Integrating MechoSystems Shade with Cooper Lighting Solutions WaveLinx system

Overview

MechoSystems® provides automated solar-shading and room-darkening solutions for residential and commercial buildings. The CORE Shade Interface, TRX-SHADES, allows users to easily integrate a MechoSystems shade control system with WaveLinx CORE and WaveLinx Area Controller. The interface allows the use of any WaveLinx Wireless Wallstation (line voltage and battery powered) to control any of the shades within the facility irrespective of the physical location or relation of the wallstations or the shades.

Serial Integration with MechoSystems IQ/MLC2

The WaveLinx CORE system can output custom serial strings to the MechoSystems IQ/MLC2 or MNI+ RS232 interface using the MechoNet RS-232 protocol. The communication is one-way from WaveLinx CORE to the MechoSystems IQ/MLC2 or MNI+ RS232 interface with no feedback or return commands. For more information with regarding to the Mechonet RS-232, please visit the links below:

IQ/MLC2 Data Sheet

MNI+ Data Sheet

Commands Available

The commands to MechoSystems' shades are triggered exclusively through button presses on any WaveLinx wireless wallstation.
The following MechoNet commands are supported:

- All WaveLinx Wireless Wallstations – Up / Down / Stop / Go To Preset (Preset 1, Preset 2, Preset 3)

Configuration of the wireless wallstations and selection of the shades command and controlled shades is completed on WaveLinx CORE. See **Viewing and Editing Shade Control Wallstations in the WaveLinx CORE Configuration Guide** for details. Each wallstation button can either be configured for lighting or shade control and not both. A wallstation device can support a combination of buttons controlling either lighting or shades.

Restrictions

1. There are no "Go to Level" or "Toggle" options for the shade system.
2. Go To Preset command: All Presets are configured by MechoSystems technicians and are not editable or discoverable in WaveLinx CORE.
3. Only wireless wallstations support shade control, no other modules support the MechoSystems Integration.
4. The MechoSystems technicians shall commission the MechoSystems and provide the area/room name reference to the zone, group and node shade addresses to the Cooper Startup Technician in order to complete the setup on WaveLinx CORE.
5. The MechoSystems Shade Addresses/IDs are entered as ZGN, Zone.Group.Node in WaveLinx CORE.
6. Shade control via WaveLinx CORE can be overridden by any commands sent directly from the MechoSystems.

IMPORTANT: Manual actions via floor plan, occupancy or daylighting control and time clock or events are not supported and have no interaction with the shade control integration.

Communications

The button press command is sent wirelessly over 802.15.4 to the WaveLinx Area Controller (WAC). The WAC, which has no serial interface, forwards the button press to WaveLinx CORE over Ethernet. WaveLinx CORE then sends the command, containing the shades command and selected shade IDs to an Ethernet-to-RS232 converter, the Mecho Controller, which converts the signal from Ethernet to serial. The IQ/MLC2 and MNI+ offer serial ports for third party integration.

The MechoSystems IQ/MLC2 (or MNI+) is connected to WaveLinx CORE using a Mecho Controller (which is an Ethernet Interface Module, EIM.) The EIM, acting as the WaveLinx CORE Mecho Controller, converts data packets sent over TCP/IP to RS-232 serial communication. The EIM is shipped with a 120VAC power adapter. For more information on the EIM, please visit:

