PRODUCTS
CATALOG

Full Gauge® CONTROLS

Sitrad® PRO

REMOTE FACILITY MANAGEMENT AND MONITORING

Sitrad Mobile • Smartphone interface

Information

Sensor 01
28.0 °C

Temperature Sensor 02
27.6 °C

Temperature Sensor 03
27.8 °C

Differential
0.4 °C

PUMP — Activate manual mode

GAS — Activate manual mode

Output 01

Cyclic timer
00:00
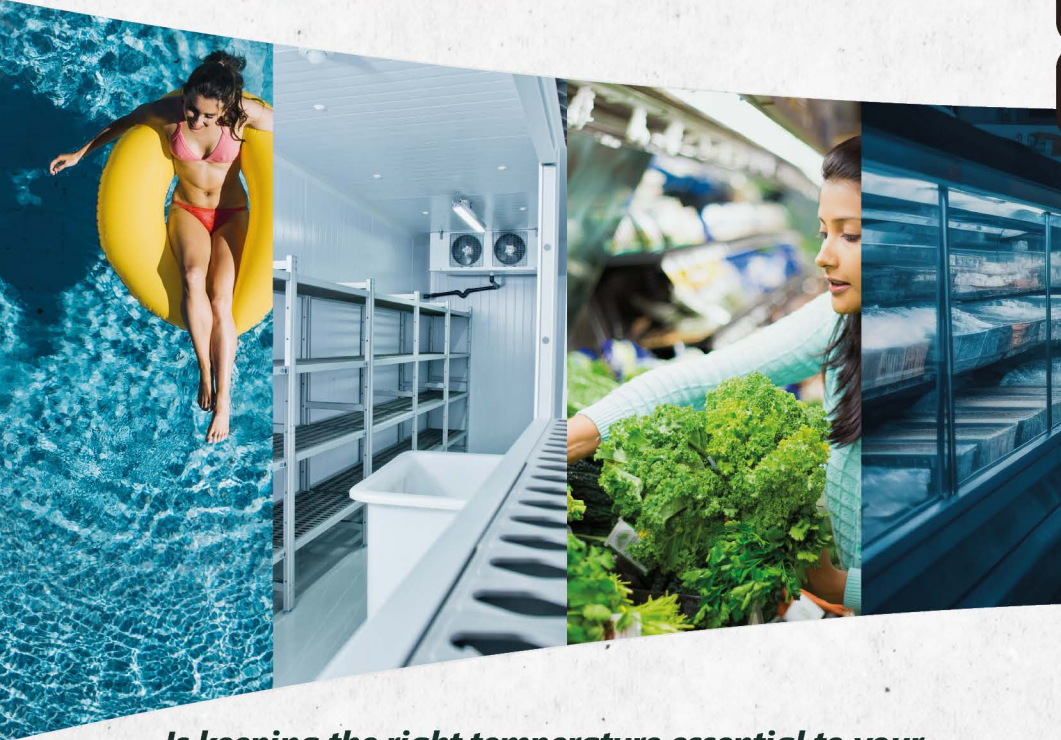
Is keeping the right temperature essential to your business? Then, you need to use Sitrad PRO.

Sitrad PRO is the supervising software/system of Full Gauge Controls to remotely manage the refrigeration, heating, climatization, and solar heating facilities.

The first version came out in 1997, and since then, we have had an exclusive team working on its updates, continuously adapting to the market's needs and exceeding the clients' expectations with new functions.

Using Sitrad PRO is easy. It was created so everyone can benefit from it without having to know a lot about computers. The use of end-to-end cryptographed data banks warrants all the safety needed for your facilities.

It is versatile. With Sitrad PRO, you can access and manage facilities in several different industries, from supermarket networks, refrigeration, bakeries, minimarkets, and restaurants up to hotels, hospitals, laboratories, housing, clubs, data centers, storage and distribution centers, among others, from anywhere in the world.

The software continuously evaluates, sets, and stores temperature, humidity, time, pressure, voltage data, and many other variables, allowing real-time changes in the operation settings for the instruments to be completely safe and precise from anywhere in the world via the internet, using a computer or mobile phone.

The analysis of the gathered data is done through graphic reports or personalized texts, which are stored online, avoiding unnecessary printing

Sitrad Mobile

Using the mobile phone version, in addition to the complete control of the facility, you can receive alarms sent through e-mail, SMS, or push notifications (screen notifications), allowing the responsible people to act in a preventive manner since they will be taking actions in real-time facing any changes in the facilities.

The Full Gauge Controls software helps businesses grow, reduces operational costs, and offers added value with no additional expenses since it is available for free.
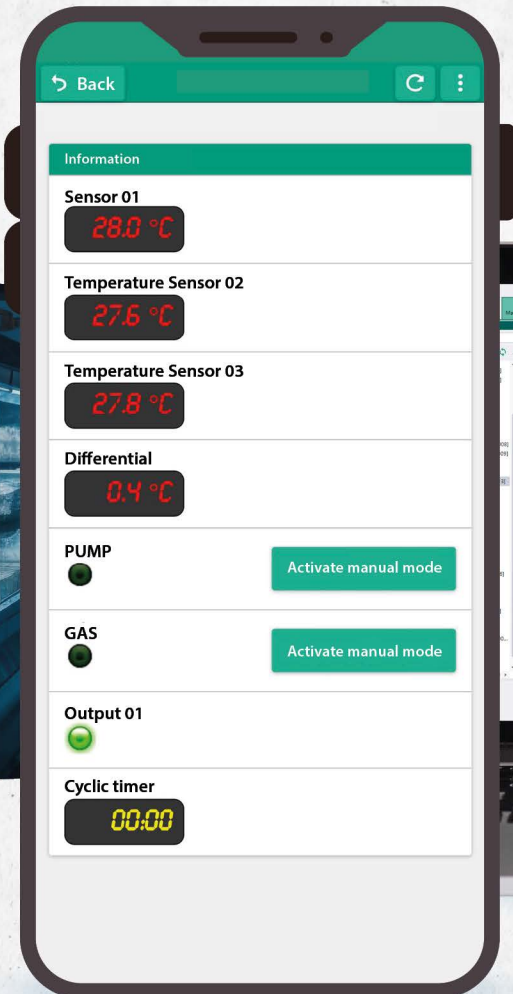
Download and more information at:

www.sitradpro.com

AVAILABLE IN
Google Play App Store

Sitrad PRO is available for free! No charges or monthly payments!

Download now!
(Scan QR Code)

GET TO KNOW THE BENEFITS OF USING SITRAD PRO:

At the facility location, **you choose to use a computer, a TCP-485** connected to a router for 3G modem networks, or the complete tech solution of **Sitrad InBox;**

Remote monitoring and interaction with the instruments, **saving costs in unnecessary service calls;**

Completely **compatible** with the strictest demands of Health regulating bodies such as ANVISA (Brazil) and FDA – Food and Drug Administration (USA). This means that Sitrad PRO is perfect for the guidelines applicable to the pharmaceutical and hospital industries;

5 to 20% in power savings;

Graphic and text reports **quick and easy;**

Each facility with Sitrad PRO has a unique identity (ID), facilitating remote access to the facility and eliminating the need for a fixed IP address. **Sitrad PRO evolves to ease your life.**

WHO USES IT APPROVES IT.

Clients all over the world use and approve Sitrad PRO. Check out real success cases on our website: **fullgauge.com/news**

HOW SITRAD PRO WORKS?

Sitrad PRO • Desktop interface

Instruments and junction box
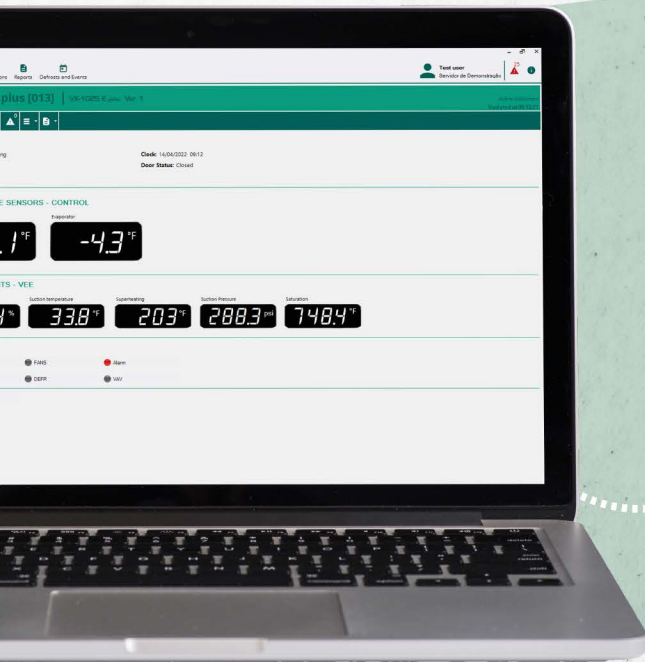
Server 1

Internet Intranet

Ethernet Converter

Router

Wi-fi Converter

The operation mode varies according to the chosen converter.

