# PT-G7728/G7828 Quick Installation Guide

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Technical Support Contact Information www.moxa.com/support



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P/N: 1802077280414

# Package Checklist

Moxa's PT-G7728/G7828 industrial rackmount switch is shipped with the following items. If any of these items are missing or damaged, please contact your customer service representative for assistance.

- 1 PT-G7728 or G7828 switch
- USB cable (Type A male to Micro USB type B)
- 2 protective caps for unused ports, 3 protective caps for unused USB ports
- 2 rackmount ears
- Quick installation guide (printed)
- Substance Disclosure Table
- Product Certificate of Quality Inspection (Simplified Chinese)
- Product Notices (Simplified Chinese)
- Warranty card

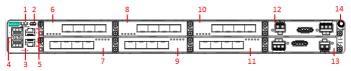
NOTE You can find information and software downloads on the relevant product pages located on Moxa's website: www.moxa.com/

# **Default Settings**

- Default IP address: 192.168.127.253
- Default Subnet Mask: 255.255.255.0
- Default Usernames: admin, user
- Default Password: moxa

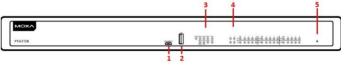
#### **Panel Layouts**

#### Front Panel



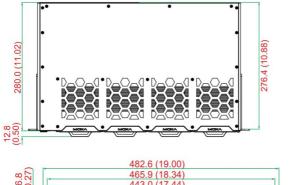
- System status LEDs (from left to right) STATE LED indicator, MSTR/HEAD LED indicator, FAULT LED indicator, CPLR/Tail LED indicator, SYNC LED indicator
- 2. USB console port
- 3.  $2 \times 10/100/1000BaseT(X)$  and  $2 \times 100/1000Base$  SFP ports
- 4. 100/1000Base SFP port status LEDs
- 5. 10/100/1000BaseT(X) port status LEDs
- 6. Ethernet module slot 1
- 7. Ethernet module slot 2
- 8. Ethernet module slot 3
- 9. Ethernet module slot 4
- 10. Ethernet module slot 5
- 11. Ethernet module slot 6
- 12. Power module slot 1
- 13. Power module slot 2
- 14. Grounding screw

#### **Rear View**

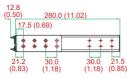


- USB console port
- 2. USB storage port
- 3. System LED indicators
- 4. Module and port LED indicators
- 5. Reset button

## Dimensions



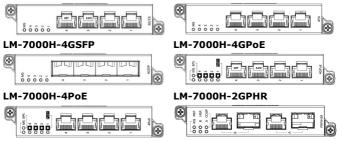




Unit: mm (inches)

# **Ethernet Modules**

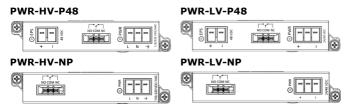
#### LM-7000H-4GTX



LM-7000H-4TX

- **NOTE** The LM-7000H-2GPHR module enables the device to interact with a redundancy network using the High-Availability Seamless Redundancy (HSR) and Parallel Redundancy (PRP) protocols. To use this module, the PT-G7728 switch must have Firmware V6.2 or higher.
- **NOTE** The LM-7000H-2GPHR module is only supported in slot 5 of the PT-G7728 Series.

# **Power Modules**



# **Rack Mounting Instructions**

- Elevated Operating Temperature: If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room temperature. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (Tma) specified by the manufacturer.
- **NOTE** In order to ensure reliable operations, please make sure the operation temperature of the environment does not exceed the spec. When mounting a rack-mounted switch with other operating units in a cabinet without forced ventilation, it is recommended that 1U of space is reserved between each rack-mounted switch and/or device. It is the responsibility of the user to ensure that the equipment is installed, operated, and used for its intended function in the manner specified by Moxa.
  - **2. Required Air Flow:** Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.
  - **3. Mechanical Loading:** Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.
  - 4. Circuit Overloading: Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.
  - Reliable Grounding: Rack-mounted equipment should be reliably grounded and should not be removed when the equipment is energized. We suggest to use a conductor that is 0.75 mm<sup>2</sup> or 18

AWG and the thread diameter should be at least 3.5 mm. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips).

**NOTE** The rackmount ears can be installed on the front or rear of the PT-G7728/G7828 switch.



# ATTENTION

#### Safety First!

Be sure to disconnect the power cord before installing and/or wiring your Ethernet Switch. Calculate the maximum possible current in each power wire and common wire. Observe all electrical codes dictating the maximum current allowable for each wire size. If the current goes above the maximum ratings, the wiring could overheat, which can cause serious damage to your equipment.



# WARNING

This is a Class 1 laser/LED product. Do not stare directly into the laser beam.

# **Connecting the Power Inputs**

The PT-G7728/PT-G7828 switches support 4 types of power supply:

- PWR-HV-P48: one 110/220 VAC/VDC (90 to 264 VAC, 88 to 300 VDC), one 48VDC PoE power input for PoE+ ports.
- PWR-LV-P48: one 24/48 VDC (18 to 72 VDC), one 48 VDC PoE power input for PoE+ ports.
- PWR-HV-NP: one 110/220 VAC/VDC (90 to 264 VAC, 88 to 300 VDC).
- PWR-LV-NP: one 24/48 VDC (18 to 72 VDC).

For the PWR-HV-P48, the 110/220 VAC/VDC power supplies provide power to the switch. Separate 48 VDC power supplies are required to provide power to 12 PoE+ ports (50 to 57 VDC is recommended for IEEE 802.3at devices).

For the PWR-LV-P48 models, the 24/48 VDC power supplies provide power to the switch. Separate 48 VDC power supplies are required to provide power to 12 PoE+ ports (50 to 57 VDC is recommended for IEEE 802.3at devices).

In order to provide power to 24  $\ensuremath{\mathsf{PoE}}\xspace+$  ports, two power modules should be used.

For the PWR-HV-NP, the 110/220 VAC/VDC power supplies provide power to the switch.

For the PWR-LV-NP, the 24/48 VDC power supplies provide power to the switch.



# WARNING

Do not disconnect modules or wires unless power has been switched off or the area is known to be non-hazardous. The device may only be connected to the supply voltage shown on the type plate. The device is designed for operation with a Safety Extra-Low Voltage (SELV) or an isolated power supply, which means that they may only be connected to the supply voltage connections and to the signal contact with a SELV or an isolated power supply in compliance with IEC 60950-1/EN 60950-1.

# **Power Terminal Blocks**

The connection for power input and  $\ensuremath{\mathsf{PoE}}$  external power supply is on the power modules.



#### PWR-HV-P48/PWR-HV-NP

STEP 1: Insert the neutral/line (L/N/Ground) AC wires into the terminals.

STEP 2: Insert the terminal block connector into the terminal block receptor.

#### PWR-LV-P48/PWR-LV-NP

STEP 1: Insert the negative/positive (-/+) DC wires into the terminals.

STEP 2: Insert the terminal block connector prongs into the terminal block receptor.

# **PoE Power Terminal Blocks**

STEP 1: Insert the negative/positive DC wires into the -/+ terminals, respectively.

STEP 2: Insert the terminal block connector prongs into the terminal block receptor.

- **NOTE** In order to have higher levels of protection against surge, it is suggested to install a surge protector in front of the power input of the PoE powered device so that it is suitable for use in IEC 61850 conditions.
- **NOTE** In order to activate the redundant load sharing mode, install two power modules on the PT-G7728/G7828 Series and ensure they are both active.

**NOTE** The reverse power input connection will not activate the device or PoE input. In addition, the PoE will only activate when the system power input is installed on the same power unit.

# Wiring the Relay Contact

Each power module has one relay output that can provide two types of relay output. Refer to the table below for detailed information.

The relay contact is used to detect user-configured events. Two wires are attached to the relay pins with normally close and normally open options.

#### FAULT:

The relay contact of the 3-pin terminal block connector is used to detect user-configured events. The module provides normally open and normally closed circuits depending on what the user chooses. For pin definitions refer to the table below.

Relay connection	Power on state	Event trigger
NO and COM	Closed circuit	Open circuit
NC and COM	Open circuit	Closed circuit

**NOTE** When wiring the relay contact, we suggest using the cable type - AWG (American Wire Gauge) 16-24 (1.31-0.205 mm<sup>2</sup>) and the corresponding pin type cable terminals. The connector must be able to withstand torque at maximum 5 pound-inches. The rated temperature of wiring should be at least 105°C.

# Install/Remove the Ethernet module

The Ethernet modules are hot-swappable. You have the option to mount or remove the Ethernet module while the device is operating.

The installation procedure is as follows:

- 1. Insert the Ethernet module straight into the slot
- 2. Fasten the module to the device by tightening the 2 screws. The tightening torque is 3.5 kgf-cm (0.35 Nm)

The removal procedure is as follows:

- 1. Loosen the 2 screws of the module
- 2. Pull the module out of the slot
- 3. Insert the dummy module in to the slot in order to have better protection against dust and EMI
- Fasten the dummy module using 2 screws. The tightening torque is 4 kgf-cm (0.40 Nm)

#### Install/Remove the Power module

The power supply units are hot-swappable. You have the option to mount or remove the power supply units while the device is operating.

The installation procedure is as follows:

- 1. Insert the power unit straight into the slot
- Fasten the unit to the device by tightening the 2 screws. The tightening torque is 3.5 kgf-cm (0.35 Nm)

The removal procedure is as follows:

- 1. Loosen the 2 screws of the module
- 2. Pull the module out of the slot
- Insert the dummy module in to the slot in order to have better protection against dust and EMI.
- Fasten the dummy module using 2 screws. The tightening torque is 4 kgf-cm (0.40 Nm)

**NOTE** If one of the modules is removed from the device, it is advisable to insert a dummy module in order to provide better protection against dust and EMI.

## Grounding the Moxa Industrial Rackmount Switch

Grounding and wire routing help limit the effects of noise due to electromagnetic interference (EMI). Run the ground connection from the ground screw to the grounding surface prior to connecting devices.

**NOTE** Using a shielded cable achieves better electromagnetic resistance.

# **USB Console Connection**

The switch has two types of USB port, micro USB-B console port and type A USB host port. Use a USB cable (type A male to Micro USB-B male) to connect the USB-serial console port to your PC's COM port, and install the USB driver (available on Moxa Website) onto the PC. You can then use a console terminal program, such as Moxa's PComm Terminal Emulator, to access the console configuration utility of the switch.

# **USB Storage Connection**

The USB storage port is on the rear panel of the PT-G7728/G7828 switch. (Type A connector; see the diagram below for pinout assignments). Use Moxa's ABC-02-USB automatic backup configurator to connect to the PT-G7728/G7828 USB storage port in order to perform configuration backup, firmware upgrade, or system log file backup.



Pin	Description
1	VCC (+5V)
2	D- (Data-)
3	D+ (Data+)
4	GND (Ground)

# The Reset Button

The reset button can perform two functions. One is to reset the PT-G7728/G7828 switch back to factory default settings and the other is to perform a quick back up of configuration and log files to the ABC-02-USB automatic backup configurator.

