JetCon 6300 Series User Manual

Hardware Installation

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korenix

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Acknowledgments

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1. Overview

The Korenix JetCon 6300 series is a smart Ethernet I/O converter with multiple digital input and output channels. JetCon 6300 converts the signal of each I/O channel into Ethernet messages. The input channels support either digital-input mode or event-counter mode, while the output channels provide digital-output mode or pulse-output mode. User can monitor the real-time status or control all the channels remotely through the built-in Ethernet connectivity.

In addition to remote data acquisition and channel control, JetCon 6300 is programmable with smart I/O rules. An event of logic rule can be defined to modify the status of digital output channel either on the same device or to multiple JetCon 6300 series devices. With the user defined logic rules, multiple JetCon 6300 devices can execute the programmed control logic without further step in by user or other controls.

JetCon 6300 is constructed by aluminum case with IP31 protection for industrial environment and the Din-Rail mounting is easy to install in control box with limited spaces. The configuration is user friendly and the management interfaces include JetCon 6300 Commander, Web, as well as Modbus/TCP protocol.

1.1. Package Checklist

JetCon 6300 is shipped with the following items. If any of these items is missing or damaged, please contact your customer service representative for assistance.

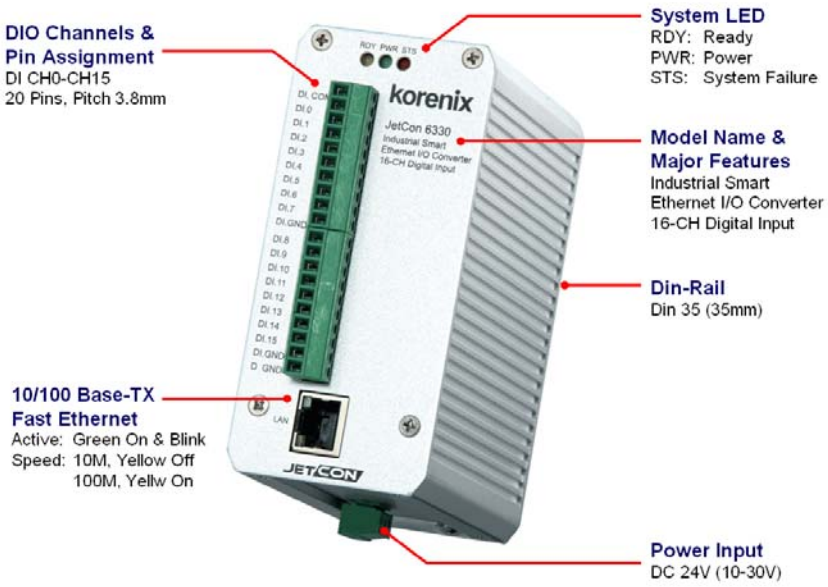
- JetCon 6300 unit with attached mounting clip
- Terminal blocks for power connecter and I/O channels
- Documentation and Software CD-ROM
- Quick Installation Guide

1.2. About This Manual

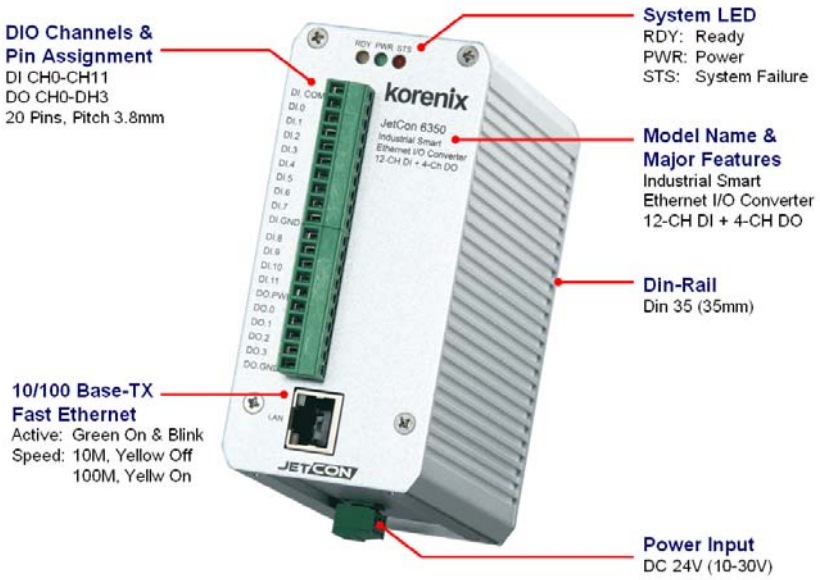
This manual provides detailed information for both hardware installation and software configuration. The software configuration is composed of JetCon 6300 Series Utility, Web configuration and Modbus/TCP configuration.

