INTEC
c o n t r o l s

DISM-E

DUAL ISOLATED SIGNAL MODULE

FEATURES

- ❖ **2 channel isolated output**
- ❖ **On-board isolation transformer**
- ❖ **On-board EMI noise filtering**
- ❖ **Jumper selectable voltage/current output**
- ❖ **4 to 20 mA output will source a 650Ω load**
- ❖ **Built-in over-current protection**

APPLICATIONS

- ❖ **0-10V DC to 4-20mA signal splitting**
- ❖ **4-20mA to 0-10V DC signal splitting**
- ❖ **0-10V DC to 4-20mA signal sequencing**
- ❖ **4-20mA to 0-10V DC signal sequencing**
- ❖ **2 channel signal isolator**
- ❖ **Dual channel VFD driver**

DESCRIPTION

The DISM-E (Dual Isolated Signal Module) is a dual channel isolated output signal module that employs an on-board isolation transformer to power each of the two channel outputs independently. Each channel has optically isolated inputs and independent signal amplifier sections which make it possible to split analog signals or sequence these signals for HVAC control applications. The DISM-E accepts two 0 to 10V DC or 4 to 20mA input signals and outputs two isolated 4 to 20mA or 0 to 10V DC output signals which are jumper selectable.

OPERATION

The DISM-E is powered by a on-board 24V AC transformer with three 20V AC isolated secondaries. Separate bridge rectifiers and voltage regulators provide +20V DC to power the input section and both output sections. The input on each section consists of a voltage divider, noise filter, and linear optical isolation junction. The output from the optical isolator is scaled to a 0 to 10V DC signal output. This signals also drives a negative referenced 4 to 20mA signal output. EMI noise filtering has been added to both outputs to minimize the effects of noise radiated by some VFDs on the output electronics. The mA output on the DISM-E is load independent and will source up to 650 ohms with over current protection.

For signal splitting applications (one input, two outputs, tracking the input, *Application #2*), the input signal (0-10V or 4-40ma) is connected to channel 1 input, a parallel jumper is made in the center of the board and then channel 2 output tracks channel 1. (DISM-E/2/SEL)

For signal sequencing applications (one input, two outputs, one sequenced after other, *Application #3*), the input signal (0-10V or 4-20ma) is connected to channel 1 input, the DISM/2/SEQ board is configured so that channel 1 output ramps over the first 50% of the input signal and channel 2 output ramps over the second 50% of the input signal. (DISM-E/2/SEQ)
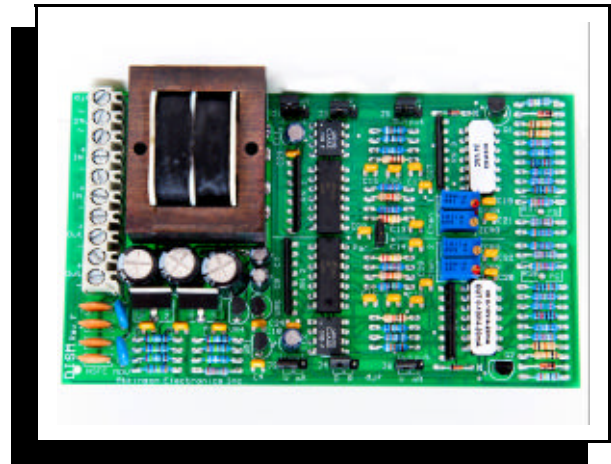
SPECIFICATIONS

SIZE:	3" L x 5" W x 2" H
MOUNTING:	3" RDI snap-track (supplied).
POWER:	24V AC ± 10%, 50/60Hz, 2.5VA
INPUT SIGNALS:	4 - 20 mA, impedance 62Ω 0 - 10V DC, impedance 10KΩ custom 5KΩ potentiometers
OUTPUT SIGNALS:	4 - 20 mA maximum of 650Ω 0 - 10V DC ⩾ 1KΩ
ACTION:	Dir./Rev. with 2Hz Filtering
ADJUSTMENTS:	ZERO & SPAN ± 20%
AMBIENT TEMP:	0 to 50°C

