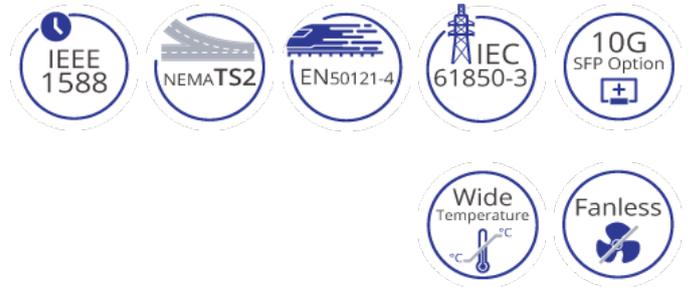# IG5 Rack Series

IEC 61850-3/IEEE 1613 Lite L3 Hardened Managed 24-port Gigabit and 4-port 1G/10G SFP+ Ethernet Switch

## Overview

EtherWAN's IG5 series is a hardened 10-gigabit rack-mounted managed Ethernet switch platform, designed to support high bandwidth switching in harsh environments. Equipped with up to 24 gigabit SFP ports and 4 10-gigabit SFP+ ports, along with the IG5 series provides an ideal solution for aggregating network switches at the edge and connectivity into the hub/core. In addition, this innovative device supports the IEEE 1588v2 standard, which defines the Precision Time Protocol (PTP), used to synchronize clocks throughout a packet-switched network.

A broad range of management features and options includes IEEE 1588vs (PTP) for synchronizing clocks, port security, IGMP snooping, VLAN support, GARP protocols, link aggregation, and ACL, configurable via web GUI, Telnet, SSH, SNMP, RMON, HTTPS and SFTP. With the hardened specifications, the IG5 series is designed to operate at -40 to 75°C in harsh environments, and is IEC 61850 & IEEE 1613 compliant, capable of operating under high EMI environments, making it an ideal choice for mission-critical applications.

EtherWAN — "**When Connectivity is Crucial.**"

# Highlights

## ✛ High Bandwidth and Versatility

- 24 full gigabit ports for high bandwidth connections
- 4 x 1G/10G SFP+ uplink ports for fiber connections
- 128 Gbps full duplex switching capacity
- Variant of optical and electrical port interface options

## ✛ Layer 3 Functionality

- Static routing, RIP v1/v2, and OSPF
- Redundancy with VRRPv2
- Reduces amount of broadcast traffic

## ✛ Designed for Crucial Environments

- Wide Operation Temperature range from -40 to 75°C(-40 to 167°F)
- -40 to 85°C operation meets IEC 60068-2-2 environmental type testing
- Thermal shock and electrical noise resistance

## ✛ Time Stamped Supported

- IEEE 1588v2
  - Available in all ports
  - Hardware-based time stamping
  - Operation as transparent clock

## ✛ Flexible Rack Cabinet Installation

- Dual LED Panel design, support rear and front display
- Concise communication status display
- Considerable ease of cabling management

## ✛ Support

- Complimentary technical support
- Free firmware upgrades and notifications
- Limited Lifetime Warranty

# Features

## ✚ Interface

- CLI, Telnet, Web GUI

## ✚ Management

- Firmware Upgrade
- Configuration Backup
- DHCP Server/Client
- RMON (Remote Monitoring)
- Port Mirroring
- NTP (Network Time Protocol) Synchronization
- LLDP (Link Layer Discovery Protocol)
- IPv4/IPv6
- SNMP v1/v2c/v3
- Modbus

## ✚ Security

- MAC Address Filtering
- Enable/Disable Port
- Storm Control
- System Logging
- IEEE 802.1x LAN Access Control
- Remote Authentication through RADIUS and TACACS+
- Complex Password Support
- Multi-user Login and Privileged Access Management
- SSH for CLI and Telnet Security
- SSL and HTTPS for Web Security
- ACL (Access Control List, up to 4096 Entries)

## ✚ Layer 2 Features

**Auto-negotiation for Port Speed and Duplex**

- Flow Control
- IEEE 802.3x full duplex mode
- Back-pressure half duplex mode

**Redundant Protocols**

- IEEE 802.1D STP
- IEEE 802.1w RSTP
- IEEE 802.1s MSTP
- EtherWAN's Alpha-Ring network fault recovery

**VLANs**

- IEEE 802.1Q Tag VLANs
- GVRP
- GMRP

**Link Aggregation**

- Static Trunk (4 groups)
- IEEE 802.3ad LACP

**IGMP Snooping v1/v2/v3**

## ✚ Layer 3 Features

**IP Packet Routing**

- Maximum number of routes in hardware: 64 entries
- Static Routing
- RIP v1/v2
- OSPF v2

