



## IGS-402S-4PU

4x 10/100/1000Base-T +  
2x 100/1000Base-X SFP w/ 4x PoE<sup>+</sup>  
(240W, 60W/per port)

## IGS-402F-4PH24

4x 10/100/1000Base-T +  
2x 1000Base-SX/LX Fiber w/ 4x PoE<sup>+</sup>  
(120W, 24V Booster)

## IGS-402S-4PH24

4x 100/1000Base-T +  
2x 100/1000Base-X SFP w/ 4x PoE<sup>+</sup>  
(120W, 24V Booster)

## IGS-600-4PH24

6x 10/100/1000Base-T with 4x PoE<sup>+</sup>  
(120W, 24V Booster)



These models are 6 port unmanaged industrial grade Gigabit PoE switches with 4x 10/100/1000Base-T PoE ports 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, security automation applications, IP Surveillance, intelligent transportation systems (ITS) and are also suitable for many military and utility market applications where environmental conditions exceed commercial product specifications (See figure 1). Standard operating temperature range models (-10 to 60°C) and wide operating temperature range models (-40 to 75°C) fulfill the special needs of industrial automation applications.

## Features

- 4x 10/100/1000Base-T RJ-45+ 2x 100/1000Base-X SFP (Total 6 Port) with **4x 60W PoE<sup>+</sup>**, total 240W power budget (IGS-402S-4PU)
- 4x 10/100/1000Base-T RJ-45+ 2x 100/1000Base-X SFP (Total 6 Port) with 4x PoE<sup>+</sup>, total 120W power budget (IGS-402S-4PH24)
- 4x 10/100/1000Base-T RJ-45+ 2x 1000Base-X SC (Total 6 Port) with 4x PoE<sup>+</sup>, total 120W power budget (IGS-402F-4PH24)
- 6x 10/100/1000Base-T RJ-45 (Total 6 Port) with 4x PoE<sup>+</sup>, total 120W power budget (IGS-600-4PH24)
- Provides 4-port IEEE 802.3at/af **PoE<sup>+</sup>** output, **60W/per port** (IGS-402S-4PU)
- Provides 4-port IEEE 802.3at/af PoE<sup>+</sup> output, 30W/per port (IGS-402S-4PH24, IGS-402F-4PH24, IGS-600-4PH24)
- 48VDC (44~57VDC) redundant dual input power (IGS-402S-4PU)
- 24/48VDC (20~57VDC) redundant dual input power with built-in very high efficiency booster(94~97%) to rise up 55 VDC for PoE output (IGS-402S-4PH24, IGS-402F-4PH24, IGS-600-4PH24)
- Regulate PoE output voltage (55VDC) to stabilize PoE device, and guarantee delivery PoE power distance to 100meter (IGS-402S-4PH24, IGS-402F-4PH24, IGS-600-4PH24) (Figure 2)
- Supports broadcast storm protection
- Supports power failure alarm message by relay
- Supports flow control
- Jumbo frame support
- Supports DIN Rail or wall mounting installation
- IP30 rugged metal housing and fanless
- Wide operating temperature -40 ~ 75°C ("E" model)
- UL60950-1, CE, FCC, EN50121-4 certification
- Heavy industrial grade EMS, EMI, EN61000-6-2, EN61000-6-4 certified

