contains, as a minimum, the following items of equipment:

- an isolator on the incoming supply.
- a main contactor providing power to a circuit distribution board.
- a weather monitoring control unit.
- an override switch.
- a circuit distribution board (DB1) with MCBs for switch points heating.
- an optional circuit distribution board (DB2) with MCBs for tool transformers.

The Heat Trace control system utilises the Findlay Irvine Icelert controller and associated sensors. This system is already accepted and approved by many rail operators.

An electronic weather monitoring device uses precipitation and track temperature sensors to detect weather conditions that could affect the operation of the points. When the environmental conditions deteriorate to pre-determined values the points heating is automatically energised. The monitoring device continues to monitor the temperature of the rails and cycles the switching on and off of the heater circuit to ensure that the rail temperature is maintained throughout the adverse conditions.

The Control Cubicle contains the weather monitoring unit and control gear and is supplied from the Supply Cubicle. The control circuits include a manual override facility.

An optional facility is a remote monitoring system. The system is used from a remote location to monitor the inputs from the sensors, adjust the settings of the weather monitoring unit and test the system to determine that the heaters are operating correctly.

### Increased Energy Savings

The system may now also incorporate Heat Trace's patented POWERMATCH Controller which is capable of reducing the annual operating cost of switch point heating systems by as much as 85-90%! (For further details, please contact Heat Trace Limited - Transportation Division at Head Office.)



RHT Heating Cable

The RHT rail and switch point heater is a parallel resistance, constant watt output, high power heater, with an extruded aluminium outer sheath. RHT is available in pre-terminated lengths with a 2 core flexible cold lead power cable. RHT heaters can be supplied with standard pre-terminated heated lengths of 3m, 4m, 5m, and 6m. The cold lead cable can be varied according to the installation requirements of each switch point.

RHT is available with outputs of 100W/m, 150W/m and 200W/m

RHT can be supplied in pre-terminated lengths up to a max of 23 metres for 230VAC, or 11 metres for 115VAC.

Because RHT is a *parallel resistance* heater, it may also be supplied on the reel and cut to length as required on site. Standard reel sizes are 50 metres and 100 metres.

Pre-terminated Heaters



Catalogue Ref: 200RHT1-3M/X

3 metre heated length RHT rail heater @ 100W/m, 115VAC, with 6m cold lead (optional moulded anti-vibration plug)

Catalogue Ref: 200RHT1-4M/X

As above - but 4 metre heated length

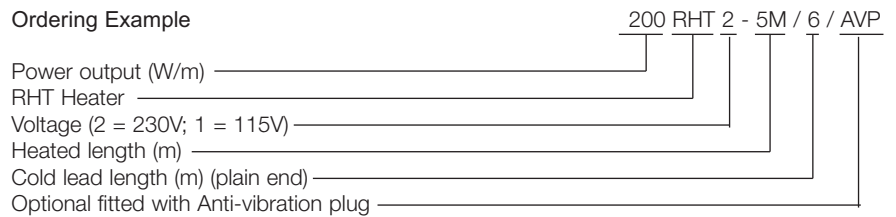
Catalogue Ref: 200RHT1-5M/X

As above - but 5 metre heated length

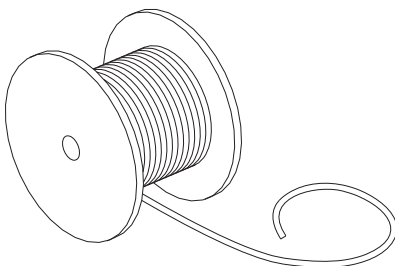
Catalogue Ref: 200RHT1-6M/X

As above - but 6 metre heated length

Ordering Example



Reel Stock



Catalogue Ref: 200RHT1-XXR

200W/m RHT rail heater, 115VAC  
XXR - denotes reel length in metres

Catalogue Ref: 150RHT1-XXR

as above but 150W/m

Catalogue Ref: 100RHT1-XXR

as above but 100W/m

Catalogue Ref: 200RHT2-XXR

200W/m RHT rail heater, 230VAC  
XXR - denotes reel length

Catalogue Ref: 150RHT2-XXR

as above but 150W/m

Catalogue Ref: 100RHT2-XXR

as above but 100W/m

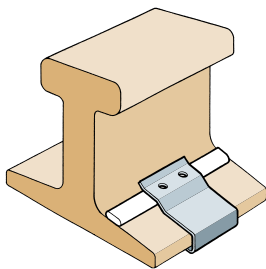
RHT Rail Clips

RHC rail clips are pressed from high quality CS70 spring steel strip, of 1.64mm thickness. Where fixings comprise two or more components, attachment is made using 430 gauge stainless steel rivets.

