JetCon Series Industrial Media Converter

JetCon Series offers a complete solution of industrial-grade media converters for extending data transmission over various media connections. Korenix rich family of Ethernet, Fiber, Serial and VDSL media converters is designed to fulfill the specific requirements of your Industrial applications with the highest data reliability, guaranteed high-speed & flexible network connectivity and best price/performance ratio.

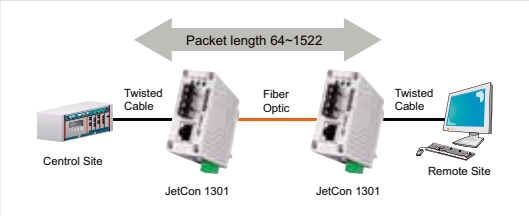
Ethernet through EMI for Outstanding Network Performance

JetCon series Gigabit / Fast Ethernet to Fiber media converters are designed to enlarge the fiber networks and, thus, benefit users to achieve the best inventory performance in their extreme industrial applications.

Multiple Switching Converter Modes for Flexible Applications

When converting electronic to optical signals, most of media converters are not capable of handling all kinds of packet sizes. A major drawback is that they cannot support 10/100Mbps auto negotiation and auto detection function for the cross-over or straight cable.

To provide high-performance packet transmission for flexible applications, Korenix offers Fast Ethernet converters with multiple types of forwarding switch modes, including store and forward, modify cut-through, pure converter and converter with auto-change-forward modes.



Switching Converter Mode

Switching converter mode implements the store-and-forward technology. This converter mode will begin to transmit a frame right after completion of receiving a frame. It will filter out abnormal packets to maintain network efficiency and support the data forwarding rate up to 148810 pps in full wire speed with packet length from 64 to 1522 bytes.

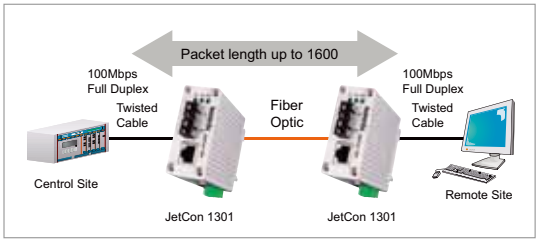
Modify Cut-through Mode

The converters configured by the modified cut-through mode will begin to forward a frame after the first 64 bytes data is received and checked.

This is done to avoid possible collisions. Users can implement this switching mode in Korenix Fast Ethernet converters to provide enhanced error checking while at the same time not increasing latency.

Pure Converter Mode

To fulfill extreme low latency requirements – Fieldbus and EtherCAT, with invariant forwarding latency in 64~1600 bytes packet length, Korenix offers Fast Ethernet converters with pure converter mode. In the pure converter mode, the converter can only convert signal between copper and fiber ports without any packet check, and can operate in the speed of minimum data forwarding latency, even when the packet is with a CRC error, and when the packet length is below 64 bytes.



Some of special devices need pure converter and they need it to operate simply without any features.

Converter Mode with auto-change-forwarding

Converter mode with auto-change-forward function will change the speed of packet forwarding to provide enhanced transmission.

- All product specifications are subject to change without further notice.
- Before applying to critical projects, please contact Korenix headquarter for up-to-date product specifications' consultancy.

Rugged Design for Extreme Industrial Applications

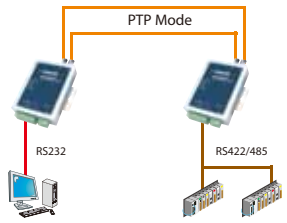
Korenix converters come with excellent EMS immunity which even exceeds IEC61850 standard making the devices the best fit in substation like deployments, full of electromagnetic interferences. Besides, with anti-vibration/anti-shock design, Korenix converters resist the severities in heavy machinery industry and thus, can be suitable for railway, rolling stock applications, etc. Combining rugged IP31 enclosure, great heat dissipation and wide operating temperature range they are capable of providing non-stop data transmission in industrial applications.

Serial Fiber Rings to Expand Connected Devices and Distance

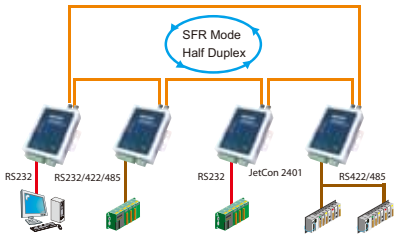
Korenix offers serial fiber media converters for extending data transmission in industrial environments through serial or fiber connections. The serial media converter series supports two transmission configurations - Peer to Peer in full duplex and Serial Fiber Ring (SFR) in half duplex. In a Peer-to-Peer configuration, two fibers are required between two converters, one for data in each direction (RX and TX). However, this limits the communication between 2 devices.

To expand the number of connected serial devices, users can apply the SFR configuration mode and connect the fiber transmitter to the rest of the slaves and eventually back to the master node.

Peer to Peer Serial Communication (PTP)



Serial Fiber Ring Communication (SFR)

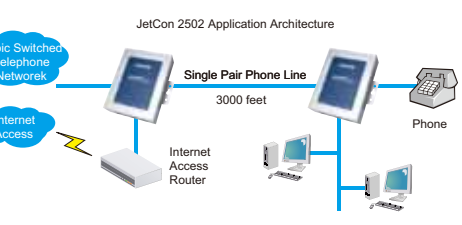


VDSL Media Converter for Extending Networks over Existing Wiring System

Korenix offers Ethernet over VDSL converters for users who seek to extend their networks without the need of changing the existing twisted copper cable. The Ethernet /POTS to VDSL2 extender allows carriers to deliver up to 100Mbps Ethernet data in both upstream and downstream. Featuring Discrete Multi-Tone modulator/ de-modulator and VDSL Analog Front End (AFE) technology, the converter becomes an ideal solution to carry POTS signal and Ethernet Data stream to 3000 feet while extending local LAN and voice on the same line.

Triple Play – HDTV, Data Access, Video conference

The converter allows users to compete with wireless and satellite providers by offering Video conference, HDTV or Video chatting over an existing telephone copper cable without any configuration, just plug and play to enlarge infrastructure for your applications.



Hotel Network Infrastructure

High Speed and Secure Network Connectivity over Existing Cable

The hospitality market is heating up. As more and more customers flock back to hotels they have one clear expectation - find high speed internet access in their hotel rooms. Providing broadband access to hotels and multitenant facilities can be troublesome and expensive: difficulties of high bandwidth data transfer over long distances and high-cost cablings for network extension.

A similar issue had encountered the Sunshine hotel in Shen-zen, China.

In order to integrate the current Ethernet with existing building phone line / coaxial cable network technology, the Sunshine hotel adopted Korenix JetCon 2502. A single device was installed in each hotel room to help signal convert between traditional Ethernet and innovative VDSL2 technology without rewiring. As the diagram indicates, in each room one HDTV and the POTS Lines (Voice) are connected to JetCon 2502, therefore voice and data communication can be simultaneously shared on the existing phone wire and then transmitted via Ethernet to the remote layer 3 switch in control center.

In addition, JetCon 2502 allows hotel administrators to compete with wireless and satellite providers by offering its guests outstanding service, including Internet Access, HDTV, Voice/Video chatting over an existing telephone copper cable without any configuration, just plug and play to enlarge the infrastructure.

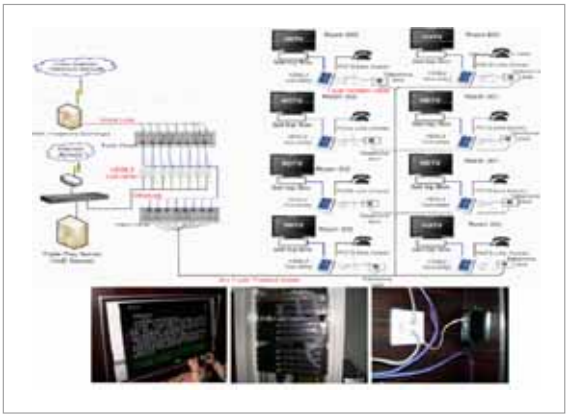
For the hotel Korenix VDSL2 solution was an ideal, high performance system for delivering secure, high-speed network connectivity to its guests.

Main Products

JetCon 2502 Industrial Ethernet over VDSL2 Extender

Why Korenix

- Auto correction technology for deployment of Voice and Data into a single-pair of twisted copper cable
- Best Bandwidth Utilization: Wide Bandplan, cover ADSL, VDSL, POTS, ISDN
- Easy connection with minimum installation time and easy maintenance
- Plug and play design for eliminating the need of configuration
- No reconstruction cost: usage of existing phone cable



Tunnel Traffic Monitoring

Extended Non-Stop Tunnel Traffic Monitoring and Control via Robust Connectivity

Intelligent transportation systems are an integral element in the operation of roadway tunnels, which allow implementation of emergency strategies in an efficient and expeditious manner. Some severe accidents in recent years have certainly contributed to this trend. However, remote monitoring through high-end cameras, real-time information and large megapixel data transmission require deployment of high bandwidth networking solutions. Moreover, they should have solid design to withstand the sever conditions in tunnels, such as vibration, power and temperature variations, etc.

To ensure the data reliability under surge environments and to overcome the long distance between the traffic center and the pole, JetCon 3401G gigabit fiber media converters have been used in the tunnel network infrastructure. The fiber converters, designed with a gigabit port, were capable of collecting all the high bandwidth data from the switches and convert it to fiber for extending data from the tunnel to the control center. Besides, they were used in tunnels as well to extend the data transmission between the gigabit switches, in places, where longer distance had to be spanned.

To alert remote or central management systems by forwarding link status changes, the JetCon 3401G features Link Loss Forwarding as a result, allowing users to fast react to the situation and reduce loss caused by link failure. This greatly saves time and helps administrators to easily maintain the network. Through the Broadcast Storm Filtering the entire traffic is forwarded with the packet precedence or priority ID, providing excellent traffic management.

The robust design of the converters, including EMS immunity, IP 31 grade enclosure, great heat dissipation as well as wide operating temperature allows users to easily convert the data from hundreds of megapixel cameras in severe conditions providing non-stop transmission.

To complete the network infrastructure, JetNet 5710G high power gigabit PoE switches have been used inside the tunnel, delivering up to 30W power per port and 200W per unit to power the high-end IP cameras and simultaneously provide data uplink via the 2 gigabit ports. Besides, designed with MSR network redundancy technology and the exclusive MultiRing, they are able to form gigabit and multiple fast Ethernet rings where any link failure can be recovered in just 5 ms. Administrators at the command center are able to easily discover all the devices, automatically draw topology and manage the network through the integrated LLDP and the patented JetView Pro network management system.

With the ruggedized and smart interface design, Korenix networking solutions become an ideal cost-effective solution to enlarge network performance and provide real-time traffic management and monitoring in severe conditions for tunnels.