# **Reset to Factory Default Settings**

Depress the Reset button for five seconds to load the factory default settings. Use a pointed object, such as a straightened paper clip or toothpick, to depress the Reset button. When you do so, the STATE LED will start to blink about once per second. Continue to depress the STATE LED until it begins blinking more rapidly; this indicates that the button has been depressed for five seconds and you can release the Reset button to load factory default settings.

NOTE DO NOT power off the switch when loading default settings.

## **Configuration and Log Files Back Up**

When the ABC-02-USB is connected to the PT-G7728/G7828 switch, the reset button allows for a quick back up of configuration and event logs to the ABC-02-USB. Press the reset button to start backing up the current system configuration files and event logs to the ABC-02-USB.

**NOTE** When the ABC-02 is plugged in, you cannot reset to factory default by pressing the reset button.

#### **LED Indicators**

The front panel of the PT-G7728/G7828 switch contains several LED indicators. The function of each LED is described in the table below.

LED	Color	State	Description
			System LEDs
		On	System has passed self-diagnosis test on boot-up and is ready to run
STATE	Green	Blinking	<ol> <li>When pressing the reset button for 5 seconds, the LED will blink continuously (1 time/s) until resetting to factory default</li> <li>When an ABC-02 automatic backup device is detected, the LED will blink slowly (1 time/2s)</li> </ol>
	Red	On	<ul> <li>System failed self-diagnosis on boot up.</li> <li>Switch Initiate fail</li> <li>Fail Firmware Checksum Fail/ Uncompressed Fail</li> </ul>
FAULT	Red	On	<ol> <li>One of the following has happened:</li> <li>ABC Loading/Saving Failure</li> <li>The port has been disabled because the ingress multicast and broadcast packets exceed the ingress rate limit</li> <li>Incorrect loop connection in a single switch</li> <li>The Ring port connection is not valid</li> </ol>
		Off	System is in normal operation
SYNC		On	PTP function is enabled
	Amber	Amber Blinking	The device is starting to receive the sync packet
	Green	On	The PTP function has successfully converged

LED	Color	State	Description
			1. This switch is set as the Master of the
			Turbo Ring, or as the Head of the Turbo
		On	Chain.
		_	2. POST H.W. Fail (+State on and Fault
			blinking)
			1. The switch has become the Ring Master
			of the Turbo Ring.
MSTR/	Green		2. Head of the Turbo Chain, after the Turbo
HEAD	Green	Blinking	Ring or the Turbo Chain went down.
			3. The switch is set as Turbo Chain's
			Member and the corresponding chain
			port is down.
			1. The switch is not the Master of this Turbo
		Off	Ring.
			<ol><li>The switch is set as a Member of the Turbo Chain.</li></ol>
-			1. The switch coupling function is enabled
			to form a backup path.
		On	2. It is set as the Tail of the Turbo Chain.
		on	3. POST S.W. Fail (+State on and Fault
	Green		blinking)
CPLR/		n Blinking	1. Turbo Chain is down.
TAIL			2. The switch is set as Turbo Chain's
			Member and the corresponding chain
			port is down.
			1. This switch disabled the coupling
		Off	function.
		I <u>.</u>	2. Set as a Member of the Turbo Chain.
		•	ing/exporting data from or to an ABC-02-
			ice, the FAULT, MSTR/HEAD, and CPLR/TAIL
LEDS WII	i diink in	sequence	
			Port Status LEDs Port's 1000 Mbps link is active
		On	PoE port is connected to PoE device.
	Green		Data is transmitting at 1000 Mbps
		Blinking	PoE port is connected to PoE device.
			Port's 10/100 Mbps link is active
		On	PoE port is connected to PoE device.
Ports 1 to 4	Amber	<b>DI:</b>	Data is transmitting at 10/100 Mbps
		Blinking	PoE port is connected to PoE device.
			PoE power failure:
	Red	Red On	Once per second: PoE detection failure
			<ul> <li>Twice per second: short-circuit,</li> </ul>
			overloading, or outside operating
			temperature range
		Off	Port's link is inactive

# PT-G7728/G7828 (Rear Panel view)

LED	Color	State	Description
			System LEDs
G		On	System has passed self-diagnosis test on boot up and is ready to run
	Green	Blinking	<ol> <li>When pressing the reset button for 5 seconds, the LED will blink continuously (1 time/s) until resetting to factory default</li> <li>When an ABC-02 automatic backup device is detected, the LED will blink slowly (1 time/2s)</li> </ol>
	Red	On	<ul> <li>System failed self-diagnosis on boot-up.</li> <li>Switch Initiate fail</li> <li>Fail Firmware Checksum Fail/ Uncompressed Fail</li> </ul>
FAULT	Red	On	<ol> <li>One of the following has happened:</li> <li>ABC-02 Loading/Saving Failure</li> <li>The port has been disabled because the ingress multicast and broadcast packets exceed the ingress rate limit</li> <li>Incorrect loop connection in a single switch</li> <li>The ring port connection is not valid</li> </ol>
		Off	System is in normal operation
SYNC	Amber	On Blinking	PTP function is enabled The machine is starting to receive the sync packet
	Green	On	The PTP function is successfully converged.
	dreen	On	<ol> <li>This switch is set as the Master of the Turbo Ring, or as the Head of the Turbo Chain.</li> <li>POST H.W. Fail (+State on and Fault</li> </ol>
MSTR/ HEAD Gree	Green	Blinking	<ol> <li>blinking)</li> <li>The switch has become the Ring Master of the Turbo Ring.</li> <li>Head of the Turbo Chain, after the Turbo Ring or the Turbo Chain went down.</li> <li>The switch is set as Turbo Chain's Member and the corresponding chain port is down.</li> </ol>
		Off	<ol> <li>The switch is not the Master of this Turbo Ring.</li> <li>The switch is set as a Member of the Turbo Chain.</li> </ol>
CPLR/ TAIL G	Green	On	<ol> <li>The switch coupling function is enabled to form a back-up path.</li> <li>It is set as the Tail of the Turbo Chain.</li> <li>POST S.W. Fail (+State on and Fault blinking)</li> </ol>
		Blinking	<ol> <li>Turbo Chain is down.</li> <li>The switch is set as Turbo Chain's Member and the corresponding chain port is down.</li> </ol>

LED	Color	State	Description
		Off	1. This switch disabled the coupling function
		011	2. Set as a Member of the Turbo Chain.
		On	Power is being supplied to the main
PWR1	Amber	UII	module's power input PWR1
FWKI	AIIDEI	Off	Power is not being supplied to the main
		UII	module's power input PWR1
		On	Power is being supplied to the main
		UII	module's power input PWR2
		Pulsate	The unit in the power 2 is acting as a slave
PWR2	Amber	Slowly	mode and not providing power to main
		Slowly	system.
		Off	Power is not being supplied to the main
		011	module's power input PWR2
		On	Power is being supplied to the PoE+ power
EPS1	Amber	on	input EPS1
2101	/ unber	Off	Power is not being supplied to the PoE+
		011	power input EPS1
		On Amber Off	Power is being supplied to the PoE+ power
EPS2	Amber		input EPS2
21.02	/ unber		Power is not being supplied to the PoE+
		011	power input EPS2
			Port Status LEDs
		On	Port's 1000 Mbps link is active
	Green	011	PoE port is connected to PoE device.
	oreen	Blinking	Data is transmitting at up to 1000 Mbps
		Dilliking	PoE port is connected to PoE device.
		Off	Port's link is inactive
		On	Port's 10/100 Mbps link is active
Ports	Amber	011	PoE port is connected to PoE device.
1 to 28		Blinking	Data is transmitting at up to 10/100 Mbps
		Diffiking	PoE port is connected to PoE device.
		Off	Port's link is inactive
			PoE power failure:
	Red	Red On	<ul> <li>Once/second: PoE detection failure</li> </ul>
			<ul> <li>Twice/second: short-circuit, overloading,</li> </ul>
			or over temperature

# LM-7000H-4GTX

LED	Color	State	Description
MS	Green	On	Module has passed self-diagnosis test on
(Module	010011	011	boot-up and is ready to run.
(Module State)	Red	On	This module malfunctions.
State	Off		The module is unpowered and out of service
	Green	On	The port's 1000 Mbps link is active.
Dorto		Blinking	Data is transmitting at 1000 Mbps.
Ports 1 to 4	Amber	On	The port's 10/100 Mbps link is active.
1 (0 4		Blinking	Data is transmitting at 10/100 Mbps.
	C	)ff	The port's link is inactive.

#### LM-7000H-4TX

LED	Color	State	Description
MS	Green	Green On	Module has passed a self-diagnosis test on
	Green	UII	boot-up and is ready to run.
(Module State)	Red	On	This module malfunctioned.
State	Off		The module is unpowered and out of service
	Green	On	The port's 100 Mbps link is active.
Dorto		Blinking	Data is transmitting at 100 Mbps.
Ports 1 to 4	Amber	On	The port's 10 Mbps link is active.
1 (0 4		Blinking	Data is transmitting at 10 Mbps.
	Off		The port's link is inactive.

# LM-7000H-4GSFP

LED	Color	State	Description
MC	Green	C	Module has passed self-diagnosis test on
MS (Module	Green	On	boot-up and is ready to run.
(Module State)	Red	On	This module malfunctions.
State)	Off		The module is unpowered and out of service
	Green	On	The port's 1000 Mbps link is active.
Dauta		Blinking	Data is transmitting at up to 1000 Mbps.
Ports 1 to 4	Amber	On	The port's 100 Mbps link is active.
1 (0 4		Blinking	Data is transmitting at up to 10/100 Mbps.
	C	Off	The port's link is inactive.

