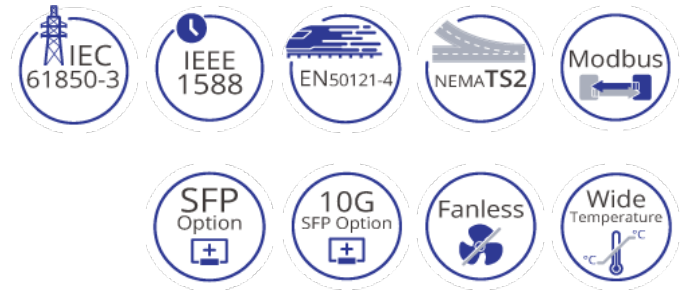


# IG5 Rack Series

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



## Overview

EtherWAN's InfraGreEn IG5 Rack series managed switching platform that combines the advantages of Layer 3 routing protocols with robust management features and enhanced specifications. With support for static routing, Routing Information Protocol (RIP) v1/v2, OSPF and Virtual Router Redundancy Protocol (VRRP), these switches deliver outstanding flexibility and security in a high performance and cost-effective solution.

The IG5 Rack series providing effective modularity through a wide range of port combination options. Supports full 28 ports gigabit transmission, and supports SFP+ to achieve 10G speed. Mountable on a 1U rack, equipped with EtherWAN's Alpha-Ring self-healing technology, providing less than 15ms fault recovery time making it ideal for applications intolerant to interruption, promote stronger communication networks.

This innovative device supports the IEEE 1588v2 standard, which defines the Precision Time Protocol (PTP), used to synchronize clocks throughout a packet-switched network. Wide range of Layer 2 features include port security, IGMP snooping, port-based VLAN, GARP, link aggregation and ACL, support variant security access method of SSH, SNMP, RMON, HTTPS and SFTP.

The hardened design can endure harsh environments from -40°C to 75°C with IEC 61850 & IEEE 1613 compliant, consistently perform stable performance 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)