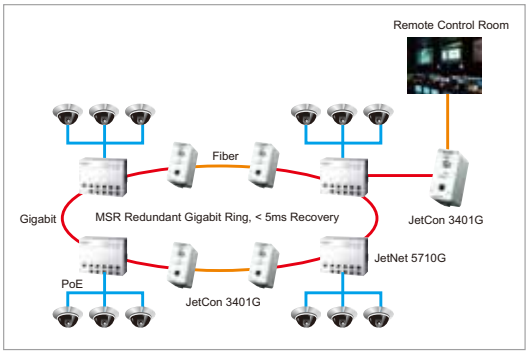
Main Products

JetCon 3401G Gigabit Ethernet to Fiber Media Converter

JetNet 5710G Industrial Gigabit Managed IEEE 802.3at High Power PoE Switch

Why Korenix

- Gigabit for high-bandwidth video transmission
- Optic fiber for extending the video transmission
- Excellent EMS immunity and wide operating temperature for deployment in severe industrial environments
- PoE technology reduces maintenance time and cost
- MSR and MultiRing with 5ms recovery time ensures non-stop data transmission through gigabit and fast Ethernet rings



Industrial Intelligent NMS
Rackmount PoE Plus Switch
Industrial PoE Plus Switch
Industrial 12-24V PoE Switch
Industrial PoE Switch
Rackmount L3/L2 Switch
Gigabit Managed Switch
Managed Ethernet Switch
Entry-level Switch
Wireless Outdoor AP
Embedded PoE/Router Computer (LINUX)
Industrial Communication Computer (WIN/LINUX)
Ethernet/PoE/ Serial Board
Ethernet I/O Server
Media Converter
Serial Device Server
SFP Module
Din Rail Power Supply

Korenix Product Selection Guide - Industrial Media Converter

	JetCon 2502	JetCon 3401G	JetCon 2301	JetCon 2302	JetCon 1301	JetCon 1302
	Ethernet over VDSL Extender	Gigabit Media Converter	Fast Ethernet Media Converter		Fast Ethernet Media Converter	
Interface						
Number of Ports:10/100Base-TX	1	10/100/1000 Base-T	1	2	1	2
Number of Ports:100Base-FX	VDSL 2 x 1 ISDN / POTS x 1	Gigabit SFP	1	2	1	1
(Multi Mode Fiber)			2KM (JetCon 2301-m/2302-m)		2KM (JetCon 1301-m/1302-m)	
(Single Mode Fiber)			30KM (JetCon 2301-s/2302-s)		30KM (JetCon 1301-s/1302-s)	
Number of Serial Ports						
Power Terminal	DC12~48V	DC24V*2 (12~48) -48V(Option)	DC 10~60V * 2	DC 10~60V * 2	DC18~32V/AC18~27V (JetCon 1301/1302) DC36~60V(JetCon 1301-48V)	
Power Jack	DC12~48V					
Fault Relay Output		●	●	●		●
1500VAC HIPOT	●	●	●	●	●	●
Mechanical						
Rigid Aluminum Case	●	●	●	●	●	●
Case Protection	IP 30	IP 31	IP 30	IP 30	IP 31	IP 31
Dimensions (unit=mm)	88 (W) x 29 (H) x114 (D)	55 (W) x 120 (H) x 108 (D)	55 (W) x 120 (H) x 99 (D)	55 (W) x 120 (H) x 99 (D)	30 (W) x 70 (H) x 89 (D)	30 (W) x 111.8 (H) x 98.2 (D)
Operating Temperature	-40~70°C	-25~70°C	-25~75°C (JetCon 2301) -40~75°C (JetCon 2301-w)	-25~75°C (JetCon 2302) -40~75°C (JetCon 2302-w)	-10~70°C (JetCon 1301/1301-48V) -40~80°C (JetCon 1301-w/1301-w(48V)	-10~70°C (JetCon 1302) -40~70°C (JetCon 1302-w)
DIN-Rail Kit	DIN-Rail/Wall mount	●	●	●	●	●
Protocols						
Web-based Configuration						
Windows Utility						
Secured HTTPS,SSH						
Link Loss Forwarding		●	●		●	
Switch Mode with Store & Forward	●	●	●	●	●	●
Pure Converter Mode			●	2-Channel	●	
Converter Mode with Auto-change			●			
Modify Cut-through mode			●			
Redundant Dual Ethernet						
IGMP Snooping						
Quality of Service	●	●				
SMTP(e-mail warning)						
Syslog						
Certifications						
Regulatory Approvals:CE / FCC	●	●	●	●	●	●
RoHS / WEEE	●	●	●	●	●	●
EN 50121-3-2 Railway EMC			Compliance	Compliance		

Korenix Industrial Product Selection Guide - Media Converter

	JetCon 2201-w	JetCon 2201i-w JetCon 2201i-wTB	JetCon 2401
	RS 232 to RS 422/485	RS 232 to RS 422/485	Fiber Media Converter
Interface			
Number of Ports:10/100Base-TX			
Number of Ports:100Base-FX			Serial Fiber
(Multi Mode Fiber)			5KM (JetCon 2401-m)
(Single Mode Fiber)			40KM (JetCon 2401-s)
Number of Serial Ports	1x422/485 1xRS232	1xRS232 1X422/485 with 3KV Isolation	RS232/422/485
Power Terminal	DC12~48V	DC12~48V	DC12~48V AC12~32V
Power Jack			
Fault Relay Output			
1500VAC HIPOT			
Mechanical			
Rigid Aluminum Case	●	●	●
Case Protection	IP 30	IP 30	IP 30
Dimensions (unit=mm)	74(W) x 24.7 (H) x 99 (D)	74(W) x 24.7 (H) x 99 (D)	74(W) x 24.7 (H) x 99 (D)
Operating Temperature	-40~70°C	-40~70°C	-20~70°C (JetCon 2401) -40~70°C (JetCon 2401-w)
DIN-Rail Kit	DIN-Rail/Wall mount	DIN-Rail/Wall mount	DIN-Rail/Wall mount
Protocols			
Web-based Configuration			
Windows Utility			
Secured HTTPS,SSH			
Link Loss Forwarding			
Switch Mode			
Converter Mode			
Redundant Dual Ethernet			
IGMP Snooping			
Quality of Service			
SMTP(e-mail warning)			
Syslog			
Certifications			
Regulatory Approvals:CE / FCC	●	●	●
RoHS / WEEE	●	●	●

JetCon 2502

Ethernet over VDSL Extender

CE FC RoHS

VDSL2 | Built-in Splitter | Ethernet Extender

QoS | 1KM | -40~70°C

- IEEE 802.3u 100Base-TX Fast Ethernet Converter
- IEEE 802.3x Flow control & Back-pressure
- ITU-T G.993.2 VDSL2 standard
- 2 x RJ-11 connectors for POTS/ISDN and VDSL 2
- One RJ-45 10/100Mbps Fast Ethernet Port
- Built-in POTS/ISDN Splitter
- Extends Voice and Ethernet transmission distance to 1KM
- Transparent 1792 bytes packet size
- Quality of service with broadcast packet filtering for data precedence transmission
- DC 12~48V Power input by power jack and terminal block
- Supports AC 1.5KV Hi-Pot isolation protection
- Operating temperature -40~70°C

Ideal Ethernet / Voice Extender

JetCon 2502 is an Ethernet/POTS to VDSL2 (Very High-Rate Digital Subscribe Loop -2) extender and is compliant with ITU-T G.993.2 standard. It allows carriers to deliver Ethernet data up to 100Mbps in both upstream and downstream over existing twisted copper. The Ethernet/POTS (Plain Old Telephone Service) converter features Discrete Multi-Tone modulator/ de-modulator and VDSL Analog Front End (AFE) technology; it is an ideal solution to carry POTS signal and Ethernet Data stream to 3000 feet to extend local LAN and voice on the same line.

Economical and Simple Connection

To deploy VDSL2 access with the telephone network, the VDSL2 converter should follow the line impendence of telephone network. Therefore, each region will adopt different line splitters to provide best communication quality.

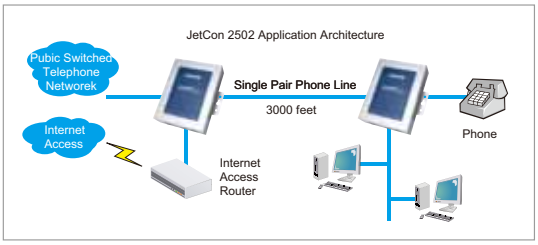
As a result, users need additional wiring and splitter, but mostly need to make a jumble at home and office. To solve this problem, the JetCon 2502 has implemented splitter for each region to save your installation time and make it more easily to connect.

Central and Discrete Internet Access

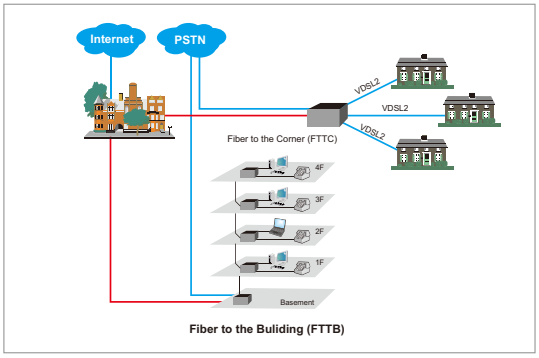
For the network infrastructure, JetCon 2502 is the best choice for planning centralized internet access through the existing POTS wiring system for hotels, dormitories or for places where there is a need to extend LAN over 100m over a single pair of copper path.

Triple Play – HDTV, Data Access, Video conference

JetCon 2502 allows users to compete with wireless and satellite providers by offering outstanding service, such as Video conference, HDTV or Video chatting over an existing telephone copper cable without any configuration, just plug and play to enlarge infrastructure for your applications.



Internet Last Mile Access



The VDSL2 technology is also deployed at the last mile of internet access. The ISP uses the fiber cable as backbone uplink to the basement of building (FTTB) or corner of streets (FTTC) and uses the existing 1 pair twisted cable of POTS system to carry voice and Ethernet data stream to users via VDSL2 signal.

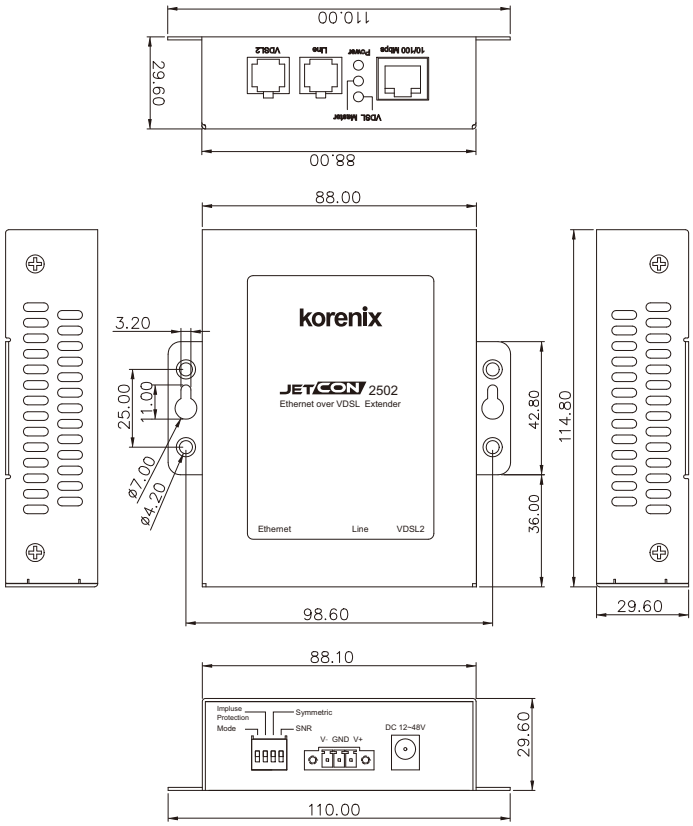
Intelligent Traffic System application

In Intelligent Traffic systems (ITS), the VDSL2 technology could be applied in the long distance data transmission for the traffic signal control or traffic information signboard. JetCon 2502 can save the fiber cost by using the twisted cable up to 3000 feet at DS/US data rate 35Mbps / 8Mbps for low speed data transmission but over the Ethernet link distance.

Subway & Railway System application

JetCon 2502 can also be applied in the subway and railway system to offer a long distance transmission with low data traffic, such as the Fire Alarm System (FAS) and Passenger Information Direction System (PIDS) with the VDSL2 technology to communicate between outdoor device and Control Room to replace the fiber cable and therefore save more costs.

