Installation

The switch comes with both wall mount and DIN rail hardware brackets. When installing the DIN rail bracket, be sure to correctly align the orientation pin.
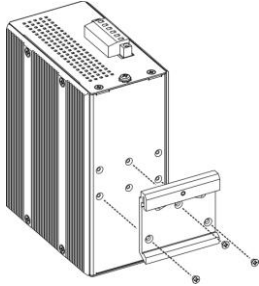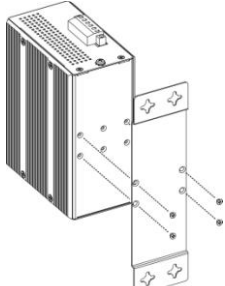

| **Figure 11. DIN Rail** | **Figure 12. Wall Mount** |

The switch with DIN Rail bracket has a steel spring in the upper rail of the bracket. This spring is compressed for mounting and un-mounting by applying downward force.
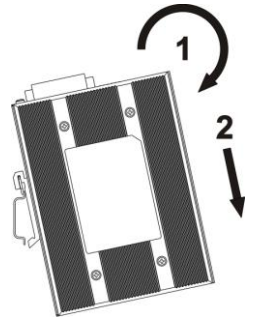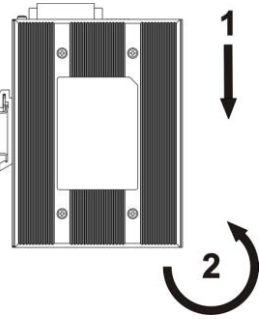

| **Figure 13. Mounting** | **Figure 14.Un-mounting** |

CTC Union Technologies Co., Ltd.
Far Eastern Vienna Technology Center
(Neihu Technology Park)
8F, No. 60, Zhouzi St., Neihu District, Taipei 114
Taiwan

T +886-2-26591021
F +886-2-26590237
E sales@ctcu.com

CTC Union Technologies Co., Ltd.
www.ctcu.com

Quick Installation Guide

IGS+803SM-(E)

Industrial 8 X 10/100/1000Base T(X) + 3 X 100/1000Base-X SFP Slots Managed Ethernet Switches (Hardened)

sales@ctcu.com

Introduction

IGS+803SM models are managed industrial grade Gigabit switches that provide stable and reliable Ethernet transmission. Housed in rugged DIN rail or wall mountable enclosures, these switches are designed for harsh environments, such as industrial networking and intelligent transportation systems (ITS) and are also suitable for many military and utility market applications where environmental conditions exceed commercial product specifications. IGS+803SM models also provide Hi-pot isolation protection for Ethernet ports and power that can protect your devices from damages caused by unexpected surges. Standard operating temperature range models (-10°C~60°C) and wide operating temperature range models (-40°C~75°C) are available to fulfill the special needs of industrial automation applications.

Package List
- IGS+803SM with terminal block
- Console cable (RJ-45 to D-B9)
- CD (User Manual, Smart Config, Mib File)
- Quick Installation Guide
- Din Rail with screws
- Protective caps for SFP ports

Features
- Redundant dual DC inputs 12/24/48VDC
- IP30 rugged metal housing
- Wide temperature range -40°C~75°C (IGS+803SM-E)
- Support negative power input with isolated RS-232 console port
- Support IEEE1588 PTPv2 for precise time synchronization
- Console, Telnet, Web and SNMP management
- 4KV surge protection for UTP ports
- 2.25K VDC Hi-pot isolation protection for Ethernet ports and power
- Railway Traffic EN50121-4, EMS & EMI for heavy industrial environment EN61000-6-2, EN61000-6-4 & Safety UL60950-1, EN60950-1

Specifications
Ethernet Interface
- Standards: IEEE802.3 (10Base-T), 802.3u (100Base-TX), 802.3ab (1000Base-T)
- RJ-45 (shielded) Ports: 8 ports
- Speed: 10/100/1000M (Auto)

Optical Interface
- Standards: IEEE80802.3u (100Base-FX), 802.3z (1000Base-X)
- 3 ports, SFP based
- Speed: 100/1000M (Manual)

Switch Features
- Store & Forward Switch
- Supports IEEE802.3x Flow Control
- Auto MDI/MDI-X
- Duplex: Full/Half (Auto-negotiation per IEEE802.3u)
- Switching Fabric: 22Gbps (Non-blocking)
- Memory Buffer: 512K Bytes
- MAC Table: 8K
- MTU: 9600 bytes

Power
- Absolute Input Range: DC 12/24/48V (9.6~60VDC)
- Support negative power input with isolated RS-232 console port
- Support Reverse Polarity Protection
- Support Dual Power Inputs
- Removable terminal block connectors
- Power Consumption: 8.6W (12V), 10.8W (24V), 11.5W (48V)

Specifications (cont.)

