FEATURES

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

APPLICATIONS

- **Phase cut to 4-20mA signal splitting**
- **Phase cut to 0-10VDC signal splitting**
- **Phase cut to 4-20mA signal sequencing**
- **2 channel signal isolator**
- **Dual channel VFD driver**

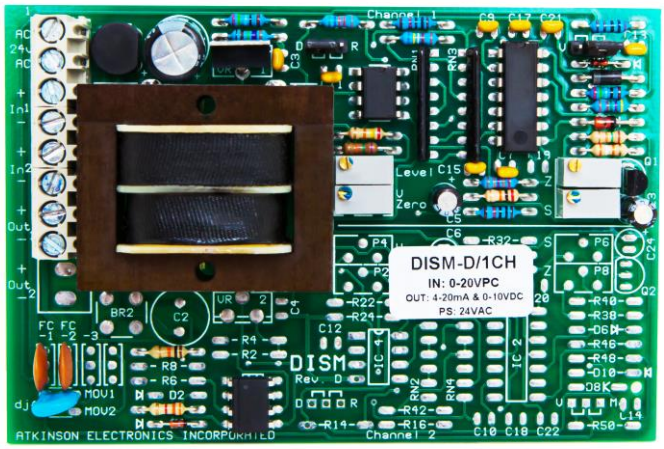
DESCRIPTION & OPERATION

The DISM-D is a dual channel isolated output signal converter 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-D accepts 0-20V (10-90%) phase-chopped DC signals. These input signals are converted to a 4-20mA or 0-10VDC output which is jumper selectable.

The DISM-D is powered by a 24VAC primary dual 20VAC isolated secondary on-board transformer. Separate bridge rectifiers and voltage regulators provide + 20VDC to power the signal amplifiers and outputs independently. The input on each section consists of an active optical isolation junction and filter circuit which converts the 0-20 phase cut to a DC voltage which is scaled to a 0-10VDC output signal. This signals also drives a negative referenced 4-20mA 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.

For signal splitting applications, the input signal 0-20V phase cut is connected to both inputs in parallel and then the output sections are scaled so that two independent output signals can be generated in sequence.

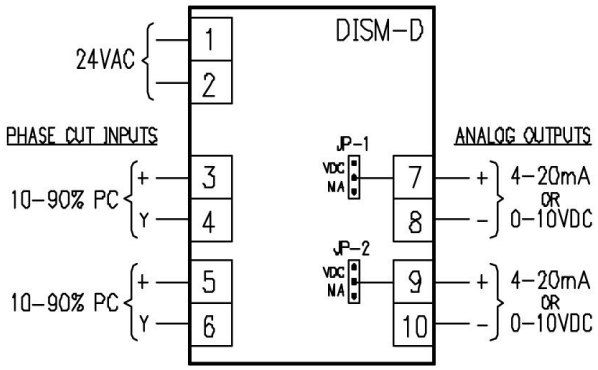
The mA output on the DISM-D is load independent and will source up to 650 Ohms with over current protection provided on each channel.



SPECIFICATIONS

Size:	3"W x 5"L x 2"H
Mounting:	3" RDI SnapTrack (supplied)
Power:	24VAC ± 10% 50/60Hz 2.5VAC
Input Signal:	10-90% Phase cut
Output Signal:	4-20mA maximum of 650Ω 0-10VDC ≥ 1KΩ
Action:	Dir. /Rev. with 2 Hz Filtering
Adjustment:	Zero and span = 20%
Ambient Temperature:	0-50°C

WIRING CONFIGURATION



ORDERING INFORMATION

DISM-D/PC/X/SEL

- SEL — Selectable (0-10V or 4-20mA)
- X — Single or Dual channel (1 or 2)
- PC — Phase Cut Input only

ORDERING INFORMATION

DISM-D/PC/1/SEL	1 channel phase cut to 4-20mA or 0-10VDC module with both signal & transformer isolation.
DISM-D/PC/2/SEL	2 channel phase cut to 4-20mA or 0-10VDC module with both signal & transformer isolation.
DISM-D/PC/2/SEQ	Single phase cut to two sequenced 4-20mA or 0-10VDC outputs, both signal & transformer isolation.

