

MANUAL PART NUMBER: 400-0168-001

VM2128ME

V-MATRIX™ ENGINE

USER'S GUIDE

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This manual covers:
VM2128ME - Matrix Engine

PRECAUTIONS / SAFETY WARNINGS 1

Please read this manual carefully before using your **VM2128ME** V-Matrix™ Engine. Keep this manual handy for future reference. These safety instructions are to ensure the long life of your **VM2128ME** V-Matrix™ Engine and to prevent fire and shock hazard. Please read them carefully and heed all warnings.

1.1 GENERAL

- Qualified ALTINEX service personnel, or their authorized representatives must perform all service.

1.2 INSTALLATION

- Make sure that the chassis is turned off before installation.

1.3 FCC NOTICE

- This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference that may cause undesired operation.
- This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.
- Any changes or modifications to the unit not expressly approved by ALTINEX, Inc. could void the user's authority to operate the equipment.

ABOUT YOUR VM2128ME 2

The core of the V-Matrix is a patent-pending component called the **VM2128ME** Matrix Engine™. Using a special three-dimensional board layout, the Matrix Engine (**VM2128ME**) handles all of the routing of signals internally. To build a matrix configuration, the Engine is plugged into a Basic Enclosure (VM2210BE), which is then populated with input and output cards.

The cards can be designed to handle a wide array of signal formats and connector types. Also, a single Basic Enclosure can be populated with mixed format cards. The V-Matrix System includes both 8-input/output high-resolution video cards and 8-input/output balanced audio cards. Used together with the **VM2128ME** Matrix Engine and Basic Enclosure, these elements alone enable you to design a huge number of configurations, with sizes ranging from 8 x 8 to 128 x 128 (in increments of 8) and signal formats that include RGBHV, RGBS, RGsB, Component Video, S-Video, Composite Video, Stereo Audio and Mono Audio.

The 8-input video cards provide built-in ground loop isolation (GLI on Board™) through the use of differential inputs. This is an extremely important feature because it protects against hum bars and other interference caused by ground loops, which notoriously wreak havoc on large-scale matrix systems. Both the input and output video cards provide a bandwidth of 350 MHz @ -3dB, allowing them to pass extremely high-resolution computer video signals without signal degradation.

All input and output cards are "hot-swappable" with finger adjustable lock-down screws and secure, positive engagement card-edge connections.

The modularity of the V-Matrix concept makes it quick and easy to upgrade or repair. The Basic Enclosure can be virtually stripped down to its bare metal essentials and re-built with user-friendly "pluggable" pieces without removing it from the rack.

In fact, for mission critical applications, it is quite feasible to keep a spare **VM2128ME** Matrix Engine available that can be swapped out through the front

panel without ever removing the basic enclosure from the rack or unplugging any of the cables connected to the back panel. Even the dual AC power supply is completely removable and swappable.

The V-Matrix Basic Enclosure makes use of an innovative cooling system with a chimney-like design that maximizes even airflow through the Matrix Engine and input/output cards. This ensures that the system does not overheat, even in rigorous environments.

Control of the system is made primarily via RS-232, though the back panel also provides a 10 Base-T connection for future network control capabilities. Protocol for input/output selection is both powerful and simple, involving basic, easy-to-understand ASCII commands.

