# MOXA®

# ICS-G7748/G7750/G7752/G7848/G7850/G7852 Series

# Hardware Installation Guide

**Second Edition, September 2011**

## Package Checklist

The Moxa ICS-G7748/G7750/G7752/G7848/G7850/G7852 Series industrial rackmount switches are shipped with the following items. If any of these items are missing or damaged, please contact your customer service representative for assistance.

- ICS-G7748/G7750/G7752/G7848/G7850/G7852 switch
- RJ45 to DB9 console port cable
- 2 power cords
- 2 PWR-G7000-AC power modules
- Protective caps for unused ports
- 2 rackmount ears
- Documentation and software CD
- Hardware installation guide (printed)
- Warranty card
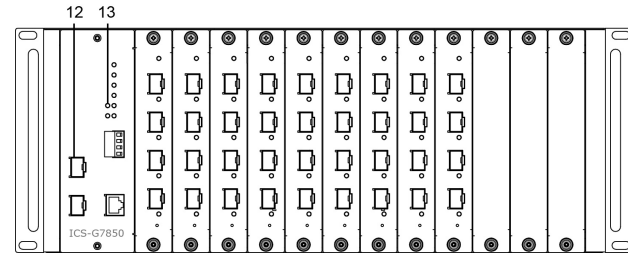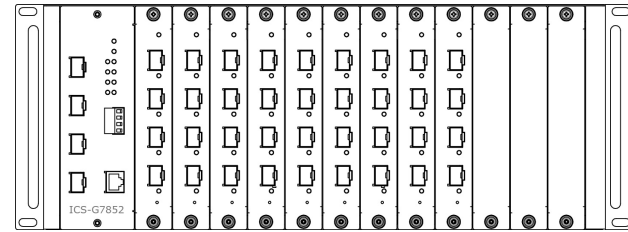- 2 metal handles
- 12 cover plates

## Panel Layouts

### Front View
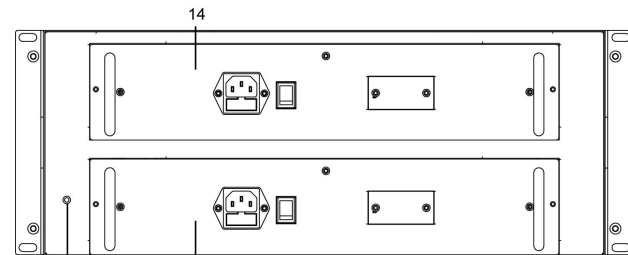
#### ICS-G7748/G7848 with IM-G7000 modules
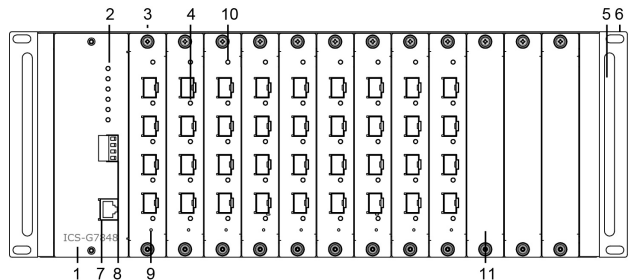
## ICS-G7750/G7850 with IM-G7000 modules

## ICS-G7752/G7852 with IM-G7000 modules

## Rear View

1. Main module
2. System status LEDs
3. Copper module slot for 10/100/1000 BaseT(X) port or SFP module slot for 100/1000Base SFP
4. 10/100/1000 BaseT(X) port status LEDs or 100/1000Base SFP port status LEDs
5. Metal handle
6. 19" rack-mount ear
7. Serial Console port
8. Terminal block for Relay Output, Digital Input
9. Hot-swap button
10. Hot-swap status LED
11. Metal cover plate
12. 10 Gigabit Ethernet SFP+ slot
13. 10 Gigabit Ethernet SFP+ port status LEDs
14. First PWR-G7000-AC power module (PWR1)
15. Second PWR-G7000-AC power module (PWR2)
16. Grounding screw

## Grounding the Industrial Rackmount Switch

Grounding and wire routing help limit the effect 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-G7748/G7750/G7752/G7848/G7850/G7852 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 side (shown below). 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-G7000 Series modules are designed for installation in ICS-G7748/G7750/G7752/G7848/G7850/G7852 Series switches. To insert the module into the slot, first remove the cover first. Be sure to push the module on the track and firmly connect the module with the connector. Finally, ensure stability and secure the module by firmly tightening the screws.