#### LM-7000H-4GPoE

LED	Color	State	Description
MS	Green	On	Module has passed self-diagnosis test on
Module	Green	UII	boot-up and is ready to run.
(Module State)	Red	On	This module malfunctions.
State)	C	ff	The module is unpowered and out of service
		On	External power supply is working for PoE+
EPS	Amber	UII	power output.
LFJ	AIIIDEI	Off	External power supply is not working for
		011	PoE+ power output.
	Green	On	Port's 1000 Mbps link is active.
Ports	Green	Blinking	Data is transmitting at 1000 Mbps.
1 to 4	Amber	On	Port's 10/100 Mbps link is active.
1 10 4		Blinking	Data is transmitting at 10/100 Mbps.
	Off		Port's link is inactive.
	Green	On	PoE port is connected to PoE device, using
			the 802.3at standard.
PoE/	Amber	On	PoE port is connected to PoE device, using
PoE+ Ports			the 802.3af standard.
			PoE power failure:
1 to 4	Red	On	<ul> <li>Once/second: PoE detection failure</li> </ul>
		011	<ul> <li>Twice/second: short-circuit, overloading,</li> </ul>
			or over temperature

#### LM-7000H-4PoE

LED	Color	State	Description
MS	Green	On	Module has passed a self-diagnosis test on boot-up and is ready to run
(Module	Red	On	This module malfunctions
State)	C	Off	The module is unpowered and out of service
EPS	Amber	On	The external power supply is working for PoE+ power output
EPS	Amber	Off	The external power supply is not working for PoE+ power output
	Custon	On	The port's 100 Mbps link is active
Ports	Green	Blinking	Data is transmitting at 100 Mbps
1 to 4	Amber	On	The port's 10 Mbps link is active
1 10 4	Amber	Blinking	Data is transmitting at 10 Mbps
	Off		The port's link is inactive
	Green	On	The PoE port is connected to a PoE device, using the 802.3at standard.
	Amber Red	On	The PoE port is connected to a PoE device, using the 802.3af standard.
PoE/		Blinking	The PoE power has been shut off because of low power budget
PoE+ Ports 1 to 4		On	PoE power failure: • Once/second: PoE detection failure • Twice/second: short-circuit, overloading, or outside acceptable temperature ranges
		Blinking	Detecting over current or short circuit on the powered Device (PD)
	Off		The power is not being supplied to a powered device (PD)

# LM-7000H-2GPHR

LED	Color	State	Description
MS	Green	On	Module has passed the self-diagnosis test on
	Green	UII	boot-up and is ready to run.
(Module State)	Red	On	The module has malfunctioned.
State)	C	Off	The module does not have power.
PRP	Green	On	PRP is active.
PRP	C	Off	PRP is not enabled.
HSR	Green	On	HSR is active.
HJK	C	Off	HSR is not enabled.
COUP	Green	On	PRP/HSR Coupling function is working.
COOP	Off		PRP/HSR Coupling function is not enabled.
	Green	On	The port's 1000 Mbps link is active.
		Blinking	Data is transmitting at 1000 Mbps.
Α	A	On	The port's 100 Mbps link is active.
	Amber	Blinking	Data is transmitting at 100 Mbps.
	C	Off	The port's link is inactive.
	Green	On	The port's 1000 Mbps link is active.
	Green	Blinking	Data is transmitting at 1000 Mbps.
В	Amalaan	On	The port's 100 Mbps link is active.
	Amber	Blinking	Data is transmitting at 100 Mbps.
	C	Off	The port's link is inactive.

#### PWR-HV-P48/PWR-LV-P48

LED	Color	State	Description
EPS (External	Amber	On	Normal operation.
Power Supply)		Off	No external power supply for PoE.
DWD	Amahan	On	Normal operation.
PWR Amber	Off	No power supply.	

## PWR-HV-NP/PWR-LV-NP

LED	Color	State	Description
	Amber	On	Normal operation.
PWR		Off	No power supply.

# Specifications

Technology	
Standards	IEEE 802.3af/at for Power-over-Ethernet
	IEEE 802.3 for 10BaseT
	IEEE 802.3u for 100BaseT(X) and 100BaseFX
	IEEE 802.3ab for 1000BaseT(X)
	IEEE 802.3z for 1000BaseX
	IEEE 802.3x for Flow Control
	IEEE 802.1D-2004 for Spanning Tree Protocol
	IEEE 802.1w for Rapid STP
	IEEE 802.1s for Multiple Spanning Tree Protocol
	IEEE 802.1Q for VLAN Tagging
	IEEE 802.1p for Class of Service
	IEEE 802.1X for Authentication
	IEEE 802.3ad for Port Trunk with LACP
Protocols	IPv4, IPv6(PT-G7728 only), SNMPv1/v2c/v3, DHCP
	Server/Client, DHCP Option 66/67/82, BootP, TFTP,
	SNTP, SMTP, RARP, RMON, HTTP, HTTPS, Telnet,
	SNMP Inform, LLDP, Flow Control, Back Pressure
	Flow Control, Port Mirror, Fiber Check, Syslog, Dying
	Gasp, IGMPv1/v2/v3, GMRP, GVRP, 802.1Q, Q-in-Q
	VLAN, STP/RSTP, MSTP, Turbo Ring v1/v2, Turbo
	Chain, Link Aggregation, RADIUS, TACACS+, SSL,
	SSH, Port Lock, Broadcast Storm Protection, MAC
	Authentication Bypass, MAC Sticky, Access Control
	Lists, Time Management: SNTP, NTP Server/Client,
	IEEE 1588v2 PTP (hardware-based), EtherNet/IP,
	Modbus/TCP
	<b>PT-G7828 only:</b> VRRP, RIP V1/V2, OSPF, DVMRP,
	PIM-DM
MIB	MIB-II, Ethernet-like MIB, P-BRIDGE MIB, Q-BRIDGE
	MIB, Bridge MIB, RSTP MIB, RMON MIB Group 1, 2,
	3, 9
Flow Control	IEEE 802.3x flow control, back pressure flow control
Interface	· · · · · · · · · · · · · · · · · · ·
Gigabit Ethernet	2-ports 10/100/1000BaseT(X) and 2-ports
-	100/1000Base SFP
Console Port	USB console (Micro USB-B connector)
LED Indicators	PWR1, PWR2, EPS1, EPS2, STATE, SYNC, FAULT,
1.10.000010	MSTR/HEAD, CPLR/TAIL
I	is inglicitly of Erg fride

