

C4X Advanced Multi-Loop PID Controller Quick Start Manual 0037-75579 (PK553)

This manual is intended to be a quick reference guide for basic installation requirements and an overview of the connections, wiring considerations, and general specifications for the C4X 4-Channel PID Controller. For complete installation and operation, refer to the PK554 C4X Hardware Instruction Manual. For complete configuration and programming refer to the PK548 C4/C4X Configuration and Programming Manual. The most current revisions may be found on the Chromalox website: www.chromalox.com

1. IMPORTANT SAFEGUARDS

⚠ WARNING

ELECTRIC SHOCK HAZARD: Read and understand all instructions before installing, servicing or operating this controller. Failure to do so could result in equipment or property damage as well as personal injury and even death.

⚠ WARNING

HIGH VOLTAGE is used in the operation of this equipment. DEATH ON CONTACT may result if personnel fail to observe safety precautions. Learn the areas containing high-voltage connections when installing or operating this equipment.

⚠ WARNING

Be careful not to contact high-voltage connections when installing or operating this equipment. Before working inside the equipment, turn power off and ground all points of high voltage potential before touching.

⚠ WARNING

ELECTRIC SHOCK HAZARD. Any installation involving control equipment must be performed by a qualified person and must be effectively grounded in accordance with the National Electrical Code to eliminate shock hazard.

⚠ CAUTION

The Owner/Installer must provide all necessary safety and protection devices and follow all current electrical wiring standards and regulations. Failure to do so may compromise the integrity of the controller and/or cause product failure resulting in a safety risk to operational service and personnel.

⚠ CAUTION

This controller utilizes a heat sink which is designed to cool the unit during operation. Under no circumstance should air flow around the controller be compromised in any way. Failure to do so may result in the overheating of the controller, product failure, product temperatures and even fire.

⚠ WARNING

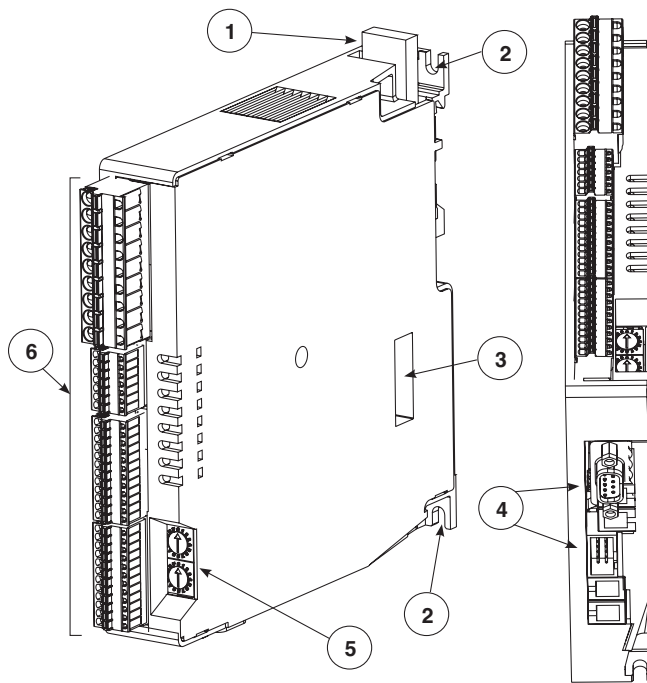
During continuous operation, the heat sink can reach a very high temperatures, and keeps a high temperature even after the unit is turned off due to its high thermal inertia.



