32x32

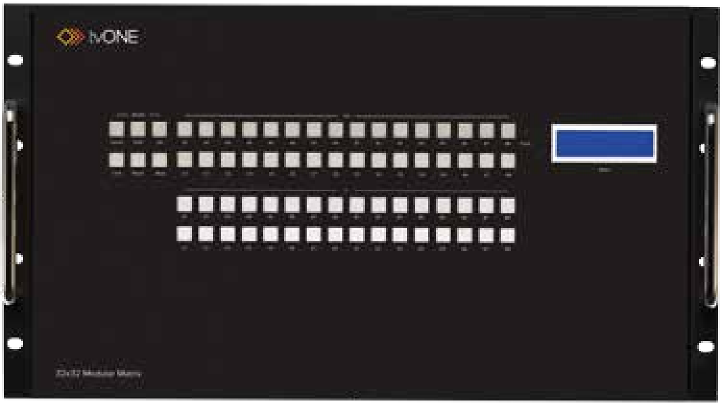
SOURCES DISPLAYS

ModularMX

MOD-32432-DVI • MOD-32432-DVIELR
MOD-32432-DVI1FO • MOD-32432-DPDVI
MOD-32432-DPELR • MOD-32432-DP1FO

User Manual

V 1.0



dvi digital visual interface

1080P PROGRESSIVE

tvONE

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IMPORTANT OPERATING NOTES

READ THESE NOTES BEFORE INSTALLING OR OPERATING THE 32X32 MODULARMX

- There is no internal scaling in the 32x32 ModularMX. All of the attached monitors must be able to display the output resolutions of the source devices. For maximum compatibility it is recommended that only one compatible/common resolution be used by all of the source devices.

- Routing features can be accessed using the serial control interface or via Telnet. See page 37 - 74 for more information.

- The 32x32 ModularMX has several The tvONE 32x32 ModularMX provides several different pre-configured packages to suit the needs of your application.
  This User Manual covers all available configurations. See page 3 for information on identifying the type of 32x32 ModularMX that was purchased.

INTRODUCTION

Congratulations on your purchase of the 32x32 ModularMX. Your complete satisfaction is very important to us.

tvONE

In the realm of video distribution, certain features are invaluable in a commercial or broadcast environment. Accommodations such as a build-in power supply and flat black rack-mount enclosures set tvONE apart from our traditional products. Complex distribution units allow for professional DVI, 3G-SDI, and HDMI signals to be routed and converted easily and seamlessly, while being backed up by a renowned and dependable technical support team. tvONE invites you to explore the tvONE product line and hopes that you find the solution that fits your needs.

The tvONE 32x32 ModularMX

The tvONE 32x32 ModularMX provides an all-in-one professional-grade solution to route up to 32 DVI sources to up to 32 DVI displays with resolutions up to 1920 x 1200. The modular design of this matrix provides the ultimate in flexibility by allowing the use of any combination of DVI, ELR, or 1FO output modules in any of its four output slots. This feature allows the tvONE 32x32 ModularMX to function as both a Matrix and as an Extender. The front-panel LCD displays the current routing status and each DVI source is accessible to any display by using the front-panel push buttons, via the RS-232 interface, or through IP Control (built-in Web server and Telnet). Hot-swappable dual redundant power supplies allow these matrixes to be used for applications in demanding applications where enhanced reliability, ease of servicing and zero down-time are required.

How It Works

Connect up to 32 DVI source devices using DVI cables to the inputs on the tvONE ModularMX. Connect up to 32 displays via DVI, CAT-5, or Fiber Optic cables depending on which output modules are utilized. Connect an Ethernet cable from the network to the RJ-45 connector to use the built-in Web server or Telnet capability to control routing, EDID, and other functions. Connect an RS-232 cable from a RS-232 control device to control the matrix via RS-232. Connect the IEC connectors of the included AC power cords to the matrix and plug the power cords into available electrical outlets. The DVI sources will be routed as selected.

Features

- Supports resolutions up to 1920 x 1200
- Modular inputs and outputs organized into banks of 8 input or output devices
- Advanced EDID management for rapid integration of sources and displays
- RS-232 Serial interface for remote control via a computer or automation control system
- Front-panel LCD display
- Front-panel push buttons for local switching
- Built-in Web server, Telnet, and UDP control via IP
- Routing states can be stored and recalled at the touch of a button
- Dual redundant hot-swappable power supplies
- Removable and replaceable fan and filter
- Output masking command
- Standby mode
- Power ON / OFF switch
- Rack-mountable

Package Includes

See the information beginning on the next page for details on the available pre-configured options.

If any of the items from the pre-configured packages are missing, call tvONE Technical Support between the hours of 8:00 AM and 5:00 PM, Monday through Friday, EDT in the USA or 8:00 AM to 5:30 PM Monday - Friday, GMT in Europe.

Pre-Configured Options

Before reading this User Manual, familiarize yourself with the rear panel of the 32x32 ModularMX.

The 32x32 ModularMX can accommodate up to four input cards and four output cards. Each card provides eight connectors, providing a total of 32 inputs and outputs. The 32x32 ModularMX is sold pre-configured with a combination of input and output cards best suited for the needs of your application. We will cover each configuration in the next section. First, we will identify the location of each input and output card on the matrix.

> **NOTE:** When a card is not installed, it is recommended that a cover plate be installed over the expansion bay to prevent dust and other foreign particles from entering the matrix.

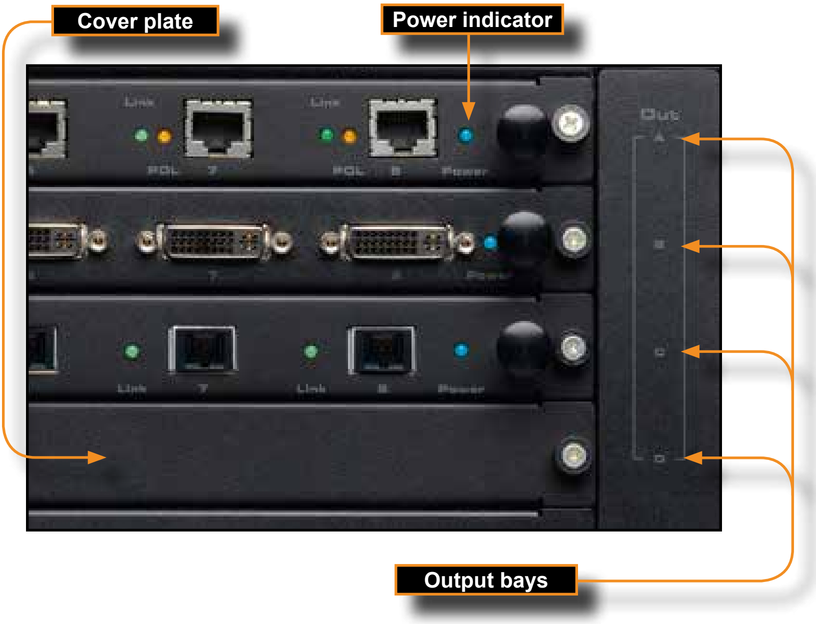
Matrix Layout

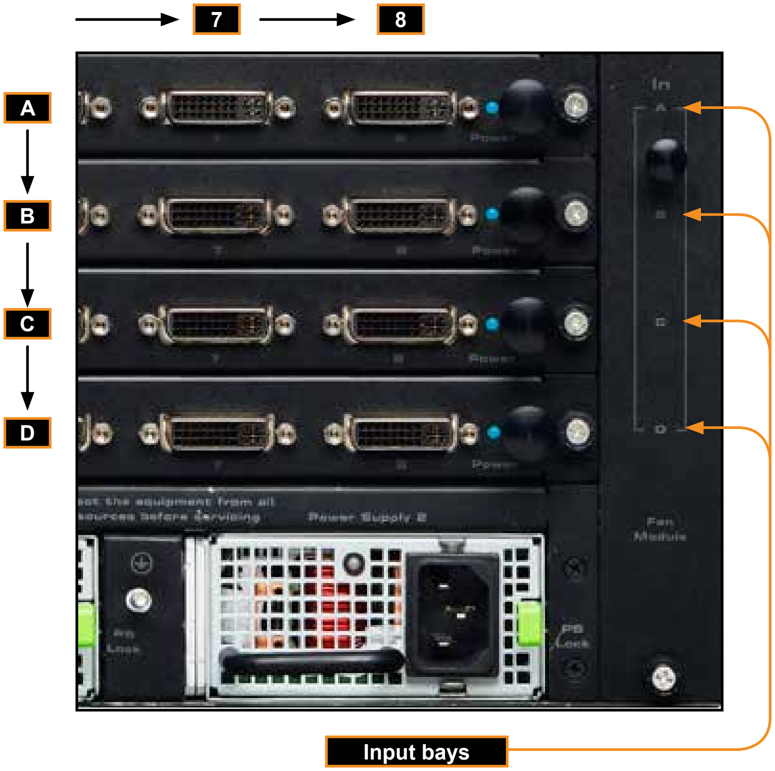
The bottom-four expansion bays of the matrix only accept *input* cards. The top-four expansion bays only accept *output* cards. Each expansion bay on the matrix is identified with a letter: A, B, C, and D, from top to bottom (see next page).

The inputs and outputs are numbered on each card, from left-to-right.

Blue LEDs on each card indicate that the card is properly powered.

Refer to page 10 for detailed information on the rear-panel layout.





The following list outlines the available pre-configured options. Because this User Manual covers information on all available configurations, it is important to identify the type of 32x32 ModularMX that you have purchased:

- **MOD-32432-DVI**

  Four input cards. Each card contains eight DVI inputs, providing a total of 32 DVI inputs.

  Four output cards. Each card contains eight DVI outputs, providing a total of 32 DVI outputs.

Package Includes:

(1) 32x32 ModularMX Frame
(1) DB-9 cable
(2) AC power cords
(4) ModularMX 8 DVI Input Cards
(4) ModularMX 8 DVI Output Cards
(1) Quick-Start guide

- **MOD-32432-DVIELR**

  Four input cards. Each card contains eight DVI inputs, providing a total of 32 DVI inputs.

  Four output cards. Each card contains eight ELR-POL outputs. Each of these ELR-POL outputs are connected to a Receiver unit, using a CAT-5e cable, allowing you to extend the DVI signal up to 330 feet (100 meters). 32 ELR-POL Receiver units are included with this package option.

  Package Includes:

  (1) 32x32 ModularMX Frame
  (1) DB-9 Cable
  (2) AC Power Cords
  (4) ModularMX 8 DVI Input Cards
  (4) ModularMX 8 DVI Sender over CAT-5 Cards
  (32) DVI ELR Receivers with POL
  (1) Quick-Start guide

- **MOD-32432-DPDVI**

  Four input cards. Each card contains eight DisplayPort inputs, providing a total of 32 DisplayPort inputs.

  Four output cards. Each card contains eight DVI outputs, providing a total of 32 DVI outputs.

  Package Includes:

  (1) 32x32 ModularMX Frame
  (1) DB-9 Cable
  (2) AC Power Cords
  (4) ModularMX 8 DisplayPort Cards
  (4) ModularMX 8 DVI Output Cards
  (1) Quick-Start guide

- **MOD-32432-DPELR**

  Four input cards. Each card contains eight DisplayPort inputs, providing a total of 32 DisplayPort inputs.

  Four output cards. Each card contains eight ELR-POL outputs. Each of these ELR-POL outputs are connected to a Receiver unit, using a CAT-5e cable, allowing you to extend the DisplayPort signal up to 330 feet (100 meters). 32 ELR-POL Receiver units are included with this package option.

  Package Includes:

  (1) 32x32 ModularMX Frame
  (1) DB-9 Cable
  (2) AC Power Cords
  (4) ModularMX 8 DisplayPort Cards
  (4) ModularMX 8 DVI Sender over CAT-5 Cards
  (32) DVI ELR Receivers with POL
  (1) Quick-Start guide

- **MOD-32432-DVI1FO**

  Four input cards. Each card contains eight DVI inputs, providing a total of 32 DVI inputs.

  Four output cards. Each card contains eight SC-type fiber optic connectors. Each of these fiber optic connectors are connected to a Receiver unit, allowing you to extend the DVI signal up to 6600 feet (2 kilometers) using 50µ OM3e multimode fiber optic cable. OM3 and OM1 fiber are also supported. 32 fiber optic Receiver units are included with this package option.

  Package Includes:

  (1) 32x32 ModularMX Frame
  (1) DB-9 Cable
  (2) AC Power Cords
  (4) ModularMX 8 DVI Input Cards
  (4) ModularMX 8 DVI Sender over 1FO Cards
  (32) DVI Modular Receivers over 1FO
  (32) Power supplies for DVI Modular Receivers over 1FO
  (1) Quick-Start guide

- **MOD-32432-DP1FO**

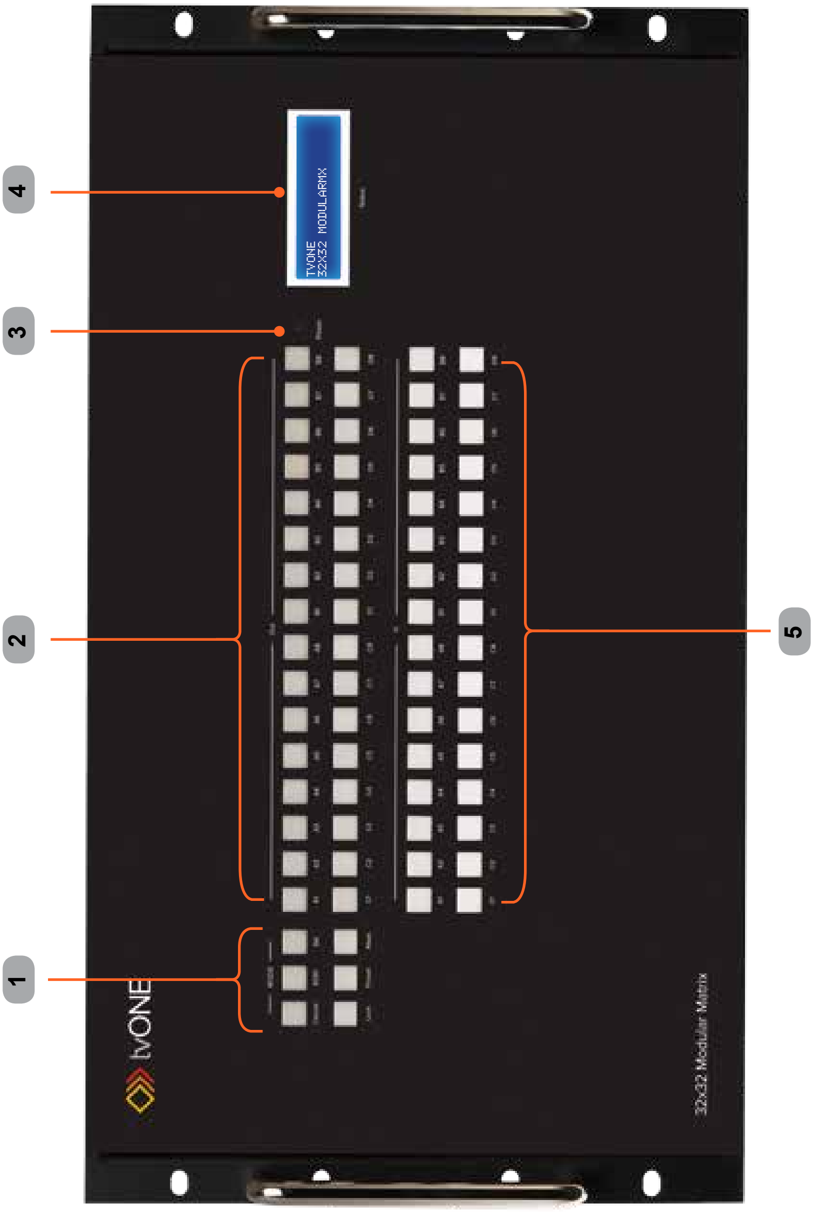
  Four input cards. Each card contains eight DisplayPort inputs, providing a total of 32 DisplayPort inputs.

  Four output cards. Each card contains eight SC-type fiber optic connectors. Each of these fiber optic connectors are connected to a Receiver unit, allowing you to extend the DisplayPort signal up to 6600 feet (2 kilometers) using 50µ OM3e multimode fiber optic cable. OM3 and OM1 fiber are also supported. 32 fiber optic Receiver units are included with this package option.

  Package Includes:

  (1) 32x32 ModularMX Frame
  (1) DB-9 Cable
  (2) AC Power Cords
  (4) ModularMX 8 DisplayPort Input Cards
  (4) ModularMX 8 DisplayPort Sender over 1FO Cards
  (32) DVI Modular Receivers over 1FO
  (32) Power supplies for DVI Modular Receivers over 1FO
  (1) Quick-Start guide

Front Panel Layout



Front Panel Descriptions

1 ***Mode Buttons***
These buttons are used to control other features on the product. See pages 22 - 36 for more information.

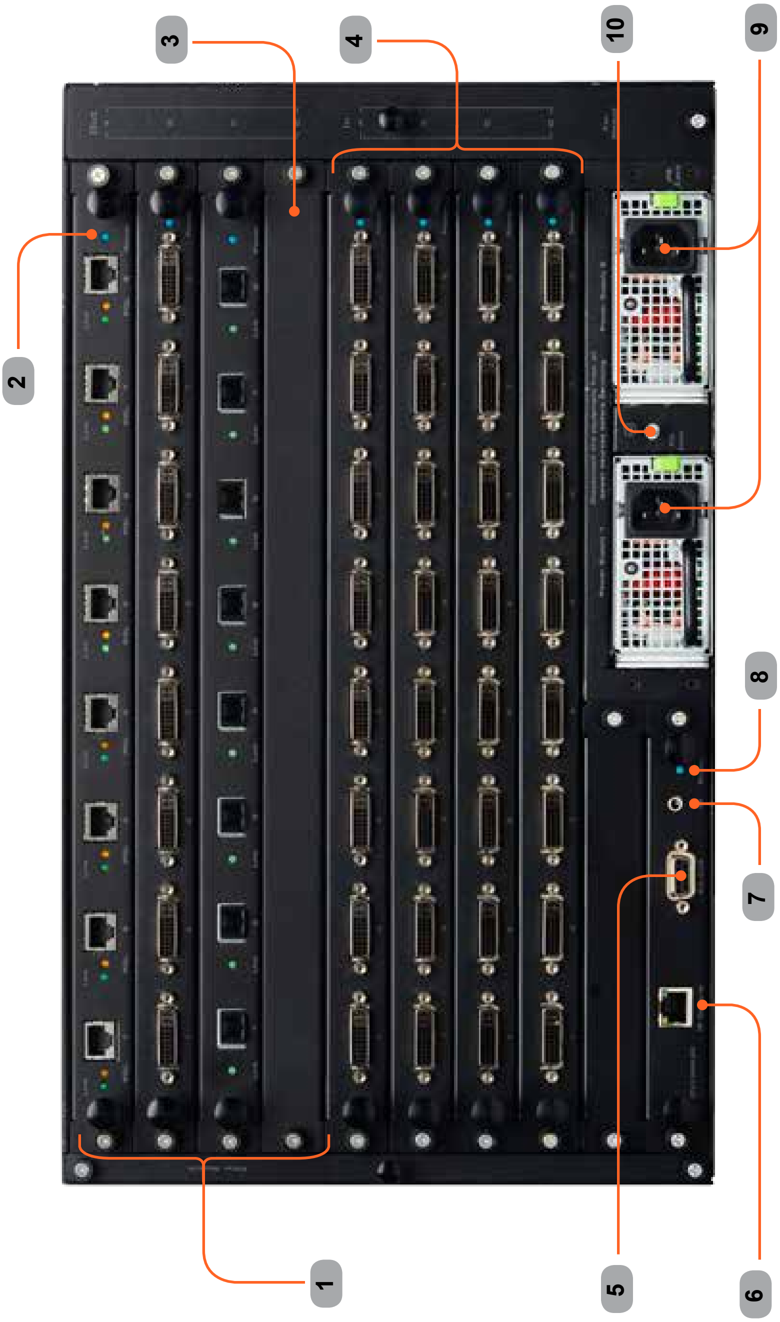
2 ***Output Buttons (1 - 32)***
Used for routing an Input to an Output. Each of these buttons represents an Output. See page 22 for more information on routing DVI sources.

3 ***Power Indicator***
This LED indicator will glow red when the power is turned on.

4 ***LCD Display***
Displays the current routing status of the Matrix and is also used to manage source routing.

5 ***Input Buttons (1 - 32)***
Used for routing an Input to an Output. Each of these buttons represents an Input. See page 22 for more information on routing DVI sources.

Back Panel Layout



Back Panel Descriptions

1 ***Out (1 - 32)***
Connect the output devices to these ports. Output banks are shown using the tvONE ELR-POL Extender (DVI-8ELR-S), the tvONE Fiber Optic Extender (DVI-1FO-S), and the tvONE DVI Output Board (MOD-8DVI-O).

2 ***Power (Input / Output boards)***
Each Input and Output card has its own power indicator. This LED indicator will glow bright blue when the card is properly installed and the power to the 32x32 ModularMX is applied.

3 ***Cover Plate***
In the event that an Output (or Input) board is not required, the cover plate can be installed to prevent foreign particles or objects from entering the system.

4 ***In (1 - 32)***
Connect the source devices to each of these ports. At the time of this writing, only DVI input modules are available.

5 ***RS-232 Serial Port***
Connects to the RS-232 control device. The 32x32 ModularMX may be switched remotely using this port. See page 37 - 74 for more information.

6 ***IP / UDP / Telnet Control***
Connect the 32x32 ModularMX to a network in order to use IP / UDP / Telnet control.

7 ***IR***
Connect an IR extender to this IR port.

8 ***Power***
This LED indicator glows bright blue when the matrix is powered on.

9 ***Power Supply (1 - 2)***
Connect the included AC power cords from these receptacle to an available electrical outlet. The redundant (secondary) power cable should be connected to an electrical outlet on a different circuit. Each power supply is 110/220V AC.

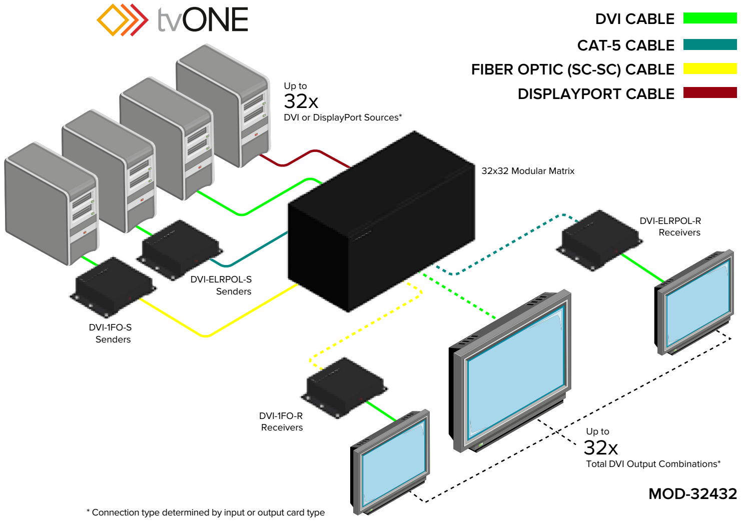
10 ***Grounding Terminal***
Provides a discharge path to ground in case a short circuit occurs between the “hot” lead of the power supply and the enclosure of the Matrix. The grounding wire should be attached from the grounding terminal to an approved ground path.

