

**ICS-G7748A/G7750A/
G7752A/G7848A/G7850A/
G7852A Series
Hardware Installation Guide**

Second Edition, September 2014



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Package Checklist

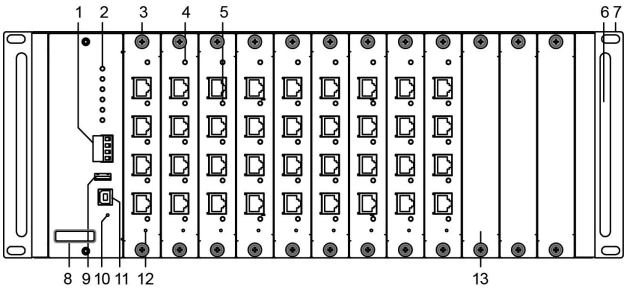
The Moxa ICS-G7748A/G7750A/G7752A/G7848A/G7850A/G7852A industrial rackmount switches (abbreviated ICS) are shipped with the following items. If any of these items are missing or damaged, please contact your customer service representative for assistance.

- ICS-G7748A or ICS-G7750A or ICS-G7752A or ICS-G7848A or ICS-G7850A or ICS-G7852A switch
- USB cable (Type A male to Type B male)
- 2 power cords
- 2 PWR-G7000A-AC power modules
- Protective caps for unused ports
- 2 rackmount ears
- 2 metal handles
- 12 cover plates
- Documentation and software CD
- Hardware installation guide (printed)
- Moxa product warranty statement

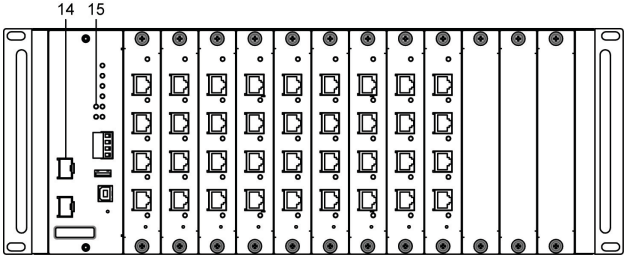
Panel Layouts

Front View

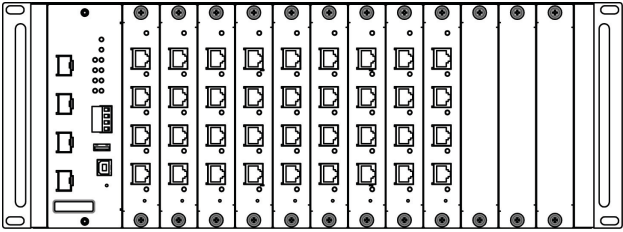
ICS-G7748A/G7848A with IM-G7000A modules



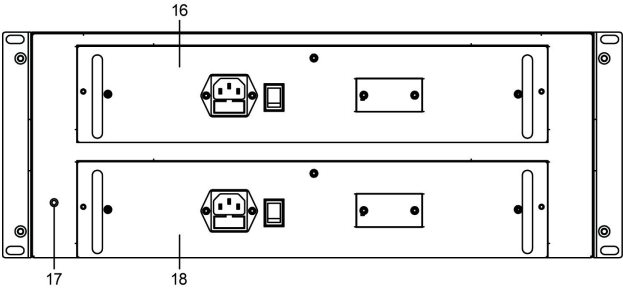
ICS-G7750A/G7850A with IM-G7000A modules



