

# Analog Voltage Output Modules

F2-02DA-2L 2-Channel Voltage Analog Output <---->	
This module requires a 12 VDC user power supply for operation. See the F2-02DA-2 on the previous page if you want to use a 24 VDC supply. All other specifications are the same.	
<b>Number of Channels</b>	2
<b>Output Ranges</b>	0 to 5V, 0 to 10 V, $\pm 5V$ , $\pm 10 V$
<b>Resolution</b>	12 bit (1 in 4096)
<b>Output Type</b>	Single ended, 1 common
<b>Digital Output Points Required</b>	16 (Y) output points (12 binary data bits, 2 channel ID bits)
<b>Peak Output Voltage</b>	15 VDC (clamped by transient voltage suppressor)
<b>Load Impedance</b>	2000 $\Omega$ minimum
<b>Load Capacitance</b>	.01 $\mu F$ maximum
<b>PLC Update Rate</b>	1 channel per scan maximum (D2-230 CPU) 2 channels per scan maximum (D2-240, D2-250(-1) and D2-260 CPUs)
<b>Linearity Error (end to end)</b>	$\pm 1$ count (0.025% of full scale) maximum
<b>Conversion Settling Time</b>	5 $\mu s$ maximum (full scale change)
<b>Full Scale Calibration Error (offset error included)</b>	$\pm 12$ counts max. unipolar @ 77°F (25°C) $\pm 16$ counts max. bipolar @ 77°F (25°C)
<b>Offset Calibration Error</b>	$\pm 3$ counts max., unipolar @ 77°F (25°C) $\pm 8$ counts max., bipolar @ 77°F (25°C)

<b>Accuracy vs. Temperature</b>	$\pm 50$ ppm/°C full scale calibration change (including maximum offset change of 2 counts)
<b>Maximum Inaccuracy</b>	$\pm 0.3\%$ unipolar ranges @ 77°F (25°C) $\pm 0.45\%$ unipolar ranges >77°F (25°C) $\pm 0.4\%$ bipolar ranges @ 77°F (25°C) $\pm 0.55\%$ bipolar ranges >77°F (25°C)
<b>Base Power Required 5VDC</b>	40 mA
<b>External Power Supply</b>	10 to 15 VDC, 70 mA (outputs fully loaded)
<b>Operating Temperature</b>	32° to 140°F (0° to 60°C)
<b>Storage Temperature</b>	-4° to 158°F (-20° to 70°C)
<b>Relative Humidity</b>	5 to 95% (non-condensing)
<b>Environmental Air</b>	No corrosive gases permitted
<b>Vibration</b>	MIL STD 810C 514.2
<b>Shock</b>	MIL STD 810C 516.2
<b>Noise Immunity</b>	NEMA ICS3-304
<b>Terminal Type (included)</b>	Removable; D2-810CON

One count in the specification table is equal to one least significant bit of the analog data value (1 in 4096).

NOTE 1: Shields should be connected to the 0V of the module or the 0V of the P/S.

NOTE 2: Unused voltage outputs should remain open (no connections) for minimum power consumption.