**Routing Redundancy**

- VRRPv2

## ➕ Quality of Service (QoS)

- Priority Queues: 8 Queues Per Port
- Traffic Classification Based on IEEE 802.1p CoS (Cost of Service), DSCP (Differentiated Services Code Point), WRR (Weighted Round Robin), and Strict Mode
- Rate Limiting (Ingress/Egress)

## ➕ Software Properties and Performance

**Switching Fabric**
- 128Gbps

**Forwarding Rate**
- 95.23Mpps

**Max VLANs**
- 256 (4096 VID)

**Jumbo Frame Size**
- 9KB

**MAC Table Size**
- 16K

**Packet Buffer Memory**
- 12M bits

# Specifications

## ✚ Interface

**Ethernet**

- 10/100/1000BASE-T(X): 0, 8, 16 or 24 ports
- 100/1000BASE SFP: 0, 8, 16 or 24 ports
- 1G/10G SFP+: 4 ports

**Console**

- 1 x RJ45

**Digital Input**

- 2 x Digital Input
- Wet Contact: 0-3V for State 0; 13-30V for State 1; Max input current: 8mA
- Dry Contact: Logic Level 1–Close to GND; Logic Level 0-Open

**Alarm Contact**

- 2 x Relay output, current capacity 0.6A/30VDC

**LED Indicators**

- Per Unit: Power 1, (Single Power models)
- Power 2 (Dual Power models) (Green)
- Per Port: Link/Activity (Green)
- Per Port:Alarm (Red)

## ✚ Physical

**Casing Material**

- Metal

**IP Rating**

- IP40

**Dimensions**

- 442 x 325 x 44mm (W x D x H)
  17.4" x 12.8" x 1.73"

**Weight**

- 4.6kg (10.14lbs) / 4.0kg (8.82lbs)

**Installation Type**

- Rack mounting

## ✚ Environmental

**Operating Temp.**

- -40 to 75°C (-40 to 167°F)
  (-40°C to 85°C for IEC 60068-2-2 Environmental 16 hours)

**Storage Temp.**

- -45 to 85°C (-49 to 185°F)

**Relative Humidity**

- 5% to 95% (non-condensing)

**MTBF**

- 446,556 hours

## ✚ Technology

### Standards

- IEEE 802.3 10BASE-T
- IEEE 802.3u 100BASE-TX/100BASE-FX
- IEEE 802.3ab 1000BASE-T
- IEEE 802.3ae 10Gigabit Ethernet
- IEEE 802.3ad link aggregation control
- IEEE 802.3z 1000BASE-SX/1000BASE-LX
- IEEE 802.3x full duplex and flow control
- IEEE 802.1D STP
- IEEE 802.1p QoS
- IEEE 802.1Q Tag VLANs
- IEEE 802.1s MSTP
- IEEE 802.1w RSTP
- IEEE 802.1x PNAC
- IEEE 802.1ab LLDP

### Forward/Filtering Rate

- 14,880pps for 10Mbps
- 148,810pps for 100Mbps
- 1,488,100pps for 1000Mbps
- 14,881,000pps for 10Gbps

### Processing Type

- Store-and-forward
- Auto-negotiation
- Half-duplex back-pressure and full-duplex flow control
- Auto MDI/MDIX

### System Memory

- 2Gb DDR3 SDRAM

### Flash Storage

- 1Gb

## ✚ Regulatory

### ISO

- Manufactured in ISO-9001 facility

### EMI

- FCC Part 15B Class A
- VCCI Class A
- EN 61000-6-4

### EMS

- EN 61000-6-2
- EN 61000-4-2 (ESD)
- EN 61000-4-3 (Radiated RFI)
- EN 61000-4-4 (Burst)
- EN 61000-4-5 (Surge)
- EN 61000-4-6 (Induced RFI)
- EN 61000-4-8 (Magnetic field)

### Safety

- UL 62368-1

### Vibration

- IEC 60068-2-6

### Shock

- IEC 60068-2-27

### Free Fall

- IEC 60068-2-31

### Industrial

- EN 50121-4

### Power Substation

- IEC 61850-3/IEEE 1613

## + Power

**Input**

**Dual Power**

- FTR: (Terminal Block)
- 24VDC to 48VDC (Nominal)
- 18 - 60VDC (Operational)
- FWR: (Terminal Block)
- 100 - 250VDC or 100 - 240VAC (Nominal)
- 88 - 300VDC or 88 - 264VAC (Operational)
- RCR: (AC Inlet)
- 100 - 240VAC

**Single Power**

- FWS: (Terminal Block)

  100 - 250VDC or 100 - 240VAC (Nominal)

  88 - 300VDC or 88 - 264VAC (Operational)
- RCS: (AC Inlet)

  100 - 240VAC

**Power Consumption**

- 50W max.

