



**PRISM MPI2-25
Media Analysis Platform
Installation and Safety Instructions**

This document supports software version 2.1 and above.

www.telestream.net



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Table of Contents

Important compliance and safety information	ii
Preface.....	ix
Product description	ix
Documentation	xi
Conventions used in this manual	xi
Installation	1
Initial product inspection	1
Accessories.....	2
Operating requirements	3
Portable cabinet and dual rack cabinet installation	5
Connectors.....	6
SFP module installation	8
Power-on and power-off procedures.....	9
Operation	12
Display elements.....	12
Methods of operation	13

Important compliance and safety information

United States of America Compliance Notices

Class A Interference Statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15, Subpart B of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a commercial installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. 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.

FCC Caution

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 received, including interference that may cause undesired operation.

Safety

UL 61010-1: 2012 R4.16: Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use - Part 1: General Requirements.

Environmental

Perchlorate Materials: this product contains one or more type CR lithium batteries. According to the state of California, CR lithium batteries are classified as perchlorate materials and require special handling.

See www.dtsc.ca.gov/hazardouswaste/perchlorat for additional information.

Canada Compliance Notices

Department of Communications Radio Interference Regulations

This digital apparatus does not exceed the Class A limits for radio-noise emissions from a digital apparatus as set out in the Radio Interference Regulations of the Canadian Department of Communications. This Class A digital apparatus complies with Canadian ICES-003.

Reglement sur le brouillage radioelectrique du Quadstere des Communications

Cet appareil numerique respecte les limites de bruits radioelectriques visant les appareils numeriques de classe A prescrites dans le Reglement sur le brouillage radioelectrique du Quadstere des Communications du Canada. Cet appareil numerique de la Classe A est conforme a la norme NMB-003 du Canada.

Safety

CAN/CSA-22.2 NO. 61010-1-12 + Gil + GI2:: Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use - Part 1: General Requirements.

Sécurité

CAN / CSA-22.2 NO. 61010-1-12 + Gil + GI2 :: Exigences de sécurité pour l'électricité

European Union and European Free Trade Association (EFTA) Compliance Notices

This equipment may be operated in the countries that comprise the member countries of the European Union and the European Free Trade Association. These countries, listed in the following paragraph, are referred to as The European Community throughout this document:

AUSTRIA, BELGIUM, BULGARIA, CYPRUS, CZECH REPUBLIC, DENMARK, ESTONIA, FINLAND, FRANCE, GERMANY, GREECE, HUNGARY, IRELAND, ITALY, LATVIA, LITHUANIA, LUXEMBOURG, MALTA, NETHERLANDS, POLAND, PORTUGAL, ROMANIA, SLOVAKIA, SLOVENIA, SPAIN, SWEDEN, UNITED KINGDOM, ICELAND, LICHENSTEIN, NORWAY, SWITZERLAND

Declaration of Conformity

Marking by the "CE" symbol indicates compliance with the Essential Requirements of the EMC Directive of the European Union 2014/30/EU

This equipment meets the following conformance standards:

Safety

EN 61010-1: Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use - Part 1: General Requirements
Low Voltage Directive 2014/35/EU

Emissions

EN 55032: 2012 + AC: 2013, CISPR 32: 2015, EN 61000-3-2: 2014,
EN 61000-3-3: 2013

Immunity

EN 55103-2: 2009, EN 61000-4-2: 2009,
EN 61000-4-3: 2006 + A1: 2008 + A2: 2010, EN 61000-4-4: 2004 + A1: 2010,
EN 61000-4-5: 2006, EN 61000-4-6: 2009, EN 61000-4-11: 2004
Environments: E2

Warnings



Warning! This is a Class A product. In a domestic environment, this product may cause radio interference, in which case, the user may be required to take appropriate measures.



Achtung! Dieses ist ein Gerät der Funkstörgrenzwertklasse A. In Wohnbereichen können bei Betrieb dieses Gerätes Rundfunkstörungen auftreten, in welchen Fällen der Benutzer für entsprechende Gegenmaßnahmen verantwortlich ist.



Attention! Ceci est un produit de Classe A. Dans un environnement domestique, ce produit risque de créer des interférences radioélectriques, il appartient alors à l'utilisateur de prendre les mesures spécifiques appropriées.

Notes:

1. For Compliance with the EMC standards listed here, high quality shielded interface cables should be used.
2. Emissions which exceed the levels required by this standard may occur when this equipment is connected to a test object.

Environmental Compliance

This section provides information about the environmental impact of the product.

Product end-of-life handling

Observe the following guidelines when recycling an instrument or component:

Equipment recycling

Production of this equipment required the extraction and use of natural resources. The equipment may contain substances that could be harmful to the environment or human health if improperly handled at the product's end of life. To avoid release of such substances into the environment and to reduce the use of natural resources, we encourage you to recycle this product in an appropriate system that will ensure that most of the materials are reused or recycled appropriately.



This symbol on the product or its packaging indicates that this product complies with the applicable European Union requirements according to Directives 2012/19/EU and 2006/66/EC on waste electrical and electronic - equipment (WEEE) and batteries.

It also indicates that this product must not be disposed of with your other household waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste for recycling, please contact your local authority, or where you purchased your product.

Battery Recycling

This product may contain a rechargeable battery, which must be recycled or disposed of properly. Please properly dispose of or recycle the battery according to local government regulations.

Transporting Batteries or products with Batteries in them

The capacity of the lithium ion secondary battery shipped with this product is under 100 Wh. The lithium content of the installed primary battery is under 1 g. Each battery meets the applicable requirements of UN Manual of Tests and Criteria Part III Section 38.3. Battery quantity is under the limit for shipment according to Section II of the relevant Packing Instructions from the IATA Dangerous Goods Regulations. Consult your air carrier for applicability and determination of any special lithium battery transportation requirements.

Restriction of Hazardous Substances

This product is classified as an industrial monitoring and control instrument, and is not required to comply with the substance restrictions of the RoHS 3 Directives 2011 /65/EU and EU 2015/863 until July 22, 2021.

This product does, however, comply with the RoHS 2 Directive 2011/65/EU.