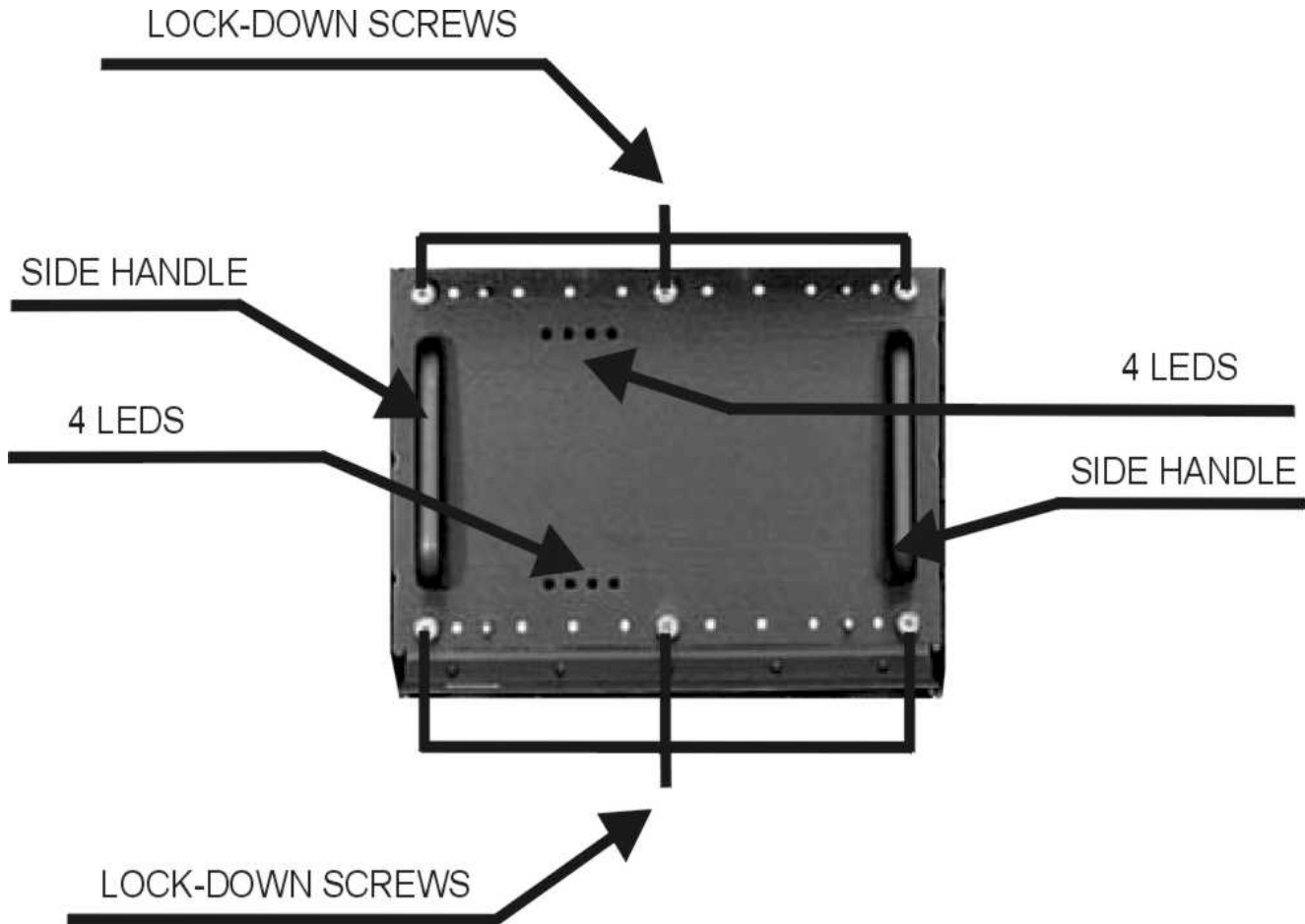
TECHNICAL SPECIFICATIONS 3

FEATURES/ DESCRIPTION	VM2128ME
Width (enclosure)	16.3in (414mm)
Width (w/rack mount sides)	19.0in (483mm)
Height	17.3 in 439 mm
Depth	17.6 in 447 mm
Depth (w/front handles)	19.9 in (505 mm)
Weight	89 lb. (40 kg)
Material	Al 0.1" and Steel
Finish	Black
Front/Back Panels	Al 0.1"/Steel 0.047"
T° Operating	10°C-40°C
T° Maximum	50°C
Humidity	0-45% non-condensed
MTBF (calc.)	40,000 hrs (min.)
Input Card Slots	16
Output Card Slots	16
RS-232 Inputs	(2) 9-pin D Female
10 Base-T Network Input	RJ-45 Female
Power	90-265V AC
Power Consumption	300 watts max.
Convenience AC Outlets	3 (Edison Connectors)
Convenience AC Power	10Amp max

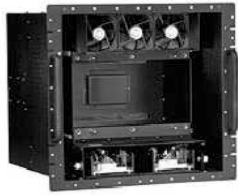
Table 1. VM2128ME

DESCRIPTION OF VM2128ME 4

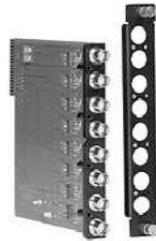
The Matrix Engine handles routing of all signals internally. It can be removed from the enclosure by unfastening the lock-down screws and pulling on the inside handles.



