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Enhanced
Universal Single Loop Process Controller

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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INPUT/OUTPUT CONFIGURATION PARAMETERS : PAGE 12

Parameters	Settings (Default Value)
Control Action C.Act	On.OF On-Off PULS Pulse P id PID (Default : PID)
Control Logic CtrL	rEu Reverse d i r Direct (Default : Reverse)
Setpoint Low Limit SP.Lo	Min. Range to Setpoint High for the selected Input Type (Default : -199)
Setpoint High Limit SP.Hi	Setpoint Low to Max. Range for the selected Input Type (Default : 1376)
Sensor Break Output Power % Sb.OP	0 to 100 (Default : 0)
Input Type inPt	Refer Table 1 (Default : Type K)
PV Units Uni t	°C °F (Default : °C)
Signal Low SG.Lo	See table below
Signal High SG.Hi	See table below
PV Resolution rSLn	Refer Table 1 (Default : 1)
PV Range Low r.Lo	-1999 to 9999 (Default : 0)
PV Range High r.Hi	-1999 to 9999 (Default : 1000)
Offset for PV OFSt	**For DC mA/mV/V** : 1 to 9999 counts **For Thermocouples/RTD** : 1 to 999 or 0.1 to 999.9 (Default : 0)
Digital Filter Time Constant Fi Lt	0.5 to 60.0 Seconds (in steps of 0.5 Seconds) (Default : 2.0 Sec.)

Signal Low

Input Type	Settings	Default
0 to 20 mA	0.00 to Signal High	0.00
4 to 20 mA	4.00 to Signal High	4.00
Reserved	0.0 to Signal High	0.0
0 to 80 mV	0.00 to Signal High	0.00
0 to 1.25 V	0.000 to Signal High	0.000
0 to 5 V	0.000 to Signal High	0.000
0 to 10 V	0.00 to Signal High	0.00
1 to 5 V	1.000 to Signal High	1.000

Signal High

Input Type	Settings	Default
0 to 20 mA	Signal Low to 20.00	20.00
4 to 20 mA	Signal Low to 20.00	20.00
Reserved	Signal Low to 80.00	80.00
0 to 80 mV	Signal Low to 80.00	80.00
0 to 1.25 V	Signal Low to 1.250	1.250
0 to 5 V	Signal Low to 5.000	5.000
0 to 10 V	Signal Low to 10.00	10.00
1 to 5 V	Signal Low to 5.000	5.000

CONTROL PARAMETERS : PAGE 10

Parameters	Settings (Default Value)
Proportional Band Pb	1 to 9999 counts (Default : 500)
Integral Time It	0 to 3600 Seconds (Default : 100 Sec.)
Derivative Time dt	0 to 600 Seconds (Default : 16 Sec.)
Cycle Time Ct	0.5 to 100.0 Seconds (in steps of 0.5 secs.) (Default : 10.0 Sec.)
Relative Cool Gain rEL.C	0.1 to 10.0 (Default : 1.0)
Cool Cycle Time C.Ct	0.5 to 100.0 Seconds (in steps of 0.5 secs.) (Default : 10.0 sec.)
Hysteresis HYSt	1 to 9999 counts (Default : 2)
Pulse Time PL.t	Pulse ON Time to 120.0 Seconds (Default : 2.0 sec.)
Pulse On Time On.t	0.1 to Value set for Pulse Time (Default : 1.0)
Cool Hysteresis C.HYS	1 to 9999 counts (Default : 2)
Cool Pulse Time C.PL.t	Cool ON Time to 120.0 Seconds (Default : 2.0)
Cool Pulse ON Time C.On.t	0.1 to Value set for Cool Pulse Time (Default : 1.0)
Heat Power Low PL	0 to Heat Power High (Default : 0)
Heat Power High PH	Heat Power Low to 100 (Default : 100)
Cool Power Low C.PL	0 to Cool Power High (Default : 0)
Cool Power High C.PH	Cool Power Low to 100 (Default : 100)