Korea Compliance Statement

A급 기기 (업무용 방송통신기자재)	이 기기는 업무용(A급) 전자파적합기기로서 판매자 또는 사용자는 이 점을 주의하시기 바라며, 가정외의 지역에서 사용하는 것을 목적으로 합니다.
Class A (Broadcasting Communication Equipment for Office Use)	As an electromagnetic wave equipment for office use (Class A), this equipment is intended to use in other than home area. Sellers or users need to take note of this.

Taiwan Compliance Statement

警告使用者：
這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

This is a Class A product based on the standard of the Bureau of Standards, Metrology and Inspection (BSMI) CNS 13438, Class A. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Japan Compliance Statement

この装置は、クラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。 VCCI-A

This is a Class A product based on the standard of the VCCI Council (VCCI 32: 2016). If this equipment is used in a domestic environment, radio interference may occur, in which case, the user may be required to take corrective actions.

Important Safety Information

This manual contains information and warnings that must be followed by the user for safe operation and to keep the product in a safe condition.

To safely perform service on this product, see the Service safety summary that follows the General safety summary.

General Safety Summary

Use the product only as specified. Review the following safety precautions to avoid injury and prevent damage to this product or any products connected to it. Carefully read all instructions. Retain these instructions for future reference.

Comply with local and national safety codes.

For correct and safe operation of the product, it is essential that you follow generally accepted safety procedures in addition to the safety precautions specified in this manual.

The product is designed to be used by trained personnel only.

Only qualified personnel who are aware of the hazards involved should remove the cover for repair, maintenance, or adjustment.

Before use, always check the product with a known source to be sure it is operating correctly.

While using this product, you may need to access other parts of a larger system. Read the safety sections of the other component manuals for warnings and cautions related to operating the system.

When incorporating this equipment into a system, the safety of that system is the responsibility of the assembler of the system.

To Avoid Fire or Personal Injury

Use proper power cord: Use only the power cord specified for this product and certified for the country of use. Do not use

the provided power cord for other products.

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. Before making connections to the input or output terminals of the product, ensure that the product is properly grounded. Do not disable the power cord grounding connection.

Power disconnect: The power cord disconnects the product from the power source. See instructions for the location. Do not position the equipment so that it is difficult to operate the power cord; it must remain accessible to the user at all times to allow for quick disconnection if needed.

Observe all terminal ratings: To avoid fire or shock hazard, observe all rating and markings on the product. Consult the product manual for further ratings information before making connections to the product. Do not apply a potential to any terminal, including the common terminal, that exceeds the maximum rating of that terminal.

Do not operate without covers: Do not operate this product with covers or panels removed, or with the case open. Hazardous voltage exposure is possible.

Avoid exposed circuitry: Do not touch exposed connections and components when power is present.

Do not operate with suspected failures: If you suspect that there is damage to this product, have it inspected by qualified service personnel.

Disable the product if it is damaged. Do not use the product if it is damaged or operates incorrectly. If in doubt about safety of the product, turn it off and disconnect the power cord. Clearly mark the product to prevent its further operation.

Before use, inspect voltage probes, test leads, and accessories for mechanical damage and replace when damaged. Do not use probes or test leads if they are damaged, if there is exposed metal, or if a wear indicator shows.

Examine the exterior of the product before you use it. Look for cracks or missing pieces.

Use only specified replacement parts.

Do not operate in wet/damp conditions: Be aware that condensation may occur if a unit is moved from a cold to a warm environment.

Do not operate in an explosive atmosphere.

Keep product surfaces clean and dry: Remove the input signals before you clean the product.

Provide proper ventilation: Refer to the manual's installation instructions for details on installing the product so it has proper ventilation.

Slots and openings are provided for ventilation and should never be covered or otherwise obstructed. Do not push objects into any of the openings.

Provide a safe working environment: Always place the product in a location convenient for viewing the display and indicators.

Be sure your work area meets applicable ergonomic standards. Consult with an ergonomics professional to avoid stress injuries.

Use only the Telestream rackmount hardware specified for this product.

Service Safety Summary

The Service safety summary section contains additional information required to safely perform service on the product. Only qualified personnel should perform service procedures. Read this Service safety summary and the General safety summary before performing any service procedures.

To avoid electric shock: Do not touch exposed connections.

Do not service alone: Do not perform internal service or adjustments of this product unless another person capable of rendering first aid and resuscitation is present.

Disconnect power: To avoid electric shock, switch off the product power and disconnect the power cord from the mains power before removing any covers or panels, or opening the case for servicing.

Use care when servicing with power on: Dangerous voltages or currents may exist in this product. Disconnect power, remove battery (if applicable), and disconnect test leads before removing protective panels, soldering, or replacing components.

Verify safety after repair: Always recheck ground continuity and mains dielectric strength after performing a repair.

Terms in the Manual

These terms may appear in this manual:



WARNING. Warning statements identify conditions or practices that could result in injury or loss of life.



CAUTION. Caution statements identify conditions or practices that could result in damage to this product or other property.

Terms on the Product

These terms may appear on the product:

DANGER indicates an injury hazard immediately accessible as you read the marking.

WARNING indicates an injury hazard not immediately accessible as you read the marking.

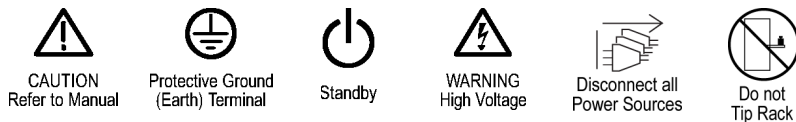
CAUTION indicates a hazard to property including the product.

Symbols on the Product



When this symbol is marked on the product, be sure to consult the manual to find out the nature of the potential hazards and any actions which have to be taken to avoid them. (This symbol may also be used to refer the user to ratings in the manual.)

The following symbol(s) may appear on the product:



General Safety Product Specific Statements

Use the product only as specified. Review the following safety precautions to avoid injury and prevent damage to this product or any products connected to it. Carefully read all instructions. Retain these instructions for future reference.

Comply with local and national safety codes.

For correct and safe operation of the product, it is essential that you follow generally accepted safety procedures in addition to the safety precautions specified in this manual. The product is designed to be used by trained personnel only.

