

HumiTherm-cS

Advanced 'Temperature + Humidity'
Programmable Controller with Alarms

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 CONFIGURATION PARAMETERS : PAGE 12			
Parameters	Settings (Default Value)		
Select Channel SEL	0C Temp		
	rh Humidity (Default : Temp)		
Input Type inPt	rtd RTD		
	0-20 0 - 20mA		
	4-20 4 - 20mA		
	0050 0.050 V		
	0200 0.200 V		
	125 1.25 V		
	5.0 5.0 V		
	10.0 10.0 V		
	1-5 1 - 5 V (Default : RTD)		
Signal Low SLo	Input Type	Settings	Default
	0 to 20mA	0.00 to Signal High	0.00
	4 to 20mA	4.00 to Signal High	4.00
	0 to 50mV	0.00 to Signal High	0.00
	0 to 200mV	0.0 to Signal High	0.0
	0 to 1.25 V	0.00 to Signal High	0.00
	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 S.H.	Input Type	Settings	Default
	0 to 20mA	20.00 to Signal Low	20.00
	4 to 20mA	20.00 to Signal Low	20.00
	0 to 50mV	50.00 to Signal Low	50.00
	0 to 200mV	200.0 to Signal Low	200.0
	0 to 1.25 V	1.250 to Signal Low	1.250
	0 to 5 V	5.000 to Signal Low	5.000
	0 to 10 V	10.00 to Signal Low	10.00
	1 to 5 V	5.000 to Signal Low	5.000
Range Low rLo	-199.9 to 999.9 (Default : 0.0)		
Range High r.H.	-199.9 to 999.9 (Default : 100.0)		
Offset OFSt	-50.0 to 50.0 (Default : 0.0)		

CONTROL PARAMETERS : PAGE 11	
Parameters	Settings (Default Value)
Select Channel SEL	0C Temp rh Humidity (Default : Temp)
Control Action CRct	OnOff On-Off Pid PID (Default : PID)
Setpoint Low Limit SPLo	Temp = -199.9°C to SP.Hi RH = 0.0% to SP.Hi (Default : 0)
Setpoint High Limit SP.H.	Temp = SP.Lo to 600.0°C RH = SP.Lo to 100.0% (Default : 100)

Parameters	Settings (Default Value)
Heat/humidification Power Low Limit PL	0.0% to Power High Limit (Default : 0.0)
Heat/humidification Power High Limit PH	Power Low Limit to 100.0% (Default : 100.0)
Proportional Band (Cool Pre-dominant Zone) PbC	For Temp = 0.1 to 999.9°C For RH = 0.1 to 999.9% (Default : 50.0)
Integral Time (Cool Pre-dominant Zone) ItC	1 to 3600 Seconds (Default : 100 sec.)
Derivative Time (Cool Pre-dominant Zone) dtC	1 to 600 Seconds (Default : 16 sec.)
Proportional Band (Heat Pre-dominant Zone) Pb	For Temp = 0.1 to 999.9°C For RH = 0.1 to 999.9% (Default : 50.0)
Integral Time (Heat Pre-dominant Zone) It	1 to 3600 Seconds (Default : 100 sec.)
Derivative Time (Heat Pre-dominant Zone) dt	1 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.)
Hysteresis Hyst	0.1 to 999.9 (Default : 2.0)

COMPRESSOR SETTING PARAMETERS : PAGE 17	
Parameters	Settings (Default Value)
Compressor Output Mode CPoP	OFF OFF On ON AUTO AUTO (Default : Auto)
Compressor Strategy CPSt	SPoC Dry Bulb SP PuPoC Dry Bulb PV PuRh %RH PV (Default : Dry Bulb SP)
Boundary Set-point bSP	Temp. SP Low Limit to Temp. SP High Limit (Default : 45.0)
Compressor Set-point CPSP	0.0 to 50.0 (Default : 0.2)
Compressor Hysteresis CPHY	0.1 to 25.0 (Default : 0.2)
Compressor Time Delay EdLY	0.00 to 10.00 Min (in steps of 5 secs.) (Default : 0 Sec.)