Watch the tutorial
Class Video Sitrad PRO:

Sitrad® INBOX

Access complete manual:

COMPACT DESIGN, COMPLETE MANAGEMENT

Sitrad InBox is the complete solution for facilities that require real-time management, *facilitating remote access to Full Gauge Controls instruments. Sitrad InBox already comes with the Sitrad PRO software,* **acting as an independent local server** *accessible through a cellphone on the Sitrad Mobile app or through a computer that also has Sitrad Pro. These devices (cellphones or computers) may connect to Sitrad InBox directly on their own Wi-Fi (hotspot) and also through Wi-Fi networks or ethernet (RJ45 cable).*

Its internal memory (datalogger) stores the information (event log) of the facility. When connected to the internet or another existing network, it may be accessed through a cellphone (Android or iOS) or computer (Windows) **anywhere in the world.**

CONVERTERS

CONV32

Interface used to connect up to 32 controllers to Sitrad PRO. Its function is to transform the communication standard the computer uses to the RS-485 standard used by the controllers. It is connected to the computer or Sitrad InBox through a USB cable.

Dimensions: 91 x 91,1 x 37,1 mm (3,58 x 3,58 x 1,46 in)

TCP-485 WIFI Log

It performs the communication between the controllers to the Sitrad PRO through a Wi-Fi network, using the TCP/IP communications standard. It has an internal memory (datalogger) to store the data. TCP-485 WiFi Log waivers the use of ethernet cabling to manage the facilities.

Dimensions: 91 x 91,1 x 37,1 mm (3,58 x 3,58 x 1,46 in)

Access the **complete manuals:**

TCP-485 Wifi Log   **CONV-32**

Frozen Goods

ELECTRONIC EXPANSION VALVES

The precision and technology present in all instruments for the electronic expansion valve control of Full Gauge Controls offer approximately 20% savings in purchasing equipment that complements the facility since these will be smaller and with a lower capacity. The user will also have immediate savings in the electric bill, among other benefits such as durability and reduction in maintenance needs.

The **VX-1025E**, **VX-1225**, **VX-1050E** and **VX-1250** models simultaneously control electronic expansion valves and control the superheating, environmental temperature, defrost, pressure, ventilation, lighting, and alarms. In other words, they replace the installation's controller or thermal gauge since they control the refrigeration processes and the liquid flow.

These instruments have smooth defrost functions for smoother and more economical defrosts, settable economic setpoint and fast-freezing, an internal real-time clock to program defrost events and much more.

VX-1025E is the compact version for the unipolar valve control, and it has an internal device (IEB – Internal Energy Backup), that closes the device to protect the compressor in case of a power failure. On its part, **VX-1225** controls two unipolar valves.

VX-1050E is the compact version for the control of several bipolar electronic expansion valve models. On its part, **VX-1250** controls two bipolar valves.

If configured as "driver" mode, they are exclusively responsible for the control of the electronic expansion valve, for dedicated control of superheating, pressure control at the evaporator, and pressure control at defrost through hot gas, among others. Thus, they can be used as a part of a control system interlinked with other controllers.

The **VX-1025E** and **VX-1050E** models have new pluggable quick link and push-in connection systems.

The **VX-1225** and **VX-1250** models are compatible with FG Cap, a device that waives the use of solenoids in case of a power failure.

Dimensions: 70 x 136 x 62 mm (2,75 x 5,35 x 2,44 in) (VX-1225 and VX-1250)
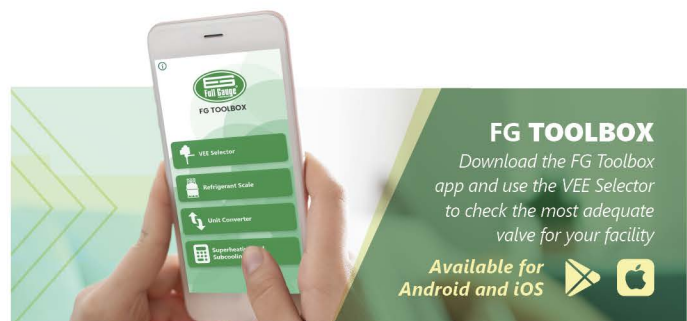
Access the **complete manuals:**

VX-1225   VX-1250   VX-1025E   VX-1050E

FG TOOLBOX

Download the FG Toolbox app and use the VEE Selector to check the most adequate valve for your facility

Available for Android and iOS

WHY USE **ELECTRONIC EXPANSION VALVES?**

The existing features in the Full Gauge Controls' electronic expansion valve controllers allow a dynamic adjustment of the useful superheating degree, even in conditions of disturbances or power variations. A PID control network in real time corrects variations in superheating and the electronic valves maintain their performance even with pressure variations. Correct superheat control allows the reduction of energy consumption in a refrigeration system and this is the main difference in using an electronic expansion valve.

See in the picture below a VX-1025E controlling superheating (orange) in the adjusted value at 5ºC (41°F).
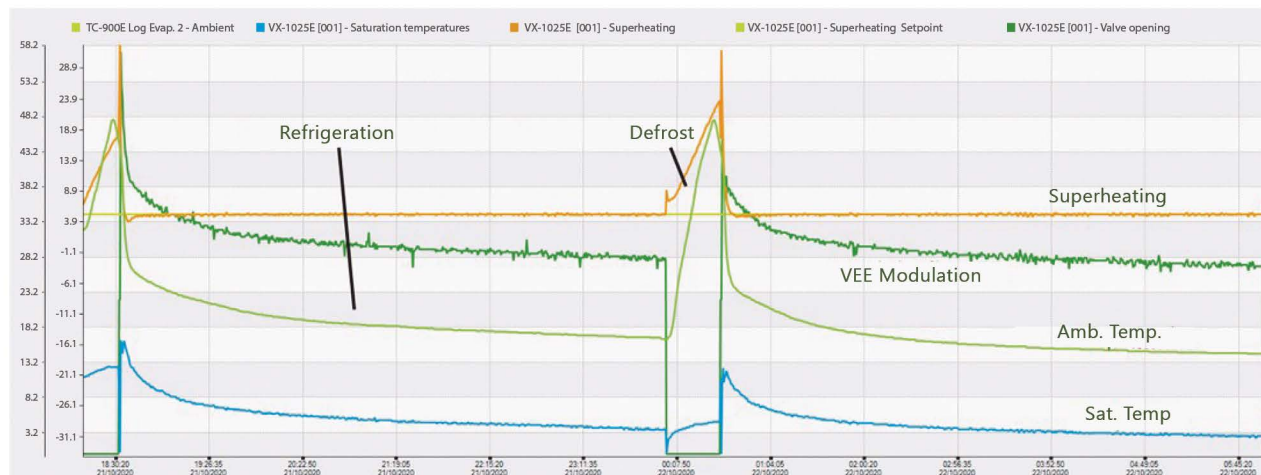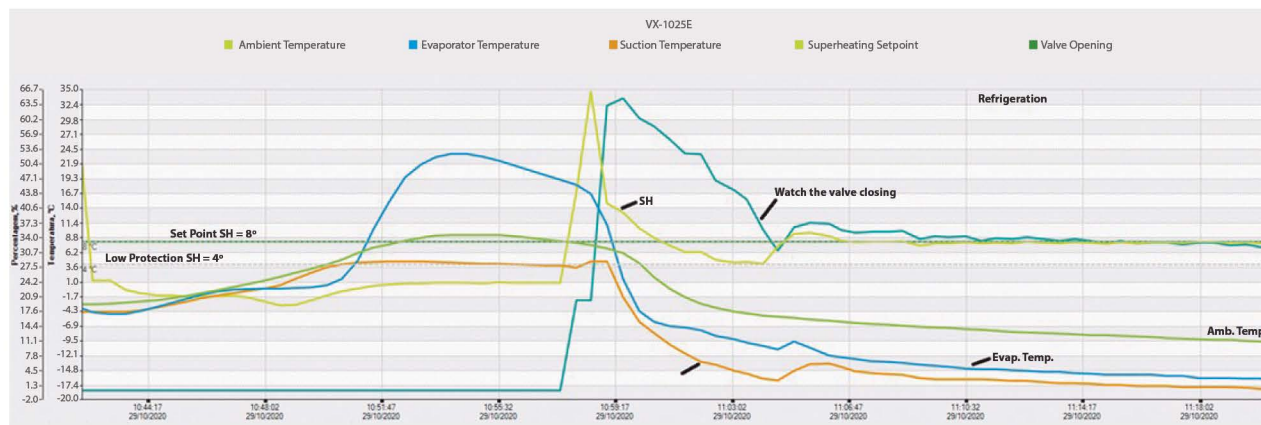