2. Hardware Installation

2.1. Appearance

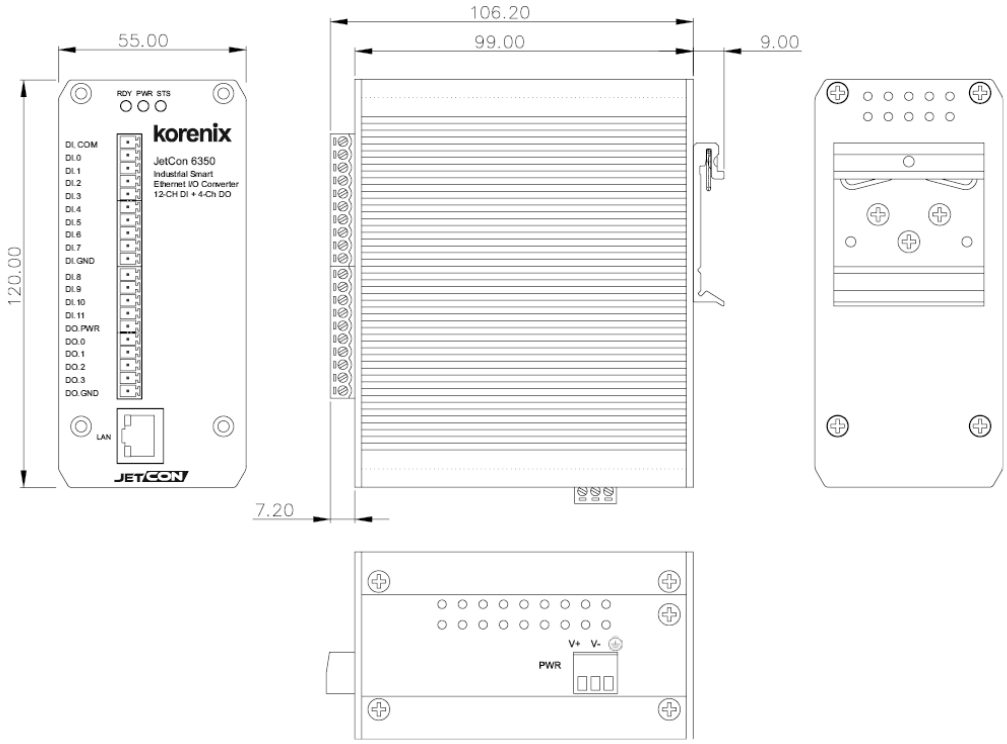


Picture 1 JetCon 6330 Appearance



Picture 2 JetCon 6350 Appreance

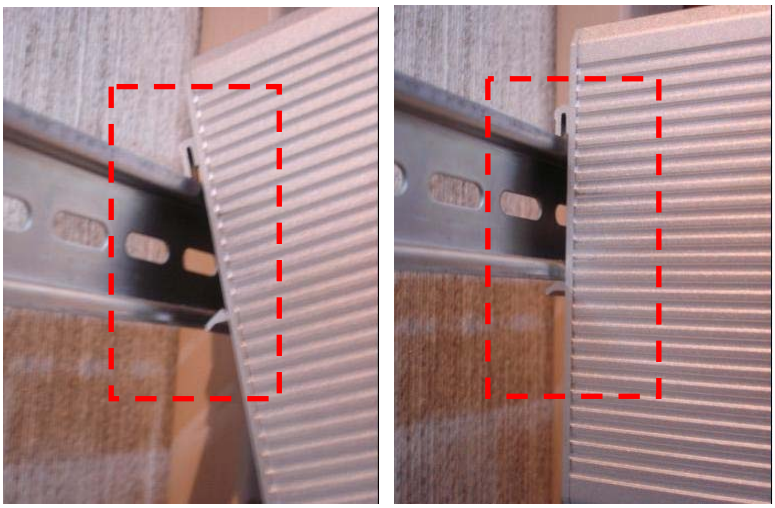
2.2. Dimensions



Picture 3 JetCon 6300 Dimensions

2.3. Din-Rail Mounting

JetCon 6300 Series is shipped with a DIN-Rail clip. Use the DIN-Rail clip to mount JetCon 6300 on a DIN-Rail track.



Picture 4 Din-Rail Mounting step (a) and (b)

a. Insert the upper end of DIN-Rail clip into the back of DIN-Rail track from its upper side.
b. Push the bottom of DIN-Rail clip into the track.
c. Check if DIN-Rail clip is attached on the track.

