EVOLUTION

MT-530E Super Ver.05

DIGITAL CONTROLLER AND INDICATOR OF TEMPERATURE AND HUMIDITY WITH SERIAL COMMUNICATION TO SITRAD

Functions lockdown | Buzzer | System supervisor | Serial programming | Protection level (IP 65 FRONT)

E251415

MT530ES05-02T-15226

1. DESCRIPTION

The **MT-530E** *Super* has three outputs: one for temperature control, one for humidity control and a third auxiliary output that acts as a second stage temperature control, humidity control, alarm or timer cyclical.
This controller is indicated for low and medium relative humidity (10-85% non-condensing). Its temperature sensors and humidity are united in a single bulb, reducing installation space and wiring. It also includes an audible alarm (buzzer) and an intelligent system locking functions, preventing unauthorized people from changing the control parameters.
The instrument features a serial communication for connection to Sitrad®.
Product complies with UL Inc. (United States and Canada).

2. APPLICATION

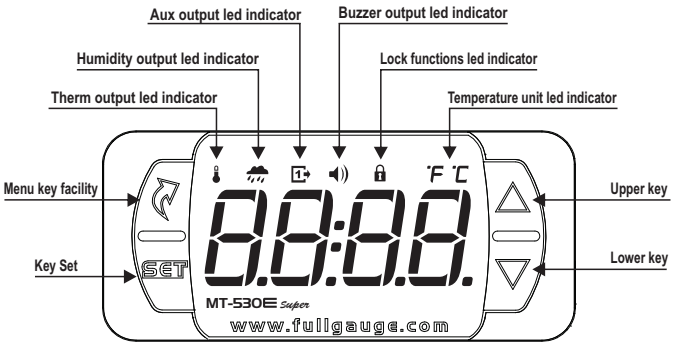
- Humidifiers / dehumidifiers
- Grains drying
- Laboratories
- Surgical rooms
- Climatized cellars
- Information technology centers

*For high percentage of humidity in the presence of water condensation, use the model AHC-80 Ri plus.

3. TECHNICAL SPECIFICATIONS

Power Supply	**MT-530E Super:** 115 or 230 Vac ±10%(50/60 Hz) **MT-530EL Super:** 12 or 24 Vac/dc +10%
Control Temperature	-10 to 70.0 ºC ±1.5°C (with resolution of 0.1°C) 14 to 158 ºF ±3°F (with resolution of 1°F)
Operation temperature	0 to 50°C / 32 to 122°F
Control humidity	10 to 85%RH ±5%RH (with resolution of 0.1%RH)
Operation humidity	10 to 85% RH (without condensation)
Load current	Therm 🌡:16(8)A/250Vac 1HP Humid 🌧: 5(3)A/250Vac 1/8HP Aux ⊡: 5(3)A/250Vac 1/8HP
Dimensions	76 x 34 x 77 mm (WxHxD)
Dimensions of the clipping for fixing of the instrument	71 ± 0,5 x 29 ± 0,5 mm (see item 5)

