

MT-518C

TWO STAGES CONTROLLER

Version 11



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 MADE IN BRAZIL



DESCRIPTION

MT 518C controls and indicates the temperature. It has one sensor and two outputs that can be configured for refrigeration or heating or both.

APPLICATIONS

If configured for refrigeration it controls two stages. If configured for air conditioning, it can work on Winter/Summer automatic system with neutral zone. In a third application, the instrument controls the 1st stage temperature and makes the 2nd stage configurable for alarm (in or out of the range).

TECHNICAL SPECIFICATIONS:

- **Power supply:** 127 or 220 Vac (50/60Hz)
12 or 24 Vac/dc
- **Control Temperature:** -50 to 105°C (decimal resolution between -10 and 100 °C)
- **Inputs:** NTC sensor
- **Load current:** 5 Amperes (resistive load)
- **Dimensions:** 71 x 28 x 60mm
- **Operation temperature:** 0 to 50 °C
- **Operation Humidity:** 10 to 90% RH (without condensation)

CONFIGURATIONS

CONTROL TEMPERATURE ADJUST (SETPOINT):

- Press **SET** for 2 seconds until **SEt** appears, then release it. **SE1** will appear and the adjusted temperature for 1st stage.
- Use the keys **▼** and **▲** to change the value and then press **SET** to record it.
- Now **SE2** and the adjusted temperature for 2nd stage will appear. (if F08 = 0 or F08 = 1).
- Use the keys **▼** and **▲** to change the value and then press **SET** again.

PARAMETERS TABLE

Function	Description	Minimum	Maximum	Unit
F01	Access code 123 (one hundred and twenty-three)	-	-	-
F02	Display (offset)	-5.0	5.0	°C
F03	1st stage operation mode ⁽¹⁾	0	1	-
F04	Minimum setpoint allowed to the end user (1st stage)	-50	105	°C
F05	Maximum setpoint allowed to the end user (1st stage)	-50	105	°C
F06	Control Differential (hysteresis) of 1st stage	0.1	20.0	°C
F07	Minimum delay to turn on the 1st stage output	0	999	sec.
F08	2nd stage operation mode ⁽²⁾	0	4	-
F09	Minimum setpoint allowed to the end user (2nd stage)	-50	105	°C
F10	Maximum setpoint allowed to the end user (2nd stage)	-50	105	°C
F11	Control Differential (hysteresis) of 2nd stage	0.1	20.0	°C
F12	Minimum delay to turn on the 2nd stage output	0	999	sec.
F13	Alarm delay when the instrument is powered on	0	999	min.
F14	Alarm output time on	0	999	sec.
F15	Alarm output time off	0	999	sec.

Note: F02 function allows to correct eventual shunting lines in the reading, proceeding of the sensor exchange or alteration of sensor length.

If the functions F14 and F15 are set with zero, the **ST2** output will be kept on while the alarm condition persists.

PARAMETERS CONFIGURATION

- Press the keys **▼** and **▲** together to access F01 function for 2 seconds until **Fun** appears and release it. **F01** will appear in the display and then press **SET** (short touch).
- Use the keys **▼** and **▲** to enter with the access code (123), and then press **SET** to enter.
- Use the keys **▼** and **▲** to access the desired function.
- After selecting the function, press **SET** (short touch) to display the configured value for that function.
- Use the keys **▼** and **▲** to change the value and then press **SET** to record the new value and return to the functions menu.
- To return to the normal operation, press **SET** until **---** appear.

FUNCTIONS WITH FACILITATED ACCESS

Registers of minimum and maximum temperatures

Press **▲**. The minimum registered temperature appears and after soon the maximum registered temperature. To reset the registers, keep the key **▲** pressed and during the visualization of the minimum and maximum temperatures until **rSt** to be showed.

If the instrument is configured as alarm, set the F09 and F10 act points normally and ignore **ST2** and F11. If the temperature goes out the specified range and ringing the alarm, press **▼** and **SET** to inhibit the sound.