It is recommended to reserve at least 5mm interval between two JetCon devices for heat dispersing.

To remove from the track, reverse the steps above.

2.4. Grounding

There is an Earth Ground pin on the Power Input terminal block at the bottom of JetCon 6300 Series. To prevent the system from being damaged by noise or electrical shock, please make exact connection with JetCon devices with the Earth Ground.

2.5. Wiring Power Input

Follow the steps below for power input wiring:

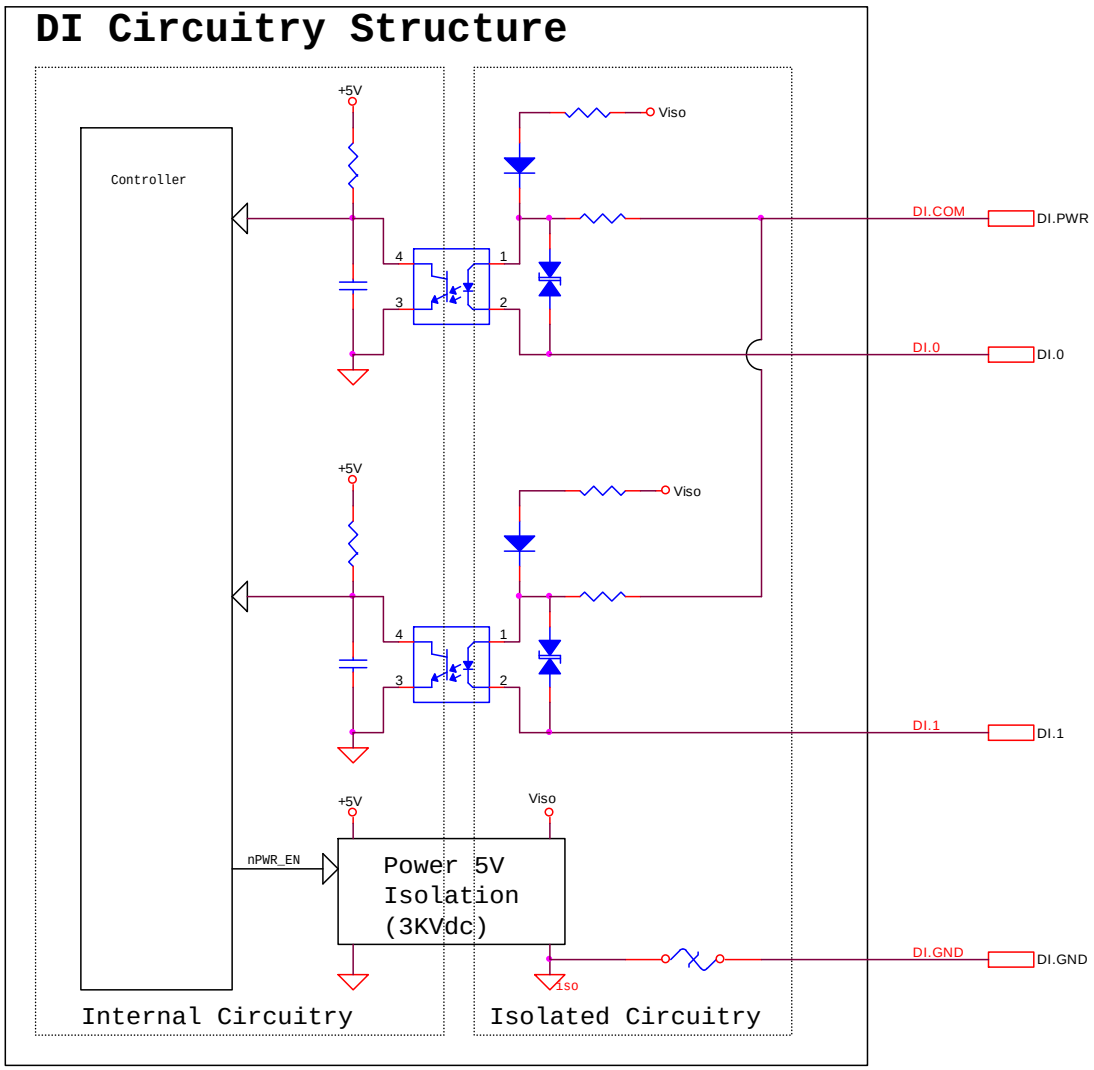
1. According the pin assignment, insert the wires into the contacts on the terminal block connector.
2. Tighten the wire-clamp screws to prevent DC wires from being loosened.
3. Connect to and turn on the power source. The range of the suitable power source is from 12 to 24 AWG.
4. When the unit is ready, the PWR LED turns yellow, the RDY LED turns green.

