CABLING ADVICE

WHAT IS THE BEST TYPE OF CABLE TO USE?
You can use Cat5e, Cat6, Cat6e, Cat7a, Cat7, or Cat6a with Pulse-Eight products. The baseline cable standard for this neo system is Cat5e. Slightly greater distances can be achieved by using Cat6, or slightly better still with Cat7, which has stricter shielding requirements and reduces potential cross talk between data pairs. Whatever network cable type you choose, ensure that the main wiring architecture is solid core, not stranded patch cabling. Patch cabling can be used for the last few metres of a run (e.g. from a wall plate) but must be avoided over longer runs as signal transfer over stranded cores is heavily reduced. The use of pre-made leads is not recommended unless you can be absolutely sure of their construction credentials (i.e. solid core 568B). Please note that CCA (Copper Clad Aluminium) cable is NOT supported.

SHIELDED CABLES
Unlike other systems, shielded FTP cable is not a stipulation. If, however, you prefer this type of cable please ensure compatible shielded accessories are used. Failure to terminate cable screen at all points can induce interference rather than eliminating it.

CABLING BEST PRACTICE
Our best practice policy is to terminate to a wall plate at either end and then use solid core patch cables (usually it is better to make your own than use pre-made) between the patch panel and the matrix and the wall plate and HDBaseT receiver.

HDBaseT WITH PATCH PANELS AND WALL PLATES
If the patch panels are terminated correctly, there is minimal loss of distance. The use of wall plates and patch panels, however, has the potential to cause increased resistance on the cable if not done correctly, introducing pinch points for signal transmission, and could reduce advertised transmission lengths. Instead of using RJ45 wall plates, you can use brush plates to maintain the neat finish.

CONNECTION TERMINATION
Terminate the cabling using RJ45 connectors to the 568B wiring standard. (See diagram)

IMPORTANT
Please note that local building regulations may apply to the installation of cabling in properties. It is important to check building regulations to guarantee that you are in accordance with the laws of your territory.
**CONNECTING RACK EARS**

The supplied rack ears can be fitted to the front or rear of the chassis. Ensure the matrix is securely fitted to the rack using 4 rack nut/bolts. The matrix requires 1U of rack space, plus some additional shelving to secure the power supply too.

**CONNECT TO THE WEB INTERFACE**

To setup neo you need to use the built in web interface. This can be accessed from any locally connected device via Wi-Fi or a fixed wire connection.

You can access the neo web interface from a mobile, tablet, laptop or desktop PC. It is designed to work on Internet Explorer 10, Microsoft Edge, Firefox, Google Chrome and Safari.

**GOTOMYMATRIX.COM**

You can easily access the neo web interface by visiting www.gotomymatrix.com into any web browser, on any device, this will locate the matrix automatically on your local network.

**USING THE WEB INTERFACE**

Many of the controls in the user interface (UI) are drag and drop friendly. These drag drop actions will work on any device.

**VIDEO ROUTING**

The home page of the UI displays the current routing, devices in blue are active, we have detected they are powered up*. Select an input with a single click/press and the outputs that this input is routed to will be highlighted. Press again the same input to restore the normal display.

To change the routing of the matrix, drag the input and drop it on the output you want to send that video to. Once routing is successful a green success message will display. If for some reason this routing cannot be done a red error message will be shown explaining the reason.

You can also change the routing by click on the display icon on the output and then selecting the input from the drop down list. You do not need to click save changes, the change is immediate.

*Due to certain HDMI limitations this may not be 100% accurate at all times.
RENAMING A SOURCE DEVICE
Click on the properties icon, enter a new name and click on Save Changes. Names must be 13 characters or less and cannot be blank, start with or end with a space, certain special characters are also not allowed. Custom names are displayed in the source menu in a CEC enabled TV*, updates should be reflected immediately but you may need to restart your TV to get some updates. *where supported.

RENAMING SINKS
Click on the display icon, enter a new name and click on Save Changes. This name is purely cosmetic and only used within the web interface. The length restriction of 13 characters still applies.

CONFIGURING NETWORK SETTINGS
By default the matrix is set to retrieve an IP address via DHCP, you must connect the system to a router or server that has DHCP enabled. Once initially configured you can modify this setting and switch to a static IP address.

You must ensure that the new settings are correct before saving them as you will no longer be able to access the matrix if they are incorrect. In order for the internet based functions to operate such as the cloud based monitoring and gotomymatrix.com facility you must provide at least one valid DNS address. We recommend using the Google Public DNS address 8.8.8.8 for Primary DNS and 8.8.4.4 for Secondary DNS.

SETTING UP CEC
Consumer Electronics Control (CEC) is a built in technology within HDMI, widely supported in modern TVs, AVRs, Blu-Ray players and Media Centres.

INTRODUCTION
neo has built in support for all CEC implementations from different vendors, where possible we have included additional vendor specific support to maximise compatibility. That said implementation varies between different brands and continues to improve, certain features described in this manual may not be available on all makes and models in your setup. If we can detect that a feature is not supported, this incompatibility will be displayed in the web interface.

