MT-512E Log Ver.09

DIGITAL INDICATOR AND CONTROLLER FOR HEATING OR REFRIGERATION WITH NATURAL DEFROST THROUGH COMPRESSOR SHUTDOWN AND INTERNAL DATALOGGER

Full Gauge CONTROLS®

⚠ Have this manual in the palm of your hand by **FG Finder** application.

MT512ELOG9-04T-15255

❄ Manual defrost	🔒 Function lock	⏻ Control functions shutdown	Serial programming	LOG Datalogger	Sitrad Supervisory system	IP 65 FRONT Degrees of protection	

NSF COMPONENT

c ᴿᵁ us E251415

1. DESCRIPTION

Designed for cooling or heating application. **MT-512E Log** is equipped with 1 powerful 2HP relay, 1 temperature sensor, 1 digital input, data logger, cyclic time for natural defrost, IP65 frontal, min-max temperature record, sensor response time control, fast freezing mode, tamper-proof function, control functions shutdown and RS485 serial communication port for Sitrad real-time monitoring and management.
Product conforming to UL Inc. (United States and Canada) and NSF (United States).

2. SAFETY RECOMMENDATIONS

- Check the controller for correct assembling;
- Make sure that the power supply is off and that it is not turned on during the controller installation;
- Read the present manual before installing and using the controller;
- Use adequate Personal Protective Equipement (PPE);
- For application at sites subject to water spills, such as refrigerated cabinets, install the protecting vinyl supplied with the controller;
- For protection under more critical conditions, we recommend the Ecase cover, which we make available as an optional item (sold separately);
- The installation procedures should be performed by a qualified technician.

3. APPLICATIONS

• Refrigerated displays
• Walk-in coolers
• Hot cabinets
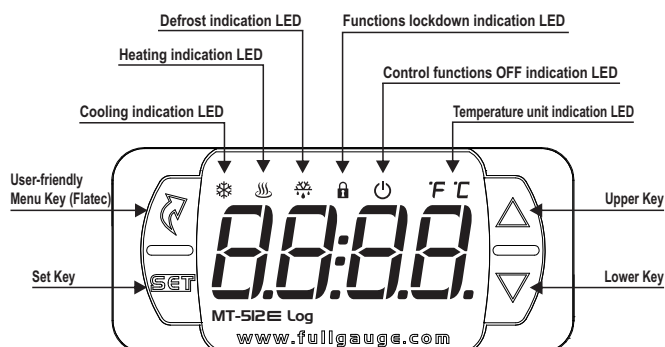• Greenhouses

4. TECHNICAL SPECIFICATIONS

Power supply	**MT-512E Log** 115 or 230 Vac ±10%(*) (50/60 Hz) **MT-512EL Log** 12 or 24 Vac/dc +10%(*)
Control temperature	-50 to 105ºC (-58 to 221°F)(**)
Operating temperature	0 to 50 ºC / 32 to 122°F
Maximum output current	**NO -**16A / 2HP **NC -** 500W / 1/10HP
Maximum consumption of device	1.5 VA
Operating humidity	10 to 90% RH (without condensation)
Dimensions (mm)	76 x 34 x 77 mm (WxHxD)
Cutout dimensions (mm)	71 ± 0,5 x 29 ± 0,5 mm (see image V)

(*)Admissible variation in relation to the voltage rating.
(**)This device can measure and control temperatures of up to 200° C when used in conjunction with a model SB59 silicon sensor cable (sold separately).
Note: Sensor cable length can be increased to up to 200 meters by the user by using a PP 2 x 24 AWG cable.

5. INDICATIONS AND KEYS

Defrost indication LED
Functions lockdown indication LED
Heating indication LED
Control functions OFF indication LED
Cooling indication LED
Temperature unit indication LED

User-friendly Menu Key (Flatec)
Set Key
Upper Key
Lower Key

MT-512E Log
www.fullgauge.com

6. WIRING DIAGRAM

6.1. Identifications (see Images I to IV)

- **Image I:** MT-512E Log, supplied at 115 Vac.
- **Image II:** MT-512E Log, supplied at 230 Vac.
- **Image III:** MT-512EL Log, supplied at 12 Vac/dc.
- **Image IV:** MT-512EL Log, supplied at 24Vac/dc.

