1 Introduction

The Platinum series Dual Oven Control PID controller comes with 1 relay output, 1 DC Pulse output and 1 Analog output that provides the necessary control functions (CN8PT-145-EI); and includes Ethernet capability to address future system integration needs.

Features of the PID Controller:

- The Process Temperature is measured using an external Thermocouple.
- The DC Pulse output will directly drive the PWM controlled external TRIAC.
- The Analog output, set to operate at 0-5 Vdc will directly drive the DC motor driven bellows.
- The SPST relay provided by the Platinum controller must be augmented with an external SPDT control relay.

1.1 Setup Requirements

The Dual Oven Control is a Thermal chamber temperature controller with Over Temperature cut-off and rapid 'cool down' capability, which must be retro-fitted. The cool down mechanism uses an analog DC Servo while the heading uses a traditional PWM driven TRIAC control.

To provide an over temperature alarm condition, a separate over-temperature SPDT relay output is required.

The chambers are used to provide extended temperature testing under various UUT's (units under test). In most cases the UUT's are elevated to a temperature above what is produced by the self-heating of the UUT's, but the chamber must support conditions where a cooling mechanism is provided for cases where the heat produced by the UUT's exceed the desired operating temperature.

The chamber controller uses a TRIAC driven heating element to produce heat and a motor driven exhaust bellows mechanism to extract heat.

The TRIAC output is driven with a standard PWM DC pulse output, where the ON duty cycle varies from 0 to 100 %. A 0.1 second cycle time is appropriate and will give the finest control for heating.

The motor driven bellows accepts a 0- 2.5 Vdc control signal – 0 volts results in the bellows being fully open (maximum heat extraction) and > 2.5 Vdc results in the bellows fully closed (minimum heat extraction). The motor interface may be over-driven up to 10 Vdc.

2 Configuration Types and Their “Set to” Functions

Type Configuration	Set To Function	Notes
INPUT	(INIT/INPT = T.C., INIT/INPT/T.C. = <thermocouple type>)	Thermocouple Type
RST.1 OUTPUT (Relay, SPST	Configured, driven by ALARM 1 (PROG/STR1/MODE = ALM.1)	
ALARM 1	ABOVE ALARM (ABOV)	Control Setpoint (AB.DV = D.SP1)
ALR.H	5 degrees	Over Temperature Amount
OUTPUT (Closed)	(CTCL = N.C.)	Ensures if Controller loses power, the Relay will activate external control Relay.
On Delay	1 second (DE.ON = 1)	
DC.1 OUTPUT (DC Pulse)	(PROG/DC.1/MODE = PID)	Driven by PID control
PWM OUTPUT	(PROG/DC.1/CYCL = 0.1)	Cycle time set to 0.1 seconds
ANG.1 OUTPUT (Analog Output)	(PROG/ANG.1/MODE = PID)	Driven by PID control
Analog Output Range	5 volts (PROG/ANG.1/RNGE = 0-5).	
PID Operates in reverse mode	(PROG/PID.S/ACTN/RVRS)	Causes control output signal to activate if process temperature is below setpoint temperature.

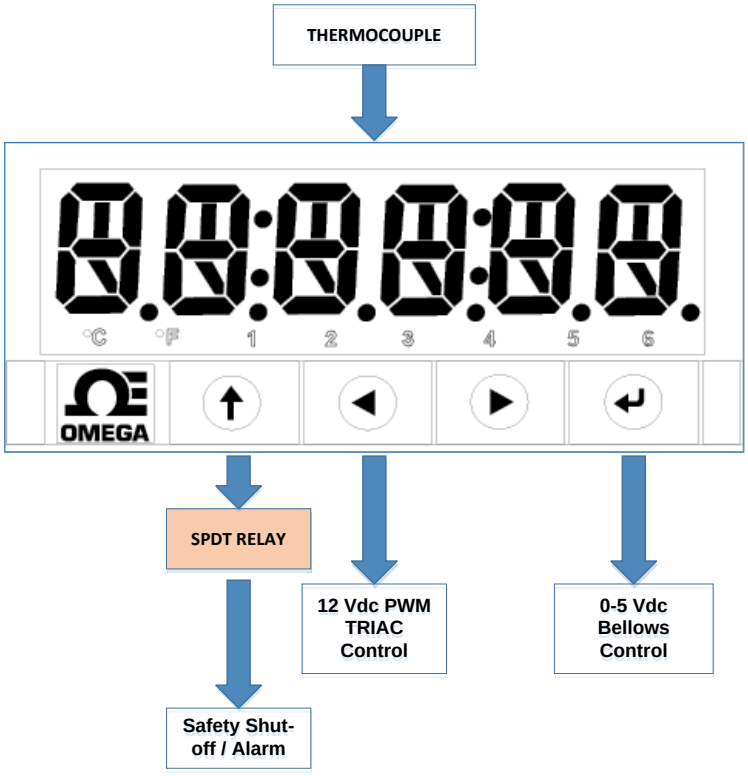

Figure 1. Dual Oven Control PID Controller Configuration.

