User Guide

MS-0401AU

Bi-directional USB3.2 Gen 1 switcher



Revision 1.0 - Nov 2025

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Notices

- This MSolutions product contains electrical components that may be damaged by electrical spikes, surges, electric shock, lightning strikes, etc. Use of surge protection is highly recommended in order to protect and extend the life of your equipment.
- The transmission distances of HDMI over CAT cables are measured using TE CONNECTIVITY 1427071-6 EIA/TIA-568-B termination (T568B) of cables is recommended for optimal performance. To minimise interference of unshielded twisted pairs in the CAT5e/6 cable, do not run the HDBaseT / CAT5e/6/6a cabling with or in close parallel proximity to mains power cables.
- Do not substitute or use any other power supply other than the enclosed unit, or an MSolutions approved replacement. Do not disassemble either the Transmitter or Receiver units for any reason. Doing so will void the manufacturer's warranty.
- MSolutions reserves the right to change the specifications of this unit without prior notice. As a result of this, physical representations or graphical elements contained within this user guide may not be accurate.

Introduction

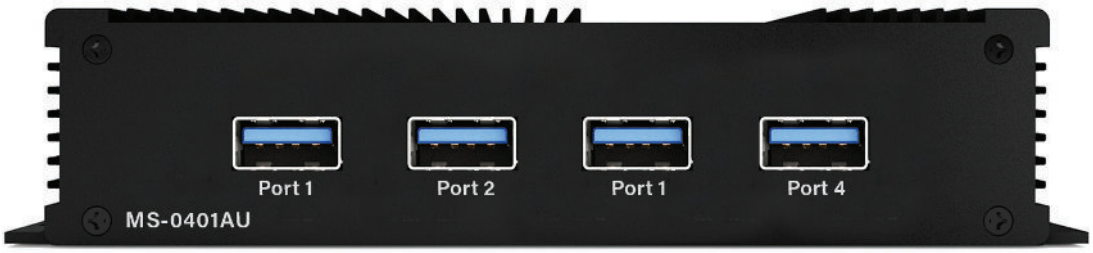
New from MSolutions, the MS-0401AU USB 3.x Auto Switcher transforms your meeting room into a seamless BYOD (Bring Your Own Device) environment. This innovative solution ensures that all room facilities—displays, cameras, speakers, and more—are automatically connected to the local PC. Besides for the local device connection, up to three guests can connect their BYOD devices to the USB ports in the panel and the system instantly switches, granting the guest computer full access to all room resources – on a last-in basis.

The MS-0401AU integrates with building control systems, enabling centralized control and management of essential room functions such as displays, lighting, shading, and AC via an IP controller.

Key Features

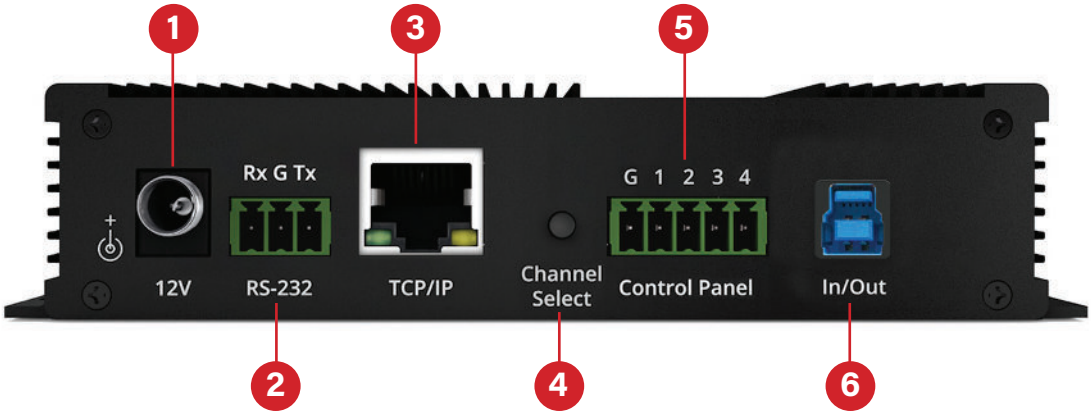
- Inline switching of host device: 1 x input to 4 x selectable outputs, or, 4 x independent inputs to 1 x output
- Supports USB 2.0, USB 3.1, USB 3.2
- Switching control via IP / serial / RS-232/ local switch
- Internal galvanic separation of inputs / outputs to ensure disconnect when ports are not in use
- Connection for local switching for panel unit
- On board channel select

Connectivity Overview - front



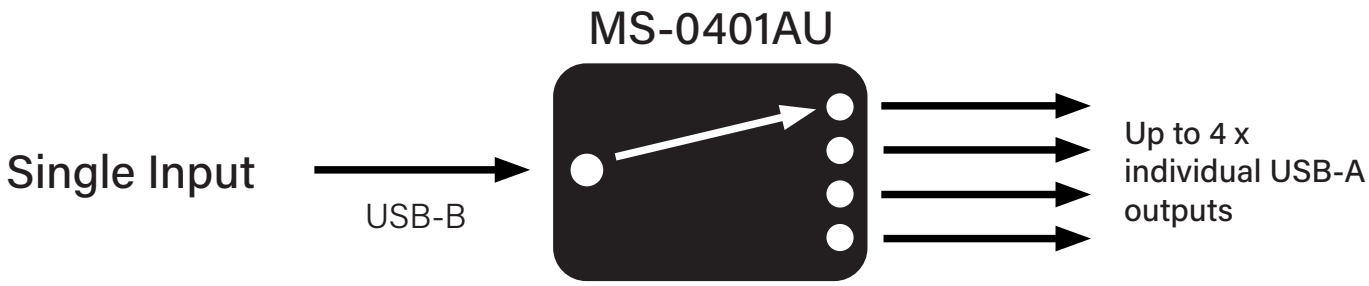
- 4x Bi-directional USB3.2 gen1 type A ports

Connectivity Overview - back



1. Power connector – connect to supplied 12V 2A power supply
2. 3-pin Phoenix connector
3. TCP/IP
4. Channel Select
5. Control – 5-pin Phoenix connector
6. Bi-directional USB3.2 gen1 type B port

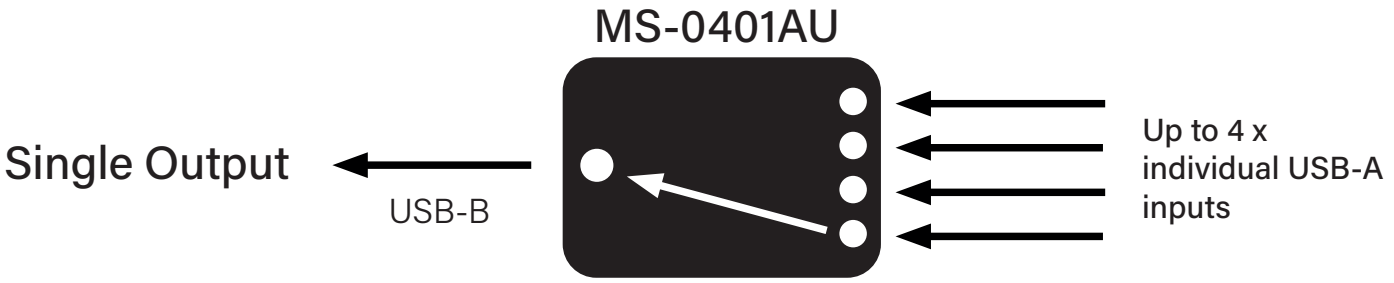
Single Input to Multiple Outputs



The MS-0401AU can be used to transfer the signal from one point of transmission to one of the 4 x outputs.

Please note: the input is only ever routed to one output in this configuration. The unit does not act as a splitter connecting all outputs ot the input simultaneously.

Multiple Inputs to Single Output



The MS-0401AU can also be used to route any of up to 4 x input signals to the output.

Power

The MS-0401AU allows for all USB power schemes to pass-through the unit the same as if a single USB cable were to be connected between the transmission equipment were connected to the remote equipment. The MS-0401AU does not use the power contained within the signal for its own switching or power processes.