Dimensions (Unit = mm)



Specification

Technology

Standard:
IEEE 802.3 10 Base-T
IEEE 802.3u 100 Base-TX
IEEE 802.1p Class of Service
IEEE 802.1Q Quality of Service
ITU-T G.993.2 VDSL2

Performance

Forwarding Technology: Store and Forward technology with 64 ~1792 bytes packet forwarding ability
Switch Packet Buffer: 384Kbits
Mac Table: 2K with 300 Sec agent time
Class of Service: 4 Packet forwarding queues with 1 (Lowest):4 (Low):8 (High):15 (Highest) WRR (weighted round robin) forwarding schematics
Quality of Service: VLAN tag priority, IPv4 packet precedence and IPv6 ToS.
Broadcast filtering: Fast Ethernet: 200 packet / per sec. @ 100Mbps; 20 packet / per sec. @ 10Mbps

Interface

Number of Ports: 1x 10/100Mbps Fast Ethernet port with Auto MDI/MDI-X function
Auto-Negotiation
1x Line for ISDN/POTS
1x VDSL2
Connectors: 10/100 Base-TX: RJ-45 with auto MDI/MDI-X, Auto-Negotiation
ISDN/POTS: RJ-11
VDSL2: RJ-11
Cables: RJ-45 Fast Ethernet port: Cat.4,5, 4-pairs UTP cable, up to 100 meters
VDSL2: 1pairs of UTP cable, up to 3000 feet.
Line: Integrated ISDN/POTS
Configuration DIP Switch:
DIP-1 (Mode selection): On (Master) / Off (Slave)
DIP-2 (Impulse protection):On (Interleave)/ Off (Fast) ; Interleave mode with less than 250ms forwarding latency, Fast mode is less than 2ms forwarding latency.
DIP-3 (Rate Control): On (Non-Symmetric)/Off (Symmetric)
DIP-4 (SNR Control): On (6dB)/ Off (9dB)
300bps to 921.6Kbps
Diagnostic LED:
System Power: Power on (Green on)
Fast Ethernet Port: Speed (100 Mbps: Yellow On), Link/Activity: Green on (Link at 10 or 100Mbps), Green Blinking (packet is on transmitting)
Master (Green On): Device operating under Master Mode
VDSL Link/ Negotiation (Green): On/ Link, Blinking/ Negotiation

Power Requirements

System Power:
DC Jack: 12~48V, Ø 2mm Center Pin
Terminal block: DC 12~48V, 3-Pin terminal block with earth ground. Power input with polarity reverse protection.
Power Consumption: 5Watts @DC 24V(Maximum)

Mechanical

Installation: Wall Mount or DIN-Rail mount
Casing: Aluminum metal case
Dimensions: 29mm (H) x 88mm(W) x 114mm (D)

Environmental

Operating Temperature: -40 ~70°C
Operating Humidity: 0% ~ 95% (non-condensing)
Storage Temperature: -40 ~ 80°C
Storage Humidity: 0%~ 95% (non-condensing)
Hi-Pot: Ethernet port AC 1.5KV for port to power

Regulatory Approvals

EMI: FCC Class A; CE/EN55022 class A
EMC Immunity Interface:
IEC 61000-4-2, IEC61000-4-3, IEC61000-4-4, IEC61000-4-5, IEC61000-4-6, IEC61000-4-8
Shock: IEC60068-2-27
Vibration: IEC60068-2-6
Free Fall: IEC60068-2-32

Ordering Information

JetCon 2502 Industrial Ethernet over VDSL2 converter, 600 Ohm

Includes:

- JetCon 2502
- DIN rail kit
- Quick Installation Guide

JetCon 3401G

Industrial Gigabit Ethernet Media Converter

Best Buy

CE FC RoHS

Giga | LLF | QoS | 1.5KV Hi-Pot | -25~70°C

- Converts 10/100/1000TX to Gigabit Fiber
- Flexible SFP Fiber transceiver design
- Auto Link Loss Forwarding (LLF) for fault detection
- Fault Alert for port and power
- IEEE 802.1p QoS for data precedence transmission
- Redundant DC 12~48V power inputs
- Aluminum case with IP31 grade protection
- Supports AC 1.5KV Hi-Pot isolation protection
- Operating temperature -25~70°C

Real Industrial Gigabit Ethernet Media Converter

The JetCon 3401G, industrial Gigabit Ethernet media converter is equipped with a rugged aluminum alloy case with IP31 grade ingress protection against damage by solid objects or dust. With excellent heat dissipation characteristics, the JetCon 3401G is capable of performing better than ordinary Gigabit Ethernet media converters which are enclosed by steel metal with various heat dissipation holes. Unlike those with a single power input, the real time redundant power backup on JetCon 3401G leads to the functionality of a reliable Industrial Gigabit Ethernet Media Converter with the non-stop transmission.

Flexible Optical Adopt Ability

As is the trend of fiber interfaces, JetCon 3401G implements one hot-swappable socket for a Small Form-factor Pluggable (SFP) fiber transceiver. To adopt different types of fiber optical cables or to enlarge fiber network, users are simply required to replace the ideal type of fiber transceiver to meet the specification of optical fiber cable and are capable to achieve the best inventory performance.

Auto Fault Detection through Link Loss Forwarding

Most of the Gigabit Ethernet Media converters feature the Link Loss Forwarding function (L.L.F.) in order to forward link status changes to alert remote or central management system. However, this is only for the cable events, not suited to industrial network applications.

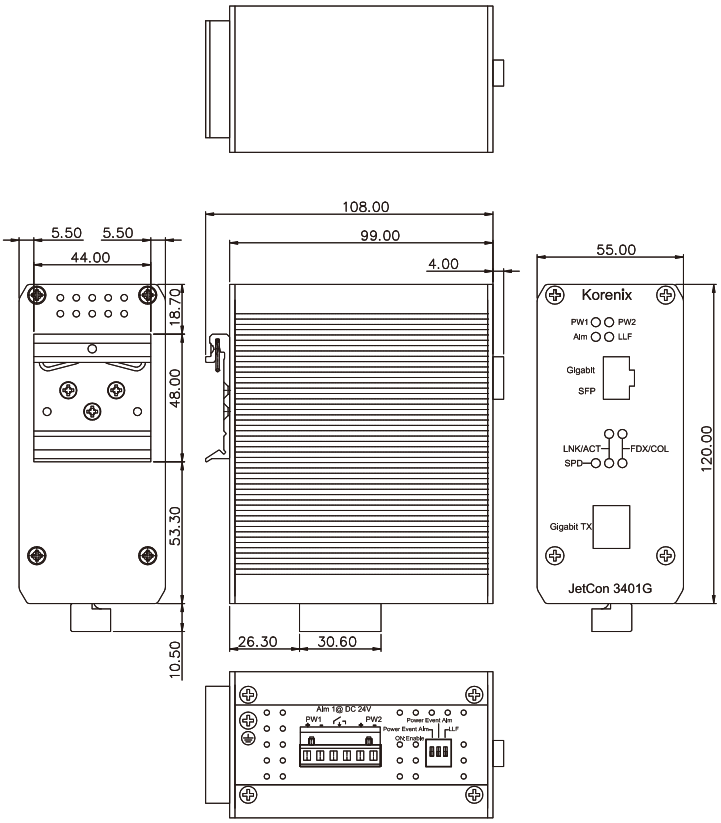
The JetCon 3401G in addition provides an alarmrelay to trigger out a real alarm signal for port or power events. The alarm mechanism can be configured by a simple DIP switch and trigger an external alarm equipment to inform maintenance I.T. engineers. It results in maintenance time saving.

Excellent Traffic Handling

The JetCon 3401G performs graceful traffic management ability. The entire traffic is forwarded with the packet precedence or priority ID and results in different service priorities.

In addition, it also filters unnecessary broadcast packets by the broadcast storm control and drops abnormal packets to enlarge network performance.

Dimensions (Unit = mm)



Specification

Technology

Standard:
IEEE802.3 10Base-T
IEEE802.3u 100Base-TX
IEEE802.3ab 1000Base-T
IEEE802.3z Gigabit Ethernet Fiber
IEEE802.3x Flow Control and Back-Pressure
IEEE802.1p Class of Service
IEEE802.1Q Quality of Service

Performance

Forwarding Technology: Store and Forward technology with 64 ~1536 bytes packet forwarding ability
System Throughput: 1.49Mpps
Packet buffer: 2.75Mbits
Link Loss Forwarding: Two-way loss-signature auto forwarding, configured by DIP switch
Event Alarm: Configurable relay alarm output for port or power events

Interface

Number of Ports: 1 x 10/100/1000 Base-TX with Auto MDI/MDI-X function, Auto-Negotiation
1 x SFP socket with hot-swappable function for Gigabit Ethernet SFP Transceiver
Connectors:
10/100/1000 Base-TX: RJ-45
SFP socket: support 3.3V Gigabit Ethernet 1.25Gbps Fiber Transceiver.
Terminal block: 4-Pin for redundant power input; 2-Pin for alarm relay output
Cables:
RJ-45 Connector: 4 pairs of Cat-5 UTP/STP cable with EIA/TIA 568B type conductor arrangement for 1000Base-T. Maximum link distance is 100meters
Configuration DIP Switch:
DIP 1: Port Event Alarm Enable/Disable
DIP 2: Power Event Alarm Enable/Disable
DIP 3: Link Loss Forwarding Enable/Disable
Diagnostic LED:
System: Power (Green) x2 ,Link Loss Forwarding (Red) x1, Alarm (Red) x1
RJ-45 port:
Speed (Green): On (1000Mbps Link), Blinking (100Mbps Link), Off (10Mbps Link or disconnect).
Link/Activity (Green): On (Link), Blinking (Activity)
Full Duplex/Collision (Yellow): On (link at full duplex mode), Blinking (Collision)
SFP port:
Link/Activity (Green): On (Link), Blinking (Activity)
Full Duplex/Collision (Yellow):On (link at full duplex mode), Blinking (Collision)

Power Requirements

System Power: DC 24V (12~48V) with polarity reverse correction and over current protection
Consumption: 8 Watts @ DC 24V(Maximum)

Mechanical

Installation: DIN-Rail mount
Case: Aluminum alloy metal case with grade 31 of ingress protection
Dimension:
120mm(H) x 55mm (W) x108 mm (D) (with DIN rail clip)

Environmental

Operating Temperature: -25 ~70°C
Operating Humidity: 0% ~ 95% (non-condensing)
Storage Temperature: -40 ~ 80°C
Storage Humidity: 0%~ 95% (non-condensing)
Hi-Pot: AC 1.5KV on port to port and port to power

Regulatory Approvals

EMI: FCC Class A, CE/EN55022
EMC immunity interface:
EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-8, EN61000-4-11
Shock: IEC60068-2-27
Vibration: IEC60068-2-6
Free Fall: IEC60068-2-32

Ordering Information

JetCon 3401G Industrial Gigabit Ethernet Media Converter

Includes:

- JetCon 3401G
- Quick Installation Guide

Optional Accessories

Gigabit Multi-Mode SFP Transceiver

Gigabit Single-Mode SFP Transceiver

Gigabit BIDI/WDM Single-Mode SFP Transceiver

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 50121-3-2 | -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 x 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 50121-3-2 Railway EMC compliance (applying)
- Operating temperature -25~75°C (-40~75°C wide operating temperature model available by request)

Industrial Intelligent NMS
Rackmount PoE Plus Switch
Industrial PoE Plus Switch
Industrial 12-24V PoE Switch
Industrial PoE Switch
Rackmount L3/L2 Switch
Gigabit Managed Switch
Managed Ethernet Switch
Entry-level Switch
Wireless Outdoor AP
Embedded PoE/Router Computer (LINUX)
Industrial Communication Computer (WIN/LINUX)
Ethernet/PoE/ Serial Board
Ethernet I/O Server
Media Converter
Serial Device Server
SFP Module
Din Rail Power Supply

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

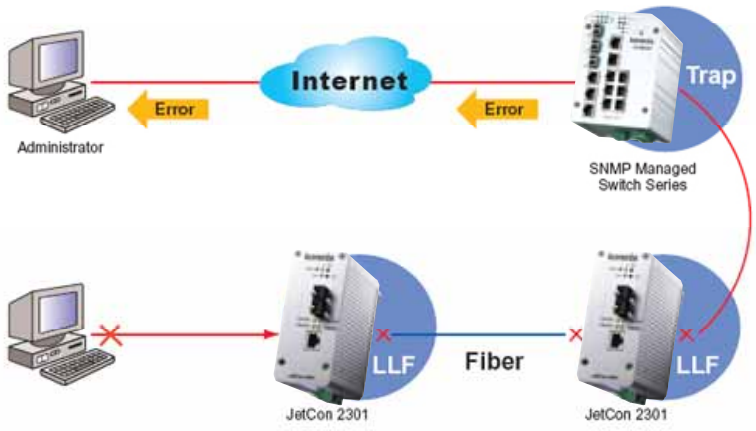
JetCon 2301 outstands from other media converters by supporting 4 forwarding switch modes, which makes it a perfect solution for various applications, depending on your transmission speed and size preferences. The 4 operation modes are:

- 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.

