



1. Technical Specifications

Transceiver Node (HBT01 / HBT02)

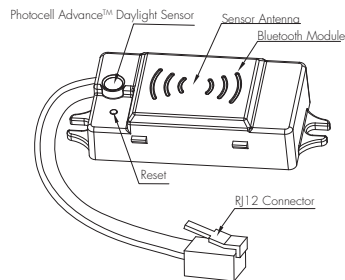
Sensor principle	Bluetooth® High Frequency (microwave)
Operation frequency	5.8GHz +/- 75MHz
Transmission power	<0.2mW
Detection range ¹	Max. (Ø x H) 8m x 3m
Detection angle	30° ~ 150°
Operation temperature	Ta: -20°C ~ +70°C
Case temperature (Max.)	Tc: +80°C
Storage temperature	-35°C ~ +55°C
Relative humidity	0 ~ 90%
IP rating	IP20
Operation frequency (Bluetooth)	2.4 GHz - 2.483 GHz
Transmission power	Max. 7 dBm
Range (Typical) ²	15~30m

Control Base HCD038)

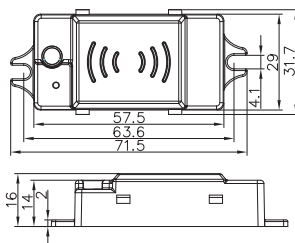
Mains voltage	220~240VAC 50/60Hz
Stand-by power	<0.5W
Load rating	30mA, 16VDC (max. 15 devices)
Warming-up	20s
EMC standard (EMC)	EN55015, EN61000
Safety standard (LVD)	EN60669, AS/NZS60669
Radio Equipment (RED)	EN300440, EN301489, EN62479, EN300328
Operation temperature	-20°C ~ +55°C
Case temperature (Max.)	Tc: +80°C
IP rating	IP20

2. Dimensions and Terminals

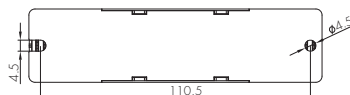
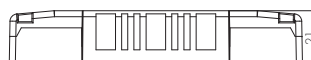
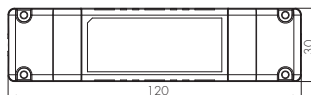
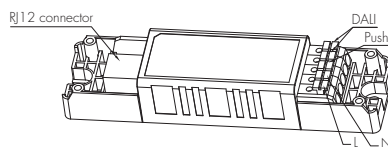
Transceiver Node (HBT01 / HBT02)



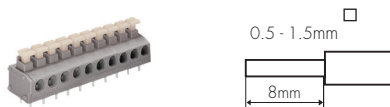
The cable length is around 30cm.



Control Base HCD038 (DALI output)

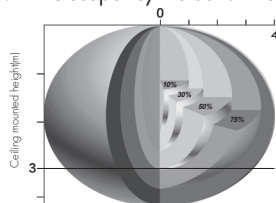


3. Wire Preparation



To make or release the wire from the terminal, use a screwdriver to push down the button.

4. HF Occupancy Detection Pattern



- The detection range is heavily influenced by antenna placement (angle of approach) and different walking paces. It may be reduced to (Ø x H) of 2 x 3m under certain conditions (walking across).
- Please refer to placement guidance provided later in this document.

5. HBT01/ HBT02 Antenna Installation and Placement Notes

To maximise the range in every direction, the following considerations should be taken into account when situating the antenna in the luminaire:

HBT01

The HBT01 contains both a HF microwave antenna and the bluetooth transceiver module and are located within the device as per fig.1.

When the antenna is mounted to a metallic backplane, such as a gear tray, a cut-out opening should be made as large as possible as shown in fig.2.

If possible, try to position the sensor as far away as possible from the LED Driver or other strong sources of HF interference.

HBT02

The HBT02 contains only the bluetooth transceiver module and is located in the same position as per fig.3. The same consideration to mounting on metal gear trays is therefore also as per fig.2.

fig.1. HF Microwave Antenna



fig.2.

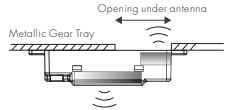
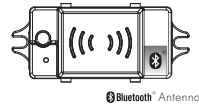
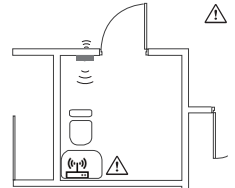
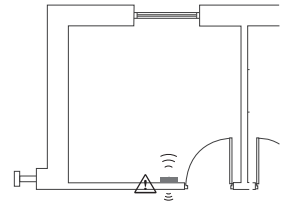
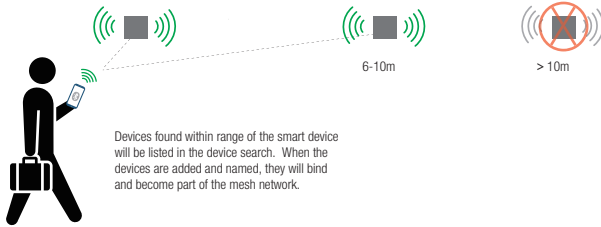


fig.3.