NOTE: Depending upon the package option of the 32x32 ModularMX that was purchased, the back-panel may differ.

Connections

Because there are several variations of the 32x32 ModularMX, we will cover each package option. Locate the connection instructions for the package which was purchased. The wiring diagram at the bottom of the page provides a general reference for connecting the *32x32 ModularMX*. See the following pages for detailed connection instructions on each package option.

Wiring Diagram


tvONE
DVI CABLE 🟩
CAT-5 CABLE 🟩
FIBER OPTIC (SC-SC) CABLE 🟨
DISPLAYPORT CABLE 🟥
Up to 32x DVI or DisplayPort Sources*
32x32 Modular Matrix
DVI-ELRPOL-R Receivers
DVI-ELRPOL-S Senders
DVI-1FO-S Senders
DVI-1FO-R Receivers
Up to 32x Total DVI Output Combinations*
MOD-32432
* Connection type determined by input or output card type

WARNING: This product should always be connected to a grounded electrical socket.

CONNECTING THE 32X32 MODULARMX

MOD-32432-DVI

1. Connect up to 32 DVI sources to the DVI inputs on the rear panel of the *32x32 ModularMX* using DVI cables.

2. Connect up to 32 DVI displays to the DVI outputs on the rear panel of the *32x32 ModularMX*.

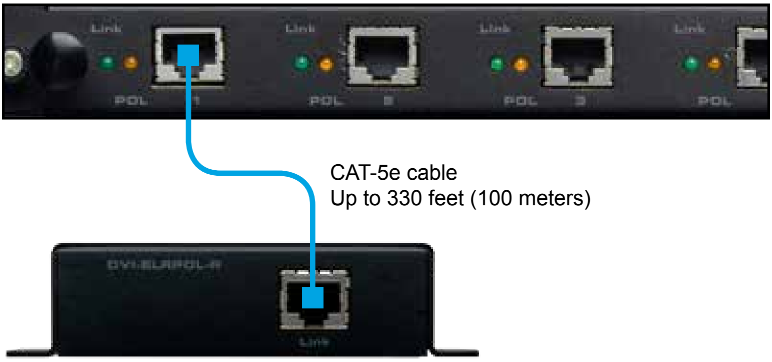
3. Connect both AC power cords from the *32x32 ModularMX* to available electrical outlets. Connecting both AC power cords will provide redundancy should one of the power supplies fail. It is recommended to connect each power cord to electrical outlets on two separate circuits.

MOD-32432-DVIELR

1. Connect up to 32 DVI sources to the DVI inputs on the rear panel of the *32x32 ModularMX* using DVI cables.

2. Connect a CAT-5e cable (or better), up to 330 feet (100 meters) from each ELR-POL jack on the Sender card to each of the included ELR-POL Receiver units, as shown below.

DVI-8ELR-S



CAT-5e cable
Up to 330 feet (100 meters)

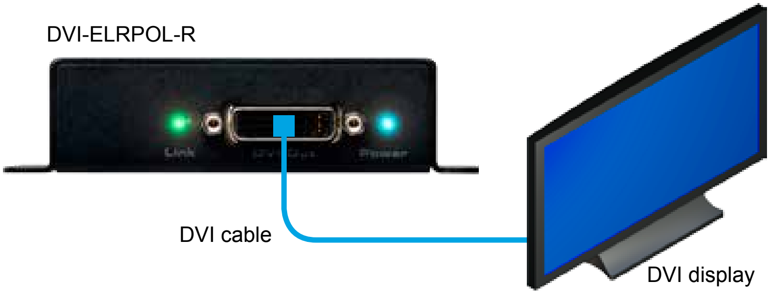
DVI-ELRPOL-R

Once the matrix is powered, the Link indicators will glow bright green to indicate a solid link between the output card and the Receiver unit.

The POL indicators will glow bright amber to indicate that the Receiver unit is being powered.

(continued on next page)

3. Connect a DVI cable from the DVI Out port on each ELR-POL Receiver unit to a DVI display.



4. Connect both AC power cords from the *32x32 ModularMX* to available electrical outlets. Connecting both AC power cords will provide redundancy should one of the power supplies fail. It is recommended to connect each power cord to electrical outlets on two separate circuits.

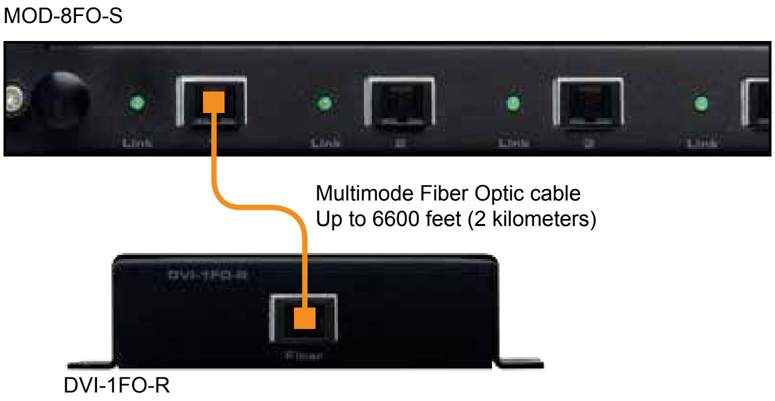
   Power to the Receiver unit is delivered from the power supply in the matrix over the CAT-5e cable using tvONE Power Over Line (POL) technology. The Link indicator will glow bright green to indicate a solid connection between the matrix and the Receiver unit. The Power indicator will glow bright blue to indicate that the Receiver unit is being powered.

   If either of these LED indicators are OFF, inspect the CAT-5 cable for loose connections or possible defects.

MOD-32432-DVI1FO

1. Connect up to 32 DVI sources to the DVI inputs on the rear panel of the *32x32 ModularMX* using DVI cables.

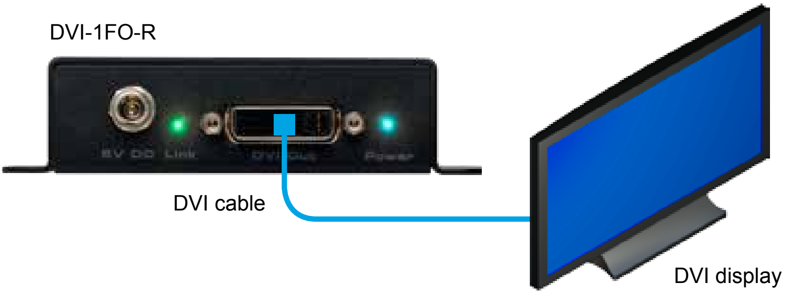
2. Connect a single strand of SC-terminated 50µ OM3e multimode fiber optic cable from each SC connector on the Sender card to each Receiver unit, as shown below:



50µ OM3e, OM3, and 62.5µ OM1 multimode fiber optic cable can be used. However, the maximum extension distance will be dependent upon the type of fiber optic cable used. Refer to the table, below.

Fiber type	Maximum Distance
multimode, 50µ OM3e	6600 feet (2 kilometers)
multimode, 50µ OM3	2000 feet (600 meters)
multimode, 62.5µ OM1	660 feet (200 meters)

3. Connect the power supply to the 1FO Receiver unit then connect the power supply to an available electrical outlet.



4. Connect both AC power cords from the matrix to available electrical outlets. Connecting both AC power cords will provide power redundancy should one of the power supplies fail. It is recommended to connect each AC power cord to separate circuits.

   The Link indicator (on the Receiver unit) will glow bright green to indicate a connection between the matrix and the Receiver unit. If the Link indicator is OFF, then inspect the fiber optic cable for loose connections or possible defects.

   The Power indicator will glow bright blue to indicate that the Receiver unit is powered.

DisplayPort package options

Each DisplayPort package is based on the DVI package options, except for the fact that all inputs will be DisplayPort instead of DVI. Refer to the connection instructions for the DVI version of each package if needed.

- **MOD-32432-DPDVI (based on the MOD-32432-DVI)**
  1. Connect up to 32 DisplayPort sources to the DisplayPort inputs on the matrix.
  2. Connect up to 32 displays to the outputs on the matrix using DisplayPort cables.
  3. Power the matrix.

- **MOD-32432-DPELR (based on the MOD-32432-DVIELR)**
  1. Connect up to 32 DisplayPort sources to each DisplayPort input on the matrix.
  2. Connect a CAT-5e cable (or better), up to 330 feet (100 meters) from each ELR-POL jack on the output card to each of the included ELR-POL Receiver units.
  3. Power the matrix.

     Once the matrix is powered, the Link indicators will glow bright green to indicate a solid link between the Matrix card and the Receiver unit. The POL indicators will glow bright amber to indicate that the Receiver unit is being powered.

- **MOD-32432-DP1FO (based on the MOD-32432-DVI1FO)**
  1. Connect up to 32 DisplayPort sources to the DisplayPort inputs on the matrix.
  2. Connect a single strand of SC-terminated 50µ OM3e multimode fiber optic cable from each SC connector on the Sender card to each Receiver unit.

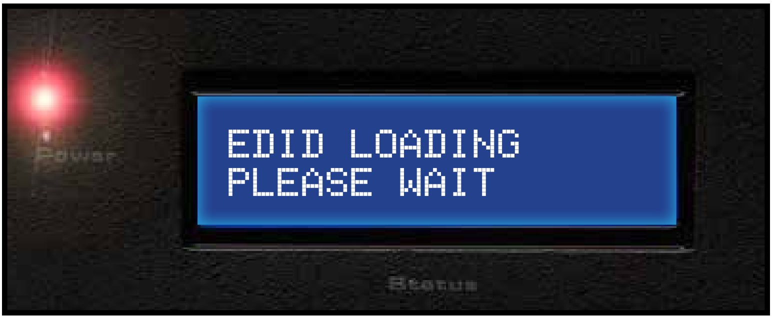
     50µ OM3e, OM3, and 62.5µ OM1 multimode fiber optic cable can be used. However, the maximum extension distance is dependent upon the type of fiber optic cable used:

     - 6600 feet (2 kilometers) using 50µ OM3e multimode fiber optic cable.
     - 2000 feet (600 meters) using 50µ OM3 multimode fiber optic cable.
     - 660 feet (200 meters) using 62.5µ OM1 multimode fiber optic cable.

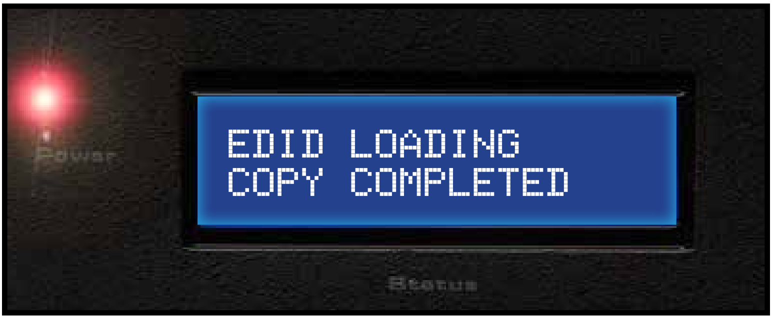
  3. Connect the power supply to the 1FO Receiver unit then connect the power supply to an available electrical outlet.
  4. Power the matrix.

Booting Up / Standby Screen

The front-panel LCD of the 32x32 ModularMX is a 16 character 2 line display. This display is used to aid in performing routing commands, as well as displaying additional system information. When the unit is powered on, the following screens are displayed:

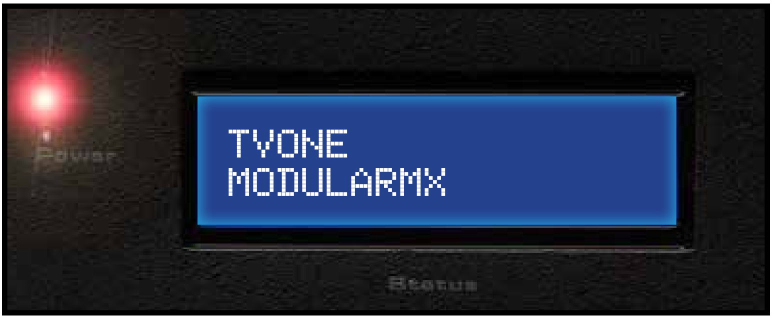


```
EDID LOADING
PLEASE WAIT
```



```
EDID LOADING
COPY COMPLETED
```

After a few moments, the standby screen is displayed:



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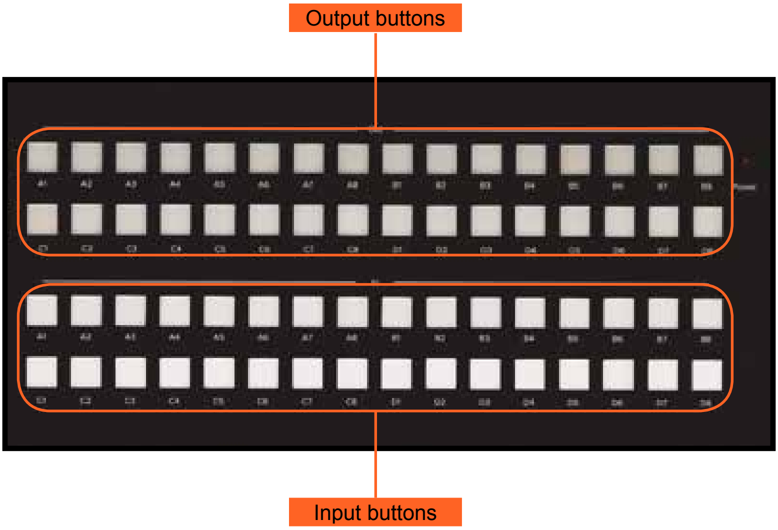
TVONE
MODULARMX
```

Displaying the Current Routing State

To display the current routing status of the Matrix, press any one of the Input or Output buttons on the front panel.



Output buttons

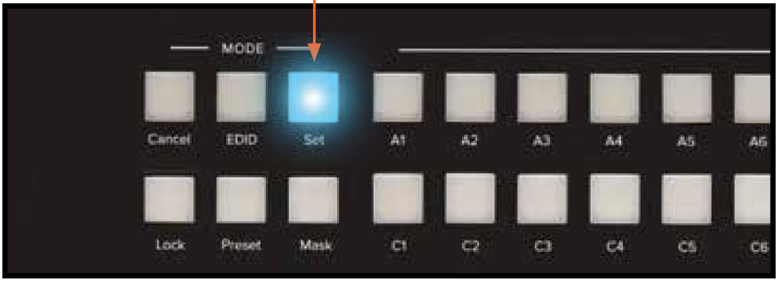
Input buttons

In the example above, Input A1 is routed to Output A4, Output A5, Output A7, Output A8, Output B1, Output B2, Output B3, Output C3, Output C5, and Output C6. A source does not need to be connected to the Matrix to display the current routing state. By default, all inputs are routed to their respective outputs (e.g. A1 - A1, A2 - A2, C3 - C3, D5 - D5, etc).

Routing Sources

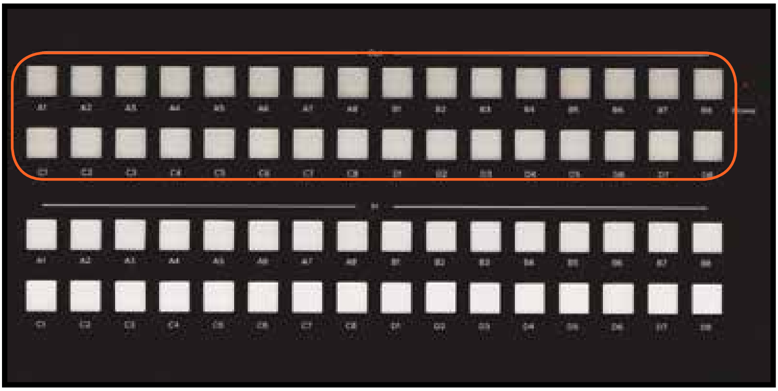
1. To change the current routing state, press the **Set** button to activate Routing Mode.

Press the Set button

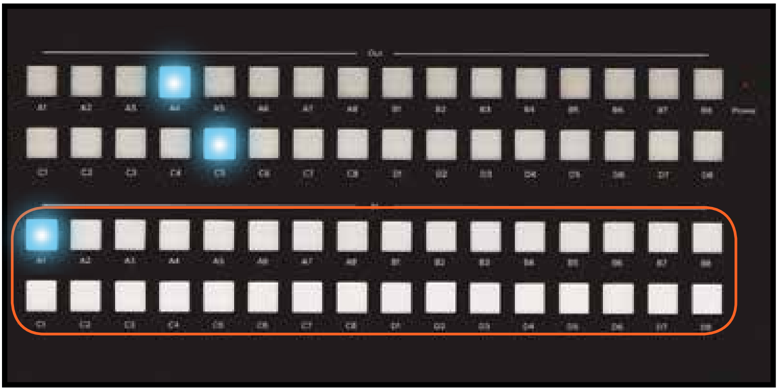


The front-panel LCD will indicate that Routing Mode has been selected:

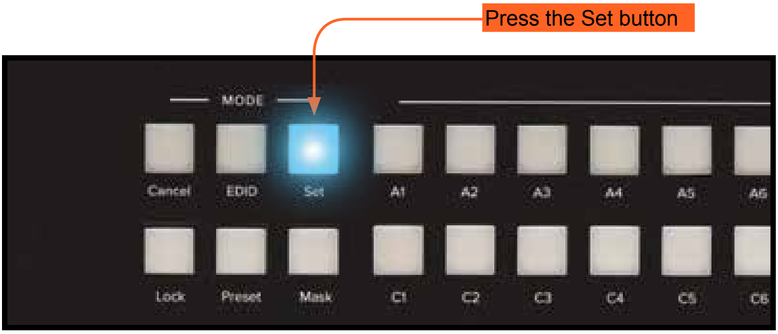
2. Press the desired Output button(s) from the top two rows of push-buttons. One or more Output buttons may be selected.



3. Select any Input from the bottom two rows of buttons (A1 - D8), corresponding to the source to be displayed on the output(s).



4. Press the **Set** button again to complete the operation.



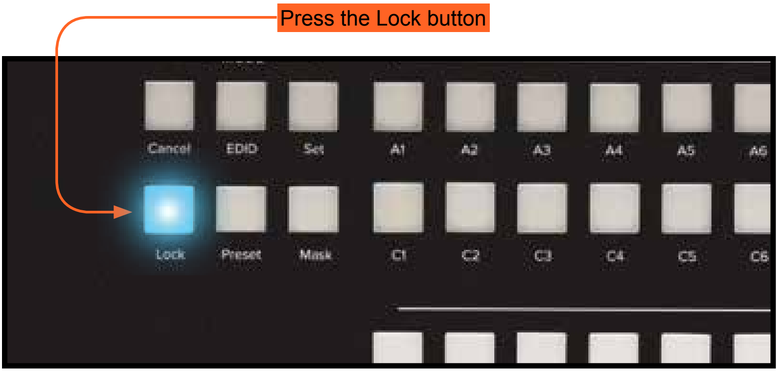
Press the Set button

The front-panel LCD display will indicate that the routing process is complete:

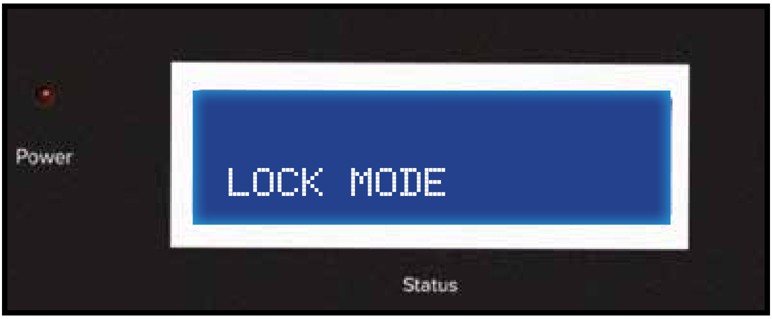
Locking the Matrix

Locking the Matrix prevents changes to any of the Matrix settings. This feature is useful in case any of the front panel buttons are pressed by accident. Locking the Matrix also prevents changes using the IR Remote Control Unit.

1. Press the Lock button to activate System Lock Mode.



The front-panel LCD screen will display the following while in System Lock Mode:

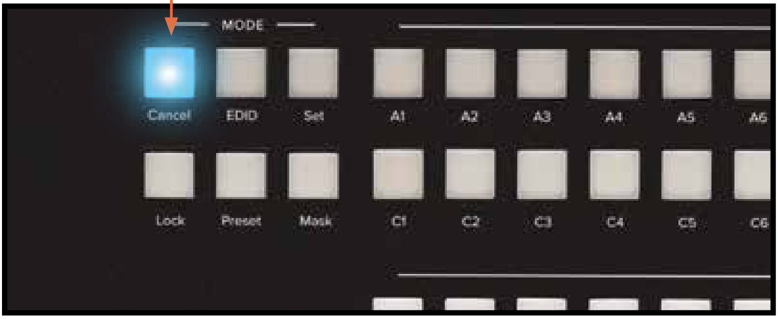


2. Press the Lock button a second time to deactivate System Lock Mode.

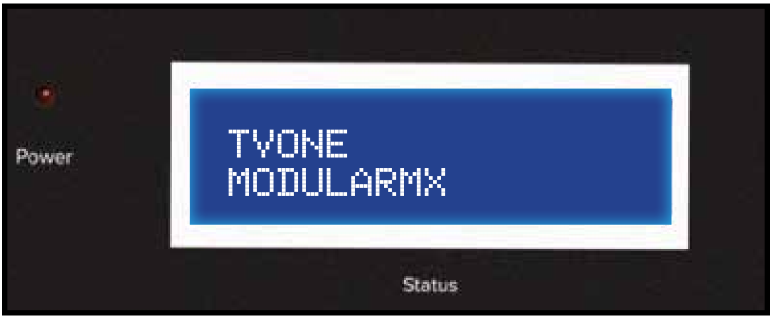
Using the Cancel button

Press the **Cancel** button, while in any mode, to return to cancel the current function and display the Standby Mode screen.

Press the Cancel button

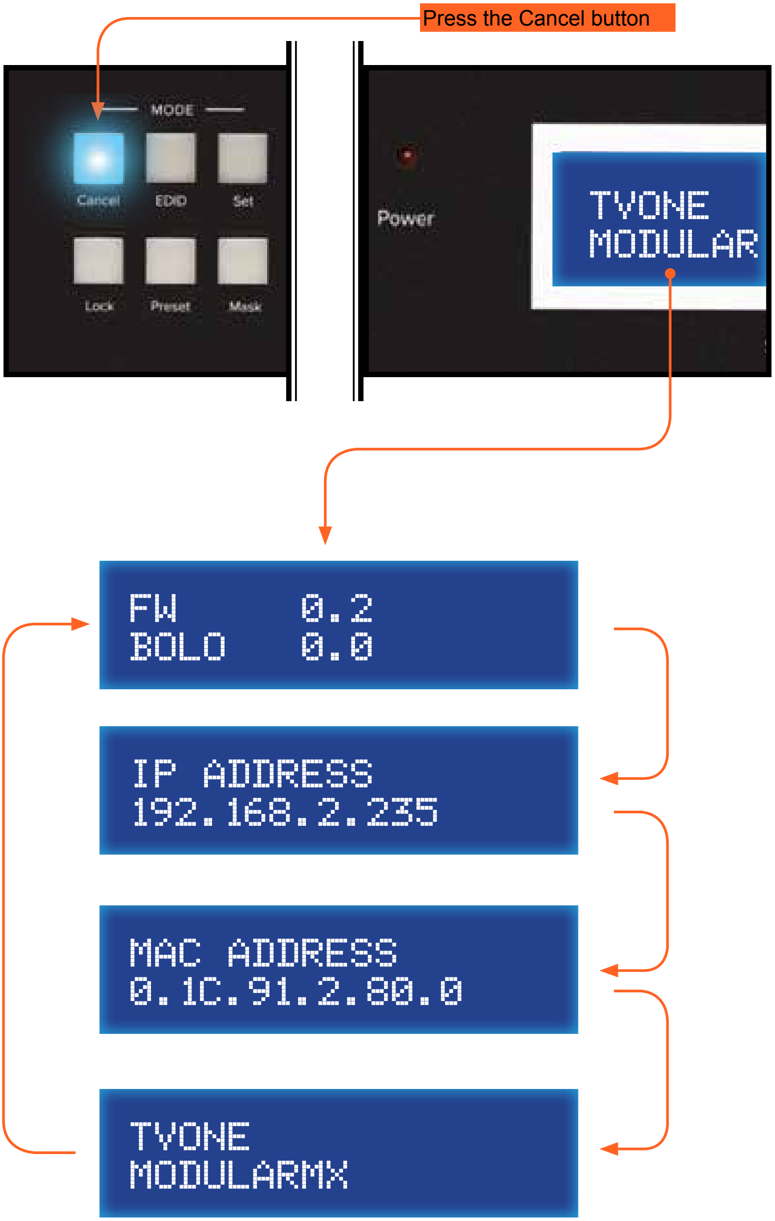


The 32x32 ModularMX front-panel LCD screen as it appears in Standby mode:



Cycling between Information Screens

Press the **Cancel** button more than once, while in Standby Mode, to cycle through each of the information screens:



Press the Cancel button