The Full Gauge Controls' electronic expansion valve controllers have protection features such as low superheating, LOP (lowest operation pressure) and MOP (maximum operation pressure), which guarantee that the compressor works within its safety operation limits. This allows a lower number of stops in the compressor, safety for the products stored and a longer shelf life of the refrigeration system. The figure below illustrates the MOP protection action.

See that the valve will be modulated in accordance with the safety limit. After the correction of the event, the control of superheating will carry on.
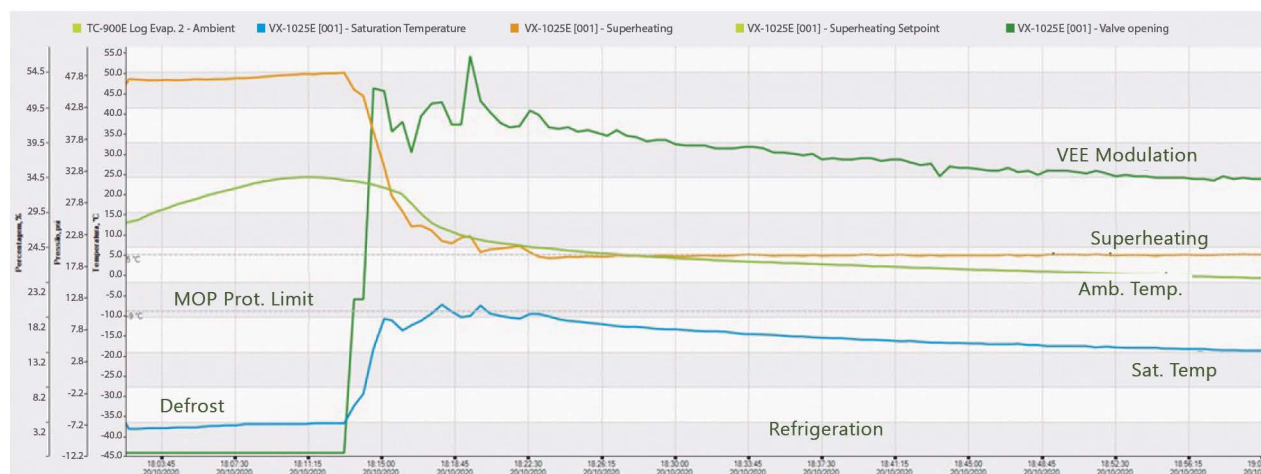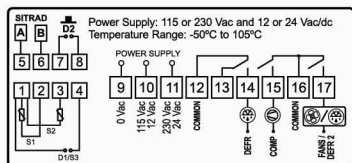

The figure below illustrates the execution of the low superheating protection (LoSH). *See that when the superheating reduces and reaches 4ºC (39,2°F), the valve is closed with a greater intensity, reducing the quantity of fluid, and raising the superheating to its adjusted value, in this case 8ºC (46,4°F).*
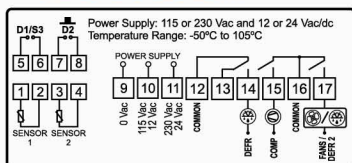
TC-900E Log

TC-900E Log

SITRAD

Power Supply: 115 or 230 Vac and 12 or 24 Vac/dc
Temperature Range: -50°C to 105°C

| A | B | D2 |
| 5 | 6 | 7 | 8 |

POWER SUPPLY

| 1 | 2 | 3 | 4 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 |

S1 S2 D1/S3

0 Vac · 115 Vac/12 Vac · 230 Vac/24 Vac · COMMON · DEFR · COMP · COMMON · FANS/DEFR 2

TC-900E 2HP

D1/S3   D2

Power Supply: 115 or 230 Vac and 12 or 24 Vac/dc
Temperature Range: -50°C to 105°C

| 5 | 6 | 7 | 8 |

POWER SUPPLY

| 1 | 2 | 3 | 4 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 |

SENSOR 1   SENSOR 2

0 Vac · 115 Vac/12 Vac · 230 Vac/24 Vac · COMMON · DEFR · COMP · COMMON · FANS/DEFR 2

For frozen goods, it automates the defrosting process according to the needs of the facility (intelligent defrosting), providing energy savings. It operates with two sensors, one for room temperature and the other, fastened to the evaporator, that controls defrosting completion and fan restarting. The room temperature control has a normal setpoint and an economic setpoint, in addition to the fast freezing functionality and alarm functions indicating that the door is open. It features up to two digital inputs. One of these inputs may be configured as sensor 3* to monitor the condenser temperature and disconnect the control outputs in case of an alarm or control defrost termination in a second evaporator. It also features a digital filter, which is intended to simulate an increase of the mass of the room temperature sensor (S1), thus increasing its response time (thermal inertia), and avoiding unnecessary compressor activations. Its 16-Amp relay output can control compressors of up to 1 hp and the defrost output has a current capacity of 10 A.

TC-900E Log is also able to communicate with Sitrad Pro software, it has an hourmeter to count the operating hours of the compressor, and an internal real time clock that enables the creation of a defrost schedule for each day of the week. Besides, with the help of an internal auxiliary power supply, the clock keeps working even in case of a power fault for at least 72 hours. It also has an internal memory for storing data (datalogger) and a sensor to activate the economy setpoint according to the intensity of the room light.

*Sold separately

Aplication Examples: Low temp refrigeration equipment such as reach-in, upright.
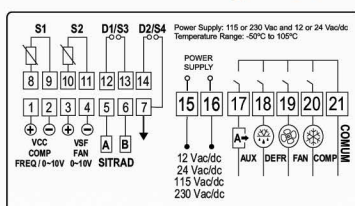
Sitrad PRO

TC-900E Log

R290 R600A   NSF COMPONENT

Access the **videos** and **complete manuals:**   TC-900E Log   TC-900E 2HP

TC-970E Log+ECO

TC-970E Log+ECO

| S1 | S2 | D1/S3 | D2/S4 | Power Supply: 115 or 230 Vac and 12 or 24 Vac/dc |
| 8 | 9 | 10 | 11 | 12 | 13 | 14 | Temperature Range: -50°C to 105°C |

POWER SUPPLY

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 15 | 16 | 17 | 18 | 19 | 20 | 21 |

VCC COMP FREQ/0~10V   VSF FAN 0~10V   A B SITRAD

12 Vac/dc · 24 Vac/dc · 115 Vac/dc · 230 Vac/dc

AUX · DEFR · FAN · COMP · COMUM

This controller acts in the refrigeration, heating, or automatic modes, and it is compatible with fixed speed compressors of the ON/OFF type (relay output) or variable capacity ones (Variable Capacity Compressor – VCC). It has a frequency output from 0 to 300 Hz or voltage output from 0 to 10 Vdc compatible with the leading brands in the market, as well as enabling the control of Variable Speed Fans (VSF).

The PID logic promotes better system performance and stability, and the real-time internal clock for scheduling defrost actions and Economic SetPoint actions on weekdays and weekends.

It has these functions: Fast Freezing, for quick freezing, and Smooth Defrost for a softer and more economical defrosting; digital filters, to simulate a higher mass load in the environment sensor (S1), delaying the response time (thermal inertia) and avoiding unnecessary compressor actions.