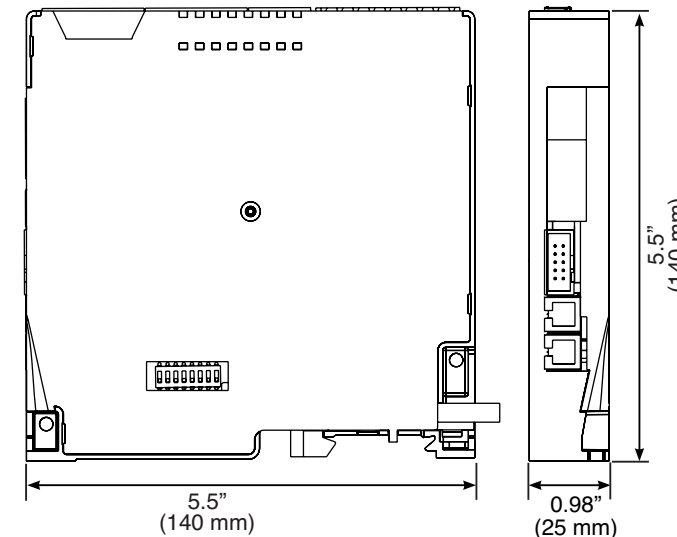
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2. OVERVIEW & LAYOUT

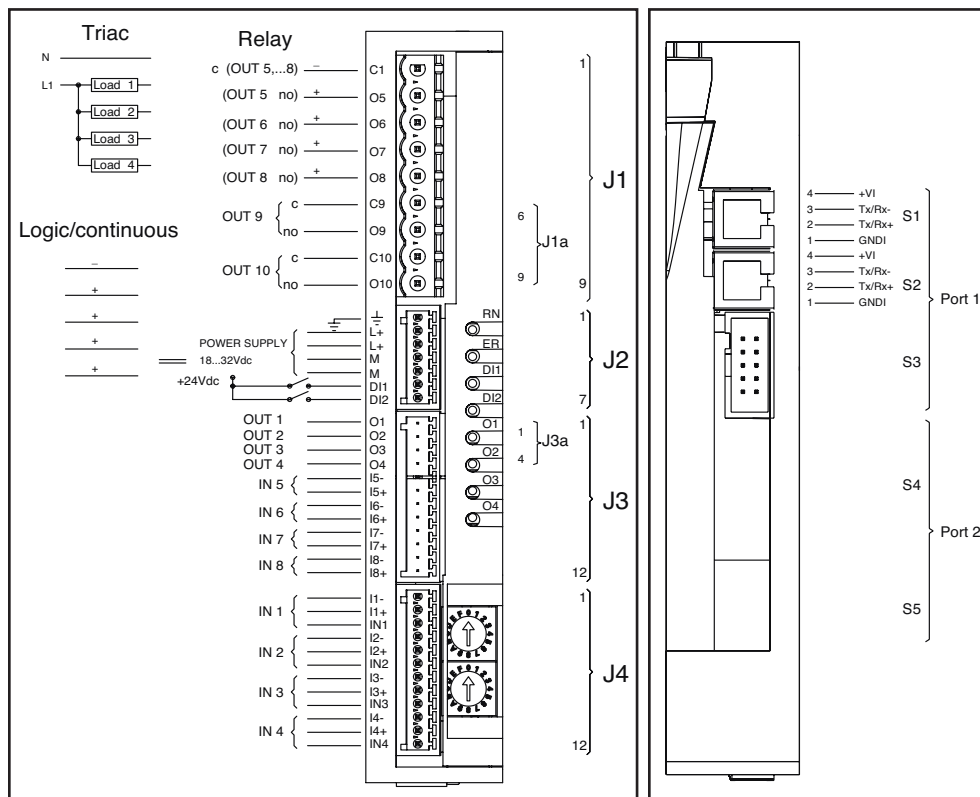


1. cursor for insertion/removal of DIN bar attachment
2. access for screwdriver to power connector screws
3. dip switches for function configuration
4. connectors for communication ports (Port1, Port2)
5. rotary switches for setting node address or number
6. signal and power supply connectors (J1, J2, J3, J4)