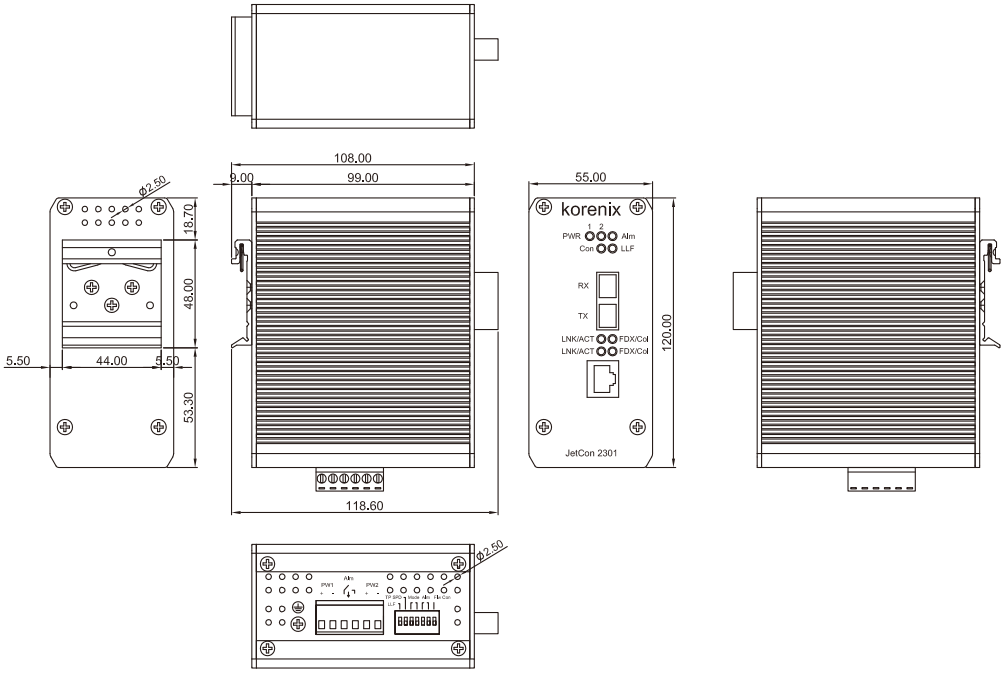
Auto Fault Detection through Link Loss Forwarding

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

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 5 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: Compliant with EN 50121-3-2 EMC

Regulatory Approvals

EMI: CE/EN 55022 class A, FCC Class A
EN 61000-3-2:2006, EN 61000-3-3, EN 61000-6-4
EMS: CE/ EN 55024, 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

Ordering Information

JetCon 2301-m Industrial Fast Ethernet to Fiber Media Converter, SC, Multi-mode / 2KM

JetCon 2301-s Industrial Fast Ethernet to Fiber Media Converter, SC, Single-mode / 30KM

Includes:

- JetCon 2301-m / 2301-s
- Quick Installation Guide

JetCon 2302

2-Channel Fast Ethernet to Fiber Media Converter

CE FC RoHS

2-CH Switching Converter | Store & Forward Mode | Pure Converter Mode

Dual 10~60VDC | EN 50121-3-2 | -25~75°C

- Two Channels 10/100 TX to 100 FX media converter
- Two 10/100TX with 2 100FX Fast Ethernet Fiber Switch
- Dual Forwarding modes- Switching and Pure converter
- Supports Auto MDI/MDI-X, Auto Negotiation
- Supports Multi-mode 2KM, Single-mode 30KM
- 3.2Gbps Non-Blocking Switch Fabric
- 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 50121-3-2 Railway EMC compliance (applying)
- Operating temperature -25~75°C (-40~75°C wide operating temperature model available by request)

Overview

JetCon 2302 is not only a compact 4-port switch, but also a 2 channel RJ45 to fiber media converter - an ideal model that would physically fit in harsh environments with intensive severe electromagnetic interference. In switch mode, JetCon 2302 is an Industrial 4-port 10/100Mbps Fast Ethernet Fiber Switch, incorporating 3.2Gbps switching fabric with non-blocking store and forward technology to fulfill the high transmission performance requirements. In converter mode, JetCon 2302 is an Industrial 2-channel 10/100 TX to 100 FX media converter, with an alarm relay to trigger out a real alarm signal for port or power events.

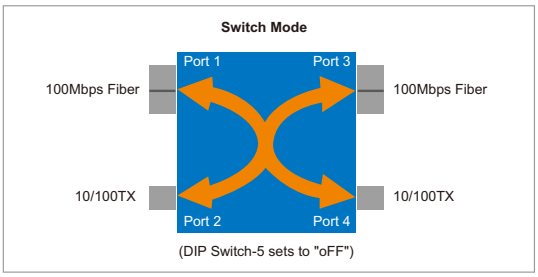
To avoid interferences as well as to extend the network coverage, Single-mode or Multi-mode fiber optic ports meet your needs for up to 30KM long distance transmission.

In addition, to withstand under hazardous environmental conditions, JetCon 2302 provides dual redundant power inputs with wide DC10~60V range, 1.5KV Hi-Pot isolation protection and wide operating temperature for avoiding any power interruption and providing reliable network performance. With its rugged aluminum case, CE/FCC regulatory approvals and 5-year global warranty, JetCon 2302 is your reliable choice for industrial field site applications.

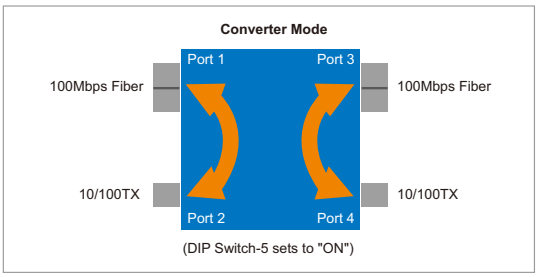
Two-Channel Media Converter and 4-Port Fiber Switch

The JetCon 2302 can be configured by DIP switch in two different operation modes: media converter or fiber switch. In media converter operation mode JetCon 2302 has 2 channels 10/100 TX to 100 FX. For traditional media converter it only has one channel TX to FX. Therefore, JetCon 2302 can be used to substitute two traditional media converters as a result saving cost and power use.

Switch Mode – the device works as a switch equipped with 2 10/100TX RJ-45 ports and 2 100Mbps fiber ports. The packet forwarding uses store and forward technology, which means all the packet flow that goes through the device will be checked and dropped in case if it contains error information. The MAC address table can be updated per 300 micro seconds.

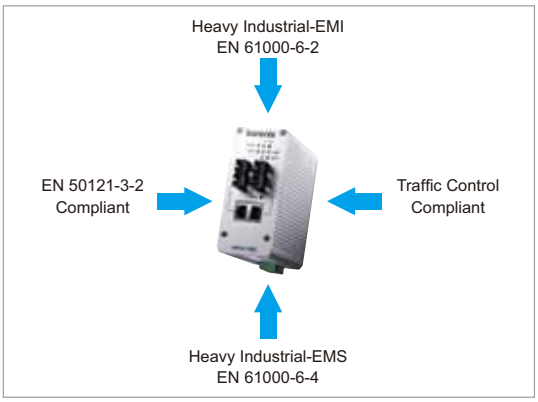


Converter Mode – the device works as a 2-channel media convert with independent traffic path, channel-A and channel-B. The forwarding technology still supports store and forward technology, but the device will not learn and update the MAC address table. All the traffic will be recognized as unknown destination packet flooding with each other and will act as a 2-channel Fast Ethernet media converter.



Excellent system Anti-Electromagnetic Interference

Traditionally, the interference is presented in positive system and disturbs the communication. To prevent the communication from these noise disturbances, some of telecom devices use negative power system to ensure the communication quality. In this regard, JetCon 2302 also can be applied with DC negative power and therefore can provide better anti-jamming ability; not only for the fiber cable anti-interference, but also for the device's power system.

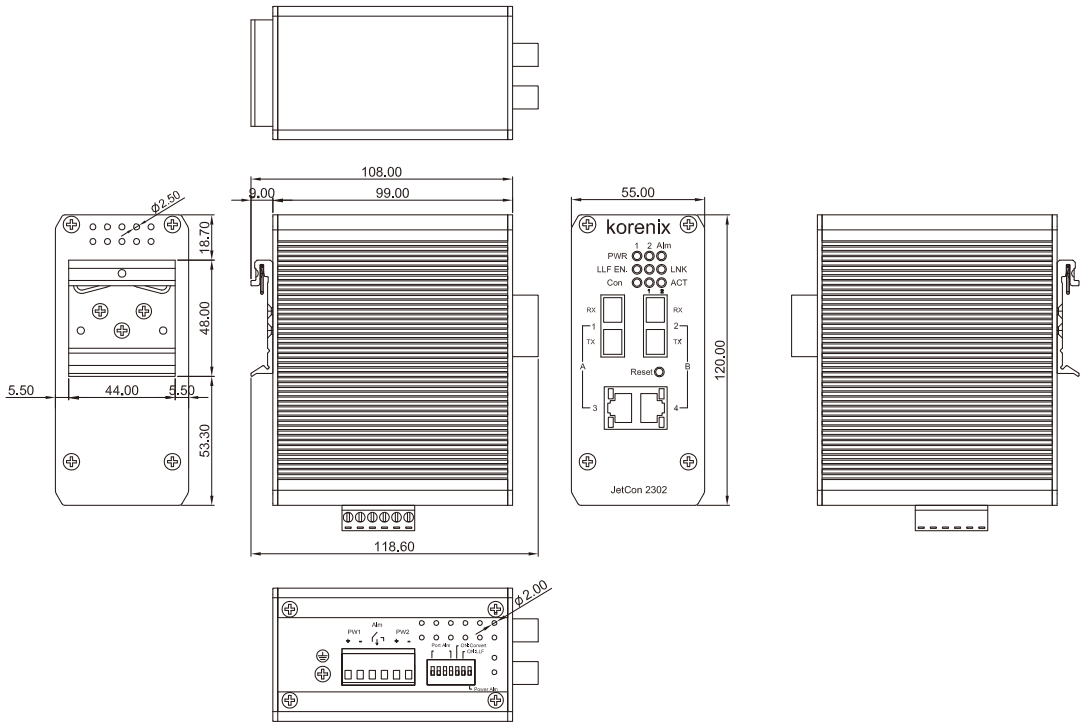


Wide Range Redundant Power Inputs & True Reliability

In field site applications, unstable power input always impacts on the reliability of system and causes an interruption of communication. To provide a higher reliability, JetCon 2302 has a wide range redundant power input 10~60VDC.