Power Requirements           Input Voltage         PWR-HV-P48: (110/220 VDC), (110 VAC, 60 Hz), (220 VAC, 50 Hz), PoE: 48 VDC, 8 A (53 to 57 VDC is recommended of P0E+ device) PWR-LV-P48: 24/48 VDC, POE: 48 VDC, 8 A (53 to 57 VDC is recommended of P0E+ device) PWR-HV-NP: (110/220 VDC), (110 VAC, 60 Hz), (220 VAC, 50 Hz) PWR-HV-P48: 24/48 VDC           Operating         PWR-HV-P48: Voltage         (8 to 300 VDC), (90 to 264 VAC, 47 to 63 Hz), P0E: 46 to 57 VDC PWR-LV-P48: 18 to 72 VDC, P0E: 46 to 57 VDC PWR-HV-P48: (88 to 300 VDC), (90 to 264 VAC, 47 to 63 Hz) PWR-HV-P48: 18 to 72 VDC, P0E: 46 to 57 VDC PWR-HV-P48/PWR-HV-NP Consumption 110 VDC: 12.43 W (without modules 220 VDC: 12.87 W consumption)           Power         PWR-HV-P48/PWR-HV-NP Consumption         PWR-HV-P48/PWR-HV-NP Consumption           Consumption         110 VDC: 12.43 W (without modules 220 VDC: 12.87 W consumption)         PWR-HV-P48/PWR-HV-NP 24 VDC: 12.67 W 48 VDC: 13.42 W 220 VAC: 14.08 W PWR-LV-P48/PWR-LV-NP 24 VDC: 13.72 W           Power         LM-7000H-4GTX: 3.63 W LM-7000H-4GTX: 3.65 W (W/o SFP modules) LM-7000H-4GTX: 1.85 W LM-7000H-4GTX: 1.	Alarm Contact	2A @ 30 VDC
Input Voltage         PWR-HV-P48: (110/220 VDC), (110 VAC, 60 Hz), (220 VAC, 50 Hz), PoE: 48 VDC, 8 A (53 to 57 VDC is recommended of PoE+ device)           PWR-LV-P48: 24/48 VDC, PoE: 48 VDC, 8 A (53 to 57 VDC is recommended of PoE+ device)           PWR-HV-NP: (110/220 VDC), (110 VAC, 60 Hz), (220 VAC, 50 Hz)           PWR-LV-NP: 24/48 VDC           Operating         PWR-HV-P48: (88 to 300 VDC), (90 to 264 VAC, 47 to 63 Hz), PoE: 46 to 57 VDC           Voltage         (88 to 300 VDC), (90 to 264 VAC, 47 to 63 Hz), PoE: 46 to 57 VDC           PWR-HV-P48: 18 to 72 VDC, PoE: 46 to 57 VDC           PWR-HV-P8: (88 to 300 VDC), (90 to 264 VAC, 47 to 63 Hz)           WR-HV-P48           Wothout modules           (without modules           10 VDC: 12.43 W           consumption           (10 VAC: 13.42 W           220 VAC: 14.08 W           PWR-LV-P48/PWR-LV-NP           24 VDC: 12.47 W           240 VDC: 12.47 W           240 VDC: 12.47 W           240 VDC: 12.48 W           PWer           Consumption           110 VDC: 12.43 W           Consumption of module           LM-7000H-4GFX: 3.63 W           Consumption of module           IPWR-HV-P48/PWR-LV-NP           (without modules           200 VDC: 0.11 A           Consumption o		
(110/220 VDC), (110 VAC, 60 Hz), (220 VAC, 50 Hz), PoE: 48 VDC, 8 A (53 to 57 VDC is recommended of PoE+ device)           PWR-LV-P48: 24/48 VDC, PoE: 48 VDC, 8 A (53 to 57 VDC is recommended of PoE+ device)           PWR-LV-P48: (110/220 VDC), (110 VAC, 60 Hz), (220 VAC, 50 Hz) PWR-LV-NP: 24/48 VDC           Operating         PWR-LV-P48: (110/220 VDC), (90 to 264 VAC, 47 to 63 Hz), PoE: 46 to 57 VDC           Voltage         (88 to 300 VDC), (90 to 264 VAC, 47 to 63 Hz), PoE: 46 to 57 VDC           PWR-LV-P48: 18 to 72 VDC, PoE: 46 to 57 VDC           PWR-LV-NP: 18 to 72 VDC           Operating           YWR-LV-P48: 10 VDC); (90 to 264 VAC, 47 to 63 Hz), POE: 46 to 57 VDC           PWR-LV-P48: 18 to 72 VDC           Consumption           110 VDC: 12.43 W           (without modules           220 VDC: 12.87 W           consumption           110 VAC: 13.42 W           220 VDC: 12.67 W           48 VDC: 13.2 W           Power           Consumption of module           LM-7000H-4GTX: 3.63 W           LM-7000H-4GTX: 3.63 W           LM-7000H-4GTX: 1.85 W           LM-7000H-4GPCE: 1.85 W           LM-7000H-4GTX: 3.63 W           LM-7000H-4GTX: 3.63 W           LM-7000H-4GTX: 3.63 W           LM-7000H-4GTX: 1.85 W           LM-7000H-4GTX: 3.63 W		
H2), POE: 48 VDC, 8 A (53 to 57 VDC is recommended of POE+ device)           PWR-LV-P48:           24/48 VDC, POE: 48 VDC, 8 A (53 to 57 VDC is recommended of POE+ device)           PWR-LV-NP:           (110/220 VDC), (110 VAC, 60 Hz), (220 VAC, 50 Hz)           PWR-LV-NP:           24/48 VDC           Operating           Voltage           (88 to 300 VDC), (90 to 264 VAC, 47 to 63 Hz), POE: 46 to 57 VDC           PWR-LV-P48:           Is to 72 VDC, POE: 46 to 57 VDC           PWR-LV-NP:           (88 to 300 VDC), (90 to 264 VAC, 47 to 63 Hz), POE: 46 to 57 VDC           PWR-LV-PA8:           Is to 72 VDC           Power           Consumption           110 VDC: 12.43 W           (without modules           220 VAC: 14.08 W           PWR-LV-PA8/PWR-LV-NP           24 VDC: 12.67 W           48 VDC: 31.2 W           Power           LM-7000H-4GFF: 1.56 W (w/o SFP modules)           LM-7000H-4GFF: 1.56 W (w/o SFP modules)           LM-7000H-4GFF: 1.58 W           LM-7000H-4GFF: 1.56 W (w/o SFP modules)           LM-7000H-4GFF: 1.55 W           LM-7000H-4GFF: 1.85 W           LM-7000H-4GFF: 1.85 W           LM-7000H-4GFF           10 VDC: 0.11 A	input voltage	-
recommended of PoE+ device)           PWR-LV-P48:           24/48 VDC, PoE: 48 VDC, 8 A (53 to 57 VDC is recommended of PoE+ device)           PWR-HV-NP:           (110/220 VDC), (110 VAC, 60 Hz), (220 VAC, 50 Hz)           PWR-LV-NP:           24/48 VDC           Operating           Voltage           (88 to 300 VDC), (90 to 264 VAC, 47 to 63 Hz), POE:           46 to 57 VDC           PWR-LV-P48:           18 to 72 VDC, PoE: 46 to 57 VDC           PWR-HV-P48           (88 to 300 VDC), (90 to 264 VAC, 47 to 63 Hz), POE:           (88 to 300 VDC), (90 to 264 VAC, 47 to 63 Hz)           PWR-HV-P48/PWR-HV-NP           (88 to 72 VDC           Power           Consumption           110 VDC: 12.43 W           (without modules           220 VDC: 12.67 W           24 VDC: 12.67 W           48 VDC: 13.2 W           Power           LM-7000H-4GTX: 3.63 W           Consumption of           IM-7000H-4GTX: 3.63 W           Consumption of           LM-7000H-4GTX: 1.85 W           LM-7000		
PWR-LV-P48:           24/48 VDC, PoE: 48 VDC, 8 A (53 to 57 VDC is recommended of PoE+ device)           PWR-HV-NP:           (110/220 VDC), (110 VAC, 60 Hz), (220 VAC, 50 Hz)           PWR-LV-NP:           24/48 VDC           Operating           PWR-LV-NP:           24/48 VDC           Operating           PWR-LV-NP:           24/48 VDC           Operating           PWR-LV-NP:           24/48 VDC, PoE: 46 to 57 VDC           PWR-HV-NP:           18 to 72 VDC, PoE: 46 to 57 VDC           PWR-LV-NP:           18 to 72 VDC, 90 to 264 VAC, 47 to 63 Hz)           PWR-LV-NP:           18 to 72 VDC           Power           Consumption           110 VDC: 12.43 W           (without modules           200 VDC: 12.67 W           24 VDC: 13.2 W           Power           LM-7000H-4GTX: 3.63 W           PWR-LV-P48/PWR-LV-NP           24 VDC: 13.2 W           Power           LM-7000H-4GSFP: 1.55 W (w/o SFP modules)           LM-7000H-4		
24/48 VDC, PoE: 48 VDC, 8 A (53 to 57 VDC is recommended of PoE+ device)           PWR-HV-NP: (110/220 VDC), (110 VAC, 60 Hz), (220 VAC, 50 Hz)           PWR-LV-NP: 24/48 VDC           Operating         PWR-HV-P48: (88 to 300 VDC), (90 to 264 VAC, 47 to 63 Hz), PoE: 46 to 57 VDC           Voltage         (88 to 300 VDC), (90 to 264 VAC, 47 to 63 Hz), PoE: 46 to 57 VDC           PWR-LV-P48: 18 to 72 VDC, PoE: 46 to 57 VDC           PWR-HV-NP: (88 to 300 VDC), (90 to 264 VAC, 47 to 63 Hz)           PWR-LV-NP: 18 to 72 VDC           Power           Consumption           110 VDC: 12.43 W           (without modules           220 VDC: 12.87 W           consumption           110 VAC: 13.42 W           220 VAC: 14.08 W           PWR-LV-P48/PWR-LV-NP           24 VDC: 12.67 W           48 VDC: 13.2 W           Power           Consumption of           LM-7000H-4GPX: 3.63 W           LM-7000H-4GPX: 3.63 W           LM-7000H-4GPX: 1.85 W <td></td> <td>,</td>		,
recommended of PoE+ device)           PWR-HV-NP:           (110/220 VDC), (110 VAC, 60 Hz), (220 VAC, 50 Hz)           PWR-LV-NP:           24/48 VDC           Operating         PWR-HV-P48:           Voltage         (88 to 300 VDC), (90 to 264 VAC, 47 to 63 Hz), PoE:           46 to 57 VDC         PWR-LV-P48:           18 to 72 VDC, PoE: 46 to 57 VDC           PWR-LV-P48:           18 to 72 VDC, PoE: 46 to 57 VDC           PWR-LV-NP:           18 to 72 VDC           Power           Consumption           110 VDC: 12.43 W           220 VAC: 13.24 W           220 VAC: 13.2 W           Power           Consumption of           LM-7000H-4GPOE: 3.80 W (w/o POE output)           LM-7000H-4GPOE: 3.80 W (w/o SFP modules)           LM-7000H-4GPOE: 1.85 W           LM-7000H-4GPOE: 1.85 W           LM-7000H-4GPOE: 1.85 W           LM-7000H-4GPOE: 1.85 W           LM-7000H-2GPHR: 8.1 W           Ino VAC: 0.29 A		-
PWR-HV-NP: (110/220 VDC), (110 VAC, 60 Hz), (220 VAC, 50 Hz) PWR-LV-NP: 24/48 VDC           Operating         PWR-HV-P48: (88 to 300 VDC), (90 to 264 VAC, 47 to 63 Hz), POE: 46 to 57 VDC           PWR-LV-P48: 18 to 72 VDC, POE: 46 to 57 VDC           PWR-HV-NP: (88 to 300 VDC), (90 to 264 VAC, 47 to 63 Hz) PWR-LV-P48: 18 to 72 VDC           Power         PWR-HV-NP: (88 to 300 VDC), (90 to 264 VAC, 47 to 63 Hz) PWR-LV-NP: 18 to 72 VDC           Power         PWR-HV-P48/PWR-HV-NP           Consumption         110 VDC: 12.43 W           (without modules 200 VDC: 12.67 W         20 VDC: 12.67 W           200 VAC: 14.08 W         PWR-LV-P48/PWR-LV-NP           24 VDC: 12.67 W         48 VDC: 13.2 W           Power         LM-7000H-4GTX: 3.63 W           Consumption of module         LM-7000H-4GTX: 3.63 W           LM-7000H-4GTX: 1.85 W         LM-7000H-4GPE: 1.56 W (w/o SFP modules)           LM-7000H-4GPE: 1.85 W         LM-7000H-4GPE: 1.85 W           LM-7000H-4GPE: 1.85 W         LM-7000H-4GPE: 1.85 W           LM-7000H-4GPE: 1.85 W         LM-7000H-4GPE: 1.85 W           Input Current (without modules consumption)         10 VDC: 0.11 A           200 VDC: 0.06 A         110 VAC: 0.29 A           200 VDC: 0.05 A         48 VDC: 0.28 A           Peak Inrush Current         PWR-LV-P48/PWR-HV-NP           24 VDC: <0.20 A (t > 0.1 ms)		
