

The *CATLINK* remote control distribution system is designed for use in structured cabling systems employing twisted pair category 5 (cat5) cabling and using RJ45 as the common connector. The system has the following components:-

#### Distribution Hub

Part # : CL-EHUB-38



Designed to be either free standing or wired into a patch panel arrangement.

The Distribution hub is connected to the IR distribution network via four RJ45 sockets which are wired with pair 4 providing power and signal reception for IR receivers and pair 1 driving emitters. This leaves pairs 2 & 3 for other applications such as telephone or 10baseT network if required.

The four RJ45 connectors are grouped into two pairs (designated 'ports A & B') providing two independent IR receiver circuits. Each of the two IR reception circuits can support up to 6 receiver heads, therefore providing support for up to 12 receiver heads per hub.

All RJ45 connectors can drive the Emitter network and can be parallel wired to Emitter signals of extra hubs thereby allowing larger networks to be built up from multiple hubs.

#### Receiver Heads

Receiver heads receive the remote control signals and convert them into electrical signals that are transmitted down a single twisted pair (in Cat5 this is pair 4) to the distribution hub. Each Receiver head is also provided power by the same twisted pair.

PART# CL-IRM01



The standard receiver head is designed to be mounted on the side of a television or item of furniture.

The receiver head is also available in a wall mount

version intended to be installed in a vertical position. Both the IR sensor element and the indicator light are mounted toward the top face of the receiver head's case.

Receiver heads are supplied with 1.5 meters of cable and are terminated with a RJ45 jack to pair#4 (pins 7 & 8).

PART# CL-IRM01-W



#### Emitters Set

Part#s EM01 & CL-EMADP-1



The Emitters are infrared transmitters that are positioned over or adjacent to the equipment to be controlled.

The emitter set consists of a standard emitter pair set (this part common to the *Wirelink* range as well as competing IR control products plus an RJ45 adaptor cable that allows the emitters to be plugged into the *CATLINK* network.

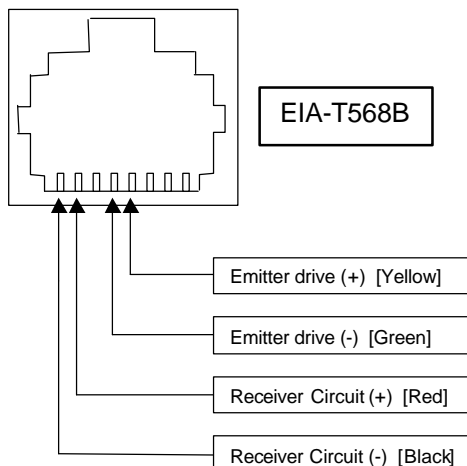
#### CONNECTIONS TO DISTRIBUTION HUB.

The Distribution hub has four RJ45 connectors for connection to the infra-red remote control distribution network.



The sockets on the hub are organised into two pairs designated Port A & Port B. Each of these ports can support up to six receiver heads and up to four emitter sets shared over each pair of connectors. Each RJ45 connector has 8 pins (4 pairs) and the hub uses 2 pairs of pins for connection. All four connectors are wired in the same manner and organised to EIA-T568B.

Pair 4 (EIA-T568B RJ45 pins 7&8, CAT5 colours BRN/WHT & BRN) connect to the receiver heads and hub provides regulated power to this pair also to power connected receiver heads. This allows the feature of only requiring two wires (i.e 1 pair) to connect receiver heads to the hub.



The hub supports two independent receiver circuits wired to each of the two ports. This means that if the Port A circuit becomes inoperative due to overloading, sunlight flooding or short circuit, then the Port B circuit will continue to operate and vice versa.

On all sockets, Pair 1 (EIA-T568B RJ45 pins 4 & 5, CAT5 colours BLUE & BLUE/WHT) connect to Emitters circuit that drives the emitters positioned over the infrared reception windows of the equipment to be controlled.

Signals received on any RJ45 receive circuit will produce emitter drive signals on pair 1 (pins 4&5) of all RJ45 sockets.

The indicator LED adjacent to the connectors flashes whenever a signal is being driven out of the emitter circuit.



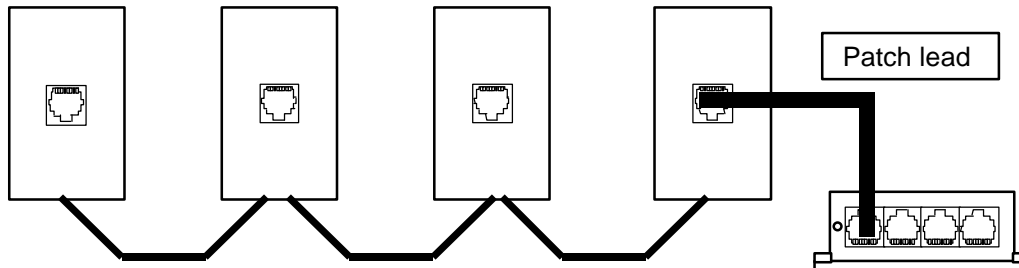
The hub is powered by 13.8~18V DC via the DC socket.  
Maximum current rating is 1 Amp.  
Minimum recommended power supply rating is 13.8V DC @ 0.5A.

**NOTE:** Most 12VDC @ 1Amp unregulated power adaptors are suitable for powering the hub as the typical unloaded voltage for these types of DC adaptors is around 15V. See website for details.

### EXAMPLE CONNECTION ARRANGEMENTS

#### 1. Simplest Arrangement – No Patch Panel

In the simplest arrangement where no patch panel is to be installed the hub can be simply connected to a series of parallel wired RJ45 wall plates and the hub attached at some place in the arrangement with a signal patch lead.