Note: It is a good practice to turn off the power and unplug the terminal block before making wire connections. Otherwise, your screwdriver blade can inadvertently short the terminal connections to the grounded enclosure.

2.6. Wiring I/O Channels

Follow the pin assignment to insert the I/O wires into the front contacts of the terminal block. Tighten the wire-clamp screws to prevent the I/O wires from being loosened.

2.6.1. DI Circuitry Structure

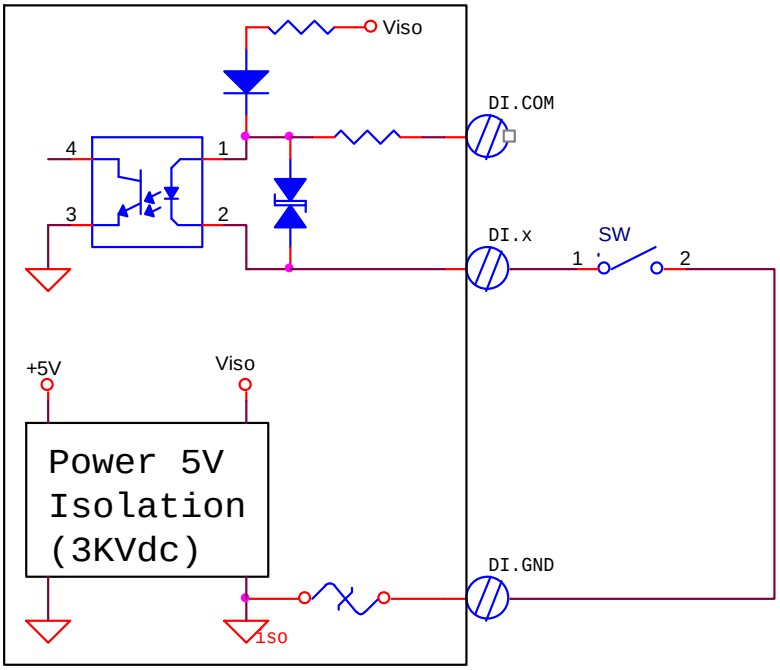


Picture 5 DI Circuit Structure

2.6.2. DI Interface Dry Contact Wiring

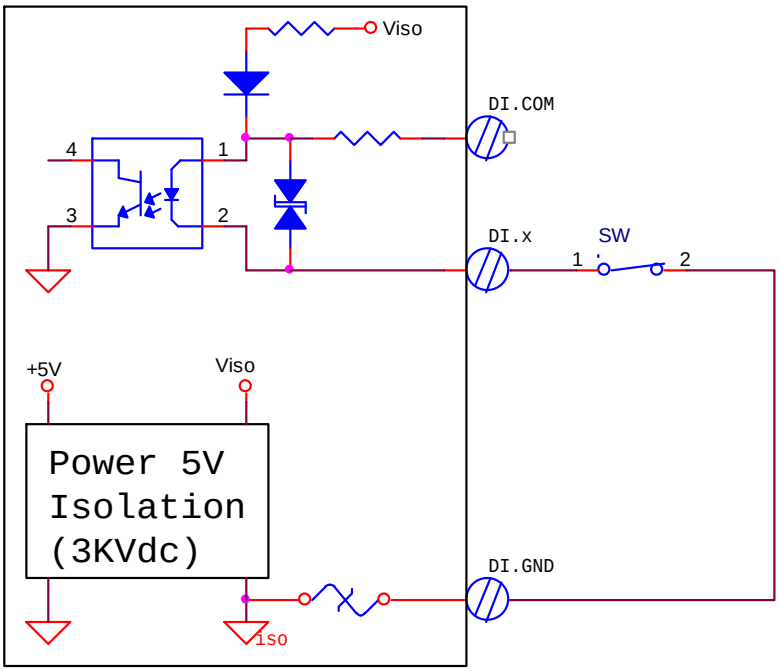
Digital Input OFF State (Readback as 0)

Dry Contact SW = Open



Digital Input ON State (Readback as 1)