ICS-G7752A/G7852A with IM-G7000A modules

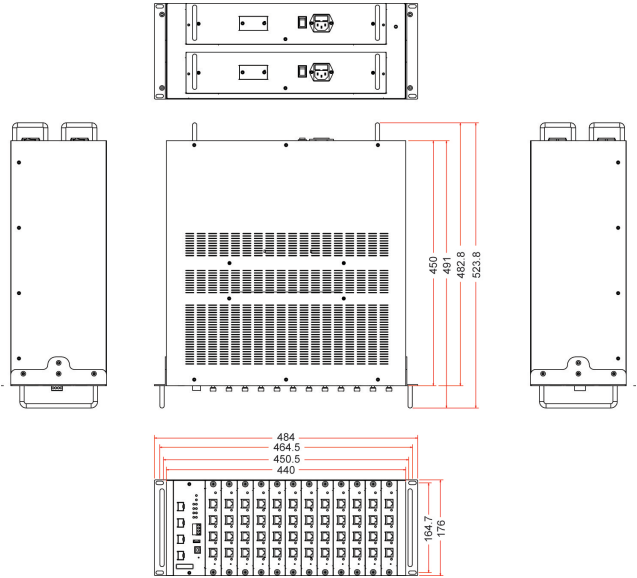


Rear View



1. Terminal block for Relay Output and Digital Input
2. System status LEDs
3. Copper module slot for 10/100/1000BaseT(X) port or SFP module slot for 100/1000BaseSFP
4. Hot-swap status LED
5. 10/100/1000BaseT(X) port status LEDs or 100/1000BaseSFP port status LEDs
6. Metal handle
7. 19" rack-mount ear
8. Model name
9. USB storage port (ABC-02-USB)
10. Reset button
11. USB serial console port
12. Hot-swap button
13. Metal cover plate
14. 10 Gigabit Ethernet SFP+ slot
15. 10 Gigabit Ethernet SFP+ port status LEDs
16. First PWR-G7000A-AC power module (PWR1)
17. Grounding screw
18. Second PWR-G7000A-AC power module (PWR2)

Dimensions (unit = mm)



Grounding the Industrial Rackmount Switch

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

Connecting the Power Inputs

The ICS supports dual redundant power supplies: Power Supply 1 (PWR1) and Power Supply 2 (PWR2). The connections for PWR1 and PWR2 are located on the rear of the product. Be sure to use a standard power cord with an IEC C13 connector, which is compatible with the AC power inlet.

Installing/Removing ICS Switch Modules

IM-G7000A Series modules are designed for installation in ICS switches. Before inserting the module into the slot, first remove the metal cover plate. Push the module along the track and firmly connect the module with the connector. Finally, secure the module by firmly tightening the screws.

IM-G7000A Series modules are hot-swappable. Take the following steps to remove modules from the switch:

1. Push the **HOT SWAP** button on the module.
2. Wait for the **HOT SWAP STATE** LED to turn off.
3. Loosen the screw(s) and remove the module.

Wiring the Relay Contact

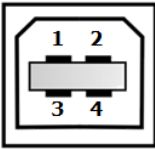
Each ICS switch has one relay output.

FAULT: The relay contact of the 4-pin terminal block connector is used to detect user-configured events. The two wires attached to the fault contacts form an open circuit when a user-configured event is triggered. If a user-configured event does not occur, the fault circuit remains closed.

USB Console Connection

The ICS has one USB console port (type B connector) located on the top panel. Use the USB cable (provided in the product package) to connect the ICS's console port to your PC's USB port, and install the USB driver (available on the software CD) on the PC. You may then use a console terminal program, such as Moxa PComm Terminal Emulator, to access the ICS's console configuration utility.

USB Console Port (Type B Connector) Pinouts

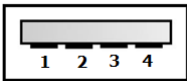


Pin	Description
1	D- (Data -)
2	VCC (+5V)
3	D+ (Data+)
4	GND (Ground)

USB Storage Connection

The ICS has one USB storage port (type A connector) on the front panel. Use Moxa's ABC-02-USB automatic backup configurator to connect the ICS's USB storage port for configuration backup, firmware upgrade, or system log file backup.

USB Storage Port (Type A Connector) Pinouts



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

NOTE DO NOT remove the ABC-02-USB USB Automatic Backup Configurator while writing or reading data.