⚠ **IMPORTANT**

THE USE OF APPROPRIATE TOOLS IS ESSENTIAL TO AVOID DAMAGE IN THE CONNECTION AT INSTRUMENT TERMINALS:
⊖ SCREWDRIVER SLOT 3/32"(2.4mm) FOR ADJUSTMENTS IN THE SIGNAL TERMINALS;
⊕ SCREWDRIVER PHILLIPS #1 FOR ADJUSTMENTS IN THE POWER TERMINALS;
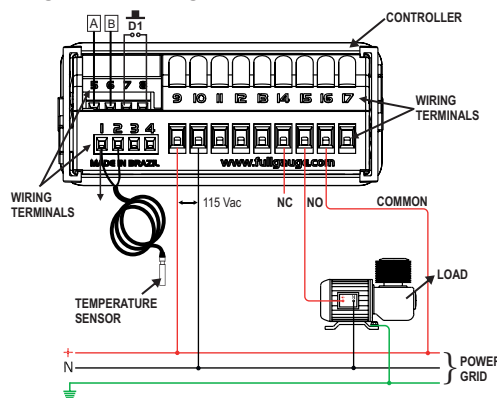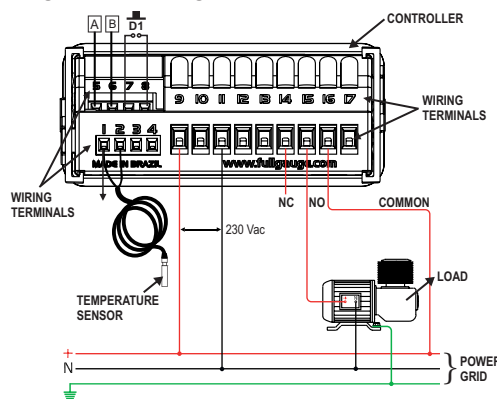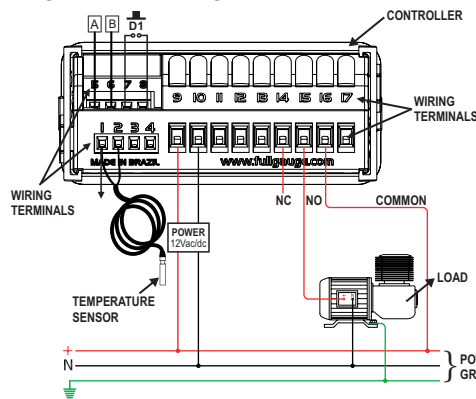
Image I: MT-512E Log - 115Vac

CONTROLLER
WIRING TERMINALS
WIRING TERMINALS
115 Vac
NC   NO   COMMON
TEMPERATURE SENSOR
LOAD
+
N
POWER GRID

Image II: MT-512E Log - 230 Vac

CONTROLLER
WIRING TERMINALS
WIRING TERMINALS
230 Vac
NC   NO   COMMON
TEMPERATURE SENSOR
LOAD
+
N
POWER GRID

Image III: MT-512EL Log - 12Vac/dc

CONTROLLER
WIRING TERMINALS
WIRING TERMINALS
NC   NO   COMMON
POWER 12Vac/dc
TEMPERATURE SENSOR
LOAD
+
N
POWER GRID

Surge Protective Device (SPD) (sold separately)

Wiring diagram for instalation of SPD in magnectic contactor
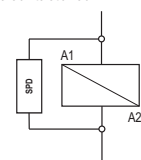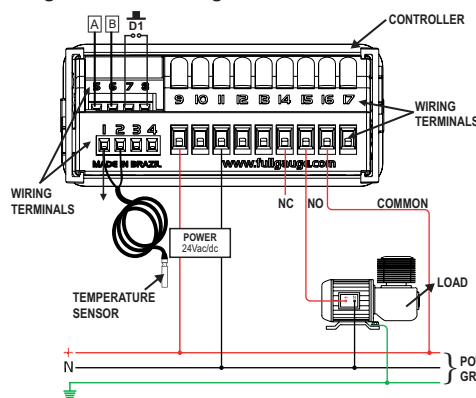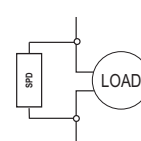A1 and A2 are the terminals of the contactor coil.

SPD A1 A2

Image IV: MT-512EL Log - 24Vac/dc

CONTROLLER
WIRING TERMINALS
WIRING TERMINALS
NC   NO   COMMON
POWER 24Vac/dc
TEMPERATURE SENSOR
LOAD
+
N
POWER GRID

Wiring diagram for instalation of SPD in line with loads
For direct drive take in to consideration the specified maximum current.

