MIC-3756
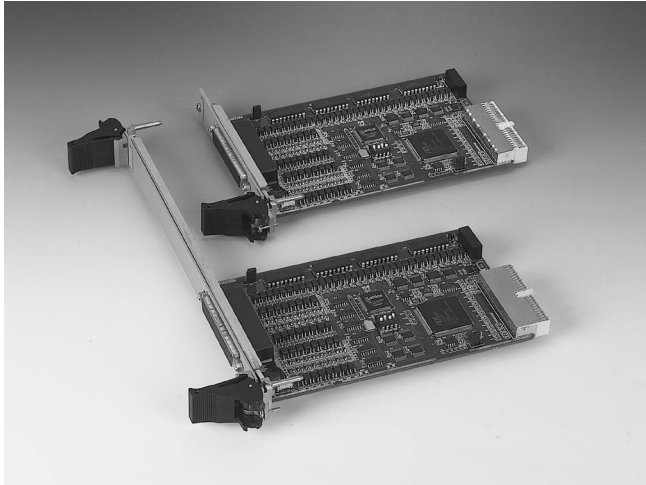
64-ch Isolated Digital I/O Module

Features

- 32 isolated digital output channels
- 32 isolated digital input channels
- Either +/- voltage input for DI by group
- High-voltage isolation on I/O channels (2,500 V_{DC})
- Wide input range (10 ~ 50 V_{DC})
- Wide output range (5 ~ 40 V_{DC})
- High-sink current on isolated output channels (200 mA max./channel)
- High over-voltage protection (70 V_{DC}) for input channels
- Board ID
- Output status read-back for output channels
- Keeps digital output values after hot system reset
- Channel-Freeze function for output channels
- Interrupt handling capability
- Provides convenient wiring terminal module with LED indicators for DIN-rail mounting
- High-density 100-pin SCSI connector

CE FCC

Introduction

The MIC-3756 card offers 32 isolated digital input channels as well as 32 isolated digital output channels with isolation protection up to 2,500 V_{DC}, which makes it ideal for industrial applications where high-voltage isolation is required. In addition, all output channels are able to keep their last values after a hot system reset. Furthermore, the MIC-3756 provides Channel-Freeze function that keeps the current output status unchanged for each channel during operation.

The MIC-3756 features robust isolation protection for applications in industrial, lab and machinery automation. It can durably withstand voltage up to 2,500 V_{DC} , preventing your host system from any incidental harm. If connected to an external input source with surge-protection, the MIC-3756 can offer up to a maximum of 2,000 V_{DC} ESD (Electrostatic Discharge) protection for input channels. Even if the input voltage rises up to 70 V_{DC}, the input channels of MIC-3756 can still manage to work properly for a short period of time.

Specifications

General

- **I/O Connector Type** One female 78-pin D-type connector
- **Dimensions** 160 x 100 mm (6.3" x 3.9") with 3U/6U Bracket
- **Power Consumption** Typical: +5 V @ 285 mA
  Max: +5V @ 475 mA
- **Operating Temperature** 0 ~ 60° C (32 ~ 140° F) IEC 68-2-1,2)
- **Storage Temperature** -20 ~ 70° C (-4 ~ 158° F)
- **Relative Humidity** 5 ~ 95% RH non-condensing (IEC-68-2-3)

Isolated Digital Input

- **Number of Channels** 32
- **Interrupt Inputs** 2 (DI00, DI16)
- **Optical Isolation** 2500 V_{DC}
- **Over-voltage Protection** 70 V_{DC}
- **Input Resistance** 1 KΩ (50 V), 4 KΩ (5 V)
- **Input Voltage**
  VIH (max.) 50 V_{DC}
  VIH (min.) 5 V_{DC}
  VIL (max.) 2 V_{DC}

