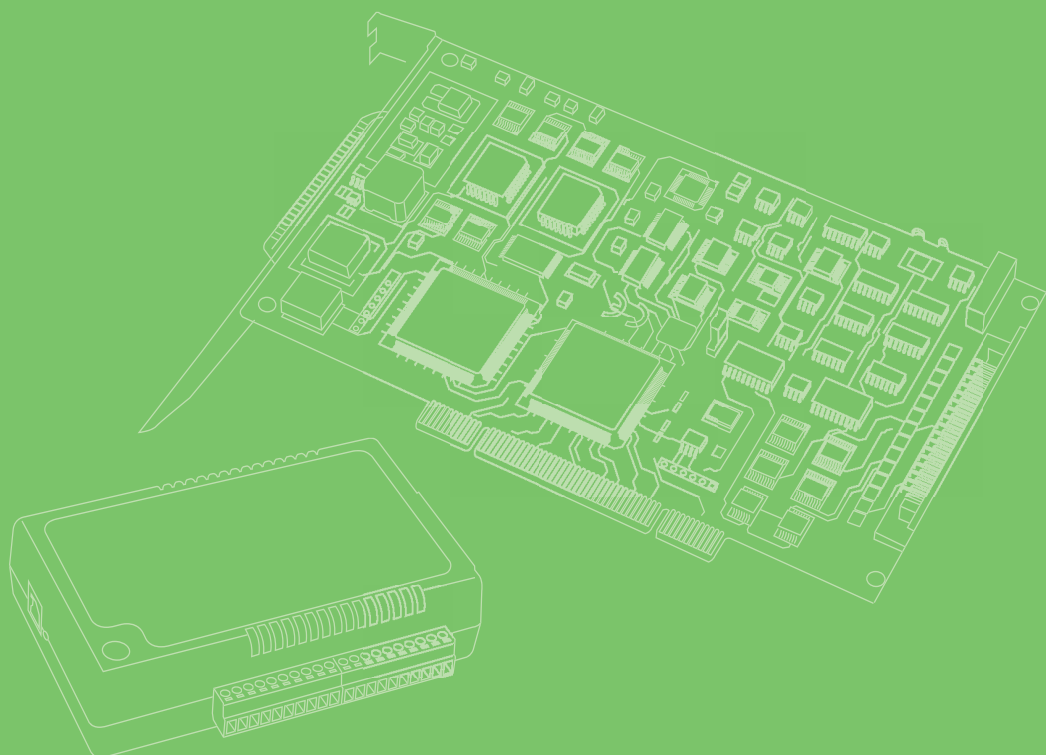




AMAX-175x Series

Open Frame Type 32-ch AMONet
RS-485 Isolated Digital I/O Slave
Modules

ADVANTECH

Enabling an Intelligent Planet

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Product Warranty (2 years)

Advantech warrants to you, the original purchaser, that each of its products will be free from defects in materials and workmanship for two years from the date of purchase.

This warranty does not apply to any products which have been repaired or altered by persons other than repair personnel authorized by Advantech, or which have been subject to misuse, abuse, accident or improper installation. Advantech assumes no liability under the terms of this warranty as a consequence of such events.

Because of Advantech's high quality-control standards and rigorous testing, most of our customers never need to use our repair service. If an Advantech product is defective, it will be repaired or replaced at no charge during the warranty period. For out-of-warranty repairs, you will be billed according to the cost of replacement materials, service time and freight. Please consult your dealer for more details.

If you think you have a defective product, follow these steps:

1. Collect all the information about the problem encountered. (For example, CPU speed, Advantech products used, other hardware and software used, etc.) Note anything abnormal and list any onscreen messages you get when the problem occurs.
2. Call your dealer and describe the problem. Please have your manual, product, and any helpful information readily available.
3. If your product is diagnosed as defective, obtain an RMA (return merchandise authorization) number from your dealer. This allows us to process your return more quickly.
4. Carefully pack the defective product, a fully-completed Repair and Replacement Order Card and a photocopy proof of purchase date (such as your sales receipt) in a shippable container. A product returned without proof of the purchase date is not eligible for warranty service.
5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

Declaration of Conformity

CE

This product has passed the CE test for environmental specifications when shielded cables are used for external wiring. We recommend the use of shielded cables. This kind of cable is available from Advantech. Please contact your local supplier for ordering information.