SUPERVISORY PARAMETERS : PAGE 13

Parameters	Settings (Default Value)
Self-Tune Command tUnE	no No YES Yes (Default : No)
Overshoot Inhibit OS. Ih	dSbL Disable EnbL Enable (Default : Disable)
Overshoot Inhibit Factor Oi h.F	1.0 to 2.0 (Default : 1.0)
SP Adjustment on Lower Readout SP.Lr	dSbL Disable EnbL Enable (Default : Enable)
SP Adjustment on Operator Page SP.OP	dSbL Disable EnbL Enable (Default : Enable)
Manual Mode HAnd	dSbL Disable EnbL Enable (Default : Disable)
Alarm SP Adjustment on Operator Page AL.SP	dSbL Disable EnbL Enable (Default : Disable)
Standby Mode Stby	dSbL Disable EnbL Enable (Default : Disable)
Profile Abort Command on Page-1 Abrt	dSbL Disable EnbL Enable (Default : Disable)

Parameters	Settings (Default Value)
Controller ID Number Id	1 to 127 (Default : 1)
Baud Rate bAUd	4.8 4800 9.6 9600 19.2 19200 (Default : 9.6)
Communication Parity PAri	nonE None EuEn Even Odd Odd (Default : Even)
Communication Write Enable Con.E	no No YES Yes (Default : Yes)

OP1, OP2 & OP3 FUNCTION PARAMETERS : PAGE 15

Parameters	Settings (Default Value)
Output-1 Type OP 1.t	rLY Relay SSr SSR 0-20 0 - 20mA 4-20 4 - 20mA 0-5 0 - 5 V 0-10 0 - 10 V (Default : Relay)
Output-2 Function Selection OP2.F	nonE None AL_1 Alarm EOP End of Profile CCon Cool Control (Default : None)
Alarm-1 Logic A1.LG	norn Normal rEu Reverse (Default : Normal)
Output-2 Type OP2.t	rLY Relay SSr SSR 0-20 0 - 20mA 4-20 4 - 20mA 0-5 0 - 5 V 0-10 0 - 10 V (Default : Relay)
OP2 Event Status O2.ES	On ON OFF OFF (Default : ON)
OP2 Event Time Units O2.Ut	SEC Seconds Min Minutes HoUr Hours (Default : Seconds)
OP2 Event Time O2.Et	0 to 9999 (Default : 0)

Parameters	Settings (Default Value)
Output-3 Function Selection OP3.F	nonE None AL_2 Alarm-2 EOP End of Profile rEC Recorder (Default : Alarm)
Alarm-2 Logic A2.LG	norn Normal rEu Reverse (Default : Normal)
OP3 Event Status O3.ES	On ON OFF OFF (Default : ON)
OP3 Event Time Units O3.Ut	SEC Seconds Min Minutes HoUr Hours (Default : Seconds)
OP3 Event Time O3.Et	0 to 9999 (Default : 0)
Recorder Output Type rEC.O	0-20 0 to 20mA 4-20 4 to 20mA 0-5 0 to 5 Volts 0-10 0 to 10 Volts (Default : 0 to 20mA)

ALARM AND RETRANSMISSION (RECORDER) PARAMETERS : PAGE 11

Parameters	Settings (Default Value)
Alarm-1 Type AL_1	nonE None P_Lo Process Low P_Hi Process High dE Deviation Band bAnd Window Band (Default : None)
Alarm-1 Setpoint A1.SP	Min. to Max. Range specified for the selected Input Type (Default : Min or Max Range)
Alarm-1 Deviation Band A1.dE	**For DC mA/mV/V** : -1999 to 9999 counts **For Thermocouples/RTD** : -999 to 999 or -1.999 to 999.9 (Default : 5)
Alarm-1 Window Band A1.bA	**For DC mA/mV/V** : 3 to 9999 counts **For Thermocouples/RTD** : 3 to 999 or 0.3 to 999.9 (Default : 5)
Alarm-1 Hysteresis A1.HY	**For DC mA/mV/V** : 1 to 9999 counts **For Thermocouples/RTD** : 1 to 999 or 0.1 to 999.9 (Default : 2)
Alarm-1 Inhibit A1.Ih	no No YES Yes (Default : No)
Alarm-2 Type AL_2	nonE None P_Lo Process Low P_Hi Process High dE Deviation Band bAnd Window Band (Default : None)

