

FEATURES

- Dual channel input/ output isolation
- On-board isolation transformer
- Jumper selectable voltage or current inputs and outputs
- 4-20mA output will source a 600Ω impedance
- Direct/ reverse jumper for each output
- Factory calibrated (1 to 1 ratio)

APPLICATIONS

- Precision signal isolation for EMS systems
- VFD signal isolation
- Ground loop isolation
- Isolating two 4-20mA, 0-5V or 10VDC signals from single analog signal

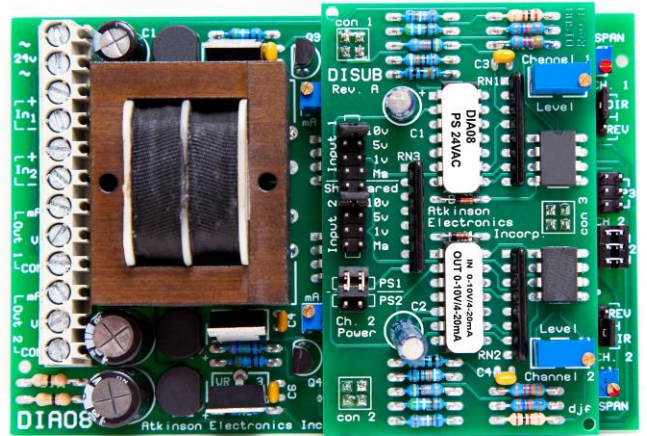
DESCRIPTION & OPERATION

The DIA08 is a two channel precision, optically coupled isolator board. Like the SIA08, it incorporates the capability to isolate two individual voltage or current signals from input to output and convert these signals to voltage or current. These output signals can be field calibrated with adjustment pots.

The DIA08 employs an isolation transformer with three secondaries that power three DC regulated supplies (P1, P2, & P3) which power the DIA08 circuitry. (For more information see applications and Installation instructions. Channel 2 may be configured two ways to fit your specific isolation needs. The first option isolates the two inputs from each other, and the two output signals share a power supply. The second option isolates the output signals from each other and the inputs to share a power supply. Note that when a power supply is shared, there is no isolation.

The input section for each channel maybe configured to accept one of four standard signal types by selecting one of four jumpers. (Standard signals are: 0 -10VDC, 0 - 5VDC, 0 - 1VDC, 4 - 20 mA). The signal is buffered and scaled using an op-Amp, then passes through a linear opto-isolator and on to the output amplifier section.

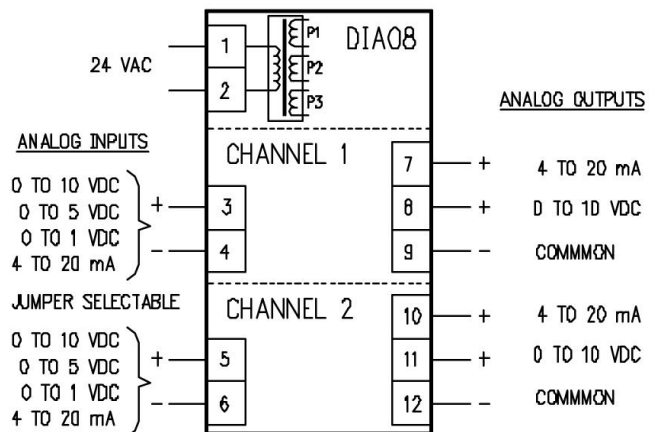
The output amplifier section rescales and inverts the signal for reverse or direct operation. These signals are fed to voltage output terminals, and to the 4 to 20 mA output section. The 4 to 20 mA output signal is generated by a constant current source, thus the DIA08 will provide a reliable 4 to 20 mA into loads from 0 to 600V. Separate zero (level) and span potentiometers are provided for scaling capability.



SPECIFICATIONS

SIZE:	4.5”L x 3”W x 1.5”H
MOUNTING:	3” RDI Snap track (supplied)
POWER:	24VAC ± 10%, 50/60Hz, 3VA
INPUT:	Jumper selectable between: 0 to 1VDC 100KΩIMP 0 to 5VDC 5KΩIMP 0 to 10VDC 10KΩIMP 4-20mA 62ΩIMP Custom input available upon request Optical isolation on all signals with 2.5KV input/ output isolation
OUTPUT CAPACITY:	Jumper selectable between: 4-20mA DC 600Ω±15% Max. 0 to 10VDC or 0 to 5VDC, 1KΩ min.
LINEARITY:	Better than 1% of span
ADJUSTMENTS:	Zero & span ± 60%
AMBIENT TEMP:	0 to 50°C

