CMX09A

9-SLOT PXIe CHASSIS
USER'S MANUAL

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AMETEK PROGRAMMABLE POWER
9250 BROWN DEER ROAD
SAN DIEGO, CA 92121
(858) 450-0085

TABLE OF CONTENTS

TABLE OF FIGURES

ABOUT AMETEK

AMETEK Programmable Power, Inc., a Division of AMETEK, Inc., is a global leader in the design and manufacture of precision, programmable power supplies for R&D, test and measurement, process control, power bus simulation and power conditioning applications across diverse industrial segments. From bench top supplies to rack mounted industrial power subsystems, AMETEK Programmable Power is the proud manufacturer of Elgar, Sorensen, California Instruments, Amrel brand power supplies. Also, VTI Instruments brand which delivers precision modular instrumentation and systems for electronic signal distribution, acquisition, and monitoring, used in the world's most demanding test applications. AMETEK, Inc. is a leading global manufacturer of electronic instruments and electromechanical devices with annualized sales of $4 billion. The Company has over 15,000 colleagues working at nearly 150 manufacturing facilities and nearly 150 sales and service centers in the United States and 30 other countries around the world.

TRADEMARKS

EXCLUSION FOR DOCUMENTATION

CONTACT INFORMATION

Telephone: 800 733 5427 (toll free in North America)

858 450 0085 (direct)

Fax: 858 458 0267

Email: sales.ppd@ametek.com

service.ppd@ametek.com

Web: www.powerandtest.com

CERTIFICATION

AMETEK/VTI Instruments (VTI) certifies that this product met its published specifications at the time of shipment from the factory. VTI further certifies that its calibration measurements are traceable to the United States National Institute of Standards and Technology (formerly National Bureau of Standards), to the extent allowed by that organization's calibration facility, and to the calibration facilities of other International Standards Organization members.

WARRANTY TERMS

The product referred to herein is warranted against defects in material and workmanship for a period of three years from the receipt date of the product at customer's facility. AMETEK Programmable Power, Inc. ("AMETEK"), provides this written warranty covering the Product stated above, and if the Buyer discovers and notifies AMETEK in writing of any defect in material or workmanship within the applicable warranty period stated above, then AMETEK may, at its option: repair or replace the Product; or issue a credit note for the defective Product; or provide the Buyer with replacement parts for the Product. The Buyer will, at its expense, return the defective Product or parts thereof to AMETEK in accordance with the return procedure specified below. AMETEK will, at its expense, deliver the repaired or replaced Product or parts to the Buyer. Any warranty of AMETEK will not apply if the Buyer is in default under the Purchase Order Agreement or where the Product, or any part thereof, is as follows:

- ✓ damaged by misuse, accident, negligence or failure to maintain the same as specified or required by AMETEK.
- ✓ damaged by modifications, alterations or attachments thereto which are not authorized by AMETEK.
- ✓ installed or operated contrary to the instructions of AMETEK.
- ✓ opened, modified, or disassembled in any way without AMETEK's consent.
- ✓ used in combination with items, articles or materials not authorized by AMETEK.

The Buyer may not assert any claim that the Products are not in conformity with any warranty until the Buyer has made all payments to AMETEK provided for in the Purchase Order Agreement.

PRODUCT RETURN PROCEDURE

Request a Return Material Authorization (RMA) number from the repair facility (must be done in the country in which it was purchased):

In the USA, contact the AMETEK Customer Service Department prior to the return of the product to AMETEK for repair:

Telephone: 800-733-5427, ext. 2295 or ext. 2463 (toll free North America)

858-450-0085, ext. 2295 or ext. 2463 (direct)

Outside the United States, contact the nearest Authorized Service Center (ASC). A full listing can be found either through your local distributor, or on our website, www.programmablepower.com, by tapping Support button or going to the Service Centers tab.

When requesting an RMA, have the following information ready:

- ✓ Model number
- ✓ Serial number
- ✓ Description of the problem

NOTE: Unauthorized returns will not be accepted and will be returned at the shipper's expense.

NOTE: A returned product found upon inspection by AMETEK to be in specification is subject to an evaluation fee and applicable freight charges.

AMETEK®
PROGRAMMABLE POWER

CE

Declaration of Conformity

This is to declare that the product listed below conforms to the relevant requirements of the Electromagnetic Compatibility directive (European Council directive 2014/30/EU; generally referred to as the EMC directive), to the requirements of the Low Voltage directive 2014/35/EU, dated 26 February 2014, and to the RoHS3 Directive (EU Directive 2015/863 dated 4 June 2015). In substantiation, the products were tested and or evaluated to the standards shown below

Product Type	Product Model Number(s)	Conforming to Standards:
PXI Express 9 Slot Chassis PXI Express 18 Slot Chassis	CMX09A, CMX18A.	EN 61326-1:2013 EN 61010-1:2010 EN 50581-1:2012

Signature: 	Date: **5/18/2020**
Name: Barry Palmatier Title: Compliance Engineer	First Issued: Doc. Part No:

Ametek Programmable Power, 9250 Brown Deer Rd., San Diego, CA 92121-2294 USA
Telephone: USA 858-450-0085, 800-733-5427 FAX: USA 858-458-0257

GENERAL SAFETY INSTRUCTIONS

Review the following safety precautions to avoid bodily injury and/or damage to the product. These precautions must be observed during all phases of operation or service of this product. Failure to comply with these precautions, or with specific warnings elsewhere in this manual, violates safety standards of design, manufacture, and intended use of the product. Note that this product contains no user serviceable parts or spare parts.

Service should only be performed by qualified personnel. Disconnect all power before servicing.

TERMS AND SYMBOLS

These terms may appear in this manual:

WARNING Indicates that a procedure or condition may cause bodily injury or death.

CAUTION Indicates that a procedure or condition could possibly cause damage to equipment or loss of data.

These symbols may appear on the product or in the manual:

ATTENTION - Important instructions

Indicates hazardous voltage.

Frame or chassis ground

Indicates that the product was manufactured after August 13, 2005. This mark is placed in accordance with *EN 50419, Marking of electrical and electronic equipment in accordance with Article 11(2) of Directive 2002/96/EC (WEEE)*. End-of-life product can be returned to AMETEK by obtaining an RMA number. Fees for take-back and recycling will apply if not prohibited by national law.

WARNINGS

Follow these precautions to avoid injury or damage to the product:

Apply local earth ground

The safety earth ground cable provided with this instrument meets the required regulatory and statutory safety standards as indicated by this product's declaration of conformity. The green/yellow safety cable must be applied between the safety ground on the rear of the unit and the local safety earth ground. This is required for safe operation of the equipment. Refer to the manual on how to apply the safety earth ground cable

Use proper Power Cord	The power cable provided with this instrument meets the required regulatory and statutory safety standards as indicated by this product's declaration of conformity. VTI recommends that the power cord provided be used with the instrument that it is provided with. If a different power cord is must to be used, however, it is the responsibility of the user to select a power cord that meets any and all regulatory and statutory requirements for their industry and country.
Use proper Power Source	To avoid electrical overload, electric shock, or fire hazard, do not use a power source that applies other than the specified voltage. The mains outlet that is used to power the equipment must be within 3 meters of the device and shall be easily accessible.
Use proper Fuse	To avoid fire hazard, only use the type and rating fuse specified for this product.
Power Consumption	Prior to using plug-in modules, it is imperative that the power consumption of all modules that will be installed in the mainframe be calculated for all power supply rails. The required information can be found in *Detailed Specifications* in this manual. *Failure to do so may result in damaging the plug-in modules and the mainframe*.
Avoid Electric Shock	To avoid electric shock or fire hazard, do not operate this product with the covers removed. Do not connect or disconnect any cable, probes, test leads, etc. while they are connected to a voltage source. Remove all power and unplug unit before performing any service. ***Service should only be performed by qualified personnel.***
Ground the Product	This product is grounded through the grounding conductor of the power cord. To avoid electric shock, the grounding conductor must be connected to earth ground.
Operating Conditions	To avoid injury, electric shock or fire hazard: - Do not operate in wet or damp conditions. - Do not operate in an explosive atmosphere. - Operate or store only in specified temperature range. - Provide proper clearance for product ventilation to prevent overheating. - When selecting the installation location, be certain that there is enough space around the power plug and the outlet so that they are readily accessible. Do not insert the power cord into an outlet where accessibility to the plug cord is poor. - All unused slots should be closed with the dummy filler panels to ensure a proper air circulation. This is critical to avoid overheating of the cards.