3. WIRING

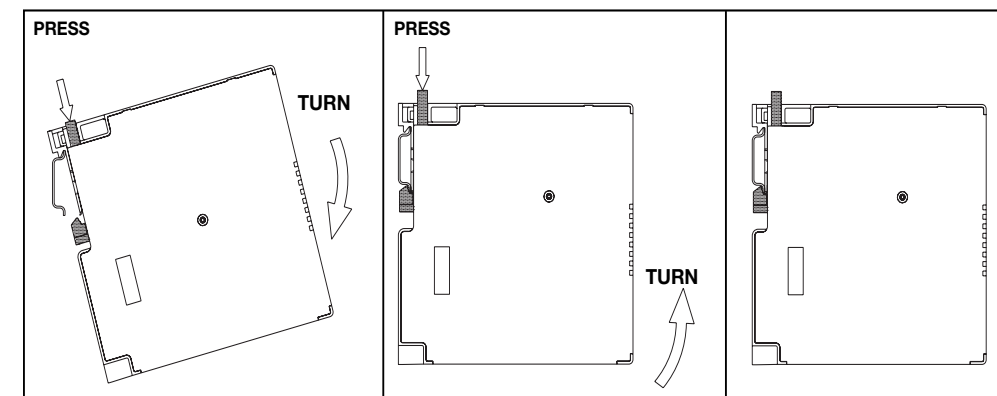
- Use adequate compensated cable for thermocouple inputs. Respect polarity by avoiding junctions on the cables.
- If the thermocouple is grounded, the connection must be at a single point.
- For resistance thermometer inputs, use copper extension cables. Resistance must not exceed 20 ohm; avoid junctions on the cables.
- For 2-wire resistance thermometer, make the connection indicated instead of the third wire.



4. MOUNTING

For correct attachment/release of the module on the DIN guide, do as follows:

- keep the attach/release cursor pressed
- insert/remove the module
- release the cursor



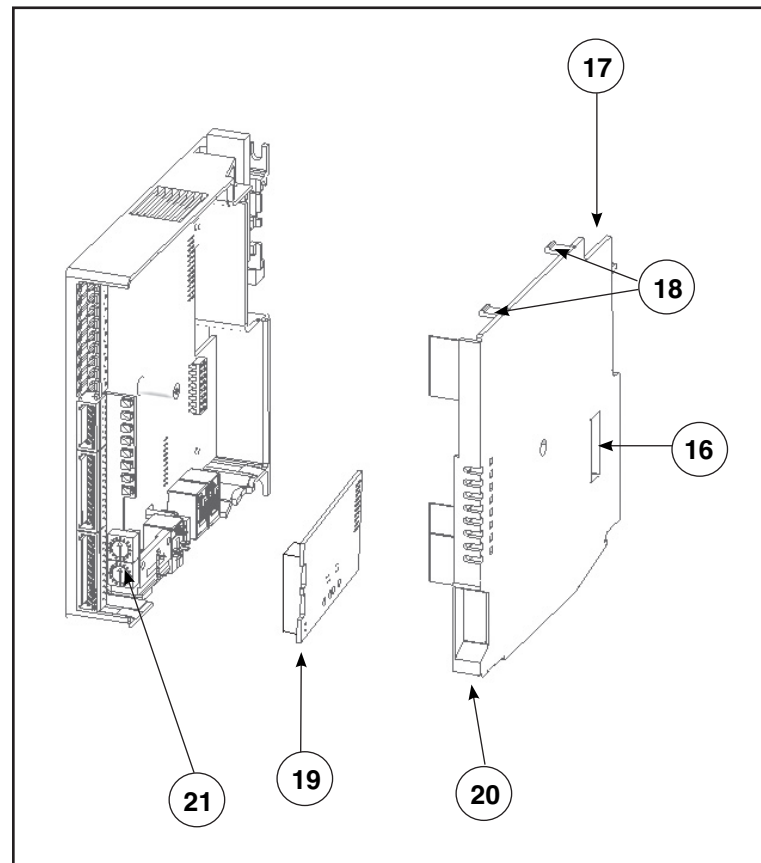
5. DIP SWITCH SETTINGS



Dip Switches	Description
1	Connection type: Refer to full hardware manual
2	Connection type: Refer to full hardware manual
3	Connection type: Refer to full hardware manual
4	
5	
6	= ON reset factory configuration
7	= ON ON C4 simulation function
8	= ON insert line information for Port 1/ RS485

