

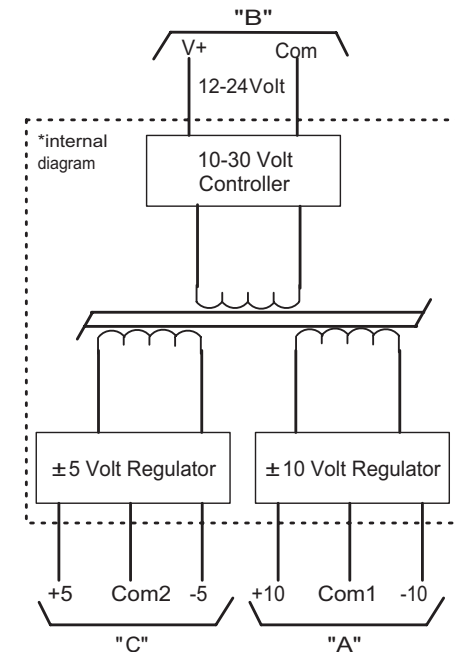
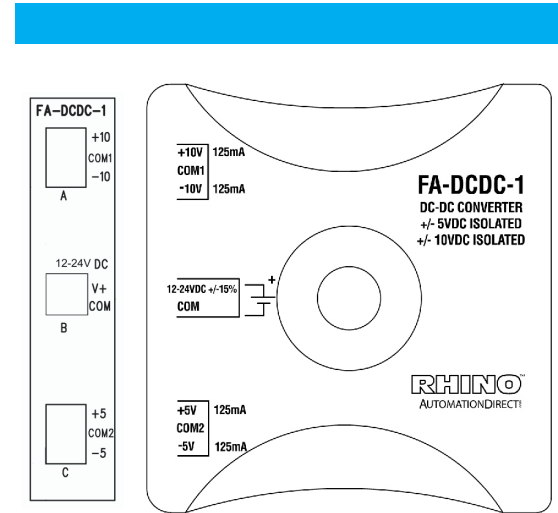
RHINO FA-DCDC-1 User Guide



This isolated DC to DC power supply is used for eliminating ground loops or addressing isolation issues when interfacing to PLC analog I/O modules. The design features handle many types of configuration problems.

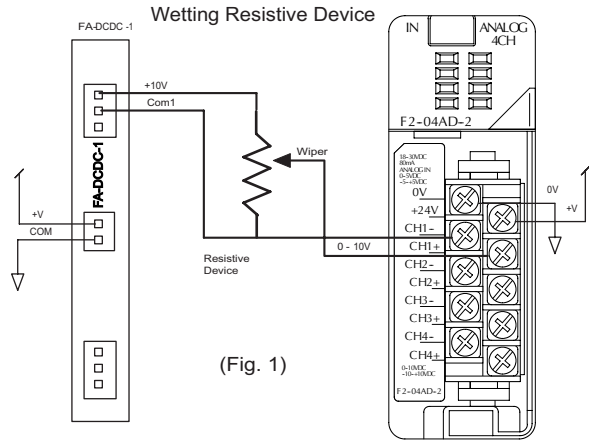
The FA-DCDC-1 is a DIN-rail mount, $\pm 10\text{VDC}$, $\pm 5\text{VDC}$ isolated power supply, with each output rated at 125mA. The $\pm 10\text{V}$ and $\pm 5\text{V}$ outputs are fixed at 1.0% regulation. The input voltage range is 12-24V DC $\pm 15\%$ at approximately 6.7 Watts.