- DO NOT operate if any damage to this product is suspected. ***Product should be inspected or serviced only by qualified personnel.***

IMPROPER USE

The operator of this instrument is advised that if the equipment is used in a manner not specified in this manual, the protection provided by the equipment may be impaired.

Conformity is checked by inspection.

SUPPORT RESOURCES

Support resources for this product are available on the Internet and at AMETEK customer support centers.

AMETEK Programmable Power
World Headquarters

AMETEK Programmable Power, Inc. − San Diego
9250 Brown Deer Road
San Diego, CA 92121

Phone: 858-450-0085
Fax: 858-458-0267

VTI Instruments

AMETEK Instruments Pvt. Ltd. India

4th Floor, Block A,
Divyashree NR Enclave,
EPIP Industrial Area,
Whitefield,
Bangalore – 560066 INDIA

Phone: +91 80 6782 3200
Fax: +91 80 6782 3232

Technical Support

Domestic (U.S.)
Toll Free: 1-800-733-5427 Press 3
Hours: 8:00am – 5:00pm PST, Mon - Fri
Email: techsupport.ppd@ametek.com

International: https://www.powerandtest.com/sales-reps/programmable-power-sales

Visit www.powerandtest.com for worldwide support sites and service plan information.

SECTION 1

INTRODUCTION

OVERVIEW

The CMX09A is designed to be a highly versatile chassis with mounting options. The chassis also has an integrated user interface which makes using the chassis very easy to do without any external applications.

UNPACKING

Upon arrival, the shipping carton should be inspected for damage. If the carton or any of its contents are damaged please contact AMETEK Programmable power Inc immediately for a replacement. Do not dispose of the carton or any of its contents; AMETEK will not replace the damaged product if these materials are not returned.

Please check that the following materials are in the carton. If any of these materials are missing please contact AMETEK Programmable power Inc immediately.

- CMX09A 4U 9-Slot Chassis
- Power Cord

SECTION 2

FEATURES

FEATURES

The CMX09A chassis provides the following features:

- 9-slot PXI Express chassis with 1 system controller slot, 1 timing slot, 7 hybrid peripheral slots.
- High bandwidth PCIe 2nd Generation backplane with 2 GB/s slot (1 link x 4) bandwidth and 8 GB/s (4 links x 4) system bandwidth
- True 4U chassis with 3U PXIe cards
- 0°C to 55°C extended operating temperature range
- IEEE 1588 distributed instrument synchronization
- Versatile chassis featuring custom front panels and options for racking mounting.
- Remote chassis power on/off control.
- Power, temperature, and fan monitoring LEDs

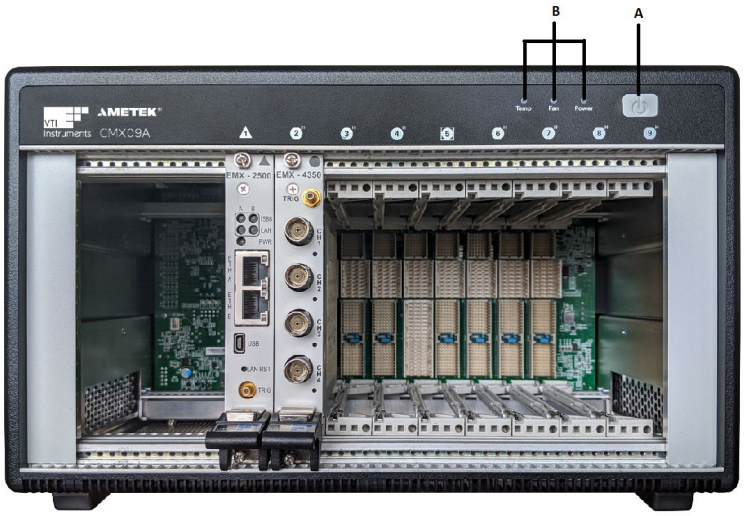


FIGURE 2-1 - CMX09A FRONT OVERVIEW

	Feature	Details
A	Power	Powers the chassis on/off (when INHIBIT on rear panel (not shown) is set to "DEF")
B	Chassis Status	Temperature, Fan, and Power (L to R), functions as follows

Front panel Indicator

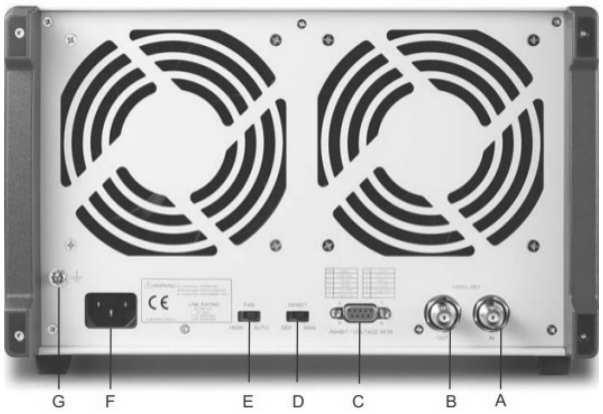


FIGURE 2-2 - CMX09A BACK OVERVIEW

	Feature	Details
A	10MHz Reference Clock Input	The BNC connector acts as a 10MHz reference clock input, whereby the backplane 10MHz clock is overridden in the presence of an external 10MHz clock
B	10MHz Reference Clock Output	The BNC connector acts as 10MHz reference clock output
C	Inhibit/Voltage Monitoring DB-9 Connector	The DB-9 connector monitors the four main voltage rails via digital multimeter ► voltage rail pin assignments shown in Figure 1-8 ► current limiting resistors on each voltage rail prevent accidental overload ► one Inhibit (active low) pin is provided to power the chassis on/off when the Inhibit Switch is in the MAN (manual) position, such that chassis is powered on when Inhibit pin is logic high or open, and off when Inhibit pin is grounded
D	Inhibit Switch	In the DEF (default) position, the front panel power button turns the power supply on/off, and in the MAN (manual) position, the INHIBIT pin on the DB-9 connector turns the power supply on/off
E	Fan Switch	In the HIGH position, fans operate at maximum speed, and in AUTO, the fans run based on the monitored chassis temperature
F	Universal Power Inlet	Accepts C13 power outlet-equipped connection
G	Chassis Ground Lug	The ground wire can be crimped to the ground lug, using a crimp tool of the appropriate size, with the other end connected to ground

SLOT CONFIGURATION

The CMX09A is a 9-slot PXI Express mainframe with 1 system controller slot, 1 PXIe timing slot, 7 PXIe hybrid peripheral slots.