Mechanical
- Water & Dust Proof: IP30 Protection
- Dimensions: 106 mm (D) x 72 mm (W) x 152 mm (H)
- Mounting: DIN-Rail, Wall Mount (Optional)
- Weight: 810 g

Environmental
- Operating Temperature: -10°C~60°C (IGS+803SM); -40°C~75°C (IGS+803SM-E)
- Storage Temperature: -40°C~85°C
- Humidity: 5%~95% (Non-condensing)

Certifications
- CE, FCC
- Railway Traffic: EN50121-4
- Immunity for Heavy Industrial Environment: EN61000-6-2
- Emission for Heavy Industrial Environment: EN61000-6-4
- EMS (Electromagnetic Susceptibility) Protection Level:
  - EN61000-4-2 (ESD) Level 3, Criteria B
  - EN61000-4-3 (RS) Level 3, Criteria A
  - EN61000-4-4 (Burst) Level 3, Criteria A
  - EN61000-4-5 (Surge) Level 3, Criteria B
  - EN61000-4-6 (CS) Level 3, Criteria A
  - EN61000-4-8 (PFMF, Magnetic Field) Field Strength: 300A/m, Criteria A
- Safety: UL60950-1, EN60950-1
- 4KV surge protection for UTP ports
- Hi Pot Protection: DC 2.25KV for power to chassis ground, Ethernet ports to chassis ground
- Shock: EN60068-2-27
- Freefall: EN60068-2-32
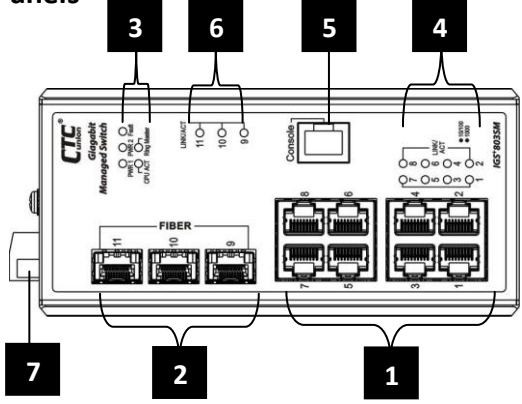- Vibration: EN60068-2-6
- MTBF (MIL-HDBK-217): 688,248 Hours
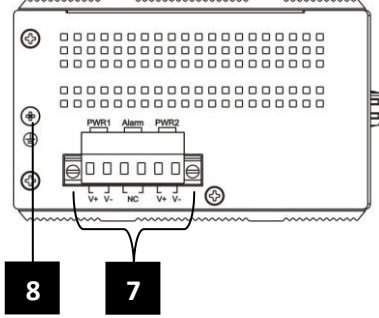
Panels

| Figure 1. Front Panel | Figure 2. Top Panel |

No.	Description	No.	Description
1.	UTP RJ-45 ports	5.	Console port (RJ-45 to DB-9)
2.	Fiber optic SFP slots	6.	Link/ACT LED indicators for fiber optic ports
3.	Power, Ring, CPU ACT, Fault LED indicators	7.	Terminal block
4.	Link/ACT & Speed LED indicators for UTP RJ-45 port	8.	Earth grounding connection

V1.1

Connections

LAN and Fiber Connection

IGS[+]803SM models have 8 electrical LAN ports (labeled 1~8) and 3 fiber ports (SFP based, labeled Fiber 9~11) on the front panel. The LAN ports that utilize shielded RJ-45 connectors support 10/100/1000M; while the fiber SFP ports support 100/1000M.

CONSOLE Port

The RJ-45 port labeled "CONSOLE" is an RS-232 terminal port for local management. These models use a CLI (Command Line Interface) in addition to a user friendly Web interface and industry standard SNMP. See page 6 for basic CLI and Web operation.