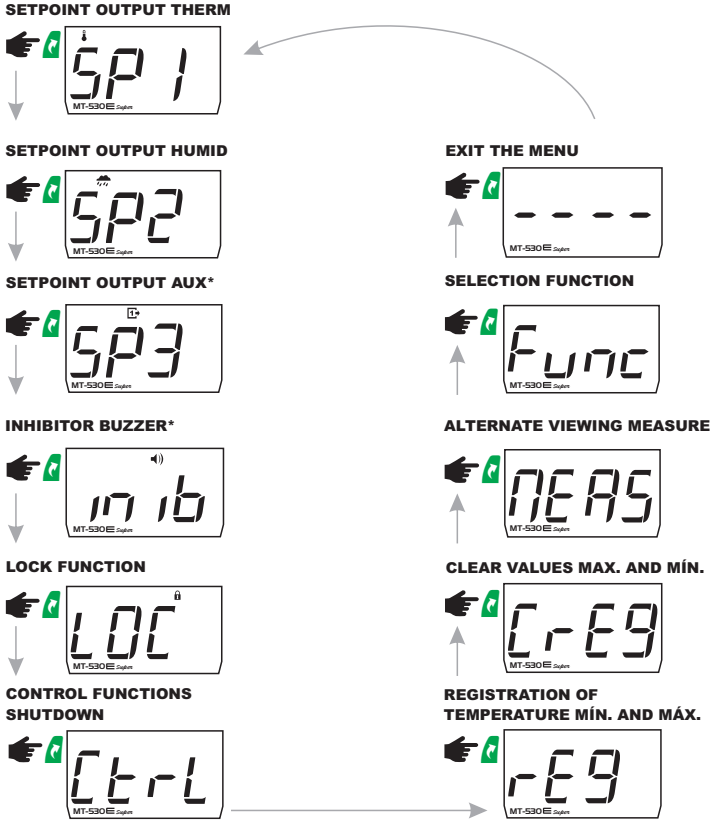
4. INDICATIONS AND KEYS



6. OPERATIONS

6.1 Facilitated menu map

By pressing the button , it is possible to navigate through the function menus. See the map functions below:



* These parameters are displayed when necessary.

6.2 Facilitated key map

When the controller is on display temperature, the following shortcut keys are used for the following functions:

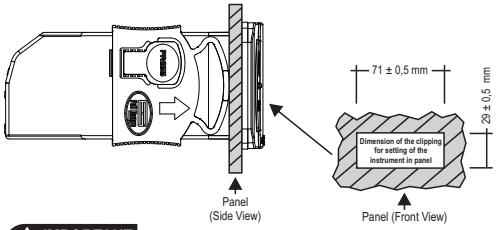
SET	**Press 2 sec: Adjust setpoint.**
▼	**Short press: Switch display of temperature or humidity for 4s.**
▼	**Press 2 sec: When the buzzer is active inhibits the alarm.**
▲	**Short press: Display of records minimum and maximum measures.**
▲	**Press 2 sec: When the record is displayed, clear the history.**
▲ ▼	**Enter the function selection.**

6.3 Basic operations

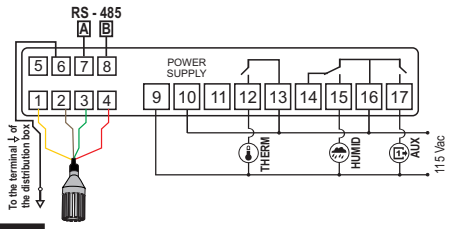
6.3.1 Adjusting the desired temperature and humidity (setpoint)

To enter the setup menu press the setpoints SET for 2 seconds. The message "SP 1" will appear on the display then the value of the setpoint output Therm adjustment. Use ▲ and ▼ keys to modify the value and confirm by pressing SET. Then the message "SP2" will appear indicating the adjustment of setpoint output Humid. Again use the ▲ and ▼ keys to modify the value and confirm by pressing SET. If the operating mode for the Aux output require setting a setpoint the message "SP3" will appear and it can be adjusted the same way is the previous ones. At the end the message "- - - -" will appear indicating setup completion. The setpoints can also be adjusted individually on the facilitated menu.

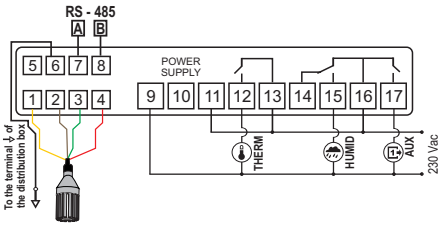
5. INSTALLATION - ELECTRICAL CONNECTIONS AND PANEL



Connection 115 Vac



Connection 230 Vac



⚠ 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;

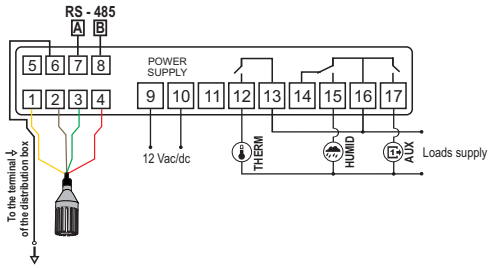
⚠ ATTENTION

FOR INSTALLATIONS WHERE A SEALING IS REQUIRED TO AVOID LIQUID CONTACT, THE CUT FOR THE CONTROLLER MUST BE OF 70,5X29mm MAXIMUM. THE SIDE LOCKS MUST BE FIXED SO IT PRESSES THE RUBBER SEALING AVOIDING INFILTRATION BETWEEN THE CUT AND THE CONTROLLER.