The System Controller slot is Slot 1 of the chassis. The CMX09A chassis can accommodate a PXI Express system controller that occupies width up to 4 slots. There are three controller expansion slots allow the controller to expand to the left to prevent the controller from using up peripheral slot.

The PXI Express hybrid slot delivers connectivity to either an x4 PCI Express link or to the 32-bit, 33 MHz PCI bus on the backplane. This allows PXI Express hybrid-compatible, or 32-bit PCI/PXI-1 modules (without J2 connector), to be used in this slot.

The PXIe timing slot accepts either a PXI Express module or a PXI Express system timing controller for advanced timing and synchronization. Timing slot providing one dedicated single-ended star trigger and 3 pairs of differential star trigger lines to each peripheral slot.

SPEED, FLEXIBILITY, AND PERFORMANCE

Best in Class Bandwidth

The CMX09A uses a 4-lane 2nd generation PCIe backplane to achieve unmatched data rates of up to 2 GB/s per slot and 8 GB/s system. This is especially useful when using high-speed instruments like digitizers, oscilloscopes, and signal generators.

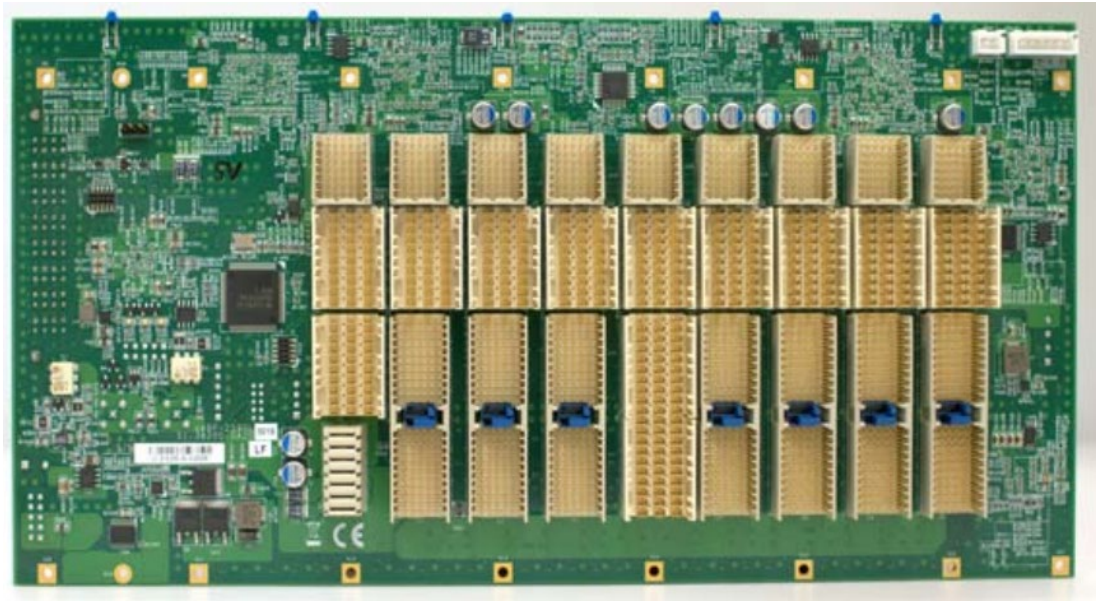


FIGURE 2-3 - CMX09A BACKPLANE ARCHITECTURE

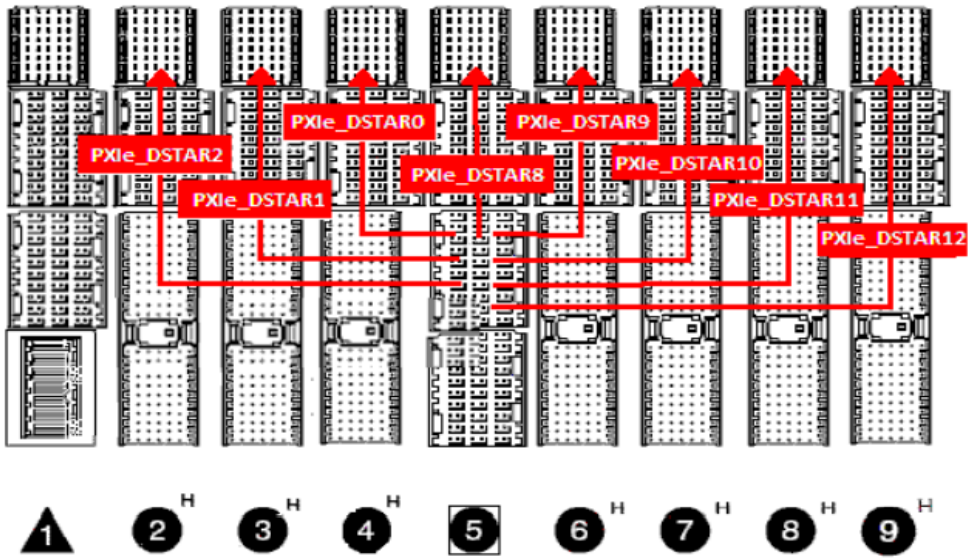


FIGURE 2-4 - CMX09A BACKPLANE DIFFERENTIAL STAR TRIGGER ROUTING

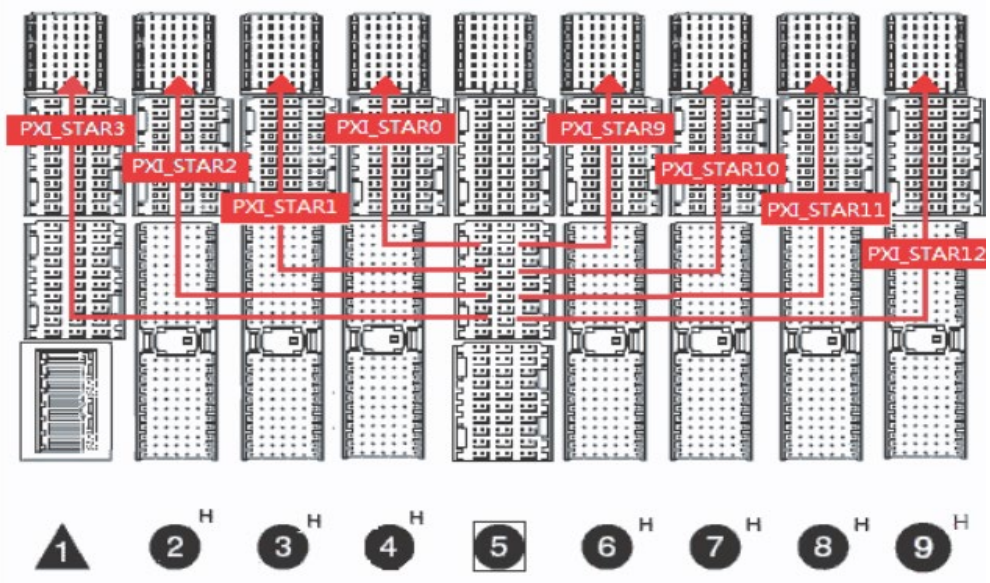


FIGURE 2-5 - CMX09A BACKPLANE SINGLE-ENDED STAR TRIGGER ROUTING

IEEE-1588 DISTRIBUTION

The CMX09A backplane contains a built-in mechanism for distributing an IEEE-1588-time source to the plug-in modules. This mechanism is only supported when using the EMX-2500 Gigabit Ethernet LXI controller which allows the time stamping of data from all plug-in modules on a common time-base for advanced timing and synchronization. In addition, it also provides the capability to synchronize PXI systems with LXI instruments.