### + 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)

### + 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

### + 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)

### + 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

**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

## + 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

## + Physical

## + 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

## + 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

## + Warranty

**Length**  
Limited Lifetime

**Details**  
[www.etherwan.com/support/warranty-policy](http://www.etherwan.com/support/warranty-policy)

## + What's Included

**Device**  
Ethernet Switch

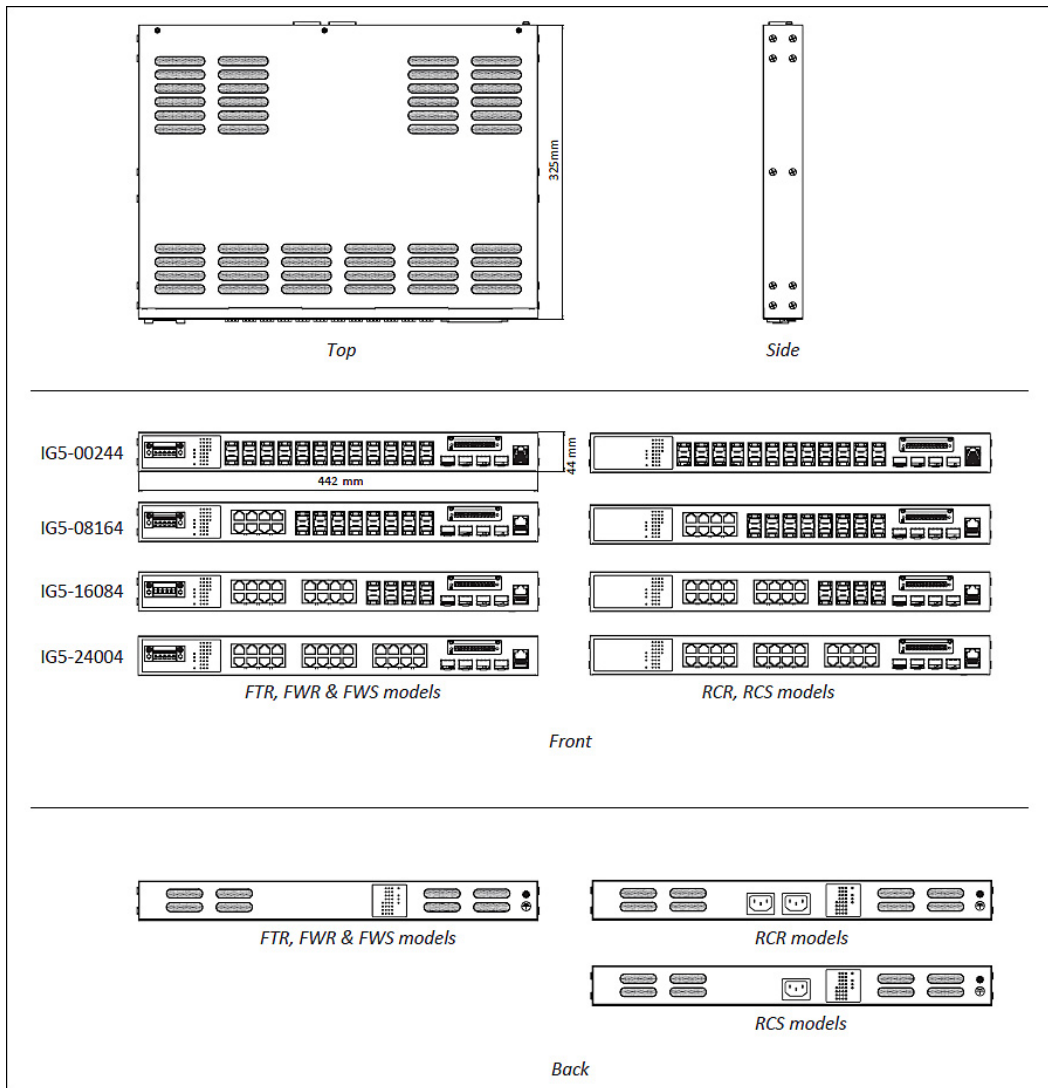
**Cables**  
1 Console Cable

**Installation**  
Mounting brackets, screws

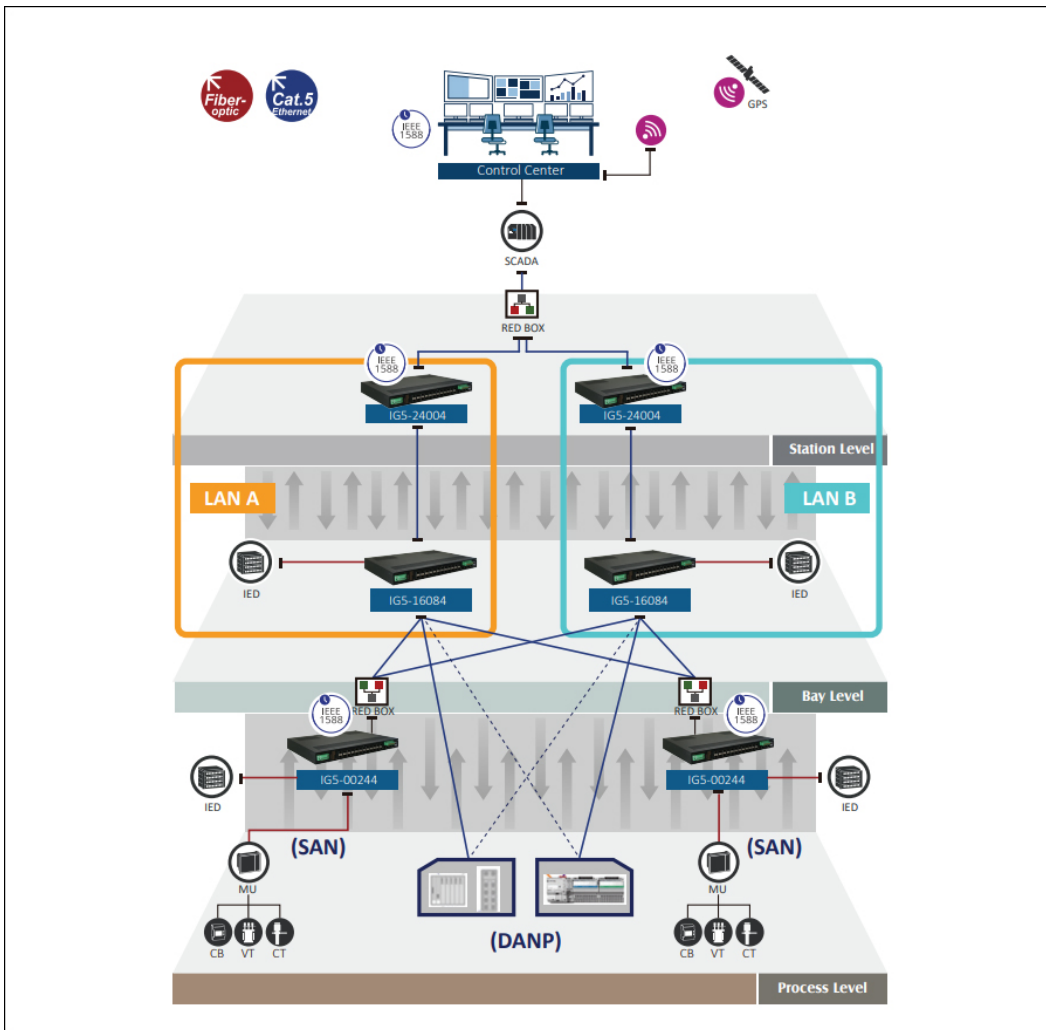
**Documentation**  
Quick Install Guide

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

# Dimensions



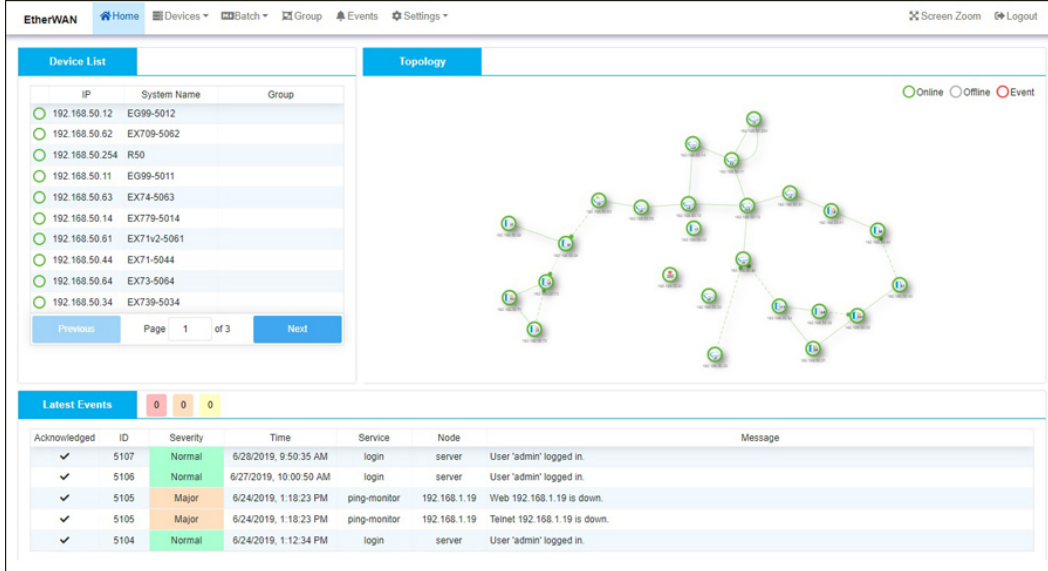
# Application





# Software

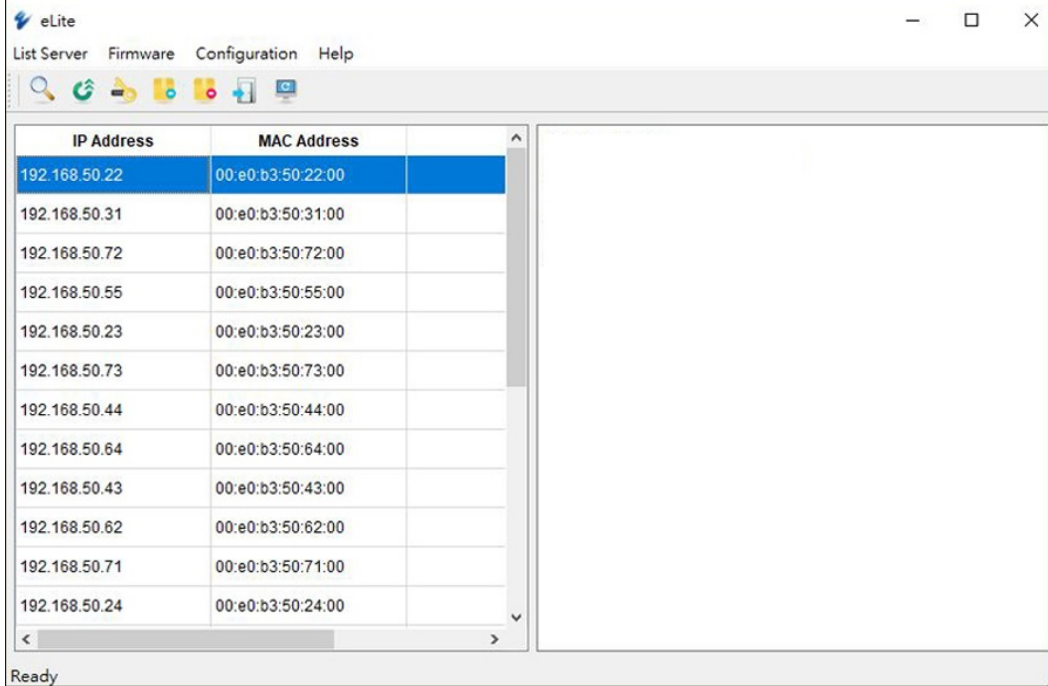
[Network Management eVue™ Network Configuration and Monitoring Tool](#)  
