JetCon 2301

Fast Ethernet to Fiber Media Converter

CE FC ⌧ RoHS

| LLF | Low Latency | Store & Forward Mode | Modify Cut-through Mode | Pure Converter Mode |

| Converter w/ Auto-Change Mode | Dual 10~60VDC | EN 50121-4 | -25~75°C |

- One 10/100 TX port to One 100FX port media converter
- Supports Multi-Forwarding modes – Store and Forward, (Switching Converter) Modify Cut-through, Pure Converter and Converter with Auto Change modes
- Supports Auto MDI/MDI-X, Auto Negotiation
- Supports Multi-mode 2KM, Single-mode 30KM
- Extreme Low Data Forwarding Latency- 1.6×10^{-6} Sec
- Auto Link Loss Forwarding (LLF) for fault detection
- Fault Alert for port and power
- Redundant 10~60V DC Power inputs with DC polarity protection
- Supports AC 1.5KV Hi-Pot isolation protection
- EN 50121-4 Railway EMC compliance (applying)
- Operating temperature -25~75°C (-40~75°C wide operating temperature model available by request)

Overview

JetCon 2301 is a single port Fast Ethernet to Fiber media converter, compliant with EMC requirements of EN 50121-3-2 Railway standard to provide excellent performance under harsh environments featuring intensive vibration/shock and severe electromagnetic interference. Users can benefit from the Single-mode and Multi-mode fiber optic ports of the media converter for providing extended distance transmission of up to 30KM.

The JetCon 2301 supports 4 types of forwarding modes - store and forward, modify cut-through, pure converter and converter modes with auto-change-forwarding modes for various applications, depending on your transmission speed and size preferences. To forward link status changes for alerting remote or central management systems, JetCon 2301 features remote Link Loss Forwarding technology, as a result providing easy maintenance and greatly saving time. Users can easily activate forwarding mode and LLF functions by adjusting the DIP switch and resetting the converter to apply reconfigurations. Moreover, the device provides alarm relay to trigger out a real alarm signal for port or power events.

JetCon 2301 provides power redundancy with wide range DC10V~60V inputs and built-in reverse polarity protection for ensuring the power continuity in the system.

Combining 1.5KV Hi-Pot isolation protection and -25~75°C wide operating temperature range, JetCon 2301 withstands vibration and shock in heavy machinery industry and interferes electromagnetic allying power substation environments while keeping your applications running non-stop.

Real-time & Enhanced Data Transmission via 4 Forwarding Modes

JetCon 2301 outstands from other media converters by supporting 4 forwarding switch modes, which makes it a perfect solution for various applications, depending on your transmission speed and size preferences. The 4 operation modes are:

■ Switching mode - to support up to 148810 packets per second and maintain network efficiency by filtering abnormal packets.

■ Modify Cut-through mode - to provide enhanced error checking and avoid possible collisions.

■ Pure Converter mode - to achieve extreme low data forwarding latency by simply converting signal between copper and fiber ports without packet check.

■ Converter mode with Auto-Change-forward function - to enhance transmission by changing packet forwarding speeds.

## Auto Fault Detection through Link Loss Forwarding

When using traditional fiber converters, users often encounter the following problem: a fiber converter acting like an ordinary unmanaged 2-port switch. When one of the fiber converter's ports fails (e.g. the TX port), the other one (e.g. FX port) continues to receive data via the media (e.g. fiber), confusing the device on the other end of the media by indicating that the connection is still intact. But, by the time the disconnection is found, this error causes a great amount of data loss.

