C2-08D2-4VC Option Slot Module PLUS C2-08D2-4VC Option Slot Module Installation Instructions



C2-08D2-4VC OPTION SLOT MODULE

- 4 discrete DC sinking/sourcing inputs
- 4 discrete DC sourcing outputs
- 2 analog voltage/current inputs
- 2 analog voltage/current outputs

General Specifications		
Operating Temperature	32°F to 131°F [0°C to 55°C]	
Storage Temperature	-4°F to 158°F [-20°C to 70°C]	
Ambient Humidity	30% to 95% relative humidity (non–condensing)	
Altitude	Up to 2,000m	
Environmental Air	No corrosive gases Pollution Degree 2 (UL840)	
Environment	For Indoor Use Only	
Vibration	5–9Hz: 3.5 mm amplitude; 9–150Hz: 1.0 G 10 sweep cycles per axis on each of 3 mutually perpendicular axes.	
Shock	15G peak, 11ms duration, 3 shocks in each direction per axis, on 3 mutually perpendicular axes.	
Weight	48g	
Bus Power Required	Max 80mA (all points ON)	
Agency Approvals	UL61010 (File No. E157382); CE (EN61131-2); CUL Canadian C22.2	
Other	RoHS 2011/65/EU Amendment (EU)2015/863	

Please read and understand the information in these installation instructions prior to installation, operation, or servicing this equipment. This module is intended to be used with a CLICK PLUS CPU. Ensure the CPU is installed in accordance with its installation and safety instructions.

PLEASE REVIEW SAFETY WARNINGS ON PAGE 2!

DISCRETE I/O SPECIFICATIONS

Discrete Input Specifications		
Inputs per Module	4 (Source/Sink)	
Nominal Voltage	24.0 VDC	
Input Voltage Range	21.6–26.4 VDC	
Input Current	6.5 mA @ 24VDC, typical	
Max. Input Current	7mA @ 26.4 VDC	
Input Impedance	3.9 kΩ @ 24VDC	
ON Voltage Level	> 19.0 VDC	
OFF Voltage Level	< 2.0 VDC	
Minimum ON Current	4.5 mA	
Maximum OFF Current	0.5 mA	
OFF to ON Response	3µs typical, 5µs maximum	
ON to OFF Response	1µs typical, 5µs maximum	
Input Filter	1ms unit (set from 1 to 99 ms)*	
Status Indicators	4 Green LEDs	
Commons	1 (4 points/common)	

* Set from CLICK Tool.

Discrete Output Specifications		
Outputs per Module	4 (Source)	
Nominal Voltage	24 VDC	
Output Voltage Range	19.2–30 VDC	
Max. Output Current	0.1 A/point, 0.4 A/common (C2)	
Min. Output Current	0.2 mA	
Max. Leakage Current	0.1 mA @ 30VDC	
ON Voltage Drop	0.5 VDC @ 0.1 A	
Max. Inrush Current	150mA for 10ms	
OFF to ON Response	< 5µs (Duty 40–60%, Load current 20mA)	
ON to OFF Response	< 5µs (Duty 40–60%, Load current 20mA)	
Status Indicators	4 Red LEDs	
Commons	1 (4 points/common)	
External DC Power Required	20–28 VDC, Max 60mA (all points on)	

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Technical Specs, continued

ANALOG I/O

Analog Input Specifications			
Number of Channels	2 (voltage/current selectable)		
	Voltage Input	Current Input	
Input Range	0–5VDC	4–20mA	
Resolution	12 bit		
Conversion Time	50ms		
Input Impedance	20kΩ 125Ω		
Input Stability	±2 LSB, maximum		
Full-scale Calibration Error	±2%, maximum		
Offset Calibration Error	±25mV, maximum	±0.1 mA, maximum	
Accuracy vs Temperature Error	±100ppm/°C, maximum		
Largest Instant Deviation During Noise Test	±20% of full scale		

Analog Output Specifications			
Number of Channels	2 (voltage/current selectable)		
	Voltage Output	Current Output	
Output Range	0–5VDC	4–20mA	
Resolution	12 bit		
Conversion Time	1ms		
Loop Supply Voltage	NA	18–30VDC	
Load Impedance	2kΩ minimum (output current 2.5 mA maximum)	250Ω typical Loop power supply 18VDC: 200–600Ω 24VDC: 200–900Ω 30VDC: 200–1200Ω	
Full-scale Calibration Error	±2%, maximum		
Offset Calibration Error	±25mV, maximum	±0.1 mA, maximum	
Accuracy vs Temperature Error	±100ppm/°C, maximum		
Largest Instant Deviation During Noise Test	±20% of full scale		

Safety Warnings

Please follow these instructions for personal and operational safety.