SYSTEM MONITORING FOR SIMPLIFIED MAINTENANCE

The CMX09A has three LED on the front panel which reports the chassis status/health.

Status	Temperature (Amber)	Fan (Green)	Power (Blue)
On (Lit)	N/A	Fans operating normally	DC voltage supply is normal
Off	Temperature is normal	Chassis is powered down	Chassis is powered down
Blinking	One or more temperature sensors exceeds threshold temperature (default 70°C)	One or more fans falls below threshold speed (default is 800RPM)	One or more power rails exceeds threshold settings (defaults are ±5% for 5V, 3.3V, +12V, and -12V)

In addition, a DB-9 connector has been implemented in the rear of the chassis that allows for voltage monitoring and remote inhibit. Please refer to *Remote Voltage Monitoring* and Inhibit Control for detailed information.

TABLE-TOP DESIGN

The CMX09A's compact, and light-weight design makes it ideal for portable applications. There are no ventilation-holes on the top of the chassis, which protects the instruments from spills when used in industrial environments.

FIGURE 2-6 - TABLE TOP OPTION

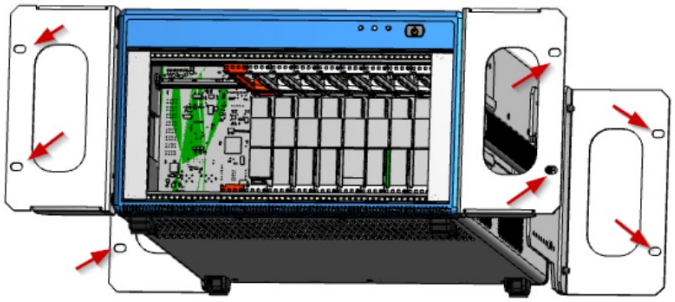


FIGURE 2-7 - RACK MOUNT OPTION

REFERENCE CLOCK

The CMX09A backplane supplies single-ended 10MHz reference clock (PXI_CLK10) and differential 100MHz clock (PXIe_CLK100) to each peripheral slot for inter-module synchronization. The independent buffers drive the clock signal to each peripheral slot. These common reference clock signals can synchronize multiple modules in a PXI Express chassis. PXI modules with phase-lock loop circuits can lock reference clocks to generate an in-phase time base.

The CMX09A PXI chassis automatically selects the 10 MHz reference clock source from

- ✓ Built-in accurate 10 MHz clock source
- ✓ External 10 MHz clock through a BNC connector
- ✓ PXI_CLK10_IN pin on the system timing slot

Priority of 10MHz reference clock is as follows

System Timing Slot (5th slot)	BNC connector on rear panel	10MHz clock driven to peripheral slots
No clock present	No clock present	10MHz clock is generated by backplane.
No clock present	10MHz clock present	Clock from BNC connector is driven to all peripheral slots
10MHz clock present	No clock present	Clock from system timing slot is driven to all peripheral slots
10MHz clock present	10MHz clock present	Clock from system timing slot is driven to all peripheral slots

EXTERNAL CLOCK

The CMX09A includes a pair of IN/OUT BNC connectors in the rear to allow for an external 10 MHz reference clock. When a 10 MHz clock signal is detected on the IN connector, the internal clock is phase locked to the external clock. This reference clock may also be driven by a system timing module in slot 5. System timing controllers are high-stability clock sources which provide the ability to drive the PXI star and PXI Express differential star triggers. In addition, timing controllers typically have the ability to import and export the PXI trigger lines on the backplane.

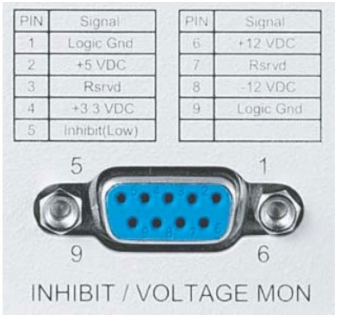
The OUT BNC connector provides a buffered, non-TTL version of the 10 MHz reference clock.

REMOTE VOLTAGE MONITORING AND INHIBIT CONTROL

The CMX09A features remote voltage monitoring and inhibit control through a DB-9 connector located on the rear of the chassis. The DB-9 connector is intended for voltage monitoring as well as using the inhibit functionality of the chassis. The DB-9 connector should not be used to provide power to external devices.

In order to use the remote inhibit functionality, remote inhibit must first be turned to MAN position which can be done through the rear panel inhibit switch. While remote inhibit is in MAN(Manual) position, the chassis will not shut down through the front panel switch. Once remote inhibit is in MAN(Manual) position, the chassis can only be shut down by connecting the remote inhibit pin (pin 5) to a ground pin (pin 1 or 9).

The following table outlines the pin assignment of the DB-9 connector.



CAUTION	**Do not short the DB-9 connector probe leads together. Doing so can cause permanent damage to the chassis.**

INNOVATIVE COOLING TECHNIQUES

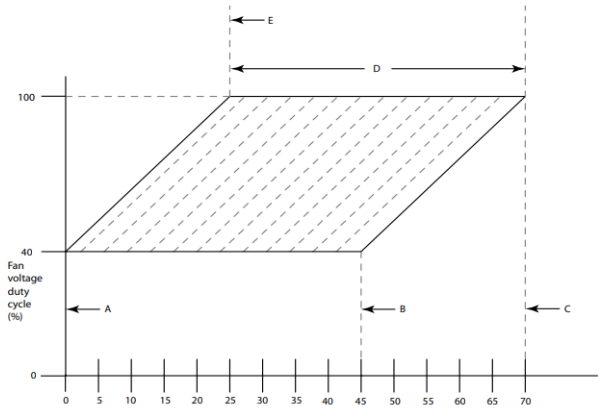
The innovative cooling techniques implemented on the CMX09A allow it to be a “True 4U chassis”.. The CMX09A uses innovative cooling methods to pull cool air from the front and sides of the chassis, rather than the top, and expels it from the rear. The temperature control mechanism monitors the temperature at the exhaust and automatically adjusts fan speed to optimize the internal temperature of the chassis.

THRESHOLD AND CONTROL

Provides operational and threshold settings for the CMX09A, including target temperature, fan mode, and threshold settings for DC voltage, temperature, and cooling fan speeds.

TARGET TEMPERATURE

Fans run at different speeds based on the monitored temperature when the Fan switch on the rear panel is set to AUTO. Target Temp indicates the temperature when the fans are at 100%. Using the default 50°C as an example, fans run at 40% when all temperature readings are less than 25°C, and begin ramp up when any reading exceeds 25°C. The fans run 100% speed if any temperature reading exceeds 50°C (Target Temperature). Target temperature setting parameters are as shown.



	Temperature	Event
A	0°C	Lowest chassis temperature at which fan speeds commence ramping up for final 25° temperature mark (see Item E)
B	45°	Highest chassis temperature at which fan speeds commence ramping up for final 70° temperature mark (see Item C)
C	70°	Highest maximum chassis temperature at which the fans reach maximum speed
D	25°C to 70°C (45 degree range)	Range over which maximum chassis temperature (at which fans reach maximum speed) can be set
E	25°C	Lowest maximum chassis temperature at which fans reach maximum speed

FIGURE 2-8 – TARGET TEMPERATURE PARAMETER

Target Temp can be set by entering the desired target temperature value in the field and clicking Set.