RHC rail clips are coated with a combination of DELTA-Tone and DELTA-Seal finishes. The result is an extremely durable zinc rich base, coated with an organic resin sealant. Benefits are:

- Excellent weathering resistance.
- Resistance to corrosion by chemicals.
- High electrical insulation properties giving protection against bi-metallic contact corrosion.

All RHC rail clips are approved by UK rail authorities for switch point heating applications.



Catalogue Ref: RHC001HT

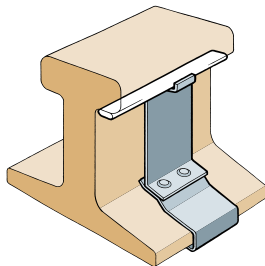
Bottom rail clip, designed to hold the heater securely in position in base angle of rail and flange.  
For rail types: BS110, BS113, UIC54, UIC60

Catalogue Ref: RHC013HT

As above - but for rail type: UIC60B

Catalogue Ref: RHC002HT

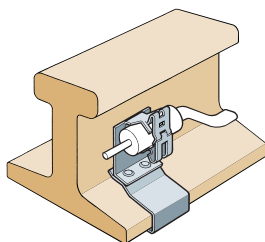
As above - but for rail type: UIC54A



Catalogue Ref: RHC007

Top rail clip, designed to hold the heater securely in position under the top flange of the rail.

For rail types: BS110, BS113, UIC54



Catalogue Ref: RHC004HT

Barrel clip, designed to hold the heater cold lead connection securely in position on rail  
For rail types: BS110, BS113, UIC54, UIC60

Catalogue Ref: RHC014HT

As above but for UIC60B (switch rail)

Catalogue Ref: RHC005HT

As above - but for rail type: UIC54A

Catalogue Ref: RHC006HT

As above - but for rail type: UIC54B

NOTE Clips are available for the majority of rail profiles currently in use internationally

## RHT Connecting Blocks

Anti-vibration, plug-in moulded socket block system for RHT rail heater complete with galvanised steel plate protection covers.

Totally waterproof offering long term reliability.

Quick installation facility reduces connection time.

A system approved by UK rail authorities for switch point heating systems.

Connector blocks can be supplied in kit form for localised assembly, or with pre-moulded 8 core cables with lengths of 7 metres to 60 metres



Catalogue Ref: 4WAY/8C-1.5

4 way connector block for 8 core  
1.5sq.mm cable

Catalogue Ref: 4WAY/8C-4.0

4 way connector block for 8 core  
4.0sq.mm cable



Catalogue Ref: 8WAY/8C-1.5

8 way connector block for 8 core  
1.5sq.mm cable

Catalogue Ref: 8WAY/8C-4.0

8 way connector block for 8 core  
4sq.mm cable

Note

All blocks, both 4 way and 8 way, are generally supplied with moulded in cables, as shown here and fitted with 7 metres of cable.

## RHT Control Systems

Control Systems will vary, depending on the complexity of the system. Controls systems may be single switch point, or multi-switch point systems, with or without remote monitoring capabilities.

A typical control cubicle contains the following items of equipment:

- a) an isolator on the incoming supply
- b) a main contactor - which is energised by the weather monitoring control unit and provides power to a circuit distribution board
- c) a weather monitoring control unit
- d) an override switch
- e) a circuit distribution board with MCBs for switch points heating (DB1)
- f) an optional circuit distribution board with MCBs for tool transformers (DB2)

*FULL DETAILS OF CONTROL SYSTEMS ARE AVAILABLE ON REQUEST*

Presented by:



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