Control Tools

Four MS-0401AU Interfaces

1 **UART RS232**
for firmware upgrade and debugging

2 **Web-based UI**
DHCP UI for configuration and management

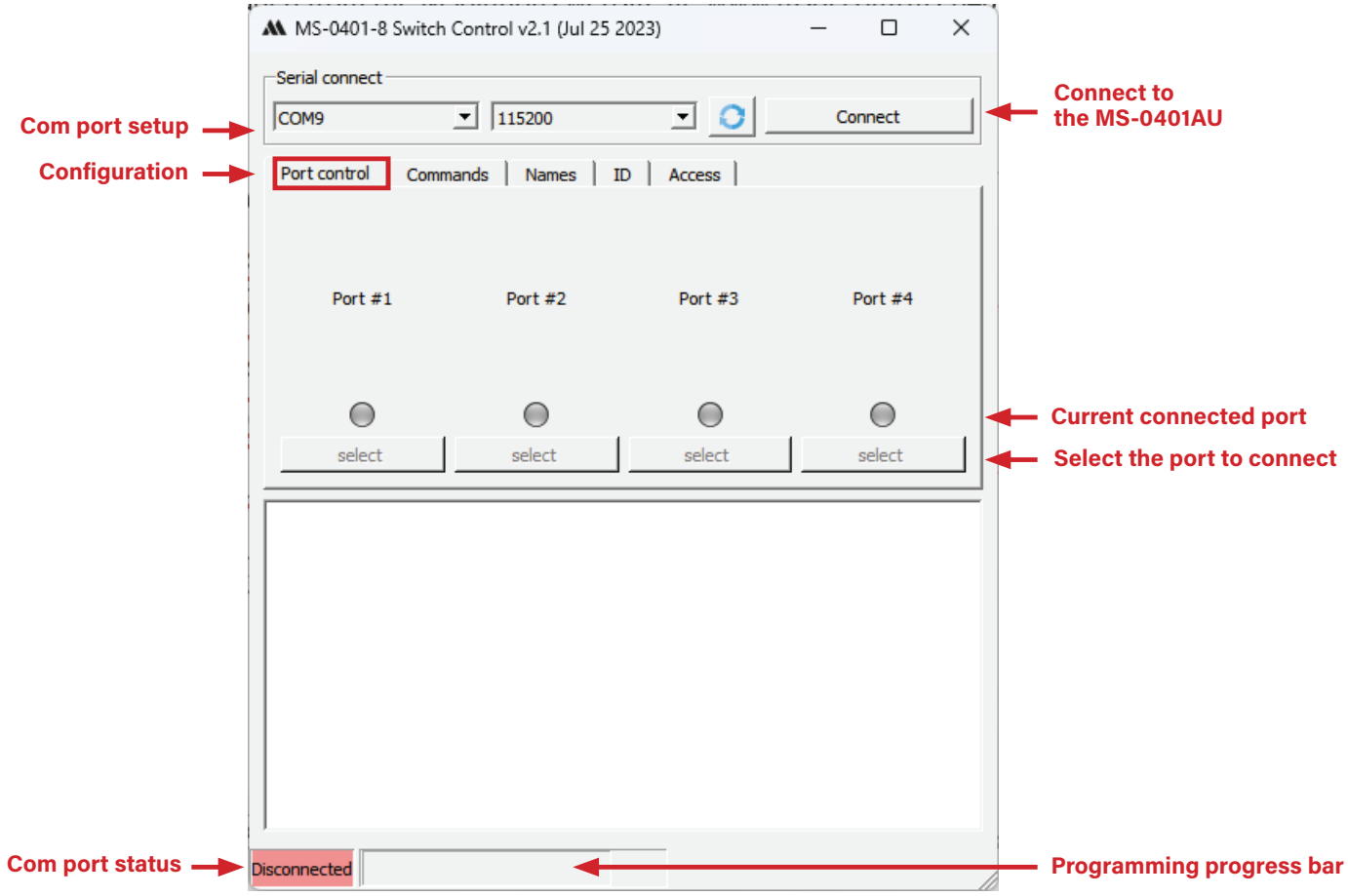
3 **JSON Interface**
for integration with other applications

4 **Keypad**

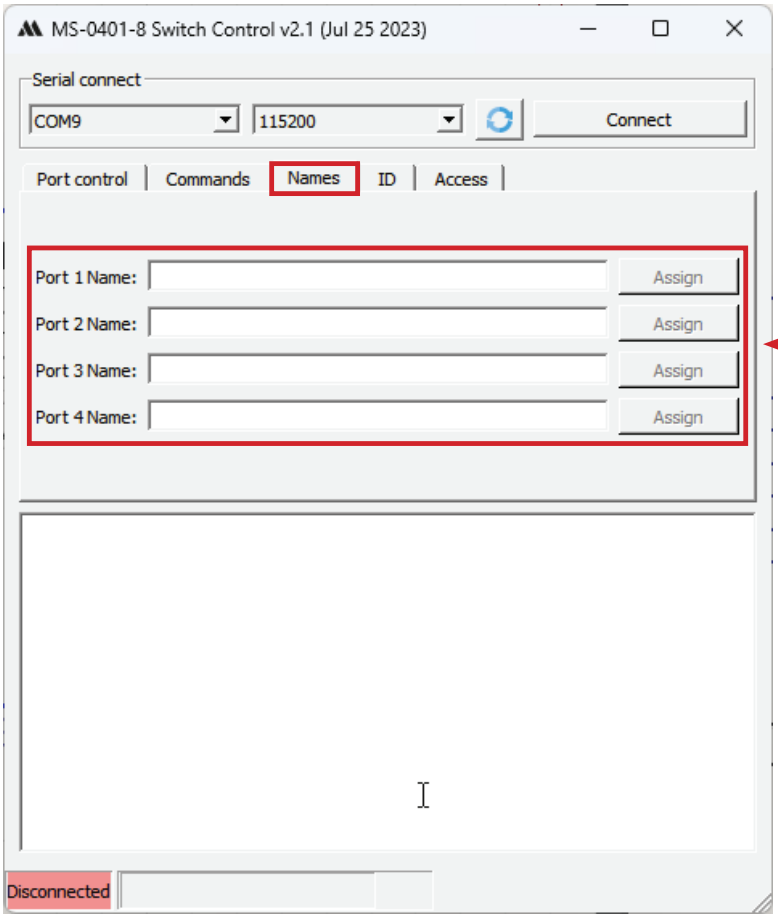
1. UART RS232 User Interface for firmware upgrade and debugging

MSolutions provides an RS232 API inteface so that third party controllers can control the MS0401AU. The app can be downloaded from the MSolutions website at: www.msol.com/ms-0401au

MS-0401AU Application:

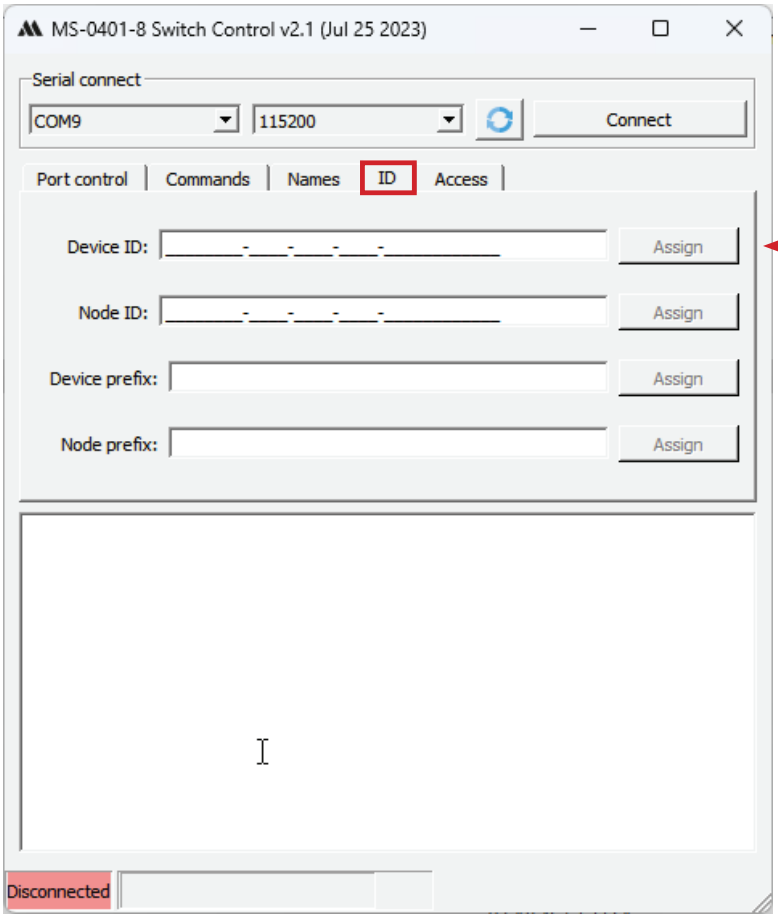


Port labeling



Assign port name

IPMX interface configuration



IPMX interface
Conduct IP interface

Third Party Controller:

Switch RS232 Command List

COMMAND	DESCRIPTION
RR	Reply: current state: “R1”, “R2” ... etc.
01 **02** **03** **04**	Set new switch state (no reply)
ip	Reply: network settings and state
er	Reset network settings to default Reply: “Settings have been reset to default”
b	Reply: firmware version
bt	Start bootloader mode

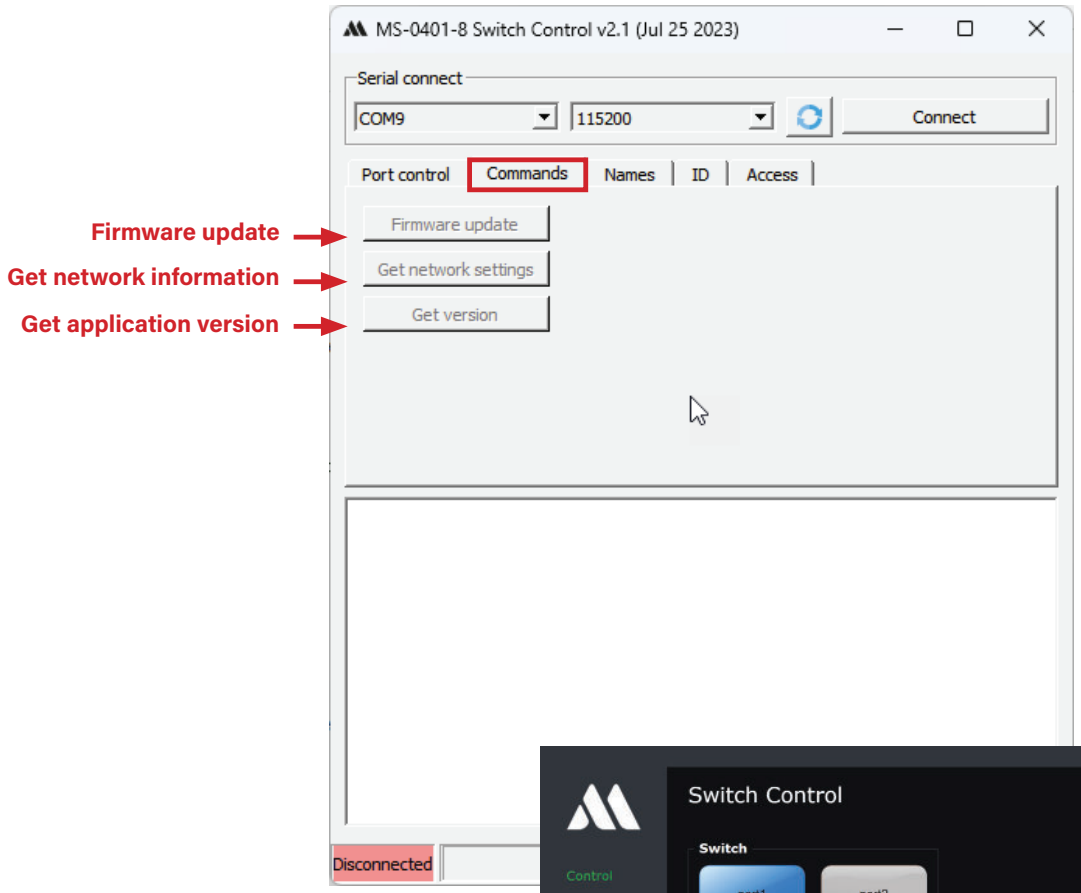
Note: Don’t append CR, LF to the command.

Examples for Switching Ports

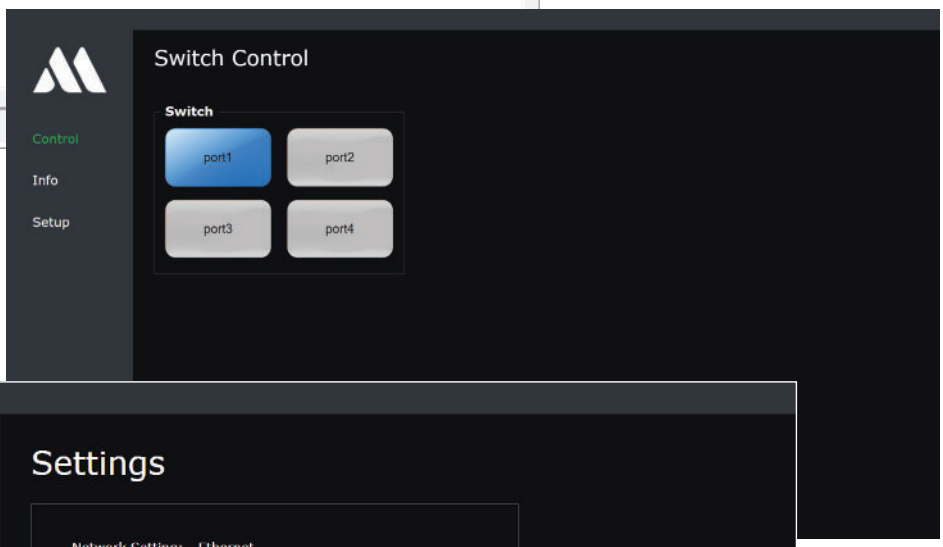
FUNCTION	COMMAND
Switch to port 1	**4F 31 0A 52 52 0A**
Switch to port 2	**4F 32 0A 52 52 0A**
Switch to port 3	**4F 33 0A 52 52 0A**
Switch to port 4	**4F 34 0A 52 52 0A**

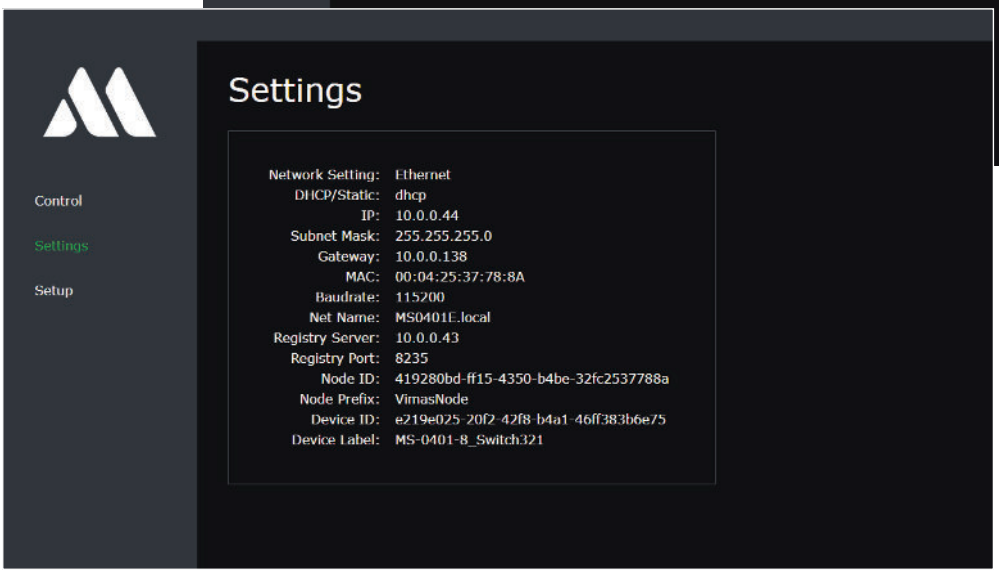
2. Web-based UI DHCP UI for configuration and management

To get to web-based screen, open Chrome and type in the IP address of the unit.
You can find the IP address by following these five steps:



1. Connect the MS-0401AU Gateway to a PC using a UART-to-USB cable.
2. Open the Switch control App.
3. Power on the Gateway.
4. Select the appropriate COM port and press connect.
5. Press “Get network settings” to identify the unit IP.