## Specifications

<b>IEEE Standard</b>	IEEE 802.3 10Base-T Ethernet IEEE 802.3u 100Base-TX Fast Ethernet IEEE 802.3ab 1000Base-T Gigabit Ethernet IEEE 802.3z 1000Base-X Gigabit Ethernet IEEE 802.3x Flow Control and Back Pressure IEEE 802.3af PoE (Power over Ethernet) IEEE 802.3at PoE <sup>+</sup> (Power over Ethernet enhancements)	<b>Network Connector</b>	4 x RJ-45 (IGS-402S-4PU, IGS-402S-4PH24, IGS-402F-4PH24) 6 x RJ-45 (IGS-600-4PH24) 10/100/1000Base-T auto negotiation speed, Auto MDI/MDI-X function, Full/Half duplex 2x 100/1000Base-X SFP (IGS-402S-4PU, IGS-402S-4PH24) 2x1000Base-X Fiber connector: SC Muti Mode or Single Mode (IGS-402F-4PH24)
<b>Switch Architecture</b>	Back-plane (Switching Fabric): 12Gbps Full wire-speed	<b>Network Cable</b>	UTP/STP above Cat. 5e cable EIA/TIA-568 100-ohm (100m) Fiber Cable (Multi-mode): 50/125um, 62.5/125um Fiber Cable (Single-mode): 9/125um
<b>Data Processing</b>	Store and Forward	<b>Protocols</b>	CSMA/CD
<b>Flow Control</b>	IEEE 802.3x flow control, back pressure flow control	<b>LED</b>	Per unit: Power 1 (Green), Power 2 (Green), Fault (Amber)  Fiber Per port: Link/Active (Green)  Per Port PoE LED • Active : ON • Inactive : OFF • Fault : Flash (Fault: Over Load, Short Circuit, Port failed at Startup)
<b>Provides Broadcast Storm Protection</b>	Enable / Disable set by DIP SW	<b>DIP SW</b>	DIP 1 ON : Disable power failure alarm OFF : Enable power failure alarm  DIP 2 ON : Disables broadcast storm protection OFF : Enable broadcast storm protection  DIP 3 ON : Fiber 2 for 100Base-FX SFP OFF : Fiber 2 for Gigabit SFP (for IGS-402S-4PU, IGS-402S-4PH24)  DIP 4 ON : Fiber 1 for 100Base-FX SFP OFF : Fiber 1 for Gigabit SFP (for IGS-402S-4PU, IGS-402S-4PH24)
<b>Jumbo Frame</b>	10K Bytes		
<b>MAC Address Table</b>	8K		
<b>Packet Buffer Size</b>	1Mbits		
<b>PoE standard &amp; RJ-45 Pin Assignment</b>	<b>IGS-402S-4PU:</b> 4x IEEE 802.3at/ 802.3af 4 pairs 60W PoE Positive (V+): RJ-45 pin 1, 2, 4, 5 Negative (V-): RJ-45 pin 3, 6, 7, 8 Data (1,2,3,6,4,5,7,8)  <b>IGS-402S-4PH24, IGS-402F-4PH24, IGS-600-4PH24:</b> 4x IEEE 802.3at/af PoE <sup>+</sup> 2 pairs PoE, PoE <sup>+</sup> Positive (V+): RJ-45 pin 1, 2. Negative (V-): RJ-45 pin 3, 6. Data (1,2,3,6,4,5,7,8)		

Reverse Polarity Protection	Supported for Power Input																				
Overload Current Protection	Supported																				
Power Supply	<b>IGS-402S-4PU:</b> Redundant Dual DC 48V (44~57VDC) input power (Removable terminal block ) (50~57V input is recommended for IEEE 802.3at PoE+ in 330/60W applications)																				
	<b>IGS-402S-4PH24, IGS-402F-4PH24, IGS-600-4PH24:</b> Redundant Dual DC 24/48V (20~57VDC) input power (Removable Terminal Block) Built-in very high efficiency booster(94~97%) to rise up 55 VDC for PoE output Regulated PoE output voltage (55VDC) to stabilize PoE device, and guarantee delivery PoE power distance to 100meter (Figure 2)																				
Power Consumption	<table><tr><th>Input Voltage</th><th>IGS-402S-4PH24</th><th>IGS-402F-4PH24</th><th>IGS-600-4PH24</th></tr><tr><td>24VDC</td><td>143.3W</td><td>143.2W</td><td>142.9W</td></tr><tr><td>48VDC</td><td>138.2W</td><td>138.2W</td><td>139.6W</td></tr></table> <p>(Include full load 120W PoE output ) IGS-402S-4PU Power consumption</p> <table><tr><th>Input Voltage</th><th>Total Power Consumption</th><th>Device Power Consumption</th><th>PoE Budget</th></tr><tr><td>50VDC</td><td>250.3W</td><td>8W</td><td>240W</td></tr></table>	Input Voltage	IGS-402S-4PH24	IGS-402F-4PH24	IGS-600-4PH24	24VDC	143.3W	143.2W	142.9W	48VDC	138.2W	138.2W	139.6W	Input Voltage	Total Power Consumption	Device Power Consumption	PoE Budget	50VDC	250.3W	8W	240W
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Input Voltage	Total Power Consumption	Device Power Consumption	PoE Budget																		
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PoE Power Budget	Maximum PoE Output power budget 240W, <b>60W/port</b> (IGS-402S-4PU) Maximum PoE Output power budget 120W, 30W/port (IGS-402S-4PH24, IGS-402F-4PH24, IGS-600-4PH24)																				
Alarm Relay Contact	Relay outputs with current carrying capacity of 1A @24VDC																				
Removable Terminal Block	Provides 2 Redundant power, Alarm relay contact, 6 Pin																				
Operating Temperature	-10 ~ 60°C (IGS-402S-4PU, IGS-402S-4PH24, IGS-402F-4PH24, IGS-600-4PH24)  -40 ~ 75°C (IGS-402S-4PUE, IGS-402S-4PHE24, IGS-402F-4PHE24, IGS-600-4PHE24)																				
Operating Humidity	5% to 95% (Non-condensing)																				