6. Basic Principle of Building the Hytronik Bluetooth Enabled Mesh Network

Smart Phone to Device Range

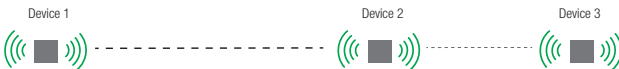
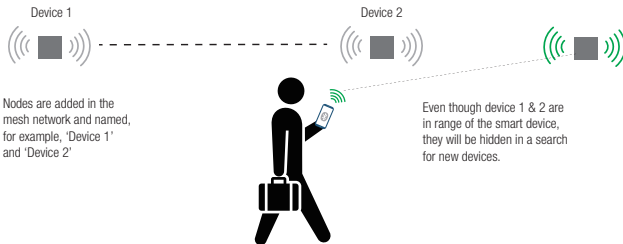


Notes:

The range for which a smart phone can communicate with the switch points will vary from model to model and is dependant on its Bluetooth capability.

Device placement will also effect the smart phone communication range and may appear different for each switch position.

Finally, other environmental factors (as above) will influence the ultimate achievable range of communication between smart phone and luminaire device.

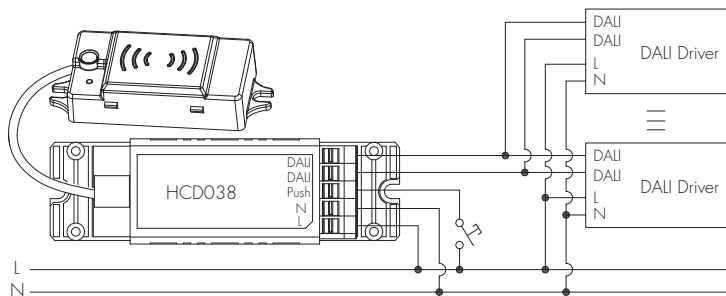


Device 1, 2 and 3 are all now in the mesh network and will not be discoverable under a new device search.

The mesh network is established and all devices in the network will be accessible in the devices screen, as long as the smart device is in range of any node.



7. Wiring Diagram



8. Hardware Features

8.1 Manual Override (HCD038 / HC038V 'Push' Terminal)

The 'push' terminal reserves the access of manual override function for the end-user to switch on/off, or adjust the light level by push-switch. Furthermore, by using the binding option in the App, entire groups of fixtures may be wirelessly controlled by a single switch. Please refer to the App user guide for further information.

- * Short Push (<1s): permanent on/off function; can also be configured to recall scene selection.
- * Long Push (>1s): Brightness level adjustment or colour tuning (colour tuning for DALI version only).

Notes:

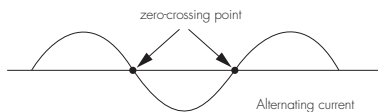
- 1) Both the adjustment on App and push switch can overwrite each other, the last adjustment remains in memory.
- 2) The switch functions are configured in the App.
- 3) The push terminal may be left unconnected if no manual control is required.

8.2 Photocell Advance™ Function (Built into HBT01 / HBT02)

It is well known that LED lights have a totally different spectrum to natural light. Hytronik uses this principle with a custom-designed photocell and sophisticated software algorithm to measure and differentiate natural light from LED light; the photocell can ignore the LED light and only respond to the natural light.

8.3 Zero-cross Relay Operation (HC038V)

Designed into the software, the relay switches the load right at the zero-crossing point, to ensure that the in-rush current is minimised thus enabling the maximum lifetime of the relay.



8.4 Hardware Reset Button

A HBT01/HBT02 should always be removed from a network via the APP through the devices menu, and it is highly recommended that the hardware reset button is only used as a last resort, such as the network to which it belonged has accidentally been deleted from the smart device, or the account to which the network & device belongs to is irretrievable.

The reset button will erase the device from any mesh network it may have been added to.

Note: After the following process has been carried out, the device will not be able to communicate with the APP, so has no way to automatically "clear" itself from active networks on the smart device.

The device will show itself as a "new device" when performing a device search. When re-connecting to the network, the device settings will need to be re-configured as if connecting a new device.

To perform the reset:

- * The HBT01/HBT02 must be connected and powered up.
- * Press and hold the reset button until the lamp flashes twice to confirm the reset is complete (It will take around 2- 5 Seconds).