Only qualified personnel who are aware of the hazards involved should remove the cover for repair, maintenance, or adjustment.

Before use, always check the product with a known source to be sure it is operating correctly.

This product is not intended for detection of hazardous voltages.

Use personal protective equipment to prevent shock and arc blast injury where hazardous live conductors are exposed.

When incorporating this equipment into a system, the safety of that system is the responsibility of the assembler of the system.

WARNING. *To prevent injury or death, power off the instrument and disconnect it from line voltage before cleaning.*

WARNING. *To reduce the risk of fire and shock, ensure that the mains supply voltage fluctuations do not exceed 10% of the operating voltage range.*

WARNING. *In the instrument, only the line conductor is fused for over-current protection. The fuse is internal and not user replaceable. Do not attempt to replace the fuse. If you suspect the fuse has blown, return the unit to an authorized service center for repair.*

CAUTION. *To reduce risk of fire and shock, use the certified power cord provided with the product.*

CAUTION. *Damage to the instrument can occur if this instrument is powered on at temperatures outside the specified temperature range.*

CAUTION. *To minimize the risk of damage to the instrument, we strongly recommend that the power cord be connected to the instrument before the power cord is connected to the AC power source.*

Preface

This manual describes how to install the PRISM Media Analysis Platform and provides basic safety and operating information. Detailed operating information is available in the user manual. A complete list of PRISM documentation is provided in this manual. (See *Documentation*.)

Product description

The PRISM Media Analysis Platform provides flexible options and field-installable upgrades to monitor a diverse variety of SDI and IP statistics as well as video and audio content. The comprehensive feature set, along with an intuitive and simplified graphical presentation of IP statistics, including video quality and diagnostic information, enables engineers to ensure the delivery of superior QoS levels in an increasingly complex broadcast environment involving compressed/uncompressed video transmission through SDI/IP signal paths. PRISM is an ideal solution for monitoring SDI/IP hybrid environments including master control rooms, production studios, OB vans, and signal contribution/distribution centers.



Features and benefits for analysis of hybrid IP/SDI infrastructures

- A comprehensive analysis and monitoring tool for a hybrid IP / SDI broadcast systems that provides system evaluation for long term system quality monitoring and reporting
 - All-in-one instrument within 3RU half rack platform with full HD 9-inch screen can be used for either portable or rackmount applications
 - Extensive IP monitoring solution for SMPTE 2022-6, 2110, PTP, and ASPEN streams
 - Graphical displays that show the traffic present in the 10G Ethernet link, allowing engineers to understand what is on their network and to easily select the stream of interest
 - Select a stream to view and monitor the content using the Picture, Waveform, and Audio applications, and listen to audio with headphones for conformance monitoring
 - Detect IP packet errors, monitor the packet inter arrival time (PIT) and time stamped delay factor (TS-DF) to allow engineers to observe issues that may cause intermittent loss of Video, Audio or Data
 - Monitor PTP trend graphs to ensure proper IP system setup for robust sync system
 - Telestream patented Timing display showing the relative timing of the input signal and PTP reference that makes facility timing easy
 - 1 PPS output when the instrument is locked to a PTP reference
 - Seamless switching to ensure proper SMPTE 2022 and 2110 redundant system operation API to control PRISM from system management software
 - Multipoint or remote site monitoring allowing one engineer to quickly respond to issues from multiple points in the system Optional 10 GbE line rate packet capture for offline analysis
 - Optional SDI and ST2110 IP signal generators for testing new or changing facility configurations
- The Picture application provides a full HD 9-inch screen that can be used for confidence monitoring NMOS IS-04 / IS-05 support for network discovery and connection management

Features and benefits for production tools supporting 4K/UHD, WCG and HDR content creation

- A comprehensive production tool set supporting 4K / WCG / HDR content creation
- SDI / IP hybrid interface supporting up to 4K resolution, up to 2160p60 format support with 12G-SDI / Quad 3G-SDI interface, and up to 1080p60 format with SMPTE 2022-6/7 and 2110.
- Stop display for monitoring video signals with a variety of transfer functions in a consistent manner
- Vector display equipped with a 3D LUT conversion, allowing operators to match skin tones of video signals to standard BT.709 vector locations and verify wide color gamut compatibility to BT.709 color gamut
- 12G-SDI physical layer measurements to check SDI signal quality and integrity

Documentation

Table 1: Product documentation

Document	Manual type	Part number		Availability	
				Print	Web
User Manual	User	D00010019x	Provides detailed operating information.		√
Release Notes	Release Notes	D00010030x	Describes the new features, improvements, and limitations of the instrument firmware.		√
Installation and Safety Instructions	User	071-3730-xx	Describes how to install a PRISM MPI2-25 instrument and provides basic safety and operating information (included with instrument).		√
PRISM MPI Dual Rack Cabinet Version 2 Installation Instructions	Field Install Instructions	071-3725-xx	Describes how to install an MPI instrument in a 19" equipment rack using the optional MPI-RACK-MM or MPI-RACK-MW dual rack cabinet.	√	√
PRISM MPI2-RACK-MD Installation and Safety Instructions	Field Install Instructions	071-3728-xx	Provides installation and safety information for the PRISM MPI2-RACK-MD Rack Cabinet with touch display.	√	√

Conventions used in this manual

These icons may be used throughout this manual.

Sequence Step



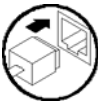
Front panel power



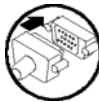
Connect power



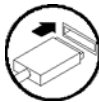
Network



SVGA



USB



Installation

Initial product inspection

Perform this product inspection procedure when you receive your instrument:

1. Inspect the shipping carton for external damage, which may indicate damage to the instrument.
2. Remove the PRISM monitor from the shipping carton, and then check that the instrument has not been damaged in transit. Prior to shipment the instrument is thoroughly inspected for mechanical defects. The exterior should not have any scratches or impact marks.

NOTE. Save the shipping carton and packaging materials for instrument repackaging in case shipment becomes necessary.

