Full Gauge® CONTROLS

use **Sitrad**®
VIA INTERNET

General Catalogue

refrigeration • heating • climatization • solar heating • remote management

You have received the latest product catalog of Full Gauge Controls. Here you will find our main products, accessories, sensors, among a number of tips to better use of your products.

We leave at your disposal a highly skilled Technical Support team ready to assist you through a variety of communication channels (see list of communication channels in the back cover).

Full Gauge Controls

A LITTLE MORE ABOUT FULL GAUGE CONTROLS...

With a diverse line of digital electronic instruments, Full Gauge Controls stays always ahead of the market necessities and costumers wishes, continually offering, along almost 30 years, automation solutions for refrigeration, heating, air conditioning and solar heating systems.

One among many innovations developed by Full Gauge Controls is the possibility to manage installations, from anywhere in the world through Sitrad, a remote management software via Internet.

PROVEN WORLDWIDE RECOGNITION...

Full Gauge Controls have a worldwide presence through its products, wich are manufactured under strict conformity with guidelines, standards and international certifications such as UL, CE, NSF, ISO:9001 and ISO:14001. Also through its over 30 trade fairs which exhibits every year, and through its qualified team that promotes trainings and seminars around the world.

Its brand is consolidated in 54 countries, such as: USA, Canada, China, UAE, India, Turkey, Mexico, Colombia, Argentina, South Africa, Germany and Italy.

ISO 9001:2008

ISO 14001:2004

Certified By NSF

CE

c UL us

ACTIONS SPECIALLY DIRECTED AT YOU...

Full Gauge Controls is also widely known of its exclusive events such as Meeting Sitrad, Right to the Point, and Full Gauge Masters, which aims to travel the world promoting free-to-attend trainings with four hours duration, disseminating technical knowledge in practice.

THINKING ABOUT THE FUTURE...

We are very proud that we can grow in harmony with the environment, since we do not pollute the soil, air and even the springs, and meet requirements of international certification related to the environment, the ISO:14001.

We understand that energy efficiency of an installation is guaranteed through digital instruments that controls parameters precisaly, management software via internet and products properly designed for each type of application. So this is what we do, adding funcions and features that contributes towards the sustainability of the planet. We consciously play our role towards a better feature, for everyone.

go Green

Full Gauge CONTROLS

FROZEN GOODS
CONTROLLERS

TC-900R*i clock*

Designed for low temperature applications, it features three relay outputs (COMP, FAN, DEF) and two temperature sensors, one for cabinet temperature and other one for evaporator temperature, which determines end of defrost cycle. Defrost cycles initiate either by cyclic time-base or agenda, thanks to the built-in "Real Time Clock" which allows to set up to 8 daily defrost events. The RS-485 serial communication port enables connection to our award-winning Sitrad software.

Dimension: 71 x 28 x 71 mm.

**Application Examples: walk-in and display freezers.**
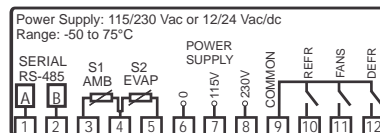
TC-900e POWER

Is a state-of-the-art low temperature controller loaded with enhanced energy saving and safety features. It is equipped with three relay outputs and two temperature sensors. A third temperature sensor can be installed on digital input-1 for condenser temperature control or defrost control on a second evaporator. The two digital inputs can be programmed to auto activate economic set point, initiate defrost, fast freezing mode, pressure or door alarms. A quick menu access key allows prompt access to main parameters. Other salient features include on-demand defrost, internal buzzer, IP65 frontal, optional eCase for rear drip protection, min-max temperature record, tamper-proof function to prevent unauthorized parameter change and a serial programming key.

Dimensions: 71 x 28 x 71 mm.

**Application Examples: walk-in and display freezers.**
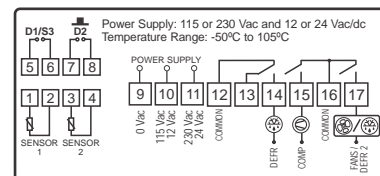
TC-940R*i plus*

One of the most versatile low temperature controller, it offers three operating modes: refrigeration; heating; automatic. The heating mode has been designed for applications where external (environment) temperature is lower than the evaporation temperature. Featuring four relay outputs, two temperature sensors, a digital input which can be programmed for door alarm, force defrost or economic setpoint, built-in buzzer and digital filter. With a powerful 16A Relay, commands directly up to 1HP compressors. In addition to these features, has On-demand defrost and a shutdown mode to inhibit all outputs including relay switches and alarms. The collection of residual refrigerant fluid before the defrost cycles reduces power consumption and enhances the system performance. The RS-485 serial communication port enables connection to our award-winning Sitrad software.

Dimension: 71 x 28 x 71 mm.

Application Examples: walk-in and display freezers.
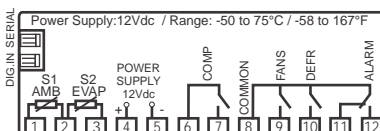
hint:
The sensor cables can be extended up to 200m or 665FT.

