

Mini-size Fiber Converter for Extreme Environments

DS101

Industrial 1-port Fast Ethernet to Fiber Media Converter

The DS101 industrial media converter provides industrial-grade media conversion between 10/100BaseT(X) and 100BaseFX (SC/ST connectors). The ruggedized IP41 design keeps automation applications running continuously even under extreme temperatures from -40 to 75°C. For critical industrial applications, the DS101 converter passes IEC 61000-6-4 Heavy Industrial EMC and EN50121-4 Railway Track Side EMC standard to provide excellent electromagnetic immunity.



-40~75°C



Features & Benefit

Ethernet Media Converter

- Converts Optical Signal and Ethernet Electrical Signal
- Supports IEEE100Base-FX, 100Mbps Fast Ethernet Optical Fiber
- Supports IEEE 10/100Base-TX ,10/100Mbps Fast Ethernet

Link Loss Forwarding

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

Dual Forwarding Modes

Pure Converter Mode:

- Low Packet Forwarding Latency – 1.6x10⁻⁶ Sec

Switch-Store and Forward Mode:

- TX 10/100Mbps Auto-Negotiation Auto MDI/MDI-X
- IEEE 802.3x Flow-Control & Back-Pressure
- Error Packet Filtering

Standard Compliance

- CE/IEC 61000-6-2, IEC 61000-6-4 Heavy Industrial EMC
- EN50121-4 Railway Track Side EMC
- High Level Electro Magnetic Susceptibility – Level 3

Easy System Configuration

- DIP-Switch Configuration: Forwarding Mode / TX Speed / Link Loss Forwarding
- TX Forced 100Mbps Half-Duplex for Legacy Ethernet Device
- Switch Store and Forwarding Mode support TX Speed Auto Negotiation and Auto MDI-X

Hardened System Design

- Survive Under -40 ~75°C Environment
- Wide Range Redundant Power Input
- Ingress Protection – IP41
- Suitable for Telecom Negative Power System

Compact Size Design

- Cigarette Box Size- Minimal Space Requirement
- Easy Cable Reorganization

Special Vertical Market Application

- Factory Automation – Real Time Machine Communication
- Railway Track Side – PLC Communication
- Telecom Unattended Station – Ethernet / Fiber Conversion