WARNING Assumes that incorrect handling may cause hazardous conditions, resulting in severe injury or death.

CAUTION Assumes that incorrect handling may cause hazardous conditions, resulting in medium or slight injury, or may cause equipment damage.

- Don't use this equipment in a flammable or explosive environment in order to avoid accidental injury or fire.
- You should use external electromechanical devices that are independent of the PLC (Programmable Logic Controller) system to provide protection for any part of the system; otherwise malfunction or output failures may result in a hazardous accident.
- 24VDC power is required from a secondary circuit or a specific power supply unit only.
- Ensure the Ground Terminal of the Power Supply (C0-00AC/ C0-01AC) for the CLICK PLUS CPU is connected to Earth Ground to avoid electric shock or equipment damage during a short circuit.
- Don't operate the equipment with a nonconforming external power supply to avoid electric shock, equipment damage or fire.
- Don't intentionally fault the wiring; this may cause equipment damage or fire.
- To avoid electric shock or malfunctions which might result in an accident, don't touch any terminal while the PLC power is on.
- Don't put metals (e.g. screwdriver) into vent holes, or drop trash or foreign objects (e.g. wire cut-offs) into the device, in order to avoid electric shock or equipment damage.
- If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be invalidated.



- For use in Pollution Degree 2 Environment. Use and store the equipment in an environment described in the specifications (regarding temperature, humidity, vibrations, shock, etc.) in order to avoid equipment damage or fire.
- Ensure all wiring has strain reliefs in order to avoid damage to insulation that might result in electric shock or fire.
- Ensure secondary external power circuits are only live after PLC control program is started; otherwise a malfunction or output failure may result in a hazardous accident.
- Don't block the vent holes. This may cause an increase of internal temperature resulting in equipment damage or fire.
- Don't disassemble or modify equipment so as to avoid electric shock, equipment damage, or fire.
- Cut off all phases of the external power source before maintenance work, thus avoiding electric shock or equipment damage.

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Hardware Installation



CAUTION Discharge static electricity before installation or wiring to avoid electric equipment damage.

CAUTION Cut off all phases of the power source externally and wait 5 seconds before installing or removing the Option Slot Module of a running system.

INSTALL OR REMOVE THE OPTION SLOT MODULE



1 Remove the Option Slot Cover (#C2-FILL) if it was installed in the CPU, by grasping its top and bottom front corners, squeezing and pulling it forward.





WIRING

16–28 AWG wiring is supported. We recommend using crimping ferrules on all wire terminations for a more secure connection. The following crimping ferrules are recommended for the I/O terminals.

Company	Туре	Model No.	Compliant Wire
AutomationDirect	Ferrule	V30AE000009 V30AE000041	0.2–0.5 mm ² (22–26AWG)

* Rated torque is 0.22 to 0.25 N·m.

Take care not to contact adjacent terminal.

Terminal Block Specifications		
Connector Type	Pluggable Terminal Block	
Number of Pins	20	
Pitch	3.50 mm	
Wire Size Range	16–28 AWG	
Stripping Length	7.0 mm	
Wire Specification	Lead-free, heat resistant, polyvinyl chloride insulated copper wire, rated over 80°C	
Screw Thread	M2.0	
Tightening Torque	2.0–2.2 inch-lb [0.22–0.25 N⋅m]	

WIRING DIAGRAM



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Hardware Installation, continued

EQUIVALENT CIRCUITS



Equivalent Discrete Output Circuit



Analog Voltage Input Circuit



Analog Current Input Circuit



Hardware Installation, continued

EQUIVALENT CIRCUITS, CONTINUED

Analog Voltage Output Circuit



Analog Current Output Circuit



DERATING CHARTS



Symbols listed on the equipment are shown below.

Name	Description	Symbol	
DC	DC power supply		IEC60417 No. 5031
CAUTION	 Refer to QR code link for product handling Use Copper Conductor Only 	\triangle	ISO 7000 No.0434B

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Discrete Output Temperature Derating Chart





For additional technical support or questions, call our Technical Support team at 1-800-633-0405 or 770-844-4200.