```
FW       0.2
BOLO     0.0
```

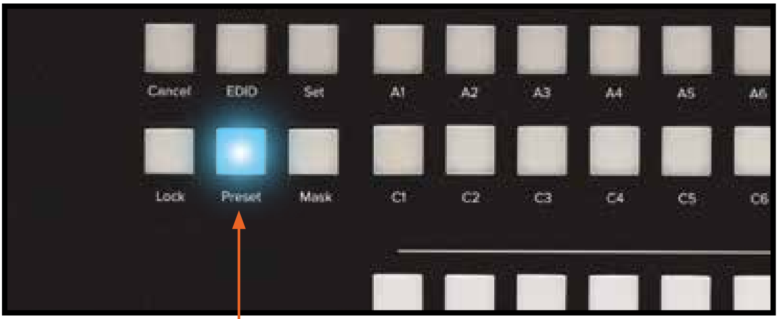
```
IP ADDRESS
192.168.2.235
```

```
MAC ADDRESS
0.1C.91.2.80.0
```

```
TVONE
MODULARMX
```

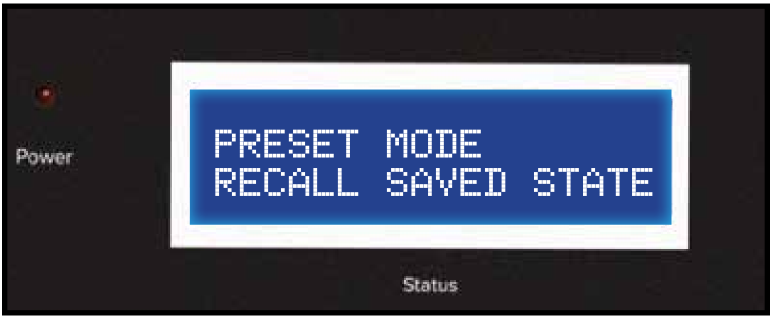
Saving the current Routing State

1. Set the routing state (see page 22), then press the **PreSet** button *twice* to activate **Preset** Mode.



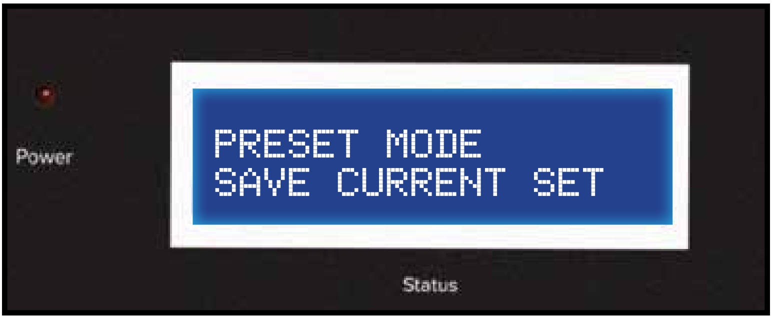
Press the **PreSet** button *twice*

After pressing the **PreSet** button once, the following will be displayed on the front-panel LCD screen:



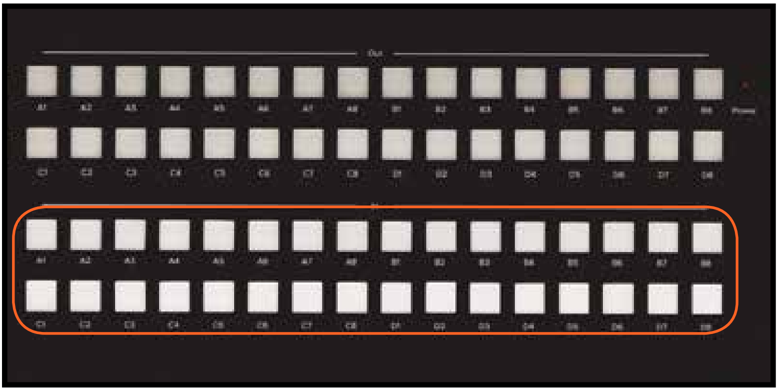
```
PRESET MODE
RECALL SAVED STATE
```

Press the **PreSet** button again. The following will be displayed on the front-panel LCD screen:



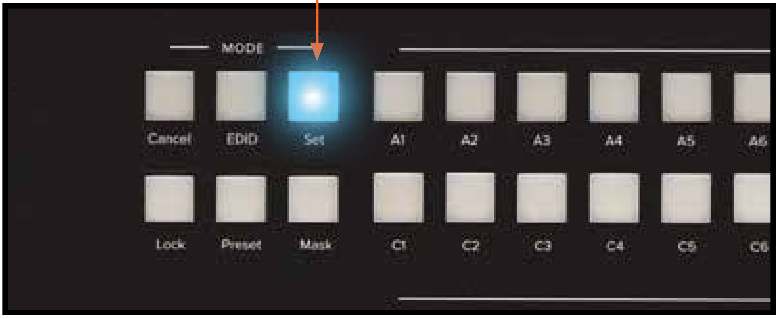
```
PRESET MODE
SAVE CURRENT SET
```

2. Press an Input button (A1 - D8) to store the current routing state.

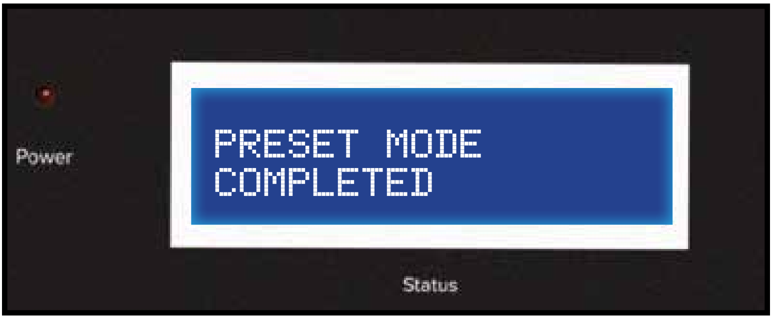


3. Press the **Set** button to complete the operation. The system will remain in Save Current Preset Mode.

Press the Set button



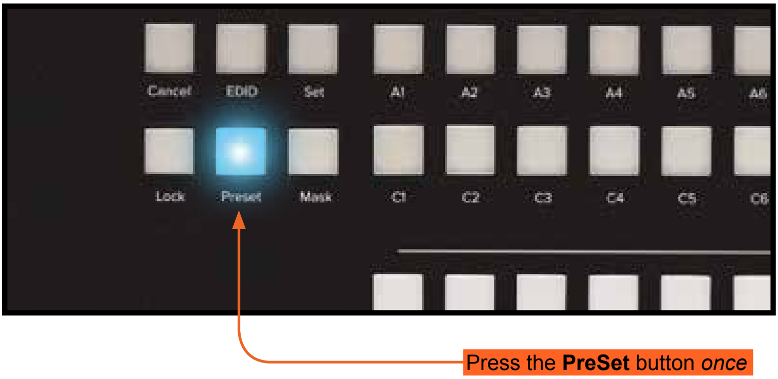
The front-panel LCD screen will indicate that the current routing state has been saved:



PRESET MODE
COMPLETED

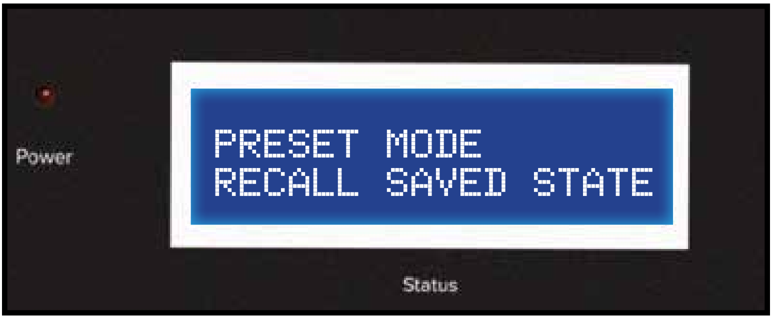
Recalling a stored Routing State

1. Press the **PreSet** button *once* to activate Recall Preset Mode.



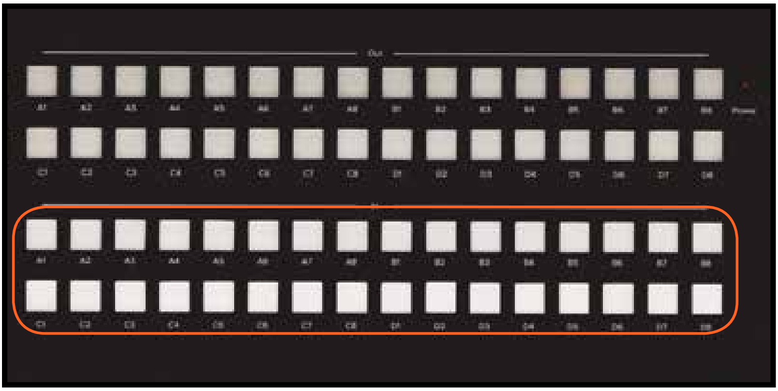
Press the **PreSet** button *once*

The following will be displayed on the front-panel LCD screen:



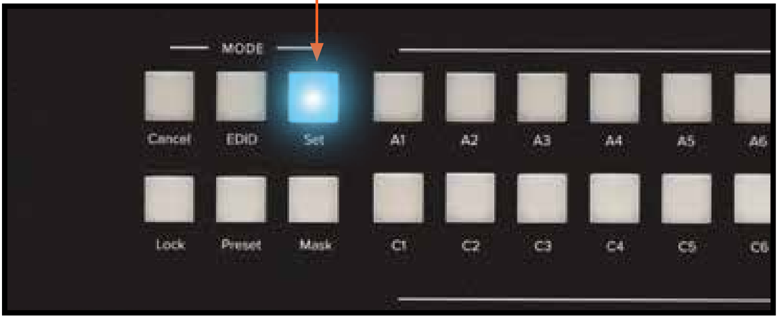
```
PRESET MODE
RECALL SAVED STATE
```

2. Press the Input button (A1 - D8) of the routing state to be recalled.

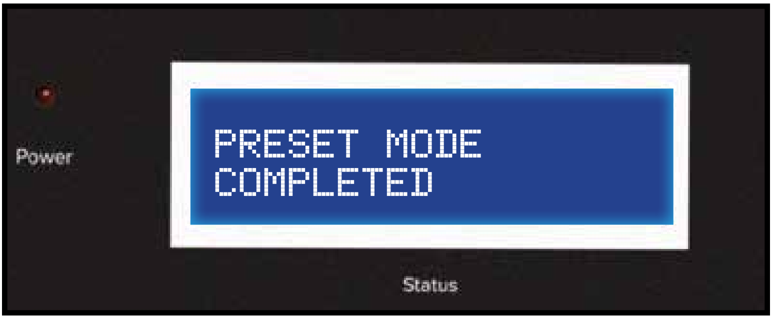


3. Press the **Set** button to complete the operation. The system will remain in Save Current Preset Mode.

Press the Set button



The front-panel LCD screen will indicate that the current routing state has been recalled:

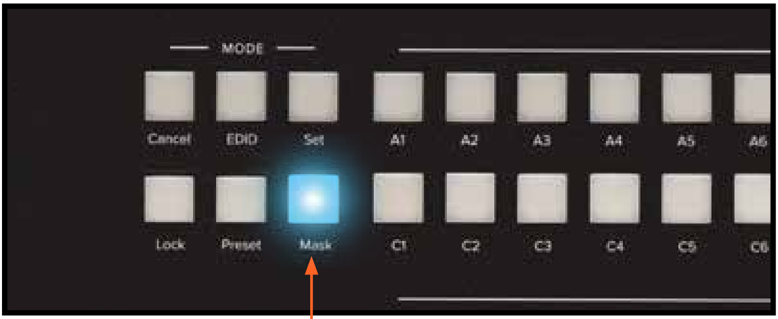


PRESET MODE
COMPLETED

Masking Outputs

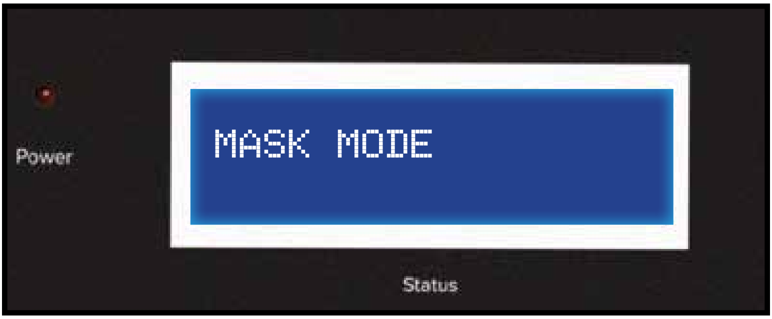
Masking prevents the output device (display, etc) from receiving an output signal, instead of powering-down the output device. The masking process is identical for masking or unmasking outputs.

1. Press the **Mask** button to activate Mask Mode.

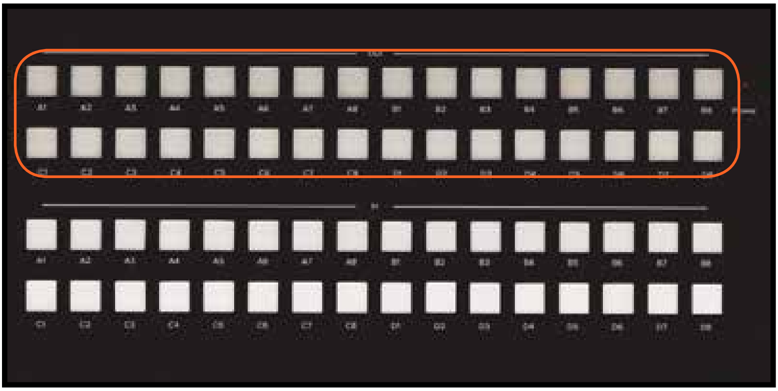


Press the Mask button

The front-panel LCD screen will indicate that the 32x32 ModularMX is in Mask Mode:

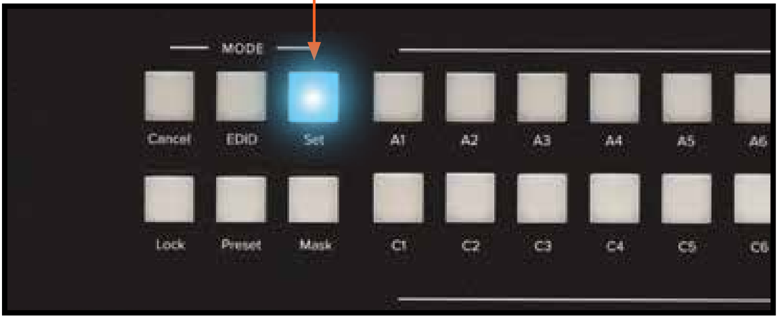


2. Select the Output (A1 - D8) to be masked:



3. Press the **Set** button to complete the operation.

Press the Set button



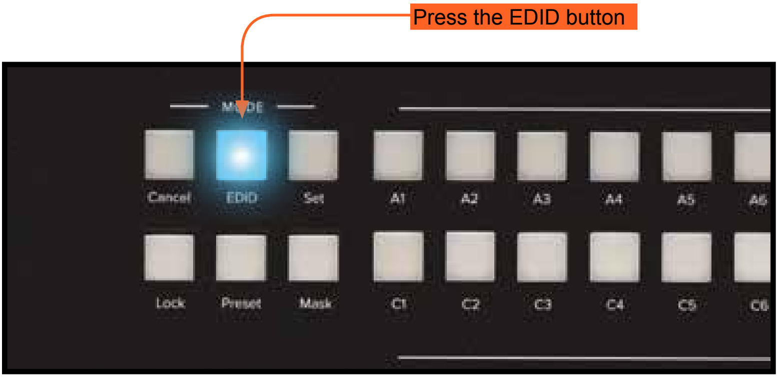
The front-panel LCD screen will indicate that the selected output has been masked:

MASK MODE
COMPLETED

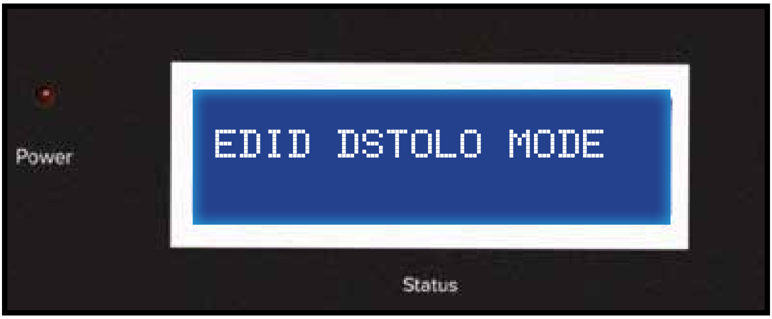
Managing EDID

Saving the Downstream EDID data to Local memory:

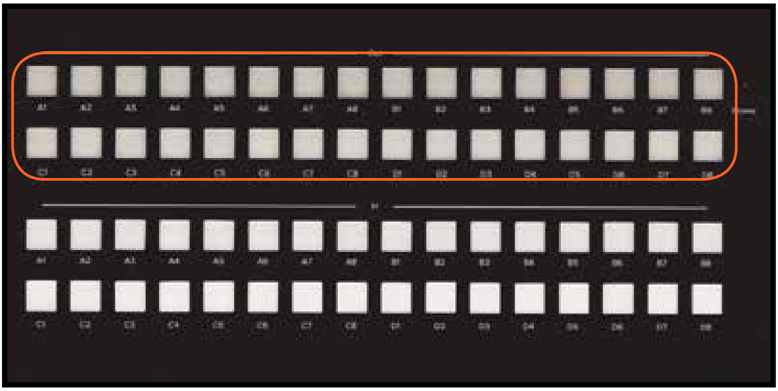
1. Press EDID button once to activate DSTOLO (Downstream To Local) Mode.


Press the EDID button

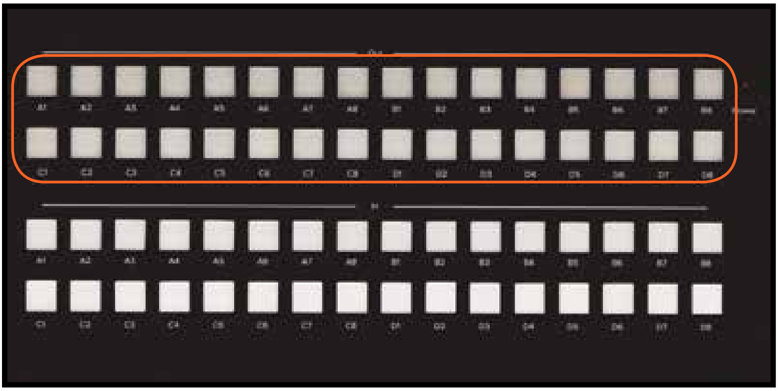
The front-panel LCD display will show the following:



2. Press the Output button (A1 - D8) to select the EDID source:

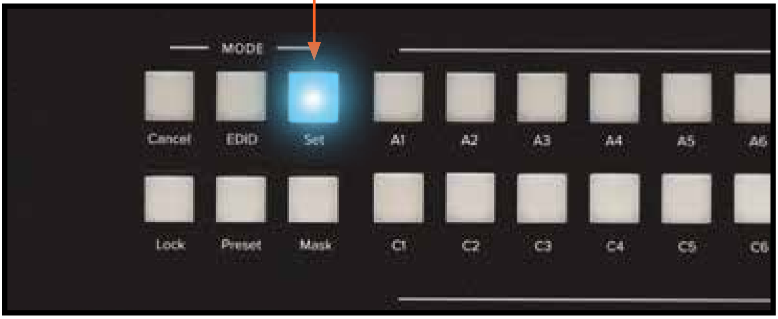


3. Press any Input button (A1 - D8) to select the EDID data destination:



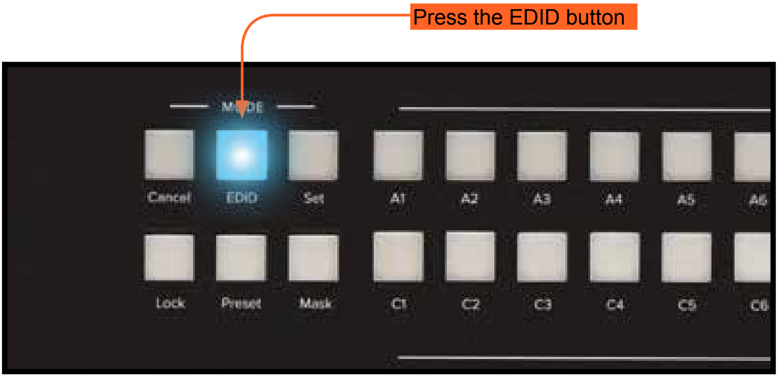
4. Press the **Set** button to complete the operation.

Press the Set button



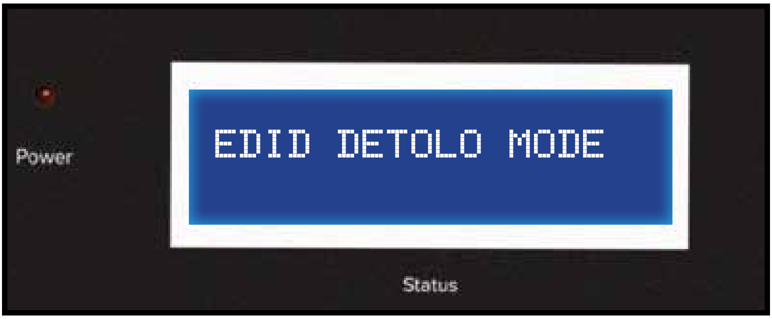
Saving the Default EDID data to Local memory

1. Press the EDID button twice to activate DETOLO (Default To Local) Mode.



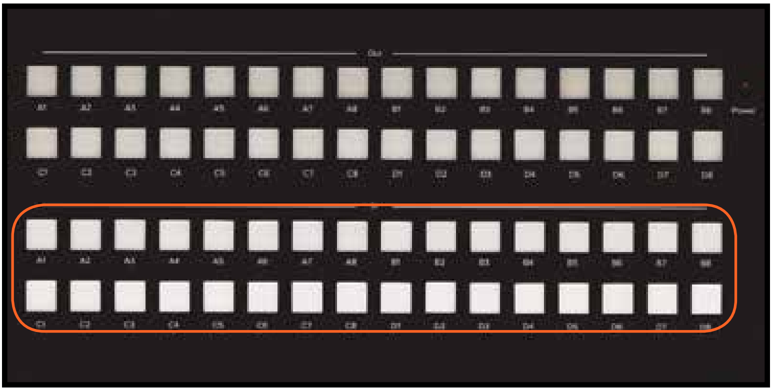
Press the EDID button

The front-panel LCD will display the following:

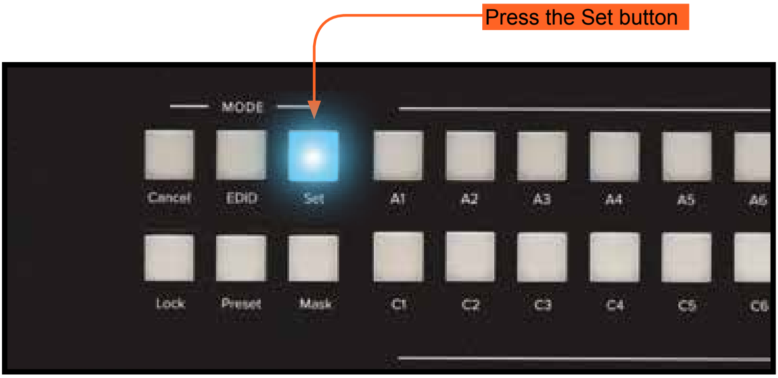


EDID DETOLO MODE

2. Press any Input button(s) (A1 - D8) to select the EDID data destination(s).

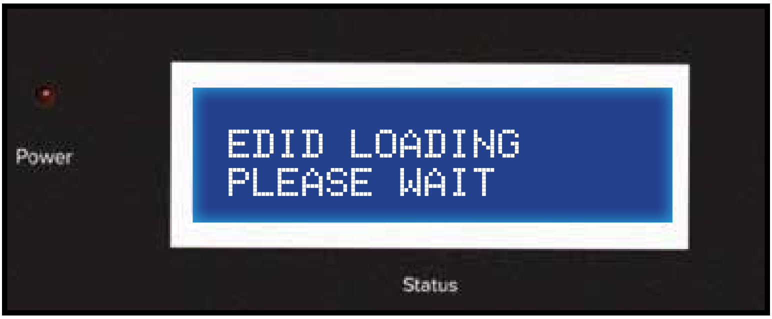


3. Press the **Set** button to copy the default EDID to the selected Input.



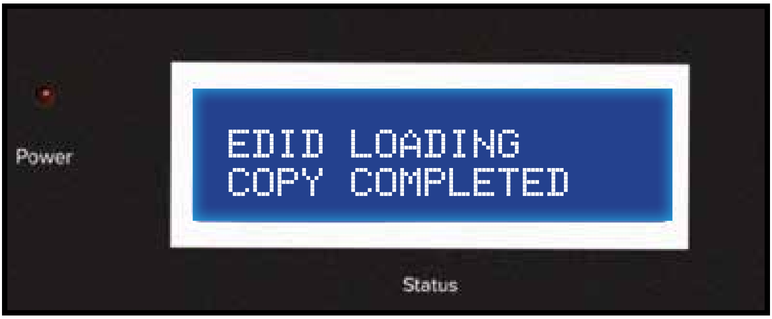
Press the Set button

The front-panel LCD will indicate that the EDID is being copied:



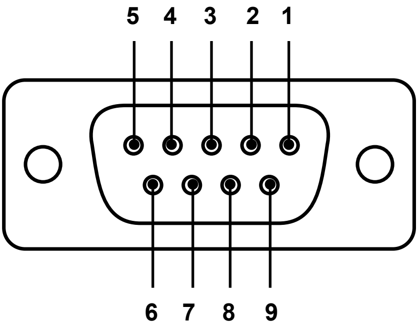
EDID LOADING
PLEASE WAIT

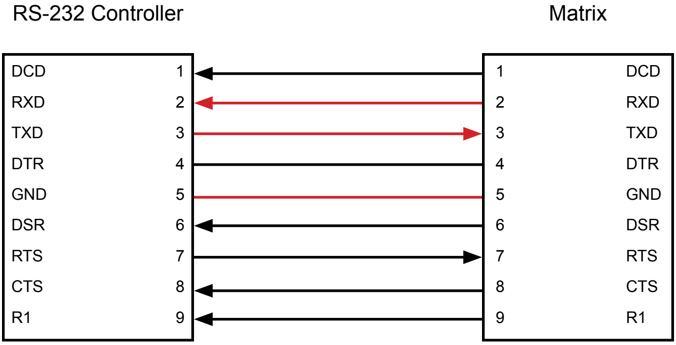
After a few moments, the front-panel LCD will indicate that the EDID copy process has completed:



EDID LOADING
COPY COMPLETED

RS-232 Interface





RS-232 Controller				Matrix
DCD	1	←	1	DCD
RXD	2	←	2	RXD
TXD	3	→	3	TXD
DTR	4	—	4	DTR
GND	5	—	5	GND
DSR	6	←	6	DSR
RTS	7	→	7	RTS
CTS	8	←	8	CTS
R1	9	←	9	R1

Only TXD, RXD, and GND are used.

RS232 Settings

Baud rate	19200
Data bits	8
Parity bits	None
Stop bits	1
Flow Control	None

IMPORTANT: When sending RS-232 commands, a carriage return must be included at the end of the command. A space *must* be included between the command and the parameter.

IP Configuration

The *32x32 ModularMX* supports IP-based control using Telnet, UDP, or the built-in Web-based GUI. To set up IP control, the network settings for the *32x32 ModularMX* must be configured via RS-232. The default network settings for the matrix are as follows:

IP Address:	`192.168.1.72`
Subnet:	`255.255.255.0`
Gateway:	`192.168.1.254`
HTTP Port:	`80`
Telnet Port:	`23`

1. Connect an RS-232 cable from the PC to the *32x32 ModularMX*. Also make sure that an Ethernet cable is connected between the matrix and the network.

2. Launch a terminal emulation program (e.g. HyperTerminal) and use the RS-232 settings listed on page 37.

> **NOTE:** Depending upon the network, all related IP, Telnet, and UDP settings will need to be assigned. Consult your network administrator to obtain the proper settings.

3. Set the IP address for the matrix using the `#sipadd` command (see page 55 for details).

4. Set the subnet mask using the `#snetmask` command (see page 55 for details).

5. Set the gateway (router) IP address using the `#sgateway` command (see page 53 for details).

6. Set the Telnet listening port using the `#set_tcp_term_port` command (see page 51 for details).

7. Set the HTTP listening port using the `#set_http_port` command (see page 50 for details).

8. Power-cycle the matrix to reboot and complete all IP setting changes.

9. Type the IP address that was specified in step 3, in a web browser to access the Web GUI or use the same IP address to Telnet to the matrix.

UDP Configuration

1. Set the UDP remote IP address for the matrix using the `#set_udp_rip` command (see page 52 for details).

2. Set the UDP listening port for the matrix using the `#set_udp_port` command (see page 52 for details).

3. Set the UDP remote port for the matrix using the `#set_udp_rport` command (see page 53 for details).

RS-232 / Telnet Commands

EDID Management	
Command	**Description**
#edidbatolo	Read downstream EDID and stores in any Local Input
#ediddetolo	Set to default EDID on Local Input
#ediddstoba	Read downstream EDID and stores in EDID Bank
#ediddstolo	Read downstream EDID and stores into a Local EDID
#lock_edid	Locks Local EDID and disables auto-loading after power-up
#loedidtoba	Loads Local EDID to the specified EDID bank
#loedidtolo	Loads EDID to Local EDID
#prbaedid	Read downstream EDID from bank and sends to serial port
#prdsedid	Read downstream EDID and sends to serial port
#predidst	Spools the EDID details to the serial port
#prloedid	Read Input Local EDID and sends to serial port
#set_bank_name	Set the name of the specified EDID bank
#show_bank_name	Displays the name of the specified EDID bank

#edidbatolo Command

The `#edidbatolo` command loads the EDID from the specified EDID bank and writes it to the specified input(s).

Syntax:

