Mini-size Gigabit Ethernet Fiber Converter for Industry

DS201-S/DS201-M

Industrial 1-port Gigabit Ethernet to Fiber Media Converter

The industrial-grade fiber optic media converter DS201-S/-M (DS201F) can operate in either low latency converter mode or store & forward switching mode. It detects and changes to store-and-forward mode if the link speed or duplex of RJ-45 and fiber ports are different. In converter mode, the Link Fault Pass-Through (Link Loss Forwarding) reaches low latency with bi-directional alert and auto-recovery. The 16Kbytes jumbo frame forwarding capability guarantees high-speed Giga communications. Wide operation temperature -40~75℃ and heavy industrial EMC design brings DS201-S/-M suitable for any industrial application.

Features & Benefit

Gigabit Media Converter

- Converts Optical Signal and Gigabit Ethernet Electrical Signal
- IEEE 802.3z Gigabit Fiber, Single/Multi-Mode
- RJ-45 supports IEEE802.3u 100Bas-TX, IEEE802.3ab 1000Base-TX

Link Fault Pass Through / Link Loss Forward

- Bi-Directional Link Loss Forwarding for Real Time Far-End Fault Alert
- Bi-Directional Auto Recovery for Ethernet Optical Fiber and Ethernet RJ-45 Communication

Dual Forwarding Modes

Pure Converter:

- RJ-45 and Fiber working in balanced Speed and Duplex mode
- Minimum Forwarding Latency – $8.2x10^{-9}$ Sec.

Ethernet Switching Store-and-Forward:

- RJ-45 and Fiber working in un-balanced speed and duplex mode
- TX 100/1000Mbps Auto-Negotiation, Auto MDI/MDI-X
- IEEE 802.3x Flow-Control & Back-Pressure
- CRC Error Packet Filtering

High Speed Gigabit Communication

- 16KBytes Jumbo frame for Gigabit Speed
- Multi-Media, Video/Voice Stream Applications

Industrial Compliance

- IEC 61000-6-2/ IEC 61000-6-4 Heavy Industrial EMC
- EN 50121-4 Railway Track Side EMC *Note
- High Level Electro Magnetic Susceptibility – Level 3 ***Note**

Easy DIP switch Configuration

- Forced RJ-45 100Mbps Half Duplex for legacy device
- Link Fault Pass Through / Link Loss Forward

Hardened System Design

- Operates Under -40 ~75℃ Environment
- Wide Range Redundant Power Input, 10~60Vdc or AC18~30V and Negative Power System for Telecom
- Ingress Protection – IP31

Compact Size Design

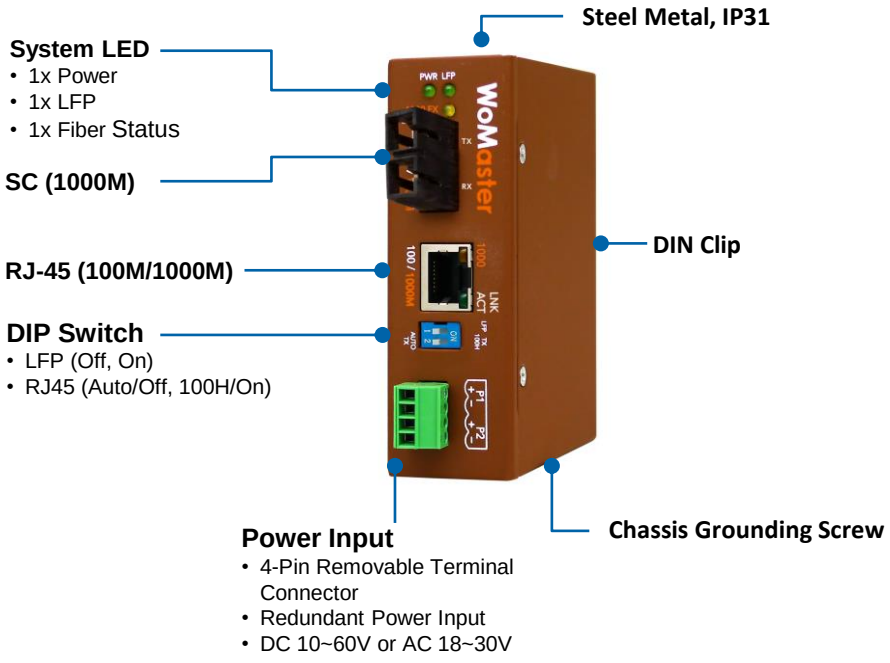
- Minimal Install Space Requirement
- Easy Cable Reorganization