Technical Support and Assistance

1. Visit the Advantech web site at www.advantech.com/support where you can find the latest information about the product.
2. Contact your distributor, sales representative, or Advantech's customer service center for technical support if you need additional assistance. Please have the following information ready before you call:
 - Product name and serial number
 - Description of your peripheral attachments
 - Description of your software (operating system, version, application software, etc.)
 - A complete description of the problem
 - The exact wording of any error messages

Packing List

Before setting up the system, check that the items listed below are included and in good condition. If any item does not accord with the table, please contact your dealer immediately.

The package should also include the following items:

- AMAX-175x Series Slave Module
- Quick Start User Manual

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Chapter 1

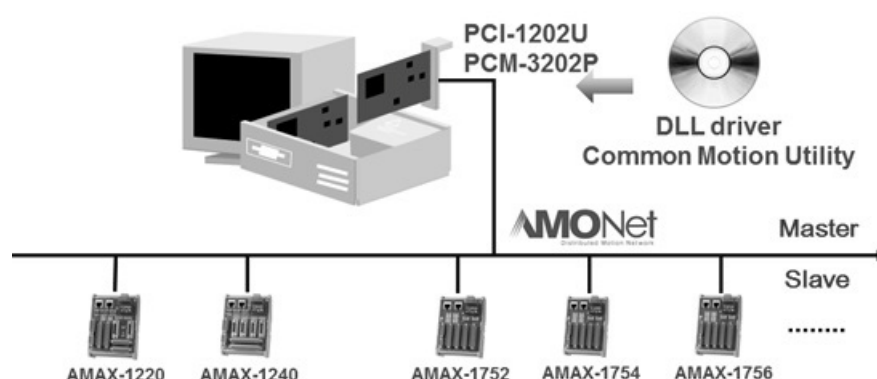
Introduction

This chapter gives an overview of the product features, and specifications for AMAX-175x Series.

Sections include:

- Features
- Specifications
- Distributed Motion Product Selection Guide

Products in the AMAX-175x Series are used to increase the number of digital input/output channels for an AMONet RS-485 distributed motion control network. These extension slave modules connect serially by a simple and affordable Cat.5 LAN cable, reducing the wiring between driver and controller. This is very suitable for highly integrated machine automation applications.



1.1 Features

- Communication baud rate, 2.5Mbps, 5Mbps, 10Mbps and 20Mbps are supported and switchable
- Onboard screw terminal for direct wiring
- 2,500 V_{RMS} Isolation voltage
- Suitable for DIN-rail mounting
- Board ID is switchable
- Easily visible LED indicators on board to do diagnosis

1.2 Specifications

1.2.1 General

BUS TYPE	AMONet RS-485
Certifications	CE, FCC Class A
Connectors	(1) RJ-45 x 2 are for communication port (2) I/O points use screw terminal type connector
LED Indicators	Power, Run, Status, Isolated Digital I/O
Power Consumption	600mW typical, 2 W Max.
Power Supply for Module	VS: 24 Vdc $\pm$ 10%
Power Supply for Digital Input/Output	VEX: 10-30 Vdc

1.2.2 Isolated Digital Input

Channels	AMAX-1752: 32 DI AMAX-1756: 16 DI
Input type	Dry contact
Input voltage	$\Delta V^* = 0\sim 3V(\text{Low Level}) / 10\sim 30V(\text{High Level}) (30V_{DC} \text{ Max.})$
Input resistance	3.2K Ω
Input current	2mA Min.
Input delay	100us Max. (Isolation delay)
Input Isolation	2500Vdc

*NOTE: $\Delta V = |IDICOMx - IDIx|$. For pin assignment definition, please refer to 2.8.1 to 2.8.3 for details. For signal connection, please refer to 2.9.