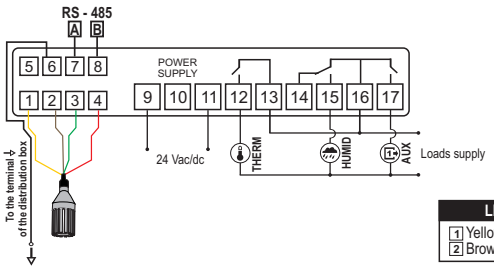
LEGEND

1 Yellow | 3 Green
2 Brown | 4 Red

Connection 12 Vac/dc



Connection 24 Vac/dc



LEGEND	
1 Yellow	3 Green
2 Brown	4 Red

6.3.2 Function Lock

For safety reasons, this controller provides the ability to lock functions. With this setting enabled, the setpoint and the other parameters are protected against undue changes however, they can be viewed. In this condition, when trying to change these values the message [LOC] will appear on the display. To perform the lock function is necessary, first, that the parameter **"[F43] - Time lock function"** is set to the value exceeding 14 (below the value 15, it is shown [no] is not allowing the blocking of functions). With the key (short press), select ,then press (short press), after hold the key until [LOC] (time in seconds programmed in [F43]). When you release the key the message [On] will appear on the display.

To unlock, turn off the controller and reconnect it with the key pressed. Keep the key pressed until the message [LOC] appears, them release and [OFF] will appear on the display.

6.3.3 Control Functions Shutdown

With the shutdown of the control functions the controller will operate only as a temperature and humidity indicator and the output relays stays off.

The way to operate the control functions shutdown depends on the parameter setting "[F44] - **Control functions shutdown**":

[0] Does not allow the shutdown of the control functions.

[1] Allows to turn on and off the control functions only if the functions are unlocked.

[2] Allows to turn on and off the control functions even when the functions are locked.

With key (quick touch), select [CtrL], then press (quick touch) to confirm.

Then, the message [ctrL] [OFF] will appear. At this time the temperature display will switch to the [OFF] message.

To turn the control functions on again, just follow the same procedure as that for shutdown, selecting with the key (quick touch). Once the user presses the key the message [ctrL] [On] will appear.

6.3.4 Registers of minimum and maximum measures

Pressing key or also through the quick access menu (see chapter 6), the message [rEG] will appear, followed by the minimum and maximum recorded temperatures.To turn the current minimum and maximum values off, press key (short press) repeatedly, until the message [CrEG] is displayed, finally press the button to confirm. Another way is to press 2 seconds while displaying the records. This operation is indicated by the message [rSEt].

6.3.5 To visualize humidity or temperature

It is possible to view the other measure (humidity or temperature) by pressing .

Indication:
- " T" temperature record
- " H" record humidity

6.3.6 Buzzer Inhibit

When buzzer starts it can be inhibited by pressing for two seconds or by quick access menu.

6.3.7 Unit Selection (°C / °F)

In order to define the unit that the instrument will operate in, enter function "[F01]"with the access code [231] and confirm with the key. then the user can select the unit by pressing the keys and where there are alternating messages [°C] or [°F]. Press the key to confirm the desired unit. Therefore, the corresponding indication unit °C or °F will be turned on.Every time the unit is changed, the parameters must be reconfigured, since they assume the "standard" values.

7. ADVANCED OPERATIONS

7.1 Changing the parameters of the controller

Access function [F01] by pressing keys and simultaneously for 2 seconds until the message [Func] or through the quick access menu. After that, [F01] will appear, then, press the key (short press). Use keys or to enter with access code [123] and, when ready, press . Use keys or to access the desired function. After selecting the function, press the key (short press), to visualize the set value for that function. Use keys or to change the value, and when ready, press to memorize the set value and return to the functions menu. To exit the menu and return to normal operation (temperature indication) press (long press) until [----] appears on the display.

Obs: If the lock function is active, by pressing the or to change the value of the function, the controller will displays the message [LOC] and will not allow to set the of parameter.