200 meter cable

TC-960Ri LOG

One of the most comprehensive low temperature controller loaded with enhanced energy saving and safety features. It offers four relay outputs, two sensors, two digital inputs, buzzer, normal and economy setpoint modes and built-in datalloger, which enables to store temperature data and output running time in user's definable intervals. Defrost cycles initiate based in cyclic time, evaporator temperature or agenda, thanks to the built-in "RTC" allowing up to 8 daily defrost events. The "RTC" also offers the possibility to set economy setpoint activations. An hour counter monitors compressor running time in order to indicate the exact period for maintenance.
Dimension: 71 x 28 x 71 mm.
Application Examples: refrigerated trucks, walk-in freezer and display freezers.
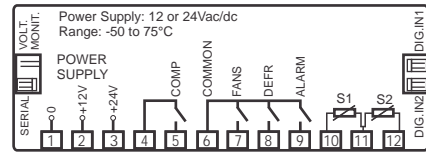
MT-444

Designed to increase energy savings in beverage displays, this model stands out for its programming logic that manage the setpoint according to customer demand, thanks to its door sensor. Featuring up to 2 economy modes, switching each other automatically based in the door sensor or manually through ECO key, the MT-444 also offers exclusive saving settings like cyclic functions of the fans while compressor in shut off, smart defrost, and anti-freeze protection for bottles. With an enhanced design and touch screen keys, it features 2 modules, the first is a power module* – where the 4 outputs for the compressor, fan, defrost and light are located – The second is a frontal module, where the temperature, sensors, door switch and connection for the programming key can be found. The programming key** allow to quickly set the controller and copy parameters from other equipment. The True-RMS voltage monitoring circuit allows you to protect the compressor against under-and-over voltage.

Through an internal audible alarm (buzzer), the controller will warn when the refrigerator door has been open according to the programmed interval, or when the room temperature is out of the set limit.
Dimension: 90 x 44 x 28 mm.

*The Power module has four relay outputs, directly operating the compressor (COMP), light (LIGHT), defrost (DEFR) and fans (FANS).
Dimension: 128 x 84 x 34 mm.
Included with the MT-444.

CONNECTIVITY AND COMPLETE CONTROL FROM ANYWHERE, ANYTIME...

COLD CHAIN
Stay in line with cold chain best practices

Remote management

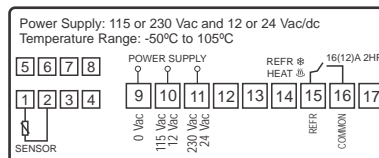DELIVERING CUTTING-EDGE CONTROL SOLUTIONS TO YOUR HVAC-R PROJECT

MT-512 ▭ 2HP

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 increasing its response time, that is, the sensor response becomes slower. In addition to those features, the MT-512 ▭ 2HP 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.
Dimensions: 71 x 28 x 71 mm.
Application Examples: walk-ins, chilled good displays, stoves, and heated floors.

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

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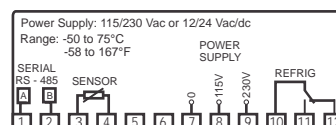SENSOR | 0 Vac | 115 Vac 12 Vac | 230 Vac 24 Vac | REFR | COMMON

MT-512Ri LOG

It features a single relay output, for compressor control, combined with a cyclic timer for natural defrost. The natural defrost can be forced or performed through an off refrigeration cycle. This model stands out for its data storage capability, thanks to the built-in datalogger that store temperature readings and status of controller's output at an user definable interval. Also features RS-485 serial output for communication with Sitrad software.
Dimension: 71 x 28 x 71 mm.
Application Examples: refrigerated trucks, walk-in and display coolers.
Check an economic version without datalogger.

Sitrad
-COMPATIBLE-

Power Supply: 115/230 Vac or 12/24 Vac/dc
Range: -50 to 75°C
-58 to 167°F

SERIAL RS - 485 | SENSOR | POWER SUPPLY | REFRIG
A B | | 0 115V 230V |
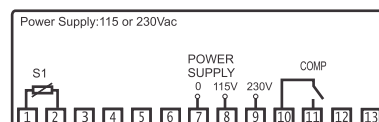1 2 3 4 5 6 7 8 9 10 11 12

MT-512G

Controller with a natural defrost function through compressor stop and permanent ventilation. It has an output, which is internally commanded by a temperature controller attached with a timer, and programmable defrost cycles. The difference lies in its dimensions that offers better visualization at a distance.
Dimension: 90 x 44 x 44 mm.
Application Examples: walk-in and display coolers.