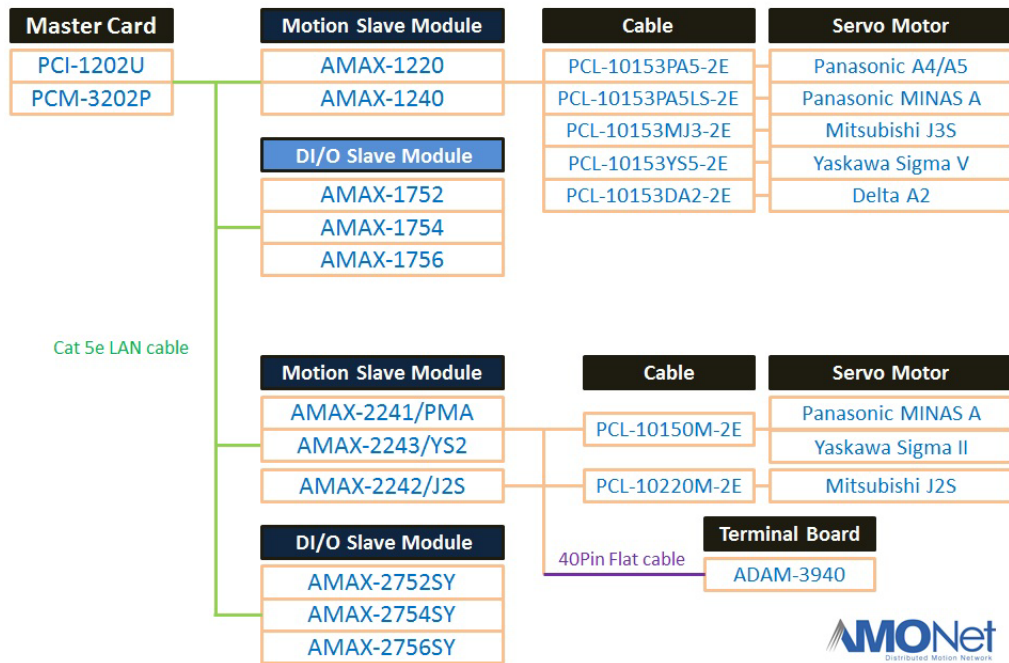
1.2.3 Isolated Digital Output

Channels	AMAX-1754: 32 DO AMAX-1756: 16 DO
Output type	Sink(NPN) (open collector Darlington)
Output control voltage	35Vdc Max.
Output sink current	400mA Max. (for each channel)
Output delay	250us Max. (photo coupler delay)
Output Isolation	2500Vdc

1.2.4 Environment

Operating Humidity	5 ~ 95% RH, non-condensing (refer to IEC 60068-2-3)
Operating Temperature	0 ~ 65° C (refer to IEC 60068-2-1,2) (32 ~ 149° F)
Storage Temperature	-25 ~ 85° C (-13 ~ 185° F)

1.3 Distributed Motion Product Selection Guide



Chapter 2

Hardware Functionality

This chapter shows the hardware functionality of AMAX-175x Series.

Sections include:

- Module Dimensions
- Power Connector
- BoardID Switch
- Configuration Setting
- LED Definition
- Pin Definition
- Signal Connection

AMAX-175x series is open frame type AMONET I/O modules which has on-board connectors for direct wiring and LED indicators to show the status. Here is the product dimension information:

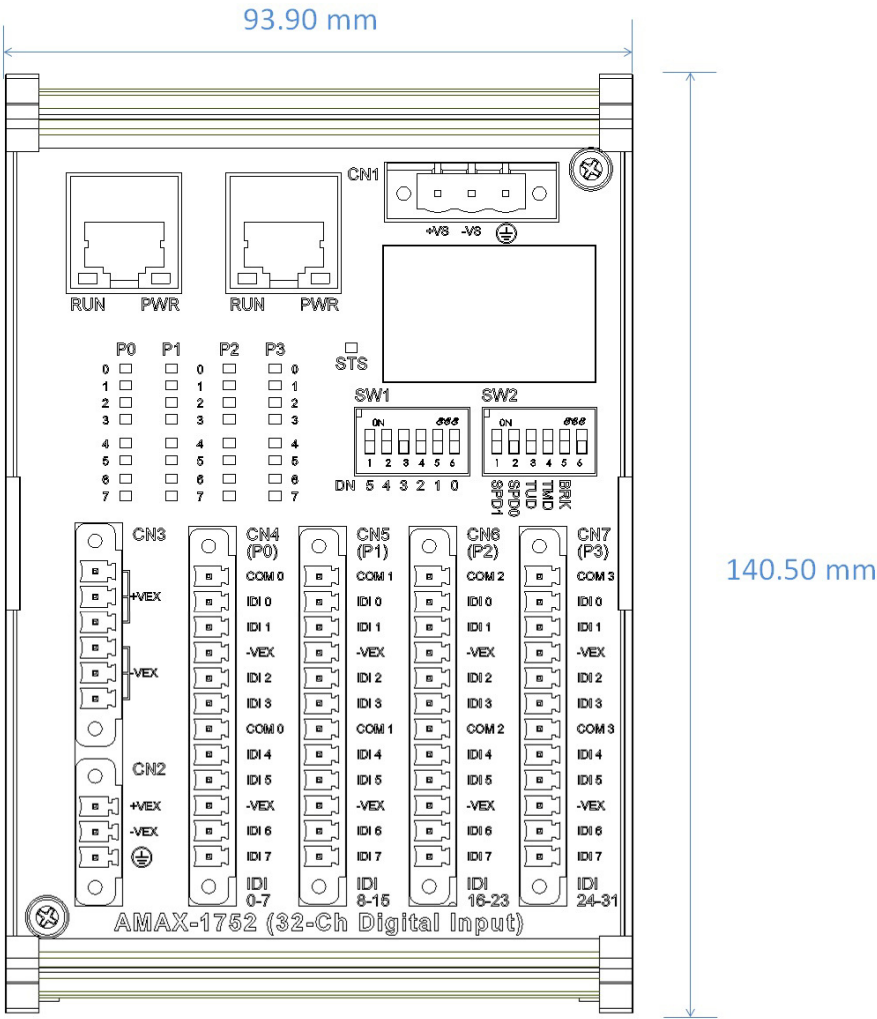


Figure 2.1 AMAX-1752 Top View

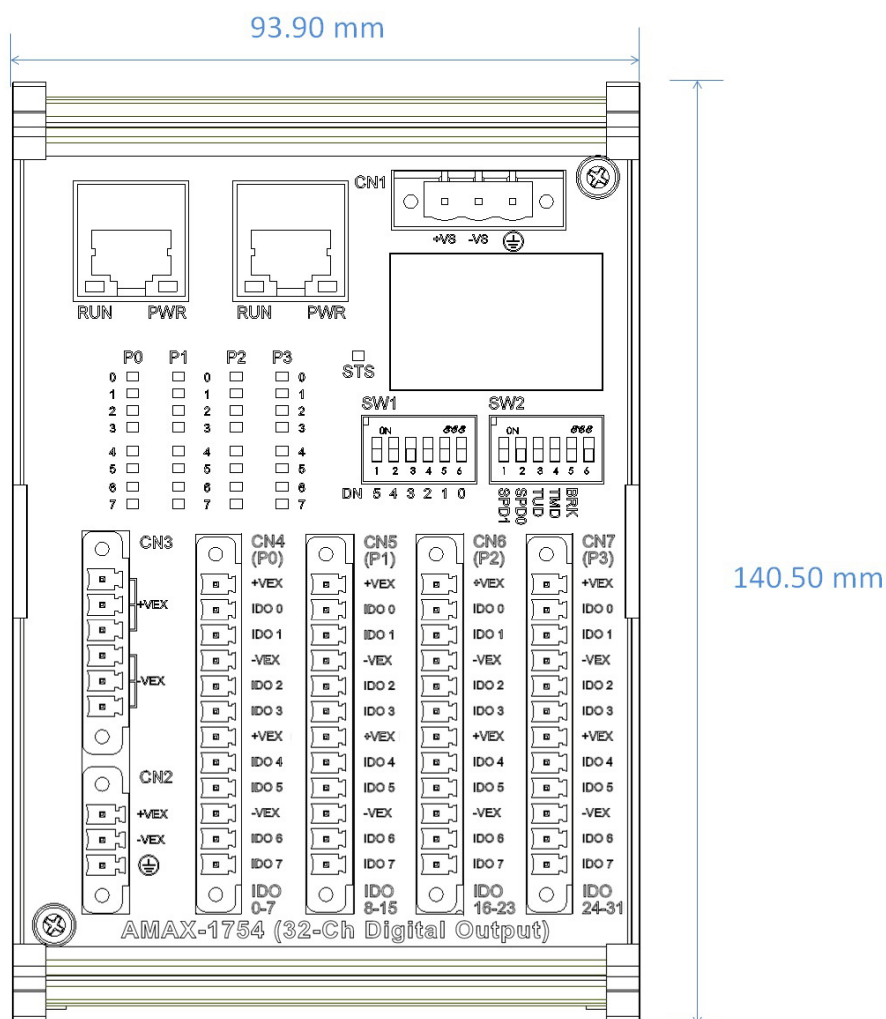


Figure 2.2 AMAX-1754 Top View

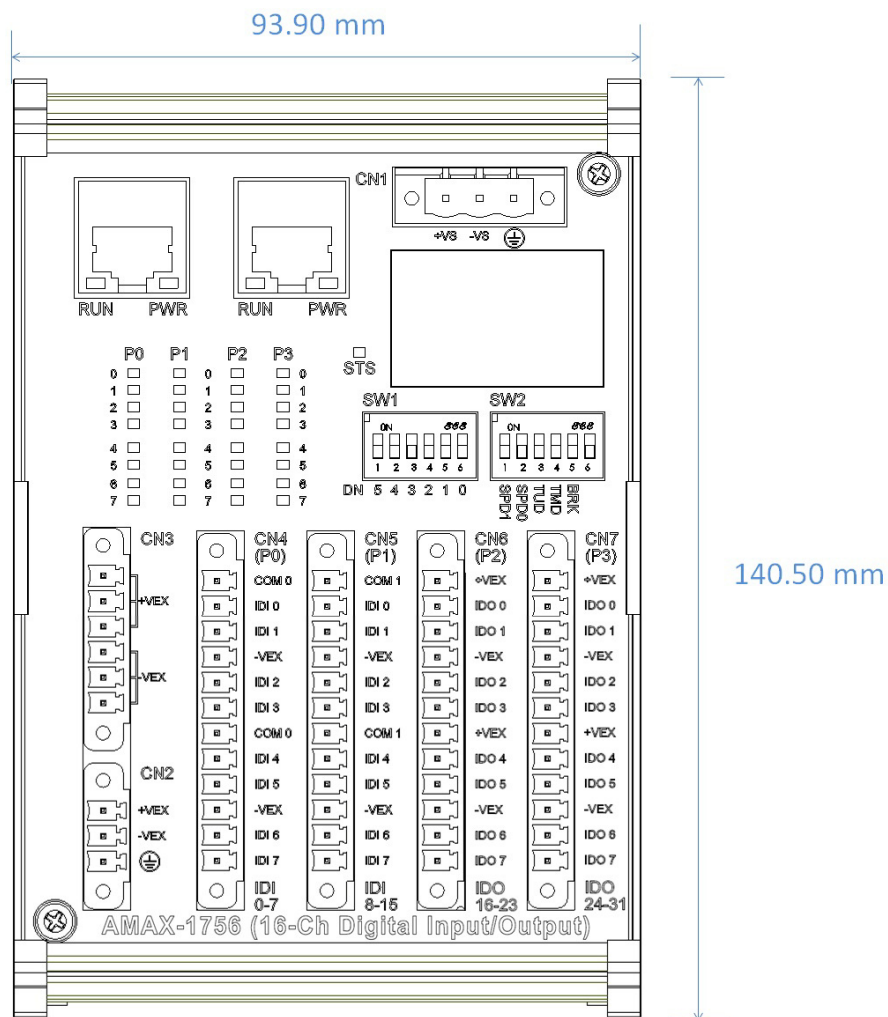


Figure 2.3 AMAX-1756 Top View

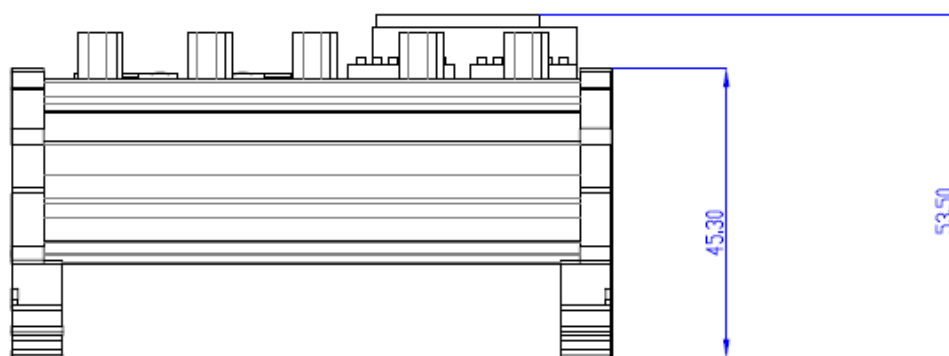
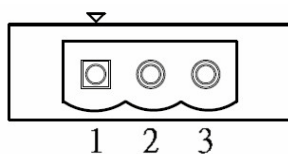


Figure 2.4 AMAX-175x Middle View

Note! The height does not include the male connector. The height of the male connector is 9mm.

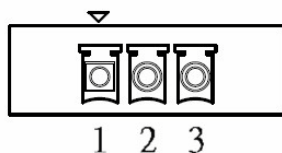


2.1 Module Power Connector(CN1)



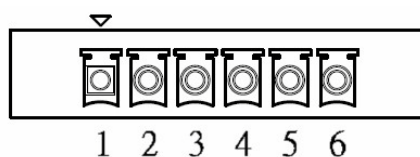
Pin	Description