3. JSON Interface for integration with other applications

Compatible with popular development environments, such as Arduino, Raspberry Pi, and Python. MSolutions provides a JSON command API to control the system via a third party control system.

TCP IP Commands:

JSON COMMAND	RESPONSE	DESCRIPTION
{ **select:1** }	No response Request report	Command to select port 1
{ **select:1** }	{ “dhcp”: true, “IP”:”10.0.0.34”, “Mask”:”255.255.255.0”, “Gateway”:”0.0.0.0”, “MAC”: “00:04:AA:AA:AA:AA”, “Baudrate”: 19200, “CurrentPort”: 1 }	Request report

Python Example Code:

SELECT PORT

```
import socket
import time

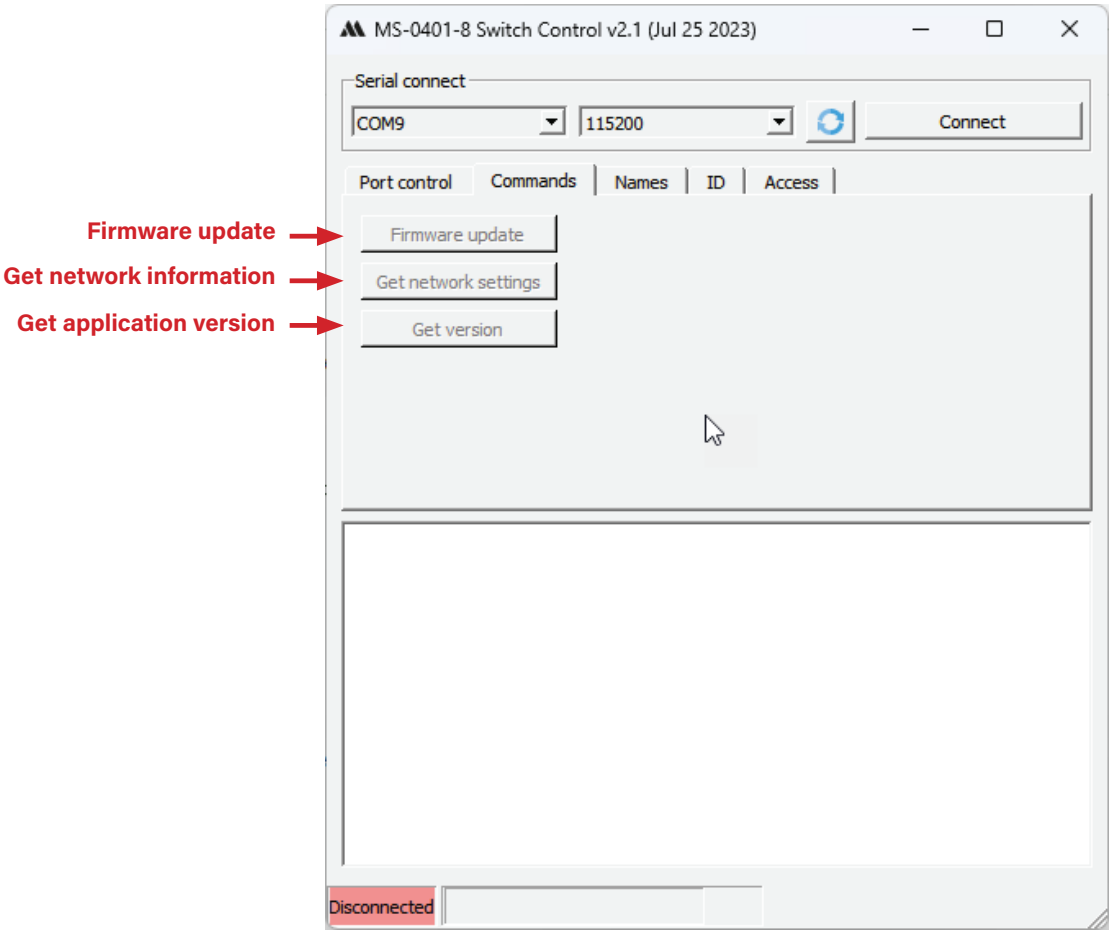
conn = socket.socket()
conn.connect((“10.0.0.61”,9760))

i = 1
while(True):
   i = i+1
   if i>4:
      i=1
   a = ‘{“select”:’+str(i)+’ }’
   print(a + ‘\n’)
   conn.send(a.encode(‘utf-8’))
   time.sleep(0.1)
```

Firmware Upgrade

Procedure for Firmware Upgrade Using UART Interface:
To upgrade the firmware using the UART interface, follow the steps below:

1. Connect the MS-0401AU Gateway to a PC using a UART-to-USB cable.
2. Open the Switch control App.
3. Power on the Gateway.
4. Select the appropriate COM port and press Connect.
5. Press Firmware Update and select the upgrade bin file.

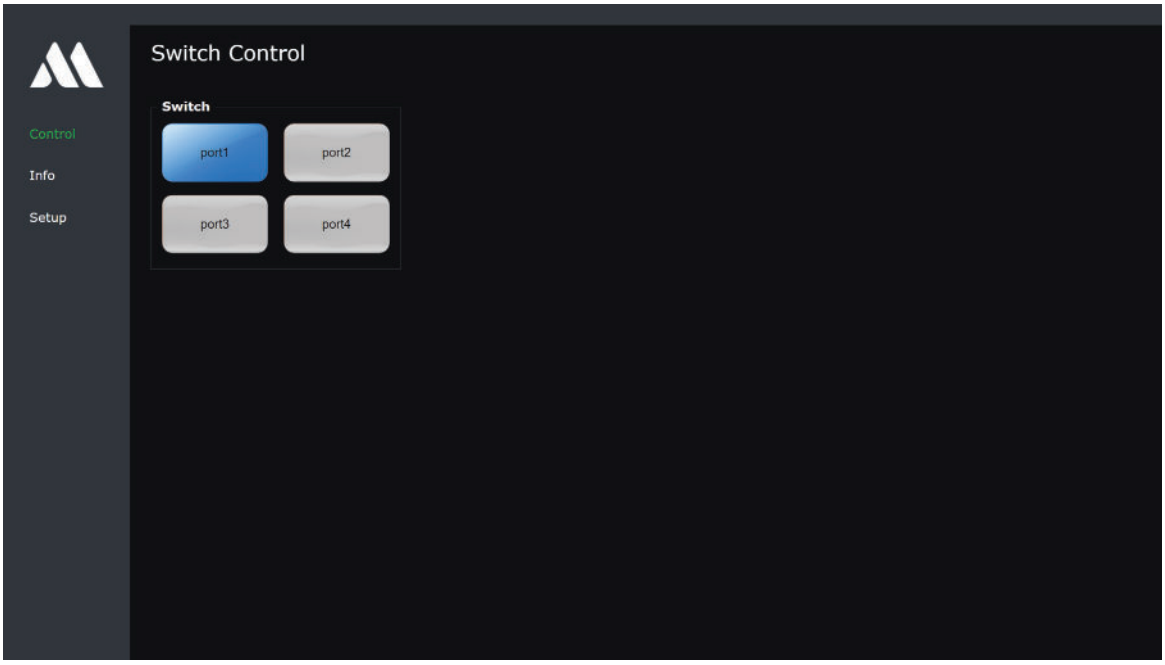


At that point download will start automatically. Please take no further action until the firmware upgrade process is complete, which may take about 15 seconds. The Gateway will automatically restart after the firmware upgrade process is complete.