Parameters	Settings (Default Value)
Alarm-2 Setpoint A2.SP	Min. to Max. Range specified for the selected Input Type (Default : Min or Max Range)
Alarm-2 Deviation Band A2.dE	**For DC mA/mV/V** : -1999 to 9999 counts **For Thermocouples/RTD** : -999 to 999 or -1.999 to 999.9 (Default : 5)
Alarm-2 Window Band A2.bA	**For DC mA/mV/V** : 3 to 9999 counts **For Thermocouples/RTD** : 3 to 999 or 0.3 to 999.9 (Default : 5)
Alarm-2 Hysteresis A2.HY	**For DC mA/mV/V** : 1 to 9999 counts **For Thermocouples/RTD** : 1 to 999 or 0.1 to 999.9 (Default : 2)
Alarm-2 Inhibit A2. Ih	no No YES Yes (Default : No)
PV/SP Selection For Retransmission trnS	Pu Process Value SP Setpoint (Default : Process Value)
Recorder (Retransmission) Low rEC.L	Min. to Max. Range Specified for the Selected Input Type (Default : -199)
Recorder (Retransmission) High rEC.H	Min. to Max. Range Specified for the Selected Input Type (Default : 1376)

PROFILE CONFIGURATION PARAMETERS : PAGE 16

Parameters	Settings (Default Value)
Profile mode Enable PrOF	dSbL Disable EnbL Enable (Default : Disable)
Number of Segments n.SEG	1 to 16 (Default : 16)
Number of Repeats n.rPt	1 to 9999 (Default : 1)
Common Holdback Co.Hb	no No YES Yes (Default : Yes)
Output Off OP.OF	no No YES Yes (Default : No)
Power Fail Strategy Pr.FL	Abrt Abort Cont Continue (Default : Continue)

PROFILE SETTING PARAMETERS : PAGE 14

Parameters	Settings (Default Value)
Segment Number SEG.n	1 to 16 (Default : 1)
Target Setpoint t_SP	Min. to Max. Range specified for the selected Input Type (Default : -199)
Time Interval ti nE	0 to 9999 Minutes (Default : 0)
Holdback Type Hb.tY	nonE None UP Up dn Down both Both (Default : None)
Holdback Value Hb.uL	**For DC mA/mV/V** : 1 to 9999 counts **For Thermocouples/RTD** : 1 to 999 or 0.1 to 999.9 (Default : 1)

ON-LINE ALTERATIONS : PAGE 1

Parameters	Settings (Default Value)
End of Profile Acknowledge EOP.A	no No YES Yes (Default : No)
Profile Start Command Strt	no No YES Yes (Default : No)
Profile Abort Command Abrt	
Profile Pause Command PAUS	no No YES Yes (Default : No)
Segment Skip Command SP. P	no No YES Yes (Default : No)
Segment Time Interval ti nE	0 to 9999 Minutes
Segment Holdback Type Hb.tY	nonE None UP Up dn Down both Both
Segment Band Value Hb.uL	**For DC mA/mV/V** : 1 to 9999 counts **For Thermocouples/RTD** : 1 to 999 or 0.1 to 999.9
Profile Repeat Counter b.rPt	1 to 9999

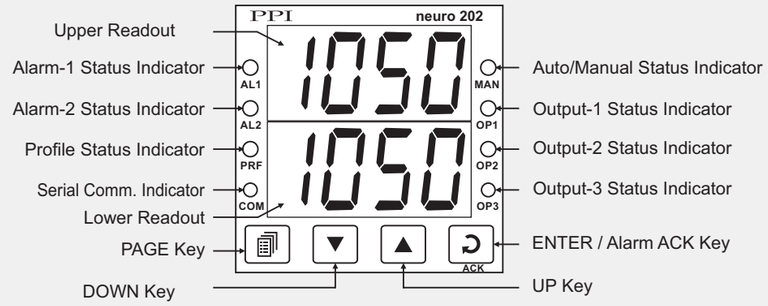
OPERATOR PAGE PARAMETERS : PAGE 0

Parameters	Settings (Default Value)
(De)Activate Standby Mode Stby	no No YES Yes (Default : No)
Control Setpoint SP	Setpoint Low Limit to Setpoint High Limit (Default : -1999)
Alarm-1 Setpoint A1.SP	Min. to Max. Range specified for the selected Input Type (Default : Min or Max Range)
Alarm-1 Deviation Band A1.dE	**For DC mA/mV/V**: -1999 to 9999 counts **For Thermocouples/RTD**: -999 to 999 or -1.999 to 999.9 (Default : 0)
Alarm-1 Window Band A1.bA	**For DC mA/mV/V**: 3 to 9999 counts **For Thermocouples/RTD**: 3 to 999 or 0.3 to 999.9 (Default : 0)
Alarm-2 Setpoint A2.SP	Same as that for Alarm-1 above but applied to Alarm-2.
Alarm-2 Deviation Band A2.dE	
Alarm-2 Window Band A2.bA	

