



Microprocessor Based Multistage Temperature Controller & Two Channel 365 Day Time Switch **HTC– DIGITAL-TC**

Features

- Australian Made and designed
- Combined Temperature & Time Switch Functions
- Power Supply can be either 24V or 240V AC
- 5 Fully Programmable 2 Amp (Resistive) Relays
- Two 0-10VDC Heating & Cooling Outputs
- Two 365 Day Programmable Time Switches
- Optimised Start Feature
- Large LED Temperature Display
- LED Indication of all Outputs
- Two 0-10VDC Analogue Outputs
- Selectable Pre-set Inbuilt Programs
- Mounts in most M.C.B din rail enclosures
- Compatibility to a vast range of AC Units & Heat Pumps

Use

The HTC-DIGITAL-TC is a fully programmable microprocessor based Temperature Controller & Two Channel 365 day Time Switch.


This controller is intended for use in applications where the control of On/Off Stages of Heating and Cooling and/or sequencing of modulating actuators is required.

The Controllers five relays can each be assigned individual functions and a multitude of characteristics, and the two Analogue Output signals can also be programmed individually for Start & Range.

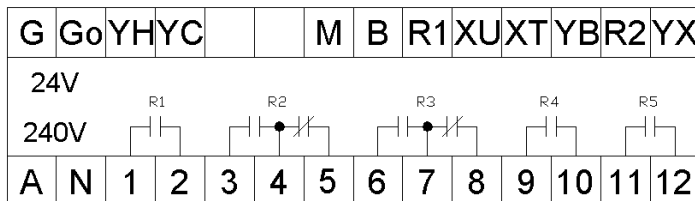


Made in Australia
100% Australian Owned Company

General Specifications	Operating Voltage	24 Volts AC or 240 Volts AC
	Power Consumption	
	At 240 Volts	7 VA
	At 24 Volts	1 VA
	Switching Capacity of Relays	
	Voltage	AC 0...250 Volts
	Current	2.0 (0.75) Amps
	Set point Setting Range	8...33 oC in 0.1 oC Increments
	Relay Switch ON Points (Dead band)	0.1...9.9 oC
	Relay Hysteresis (Switching Differential)	0.3...9.9 oC
	Relay to Energise Time Delay	0.1...9.9 Minutes
	Yh/Yc Output Voltage Range	0...10VDC
	Yh/Yc Start Point (Dead band)	0.1...9.9 oC
	Yh/Yc Range (Proportional Band)	0.1...9.9 oC
	Remote Setpoint Shift RSP1 Terminal R1 (Potentiometric)	10k POT Programmable Authority of + or - 0...9.0 oC
	Remote Setpoint Shift RSP2 Terminal R2 (Voltage)	10k POT Programmable Authority of + or - 0...9.0 oC
	Unoccupied Economy Mode added Dead band	1...9.0oC added to both the Heat & Cool Dead band Settings
	Terminal YB Slave Output	0...5VDC over programmable temperature deviation from setpoint
Terminal YB Range	-9.9...+9.9 oC	
Output Indication		
Heating On/Off Stages	5 x Red LED	
Cooling On/Off Stages	5 x Green LED	
System ON Indication	1 x Yellow LED	
Programming Display	10mm Red 7 Segment Display	
Display Resolution	0.1 Increments	
After Hours Run Override	Programmable from 1 to 4 Hours	
Terminal YX Output	RS485 Output to PC for remote monitoring and programming	
Holiday Programming	12 Block dates	
Optimiser Function	Self Adaptive limited to a maximum of 3 hours prior to T/C start	

Environmental Conditions	Operation	
	Ambient Temperature	0...45oC
	Humidity	< 85 % RH (Non Condensing)
	Storage and Transport	
Product Standards	Ambient Temperature	-5...65oC
	Humidity	< 90 % RH (Non Condensing)
	C-tick	 N10842
	Weight	Including Packaging 600 grams
Housing	Colour	Grey
	Material	ABS POLYCARB
	UV Stabilised	YES
	Fire Retardant	YES
	Size	L105mm x W105mm x D60mm
	Mounting Method	35mm Din Rail Mountable
Terminal Designations		

- G 24 Volt AC Supply Active
- Go 24 Volt AC Supply Ground Reference
- YH 0-10 VDC Modulating Heating Output
- YC 0-10 VDC Modulating Cooling Output
- M Sensor Input Common
- B Sensor Input
- R1 10 k Ohms Remote set Point Shift
- XU Unoccupied Economy Mode input
- XT Time Switch Override (After Hours Run ON)
- YB Y Signal Output (For HRC DIG Slave Relay ONLY)
- R2 0-10 VDC Remote set Point Shift
- YX RS485 Communications Port
- A 240 Volt AC Supply Active
- N 240 Volt AC Supply Neutral
- 1 Relay 1 Common
- 2 Relay 1 Normally Open
- 3 Relay 2 Normally Open
- 4 Relay 2 Common
- 5 Relay 2 Normally Closed
- 6 Relay 3 Normally Open
- 7 Relay 3 Common
- 8 Relay 1 Normally Closed
- 9 Relay 4 Common
- 10 Relay 4 Normally Open
- 11 Relay 5 Common
- 12 Relay 5 Normally Open



Abbreviations & Definitions

DB	Dead Band in Degrees Celsius
SD	Switching Differential in Degrees Celsius
PB	Proportional band in Degrees Celsius
TD	Time Delay 0.1 = 10 Seconds 1.0 = 1 Minute
MODE	S1 to S5 = Stage 1,2,3,4 & 5 H1 to H5 = Heating Stages 1,2,3,4 & 5 C1 to C5 = Cooling Stages 1,2,3,4 & 5 Sr = System RUN