Reset Button

Depress the Reset button continuously 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, which 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.

LEDs

LED	Color	State	Description
System LEDs			
STATE	GREEN	On	System has passed the self-diagnosis test on boot-up and is ready to run.
		Blinking	1. System is undergoing the self-diagnosis test 2. Blink continuously when pressing the reset button 5 seconds to reset to factory default 3. Blink slowly when an ABC-02 automatic backup device is detected
	RED	On	System failed self-diagnosis on boot-up.
PWR1	AMBER	On	Power is being supplied to the main module's power input PWR1.
		Off	Power is not being supplied to the main module's power input PWR1.
PWR2	AMBER	On	Power is being supplied to the main module's power input PWR2.
		Off	Power is not being supplied to the main module's power input PWR2.
FAULT	RED	On	System is in the event of failure, or is under quick inspection.
		Off	System is in normal operation.
MSTR/ HEAD	GREEN	On	The switch is set as the Master of the Turbo Ring, or as the Head of the Turbo Chain.
		Blinking	Switch has become the Ring Master of the Turbo Ring, or the Head of the Turbo Chain, after the Turbo Ring or the Turbo Chain is down.
		Off	The switch is not the Master of this Turbo Ring or is set as a Member of the Turbo Chain
CPLR/ TAIL	GREEN	On	Switch's coupling function is enabled to form a back-up path, or when it's set as the Tail of the Turbo Chain.
		Blinking	Turbo Chain is down
		Off	Switch has disabled the coupling function.
When the system is importing/exporting data from or to an ABC-02 automatic backup device, the FAULT, MSTR/HEAD, and CPLR/TAIL LEDs will blink in sequence.			

LED	Color	State	Description
Main Module LED Status			
10 GbE (Fiber Optic Port)	GREEN	On	The corresponding port's link is active.
		Blinking	Data is being transmitted.
		Off	The corresponding port's link is inactive.
IM-G7000A-4GTX 10/100/1000 Mbps (TP Ports)	GREEN	On	The corresponding port's link is active at 1000 Mbps.
		Blinking	Data is being transmitted at 1000 Mbps.
		Off	The corresponding port's link is inactive.
	AMBER	On	The corresponding port's link is active at 10/100 Mbps
		Blinking	Data is being transmitted.
		Off	The corresponding port's link is inactive.
IM-G7000A-4GSFP 100/1000 Mbps (Fiber Optic Ports)	GREEN	On	The corresponding port's link is active at 1000 Mbps
		Blinking	Data is being transmitted.
		Off	The corresponding port's link is inactive.
	AMBER	On	The corresponding port's link is active at 100 Mbps
		Blinking	Data is being transmitted.
		Off	The corresponding port's link is inactive.
IM-G7000A-4 PoE (PoE+ Ports)	GREEN	On	The PoE device is connected by the IEEE 802.3at standard.
		Off	No PoE power is being output or no PoE devices are connected.
	AMBER	On	The PoE device is connected by the IEEE 802.3af standard
		Off	No PoE power is being output or no PoE devices are connected.
	RED	Blinking	PoE failure: • 1 time/s: PoE standard detection failure • 2 times/s: PoE current overload
		Off	No PoE failure
EPS (IM-G7000A-4PoE module only)	Amber	On	External power supply is working for PoE+ power output
		Off	External power supply is not working for PoE+ power output
HOT SWAP STATE	GREEN	On	The module is working
		Blinking	The module is uninstalling
		Off	The module is not working or can be safely removed.

