

16x16 ModularMX Matrix



MOD-16416-DVI • MOD-16416-DVIELR • MOD-16416-DVI1FO
 MOD-16416-DPDVI • MOD-16416-DPELR • MOD-16416-DP1FO
 MOD-16416-1FO • MOD-16416-ELR

tvONE 16x16 ModularMX Matrix

Congratulations on your purchase of the 16x16 ModularMX Matrix. Your complete satisfaction is very important to us.

The tvONE 16x16 ModularMX Matrix provides an all-in-one professional solution to route up to 16 DVI or DisplayPort sources to any 16 DVI outputs supporting resolutions up to 1920 x 1200. The modular design of this 16x16 matrix provides the ultimate in flexibility by allowing the combination of different input and output cards and the extension of inputs and outputs over CAT5-ELR or fiber. The front-panel LCD displays the current routing status and each source is accessible to any display by using the front-panel push buttons, the RS-232 interface, or through IP Control (with built-in web server, Telnet, and UDP). Hot-swappable dual redundant power supplies allow these matrixes to be used for applications in demanding 24/7 applications where enhanced reliability, ease of servicing and zero down-time are required.

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Start Here

Make sure you have everything that came with your product:
Refer to page 3 for the included items shipped with your product.

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For 24 / 7 support, see the back of the product for the support number

Refer to the last page of this Quick-Start Guide for contact information.

NOTE: For important operational details and warranty information, refer to the User Manual, which can be downloaded from the Support section of the tvONE Web site

Introduction

The 16x16 ModularMX Matrix

1

Before reading this Quick-Start Guide, familiarize yourself with the rear panel of the 16x16 ModularMX Matrix.

The 16x16 ModularMX Matrix can accommodate two input cards and two output cards. Each card provides eight connectors, providing a total of 16 inputs and 16 outputs. The 16x16 ModularMX Matrix is available pre-configured with 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.

Matrix Layout (all configuration options)

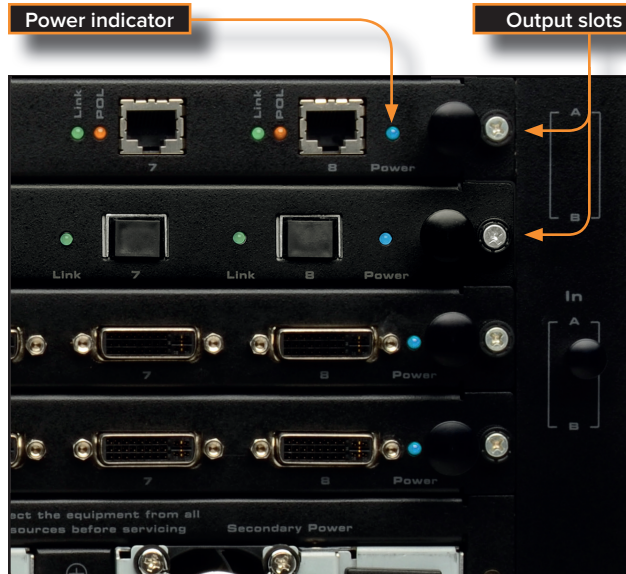
The bottom two expansion bays of the matrix accept only input cards. The top two expansion bays of the matrix accept only output cards. Each input and output bay is labeled by the letter "A" and "B".

The input and output on each card is identified under each port.

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

Consult the User Manual for additional information on the rear-panel layout.

Rear-Panel Layout



Pre-configured Options

2

The following list outlines the available pre-configured options. Since different configurations may require different connections and set-up, it is important to identify the type of 16x16 ModularMX Matrix you have purchased:

- **MOD-16416-DVI**

Two DVI input cards, providing a total of 16 DVI inputs.

Two DVI output cards, providing a total of 16 DVI outputs.

Package Includes:

- (1) 16x16 ModularMX Matrix Frame
- (1) DB-9 cable
- (2) AC power cords
- (2) ModularMX Matrix 8 DVI Input Cards
- (2) ModularMX Matrix 8 DVI Output Cards
- (1) Quick-Start Guide

- **MOD-16416-DVIELR**

Two DVI input cards, providing a total of 16 DVI inputs.