WIRING CONFIGURATION



ORDERING INFORMATION

PHYSICAL CONFIGURATION

DIA08/SEL/XX/X



ONBOARD SELECTABLE INPUT SIGNALS

0 to 10VDC	Jumper # 1
0 to 5VDC	Jumper # 2
0 to 1VDC	Jumper # 3
4 to 20mA	Jumper # 4

VOLTAGE OUTPUT OPTION CODES

5V	0 to 5VDC & 4 to 20mA
10V	0 to 10VDC & 4 to 20mA
VDC	Custom voltage output (Specify voltage)

POWER SUPPLY ISOLATION SELECTION

The DIA08 uses an isolation transformer with three (3) output secondaries, these secondaries power three isolated regulated power supplies (P1, P2, & P3). These power supplies can be configured (by jumpers), so that the two input sections are isolated with the two outputs sharing a common supply, or just the opposite, the two inputs sharing a common supply and the two outputs being powered from isolated supplies. The inputs sections are always isolated from the outputs sections by linear opto couplers (IC3 & 4) and by the isolated power supplies. See layout below for power supply jumper locations.

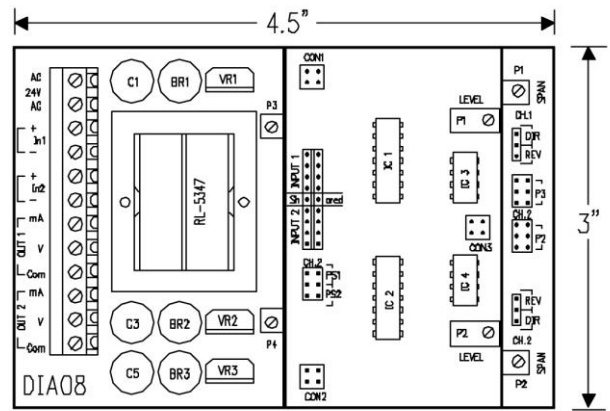
The power supplies for channel 1 are fixed, the input section uses PS1 and the output section uses P3. The power supplies for channel 2 are selectable, the input section choice is between PS1 and PS2, located on the sub board (DISUB). The output section choice is between P2 and P3, located on the main board, see figure 1 for location.

POWER SUPPLY CONFIGURATION OPTIONS

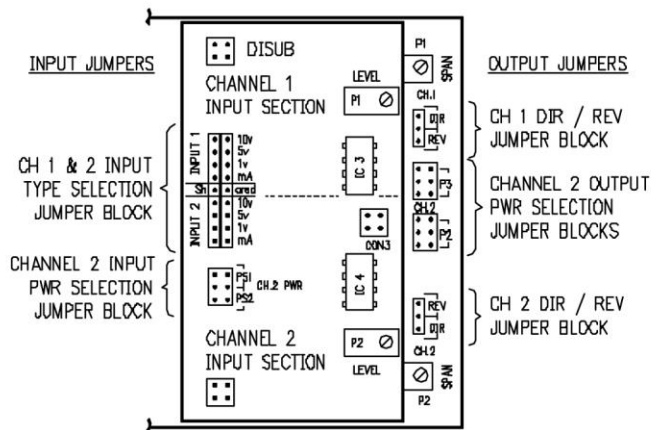
- OPTION 1** Maintain isolation between two input signals and a DDC Controller card.
See Application 1
 Channel 2 input PWR jumper on PS2,
 Channel 2 output PWR jumper on P3.
- OPTION 2** Isolate two output signals from the same DDC Controller card.
See Application 2
 Channel 2 input PWR jumper on PS1,
 Channel 2 output PWR jumper on P2.
- OPTION 3** Isolate two output signals from the same DDC Controller card with a single input.
See Application 3
 Channel 2 input PWR jumper on PS1,
 Channel 2 output PWR jumper on P2.

INPUT SIGNAL SELECTION

The input signal selection for both channels is done on the sub board (DISUB). This jumper block has positions for four types of input signals each channel and a shared position for single input to drive both output sections. See figure 1 for input selection jumper block location.