In addition, with -25~75°C and -40~75°C (JetCon 2302-w model) wide operating temperature range, the JetCon 2302 can ensure high performance data transmission under harsh environments.

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

Performance

Switch Technology: 3.2 Gbps Store and Forwarding Technology
System forwarding performance: 1.19 Mega packets per second, 64 bytes packet size. (Switch Mode)
14880 pps for 10Base-T
148810 pps for 100Base-TX/ FX
Mac address: 1K MAC address entries with automatic learning and aging (Switch Mode only)
Packet Buffer: 512Kbits shared memory
Forwarding Technology: Store and Forward
Operating Mode:
Converter/Switch mode selected by DIP switch
Switch Mode: data exchange on 4 ports (Channel A, B exchange)
Converter mode: data forwarding on independent channel (A, B)
Digital Output: Dry Relay Output with 1A @24V DC ability

Interface

Ethernet copper port: 2 × 10/100TX ports with Auto MDI/MDI-X, Auto Negotiation, flow control and back-pressure enabled (Switch mode)
Fiber port: 2 × 100Mbps Fiber port, SC
flow control and back-pressure disabled
JetCon 2302-m: Multi-mode (Channel A,B)
JetCon 2302-s: Single-mode (Channel A,B)
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 2302-m: 2KM distance, 50~62.5/125um Multi-mode fiber cable.
JetCon 2302-s: 30KM distance,8~10/125um Single-mode fiber cable.
Diagnostic LEDs:
System Power (Green on) : Power 1 , 2
Relay Alarm: Active (Red)
Op. Mode: Convert (Green on)
Fiber Ethernet Port(Channel A/B): Link/Activity (Green on/Yellow Blinking)
Ethernet Port: Link/Activity (Green on/Yellow Blinking)
Reset Button: For Operating mode change
DIP Switch 1~4: Port Event Alarm Control, Enable(On)/ Disable (Off)
DIP Switch 5: Operating mode select, Converter mode (On)/ Switch mode (Off)
DIP Switch 6: Power Event Alarm Control, Enable(On)/ Disable (Off)
DIP Switch 7: Not available
Power Connector: Removable Terminal Block
Digital Output: Removable Terminal Block

Power Requirements

System power: DC 10~60V with polarity reverses correction. Supports Positive/Negative power system
System power consumption: 6Watts / DC 24V

Mechanical

System Installation: DIN Rail installation
Enclosure protection: Ingress Protection code - 30
Dimensions: 99 (D) x55(W)x 120(H), unit:mm (without Din-rail kit)
Weight: 0.49Kg w/o packing

Environmental

Operating Temperature:
-25 ~75°C (JetCon 2302-w: -40~ 75°C)
Operating Humidity: 0% ~ 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: Compliant with EN 50121-3-2 EMC

Regulatory Approvals

EMI: CE/EN 61000-6-4, CISPR-16-1-2:2003, CISPR-16-2-1:2003, CISPR-16-2-3:2006, CISPR-22 :2005+A1 :2005(9.6), FCC part 15B Class A
EMS: CE/ EN 61000-6-2 :2005
IEC 61000-4-2 :2008, IEC 61000-4-3 :2006+A1 :2007,IEC 61000-4-4 :2004, IEC 61000-4-5 :2005, IEC 61000-4-6 :2008, IEC 61000-4-8 :1993+A1 :2000
Shock: IEC 60068-2-27
Vibration: IEC 60068-2-6
Free fall: IEC 60068-2-32

Ordering Information

JetCon 2302-m 2-Channel Fast Ethernet to Fiber Media Converter, SC, Multi-mode/ 2KM

JetCon 2302-s 2-Channel Fast Ethernet to Fiber Media Converter, SC, Single-mode/ 30KM

Includes:

- JetCon 2302-m / 2302-s
- Quick Installation Guide

JetCon 1301 / 1301-48V

Slim-sized Fast Ethernet to Fiber Media Converter

Best Buy

ETHERNET POWERLINK

CE FC RoHS

EtherCAT | LLF | Low Latency | Ethernet POWERLINK

Switching Converter | Store & Forward Mode | Pure Converter Mode | -10~70°C

- One 10/100 TX port to One 100FX port media converter
- Dual Forwarding modes- Switching and Pure converter
- Supports Auto MDI/MDI-X, Auto Negotiation
- Supports Multi-mode 2KM, Single-mode 30KM
- Extreme Low Data Forwarding Latency- 1.6 x 10^{-6} Sec
- Auto Link Loss Forwarding for fault detection
- Wide range of AC18-27V/DC18-32V and DC36-60 (JetCon 1301-48V) power inputs with DC polarity protection
- Aluminum case with IP31 grade protection
- Supports AC 1.5KV Hi-Pot isolation protection
- Supports single fiber transmission – WDM
- Operating temperature -10~70°C (-40~80°C wide operating temperature model available by request)

Industrial Intelligent NMS
Rackmount PoE Plus Switch
Industrial PoE Plus Switch
Industrial 12-24V PoE Switch
Industrial PoE Switch
Rackmount L3/L2 Switch
Gigabit Managed Switch
Managed Ethernet Switch
Entry-level Switch
Wireless Outdoor AP
Embedded PoE/Router Computer (LINUX)
Industrial Communication Computer (WIN/LINUX)
Ethernet/PoE/ Serial Board
Ethernet I/O Server
Media Converter
Serial Device Server
SFP Module
Din Rail Power Supply

Overview

JetCon 1301 is a compact 1-port Fast Ethernet media converter designed as small as a cigarette box, making it an ideal model that would physically fit into a chassis with limited space, such as machinery control box and duct assembly room. It also supports switch forwarding mode with abnormal packet filtering and pure converter mode for extreme low latency requirement – fieldbus and EtherCAT, which needs invariant forwarding latency in 64~1522 bytes packet length. For easy maintenance and time-saving, JetCon 1301 features remote Link Loss Forwarding technology which provides remote link down signal forwarding, acknowledging link events occurred on each end of JetCon 1301. To activate forwarding mode and LLF functions, simply adjust DIP switch and reset the converter and the reconfiguration will be applied.

For the field site harsh environmental installations such as vibrating machinery or duct assembly room applications, JetCon 1301 can be easily mounted directly onto DIN rail and powered with DC 18~32V or AC 12~27V for applications, where DC input is not available. Besides, for particular 48V DC industrial environments, JetCon 1301-48V model is available to be powered with DC 36~60V input. With the Ingress Protection grade 31 and rigid aluminum case, JetCon 1301 can survive and have excellent performance under -10~70°C temperature range, severe electromagnetic interference and outcoming vibration.

The high MTBF value of over 500,000 hours, 5-year global warranty and endurable performance of JetCon 1301 series give you the reliable choices for hazardous applications.

Reliable Life Vibration & Life Shock Tests

To ensure the reliability of the networking devices while operating under harsh environments, Korenix JetCon 1301 has passed the following life vibration and life shock tests :

- IEC 61000-2-6 life vibration
  5~100Hz/Amplitude 1mm, 0.7G/ 90Min. X.Y.Z. 6 axis
  3~50Hz/Amplitude 3.5mm, 1.0G/ 90Min. X.Y.Z. 6 axis
- IEC 61000-2-27 life shock
  50G, 11ms duration, X,Y, Z, 3 shock/axes (Total 18 shocks)

Switching Converter Mode and Pure Converter Mode

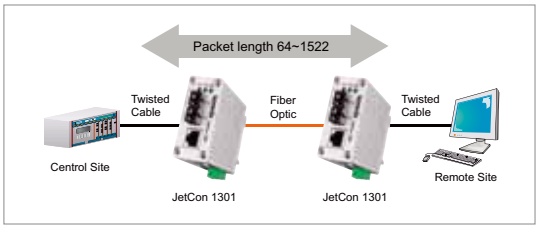
The JetCon 1301 can be used in two different modes, switching converter mode and pure converter mode. The store-and-forward technology is implemented in switching converter mode. It will filter out abnormal packets to maintain network efficiency, and support the data forwarding rate up to 148810 pps in full wire speed with packet length from 64 to 1522 bytes. In the pure converter mode, the JetCon 1301 only converts signal between copper and fiber port without any packet check, and operates in the speed of minimum data forwarding latency.

Traditionally, media converter is used for the signal conversion between electronic and optical. Most of media converters are not capable of handling all kinds of packet sizes. A major drawback is that they cannot support 10/100Mbps auto negotiation and auto detection function for the cross-over or straight cable. The pure converter mode has the advantage of supporting extreme low transfer latency, even when the packet is with a CRC error, and when the packet length is below 64 bytes.

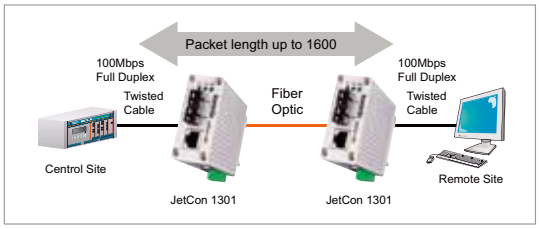
Some of special devices need pure converter and they need it to operate simply without any features.

JetCon 1301 can be configured as Switching converter or Pure Converter mode by a DIP Switch. For CSMA/CD compliance, the UTP port supports 100Mbps Full Duplex when setting JetCon 1301 as pure converter. If setting as 100Mbps half duplex mode, the available link distance will be 60 meters only. In the switch mode, it will not have this limitation - the link distance can be reached up to 100 meters. In pure converter mode, the JetCon 1301 will operate with the minimum latency, 1.6 micro second. The 2 ports of JetCon 1301 series are inter-connected via MII signals, therefore the internal switch MAC and packet buffer are not used. Besides, the packet length will not be limited and will reach up to 1600bytes. The updated configuration will be available after resetting power.

Configured as Switching Converter mode:



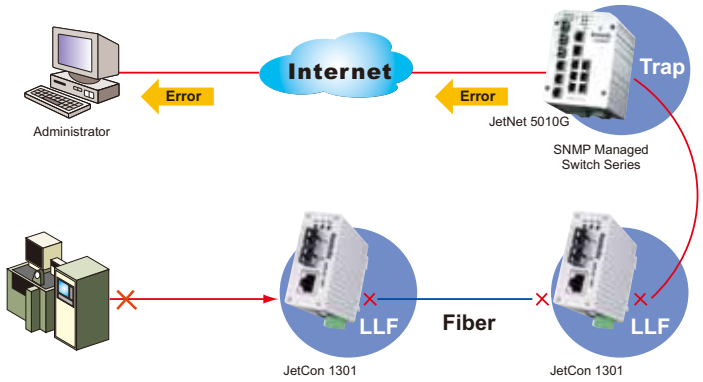
Configured as Pure Converter mode:



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 loss.

If a port loses the connection for any reason, it will activate Link Loss Forwarding to shut down the other port, as a result, 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 can react promptly to the situation, greatly reducing loss caused by any link failure.