Two ELR-POL output cards, providing a total of 16 ELR-POL ports. Each of these 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). 16 DVI ELR-POL Receiver units are included with this package option. These Receiver units are powered via the CAT-5e cable and do not need power supplies.

Package Includes:

- (1) 16x16 ModularMX Matrix Frame
- (1) DB-9 Cable
- (2) AC Power Cords
- (2) ModularMX Matrix 8 DVI Input Cards
- (2) ModularMX Matrix 8 DVI Sender over CAT-5 Cards
- (16) DVI ELR Receivers with POL
- (1) Quick-Start Guide

Pre-configured Options (continued)

• MOD-16416-ELR

Two ELR-POL input cards, providing a total of 16 ELR-POL ports. Each of these inputs are connected to a Sender unit, using a CAT-5e cable, allowing you to extend the DVI signal from a source up to 330 feet (100 meters). 16 DVI ELR-POL Sender units and 16 DVI ELR-POL Receiver units are included with this package option.

Two ELR-POL output cards, providing a total of 16 ELR-POL ports. Each of these 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).

The Sender and Receiver units are powered via the CAT-5e cable and do not need power supplies.

Package Includes:

- (1) 16x16 ModularMX Matrix Frame
- (1) DB-9 Cable
- (2) AC Power Cords
- (2) ModularMX Matrix 8 ELR-POL Input Cards
- (2) ModularMX Matrix 8 ELR-POL Output Cards
- (16) DVI ELR-POL Senders
- (16) DVI ELR-POL Receivers
- (1) Quick-Start Guide

• MOD-16416-DPDVI

Two DisplayPort input cards, providing a total of 16 DisplayPort inputs.

Two DVI output cards, providing a total of 16 DVI outputs.

Package Includes:

- (1) 16x16 ModularMX Matrix Frame
- (1) DB-9 Cable
- (2) AC Power Cords
- (2) ModularMX Matrix 8 DisplayPort Input Cards
- (2) ModularMX Matrix 8 DVI Output Cards
- (1) Quick-Start Guide

Pre-configured Options (continued)

• MOD-16416-DPELR

Two DisplayPort input cards, providing a total of 16 DisplayPort inputs.

Two ELR-POL output cards, providing a total of 16 ELR-POL ports. Each of these 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). 16 DVI ELR-POL Receiver units are included with this package option. These Receiver units are powered via the CAT-5e cable and do not need power supplies.

Package Includes:

- (1) 16x16 ModularMX Matrix Frame
- (1) DB-9 Cable
- (2) AC Power Cords
- (2) ModularMX Matrix 8 DisplayPort Input Cards
- (2) ModularMX Matrix 8 ELR-POL Output Cards
- (16) DVI ELR-POL Receivers
- (1) Quick-Start Guide

• MOD-16416-DVI1FO

Two DVI input cards, providing a total of 16 DVI inputs.

Two Fiber Optic output cards, providing a total of 16 SC-type fiber optic connectors. Each of these fiber optic ports are connected to a Receiver unit, allowing you to extend the DVI signal up to 6600 feet (2000 meters) using 50μ OM3e/OM4 multimode fiber optic cable. OM3 and OM1 fiber are also supported. See page 12 for distance limitations using other fiber optic cable types. 16 fiber optic Receiver units and power supplies are included with this package option.

Package Includes:

- (1) 16x16 ModularMX Matrix Frame
- (1) DB-9 Cable
- (2) AC Power Cords
- (2) ModularMX Matrix 8 DVI Input Cards
- (2) ModularMX Matrix 8 Fiber Optic Output Cards
- (16) DVI Receivers over 1FO
- (16) 5V Power Supplies for the above
- (1) Quick-Start Guide

Pre-configured Options (continued)

• MOD-16416-1FO

Two Fiber Optic input cards, providing a total of 16 SC-type fiber optic connectors. Each of these fiber optic ports are connected to a Sender unit, allowing you to extend the DVI signal from a source up to 6600 feet (2000 meters) using 50μ OM3e/OM4 multimode fiber optic cable. 16 fiber optic Sender units and 16 Receiver units are included with this package option.

