

# First Industrial Mini-size Fiber Converter and Smart 90W PoE Injector with Smart PoE Detection

## DP101

### Industrial 1-port 90W PoE Fiber Media Converter

The DP101 is the first industrial grade fiber optic media converter featuring 90W PoE 802.3bt /PSE power feeding. The PoE is compliant with standard IEEE 802.3af / at / bt and non-standard PD with the innovative smart PoE detection algorithm. DP101 can automatically supply power through 2/4 pairs of wires or limit feeding power for non-standard PD, such as outdoor dome IP camera. The wide operation temperature from -40 ~75°C with IP40 ingress protection and high level of Industrial EMC compliance enables DP101 to operate in any harsh industrial environments.



### Features & Benefit

#### Ethernet Media Converter

- Converts Optical Signal and Ethernet Electrical Signal
- Supports IEEE 802.3 100Base-FX, 100Mbps Fast Ethernet Optical Fiber
- Supports IEEE 802.3 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:

- Low Packet Forwarding Latency – 1.6x10<sup>-6</sup> Sec

##### Ethernet Switch Store-and-Forward:

- TX 10/100Mbps Auto-Negotiation, Auto MDI/MDI-X
- IEEE 802.3x Flow-Control & Back-Pressure
- CRC 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 /PoE Setting
- TX Forced 100Mbps Full-Duplex
- Switch Store and Forwarding Mode support TX Speed Auto Negotiation and Auto MDI-X

#### Smart PoE Capability

- Auto PD Type Recognize- Standard or Non-Standard
- Auto Apply Limited Power for Non-Standard PD
- Built-in Over-Current, Cable Short Protections for Non-Standard PD

#### Hardened System Design

- Survive Under -40 ~75°C Environment
- Wide Range Redundant Power Input
- Ingress Protection – IP40

#### 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 Mode
- 1x LLF
- 2x FX
  - 1x LNK
  - 1x FDX
- 1x PoE

### 100M FX SC (ST Connector by request)

DIP NO.	ON	OFF (Default)	
1	Set to Converter Mode	Set to Store and Forwarding Mode	
2	Set RJ45 in 100Mbps Full Duplex Mode	Set RJ45 in 100Mbps Auto Negotiation Mode	
3	Enable Link Loss Forwarding function	Disable Link Loss Forwarding function	
4	PoE Enable	PoE Disable	
DIP5	DIP6	Power Budget For No-standard PD	Power Budget For Standard PD
OFF	OFF	Class 5: 45W	Auto Mode Class 0-Class 8 Max: 90W
OFF	ON	Class 6: 60W	
ON	OFF	Class 7: 75W	
ON	ON	Class 8: 90W	

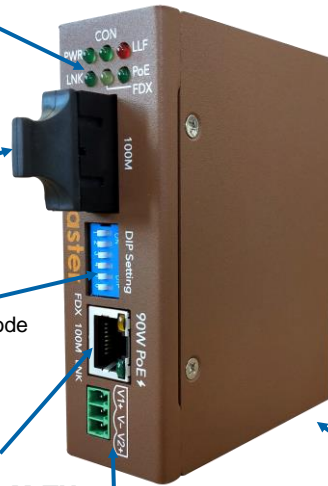
### DIP Switch

- 1x Forwarding Mode
- 1x RJ45 mode
- 1x LLF
- 1x PoE On/Off
- 2x PoE Budget

### 10/100M-TX

### Power Connector

- 1 x 3 pin terminal block

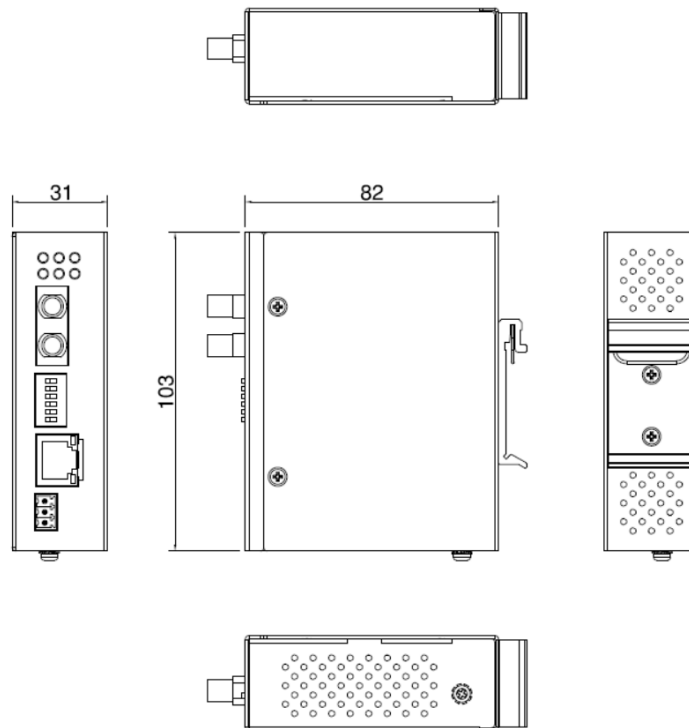


DIN Clip

Grounding Screw



## Dimensions



## Technology

<b>Standard</b>	IEEE 802.3 10Base-T Ethernet
	IEEE 802.3u 100Base-TX/ 100Base-FX Fast Ethernet
	IEEE 802.3x Flow Control and back-pressure
	IEEE 802.3af/at/bt Power Over Ethernet