(110/220 VDC), (110 VAC, 60 Hz), (220 VAC, 50 Hz)           PWR-LV-NP:           24/48 VDC           Operating         PWR-HV-P48:           Voltage         (88 to 300 VDC), (90 to 264 VAC, 47 to 63 Hz), PoE:           46 to 57 VDC         PWR-LV-P48:           18 to 72 VDC, PoE: 46 to 57 VDC           PWR-LV-P48:           18 to 72 VDC           Power           Consumption           110 VDC: 12.43 W           (without modules           220 VDC: 12.87 W           consumption)           110 VAC: 13.42 W           220 VAC: 14.08 W           PWR-LV-P48/PWR-LV-NP           24 VDC: 12.67 W           48 VDC: 13.2 W           Power           Consumption of           M-7000H-4GTX: 3.63 W           Consumption of           M-7000H-4GSFP: 1.56 W (w/o PoE output)           LM-7000H-4GSFP: 1.56 W (w/o SFP modules)           LM-7000H-4GSFP: 0.56 A           (without modules           110 VAC: 0.29 A           220 VAC: 0.11 A           consumption)		
PWR-LV-NP: 24/48 VDC           Operating         PWR-HV-P48: (88 to 300 VDC), (90 to 264 VAC, 47 to 63 Hz), PoE: 46 to 57 VDC           PWR-LV-P48: 18 to 72 VDC, PoE: 46 to 57 VDC           PWR-LV-P48: 18 to 72 VDC, PoE: 46 to 57 VDC           PWR-LV-NP: (88 to 300 VDC), (90 to 264 VAC, 47 to 63 Hz) PWR-LV-NP: 18 to 72 VDC           Power         PWR-HV-P48/PWR-HV-NP           Consumption         110 VDC: 12.43 W           (without modules)         220 VDC: 12.87 W           consumption)         110 VAC: 13.42 W           220 VAC: 12.67 W         24 VDC           48 VDC: 13.2 W         220 VAC: 12.67 W           48 VDC: 13.2 W         20 VAC: 13.2 W           Power         LM-7000H-4GTX: 3.63 W           Consumption of module         LM-7000H-4GSFP: 1.56 W (w/o PoE output)           LM-7000H-4GSFP: 1.56 W (w/o SFP modules)         LM-7000H-4GSFP: 1.56 W (w/o SFP modules)           LM-7000H-4GPE: 1.85 W         LM-7000H-4GPE: 1.85 W           LM-7000H-4GPK: 8.1 W         110 VDC: 0.11 A           200 VDC: 0.06 A         110 VDC: 0.29 A           220 VDC: 0.06 A         110 VAC: 0.29 A           220 VDC: 0.53 A         48 VDC: 0.28 A           Peak Inrush         PWR-LV-P48/PWR-LV-NP           Current         PWR-LV-P48/PWR-LV-NP               110 VAC: < 20 A (t > 0.1 ms		
24/48 VDC           Operating         PWR-HV-P48:           Voltage         (88 to 300 VDC), (90 to 264 VAC, 47 to 63 Hz), PoE: 46 to 57 VDC           PWR-LV-P48:         18 to 72 VDC, PoE: 46 to 57 VDC           PWR-HV-NP:         (88 to 300 VDC), (90 to 264 VAC, 47 to 63 Hz)           PWR-LV-P48:         18 to 72 VDC           Power         PWR-HV-NP:           Consumption         110 VDC: 12.43 W           (without modules         220 VDC:           220 VDC:         12.87 W           consumption)         110 VAC: 13.42 W           220 VAC:         14.08 W           PWR-LV-P48/PWR-LV-NP         24 VDC:           24 VDC:         12.67 W           48 VDC:         3.63 W           Consumption of         LM-7000H-4GFX:           LM-7000H-4GPSE:         1.85 W           LM-7000H-20PHR:         8.1 W           (without modules         110 VDC:		
Operating Voltage         PWR-HV-P48: (88 to 300 VDC), (90 to 264 VAC, 47 to 63 Hz), PoE: 46 to 57 VDC PWR-LV-P48: 18 to 72 VDC, PoE: 46 to 57 VDC PWR-HV-NP: (88 to 300 VDC), (90 to 264 VAC, 47 to 63 Hz) PWR-LV-NP: 18 to 72 VDC           Power         PWR-HV-P48/PWR-HV-NP 110 VDC: 12.43 W (without modules 200 VDC: 12.87 W 220 VAC: 14.08 W PWR-LV-P48/PWR-LV-NP 24 VDC: 12.67 W 48 VDC: 13.2 W           Power         LM-7000H-4GFX: 3.63 W LM-7000H-4GFSP: 1.56 W (w/o PoE output) LM-7000H-4GFSP: 1.56 W (w/o SFP modules) LM-7000H-4GPGE: 3.80 W (w/o SFP modules) LM-7000H-4GPAR: 8.1 W           Input Current         PWR-HV-P48/PWR-HV-NP 24 VDC: 0.11 A 220 VDC: 0.11 A 220 VDC: 0.06 A 110 VDC: 0.11 A 220 VDC: 0.53 A 48 VDC: 0.28 A           Peak Inrush         PWR-HV-P48/PWR-HV-NP 24 VDC: 0.53 A 48 VDC: 0.28 A           Peak Inrush         PWR-HV-P48/PWR-HV-NP 24 VDC: 0.53 A 48 VDC: 0.28 A           Peak Inrush         PWR-HV-P48/PWR-HV-NP 24 VDC: 0.53 A 48 VDC: 0.28 A           Peak Inrush         PWR-HV-P48/PWR-HV-NP 24 VDC: 0.53 A 48 VDC: 0.28 A           Peak Inrush         PWR-HV-P48/PWR-HV-NP 24 VDC: 0.53 A 48 VDC: 0.20 A (t > 0.1 ms) 200 VAC: < 20 A (t > 0.1 ms) 48 VDC: < 20 A (t > 0.1 ms) 48 VDC: < 20 A (t > 0.1 ms)           Overload Current         Present           Protection         Present		
Voltage       (88 to 300 VDC), (90 to 264 VAC, 47 to 63 Hz), PoE: 46 to 57 VDC PWR-LV-P48: 18 to 72 VDC, PoE: 46 to 57 VDC PWR-HV-NP: (88 to 300 VDC), (90 to 264 VAC, 47 to 63 Hz) PWR-LV-NP: 18 to 72 VDC         Power       PWR-HV-P48/PWR-HV-NP         Consumption       110 VDC: 12.43 W         (without modules)       220 VDC: 12.87 W         200 VAC: 14.08 W       PWR-LV-P48/PWR-LV-NP         201 VAC: 13.42 W       220 VAC: 14.08 W         Power       LM-7000H-4GTX: 3.63 W         Consumption of module       LM-7000H-4GTX: 3.63 W         LM-7000H-4GSFP: 1.56 W (w/o SFP modules)       LM-7000H-4GSFP: 1.56 W (w/o SFP modules)         LM-7000H-4FOEF: 1.85 W       LM-7000H-4FOEF: 1.85 W         LM-7000H-4FOEF: 1.85 W       LM-7000H-4FOEF: 1.85 W         LM-7000H-2GPHR: 8.1 W       Input Current         (without modules       110 VDC: 0.11 A         consumption)       220 VDC: 0.06 A         110 VDC: 0.13 A       220 VDC: 0.138 A         PWR-LV-P48/PWR-LV-NP       24 VDC: 0.53 A         248 VDC: 0.28 A       Peak Inrush         Current       PWR-HV-P48/PWR-LV-NP         20 VAC: < 10 A (t > 0.1 ms)       220 VAC: < 20 A (t > 0.1 ms)         20 VAC: < 20 A (t > 0.1 ms)       220 VAC: < 20 A (t > 0.1 ms)         20 VAC: < 20 A (t > 0.1 ms)       24 VDC: < 20 A (t > 0.1 ms)	Operating	·
46 to 57 VDC           PWR-LV-P48:           18 to 72 VDC, PoE: 46 to 57 VDC           PWR-HV-NP:           (88 to 300 VDC), (90 to 264 VAC, 47 to 63 Hz)           PWR-LV-NP:           18 to 72 VDC           Power           Consumption           (without modules           220 VDC: 12.87 W           consumption)           110 VAC: 13.42 W           220 VAC: 12.87 W           consumption)           110 VAC: 13.42 W           220 VAC: 14.08 W           PWR-LV-P48/PWR-LV-NP           24 VDC: 12.67 W           48 VDC: 13.2 W           Power           Consumption of           M-7000H-4GTX: 3.63 W           LM-7000H-4GSFP: 1.56 W (w/o SFP modules)           LM-7000H-4GSFP: 1.56 W (w/o SFP modules)           LM-7000H-4GSFP: 1.56 W (w/o SFP modules)           LM-7000H-2GPHR: 8.1 W           Input Current           (without modules           10 VDC: 0.11 A           consumption)           20 VDC: 0.06 A           110 VAC: 0.29 A           220 VAC: 0.18 A           PWR-LV-P48/PWR-LV-NP           24 VDC: 0.53 A           48 VDC: 20 A (t > 0.1 ms)		
PWR-LV-P48:           18 to 72 VDC, PoE: 46 to 57 VDC           PWR-HV-NP:           (88 to 300 VDC), (90 to 264 VAC, 47 to 63 Hz)           PWR-LV-NP:           18 to 72 VDC           Power           Consumption           110 VDC: 12.43 W           (without modules           220 VDC: 12.87 W           consumption)           110 VAC: 13.42 W           220 VAC: 14.08 W           PWR-LV-P48/PWR-LV-NP           24 VDC: 12.67 W           48 VDC: 13.2 W           Power           Consumption of           LM-7000H-4GTX: 3.63 W           Consumption of           LM-7000H-4GSPE: 1.56 W (w/o SFP modules)           LM-7000H-4GSPE: 1.85 W           LM-7000H-4GSPE: 1.85 W           LM-7000H-4GSPE: 1.85 W           LM-7000H-4GSPE: 1.85 W           LM-7000H-4GSPE           (without modules           110 VDC: 0.11 A           consumption)           220 VDC: 0.06 A           110 VAC: 0.29 A           220 VDC: 0.33 A           48 VDC: 0.33 A           48 VDC: 0.28 A           Peak Inrush           PWR-HV-P48/PWR-HV-NP           24 VDC: < 20 A (t > 0.1 ms)	Voltage	
18 to 72 VDC, PoE: 46 to 57 VDC           PWR-HV-NP:           (88 to 300 VDC), (90 to 264 VAC, 47 to 63 Hz)           PWR-LV-NP:           18 to 72 VDC           Power           Consumption           110 VDC: 12.43 W           (without modules           220 VDC: 12.87 W           consumption)           110 VAC: 13.42 W           220 VAC: 14.08 W           PWR-LV-P48/PWR-LV-NP           24 VDC: 12.67 W           48 VDC: 13.2 W           Power           LM-7000H-4GTX: 3.63 W           Consumption of           LM-7000H-4GSFP: 1.56 W (w/o POE output)           LM-7000H-4TX: 1.85 W           LM-7000H-4GSFP: 1.56 W (w/o SFP modules)           LM-7000H-4TOE: 1.85 W           LM-7000H-4GSFP: 1.56 W (w/o SFP modules)           LM-7000H-4GSFP: 1.56 W (w/o SFP modules)           LM-7000H-4GSFP: 1.85 W           LM-7000H-4GSFP: 1.85 W           MOTOCH-4POE: 1.85 W           LM-7000H-4GSFP           (without modules           110 VDC: 0.11 A           consumption)           220 VDC: 0.06 A           110 VAC: 0.29 A           220 VAC: 0.18 A           PWR-LV-P48/PWR-LV-NP           2		
PWR-HV-NP:         (88 to 300 VDC), (90 to 264 VAC, 47 to 63 Hz)           PWR-LV-NP:         18 to 72 VDC           Power         PWR-HV-P48/PWR-HV-NP           Consumption         110 VDC: 12.43 W           (without modules         220 VDC: 12.87 W           consumption)         110 VAC: 13.42 W           220 VAC: 14.08 W         PWR-LV-P48/PWR-LV-NP           24 VDC: 12.67 W         48 VDC: 13.2 W           Power         LM-7000H-4GTX: 3.63 W           Consumption of module         LM-7000H-4GTX: 3.63 W (w/o POE output)           LM-7000H-4GTX: 1.85 W         LM-7000H-4GSFP: 1.56 W (w/o SFP modules)           LM-7000H-4GPCE: 1.85 W         LM-7000H-4GSFP: 1.56 W (w/o SFP modules)           LM-7000H-4GPCE: 1.85 W         LM-7000H-2GPHR: 8.1 W           Input Current         PWR-HV-P48/PWR-HV-NP           (without modules         110 VDC: 0.11 A           220 VDC: 0.06 A         110 VAC: 0.29 A           220 VDC: 0.05 A         220 VDC: 0.53 A           48 VDC: 0.28 A         PWR-LV-P48/PWR-LV-NP           24 VDC: <10 A (t > 0.1 ms)         220 VAC: <20 A (t > 0.1 ms)           20 VAC: <20 A (t > 0.1 ms)         220 VAC: <20 A (t > 0.1 ms)           20 VAC: <20 A (t > 0.1 ms)         24 VDC: <20 A (t > 0.1 ms)           24 VDC: <20 A (t > 0.1 ms)         24		_