Table 2

Option	What it means	Range (Min. to Max.)	Resolution
tC_J	Type J Thermocouple	0 to +960°C / +32 to +1760°F	Fixed 1°C / 1°F
tC_K	Type K Thermocouple	-200 to +1376°C / -328 to +2508°F	
tC_t	Type T Thermocouple	-200 to +385°C / -328 to +725°F	
tC_r	Type R Thermocouple	0 to +1770°C / +32 to +3218°F	
tC_S	Type S Thermocouple	0 to +1765°C / +32 to +3209°F	
tC_b	Type B Thermocouple	0 to +1825°C / +32 to +3092°F	
tC_n	Type N Thermocouple	0 to +1300°C / +32 to +2372°F	
rESu	Reserved for customer specific Thermocouple type not listed above. The type shall be specified in accordance with the ordered (optional on request) Thermocouple type.		
rtd	3-wire, RTD Pt100	-199 to +600°C / -328 to +1112°F **or** -199.9 to 600.0°C / -199.9 to 999.9°F	User settable 1°C / 1°F **or** 0.1°C / 0.1°F
0-20	0 to 20mA DC current	-1999 to +9999 units	User settable 1 / 0.1 / 0.01 / 0.001 units
4-20	4 to 20mA DC current		
rESu	Reserved		
0.080	0 to 80mV DC voltage		
1.25	0 to 1.25V DC voltage		
5.0	0 to 5.0V DC voltage		
10.0	0 to 10.0V DC voltage		
1-5	1 to 5.0V DC voltage		

FRONT PANEL LAYOUT



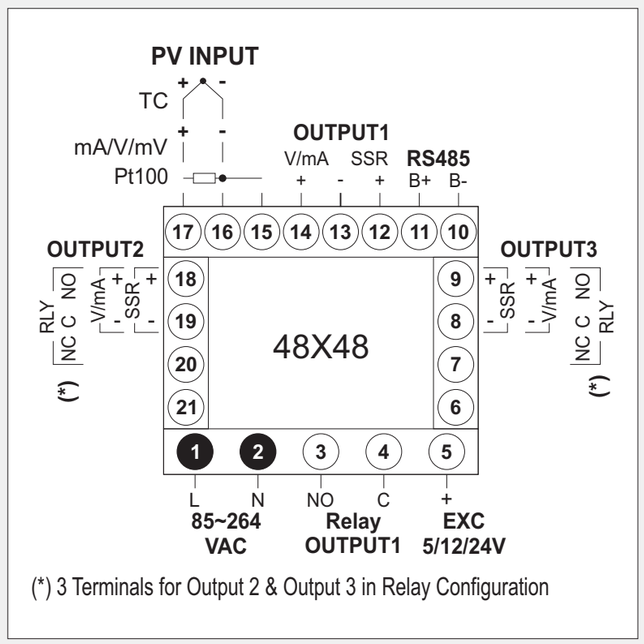
Keys Operation

Symbol	Key	Function
	PAGE	Press to enter or exit set-up mode.
▼	DOWN	Press to decrease the parameter value. Pressing once decreases the value by one count; keeping pressed speeds up the change.
▲	UP	Press to increase the parameter value. Pressing once increases the value by one count; keeping pressed speeds up the change.
	ENTER / ACK	Set up Mode : Press to store the set parameter value and to scroll to the next parameter on the PAGE. Run Mode : Press to acknowledge any pending Alarm(s). This also turns off the Alarm relay.

PV Error Indications

Message	PV Error Type
Or	Over-range (**PV** above Max. Range)
Ur	Under-range (**PV** below Min. Range)
OPEn	Open (Sensor open / broken)

ELECTRICAL CONNECTIONS



(*) 3 Terminals for Output 2 & Output 3 in Relay Configuration