IM-G7000 Series modules are hot-swappable modules. To remove modules from a switch, follow these steps:

1. Push the **Hot-Swap** button on the module
2. Wait for the HOT SWAP STATE LED to turn off.
3. Loosen the screw and remove the module

## Dimensions (unit = mm)
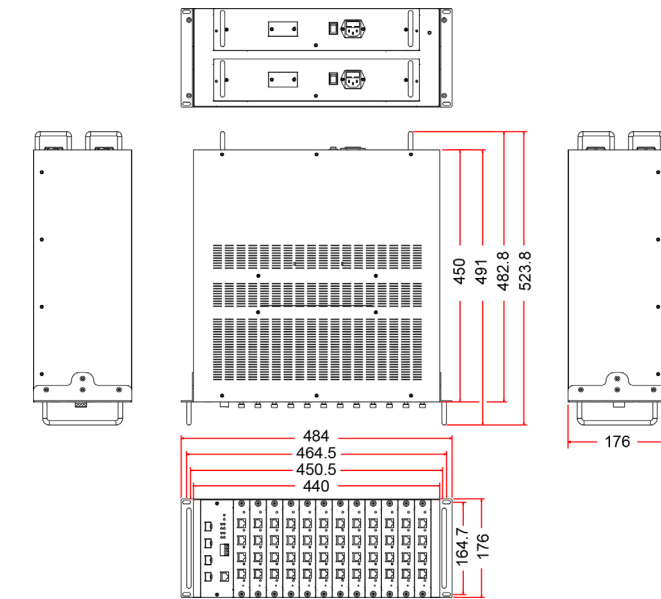
## LEDs

| LED | Color | State | Description |
|-----|-------|-------|-------------|
| System LEDs | | | |
| STATE | GREEN | On | The system passed the self-diagnosis test on boot-up and is ready to run. |
| STATE | GREEN | Blinking | The system is undergoing the self-diagnosis test. |
| STATE | RED | On | The system failed self-diagnosis on boot-up. |
| PWR1 | AMBER | On | Power is being supplied to the main module's power input PWR1. |
| PWR1 | AMBER | 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. |
| PWR2 | AMBER | Off | Power is not being supplied to the main module's power input PWR2. |
| FAULT | RED | On | The system has failed, or is under quick inspection. |
| FAULT | RED | Off | The system is operating normally. |
| MSTR/ HEAD | GREEN | On | The switch is set as the Master of the Turbo Ring, or as the Head of the Turbo Chain. |
| MSTR/ HEAD | GREEN | Blinking | The 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. |
| MSTR/ HEAD | GREEN | 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 | The switch's coupling function is enabled to form a back-up path, or when it's set as the Tail of the Turbo Chain. |
| CPLR/ TAIL | GREEN | Blinking | Turbo Chain is down |
| CPLR/ TAIL | GREEN | Off | This switch has disabled the coupling function. |

| LED | Color | State | Description |
|-----|-------|-------|-------------|
| Mail Module LED Status | | | |
| 10 GbE (Fiber Optic Port) | GREEN | On | The corresponding port's link is active. |
| 10 GbE (Fiber Optic Port) | GREEN | Blinking | Data is being transmitted. |
| 10 GbE (Fiber Optic Port) | GREEN | Off | The corresponding port's link is inactive. |