(88 to 300 VDC), (90 to 264 VAC, 47 to 63 Hz)           PWR-LV-NP: 18 to 72 VDC           Power         PWR-HV-P48/PWR-HV-NP           Consumption         110 VDC: 12.43 W           (without modules         220 VDC: 12.87 W           consumption         110 VAC: 13.42 W           220 VAC: 14.08 W         PWR-LV-P48/PWR-LV-NP           24 VDC: 12.67 W         48 VDC: 13.2 W           Power         LM-7000H-4GTX: 3.63 W           Consumption of         LM-7000H-4GSFP: 1.56 W (w/o PoE output)           module         LM-7000H-4GSFP: 1.56 W (w/o SFP modules)           LM-7000H-4GSFP: 1.85 W         LM-7000H-4GSFP: 1.85 W           LM-7000H-4GSFP: 1.85 W         LM-7000H-4GSFP: 1.85 W           LM-7000H-4GSPFP: 1.85 W         LM-7000H-4GSFP: 1.85 W           LM-7000H-4GSPFP: 1.85 W         LM-7000H-4GSFP: 1.85 W           LM-7000H-4GSPFP: 1.85 W         LM-7000H-4GSFP           Input Current         PWR-HV-P48/PWR-HV-NP           (without modules         110 VDC: 0.11 A           consumption)         220 VAC: 0.18 A           PWR-LV-P48/PWR-LV-NP         24 VDC: 0.53 A           48 VDC: 0.28 A         PWR-LV-P48/PWR-LV-NP           24 VDC: < 20 A (t > 0.1 ms)         220 VAC: < 20 A (t > 0.1 ms)           24 VDC: < 20 A (t > 0.1 ms)         48 VDC		
PWR-LV-NP: 18 to 72 VDCPowerPWR-HV-P48/PWR-HV-NPConsumption110 VDC: 12.43 W(without modules220 VDC: 12.87 Wconsumption)110 VAC: 13.42 W220 VAC: 14.08 WPWR-LV-P48/PWR-LV-NP24 VDC: 12.67 W48 VDC: 13.2 WPowerLM-7000H-4GTX: 3.63 WConsumption of moduleLM-7000H-4GSFP: 1.56 W (w/o POE output)LM-700H-4GSFP: 1.56 W (w/o SFP modules)LM-700H-4GSFP: 1.56 W (w/o SFP modules)LM-700H-4PAE: 1.85 WLM-700H-2GPHR: 8.1 WInput Current (without modules110 VDC: 0.11 Aconsumption)220 VDC: 0.06 A110 VAC: 0.29 A220 VAC: 0.18 APWR-LV-P48/PWR-LV-NP24 VDC: 0.53 A48 VDC: 0.28 APeak Inrush CurrentPWR-LV-P48/PWR-LV-NP24 VDC: < 20 A (t > 0.1 ms)20 VAC: < 20 A (t > 0.1 ms)PWR-LV-P48/PWR-LV-NP24 VDC: < 20 A (t > 0.1 ms)Overload Current ProtectionReverse PolarityPresent		
18 to 72 VDCPower <b>PWR-HV-P48/PWR-HV-NP</b> Consumption110 VDC: 12.43 W(without modules220 VDC: 12.87 Wconsumption)110 VAC: 13.42 W220 VAC: 14.08 W <b>PWR-LV-P48/PWR-LV-NP</b> 24 VDC: 12.67 W48 VDC: 13.2 WPowerLM-7000H-4GTX: 3.63 WConsumption of moduleLM-7000H-4GPOE: 3.80 W (w/o POE output)LM-7000H-4GSFP: 1.56 W (w/o SFP modules)LM-7000H-4GSFP: 1.56 W (w/o SFP modules)LM-7000H-4GSFP: 1.85 WLM-7000H-4PoE: 1.85 WLM-7000H-4PoE: 1.85 WLM-7000H-2GPHR: 8.1 WInput Current <b>PWR-HV-P48/PWR-HV-NP</b> (without modules110 VAC: 0.11 Aconsumption)220 VAC: 0.18 A <b>PWR-LV-P48/PWR-HV-NP</b> 24 VDC: 0.53 A48 VDC: 0.28 APeak InrushCurrent110 VAC: < 10 A (t > 0.1 ms)220 VAC: < 20 A (t > 0.1 ms)PWR-LV-P48/PWR-LV-NP24 VDC: < 20 A (t > 0.1 ms)48 VDC: < 20 A (t > 0.1 ms)48 VDC: < 20 A (t > 0.1 ms)Overload CurrentProtectionReverse PolarityPresent		
PowerPWR-HV-P48/PWR-HV-NPConsumption110 VDC: 12.43 W(without modules220 VDC: 12.87 Wconsumption)110 VAC: 13.42 W220 VAC: 14.08 WPWR-LV-P48/PWR-LV-NP24 VDC: 12.67 W48 VDC: 13.2 WPowerLM-7000H-4GTX: 3.63 WConsumption of moduleLM-7000H-4GSFP: 1.56 W (w/o POE output)LM-7000H-4GSFP: 1.56 W (w/o SFP modules)LM-7000H-4GSFP: 1.85 WLM-7000H-2GPHR: 8.1 WInput Current (without modules consumption)110 VAC: 0.29 A220 VAC: 0.11 A220 VAC: 0.18 APWR-LV-P48/PWR-LV-NP24 VDC: 0.28 APeak Inrush CurrentPWR-HV-P48/PWR-HV-NP110 VAC: < 10 A (t > 0.1 ms)220 VAC: < 20 A (t > 0.1 ms)24 VDC: < 20 A (t > 0.1 ms)Qverload Current ProtectionPresentProtectionReverse PolarityPresent		
Consumption (without modules consumption)110 VDC: 12.43 W 220 VDC: 12.87 W 110 VAC: 13.42 W 220 VAC: 14.08 W PWR-LV-P48/PWR-LV-NP 24 VDC: 12.67 W 48 VDC: 13.2 WPowerLM-7000H-4GTX: 3.63 W LM-7000H-4GTX: 3.63 W LM-7000H-4GSFP: 1.56 W (w/o PoE output) LM-7000H-4GSFP: 1.56 W (w/o SFP modules) LM-7000H-4PoE: 1.85 W LM-7000H-4DE: 1.85 W LM-7000H-2GPHR: 8.1 WInput Current (without modules consumption)PWR-HV-P48/PWR-HV-NP 220 VDC: 0.06 A 110 VDC: 0.11 A 220 VDC: 0.06 A 110 VAC: 0.29 A 220 VDC: 0.06 A 110 VAC: 0.29 A 220 VAC: 0.18 A PWR-LV-P48/PWR-LV-NP 24 VDC: 0.53 A 48 VDC: 0.28 APeak Inrush Current 110 VAC: < 10 A (t > 0.1 ms) 220 VAC: < 20 A (t > 0.1 ms) PWR-LV-P48/PWR-LV-NP 24 VDC: < 20 A (t > 0.1 ms) PWR-LV-P48/PWR-LV-NP 24 VDC: < 20 A (t > 0.1 ms) PWR-LV-P48/PWR-LV-NP PWR-LV-P48/PWR-LV-NP 24 VDC: < 20 A (t > 0.1 ms) PWR-LV-P48/PWR-LV-NP 24 VDC: < 20 A (t > 0.1 ms) PWR-LV-P48/PWR-LV-NP PWR-LV-P48/PWR-LV	Power	
(without modules consumption)220 VDC: 12.87 W 110 VAC: 13.42 W 220 VAC: 14.08 W PWR-LV-P48/PWR-LV-NP 24 VDC: 12.67 W 48 VDC: 13.2 WPowerLM-7000H-4GTX: 3.63 W Consumption of moduleLM-7000H-4GPoE: 3.80 W (w/o PoE output) LM-7000H-4GSFP: 1.56 W (w/o SFP modules) LM-7000H-4GSFP: 1.56 W (w/o SFP modules) LM-7000H-4PoE: 1.85 W LM-7000H-4PoE: 1.85 W LM-7000H-2GPHR: 8.1 WInput Current (without modulesPWR-HV-P48/PWR-HV-NP 110 VDC: 0.11 A 220 VDC: 0.06 A 110 VAC: 0.29 A 220 VAC: 0.18 A PWR-LV-P48/PWR-LV-NP 24 VDC: 0.53 A 48 VDC: 0.28 APeak Inrush CurrentPWR-HV-P48/PWR-HV-NP 24 VDC: 0.28 APeak Inrush CurrentPWR-HV-P48/PWR-LV-NP 24 VDC: 0.20 A (t > 0.1 ms) 220 VAC: < 20 A (t > 0.1 ms) PWR-LV-P48/PWR-LV-NP 24 VDC: < 20 A (t > 0.1 ms) PWR-LV-P48/PWR-LV-NP 24 VDC: < 20 A (t > 0.1 ms) PWR-LV-P48/PWR-LV-NP 24 VDC: < 20 A (t > 0.1 ms) PWR-LV-P48/PWR-LV-NP PA VD		
consumption)       110 VAC: 13.42 W         220 VAC: 14.08 W $PWR-LV-P48/PWR-LV-NP$ 24 VDC: 12.67 W       48 VDC: 13.2 W         Power       LM-7000H-4GTX: 3.63 W         Consumption of       LM-7000H-4GPoE: 3.80 W (w/o PoE output)         module       LM-7000H-4GSFP: 1.56 W (w/o SFP modules)         LM-7000H-4GSFP: 1.56 W (w/o SFP modules)       LM-7000H-4FVE         LM-7000H-4PoE: 1.85 W       LM-7000H-2GPHR: 8.1 W         Input Current <b>PWR-HV-P48/PWR-HV-NP</b> (without modules       110 VDC: 0.11 A         consumption)       220 VDC: 0.06 A         110 VAC: 0.29 A       220 VAC: 0.18 A <b>PWR-LV-P48/PWR-LV-NP</b> 24 VDC: 0.53 A         48 VDC: 0.28 A       Peak Inrush         PWR-LV-P48/PWR-LV-NP       220 VAC: < 20 A (t > 0.1 ms)         200 VAC: < 20 A (t > 0.1 ms)       220 VAC: < 20 A (t > 0.1 ms)         200 VAC: < 20 A (t > 0.1 ms)       24 VDC: < 20 A (t > 0.1 ms)         Querload Current       Present         Protection       Present		
220 VAC: 14.08 W <b>PWR-LV-P48/PWR-LV-NP</b> 24 VDC: 12.67 W         48 VDC: 13.2 W         Power       LM-7000H-4GTX: 3.63 W         Consumption of       LM-7000H-4GPoE: 3.80 W (w/o PoE output)         module       LM-7000H-4GSFP: 1.56 W (w/o SFP modules)         LM-7000H-4GSFP: 1.56 W (w/o SFP modules)       LM-7000H-4TX: 1.85 W         LM-7000H-4PoE: 1.85 W       LM-7000H-2GPHR: 8.1 W         Input Current <b>PWR-HV-P48/PWR-HV-NP</b> (without modules       110 VDC: 0.11 A         consumption)       220 VDC: 0.06 A         110 VAC: 0.29 A       220 VAC: 0.18 A <b>PWR-LV-P48/PWR-LV-NP</b> 24 VDC: 0.53 A         48 VDC: 0.28 A       Peak Inrush         Current       110 VAC: < 10 A (t > 0.1 ms)         220 VAC: < 20 A (t > 0.1 ms)       220 VAC: < 20 A (t > 0.1 ms)         220 VAC: < 20 A (t > 0.1 ms)       24 VDC: < 20 A (t > 0.1 ms)         24 VDC: < 20 A (t > 0.1 ms)       24 VDC: < 20 A (t > 0.1 ms)         0verload Current       Present         Protection       Present	•	
PWR-LV-P48/PWR-LV-NP           24 VDC: 12.67 W           48 VDC: 13.2 W           Power         LM-7000H-4GTX: 3.63 W           Consumption of         LM-7000H-4GPOE: 3.80 W (w/o PoE output)           module         LM-7000H-4GSFP: 1.56 W (w/o SFP modules)           LM-7000H-4GSFP: 1.56 W (w/o SFP modules)         LM-7000H-4PoE: 1.85 W           LM-7000H-4PoE: 1.85 W         LM-7000H-2GPHR: 8.1 W           Input Current         PWR-HV-P48/PWR-HV-NP           (without modules         110 VDC: 0.11 A           consumption)         220 VDC: 0.06 A           110 VAC: 0.29 A         220 VAC: 0.18 A           PWR-LV-P48/PWR-LV-NP         24 VDC: 0.53 A           48 VDC: 0.28 A         PWR-LV-P48/PWR-LV-NP           Current         110 VAC: < 10 A (t > 0.1 ms)           220 VAC: < 20 A (t > 0.1 ms)         220 VAC: < 20 A (t > 0.1 ms)           PWR-LV-P48/PWR-LV-NP         24 VDC: < 20 A (t > 0.1 ms)           Qurrent         Present           Overload Current         Present           Protection         Present	consumption	
24 VDC: 12.67 W         48 VDC: 13.2 W         Power       LM-7000H-4GTX: 3.63 W         Consumption of       LM-7000H-4GPoE: 3.80 W (w/o PoE output)         module       LM-7000H-4GSFP: 1.56 W (w/o SFP modules)         LM-7000H-4TX: 1.85 W       LM-7000H-4PoE: 1.85 W         LM-7000H-2GPHR: 8.1 W       LM-7000H-2GPHR: 8.1 W         Input Current <b>PWR-HV-P48/PWR-HV-NP</b> (without modules       110 VDC: 0.11 A         consumption)       220 VDC: 0.06 A         110 VAC: 0.29 A       220 VAC: 0.18 A <b>PWR-LV-P48/PWR-LV-NP</b> 24 VDC: 0.53 A         48 VDC: 0.28 A       Peak Inrush         Current       110 VAC: < 10 A (t > 0.1 ms)         220 VAC: < 20 A (t > 0.1 ms)       220 VAC: < 20 A (t > 0.1 ms)         220 VAC: < 20 A (t > 0.1 ms)       PWR-LV-P48/PWR-LV-NP         24 VDC: < 20 A (t > 0.1 ms)       24 VDC: < 20 A (t > 0.1 ms)         24 VDC: < 20 A (t > 0.1 ms)       PWR-LV-P48/PWR-LV-NP         24 VDC: < 20 A (t > 0.1 ms)       PWR-LV-P48/PWR-LV-NP         24 VDC: < 20 A (t > 0.1 ms)       PWR-LV-P48/PWR-LV-NP         24 VDC: < 20 A (t > 0.1 ms)       PWR-LV-P48/PWR-LV-NP         24 VDC: < 20 A (t > 0.1 ms)       PWR-LV-P48/PWR-LV-NP         24 VDC: < 20 A (t > 0.1 ms)       PWR-LV-P48/PWR-LV-NP </td <td></td> <td></td>		
48 VDC: 13.2 W           Power         LM-7000H-4GTX: 3.63 W           Consumption of module         LM-7000H-4GPoE: 3.80 W (w/o PoE output)           LM-7000H-4GSFP: 1.56 W (w/o SFP modules)         LM-7000H-4GSFP: 1.56 W (w/o SFP modules)           LM-7000H-4TX: 1.85 W         LM-7000H-4PoE: 1.85 W           LM-7000H-2GPHR: 8.1 W         LM-7000H-2GPHR: 8.1 W           Input Current (without modules         110 VDC: 0.11 A           consumption)         220 VDC: 0.06 A           110 VAC: 0.29 A         220 VAC: 0.18 A           PWR-LV-P48/ PWR-LV-NP         24 VDC: 0.53 A           48 VDC: 0.28 A         PWR-LV-P48/PWR-LV-NP           Current         110 VAC: < 10 A (t > 0.1 ms)           220 VAC: < 20 A (t > 0.1 ms)         220 VAC: < 20 A (t > 0.1 ms)           PWR-LV-P48/PWR-LV-NP         24 VDC: < 20 A (t > 0.1 ms)           Overload Current         Present           Protection         Present		
Power         LM-7000H-4GTX: $3.63$ W           Consumption of module         LM-7000H-4GPoE: $3.80$ W (w/o PoE output) LM-7000H-4GSFP: $1.56$ W (w/o SFP modules) LM-7000H-4TX: $1.85$ W LM-7000H-4PoE: $1.85$ W LM-7000H-2GPHR: $8.1$ W           Input Current (without modules <b>PWR-HV-P48/PWR-HV-NP</b> (without modules)         110 VDC: $0.11$ A           consumption)         220 VDC: $0.06$ A           110 VAC: $0.29$ A         220 VAC: $0.18$ A <b>PWR-LV-P48/PWR-LV-NP</b> 24 VDC: $0.53$ A           24 VDC: $0.28$ A         220 VAC: $< 10$ A (t > $0.1$ ms)           220 VAC: $< 20$ A (t > $0.1$ ms)         220 VAC: $< 20$ A (t > $0.1$ ms)           QWR-LV-P48/PWR-LV-NP         24 VDC: $< 20$ A (t > $0.1$ ms)           Overload Current Protection         Present           Protection         Present		