Power Supply:115 or 230Vac

S1 | POWER SUPPLY | COMP
| 0 115V 230V |
1 2 3 4 5 6 7 8 9 10 11 12 13

MT-518R*i* and MT-518C

A dual-stage featured controller, they have outputs that can be applied either for cooling or heating. Their secondary output can also be set for out of range alarms. The MT-518Ri has a programmable digital filter.
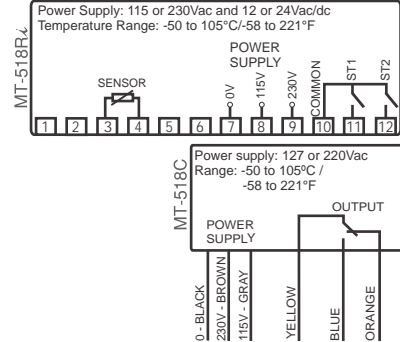**Application Examples: air conditioning systems.**
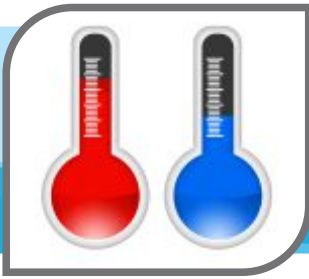
MT-518R*i*
71 x 28 x 71 mm

MT-518C
Ø 60 x 40 mm prof.

Power Supply: 115 or 230Vac and 12 or 24Vac/dc
Temperature Range: -50 to 105°C/-58 to 221°F

Power supply: 127 or 220Vac
Range: -50 to 105°C / -58 to 221°F

MT-519R*i*

The device has two independent thermostats enabling to operate in two specific environments. The thermostat outputs can be configured with cyclic timers. Furthermore, one alarm output can be linked to any of the thermostats. Two sensors included.
Dimension: 71 x 28 x71 mm.
Application Examples: boilers, ovens, heaters, freezers and refrigeration cabinets.
Operates from -50 to 200°C with a SB59 sensor. Check when ordering.

Power Supply: 115 or 230Vac and 12 or 24Vac/dc
Range: -50 to 105°C / -58 to 221°F
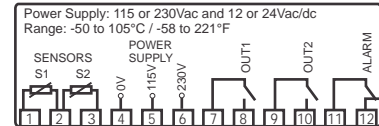
MT-622 ▤

With temperature range of -50 to 600°C using "J" type thermocouple sensor, it has two outputs for temperature control and an internal audible alarm (buzzer). It also has a timer that can operate in different modes, triggered by digital inputs, which indicates the end time of one or two processes. The first stage can use a cyclic preheating mode, and the second stage may operate as alarm, cyclic timer or indication of the end of a process. It offers the possibility to set five configurable formulas enabling to change setpoint and differential values of the first stage and the process time quickly and easily.
Dimensions: 71 x 28 x 71 mm.
Application Examples: fryers and ovens.

Power Supply: 115 or 230 Vac
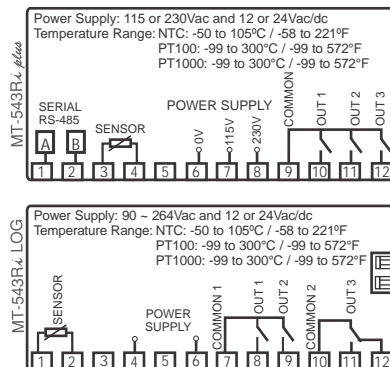Temperature Range: 0°C to 600°C
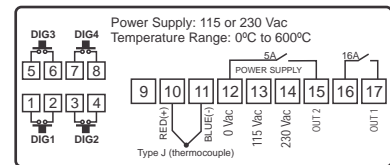
MT-543R*i plus* and MT-543 R*i* LOG

Designed for both, cooling and heating applications, it features three stages of control and one temperature sensor. The second stage can be configured as alarm (intra or extra-range) and the third as cyclic timer. In addition to that, it features internal audible alarm (buzzer) and configurable digital filter. It accepts three types of sensors: NTC (-50 to 105°C), PT-100 (-99 to 300°C) or PT-1000 (-99 to 300°C).

MT-543R*i* LOG besides existing features of MT-543Ri plus, it features built-in clock and memory (datalogger) allowing storage of temperature data, temperature variation and output status at user definable interval. Also has built-in rechargeable battery enabling non-stop data recording even in case of power failure.
Dimension: 71 x 28 x 71 mm.
Application Examples: blood banks, data centers, wine cellars, air conditioning and ovens (with PT-100).

Sitrad®
-COMPATIBLE-

Power Supply: 115 or 230Vac 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

Power Supply: 90 ~ 264Vac 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
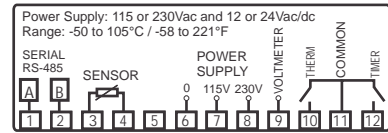PT1000: -99 to 300°C / -99 to 572°F

MT-516RVT*i* *plus*

It has an integrated cyclic timer and True RMS monitoring feature (from 90 to 280Vac) that prevents the compressor from damage due to voltage fluctuations. It features programmable adjustment for minimum and maximum operating voltages.
Dimension: 71 x 28 x 71 mm.
Application Examples: milk cooling tanks.
Check a rounded shape version.