One RJ-45 to DB-9 cable is provided with this device. CONSOLE port pinouts and RS-232 DB-9 connector are illustrated below together with RJ-45 to DB-9 signal mapping information. Use the supplied cable to connect the RJ-45 CONSOLE port to a console PC.
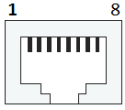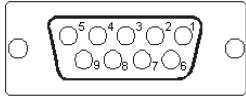

Figure 3. CONSOLE Port Pinout   **Figure 4. RS-232 (Female) Pinout**

RJ-45 to DB-9 Signal Mapping

DB-9 (Female)		Direction	RJ-45	
Signal	Pin		Pin	Signal
RXD	2	←	3	TXD
TXD	3	→	6	RXD
GND	5	——	5	GND

The dual power supplies of this device are completely isolated which means your PC management device connected via the console port will not be damaged by unexpected surges while the device is powered up using negative -48VDC power.
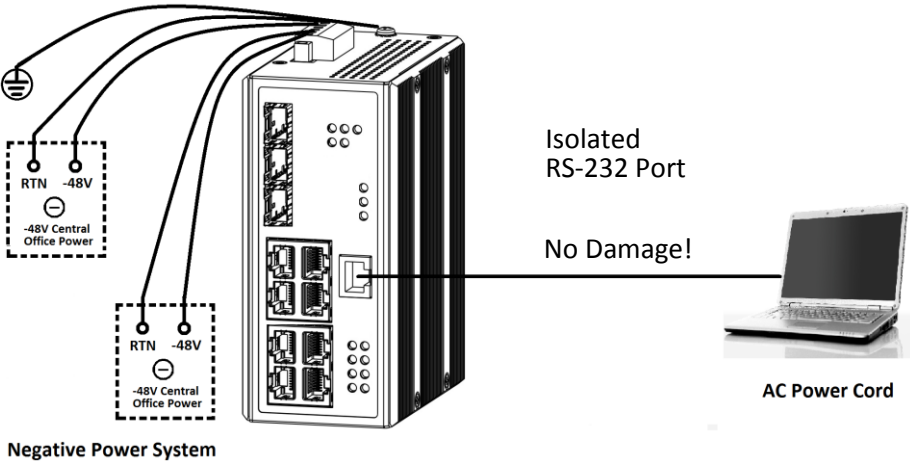

Figure 5. RS-232 Port with Isolation Protection

Recommended Power, Alarm, Grounding Wiring Scheme

DC Power Connection

A removable terminal block on the top panel provides both power and alarm connections. Power can be provided through the dual inputs from separate sources (PWR1 & PWR2). One power supply is enough to power up the device. If two power supplies are used, the device provides power redundancy function. See the figure provided below for recommended DC power wiring scheme.

Figure 6. DC Power Connection

Negative DC Power Connection

In some telecom applications, users may need to use negative DC power to prevent the electrical magnetic interference. One power supply is enough to power up the device. If two power supplies are used, the device provides power redundancy function.

Figure 7. Recommended Negative DC Power Wiring

Alarm Relay Connection

The alarm relay contact can be wired into an alarm circuit which senses an alarm condition when the contact is broken. The alarm relay is normally closed when there is no alarm condition. The alarm conditions are user programmable through management to include power, link faults or other fault conditions. Please note that the alarm relay contact can only support 1A current at 24VDC. Do not apply voltage and current that exceed these specifications.
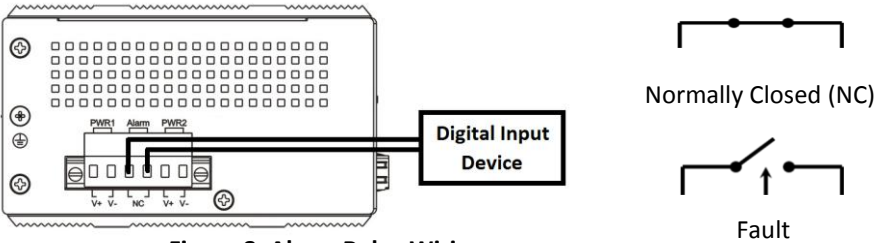

Figure 8. Alarm Relay Wiring

Earth Ground Connection

An earth ground connector is provided on the top panel with an earth ground sign next to it. Grounding the device can help to release leakage of electricity to the earth safely so as to reduce injuries from electromagnetic interference (EMI).

Prior to connecting to the power, it is important to connect the ground wire to the earth. Follow steps below to install ground wire:

1. Loosen or remove the grounding screw.

2. Attach the grounding screw to the ring-type or fork-type terminal of the grounding cable. Make sure that the grounding cable is long enough to reach the earth.
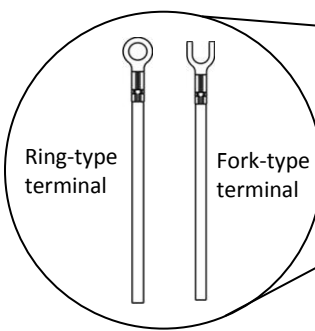
3. Use a screwdriver to fasten the grounding screw.

