

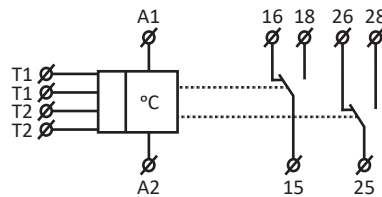
## Thermtec-RT6FD

### Digital Thermostat with built-in Time Switch



The Thermtec-RT6FD has 6 functions and a built-in time switch with a day, week and year program. It can be used to modify or disable thermostat functions according to periods specified by the user. Common applications are complex water and solar heating scenarios.

- The relay features two temperature inputs and two no volt outputs
- Built-in sensor disconnection and sensor short circuit monitoring
- Selectable output functions and setting of temperature offset
- Wide range for setting control temperature -40°C to 110°C
- Backlit LCD display
- AUTO, PROGRAM, RANDOM, HOLIDAY and MANUAL switching modes
- 100 memory locations for time programs (common for both channels)
- Programming can be done when connected to the power supply or on battery backup
- The relay outputs will not function when running on battery backup
- Choice of automatic daylight savings time transition according to time zone
- Sealable transparent cover on front panel
- The time switch clock has a battery backup, in case of a power outage
- Power supply: 230Vac
- 2-module, DIN-Rail mounting



#### Order Code

**Thermtec-RT6FD**

#### Thermtec-RT6FD Technical Specification

Supply Terminals	A1 - A2
Supply Voltage	230Vac (AC 50 - 60Hz), Galvanically Isolated
Consumption	4VA / 0.5W max.
Max. Dissipated Power (Un + Terminals)	3W
Supply Voltage Tolerance	-15%, +10%
Backup Battery Type	CR 2032 (3V)
Measuring Terminals	T1 - T1 and T2 - T2
Temperature Range	-40°C to +110°C
Hysteresis (Sensitivity)	Adjustable within range 0.5°C to 5°C
Difference	Adjustable 1°C to 50°C
Sensor	Thermistor NTC 12kΩ at 25°C
Sensor Failure Indication	Displayed on LCD*
Measuring Accuracy	5%
Repeat Accuracy	< 0.5°C
Temperature Dependence	< 0.1% / °C
Number of Functions	6
Changeover Contacts	2 x Changeover (AgNi)
Rated Current	8A / AC1
Switching Capacity	2000VA / AC1, 240W / DC

\* *ERRRR* = Sensor short circuit (output relay is disconnected) / *NO SENSOR* = The sensor is disconnected (output relay is disconnected)

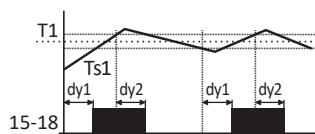
## Thermtec-RT6FD Technical Specification

Switching Voltage	250Vac / 30Vdc
Output Indication	Symbol ON/OFF
Mechanical Life	5,000,000 Cycles
Electrical Life (AC1)	50,000 Cycles
Real Time Back-Up	Up to 3 Years
Accuracy	Max. $\pm 1s/day$ at 23°C
Minimum Interval	1 minute
Data Stored for	Min. 10 Years
Number of Memory Places	100
Program	Daily, Weekly, Yearly
Data Readout	LCD Display with Back Light
Operating Temperature	-10°C to +55°C
Storage Temperature	-30°C to +70°C
Electrical Strength	4kV (Supply Output)
Operating Position	Any
Mounting	DIN-Rail EN 60715
Protection Degree	IP40 from Front Panel / IP20 Clips
Overvoltage Category	III
Pollution Degree	2
Max. Cable Size (mm <sup>2</sup> )	Solid Wire max. 1x 2.5 or 2x 1.5 / Stranded Wire with Ferrule max. 1x 2.5
Dimensions	90 x 35 x 64mm
Weight	150g
Standards	EN 61812-1, EN 61010-1, EN 60730-2-9, EN 60730-1, EN 60730-2-7

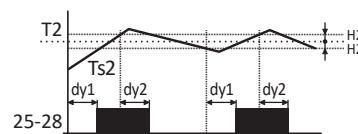
## Thermtec-RT6FD Functions

### A: 2 Independent Single-Stage Thermostat

Heater Function



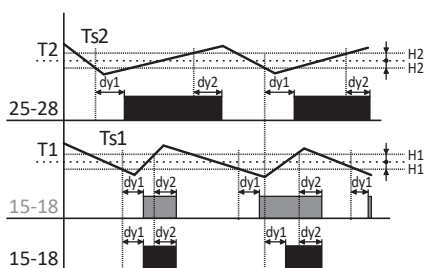
Heater Function



The output contact is closed until the set temperature is reached. Hysteresis eliminates frequent switching. Heating/cooling function adjusted in the menu.