If a port loses the connection for any reason, it will activate Link Loss Forwarding to shut down the other port; hence, allowing the device on the other end of the media to detect the disconnection. The administrator over the network can be informed of the disconnection immediately, and react promptly to the situation, greatly reducing loss caused by any link failure.
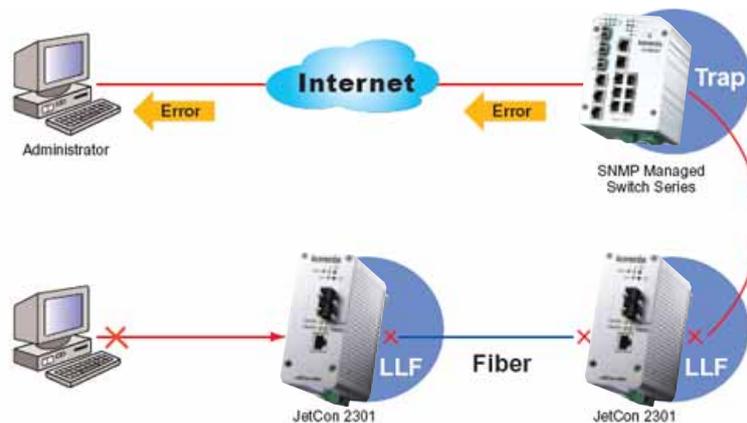
Dimensions (Unit = mm)
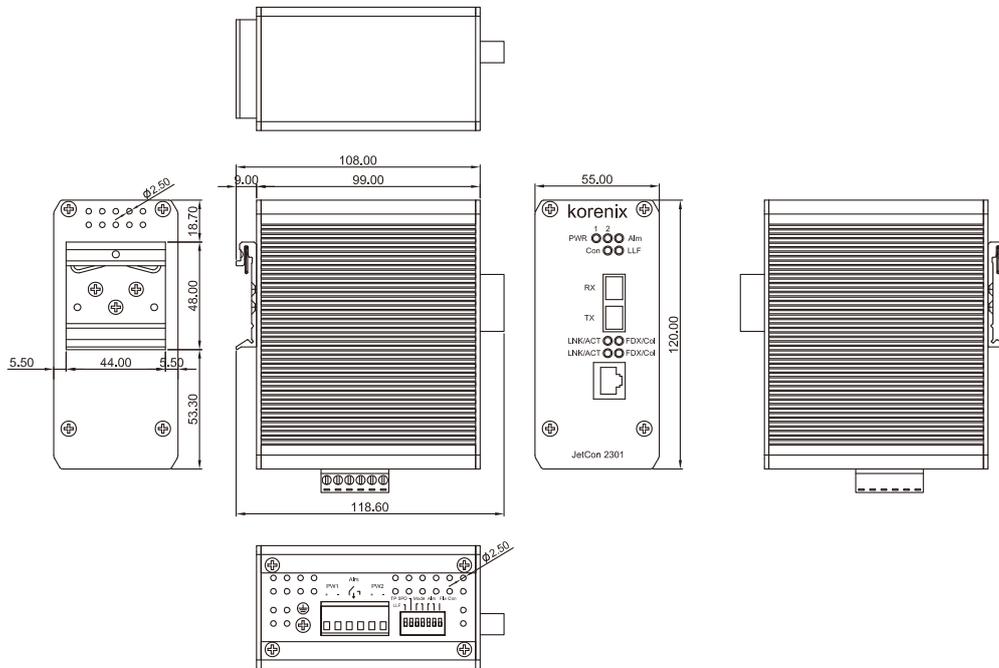
Specification

Technology

Standard:
IEEE 802.3 10Base-T
IEEE 802.3u 100Base-TX
IEEE 802.3u 100Base-FX
IEEE 802.3x Flow Control and Back Pressure

Forwarding Technology: Supports 4 types of forwarding modes, store and forward, modify cut-through, pure converter and converter mode with auto negotiation. This feature is selected by DIP-switch.

Link Lose Forward: Supports Bi-directional Link Loss Forwarding function.

TX Auto Sensing/Forced: RJ-45 port supports auto-negotiation and forced mode – 10Mbps/Half Duplex.

Packet Length: 64~1600Bytes @ Pure Converter mode.

Forwarding Latency:
Store and Forward: 250uS
Modify Cut-Through: 17uS
Converter : 1.6uS

IEEE 802.3 flow control /back-pressure:
Enabled by DIP Switch.

Event Alarm: Supports port link down and power event alarm relay output, controlled by DIP switch.

Digital Output: Dry Relay Output with 1A @24V DC ability

Interface

Ethernet copper port: 1 10/100TX ports with Auto MDI/MDI-X, Auto Negotiation

Fiber port: 1 100Mbps Fiber port, SC

Cables:

RJ-45 Connector:
10Base-T: 2-pairs UTP/STP Cat-3,4 TIA/EIA 568-B cable, 100 meters
100Base-TX : 2/4 pairs UTP/STP Cat.5 TIA/EIA 568-B cable, 100 meters

Fast Ethernet Fiber Transceiver:

JetCon 2301-m: 2KM (Max.)
Wave-length: 1310nm
Min TX Power:-19dBm
Max TX Power:-14dBm
Min RX Sensitivity:-14dBm
Max RX Sensitivity:-31dBm
Link budget:12dBm