```
#edidbatolo param1 param2 param3...param9
```

Parameters:

param1	EDID bank offset	[1 ... 20]
param2 - param9	Input list	[0 ... 32]

Notes:

If *param2* = 0, then the EDID in the specified bank is copied to all 32 inputs.

Example:

```
#edidbatolo 2 3 6 7

Loading EDID bank 2 to locals Inputs: 3 6 7, please wait.....
Finished Loading
```

#ediddetolo Command

The `#ediddetolo` command stores the default (Internal) EDID to the specified input(s).

Syntax:

```
#ediddetolo param1 param2 param3...param9
```

Parameters:

param1 - param32	Input list	[1 ... 32]

Notes:

If *param1* = 0, then the default EDID will be stored in all 32 inputs.

Examples:

```
#ediddetolo 5 6 7

Loading default EDID to locals Inputs: 5 6 7, please wait.....
Finished Loading


#ediddetolo 0

Loading default EDID to all locals Inputs, please wait.........
Finished Loading
```

#ediddstoba Command

The #ediddstoba command reads the downstream EDID and stores it to the specified EDID bank.

Syntax:

```
#ediddstoba param1 param2
```

Parameters:

param1	A downstream display	[1 ... 32]
param2	EDID bank offset	[1 ... 20]

Example:

```
#ediddstoba param1 param2
```

```
Loading Downstream EDID 25 to EDID bank 20, please wait....
Finished Loading
```

#ediddstolo Command

The #ediddstolo command reads the downstream EDID and stores it to a Local EDID.

Syntax:

```
#ediddstolo param1 param2 param3...param9
```

Parameters:

param1	A downstream display	[1 ... 32]
param2 - param9	Input list	[1 ... 32]

Notes:

If *param2* = 0, then the downstream EDID is stored in all 32 inputs.

Example:

```
#ediddstolo 25 6 7
```

```
Loading Downstream EDID 25 to locals Inputs: 6 7, please wait.....
Finished Loading
```

#lock_edid Command

The `#lock_edid` command secures the EDID stored on all inputs. This prevents the default EDID from being loaded to all inputs during a power-up procedure. This feature can be enabled or disabled.

<u>Syntax</u>:

```
#lock_edid param1
```

<u>Parameters</u>:

param1	EDID lock state	[0 ... 1]

Value	Meaning
0	Disable
1	Enable

#loedidtoba Command

The `#loedidtoba` command loads an EDID file and stores it in the specified EDID bank.

<u>Syntax</u>:

```
#loedidtoba param1
```

<u>Parameters</u>:

param1	Bank	[1 ... 20]

<u>Example</u>:

```
#loedidtoba 8
==============================
 Download EDID bin file___1
 cancel___________________0
==============================
Please send EDID bin file
Waiting for the file to be sent ... (press 'a' to abort)
```

#loedidtolo Command

The `#loedidtolo` command loads an EDID file and stores it in the specified input.

Syntax:

```
#loedidtolo param1
```

Parameters:

param1	Input	[1 ... 32]

Notes:

If *param1* = 0, then the downstream EDID is stored in all 32 inputs.

Example:

```
#loedidtoba 8
===============================
 Download EDID bin file___1
 cancel___________________0
===============================
Please send EDID bin file
Waiting for the file to be sent ... (press 'a' to abort)
```

#prbaedid Command

The `#prbaedid` command displays the EDID stored in the specified EDID bank.

Syntax:

```
#prbaedid param1
```

Parameters:

param1	Bank	[1 ... 20]

Example:

```
#prbaedid 20
Print the Bank EDID 20 on terminal screen

0x00 0xFF 0xFF 0xFF 0xFF 0xFF 0xFF 0x00
0x10 0xAC 0x35 0x40 0x4C 0x32 0x33 0x32
0x31 0x13 0x01 0x03 0x80 0x41 0x29 0x78
0xEA 0x8F 0x95 0xAD 0x4F 0x32 0xB2 0x25
0x0F 0x50 0x54 0xA5 0x4B 0x00 0x81 0x80
0xA9 0x40 0xD1 0x00 0xD1 0x40 0x71 0x4F
0x81 0x00 0xB3 0x00 0x01 0x01 0xB0 0x68
0x00 0xA0 0xA0 0x40 0x2E 0x60 0x30 0x20
0x36 0x00 0x81 0x90 0x21 0x00 0x00 0x1E
0x00 0x00 0x00 0xFF 0x00 0x47 0x35 0x30
0x31 0x48 0x39 0x43 0x32 0x32 0x33 0x32
0x4C 0x0A 0x28 0x3C 0x80 0xA0 0x70 0xB0
0x23 0x40 0x30 0x20 0x36 0x00 0x81 0x91
0x21 0x00 0x00 0x1C 0x00 0x00 0x00 0xFD
0x00 0x31 0x56 0x1D 0x71 0x1C 0x00 0x0A
0x20 0x20 0x20 0x20 0x20 0x20 0x00 0x41
```

#prdsedid Command

The `#prdsedid` command displays the specified downstream EDID.

Syntax:

```
#prdsedid param1
```

Parameters:

param1	Output	[1 ... 32]

Example:

```
#prdsedid 20

Print the Downstream EDID 25 on terminal screen,, please wait...
0x00 0xFF 0xFF 0xFF 0xFF 0xFF 0xFF 0x00
0x10 0xAC 0x35 0x40 0x4C 0x32 0x33 0x32
0x31 0x13 0x01 0x03 0x80 0x41 0x29 0x78
0xEA 0x8F 0x95 0xAD 0x4F 0x32 0xB2 0x25
0x0F 0x50 0x54 0xA5 0x4B 0x00 0x81 0x80
0xA9 0x40 0xD1 0x00 0xD1 0x40 0x71 0x4F
0x81 0x00 0xB3 0x00 0x01 0x01 0xB0 0x68
0x00 0xA0 0xA0 0x40 0x2E 0x60 0x30 0x20
0x36 0x00 0x81 0x90 0x21 0x00 0x00 0x1E
0x00 0x00 0x00 0xFF 0x00 0x47 0x35 0x30
0x31 0x48 0x39 0x43 0x32 0x32 0x33 0x32
0x4C 0x0A 0x28 0x3C 0x80 0xA0 0x70 0xB0
0x23 0x40 0x30 0x20 0x36 0x00 0x81 0x91
0x21 0x00 0x00 0x1C 0x00 0x00 0x00 0xFD
0x00 0x31 0x56 0x1D 0x71 0x1C 0x00 0x0A
0x20 0x20 0x20 0x20 0x20 0x20 0x00 0x41
```

#predidst Command

The `#predidst` command displays the EDID used by each input.

Syntax:

```
#predidst
```

Parameters:

None

Example:

```
#predidst

EDID table

Input| Source |ID  |Monitor name

    1| Default|GFN |tvONE_XPT_SL
    2| Default|GFN |tvONE_XPT_SL
    3| Bank  2|MEI |PanasonicTV0
    4| Bank  2|MEI |PanasonicTV0
    5| Bank  2|MEI |PanasonicTV0
    6|   25   |DEL |
    7|   25   |DEL |
    8| Bank  2|MEI |PanasonicTV0
    9| Bank  2|MEI |PanasonicTV0
   10| Bank  2|MEI |PanasonicTV0
   11| Default|GFN |tvONE_XPT_SL
   12| Default|GFN |tvONE_XPT_SL
   13| Default|GFN |tvONE_XPT_SL
   14| Default|GFN |tvONE_XPT_SL
   15| Default|GFN |tvONE_XPT_SL
   16| Default|GFN |tvONE_XPT_SL
   17| Default|GFN |tvONE_XPT_SL
   18| Default|GFN |tvONE_XPT_SL
   19| Default|GFN |tvONE_XPT_SL
   20| Default|GFN |tvONE_XPT_SL
   21| Default|GFN |tvONE_XPT_SL
   22| Default|GFN |tvONE_XPT_SL
   23| Default|GFN |tvONE_XPT_SL
   24| Default|GFN |tvONE_XPT_SL
   25| Default|GFN |tvONE_XPT_SL
   26| Default|GFN |tvONE_XPT_SL
   27| Default|GFN |tvONE_XPT_SL
   28| Default|GFN |tvONE_XPT_SL
   29| Default|GFN |tvONE_XPT_SL
   30| Default|GFN |tvONE_XPT_SL
   31| Default|GFN |tvONE_XPT_SL
   32| Default|GFN |tvONE_XPT_SL
```

#prloedid Command

The `#prloedid` command displays the EDID stored in the specified input.

Syntax:

```
#prloedid param1
```

Parameters:

param1	Input	[1 ... 32]

Example:

```
#prloedid 3
```

```
Print the local Input 3 on terminal screen, please wait....
0x00 0xFF 0xFF 0xFF 0xFF 0xFF 0xFF 0x00
0x34 0xA9 0xAF 0xA0 0x01 0x01 0x01 0x01
0x00 0x14 0x01 0x03 0x80 0x00 0x00 0x78
0x0A 0xDA 0xFF 0xA3 0x58 0x4A 0xA2 0x29
0x17 0x49 0x4B 0x00 0x00 0x00 0x01 0x01
0x01 0x01 0x01 0x01 0x01 0x01 0x01 0x01
0x01 0x01 0x01 0x01 0x01 0x01 0x02 0x3A
0x80 0x18 0x71 0x38 0x2D 0x40 0x58 0x2C
0x45 0x00 0xBA 0x88 0x21 0x00 0x00 0x1E
0x01 0x1D 0x80 0x18 0x71 0x1C 0x16 0x20
0x58 0x2C 0x25 0x00 0xBA 0x88 0x21 0x00
0x00 0x9E 0x00 0x00 0x00 0xFC 0x00 0x50
0x61 0x6E 0x61 0x73 0x6F 0x6E 0x69 0x63
0x54 0x56 0x30 0x0A 0x00 0x00 0x00 0xFD
0x00 0x17 0x3D 0x0F 0x44 0x0F 0x00 0x0A
0x20 0x20 0x20 0x20 0x20 0x20 0x01 0xC7
0x02 0x03 0x2A 0x71 0x49 0x90 0x05 0x20
0x04 0x03 0x02 0x07 0x06 0x01 0x23 0x09
0x07 0x01 0x73 0x03 0x0C 0x00 0x20 0x00
0xB8 0x2D 0x2F 0xC0 0x07 0x81 0x49 0x01
0xFE 0x06 0x08 0x00 0x00 0x00 0xE3 0x05
0x1F 0x01 0x01 0x1D 0x00 0x72 0x51 0xD0
0x1E 0x20 0x6E 0x28 0x55 0x00 0xBA 0x88
0x21 0x00 0x00 0x1E 0x8C 0x0A 0xD0 0x8A
0x20 0xE0 0x2D 0x10 0x10 0x3E 0x96 0x00
0xBA 0x88 0x21 0x00 0x00 0x18 0x8C 0x0A
0xD0 0x8A 0x20 0xE0 0x2D 0x10 0x10 0x3E
0x96 0x00 0x0B 0x88 0x21 0x00 0x00 0x18
0x8C 0x0A 0xA0 0x14 0x51 0xF0 0x16 0x00
0x26 0x7C 0x43 0x00 0xBA 0x88 0x21 0x00
0x00 0x98 0x00 0x00 0x00 0x00 0x00 0x00
0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x76
```

#set_bank_name Command

The `#set_bank_name` command sets the name of the specified EDID bank.

<u>Syntax</u>:

```
#set_bank_name param1 param2
```

<u>Parameters</u>:

param1	EDID Bank	[1 ... 20]
param2	Name	[20 chars max.]

<u>Notes</u>:

Spaces are not permitted when naming EDID banks. If a space is required, use the underscore character (“_”).

<u>Example</u>:

```
#set_bank_name 3 Dell_30”
Dell_30” is assigned to bank 3
```

#show_bank_name Command

The `#show_bank_name` command displays the name of the specified EDID bank.

<u>Syntax</u>:

```
#show_bank_name param1
```

<u>Parameters</u>:

param1	EDID Bank	[1 ... 20]

<u>Example</u>:

```
#show_bank_name 3
Bank 3 - Dell_30”
```

IP Configuration	
Command	**Description**
#ipconfig	Displays the current IP configuration
#resetip	Sets IP configuration to factory settings
#set_http_port	Sets the Web server listening port
#set_tcp_term_pass	Sets the TCP terminal password
#set_tcp_term_port	Sets the TCP terminal port
#set_udp_port	Sets the UDP port
#set_udp_rip	Sets the remote UDP IP address
#set_udp_rport	Sets the remote UDP port
#sgateway	Sets the IP address of the (router) gateway
#show_tcp_term_pass	Displays the current TCP terminal password
#sipadd	Sets the IP Address
#snetmask	Sets the Net Mask
#use_tcp_term_pass	Enables / disabled login credentials
#use_udp_access	Enables / disabled UDP access

#ipconfig Command

The `#ipconfig` command displays all TCP/IP settings.

Syntax:

```
#ipconfig
```

Parameters:

None

Example:

```
#ipconfig

-------------- TCP/IP settings -------------

MAC add  = 00:1C:91:02:80:2B
IP add   = 192.168.1.205
Net Mask = 255.255.255.0
Gateway  = 192.168.1.1
Web Server Port = 80
TCP Terminal Server Port = 23
UDP Server Port = 21
TCP Terminal password at login is set to OFF
UDP Remote IP = 192.168.2.206
UDP Remote Port = 50021
UDP Access = Enabled
```

#resetip Command

The `#resetip` command sets the current IP configuration to factory (default) settings.

Syntax:

```
#resetip
```

Parameters:

None

Notes:

A reboot is required after using this command.

#set_http_port Command

The `#set_http_port` command specifies the Web server listening port. The default port setting is 80.

Syntax:

```
#set_http_port param1
```

Parameters:

param1	Port	[0 ... 255]

Notes:

A reboot is required after using this command.

Example:

```
#set_http_port 80
New HTTP port set to: 80
```

#set_tcp_term_pass Command

The `#set_tcp_term_pass` command sets the TCP terminal password.

Syntax:

```
#set_tcp_term_pass param1 param2 param3
```

Parameters:

param1	Old password	[20 chars max.]
param2	New password	[20 chars max.]
param3	New password (confirm)	[20 chars max.]

Notes:

A reboot is required after using this command.

Example:

```
#set_tcp_term_pass Admin reindeer reindeer
TCP Terminal password updated to: reindeer
```

#set_tcp_term_port Command

The `#set_tcp_term_port` command sets the TCP terminal server listening port. The default port setting is 23.

Syntax:

```
#set_tcp_term_port param1
```

Parameters:

param1	Port	[1 ... 65535]

Notes:

A reboot is required after using this command.

Example:

```
#set_tcp_term_port 21
New TCP Terminal port set to: 21
```

#set_udp_port Command

The `#set_udp_port` command sets the UDP server listening port. The default port setting is 21.

Syntax:

```
#set_udp_port param1
```

Parameters:

param1	Port	[1 ... 65535]

Notes:

A reboot is required after using this command.

Example:

```
#set_udp_port 56

New UDP server port set to: 56
```

#set_udp_rip Command

The `#set_udp_rip` command sets the remote UDP listening IP address. The IP address must be specified using dot-decimal notation. The default UDP remote IP address is `192.168.1.255`.

Syntax:

```
#set_udp_rip param1
```

Parameters:

param1	IP Address

Notes:

A reboot is required after using this command.

Example:

```
#set_udp_rip 192.168.1.255
New Remote UDP IP set to: 192.168.1.255
```

#set_udp_rport Command

The `#set_udp_rport` command sets the remote UDP listening port. The default UDP remote port is 50008.

Syntax:

```
#set_udp_rport param1
```

Parameters:

param1	Port	[1 ... 65535]

Notes:

A reboot is required after using this command.

Example:

```
#set_udp_rport 30
New UDP Remote port set to: 30
```

#sgateway Command

The `#sgateway` command sets the new IP gateway. The gateway must be typed using dot-decimal notation. The default gateway is `192.168.1.254`.

Syntax:

```
#sgateway param1
```

Parameters:

param1	Gateway

Notes:

A reboot is required after using this command.

Example:

```
#sgateway 192.168.1.1
New IP Gateway set to: 192.168.1.1
```

#show_tcp_term_pass Command

The `#show_tcp_term_pass` command displays the current TCP terminal password. The default TCP terminal password is `Admin`.

Syntax:

```
#show_tcp_term_pass
```

Parameters:

None

Example:

```
#show_tcp_term_pass
TCP Terminal password: reindeer
```

#show_user_name Command

The `#show_user_name` command displays the current TCP terminal user name. The default TCP terminal user name is `Administrator`.

Syntax:

```
#show_used_name
```

Parameters:

None

Example:

```
#show_user_name
TCP Terminal login: Administrator
```

#sipadd Command

The `#sipadd` command sets the IP address of the matrix. The IP address must be typed using dot-decimal notation. The default IP address for the matrix is `192.168.1.75`.

Syntax:

```
#sipadd param1
```

Parameters:

param1	IP address

Notes:

A reboot is required after using this command.

Example:

```
#sipadd 192.168.2.127
New IP set to: 192.168.1.205
```

#snetmask Command

The `#snetmask` command sets the IP subnet mask. The net mask must be typed using dot-decimal notation. The default net mask is `255.255.255.0`.

Syntax:

```
#snetmask param1
```

Parameters:

param1	Net mask

Notes:

A reboot is required after using this command.

Example:

```
#snetmask 255.255.255.0
New IP Mask set to: 255.255.255.0
```

#use_tcp_term_pass Command

The `#use_tcp_term_pass` command enables or disables the login credentials when starting a terminal session.

Syntax:

```
#use_tcp_term_pass param1
```

Parameters:

param1 State [0 ... 1]

Value	Meaning
0	Disable
1	Enable

Notes:

A reboot is required after using this command.

Example:

```
#use_tcp_term_pass 1
TCP Terminal password at login is set to ON
```

#use_udp_access Command

The `#use_udp_access` command enables or disables UDP access mode.

Syntax:

```
#use_udp_access param1
```

Parameters:

param1 State [0 ... 1]

Value	Meaning
0	Disable
1	Enable

Notes:

A reboot is required after using this command.

Example:

```
#use_udp_access 1
UDP Access is set to Enabled
```

Routing and Masking	
Command	**Description**
#callpreset	Restores the specified routing / masking preset
#maskout	Masks the specified outputs
#prpreset	Displays the current list of presets
#savepreset	Saves the current routing / masking preset
#set_input_name	Assigns an input with the specified name
#set_output_name	Assigns an output with the specified name
#set_preset_name	Assigns a preset with the specified name
#show_input_name	Displays the specified input name
#show_output_name	Displays the specified output name
#show_preset_name	Displays the specified preset name
#unmaskout	Unmasks the specified outputs
m	Displays the current matrix status in tabular form
r	Routes the specified input to the specified outputs
s	Routes the specified inputs to all outputs

#callpreset Command

The `#callpreset` command restores the specified routing / masking preset.

Syntax:

```
#callpreset param1
```

Parameters:

param1	Preset	[1 ... 16]

Notes:

If the specified preset is empty, then “Empty Set” will be returned.

Examples:

```
#callpreset 2
Recalling the saved touting state from preset 2
```

```
#callpreset 3
Recalling the saved touting state from preset 3
Empty Set
```

#maskout Command

The `#maskout` command masks the specified outputs.

<u>Syntax</u>:

```
#maskout param1 param2 ... param8
```

<u>Parameters</u>:

param1 - param8	Output	[1 ... 32]

<u>Notes</u>:

If *param1* = 0, then all 32 outputs will be masked.

<u>Examples</u>:

```
#maskout 2 3 4
Masked Outputs: 2 3 4


#maskout 0
Masked all Outputs
```

#prpreset Command

The `#prpreset` command displays the current list of presets in tabular form.

Syntax:

```
#prpreset
```

Parameters:

None

Example:

```
#prpreset
Preset table
 Set | Outputs 1-32
  1  | M 2 A 2 A 3 A 4 M 5 A 6 A 7 A 8 A 9 M10 M11 A12 A13 A14 A15 A16
     | A17 A18 A19 A20 A21 A22 A23 A24 A25 A26 A27 A28 A29 A30 A31 A32
  2  | A22 A 2 A 3 A 4 A 5 A 6 A 7 A 8 A 9 A10 A11 A12 A13 A14 A15 A16
     | A17 A18 A19 A25 A17 A22 A23 A24 A17 A26 A27 A28 A29 A30 A31 A32
  3  | A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0
     | A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0
  4  | A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0
     | A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0
  5  | A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0
     | A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0
  6  | A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0
     | A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0
  7  | A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0
     | A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0
  8  | A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0
     | A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0
...
...
...
 30  | A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0
     | A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0
 31  | A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0
     | A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0
 32  | A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0
     | A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0 A 0
```

#savepreset Command

The `#savepreset` command saves the current routing and masking state to a specified preset. To restore a saved preset, use the `#callpreset` command (see page 57).

Syntax:

```
#savepreset param1
```

Parameters:

param1	Preset	[1 ... 16]

Example:

```
#savepreset 2
Current routing state is saved to preset
```

#set_input_name Command

The `#set_input_name` command provides the specified input with a name.

Syntax:

```
#set_input_name param1 param2
```

Parameters:

param1	Input	[1 ... 32]
param2	Name	[20 chars max.]

Example:

```
#set_input_name 17 signal_generator
signal_generator is assigned to input 17
```

#set_output_name Command

The `#set_output_name` command provides the specified output with a name.

Syntax:

```
#set_output_name param1 param2
```

Parameters:

param1	Output	[1 ... 32]
param2	Name	[20 chars max.]

Example:

```
#set_output_name 25 Dell_30
Dell_30 is assigned to output 25
```

#set_preset_name Command

The `#set_preset_name` command provides a name for the specified preset.

Syntax:

```
#set_preset_name param1 param2
```

Parameters:

param1	Preset	[1 ... 16]
param2	Name	[20 chars max.]

Example:

```
#set_preset_name 2 Studio1
Studio1 is assigned to preset 2
```

#show_input_name Command

The `#show_input_name` command displays the name of the specified input.

Syntax:

```
#show_input_name param1
```

Parameters:

param1	Input	[1 ... 32]

Notes:

If *param1* = 0, then the name of all 32 inputs will be returned.

Example:

```
#show_input_name 17
Input 17 - signal_generator
```

#show_output_name Command

The `#show_output_name` command displays the name of the specified input.

Syntax:

```
#show_output_name param1
```

Parameters:

param1	Input	[1 ... 32]

Notes:

If *param1* = 0, then the name of all 32 outputs will be returned.

Example:

```
#show_output_name 25
Output 25 - Dell_30
```

#show_preset_name Command

The `#show_preset_name` command displays the name of the specified preset.

Syntax:

```
#show_preset_name param1
```

Parameters:

param1	Preset	[1 ... 16]

Example:

```
#show_preset_name 2
Preset 2 - Studio1
```

#unmaskout Command

The `#unmaskout` command unmasks the specified outputs.

Syntax:

```
#unmaskout param1 param2 ... param8
```

Parameters:

param1	Output	[1 ... 32]

Notes:

If *param1* = 0, then all outputs will be unmasked.

Example:

```
#unmaskout 4 5 8
Unmasked Outputs: 4 5 8


#unmaskout 0
Unmasked all Outputs
```

m Command

The m command displays the current matrix status in tabular form. Do not precede this command with the “#” symbol.

Syntax:

```
m
```

Parameters:

None

Example:

```
m
Show the matrix status in tabular form
Routing status table
 Outputs | +0 | +1 | +2 | +3 | +4 | +5 | +6 | +7
    1    | 22 |  2 |  3 |  4 |  5 |  6 |  7 |  8
    9    |  9 | 10 | 11 | 12 | 13 | 14 | 15 | 16
   17    | 17 | 18 | 19 | 25 | 17 | 22 | 23 | 24
   25    | 17 | 26 | 27 | 28 | 29 | 30 | 31 | 32
Masking status table
 Outputs | +0 | +1 | +2 | +3 | +4 | +5 | +6 | +7
    1    |  A |  A |  A |  A |  A |  A |  A |  A
    9    |  A |  A |  A |  A |  A |  A |  A |  A
   17    |  A |  A |  A |  A |  A |  A |  A |  A
   25    |  A |  A |  A |  A |  A |  A |  A |  A
Monitor HPD status table
 Outputs | +0 | +1 | +2 | +3 | +4 | +5 | +6 | +7
    1    |  L |  L |  L |  L |  L |  L |  L |  L
    9    |  L |  L |  L |  L |  L |  L |  L |  L
   17    |  L |  L |  L |  L |  L |  L |  L |  L
   25    |  H |  L |  L |  L |  L |  L |  L |  L
```

r Command

The `r` command routes the specified input to the specified outputs. Only one input can be specified at a time. However, up to eight outputs can be specified at a time. Do not precede this command with the “#” symbol.

Syntax:

```
r param1 param2 ... param9
```

Parameters:

param1	Input	[1 ... 32]
param2	Output	[1 ... 32]

Notes:

If *param2* = 0, then the specified input will be routed to all outputs. The `s` command will perform this same function. See the next page for details on the `s` command.

Examples:

```
r 1 2 3 7 8 9
Input 1 is routed to Outputs: 2 3 7 8 9
```

```
r 5 0
Input 5 is routed to all Outputs
```

s Command

The `s` command routes the specified inputs to all outputs. Do not precede this command with the "`#`" symbol.

Syntax:

```
s param1
```

Parameters:

param1	Input	[1 ... 32]

Notes:

If *param1* = 0, then the matrix is placed in a 1-to-1 routing state. This means that Input 1 is routed to Output 1, Input 2 is routed to Output 2, and so on.

Examples:

```
s 2
Input 2 is routed to all Outputs


s 0
Routing 1-1,2-2,...
```

System Commands	
Command	**Description**
#factory_reset	Resets the matrix to factory-default settings
#fadefault	Resets the routing and masking to factory-default settings
#fw_upgrade	Used to update the 32x32 ModularMX firmware
#help	Displays a list of available RS-232 / Telnet commands
#hpdto	Cycles the HPD line on the specified output
#lock_fo	Enables / disables the power lock state
#reboot	Reboots the matrix
#show_temp	Displays the temperature of each board within the matrix
#show_ver_data	Displays the current hardware and firmware version
#show_voltage	Displays the input and output board voltages
f	Enables / disables the +5V on the specified input

#factory_reset Command

The `#factory_reset` command resets the matrix to factory-default settings.

Syntax:

```
#factory_reset
```

Parameters:

None

Example:

```
#factory_reset

IP configuration reset to factory default
Reset to factory default, Please wait
Routing 1-1,2-2,...
Unmasked all Outputs


Loading default EDID to all locals Inputs, please wait.........
Finished Loading
```

#fadefault Command

The `#fadefault` command resets the routing and masking to factory-default settings. This command is similar to the `#factory_reset` command, except that the TCP/IP settings are preserved.

Syntax:

```
#fadefault
```

Parameters:

None

Example:

```
#fadefault

Reset to factory default, Please wait
Routing 1-1,2-2,...
Unmasked all Outputs


Loading default EDID to all locals Inputs, please wait........
Finished Loading
```

#fw_upgrade Command

The `#fw_upgrade` command is used to update the 32x32 ModularMX firmware. See page 98 for details on using this command.

Syntax:

```
#fw_upgrade
```

Parameters:

None

Example:

See page 98.

#help Command

The `#help` command displays the list of available RS-232 / Telnet commands. The `#help` command can also be used to provide help on a specific command.

Syntax:

```
#help [param1]
```

Parameters:

param1 Command (optional)

Notes:

When asking for help on a specific command, the “`#`” character must be included as part of the command.

Examples:

```
#help #maskout


Cmd #maskout: Mask outputs
Syntax: #maskout param1..param8
Param1 = 0 (All outputs)
Param1..Param8 = 1-32 (Outputs)
 e.g: #maskout 5 6 7
```

```
#help
Available cmds:


#help
#ipconfig
#sipadd
#snetmask
#sgateway
#set_http_port
#set_tcp_term_port
#set_udp_port
#show_user_name
#show_tcp_term_pass
#set_tcp_term_pass
...
...
#fadefault
#factory_reset
#fw_upgrade
```

#hpdto Command

The `#hpdto` command cycles the HPD line on the specified input. This command is the equivalent of performing a physical hot-plug (disconnecting and reconnecting) on the source device.

Syntax:

```
#hpdto param1
```

Parameters:

param1	Input	[1 ... 32]

Example:

```
#hpdto 17
HPD cycle on input 17
```

#lock_fo Command

The `#lock_fo` enables/disables the power lock state. Enabling this feature will store the +5V status for each input prior to powering-down the matrix. The +5V state is preserved when the matrix is powered.

Syntax:

```
#lock_fo param1
```

Parameters:

param1	State	[0 ... 1]

Value	Meaning
0	Disable
1	Enable

Example:

```
#lock_fo 1
'+5V' on inputs is locked
```

#reboot Command

The `#reboot` command reboots the matrix. This is the equivalent of physically disconnecting and reconnecting the AC power cord to the matrix. *param1* must be included as part of the command at all times.

Syntax:

```
#reboot param1
```

Parameters:

param1	Constant	10

Example:

```
#reboot 10
The system will reboot itself, please wait

***********************

 tvONE
 Modular MultiMatrix
 UI FW version: 0.3.38

***********************


Establish connection with Input Board 1
  Board Type: DP input 8 channels
  Board SN: 959793
  FW ver:0.3.8
Establish connection with Input Board 2
  Board Type: DP input 8 channels
  Board SN: 959800
  FW ver:0.3.8
Establish connection with Input Board 3
  Board Type: DVI input 8 channels
  Board SN: 954849
  FW ver:0.3.8
...
...
Establish connection with BP Board
  Board Type: BP 32
  Board SN: 953703
  FW ver:0.3.43

Init Routing, Please wait

.......

Loading Downstream EDID 25 to all locals Inputs, please
wait..........

Finished Loading
```

#show_temp Command

The `#show_temp` command displays the temperature of each board within the matrix.

Syntax:

```
#show_temp
```

Parameters:

None

Example:

```
#show_temp
Temperature result [C deg] for UI board:34
Temperature result [C deg] for BP board
sensor1 (Mindspeed) - 47
sensor2 (power)     - 39
Temperature result [C deg] for Inputs board
Board| 1 | 2
    1|42 |34
    2|39 |33
    3|38 |33
    4|37 |35
Temperature result [C deg] for Outputs board
Board| 1 | 2
    1|51 |43
    2|53 |38
    3|52 |38
    4|47 |39
```

#show_ver_data Command

The `#show_ver_data` command displays the current hardware and firmware version.

Syntax:

```
#show_ver_data
```

Parameters:

None

Example:

```
#show_ver_data
```

```
Firmware Release version 0.3.38
Release date: Nov 20 2012
Release time: 15:00:38
```

#show_voltage Command

The `#show_voltage` command displays the input and output board voltages.

Syntax:

```
#show_voltage
```

Parameters:

None

Example:

```
#show_voltage
```

```
ADC UI measurment result:
VCC CORE 1.8, Value = 1845 mVolt
PSU1 - DS460
PSU1 PSOK, Value = 1038 mVolt
PSU1 Imon, Value = 519 mV -> 5 A
PSU2 - DS460
PSU2 PSOK, Value = 2625 mVolt
PSU2 Imon, Value = 496 mV -> 5 A
Power result [mV] for all boards:
Power result [mV] for BP board
5V  |3.3V|1.2V|1.2V
5056|3326|1212|1210
Power result [mV] for Inputs board
Board|3.3/5|1.2/3.3|1.8V
    1| 3290|   1201|0
    2| 3398|   1204|0
    3| 5126|   3388|1810
    4| 5080|   3342|1807
Power result [mV] for Outputs board
Board|1/5  |3.3    |1.8V
    1| 5072|   3282|1807
    2| 1009|   3342|1815
    3| 1012|   3350|1823
    4| 5078|   3302|1793
```

f Command

The `f` command enables / disables the +5V on the specified input.

⚠ **WARNING:** Use caution when applying power to inputs. If the source device supplies +5V on the input, then enabling the +5V may cause damage to the source and/or the 32x32 ModularMX.

Syntax:

```
f param1 param2
```

Parameters:

param1	Input	[1 ... 32]
param2	State	[0 ... 1]

Value	Meaning
0	Disable
1	Enable

Example:

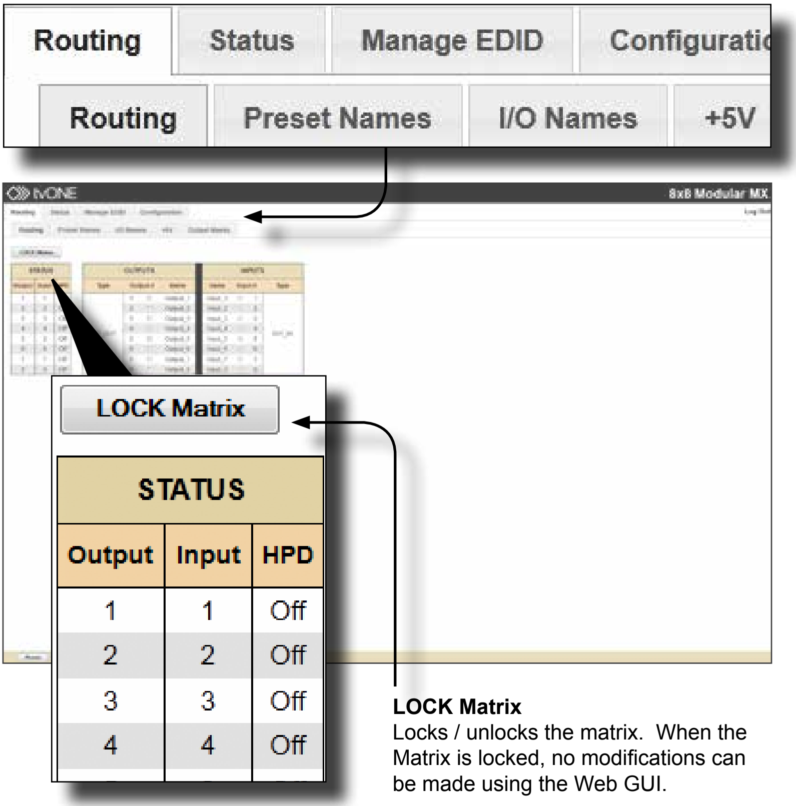
```
f 15 1
```

Using the Built-in Web server

The Web GUI is divided into four main pages: **Routing**, **Status**, **Manage EDID**, and **Configuration.** Each of these pages is represented by a tab. Click on the desired tab to open the its page. Each page also has it's own set of tabs which can be accessed. When the Web GUI is opened, the **Routing** page / tab will be displayed.

Routing >> Routing

Tabs
Click a tab to open the desired page.



STATUS		
Output	Input	HPD
1	1	Off
2	2	Off
3	3	Off
4	4	Off

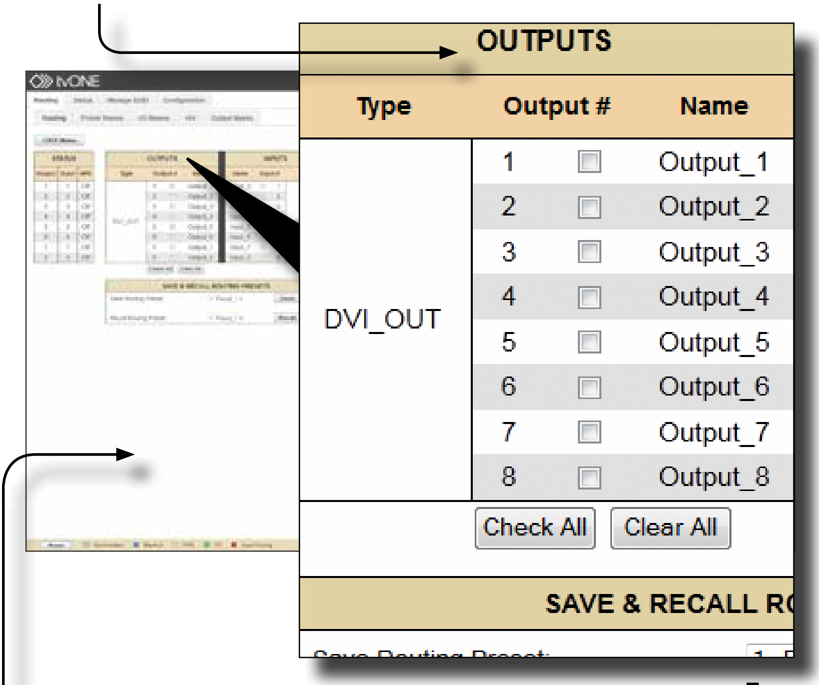
LOCK Matrix
Locks / unlocks the matrix. When the Matrix is locked, no modifications can be made using the Web GUI.

Output
The port number of the output. The blue highlight indicates that the output has been masked. See page 83 for more information on masking outputs.

Input
Displays the input that has been routed to the output. In the illustration above, Input 22 has been routed to Output 1.

HPD
Indicates the Hot Plug Detect (HPD) status of the input.

OUTPUTS
Provides information on each Output on the matrix.

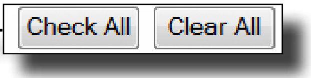


OUTPUTS		
Type	**Output #**	**Name**
DVI_OUT	1 □	Output_1
	2 □	Output_2
	3 □	Output_3
	4 □	Output_4
	5 □	Output_5
	6 □	Output_6
	7 □	Output_7
	8 □	Output_8

Type
Displays the type of output card used in slot.
FOPT_OUT: ModularMX 8 DVI Sender over 1FO (DVI-8FO-S)
ELR_OUT: ModularMX 8 DVI Sender over CAT-5 Card (DVI-8ELR-S)
DVI_OUT: ModularMX 8 DVI Output Card (MOD-8DVI-O)

Output #
Click to place a check mark in the box and select the desired output. Multiple outputs can be selected at a time.

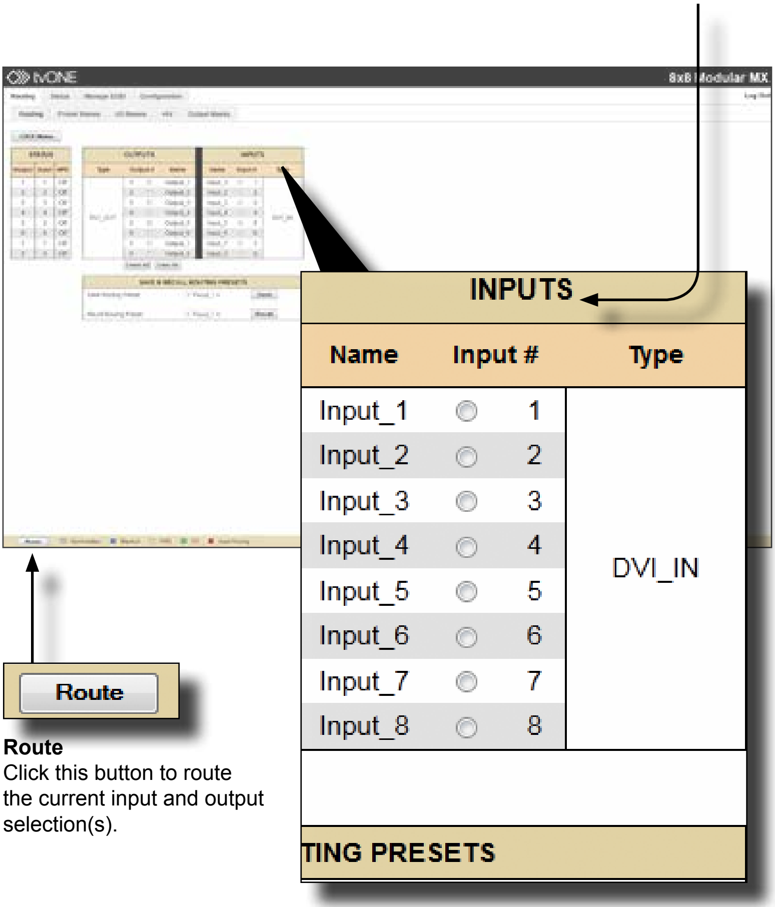
Name
Displays the current name of the output. The name of each output can be changed. See page 80 for details.



Check All
Places a check mark in each box under the Output # column.

Clear All
Clears all check marks from the Output # column.

INPUTS
Provides information on each Input on the matrix.



INPUTS

Name	Input #	Type
Input_1	○ 1	DVI_IN
Input_2	○ 2	
Input_3	○ 3	
Input_4	○ 4	
Input_5	○ 5	
Input_6	○ 6	
Input_7	○ 7	
Input_8	○ 8	

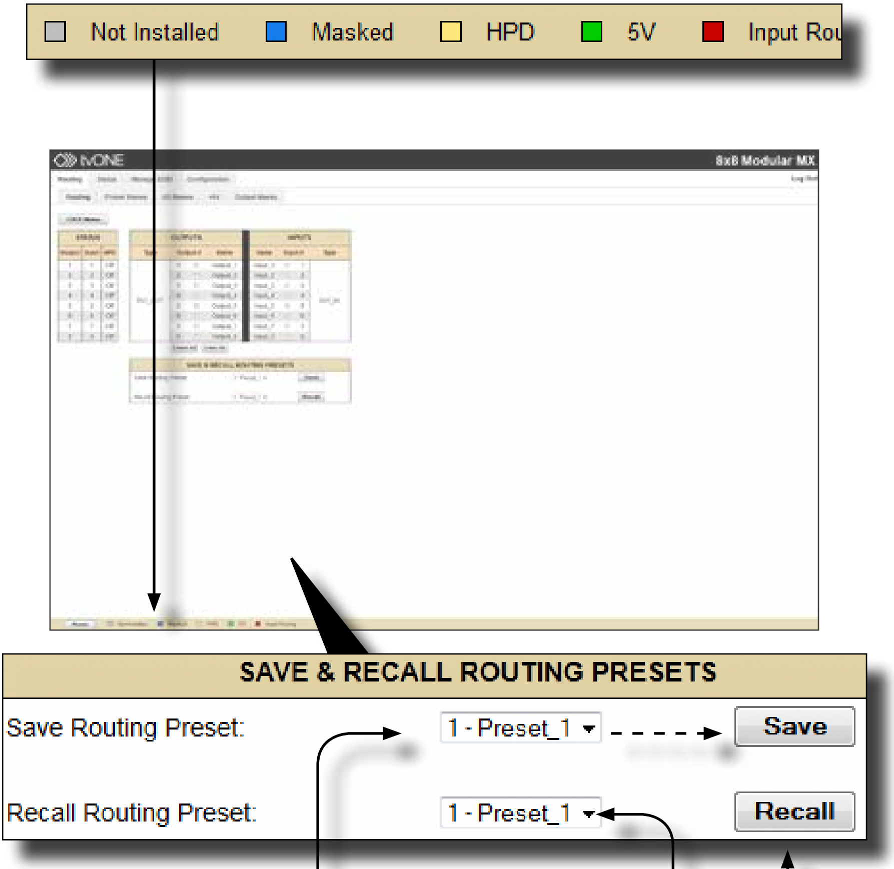
Route
Click this button to route the current input and output selection(s).

Name
Displays the current name of the input. The name of each input can be changed. See page 80 for details.

Input #
Click the radio button next to the desired input to be routed. Only one input can be selected at a time.

Type
Displays the type of input card used in slot.
DVI_IN: ModularMX 8 DVI Input Card (MOD-8DVI-I)
DP_OUT: ModularMX 8 DisplayPort Card (MOD-8DP-I)

Legend
Provides color-coded information on the status of each Input and Output.



⬜ Not Installed 🟦 Masked 🟨 HPD 🟩 5V 🟥 Input Rou

SAVE & RECALL ROUTING PRESETS

Save Routing Preset: 1 - Preset_1 Save

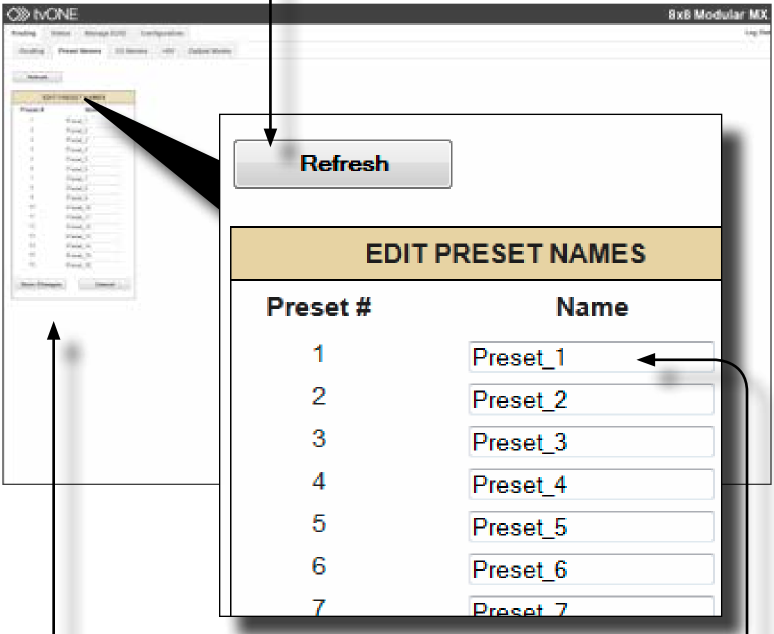
Recall Routing Preset: 1 - Preset_1 Recall

Save Routing Preset
Saves the current routing state to memory. Click the drop-down list to select the desired routing preset, then click the **Save** button to save the preset to memory.

Recall Routing Preset
Loads the selected routing state into memory. Click the drop-down list to select the desired routing preset, then click the **Recall** button to load the preset into memory.

Routing >> Preset Names

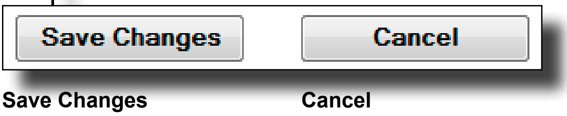
Refresh
Updates the Web page to reflect the new Preset Name.



EDIT PRESET NAMES

Preset #	Name
1	Preset_1
2	Preset_2
3	Preset_3
4	Preset_4
5	Preset_5
6	Preset_6
7	Preset_7

Name
Type the desired name of the Preset in this field. Click the Save Changes button to save the Preset Name. Click the Cancel button to restore the previous name.

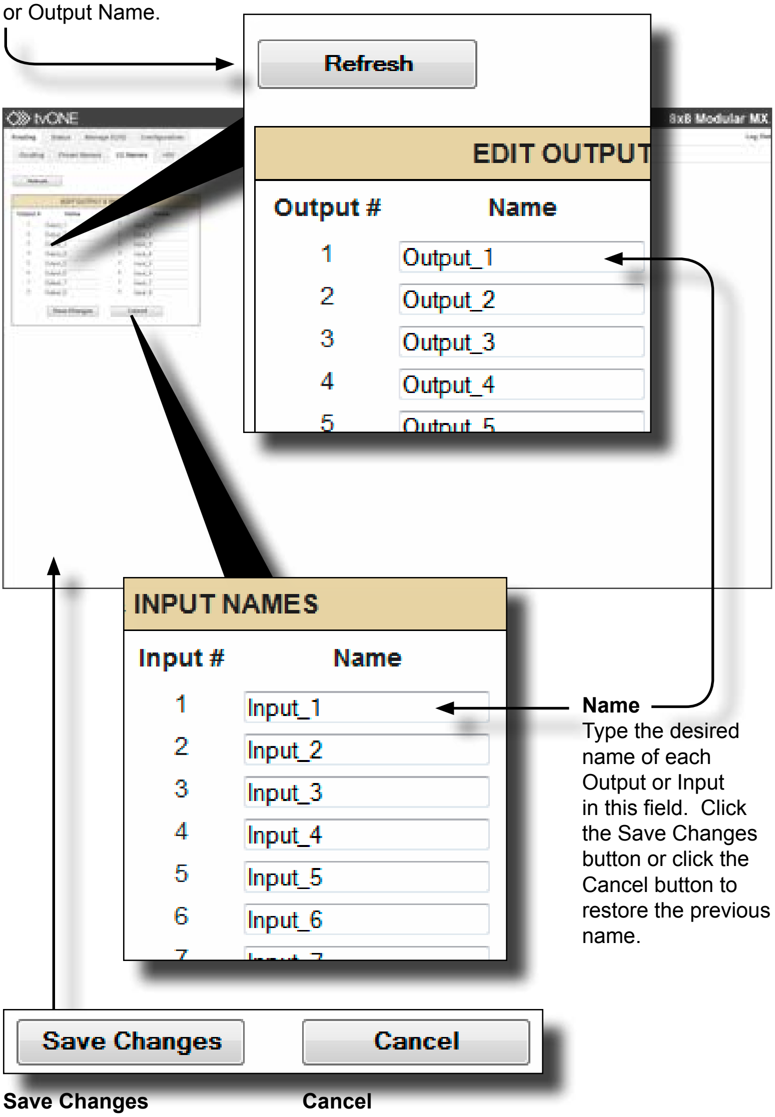


Save Changes
Saves the current changes.

Cancel
Restores the previous names for each Preset, if a change was made.

Routing >> I/O Names

Refresh
Updates the Web page to reflect the new Input and/or Output Name.



EDIT OUTPUT

Output #	Name
1	Output_1
2	Output_2
3	Output_3
4	Output_4
5	Output_5

INPUT NAMES

Input #	Name
1	Input_1
2	Input_2
3	Input_3
4	Input_4
5	Input_5
6	Input_6
7	Input_7

Name
Type the desired name of each Output or Input in this field. Click the Save Changes button or click the Cancel button to restore the previous name.

Save Changes
Saves the current changes.

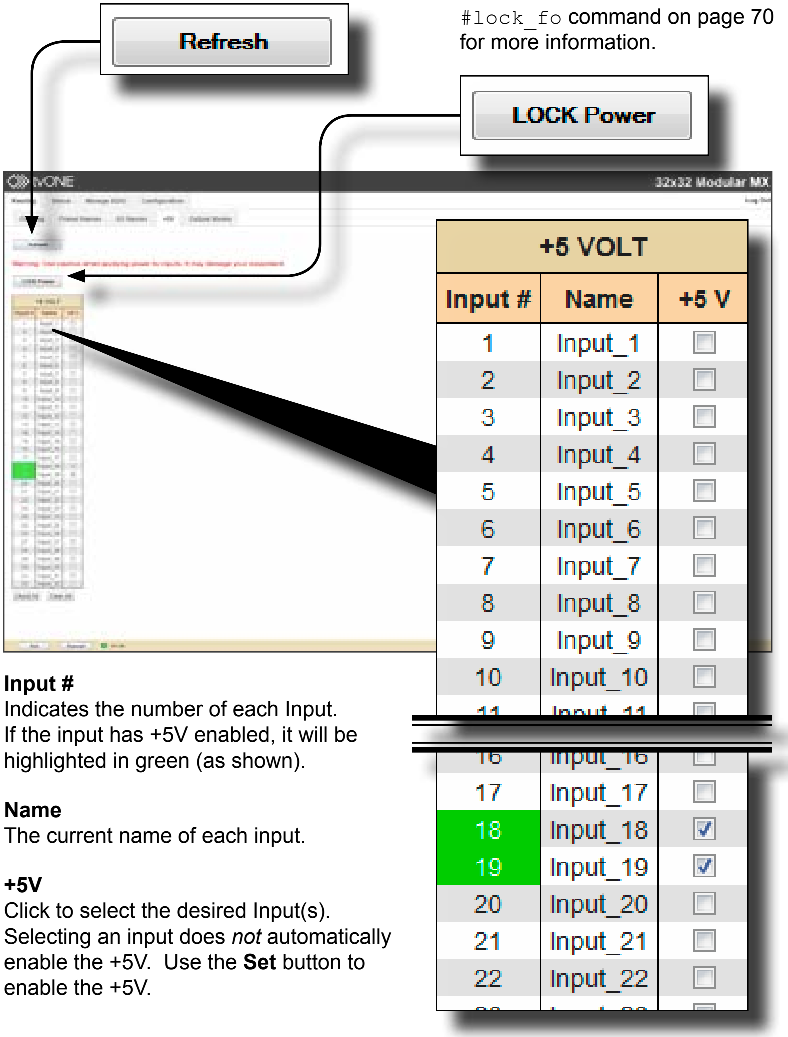
Cancel
Restores the previous names for each Input and/or Output, if a change was made.

Routing >> +5V

WARNING: Use caution when applying power to inputs. If the source device supplies +5V on the input, then enabling the +5V may cause damage to the source and/or the 32x32 ModularMX.

Refresh
Updates the Web page to reflect the new Input and/or Output Name.

LOCK Power
Enables/disables the power lock state. See the RS-232 command `#lock_fo` command on page 70 for more information.

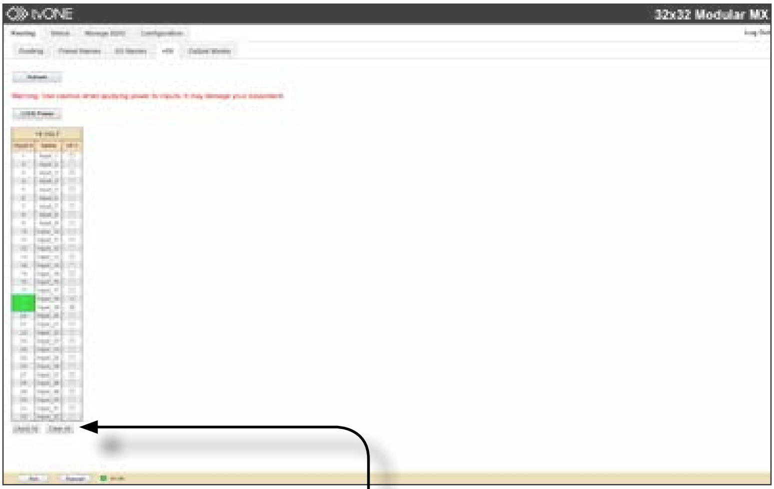


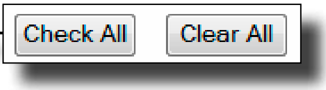
+5 VOLT		
Input #	Name	+5 V
1	Input_1	□
2	Input_2	□
3	Input_3	□
4	Input_4	□
5	Input_5	□
6	Input_6	□
7	Input_7	□
8	Input_8	□
9	Input_9	□
10	Input_10	□
11	Input_11	□
16	Input_16	□
17	Input_17	□
18	Input_18	☑
19	Input_19	☑
20	Input_20	□
21	Input_21	□
22	Input_22	□

Input #
Indicates the number of each Input. If the input has +5V enabled, it will be highlighted in green (as shown).

Name
The current name of each input.

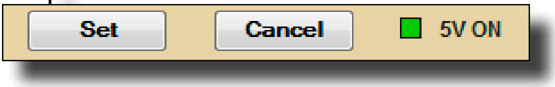
+5V
Click to select the desired Input(s). Selecting an input does *not* automatically enable the +5V. Use the **Set** button to enable the +5V.





Check All
Places a check mark in each box under the +5V column.

Clear All
Clears all check marks from the +5V column.



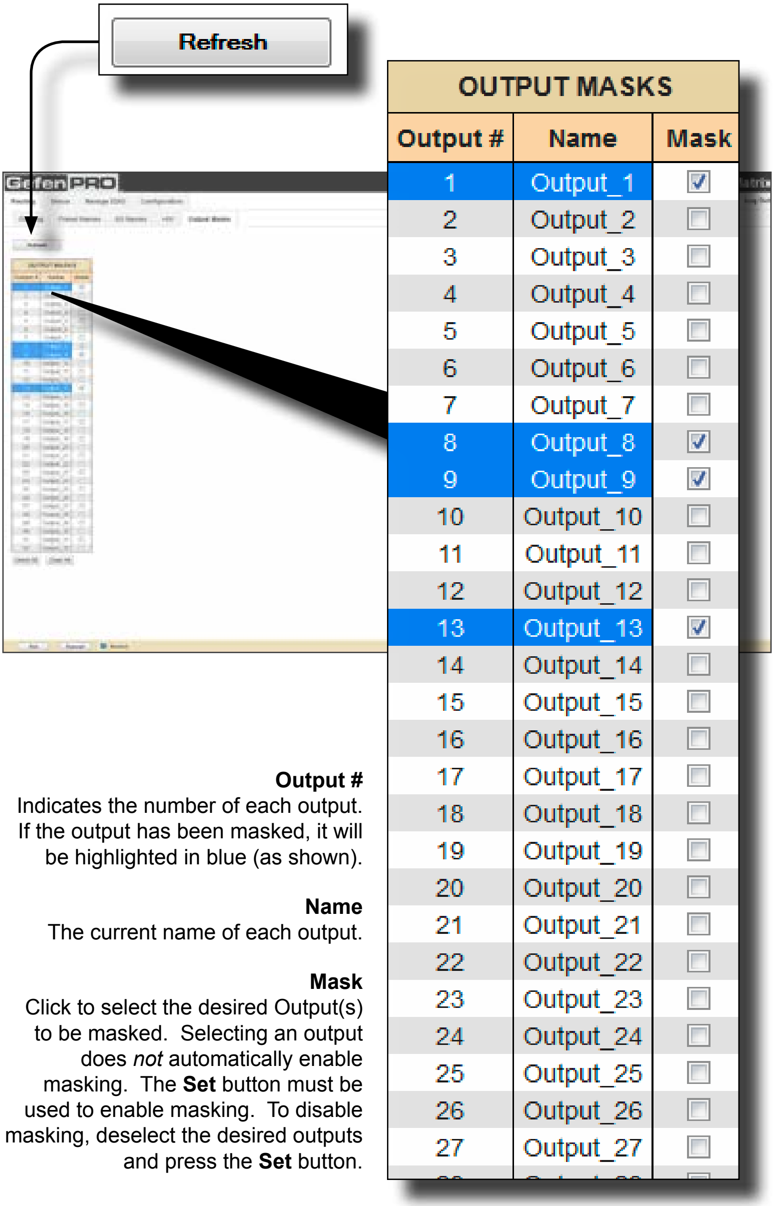
Set
Click this button to enable +5V on the selected input(s). See the previous page for information on selecting inputs.

Cancel
Restores the previous +5V state for each input, if a change was made.

5V ON (legend)
If +5V has been enabled on any of the inputs, these inputs will be highlighted in green. See the previous page for more information.

Routing >> Output Masks

Refresh
Updates the Web page to reflect the new Input and/or Output Name.



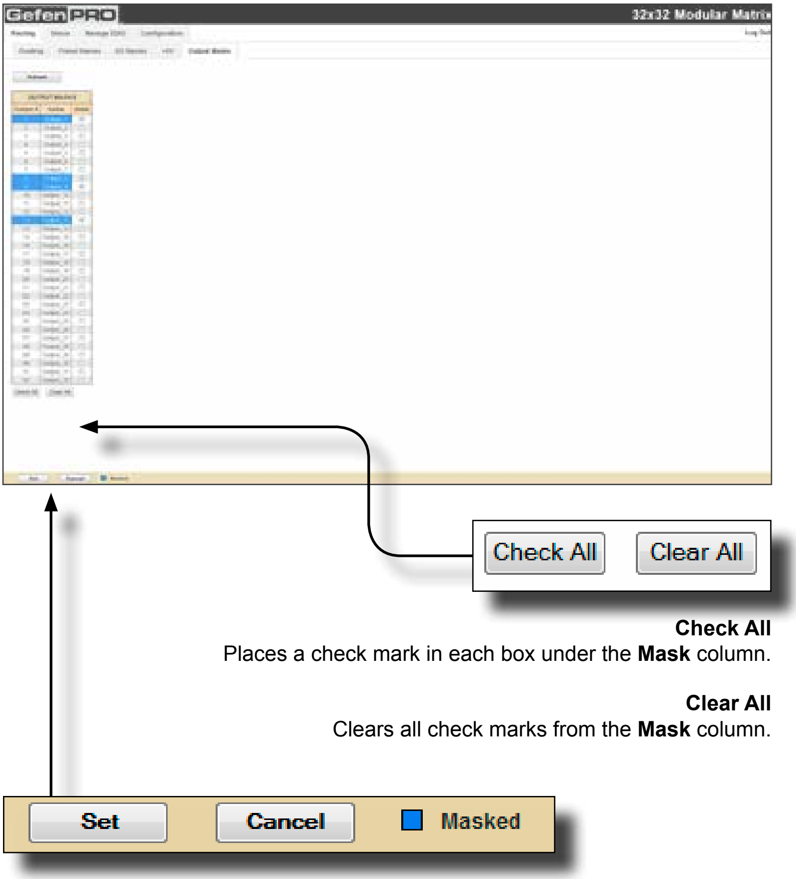
OUTPUT MASKS

Output #	Name	Mask
1	Output_1	☑
2	Output_2	□
3	Output_3	□
4	Output_4	□
5	Output_5	□
6	Output_6	□
7	Output_7	□
8	Output_8	☑
9	Output_9	☑
10	Output_10	□
11	Output_11	□
12	Output_12	□
13	Output_13	☑
14	Output_14	□
15	Output_15	□
16	Output_16	□
17	Output_17	□
18	Output_18	□
19	Output_19	□
20	Output_20	□
21	Output_21	□
22	Output_22	□
23	Output_23	□
24	Output_24	□
25	Output_25	□
26	Output_26	□
27	Output_27	□

Output #
Indicates the number of each output. If the output has been masked, it will be highlighted in blue (as shown).

Name
The current name of each output.

Mask
Click to select the desired Output(s) to be masked. Selecting an output does *not* automatically enable masking. The **Set** button must be used to enable masking. To disable masking, deselect the desired outputs and press the **Set** button.



Check All
Places a check mark in each box under the **Mask** column.

Clear All
Clears all check marks from the **Mask** column.

Set
Click this button to enable masking on the selected output(s). See the previous page for information on selecting inputs.

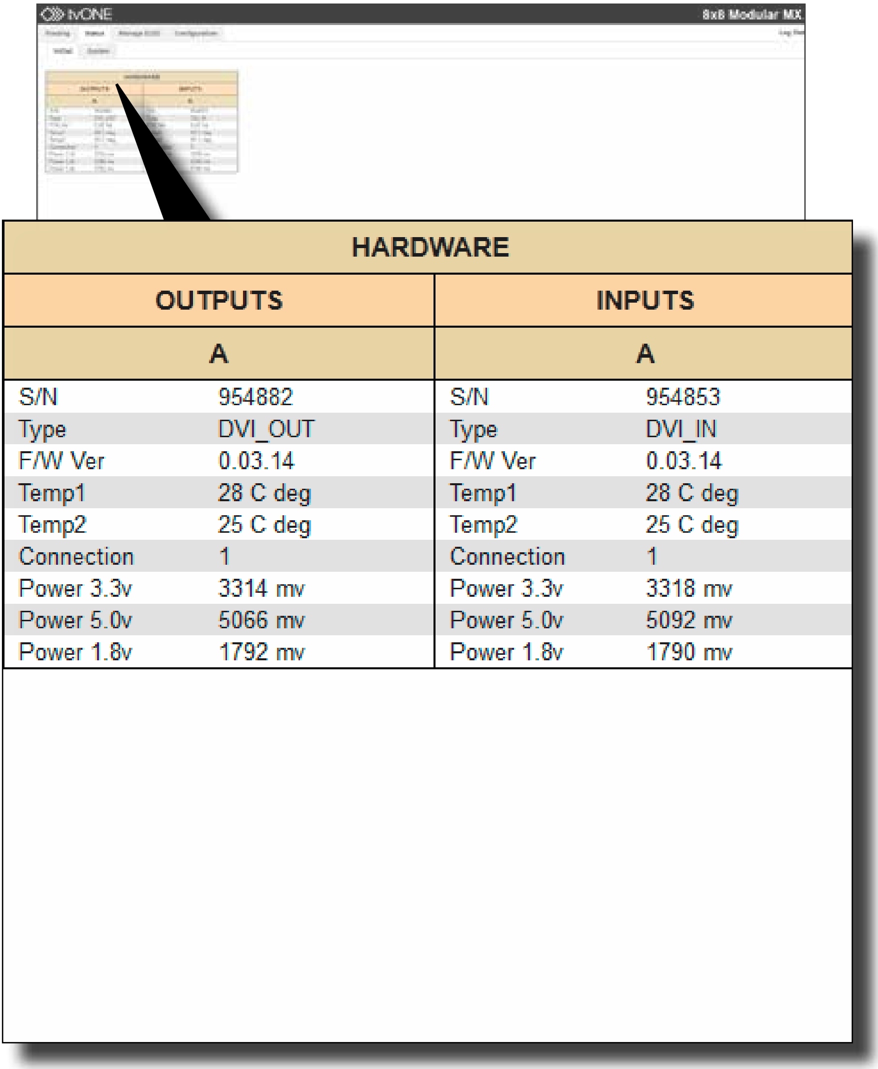
Cancel
Restores the previous masking state for each output, if a change was made.

Masked (legend)
If masking has been enabled on any of the outputs, then these outputs will be highlighted in blue.

Status >> In/Out

The **Status >> In/Out** tab provides information on the hardware and firmware of the 32x32 ModularMX. The OUTPUTS column lists each Output Card that is installed. The INPUTS column lists each Input Card that is installed.

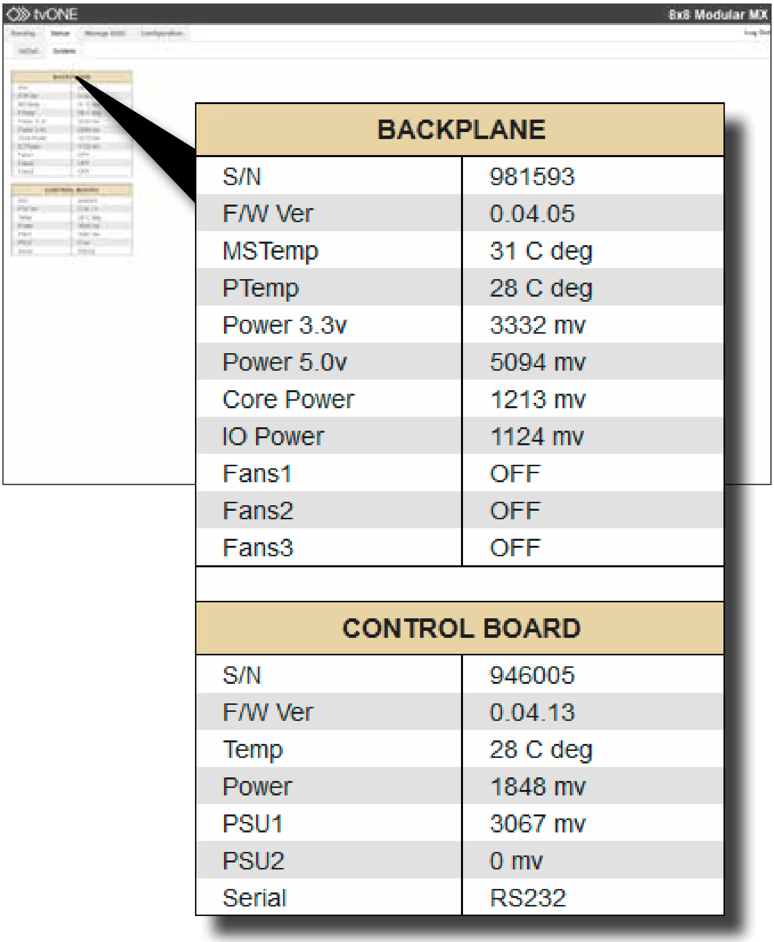
The information presented on this screen is used by tvONE Technical Support for troubleshooting purposes, only.



HARDWARE			
OUTPUTS		INPUTS	
A		A	
S/N	954882	S/N	954853
Type	DVI_OUT	Type	DVI_IN
F/W Ver	0.03.14	F/W Ver	0.03.14
Temp1	28 C deg	Temp1	28 C deg
Temp2	25 C deg	Temp2	25 C deg
Connection	1	Connection	1
Power 3.3v	3314 mv	Power 3.3v	3318 mv
Power 5.0v	5066 mv	Power 5.0v	5092 mv
Power 1.8v	1792 mv	Power 1.8v	1790 mv

Status >> System

The **Status >> System** tab provides additional detailed information on the 32x32 ModularMX hardware. The information presented on this screen is used by tvONE Technical Support for troubleshooting purposes, only.