FIELD SETUP & CALIBRATION

The DISM-D has level, V zero, mA zero and V span potentiometers for each channel. These potentiometers are factory set during the input/output calibration procedure. The V zero, mA zero and V span potentiometers can be used for field calibration of each channel of the DISM, to do so please perform the following steps.

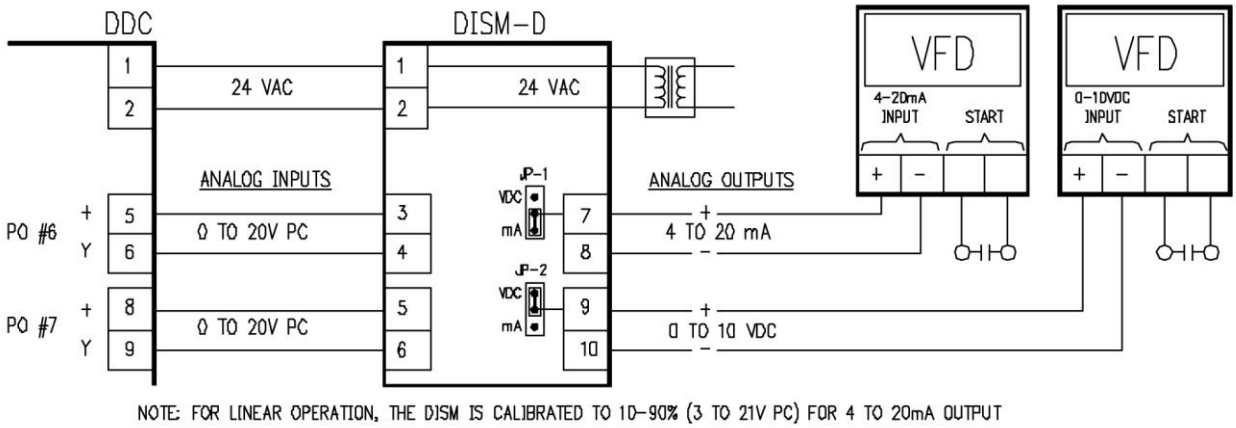
1. Connect 24VAC to terminals 1 and 2.
2. Connect your phase cut signal to the desired input (or both).
3. Connect a volt meter across the input to measure the phase cut signal, and connect another volt/current meter to the output terminals to measure the output signal.
4. Apply power to the DISM and phase cut signal simulator or Smart Controller.
5. Adjust the input for the minimum signal and adjust the zero potentiometers for 75% of the desired output minimum signal.
6. Then, adjust the input for maximum signal and adjust the SPAN potentiometers 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 potentiometers 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 potentiometers. Always adjust 50-75% 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 potentiometers to achieve the desired output.

If you have adjusted the level potentiometers by mistake, connect a volt meter to the direct pin of the direct/reverse jumper and set input to 100% and adjust level potentiometers to 5.0VDC. Then perform adjustments on the zero or span potentiometers.