| LED | Color | State | Description |
|-----|-------|-------|-------------|
| IM-G7000 Module LED Status | | | |
| IM-G7000-4GTX 10/ 100/1000 Mbps (TP Ports) | GREEN | On | The corresponding port's link is active at 1000 MBps |
| IM-G7000-4GTX 10/ 100/1000 Mbps (TP Ports) | GREEN | Blinking | Data is being transmitted at 1000 Mbps. |
| IM-G7000-4GTX 10/ 100/1000 Mbps (TP Ports) | GREEN | Off | The corresponding port's link is inactive. |
| IM-G7000-4GTX 10/ 100/1000 Mbps (TP Ports) | AMBER | On | The corresponding port's link is active at 10/100 MBps |
| IM-G7000-4GTX 10/ 100/1000 Mbps (TP Ports) | AMBER | Blinking | Data is being transmitted. |
| IM-G7000-4GTX 10/ 100/1000 Mbps (TP Ports) | AMBER | Off | The corresponding port's link is inactive. |
| IM-G700-4GSFP 100/ 1000 MBPS (Fiber Optic Ports) | GREEN | On | The corresponding port's link is active at 1000 MBps |
| IM-G700-4GSFP 100/ 1000 MBPS (Fiber Optic Ports) | GREEN | Blinking | Data is being transmitted. |
| IM-G700-4GSFP 100/ 1000 MBPS (Fiber Optic Ports) | GREEN | Off | The corresponding port's link is inactive. |
| IM-G700-4GSFP 100/ 1000 MBPS (Fiber Optic Ports) | AMBER | On | The corresponding port's link is active at 100 MBps |
| IM-G700-4GSFP 100/ 1000 MBPS (Fiber Optic Ports) | AMBER | Blinking | Data is being transmitted. |
| IM-G700-4GSFP 100/ 1000 MBPS (Fiber Optic Ports) | AMBER | Off | The corresponding port's link is inactive. |
| HOT SWAP STATE | Green | On | The module is working |
| HOT SWAP STATE | Green | Blinking | The module is uninstalling |
| HOT SWAP STATE | Green | Off | The module is not working or is safe to be removed |

## Specifications

| Technology | |
|-----|-----|
| Standards | IEEE 802.3 for 10BaseT<br>IEEE 802.3u for 100BaseT(X) and 100BaseFX<br>IEEE 802.3ab for 1000BaseT(X)<br>IEEE 802.3z for 1000BaseSX/LX/LHX/ZX<br>IEEE 802.3ae for 10 Gigabit Ethernet<br>IEEE 802.3x for Flow Control<br>IEEE 802.1D for Spanning Tree Protocol<br>IEEE 802.1w for Rapid STP<br>IEEE 802.1Q for VLAN Tagging<br>IEEE 802.1p for Class of Service<br>IEEE 802.1X for Authentication<br>IEEE 802.3ad for Port Trunk with LACP |
| MIB | MIB-II, Ethernet-like MIB, P-BRIDGE MIB, Q-BRIDGE MIB, Bridge MIB, RSTP MIB, RMON MIB Groups 1, 2, 3, 9 |

| Interface | |
|-----|-----|
| Gigabit Ethernet | 10/100/1000BaseT(X) or 100/1000BaseSFP slot |
| 10 Gigabit Ethernet | 10GbE SFP+ slot |
| Console Port | RS-232 (RJ45 connector) |
| 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.<br>• +13 to +30V for state "1"<br>• -30 to +3V for state "0"<br>• Max.input current: 8 mA |
| **Power Requirements** | |
| Input Voltage | 110/220 VAC (85 to 264 VAC) |
| Input Current | ICS-G7748/7848:<br>    Max. 1.02/0.46 A @ 110/220 VAC<br>ICS-G7750/7850:<br>    Max. 1.10/0.49 A @ 110/220 VAC<br>ICS-G7752/7852:<br>    Max. 1.19/0.52 A @ 110/220 VAC |
| Overload Current Protection | Present |
| **Physical Characteristics** | |
| Housing | IP 30 protection |
| Dimensions | 440 x 176 x 482.8 mm |
| Installation | 4U 19" rack mounting |
| **Environmental Limits** | |
| Operating Temp. | 0 to 60°C (32 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 |
| Rail Traffic | EN50121-4 |
| **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 (Tma) 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 PERSONAL 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.

**MOXA®**    **www.moxa.com/support**

The Americas: +1-714-528-6777 (toll-free: 1-888-669-2872)
Europe: +49-89-3 70 03 99-0
Asia-Pacific: +886-2-8919-1230
China: +86-21-5258-9955 (toll-free: 800-820-5036)

© 2010 Moxa Inc. All rights reserved.