Its two digital inputs allow for the connection of a third sensor* to control the door's temperature, a second evaporator or condenser; a fourth sensor to show the insufflation temperature; monitor the door opening, high or low-pressure gauge signal; action of Economic SetPoint, defrost, combined defrost, lighting, Fast Freezing; external alarm or control's turn-off. The low-voltage version (12/24V) has a voltage monitor.

*Sold separately.

Application Examples: beverages displays, frozen displays, cold storage, and cold trucks.
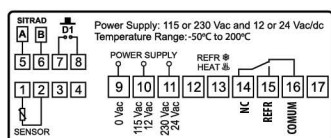
Sitrad PRO

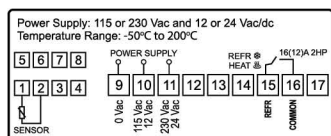Access the **complete manual:**   TC-970E Log +ECO

Chilled Goods

MT-512E Log c(UL)us

| SITRAD | | Power Supply: 115 or 230 Vac and 12 or 24 Vac/dc |
| A | B | D1 | Temperature Range:-50ºC to 200ºC |

5	6	7	8	POWER SUPPLY			REFR ❄ HEAT			
1	2	3	4	9	10	11	12	13	14	15	16	17
SENSOR				0 Vac	115 Vac 12 Vac	230 Vac 24 Vac			NC	REFR	COMMUN	

MT-512E 2HP c(UL)us

| Power Supply: 115 or 230 Vac and 12 or 24 Vac/dc |
| Temperature Range: -50ºC to 200ºC |

5	6	7	8	POWER SUPPLY			REFR ❄ HEAT		16(12)A 2HP	
1	2	3	4	9	10	11	12	13	14	15	16	17
SENSOR				0 Vac	115 Vac 12 Vac	230 Vac 24 Vac				REFR	COMMON	

It features a single relay output, for cooling or heating purposes, combined to a cyclical timer for natural defrost. The natural defrost can be forced or performed through an off refrigeration cycle. It also features a configurable digital filter, which has the aim of simulating an increase of mass in the environment sensor, thus decreasing its response time, that is, the sensor response becomes slower. In addition to those features, has tamper-proof function that blocks the keypad preventing unauthorized users changing its settings, and a control function shutdown that deactivates the controlling outputs turning the instrument into a digital temperature indicator.

MT-512E Log is also able to communicate with Sitrad PRO software, it has open door indication and internal data storage memory (datalogger), which allows recording the measured temperature and the control output state at specified user-configurable intervals.

For increased productivity on manufacturing lines, we recommend *MT-512E Faston*, model, which features the new FastOn and Push-In quick coupling connector systems. We recommend *MT-512G* for applications where a larger temperature display is required.

Application Examples: Medium or high temp refrigeration or heating equipment such as reach-in, upright, chest, walk-in and display coolers, heated cabinets, greenhouses and more.

IP65 FRONT

NSF COMPONENT
MT-512E Log
MT-512E 2HP

R290 R600A

Sitrad PRO
MT-512E Log

*Access the **videos** and complete manuals:*

| MT-512E 2HP | MT-512E Log | MT-512E Faston |

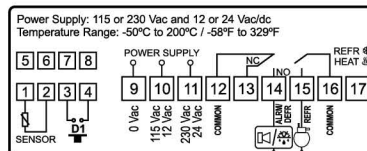## CONTROLLERS FOR **FROZEN** AND **CHILLED** GOODS

Temperature controller for refrigeration (frozen and chilled goods) or heating applications. It has an internal audible alarm (buzzer) and a configurable digital input to detect an open door and/or external alarm/power fault. It performs a natural defrost by stopping the compressor if configured for chilled goods. Output 2 offers the option of functioning as a NC contact of output 1, as a temperature alarm, or to activate a forced defrost (when used for frozen goods). Can be used for two compressor applications.

For increased productivity on manufacturing lines, we recommend *MT-514E Faston*, model, which features the new FastOn and Push-In quick coupling connector systems.

Application Examples: vaccine preservation, displays for chilled/frozen goods, and hot counters.

MT-514E c(UL)us

| Power Supply: 115 or 230 Vac and 12 or 24 Vac/dc |
| Temperature Range: -50ºC to 200ºC / -58ºF to 329ºF |

5	6	7	8	POWER SUPPLY			NC	INO	REFR ❄ HEAT	
1	2	3	4	9	10	11	12	13	14	15	16	17
SENSOR		D1		0 Vac	115 Vac 12 Vac	230 Vac 24 Vac	COMMON		ALARM DEFR	REFR	COMMON	

Access the complete manuals:

| MT-514E | MT-514E Faston |

NSF COMPONENT
MT-514E

R290 R600A

Temperature

MT-543E *plus*

SITRAD A B	Power Supply: 115 or 230 and 12 or 24 Vac/dc Temperature Range: 0 to 50°C / 32 to 122°F		

POWER SUPPLY

5 6 7 8 | 9 10 11 12 13 14 15 16 17

1 2 3 4

NTC PT-100*

0 Vac | 115 Vac 12 Vac | 230 Vac 24 Vac | OUT 1 | OUT 2 | OUT 3 | COMMON 1 | COMMON 2 | OUT 4

MT-543E Log

Power Supply: 115 or 230V and 12 or 24Vac/dc
Temperature Range: NTC: -50 to 105°C / -58 to 221°F
PT100: -99 to 300°C / -99 to 572°F
PT1000: -99 to 300°C / -99 to 572°F

SITRAD A B | COMMON 5 | OUT 5

5 6 7 8 | POWER SUPPLY | 9 10 11 12 13 14 15 16 17

1 2 3 4

NTC PT100*/ PT1000* | D1 | 90~264Vac | OUT 1 | OUT 2 | OUT 3 | COMMON 1 | COMMON 2 | OUT 4

Applied for cooling and/or heating, they feature an internal audible alarm (buzzer), configurable digital filter and accept 3 types of sensors: NTC thermistor (-50 to 105°C / -58 to 221°F), PT100 and PT1000* (-200°C to 300°C / -328 to 572°F).

The **MT-543E plus** has 4 configurable outputs and a soak mode, with which it is possible to configure up to 5 different setpoints and the time each setpoint will remain active. The **MT-543E Log** has 5 outputs. When used for climate control in CPD rooms, for example, it rotates up to 4 air conditioners at a time and provides a backup based on temperature in case of failure of one or more devices. Its fifth relay can be used as an alarm and/or power outage alert. In addition, it features a clock, hourmeter and datalogger which allows storage of the temperature value at specified periods of time, the variation of temperature and the status of the outputs. It also features a built-in rechargeable battery, which allows the data recorded to be kept even after a power fault.

The **MT-543E Log** monitors HACCP critical points (Hazard Analysis and Critical Control Point) by means of records in the controller's memory of high temperature alarm, power failure, and digital input. Complies with FDA guidelines - CFR 21, part 11.

MT-543E Log only.

Application example: blood banks, multistage systems of temperature, air conditioners, CPD's room/datacenters, vaccine chambers and industrial ovens (with PT-100). For beer production, the MT-543E plus is recommended.
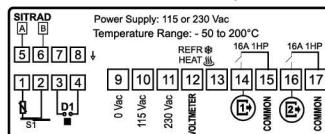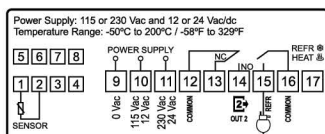
Sitrad PRO

Access the complete manuals: MT-543E *plus*   MT-543E Log

MT-516EVT *plus*

SITRAD A B	Power Supply: 115 or 230 Vac Temperature Range: - 50 to 200°C		

REFR / HEAT | 16A 1HP | 16A 1HP

5 6 7 8 | 9 10 11 12 13 14 15 16 17

1 2 3 4

S1 | D1 | 0 Vac | 115 Vac | 230 Vac | VOLTIMETER | COMMON | COMMON

MT-516E c(UL)us

Power Supply: 115 or 230 Vac and 12 or 24 Vac/dc
Temperature Range: -50°C to 200°C / -58°F to 329°F

POWER SUPPLY | NC | INO | REFR / HEAT

5 6 7 8 | 9 10 11 12 13 14 15 16 17

1 2 3 4

SENSOR | 0 Vac | 115 Vac 12 Vac | 230 Vac 24 Vac | COMMON | OUT 2 | REFR COMMON

Temperature controllers with two outputs to be used in refrigeration or heating applications.