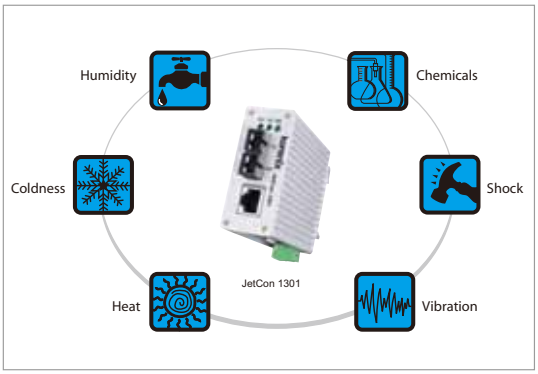


The Real Time Ethernet Solution - EtherCAT Test

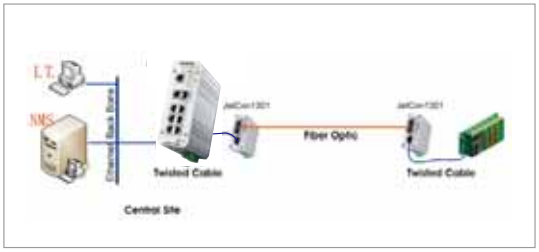
JetCon 1301, an Industrial 10/100Base-TX to 100Base-FX Multi-Mode (JetCon1301-m)/ Single- Mode (JetCon1301-s) fiber converter, has passed the system test of an open Real-Time Ethernet solution, EtherCAT. Cooperating with the testing laboratory of Backhoff, Korenix sets a successful milestone to enable Real Time Ethernet-EtherCAT, the fastest "industrial Ethernet control in the world", over fiber optics. For communication tasks, not only the defined latency (cycle time) is important, but the jitter also has to be limited. During the system test, there is no noticeable Jitter between two JetCon 1301 converters connected via fiber end, whereas EtherCAT devices attached to the other Ethernet end. The system has been setup and tested to meet all criterions of EtherCAT protocol. For standard Ethernet jitter, specifications of only 100 µs to 3 ms are possible.

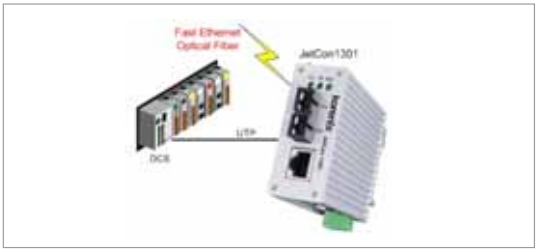
Reliable Mechanical Design

Industrial converters are often placed in harsh environments and are required to run non-stop. The quality of industrial converter is constantly being tested by rugged conditions, such as high or low temperature conditions, impact, vibration, or corrosion. To cope with demanding industrial environments, the aluminum alloy case of JetCon Industrial Converter is rigid, shock-proof, and conforms to IP31 housing design. In order to prevent power lines from damage caused by falling dust particles and water drops in an industrial environment, Korenix's engineers specially designed the terminal block for power and relay at the bottom of the unit, greatly reducing failures caused by this environment.

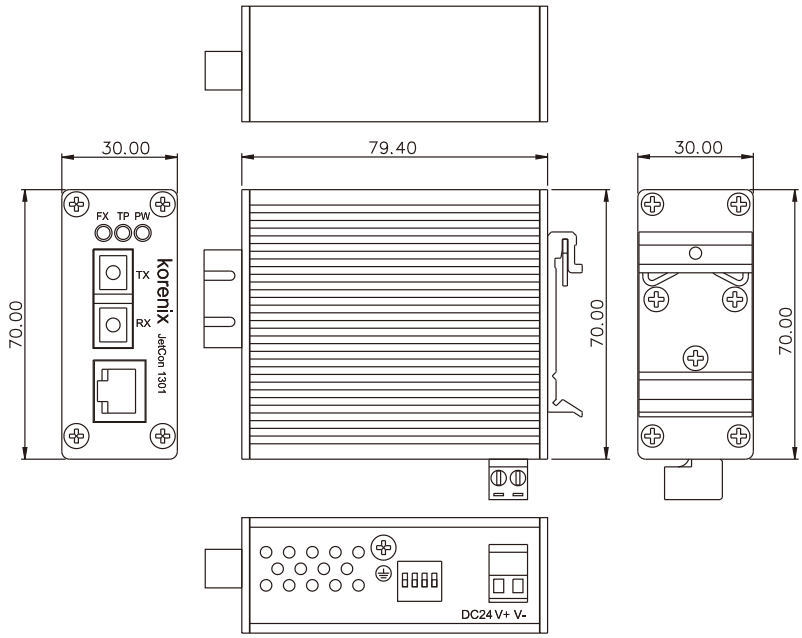


Application





Dimensions (Unit = mm)



Specification

Technology

Standard: IEEE802.3 10Base-T,IEEE802.3u 100Base-TX IEEE802.3u 100Base-FX,IEEE802.3x Flow Control and Back-Pressure

Packet transfer mode:

Support Switch mode and Pure Converter mode. This feature is select by DIP-switch.

The Switch mode will begin to forward the received data only after it received the frame completely, the forwarding latency depends on the packet length and the packet length support 64 to 1600Bytes. The pure converter operating algorithm is different with switch mode; it will direct transfer Ethernet signal without any frame checking

Link Loss Forward: Enabled/Disabled by DIP-Switch 1

Hi-pot Testing: Passed AC1.5KV Hi-pot tesing on port-port, power-case and port-power

Interface

Number of Ports: 1 x 10/100 Base-TX with Auto MDI/MDI-X, Auto-Negotiation functions

1 x 100Base-FX

Connectors:

10/100 Base-TX: RJ-45

100Base-FX: Duplex SC for multi-mode or single-mode fiber

Power: 2-Pin Terminal Block

Cables:

RJ-45 connector: supports Cat.3, Cat.4, Cat.5 unshielded twisted pair or shielded twisted pair cable. The link distance is maximum 100 meters

Fast Ethernet Fiber Transceiver:

SC connector: supports multi-mode or single-mode optical fiber

Multi-mode fiber: 50/125um or 62.5/125um

Single-mode fiber: 8/125um, 9/125um or 10/125 um

JetCon1301-m, Multi-mode: 2KM (Max.)

Wave-length: 1310nm

Min TX Power:-19dBm

Max TX Power:-14dBm

Max RX Sensitivity:-30dBm

Link budget:11dBm

JetCon1301-s, Single-mode: 30KM (Max.)

Wave-length:1310nm

Max TX Power:-8dBm

Min TX Power:-15dBm

Max RX Sensitivity:-34dBm

Link budget: 19dBm

JetCon1301-s(WDM-A), Single-mode: 30KM (Max.)

Wave-length: TX 1310nm, RX 1550nm

Max TX Power:-3dBm

Min TX Power:-9dBm

Max RX Sensitivity:-31dBm

Link budget: 22dBm

JetCon1301-s(WDM-B), Single-mode: 30KM (Max.)

Wave-length: TX 1550nm, RX 1310nm

Max TX Power:-3dBm

Min TX Power:-9dBm

Max RX Sensitivity:-31dBm

Link budget: 22dBm

JetCon1301-m(48V), Multi-mode: 2KM (Max.)

Wave-length: 1310nm

Min TX Power:-19dBm

Max TX Power:-14dBm

Max RX Sensitivity:-30dBm

Link budget:11dBm

JetCon1301-s(48V), Single-mode: 30KM (Max.)

Wave-length:1310nm

Max TX Power:-8dBm

Min TX Power:-15dBm

Max RX Sensitivity:-34dBm

Link budget: 19dBm

Configuration DIP Switch:

DIP 1: Link loss forwarding Enable /Disable.

DIP 2: RJ-45 Auto-Negotiation/Forced 100Mbps Full Duplex

DIP 3: Fiber Full Duplex/Half Duplex

DIP 4: Switch/Pure Converter mode.

Diagnostic LED:

System: Power (Green)

RJ-45 port: Link (Green ON)/Activity (Green Blinking)

Fiber port: Link(Green ON)/Activity(Green Blinking)

Power Requirements

System Power: 2 pins terminal block for power input with auto polarity reverse.

JetCon1301: DC 24V (18~32V) /AC 18~27V, 47~63Hz

JetCon1301-48V: DC 48V (36~60V)

Power Consumption:

JetCon1301: 3.5 Watts @ DC 24V(Maximum)

JetCon1301-48V: 4 Watts@ DC 48V(Maximum)

Mechanical

Installation: DIN-Rail mount

Case: Aluminum metal case with IP31 grade case protection for drop-waterproof and dustproof.

Dimension:

70mm(H) x 30mm (W) x 89mm (D) (with DIN rail clip)

70mm(H) x 30mm (W) x 80mm (D) (without DIN rail clip)

Weight:

374g with package

292g without package

Environmental

Operating Temperature: -10 ~70°C

(JetCon 1301-w/1301-w(48V) -40~80°C)

Operating Humidity: 0% ~ 95% (non-condensing)

Storage Temperature: -40 ~ 80°C

Storage Humidity: 0%~ 95% (non-condensing)

Hi-Pot: AC1.5KV on port to port and port to power

Regulatory Approvals

EMI: FCC Class A, CE/EN55022.

EMC immunity interface:

EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-8, EN61000-4-11

Shock: IEC60068-2-27

Vibration: IEC60068-2-6

Free Fall: IEC60068-2-32

MTBF: 506,819 Hours, MIL-HDBK-217F GB standard

Warranty: 5 years

Ordering Information

JetCon 1301-m Slim-sized Fast Ethernet to Fiber Media Converter, SC, Multi-mode/2KM

Includes:

- JetCon 1301-m
- Quick Installation Guide

JetCon 1301-s Slim-sized Fast Ethernet to Fiber Media Converter, SC, Single-mode/30KM

Includes:

- JetCon 1301-s
- Quick Installation Guide

JetCon 1301-s (WDM-A) Slim-sized Fast Ethernet to Fiber Media converter, simplex SC, Single mode 30KM WDM A Type (Tx1310/Rx1550nm)

Includes:

- JetCon 1301-s (WDM-A)
- Quick Installation Guide

JetCon 1301-s (WDM-B) Slim-sized Fast Ethernet to Fiber Media converter, simplex SC, Single mode 30KM WDM B Type (Tx1550/Rx1310nm)

Includes:

- JetCon 1301-s (WDM-B)
- Quick Installation Guide

JetCon 1301-m(48V) Slim-sized Fast Ethernet to Fiber Media Converter, SC, Multi-mode/ 2KM, for 48V DC(36~60V)

Includes:

- JetCon 1301-m (48V)
- Quick Installation Guide

JetCon 1301-s(48V) Slim-sized Fast Ethernet to Fiber Media Converter, SC, Single-mode/ 30KM, for 48V DC(36~60V)

Includes:

- JetCon 1301-s (48V)
- Quick Installation Guide

JetCon 1302

2-Port Fast Ethernet to Fiber Media Converter

CE FC RoHS

AC18-27V DC18-32V | Alarm | -10~70°C

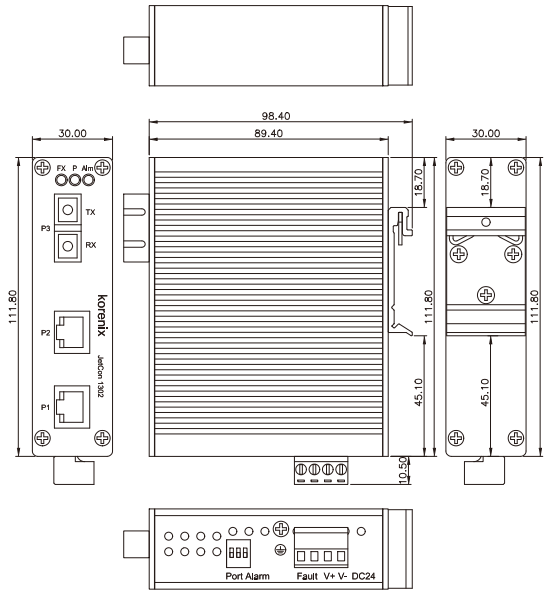
- Two 10/100 TX ports to One 100FX port media converter
- Supports Auto MDI/MDI-X, Auto Negotiation
- Supports Multi-mode 2KM, Single-mode 30KM
- Fault Relay Output for port alarm
- Dual modes for power input, AC18-27V/DC18-32V
- Compact Aluminum case with IP31 grade protection
- Supports AC1.5KV Hi-Pot isolation protection
- Operating temperature -10~70°C (-40~70°C wide operating temperature model available by request)

Overview

JetCon 1302 is not only a compact 2-port RJ45 to fiber media converter, but also a slim 3-port switch which is an ideal model that would physically fit in a network environment with limited space. The feature of fault relay alarm aims to inform you whenever there is any port link down. Just move up the DIP switch, and the fault relay alarm will start functioning! Single-mode and Multi-mode fiber optic ports meet your needs for long distance transmission of up to 30KM.