SUPERVISORY PARAMETERS : PAGE 13	
Parameters	Settings (Default Value)
Tune Command tUNE	no No YES Yes (Default : No)
Standby Function Stby	dSbL Disable EnbL Enable (Default : Disable)

Parameters	Settings (Default Value)
Control / alarm Set-point Adjustment Permission SPoP	dSbL Disable EnbL Enable (Default : Disable)
Digital Input Function dIFC	nonE None LLOy Water Level ARCP Alarm ACK (Default : None)
Water Level Logic YLLO	OPEn Open as Low CLOs Close as Low (Default : Open as Low)
Baud Rate BAUD	48 4800 96 9600 192 19200 384 38400 576 57600 (Default : 9.6)
Parity PAR.	nonE None EuEn Even Odd Odd (Default : Even)
Device Slave Id Id	1 to 127 (Default : 1)
Serial Write Permission CoNE	no No YES Yes (Default : No)

ALARM PARAMETERS : PAGE-10	
Parameters	Settings (Default Value)
Select Channel SEL	0C Temp rh Humidity (Default : Temp)
Alarm-1 Type AL_1	nonE None P.Lo Process Low P.Hi Process High dE Deviation Band bRNd Window Band (Default : None)
Alarm-1 Hysteresis ALHY	0.2 to 99.9 (Default : 2.0)
Alarm-1 Inhibit ALh	no No YES Yes (Default : No)
Alarm-2 Type AL_2	nonE None P.Lo Process Low P.Hi Process High dE Deviation Band bRNd Window Band (Default : None)
Alarm-2 Hysteresis ALHY	0.2 to 99.9 (Default : 2.0)
Alarm-2 Inhibit ALh	no No YES Yes (Default : No)

RECORDER (RETRANSMISSION) PARAMETERS : PAGE 15	
Parameters	Settings (Default Value)
Select Channel SEL	0C Temp rh Humidity (Default : Temp)
Recorder Output Type RECo	0-20 0 - 20mA 4-20 4 - 20mA 0-5 0 - 5 V 0-10 0 - 10 V (Default : 4 - 20mA)
Recorder Low RECL	Temp : 199.9 - 999.9 RH : 0 to 100% (Default : 0.0)
Recorder High RECH	Temp : 199.9 - 999.9 RH : 0 to 100% (Default : 100.0)

TABLE- 1		
Option	Range (Min. to Max.)	Resolution
rtD 3-wire, RTD Pt100	-199.9 to +600.0°C	0.1 °C
0-20 0 to 20mA DC current	-199.9 to 999.9 units	0.1 units
4-20 4 to 20mA DC current		
0050 0 to 50mV DC voltage		
0200 0 to 200mV DC voltage		
125 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

The diagram shows the front panel of the PPI HumiTherm-cS controller. It features a large LCD display showing '40.0' and '60.0'. To the left of the display are indicators for Alarm-1 Status (AL1), Alarm-2 Status (AL2), and Compressor On-Off Status (COMP). To the right are indicators for Upper Readout (HEAT), Lower Readout (HUMI), and Tuning Status (TUNE). Below the display are several control keys: Temperature Set-point Key (°C SP), Standby Key (STBY), Page Key (VIEW), and Down Key (▲). A separate section titled 'Keys Operation' lists the functions of these keys: PAGE (enter/exit set-up mode), DOWN (decrease value), UP (increase value), ENTER (store parameter), °C SP (Temp. Set-point Edit), %RH SP (%RH Set-point Edit), STBY (Standby Mode), and VIEW (View Status).

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	Press to store the set parameter value and to scroll to the next parameter on the PAGE.
	Temp. Set-point Edit	Press to enter edit mode for Temperature Set-point.
	%RH Set-point Edit	Press to enter edit mode for %RH Set-point.
	Standby Mode	Press to enter/exit Standby operation mode.
	View Status	Press to view infrequently used process information like output control power and Wet Bulb SP.

