

Delta Pro

2-in-1 Self Tune
Universal PID Temperature Controller
(RTD Pt100 & J / K / T / R / S / B / N Thermocouples)

Operation Manual

This brief manual is primarily meant for quick reference to wiring connections and parameter searching. For more details on operation and application; please log on to www.ppiindia.net

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INSTALLATION PARAMETERS : PAGE-10	
Parameters	Settings (Default Value)
Input Type for Loop1 InP.1	Refer Table 4.2 (Default : Type K)
Temperature Range for Loop1 rnG.1	Min. to Max. specified for the selected Input Type (Refer Table 4.2) (Default : 1376)
Zero Offset for Loop1 DF5.1	-1999 to 9999 or -199.9 to 999.9 (Default : 0)
Control Action for Loop1 Ctr.1	PID PID On-Off On-Off (Default : PID)
Hysteresis for Loop1 HYS.1	1 to 999 or 0.1 to 999.9 (Default : 2)
Input Type for Loop2 InP.2	Description same as for Loop1.
Temperature Range for Loop2 rnG.2	
Zero Offset for Loop2 DF5.2	
Control Action for Loop2 Ctr.2	
Hysteresis for Loop2 HYS.2	

PID CONTROL PARAMETERS : PAGE-12	
Parameters	Settings (Default Value)
Output Power for Loop1 POr.1	Not Applicable (for View Only) (Default : Not Applicable)
Cycle Time for Loop1 Ct.1	0.5 to 120.0 Seconds (in steps of 0.5 Sec.) (Default : 1.0)
Proportional Band for Loop1 Pb.1	1 to 999 °C or 0.1 to 999.9 °C (Default : 100)
Integral Time (Reset) for Loop1 It.1	0 to 1000 Seconds (Default : 100)
Derivative Time (Rate) for Loop1 dt.1	0 to 250 Seconds (Default : 25)
Output Power for Loop2 POr.2	Description same as for Loop1.
Cycle Time for Loop2 Ct.2	
Proportional Band for Loop2 Pb.2	
Integral Time (Reset) for Loop2 It.2	
Derivative Time (Rate) for Loop2 dt.2	

CONFIGURATION PARAMETERS : PAGE-11		
Parameters	Settings (Default Value)	
Tune on SP Change EnSP	d5bL Disable (Default : Enable)	
Overshoot Inhibit Enable for Loop1 O.h.1	d5bL Disable (Default : Enable)	
Overshoot Inhibit Factor for Loop1 O.F.1	1.0 to 2.0 (Default : 1.2)	
Sensor Break Output Power for Loop1 SbO.1	0 to 100 (Default : 0)	
Overshoot Inhibit Enable for Loop2 O.h.2	Description same as for Loop1.	
Overshoot Inhibit Factor for Loop2 O.F.2		
Sensor Break Output Power for Loop2 SbO.2		
Setpoint Locking SPLP		nonE None SP Control Setpoint AUSP Auxiliary Setpoint Both Control & Auxiliary Setpoint (Default : None)
Slave ID id		1 to 127 (Default : 1)
Baud Rate bAud	4800 4800 9600 9600 19200 19200 (Default : 9600)	
Parity PAR.1	nonE None EuEn Even Odd Odd (Default : Even)	
Communication Write Enable ConE	no No YES Yes (Default : Yes)	

OPERATOR PARAMETERS : PAGE-0	
Parameters	Settings (Default Value)
Tune command for Loop1 tUn.1	no No YES Yes (Default : Yes)
Tune command for Loop2 tUn.2	no No YES Yes (Default : Yes)