3. Verify that the shipping carton contains the instrument, the standard accessories, and any optional accessories that you ordered. (See *Accessories*.)
4. Verify that all of the product options you ordered are installed:
 - a. After you install and power-on the instrument, select the **Settings** icon.
 - b. Select the **Utilities** bar.
 - c. Select the **Options** bar.

The display lists all the installed product options (for example, MP2-IP-MEAS) and the license expiration dates. If an Expiration reads "None" then the license will not expire.

Exterior cleaning

The instrument exterior was inspected for debris when it was shipped. If necessary, you can clean the exterior of the instrument as follows.



WARNING. To prevent injury or death, power off the instrument and disconnect it from line voltage before cleaning.

Clean the exterior surfaces of the chassis with a dry lint-free cloth or a soft-bristle brush. If any dirt remains, use a cloth or swab dipped in a 75% isopropyl alcohol solution. Use a swab to clean narrow spaces around controls and connectors. Do not use abrasive compounds on any part of the instrument that may be damaged by it.



CAUTION. Avoid the use of chemical cleaning agents that might damage the plastics used in the instrument. Use only deionized water when cleaning the front-panel buttons. Do not use glass or chemical cleaners on the LCD touchscreen. Use a lint-free soft cloth to wipe the screen. The cloth can either be used dry or dampened with water or eyeglass cleaner. For the rest of the instrument, use a 75% isopropyl alcohol solution as a cleaner and rinse with deionized water. Before using any other type of cleaner, consult your Telestream Service Center or representative.

Accessories

Table 2: Standard and optional accessories

Accessory	Std.	Opt.	Telestream part number
PRISM MPI2-25 Installation and Safety Instructions	√		071-3730-xx
Power cord (See <i>International power cords.</i>)	√		NA
SFP and transceiver modules:			
SD/HD/3G Optical (1310 nm) SDI SFP transmitter module (to be installed into SDI SFP cage for optical SDI loop through output)		√	MP-SFP Opt. 3GTO
SD/HD/3G DIN SDI SFP transmitter module (to be installed into SDI SFP cage for SDI loop through output with DIN coaxial connector)		√	MP-SFP Opt. 3GTD
SD/HD/3G HDBNC SDI SFP transmitter module (to be installed into SDI SFP cage for SDI loop through output with HDBNC coaxial connector)		√	MP-SFP Opt. 3GTH
10G Ethernet short range (850 nm) transceiver module		√	MP-SFP Opt. 10GESR
10G Ethernet long range (1310 nm) transceiver module		√	MP-SFP Opt. 10GELR
25G Ethernet short range (850 nm) transceiver module		√	MP-SFP Opt. 25GESR
25G Ethernet long range (1310 nm) transceiver module		√	MP-SFP Opt. 25GELR
Portable cabinet		√	MPI2-PTBL
Dual rack cabinet (19 inch, 3RU)			
For one MPI2-25 unit or two MPI2-25 units side-by-side		√	MPI-RACK-MM
For one MPI2-25 unit or one MPI2-25 unit in a side-by-side installation with a WFM52x0, WFM7200, WFM8x00 instrument		√	MPI-RACK-MW

International power cords. Your instrument was shipped with one of the following power cord options. Power cords for use in North America are UL listed and CSA certified. Cords for use in areas other than North America are approved by at least one authority acceptable in the country to which the product is shipped.

- Opt. A0 – North America power cord
- Opt. A1 – Universal EUR power cord
- Opt. A2 – United Kingdom power cord
- Opt. A3 – Australia power cord
- Opt. A4 – 240 V, North America power cord
- Opt. A5 – Switzerland power cord
- Opt. A6 – Japan power cord
- Opt. A10 – China power cord
- Opt. A11 – India power cord
- Opt. A12 – Brazil power cord
- Opt. A99 ¹ – No power cord

¹ When ordering the A99 option, it is the responsibility of the end user to ensure that a certified power cord, for the country or region it is installed, is used with this instrument.



CAUTION. To reduce risk of fire and shock, use the certified power cord provided with the product.

Operating requirements

This section provides the environmental and power operating requirements for the instrument.

Environmental operating requirements

Check that the location of your installation has the proper operating environment as listed in Table 3.



CAUTION. Damage to the instrument can occur if this instrument is powered on at temperatures outside the specified temperature range.

Table 3: Environmental requirements


Parameter		Description
Temperature	Operating	0 °C to +40 °C
	Non Operating	–20 °C to +60 °C
Humidity	Operating	20% to 80% relative humidity (% RH) at up to +40 °C, non-condensing
	Non Operating	5% to 90% relative humidity (% RH) at up to 40 °C and derated linearly to 45% RH at 60 °C, non-condensing
Altitude	Operating	To 3,000 m (10,000 feet) Maximum operating temperature decreases 1 °C each 300 m above 1.5 km
	Non Operating	To 12,000 m (40,000 feet)
Cooling		Internal fans provide forced air circulation. Do not block ventilation openings.
	Bare Instrument (no optional sleeves)	To ensure proper airflow, there must be at least 2 inches of clearance on both sides of the instrument, at least 2 inches of clearance from the rear of the instrument, and at least a 1/2 inch of clearance from the top of the instrument.
	Portable Cabinet	Use only the Telestream portable cabinet, MPI2-PTBL, to ensure proper airflow with this instrument. When using the portable cabinet, the same minimum clearances as the Bare Instrument apply. The portable cabinet also needs the ventilation requirement like one in the Bare Instrument.
	Rack Cabinet	Use only the Telestream Dual Rack Adapter, MPI-RACK-MM or MPI-RACK-MW, to install this instrument in an equipment rack. To ensure proper airflow when installing the Dual Rack Adapter in a closed rack with solid walls, there must be at least 2 inches of clearance from both sides of the rack adapter frame to the rack side walls, at least 3 inches of clearance from the rear of the rack adapter frame to the rack's back wall, and at least a 1/2 inch of clearance from the top of the rack adapter to another rack adapter or installed instrument. The rack intake air to the side vents must not exceed 40 °C.

Electrical power requirements

The instrument operates from an AC power input. Check that your location provides the proper electrical power requirements as listed in the following tables.

AC line power. Use the proper power cord with the instrument. (See *International power cords*.) Table 4 lists the power requirements for the instrument.