JetCon 1302 can be easily wall mounted as well as be mounted directly on DIN rail. AC 18V~27V or DC 18V~32V is available for different operating environments. With IP 31 rigid and compact aluminum case, 1.5KV Hi-Pot isolation protection, CE/FCC regulatory approvals, and 5-year global warranty, JetCon 1302 series are your reliable choices for hazardous applications.

Dimensions (Unit = mm)



Industrial Intelligent NMS
Rackmount PoE Plus Switch
Industrial PoE Plus Switch
Industrial 12-24V PoE Switch
Industrial PoE Switch
Rackmount L3/L2 Switch
Gigabit Managed Switch
Managed Ethernet Switch
Entry-level Switch
Wireless Outdoor AP
Embedded PoE/Router Computer (LINUX)
Industrial Communication Computer (WIN/LINUX)
Ethernet/PoE/ Serial Board
Ethernet I/O Server
Media Converter
Serial Device Server
SFP Module
Din Rail Power Supply

JETCON

Specification

Technology

Standard:
IEEE802.3 10Base-T,IEEE802.3u 100Base-TX
IEEE802.3u 100Base-FX,IEEE802.3x flow control
Switch Technology: Store and forward technology and with 3.2Gbps switch bandwidth

Interface

Number of Ports: 2 x 10/100 TX with Auto MDI/MDI-X, Auto-Negotiation functions
1 x 100Base-FX
Connectors: 10/100 Base-TX: RJ-45
100Base-FX: Duplex SC
Power/Relay: 4-pin terminal block
Cables:
RJ-45 connector: supports Cat.3, Cat.4, Cat.5 unshielded twisted pair or shielded twisted pair cable. The link distance is maximum 100 meters
Fiber Transceiver:
Fiber Connector:SC
Multi-mode fiber: 50/125um or 62.5/125um, max. distance 2KM
Single-mode fiber: 8/125um, 9/125um or 10/125 um, max. distance 30KM
JetCon1302-m, Multi-mode: 2KM max. distance
Link Distance: 2KM (Max.)
Wave-length: 1310nm
Min Tx Power:-20dBm
Max Tx Power:-14dBm
Min Rx Sensitivity:0dBm
Max Rx Sensitivity:-31dBm
Link budget:11dBm
JetCon1302-s, Single-mode: 30KM max. distance
Link Distance: 30KM (Max.)
Wave-length:1310nm
Min Tx Power:-15dBm
Max Tx Power:-8dBm
Min Rx Sensitivity:0dBm
Max Rx Sensitivity:-34dBm
Link budget:19dBm

Port Alarm DIP Switch:
DIP 1~3: Enable or disable port link down alarm for copper port 1/2, fiber port 3
On: Enable port link down alarm
Off: Disable port link down alarm
Diagnostic LED: System: Power (green), Fault (red)
RJ-45 port: 100Mbps Link (green on)/Activity(green blinking)
10Mbps Link (yellow on)/Activity(yellow blinking)
Fiber port: Link/Activity(green on / green blinking)

Power Requirements

System Power: 2 pins terminal block for power input
DC 24V(18~32V)with reverse polarity protection
AC 18~27V, 47~63Hz
Power Consumption: 4.8Watts @ DC 24V

Mechanical

Installation: DIN-Rail mount
Casing: IP31 protection, aluminum case
Dimensions:
111.8mm(H) x 30mm (W) x 98.2mm (D)
(with DIN rail clip)
111.8mm(H) x 30mm (W) x 89.4mm (D)
(without DIN rail clip)
Weight: 374g with package
292g without package

Environmental

Operating Temperature: -10 ~ 70°C
(JetCon 1302-w: -40~70°C)
Operating Humidity: 0% ~ 95% (Non-condensing)
Storage Temperature: -40 ~ 80°C
Storage Humidity: 0%~ 95% non-condensing
Hi-Pot: AC1.5KV on port to port and port to power

Regulatory Approvals

EMI: FCC Class A, CE/EN55022 Class A
EMC Immunity Interface:
EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5
EN61000-4-6, EN61000-4-8, EN61000-4-11
Shock: IEC60068-2-27
Free Fall: IEC60068-2-32
Vibration: IEC60068-2-6
MTBF: 632,171 Hours, MIL-HDBK-217F GB standard
Warranty: 5 years

Ordering Information

JetCon 1302-m Industrial 2-port Fast Ethernet to Fiber Media Converter, SC, Multi-mode/2KM

JetCon 1302-s Industrial 2-port Fast Ethernet to Fiber Media Converter, SC, Single-mode/30KM

Includes:

- JetCon 1302-m / 1302-s
- Quick Installation Guide

JetCon 2201-w / 2201i-w / 2201i-wTB

Industrial RS-232/422/485 Converter

CE FC RoHS

921.6Kbps | 3KV Isolation | -40~70°C

- Automatic RS-232 to RS-422/485 converter
- Auto baud rate and direction control
- High speed up to 921.6 Kbps
- RS-422/485 3000VDC isolation protection (JetCon 2201i-w/2201i-wTB)
- Supports RX bias and terminal resistor
- Easy configuration by DIP switch without resetting power
- Din-Rail mount and wall mount robust aluminum case
- Terminal block 5-pin at RS-232 (JetCon 2201i-wTB)
- -40~70°C operating temperature for hazardous environment applications

Industrial Intelligent NMS
Rackmount PoE Plus Switch
Industrial PoE Plus Switch
Industrial 12-24V PoE Switch
Industrial PoE Switch
Rackmount L3/L2 Switch
Gigabit Managed Switch
Managed Ethernet Switch
Entry-level Switch
Wireless Outdoor AP
Embedded PoE/Router Computer (LINUX)
Industrial Communication Computer (WIN/LINUX)
Ethernet/PoE/ Serial Board
Ethernet I/O Server
Media Converter
Serial Device Server
SFP Module
Din Rail Power Supply

Overview

The standard RS-232 protocol has been widely used in most of industrial computer systems for serial port communication. However, it has its limitations in terms of transmission speed, range and networking capabilities. Furthermore, the RS-422 and RS-485 standards have overcome the limitations mentioned above by utilizing different voltage lines for data and control signals. Hence, JetCon 2201-w series, the RS-232 to RS-422/485 converter becomes very popular to be deployed in the industrial communication network for longer distance and higher reliability.

High Speed and Auto Baud Control

The JetCon 2201 series features embedded high performance ASIC to provide graceful signal conversion and speed Control.

The data rate supports up to 921.6Kbps, satisfying the need of most automatic control systems.

User Friendly Design Line Terminator/RX Bias Control

In a long distance transmission, the RS-422/485 differential signal is easily interfered by noises which result in the communication interruption; JetCon 2201 provides 120ohm line terminator and receiver biasing control functions to ensure the quality of transmission by using the DIP switch to activate those features.

Hazardous Environment application

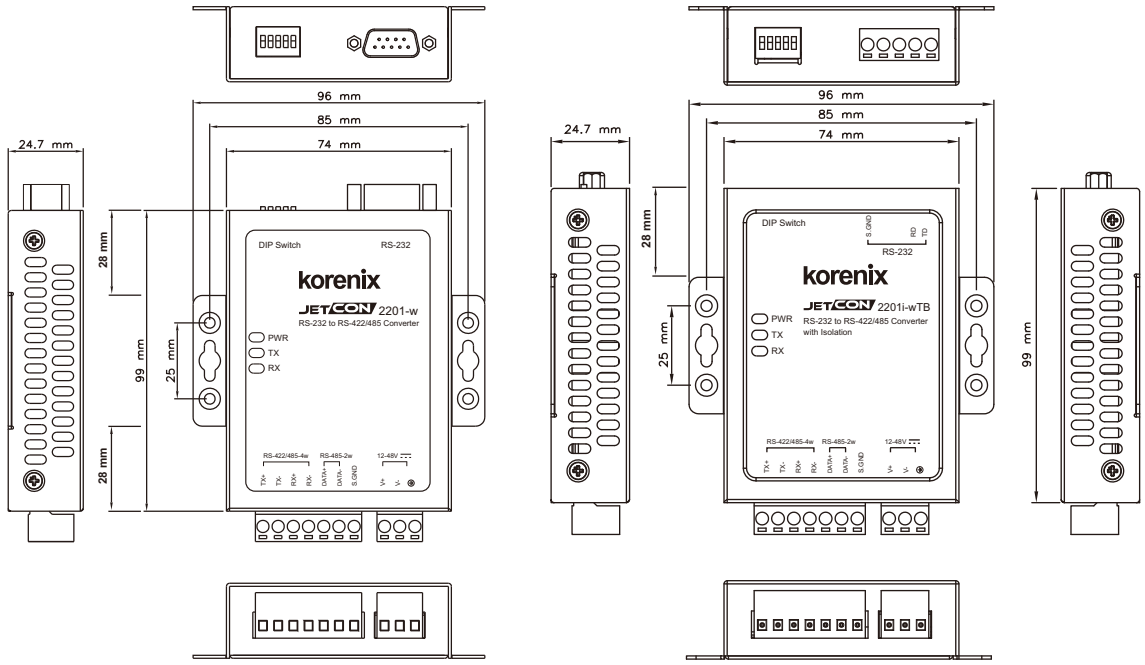
In the factory floor, there are too many interferences coming from field site equipments, such as robot, Variable- frequency motor and high-power magnetic –contactor. Those devices may produce huge electric field, magnetic field or surge and coupling into the communication lines near the devices and make all of devices work abnormally. Therefore, Electrical Magnetic Susceptibility (EMS) is important for the industrial communication. The JetCon 2201 series provides great EMS ability and complies with EN 61000-6-2 Heavy Industrial level EMS.

The differential serial signal interface also adopts 3000V isolation protection to prevent inrush surge or lighting noise (JetCon 2201i-w).

Item \ Std.	Commercial Grade	Heavy Ind. Grade (JetCon 2201)*
ESD	Contact 4KV/Air 8KV	Contact 8KV/Air 15KV - Over Level
RS	3V/m	10V/m
EFT	0.5Kv ,Power, I/O	2KV Power, 1KV I/O
Surge	1KV	2KV
CS	3V	10V

Note:*Heavy Industrial grade.