Dry Contact SW = Close to GND

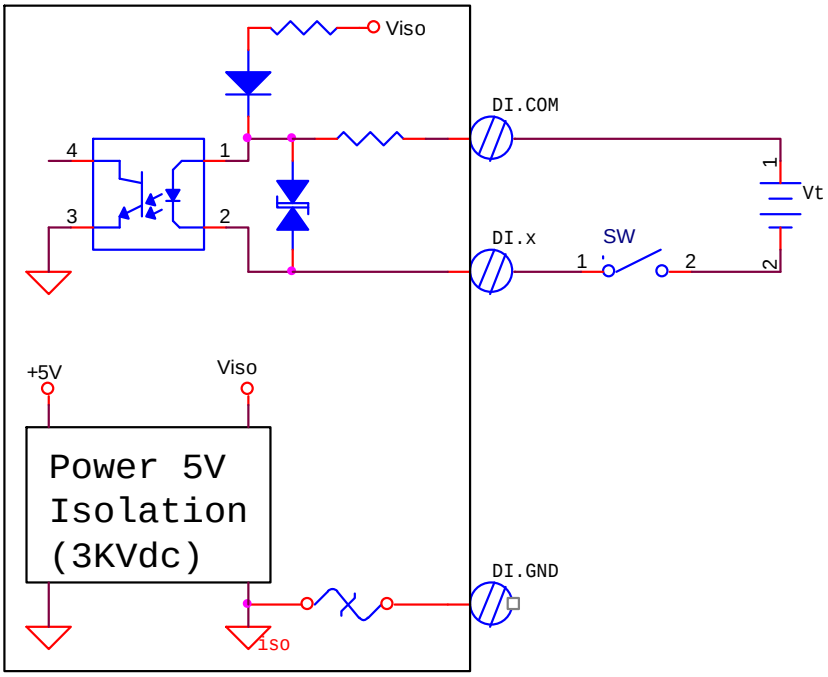


Picture 6 DI Dry Contact Wiring

2.6.3. DI Interface Wet Contact Wiring

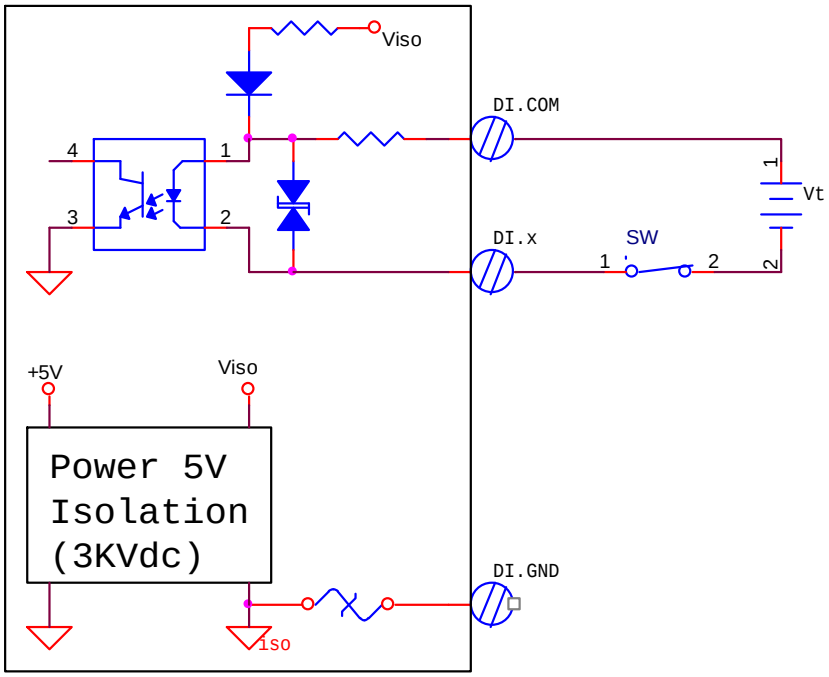
Digital Input OFF State (Readback as 0)