7.2 Parameter table

		CELSIUS				FAHRENHEIT			
Fun	Description	Min	Max	Unit	Standard	Min	Max	Unit	Standard
F01	Access code: 123 (one hundred and twenty-three)	-99	999	-	-	-99	999	-	-
F02	Instrument energization delay	no	240	min.	no	no	240	min.	no
F03	Thermostat operation mode (THERM output)	0 - refrig.	1 - heat.	-	0 - refrig.	0 - refrig.	1 - heat.	-	0 - refrig.
F04	Minimum setpoint allowed to the end user (thermostat)	-10.0	70.0	°C	-10.0	14	158	°F	14
F05	Maximum setpoint allowed to the end user (thermostat)	-10.0	70.0	°C	70.0	14	158	°F	158
F06	Control differential (hysteresis) of the thermostat	0.1	20.0	°C	1.5	1	36	°F	3
F07	Minimum delay to turn the thermostat output on	no	999	sec.	no	no	999	sec.	no
F08	Humidistat operation mode (HUMID output)	0 - dehum.	1 - humid.	-	1 - humid.	0 - dehum.	1 - humid.	-	1 - humid.
F09	Minimum setpoint allowed to the end user (humidistat)	0.0	100	%RH	0.0	0.0	100	%RH	0.0
F10	Maximum setpoint allowed to the end user (humidistat)	0.0	100	%RH	100.0	0.0	100	%RH	100.0
F11	Control differential (hysteresis) of the humidistat	0.1	20.0	%RH	5.0	0.1	20.0	%RH	5.0
F12	Minimum delay to turn the humidistat output on	no	999	sec.	no	no	999	sec.	no
F13	Humidity output (time on)	0	999	sec.	5	0	999	sec.	5
F14	Humidity output (time off)	0	999	sec.	5	0	999	sec.	5
F15	Auxiliary output operation mode (AUX)	0	10	-	5	0	10	-	5
F16	Minimum setpoint allowed to the end user (AUX output)	10/0	70/100	°C/%RH	-10/0.0	14/0	70/100	°F/%RH	14/0.0
F17	Maximum setpoint allowed to the end user (AUX output)	10/0	70/100	°C/%RH	70/100	158/0	158/100	°F/%RH	158/100
F18	Control differential (hysteresis) of the AUX output	0.1	20.0	°C/%RH	1.5/5.0	1/0.1	36/20.0	°F/%RH	3/5
F19	Minimum delay to turn the AUX output on	no	999	sec.	no	no	999	sec.	no
F20	Time base of AUX output timer	0	3	sec./min.	0	0	3	sec./min.	0
F21	AUX output (time on)	0	999	sec./min.	5	0	999	sec./min.	5
F22	AUX output (time off)	0	999	sec.	5	0	999	sec.	5
F23	Low room temperature alarm	-10.0	70.0	°C	-10.0	14	158	°F	14
F24	High room temperature alarm	-10.0	70.0	°C	70.0	14	158	°F	158
F25	Low room humidity alarm	0.0	100	%RH	0.0	0.0	100	%RH	0.0
F26	High room humidity alarm	0.0	100	%RH	100.0	0.0	100	%RH	100.0

Fun	Description	CELSIUS				FAHRENHEIT			
		Min	Max	Unit	Standard	Min	Max	Unit	Standard
F27	Minimum delay to turn the AUX output on (alarm mode)	0	999	min.	0	0	999	min.	0
F28	Buzzer operation mode	0	1	-	1	0	1	-	1
F29	Acting point of Buzzer by low temperature	-10.0	70.0	°C	-10.0	14	158	°F	14
F30	Acting point of Buzzer by high temperature	-10.0	70.0	°C	70.0	14	158	°F	158
F31	Acting point of Buzzer by low humidity	0.0	100	%RH	0	0.0	100	%RH	0
F32	Acting point of Buzzer by high humidity	0.0	100	%RH	100.0	0.0	100	%RH	100.0
F33	Maximum time of the activated THERM output to activate the alarm	no	999	min.	no	no	999	min.	no
F34	Maximum time of the activated HUMID output to activate the alarm	no	999	min.	no	no	999	min.	no
F35	Maximum time of the activated AUX output to activate the alarm	no	999	min.	no	no	999	min.	no
F36	Buzzer time on	0	999	sec.	1	0	999	sec.	1
F37	Buzzer time off	0	999	sec.	1	0	999	sec.	1
F38	Inhibition time of Buzzer during electrical supply	0	999	min.	0	0	999	min.	0
F39	Output status in case of alarm	0	1	-	0	0	1	-	0
F40	Display mode	0	2	-	0	0	2	-	0
F41	Temperature display offset	-5.0	5.0	°C	0	-9	9	°F	0
F42	Humidity display offset	-20.0	20.0	%RH	0.0	-20.0	20.0	%RH	0.0
F43	Time to lock functions	no	60	sec.	no	no	60	sec.	no
F44	Control functions shutdown	no	2	-	no	no	2	-	no
F45	Network equipment address RS-485	1	247	-	1	1	247	-	1

Legend: no = no

7.2.1 Parameters description

F01 - Access code: 123 (one hundred and twenty-three):
It is required for changing the configuration parameters. To visualize the adjusted parameters, it is not necessary to insert this access code.