SPD   LOAD

6.2. Temperature sensor connection

- Connect the sensor wires to terminals '1 and 2': the polarity is not relevant.
- Length of the sensor cables can be increased by user himself to up to 200 meters, using a PP 2x24 AWG cable.
- For immersion in water, use a thermowell (Image VI - item 13), available in the Full Gauge Controls product line (sold separately).

6.3. Controller power supply

Use the pins according to table below, considering the set version:

Pins	MT-512E Log	MT-512EL Log
9 and 10	115 Vac	12 Vac/dc
9 and 11	230 Vac	24 Vac/dc

6.4. Recommendations of IEC60364 standard

a) Install overload protectors in the controller supply.
b) Install transient suppressors – suppressor filter RC – in the circuit to increase the service life of the controller relay. See connection instructions of the filter on the previous page.
c) The sensor cables may be together, but not in the same conduit where the power supply of the controller and/or of the loads passes through.

7. ASSEMBLING PROCEDURE

a) Cut out the panel plate (Image V - item 13) where the controller shall be fastened, with sizes X = 71±0.5 mm and Y = 29±0.5 mm;
b) Remove side locks (Image VII - item 13): to do that, compress the central elliptical part (with the Full Gauge Controls logo) and displace the locks backwards;
c) Introduce the controller in the notch made on the panel, inwards;
d) Place the locks again and then displace them until they compress into the panel, fastening the controller to the housing (see arrow indication in Image VII - item 13);
e) Perform the electric installation as described in item 6;
f) Adjust the parameters as described in item 8.
⚠ **ATTENTION: for installations requiring liquid tight sealing, the notch sizes for the controller installation should be no more than 70.5x29mm. The side locks should be fastened so that they press the sealing rubber avoiding infiltration between the notch and the controller.**
Protector vinyl - Image VIII (item 13)
It protects the controller when installed at a site subject to water spills, such as refrigerated counters. This adhesive vinyl is supplied with the instrument in the package.
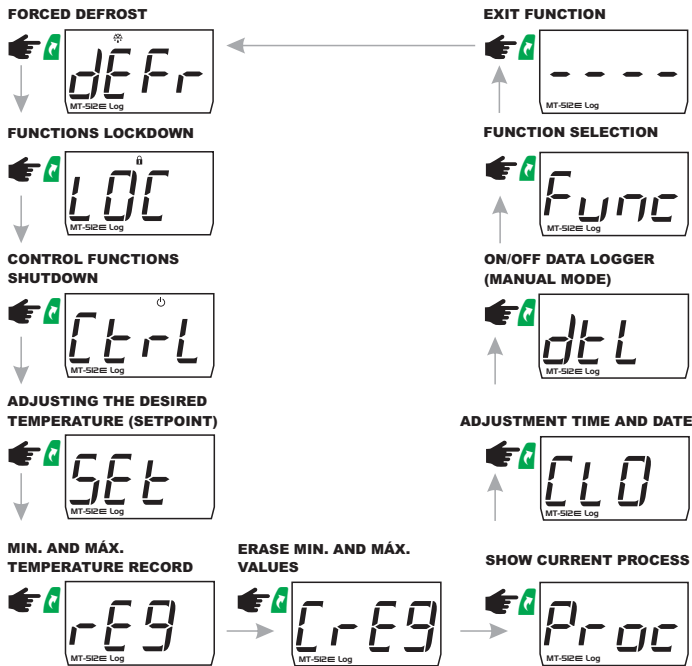⚠ **IMPORTANT: Make the application only after completing the electrical connections.**
a) Retreat the side locks (Image VII - item 13);
b) Remove the protective film from the adhesive vinyl face;
c) Apply the vinyl over the entire upper part, bending the flaps, as indicated by the arrows - Image VIII (item 13);
d) Reinstall the locks.
NOTE: The vinyl is transparent, allowing visualization of the wiring system of the instrument.