Power Supply: 115 or 230Vac and 12 or 24Vac/dc
Range: -50 to 105°C / -58 to 221°F

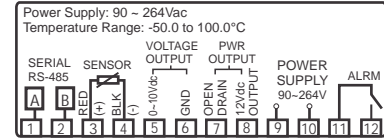| SERIAL RS-485		SENSOR			POWER SUPPLY			VOLTMETER	THERM	COMMON	TIMER
A	B				0	115V	230V				
1	2	3	4	5	6	7	8	9	10	11	12

PID CONTROL

AutoPID*plus*

For cooling and heating processes, uses PID control (Proportional – Integral – Derivative), which allows controlling the temperature with high degree of stability. It has an analog output from 0 to 10 Vdc and PWM output.
Dimension: 71 x 28 x 71 mm.
Application Examples: green houses, stoves, laboratories and injection machines.

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

SERIAL RS-485		SENSOR		VOLTAGE OUTPUT		PWR OUTPUT		POWER SUPPLY 90~264V		ALRM	
A	B	RED (+)	BLK (-)	0~10Vdc	GND	OPEN DRAIN	12Vdc OUTPUT				
1	2	3	4	5	6	7	8	9	10	11	12

hint:

When connecting instruments to **Sitrad** install the junction block, it has internal protections. Available for sale.
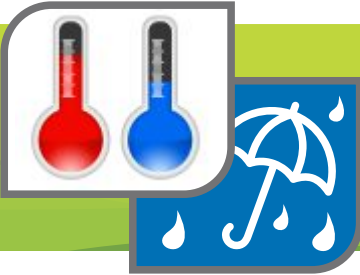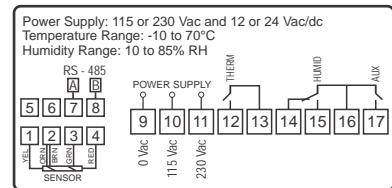
HUMIDITY AND TEMPERATURE
INTEGRATED CONTROLLERS

MT-530 ⊟ 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. Additionally, it includes an intelligent locking system to prevent unauthorized people from changing control parameters.
Dimensions: 71 x 28 x 71 mm.
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

RS - 485				POWER SUPPLY			THERM		HUMID		AUX	
	A	B		0 Vac	115 Vac	230 Vac						
5	6	7	8	9	10	11	12	13	14	15	16	17

SENSOR				
YEL	GRN	BRN	GRN	RED
1	2	3	4	

hint:

All Full Gauge instruments include on board memory that retain settings permanently even during blackouts.
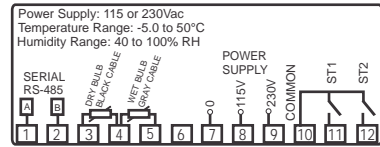
AHC-80 *plus*

It measures air moisture based on psychrometry (dry bulb and wet bulb). It features an integrated temperature controller, and allows configuring 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.
Dimension: 71 x 28 x 71 mm.
Application Examples: air conditioning and storage of fruits and flowers.

Sitrad
-COMPATIBLE-

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

SERIAL RS-485 | DRY BULB BLACK CABLE | WET BULB GRAY CABLE | POWER SUPPLY | ST1 | ST2

A B | 0 | 115V | 230V | COMMON
1 2 3 4 5 6 7 8 9 10 11 12

hint:

The manuals that accompany the instruments include the diagram for network connection's and loads. We recommend that this connection should be done by a certified electrician.
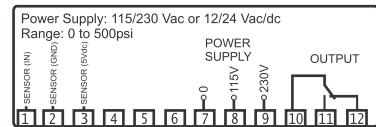
PRESSURE
CONTROLLERS

PCT-100R*i*

Single-stage pressure controller, from 0 to 500psi, it can be applied either in cooling systems, both in suction and discharge, or air compressors and water pumps control.
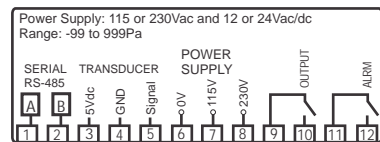Dimension: 71 x 28 x 71 mm.

Power Supply: 115/230 Vac or 12/24 Vac/dc
Range: 0 to 500psi

SENSOR (IN) | SENSOR (GND) | SENSOR (5Vdc) | POWER SUPPLY | OUTPUT
| 0 | 115V | 230V
1 2 3 4 5 6 7 8 9 10 11 12

PCT-210R*i* LOG

This is a differential pressure controller that can be configured for both pressurization and depressurization. It includes two outputs, one for the control and the other for alarms. It has a real time clock and internal memory (datalogger) able to store the differential pressure values in periods determined by the user through the variation in pressure or change in the output status.
Dimension: 71 x 28 x 71 mm.
Application Examples: clean room pressure control, air flow measurement in ducts and smoke-proof step pressurization system.