Interfaces

System LED

- 1x Power
- 1x Forwarding Mode
- 1x LLF
- 2x FX
 - 1x LNK
 - 1x FDX

100Mbps Fiber SC Connector

10/100Mbps RJ-45



IP-41

Din Clip

Grounding Screw

DIP Switch

- Forwarding Mode
- TX Forced Speed
- LLF

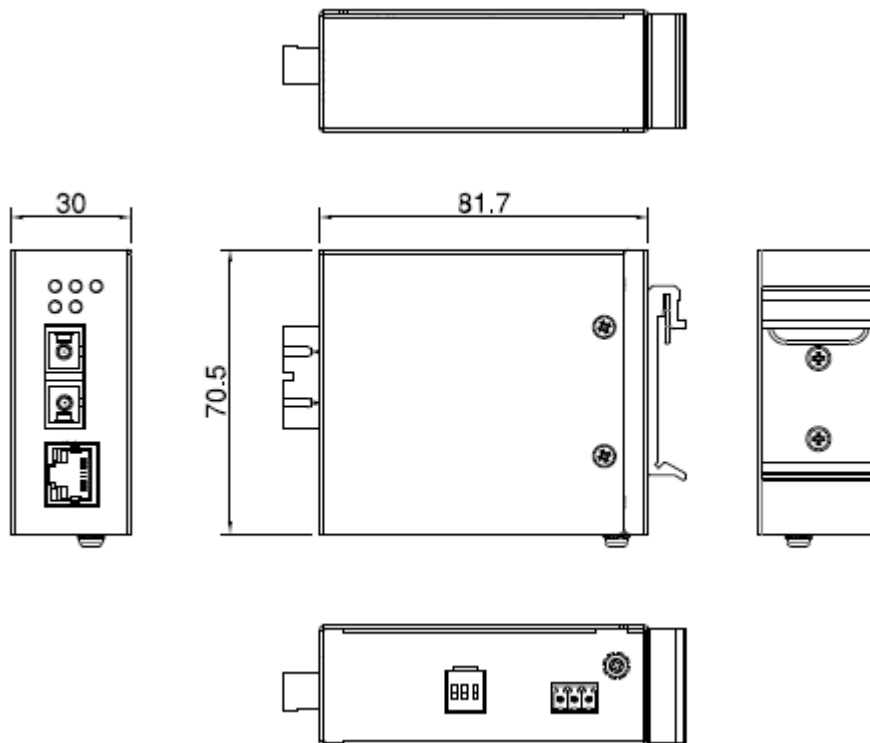
Power Connector

- 3-Pin Removable Connector
- V1+, V-(COM), V2+



Dimensions

Unit: mm



Technology					
Standard	IEEE 802.3 10Base-T Ethernet				
	IEEE 802.3u 100Base-TX Fast Ethernet				
	IEEE 802.3x Flow Control and back-pressure				
	IEEE 802.3 Carrier Sense Multiple Access with Collision Detection (CSMA/CD)				
Performance					
Forwarding Mode	Store and Forward & Pure Converter				
Packet Buffer Memory	128K bits				
Transfer performance	10Base-T: 14,880pps, 100Base-TX: 148,800pps				
Interface					
Ethernet Port	DS101-M-SC/DS101-S-SC: 1 x 10/100Base-TX RJ45, Auto Negotiation 1 x 100BaseFX (SC Connector) DS101-M-ST/DS101-S-ST: 1 x 10/100Base-TX RJ45, Auto Negotiation 1 x 100BaseFX (ST Connector) DS101-WDM13-SC / DS101-WDM15-SC 1 x 10/100Base-TX RJ45, Auto Negotiation, Auto MDI/MDIX 1 x 100Base-FX (Simplex-SC Connector)				
System LED	1 x Power: Green On 1 x Mode: Converter mode (Green On), Store and Forward mode (Green Off) 1 x LLF: LLF Happens (Red On)				
Ethernet Port LED	LNK: Link (Green On), Activity (Green Blinking) FDX: 100Mbps Full Duplex (Amber on), 100Mbps Half Duplex & Collision (Amber Blinking)				
Fiber Port LED	LNK: Link (Green On), Activity (Green Blinking) FDX: Full Duplex (Amber on)				
DIP Switch	1 x Set Forwarding Mode (On: Converter; Off: Store & Forward) 1 x Set RJ45 in 100Mbps Half Duplex Mode or Auto-Negotiation (On: Half Duplex; Off: Auto-Negotiation) 1 x Enable/disable Link Loss Forwarding (On: Enable; Off: Disable)				
Power input	3-Pin Removable Terminal Connector with Power Redundancy, Polarity Reverse Protection <ul style="list-style-type: none"> • V1+ , V2+ : Redundant Power Input (V+) • V- (COM): Common Power-GND (V-) for V1 and V2 				
Optical Fiber					
	Distance	FP Laser Wavelength	TX Range	RX Range	Link budget
Single-Mode	30KM	1310 (1260~1360)	-8~-3dBm	-32~-3dBm	24dB
Multi-Mode	2KM	1310 (1260~1360)	-20~-12dBm	-30~-3dBm	10dB
Single-Mode WDM13-SC-20	20KM	TX:1310nm RX:1550nm	-15~-3dBm	-32dBm	29dB
Single-Mode WDM15-SC-20	20KM	TX:1550nm RX:1310nm	-15~-3dBm	-32dBm	29dB
Power Requirement					
Input Voltage	12/24V/48DC (9~60VDC)				
Polarity Reverse Protection	Yes				
Input Current	0.07A@24V				
Power Consumption	Max. 1.66W@24VDC Full traffic, suggest to reserve 15% tolerance				
Mechanical					
Installation	DIN Rail				
Enclosure Material	Steel Metal				
Dimension	81.7mm (D) x 70.5mm (H) x 30mm (W) / without DIN Rail Clip				
Ingress Protection	IP41				
Weight	0.2kg without package				

Environmental	
Operating Temperature & Humidity	-40°C~75°C, 0%~95% Non-Condensing
Storage Temperature	-40°C~80°C
MTBF	>200,000 hours
Hi-Pot Insulation	AC 1.5KV for Power/Ethernet port to Chassis Ground
Warranty	5 years

Standard Compliance	
Vibration	IEC60068-2-6
Shock	IEC60068-2-27
Free Fall	IEC60068-2-32
EMC	CE IEC/ EN61000-6-2, IEC/EN61000-6-4
EMI	CISPR 22, FCC part 15B Class A
EMS	IEC61000-4-2 ESD Contact 6kV, Air 8kV, Criteria A, Level-3 EN61000-4-3 RS 80Mhz~1Ghz:20V/m, 1.4~2.4Ghz 10V/m, 2.1~2.7Ghz 5V/m, Criteria A, Level-3 EN61000-4-4 EFT L-N/L-E/N-E RJ-45 2kV, Criteria A, Level-3 EN61000-4-5 Surge L-PE/N-PE,RJ-45: 2KV.L-N 1K, Criteria A, Level-3 EN61000-4-6 CS 0.15~80Mhz 10V/m, Criteria A, Level-3 EN61000-4-8 Magnetic Field 30A/m, 300A/m, Criteria A, Level-3
Railway	EN50121-4



Ordering Information

Model Name	Description
DS101-M-SC-2	Industrial 1-port Fast Ethernet to Fiber Media Converter, multi-mode, 2km/1310nm, SC
DS101-M-ST-2*	Industrial 1-port Fast Ethernet to Fiber Media Converter, multi-mode, 2km/1310nm, ST
DS101-S-SC-30	Industrial 1-port Fast Ethernet to Fiber Media Converter, single-mode, 30km/1310nm, SC
DS101-S-ST-30*	Industrial 1-port Fast Ethernet to Fiber Media Converter, single-mode, 30km/1310nm, ST
DS101-WDM13-SC-20	Industrial 1-port Fast Ethernet to Fiber Media Converter, single-mode, 20km/TX1310nm, WDM/SC, -40~75C
DS101-WDM15-SC-20	Industrial 1-port Fast Ethernet to Fiber Media Converter, single-mode, 20km/TX1550nm, WDM/SC, -40~75C
** " By request	Package List
	1 x Product Unit
	1 x 3-pin Removable Terminal Connector
	1 x Attached Din Clip
	1 x Quick Installation Guide