8. SETTING THE SETPOINT AND PARAMETERS

8.1. Quick Access Menu Map

By pressing ⬛ (Flatec), it is possible to navigate through the function menus. For more details, see chapter 8.3. See the functions map below:

FORCED DEFROST — dEFr
FUNCTIONS LOCKDOWN — LOC
CONTROL FUNCTIONS SHUTDOWN — CtrL
ADJUSTING THE DESIRED TEMPERATURE (SETPOINT) — SEt
MIN. AND MÁX. TEMPERATURE RECORD — rE9
ERASE MIN. AND MÁX. VALUES — CrE9
SHOW CURRENT PROCESS — Proc
ADJUSTMENT TIME AND DATE — CLO
ON/OFF DATA LOGGER (MANUAL MODE) — dtL
FUNCTION SELECTION — Func
EXIT FUNCTION — - - - -

8.2. Quick access keys map

When the controller is in temperature display mode, the following keys can be used as a shortcut to the following functions:

Key	Function
SET	Hold down for 2 seconds: Setpoint adjustment.
SET	Quick touch: The current day, month, year, hour and minute will be shown in sequence on the display.
▼	Quick touch: Displays the status of the process.
▲	Quick touch: Maximum and minimum temperature display.
▲	Hold down for 2 seconds: Clear history when records are being displayed.
▲	Hold down for 4 seconds: Carries out manual defrost.
⬛	Enter the quick access menu.
▲ and ▼	Hold down for 10 seconds: Manually switches the datalogger on/off.
▲ and ▼	Enter the quick access menu.

8.3. Basic operations

8.3.1. Adjusting setpoint (desired temperature)

Hold the key SET down for 2 seconds until the message `SEt` . is displayed. The adjusted control temperature will be displayed when the key is released.
Use the keys ▲ or ▼ to change the value and then press SET to save.
The desired temperature can also be changed in the quick access menu, (see map on item 8.1) or by function `F01` item 8.5.

8.3.2. Manual defrost 🌨

The manual defrost is performed through the quick access menu (⬛) or by holding the key ▲ por 4 down for 4 seconds. Press the key ⬛ (quick touch) until the message `dEFr` (led ❄ flashing) is displayed, and then press the key SET (quick touch) to select. The message `dEFr` `On` (led ❄ on) will then be displayed.
To manually stop the defrosting, press the key ⬛ (quick touch) until the message `dEFr` (led ❄ flashing) is displayed. Press the key SET (quick touch) to select. The message `dEFr` `OFF` (led ❄ off) will then be displayed.

dEFr
MT-512E Log

8.3.3. Function lock 🔒

For safety reasons, the controller has a feature to allow functions to be locked. When this configuration is active, the setpoint and other parameters are protected from undue changes. However, the parameters can be viewed. Under this condition, the message `LOC` will be displayed when trying to change those values. To lock the functions you first need to adjust the parameter "`F19` - **Time for function lock"** to a value greater than 14 (below 15, `no` is displayed and it means that function lock is not allowed). Select 🔒 using the key ⬛ ,(quick touch), and then press SET (quick touch). Then keep ▼ held down until `LOC` is displayed. The message `On` will be displayed upon releasing the key.

LOC
MT-512E Log

To unlock, turn the controller off and then turn it on again with the key ▼ held down. Keep the key held down until `LOC` is displayed. The message `OFF` will be displayed when the key is released.

8.3.4. Control functions shutdown ⏻

When the control functions are turned off, the controller starts to operate as a temperature indicator only and the output relay turns off.
The way to turn off the control functions depends on the configuration of the parameter "`F20` - **Turn off of the control functions"**:
`0` -Does not allow the turning off the control functions.
`1` -Allows shutdown the control functions only if the functions are not locked.
`2` -Allows shutdown the control functions even if the functions are locked. Using the key ⬛ (quick touch), select ⏻ , and then press SET (quick touch) to confirm.
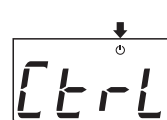
CtrL
MT-512E Log

Then, the message `ctrl` `OFF` will be displayed. At this moment the temperature display will alternate with the message `OFF` .
To turn the control functions back on, follow the same procedure used to turn them off, selecting with the key ⬛ (quick touch), ⏻ . The message `ctrl` `On` will be displayed as soon as the user presses the key SET .
NOTE: When the control functions are turned on again, the MT-512E Log will keep following the functions "`F08` - Minimum output switched off time" and "`F11` - Initial state when turning the device on".

8.3.5. Visualization of Processes

Press ▼ (quick touch) to view the status and the time already elapsed. This way the controller will display the stage of the current process, and the following messages may be shown on the display:
`- - - -` - control off
`dEL` - initial delay
`rEFr` - refrigeration
`Hot` - heating
`dEFr` - defrost

8.3.6. Minimum and Maximum Temperature Record

Holding the ▲ key down or also via the quick access menu (see item 8) will cause the message `rE9` to be displayed and the minimum and maximum temperatures to be recorded.
For erasing the current minimum and maximum values, press the ⬛ key (quick touch) until the message `CrE9` is displayed. Press SET to confirm.
NOTE: These records are not stored in the internal datalogger and in the case of a power cut, the data will be lost.