Dimensions (Unit –mm)



JetCon 2201-w JetCon 2201i-wTB

Specifications

Technology

Standard:
EIA/TIA-232 RS-232 (ITU-T v.28)
EIA/TIA-422 RS-422 (ITU-T v.11)
EIA/TIA-485 RS-485 (ISO/IEC8284)

Interface

Forwarding Rate: Auto baud rate 300 to 921.6Kbps
Port:
RS-232 x1
RS-422 x1
RS-485 2/4 wire x1
Connector:
RS-232: DB-9 Female (JetCon 2201i-w)
RS-232: Terminal block (JetCon 2201i-wTB)
RS-422/485: Removable terminal block
Link Distance:
RS-232: 50 feet
RS-422: 4000 feet
RS-485: 4000 feet
Serial Signals:
RS-422: TxD+, TxD-, RxD+, RxD-
RS-485 4 wires: TxD+, TxD-, RxD+, RxD-
RS-485 2 wires: Data+, Data-
Signal Ground
Configuration DIP Switch:
DIP-switch 1,2: RS-422/485 wiring mode selection
DIP-switch 3,4: RS-422/485 line terminator selection
DIP-switch 5,6: RS-422/485 biasing resistor selection
DIP-switch has plate (JetCon 2201i-wTB)

Diagnostic LED:
System power (Pwr): Green
Receive Data (Rx):Yellow blinking
Transmit Data (Tx): Green blinking

Power Requirements

System Power:
DC 12~48V input with polarity reverse correction.
Power Consumption: 1 Watt (max.)

Mechanical

Installation: Wall mount or DIN Rail mount
Case: Aluminum metal case
Dimensions: 24.7mm(H) x 74mm (W) x99 mm (D)
Weight:
0.24kg with package
0.15kg without package

Environmental

Operating Temperature: -40 ~70°C
Operating Humidity: 0% ~ 90% (non-condensing)
Storage Temperature: -40 ~ 80°C
Storage Humidity: 0%~ 95% (non-condensing)

Regulatory Approvals

EMI:
FCC class B, CE/EN55022 class B
CE/EN61000-3-2:2001 Harmonic test
CE/EN61000-3-3: 1995 Flicker test
Shock: IEC60068-2-27
Vibration: IEC60068-2-6
Free Fall: IEC60068-2-32
MTBF: 5366,967 Hours ,MIL-HDBK-217F
Warranty: 5 Years

Ordering Information

JetCon 2201-w Industrial RS232 to RS422/485 Rail Converter, -40~70°C operating Temp.

Includes:

- JetCon 2201-w
- DIN rail kit
- Quick Installation Guide

JetCon 2201i-w Industrial RS232 to RS422/485 Rail Converter, 3KV isolation,-40~70°C operating Temp.

Includes:

- JetCon 2201i-w
- DIN rail kit
- Quick Installation Guide

JetCon 2201i-wTB Industrial RS232 to RS422/485 Rail Converter, 3KV isolation,-40~70°C operating Temp. with terminal block 5-pin at RS-232

Includes:

- JetCon 2201i-wTB
- DIN rail kit
- Quick Installation Guide

JETCON

JetCon 2401 / 2401-w

Industrial Serial to Fiber Media Converter

Best Buy

CE FC RoHS

SFR | PTP | AC 12~32V DC 12~48V | 15KV ESD | -20~70°C

- 3-in-1 RS232/422/485 to serial fiber media converter
- Easy mode change without resetting
- Supports Multi-mode 5KM, Single-mode 40KM
- PTP or SFR transmission mode for serial fiber ring communication
- Auto baud rate and direction control
- High level immunity with 15KV ESD protection
- Two-way 120 ohm line terminator
- Supports biasing resistor
- Dual modes for power input, AC 24V(12~32V)/ DC 24V(12~48V)
- -20~70°C operating temperature for hazardous environment applications (-40~70°C wide operating temperature available by request)

Overview

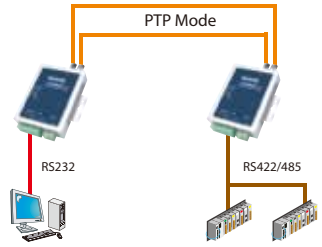
JetCon 2401 is a 1-port RS232/422/485 serial to fiber media converter with extended fiber transmission. Single-mode and Multi-mode fiber optic ports meet your needs for long distance transmission up to 40KM. JetCon 2401 will automatically detect the data baud rate of the connected full-duplex serial device, ranging from 300 to 921,600bps. By moving up the DIP switch, JetCon 2401 supports an auto setting function without system power reset to change serial interface, fiber wiring architecture and termination of receiver and transmission line. Also JetCon 2401 is specially designed for applications requiring good immunity of EMI/EMS such as power substation, rail and traffic control signification systems under severe electromagnetic interference and wide temperature range.

JetCon 2401 can be easily wall mounted as well as be mounted directly on DIN rail. AC 24V(12~32V) or DC 24V(12~48V) is available for different operating environments. With IP 30 rigid aluminum case, CE/FCC regulatory approvals, and 5-year global warranty, JetCon 2401 is your reliable choice for hazardous applications.

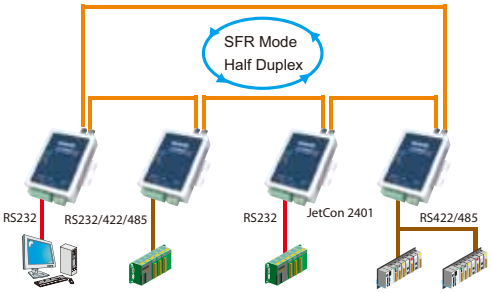
Application

The JetCon 2401 supports two transmission configurations, Peer to Peer in full duplex and Serial Fiber Ring (SFR) in half duplex. In a Peer-to-Peer configuration, two fibers are required between the two converters, one for data in each direction (RX and TX). To expand the number of connected serial devices users can apply the SFP configuration mode and connect the fiber transmitter to the rest of the slaves and eventually back to the master node.

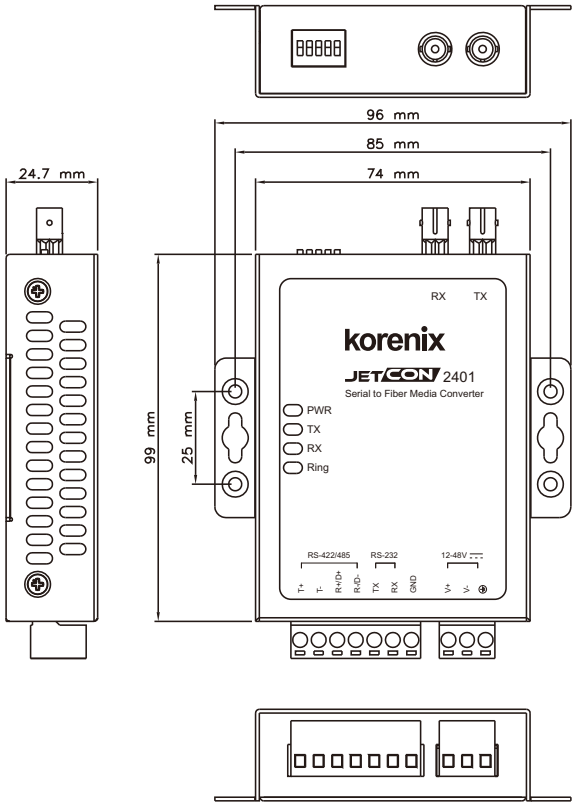
Peer to Peer Serial Communication (PTP)



Serial Fiber Ring Communication (SFR)



Dimensions (Unit = mm)



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Ethernet/PoE/ Serial Board
Ethernet I/O Server
Media Converter
Serial Device Server
SFP Module
Din Rail Power Supply

JETCON

Specification

Technology

Standard:
EIA/TIA-232 RS-232 (ITU-T v.28)
EIA/TIA-422 RS-422 (ITU-T v.11)
EIA/TIA-485 RS-485 (ISO/IEC8284)
Serial Interface:
RS-232 2-wires, RS-422 4-wires, RS-485 2/4-wires
Architecture: PTP mode: Peer To Peer wiring with full or half duplex mode.
SFR mode: Serial Fiber Ring with half duplex mode

Interface

Number of Ports:
1 x RS-232/RS-485/RS-422 serial port
1 x Fiber Transmit port, 1 x Fiber receive port
Connectors:
Serial port: 7-pin removable terminal block
Fiber port: 1 x Duplex ST
Power input: 3-pin removable terminal block with earth ground
Transmit Baud Rate: 300bps to 921.6Kbps
Link distance:
RS-232: 50 feet
RS-422: 4000 feet
RS-485: 4000 feet
Multi-mode fiber: 50/125um or 62.5/125um, max. distance 5KM
Single-mode fiber: 8/125um, 9/125um max. distance 40KM
Fiber Transceiver:
JetCon2401-m, Multi-mode:
Distance:5KM @ 62.5/125um multi mode cable with 3dbm/km attenuation
Wave-length: 820nm
TX Power: -12dBm (Min) ~ -9dBm (Max)
RX Sensitivity: -28dBm (Min)
Link budget: 16dBm
JetCon2401-s, Single-mode:
Distance: 40KM@9/125um single mode cable with 0.35dbm/km attenuation
Wave-length:1310nm
TX Power: -9dBm (Min) ~-8dBm (Max)
RX Sensitivity: -27dBm (Min)
Link budget: 18dBm
Serial signal:
RS-232: TxD, RxD, Signal Ground.
RS-422: TxD+, TxD-, RxD+, RxD-, Signal Ground
RS-485 4 wires: TxD+, TxD-, RxD+, RxD-, Signal Ground.
RS-485 2 wires: Data+, Data-, Signal Ground.
Configuration DIP Switch:
Switch 1 and 2: serial interface mode select.
Switch 3: RX 120ohm terminator Disable (off)/Enable (on)
Switch 4: TX 120ohm terminator Disable (off)/Enable (on)
Switch 5: PTP mode (off) / SFR mode (on).
Diagnostic LED:
Power LED: Power 1 (Green)
TX (Green): Serial port is on transmitting data.
RX (Yellow): Serial port is on receiving data.
Ring mode (Green): Working on SFR (Serial Fiber Ring) mode.

Power Requirements

System Power: Positive or negative power system.
DC 24V (12~48V) with reverse polarity protection.
AC 24V (AC12~32V, 50/60Hz)
Provides 0.65A over current protection
Power Consumption: 1.5Watts @ 24V(Maximum)

Mechanical

Installation: DIN-Rail mount or desktop
Case: IP-30 grade aluminum metal case
Dimension: 24.7mm(H) x 74mm (W) x 99mm (D) with DIN
Weight:
0.24kg with package
0.135kg without package

Environmental

Operating Temperature: -20 ~70°C
(JetCon 2401-mw/2401-sw -40~70°C)
Operating Humidity: 5% ~ 95% (non-condensing)
Storage Temperature: -40 ~ 80°C
Storage Humidity: 5%~ 95% (non-condensing)

Regulatory Approvals

EMI: FCC Class B; CE/EN55022:2003,class B; CE/EN61000-3-2:2001 Harmonic Test CE/EN61000-3-3:1995 Flicker test
EMS:
EN61000-4-2:1998, ESD Testing, Level 3
EN61000-4-3:1998, RS testing, Level 3
EN61000-4-4:1995, EFT testing, Level 3
EN61000-4-5:1995, Surge test, Level 3
EN61000-4-6:1996, CS testing, Level 3
Shock: IEC60068-2-27
Vibration: IEC60068-2-6
Free Fall: IEC60068-2-32
Warranty: 5 Years

Ordering Information

JetCon 2401-m Industrial Serial to Fiber Media Converter, ST, Multi-mode/5KM

JetCon 2401-s Industrial Serial to Fiber Media Converter, ST, Single-mode/40KM

Includes:

- JetCon 2401-m / 2401-s
- Quick Installation Guide