Special Vertical Market Application

- Factory Automation – Real Time Machine Communication
- Railway Track Side – PLC Communication
- Low AC Voltage application – AC18~30V Building Automation
- Telecom System for Battery Negative Power Application

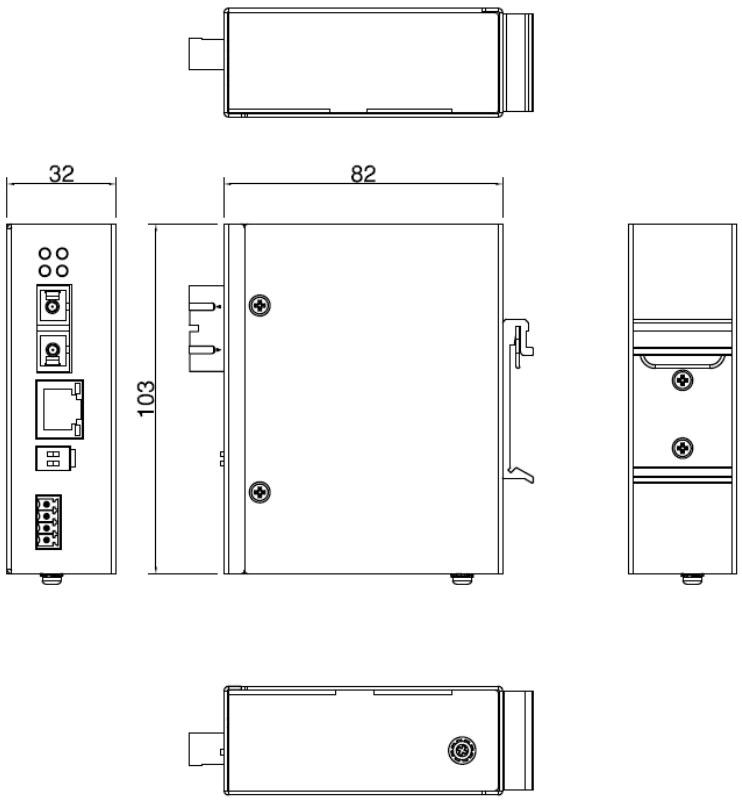
Note: By Special Request. Pls Contact with Sales

Interfaces



Dimensions

Dimension: 32mm(w) x 103mm(H)x 82mm(D)



Specifications

Technology

Standard	IEEE 802.3 10Base-T Ethernet
	IEEE 802.3u 100Base-TX Fast Ethernet
	IEEE 802.3ab 1000Base-T Gigabit Ethernet / IEEE 802.3z Gigabit Ethernet Fiber
	IEEE 802.3x Flow Control and Back-Pressure

Performance

Forwarding Mode	Switching Mode: Store-and-Forward technology with CRC Check Pure Converter: Direct Forward packet with lower latency -8.2x10^{-9} Sec **Note: If the link speed and duplex mode of RJ-45 and Fiber port are not same, DS201 will auto change forwarding mode to store-and-forward**
Packet Buffer Memory	128K bits
Transfer performance	1488100pps, supports 16KBytes Jumbo frame size

Interface

Ethernet Port	1 x Ethernet RJ45, 10/100/1000Mbs Auto Negotiation,Auto MDI/MDI-X 1 x 1000Base-FX (Manual Configured, Transceiver Hot-Swappable)
System LED (To Be Update)	1 x Power: Green On (Power is supplying) / Off (Power off) 1 x LFP: LFP (Enable (Green On) / LFP Event Occurred (Green Blinking)
Ethernet Port LED (RJ-45)	1000Mbps Speed (Yellow On) 10/100/1000Mbps Link (Green On), 10/100/1000Mbps Activity (Green Blinking)
Fiber Port LED	1 x 1000Mbps Fiber: Link (Yellow on), Activity (Yellow Blinking)
DIP Switch	See table below

