

Instruction of MCTC-100 Milk Can Temperature Controller

Inspection before use and installing requirements:

- ◆ Power supply must be the same as the power labeled on the products and ensure the power supply stably
- ◆ Prohibit to use in water and humidity environment, prohibit to use under the environments of high temperature, high electromagnetism interference and high corruption.
- ◆ Down-leads of sensor and power should be kept a proper distance from each other
- ◆ Sensor down-lead, power wire and interface of output relay must be distinguished strictly. Prohibit to overload the relay current.

Specification and technical parameters:

- ◆ Product size: 180.0×100.0×54.0 (mm)
- ◆ Installing hole size: 169.5×89.5 (mm)
- ◆ Environment temperature: 0℃~60℃
- ◆ Relative humidity: 20%~85% (No condensate)

Main technical parameters:

- ◆ Temperature measuring range: -10℃~+50℃
- ◆ Temperature controlling range: -5℃~+10℃
- ◆ Resolution: 0.1℃
- ◆ Accuracy: ±1℃
- ◆ Temperature calibration: -5℃~+5℃
- ◆ Alarm when exceeding temperature limit: 1℃~5℃
- ◆ Mixer mixing cycle: 0~100 Minutes Mixer mixing time: 0~100 Minutes
- ◆ Relay contact capacity: 10A/240V

Main function:

- ◆ Temperature measuring and controlling
- ◆ Compressor delay time (0~7 Minutes) adjustable
- ◆ The alarm value of exceeding temperature limit 1℃~5℃ adjustable
- ◆ Sensor temperature calibration function
- ◆ Mixer enforces to open and close
- ◆ Mixer mixing cycle adjustable
- ◆ Milk pump manually control
- ◆ Alarm and protect when compressor, mixer and milk pump error

Key functions:

- ◆ Under normal temperature displaying status:
 - ◇ Start/stop key: press for 2 seconds to force starting or stopping of compressor, mixer. When electrified the machine starts in default.
 - ◇ Set key: press for 2 seconds into parameters setting status or save the changed value and quit setting status.
 - ◇ Confirming Key: This key for confirming the parameter setting. The key valid when in setting status
 - ◇ ▲ Key: press and quickly release to display upper temperature limit value, lower temperature limit value each for 2 seconds, and then display normal temperature.
 - ◇ ▼ Key: press and quickly release to display Mixer mixing cycle, mixing time each for 2 seconds, and then display normal temperature.
 - ◇ Milk pump Key: press for 2 seconds, manually start or close milk pump
 - ◇ Mixer Key: The key valid when under non-refrigeration status. Press for 2 seconds, start or stop mixing.

Operation description:

- ◆ Password input:
 - when electrified, press Set key for 2 seconds, LED displays "_ _ _" for password input from One-digit in default; Change the password value by "▲" or "▼" key, press Confirming key to switch into Ten-digit and Hundred-digit password input; after inputting the three digits and then press Confirming key into parameter setting status. Return to temperature measuring status if password inputting error.
- ◆ Parameters set:
 - ◇ When in setting status, display parameter code, press "▲" or "▼" key to change parameter code F1、F2.....
 - ◇ After select the parameter code, press Confirming key to display the former changed

parameters, press "▲" or "▼" to change the parameters, press Confirming Key and the changed parameters are stored temporarily and return to former parameter item; press "▲" or "▼" key again to display next parameter item, press Confirming key to display former set parameter value, and press "▲" or "▼" key to change the parameters and then press Confirming key to store temporarily. By this way to change all the parameters.

◇ After the set all the parameters, press Set key for more than 3 Seconds to confirm and quit parameter setting status and then turn to temperature measuring status. After the set of all the parameters, if no press on any key for 3 seconds it will quit. If no press on any key for 30 seconds system will quit from parameter setting status to temperature measuring status automatically, but system does not store the changed parameters, run by the former setting values.

◆ Main functions:

◇ Refrigeration Function:

1. Refrigeration starts when 50℃ > measuring temp. > upper limit temp.; Refrigeration stops when measuring temp.

< lower limit temp. Compressor stops when sensor error. Indicating lights on when compressor working, lights off when compressor not working. Compressor2 lags compressor1 for about 30 seconds for delay.

2. Compressor starting delay protection: in no matter what conditions, the interval between compressor stopping and next starting should > delay time. Compressor delay refrigeration indicating lights on and blinks.

◇ Mixing Function:

1. Under refrigeration status, mixer delays to start for 1 second after compressor starting, and then continuously runs and delays to stop for 3 minutes after compressor stopping. Mixer indicating lights on when it works and lights off when it stops.

2. Under non-refrigeration status, Mixer works by the set mixer cycle

3. Enforce to start/stop Mixer, under non-refrigeration status press Mixer key for 3 seconds start/stop Mixer; under refrigeration status it is invalid. When Mixer enforces to start, it continuously works till enforcing stop. When

Mixer

enforces to stop, re-enter into mixing cycle automatically. Mixer indicating lights on when it enforces to start; lights off when it enforces to stop.

◇ Milk pump:

Press Milk pump key for 2 second then Milk pump works, press the key for 2 seconds again to stop Milk pump.

Milk pump indicating lights on when it works and lights off when it stops.

Alarm and error protection:

◇ Alarm when exceeding the temperature limit:

Measuring temperature displays blinkingly with buzzer when 50℃ > Measuring Temp. > upper temp. limit + alarming value of exceeding the temperature limit or -10℃ < Measuring Temp. < lower temp. limit - alarming value of exceeding the temperature limit.

◇ Alarm when exceeding the measuring range:

Measuring Temp. > 50℃, display HHH with buzzer; Measuring Temp. < -10℃, display LLL with buzzer

◇ Sensor error alarm

When sensor error, LED displays EEE with buzzer

◇ Outside error protection and alarm

Outside protector works when Compressor, Mixer or Milk pump error and relative indicating lights on, and cut off all the control output, LED displays error code CCC with buzzer. After error elimination, error alarm, indication and protection cancel automatically

Code	Parameters	Set range	Unit	Default
F1	Temp.Upper limit	-4~+10	℃	6
F2	Temp.Lower limit	-5~+9	℃	4
F3	Exceeding Temp. Alarm	1~5	℃	1
F4	Temp. calibration	-5~+5	℃	0
F5	Compressor delay adjustment	0~7	Min.	3
F6	Mixing cycle	1~100	Min.	15
F7	Mixing time	1~100	Min.	5
F8	password	000~999		111