Wet Contact SW = Open or Vt < 3 Vdc



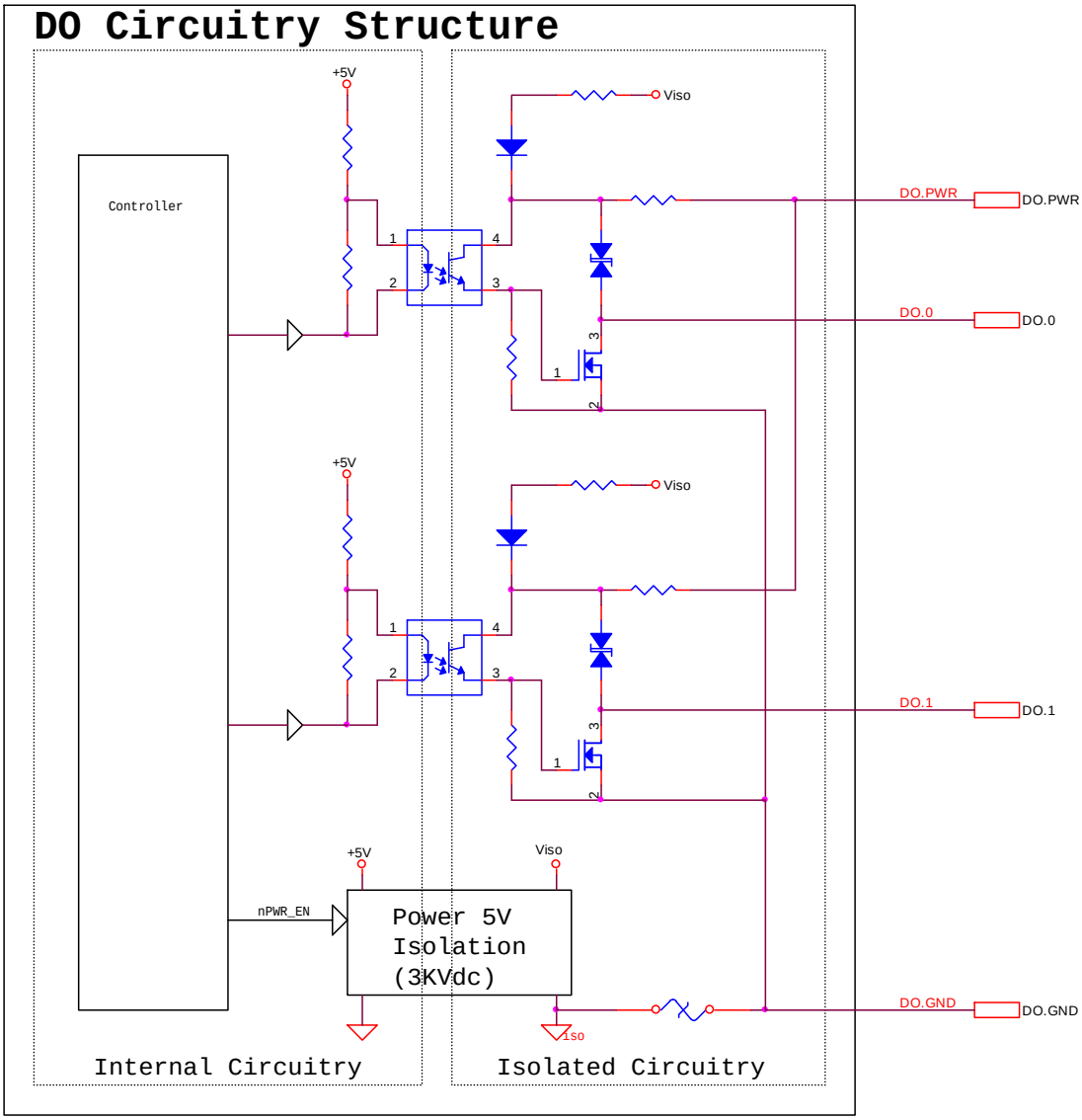
Digital Input ON State (Readback as 1)