8.3.7. View current date and time

Quickly pressing the key SET makes it possible to view the current date and time set in the controller.
The current day (`- -d`), month (`- -n`), year (`- -y`), hour, and minute (`00:00`) will be shown in sequence on the display. It is also possible to view the date and time through the quick access menu in the option `CLO` .

8.3.8. Manual datalogger activation

The manual activation requires function F21 to be configured with the value 2. By holding down the keys ▲ and ▼ for 10 seconds, it is possible to activate or deactivate the operation of the internal record of temperature values and control outputs (datalogger). The message ⎡dtL⎤ will be shown followed by the message ⎡On⎤ when the datalogger is activated or ⎡OFF⎤ when it is deactivated. It is also possible to activate the datalogger manually through the quick access menu in option ⎡dtL⎤.

8.3.9. Selection of temperature measurament units

To select the temperature measurament units the system will use to operate, press ▲ and ▼ simultaneously while the temperature is being displayed, enter the option ⎡CodE⎤ using the access code ⎡231⎤ and then press . Then select the desired unit ⎡°C⎤ or ⎡°F⎤ using the keys ▲ or ▼, and press to confirm.

NOTE: Whenever the units are changed, the configuration of the functions assume the factory default, so they need to be configured again.

8.4. Advanced operations

8.4.1. Access to the main menu

The main menu can be accessed through the quick access menu (⎁), option ⎡Func⎤ or pressing ▲ and ▼ simultaneously when the temperature is being displayed.

The following options will be displayed:
⎡CodE⎤ - Entry to the access code
⎡Func⎤ - Change the advanced parameters
⎡CLO⎤ - Adjust or visualization of the date and time

8.4.2. Access code

To allow changing the parameters or adjusting the clock, select the option ⎡CodE⎤ by pressing (quick touch) and enter the access code 123 (one hundred and twenty-three) using the keys ▲ or ▼, and confirm with .

8.4.3. Changing the controller parameters

In the main menu (after entering the code 123) select the option ⎡Func⎤ and then the desired function using the keys ▲ and ▼. Press (quick touch) after selecting the function to view its value.

Use ▲ or ▼ to change the value and press when ready to save the configured value and return to the function menu. To leave the menu and return to the normal operating mode (temperature indication), hold down (long touch) until ⎡- - - -⎤ appears.

NOTE: If the function lock is active, the controller will show the message ⎡LOC⎤, in the display upon pressing ▲ or ▼ and will not allow the adjustment of the parameters.

8.4.4 Date and time adjustment

When the ⎡CLO⎤ menu is selected, if the access code ⎡123⎤ has been entered, the controller will enter the date and time adjustment mode. Use ▲ or ▼ to change the value and press when ready to save the configured value. If the date entered is invalid, the message ⎡ECLO⎤ will be shown on the display. It is also possible to adjust the date and time through the easy menu. In this case, it is not necessary to enter the access code.

Example 1 (correct access code entered):
⎡00d⎤ - day ⎡00n⎤ - month ⎡009⎤ - year ⎡00:00⎤

time ↓ minute
flashing

⚠ **IMPORTANT:**
The controller has an auxiliary internal power supply to keep the clock running for at least 72 hours in case of a power failure. If the controller remains off for a long period of time, the message ⎡ECLO⎤ may be displayed to indicate that the clock is not programmed. In this case, the date and time must be adjusted and the controller must be kept on for 10 hours to fully recharge the auxiliary power supply.

8.4.5. Internal datalogger (internal memory)

When the datalogger is enabled (F21), it is possible to store records in the controller's internal memory. It can be configured to store records by time interval (F22), by temperature variation (F23), and/or by the variation of the state of the digital output or inputs (F24).

NOTE: The equipment records date, time, temperature, and events (sensor error, refrigeration/heating output state, defrost output state, and open door sensor).

