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.
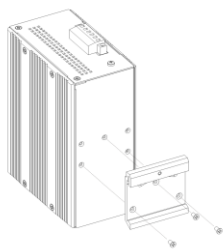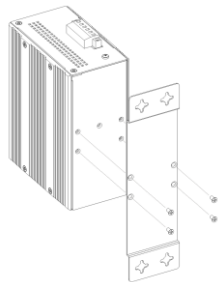

Figure 7. DIN Rail　　　**Figure 8. Wall Mount**

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.
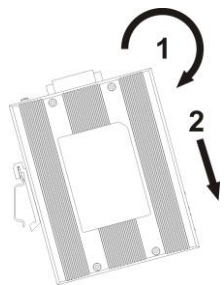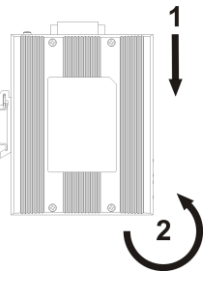

Figure 9. Mounting　　　**Figure 10.Un-mounting**

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To download this QIG or a more complete user manual, please visit
http://www.ctcu.com/Industrial/

EN50121-4　NEMA TS2　EN61000-6-2
EN61000-6-4　SmartView　u-Ring　IEEE 1588 v2

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Quick Installation Guide

IGS-404SM
IGS-404SM-E

Industrial Grade Gigabit Managed Ethernet Switches

sales@ctcu.com

Introduction

IGS-404SM(-E) 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. Standard operating temperature range models (-10°C~60°C) and wide operating temperature range models (-40°C~75°C) fulfill the special needs of industrial automation applications.

Features

- Redundant dual DC inputs 12/24/48VDC
- IP30 rugged metal housing
- Wide temperature range -40°C~75°C (IGS-404SM-E)
- Supports many advanced Ethernet L2 functions
- Support IEEE1588 PTPv2 for precise time synchronization
- Console, Telnet, Web and SNMP management
- Industrial grade EMS, EMI, UL60950-1, Railway Traffic EN50121-4, Traffic Control NEMA TS2, EN61000-6-2, EN61000-6-4

Specifications

Ethernet Interface

- Standards: IEEE802.3 (10Base-T), 802.3u (100Base-TX), 802.3ab (1000Base-T)
- RJ-45 (shielded) Ports: 4 ports
- Speed: 10/100/1000M (Auto)

Optical

- Standards: IEEE802.3u (100Base-FX), 802.3z (1000Base-X), 802.3ab (1000Base-T)
- 4 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: 16Gbps (Non-blocking)
- Memory Buffer: 512K Bytes
- MAC Table: 8K
- MTU: 64~9600 bytes

Specifications (cont.)

Power

- Absolute Input Range: 9.6VDC~60VDC
- Reverse Polarity Protection: Yes
- Dual Power Inputs: Yes
- Connector: Removable terminal block
- Consumption: 8.1W (24VDC), 9.6W (48VDC)

Mechanical

- Water & Dust Proof: IP30 Protection
- Dimensions: 106 mm (D) x 62.5 mm (W) x 135 mm (H)
- Mounting: DIN-Rail, Wall Mount (Kits included)
- Weight: 725 g

Environmental

- Operating Temperature: -10°C~60°C (IGS-404SM)
  -40°C~75°C (IGS-404SM-E)
- Storage Temperature: -40°C~85°C
- Humidity: 5%~95% (Non-condensing)

Certifications

- EMC: CE
- EMI (Electromagnetic Interference): FCC, FCC Part 15 Subpart B Class A, CE EN55022 Class A
- Railway Traffic: EN50121-4
- Traffic Control: NEMA TS2
- 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
- Shock: EN60068-2-27
- Freefall: EN60068-2-32
- Vibration: EN60068-2-6
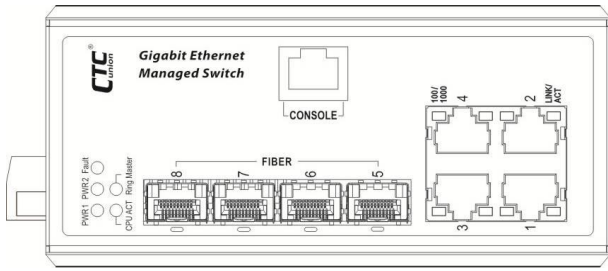- MTBF (MIL-HDBK-217): 302,826 Hours

Connectors

Figure 1. Front Panel

LAN & Fiber Ports

IGS-404SM(-E) have 4 electrical LAN ports (labeled 1~4) and 4 fiber ports (SFP based, labeled 5~8) 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 "light" CLI (Command Line Interface) in addition to a user friendly Web interface and industry standard SNMP. See page 5 for basic CLI and Web operation.

One RJ-45 to DB-9 cable is provided with this device. CONSOLE port pinouts (Figure 2) and RS-232 DB-9 (Figure 3) 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.
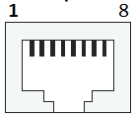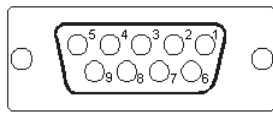

Figure 2. CONSOLE Port Pinout

Figure 3. 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

Power and Alarm

Figure 4. Top Panel

Normally Closed (NC)
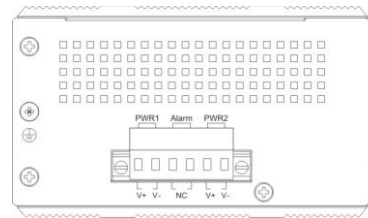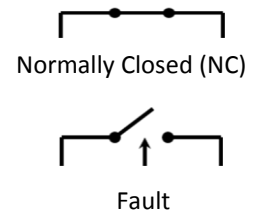
Fault
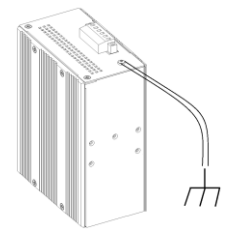
Figure 5. Alarm Relay Circuit

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. 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.

Earth Ground Connection

An earth ground connector is provided on the top panel (See Figure 4) 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. Remove the grounding screw.

2. Attach the grounding screw to the ring 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.

CLI & Web Basic Operation

IGS-404SM(-E) 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-404SM(-E) switches 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	Definition
PWR1/ PWR2	Green	Power is connected and active at the PWR1/PWR2 input terminal connection.
	Off	PWR1/PWR2 is not connected.
Fault	Amber	When one or more of the programmable alarm conditions is active.
	Off	Normal operation without faults. Alarm conditions are all disabled.
CPU ACT	Green	During normal use, this LED will be lit, indicating a healthy condition of the running CPU.
Ring Master	Yellow	Lit when this unit is the 'master' in a fiber ring and all units are configured for u-Ring or ERPS (Ethernet Ring Protection Switching or G.8032).
LAN LINK/ACT	Green	Ethernet link is up.
	Blinking	Blinking when there is Ethernet traffic.
	Off	No Ethernet link.
100/1000	Green	The connected LAN speed is 10/100M.
	Amber	The connected LAN speed is 1000M.
	Off	No Ethernet link.
FIBER LINK/ACT	Green	The SFP fiber link is up.
	Blinking	Blinking when there is data traffic.
	Off	No fiber link.

Application

Figure 6. u-Ring Topology and Application