F02 - Instrument energization delay:
When the instrument is turned on, it may remain for a while with its control functions disabled, delaying the start of the process. During this time, it only works as a temperature and/or humidity indicator. It serves to avoid peak electricity demands, in case of failure and return of it when there are multiple devices connected to the same grid. To do this, simply set different times for each device.

F03 - Thermostat operation mode (THERM output):
0 Refrigeration
1 Heating

F04 - Minimum setpoint allowed to the end user (thermostat):
F05 - Maximum setpoint allowed to the end user (thermostat):
To prevent incorrect temperature setting.

F06 - Control differential (hysteresis) of the thermostat:
It is the difference of temperature (hysteresis) between ON and OFF the THERM output.

F07 - Minimum delay to turn the thermostat output on:
It is the minimum time that the thermostat will keep turned off, it means, the space of time between the last stop and the next start.

F08- Humidistat operation mode (HUMID output):
0 Dehumidification
1 Humidification

F09 - Minimum setpoint allowed to the user (humidistat):
F10 - Maximum setpoint allowed to the user (humidistat):
Electronic limits whose purpose is to prevent too high or too low setpoint humiditys are set.

F11 - Control differential (hysteresis) of the humidistat:
It is the difference of humidity (hysteresis) between turn ON and turn OFF the HUMID output.

F12 - Minimum delay to turn the humidistat output on:
It is the minimum time that the HUMID output will keep turned off, it means, the space of time between the last stop and the next start.

F13 - Humidity output (time on):
It allows to adjust the time that HUMID output will keep turned on.

F14 - Humidity output (time off):
It allows to adjust the time that HUMID output will keep turned off.
Note: F13 and F14 functions control a cyclical program (in seconds) for the humidistat output. This cyclical program allows that pulverized water has time to transform in relative air humidity.
To disable this function, adjust the values to zero.

F15 - Auxiliary output operation mode (AUX):
0 Refrigeration
1 Heating
2 Dehumidification
3 Humidification
4 Intra-range alarm
5 Extra-range alarm
6 Independent cyclic timer
7 Cyclic timer operating only when the temperature reaches the setpoint (THERM output deactivated)
8 Cyclic timer operating only when the humidity reaches the setpoint (HUMID output deactivated)
9 Cyclic timer operating when the temperature or humidity reaches their setpoint
10 Cyclic timer operating only when the temperature and humidity reaches their setpoints
NOTE: When changing the value of this function the following parameters will be automatically adjusted with their default values: F16, F17, F18 and setpoint for the AUX output.

F16 - Minimum setpoint allowed to the user (AUX output):
F17 - Maximum setpoint allowed to the user (AUX output):
Electronic limits whose purpose is to prevent that too high or too low setpoint values are set.
The limits will depend on the operation mode of the output adjusted in F15.

F18 - Control differential (hysteresis) of the AUX output:
It is the difference of temperature or humidity (hysteresis) between turn ON and turn OFF the AUX output. This function depends on the operation mode of the output adjusted in F15.

F19 - Minimum delay to turn the AUX output on:
It is the minimum time that the AUX output will keep turned off, it means, the space of time between the last stop and the next start. This time is valid only when AUX output is configured in the control mode (F15 configured in 0, 1, 2 or 3).

F20 - Time base of AUX output timer:
Allows configuration of the on or off time scale for AUX output cyclic timer.

Value	Time on (F21)	Time off (F22)
0	Seconds	Seconds
1	Minutes	Minutes
2	Seconds	Minutes
3	Minutes	Seconds

F21 - AUX output (time on):
It is the time that AUX output will keep turned on when set to alarm or cyclical timer. See F15.

F22 - AUX output (time off):
It is the time that AUX output will keep turned off when set to alarm or cyclical timer. See F15.

F23 - Low room temperature alarm:
Temperature for activation of the low temperature alarm.