Ts1 - Real (measured) temperature 1  
Ts2 - Real (measured) temperature 2  
T1 - Set temperature T1  
T2 - Set temperature T2  
H1 - Hysteresis setting for T1  
H2 - Hysteresis setting for T2  
dy1 - Delay time of output switching on  
dy2 - Delay time of output switching off  
15-18 - Output contact (for T1)  
25-28 - Output contact (for T2)

### B: Dependent Functions of 2 Thermostats

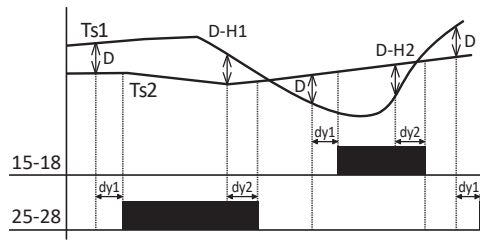


Ts1 - Real (measured) temperature 1  
Ts2 - Real (measured) temperature 2  
T1 - Set temperature T1  
T2 - Set temperature T2  
H1 - Hysteresis setting for T1  
H2 - Hysteresis setting for T2  
dy1 - Delay time of output switching on  
dy2 - Delay time of output switching off  
25-28 - Output contact (for T2)  
15-18 - Output contact (intersection T1 & T2)

Output 15-18 is closed, if temperature of both thermostats is below an adjusted level. When any thermostat reaches adjusted level, the contact 15-18 opens.

# Techna MONITORING RELAYS

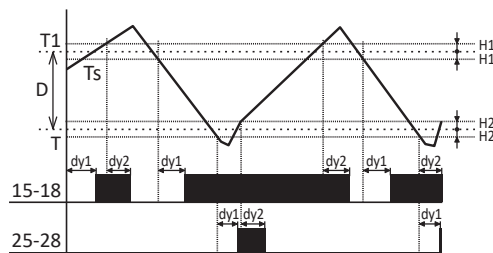
## C: Differential Thermostat



Ts1 - Real (measured) temperature 1  
 Ts2 - Real (measured) temperature 2  
 D - Set difference  
 H1 - Hysteresis setting for T1  
 H2 - Hysteresis setting for T2  
 dy1 - Delay time of output switching on  
 dy2 - Delay time of output switching off  
 15-18 - Output contact (for T1)  
 25-28 - Output contact (for T2)

Switching of output corresponds with input, which has lower temperature when difference is exceeded differential thermostat is used for keeping two identical temperature e.g. in heating systems (boiler and reservoir), solar systems (collector, reservoir exchanger), water heating (water heater, water distribution) etc.

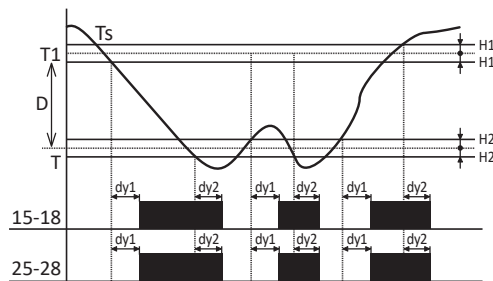
## D: 2-Stage Thermostat



Ts - Real (measured) temperature T  
 D - Set difference  
 T1 - Set temperature T1  
 $T = T1 - D$   
 H1 - Hysteresis setting for T1  
 H2 - Hysteresis setting for T  
 dy1 - Delay time of output switching on  
 dy2 - Delay time of output switching off  
 15-18 - Output contact  
 25-28 - Output contact

Typical example of use for two-stage thermostat is e.g. in a boiler-room, where there are two boilers where one is the main and the other one is an auxiliary. The main boiler is managed according to set temperature and the auxiliary boiler is switched on in case temperature falls under the set difference. In the range of the set difference (D) the output 15-18 acts as a normal thermostat according to input 1. In case temperature falls under set difference, output contact 2 (25-28) switches on.

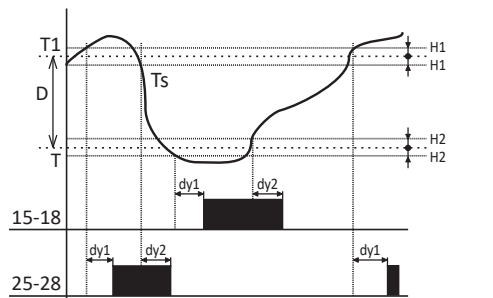
## E: Thermostat with Open Window Detection



Ts - Real (measured) temperature  
 D - Set difference  
 T1 - Set temperature  
 $T = T1 - D$   
 H1 - Hysteresis setting for T1  
 H2 - Hysteresis setting for T  
 dy1 - Delay time of output switching on  
 dy2 - Delay time of output switching off  
 15-18 - Output contact  
 25-28 - Output contact

Output is closed (heating) only if the temperature is within the set range. If temperature is outside of the range, the contact opens. T is set as T1-D. This function can be used for open window detection.

## F: Thermostat with Dead Zone



Ts - Real (measured) temperature  
 D - Set difference  
 T1 - Set temperature  
 $T = T1 - D$   
 H1 - Hysteresis setting for T1  
 H2 - Hysteresis setting for T  
 dy1 - Delay time of output switching on  
 dy2 - Delay time of output switching off  
 15-18 - Output contact (heating)  
 25-28 - Output contact (cooling)

In case of thermostat with a „dead zone“, it is possible to set the temperature T1 and a difference (the width of the dead zone D). If the temperature is higher than T1, the output contact for cooling switches ON; if the temperature goes below T1, the contact switches OFF. If the temperature goes below temperature T, the contact for heating switches ON and it switches OFF when temperature T is exceeded. This function can be used for maintaining a stable temperature within the range T1 and T.