MT-516EVT plus has a cyclic timer and True RMS voltage monitoring (90 to 300Vac), which avoids the compressor and agitator short-circuits due to voltage variations. It also has a settable digital input and functions to protect the equipment.

On its part, **MT-516E** thas an output for a cyclic timer that can also be set as an alarm output or as a second stage for refrigeration or heating.

Application Examples: milk refrigeration tanks, cooled displays, automatic winter/-summer systems in air conditioners, and incubators (MT-516E).

Sitrad PRO
MT-516EVT plus
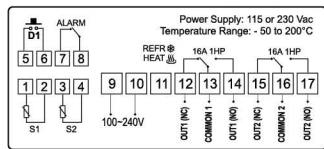
Access the complete manuals: MT-516EVT *plus*   MT-516E

MT-519E

Temperature controller for cooling or heating applications with two independent thermostats, allowing operations in two different environments. In addition, the outputs of the thermostats are configured as cyclic timers and the alarm output can be linked to any of the thermostats. Furthermore includes an audible alarm (buzzer), digital filter, and configurable digital input for door and pressure switch
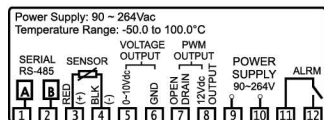
Application Examples: boilers, heaters, freezers, refrigerated counters, hot/cold counters.

Power Supply: 115 or 230 Vac
Temperature Range: - 50 to 200°C

Access the complete manual:

PID CONTROL

For cooling and heating processes, uses PID control (Proportional, Integral and Derivative), which allows controlling the temperature with high degree of stability. It has an analog output from 0 to 10 Vdc and PWM output.

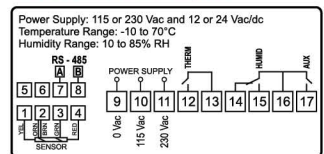**Application Examples: green houses, stoves, laboratories and injection machines.**

AutoPID plus

Power Supply: 90 ~ 264Vac
Temperature Range: -50.0 to 100.0°C

Sitrad PRO

Access the complete manual:

Humidity and Temperature

MT-530E super

It has three outputs: one for temperature control, another for humidity control, and a third one for auxiliary purposes, which may operate as a second stage for temperature control, humidity control, alarm, or cyclic timer. It is intended for low and medium relative humidity applications (10% to 85% with no condensation) and features an internal audible alarm (buzzer). Its temperature and humidity sensors are combined in a single bulb, saving space and wiring.

Application Examples: data centers, wine cellars, grain driers, green houses and general ambient air conditioning.
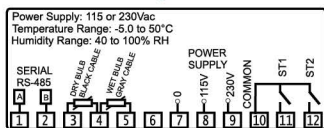
Power Supply: 115 or 230 Vac and 12 or 24 Vac/dc
Temperature Range: -10 to 70°C
Humidity Range: 10 to 85% RH

Sitrad PRO

Access the video and complete manual:

AHC-80 plus

It measures air moisture based on psychrometry (dry bulb and wet bulb). It features an integrated temperature controller, and are configured for dual stage of humidity. Used for high RH percentages and with water condensation. It operates in the range from 40 to 100% RH and from -5 to 50°C (23 to 122°F).

Application Examples: air conditioning and storage of fruits and flowers.

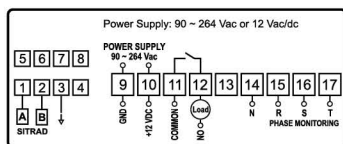Power Supply: 115 or 230Vac
Temperature Range: -5.0 to 50°C
Humidity Range: 40 to 100% RH

Sitrad PRO

Access the complete manual:

Power

PhaseLog

Power Supply: 90 ~ 264 Vac or 12 Vac/dc

It's an instrument for monitoring and protection of electrical equipment for industrial, commercial and residential facilities. Using the true measurement method TRUE-RMS, it also monitors power quality and protects single / two / three phase loads against: under and over voltage, angular asymmetry, modular asymmetry, phase loss and phase sequence inversion. The internal datalogger stores the voltages of each phase of the electrical grid during periods of time determined by the user.
Time and date of each sample is stored as well (internal realtime clock).

Application Examples: energy quality monitoring, motors protection, electrical panels protection and other multiphase equipments protection.

Sitrad PRO

IP65 FRONT

Access the **complete manual:**

MultiPower

A power consumption gauge is ideal to inform how much power is consumed throughout the month by the equipment and schedule working hours. With a compact size and versatile settings, it allows the measurement of the monophasic, biphasic, or triphasic circuits. Its triphasic balanced mode, to measure the consumption of triphasic engines, increases its measuring capacities from two to six different groups of engines.

MultiPower performs the voltage measurement directly and a current measurement through external current transformers (TC). The instrument has instant measurements for voltage, current, frequency, active power, apparent power, reactive power, and power factor. It also performs cumulative measurements such as total consumption, total active power, total reactive power, total apparent power, active power demand, reactive power demand, and apparent power demand. It also has an internal memory (datalogger) that stores the measurement registries.

It has digital inputs, temperature sensors, relay outputs, and an internal clock, allowing it to set different control modes such as thermal gauges, thermal gauges linked to the clock, and hourly events, among others.
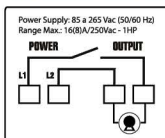
Application Examples: measurement of power magnitudes and consumption in equipment such as refrigerating racks.

Dimensions: 70 x 136 x 62 mm (2,75 x 5,35 x 2,44 in)

Sitrad PRO

Access the **complete manual:**

Monivolt II

An instrument that monitors the voltage and protects electrical equipment in industrial, commercial, and housing uses. By using the True-RMS* measuring method it monitors voltage and protects monophasic loads against over and/or under voltage. In addition, it has an automatic timer that waits 3 minutes before activating its output, which warrants equipment protection, such as compressors, requiring a minimum stop time.

Power Supply: 85 a 265 Vac (50/60 Hz)
Range Max.: 16(8)A/250Vac - 1HP

Application Examples: monophasic electric equipment protection.

Dimensions: 68,5 x 81 x 28 mm (2,69 x 3,18 x 1,10 in)

Access the **video** and **complete manual:**

True-RMS: the real voltage value, considering the contribution generated by high-frequency noise in the network (harmonic distortion). The voltage can be measured precisely in any waveform through this method, whereas traditional methods only correctly measure when it has a perfect sinusoidal wave.

Racks and Chillers

RCK-862

Electronic controller for compression racks and chillers. It performs the pressure and saturation temperature control and monitoring of the refrigerating fluid or the temperature of a secondary flow (glycol, cold water, environmental temperature) through up to 6 settable sensors.

Aimed to minimize power consumption of the refrigeration system, it has a new control logic: the progressive algorithm, which adapts the cold demand required by the plant with the power of the compressor group, reducing the number of turn-ons and turn-offs of the equipment. Through the floating condensation control function, it monitors the external environment temperature to lower the condensation setpoint, thus reducing the compression rate of the system and its power consumption. On its part, the integral-proportional control aims to minimize the temperature/pressure variations in the suction and discharge lines.

RCK-862 is a control module that acts on its own or with an expansion module RCK-461 to increase the number of inputs and outputs in large-size systems. Its internal solid-state relays facilitate and reduce costs in the setup of command boards.

Application Examples: compressor racks and chillers.

Dimensions: 70 x 136 x 62 mm (2,75 x 5,35 x 2,44 in)

Sitrad PRO

Access the complete manual:

RCK-461

An expansion module, easy to set up to increase the number of inputs and outputs of the RCK-862 model, that on its own allows the connection of up to ten RCK-461, performing the control of small, medium, and large-sized refrigeration systems.

In addition, it is possible to add new controllers, functions, and resources to a facility following its demand.

Application Example: expansion for RCK-862 to control compressor racks.

Dimensions: 70 x 136 x 62 mm (2,75 x 5,35 x 2,44 in)

Access the complete manual:

FG-HMI 4.3

Digital interface with a 4.3-inch color touchscreen to visualize remotely, efficiently, and quickly all the information from the **RCK-862** controller (version 2 or higher). It is more practicality and safety for controlling racks and chillers in a highly intuitive product. **FG-HMI 4.3** communicates with **RCK-862** through the RS-485 connection.