Table 4: AC line power requirements

Parameter	Description
Line voltage range	100 - 240 VAC
	 WARNING. To reduce the risk of fire and shock, ensure that the mains supply voltage fluctuations do not exceed 10% of the operating voltage range.
Line frequency	50/60 Hz
Maximum power	150 W ¹

¹ Typical power 100 W.



WARNING. In the instrument, only the line conductor is fused for over-current protection. The fuse is internal and not user replaceable. Do not attempt to replace the fuse. If you suspect the fuse has blown, return the unit to an authorized service center for repair.

Physical characteristics

Table 5 lists the physical characteristics of a bare instrument that is not installed in one of the optional portable or dual rackmount cabinets.

Table 5: Physical characteristics

Parameter	Description
Dimensions	
Height	13.72 cm (5.4 in.)
Width	Chassis: 20.83 cm (8.2 in.) Bezel: 22.10 cm (8.7 in.)
Depth	29.85 cm (11.75 in.)
Weight	
Net	Approximately 3.3 kg (7.3 lb.)
Shipping	Typically 10.64 kg (23.4 lb.)

Portable cabinet and dual rack cabinet installation

Portable cabinet installation

If you ordered the optional portable cabinet (MPI2-PTBL), install the PRISM monitor into the cabinet as shown below. Secure the instrument in the cabinet by installing the two supplied screws in the rear of the instrument. The front feet on the bottom of the cabinet can fold out to aid your viewing of the display.

The protective front cover is designed to protect the screen from damage when the instrument is being transported. To install the front cover, push the cover onto the instrument until the tabs on both sides click into place. No fasteners are required. To remove the front cover, gently pull outward on the side tabs and slide the cover off of the instrument.

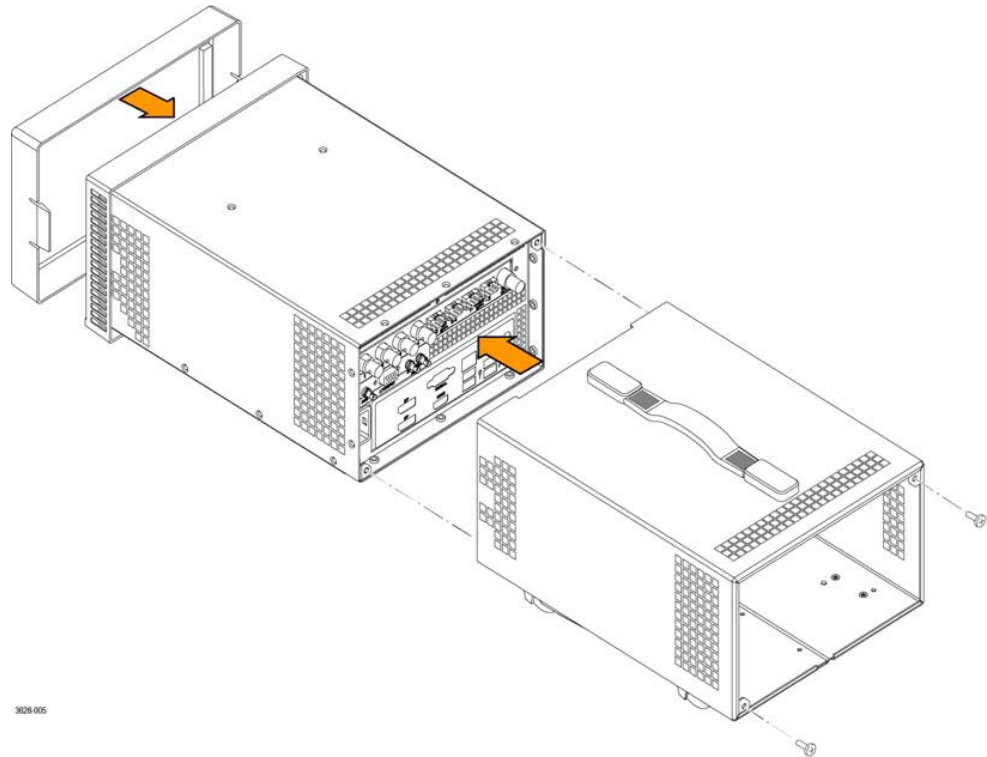


Figure 1: Install the portable cabinet

Dual rack cabinet installation

There are two optional dual-rack cabinets (19-inch, 3RU) available for the PRISM monitor.

- **MPI-RACK-MM.** Allows you to install one MPI2-25 unit or two MPI2-25 units side-by-side. The front of the cabinet has two USB ports and a headphone jack for each MPI2-25 unit.
- **MPI-RACK-MW.** Allows you to install one MPI2-25 unit or one MPI2-25 unit in a side-by-side installation with a WFM52x0, WFM7200, or WFM8x00 instrument. The front of the cabinet has two USB ports and a headphone jack for one MPI2-25 unit.

Connectors

Figure 2 shows the external connections to the instrument. A description of each connector is provided in Table 6.

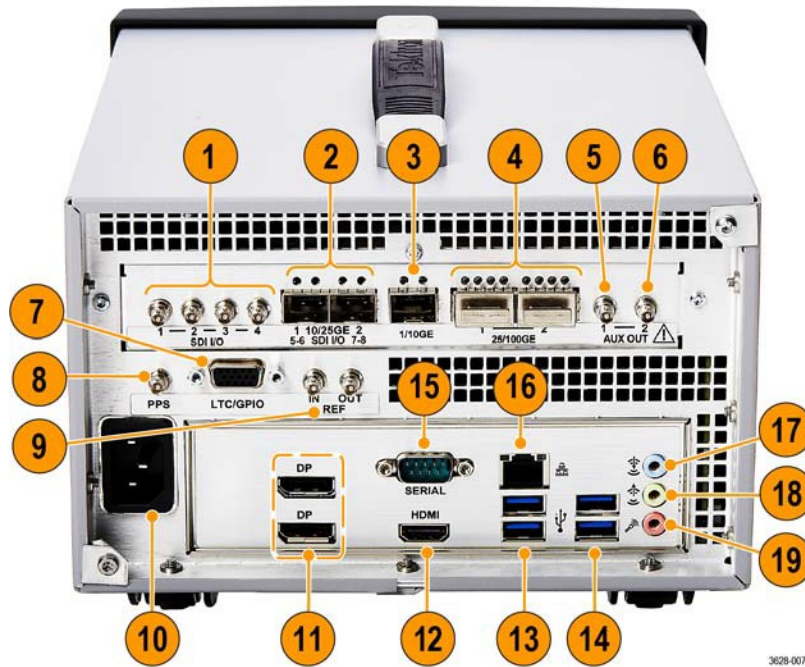
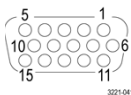