Wet Contact SW = Close and Vt = 3.5 ~ 30Vdc



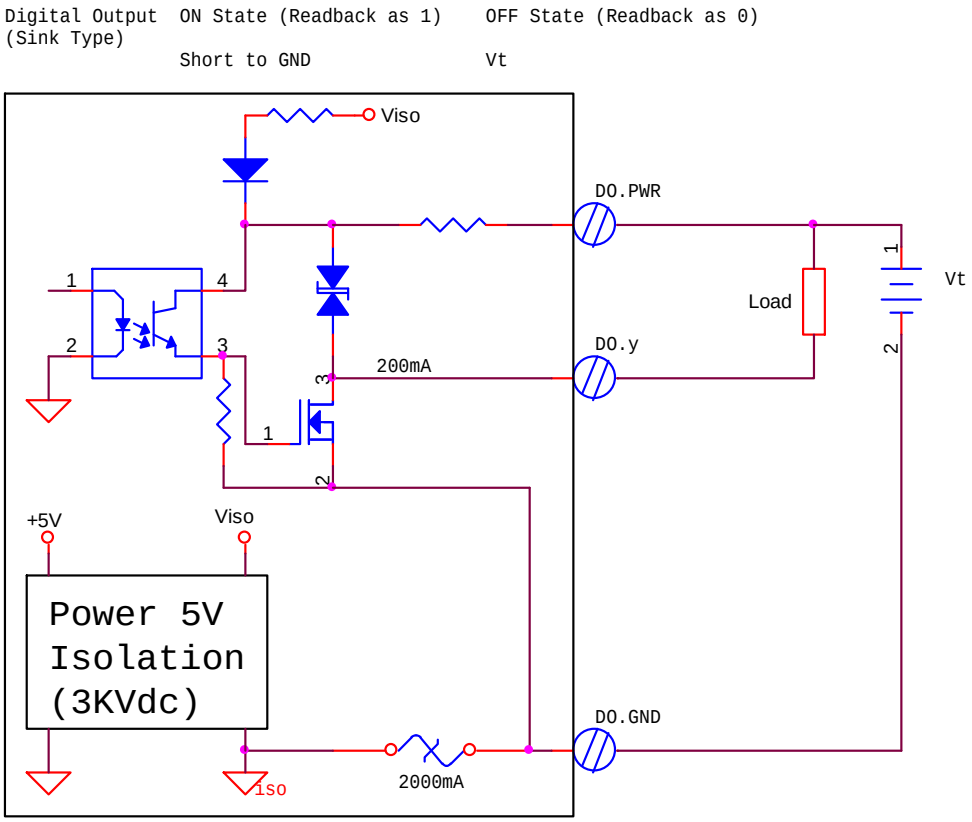
Picture 7 DI Wet Contact Wiring

2.6.4. DO Circuitry Structure



Picture 8 DO Circuit Structure

2.6.5. DO Interface Wiring



Picture 9 DO Channel Wiring

2.6.6. DI / DO Wiring and On / Off Logic Table

JetCon 6300 provides an internal isolated voltage, called V_{iso}, for DI/DO contacts. V_{iso} can be turn on/off through management. The relationship of V_{iso} state, DI/DO wiring and the result of channel is summarized below:

	V_{iso} = ON		V_{iso} = OFF	
	ON State	OFF State	ON State	OFF State
DI Dry Contact	SW=Close to GND	SW=Open	N/A	N/A
DI Wet Contact	Vt= 3.5 ~ 30Vdc and SW=Close	SW=Open or Vt< 3Vdc	Vt=3.5 ~ 30Vdc and SW=Close	SW=Open or Vt< 3Vdc
DO	Load with Vt, 200mA max	Load without current	Load with Vt (Vt>=4Vdc), 200mA	Load without current

V_{iso}: an isolated power supply

Vt: The power voltage from an external device

Table 1 DI/DO Wiring and On/Off Logic Table

2.7. Wiring Fast Ethernet Port

The fast Ethernet port of JetCon 6300 series supports either 10Base-T or 100Base-TX, full or half duplex modes. The port detects the signal from the peer device to negotiate the link speed and duplex mode automatically. The port is also capable of Auto MDI/MDIX which allows connect another switch, hub or workstation by either a straight through or a crossover cable.

Plug one end of an Ethernet cable into the fast Ethernet port and connect the other end to the attached switch or host. The link LED lights up if the cable is correctly connected. Always make sure that the cable length is less than 100 meters (328 feet).

LED Indication of LAN:

Link Active: Green On & Blinking

Link Speed: Yellow off for 10Base-T

Yellow on for 100Base-TX

The wiring cable types are as below.

10Base-T: 2-pair UTP/STP Cat. 3, 4, 5 cable, EIA/TIA-568 100-ohm (100m)

100 Base-TX: 2-pair UTP/STP Cat. 5 cable, EIA/TIA-568 100-ohm (100m)

1000 Base-TX: 4-pair UTP/STP Cat. 5 cable, EIA/TIA-568 100-ohm (100m)

3. Technology Data

3.1. JetCon 6330

System

CPU: 100MHZ, RISC-Based

SDRAM: 32K bytes

Flash ROM: 512K bytes

EEPROM: 2K bytes

Watchdog: embedded watchdog to auto reset system when system failure

LED:

PWR: Power Input plugged and On (Green)

RDY: System startup ready (Yellow)

STS: System fail (Red)

Network Interface

Ethernet: IEEE 802.3 10Base-T, IEEE 802.3u 100Base-TX

Connector: 1 * RJ-45, Auto MDI/MDI-X

Protection: Built-in 1.5 KV magnetic isolation protection

LED:

LAN Activity: Green On & Blinking

Network Speed: 10M (Yellow Off) /100M (Yellow ON)

Digital Input

Input Channels: 16 Channels

Input Type: source type

Input Mode: DI or event counting

DC Input: 30V max

Threshold Voltage: 3.8V

Responding Time to Host PC Request: <2ms

Isolation Voltage: 3.75KVrms

Isolated Power supply

Power supply: 5V/200mA, power on/off with Configuration

Isolation Voltage: 3KVdc

Features

Network Protocols: IP, TCP, UDP, HTTP, BOOTP, DHCP, Modbus/TCP

Configuration: Windows Utility, Web browser, Firmware update

Windows Utility: JetCon 6300 Commander

Logic Rules: Conditions of the DI/Counter values, Actions include DO/Pulse, Counter, Peer to Peer