WIRING CONFIGURATION

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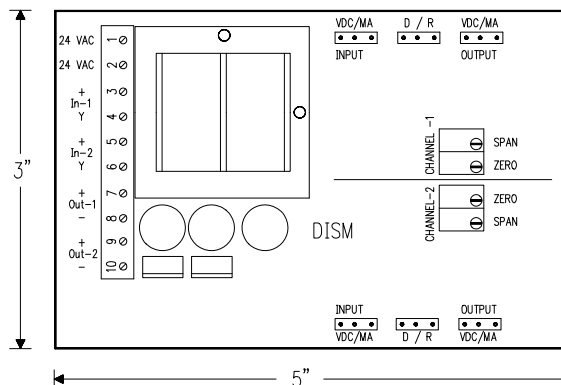C O N T R O L S
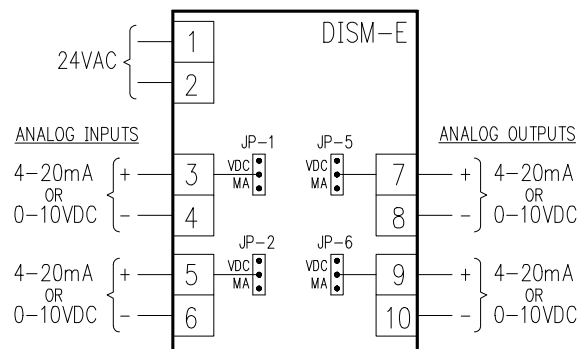
DISM-E
DUAL ISOLATED SIGNAL MODULE

ORDERING INFORMATION

PHYSICAL CONFIGURATION

DISM-E/X/XXX

SEL - Selectable Inputs & Outputs
(0-10V or 4-20mA)
SEQ - Sequenced Outputs
(0-10V or 4-20mA)

Single or Dual output channel(s) (1 or 2)

ORDERING INFORMATION

DISM-E/1/SEL	DISM-E/1 1 ch. 0-10V or 4-20mA to 0-10V or 4-20mA module with both signal & transformer isolation .
DISM-E/2/SEL	DISM-E/2 2 ch. 0-10V or 4-20mA to 0-10V or 4-20mA module with both signal & transformer isolation .
DISM-E/2/SEQ/mA	DISM-E/2 one 4-20mA input to two Sequenced 4-20mA outputs, with both signal & transformer isolation.
DISM-E/2/SEQ/V	DISM-E/2 one 0-10V DC input to two Sequenced 0-10V DC outputs, with both signal & transformer isolation 1st channel 0-5vdc input = 0-10vdc output, 2 channel 5-10vdc input = 0-10vdc.
DISM-E/2/P5k	DISM-E/2 2 ch. 5k potentiometer to 0-10V or 4-20mA module with both signal & transformer isolation .

FIELD SETUP & CALIBRATION

The DISM-E has a ZERO and SPAN potentiometers for each channel. These potentiometers are factory set during the input/output calibration procedure. These potentiometers can be used for field calibration of each channel of the DISM-E, to do so please perform the following steps.

1. Connect 24V AC to terminals 1 and 2.

2. Connect your 0 to 10V DC or 4 to 20mA signal to the desired input (or both).

3. Connect a volt meter across the input or current meter in series with one leg of the input to measure the voltage or current signal, and connect an other volt/current meter to the output terminals to measure the output signal.