Isolated Digital Output

- **Number of Channels** 32
- **Optical Isolation** 2500 V_{DC}
- **DO Response Time**
  OFF delay (±20%) 5 µs
  ON delay (±20%) 120 µs
- **Supplied Voltage** 5~40 V_{DC}
- **Sink Current** 200 mA max/channel

- **Photo-Couple Response Time**

Input Voltage	*OFF delay (±20%)	*ON delay (±20%)
5 V	100 µs	60 µs
12 V	120 µs	10 µs
24 V	140 µs	5 µs
30 V	150 µs	4 µs
50 V	200 µs	4 µs

*OFF delay means the photo-couple turn OFF delay time when DI input is removed

*ON delay means the photo-couple turn ON delay time when DI input voltage is connected.

Ordering Information

- **MIC-3756/3** 3U 64-channel isolated digital I/O Module, user's manual and driver CD-ROM. (cable not included)
- **MIC-3756/6** 6U 64-channel isolated digital I/O Module, user's manual and driver CD-ROM. (cable not included)
- **PCL-10178-1** DB-78 cable assembly 1 m
- **ADAM-3978** DB-78 wiring terminal for DIN-rail mounting

MIC-3756

1
IPPC & AWS

2
TPC

3
FPM

4
ATM

5
DA&C

6
cPCI

7
ADAM-3000

8
eConnectivity

9
ICOM

10
Software

11
UNO-2000/3000

12
VBOX

13
ADAM-4000

14
ADAM-5000

15
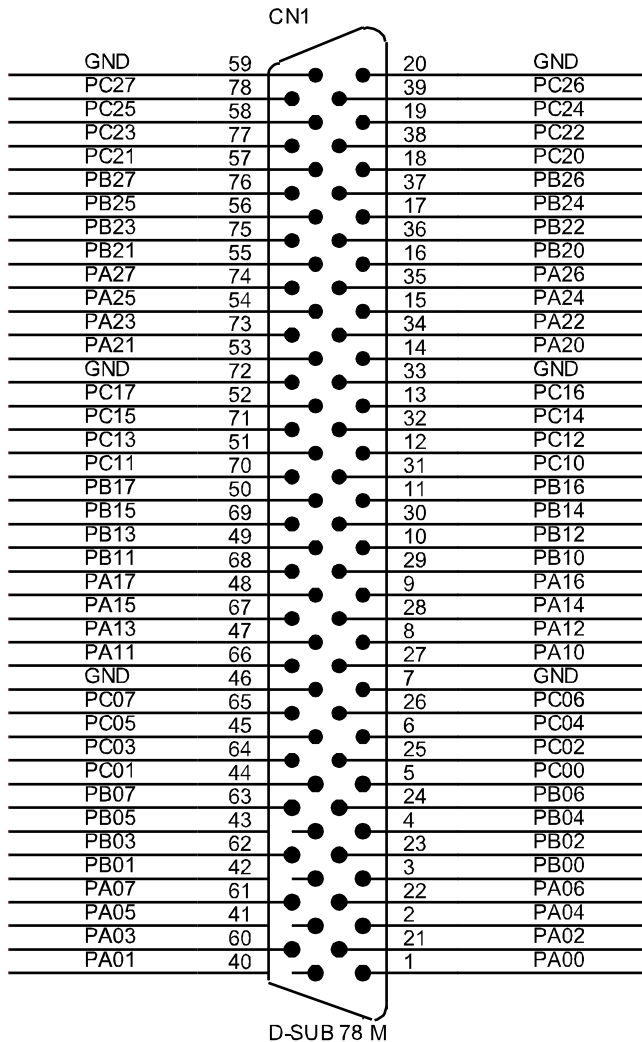ADAM-6000

16
ADAM-8000

Feature Details

Wide Input/Output Range

The MIC-3756 has a wide range of input voltage from 10 to 50 V_{DC}, and it is suitable for most industrial applications with 12 V_{DC}, 24 V_{DC} and 48 V_{DC} input voltage. It also features a wide output voltage range from 5 to 40 V_{DC}, suitable for most industrial applications with 12 V_{DC}/24 V_{DC} output voltage. You can also request tailored solutions for specific input/out voltage ranges.