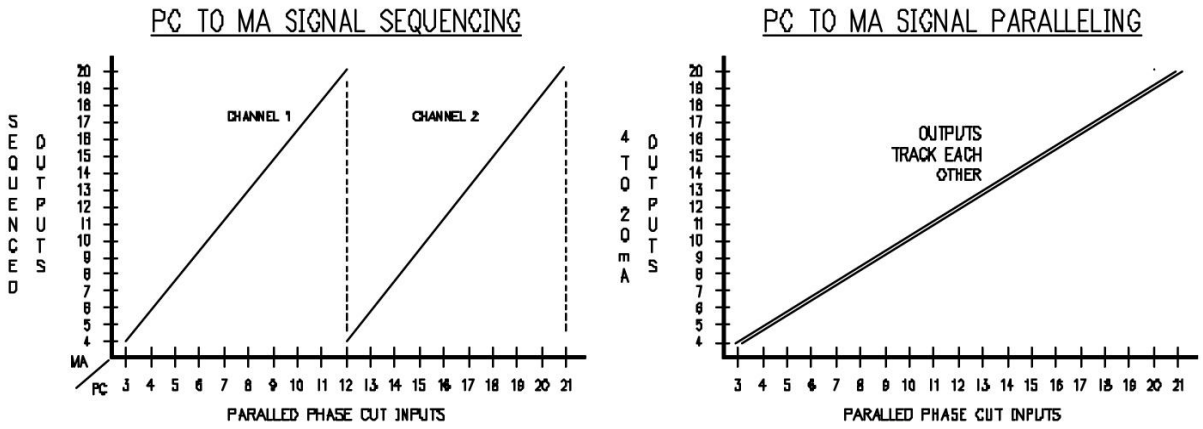
The zero and span potentiometers are slightly interactive. It may be necessary to repeat the above instructions several times to achieve the desired output.

APPLICATION 1
DUAL PHASE CUT INPUT & CURRENT/ VOLTAGE OUTPUT



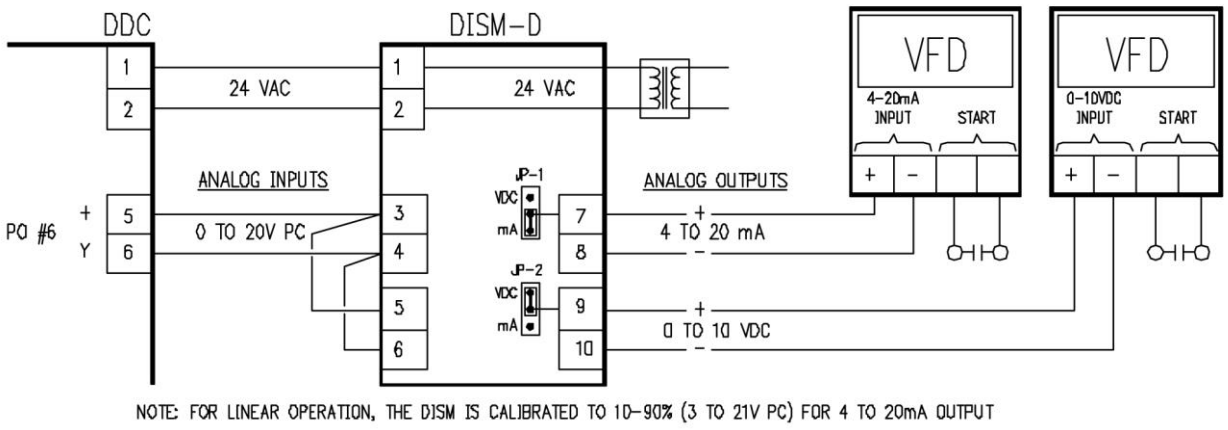
The DISM can convert two phase cut signals to two 0-10VDC or 4-20mA output signals that are isolated from each other and from the two input signals. These isolated signals can be used to drive Variable Frequency Drives (VFD), such as supply and return air fans. The on-board isolation transformer and isolated phase cut input converter circuits allow the variable frequency drives to be operating at separate ground potentials. This prevents ground loops from affecting the VFDs and the analog output of the DDC controller.

PARALLEL AND SEQUENCING OPERATION GRAPHS



APPLICATION 2

PHASE CUT INPUT & PARALLEL/ SEQUENCING



The DISM-D can be configured for either parallel output operation (standard), or sequencing output operation (factory configuration). By paralleling the input signal into both inputs, a single phase cut signal can drive two isolated Variable Frequency Drives (VFD). The on-board isolation transformer provides isolation between the two VFDs and the phase-cut output of the DDC controller.