SIGNALLING

ST1 - 1st stage output on

ST2 - 2nd stage output on

Err - Detached sensor or temperature outside the specified range

⁽¹⁾ First stage operation mode:

- 0 - refrigeration
- 1 - heating

⁽²⁾ 2nd stage operation mode:

- 0 - refrigeration
- 1 - heating
- 2 - alarm (inside of range)
- 3 - alarm (outside of range)
- 4 - relative alarm (outside of range)

With F08=4 the **ST2** output is activated when the temperature reaches a value equal **ST1** minus the configured value in F09 (**ST1-F09**), or when the temperature reaches a value equal **ST1** plus the configured value in F10 (**ST1+F10**)

EX:

-Temperature in **ST1**=25°C

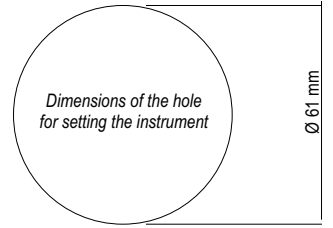
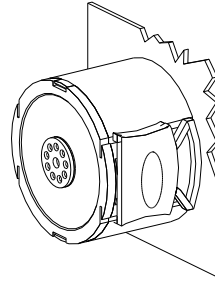
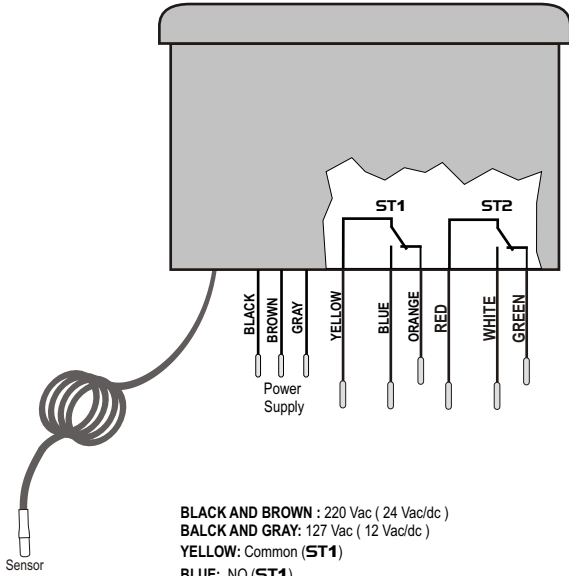
-Value in F08=4

-Value in F09=2

-Value in F10=5

The **ST2** output will be kept on when the temperature is below 23 °C (25-2) or above 30 °C (25+5). If **ST1** value is changed to 24 °C the alarm values will be automatically modified to 22 and 29 °C.

WIRING DIAGRAM



BLACK AND BROWN : 220 Vac (24 Vac/dc)
BALCK AND GRAY: 127 Vac (12 Vac/dc)
YELLOW: Common (**ST1**)
BLUE: NO (**ST1**)
ORANGE: NC (**ST1**)
RED: Common (**ST2**)
WHITE: NO (**ST2**)
GREEN: NC (**ST2**)

Above specified current use contactors.

Note: The user can increase the length of the sensor cable to up to 200 meters, by using PP 2 X 24 AWG cable.
 For cables immersed in water use thermometric protection.

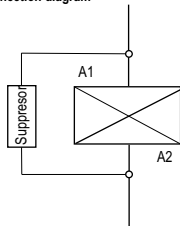
IMPORTANT

According to the chapters from the IEC60364 standard:

- 1: Install protectors against over voltage on power supply
- 2: Sensor cables and computer signals can be together, however not at the same place where power supply and load wires pass for
- 3: Install suppressor of transient (RC filters) in parallel to loads to increase the usefull life of the relays

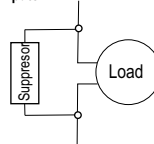
For more information contact our Application Eng. Department through e-mail support@fullgauge.com or dial +55 51 34753308.

Contact suppressor connection diagram



A1 e A2 are the contactor coils

Diagram for suppressor installation for direct drive load inputs



For direct activation the maximum specified current should be taken into consideration.