FA-DCDC-1 General Specifications ¹	
Input Voltage Range	12V to 24VDC $\pm 15\%$
Input Power²	6.7 Watts, Vin 27.6V, 125mA load each channel
Output Voltage³ (25°C)	+5V $\pm 1\%$, 125mA load -5V $\pm 1\%$, 125mA load +10V $\pm 1\%$ Typical $\pm 2\%$ Maximum*, -10V $\pm 1\%$ $\pm 2\%$ Maximum*
Output Current	125mA (per output voltage)
Output Ripple	$\pm 5\text{V}$ channels: <10mV peak to peak, Vin 10.2V 125mA load on both channels; $\pm 10\text{V}$ channels: <25mV peak to peak, Vin 10.2V, 125mA load on both channels
Line Regulation⁴	$\pm 5\text{V}$ channels: <10mV, Vin 10.2V to 27.6V, 125mA load on both channels $\pm 10\text{V}$ channels: <20mV, Vin 10.2V to 27.6V, 125mA load on both channels
Load Regulation⁵	$\pm 5\text{V}$ channels: <20mV, Vin 10.2V, 0 -125mA load variation, $\pm 10\text{V}$ channels: <40mV, Vin 10.2V, 0 -125mA load variation
Isolation	Input to Output: 1500V; $\pm 5\text{V}$ to $\pm 10\text{V}$: 1500V
Inrush Current (50ms)	970mA, Vin 10.2V, 125mA load all channels
Holdup Time	30mS min., Vin 10V, 125mA load all channels
Overshoot Protection	No overshoot - Turn on and turn off of Vin
Input Protection	Reverse DC input voltage: Up to -50V reverse. \pm Vin reverse polarity connection.
Overload Protection	Auto shutdown. Cycle Vin after short circuit.
Output Protection	Indefinite duration. $\pm 5\text{V}$ tied to $\pm 10\text{V}$
Peak Line Transient Voltage	100V for 10mS. Voltage spike on input.
Temperature	Operating: 0 to 60°C (32 to 140°F) full rated Storage: -20 to 70°C (-4 to 158°F)
Enclosure	Clear Lexan 221-111 w/UN5016 transparent blue color
Mounting	35mm wide DIN rail: DN-R35S1 or DN-35HS1, or surface mount
Connection	3.5mm screw terminal, 28-16 AWG, 1.7 Lb-in torque
Relative Humidity	5 to 90% (non-condensing)
Environmental Air	No corrosive gases permitted
Vibration	MIL STD 810C 514.2
Shock	MIL STD 810C 516.2
Noise Immunity	NEMA ICS3-304
Agency Approvals	UL/cUL listed File E200031; UL508/CSA-C22.2 No.142-M1987 for ordinary locations; Class I, Div. 2, Grps. A, B, C, D hazardous locations
<p>Notes: 1. All specifications are over the full operating temperature range (0°C to 60°C) unless stated otherwise. 2. "Channel" means Output Voltage. For example: +5V is one channel and -10V is another. 3. All output voltage channels are independent of each other. Changing loading on one will have no effect on the other voltage outputs. 4. LINE Regulation: varying the Input Voltage over entire range (12V to 24V $\pm 15\%$) and the resultant change in the Output Voltage(s) under worst case load conditions (all output channels drawing 125mA). 5. LOAD Regulation: varying the output loads from no-load to a worst case 125mA load and measuring the resultant change in the Output Voltage(s) under a worst case minimum Input Voltage (10.2V) condition. *Rev C2 and Higher</p>	

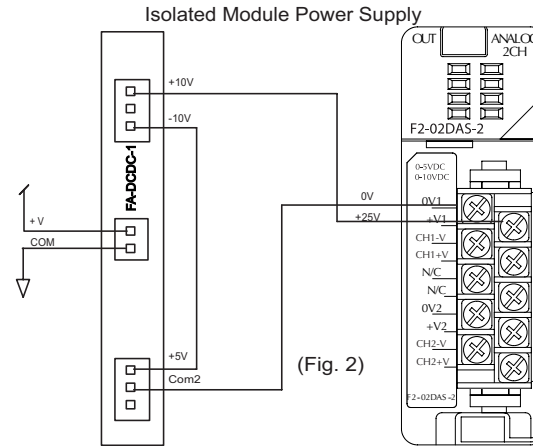


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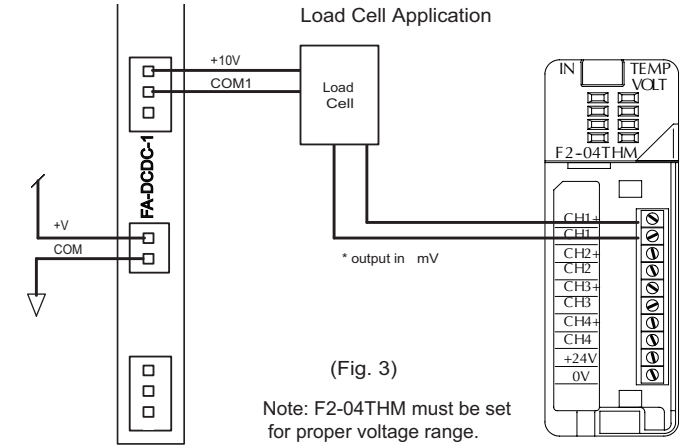
Applications



(Fig. 1)



(Fig. 2)



(Fig. 3)

Note: F2-04THM must be set for proper voltage range.

When using a linear potentiometer, the +10V connects to the high side of the potentiometer and the COM1 becomes the zero volt reference. The wiper connects to the analog input. The result is 0 to 10V at the analog module input. (Fig. 1)

Use in a solar/battery application where unregulated 12VDC is available and the analog module requires 24VDC for operation, connect the +10V to +24V module power, connect the -10V to the +5V and the COM2 to the 0V module power. (Fig. 2)

Use to power a load cell application. (Fig. 3)

THIS EQUIPMENT IS SUITABLE FOR USE IN CLASS I, DIVISION 2/ ZONE 2, GROUPS A, B, C AND D, OR NON-HAZARDOUS LOCATIONS ONLY.

Cet équipement est conçu pour être utilisé dans des environnements de Classe I, Division 2, Groupes A, B, C, D ou non dangereux.



WARNING - EXPLOSION HAZARD - SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2/ZONE 2.

AVERTISSEMENT : Risque d'explosion: la substitution de composants peut compromettre la convenance pour la Classe I, Division 2/Zone 2.



WARNING - EXPLOSION HAZARD - DO NOT CONNECT OR DISCONNECT CONNECTORS OR OPERATE SWITCHES WHILE CIRCUIT IS LIVE UNLESS THE AREA IS KNOWN TO BE NON HAZARDOUS.

AVERTISSEMENT: Risque d'explosion: Ne pas déconnecter l'équipement à moins que l'alimentation ne soit coupée ou que la zone ne soit reconnue non dangereuse.

Dimensions