FAN SPEED

Auto is displayed when the cooling fans are set to auto mode and Full when the fans are set to run full speed. Selection of Auto or Full values and clicking Set directly changes cooling fan mode.

ALARM THRESHOLD

Active alarm threshold settings are shown, including DC voltage, temperature, and fan speeds. The updated threshold setting can also be set here, by entering the desired value and clicking Set Threshold Settings.

DETAILED SPECIFICATIONS

GENERAL SPECIFICATIONS

Total Slots	9 slots
PXI Express System Controller	1 slot (slot 1)
PXI Express Hybrid Peripheral	7 slots (slots 2, 3, 4, 6, 7, 8, 9)
PXI Express Timing	1 slot (slot 5)
Module Size	4U
Bandwidth	
Slot	2 GB/s
Mainframe	8 GB/s
Standards Compliance	PXI-5 PXI Express Hardware Specifications
	PXI-1 hardware specifications Rev 2.2

SYSTEM SYNCHRONIZATION CLOCKS

10 MHz System Reference Clock: PXI_CLK10	
Max slot-to-slot skew	300ps
Accuracy	±50 ppm Max
100MHz System Reference Clock: PXI_CLK100	
Max slot-to-slot skew	100 ps
Accuracy	±25 ppm Max
External 10 MHz Reference Out (from BNC OUT)	
Accuracy	±50 ppm max
Output Amplitude	1 Vpp, ±20% square wave into 50 Ω
	2 Vpp unloaded
Output Impedance	50 Ω ± 5 Ω

External Clock Source	
Frequency	10 MHz ± 100 ppm
Input Amplitude	100 mVpp to 5 Vpp square-wave or sinewave (Rear panel BNC)
	5 V or 3.3 V TTL Signal (System timing slot)
Rear panel BNC input impedance	50 Ω ± 5 Ω

MECHANICAL

Size	322 mm (W) x 190 mm (H) x 465 mm (D) (12.55” x 7.4” x 18.3”)
Weight	Weight: 9 kg (19.8 lbs)

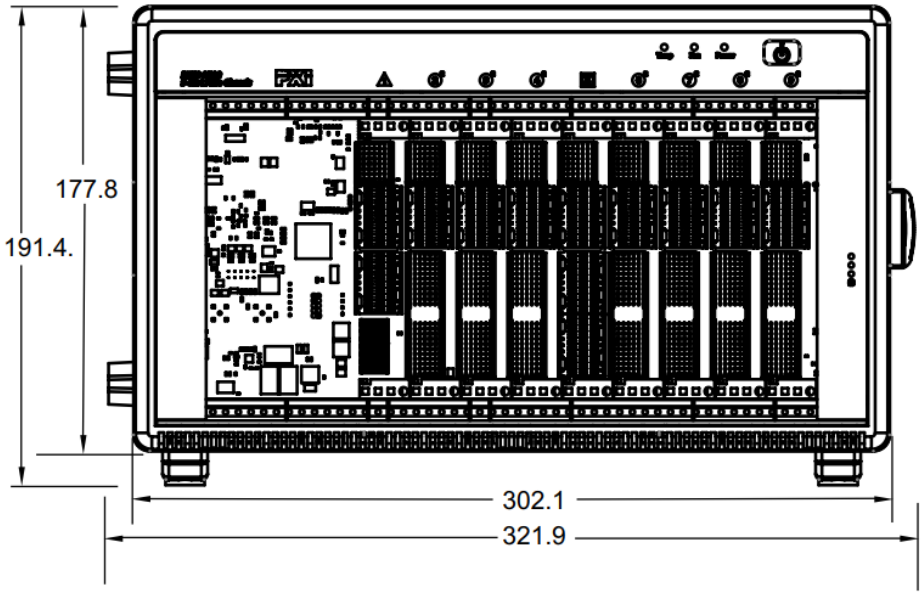


FIGURE 2-7 - FRONT VIEW

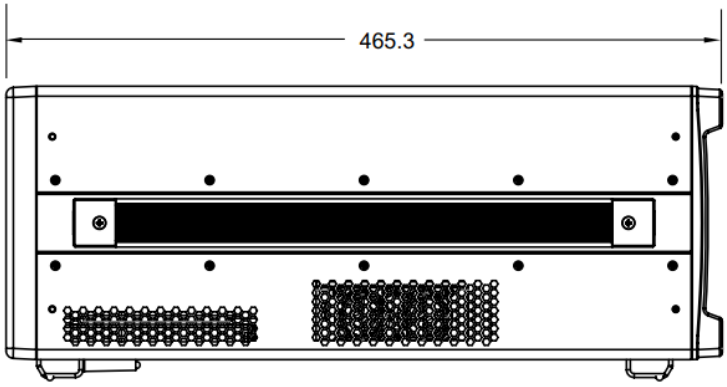


FIGURE 2-8- RIGHT VIEW

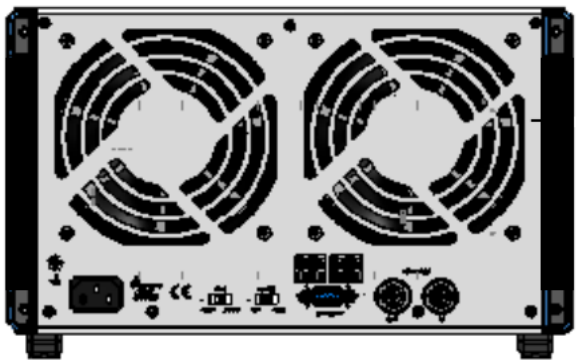


FIGURE 2-11 - REAR VIEW

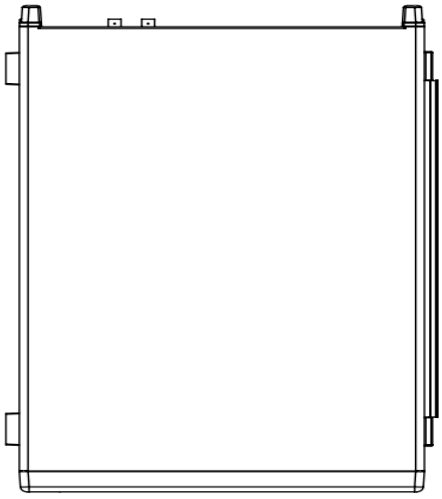


FIGURE 2-92 - TOP VIEW

ELECTRICAL

AC Input	
Input Voltage Range	85 to 264 VAC
Input Frequency range	47 to 63 Hz
Input current	Max 13 A @ 115 VAC, 10 A @ 230 VAC
DC Output	
Max DC Power Output	400 W
+3.3V Max Load	33 A
+5V Max Load	23 A
+12V Max Load	27 A
-12V Max Load	1.75 A

COOLING

Fans	Two 185.9 CFM fans with High / Auto speed modes
Chassis cooling intake	Bottom of front bezel, bottom panel of chassis
Chassis cooling exhaust	Rear of chassis
Slot airflow direction	Bottom of module to top of module

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	0°C to 55°C
Storage Temperature	-20 ° C to 70 °C
Humidity	10% to 90% non-condensing

SAFETY AND EMC

Safety Compliance	EN 61010-1
EMC Compliance	EN 61326-1 FCC Class A

SECTION 3

PREPARATION FOR USE

SYSTEM POWER REQUIREMENTS

The CMX09A operates from 85 V to 264 V AC at 47 to 63 Hz.

CONNECTING THE MAINFRAME TO EARTH GROUND

The supplied power cord grounding conductor provides adequate grounding for this voltage and frequency level. However, if an ungrounded power cord is to be used or if the power source is not grounded please use the following steps to connect the chassis to a safety ground.