8.5 Parameters table

Fun	Description	CELSIUS				FAHRENHEIT			
		Min	Max	Unit	Standard	Min	Max	Unit	Standard
F01	Desired temperature (Setpoint)*	-50	200	°C	4	-58	392	°F	39
F02	Sensor indication displacement (Offset)	-5.0	5.0	°C	0	-9	9	°F	0
F03	Minimum setpoint allowed to the end user	-50	200	°C	-50	-58	392	°F	-58
F04	Maximum setpoint allowed to the end user	-50	200	°C	75	-58	392	°F	167
F05	Control differential (hysteresis)	0.1	20.0	°C	1.0	1	36	°F	2
F06	Operating mode	0-cool.	1-heat.	-	0-cool.	0-cool.	1-heat.	-	0-cool.
F07	Minimum output-on time	no	999	sec	20	no	999	sec	20
F08	Minimum output-off time	no	999	sec	20	no	999	sec	20
F09	Refrigeration time (interval between defrosts)	1	999	min	240	1	999	min	240
F10	Defrosting time	no	999	min	30	no	999	min	30
F11	Initial status when turning on the device	0-cool.	1-defr.	-	0-cool.	0-cool.	1-defr.	-	0-cool.
F12	Temperature indication locked during defrosting	no	yes	-	no	no	yes	-	no
F13	Delay in turning on device	no	240	min	no	no	240	min	no
F14	Additional time to the end of the first cycle	no	240	min	no	no	240	min	no
F15	Compressor state with a disconnected or faulty sensor	0	2	-	0	0	2	-	0
F16	Compressor time on in case of error	1	999	min	15	1	999	min	15
F17	Compressor time off in case of error	1	999	min	15	1	999	min	15
F18	Digital filter intensity	no	9	-	no	no	9	-	no
F19	Time for function lock	no	60	sec	no	no	60	sec	no
F20	Control functions shutdown	no	2	-	no	no	2	-	no
F21	Datalogger operating mode	0	2	-	2	0	2	-	2
F22	Time between samples in the memory	1	999	sec	30	1	999	sec	30
F23	Minimum temperature change to force data writing	0	10.0	°C	0	0	18	°F	0
F24	Output change to force data writing	no	yes	-	no	no	yes	-	no
F25	Overwrite memory?	no	yes	-	yes	no	yes	-	yes
F26	Digital input operating mode	no	2	-	no	no	2	-	no
F27	Address of the instrument in the RS-485 network	1	247	-	1	1	247	-	1

*The minimum and maximum values depend on the values configured in ⎡F03⎤ and ⎡F04⎤.

Legend: ⎡YES⎤ = yes
⎡no⎤ = no

8.5.1. Parameters description

F01 - Desired temperature (Setpoint):
The reference value for temperature control, that is, the temperature to be maintained in a controlled environment.

F02 - Sensor indication displacement (Offset):
Compensates for any deviations in temperature reading caused by sensor exchange or alterations in the cable length.

F03 - Minimum setpoint allowed to the end user:
A threshold aimed at preventing an exceedingly low temperature setpoint from being inadvertently adjusted.

F04 - Maximum setpoint allowed to the end user:
A threshold aimed at preventing an exceedingly high temperature setpoint from being inadvertently adjusted.

F05 - Differential control (hysteresis):
The difference in temperature (hysteresis) between TURNING ON and OFF the refrigeration (or heating).

Example: One wants to control the temperature at 4.0 °C with a differential of 1.0 °C. Therefore, the refrigeration is switched off at 4.0 °C and switched back on at 5.0 °C (4.0 + 1.0), in the heating mode the output is switched off at 4° C is switched on again at 3° (4.0 - 1.0), as per the charts below:
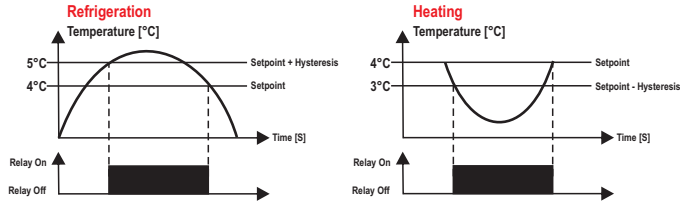
F06 - Operating mode:
Allows selecting the controller operation mode.
⎡0⎤ - Refrigeration
⎡1⎤ - Heating
NOTE: In the heating mode functions F09, F10, F11 and F12 are disregarded.

F07 - Minimum output-on time:
The minimum time the output will remain on, i.e. the length of time between the last start up and the next stop. It is aimed at avoiding high voltage surges in the power lines.

F08 - Minimum output-off time:
The minimum time the output will remain off, i.e. the length of time between the last start up and the next stop. It relieves the discharge pressure and increases the service life of the compressor.

F09 - Refrigeration time (interval between defrosts):
Corresponds to the time in which the refrigeration function will operate via the controller. When this time is up the controller enters the defrost process.