4. Apply power to the DISM-E and voltage/current signal simulator or Smart 2 plus Controller.

5. Adjust the input for the minimum signal and adjust the ZERO pot. for 75% of the desired output minimum signal.

6. Then, adjust the input for maximum signal and adjust the SPAN pot. for 75% of the desired output maximum signal.

7. Repeat steps 5 & 6 until desired output is achieved.

NOTE: If you adjust the ZERO or SPAN pots for 100% of desired output signal in one step you will over shoot the desired output, and will have to re-adjust both the ZERO and SPAN pots. Always adjust 50 to 75% of the difference from where you are and where you want to be. If you are only correcting the output level, then adjust the ZERO pot to achieve the desired output.

The ZERO and SPAN potentiometers are slightly interactive. It may be necessary to repeat the above instructions A couple of times to achieve the desired output.
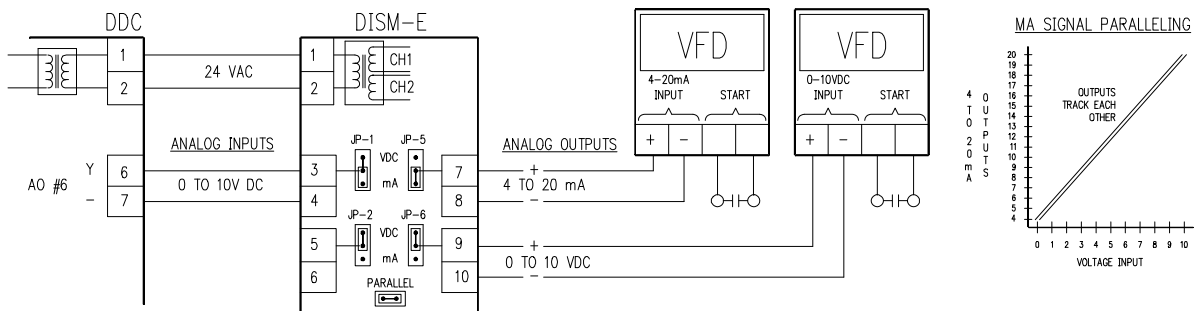
DISM-E
APPLICATIONS AND INSTALLATION INSTRUCTIONS

### APPLICATION 1 - DUAL CURRENT / VOLTAGE INPUT TO CURRENT / VOLTAGE OUTPUT
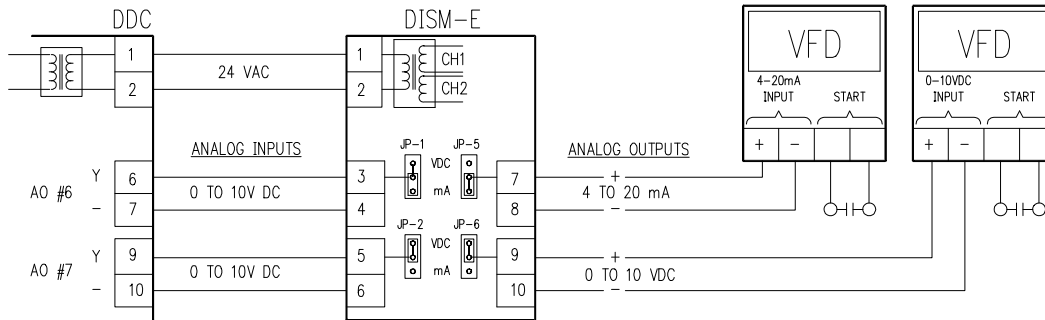
The DISM-E/2/SEL can convert two 0 to 10V DC or 4 to 20mA signals to two 4 to 20mA or 0 to 10V DC output signals. The output signals are isolated from each other and from the two input signals. These isolated signals can be used to drive Variable Frequency Drives, valve or damper actuators. The on-board isolation transformer provides three independent power supplies to power the input section and both output sections avoiding any ground loop potentials.

APPLICATION 2 - VOLTAGE INPUT - PARALLEL OUTPUT OPERATION

The DISM-E/2/SEL can be field configured by jumpering the parallel jumper for parallel output operation (standard), For parallel operation, connect control signal to ch 1 (IN1+/-), select input type Jp1, select parallel jumper, select output action (Jp3,4 D/R) for each output, and output signal type (V DC or mA) for each output. The on-board isolation transformer provides isolation between the two VFDs and the voltage or current output of the DDC controller.