Specifications

Technology	
Standards	IEEE 802.3 for 10BaseT IEEE 802.3u for 100BaseT(X) and 100BaseFX IEEE 802.3ab for 1000BaseT(X) IEEE 802.3z for 1000BaseSX/LX/LHX/ZX IEEE 802.3ae for 10 Gigabit Ethernet IEEE 802.3x for Flow Control IEEE 802.1D-2004 for Spanning Tree Protocol IEEE 802.1w for Rapid Spanning Tree Protocol 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	IGMPv1/v2, GMRP, GVRP, SNMPv1/v2c/v3, DHCP Server/Client, BootP, TFTP, SNTP, SMTP, RARP, RMON, HTTP, HTTPS, Telnet, Syslog, DHCP Option 66/67/82, SSH, LLDP, IEEE 1588 PTP V2, EtherNet/IP, Modbus/TCP, SNMP Inform, NTP Server/Client, IPv6 (ICS-G7700A series)
Layer 3 Switching (ICS-G7800A)	Static routing, RIP V1/V2, OSPF, DVMRP, PIM-DM, PIM-SM, PIM-SSM
Layer 3 Switching Redundancy (ICS-G7800A)	VRRP
MIB	MIB-II, Ethernet-like MIB, P-BRIDGE MIB, Q-BRIDGE MIB, Bridge MIB, RSTP MIB, RMON MIB Groups 1, 2, 3, 9
Flow Control	IEEE 802.3x flow control, back pressure flow control
Interface	
Gigabit Ethernet	10/100/1000BaseT(X) or 100/1000BaseSFP slot
10 Gigabit Ethernet	10GbE SFP+ slot
Console Port	USB-serial console (Type B connector)
Storage Port	USB storage (Type A connector for ABC-02-USB)
LED Indicators	STATE, PWR1, PWR2, FAULT, MSTR/HEAD, CPLR/TAIL
Alarm Contact	1 relay output with current carrying capacity of 2 A @ 30 VDC
Digital Inputs	1 input with the same ground, but electrically isolated from the electronics. <ul style="list-style-type: none"> • +13 to +30 V for state "1" • -30 to +1 V for state "0" • Max. input current: 8 mA

Power Requirements	
Input Voltage	ICS-G7000A Switch: 110/220 VAC (85 to 264 VAC) IM-G7000A-4PoE Module: 48 VDC (46 to 57 VDC)
Input Current	ICS-G7748A/7848A Switch: Max. 1.02/0.46 A @ 110/220 VAC ICS-G7750A/7850A Switch: Max. 1.10/0.49 A @ 110/220 VAC ICS-G7752A/7852A Switch: Max. 1.19/0.52 A @ 110/220 VAC IM-G7000A-4PoE Module: Max. 2.90 A @ 48 VDC
Overload Current Protection	Present
Physical Characteristics	
Housing	IP30 protection
Dimensions	440 x 176 x 482.8 mm (17.32 x 6.93 x 20.62 in)
Weight	12.9 kg
Installation	4U 19" rack mounting
Environmental Limits	
Operating Temp.	-10 to 60°C (14 to 140°F)
Storage Temp.	-40 to 85°C (-40 to 185°F)
Ambient Relative Humidity.	5 to 95% (non-condensing)
Standards and Certifications	
Safety	UL 60950-1, EN 60950-1
EMI	FCC Part 15 Subpart B Class A, EN 55022 Class A
EMS	EN 61000-4-2 (ESD) Level 3, EN 61000-4-3 (RS) Level 3, EN 61000-4-4 (EFT) Level 3, EN 61000-4-5 (Surge) Level 3, EN 61000-4-6 (CS) Level 3, EN 61000-4-8, EN 61000-4-11
Rail Traffic	EN 50121-4
Shock	IEC 60068-2-27
Freefall	IEC 60068-2-32
Vibration	IEC 60068-2-6
Warranty	
Warranty Period	5 years
Details	See www.moxa.com/warranty

Rack Mounting Instructions

1. **Elevated Operating Ambient:** If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (T_{ma}) specified by the manufacturer.
2. **Reduced 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.
5. **Reliable Earthing:** Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g., use of power strips).

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 so hot that special protection may be needed before touching it. The location should only be accessible with a key or through a security identity 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.

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