<b>Dimensions</b>	106 x 62.5 x 134.8mm (D X W X H) (IGS-402S-4PH24, IGS-402F-4PH24, IGS-600-4PH24) 106 x 62.5 x 135mm (IGS-402S-4PU)
<b>Housing</b>	Rugged Metal, IP30 Protection, Fanless
<b>Weight</b>	0.84kg (IGS-402S-4PH24) 0.68kg (IGS-402F-4PH24) 0.84kg (IGS-600-4PH24) 0.74kg (IGS-402S-4PU)
<b>Installation Mounting</b>	DIN Rail mounting, or wall mounting (Optional accessories)
<b>MTBF</b>	736,988 Hours @25°C (IGS-402S-4PH24) 635,099 Hours @25°C (IGS-402F-4PH24) 649,579 Hours @25°C (IGS-600-4PH24) 688,499Hours (IGS-402S-4PU) (MIL-HDBK-217)
<b>Warranty</b>	5 years
<b>Certification</b>	
<b>EMC (Electromagnetic Interference)</b>	FCC Part 15 Subpart B Class A, CE EN55022 Class A
<b>Railway Traffic</b>	EN50121-4
<b>Immunity for Heavy Industrial Environment</b>	EN61000-6-2
<b>Emission for Heavy Industrial Environment</b>	EN61000-6-4
<b>EMS (Electromagnetic Susceptibility) Protection Level</b>	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
<b>Safety</b>	UL60950-1 (IGS-402S-4PH24, IGS-402F-4PH24, IGS-600-4PH24)
<b>Shock</b>	IEC 60068-2-27
<b>Freefall</b>	IEC 60068-2-32
<b>Vibration</b>	IEC 60068-2-6

## Application

Figure 1 : PoE Gigabit Ethernet Switch Transmission

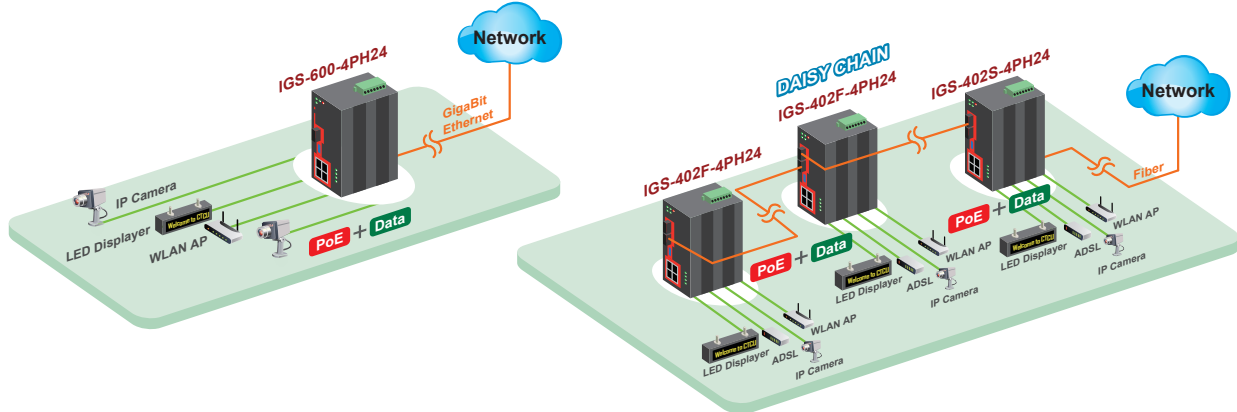
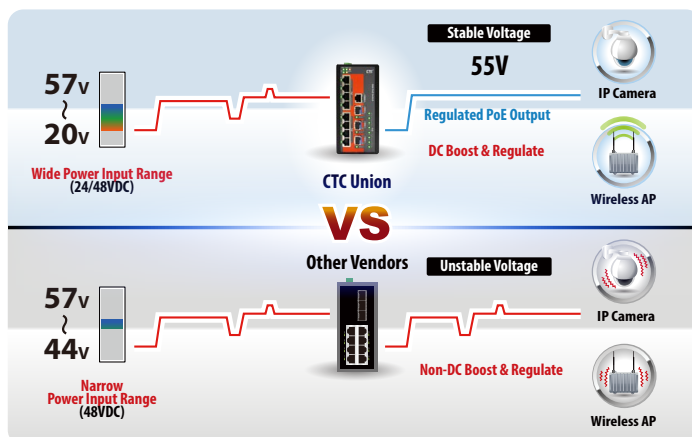