Two Fiber Optic output cards, providing a total of 16 SC-type fiber optic connectors. Each of these fiber optic ports are connected to a Receiver unit, allowing you to extend the DVI signal up to 6600 feet (2000 meters) using 50μ OM3e/OM4 multimode fiber optic cable.

OM3 and OM1 fiber are also supported. See page 12 for distance limitations using other fiber optic cable types.

Package Includes:

- (1) 16x16 ModularMX Matrix Frame
- (1) DB-9 Cable
- (2) AC Power Cords
- (2) ModularMX Matrix 8 Fiber Optic Input Cards
- (2) ModularMX Matrix 8 Fiber Optic Output Cards
- (16) DVI Senders over 1FO
- (16) DVI Receivers over 1FO
- (32) 5V Power Supplies for the above
- (1) Quick-Start Guide

• MOD-16416-DP1FO

Two DisplayPort input cards, providing a total of 16 DisplayPort inputs.

Two Fiber Optic output cards, providing a total of 16 SC-type fiber optic connectors. Each of these fiber optic ports are connected to a Receiver unit, allowing you to extend the DisplayPort signal up to 6600 feet (2000 meters) using 50μ OM3e/OM4 multimode fiber optic cable. OM3 and OM1 fiber are also supported. See page 12 for distance limitations using other fiber optic cable types. 16 fiber optic Receiver units and power supplies are included with this package option.

Package Includes:

- (1) 16x16 ModularMX Matrix Frame
- (1) DB-9 Cable
- (2) AC Power Cords
- (2) ModularMX Matrix 8 DisplayPort Input Cards
- (2) ModularMX Matrix 8 Fiber Optic Output Cards
- (16) DVI Receivers over 1FO
- (16) 5V Power Supplies for the above
- (1) Quick-Start Guide

Connections

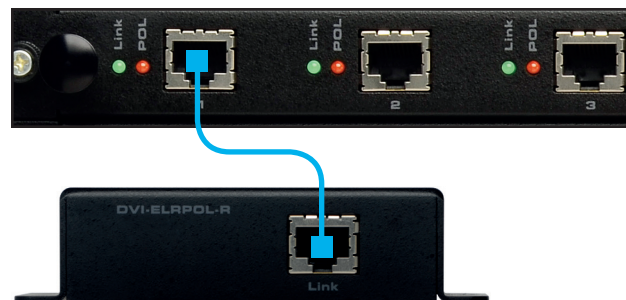
MOD-16416-DVI

MOD-16416-DVIELR

3

1. Connect up to 16 DVI sources to the DVI inputs.
2. Connect up to 16 DVI displays to the DVI outputs using DVI cables.
3. 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.

1. Connect up to 16 DVI sources the DVI inputs.
2. Connect a CAT-5e cable (or better), up to 330 feet (100 meters) from each ELR-POL port on the Output card to each of the included ELR-POL Receiver units, as shown below.



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.

MOD-16416-DVIELR (continued)

MOD-16416-ELR

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

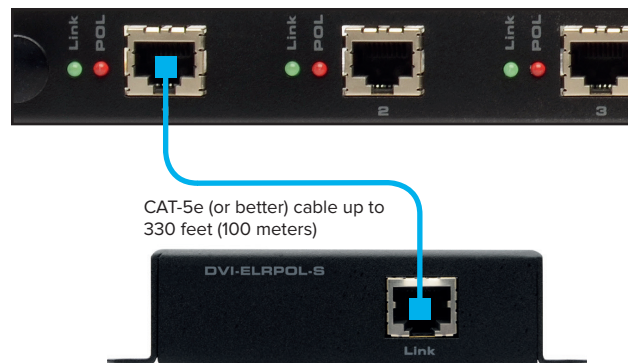


4. Connect both AC power cords from the matrix to available electrical outlets. Connecting both AC power cords will provide redundancy should one of the power supplies fail. It is recommended to connect each power cord to electrical outlets on two separate circuits.