PV Error Indications

Message	PV Error Type
Or	Over-range (Dry Bulb Temperature above Max. Range)
Ur	Under-range (Dry Bulb Temperature below Min. Range)
OPEn	Open (Dry Bulb Sensor (RTD) Broken / Open)

ELECTRICAL CONNECTIONS

PPI HumiTherm-cS B073-V4

BACK PANEL CONNECTIONS

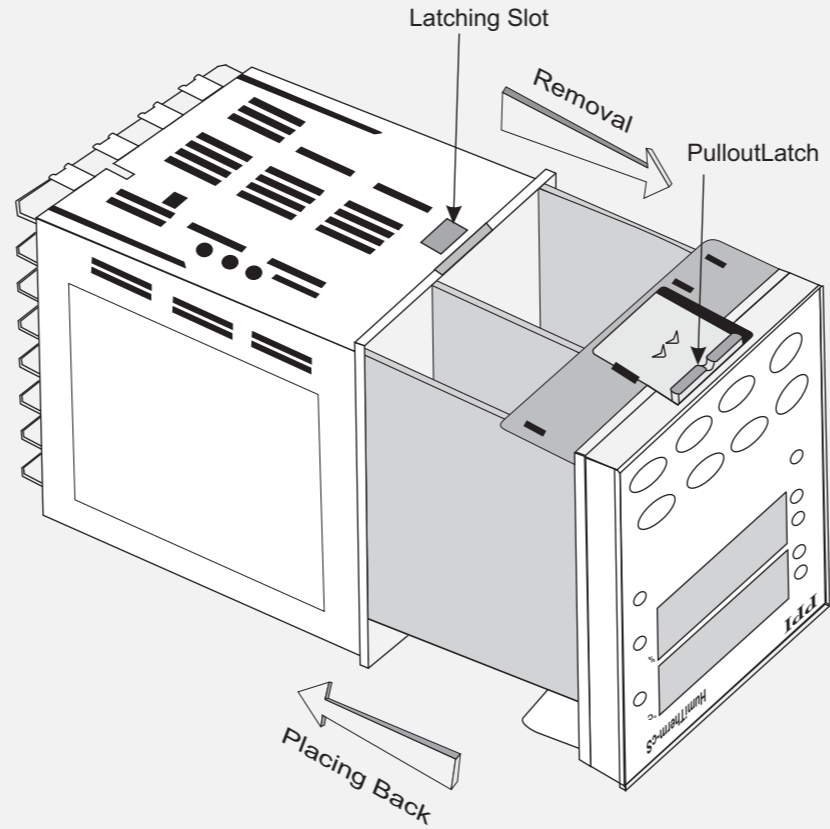
11	12	13	14	15	16	17	18	19	20
Pt100				Pt100				5V/12V Ext. Voltage	
+ mA -				+ mA -					
+ mV/V -				+ mV/V -					

Input-1 (Temp / Dry) Input-2 (%RH / Wet) CE

31	32	33	34	35	36	37	38	39	
NO	RLY	C	NO	RLY	C	NO	RLY	C	
+ SSR -				+ SSR -					
Temp Control OP1				%RH Control OP2				Comp Control OP3	
				Temp Retrans OP5				%RH Retrans OP6	

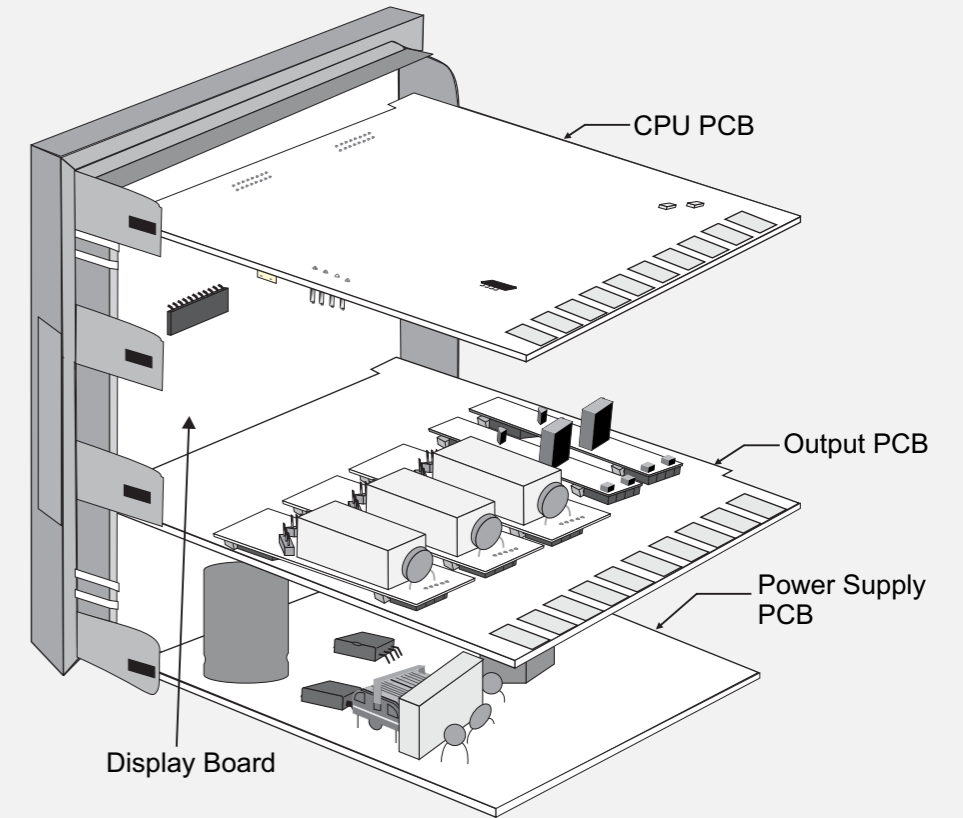
1	2	3	4	5	6	7	8	9	10
L	N	C	RLY	NO	24V DC	B-	B+	Water Low / Alarm ACK	
85 to 265 V AC SUPPLY		Alarm OP4		Ext. Voltage		RS485 Comm			