## Performance

<b>Forwarding Mode</b>	Store and Forward with CRC Error Packet Check, and Pure Converter with low forwarding latency
<b>Packet Buffer Memory</b>	128K bits
<b>Transfer performance</b>	10Base-T: 14,880pps, 100Base-TX/FX: 148,800pps

## Interface

<b>Ethernet Port</b>	<p><b>DP101-M-SC/DP101-S-SC:</b> 1 x 10/100Base-TX RJ45, Auto Negotiation,Auto MDI/MDI-X 1 x 100BaseFX (Duplex SC Connector, Multi/Single Mode)</p> <p><b>DP101-M-ST/DP101-S-ST:</b> 1 x 10/100Base-TX RJ45, Auto Negotiation,Auto MDI/MDI-X 1 x 100BaseFX (Duplex ST Connector, Multi/Single Mode)</p> <p><b>DP101-WDM13-SC / DP101-WDM15-SC</b> 1 x 10/100Base-TX RJ45, Auto Negotiation,Auto MDI/MDI-X 1 x 100BaseFX (Simplex SC Connector, Single Mode)</p>																																
<b>System LED</b>	<p>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) 1 x PoE: Green On (PoE Active)</p>																																
<b>Ethernet Port LED</b>	Link (Green On), Activity (Green Blinking), Full Duplex (Amber on), Half Duplex & Collision (Amber Blinking), Half Duplex (Amber Off)																																
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<b>Power input</b>	<p>3-Pin Removable Terminal Connector with Power Redundancy, Polarity Reverse Protection</p> <ul style="list-style-type: none"> <li>• V1+ , V2+ : Redundant Power Input ( V+ )</li> <li>• V- (COM): Common Power-GND (V-) for V1 and V2</li> </ul>																																

## Optical Fiber

	Distance	FP Laser Wavelength	TX Range	RX (Max)	Link budget
<b>Single-Mode</b>	30KM	1310nm	-8 ~ -3 dBm	-32 ~ -3dBm	24dB
<b>Multi-Mode</b>	2KM	1310nm	-20 ~ -12dBm	-30 ~ -3dBm	10dB
<b>Single-Mode WDM13-SC-20</b>	20KM	TX:1310nm RX:1550nm	-15~ -3dBm	-32 ~ -3dBm	17dB
<b>Single-Mode WDM15-SC-20</b>	20KM	TX:1550nm RX:1310nm	-15~ -3dBm	-32 ~ -3dBm	17dB

Power Requirement	
Input Voltage	54VDC (46~57VDC : IEEE 802.3af, 50~57VDC : IEEE 802.3at, 53~57VDC : IEEE 802.3bt)
Reverse Polarity Protect	Yes
Input Current	0.04A @54V full traffic without PD loading
Power Consumption	Max. 2.18W@54VDC full traffic without PD loading, suggest to reserve 15% tolerance

PoE	
Power forwarding mode	IEEE 802.3af/at Alternative A IEEE 802.3bt draft: 4 pairs cable
PoE Power Budget	System: Max.90W@75°C Per Port: Max. 90W
Powered Device Type	IEEE 802.3af/at/bt Non-standard PD device, forced power supply

Mechanical	
Installation	DIN Rail
Enclosure Material	Steel Metal
Dimension	103mm (H) x 31mm (W) x 82mm (D) / without DIN Rail Clip
Ingress Protection	IP40
Weight	315g without package

Environmental	
Operating Temperature & Humidity	-40°C~75°C, 0%~95% Non-Condensing (I-Grade)
Storage Temperature	-40°C~80°C
MTBF	>200,000 hours
Hi-Pot Insulation	AC1.0KV for Power/Ethernet port to Chassis Ground
Warranty	5 years

Standard	
EMC	IEC/ EN61000-6-2, IEC/EN61000-6-4
EMI	CISPR 22, FCC part 15B Class A
EMS	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
Railway	EN50121-4

## Ordering Information

Model Name	Description
DP101-M-SC-2	Industrial 1-port Fast Ethernet PoE to Fiber Media Converter, multi-mode, 2km/ SC, PSE/ 802.3bt
DP101-M-ST-2*	Industrial 1-port Fast Ethernet PoE to Fiber Media Converter, multi-mode, 2km/ ST, PSE/ 802.3bt
DP101-S-SC-30	Industrial 1-port Fast Ethernet PoE to Fiber Media Converter, single-mode, 30km/ SC, PSE/ 802.3bt
DP101-S-ST-30*	Industrial 1-port Fast Ethernet PoE to Fiber Media Converter, single-mode, 30km/ ST, PSE/ 802.3bt
DP101-WDM13-SC-20*	Industrial 1-port Fast Ethernet PoE to Fiber Media Converter, single-mode, 20km/TX1310nm,WDM/SC, PSE/802.3bt
DP101-WDM15-SC-20*	Industrial 1-port Fast Ethernet PoE to Fiber Media Converter, single-mode, 20km/TX1550nm, WDM/SC, PSE/802.3bt
Package List	
	1 x Product Unit
	1 x 3-pin Removable Terminal Connector
	1 x Attached Din Clip
	1 x Quick Installation Guide

\*Customized Order