JetCon 2301-s : 30KM (Max.)
Wave-length:1310nm
Max TX Power:-8dBm
Min TX Power:-15dBm
Max RX Sensitivity:-34dBm
Min RX Sensitivity:-8dBm
Link budget: 19dBm

JetCon 2301-s (WDM-A): Single-mode: 30KM (Max.)
Wave-length: TX 1310nm, RX 1550nm
Min TX Power:-14dBm
Max TX Power:-8dBm
Min RX Sensitivity: 0 dBm
Max RX Sensitivity:-31dBm
Link budget:17dBm

JetCon 2301-s (WDM-B): Single-mode: 30KM (Max.)
Wave-length:TX 1550nm, RX 1310nm
Max TX Power:-14dBm
Min TX Power:-8dBm
Max RX Sensitivity: 0 dBm
Min RX Sensitivity:-31dBm
Link budget: 17dBm

Diagnostic LEDs:
System Power (Green on) : Power 1 , 2
Relay Alarm: Active (Red)
Link Loss Forwarding : Far end fault event occurred (Red on)
Op. Mode: Convert (Green on) (Controlled by DIP Switch 4)
Fiber Ethernet Port: Link/Activity (Green on/Blinking), Full Duplex/Collision (Yellow on/Yellow Blinking)
Ethernet Port: Link/Activity (Green on/Blinking), Full Duplex/ Collision (Yellow On/ Yellow Blinking)

DIP Switch:
DIP Switch 1: LLF Enable/Disable, default disable (DIP 1 off)
DIP Switch 2: TX port Auto-Negotiation (OFF)/10H (ON), default disable (DIP 2 off)
DIP Switch 3 & 4: Forwarding Mode Selection, default store & forward mode (DIP 3,4 off)
DIP Switch 5: Power Alarm, default disable (DIP 5 off)
DIP Switch 6: Port Alarm, default disable (DIP 6 off)
DIP Switch 7: Flow Control, default enable (DIP 7 off)

Power Connector: Removable Terminal Block

Digital Output: Removable Terminal Block

Power Requirements
Power Supplly:
DC 10~60V with polarity reverses correction.
Supports Positive/Negative power system

System power 3 Watts / DC 48

Mechanical
System Installation: DIN Rail installation
Enclosure protection: Ingress Protection code - 30
Dimensions: 99 (D) x55(W)x 120(H)
Weight: 0.49Kg w/o packing

Environmental
Operating Temperature:
-25~ 75°C (JetCon 2301-w -40~ 75°C)
Operating Humidity: 5% ~ 95% (non-condensing)
Storage Temperature: -40 ~ 75°C
Storage Humidity: 0%~ 95% non-condensing
Hi-Pot: AC 1.5KV on port to port and port to power
EMC: EN 50121-4, CE, FCC A

Regulatory Approvals
EMI: EN 61000-6-4, CISPR 16-1-2/-2-1/-2-3
CISPR 22
EMS: EN 61000-6-2, EN 61000-6-2
IEC 61000-4-2,IEC61000-4-3, IEC61000-4-4,
IEC61000-4-5, IEC61000-4-6, IEC61000-4-8
Shock: IEC 60068-2-27
Vibration: IEC 60068-2-6
Free fall: IEC 60068-2-32
MTBF (Hours) : 1,324,748 (25°C) , 41,398 (75°C) ,
MIL-HDBK-217f

Ordering Information

JetCon 2301-m Industrial Fast Ethernet to Fiber Media Converter, SC, Multi-mode / 2KM
Includes:
- JetCon 2301-m
- Quick Installation Guide

JetCon 2301-s Industrial Fast Ethernet to Fiber Media Converter, SC, Single-mode / 30KM
Includes:
- JetCon 2301-s
- Quick Installation Guide

JetCon 2301-s (WDM-A) Industrial Fast Ethernet to Fiber Media Converter, SC, Single-mode / 30KM WDM A Type (TX1310/RX1550 nm)
Includes:
- JetCon 2301-s (WDM-A)
- Quick Installation Guide

JetCon 2301-s (WDM- B) Industrial Fast Ethernet to Fiber Media Converter, SC, Single-mode / 30KM WDM B Type (TX1550/RX1310 nm)
Includes:
- JetCon 2301-s (WDM-B)
- Quick Installation Guide