[Network Discovery eLite™ Network Discovery and IP Configuration Tool](#)



The screenshot shows the EtherWAN web interface. On the left, there is a 'Device List' table with columns for IP, System Name, and Group. The table contains 10 entries. On the right, there is a 'Topology' diagram showing a network of interconnected nodes. Below the device list, there is a 'Latest Events' section with a table of events.

IP	System Name	Group
192.168.50.12	EG99-5012	
192.168.50.62	EX709-5062	
192.168.50.254	R50	
192.168.50.11	EG99-5011	
192.168.50.63	EX74-5063	
192.168.50.14	EX779-5014	
192.168.50.61	EX71v2-5061	
192.168.50.44	EX71-5044	
192.168.50.64	EX73-5064	
192.168.50.34	EX739-5034	

Acknowledged	ID	Severity	Time	Service	Node	Message
✓	5107	Normal	6/28/2019, 9:50:35 AM	login	server	User 'admin' logged in.
✓	5106	Normal	6/27/2019, 10:00:50 AM	login	server	User 'admin' logged in.
✓	5105	Major	6/24/2019, 1:18:23 PM	ping-monitor	192.168.1.19	Web 192.168.1.19 is down.
✓	5105	Major	6/24/2019, 1:18:23 PM	ping-monitor	192.168.1.19	Telnet 192.168.1.19 is down.
✓	5104	Normal	6/24/2019, 1:12:34 PM	login	server	User 'admin' logged in.