1	2	3	Connection Type
OFF	OFF	OFF	4 independent zones / 4 loads single-phase
ON	OFF	OFF	zone 1 with 3-phase load star with neutral
OFF	ON	OFF	zone 1 with 3-phase load open triangle
ON	ON	OFF	zone 1, 3 with double 3-phase load star without neutral
OFF	OFF	ON	zone 1, 3 with double 3-phase load closed triangle
ON	OFF	ON	-
OFF	ON	ON	-
ON	ON	ON	-

6. REPLACING / INSTALLING FIELDBUS CARD



Do as follows:



- Unscrew screw **16**
- With a screwdriver, gently apply leverage at points **18**
- Remove cover **17**
- Place interface board **19** on the connectors on board **21**
- Remove pre-broken parts **20** on cover **17** based on the type of interface installed
- Reposition cover **17** in its housing
- Tighten screw **16**

⚠ WARNING

Before attempting board replacement, ensure that power to the controller has been cut and verify that the system is isolated for operator safety.

7. LED LOGIC

LED	Description	Color
RN	Run - flashes during regular operation	green
ER	ERROR (Fault Condition): illuminates when fault is present Lo = process variable value < di Lo.S Hi = process variable value > di Hi.S Sbr = Sensor interrupted or input values over maximum limits Err = RTD third wire interrupted for Pt100 or input values below minimum limits (ex. CT with wrong connection) ER = (red) flashing: Alarm temperature OVER_HEAT (STATUS.STRUMENTO 4 bit 1)	red
DI1	State of digital input 1	yellow
DI2	State of digital input 2	yellow
O1	State of output Out 1	yellow
O2	State of output Out 2	yellow
O3	State of output Out 3	yellow
O4	State of output Out 4	yellow

Switch	Description
 x10	Defines address of module 00...99
 x1	(in case of function mode equivalent to four Geflex units, this address is assigned to the first of the four)
	Hexadecimal combinations are reserved.

8. SPECIFICATIONS

INPUTS

Thermocouple	J, K, R, S, T
RTD	3 Wire PT100
DC Linear	0 to 20mA, 4 to 20mA, 0 to 60mV, 12 to 60mV, 0 to 1V, 0.2 to 1V
Accuracy	±0.2% of full scale ±1 scale points at 25°C
Sampling	120msec on all four inputs
Impedance	>1MΩ resistive, except DC mA (50Ω) and Thermoresistance (20Ω)
Selectable Range	°C/°F
Digital Input	PNP, 24VDC, 8mA (isol. 3500V)
CT Input	50mAac, 50/60Hz, 10Ω
CT Sampling	60msec, 1% of full range ±1 scale points at 25°C

OUTPUTS 1-4

Function	Default Heating Control (Configurable)
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OUTPUTS 5-8

Connector	J1
Relay	NO Contact, max 3A, 250V/30VDC, $\cos\phi = 1$, resistive load
Logic	24Vdc, 35mA
Voltage	0 to 10V, 2 to 10V, max 25mA Short Circuit Protection
Current	0 to 20mA, 4 to 20mA, 500Ω max
Insulation	1500V
TRIAC	230V/4A AC51, 1A for four, 4A for two

OUTPUTS 9-10

Connector	J1a/J1
Relay	NO Contact, max 5A, 30Vdc, $\cos\phi = 1$,

OPERATING CONDITIONS

Protection	IP20
Work/Storage Temperature	32 to 122°F (0 to 50°C) / -4 to 158°F (-20 to 70°C)
Ambient Conditions	20-85% UR not condensing
Installation	DIN EN50022 RAIL / Panel Mount With Screws
Weight	320g