Power to the Receiver unit is delivered from the power supply in the matrix over the CAT-5e cable using 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.

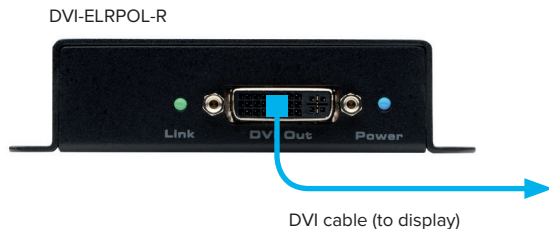
If either of these LED indicators are off, inspect the CAT-5 cable.

1. Connect a CAT-5e cable (or better), up to 330 feet (100 meters) from each ELR-POL input to each of the included DVI ELR-POL Sender units, as shown below.



MOD-16416-ELR (continued)

2. Connect a DVI source to the DVI input of each DVI ELR-POL Sender unit.
3. Connect a CAT-5e cable (or better), up to 330 feet (100 meters) from each ELR-POL output to each of the included DVI ELR-POL Receiver units.
4. Connect a DVI display to each Receiver unit.



5. Connect both AC power cords from the matrix 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 Sender and Receiver units are delivered from the power supply in the matrix over the CAT-5e cable using 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.

MOD-16416-DPDVI

NOTE: This package is similar to the DVI package, 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.

1. Connect the up to 16 DisplayPort sources to the DisplayPort inputs on the matrix.
2. Connection up to 16 displays to the DVI outputs on the matrix using DVI cables.
3. Power up the matrix.

MOD-16416-DPELR

NOTE: This package is similar to the DVIELR package, except for the fact that all inputs will be DisplayPort instead of DVI. Refer to the connection instructions for the DVIELR version of each package if needed.

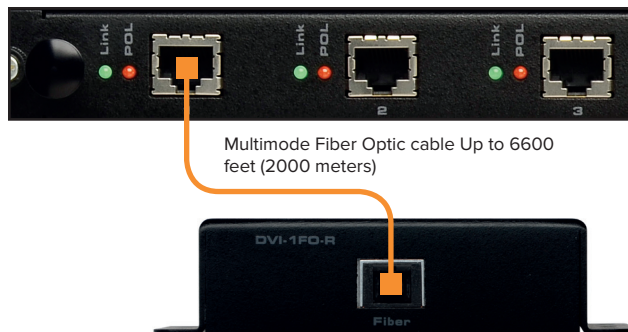
1. Connect up to 16 DisplayPort sources to the DisplayPort inputs.
2. Connect a CAT-5e cable (or better), up to 330 feet (100 meters) from each ELR-POL port on the Output card to each of the included ELR-POL Receiver units.
3. Connect a DVI cable from the DVI Out port on the ELR-POL Receiver unit to a DVI display.
4. Connect both AC power cords from the matrix 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 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.

MOD-16416-DVI1FO

1. Connect the up to 16 DVI sources to the DVI inputs on the matrix.
2. Connect a single strand of SC-terminated multimode fiber optic cable from each SC connector on the Output Card to each Receiver unit.



50 μ OM3e/OM4, OM3, and 62.5 μ 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 (2000 meters) using 50 μ OM3e/OM4 multimode fiber optic cable.
 - 2000 feet (600 meters) using 50 μ OM3 multimode fiber optic cable.
 - 660 feet (200 meters) using 62.5 μ OM1 multimode fiber optic cable.
3. Connect a DVI cable from the DVI Out port on the Receiver unit to a display.
 4. Connect the power supply to the 1FO Receiver unit and to an available electrical outlet.



MOD-16416-DVI1FO (continued)

5. 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 will glow bright green to indicate a connection between the matrix and the Receiver unit. If this LED is off, inspect the fiber optic cable for defects.

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

MOD-16416-1FO

1. Using single strand SC-terminated multimode fiber optic cables, connect up to 16 DVI Fiber Optic Sender Units to the SC connectors on the input card, up to 6600 feet (2000 meters) away.

Make sure to remove the protective covers before connecting the fiber optic cable.