Application Examples: graphic interface for the RCK-862 controller.

Dimensions: 138 x 86 x 36 mm (5,43 x 3,38 x 1,41 in)

Access the complete manual:
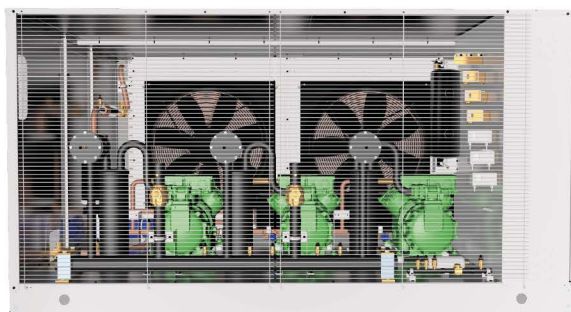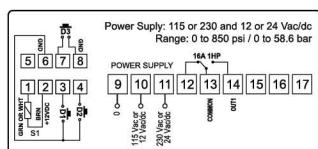
FG-HMI 4.3   RCK-862   RCK-461   RCK-461   RCK-461

Pressure Gauge

PCT-100E

Digital pressure switch easy-to-install and easy-to-apply for systems that require effective pressurization or depressurization control up to 850 psi. It is able to control loads up to 1 HP directly and has three digital inputs that allow using external devices to protect the controlled system. The hourmeter stores the number of hours the compressor operates and indicates when the compressor needs servicing.

Application Examples: control of suction or discharge in refrigeration systems, control of air compressors and hydraulic pumps.

Power Suply: 115 or 230 and 12 or 24 Vac/dc
Range: 0 to 850 psi / 0 to 58.6 bar

Access the **complete manual:**

IP65 FRONT

PCT-120E plus

Pressure switch and thermostat with two control outputs and two stages, operating in pressurization, depressurization, refrigeration, heating, or alarm modes. It can also be used for water level control. It is able to control two loads up to 1 HP directly and has two digital inputs that allow using external devices to protect the controlled system. The hourmeter stores the number of hours the compressor operat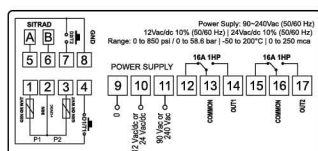es and indicates when the compressor needs servicing. By using temperature sensors together, it also monitors dynamic and adiabatic condensation, dynamic evaporation, superheating and subcooling, promoting greater energy efficiency in the system.
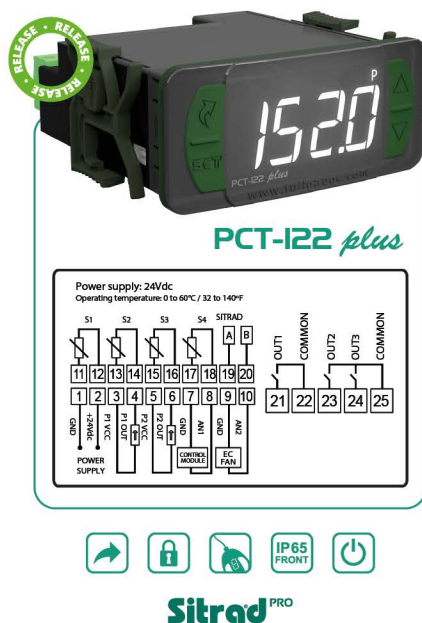
Application Examples: suction or discharge control in refrigeration systems, control of air compressors, semi-artesian wells, reservoirs, and water filters. Superheating and subcooling monitoring.

Power Suply: 90~240Vac (50/60 Hz)
12Vac/dc 10% (50/60 Hz) | 24Vac/dc 10% (50/60 Hz)
Range: 0 to 850 psi / 0 to 58.6 bar | -50 to 200°C | 0 to 250 mca

Sitrad PRO

IP65 FRONT

Access the **video** and **complete manual:**

PCT-122 plus

Power supply: 24Vdc
Operating temperature: 0 to 60°C / 32 to 140°F

Sitrad PRO

Pressure gauge dedicated for condensing units with characteristics that contribute to the power efficiency of the refrigeration system. It has two analog outputs that allow the precise control of the suction and discharge processes, triggering frequency inverters, electronic fans, and control modules for the variable capacity solenoid of the compressor (varistep). It also has three relay outputs to control compressors or ON-OFF type fans;

It has two inputs for pressure and temperature sensors, allowing high and low-pressure monitoring and superheating and undercooling measurements.

From its integrated clock, it automatically triggers the economic setpoint. The digital inputs allow remote commands with several goals, such as turning off the controller, alarms, economy mode, and night mode, among others.

Application examples: suction or discharge control in refrigeration systems, superheating, and undercooling monitoring.

Access the
**complete
manual:**

PRESSURE TRANSDUCERS

Full Gauge Controls transducers are made in 316L inox steel and have high stability and precision, being immune to interferences and vibrations. Check out the differences in each model:

MODEL	CONNECTION	OPERATING TEMP.	PRESSURE RANGE	POWER	OUTPUT SIGNAL
SB68-232A	¼ female	-30 to 80°C	0 to 232 psi	10 to 30Vdc	4 to 20mA (current)
SB68-650A	¼ female	-30 to 80°C	0 to 650 psi	10 to 30Vdc	4 to 20mA (current)
SB69-100A	¼ SAE male	-40 to 100°C	0 to 100psi	8 to 32Vdc	4 to 20mA (current)
SB69-200A	¼ SAE male	-40 to 100°C	0 to 200psi	8 to 32Vdc	4 to 20mA (current)
SB69-500A	¼ SAE male	-40 to 100°C	0 to 500psi	8 to 32Vdc	4 to 20mA (current)
SB69-100V	¼ SAE male	0 to 100°C	0 to 100psi	5Vdc	0,5Vdc to 4,5Vdc (voltage)
SB69-500V	¼ SAE male	0 to 100°C	0 to 500psi	5Vdc	0,5Vdc to 4,5Vdc (voltage)

The SB-68 transducers measure the pressure of common refrigerating fluids of HCFC, HFC, and HFO, such as: R22, R134A, R404A, R407A, R407F, R407C, R410A, R448A, R449A, R450A, R452A, R513A, R507A.

The SB-69 transducers measure the compressed air, water, oil, and refrigerating gas pressures (including ammonia).

SB68

SB69

Solar Heating

The **Microsol Advanced Connect** line is characterized by cutting-edge technology for data transfer by proximity and:

- **Exclusive app with a friendly interface to set up and diagnose the system**
- **Smart setup assistant, easing the technical support with the technician**
- **High-definition display that helps read the temperature from a long distance**
- **Sophisticated and innovative design**
- **Touch screen buttons**
- **Reduction in power consumption**

Microsol BMP Advanced

c·o·n·n·e·c·t

Microsol Advanced

Microsol SWP Advanced Connect

Water-pumped heating systems control (pool/solar bath)

Microsol RST Advanced Connect

Control of the thermal support in solar heating systems (non-pumped systems)
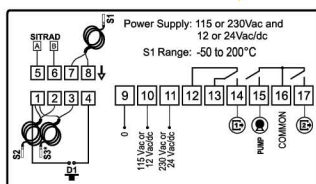
Microsol BMP Advanced Connect

Control of the forced circulation pump and thermal supports

Dimensions: 104 x 160 x 34 mm (4,10 x 6,30 x 1,33 in)

Get to know more about the *Microsol Advanced Connect*:

Microsol II E plus

Power Supply: 115 or 230Vac and 12 or 24Vac/dc
S1 Range: -50 to 200°C

Differential solar heating controller featuring three temperature sensors that activates the water pump. Its functions prevent the water from overheating and the freezing within the pipes. It has two backup outputs by electric resistance, gas or diesel-fired or even to command the swimming pool filtration. In addition to this, it features a real-time scheduler that allows to set weekly and daily events and permanent internal battery to ensure clock synchronism for many years, even in case of power shortage.

Application Examples: pumped solar heating systems.