Board ID

The MIC-3756 has a built-in DIP switch that helps define each card's ID when multiple MIC-3756 cards have been installed on the same PC chassis. The board ID setting function is very useful when users build their system with multiple MIC-3756 cards. With correct Board ID settings, you can easily identify and access each card during hardware configuration and software programming.

Channel-Freeze Function

The MIC-3756 provides a Channel-Freeze function, which can be enabled either in dry contact or wet contact mode (selected by the on-board jumper). When the Channel-Freeze function is enabled, the last status of each digital output channel will be safely kept for emergency use. Moreover, you can enable this function through software since it is useful in software simulations and testing programs.
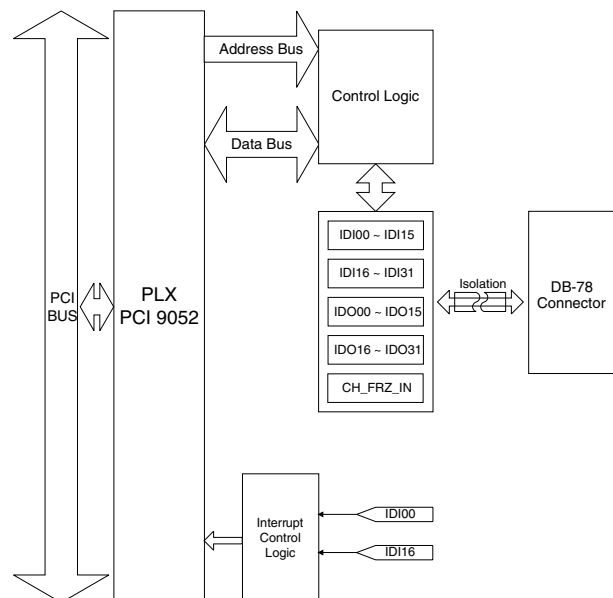
Reset Protection Fulfills Requirement for Industrial Applications

If the system has undergone a hot reset (i.e. without turning off the system power), the MIC-3756 can either retain the output values of each channel or return to its default configuration as open status, depending on its on-board jumper setting. This function protects the system from wrong operations during unexpected system resets.

Pin Assignments

CN1

GND	59		20	GND
PC27	78		39	PC26
PC25	58		19	PC24
PC23	77		38	PC22
PC21	57		18	PC20
PB27	76		37	PB26
PB25	56		17	PB24
PB23	75		36	PB22
PB21	55		16	PB20
PA27	74		35	PA26
PA25	54		15	PA24
PA23	73		34	PA22
PA21	53		14	PA20
GND	72		33	GND
PC17	52		13	PC16
PC15	71		32	PC14
PC13	51		12	PC12
PC11	70		31	PC10
PB17	50		11	PB16
PB15	69		30	PB14
PB13	49		10	PB12
PB11	68		29	PB10
PA17	48		9	PA16
PA15	67		28	PA14
PA13	47		8	PA12
PA11	66		27	PA10
GND	46		7	GND
PC07	65		26	PC06
PC05	45		6	PC04
PC03	64		25	PC02
PC01	44		5	PC00
PB07	63		24	PB06
PB05	43		4	PB04
PB03	62		23	PB02
PB01	42		3	PB00
PA07	61		22	PA06
PA05	41		2	PA04
PA03	60		21	PA02
PA01	40		1	PA00

D-SUB 78 M

Applications

- Industrial ON/OFF control
- Switch status sensing
- BCD interfacing
- Digital I/O control
- Industrial and lab automation
- SMT/PCB machinery
- Semi-conductor machinery
- PC-based Industrial Machinery
- Testing & Measurement
- Laboratory & Education

Block Diagram