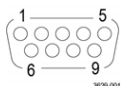






Figure 2: PRISM rear panel

Table 6: Descriptions of PRISM MPI2-25 rear panel connectors

Item number (See Figure 2.)	Connector label, symbol, or end	Description
1	SDI I/O	<p>Four HD-BNC inputs can operate in 4 modes:</p> <ul style="list-style-type: none"> SDI inputs 1-4 support SD/HD/3G/6G/12G signals. Single SDI link (Option MP2-FMT-4K is required for 6G/12G support), when used as a single link, only one of the SDI 1-4 inputs is active at a time. Quad 4K links, when used in conjunction with the SDI 1-4 inputs (Option MP2-FMT-4K only). When used as Quad 4K links, all four SDI inputs are active. Eye diagram is up to 12G on SDI input 1 only for physical layer measurements, including automated measurement of 12G-SDI eye pattern parameters (requires Options MP2-FMT-4K and PHY).
2	10/25GE SDI I/O	<p>Two SFP module slots can be configured for SDI or IP applications.</p> <ul style="list-style-type: none"> 10/25GE Two optional SFP+ ports are for 10/25GbE Ethernet applications. See MP-SFP products for available modules. SDI I/O Two optional SFP+ ports can provide up to four SDI signal loop-through outputs, up to 12G for future functionality.
3	1/10GE	SFP IP port is for future functionality.
4	25/100GE	Two QSFP28 ports are for future functionality.

Item number (See Figure 2.)	Connector label, symbol, or end	Description
5	AUX OUT 1	SDI output of the selected SDI, ST2022, or ST2110 input: <ul style="list-style-type: none"> Quadlink inputs (4k/8k) the Aux out is link 1 ST2110-20/30 inputs are supported.
6	AUX OUT 2	SDI output of the selected SDI, ST2022, or ST2110 input: <ul style="list-style-type: none"> Quadlink inputs (4k/8k) the Aux out is link 1 ST2110-20/30 inputs are supported.
7	LTC/GPIO 	LTC/GPIO is a D-type, 15-pin connector for future functionality.
8	PPS	PPS connector outputs a 1 PPS (pulse per second) signal when the instrument is locked to a PTP reference. 3.3v drive. TTL compatible.
9	REF IN – OUT	REF IN is used for analog reference signals black burst and tri-level sync for locking. REF OUT is a pass through of the REF IN.
10		Connector is for an AC power source.
11	DP	Two DisplayPort outputs are for external monitors. The output video format is 1920×1080. ^{1,2}
12	HDMI	HDMI port output is for an external monitor. The output video format is 1920×1080. ^{1,2}
13		Two USB 3.0 ports are for connecting a mouse and keyboard, importing or exporting instrument presets, upgrading the instrument firmware, or saving screen and stream captures.
14		Two USB 3.0 ports are for connecting a mouse and keyboard, importing or exporting instrument presets, upgrading the instrument firmware, or saving screen and stream captures.
15	 SERIAL	Serial interface, 9-pin connector, is not used.
16		Ethernet port is a standard RJ-45 connector for 10/100/1000Base-T Ethernet cable.
17		Audio input port is for future use.
18		Audio output (1/8-inch—3.5mm—line out) port is for headphones to listen to the selected audio channel pair. ³
19		Microphone input port is for future use.

SFP module installation

There are several types of optional SFP modules available. (See Table 2.)

To install the SFP module, you will first need to remove the plug from the SFP connector. Insert the SFP module into the SFP connector as shown below (optical SFP module shown). The module will latch into place when fully inserted.

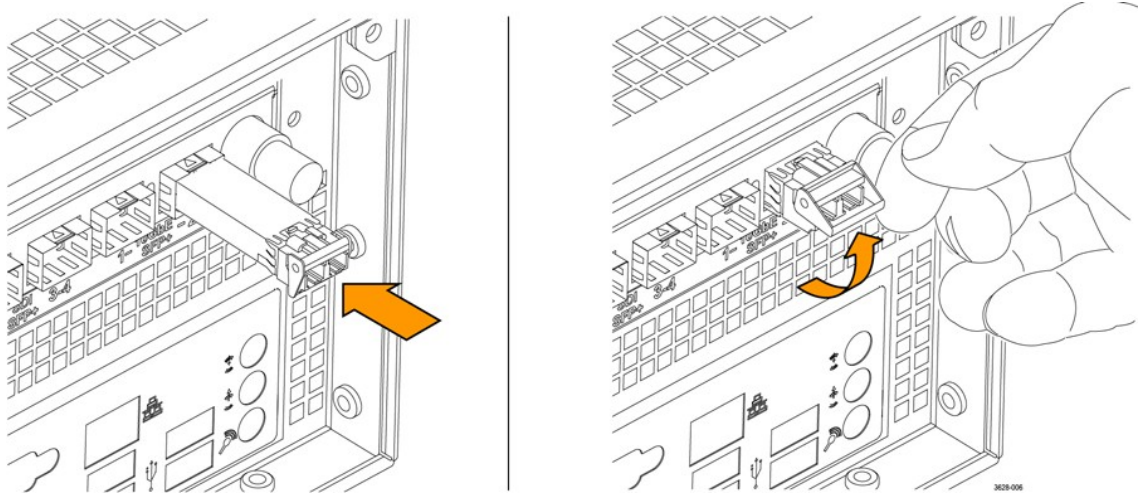


Figure 3: Installing and removing an optical SFP module

To remove the optical SFP module, lift up on the latch and then pull the module out of the SFP connector as shown above (optical SFP module shown).

NOTE. An optical SFP module is shown above. Other types of SFP modules may have different latching mechanisms.