1	+VS input 24 V _{DC} ± 10%
2	- VS
3	Field Ground

2.2 External Power Input Connector(CN2)



Pin	Description
1	+VEX (10-30 V _{DC})
2	-VEX
3	Field Ground

2.3 External Power Output Connector(CN3)



Pin	Description
1~3	+VEX (10-30 V _{DC})
4~6	- VEX

2.4 Board ID Switch (SW1)

	Pin	Label	ON	OFF
	1	DN5	1	0
	2	DN4	1	0
	3	DN3	1	0
	4	DN2	1	0
	5	DN1	1	0
	6	DN0	1	0

Note: Node Number=32xDN5+16xDN4+8xDN3+4xDN2+2xDN1+DN0.

Default Setting: All the switches are in OFF status.

2.5 Configuration Setting (SW2)



Switch	Label	Description
1	SPD1	Baud-Rate Setting
2	SPD0	
3	TUD	Time-Out Status Latch
4	TMD	Specify watchdog timer time
5	BRK	*For internal use only, please keep in OFF
6		N/A

2.5.1 Baud-Rate Setting

SPD1	SPD0	
OFF	OFF	20 MHz
OFF	ON	10 MHz
ON	OFF	5 MHz
ON	ON	2.5 MHz

2.5.2 TUD

This terminal is used to set output conditions when the watchdog timer times out.

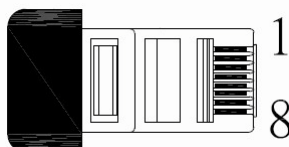
OFF	The output keeps its current status.
ON	The output is Reset.

2.5.3 TMD

When the interval between data packets sent from a master card (ex. PCI-1202U) is longer than the specified interval, the watchdog timer times out.