DIFFERENT BRANDS
Common brand names for CEC are, Anynet+ (Samsung), BraviaLink or BraviaSync (Sony), EasyLink (Philips), SimpLink (LG), Viera.Link (Panasonic) Kuro Link (Pioneer) CE-Link and Regza Link (Toshiba), RIHD (Onkyo) More and more devices are using the common name “HDMI-CEC”, often it is disabled by default, and you may need to enable it in the settings menu before continuing. (Consult the manual for your source or sink device on how to do this)

HOW IT WORKS AND SWITCHING SOURCES
Depending on the TV you are using will depend on exactly which button you press, for example, on a Sony TV you press the “Sync Menu” button, this brings up a menu, from here select HDMI Device selection and your source devices are listed, if you have customised their names, these names will be listed. The order in which they are displayed may change from time to time, there is no ability to specify the sort order of devices in these lists. In other brands, simply pressing the “Source” button will list all of the devices alongside other inputs (such as Network or USB media)
THIRD PARTY CONTROL DRIVERS
You can control neo via IR, Serial or our recommended method, TCP/IP. We supply drivers for common control systems, including Control 4, AMX, Crestron, RTI and Elan. We are constantly improving our native integration with other platforms, more information and driver downloads are available at http://monitoring.pulse-eight.com/

ACCESSING THE MATRIX WITHOUT AN INTERNET CONNECTION
While neo works best with an active internet connection it is possible to still configure and operate the system without one. However to configure the system from its defaults a local network connection is required. Normal operation of the CEC and IR control systems does not require any network connection, but IP based API control or Web based controlled does require a persistent network connection.

DISCOVERY TOOL
You can download a discovery tool from your monitoring portal at http://monitoring.pulse-eight.com/ this program will run on Windows 7 or newer only, when run it will scan your network and detect the IP address of your matrix. If multiple systems are detected it will only display the last found. So you may need to disconnect any other systems from the network before you start.

The discovery tool will display the IP address of the matrix, you can then access the matrix by typing that IP address into your web browsers address bar.

It is recommended in this mode that you configure the networking to use a static IP address, this allows for you to bookmark the page easily and return to the web interface easily without needing to run the discovery tool again.

THE REAR PANEL

API REFERENCE
We provide a fully documented API for neo, this is available in your monitoring portal (http://monitoring.pulse-eight.com/). You must be logged in to access it.
If you have questions, please speak with your installer, we are not able to provide programming support directly.

TECHNICAL SPECIFICATION

MATRIX
1U 19” rack-mountable chassis with 4 HDMI inputs
4 Cat outputs and 2 mirrored HDMI outputs.
Width: 43 cm / 16.9”
Height: 4.5 cm / 1.7”
Depth: 14 cm / 5.5”
Weight: 2.05 KG / 4.5lb

RECEIVERS
HDMI (340MHz)
70m / 230ft distance
4K ULTRA HD* support
Lossless HDMI video and audio
IR
CEC
Power over HDBaseT (PoH similar to PoE)
Width: 5.5 cm / 2.1”
Height: 3.8 cm / 1.5”
Depth: 10 cm / 3.9”
Weight: 0.086 KG / 0.18lb
**WARRANTY INFORMATION**

**IMPORTANT INFORMATION ABOUT YOUR RIGHTS AND OBLIGATIONS, AS WELL AS LIMITATIONS AND EXCLUSIONS THAT MAY APPLY TO YOU.**

**YOUR RIGHTS AND THE UNLIMITED WARRANTY**

This Limited Warranty gives you specific legal rights. You may also have other legal rights that vary by state, province or jurisdiction.

The disclaimers, exclusions, and limitations of liability toward earthquakes, hurricanes, or acts of God, including lightning, fire, flood, tornado, or hurricane.

**NO OR POORLY CONNECTED IMAGE QUALITY**

• Connected and powered correctly? Double check all HDMI, Ethernet and power cables are firmly connected into the correct ports an all devices are correctly powered.

• Cable length? Are you approaching the maximum distance of the cable (70m) if so, adjust the picture quality or try using an additional extender kit to go further distance. Cables bundled together may cause cross talk and degrade signal quality.

• Signal strength? Use the add on cable, join stranded patch panels, wall outstand and stranded patch leads as interconnects between them, can significantly reduce signal strength. Use solid core straight through connections wherever possible.

• If you reduce the resolution of the source do you get a picture? If so, this suggests a conflicting resolution between source and display or a bandwidth capacity issue with your cable. Check all inputs and outputs share the same resolution capabilities.

• Picture 'snow' / HD 'noise' signifies a failure to fully establish a signal and can often be caused by poorly terminated RJ45 connectors or excess cable lengths. Ensure your cable is correctly wired to 568B standards.

• Cable quality and condition - HDMI cable/connectors can easily be damaged and the quality of material can vary, Always use good quality leads and cables and try swapping cables that are known to be working into the solution wherever possible.

• IR signal dropout can be experienced due to exterior emissions of infrared radiation. Ensure emitters and receivers are away from direct sunlight. Halogen lighting and plasma screens may also interfere with IR signals.

**IR CONTROL**

• Are the IR emitters and receivers correctly positioned to allow infrared signals to be transmitted and received? Emitters should be fixed firmly over infrared sources. Receivers should be attached to display ensuring a clear line of sight to the remote control used to operate.

• In your remote control powered and sending a signal? As IR is invisible to the naked eye, check your remote is transmitting a signal by viewing the remote handset through a digital camera/camera phone. The sensor should flash when a button is pressed down.

• IR signal drop out can be experienced due to exterior emissions of infrared radiation. Ensure emitters and receivers are away from direct sunlight. Halogen lighting and plasma screens may also interfere with IR signals.

**TROUBLESHOOTING**

Should you encounter installation difficulties or issues with device communication, the following checklist of common issues and causes should help resolve your issues. If you still continue to experience issues, please contact your place of purchase.