Sitrad
-COMPATIBLE-

Power Supply: 115 or 230Vac and 12 or 24Vac/dc
Range: -99 to 999Pa

SERIAL RS-485 | TRANSDUCER | POWER SUPPLY | OUTPUT | ALRM

A B | 5Vdc | GND | Signal | 0V | 115V | 230V
1 2 3 4 5 6 7 8 9 10 11 12

hint:

The instruments must be installed in accordance with chapters of IEC 60364. This will ensure protection to users, preventing electrical shock, in addition to preventing damage to instrument, while contributing to proper operation and excellent equipment performance.
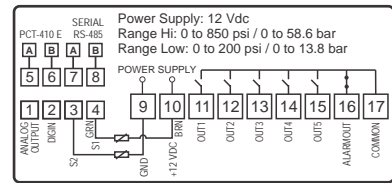
8

PCT-410 ☰ plus

Pressure based controller designed for refrigeration plants that require suction and discharge pressure control. Featuring 7 outputs of control, 6 digital and 1 analog for variable speed control, in addition 3 inputs, one for pressure transducer (4~20mA), one for temperature sensor and a digital input. Working in pairs, allows to control up to 5 sets of fans and compressors simultaneously. Versatile, it offers 4 operating modes: linear, rotation, capacity or individual.
Dimension: 71 x 28 x 71 mm.
Application Example: cooling racks.

Sitrad
-COMPATIBLE-

Power Supply: 12 Vdc
Range Hi: 0 to 850 psi / 0 to 58.6 bar
Range Low: 0 to 200 psi / 0 to 13.8 bar

PCT-3001 *plus*

Pressure controller for refrigeration systems designed to control suction (compressors) and discharge (fans) pressures. It is possible to connect 4 pressure transducers and 6 temperature sensors for up to 2 independent refrigeration groups (2 suctions and 2 discharges). It offers a number of control modes through 26 digital outputs, 4 analog outputs and 5 digital inputs. The last 4 digital outputs can be set for alarm triggered by temperature, pressure or through the digital inputs, which can also be associated to night setpoint mode. Using a customizable gas curve in addition to pressure and temperature readings, the PCT-3001 *plus* is capable to measure the sub-cooling and overheating of the refrigeration system. The kill zone feature enhance energy savings while optimizing compressor running time.
Dimension: 220 x 134 x 54 mm.
The product includes 2 pressure transducers and 2 temperature sensors.
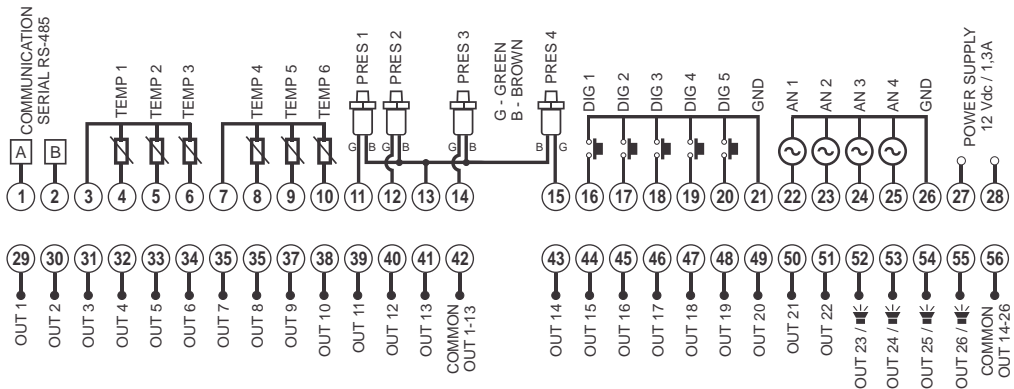
Sitrad
-COMPATIBLE-

Pressure Transducer SB69

Manufactured from stainless steel 316L, it has high stability and accuracy, being immune to interference and vibration. It operates from -40 to 212 °F (- 40 and 100 °C), for pressures ranging from 0 to 200 psi or from 0 to 500 psi. It has a male SAE ¼ fitting, featuring both voltage output signal from 0.5 to 4.5 Vdc and current output signal from 4 to 20 mA.
It allows measuring pressure in the following fluids: compressed air, water, oil, and cooling gases (including ammonia water).
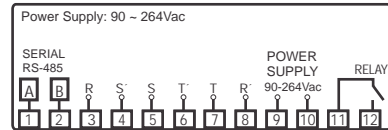
PhaseLOG *plus*

Delivering protection in industrial, commercial, and residential applications, the PhaseLOG *plus* is a device that monitors and protects electric appliances in a single, double, or triple phase. It has a built-in clock (RTC) and memory (datalogger) enabling voltage data storage in user definable interval. It also monitors the quality of electricity supplied, thanks to its True RMS method. Offering multi protection levels such as under and over voltage, angular asymmetry, modular asymmetry, missing phase, and wrong phase sequence, the PhaseLOG *plus* is recognized as one of the most reliable and efficient solution in power grid protection. Through a serial communication port, users are able to remotely manage settings as well as creating graphic and text reports from the stored data, thanks to the innovative SITRAD software.