Program **PR1** Test program 4 Heat/4 Cool

OUTPUT	MODE	DB	SD	PB	TD
R1	S1	1.0	0.3	-	0.1
R2	S2	2.0	0.3	--	0.2
R3	S3	3.0	0.3	-	0.3
R4	S4	4.0	0.3	-	0.4
R5	Sr	-	-	-	-
YH	-	-	-	0.5	-
YC	-	-	-	0.5	-

Program **PR2** 1 Heat/1 Cool

OUTPUT	MODE	DB	SD	PB	TD
R2	H1	1.0	0.5	--	1.0
R3	C1	1.0	0.5	-	1.0
R5	Sr	-	-	-	-

Program **PR3** (Factory setting) 2 Heat/2 Cool

OUTPUT	MODE	DB	SD	PB	TD
R1	H2	2.0	0.7	-	2.0
R2	H1	1.0	0.5	--	1.0
R3	C1	1.0	0.5	-	1.0
R4	C2	2.0	0.7	-	2.0
R5	Sr	-	-	-	-

Program **PR4** 2 Heat/2 Cool + YC Economy Cycle

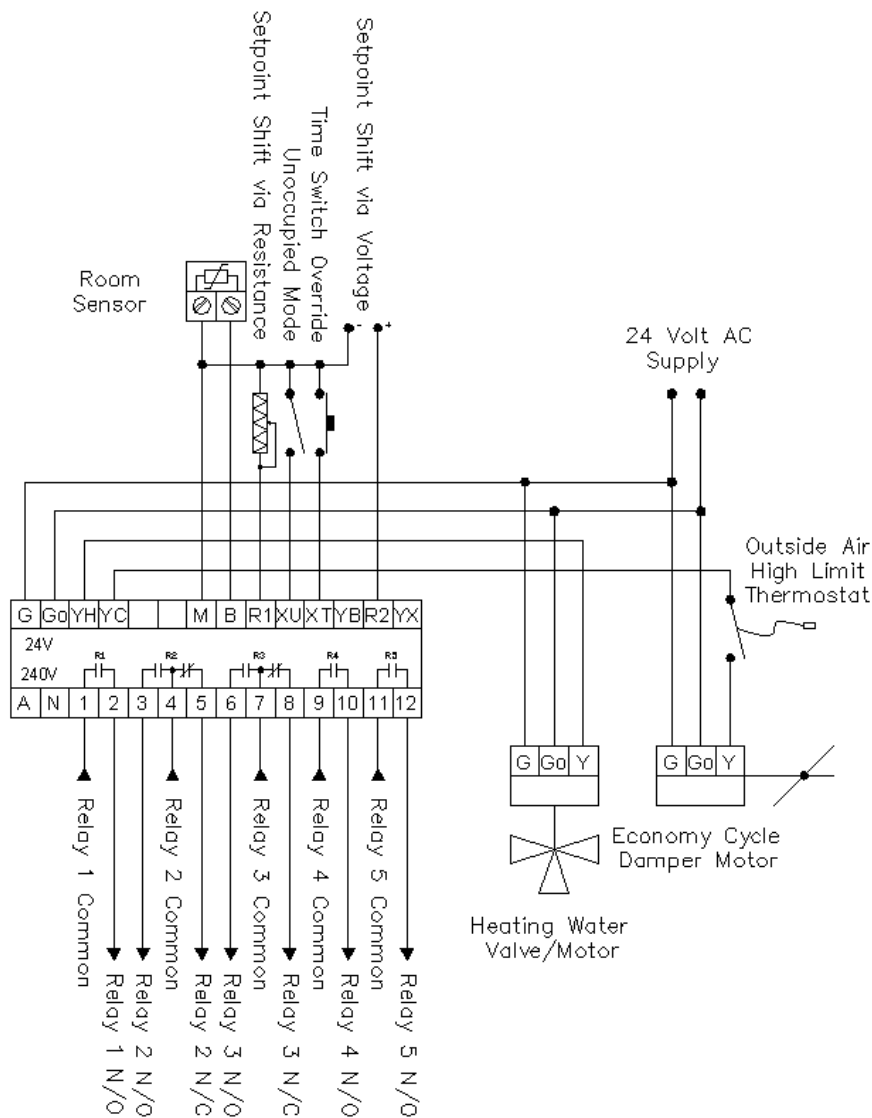
OUTPUT	MODE	DB	SD	PB	TD
R1	S1	1.0	0.3	-	0.1
R2	S2	2.0	0.3	--	0.2
R3	S3	3.0	0.3	-	0.3
R4	S4	4.0	0.3	-	0.4
R5	Sr	-	-	-	-
YC	-	-	-	0.5	-

Pre Loaded Programs (Continued)

Program **PR5**
 2 Stage Reverse Cycle A/C Unit
 + YC Economy Cycle
 + 1 Stage Electric Element

OUTPUT	MODE	DB	SD	PB	TD
R1	H3	3.0	1.0	-	3.0
R2	H1	1.0	0.5	--	1.0
R3	C1	1.0	0.5	-	1.0
R4	S2	2.0	0.7	-	2.0
R5	Sr	-	-	-	-
YC	-	0.1	-	1.0	-

Typical Wiring Connections



Wiring Considerations

- Supply Voltage** The Controller requires either a 240Volt AC or 24 Volt ACV Supply
 This diagram assumes a 24 Volt AC connection
- Warnings** Use ONE Supply Voltage Only either 240 or 24 Volts AC
- Cabling Requirements** Its is recommended to connect remote input devices using either twisted pair or screened cable. If using screened cable the shield should be grounded to a good Earth at the controller end only.