Connection of the of the emitters and receiver heads is done by just plugging them into the desired wall plates – no other cabling required.

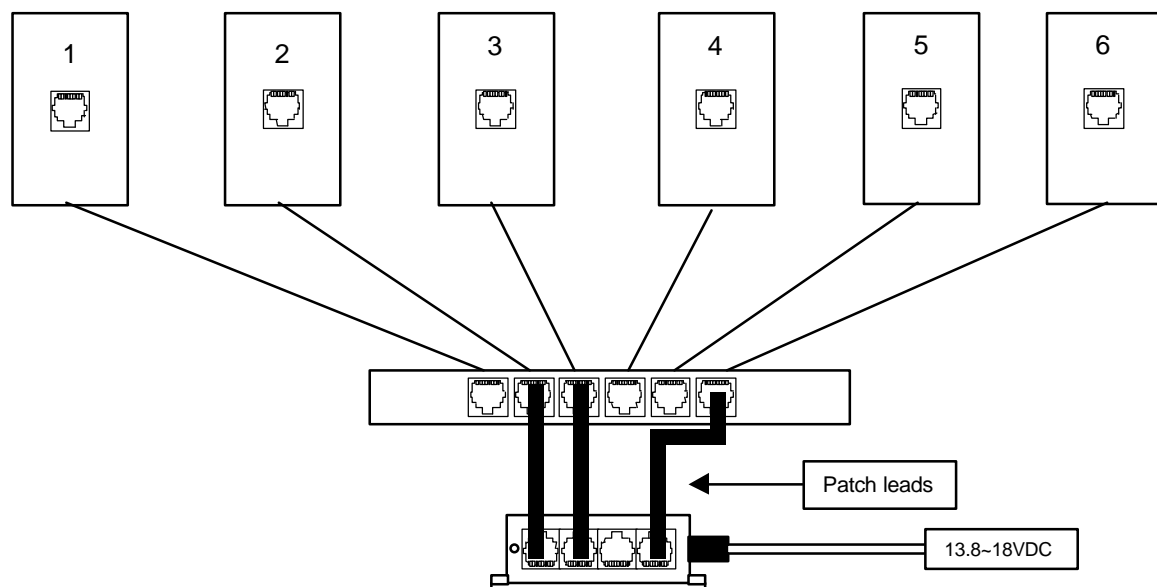
This is the simplest arrangement to install but does have the disadvantage of not being a structured cabling system.

Note: do not string more than six wall outlets at a time.

#### 2. Typical Patch Panel Arrangement.

Most structured cabling systems employ at least one patch panel which all RJ45 outlets terminate to. This is referred to as 'star-wiring' and allows definition of outlet function by use of patch leads. In the example below the Distribution Hub is connected to wall plates 2, 3 & 6.

Connection of the of the emitters and receiver heads is done by just plugging them into the desired wall plates.



The number of outlets supported can be extended beyond the four provided by the distribution hub by providing option in the patch panel for parallel connection of outlets to a single Hub socket. Do not attach more than 6 outlets to a distribution hub port.

### Emitters Installation

The emitters pair consists of two infra-red emitter elements that are positioned over the infrared receiver windows of the equipment to be controlled. Positioning is achieved by use of adhesive strips or a small amount of hot melt glue.

Some installation examples:-



In this example the emitter is mounted direct to IR control window of the equipment. Adhesion is achieved either by the adhesive strip provided on the emitter or by hot melt glue.(where in some situations the surface to the equipment does not provide a good adhesive surface). Control of the equipment using just the the remote control is still possible because the emitter body allows infrared light to pass through it.



The Emitter can also be mounted just above or below the equipment's remote control area. The domed side of the emitter is a lens and provides a range of 5~10cm.

See the *Emitter installation application note* for further detail.

### Fault Finding

If a given piece of equipment does not react to remote control commands, perform the following checks:-

- Check indicator LED of the receiver head flashes when the remote control is activated.
- Check indicator LED on distribution hub flashes when command is being sent and does not flash (or stay on) when remote control not activated. If you see LED permanently on then there is a fault in the system (either a cable fault, station fault or IRR module faulty or flooded with sunlight). Try disconnecting sections of the system to isolate fault.
- Check emitters are correctly positioned over reception area on equipment to be controlled.
- Check if equipment is standard IR modulation and not 455kHz (RECS80) typical of some European equipment. If so then special versions of receiver head module and/or distribution station is required.
- Check that equipment is switched ON.
- Check that the power supply is not falling below 13.8V at any time during the time the signal is activated.
- Try tunable bandwidth version of the receiver head (Part# CL-IRM02-A - to be released soon) and attempt adjustment according to installation document supplied.

#### RATINGS

##### Distribution Hub (Part# CL-DHUB-38)

Power Supply Requirement	13.8 ~ 18V DC @ 1A minimum
Maximum cable run length	100 meters of Cat5
Maximum number of receiver heads supported	6 per Port, maximum of 12 for a single hub
Maximum number of Emitter sets	4 per Port, Maximum of 8 for a single hub.
IR bandwidth	25kHz ~ 455kHz

##### Receiver Head (Part# CL-IRM01-38)

Voltage Range	5.6V~15VDC
IR Centre Frequency	38kHz
IR bandwidth	4kHz

For further applications/installation or product information, visit the ControlPlus website  
[www.controlplus.co.nz](http://www.controlplus.co.nz)



INFRARED REMOTE CONTROL DISTRIBUTION SYSTEMS  
ControlPlus Products, PO Box 125, Silverdale, Auckland, New Zealand

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