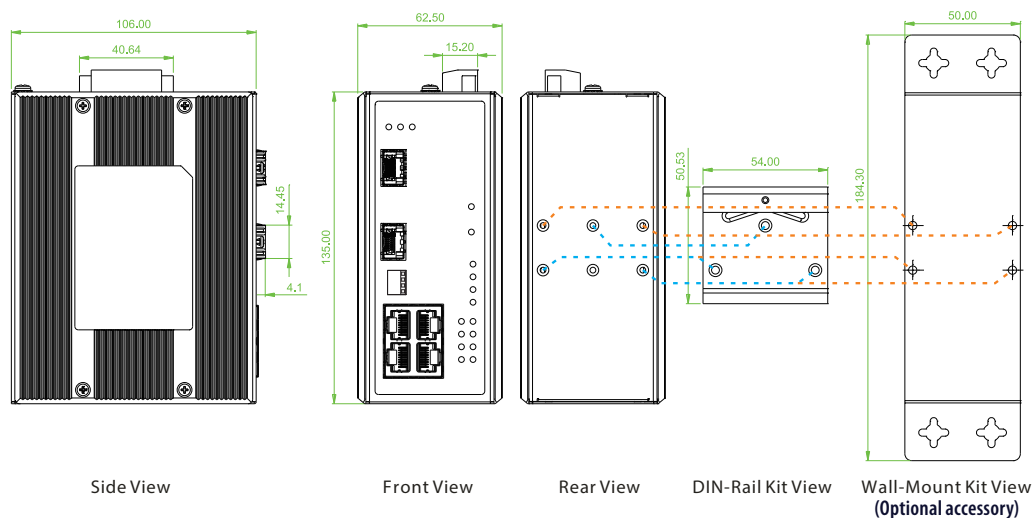
Figure 2 : High efficiency boost technology for PoE



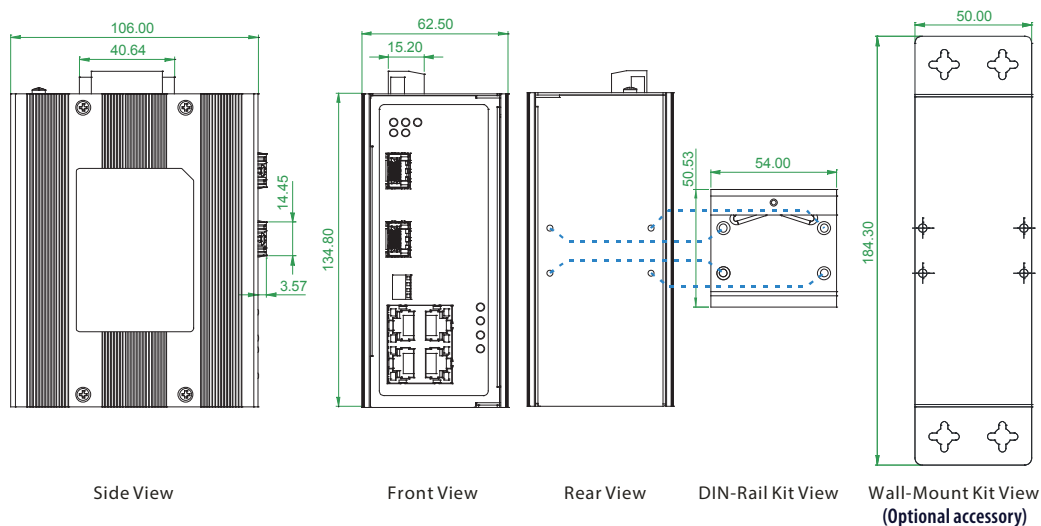
- Regulated PoE output voltage (55VDC) to stabilize PoE device
- Guarantee delivery PoE power distance to 100 meters
- Wide range input power 24/48VDC (20~57VDC)
- Built-in very high efficiency (94~97%) to boost PoE output voltage