SFP module transportation



CAUTION. To prevent static damage to the SFP module, if you remove the SFP module from the instrument, always transport the SFP module in an anti-static bag or container.

Power-on and power-off procedures

This section describes how to apply power to the instrument and how to power-on and power-off the instrument.

Power cord installation

This instrument is powered by an AC power source. Connect the power cord to the power connector on the rear panel of the instrument as shown below. The power connector is keyed to be directional, with the flat portion of the power cord housing facing the left of the instrument (as viewed from the rear). When fully inserted, the power cord housing latches onto the instrument power connector.



CAUTION. To minimize the risk of damage to the instrument, we strongly recommend that the power cord be connected to the instrument before the power cord is connected to the AC power source.

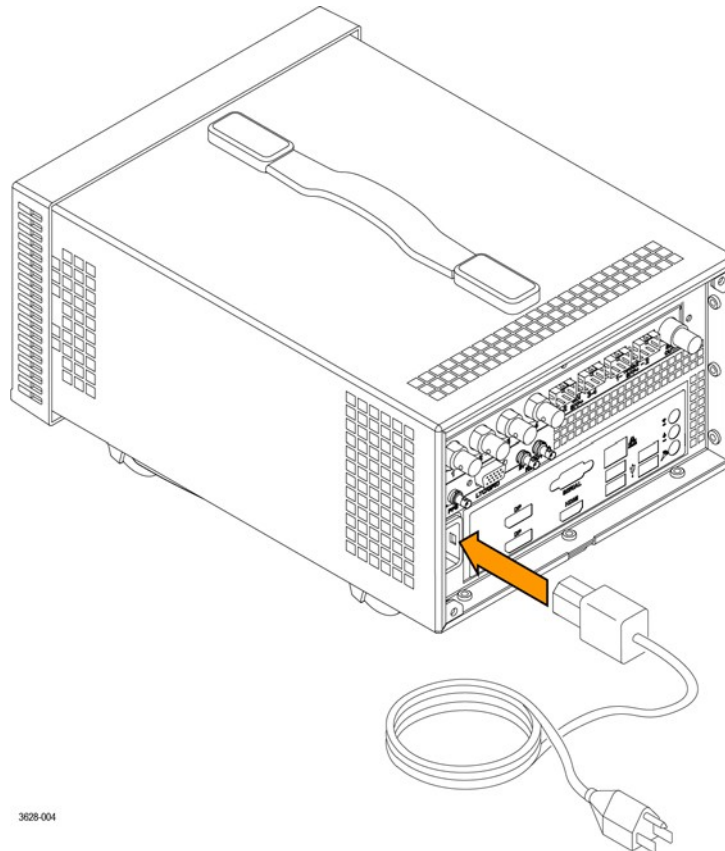


Figure 4: Connecting the power cord to the instrument

Power-on procedure

1. Apply power to the instrument. (See *Power cord installation*.)

NOTE. If the PRISM monitor was previously powered off by a power interruption or by removing the power cord from the rear of the instrument, the instrument will power on when power is reapplied.

2. Press the **Power/Standby** button on the instrument front panel to turn the instrument on.

NOTE. The Power/Standby button illuminates during the power-on sequence and then turns off during normal instrument operation.



Figure 5: Front of the MPI with the power button marked

Power-off procedure

1. Press the **Power/Standby** button on the instrument front panel to turn the instrument off.



CAUTION. To prevent data loss, we strongly recommend that you first shut down the instrument using the power button or select **Settings**, **Utilities**, **Power**, and then **Power Down Now** before disconnecting the power cord.

2. To completely remove power from the instrument, disconnect the power cord from the instrument. The power cord has a locking mechanism to keep it attached to the instrument. Push the button on the cord housing to release the locking mechanism.

Operation

Display elements



Figure 6: Elements of the front panel

Item number (See Figure 6.)	Description
1	Application name. Lists the name of the displayed application.
2	Application tile 1. ¹
3	Application tile 3. ¹
4	<p>Status bar. The right side of the status bar lists instrument status such as the selected input, type of input signal, selected signal reference, video/reference signal status, audio channel status, the real time clock setting, and the message center.</p> <p>The left side of the Status bar has icons with links to various instrument setting menus, presets, audio volume control, and status readouts. Select the Home icon to exit any displayed menus.</p>
5	Power / Standby button. Press the button to turn the instrument on or off. To completely remove power from the instrument, remove the power cord.
	<p>CAUTION. To prevent data loss, we strongly recommend that you first shut down the instrument using the power button or the Settings > Utilities menu before disconnecting the power cord.</p>
6	Application tabs. Some applications have selectable tabs (highlighted readouts) you can use to display additional information.
7	Application tile 4. ¹
8	Application tile 2. ¹

¹ The application panels can be shown in four-tile mode, full screen mode, or in vertical extended tile mode.

Methods of operation

This section describes the four primary methods of operating the instrument:

- Front panel touchscreen
- Keyboard and mouse
- External touchscreen display
- Remote control through VNC

Front panel touchscreen operation

Figure 7 shows the instrument display with the application selection menu open in tile four.

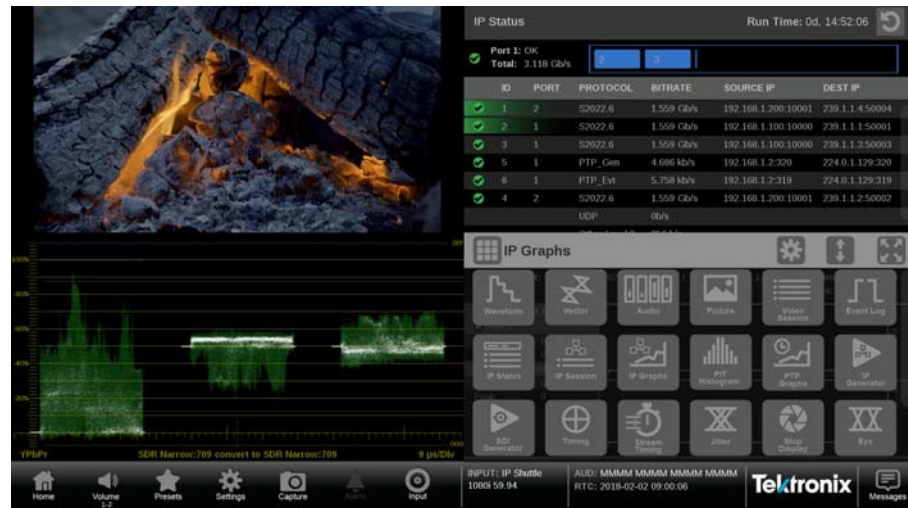








Figure 7: PRISM display in four-tile mode

Supported touchscreen gestures. You can use these touchscreen gestures to control the instrument:

- Touch or tap the screen to select display elements.
- Touch and hold on a tile to open the application banner to access the application controls or switch applications.
- Double tap an application banner to toggle the display between four-tile and a full-screen display of the selected application.
- Swipe up/down or left/right as necessary to navigate menus and preset listings and to view additional application information.
- Some applications support pinch and zoom.

NOTE. The terms "press and hold", "tap", "swipe", and "pinch" apply to the touchscreen on the instrument. If you are using a mouse and keyboard you must "click and hold", "click", "scroll" and use the scroll wheel on the mouse.

How to select or control an application to display.

1. Press and hold on an open application to open the application menu.
2. If necessary, touch the  icon to open the list of available applications. (See Figure 6.)
3. Press, hold, and drag an application icon to reorder the application list to best match your workflow.
4. Touch the desired application icon to display that application.
5. If available, touch or tap the  icon in the menu bar to open the settings menu for the application.
6. Touch or tap the  icon in the menu bar to change the selected application display to full screen.
7. Touch or tap the  icon in the menu bar to change the selected application display to vertical extended mode. The vertical extended mode is useful for when you want to view two application displays side-by-side. When an application display is in vertical extended mode, touch or tap the  icon in the menu bar to return to quarter tile mode.
8. If available, touch or tap the  icon to clear or reset the selected display.

Keyboard and mouse operation

You can use a USB keyboard and mouse to operate the instrument. The mouse needs to have a scrolling wheel in order to access all of the menu selections. Click or click and hold on applications to perform actions like you would on the touch panel.

Connect the keyboard and mouse as follows:

- Use the USB ports on the rear panel of the instrument
- Use the USB port on the front of the optional dual rack cabinet (MPI-RACK-MM or MPI-RACK-MW)

External touchscreen display operation

You can use an external touchscreen display to control the instrument. Two connections are required:

- Connect the Display Port output from the PRISM monitor to the input on the external device.
- Connect the USB output of the external device to one of the USB ports on the PRISM monitor.

NOTE. A monitor with a 1920×1080 capable display works best with the instrument.

Remote control through VNC operation

When the PRISM monitor is connected to an Ethernet network, you can use a computer connected to the same network to remotely control the instrument in a web browser or in a VNC client such as VNC Viewer. Connect to the PRISM monitor by using VNC:

VNC client. When using VNC for extended periods of time, we recommend using a VNC client:

1. On the PRISM monitor to connect to, select **Settings** and then select **Network**.
2. Find the Control IP Port IP address of the instrument.
3. On your computer, open your VNC client and enter the IP address of the Control IP Port of the instrument in the VNC Server search bar.

NOTE. A unique PRISM Hostname can be used instead of the IP address. To set a Hostname, select **Settings** and then select **Network**, and select the **Web Remote** tab.

The VNC client connects to the instrument in a separate window that appears exactly like the instrument display.

Web browser. To connect to the instrument through a web browser:

1. On the PRISM monitor to connect to, select **Settings**, then select **Network**, and find the Control IP Port IP address of the instrument.

2. In a web browser, enter the address

<http://xxx.xxx.xxx.xxx:6080/vnc.html>

where xxx.xxx.xxx.xxx is the IP address of the Control IP Port of the instrument.

NOTE. If you have set a unique Hostname for the instrument, enter it in the browser address bar and select the **noVNC Access** link.

This opens a login web page. (See Figure 8.)



Figure 8: noVNC login web page

1. In the Control bar, click the **Settings** icon (⚙️) to open the Settings dialog box. (See Figure 9.)
2. In the Settings dialog, use the Scaling Mode drop-down list to select **Local Scaling**, and then click **Apply**.

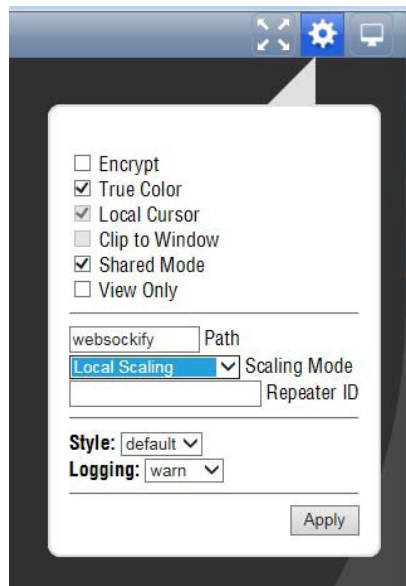


Figure 9: noVNC login web page

3. In the Control bar, click the **Connect** icon (💻) to open the Connect dialog. (See Figure 10.)
4. In the Settings dialog box, enter the default password **PRISM**, and then click **Connect**.

NOTE. A unique PRISM Hostname can be used instead of the IP address. To set a Hostname, select **Settings** and then select **Network**, and select the **Web Remote** tab.

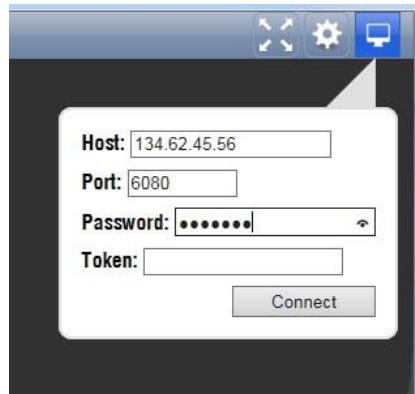


Figure 10: noVNC login web page

5. The Web browser connects to the instrument with the browser display appearing exactly like the instrument display, but with a slower update rate.