The screenshot shows the eLite application window. It has a menu bar with 'List Server', 'Firmware', 'Configuration', and 'Help'. Below the menu bar, there is a table with two columns: 'IP Address' and 'MAC Address'. The table contains 14 rows of data.

IP Address	MAC Address
192.168.50.22	00:e0:b3:50:22:00
192.168.50.31	00:e0:b3:50:31:00
192.168.50.72	00:e0:b3:50:72:00
192.168.50.55	00:e0:b3:50:55:00
192.168.50.23	00:e0:b3:50:23:00
192.168.50.73	00:e0:b3:50:73:00
192.168.50.44	00:e0:b3:50:44:00
192.168.50.64	00:e0:b3:50:64:00
192.168.50.43	00:e0:b3:50:43:00
192.168.50.62	00:e0:b3:50:62:00
192.168.50.71	00:e0:b3:50:71:00
192.168.50.24	00:e0:b3:50:24:00

## 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	<a href="http://www.etherwan.com/products/sfp-fiber-transceiver">www.etherwan.com/products/sfp-fiber-transceiver</a>
Hardened Gigabit SFP Modules	<a href="http://www.etherwan.com/products/sfp-fiber-transceiver">www.etherwan.com/products/sfp-fiber-transceiver</a>
Hardened 10G SFP+ Modules	<a href="http://www.etherwan.com/products/sfp-fiber-transceiver">www.etherwan.com/products/sfp-fiber-transceiver</a>
DIN-Rail Power Supplies	<a href="http://www.etherwan.com/products/din-rail-power-supply">www.etherwan.com/products/din-rail-power-supply</a>