1) Connect a 16 AWG (or larger) wire to the ground terminal located on the rear panel (this connection is marked by a symbol). Use a grounding lug with a star washer or a toothed lug, to make this connection.
2) Attach the other end of the wire to a permanent earth ground also using a star washer or a toothed lug.

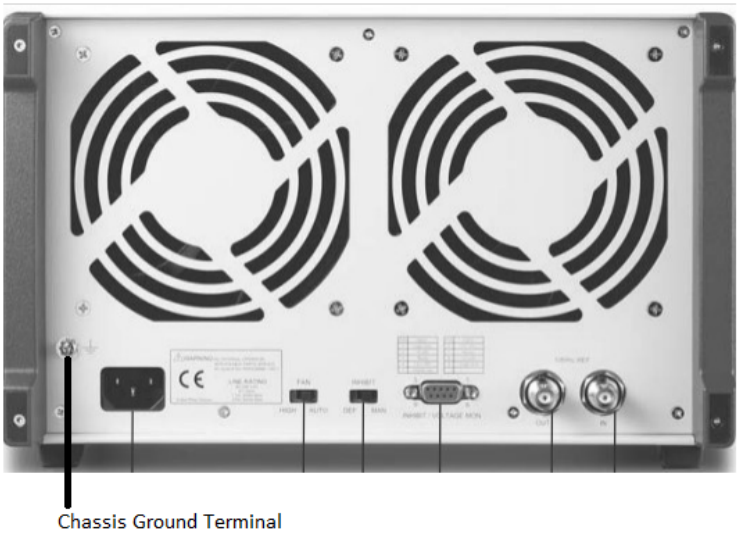


FIGURE 3-1 - CHASSIS GROUND TERMINAL

AIR FLOW REQUIREMENTS

The CMX09A is designed to intake air from the sides and front bottom of the unit. The fans pull air into the unit from the sides and front bottom ventilation ports of the unit and push it out of the rear.

There are no ventilation ports on the top of the chassis to prevent spills from entering and damaging the chassis.

Placing objects against the ventilation ports on either side of the chassis or against the rear of the unit will obstruct airflow and cause the chassis to overheat. Prolonged obstruction of ventilation can cause permanent damage to the chassis. Therefore, consideration should be given when placing objects around the chassis so that the airflow is not obstructed.

If the internal temperature reaches threshold the chassis will also immediately shut down.

When rack mounting the CMX09A, at least 1U (44.5 mm/1.75 in.) clearance below the intake apertures is required. Also keep other objects or equipment at a minimum of 76.2 mm (3 in.) away from the outlet apertures in the rear region of the chassis

TURNING ON THE CHASSIS

The chassis will not power on until a controller has been installed. A VTI controller (such as the EMX-2500) or similar controller must first be installed.

Turning on the Chassis

1) Ensure the power switch at the rear of the chassis is in the DEF position.
2) Connect the AC power cord.

CAUTION	**Do not turn on the chassis before inserting the controller into the chassis.**

3) Insert the controller into slot 1 (left-most slot; a triangle with a 1 inside of it is located above the slot). Take care that the card is properly mounted on the red brackets and that the ejector handle is fully engaged. When installed properly, the controller should not be able to be removed except by pressing down on the ejector handle. Please reference the *Plug-in Module* Installation and Removal section on page 27 if you have difficulty installing the controller; the installation process is the same as installing a plug-in module.
4) Attach the controller to the chassis with the Philip's screw located at the very top of the controller.
5) Finally, to turn on the chassis, press and hold the Power button on the front panel for 1.5 seconds.

PLUG-IN MODULE INSTALLATION AND REMOVAL

Required Tools

#2 Philips Screwdriver

Installing a Plug-In Module

1) Insert the module after aligning it with the top and bottom mounting brackets. The module should slide in with ease if properly aligned on the brackets. Make sure that the ejector handle is disengaged from the module and lowered completely (circled in black).

FIGURE 3-2 - PLUG-IN MODULE INSTALLATION STEP 1

2) Once the module has been slid as far back as possible, pull up on the ejector handle to lock the module into the chassis. The module should sit flush with the chassis and should not be able to be removed without disengaging the ejector handle. The red button should 'click' into place to once the ejector handle is fully engaged.

FIGURE 3-3 - PLUG-IN MODULE INSTALLATION STEP 2

3) Attach the module to the chassis with the Philip's screw located at the top and bottom of the module.

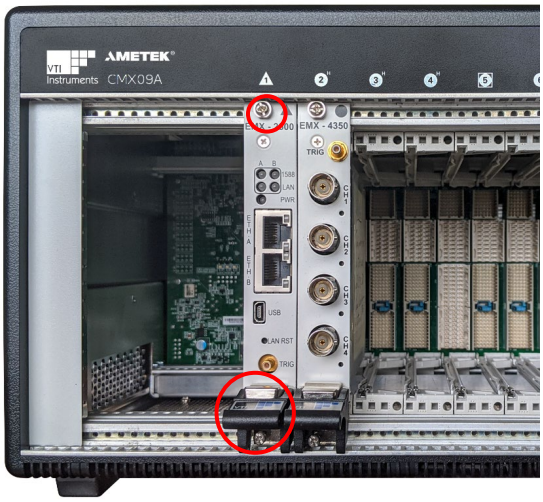


FIGURE 3-4 - PLUG-IN MODULE INSTALLATION STEP 3

Removing a Plug-In Module

1) Using a #2 Philips screwdriver, disengage the Philips screw located at the very top of the module. The screw does not have to be fully extracted from the module.

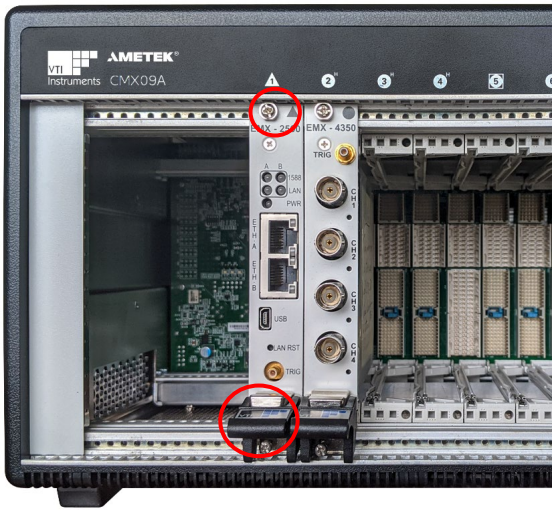


FIGURE 3-5 - PLUG-IN MODULE REMOVAL STEP 1

2) Press down on the button (marked in black) located on the ejector handle while simultaneously pressing down on the ejector handle (marked in red). Doing so will release the module from the chassis.

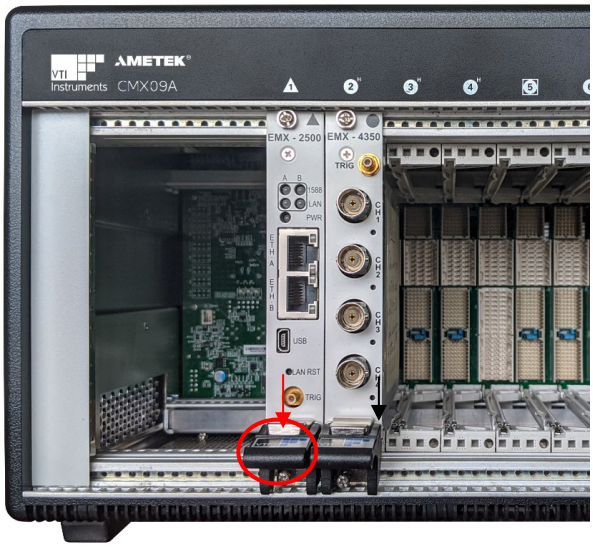


FIGURE 3-6 - PLUG-IN MODULE REMOVAL STEP 2

3) Slide the module out of the chassis.