EIM Data Sheet

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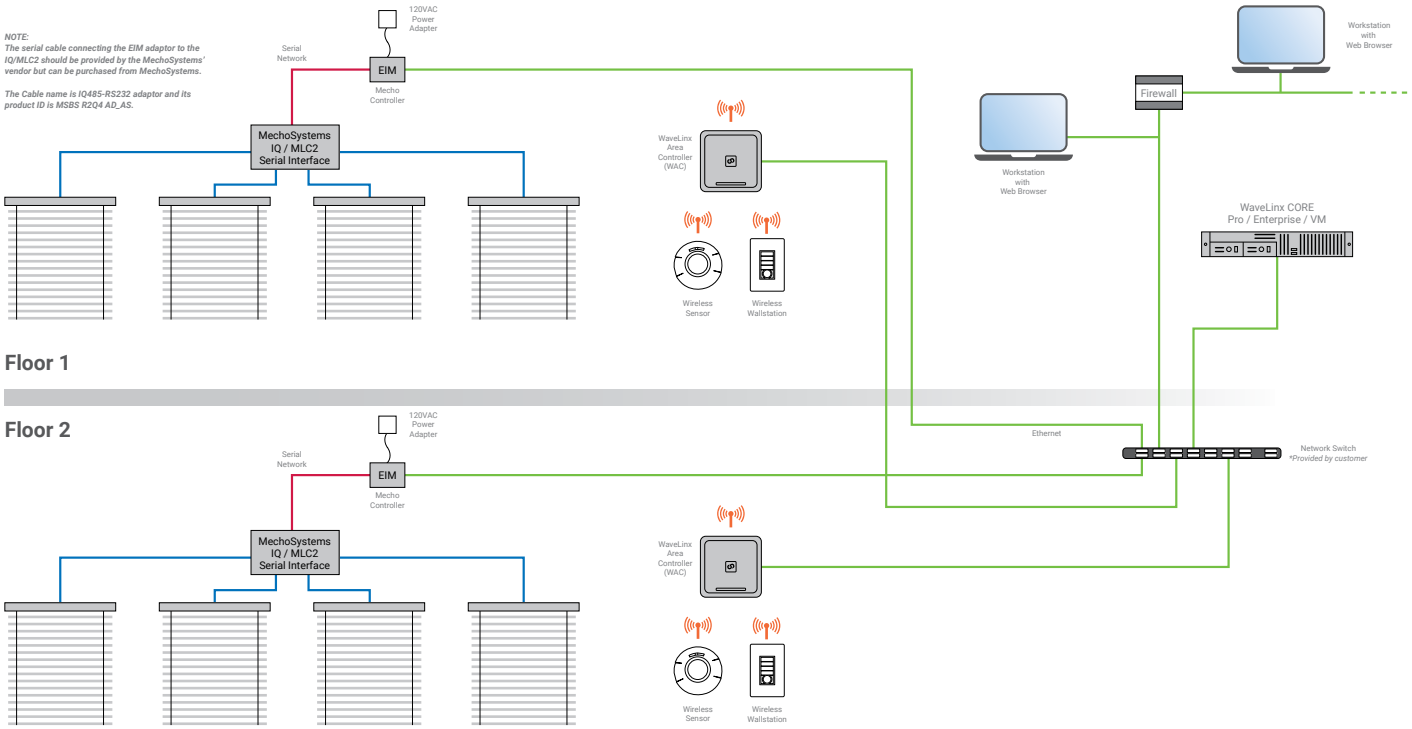
The EIM serial interface (DB9 port), using an adaptor, is connected to the MechoSystems IQ/MLC2's (or MNI+) RS232 port as illustrated below while the EIM's Ethernet interface (RJ45 port) is connected to a network switch which must have a communication route to the WaveLinx CORE.

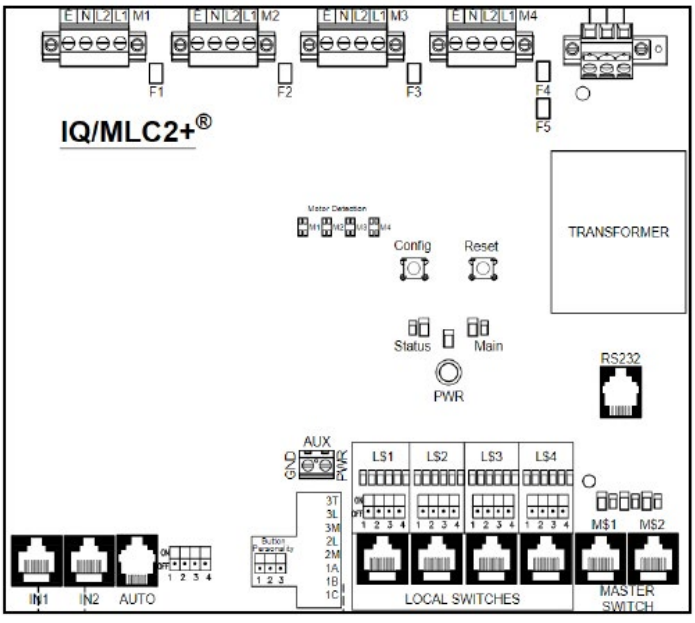
IMPORTANT: The serial cable connecting the EIM adaptor to the IQ/MLC2 or MNI+ should be provided by the MechoSystems' vendor but can be purchased from MechoSystems. The cable name is IQ485-RS232 adaptor and its product ID is MSBS R2Q4 AD_AS.



RS232 Connections

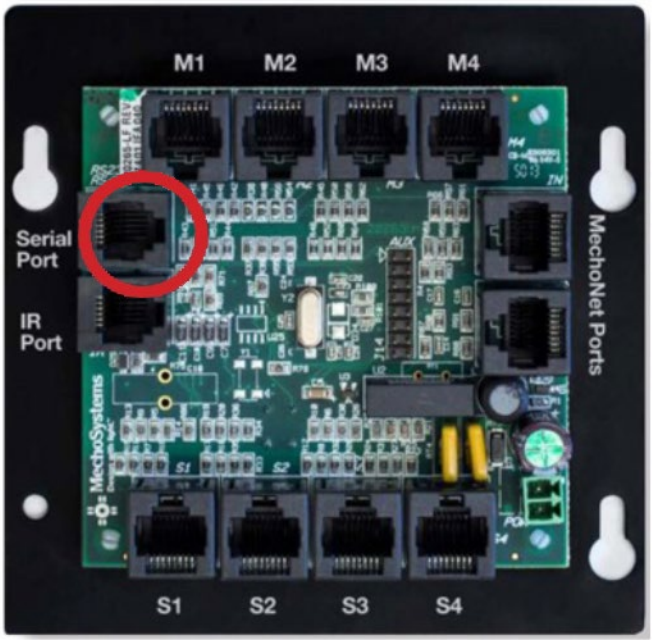
The RS232 Port (RJ12) – The location of the serial interfaces to the IQ/MLC2 and the MNI+ are shown below.