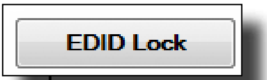


BACKPLANE	
S/N	981593
F/W Ver	0.04.05
MSTemp	31 C deg
PTemp	28 C deg
Power 3.3v	3332 mv
Power 5.0v	5094 mv
Core Power	1213 mv
IO Power	1124 mv
Fans1	OFF
Fans2	OFF
Fans3	OFF

CONTROL BOARD	
S/N	946005
F/W Ver	0.04.13
Temp	28 C deg
Power	1848 mv
PSU1	3067 mv
PSU2	0 mv
Serial	RS232

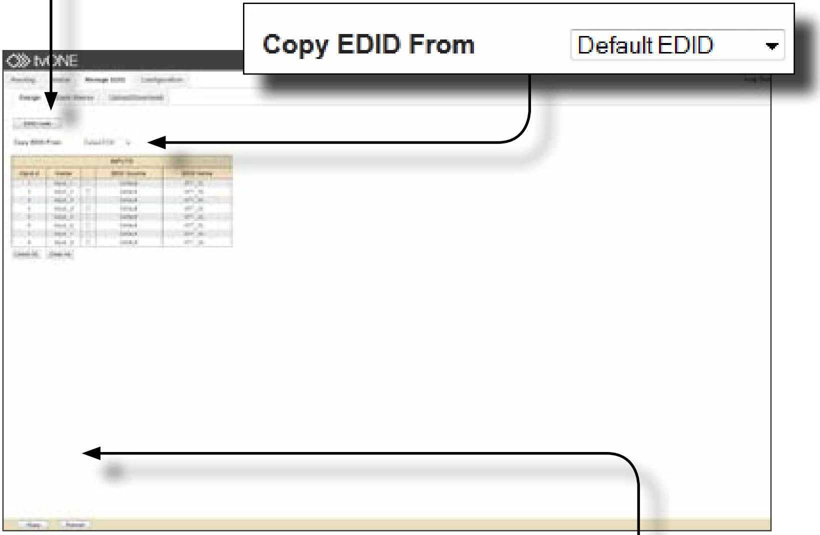
Manage EDID >> Assign

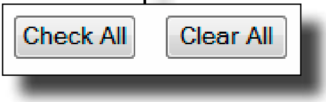
EDID Lock
Secures the Local EDID and disables the automatic loading after power-up. See the `#lock_edid` command on page 42 for more information.



Copy EDID From
Select the EDID from the drop-down list. The EDID will be copied from the selected destination to the desired input(s).

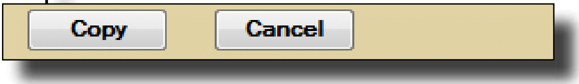
Options:
Default EDID,
Bank_1 ... Bank_20,
Output_1 ... Output_32





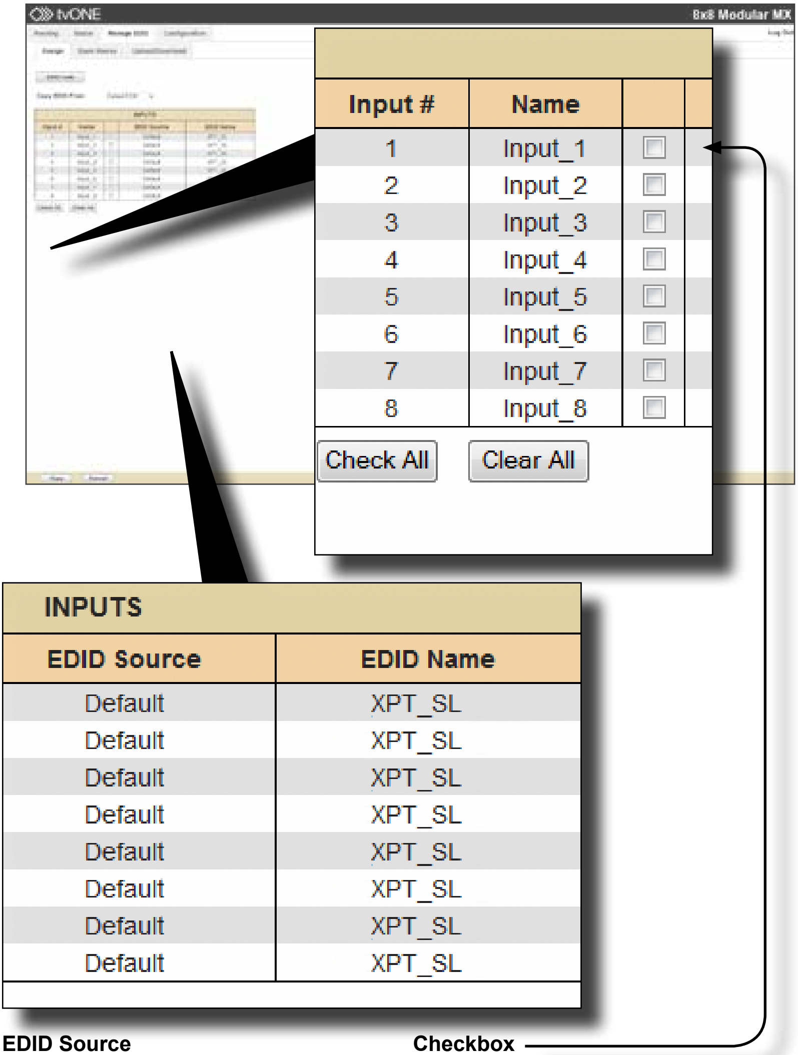
Check All
Places a check mark in all boxes.

Clear All
Clears all check marks from each box.



Copy
Copies the EDID source to the selected input(s).

Cancel
Clears all check marks from each box.



Input #	Name	
1	Input_1	□
2	Input_2	□
3	Input_3	□
4	Input_4	□
5	Input_5	□
6	Input_6	□
7	Input_7	□
8	Input_8	□

INPUTS

EDID Source	EDID Name
Default	XPT_SL
Default	XPT_SL
Default	XPT_SL
Default	XPT_SL
Default	XPT_SL
Default	XPT_SL
Default	XPT_SL
Default	XPT_SL

EDID Source
Displays the EDID source used by the input. In the illustration above, the EDID source is Output 25.

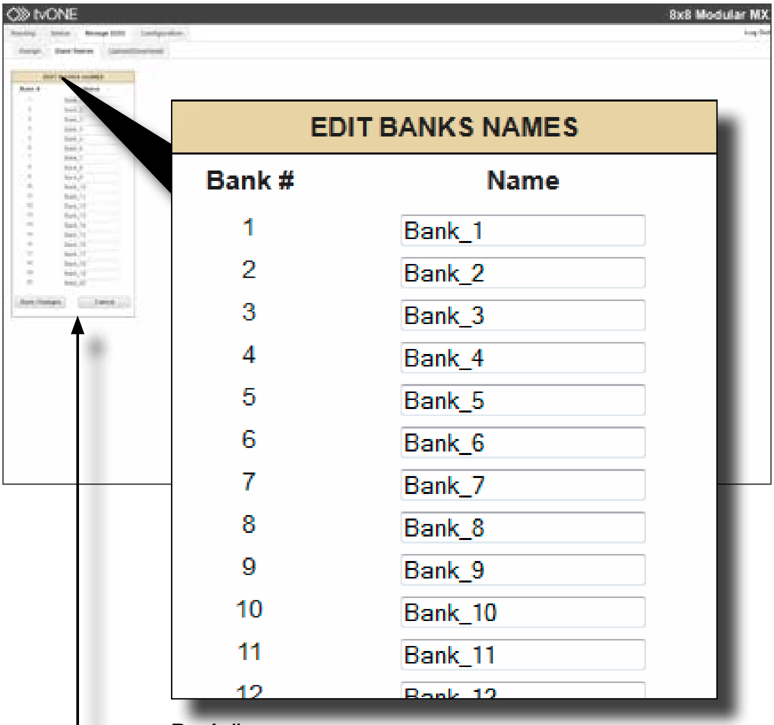
EDID Name
Displays the name of the EDID.

Checkbox
Click to select the Input(s) to where the EDID source will be copied. Selecting an input does *not* automatically copy the EDID source. Click the **Copy** button to copy the EDID to the input.

Input #
Indicates the number of each input.

Name
The current name assigned to each input.

Manage EDID >> Bank Names

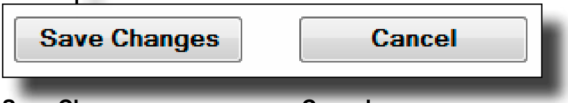


EDIT BANKS NAMES

Bank #	Name
1	Bank_1
2	Bank_2
3	Bank_3
4	Bank_4
5	Bank_5
6	Bank_6
7	Bank_7
8	Bank_8
9	Bank_9
10	Bank_10
11	Bank_11
12	Bank_12

Bank #
Indicates the EDID bank number.

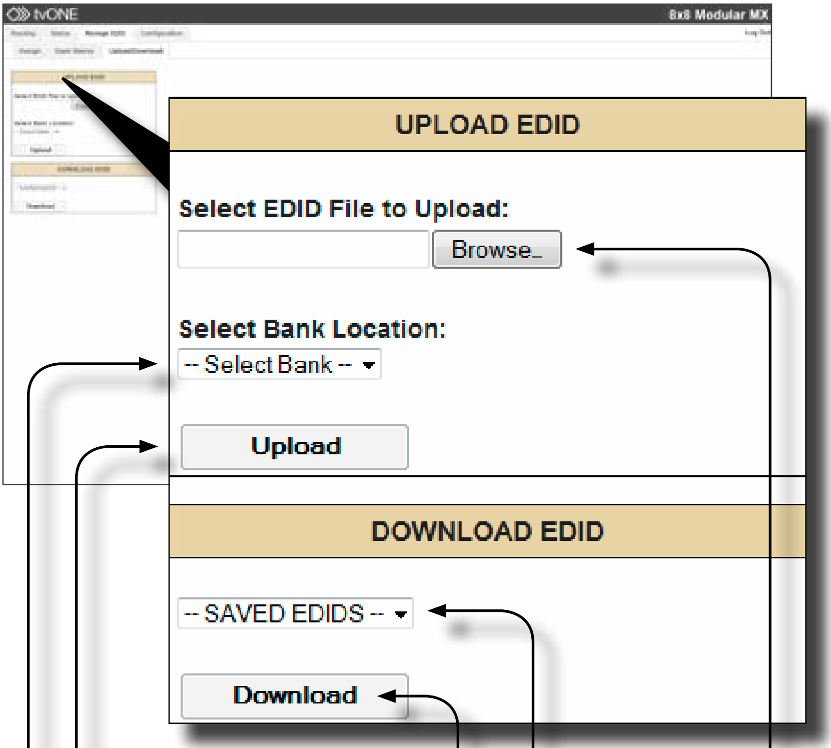
Name
Type the desired name of the EDID bank in this field. Click the **Save Changes** button to save the bank name. Click the Cancel button to restore the previous name.



Save Changes
Saves the current name change to the EDID bank(s).

Cancel
Restores the previous names for each EDID bank, if a change was made.

Manage EDID >> Upload/Download



Upload
Click this button to upload the EDID to the specified bank.

Browse...
Click this button to select the EDID file to be uploaded.

Select Bank Location
Click this drop-down list to select the bank to where the EDID will be uploaded.

Options:
Bank_1 ... Bank_20

Drop-down list
Click this box to select the EDID that is to be saved to a file. The EDID file will be saved in binary format (.bin).

Options:
Bank_1 ... Bank_20,
Output_1 ... Output_32,
Input_1 ... Input_32

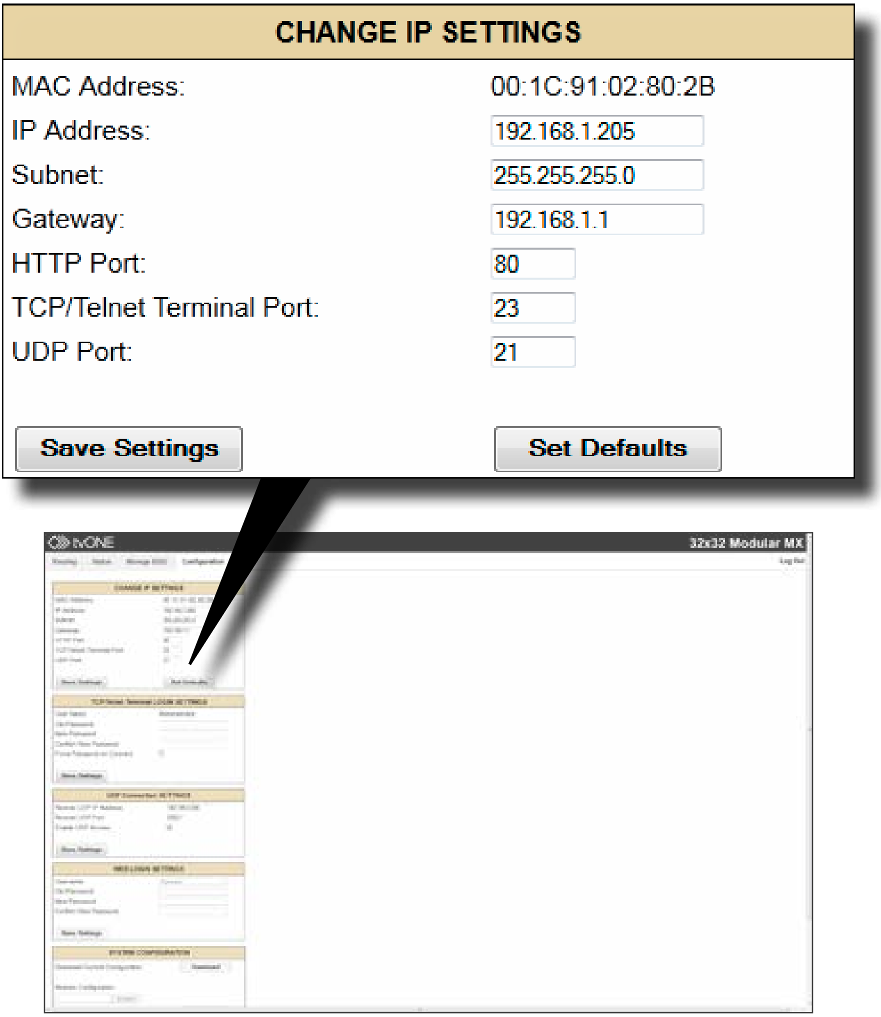
Download
Click this button to download the selected EDID to a file.

Configuration

CHANGE IP SETTINGS

Assigns IP address, subnet, gateway, HTTP listening port, Telnet port, and UDP port. The MAC address cannot be changed.

Click the **Save Settings** button to apply changes. Click the Set Defaults button to restore the factory-default IP settings. The 32x32 ModularMX must be rebooted for any changes to take effect.

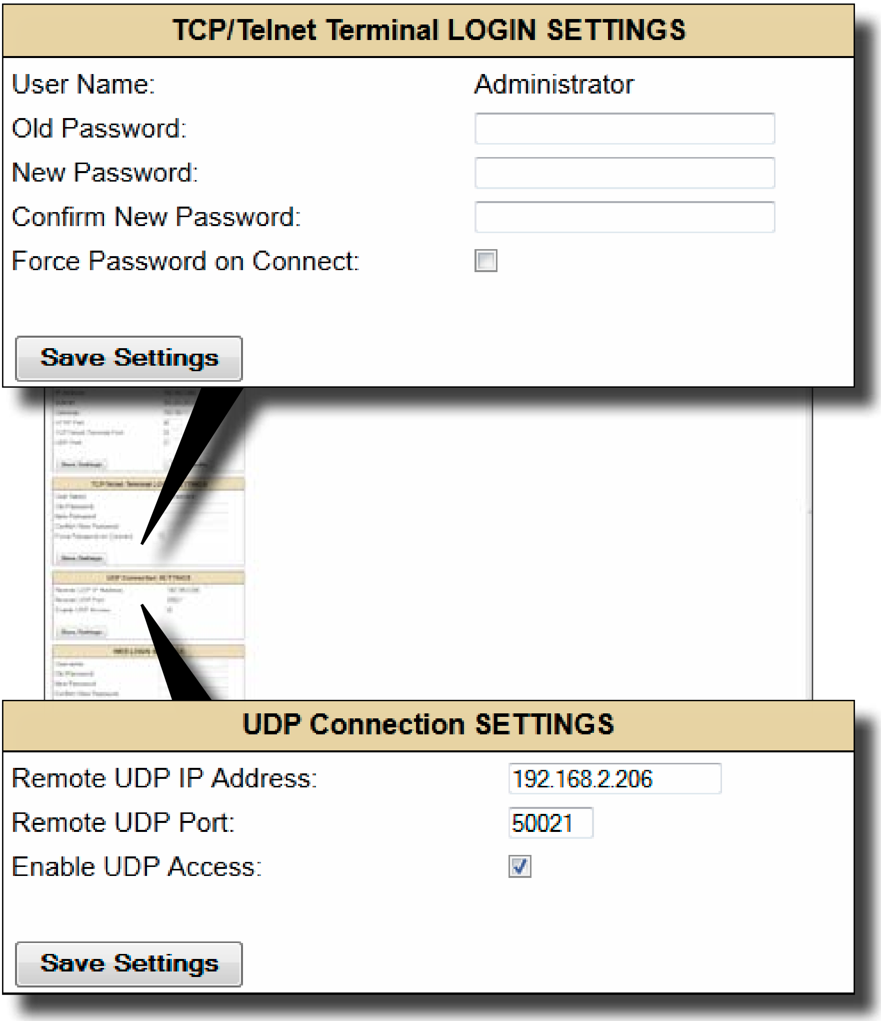


CHANGE IP SETTINGS

MAC Address:	00:1C:91:02:80:2B
IP Address:	192.168.1.205
Subnet:	255.255.255.0
Gateway:	192.168.1.1
HTTP Port:	80
TCP/Telnet Terminal Port:	23
UDP Port:	21

TCP/Telnet Terminal LOGIN SETTINGS
Sets the user name and password for Telnet sessions to the 32x32 ModularMX. Click the **Save Settings** button to apply changes.

Click the **Force Password on Connect** check box to have the 32x32 ModularMX prompt for a password each time a Telnet session is started.



TCP/Telnet Terminal LOGIN SETTINGS

User Name: Administrator
Old Password:
New Password:
Confirm New Password:
Force Password on Connect: □

UDP Connection SETTINGS

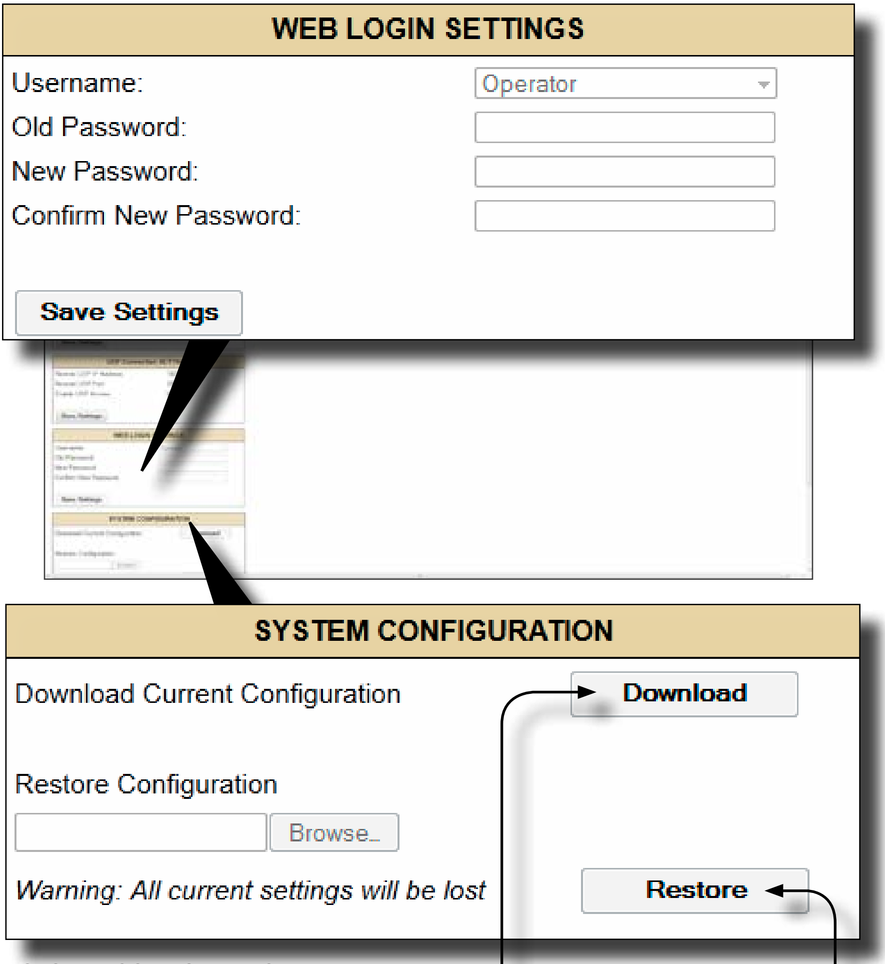
Remote UDP IP Address: 192.168.2.206
Remote UDP Port: 50021
Enable UDP Access: ☑

UDP Connection SETTINGS
Sets the remote UDP IP Address and Port. Click the **Save Settings** button to apply changes.

Click the **Enable UDP Access** check box to...

WEB LOGIN SETTINGS

Sets the user name and password for Web Interface sessions using the 32x32 ModularMX. Click the **Save Settings** button to apply changes.



WEB LOGIN SETTINGS

Username: Operator

Old Password:

New Password:

Confirm New Password:

SYSTEM CONFIGURATION

Download Current Configuration

Restore Configuration

Warning: All current settings will be lost

SYSTEM CONFIGURATION
Allows saving and loading of configuration files. This feature allows the current state of the 32x32 ModularMX to be saved as a file. This file can then be used to restore any previous configuration changes.

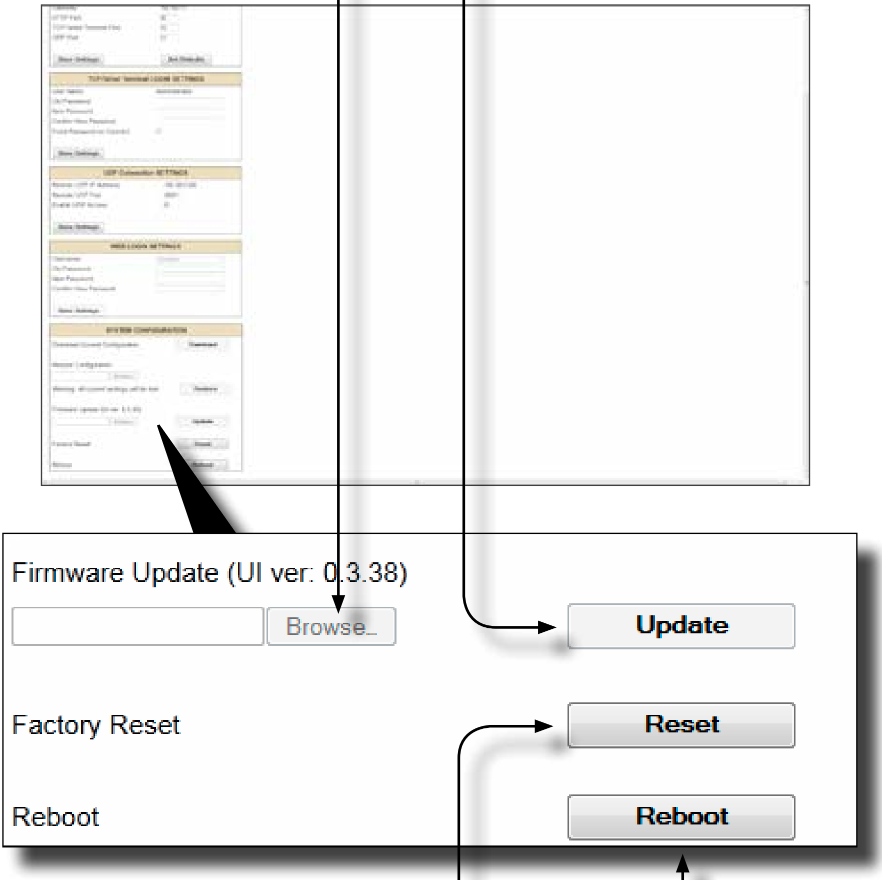
Restore
Uploads the selected configuration file to the 32x32 ModularMX.

Download
Click this button to download the current configuration to a file.

> **NOTE:** As of this writing, the firmware update procedure is not functional from within the Web interface. This feature will be available in a future release of the product. The firmware update procedure must be performed using RS-232. See page 98.

Browse...
(future implementation)
Selects the firmware file to be used to upgrade the 32x32 ModularMX.

Update
(future implementation)
Updates the 32x32 ModularMX with the selected firmware file.



Reset
Click this button to set the 32x32 ModularMX. to factory-default settings.

Reboot
Click this button to reboot the 32x32 ModularMX.

Card Removal and Installation

Although each *32x32 ModularMX* is sold pre-configured, both input and output cards can be removed or added to fit the needs of the application. Each module can easily be removed and installed without using any special tools.

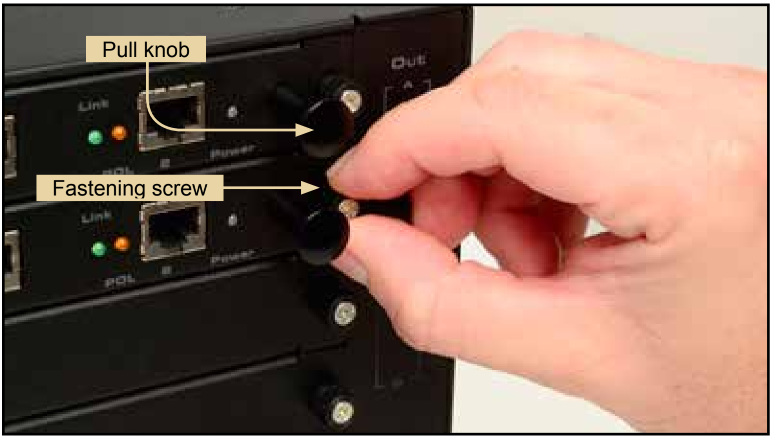
> ⚠ **IMPORTANT:** Modules are sensitive to Electrostatic Discharge (ESD) which can damage the module. Avoid touching the module contacts or the components on the module. Always hold modules by the edges or by the knobs on the front of the module. Never slide a module over any surface. When installing/replacing modules, do not install an input module in to an output slot (or vice versa).
> This will damage the matrix and void the warranty.

1. Power-off the matrix.

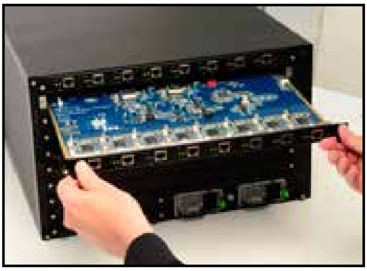
2. Turn the matrix around so that you are facing the back of the unit.

> **STOP:** Before installing modules and prevent the risk of possible electrical shock, unplug the AC power cord from back of the matrix.

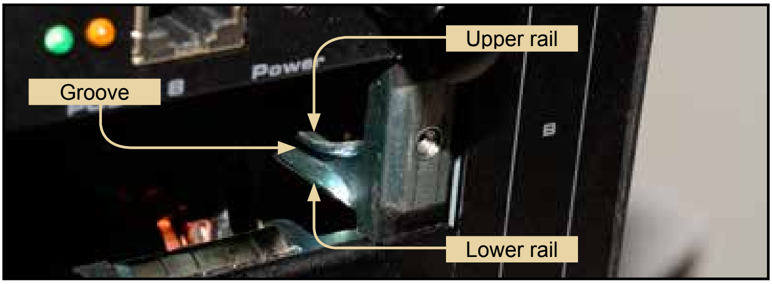
3. Loosen the fastening screws on both sides of the card (or cover plate) to be removed. Each card / cover plate has two fastening screws.



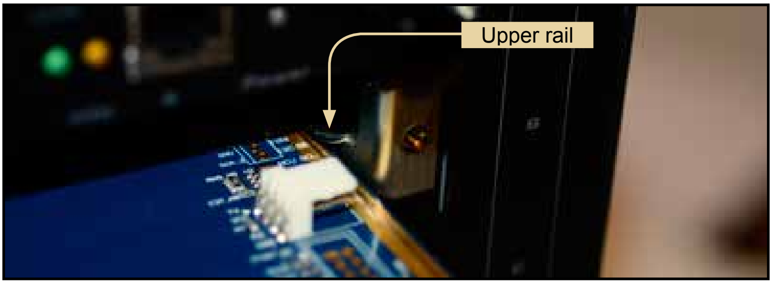
4. Grab the knobs on both sides of the card, between the thumb and index finger, and gently pull to remove the card from the matrix, as shown on the next page. If a cover plate is being removed, then loosen the fastening screws on both sides of the cover plate and gently remove the cover plate.



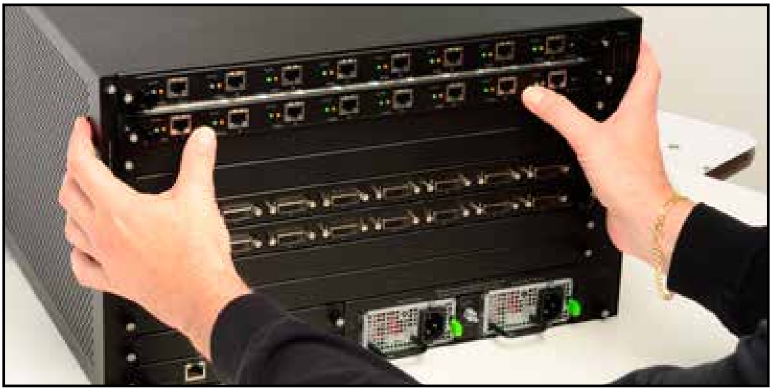
5. Locate the grooved metal track on either side of the expansion bay.



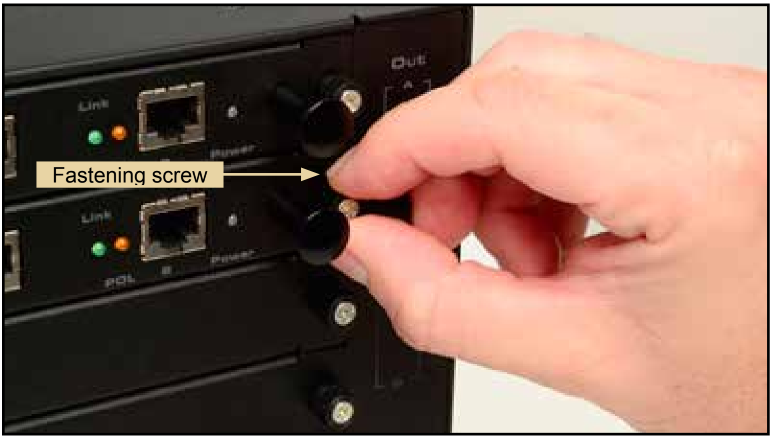
6. Carefully position the card between the upper and lower rail on each track and slowly push the card forward.



7. Position either hand on both sides of the matrix and firmly push the card with both thumbs until it snaps in place.



8. Secure the card by hand-tightening the fastening screws. Do not overtighten the screws. To prevent damage to the screws, do not use pliers or other high-torque devices.



Firmware Update Procedure

The following items are required to update firmware:

- tvONE 32x32 ModularMX
- Computer running Windows XP
- Terminal-emulation program (e.g. HyperTerminal)
- RS-232 cable (do not use a null-modem cable)
- Firmware files: `MMTX_BP_[version].bin,`
  `MMTX_DVIinout_[version].bin,`
  `MMTX_UI_[version].bin`

To begin the update procedure use the `#fw_update` command. The following set of instructions will be using Hyperterminal.

1. Power-on the matrix.

2. Connect an RS-232 cable to the PC and open the terminal program using the following settings:

Baud rate:	19200
Stop bits:	1
Data bits:	8
Flow control:	None

3. Type the command: `#fw_update`.

4. The following will be displayed on the terminal screen:

```
===============================
 Download new FW_____1
 cancel______________0
===============================
```

5. Press the ‘`1`’ on the computer keyboard to select `Download new FW`.

   The following will be displayed:

```
Please send new FW bin file
Waiting for the file to be sent ... (press ‘a’ to abort)
```

6. In HyperTerminal, click `Transfer --> Send File...`

7. Select the firmware file: `MMTX_BP_e_[version].bin`

8. Select `YModem` from the Protocol drop-down list.

9. Click the OK button.

The firmware update procedure will begin. This process should take a couple of minutes and will update the back panel boards. After the firmware update is successful, the following will be displayed in the terminal program:

```
Verify Check sum, please wait

Download Completed Successfully!
MMTX_BP_e_0_3_43.bin
 Size: 50688      Bytes
Activate boot loader for BP board
Please wait...............The system will reboot itself, please
wait
..
***********************
 tvONE
 Modular MultiMatrix
 UI FW version: 0.3.38
***********************

Establish connection with Input Board 1
  Board Type: DP input 8 channels
  Board SN: 959800
  FW ver:0.3.8
Establish connection with Input Board 2
  Board Type: DP input 8 channels
  Board SN: 959793
  FW ver:0.3.8
Establish connection with Input Board 3
  Board Type: DVI input 8 channels
  Board SN: 954849
  FW ver:0.3.8
Establish connection with Input Board 4
  Board Type: DVI input 8 channels
  Board SN: 954759
  FW ver:0.3.8
Establish connection with Output Board 1
  Board Type: FO output 8 channels
  Board SN: 981708
  FW ver:0.3.8
           ...
           ...
           ...
Establish connection with BP Board
  Board Type: BP 32
  Board SN: 953703
  FW ver:0.3.43

Init Routing, Please wait
.......
Loading default EDID to all locals Inputs, please wait.........
Finished Loading
```

10. Repeat steps 3 through 9 using the `MMTX_DVIinout_[version].bin` file. The update process for the Input / Output boards may take several minutes. After the update process is complete, the following will be displayed in the terminal window:

```
Verify Check sum, please wait

Download Completed Successfully!
MMTX_DVIinout_e_0_3_8.bin
 Size: 68640      Bytes
Activate boot loader for all IN/OUT boards
Please wait....................................................
...............................................................
...............................................................
...............................................................
...............................................................
..............................
Finished loading new FW version to all IN/OUT boards
The system will reboot itself, please wait

***********************
 tvONE
 Modular MultiMatrix
 UI FW version: 0.3.38
***********************

Establish connection with Input Board 1
  Board Type: DP input 8 channels
  Board SN: 959800
  FW ver:0.3.8
Establish connection with Input Board 2
  Board Type: DP input 8 channels
  Board SN: 959793
  FW ver:0.3.8
Establish connection with Input Board 3
  Board Type: DVI input 8 channels
  Board SN: 954849
           ...
           ...
           ...
Establish connection with BP Board
  Board Type: BP 32
  Board SN: 953703
  FW ver:0.3.43

Init Routing, Please wait
.......
Loading default EDID to all locals Inputs, please wait.........
Finished Loading
```

11. Finally, repeat steps 3 through 9 using the `MMTX_UI_[version].bin` file. This file updates the Web UI. This file is relatively large and this process may take several minutes. After the update process is complete, the following will be displayed in the terminal window:

```
Verify Check sum, please wait

Download Completed Successfully!
MMTX_UI_e_0_3_38.bin
 Size: 498240     Bytes
Activate boot loader for UI board
Please wait...
===============================================
==           tvONE MMTX Boot Loader           ==
==               v 3.7                       ==
===============================================

Checking program CS in SPI flash, Please wait
................................................
 Erasing internal FLASH, please wait ...
 Writing internal FLASH, please wait ..........................
.....................
Download Completed Successfully!

***********************
 tvONE
 Modular MultiMatrix
 UI FW version: 0.3.38
***********************

Establish connection with Input Board 1
  Board Type: DP input 8 channels
  Board SN: 959800
  FW ver:0.3.8
Establish connection with Input Board 2
  Board Type: DP input 8 channels
  Board SN: 959793
           ...
           ...
Establish connection with BP Board
  Board Type: BP 32
  Board SN: 953703
  FW ver:0.3.43

Init Routing, Please wait
.......
Loading default EDID to all locals Inputs, please wait.........
Finished Loading
```

12. The firmware update process is complete.

RACK MOUNT SAFETY INFORMATION

a. Maximum recommended ambient temperature: 45 ˚C (104 ˚F).

b. Increase the air flow as needed to maintain the recommended temperature inside the rack.

c. Do not exceed maximum weight loads for the rack. Install heavier equipment in the lower part of the rack to maintain stability.

d. Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of circuits might have on overcurrent protection and supply wiring.

e. Connect a bonding wire between an approved safety ground and the grounding screw on the chassis.

SPECIFICATIONS

Maximum Pixel Clock.. 165 MHz

Input Video Signal.. 1.2V p-p

DVI Input Connectors...(32), organized into banks of 8 depending upon the type of input card used:

- DVI: (8) DVI-I, 29-pin, female
- DisplayPort: (8) female

Output Connectors... (32), organized into banks of 8 depending upon the type of output card used:

- DVI: (8) DVI-I, 29-pin, female
- ELR: (8) RJ-45
- Fiber: (8) SC

RS-232 serial port.. DB-9, female

Ethernet (IP control) port... RJ-45 jack (100BaseT)

Power Supplies.. (2) 100 - 240V AC (dual IEC hot-swappable)

Rack-Mountable.. 6U rack height, rack ears included

Dimensions (W x H x D).......................... 17.6” x 10.5” x 19” D (447mm x 266mm x 482mm)

Shipping Weight.. 44 lbs. (20 kg)

WARRANTY

tvONE warrants the equipment it manufactures to be free from defects in material and workmanship.

If equipment fails because of such defects and tvONE is notified within two (2) years from the date of shipment, tvONE will, at its option, repair or replace the equipment, provided that the equipment has not been subjected to mechanical, electrical, or other abuse or modifications. Equipment that fails under conditions other than those covered will be repaired at the current price of parts and labor in effect at the time of repair. Such repairs are warranted for ninety (90) days from the day of reshipment to the Buyer.

This warranty is in lieu of all other warranties expressed or implied, including without limitation, any implied warranty or merchantability or fitness for any particular purpose, all of which are expressly disclaimed.

1. Proof of sale may be required in order to claim warranty.

2. Customers outside the US are responsible for shipping charges to and from tvONE.

3. Copper cables are limited to a 30 day warranty and cables must be in their original condition.

The information in this manual has been carefully checked and is believed to be accurate. However, tvONE assumes no responsibility for any inaccuracies that may be contained in this manual. In no event will tvONE be liable for direct, indirect, special, incidental, or consequential damages resulting from any defect or omission in this manual, even if advised of the possibility of such damages. The technical information contained herein regarding the features and specifications is subject to change without notice.

For the latest warranty coverage information, refer to the Warranty and Return Policy under the Support section of the tvONE Web site at www. tvONE.com.

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