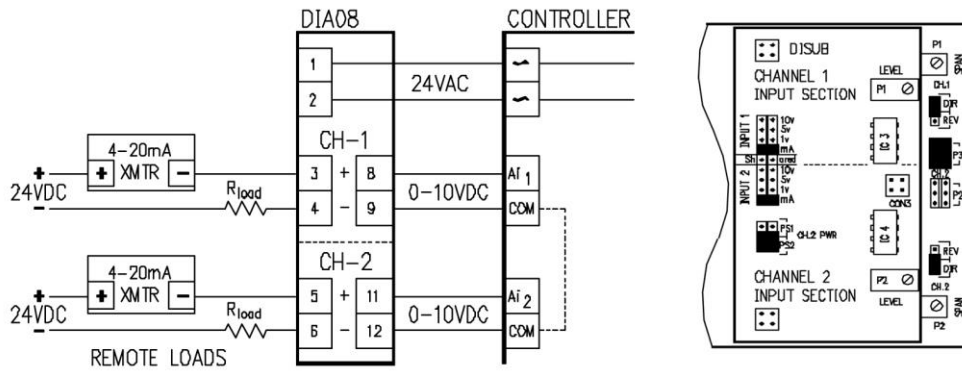
- Inputs isolated, outputs share same common.
- Inputs share same common, output isolated.
- Single input, outputs are isolated.



Channel 2 input PWR jumper on PS1,
 Channel 2 output PWR jumper on P2.

APPLICATION 1

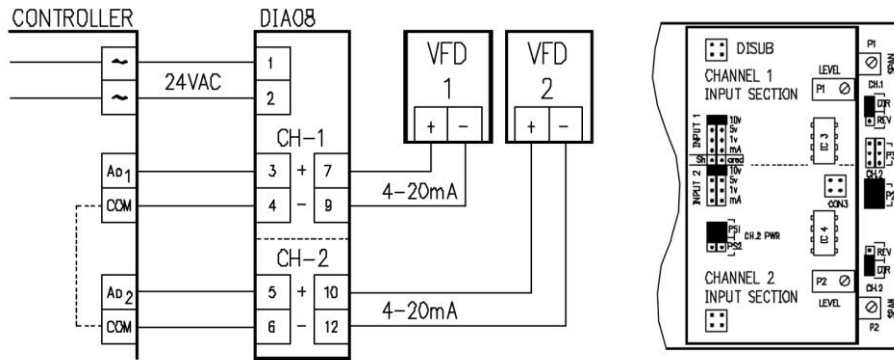
ISOLATION BETWEEN TWO INPUT SIGNALS AND OUTPUTS TO A COMMON CONTROLLER



The DIA08's input jumpers are configured for two 4 to 20mA signals and power supply jumpers are configured to maintain the isolation of two 4 to 20mA loops from each other and from the controller card. The output sections share the same power supply because they are connected to the same controller card.

APPLICATION 2

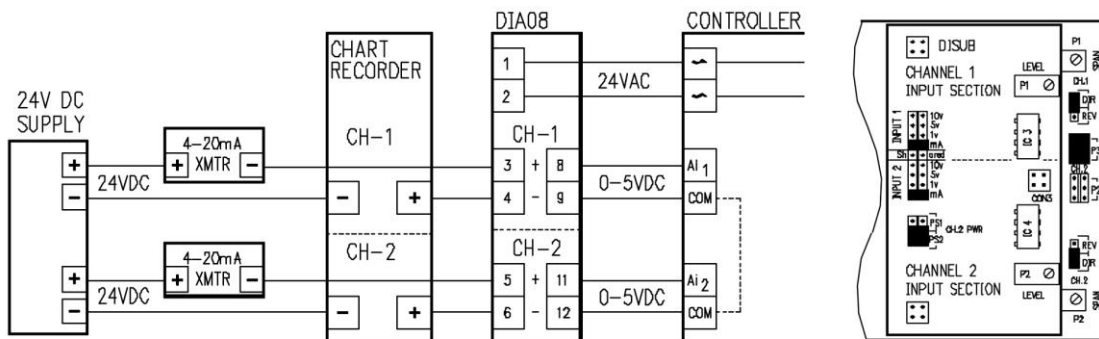
ISOLATION BETWEEN TWO OUTPUT SIGNALS AND INPUTS TO A COMMON CONTROLLER



The DIA08's input jumpers are configured for two 0 to 10VDC signals and the power supply jumpers are configured for two isolated 4 to 20mA output signals to drive two VFDs. The input section shares the same power supply because they are connected to the same controller card.

APPLICATION 3

ISOLATION BETWEEN COMMON INPUTS AND COMMON OUTPUTS



The DIA08's input jumpers are configured for two 4 to 20mA signals. These two 4 to 20mA transmitters are first connected to a 24VDC supply and then in series to the DIA08 and to a chart recorder back to the common of the 24VDC supply. This connection order is selected because a single 24VDC supply is used or the chart recorded could have its input commons connected. The power jumper for channel 2's input section (PS1/PS2 on sub bd.) should be placed in position PS2, while the power jumper for channel 2's output (PS3/PS2 on base bd.) is placed in PS3 position. Both DIA inputs are set for 4 to 20mA inputs signals by selecting the mA position as shown in upper right jumper diagram. The inputs and outputs are connected as shown in upper left diagram.