Consumption of moduleLM-7000H-4GPoE: $3.80 \text{ W}$ (w/o PoE output) LM-7000H-4GSFP: $1.56 \text{ W}$ (w/o SFP modules) LM-7000H-4TX: $1.85 \text{ W}$ LM-7000H-2GPHR: $8.1 \text{ W}$ Input Current (without modules <b>PWR-HV-P48/PWR-HV-NP</b> $220 \text{ VDC: } 0.11 \text{ A}$ $200 \text{ VDC: } 0.11 \text{ A}$ $200 \text{ VDC: } 0.11 \text{ A}$ $200 \text{ VDC: } 0.18 \text{ A}$ <b>PWR-LV-P48/PWR-LV-NP</b> $24 \text{ VDC: } 0.28 \text{ A}$ Peak Inrush Current $220 \text{ VDC: } 10 \text{ A} (t > 0.1 \text{ ms})$ $220 \text{ VAC: } < 20 \text{ A} (t > 0.1 \text{ ms})$ $220 \text{ VAC: } < 20 \text{ A} (t > 0.1 \text{ ms})$ Overload Current Protection <b>Present</b> PresentPresent	Power	
moduleLM-7000H-4GSFP: 1.56 W (w/o SFP modules) LM-7000H-4TX: 1.85 W LM-7000H-4PoE: 1.85 W LM-7000H-2GPHR: $8.1$ WInput Current (without modules <b>PWR-HV-P48/PWR-HV-NP</b> 220 VDC: 0.11 A 220 VDC: 0.06 A 110 VAC: 0.29 A 220 VAC: 0.18 A <b>PWR-LV-P48/PWR-LV-NP</b> 24 VDC: 0.53 A 48 VDC: 0.28 APeak Inrush Current <b>PWR-HV-P48/PWR-HV-NP</b> 24 VDC: $< 10$ A (t > 0.1 ms) 220 VAC: $< 20$ A (t > 0.1 ms) <b>PWR-LV-P48/PWR-LV-NP</b> 24 VDC: $< 20$ A (t > 0.1 ms) <b>PWR-LV-P48/PWR-LV-NP</b> 24 VDC: $< 20$ A (t > 0.1 ms) <b>PWR-LV-P48/PWR-LV-NP</b> 24 VDC: $< 20$ A (t > 0.1 ms) PWR-LV-P48/PWR-LV-NP 24 VDC: $< 20$ A (t > 0.1 ms) PWR-LV-P48/PWR-LV-NP P 24 VDC: $< 20$ A (t > 0.1 ms) PWR-LV-P48/PWR-LV-NP P 24 VDC: $< 20$ A (t > 0.1 ms) PWR-LV-P48/PWR-LV-NP 	Consumption of	LM-7000H-4GPoE: 3.80 W (w/o PoE output)
LM-7000H-4TX: $1.85$ W         LM-7000H-4PoE: $1.85$ W         LM-7000H-2GPHR: $8.1$ W         Input Current         (without modules         110 VDC: $0.11$ A         consumption)         220 VDC: $0.06$ A         110 VAC: $0.29$ A         220 VAC: $0.18$ A <b>PWR-LV-P48/ PWR-LV-NP</b> 24 VDC: $0.53$ A         48 VDC: $0.28$ A         Peak Inrush         Current         110 VAC: < 10 A (t > 0.1 ms)         220 VAC: < 20 A (t > 0.1 ms) <b>PWR-LV-P48/PWR-LV-NP</b> 24 VDC: < 20 A (t > 0.1 ms) <b>PWR-LV-P48/PWR-LV-NP</b> 24 VDC: < 20 A (t > 0.1 ms) <b>PWR-LV-P48/PWR-LV-NP</b> 24 VDC: < 20 A (t > 0.1 ms) <b>Overload Current</b> Present         Protection         Reverse Polarity		
LM-7000H-4PoE: 1.85 W LM-700H-2GPHR: 8.1 W           Input Current (without modules consumption)         PWR-HV-P48/PWR-HV-NP           220 VDC: 0.11 A consumption)         220 VDC: 0.06 A 110 VAC: 0.29 A 220 VAC: 0.18 A PWR-LV-P48/PWR-LV-NP 24 VDC: 0.53 A 48 VDC: 0.28 A           Peak Inrush Current         PWR-HV-P48/PWR-HV-NP 110 VAC: < 10 A (t > 0.1 ms) 220 VAC: < 20 A (t > 0.1 ms) PWR-LV-P48/PWR-LV-NP 24 VDC: < 20 A (t > 0.1 ms) 48 VDC: < 20 A (t > 0.1 ms)           Overload Current Protection         Present           Present         Present		
Input Current (without modules consumption) <b>PWR-HV-P48/PWR-HV-NP</b> 220 VDC: 0.11 A         220 VDC: 0.06 A           110 VAC: 0.29 A         220 VAC: 0.18 A <b>PWR-LV-P48/ PWR-LV-NP</b> 24 VDC: 0.53 A           24 VDC: 0.28 A         200 VAC: 0.28 A           Peak Inrush Current <b>PWR-HV-P48/PWR-HV-NP</b> 110 VAC: < 10 A (t > 0.1 ms)           220 VAC: < 20 A (t > 0.1 ms) <b>PWR-LV-P48/PWR-LV-NP</b> 24 VDC: < 20 A (t > 0.1 ms) <b>PWR-LV-P48/PWR-LV-NP</b> 24 VDC: < 20 A (t > 0.1 ms) <b>PWR-LV-P48/PWR-LV-NP</b> 24 VDC: < 20 A (t > 0.1 ms) <b>PWR-LV-P48/PWR-LV-NP</b> 24 VDC: < 20 A (t > 0.1 ms) <b>PWR-LV-P48/PWR-LV-NP</b> 24 VDC: < 20 A (t > 0.1 ms) <b>PWR-LV-P48/PWR-LV-NP</b> 24 VDC: < 20 A (t > 0.1 ms)           48 VDC: < 20 A (t > 0.1 ms)           Overload Current           Present           Protection           Reverse Polarity           Present		
Input Current (without modules consumption) <b>PWR-HV-P48/PWR-HV-NP</b> 220 VDC: 0.11 A         220 VDC: 0.06 A           110 VAC: 0.29 A         220 VAC: 0.18 A <b>PWR-LV-P48/ PWR-LV-NP</b> 24 VDC: 0.53 A           24 VDC: 0.28 A         200 VAC: 0.28 A           Peak Inrush Current <b>PWR-HV-P48/PWR-HV-NP</b> 110 VAC: < 10 A (t > 0.1 ms)           220 VAC: < 20 A (t > 0.1 ms) <b>PWR-LV-P48/PWR-LV-NP</b> 24 VDC: < 20 A (t > 0.1 ms) <b>PWR-LV-P48/PWR-LV-NP</b> 24 VDC: < 20 A (t > 0.1 ms) <b>PWR-LV-P48/PWR-LV-NP</b> 24 VDC: < 20 A (t > 0.1 ms) <b>PWR-LV-P48/PWR-LV-NP</b> 24 VDC: < 20 A (t > 0.1 ms) <b>PWR-LV-P48/PWR-LV-NP</b> 24 VDC: < 20 A (t > 0.1 ms) <b>PWR-LV-P48/PWR-LV-NP</b> 24 VDC: < 20 A (t > 0.1 ms)           48 VDC: < 20 A (t > 0.1 ms)           Overload Current           Present           Protection           Reverse Polarity           Present		
(without modules consumption)       110 VDC: 0.11 A         220 VDC: 0.06 A       110 VAC: 0.29 A         220 VAC: 0.18 A       PWR-LV-P48/ PWR-LV-NP         24 VDC: 0.53 A       48 VDC: 0.28 A         Peak Inrush       PWR-HV-P48/PWR-HV-NP         Current       110 VAC: < 10 A (t > 0.1 ms)         220 VAC: < 20 A (t > 0.1 ms)       20 VAC: < 20 A (t > 0.1 ms)         PWR-LV-P48/PWR-LV-NP       24 VDC: < 20 A (t > 0.1 ms)         PWR-LV-P48/PWR-LV-NP       24 VDC: < 20 A (t > 0.1 ms)         Overload Current       Present         Protection       Present	Input Current	
Consumption)         220 VDC: 0.06 A           110 VAC: 0.29 A         220 VAC: 0.18 A <b>PWR-LV-P48/ PWR-LV-NP</b> 24 VDC: 0.53 A           24 VDC: 0.28 A         200 VAC: 0.28 A           Peak Inrush <b>PWR-HV-P48/PWR-HV-NP</b> Current         110 VAC: < 10 A (t > 0.1 ms)           220 VAC: < 20 A (t > 0.1 ms)         200 VAC: < 20 A (t > 0.1 ms) <b>PWR-LV-P48/PWR-LV-NP</b> 24 VDC: < 20 A (t > 0.1 ms) <b>PWR-LV-P48/PWR-LV-NP</b> 24 VDC: < 20 A (t > 0.1 ms)           Overload Current         Present           Protection         Present		110 VDC: 0.11 A
110 VAC: 0.29 A         220 VAC: 0.18 A <b>PWR-LV-P48/ PWR-LV-NP</b> 24 VDC: 0.53 A         48 VDC: 0.28 A         Peak Inrush         Current         110 VAC: < 10 A (t > 0.1 ms)         20 VAC: < 20 A (t > 0.1 ms)         PWR-LV-P48/PWR-LV-NP         20 VAC: < 20 A (t > 0.1 ms)         PWR-LV-P48/PWR-LV-NP         24 VDC: < 20 A (t > 0.1 ms)         PWR-LV-P48/PWR-LV-NP         24 VDC: < 20 A (t > 0.1 ms)         PWR-LV-P48/PWR-LV-NP         24 VDC: < 20 A (t > 0.1 ms)         PWR-LV-P48/PWR-LV-NP         24 VDC: < 20 A (t > 0.1 ms)         Protection         Present         Protection         Present	•	220 VDC: 0.06 A
PWR-LV-P48/ PWR-LV-NP           24 VDC: 0.53 A           48 VDC: 0.28 A           Peak Inrush           Current           110 VAC: < 10 A (t > 0.1 ms)           20 VAC: < 20 A (t > 0.1 ms)           PWR-LV-P48/PWR-LV-NP           24 VDC: < 20 A (t > 0.1 ms)           PWR-LV-P48/PWR-LV-NP           24 VDC: < 20 A (t > 0.1 ms)           9WR-LV-20 A (t > 0.1 ms)           PWR-LV-P48/PWR-LV-NP           24 VDC: < 20 A (t > 0.1 ms)           9WR-LV-948/PWR-LV-NP           24 VDC: < 20 A (t > 0.1 ms)           9WR-LV-P48/PWR-LV-NP           24 VDC: < 20 A (t > 0.1 ms)           9WR-LV-948/PWR-LV-NP           24 VDC: < 20 A (t > 0.1 ms)           9WR-LV-948/PWR-LV-NP           24 VDC: < 20 A (t > 0.1 ms)           9WR-LV-948/PWR-LV-NP           24 VDC: < 20 A (t > 0.1 ms)           9WR-LV-948/PWR-LV-NP           24 VDC: < 20 A (t > 0.1 ms)           9WR-LV-948/PWR-LV-NP           9WR-LV-948/PWR-LV-NP           24 VDC: < 20 A (t > 0.1 ms)           9WR-LV-948/PWR-LV-NP           9WR-LV-948/PWR-LV-NP           9WR-LV-948/PWR-LV-NP           9WR-LV-948/PWR-LV-NP           9WR-LV-948/PWR-LV-NP           9WR-LV-948/PWR-LV-NP		110 VAC: 0.29 A
24 VDC: 0.53 Å           48 VDC: 0.28 Å           Peak Inrush           Current           110 VAC: < 10 Å (t > 0.1 ms)           220 VAC: < 20 Å (t > 0.1 ms)           PWR-LV-P48/PWR-LV-NP           24 VDC: < 20 Å (t > 0.1 ms)           PWR-LV-248/PWR-LV-NP           24 VDC: < 20 Å (t > 0.1 ms)           48 VDC: < 20 Å (t > 0.1 ms)           VOErload Current           Protection           Reverse Polarity           Present		220 VAC: 0.18 A
48 VDC: 0.28 A           Peak Inrush         PWR-HV-P48/PWR-HV-NP           Current         110 VAC: < 10 A (t > 0.1 ms)           220 VAC: < 20 A (t > 0.1 ms)         220 VAC: < 20 A (t > 0.1 ms)           PWR-LV-P48/PWR-LV-NP         24 VDC: < 20 A (t > 0.1 ms)           24 VDC: < 20 A (t > 0.1 ms)         48 VDC: < 20 A (t > 0.1 ms)           Overload Current         Present           Protection         Present		PWR-LV-P48/ PWR-LV-NP
Peak Inrush         PWR-HV-P48/PWR-HV-NP           Current         110 VAC: < 10 A (t > 0.1 ms)           220 VAC: < 20 A (t > 0.1 ms)           PWR-LV-P48/PWR-LV-NP           24 VDC: < 20 A (t > 0.1 ms)           48 VDC: < 20 A (t > 0.1 ms)           Voerload Current           Protection           Reverse Polarity		24 VDC: 0.53 A
Current         110 VAC: < 10 A (t > 0.1 ms)           220 VAC: < 20 A (t > 0.1 ms) <b>PWR-LV-P48/PWR-LV-NP</b> 24 VDC: < 20 A (t > 0.1 ms)           48 VDC: < 20 A (t > 0.1 ms)           Voerload Current           Protection           Reverse Polarity           Present		48 VDC: 0.28 A
220 VAC: < 20 A (t > 0.1 ms) <b>PWR-LV-P48/PWR-LV-NP</b> 24 VDC: < 20 A (t > 0.1 ms)         48 VDC: < 20 A (t > 0.1 ms)         Voerload Current         Protection         Reverse Polarity         Present	Peak Inrush	PWR-HV-P48/PWR-HV-NP
220 VAC: < 20 A (t > 0.1 ms) <b>PWR-LV-P48/PWR-LV-NP</b> 24 VDC: < 20 A (t > 0.1 ms)         48 VDC: < 20 A (t > 0.1 ms)         Voerload Current         Protection         Reverse Polarity         Present	Current	-
PWR-LV-P48/PWR-LV-NP       24 VDC: < 20 A (t > 0.1 ms)       48 VDC: < 20 A (t > 0.1 ms)       0verload Current       Protection       Reverse Polarity       Present		
48 VDC: < 20 A (t > 0.1 ms)       Overload Current     Present       Protection     Present       Reverse Polarity     Present		
48 VDC: < 20 A (t > 0.1 ms)       Overload Current     Present       Protection     Present       Reverse Polarity     Present		
Overload Current Present Protection Reverse Polarity Present		24 VDC: < 20 A (t > 0.1 ms)
Protection Reverse Polarity Present		
Reverse Polarity Present	Overload Current	48 VDC: < 20 A (t > 0.1 ms)
		48 VDC: < 20 A (t > 0.1 ms)
	Protection	48 VDC: < 20 A (t > 0.1 ms) Present