F24 - High room temperature alarm:
Temperature for activation of the high temperature alarm.

F25 - Low room humidity alarm:
Humidity for activation of the low humidity alarm.

F26 - High room humidity alarm:
Humidity for activation of the high humidity alarm.

F27 - Minimum delay to turn the AUX output on (alarm mode):
It is the minimum time that the AUX output will keep turned off after controller initialization. This time is valid only when AUX output will be configured in the alarm mode (F15 configured in 4 or 5).

F28 - Buzzer operation mode:
0 Intra-range alarm
1 Extra-range alarm

F29 - Acting point of Buzzer by low temperature:
It is the minimun temperature to trigger the buzzer the configured Operation Mode of Buzzer F28.

F30 - Acting point of Buzzer by high temperature:
It is the superior value of temperature to the buzzer alarm act as the configured Operation Mode of Buzzer F28.

F31 - Acting point of Buzzer by low humidity:
It is the inferior value of humidity to the buzzer alarm act as the configured Operation Mode of Buzzer F28.

F32 - Acting point of Buzzer by high humidity:
It is the superior value of humidity to the buzzer alarm act as the configured Operation Mode of Buzzer F28.

F33 - Maximum time of the activated THERM output to activate the alarm:
Allows configuring the maximum time the output THERM can stay activated without reaching the setpoint before activating the audible alarm (BUZZER). To deactivate this function, just decrement the value until the message no is displayed.

F34 - Maximum time of the activated HUMID output to activate the alarm:
Allows configuring the maximum time the output HUMID can stay activated without reaching the setpoint before activating the audible alarm (BUZZER). To deactivate this function, just decrement the value until the message no is displayed.

F35 - Maximum time of the activated AUX output to activate the alarm:
Allows configuring the maximum time the output AUX can stay activated without reaching the setpoint before activating the audible alarm (BUZZER). To deactivate this function, just decrement the value until the message no is displayed.

F36 -Buzzer time on:
It is the time that the Buzzer will be turned on (cycle on). To turn it off the sonore alarm (Buzzer) adjust the value “0” to this function.

F37 - Buzzer time off:
It is the time that the buzzer will be turned off (cycle off). To turn the sonore alarm (Buzzer) always on, adjust the value “0” to this function.

F38 - Inhibition time of Buzzer during electrical supply:
It is the time were the alarm will kept turned off even if in alarm contitions.
It serves to inhibit the buzzer during the time while the system do not reaches the working control temperature.

F39 - Output status in case of alarm:
0 Status output do not change in case of alarm;
1 Turn off the output THERM, HUMID and AUX;
Note: The AUX output will not turn off if it is set to alarm output intra-extra range or cyclic timer. In case of sensor failure the outputs will be switched off independently of the parameter settled in that function.

F40 - Display mode:
0 Alternated indication of temperature and humidity
1 Only indication of temperature
2 Only indication of humidity

F41 - Temperature display offset:
It allows to compensate eventual shunting lines in the reading of temperature proceeding from the exchange of the sensor or cable length alteration.

F42 - Humidity display offset:
It allows to compensate eventual shunting lines in the reading of humidity proceeding from the exchange of the sensor or cable length alteration.

F43 - Time for functions lockdown:
With this setting enabled, the setpoint and the other parameters are protected against unauthorized changes. With the lockdown of the controller the user will only be able to visualize the setpoint and the parameters. To lock the functions, see chapter 6.3.2 - Basic Operations, Functions lockdown item.

F44 - Control functions shutdown:
It allows to switch off the output to perform maintenance, see chapter 6.3.3 - Basic Operations, Control functions shutdown item.

F45 - Network equipment address:
This is the device address for communication with **Sitrad**® software.
Note: You cannot have two or more devices with the same address in the network.

8. SIGNALLING

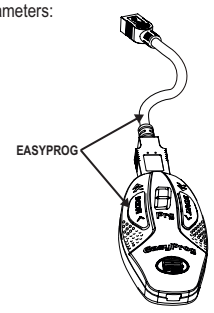
tErr	**Temperature sensor disconnected or damaged.**
hErr	**Humidity sensor disconnected or damaged.**
LOC On	**Functions lockdown.**
LOC OFF	**Unlocking of functions.**
Inib	**Buzzer inhibitor.**
SPCr	**Receiving preset.**
donE	**Operation successful.**
OFF	**Control functions shutdown.**
ECAL	**Please contact Full Gauge Controls.**
PPPP	**Reconfigure the values of the functions.**

9. OPTIONAL ITEMS - Sold Separately

EasyProg - version 2

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 unload 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 **EasyProg** by the TTL Serial connection.