## Dimensions

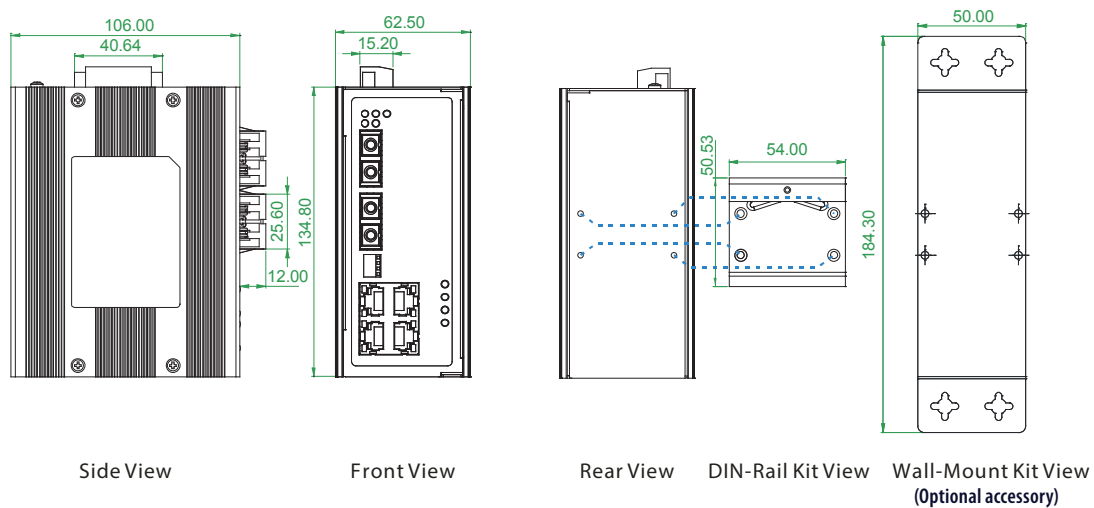
### ► IGS-402S-4PU

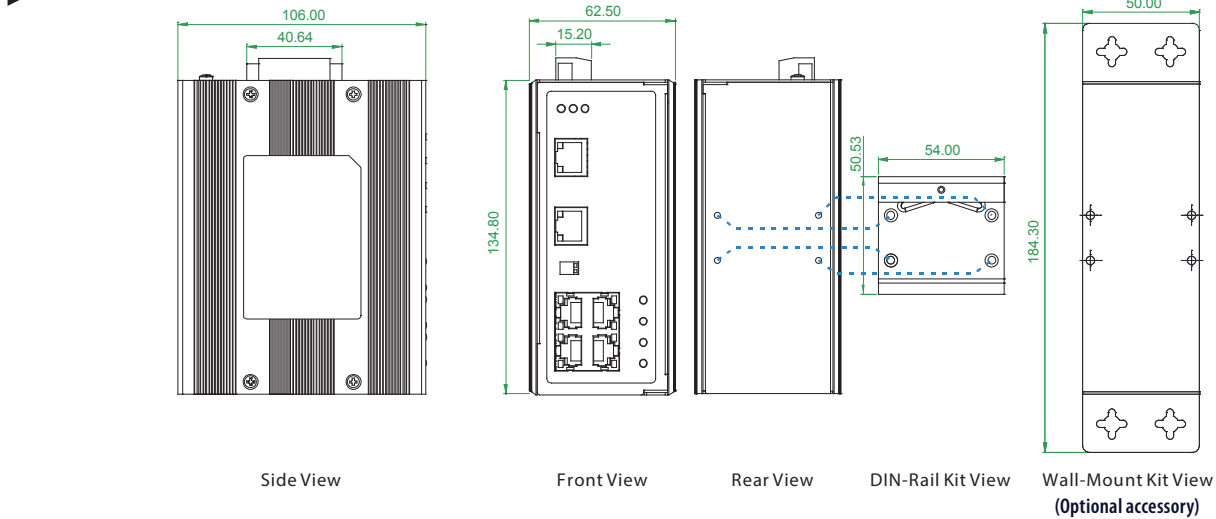


### ► IGS-402S-4PH24



### ► IGS-402F-4PH24

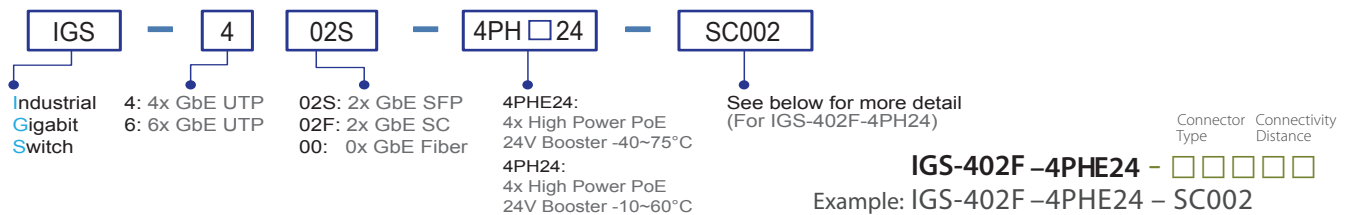




## Ordering Information

Model Name	Total Port	RJ45 UTP Port	FiberPort		PoE port			Input power	Certification			Operating Temperature
		10/100/1000 Base-T(X)	1000Base-X Base-X	100/1000 Base-X	IEEE 802.3at	IEEE 802.3at 4 Pairs PoE/60W	Power Budget	Redundant	Railway EN50121-4	Safety UL60950-1	CE,FCC EN61000-6-2 EN61000-6-4	
IGS-402S-4PU	6	4		2 SFP		4	240W	48VDC	V		V	-10~60℃
IGS-402S-4PUE	6	4		2 SFP		4	240W	48VDC	V		V	-40~75℃
IGS-402S-4PH24	6	4		2 SFP	4		120W	24/48VDC	V	V	V	-10~60℃
IGS-402S-4PHE24	6	4		2 SFP	4		120W	24/48VDC	V	V	V	-40~75℃
IGS-402F-4PH24	6	4	2 SC		4		120W	24/48VDC	V	V	V	-10~60℃
IGS-402F-4PHE24	6	4	2 SC		4		120W	24/48VDC	V	V	V	-40~75℃
IGS-600-4PH24	6	6			4		120W	24/48VDC	V	V	V	-10~60℃
IGS-600-4PHE24	6	6			4		120W	24/48VDC	V	V	V	-40~75℃

## Model Naming Rule



Fiber Connector Type	Connectivity Distance
SC	SC001: 500m (SC, M/M) SC002: 2km (SC, M/M) SC020: 20km (SC, S/M) SC040: 40km (SC, S/M)