Peer to Peer: One to one, multiple to one or one to multiple peers

Power Requirements

System Power: external unregulated +24V (10-30V)

Power Consumption: Max. 2W

Mechanical

Dimensions: 120 (H) x 55 (W) x 99 (D) mm

Mounting: Din-Rail

Material: Aluminum

Environmental

Regulatory Approvals: EMI: FCC Class B;

CE/EN55022:2003, Class B;

CE/EN61000-3-2:2000 Harmonic test;

CE/EN61000-3-3:1995 Flicker test

EMS:

EN61000-4-2:2001, ESD test, Level 3(Contact +/- 6KV,

Air +/- 8KV)

EN61000-4-3:2002, RS test, Level 3 (10V/m)

EN61000-4-4:2004, EFT test, Level 3 (Power supply +/- 2KV/5KHz, I/O 1KV/5KHz)

EN61000-4-5:2001, Surge test, Level 3 (L-N: +/- 2KV)

EN61000-4-6:2003, CS test, Level 3

Vibration: IEC60068-2-6

Shock: IEC60068-2-27

Free Fall: IEC60068-2-32

Operating Temperature: -25 ~ 70°C

Operating Humidity: 20 ~ 90% non-condensing

Storage Temperature: -40 ~ 85°C

Warranty: 3 years

Ordering Information

JetCon 6330 16-CH DI Smart Ethernet I/O Converter

3.2. JetCon 6350

System

CPU: 16 bits/100MHZ, RISC-Based

SDRAM: 32K bytes

Flash ROM: 512K bytes

EEPROM: 2K bytes

Watchdog: embedded watchdog to auto reset system when system failure

LED:

PWR: Power Input plugged and On (Green)

RDY: System startup ready (Yellow)

STS: System failure (Red)

Network Interface

Ethernet: IEEE 802.3 10Base-T, IEEE 802.3u 100Base-TX

Connector: 1 * RJ45, Auto MDI/MDI-X

Protection: Built-in 1.5 KV magnetic isolation protection

LED:

LAN Activity: Green On & Blinking

Network Speed: 10M (Green Off) / 100M(Green ON)

Digital Input

Input Channels: 12 Channels

Input Type: source type

Input Mode: D/I or event counting

DC Input: 30V max

Threshold Voltage: 3.8V

Responding Time to Host PC Request: <2ms

Isolation Voltage: 3.75KVrms

Digital Output

Output Channels: 4 Channels

Output Type: FET output, sink type

Output Mode: Level or pulse output with programmable pulse width

Working Range: 5-30VDC

Driving Capacity: 200mA @23°C

Responding Time to Host PC Request: <2ms

Output Initial State: Programmable

Isolation Voltage: 3.75KVrms

Protection: over-current 400mA/channel trip @23°C

Isolated Power supply

Power supply: 5V/200mA, power on/off with Configuration

Isolation Voltage: 3KVdc

Features

Network Protocols: IP, TCP, UDP, HTTP, BOOTP, DHCP, Modbus/TCP

Configuration: Network, I/O setting, Watchdog, Firmware update

Windows Utility: JetCon 6300 Commander

Logic Rules: Conditions of the DI/Counter values, Actions include DO/Pulse and Counter, Peer to peer

Power Requirements

System Power: external unregulated +24V (10-30V)

Power Consumption: Max. 2W

Mechanical

Dimensions: 120 (H) x 55 (W) x 99 (D) mm

Mounting: Din-Rail

Material: Aluminum

Environmental

Regulatory Approvals:

EMI:

FCC Class B;

CE/EN55022:2003, Class B;

CE/EN61000-3-2:2000 Harmonic test;

CE/EN61000-3-3:1995 Flicker test

EMS:

EN61000-4-2:2001, ESD test, Level 3 (Contact +/- 6KV, Air +/- 8KV) with criterion performance A

EN61000-4-3:2002, RS test, Level 3 (10V/m) with criterion performance A

EN61000-4-4:2004, EFT test, Level 3 (Power supply +/- 2KV/5KHz, I/O 1KV/5KHz) with criterion performance A

EN61000-4-5:2001, Surge test, Level 3 (L-N: +/- 2KV) with criterion performance A

EN61000-4-6:2003, CS test, Level 3 with criterion performance A

Vibration: IEC60068-2-6

Shock: IEC60068-2-27

Free Fall: IEC60068-2-32

Operating Temperature: -25 ~ 70°C

Operating Humidity: 20 ~ 90% non-condensing

Storage Temperature: -40 ~ 85°C

4. Further Support

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