ENCLOSURE ASSEMBLY

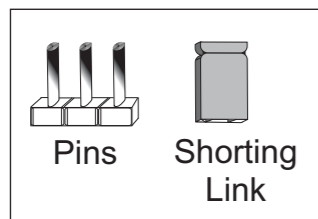
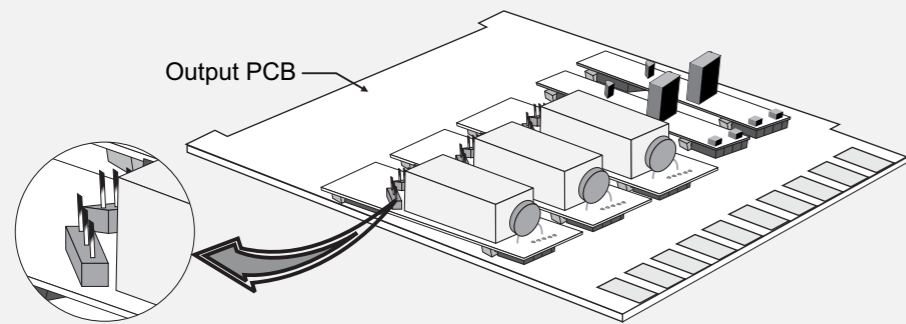


BOARD ASSEMBLY

The electronic assembly comprises of four Printed Circuit Boards (PCB); CPU PCB, Display PCB, Output PCB & Power Supply PCB. The figure below shows position of each PCB inside the enclosure.

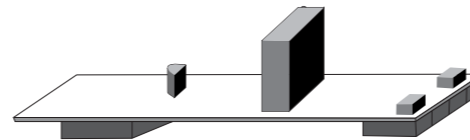


JUMPER SETTINGS



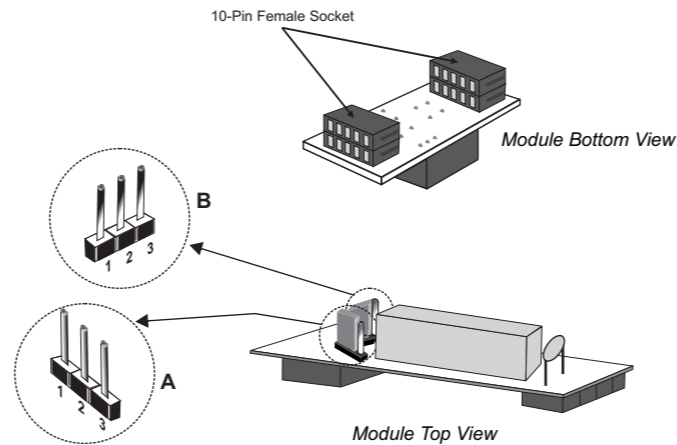
Output Type	Jumper Setting - A	Jumper Setting - B
Relay		
SSR		

DC Voltage/Current Module



Relay / SSR Module

10-Pin Female Socket



MOUNTING DETAILS SERIAL COMM. MODULE