INSTALLING THE BLANKING PANELS

Unused slots on the CMX09A should be covered with blanking panels. Blanking panels ensure that optimal air flow is achieved while the unit is in use. They also ensure that all air flowing through the chassis is first passed through the air filter to reduce the amount of maintenance that the chassis needs.

Assembly Preparation

The following part is needed for blanking panel installation:

Sequence	Stock Code	Description	Quantity
1	70-0698-200R	KIT, BLANK PANEL, CMX09A/CMX18A,QTY 9	1

Required Tools

#2 Philips Screwdriver

Installing a Blanking Panel

1) Acquire a blanking panel and the two Philips screws provided with the blanking panel.
2) Line the blanking panel vertically with the chassis so that the two holes of the blanking panel align properly with the holes on the chassis.
3) Install the two Philips screws using the #2 Philips Screwdriver to firmly attach the blanking panel to the chassis.

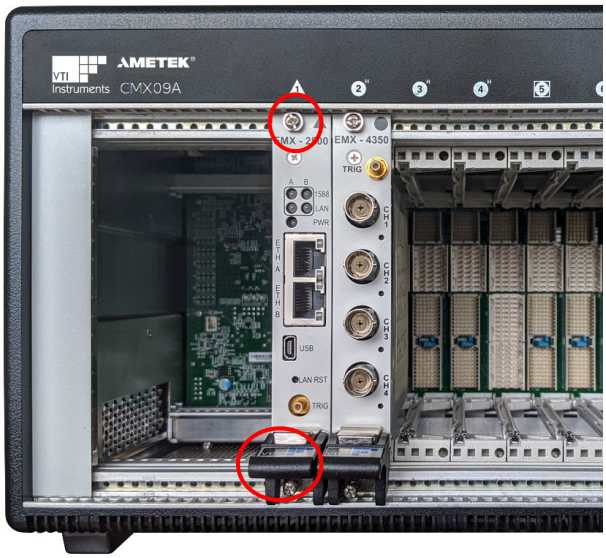


FIGURE 3-7 - BLANKING PANEL INSTALLATION

SECTION 4

BENCH-TOP USE

OVERVIEW

The CMX09A chassis, in its most basic form, is designed for bench-top use with its four rubberized pegs. In the event of a spill, the pegs prevent the chassis from being submerged in any spilled liquid. The rubberized pegs additionally prevent the chassis from accidentally being pushed off of tabletops or shelves.

The stock code to order the CMX09A preassembled with this option is: 70-0698-000R.

FIGURE 4-1 - TABLE TOP OPTION

RACK MOUNT OPTION

OVERVIEW

A rack mount option is offered for the CMX09A to provide a convenient way to store the chassis. Rack mounting the chassis also ensures that the chassis cannot be accidentally dropped or knocked over.

The stock code to order the CMX09A chassis and its rackmount kit are:

Model	Configuration
70-0698-000R	Chassis, CMX09A, 9-slot 4U PXI-e, 8GB/s, All Hybrid
70-0698-100R	F/A CMX09A Rackmount Kit

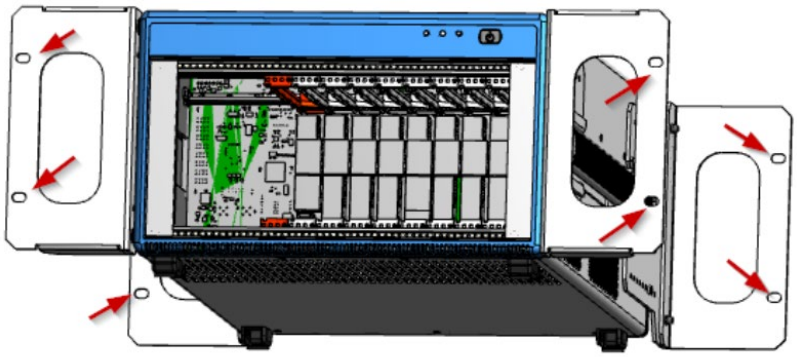


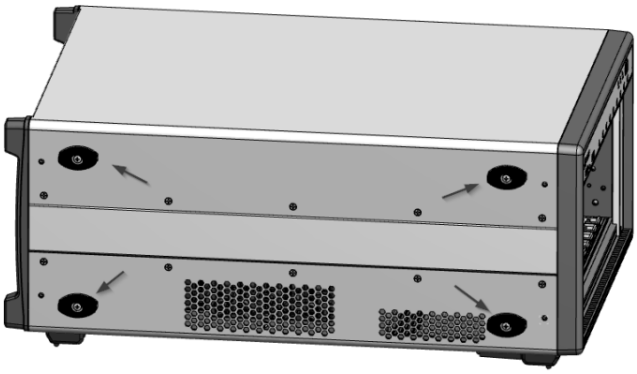
FIGURE 4-2 - RACK MOUNT OPTION

ASSEMBLY

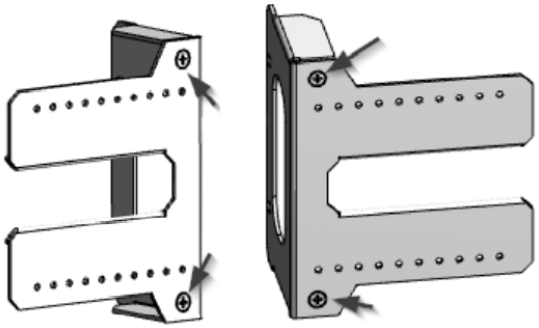
Tools: Phillips screwdriver M4 and M5.

Installation Procedure:

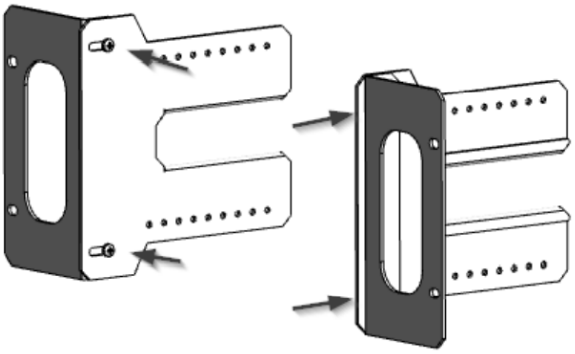
1. Remove 4 rubber feet and screws (M4).



