

# Remote Lab Connection

# Modern electrical machines

This document outlines the process users should follow to remotely connect an electrical machines control box to a network or internet to allow remote control. This can only be actioned on units purchased since June 2020.

## Accessing using local network

The default IP address of the Electrical Machines box is 192.168.1.235 and the default port is 88. The IP address and Port can be changed by connecting to the box using a USB connection and running the calibration application. The Ethernet connection must be connected to the network and then the IP address and Port can be used in the software applications to connect to the Electrical Machines box. The MAC address is calculated to try and keep it unique on the network. The default address is 64:65:66:EB:58:00. The first three bytes are fixed, the fourth byte is the last byte of the IP address, the fifth byte is the lower 8-bits of the port and the sixth byte is the upper 8-bits of the port.

## Accessing using the Internet

Before accessing the Electrical Machines box from the internet make sure the box is functioning correctly on the local network. This helps to pin point any connection problems down to the IP and Port of the box or the configuration of the router.

To access the Electrical Machines box from the Internet the user must ensure they have enabled port forwarding on their own router, (the connection from your local network to the internet). This takes incoming connections from the internet and routes them to the correct internal IP address. Use the routers IP address in the software applications.

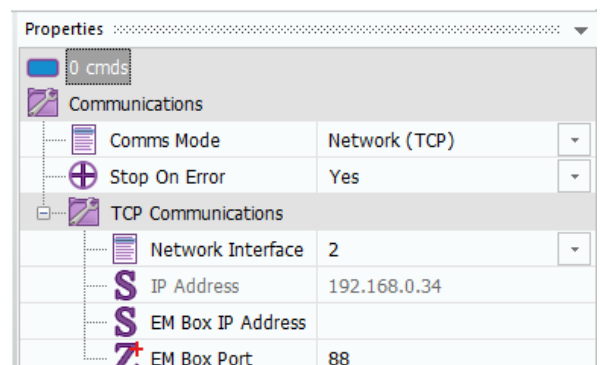
Information on enabling Port Forwarding on your router: <https://portforward.com/>  
Information on finding your routers IP address. <https://whatismyipaddress.com/>

On a home routers (for example in the students' or lecturers home) you may also need to enable a demilitarised zone (DMZ) to the Electrical Machine box IP address to allow incoming Internet traffic to reach it. A commercial router may not have to do this.

## Configuring the software application

Using the software application downloadable from the Matrix website: [www.matrixtsl.com/electrical-machines/resources/](http://www.matrixtsl.com/electrical-machines/resources/), the user starts the Electrical Machines software application for the specific machine they have in test.

Ensure Network (TCP) communications is selected (not USB). Under the TCP communications menu, select the network interface that provides a sensible IP value. In the EM box IP address, enter the IP for your control box. In the EM box Port, enter the Port number for your control box.



*NB: Matrix TSL are unable to provide full support for internet based connections. We will make suggestions to enable this feature but in no way will be configuring institutions networks or routers.*