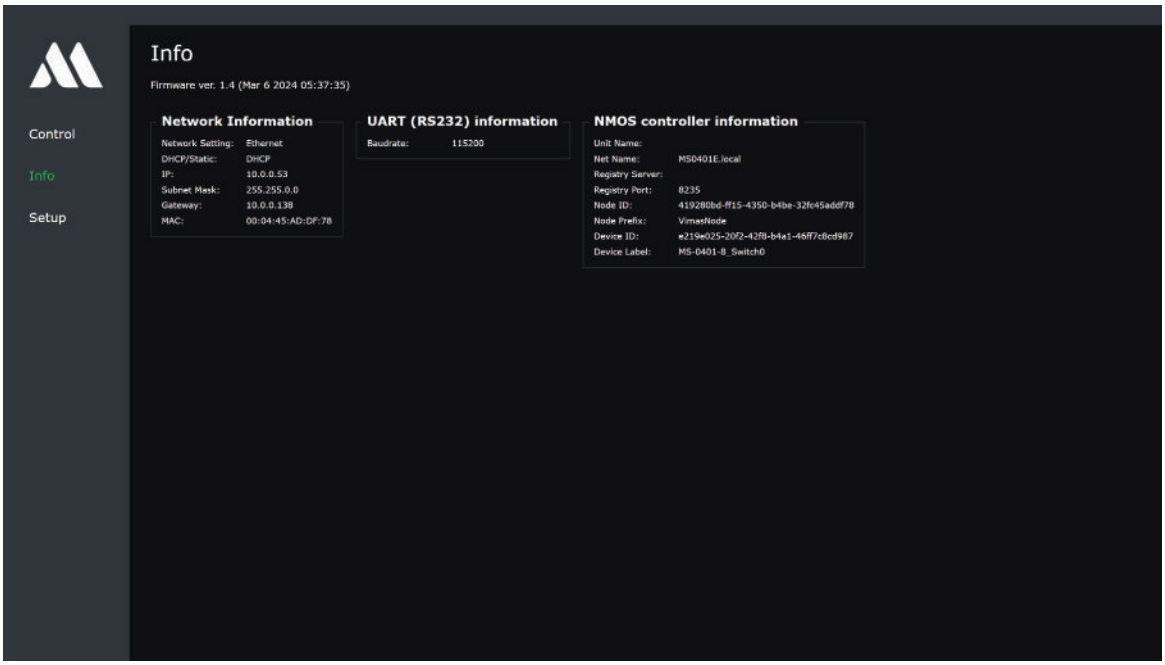
Note: Ensure that the firmware file is compatible with the MS-0401AU Gateway before upgrading the firmware. Incorrect firmware files can cause the device to malfunction.

Web Interface

To access the web interface, simply open a browser and input the IP address of the MS-0401AU. The first tab when accessing the web interface is the Switch Control page. On this page, the user can control the switching functions of the MS-0401AU.

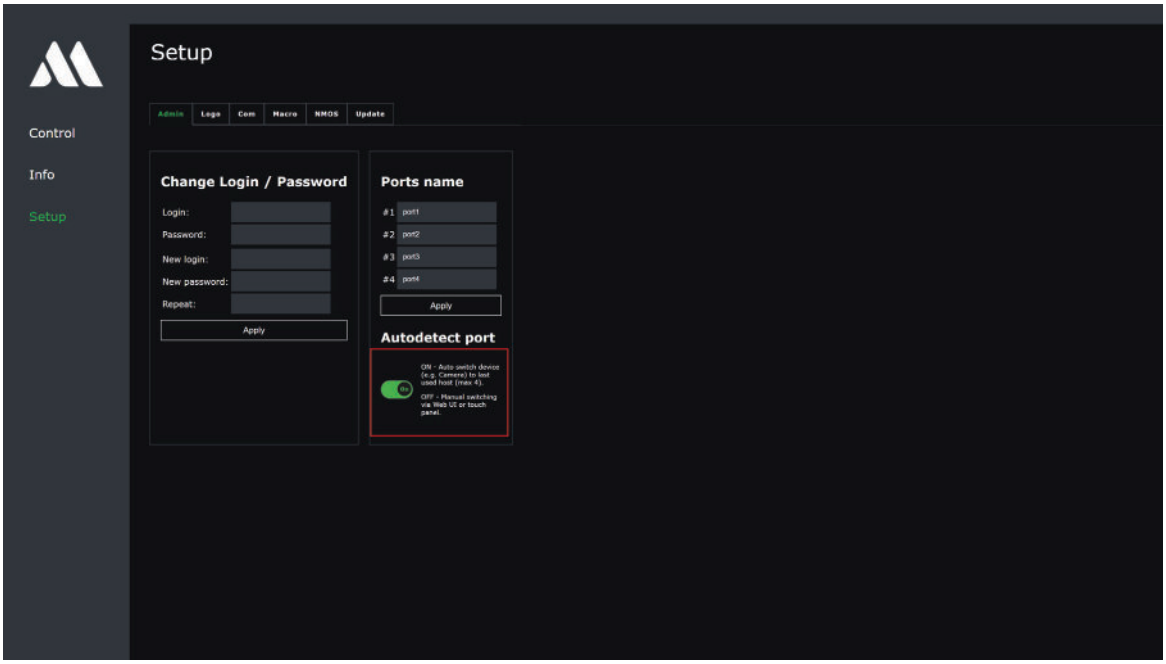


The 2nd tab is the Info page:
This page displays all the relevant information on the device, such as: IP address, FW version, name, etc.

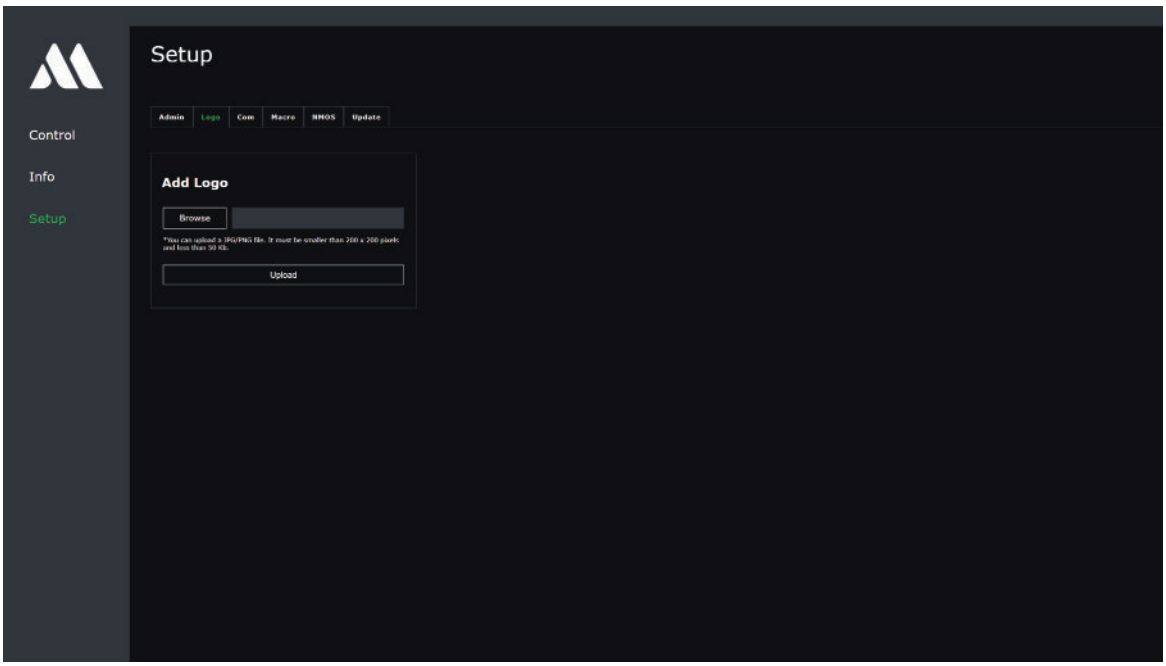


In the 3rd tab are the Setup pages:
To access the setup page, input the default credentials, USER:MSolutions Password:MSolutions.