	20 Mbps	10 Mbps	5 Mbps	2.5 Mbps
OFF	20 ms	40 ms	80 ms	160 ms
ON	5 ms	10 ms	20 ms	40 ms

2.6 Terminal Resistor

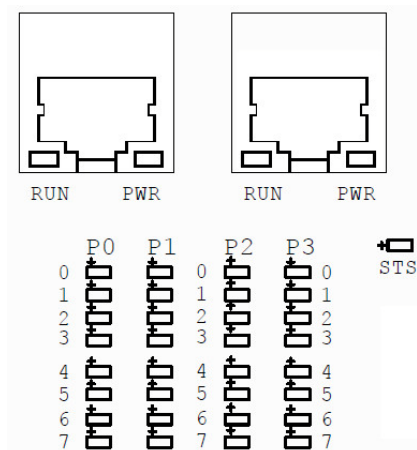


	PIN
100Ω 1/4W Resistor	3 6

Note! Terminal Resistor is used for the last module only.



2.7 LED Definition



LED	Description
PWR	Power indicator
RUN	Module in communication
STS	Communication status

2.7.1 AMAX-1752

LED	Description
P0 (0~7)	CN4 IDI 0~7
P1 (0~7)	CN5 IDI 0~7
P2 (0~7)	CN6 IDI 0~7
P3 (0~7)	CN7 IDI 0~7

2.7.2 AMAX-1754

LED	Description
P0 (0~7)	CN4 IDO 0~7
P1 (0~7)	CN5 IDO 0~7
P2 (0~7)	CN6 IDO 0~7
P3 (0~7)	CN7 IDO 0~7

2.7.3 AMAX-1756

LED	Description
P0 (0~7)	CN4 IDI 0~7
P1 (0~7)	CN5 IDI 0~7
P2 (0~7)	CN6 IDO 0~7
P3 (0~7)	CN7 IDO 0~7

2.8 Pin Definitions

2.8.1 AMAX-1752 (32 DI)

CN4 (P0)		CN5 (P1)		CN6 (P2)		CN7 (P3)	
Pin1	COM 0	Pin1	COM 1	Pin1	COM 2	Pin1	COM 3
Pin2	IDI 0	Pin2	IDI 0	Pin2	IDI 0	Pin2	IDI 0
Pin3	IDI 1	Pin3	IDI 1	Pin3	IDI 1	Pin3	IDI 1
Pin4	-VEX	Pin4	-VEX	Pin4	-VEX	Pin4	-VEX
Pin5	IDI 2	Pin5	IDI 2	Pin5	IDI 2	Pin5	IDI 2
Pin6	IDI 3	Pin6	IDI 3	Pin6	IDI 3	Pin6	IDI 3
Pin7	COM 0	Pin7	COM 1	Pin7	COM 2	Pin7	COM 3
Pin8	IDI 4	Pin8	IDI 4	Pin8	IDI 4	Pin8	IDI 4
Pin9	IDI 5	Pin9	IDI 5	Pin9	IDI 5	Pin9	IDI 5
Pin10	-VEX	Pin10	-VEX	Pin10	-VEX	Pin10	-VEX
Pin11	IDI 6	Pin11	IDI 6	Pin11	IDI 6	Pin11	IDI 6
Pin12	IDI 7	Pin12	IDI 7	Pin12	IDI 7	Pin12	IDI 7
IDI 0-7		IDI 8-15		IDI 16-23		IDI 24-31	