Application Example: protection of three-phase electric equipments.
Patent pending.

Sitrad
-COMPATIBLE-

Power Supply: 90 ~ 264Vac

SERIAL RS-485								POWER SUPPLY 90-264Vac		RELAY	
A	B	R	S⁻	S	T⁺	T	R⁻				
1	2	3	4	5	6	7	8	9	10	11	12

YOUR ELECTRICAL INSTALLATIONS NEED THE BEST AND MOST COMPLETE RESOURCES

Use PhaseLOG *plus* and ensure the quality of the electric power for your facilities

PhaseLOG *plus* is a power quality recorder, that also monitors and protects three-phase electrical equipment against phase failure, phase reversal, under- and over-voltage, and unbalance between phases.

PhaseLOG *plus*
Dimension: 71 x 28 x 71 mm

» it is also a sequential voltmeter;

» stores in the internal memory what has happened with the electric power during the last 30 days;

» monitors power grid via the Internet, mobile phone or computer using Sitrad®;

» provides graphic reports from historical data;

» measures true RMS voltages;

» monitors the minimum and maximum voltage of each phase, with the desired parameters, switching off equipment if these are out of range, and switching them on again after the phases are stable for a user configured time.

hint:
Do not run the sensor cables together with the power cables in same conduit to prevent interference with the communication of data.

Penta III

Portable thermometer that indicates the temperature at five different points. Due to its wide versatility, it is excellent for measuring temperature in central, automotive, and wall-mounted air conditioning equipment, freezers for frigorific balancing of evaporators, among others. It has unique features such as recording minimum and maximum temperatures, HOLD function (locking of instantaneous, minimum and maximum indications), display of average and differential temperatures, besides the configurable automatic power off.
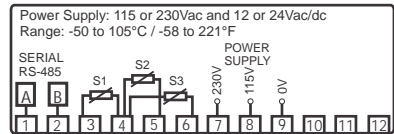Dimension: 135 x 75 x 34 mm.

TI-33R i plus

With up to three sensors*, this model display individual average and differential temperature between its three sensors.
Dimension: 71 x 28 x 71 mm.
*One sensor included.
Application Examples: refrigerating equipments, greenhouses, stoves and cold rooms.

Sitrad®
-COMPATIBLE-

Power Supply: 115 or 230Vac and 12 or 24Vac/dc
Range: -50 to 105°C / -58 to 221°F

SERIAL RS-485 — S1 — S2 — S3 — POWER SUPPLY — 230V — 115V — 0V

hint:

Access www.fullgauge.com to see the full line of thermometers.

hint:

Use electric surge protection devices (SPD) in general supply, in accordance with international standards.

ENERGY AND THERMOMETERS

CUTTING-EDGE TECHNOLOGY TO MAKE YOUR LIFE EASIER
MICROSOL ADVANCED® Series

It has never been that easy to take control of your solar heating system (SHS).

The MICROSOL ADVANCED solar heating controller series has been designed for the residential segment and offers four instruments with specific applications:

① **MICROSOL SWP ADVANCED**
Solar heating for swimming pools;

② **MICROSOL BMP ADVANCED**
Solar water heating controller featuring an output for backup system;

③ **MICROSOL RST ADVANCED**
Controls the backup system using "RTC" in thermosyphon systems;

④ **MICROSOL FLT ADVANCED**
Controls the solar water pump and filter system.

👍 Facilitated access functions;

🌱 Installation versatility;

💡 Intuitive display.

INTERACTIVE DISPLAY

The exclusively designed display of the new Microsol series offers a comprehensive yet user-friendly overview of the solar heating system including:

- Pump operation mode;
- Position and temperature of the sensors;
- Operating status.

4"x 2" enclosure

Overlay mode: inlets for channel system x

Furthermore, it offers the following options:

⚠ **PROTECTION**
Functions to prevent overheating and freezing, avoiding damages;

🌴 **HOLIDAY FUNCTION**
Peace of mind during your holidays, with SHS energy savings and protection;

Installation FLEXIBILITY

With the Advanced line you can:

- Install the controller on the wall, **without electrical sockets,** by means of the X channel system;

- Attach the controller over sockets using the same **4"x 2" standard enclosure.**

🔒 **FUNCTION LOCK**
Block adjustments, preventing alteration by unauthorized personnel;

VACUUM TUBE
An specific setting for systems that use vacuum tube pannels.

FACILITATED ACCESS

- 3 keys for setting the controller through the advanced menu;

- 3 keys allowing a costomizable quick access menu.

www.fullgauge.com/solar

Sensor SB28
Screw sensor to be directly inserted in the solar heating piping, ensuring even more precision in the control of hot water temperature and facility in installation. Sealed with a special resin, it prevents interference caused by humidity when measuring the temperature.