Sitrad PRO
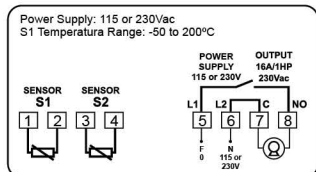
Access the *video* and the **complete manual**:

IP65 FRONT

ANASOL

Power Supply: 115 or 230Vac
S1 Temperatura Range: -50 to 200ºC

SENSOR S1   SENSOR S2
1 2   3 4

POWER SUPPLY 115 or 230V
OUTPUT 16A/1HP 230Vac
L1 L2   C NO
5   6   7   8
F 0   N 115 or 230V

The economic version of the differential thermostat for solar heating is here completely renovated. It has user-programmable functions that prevent: damage caused by thermal shock to the plates (vacuum tube); system freezing; and water superheating.

It also features easy activation for filtering with an adjustable timer and 16-amp relay for direct control of circulation pumps with up to 1HP. Anasol can be configured as a thermostat for refrigeration or heating, as it has a new kick-start function.

Application Example: solar heating systems in swimming pools or thermal reservoirs, gas or electric-powered water heaters, air conditioners, and refrigerators.
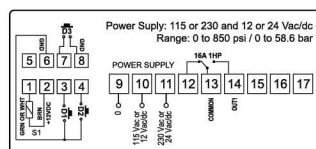
Dimensions: 100 x 73,5 x 37 mm (3,93 x 2,89 x 1,46 in)

IP65 FRONT

*Access the **video** and the **complete** manual:*

RT-607E *plus*

Power Suply: 115 or 230 and 12 or 24 Vac/dc
Range: 0 to 850 psi / 0 to 58.6 bar

5 6 7 8
1 2 3 4
S1

POWER SUPPLY
9 10 11 12 13 14 15 16 17
0 0   115 Vac or 12 Vdc   230 Vac or 24 Vdc   16A 1HP COMMON

Digital temperature controller for cooling or heating purposes combined with a time scheduler which allows the user to configure up to eight daily events, with programmable start and end time, which may be daily, weekly or split into business days and weekends. It has a permanent internal battery to ensure clock synchronization and schedule setup for many years, even in case of power shortage. It allows the user to activate the load manually even out of the events. In addition to that, it offers parameters for recirculation and protection of water heaters. With the sensor disabled it works as a time scheduler only.

Application Examples: water heaters, air-conditioning, counters with static coil and all processes that require time scheduling.
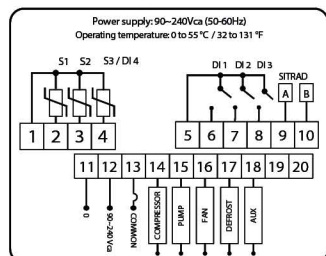
Sitrad PRO

IP65 FRONT

*Access the **video** and the **complete** manual:*

MT-526 *plus*

Power supply: 90~240Vca (50-60Hz)
Operating temperature: 0 to 55 ºC / 32 to 131 ºF

S1 S2 S3 / DI 4   DI 1 DI 2 DI 3   SITRAD A B
1   2   3   4   5   6   7   8   9   10

11 12 13 14 15 16 17 18 19 20
0 10A 250V~   COMPRESSOR PUMP FAN DEFROST AUX

Automatizes the heat pump action, enabling temperature control adjustments in thermal reservoirs and pools for better user comfort. It performs the compressor, pump, defrost, and fan controls, and it even has an auxiliary output that may be used as an auxiliary compressor for larger capacity systems or an external alarm. The controller also adds the True-RMS* voltage monitor protection, preventing loads from being triggered in inadequate voltages.

This instrument offers higher safety to the facilities due to its digital inputs, which allow the turn-off of the system through high/low-pressure controls and flow or temperature (depending on the adopted operation mode.) In addition, it has an integrated clock that defines the schedules for up to 16 pool or reservoir filtering and heating events, making the activity more flexible and allowing power savings through the economic setpoint when it is not used.

Application Example: heat pumps.

Dimensions: 75 x 75 x 100 mm (2,95 x 2,95 x 3,93 in)

Sitrad PRO

IP65 FRONT

*Access the **complete** manual:*

True-RMS: the real value of voltage, considering the contribution generated by high-frequency noise in the network (harmonic distortion). The voltage can be measured precisely in any waveform through this method, whereas traditional methods only correctly measure when it has a perfect sinusoidal wave.

Heating

MT-622E ᶜ℟ᵤₛ

Power Suply: 115 or 230 and 12 or 24 Vac/dc
Temperature Range: 0 to 600°C
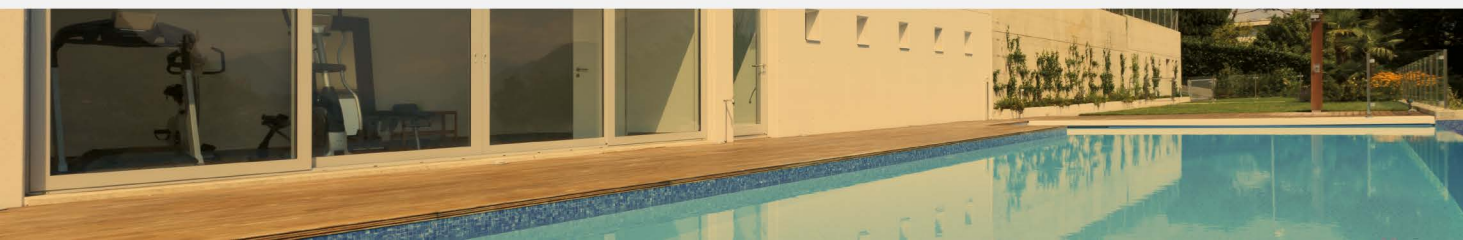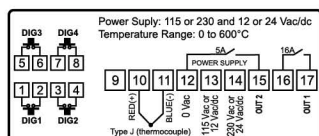
Designed for heating (cooking equipment), it uses a type J thermocouple* as a sensor for the temperature range from -50° C to 600° C (32° to 1112°F). It features two control outputs for temperature and an internal audible alarm (buzzer). The first output could uses a preheating cyclic mode and the second output may be configured to work as an alarm, timer (cyclic timer) or indicator of process completion. It features a timer that operates in different modes, driven by digital inputs, which indicates the end of the time of one or two processes. It also features five configurable presets, allowing to quickly change the values of the setpoint (desired temperature) and hysteresis (control differential) of the first stage and the process time.

* Sold separately.

Application Examples: fryers, ovens and sauna.

Access the **video** and the **complete manual:**

THE
Therm⊕on
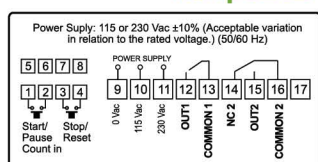## LINE HAS THE SOLUTION YOU NEED!

Industrial ovens, fermenting chambers, pizza ovens, coffee machines and much more!

Timers

TempusE

Multi-function device designed to operate as digital timer or counter. It includes three configurable and independent operating modes: event timer, cyclic timer or unit counter. The event timer mode offers three preset options and it is triggered through one of the controller's keys or an external switch connected to the digital input. The cyclic timer mode can operate with up to two outputs of control and include a delay option where both outputs will remain off. The counter mode include unit, batch and total counting options. Other salient feature include an internal audible alarm (buzzer) and an output that indicates the end of cycle/process and event totalizing, in addition to two digital inputs for external start/pause/count and stop/ reset switches.
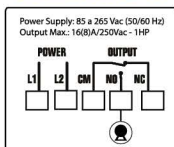
Application Examples: equipment that needs to control the timings of its processes or equipment that needs quantity counts.

Power Suply: 115 or 230 Vac ±10% (Acceptable variation in relation to the rated voltage.) (50/60 Hz)

5	6	7	8

POWER SUPPLY

1	2	3	4	9	10	11	12	13	14	15	16	17

Start/ Pause Count in | Stop/ Reset | 0Vac | 115 Vac | 230 Vac | OUT1 | COMMON 1 | NC 2 | OUT2 | COMMON 2

IP65 FRONT

Access the **complete manual:**

Icematic II

Cyclic timer programmable by setting the output (ON) to 12 hours and an adjustment of up to 60 minutes to keep the control output off. Suitable for all types of cyclic events for its ease of programming. It also has a dedicated key to reverse the output state manually, always respecting the two-minute delay time before activating the control output (ON) as a protection of the installation.

Application Examples: refrigerated or frozen counters, cold and storage rooms freezers, refrigerators, freezers or any equipment intended for refrigeration.