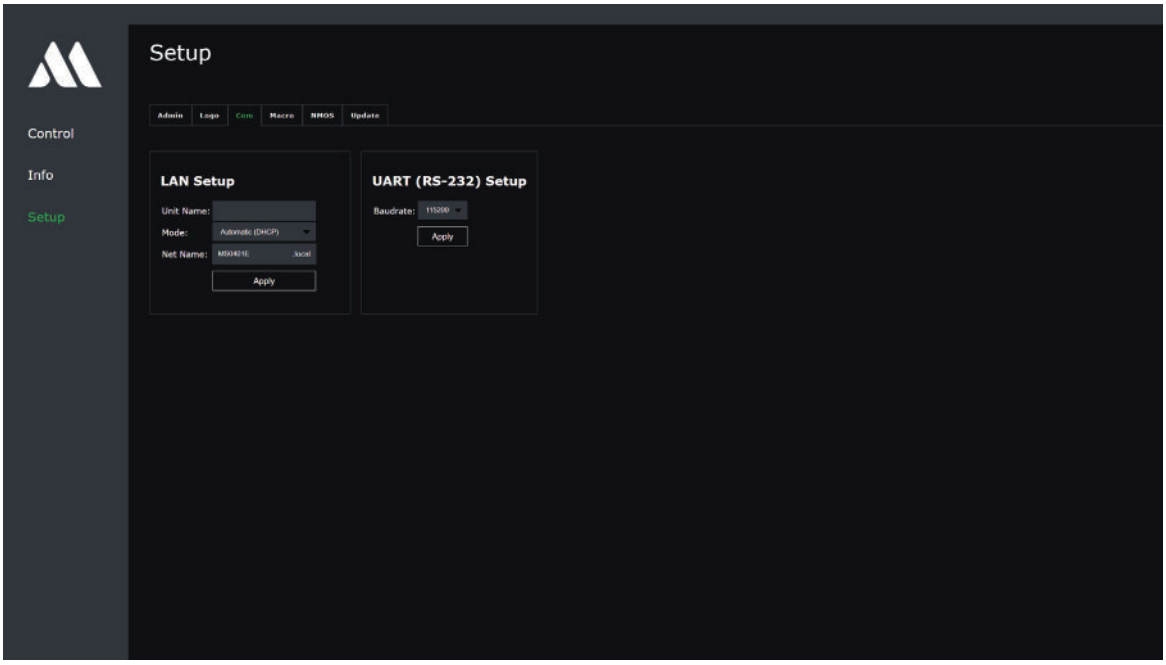
The first subtab is the Admin tab. The user can set a new login user and password on this tab. Additionally, the user can change the switching button's names to suit the solution's implementation. In order to support 4 device switching to 1 PC configuration, please deactivate "Auto detect".



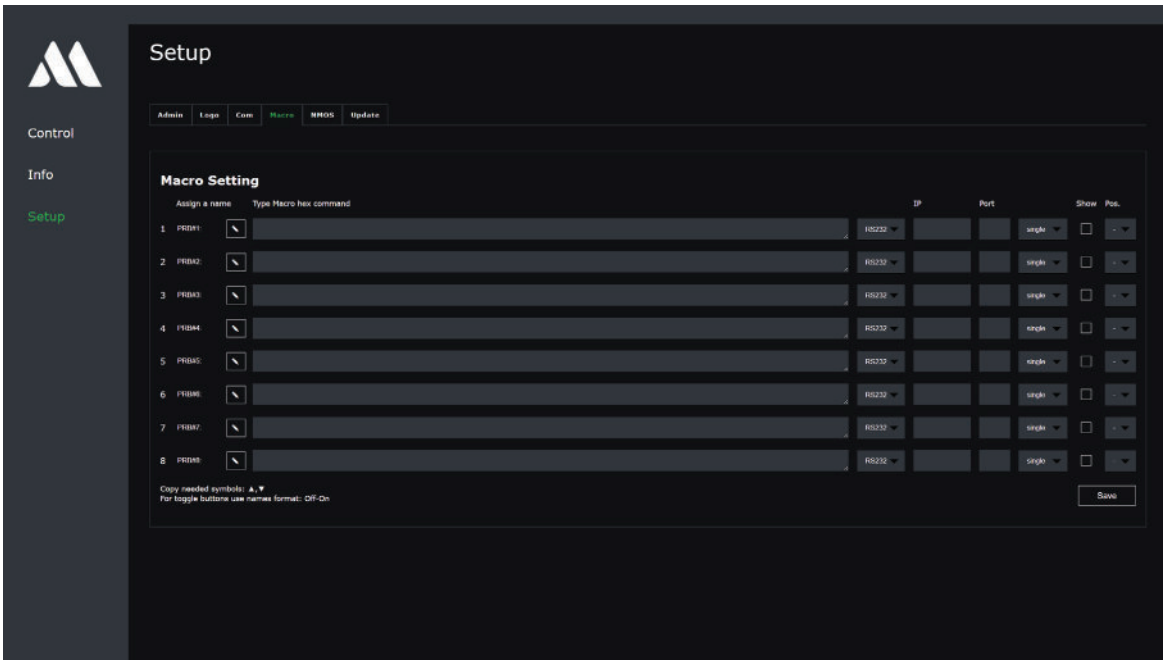
The next subtab is the Logo tab:
On this tab, the user can upload their logo. It needs to be up to 200x200 pixels and smaller than 50Kb.



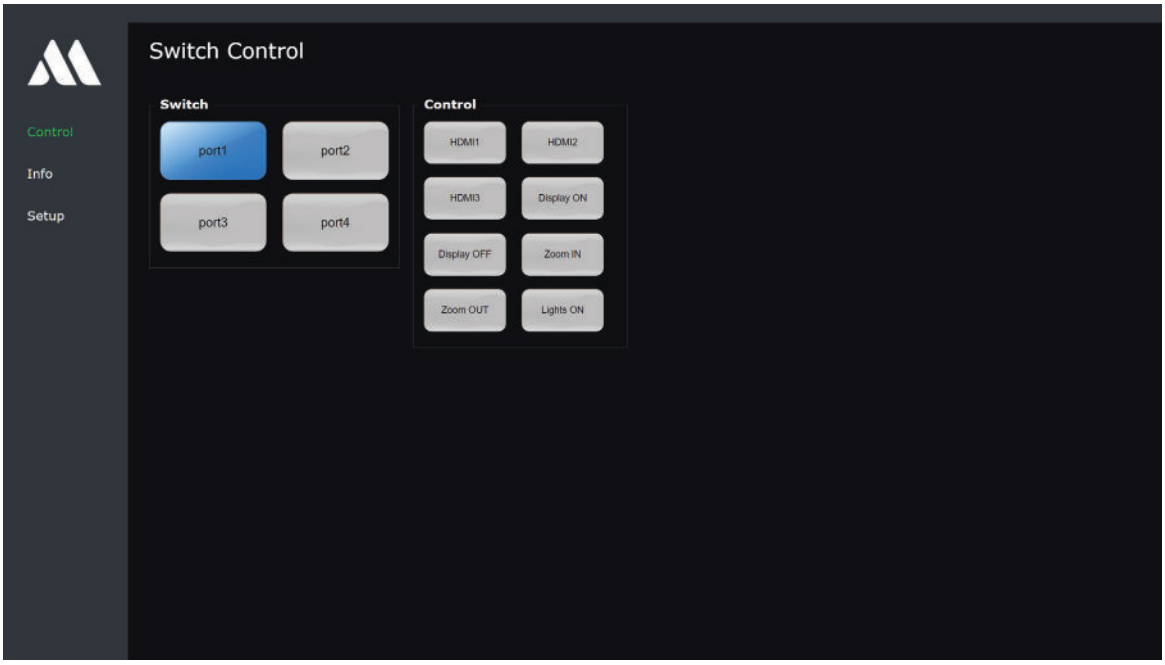
The Com subtab:
On this subtab, the user can change the communication parameters of the MS-0401AU, both IP and serial.