How to Build a V-Matrix Configuration



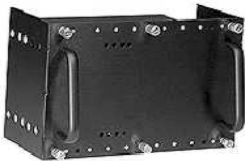
VM2210BE & VM2218PS
Basic Enclosure & Power Supply



VM2143VS
8-in Video Input Card



VM2144VS
8-out Video Output Card



VM2228ME
Matrix Engine



VM2141AU
8-in Audio Input Card



VM2142AU
8-out Audio Output Card

Example A		Example B		Example C	
128 x 128 Composite Video Matrix Switcher		128 x 128 RGBHV + Stereo Audio Matrix Switcher		64 x 64 RGsB + Mono Audio Matrix Switcher	
Parts Required		Parts Required		Parts Required	
Qty.	Part #	Qty.	Part #	Qty.	Part #
1	VM2210BE	7	VM2210BE	2	VM2210BE
1	VM2128ME	7	VM2128ME	2	VM2128ME
1	VM2218PS	7	VM2218PS	2	VM2218PS
16	VM2143VS	80	VM2143VS	24	VM2143VS
16	VM2144VS	80	VM2144VS	24	VM2144VS
		32	VM2141AU	8	VM2141AU
		32	VM2142AU	8	VM2142AU

INSTALLING YOUR VM2128ME 5

- Step 1.** Attach the **VM2128ME** to the enclosure using the lock-down screws to secure it into place.
- Step 2.** Connect the power entry connector of the enclosure to the power outlet with the power cord. The power supply will work with voltages between 90V-265V.
- Step 3.** Once the power is connected, power LED's on the front panel will turn red indicating that the unit is on. Green status LED's indicate that the system is operating properly. If the status LED is blinking red, the unit is experiencing a problem.
- Step 4.** To remove the **VM2128ME** from the enclosure, unfasten the lock-down screws and pull on the inside handles.

OPERATION 6

The **VM2128ME** Matrix Engine will operate successfully as long as the unit is installed properly and other technical specifications are followed.

TROUBLESHOOTING GUIDE 7

We have carefully tested and have found no problems in the supplied **VM2128ME**; however, we would like to offer suggestions for the following:

- First, make sure that power is connected to the power-input connector and input power is within the range of 90-265 VAC.
- Make sure that the chassis is turned off before installation.
- Make sure that the **VM2128ME** is properly attached to the enclosure.
- If the LED's are not lit, make sure that there is powered connected to the unit.
- Make sure that the cards being used are pushed in all the way into the enclosure.
- If there is problem with the unit please call ALTINEX at (714) 990-2300.

8.1 LIMITED WARRANTY

ALTINEX warrants that its products and cables are free from defects in materials under normal use and service. This warranty is limited to repairing at company's factory any part or parts of the product, which upon company's examination shall disclose to be, thus defective. Products considered defective should be returned to company with transportation charges pre-paid within 2 years (90 days for cables) from date of shipment to the purchaser. The warranty is expressly instead of all other warranties expressed or implied. ALTINEX neither assumes nor authorizes any other person to assume for it any other liability in connection with the sale of the products. This warranty shall not apply to any product that shall have been repaired or altered outside of company's factory in any way so as, in its judgment, to affect its stability or reliability, or that has been subject to misuse, negligence, or accident.

8.2 RETURN POLICY

It is very important to ALTINEX that you receive the products that you have ordered and that this product meets your expectations. In the unlikely event, that an ALTINEX product needs to be returned please follow the policy below:

ALTINEX will accept product returns for a period of 30 days from authorized ALTINEX dealers. Products must be returned in an unopened package.

If a product has been opened, the restocking fees will apply. For the restocking fee amount, please contact an ALTINEX Sales Representative.

If the product is in your possession for more than 30 days, the restocking fees will apply.

ALTINEX will not accept any returns on cables or custom products.

If your product is in warranty and needs service, contact the ALTINEX Sales Department for an RMA (Return Material Authorization). Products returned without an RMA number may experience a delay in service.

If your product is out of warranty and needs service, contact the ALTINEX Sales Department for an RMA (Return Material Authorization). Products returned without an RMA number may experience a delay in service. The service charges will be quoted to you before the actual repairs are done.

8.3 CONTACT INFORMATION**ALTINEX, INC.**

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Brea, CA 92821 USA

TEL: 714-990-2300

TOLL FREE: 1-800-ALTINEX

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