EnergySol *plus*

Microprocessor-based differential temperature control designed to fulfill the needs of solar heating controller in residential and commercial applications. Featuring four temperature sensors* and four relay outputs, suits the most diverse application, even backup system such as electric resistance and gas.
Overheating and anti-freezing settings are available through the differential temperature between the solar panel (collector) and reservoir, thanks to the water pump circulation control. Offering an user-friendly interface, with several options of default settings, users can easily configure the controller's setting accordingly to their demand.
*Three sensors included.
Dimension: 90 x 130 x 43 mm.

Sitrad
-COMPATIBLE-

MICROSOL II *plus*

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.
Dimension: 71 x 28 x 71 mm.
Check an economic version without software communication.

Sitrad
-COMPATIBLE-

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

SERIAL RS-485 | PANELS | RESERV | SURFACE | POWER SUPPLY 230V 115V 0V | PUMP | AUX1 | AUX2
A B | | | | | | | |
1 2 3 4 5 6 7 8 9 10 11 12

MICROSOL and MICROSOL R*i*

Microsol R*i*
71 x 28 x 71 mm
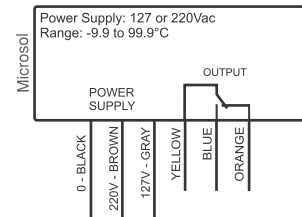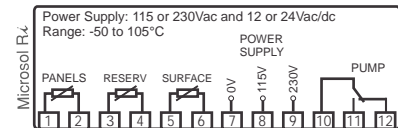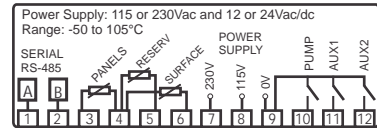
Microsol
Ø 60 x 40 mm prof.

Differential thermostats for solar heating that control water circulation pumps based on the temperature differential between the solar panels and the thermal tank or swimming pool. Its functions ensure better collection of solar power, to prevent water from freezing within the piping during winter, and to control its overheating.
Available in 16- AMP version for direct operation of pumps up to 1 HP.

Microsol R*i*
Power Supply: 115 or 230Vac and 12 or 24Vac/dc
Range: -50 to 105°C

PANELS | RESERV | SURFACE | POWER SUPPLY 0V 115V 230V | PUMP
1 2 3 4 5 6 7 8 9 10 11 12

Microsol
Power Supply: 127 or 220Vac
Range: -9.9 to 99.9°C

POWER SUPPLY | OUTPUT
0 - BLACK | 220V - BROWN | 127V - GRAY | YELLOW | BLUE | ORANGE

ANASOL

Economic version of the differential temperature controller for pumped solar heating systems. Featuring a friendly interface, it allows adjusting the parameters by light indications. It features functions to prevent water freezing or overheating with user programmable values for each function, in addition to a 16-amp relay to control circulation pumps of up to 1 HP directly. The case allows both wall mounting and 35 mm DIN rail panel mounting.
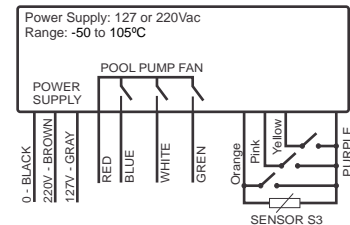Dimension: 77 x 39 x 97 mm.

MT-526C

The MT-526C is microprocessor temperature based controller designed for heat pump control. Featuring two temperature sensors, one for ambient, and other one to manage the defrost cycle in the evaporator coil. Through its three digital inputs the controller is able to detect high pressure in the discharge line, low pressure in the suction line, and lack of water flow between the heat pump and storage tank. The digital input used to detect the lack of water flow can also be configured to a third sensor. Thus working with the ambient sensor (heat pump) is possible to replace the flow switch.
Dimension: Ø 60 x 40 mm.
Application Example: heat pumps.

Power Supply: 127 or 220Vac
Range: -50 to 105ºC

POWER SUPPLY | POOL PUMP FAN
0 - BLACK | 220V - BROWN | 127V - GRAY | RED | BLUE | WHITE | GREN | Orange | Pink | Yellow | PURPLE
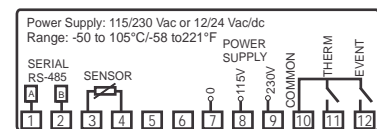SENSOR S3

RT-607R*i plus*

With weekly scheduling, this device can set up to four events with programmable start and end, and daily, weekly or divided into working 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.
Dimension: 71 x 28 x 71 mm.
Application Examples: water heaters, air-conditioning and counters with static coil.
Check an economic version without Sitrad communication.