AUXILIARY OUTPUT-1 PARAMETERS : PAGE-13	
Auxiliary Output-1 is associated with Loop1.	
Parameters	Settings (Default Value)
Auxiliary Function for Loop1 AUF.1	nonE None ALrā Alarm CtrL Control bLOr Blower (Default : None)
Op1 Function : Alarm-1	
Alarm Type tYPE	P.Lo Process Low P.Hi Process High dE Deviation Band bAnd Window Band (Default : Process Low)
Alarm Setpoint SP	Min. to Max. Range for the selected Input type (Default : 0)
Alarm Deviation Band bAnd	-199 to 999 or -199.9 to 999.9 (Default : 0)
Alarm Window Band bAnd	3 to 999 or 0.3 to 999.9 (Default : 3)
Alarm Logic LoGC	norā Normal rEu Reverse (Default : Normal)
Alarm Inhibit ihbt	no No YES Yes (Default : Yes)
OP2 Function : Auxiliary Control	
Auxiliary Setpoint SP	(Min. Range - SP) to (Max. Range - SP) specified for the selected Input Type (Default : 0)
Control Hysteresis HYSL	1 to 999 or 0.1 to 99.9 (Default : 2 or 0.2)
Control Logic LoGC	norā Normal rEu Reverse (Default : Normal)
OP2 Function : Blower / Compressor Control	
Blower Setpoint SP	0 to 250 or 0.0 to 25.0 (Default : 0)
Blower Hysteresis HYSL	1 to 250 or 0.1 to 25.0 (Default : 2 or 0.2)

AUXILIARY OUTPUT-2 PARAMETERS : PAGE-14	
Auxiliary Output-2 is associated with Loop2.	
The Parameters for Auxiliary Output-2 are the same as that for Auxiliary Output-1 except for one additional parameter (listed below) for selecting the output type as Relay or SSR in accordance with the order output type.	
Parameters	Settings (Default Value)
Auxiliary Output-2 Type AOP.2	rLY Relay SSR SSR

TABLE- 1		
Option	Range (Min. to Max.)	Resolution
tc_u J Type T/C	0 to +960°C / +32 to +1760°F	Fixed 1°C / 1°F
tc_P K Type T/C	-200 to +1376°C / -328 to +2508°F	
tc_t T Type T/C	-200 to +385°C / -328 to +725°F	
tc_r R Type T/C	0 to +1770°C / +32 to +3218°F	
tc_S S Type T/C	0 to +1765°C / +32 to +3209°F	
tc_b B Type T/C	0 to +1825°C / +32 to +3092°F	
tc_n N Type T/C	0 to +1300°C / +32 to +2372°F	
rtD 3-wire, RTD Pt100	-199 to +600°C / -328 to +1112°F	
rtD.1 3-wire, RTD Pt100	-199.9 to 600.0°C / -199.9 to 999.9°F	

FRONT PANEL LAYOUT

Upper Readout
Loop1 Heater Indicator
Loop1 Aux O/P Indicator / Upper Readout Showing Loop1 Aux Setpoint
Upper Readout Showing Loop1 Setpoint
Loop1 Self Tune Indicator
Lower Readout
PAGE Key
DOWN Key

Loop2 Heater Indicator
Loop2 Aux O/P Indicator / Lower Readout Showing Loop2 Aux Setpoint
Lower Readout Showing Loop2 Setpoint
Loop2 Self Tune Indicator
ENTER / Alarm ACK Key
UP Key

Keys Operation

Symbol	Key	Function
[PAGE]	PAGE	Press to enter or exit set-up mode.
[DOWN]	DOWN	Press to decrease the parameter value. Pressing once decreases the value by one count; keeping pressed speeds up the change.
[UP]	UP	Press to increase the parameter value. Pressing once increases the value by one count; keeping pressed speeds up the change.
[ENTER]	ENTER	Press to store the set parameter value and to scroll to the next parameter on the PAGE.

PV Error Indications

Message	PV Error Type
Or	Over-range (PV above Max. Range)
Ur	Under-range (PV below Min. Range)
SbrP	Sensor Break (RTD / Thermocouple is open or broken)
SFLt	Sensor Fault (Incorrect sensor type or connections)