Dimensions: 77 x 39 x 97 mm (3,03 x 1,53 x 3,81 in)

ICEMATIC II CYCLIC TIMER

POWER SUPPLY 85~265Vac 50/60Hz
OUTPUT (Max.) 16(8)A/250Vac 1HP

POWER: L1 L2 | OUTPUT: CM NO NC

Power Supply: 85 a 265 Vac (50/60 Hz)
Output Max.: 16(8)A/250Vac - 1HP

POWER: L1 L2 | OUTPUT: CM NO NC

IP65 FRONT

Access the **complete manual:**

Thermometers

Penta®

The Penta portable thermometer monitors and shows the temperature at five different points. Now it has a new design and other tech advances such as low power consumption: with Penta permanently activated, the two alkaline AA batteries that come with the product can last up to 43 days; the operation range was increased to operate in environmental temperature from -20ºC to 60ºC (-4ºF to 140ºF); the sensors measure temperatures between -50ºC and 105ºC (-58ºF to 284ºF); and the display is 20% bigger, showing the power level of the batteries.

All that added to the characteristics you already know: exclusive resources such as the minimum and maximum temperatures registry; HOLD function (locking of instant instructions); display of median and differential temperatures, in addition to the settable automatic power-off.

Application examples: temperature measurements in central, car, or window air conditioning devices; freezers; in the evaporator balancing for frozen storage, among others.

Access the **video** and **complete manual:**

Dimensions: 130 x 73 x 30 mm (5,11 x 2,87 x 1,18 in)

TI-44E *plus*

SITRAD
A B
Power Suply: 115 or 230 and 12 or 24 Vac/dc
Temperature Range: -50°C to 200°C

Thermometer designed to monitor average, differential or individual temperatures of up-to 4 NTC sensors*. It can be connected to Sitrad realtime monitoring and management software or smartphone APP using RS-485 serial communication port.

*One sensor included.

Application examples: cold storage equipment, machine tools, stoves, furnaces, motor vehicles, air conditioned rooms, food, chemical, and pharmaceutical industries.

Sitrad PRO

IP65 FRONT

Access the **complete manual:**

EXPANDER MODULES

MOD-64

This is a device developed to operate independently or together with other Full Gauge Controls instruments, used as a complement in remote management systems. It has six inputs, two digital, two analogical and two by voltage. These inputs can be connected to a variety of sensors (volume, mass, percentage, level, smoke, presence, pressure, temperature and humidity, for example).

It also has four 16A relay outputs being two configurable as a cyclic timer and events agenda. Furthermore, the MOD64 allows to create operating rules for its applications through Sitrad PRO.

Access the **manual:**

Access the **manual:**

MOD-142

Expansion module designed to operate in stand-alone mode (after being configured) or combined with Sitrad PRO. It allows the expansion of the capacity of digital events (on/off), it keeps track of the temperature values and the measurament of a wide range different variables using any 4-20mA sensor on its analog input. The conversion resolution of the AIN analog inputs is 3000 points. It has 14 inputs and 2 outputs.

ACCESORIES

EasyProg

The revolutionary Full Gauge EasyProg allows storage of nine individual programmings. It can copy the information from a standard controller and then download it to other controllers without the need for connecting it to a PC. It can also be connected to the PC through a USB port and change the parameters using Sitrad 's Preset Editor. The communication with the instruments has a RS-485 port and a Serial TTL port. Portable, works with no batteries. See the controller's manual to check if it is compatible with EasyProg before connecting them.
*Patent required. **Check the controller manual if it is compatible with EasyProg before connecting them.

Access the **video:**

Enclosure - GB-01

For installation of instruments with measures 71 x 28 x 71mm (2,79 x 1,10 x 2,79 in) in situations such as wall mounting type (surface) and din rail or screw fixing. Connection types: X System; conduit. Includes two 16A switches that can be used to turn on light, air curtain, compressor or fans.

*Also available for sale without switches. **For illustrative purposes only (instrument not included).

Extension Frame - ME-01

For installation of instruments with measures 71 x 28 x 71mm (2,79 x 1,10 x 2,79 in) in varied situations, since it eliminates the need of precise cutouts to embed the instrument. With a modern look, its fixation is by screws* that are hidden, further enhancing its appearance. The Extension Frame of Full Gauge Controls also allows customization with the brand and contact of the installer or industry and accompany two 10A switches that can trigger internal light, air curtain, compressor or fan.
*Screws are included.   **Accompanies two on / off switches.   ***Image merely illustrative (product not included).

Ecase

Rear protective case for controllers, prevents against water and moisture in the controller's terminals.

*Image merely illustrative (product not included).

Access the **video:**

LIVES THAT INSPIRE US

We are part of the lives of millions of people around the world. Even without noticing, we are always there assuring the quality of products reaching the table of a major part of the population, whether during transportation of fresh meat for the Sunday barbecue, the oven baking of the bread we are used to eating for breakfast, or even the freezer where we keep our refreshing beverages. We are also engaged in offering the ideal climate for hanging out at the mall or in exciting moments, such as Arrivals and Departures at the airport. We are there, guaranteeing the perfect temperature of the water for sharing pleasant moments at a swimming pool with friends, and for making that ice cream a delicious experience with the ideal consistency. And, if for any reason, something gets out of hand, there is no reason to worry: Sitrad, a management software via Internet, will send an alarm to the cell phone of the responsible persons so everything can go back to normal in short time. People's lives inspire us to continuously invest in new technologies, state-of-the-art machines and expansion of our physical space, training and professional development of the sector, in order to always do more and better.

WHO WE ARE

Since 1985, we have produced a wide variety of digital instruments for industrial, commercial, and residential automation systems, always one step ahead of the market's necessities and our client's wishes, continuously offering refrigeration, heating, climatization, and solar heating solutions. We have offices in the United States and an industrial park in a 9.450m2 area in Canoas City, where all our products are 100% developed and manufactured. Thus, we keep the integration between the Development Engineering and Production in the same building, keeping strict quality standards in all stages and warranting compliance with the delivery deadlines. The expansion process is constant.

The innovative industry that includes the Industrial Design and the Injected Factory warrants agility and autonomy in the whole production process, the fruits of a significant investment in cutting-edge machinery, such as a modern 3D printer, and hiring a specialized team. We are present worldwide with our products; in over 20 fairs, we present our products each year, and through professionals that offer seminars and training programs.

Thus, our image is well consolidated in 62 countries, among them: the United States, Canada, China, United Arab Emirates, Pakistan, Turkey, Mexico, Colombia, Argentina, and South Africa. We are over 300 employees engaged with the company's Quality and Environmental Policies, focused and motivated to deliver our best to you, our partner.

QUALITY AND CERTIFICATIONS

We are committed to excellence in manufacturing our products, affirming respect for environmental preservation. Our products and processes comply with international guidelines, standards and certifications such as UL, CE, NSF, and ISO 9001 and 14001. Our production line also complies with the European directive RoHS, which eliminates the use of hazardous substances in electronic devices. The Sitrad PRO software was approved through the rigorous Microsoft validation process, which proves the complete trust and safety in all the facilities.

UNDERSTAND THE ICONS

Find out what the icons troughout this catalog means:

Turn off control functions

Key Flatec

Function Lock

Serial Programming

Degree of protection IP65

Sitrad PRO | *Software and management APP*

Refrigeration   Heating

Dimensions of rectangular instruments: 71 x 28 x 71 mm (2,79 x 1,10 x 2,79 in).

TALK TO US

fullgauge.com
fullgauge.us

+55 51 3778 3434
+1 877 917 6643
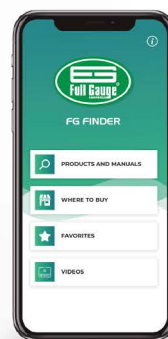
us@fullgauge.com

f facebook.com/fullgaugecontrolsus

▶ youtube.com/fullgaugeus

◉ instagram.com/fullgaugecontrolsus

OUR APPS:

This catalog in your cellphone!
FG **FINDER**

An app that searches for products by name, use and category, in addition to the manuals download and store finder.

DOWNLOAD NOW!
(Scan the QR Code)

The best solutions on the palm of your hand!
FG **TOOLBOX**

App that brings all the necessary tools to further ease your facilities control.

DOWNLOAD NOW!