Multimode Fiber Optic cable Up to 6600 feet (2000 meters)



MOD-16416-1FO (continued)

50μ OM3e/OM4, 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 (2000 meters) using 50μ OM3e/OM4 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.

2. Connect a DVI source to the DVI input of each DVI Fiber Optic Sender unit.
3. Using single strand SC-terminated multimode fiber optic cables, connect up to 16 DVI Fiber Optic Receiver Units to the SC connectors of the ModularMX Matrix Fiber Output Card.

4. Connect a DVI display to each Receiver unit.

DVI-1FO-R



5. Connect the locking power supply to the Sender and Receiver units and to available electrical outlets. The Power LED indicators will glow bright blue when both units are powered-on.

Connect both AC power cords from the matrix to available electrical outlets. This 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 LED's on the modular

When the Sender and Receiver units are powered-on, the Link LED indicators will glow bright green to indicate a connection between the matrix and the Sender and Receiver units. If this LED is off, inspect the fiber optic cable for defects.



MOD-16416-DP1FO

NOTE: This package is similar to the DVI1FO package, except for the fact that all inputs will be DisplayPort instead of DVI. Refer to the connection instructions for the DVI1FO version if needed.

1. Connect the up to 16 DisplayPort sources to the DisplayPort inputs on the matrix.
2. Connect a single strand of SC-terminated multimode fiber optic cable from each SC connector on the Output Card to each Receiver unit.
3. Connect a DVI cable from the DVI Out port on the Receiver unit to a display.
4. Connect the power supply to the 1FO Receiver unit and to an available electrical outlet.
5. 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 will glow bright green to indicate a connection between the matrix and the Receiver unit. If this LED is off, inspect the fiber optic cable for defects.

Removing and Installing Cards

Removing Cards

4



WARNING: Cards are sensitive to Electrostatic Discharge (ESD) which can damage the card. Avoid touching the card contacts or the components on the card. Always hold cards by the edges or by the knobs on the front of the card. Never slide a card over any surface. When installing/replacing cards, do not try to install an input card in an output slot (or vice versa) and do not force the cards into place. This will damage the matrix and void the warranty.

Although each 16x16 ModularMX Matrix is available pre-configured, both input and output cards can be added or replaced to fit the needs of your application.

Each card can easily be removed and installed without using any special tools.



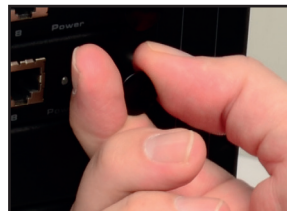
STOP: Before installing or removing cards and to prevent the risk of possible electrical shock, unplug both of the AC power cords from the power supply(s) on the back of the matrix.

1. Power OFF the matrix and disconnect all cables from the card you are planning to remove.
2. Turn the matrix around so the back of the unit is facing you.

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.

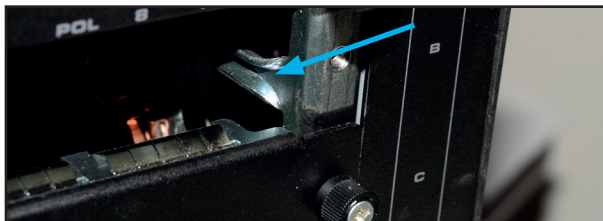


4. Grab the knobs on both sides of the card, between the thumb and index finger, and gently pull to remove the card from the matrix (cover plates do not have pull-knobs).

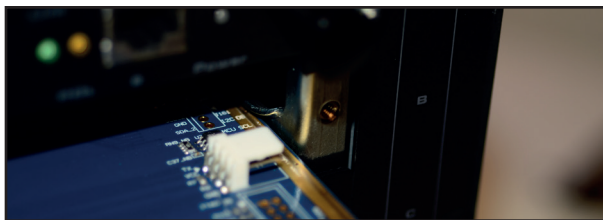


Installing Cards

1. Locate the metal track on either side of the expansion slot.



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



3. 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.



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Features and specifications are subject to change without notice.



This product uses UL listed or CE compliant power supplies.