Physical Characteristics			
Housing	IP30 protection		
Dimensions	443 x 44 x 280 mm (17.32 x 1.37 x 11.02 in)		
Weight	PT-G7728/G7828: 3.08 kg (6.78 lb)		
5	LM-7000H-4GSFP: 0.30 kg (0.66 lb)		
	LM-7000H-4GTX: 0.24 kg (0.53 lb)		
	LM-7000H-4TX: 0.24 kg (0.53 lb)		
	LM-7000H-4GPoE: 0.31 kg (0.69 lb)		
	LM-7000H-4PoE: 0.31 kg (0.69 lb)		
	LM-7000H-2GPHR: 0.31 kg (0.69 lb)		
	PWR-HV-P48/PWR-LV-P48: 0.36 kg (0.79 lb)		
	PWR-HV-NP/PWR-LV-NP: 0.34 kg (0.75 lb)		
Installation	19" rack mounting		
Environmental L	imits		
Operating Temp.	-40 to 85°C (-40 to 185°F)		
Storage Temp.	-40 to 85°C (-40 to 185°F)		
Ambient Relative	5 to 95% (non-condensing)		
Humidity			
Note: This equipm	nent is intended for use in a Pollution Degree 2		
industrial environ	ment, and for use in overvoltage Category II		
applications. The	class of equipment is class I base on IEC 60950-1.		
Standards and C	Certifications		
Safety	UL 62368-1, EN 62368-1 (LVD)		
EMC	EN 55024, 55032		
EMI	CISPR 22, FCC Part 15B Class A		
EMS	IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV		
	IEC 61000-4-3 RS: 80MHz to 1GHz: 20 V/m		
	IEC 61000-4-4 EFT: Power: 4 kV; Signal: 4 kV		
	IEC 61000-4-5 Surge: Power 4 kV; Signal: 4 kV		
	IEC 61000-4-6 CS: 10V		
	IEC 61000-4-8		
Note: For better o	onductive radiation immunity, it is recommended to		
use a STP cable a	nd install a surge protector at the PoE power input:		
EPS.			
LI J.			
Rail Traffic	EN 50121-4		
	EN 50121-4 IEC-61850-3 ed2 class2, IEEE 1613 class2		
Rail Traffic			
Rail Traffic Substation			

# **Restricted Access Locations**

This equipment is intended to be used in Restricted Access Locations, such as a computer room, with access limited to service personnel or users who have been instructed on how to handle the metal chassis of equipment that is very hot. The location should only be accessible



with a key or through a security system. External metal parts of this equipment are extremely hot. Before

touching the equipment, you must take special precautions to protect your hands and body from serious injury.