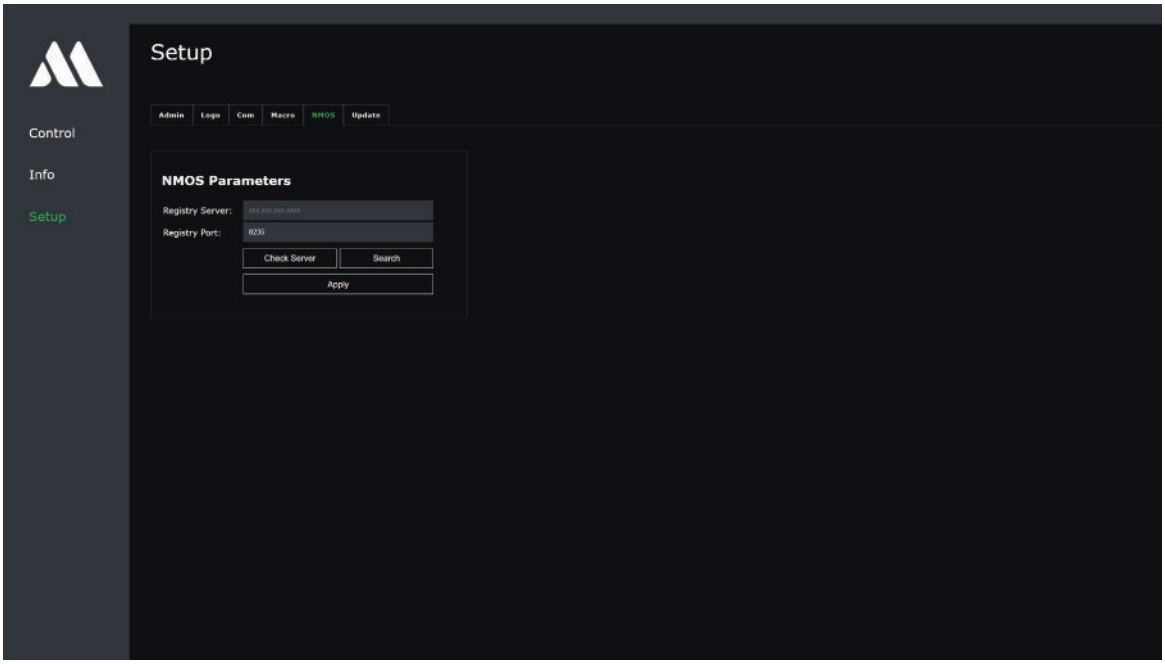
The Macro subtab:
This subtab contains all the parameters to set the IP control for any 3rd party devices. Here the user can create commands for any 3rd party device with an open API for IP control. Simply input the hex command, IP address, and logical port and assign a button to the command. After enabling the button (“Show”), the buttons will appear on the main page under control.



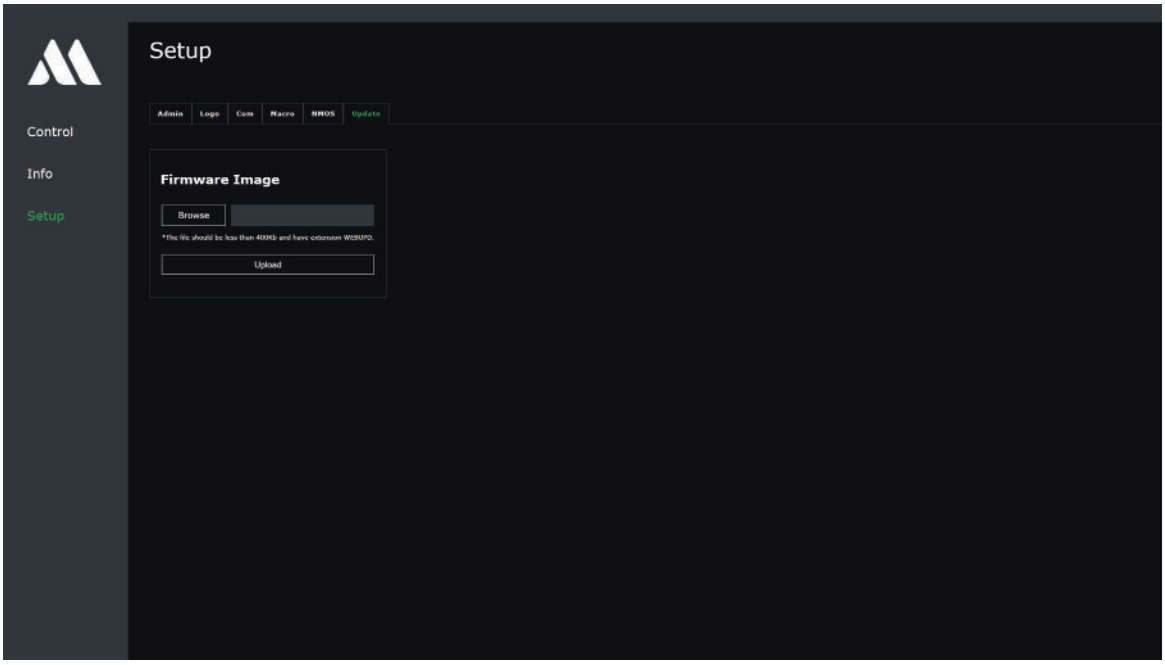
Switch Control:
After clicking save, the main display will show the buttons created.



The NMOS subtab:
On this subtab, the user can integrate the NMOS server.



Update subtab:
On this subtab, the user can update the FW of the MS-0401AU.



Specifications

- Connectivity: 1:4 or 4:1
- USB 3.2 switch
- Control connectivity: 1x LAN (RJ45), 1x RS232 3-pin phoenix connector, and block connector included
- Control Panel connectivity: 1x 5-pin phoenix connector, block included
- Power supply: 12V 2A DC
- Power consumption: 6W
- Individual unit dimensions (W x D x H):
  123 x 74 x 30mm
- Individual unit weight: 0.2Kg
- Package dimensions (W x D x H):
- 160mm x 130mm x 75mm
- Package weight: 0.9kg
- Master carton quantity: 18
- Master carton dimensions (W x D x H):
  540 x 270 x 260mm
- Master carton weight: 16kg
- Operating temperature: 32°F to 119°F (0°C to 48°C)
- Storage temperature: -4°F to 140°F (-20°C to 60°C)
- Operating humidity: 10-90% non condensing

