

# 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. All converters are fully tested and burn-in before delivery to ensure your successful installation.



-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

- 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



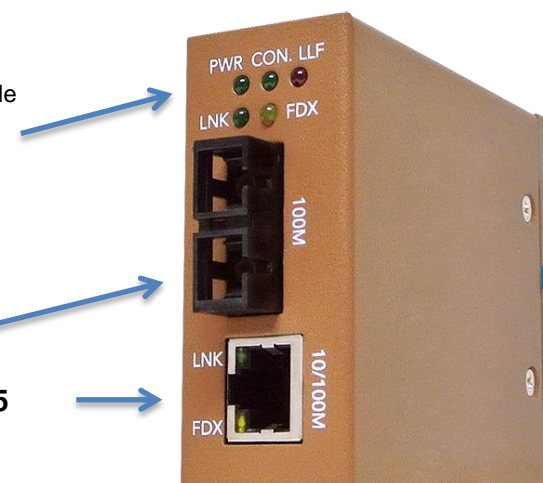
## Interfaces

### System LED

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

### 100Mbps Fiber SC Connector

### 10/100Mbps RJ-45



### Din Clip

### DIP Switch

- Forwarding Mode
- TX Forced Speed
- LLF

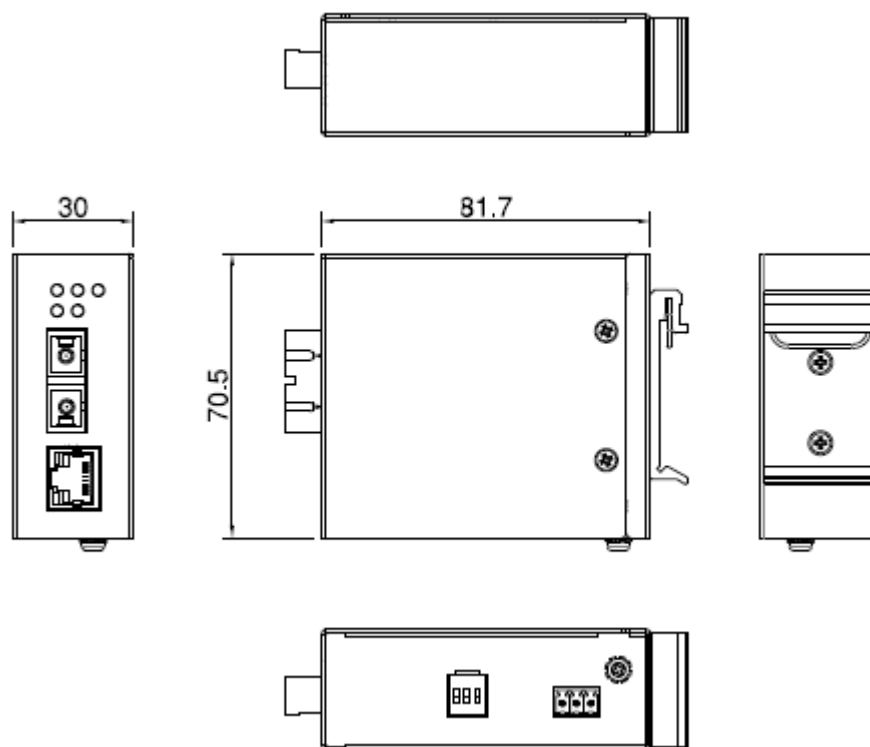
### Grounding Screw

### Power Connector

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



## Dimensions



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	<b>DS101-M-SC/DS101-S-SC:</b> 1 x 10/100Base-TX RJ45, Auto Negotiation 1 x 100BaseFX (SC Connector) <b>DS101-M-ST/DS101-S-ST:</b> 1 x 10/100Base-TX RJ45, Auto Negotiation 1 x 100BaseFX (ST Connector) <b>*WDM model by request</b>				
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 • 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
Power Requirement					
Input Voltage	12/24V/48DC (9~60VDC)				
Reverse Polarity Protect	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	
<b>EMC</b>	IEC/ EN61000-6-2, IEC/EN61000-6-4
<b>EMI</b>	CISPR 22, FCC part 15B Class A
<b>EMS</b>	IEC61000-4-2 ESD EN61000-4-3 RS EN61000-4-4 EFT EN61000-4-5 Surge EN61000-4-6 CS EN61000-4-8 Magnetic Field
<b>Railway</b>	EN50121-4



## Ordering Information

Model Name	Description
<b>DS101-M-SC-2</b>	Industrial 1-port Fast Ethernet to Fiber Media Converter, multi-mode, 2km/1310nm, SC
<b>DS101-M-ST-2*</b>	Industrial 1-port Fast Ethernet to Fiber Media Converter, multi-mode, 2km/1310nm, ST
<b>DS101-S-SC-30</b>	Industrial 1-port Fast Ethernet to Fiber Media Converter, single-mode, 30km/1310nm, SC
<b>DS101-S-ST-30*</b>	Industrial 1-port Fast Ethernet to Fiber Media Converter, single-mode, 30km/1310nm, ST
<b>Package List</b>	
1 x Product Unit	
1 x 3-pin Removable Terminal Connector	
1 x Attached Din Clip	
1 x Quick Installation Guide	

\*by request