2.8.2 AMAX-1754 (32 DO)

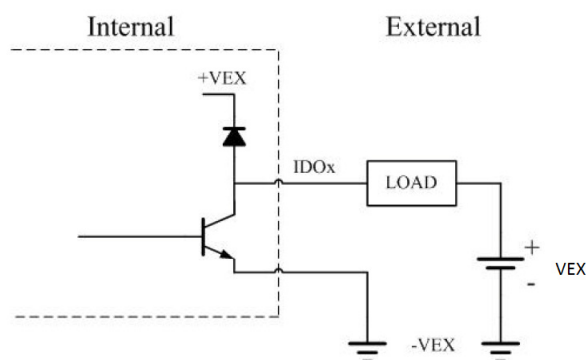
CN4 (P0)		CN5 (P1)		CN6 (P2)		CN7 (P3)	
Pin1	+VEX	Pin1	+VEX	Pin1	+VEX	Pin1	+VEX
Pin2	IDO 0	Pin2	IDO 0	Pin2	IDO 0	Pin2	IDO 0
Pin3	IDO 1	Pin3	IDO 1	Pin3	IDO 1	Pin3	IDO 1
Pin4	-VEX	Pin4	-VEX	Pin4	-VEX	Pin4	-VEX
Pin5	IDO 2	Pin5	IDO 2	Pin5	IDO 2	Pin5	IDO 2
Pin6	IDO 3	Pin6	IDO 3	Pin6	IDO 3	Pin6	IDO 3
Pin7	+VEX	Pin7	+VEX	Pin7	+VEX	Pin7	+VEX
Pin8	IDO 4	Pin8	IDO 4	Pin8	IDO 4	Pin8	IDO 4
Pin9	IDO 5	Pin9	IDO 5	Pin9	IDO 5	Pin9	IDO 5
Pin10	-VEX	Pin10	-VEX	Pin10	-VEX	Pin10	-VEX
Pin11	IDO 6	Pin11	IDO 6	Pin11	IDO 6	Pin11	IDO 6
Pin12	IDO 7	Pin12	IDO 7	Pin12	IDO 7	Pin12	IDO 7
IDO 0-7		IDO 8-15		IDO 16-23		IDO 24-31	

2.8.3 AMAX-1756 (16 DI 16DO)

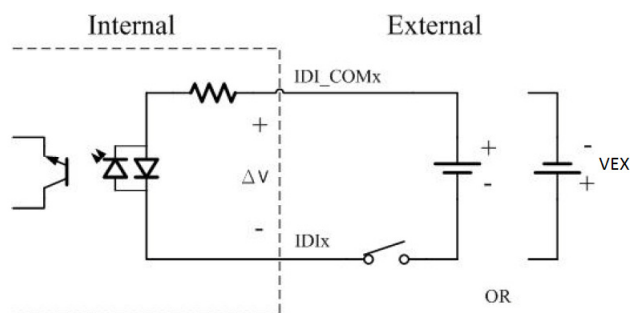
CN4 (P0)		CN5 (P1)		CN6 (P2)		CN7 (P3)	
Pin1	COM 0	Pin1	COM 1	Pin1	+VEX	Pin1	+VEX
Pin2	IDO 0	Pin2	IDO 0	Pin2	IDO 0	Pin2	IDO 0
Pin3	IDO 1	Pin3	IDO 1	Pin3	IDO 1	Pin3	IDO 1
Pin4	-VEX	Pin4	-VEX	Pin4	-VEX	Pin4	-VEX
Pin5	IDI 2	Pin5	IDI 2	Pin5	IDO 2	Pin5	IDO 2
Pin6	IDI 3	Pin6	IDI 3	Pin6	IDO 3	Pin6	IDO 3
Pin7	COM 0	Pin7	COM 1	Pin7	+VEX	Pin7	+VEX
Pin8	IDI 4	Pin8	IDI 4	Pin8	IDO 4	Pin8	IDO 4
Pin9	IDI 5	Pin9	IDI 5	Pin9	IDO 5	Pin9	IDO 5
Pin10	-VEX	Pin10	-VEX	Pin10	-VEX	Pin10	-VEX
Pin11	IDI 6	Pin11	IDI 6	Pin11	IDO 6	Pin11	IDO 6
Pin12	IDI 7	Pin12	IDI 7	Pin12	IDO 7	Pin12	IDO 7
IDI 0-7		IDI 8-15		IDO 16-23		IDO 24-31	

2.9 Signal Connection

2.9.1 Isolated Digital Output



2.9.2 Isolated Digital Input





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