APPLICATION 3 - VOLTAGE INPUT - SEQUENCING OUTPUT OPERATION
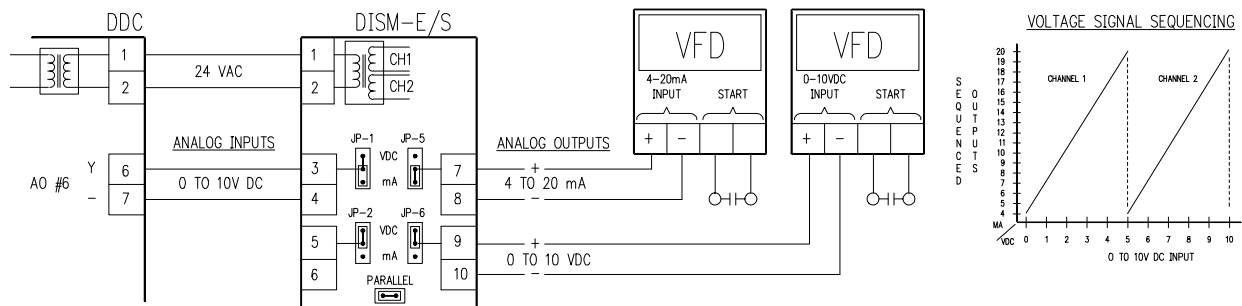
The DISM-E/2/SEQ is factory configured for sequencing operation. For sequencing operation, connect control signal to ch 1 (IN1+/-), select input type Jp1, verify parallel jumper in made, select output action (Jp3,4 D/R) for each output, and output signal type (V DC or mA) for each output. The on-board isolation transformer provides isolation between the two VFDs and the voltage or current output of the DDC controller.

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APPLICATIONS AND INSTALLATION INSTRUCTIONS

APPLICATION 4 - DUAL POTENTIOMETER INPUT TO CURRENT / VOLTAGE OUTPUT
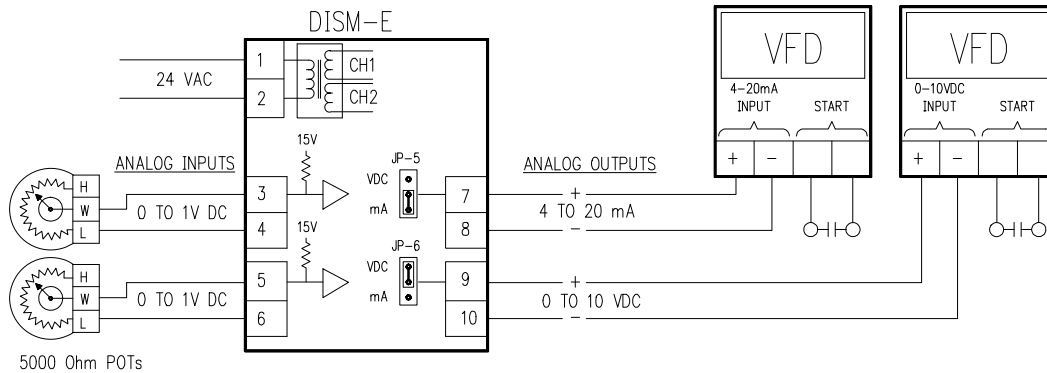
The DISM-E/P2 i s factory configured for two 5000 ohm potentiometer inputs to provide a 0 to 100% control of two 4 to 20mA or 0 to 10V DC output signals. The output signals are isolated from each other and from the two input signals. These isolated signals can be used to drive Variable Frequency Drives, valve or damper actuators. The on-board isolation transformer provides three independent power supplies to power the input section and both output sections avoiding any ground loop potentials.

Call for other calibration ranges and versions.