**Protection**

- Reverse Polarity Protection

## + Warranty

**Length**

- Limited Lifetime

**Details**

- www.etherwan.com/support/warranty-policy

## + What's Included

**Device**

- Ethernet Switch

**Cables**

- 1 Console Cable

**Installation**

- Mounting brackets, screws

**Documentation**

- Quick Install Guide

**Power**

- 1 AC Power Cord (RCS models)
- 2 AC Power Cord (RCR models)

# Dimensions



Top

Side

IG5-00244
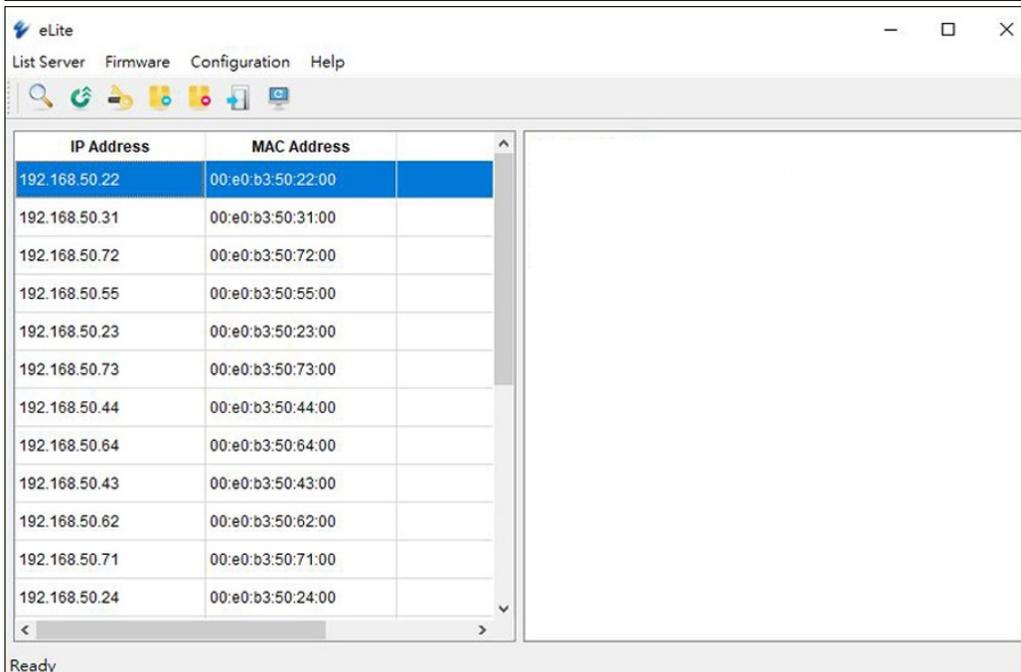
442 mm

44 mm

IG5-08164

IG5-16084

IG5-24004

FTR, FWR & FWS models

RCR, RCS models

Front

FTR, FWR & FWS models

RCR models

RCS models

Back
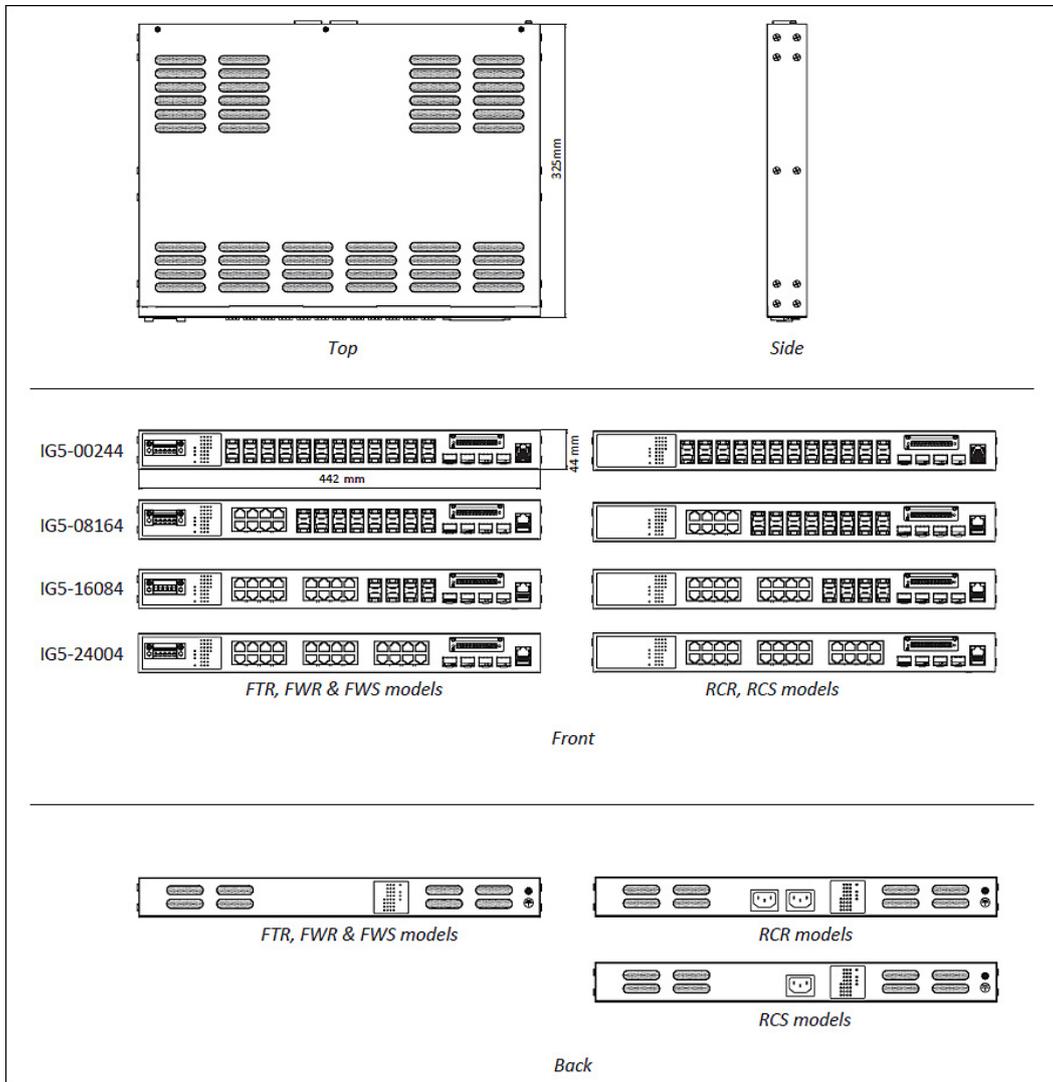
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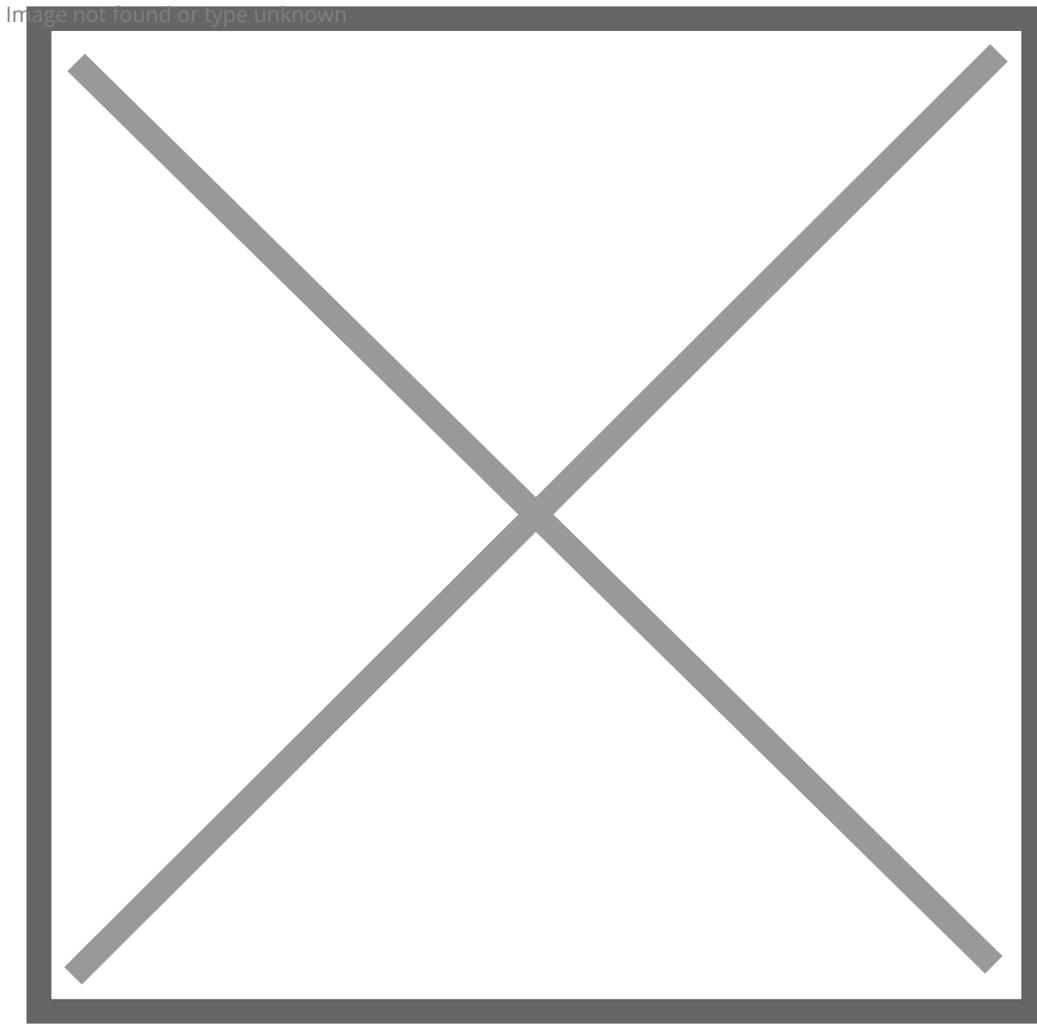
# Software