(IGS-402F-4PH24)	SC020A: WDM 20km A type (TX: 1310nm) SC020B: WDM 20km B type (TX: 1550nm)

## Optional Accessories

### ■ Wall mount kit accessories

IND-WMK02	Wall Mount kit for Industrial product (Wide) (184*50mm)
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## ■ Industrial SFP Transceiver

The ISFP series of industrial grade SFP modules have been fully tested with the series product for guaranteed compatibility and performance. The best performance can be guaranteed even in mission-critical applications. (Please see CTC Union's Industrial SFP datasheet for more details and more items.)

<b>ISFP-M7000-85-D(E)</b>	Industrial SFP GbE 1000Base-SX, M/M, 500 meter, wave length 850nm, 7.5dB, LC, DDML, -10~70°C (-40~85°C)
<b>ISFP-S7020-31-D(E)</b>	Industrial SFP 1000Base-LX, S/M, 20km, wave length 1310nm, 15dB, LC, DDML, -10~70°C (-40~85°C)
<b>ISFP-T7T00-00-(E)</b>	Industrial SFP 10/100/1000Base-T UTP 100meter, -10~70°C (-40~85°C)
<b>ISFP-M5002-31-D(E)</b>	Industrial SFP 155M 100Base-FX, MM, 2km, wave length 1310nm, 12dB, LC, DDML, -10~70°C (-40~85°C)
<b>ISFP-S5030-31-D(E)</b>	Industrial SFP 155M 100Base-FX, SM, 30km, 1310nm, 19dB, LC, DDML, -10~70°C (-40~85°C)

## SFP Naming Rule