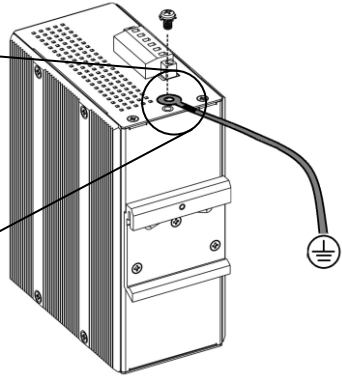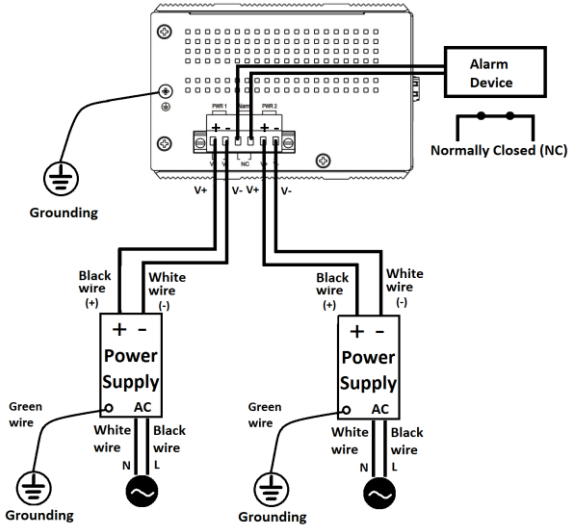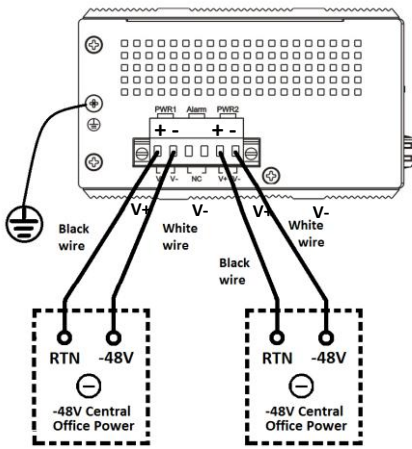

Figure 9. Grounding Cable Type   **Figure 10. Grounding Connection**

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CLI & Web Basic Operation

IGS[+]803SM models are managed Gigabit Ethernet switch devices. Initial configuration (assignment of IP address) may be accomplished via the RS-232 console and a PC or laptop running terminal emulation software. Configure the terminal as follows:

115200 speed, 8 data bits, no parity, 1 stop bit, no flow control

IGS[+]803SM models use a command line interface (CLI) through the serial port. Once the IP address has been configured, a web browser can be used to configure the device through a more easy to use GUI (graphical user interface). Please refer to the operation manual on the CDROM.

Using the provided console cable, connect the RJ-45 to the "CONSOLE" port and the DB9 to PC COM port. Apply power to the switch. At the "Username:" prompt, enter '**admin**' (lower case, no quotes). Just **press Enter when prompted for password**.

To set the IP address and subnet mask, issue the following commands:

Example: sets VID 1 to 192.168.0.250, subnet 255.255.255.0)
```
# config terminal
(config)# interface vlan 1
(config-if-vlan)#  ip address  192.168.0.250 255.255.255.0
```
Then, press Enter.

NOTE: The factory default IP address is 10.1.1.1 with mask 255.255.255.0

LED Indicators

LED	Color	Status	Definition
PWR1/ PWR2	Green	On	Power is connected and active at the PWR1/PWR2 input terminal connection.
		Off	PWR1/PWR2 is not connected.
Fault	Amber	On	When one or more of the programmable alarm conditions is active.
		Off	Normal operation without faults. Alarm conditions are all disabled.
CPU ACT	Green	On	Lit during normal use, indicating a healthy condition of the running CPU.
Ring Master	Yellow	On	Lit when this unit is the 'master' in a ring and all units are configured for u-Ring or ERPS.
100/1000	Green	On	The connected LAN speed is 10/100M.
		Blinking	Blinking when there is Ethernet traffic.
	Amber	On	The connected LAN speed is 1000M.
		Blinking	Blinking when there is Ethernet traffic.
FIBER LINK/ACT	Green	On	The SFP fiber link is up.
		Blinking	Blinking when there is data traffic.