3 Wiring

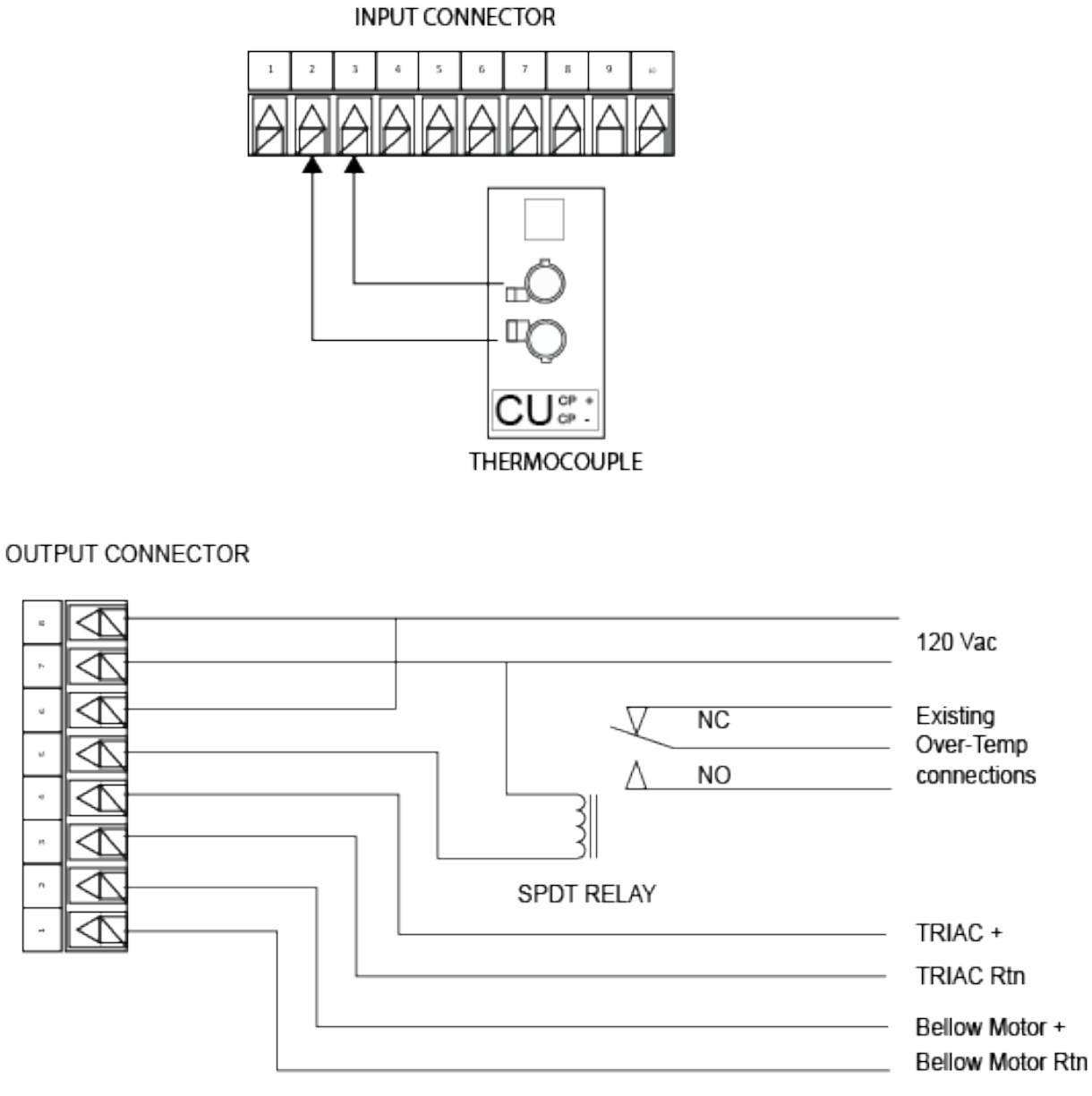

Figure 2. INPUT Wiring Diagram.

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