DIP No.#	Status	Description
DIP 1	On Off	Enable Link Fault Pass Through/ Far End Fault Alert function Disable Link Fault Pass Through (Default Off)
DIP 2	On Off	RJ-45 Forced at 100Mbps Half Duplex mode RJ-45 Auto Negotiation (Default Off - Auto Negotiation)

Note: It is necessary to perform power reset to activate the new configuration when DIP switch changes.

Optical Fiber Specification

	Distance	Wavelength	TX Power	RX Sensitivity	Link Budget
Single Mode Cable (8/125um) / (DS201-S)	10KMeters	1310nm/ FP LD	-10 ~ -3 dBm	≤ -22dBm (Max.)	12dBm
Multi-Mode Cable 62.5/125um / (DS201-M)	550Meters	1310nm/ FP LD	-11 ~ -3 dBm	≤ -22dBm (Max.)	11dBm

Power Requirement

Power Connector	4-Pin Removable Terminal Connector with Power Redundancy, Polarity Auto Reverse • V1(+), V2(+) : Redundant Power Input (V+) or L1/L2 (Low AC Voltage) • V1(-) , V2(-): Common (V-) for Redundant Power Input V1 and V2, or N1/N2 (Low AC Voltage)
Input Voltage	DC 24V, Rating 10~60Vdc, Redundant Power Input with Auto Polarity Reverse function Negative Power Supported Low AC Voltage 18~30Vac for the Building Automation Control
Auto Polarity Reverse	Yes
Power Consumption	Max. 3W@24VDC

Mechanical

Installation	35mm DIN Rail
Enclosure Material	Steel Metal
Dimension	32mm (W) x 103mm (H) x 82mm (D) / without DIN Rail Clip and SFP Transceiver
Ingress Protection	IP31
Weight	300g without package

Environmental	
Operating Temperature & Humidity	-40°C~75°C, 0%~95% Non-Condensing
Storage Temperature	-40°C~85°C
MTBF	>200,000 hours
Hi-Pot Insulation	AC1.0KV for Power/Ethernet port to Chassis Ground
Warranty	5 years without human and natural damage
Standard	
Safety *Note-1	IEC 60950-1, UL
EMC *Note-1	IEC/ EN61000-6-2, IEC/ EN61000-6-4
EMI *Note-2	CISPR 22, FCC part 15B Class A
EMS *Note-3	IEC61000-4-2 ESD IEC61000-4-3 RS IEC61000-4-4 EFT IEC61000-4-5 Surge IEC61000-4-6 CS IEC61000-4-8 Magnetic Field
Environment * Note-4	IEC 60068-2-27 Shock / IEC 60068-2-31 /IEC 60068-2-6 vibration
Railway *Note-5	EN50121-4 (By Request)

Note-1: Pending by request. Heavy Industrial Application Standards
Note-2: IEC/EN61000-6-2 Electrical Magnetic Immunity (EMI)
Note-3: IEC/EN61000-6-4 Electrical Magnetic Susceptible (EMS)
Note-4: Pending, and by Request
Note-5: Pending, and by Request

Ordering Information

Model Name	Description
DS201-S-SC-10	Industrial Gigabit Ethernet Fiber Media Converter, 1 RJ-45, 1 SC Single-Mode,10KM,Redundant Power, Typical DC 24V (10~60V Range)
DS201-M-SC-05	Industrial Gigabit Ethernet Fiber Media Converter, 1 RJ-45, 1 SC Multi-Mode,550Meters,Redundant Power, Typical DC24V (10~60V Range)
	Package List
	1 x Product Unit
	1 x 4-pin Removable Terminal Connector, attached on the device
	1 x DIN Rail Clip , attached on the device
	1 x Quick Installation Guide