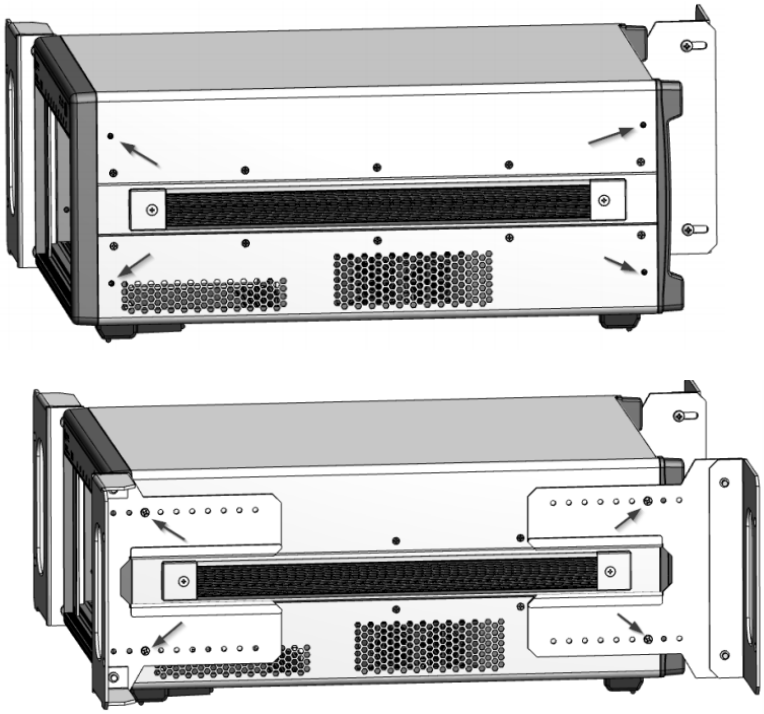
2. Assembly two front brackets with screws (M5).



3. Referring to dimension of installation position, assembly two rear brackets and screws (M5).

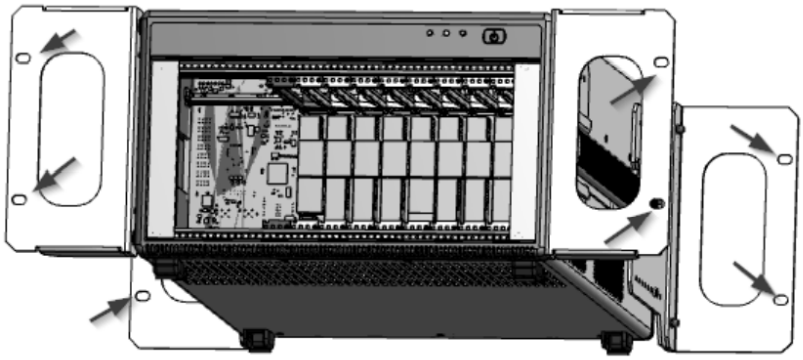


4. Referring to dimension of installation position, adjust position of brackets and install screws (M4). Go back to step 3 if necessary.



5. Install chassis with brackets into installation position.

Go back step 3 or step 4 to align bracket with installation position if necessary.



6. Installation is completed.

DISCONNECTING THE MAINFRAME

WARNING	The chassis may be extremely hot. Use caution when handling the chassis.

1) Turn off of the standby Power shown in below picture and disconnect the power cable from the back of the chassis.

FIGURE 4-2 – SYSTEM SHUTOFF

SECTION 5

MAINTENANCE AND TROUBLESHOOTING

INTRODUCTION

The following sections will cover various details of installation, troubleshooting and maintenance.

Installation problems

Inability to start the system frequently results from incorrect installation of the system controller, peripheral modules, and other components. Before starting the system, please ensure that:

- ✓ The system controller is properly installed and secured
- ✓ All peripheral modules are properly seated on the slots
- ✓ All cables are properly connected to the system controller and peripheral modules
- ✓ All installed peripheral modules are compatible for use in the chassis
- ✓ The power cord is securely plugged into the chassis power connector and power outlet/wall socket/power strip

If the system fails to start when all installation conditions are met, remove all installed peripheral modules, and try again. If the system starts normally, install one peripheral module at a time followed by powering up. You may also try installing the modules into different slots until the desired result is obtained

The short section below describes the indicators of common problems as well as how to fix them.

Troubleshooting

Fans are nonoperational	A previous user could have set the fan setting to OFF. The chassis is programmed to remember the most recent settings, meaning that even upon a reboot of the chassis the chassis will continue to operate with the most recent settings. Change the Fan settings in rear of chassis to AUTO will allow the software to adjust the fan speed to the appropriate setting.
Fans are running on the HIGH setting and the temperature of the chassis is not exceeding the maximum temperature	A previous user could have set the fan setting to HIGH. The chassis is programmed to remember the most recent settings, meaning that even upon a reboot of the chassis the chassis will continue to operate with the most recent settings. Change the Fan settings in rear of chassis to AUTO will allow the software to adjust the fan speed to the appropriate setting.
Fans are running on the LOW setting even when the temperature of the chassis is exceeding the maximum temperature	A previous user could have set the fan setting to LOW. The chassis is programmed to remember the most recent settings, meaning that even upon a reboot of the chassis the chassis will continue to operate with the most recent settings. Change the Fan settings in rear of chassis to AUTO will allow the software to adjust the fan speed to the appropriate setting.
The chassis will not shut down through the front panel switch	Inhibit is enabled (MAN) meaning that the chassis will not shutdown unless Inhibit is set to DEF.
The chassis will not turn on through the front panel switch	In the DEF (default) position, the front panel power button turns the power supply on/off, and in the MAN (manual) position, the INHIBIT pin on the DB-9 connector turns the power supply on/off.

System fails to power up	* The power cord is securely plugged into the chassis power connector and wall socket/power strip * The wall socket/power strip is live * The main power switch on the back of the chassis is turned on * The standby power button on the chassis front panel is turned on

Power LED (blue) is blinking	* There is no short circuit by removing all PXI modules (PXI controller and peripheral modules)
Fan LED (green) is blinking	* The fan is unobstructed
Temperature LED (amber) is blinking	* Airflow from the outlet apertures is unobstructed and steady; if not, ensure that adequate clearance for the intake apertures is pro-vided

Maintenance

Handling the Chassis:

The CMX09A is designed for both rackmount and benchtop use. When transporting or carrying the chassis, it is recommended that the handle be used, being designed to support the weight of the chassis for superior portability and balance.

Cleaning the Exterior

Make sure that the system is turned off before cleaning the chassis exterior. Wipe the exterior with a clean cloth starting from areas that easily accumulate dust or dirt such as the area in and around the chassis and power supply air intake apertures.

Power Requirements

Make sure that the power cord is in good condition before plugging it into the system. It is important to check the reliability of the power source. The CMX09A power supply is capable of handling 85 to 264 V AC within the 47 Hz to 63 Hz range. Do not connect the CMX09A to an already overloaded circuit

EXTERIOR

Before attempting to clean the chassis, ensure that the chassis is powered off and the power cord is removed. Specific instructions can be found in the

Wipe the exterior of the chassis with a clean cloth in order to remove dust and dirt that has accumulated on the chassis. Areas such as air inlets should be thoroughly cleaned of dust in order to maximize airflow to the unit.

INTERIOR

Before attempting to clean or disassemble the chassis, ensure that the chassis is powered off and the power cord is removed. Specific instructions can be found in the Removing and Replacing the Power Supply

TEMPERATURE DETECT

If the system is exceeding the maximum programmed temperature (Threshold temperature is 70°C) then the temperature LED (amber) will blink.

HANDLING THE CHASSIS AND CABLES

The CMX09A features two robust handles in order to be as portable as possible. The handles are designed to support the full weight of the chassis and it is strongly recommended that both handles are used during transportation.

All cables must be handled with care. The power supply cables run tightly against the frame of the chassis when routed to the backplane; therefore, the user must exercise extra care when inserting the power supply into the chassis to prevent pinching or tearing of the cables. Caution must also be exercised when removing the fans or power supply from the chassis since they are connected to the backplane. Forcing the fans or power supply out of the chassis without disconnecting their respective wires can seriously damage the backplane and/or destroy the wiring.