F10 - Defrost time:
This is the defrost duration time. Within this period, the relay will remain off, and upon finishing, the controller will go back to the refrigeration state.

F11 - Initial status when turning on the device:
It allows defrosting when controller is turned on.

F12 - Temperature indication locked during defrost:
This function is aimed at avoiding viewing the room temperature rise due to the defrost cycle. The last temperature measured in the refrigeration cycle will be locked in the display during the defrost. The real time temperature indication will only be released at the next refrigeration cycle after it reaches the "locked" temperature value again, or after 15 minutes in refrigeration (as a safety measure).

F13 - Delay in turning on device:
When the device is switched on its control output will remain disabled, delaying the beginning of the process. During this time the controller only works as a temperature indicator. The purpose is to avoid peaks of electric power demand after a power cut when many devices are connected to the mains. To do this, simply set different times for each device. This delay may be either for the compressor or the defrost (when the defrost is configured during the startup).
NOTE: At its end, the count of minimum time of output off is started, if there is any.

F14 - Additional time to the end of the first cycle:
Aimed at increasing the refrigeration time only in the first refrigeration cycle, increasing the efficiency.

F15 - Compressor state with a disconnected or faulty sensor:
If the room sensor is shorted, disconnected or out of range, the compressor will assume the state configured in this function.
- 0 - Compressor off
- 1 - Compressor on
- 2 - Cycling according to times defined in `F 16` and `F 17`
NOTE: If the system is in both heating and error mode, the output will be switched off.

F16 - Compressor time on in case of error:
F17 - Compressor time off in case of error:
Sets the minimum time the compressor will remain on/off respectively when the sensor is disconnected or out of range.

F18 - Digital filter intensity:
This filter has the purpose of simulating thermal mass increase in the sensor, thus increasing its response time (thermal inertia). The greater the value set in this function, the greater the sensor response delay will be.

F19 - Time for function lock:
When this function is active, the setpoint and other parameters are protected from undue changes. When the controller is locked the user can only view the setpoint and parameters. To lock the functions, see item 8.3.3 - Basic Operations, item Function lock.

F20 - Control functions shutdown:
Allows the output to be switched off for maintenance purposes, see item 8.3.4 - Basic Operations, item Turning off the control functions.

F21 - Datalogger operating mode:
Indicates how to activate the device that records data in the internal memory:
- 0 - Always off
- 1 - Always on
- 2 - Manual operation

F22 - Time between each sample in the memory:
The time in seconds that the controller takes to record samples of the temperature information and refrigeration output state.

F23 - Minimum temperature change to force the writing of data:
The temperature difference in relation to the last piece of data written in the datalogger for the data to be recorded in the memory regardless of the sampling time set in `F 22`. To deactivate this function, just decrement the value until the message `no` is displayed.

F24 - Output change to force the writing of data:
Indicates whether the change in the control output will force the recording of data in the memory regardless of the sampling time set in `F 22`.

F25 - Overwrite memory?:
This function indicates whether the controller should start writing new data at the beginning of the datalogger memory when the memory is full. This function prevents the last data calculated by the equipment from being lost.

F26 - Digital input operating mode:
Aims to program the controller with the type of door sensor used in the installation.
- 0 - Off
- 1 - NC door contact
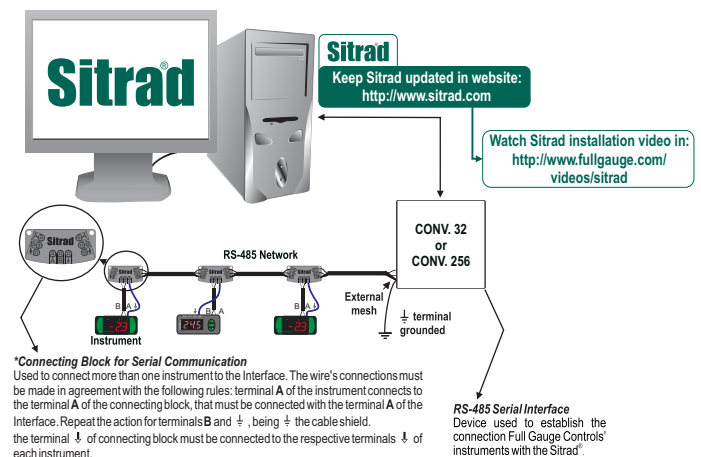- 2 - NO door contact

F27 - Address of the instrument in the RS-485 network:
Equipment's network address for communicating with Sitrad software.
Note: Every single controller within the network must have different address.