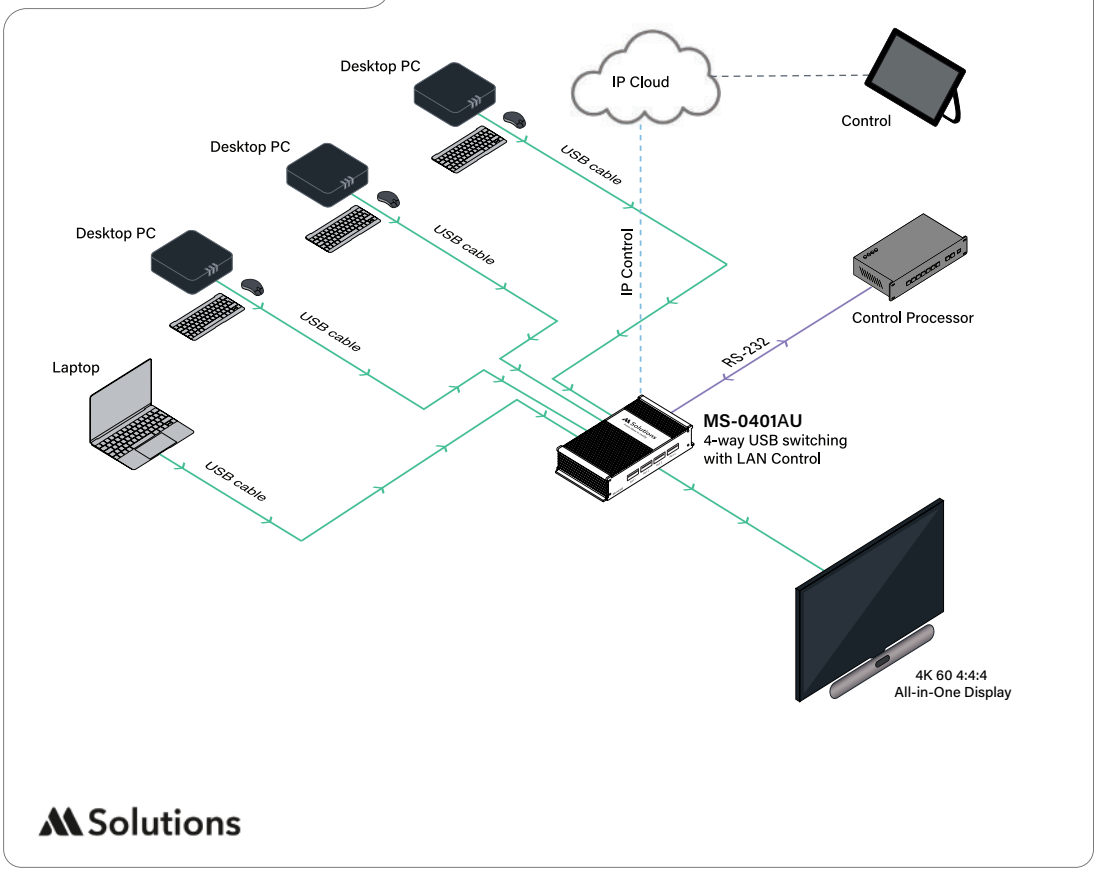
Package Contents

- 1 x MS-0401AU Switch
- 1 x 12V 2A power supply with US, UK & EU territory clips
- 1 x 3-pin Phoenix connector
- 1 x 5-pin Phoenix connector

Example Schematics

MS-0401AU Schematic

USB switching only – Four hosts to one device



MS-0401AU
Front



MS-0401AU
Back

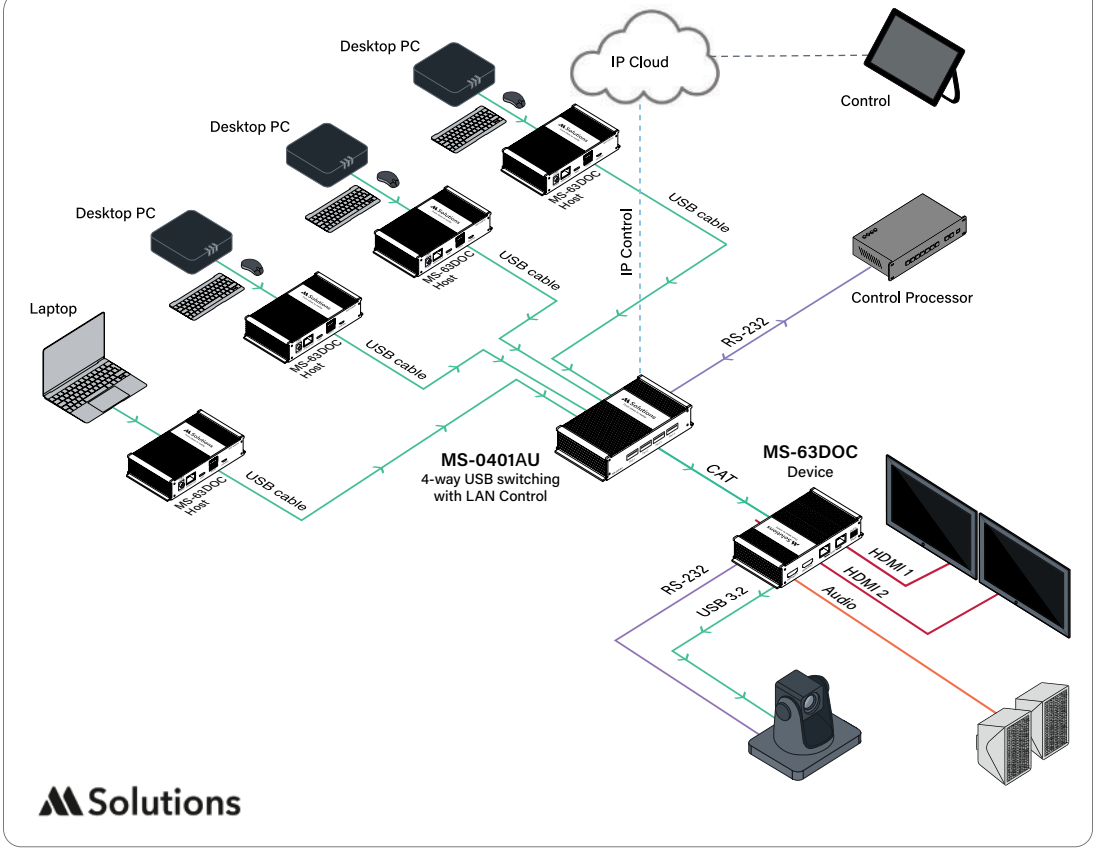


USB
RS-232
IP

Example Schematics

MS-0401AU Schematic

MS-63DOC Switch Scenario



MS-0401AU
Front



MS-0401AU
Back

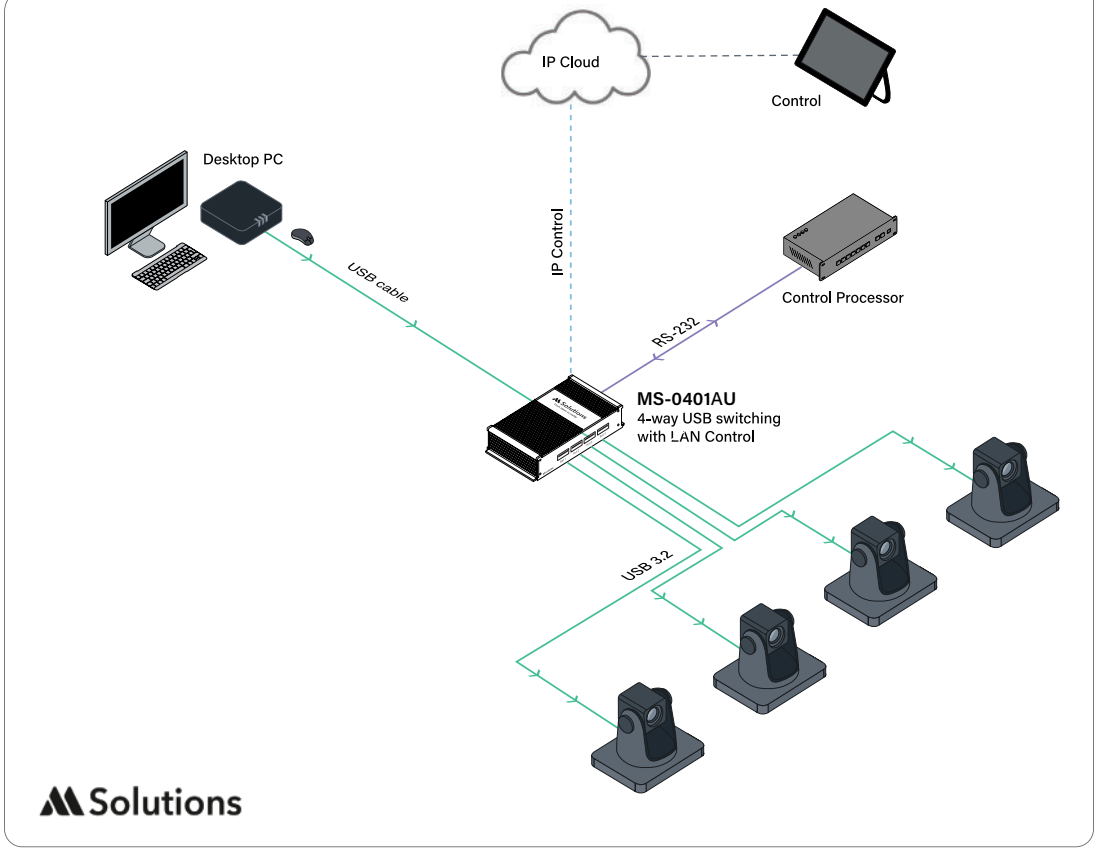


USB
RS-232
HDMI
Audio
IP

Example Schematics

MS-0401AU Schematic

Camera Switching – One host, four cameras



MS-0401AU
Front



MS-0401AU
Back



USB
RS-232
IP



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