| Network Management | eVue™ Network Configuration and Monitoring Tool |
| --- | --- |
| Network Discovery | eLite™ Network Discovery and IP Configuration Tool |

# Ordering Info

## ➕ Model

| | |
|---|---|
| IG5-24004YYY | 24-port 10/100/1000BASE-T(X) + 4-port 1G/10G SFP+ Managed Ethernet Switch |
| IG5-16084YYY | 16-port 10/100/1000BASE-T(X) + 8-port 100/1000BASE SFP + 4-port 1G/10G SFP+ Managed Ethernet Switch |
| IG5-08164YYY | 8-port 10/100/1000BASE-T(X) + 16-port 100/1000BASE SFP + 4-port 1G/10G SFP+ Managed Ethernet Switch |
| IG5-00244YYY | 24-port 100/1000BASE SFP + 4-port 1G/10G SFP+ Managed Ethernet Switch |

## ➕ Power Input & Operation Temp. (YYY)

| | |
|---|---|
| FTR | 24VDC to 48VDC Redundant (Terminal Block), Hardened Grade (-40 to 75°C) |
| FWR | 88-300VDC or 100-240VAC Redundant (Terminal Block), Hardened Grade (-40 to 75°C) |
| RCR | 100-240VAC Redundant (AC Inlet), Hardened Grade (-40 to 75°C) |
| FWS | 88-300VDC or 100-240VAC (Terminal Block), Hardened Grade (-40 to 75°C) |
| RCS | 100-240VAC (AC Inlet), Hardened Grade (-40 to 75°C) |

## ➕ Accessories

| Part Number | Speed Info | Mode | Distance | Operating Temperature | Wavelength | DDM |
|---|---|---|---|---|---|---|
| EX-0155NSP-MB2L-A | 100Mbps | Multi | 2km | -40 to 85°C | 1310nm | - |
| SFPMIS20M | 100Mbps | Single | 20km | -40 to 85°C | 1310nm | ✔ |
| SFPGIM5AM | 1000Mbps | Multi | 275m/550m | -40 to 85°C | 850nm | ✔ |
| SFPGIM02M | 1000Mbps | Multi | 2km | -40 to 85°C | 1310nm | ✔ |
| SFPGIS10M | 1000Mbps | Single | 10km | -40 to 85°C | 1310nm | ✔ |
| SFPTIM3AM | 10Gbps | Multi | 300m | -40 to 85°C | 850nm | ✔ |
| SFPTIM3AM | 10Gbps | Single | 10km | -40 to 85°C | 1310nm | ✔ |

## ➕ For more SFP, please visit website:

| | |
|---|---|
| Hardened 100BASE SFP Modules | www.etherwan.com/products/sfp-fiber-transceiver |
| Hardened Gigabit SFP Modules | www.etherwan.com/products/sfp-fiber-transceiver |

| Hardened 10G SFP+ Modules | www.etherwan.com/products/sfp-fiber-transceiver |
|---|---|
| DIN-Rail Power Supplies | www.etherwan.com/products/din-rail-power-supply |