



MTC35-C20 Temperature Controller Instruction Manual

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1. Introduction

The MTC35-C20 Temperature Controller is a particularly flexible controller, which allows On/Off control of indoor temperature for energy saving.

The controller has two temperature sensors(one for indoor, other for outdoor) as input and two outputs which are controlled by a MCU according to value programmed for the parameters in Parameter List.

Temperature sensor: NTC, range: -50~150 °C.

To get the best performance, before installing and using it, read this instruction manual carefully.

2. Coding

MTC35-C20-2T-2R-220V

① ② ③ ④

① Software Function

| | |
|-----|----------------------------------|
| C20 | Air conditioner Temp. controller |
|-----|----------------------------------|

③ Output

| | |
|----|----------|
| 2R | 2 Relays |
|----|----------|

② Input

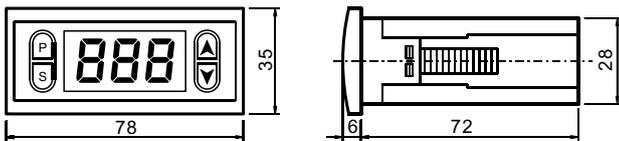
| | |
|----|-----------------------|
| 2T | 2 temperature sensors |
|----|-----------------------|

④ Power Supply

| | |
|------|---------|
| 220V | 220V AC |
|------|---------|

3. Dimensions and Mounting

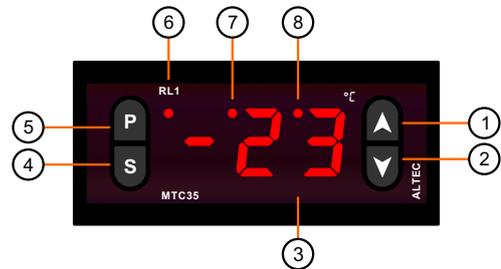
- 1) Prepare a rectangular cut-out in the mounting panel to the size 72×30mm.
- 2) Insert the controller from the front panel cut-out.
- 3) From behind of the panel, slide the mounting brackets into the guides on the side of the housing. The flat faces of the mounting brackets must lie against the housing.
- 4) Push the mounting brackets up to the back of the panel, and tighten them evenly.



Note:

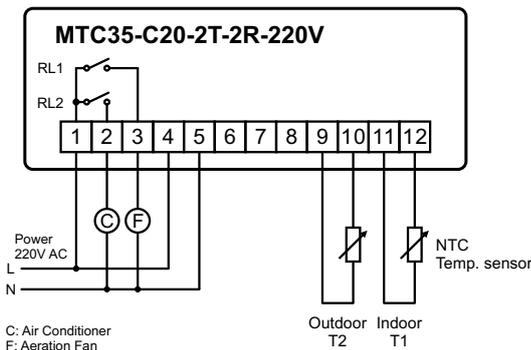
Please completes waterproof processing properly, in order to avoid seeps causes the instrument damage.

4. Front Panel Layout



- ①. Up Key
- ②. Down Key
- ③. Display Indicates PV, Parameters and Values
- ④. Setting Key(S)
- ⑤. Parameter Key(P)
- ⑥. Output 1 indicator(RL1)
- ⑦. Output 2 indicator(RL2)
- ⑧. Outdoor Temp. displaying indicator(T2) lit when outdoor temperature is displaying

5. Electrical Connection



C: Air Conditioner
F: Aeration Fan

6. Operation

6.1 Viewing the PV

Mounting and wire up the controller and switch on, 3 seconds later, the indoor measured temperature will appear on display. Indoor temperature T1 and outdoor temperature T2 displaying can be exchange by pressing S key. When the 'Outdoor Temp. displaying indicator' is lit, the display indicates the outdoor temperature.

6.2 Setpoint Adjusting

During the basic functioning, press key 'P' and hold for 1 second, temperature setpoint L_i appears on the display. Press key 'S', the value of L_i appears; press keys ▲ or ▼ to increase or decrease setpoint. Keeping it pressed results in a progressively faster variation. Press key 'P' again, next parameter H_i appears, setting its value in the same way.

6.3 Output Action

The controller performs ON/OFF control algorithm, setpoint is *L1*, hysteresis is *HYS*.
 When the indoor temperature T1 is greater than the setting temperature(i.e. setpoint) *L1*, the controller act due according to the following rules:

- 1) $T2 > L1$, relay RL1 will be ON, start the air conditioner to cool;
- 2) $T2 < L1$, relay RL2 will be ON, start the aeration fan to cool.

In order to avoid compressor switch off and on frequently, must set the minimum off time *rtf* between the switch OFF and switch ON, regardless of the input value.

6.4 Parameter List

Switch off the controller; press keys ▲ and ▼ and hold on, switch the controller on again. Parameter SPK appears on display. Parameter selection and the display of the value is obtained by pressing key S repeatedly; change with keys ▲ and ▼ and store with S.

| SN | Mnemonic | Parameter | Adjustable Range | Parameter Description |
|----|------------|-------------------------|-------------------------|---------------------------------------------------------------------|
| 1 | <i>L1</i> | Setpoint | <i>SPH</i> ~ <i>SPL</i> | Operation parameter |
| 2 | <i>HYS</i> | Hysteresis | 1~ <i>HYS</i> | |
| 3 | <i>SPH</i> | Setpoint high limit | -50~150 °C | to limit <i>L1</i> 's adjustable range |
| 4 | <i>SPL</i> | Setpoint low limit | -50~150 °C | |
| 5 | <i>HYS</i> | Hysteresis range | 1~25 °C | to limit <i>HYS</i> 's adjustable range |
| 6 | <i>rtf</i> | Min. off time for relay | 0~10 minutes | Compressor protection |
| 7 | <i>PFI</i> | Sensor failure output | <i>on</i> <i>OFF</i> | Relay 'ON' while sensor failure Relay 'OFF' while sensor failure |

6.5 Sensor Failure

While temperature sensor connection breakdown *ur* is displayed, or while overrange *5nb* is displayed.

At this time, relay output are determined by *PFI* as shown in the parameter list.

Technical Data

| | |
|----------------------|--------------------------------------|
| Measurement range | -50~150 °C |
| Resolution | 1 °C |
| Sample rate | 125ms |
| Temperature sensor | NTC, PVC Wire, 2.0m |
| Relay contact rating | 5(8)A/250VAC |
| Control algorithm | ON/OFF |
| Power supply | 220V AC, ≤2.0W |
| Dimensions | W78×H35×D78mm |
| Environmental | Temp: -20~55 °C, Rel. Humidity: ≤85% |