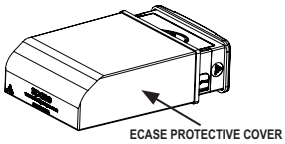


IMPORTANT

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

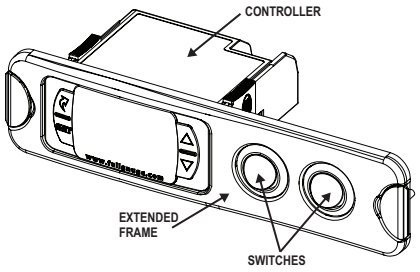
Ecase protective cover

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.



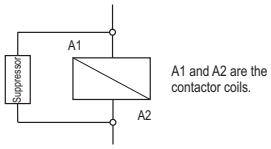
Extended frame

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.



Electrical noise suppressing filter

Contact suppressor connection diagram



A1 and A2 are the contactor coils.

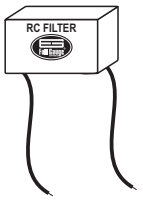
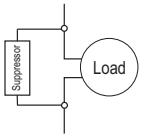


Diagram for suppressor installation for direct drive load inputs

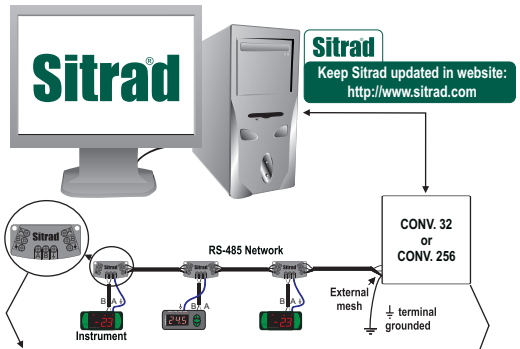


For direct activation the maximum specified current should be taken into consideration.

Note: The sensor cable length can be increased by the user until 200 meters using 5x22AWG (-40+105°C) cable.

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 suppresor of transient in parallel to loads to increase the usefull life of the relays

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®.

ENVIRONMENTAL INFORMATION

Package:
The packages material are 100% recyclable. Just dispose it through specialized recyclers.

Products:
The electro components of Full Gauge controllers can be recycled or reused if it is disassembled for specialized companies.

Disposal:
Do not burn or throw in domestic garbage the controllers which have reached the end-of-life. Observe the respectively law in your region concerning the environmental responsible manner of dispose its devices. In case of any doubts, contact Full Gauge controls for assistance.

WARRANTY - FULL GAUGE CONTROLS

Products manufactured by Full Gauge Controls, as of May 2005, have a two (02) year warranty, as of the date of the consigned sale, as stated on the invoice. They are guaranteed against manufacturing defects that make them unsuitable or inadequate for their intended use.

EXCEPTIONS TO WARRANTY

The Warranty does not cover expenses incurred for freight and/or insurance when sending products with signs of defect or faulty functioning to an authorized provider of technical support services. The following events are not covered either: natural wear and tear of parts; external damage caused by falls or inadequate packaging of products.

LOSS OF WARRANTY

Products will automatically lose its warranty in the following cases:

- The instructions for assembly and use found in the technical description and installation procedures in Standard IEC60364 are not obeyed;
- The product is submitted to conditions beyond the limits specified in its technical description;
- The product is violated or repaired by any person not a member of the technical team of Full Gauge Controls;
- Damage has been caused by a fall, blow and/or impact, infiltration of water, overload and/or atmospheric discharge.

USE OF WARRANTY

To make use of the warranty, customers must send the properly packaged product to Full Gauge Controls together with the invoice or receipt for the corresponding purchase. As much information as possible in relation to the issue detected must be sent to facilitate analysis, testing and execution of the service.

These procedures and any maintenance of the product may only be provided by Full Gauge Controls Technical Support services in the company's headquarters at Rua Júlio de Castilhos, 250 - CEP 92120-030 - Canoas - Rio Grande do Sul – Brasil

Rev. 03