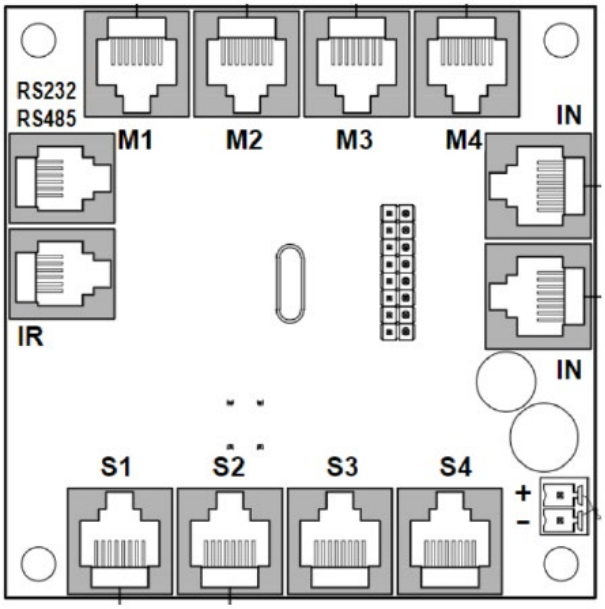
The MechoSystems' – IQ/MLC2 Interface



version **WaveLinx CORE 10.x**

The MechoSystems' – MNI+ Interface





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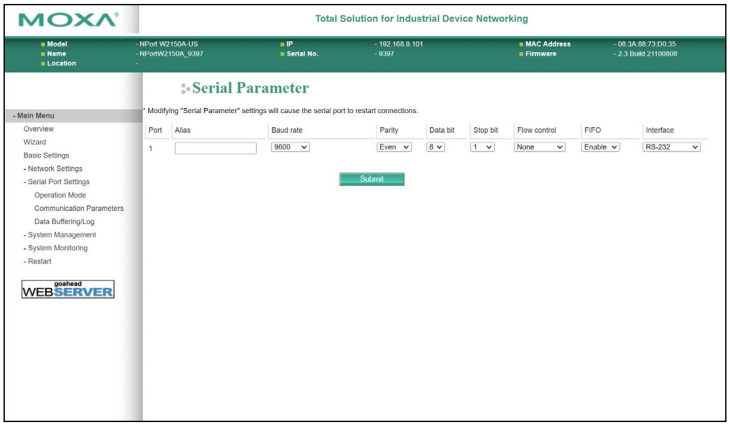
Mecho Controller/EIM Serial Settings Port 1

The Mecho Controller/EIM configuration must follow the settings below. These are provided by MechoSystems and should not be adjusted.

Serial Settings	
Baud Rate	**19200**
Data Bits	**8**
Start Bits (if listed)	**1**
Stop Bits	**1**
Party	**None**
Flow Control	**None**
FIFO	**Enable**

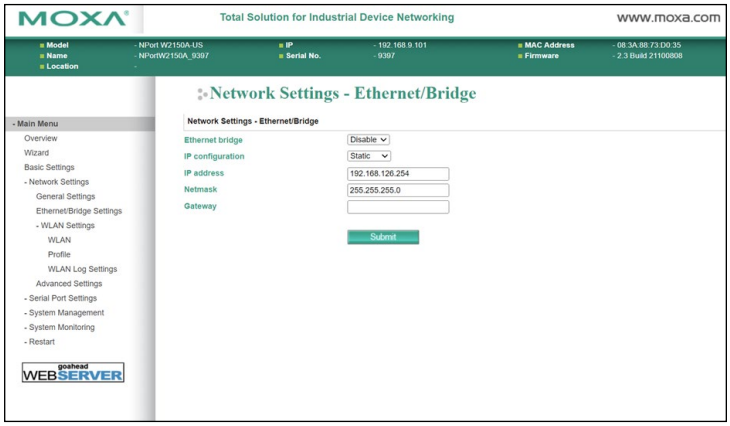


Network Settings

Set the IP Configuration to Static. The IP address, Netmask and Gateway must be completed.

Alternatively, IP configuration can be set to DHCP/Dynamic. Make sure to note the MAC address of the device.

Consult with the building/facility IT department to get the necessary IP details and/or reserve an IP address if using DHCP.



Operating Settings

Custom Settings	
Operating Mode	**TCP Server Mode**
TCP alive check time	**1 min**
Inactivity time	**61000**
Max connection	**4**

Default Settings	
Ignore jammed IP	**No**
Allow driver control	**No**
Packing length	**0**
Delimiter 1	**Not enabled**
Delimiter 2	**Not enabled**
Delimiter process	**Do nothing**
Force transmit	**0**
Local TCP port	**4001**
Command port	**966**