9. SIGNALS

Signal	Description
`Err 1`	Error in sensor: Sensor disconnected or damaged.
`OFF`	Control functions turned off.
`dEFr On`	Manual activation of defrost process.
`dEFr OFF`	Manual activation of the refrigeration process.
`LOC On`	Function lock.
`LOC OFF`	Function unlock.
`OPEn`	Open door indication.
`AdFL`	Datalogger memory full.
`EMEM`	Contact Full Gauge Controls.
`CLO`	Adjustment or visualization of the date and time.
`ECLO`	Invalid date and/or time (adjust the clock).
`PPPP`	Reconfigure the values of the functions.
`ECAL`	Contact Full Gauge Controls.

10. INTEGRATING CONTROLLERS, RS-485 SERIAL INTERFACE AND COMPUTER

*Connecting Block for Serial Communication
Used to connect more than one instrument to the Interface. The wire's connections must be made in agreement with the following rules: terminal **A** of the instrument connects to the terminal **A** of the connecting block, that must be connected with the terminal **A** of the Interface. Repeat the action for terminals **B** and ⏚ , being ⏚ the cable shield.
the terminal ⏚ of connecting block must be connected to the respective terminals ⏚ of each instrument.
*Sold Separately

RS-485 Serial Interface
Device used to establish the connection Full Gauge Controls' instruments with the Sitrad®.

11. GLOSSARY OF ACRONYMS
- **°C:** Temperature in Celsius degrees.
- **°F:** Temperature in Fahrenheit degrees.
- **Refr:** Refrigeration.
- **Defr:** Defrost.
- **Heat.:** Heating.
- **LOC:** Blocked.
- **No:** No.
- **OFF:** Turned off/disabled.
- **ON:** Turned on, enabled.
- **SET (as in "Setting")** (setting or configuration).
- **Vac:** Electrical voltage (volts) of alternating current.
- **Vdc:** Electrical voltage (volts) of direct current.
- **Yes:** Yes.

12. OPTIONAL ITEMS - Sold Separately

Ecase protective cover
It is recommended for the Evolution line, keeps water from entering the back part of the instrument. It also protects the product when the installation site is washed.

ECASE PROTECTIVE COVER
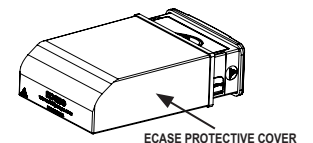
Extended frame
It allows the installation of Evolution line controllers with sizes 76 x 34 x 77 mm in various situations, since it does not require precision in the notch of the instrument fitting panel.
The frame integrates two switches of 10 Amperes that may be used to actuate interior light, air curtain, fan, and others.

CONTROLLER

EXTENDED FRAME

SWITCHES
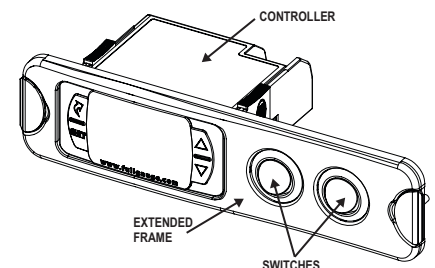
€asyProg - version 2 or higher

It is an accessory that has as its main function to store the parameters of the controllers. At any time, you can load new parameters of a controller and download them on a production line (of the same controller), for example. It has three types of connections to load or unload the parameters:

- Serial RS-485: It connects via RS-485 network to the controller (only for controllers that have RS-485).

- USB: it can be connected to the computer via the USB port, using Sitrad's Recipe Editor.

- Serial TTL: The controller can be connected directly to €asyProg by the TTL Serial connection.
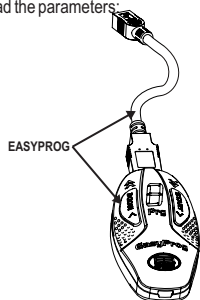
EASYPROG

IMPORTANT

⚠️ TO PERFORM THE COMMUNICATION WITH EASYPROG THIS EQUIPMENT MUST NOT BE COMMUNICATING WITH SITRAD SOFTWARE.

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13. ANNEXES - Reference Images

Image V

PANEL

Image VI

Image VII

CONTROLLER

PRESS

LOCKS   PANEL

CONTROLLER

Image VIII

VINYL

CONTROLLER

CONTROLLER