Sitrad
-COMPATIBLE-

Power Supply: 115/230 Vac or 12/24 Vac/dc
Range: -50 to 105°C/-58 to221°F

SERIAL RS-485 | SENSOR | POWER SUPPLY 0 115V 230V | COMMON | THERM | EVENT
A B | | | | | |
1 2 3 4 5 6 7 8 9 10 11 12

CONV32 and CONV256

Interfaces are devices used to connect the plus, clock, %uper and LOG Line digital instruments to Sitrad. It performs the communication between the controllers and the computer, by means of converting RS-485 signals from the controllers to RS-232 or USB of the computer. The CONV256 dual-voltage interface is connected to the computer using DB9 or USB cables; CONV32 is connected to the computer by a USB cable.
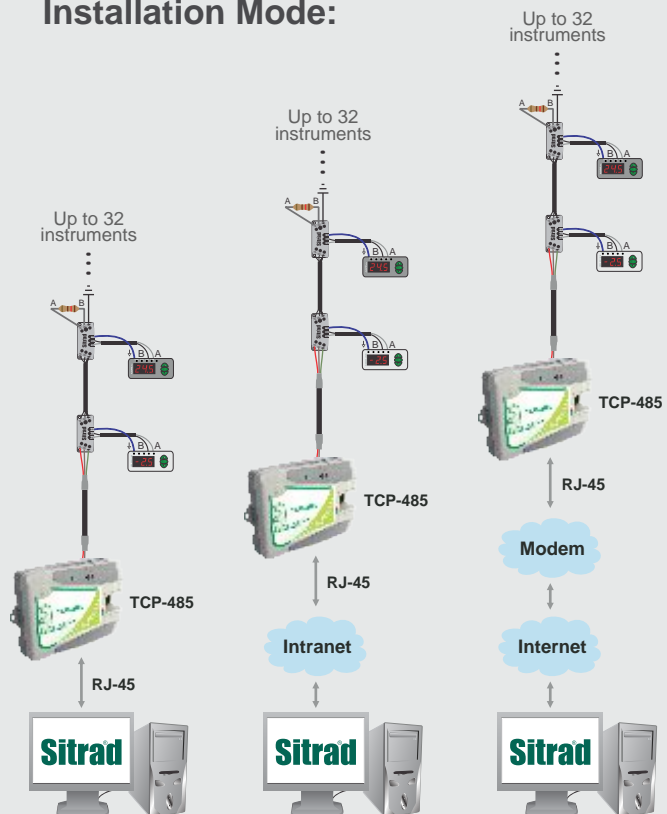
CONV32
81 X 63 X 31 mm
(Up to 32 instruments per converter)

CONV256
141 X 75 X 46 mm
(Up to 256 instruments per converter)

Installation Mode:

Sitrad Local Module

internet

Sitrad Remote Module — Option A

Sitrad Mobile Module — or — Option B

Sitrad Viewer Module — Option C

USB

Installation Mode:
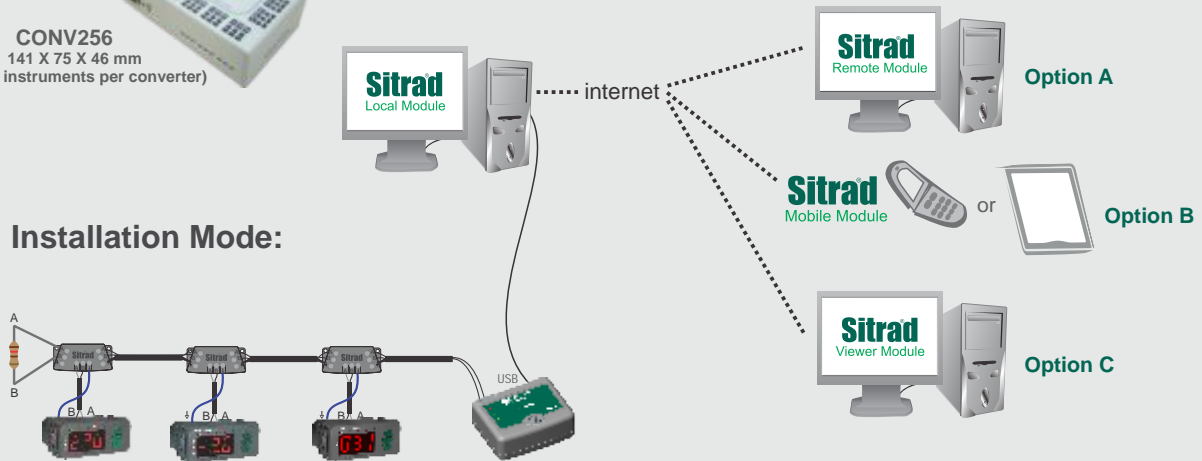
TCP - 485

Serial device server transforms the RS-485 standard to Ethernet signal (internet or intranet) thus allowing the controllers to communicate with Sitrad software through wiring connection (RJ-45). It also allows connecting instruments remotely. Through the IP address of the TCP-485 Ethernet module, it is possible to access it wherever it is inside the company's network or on the internet.
Dimension: 123 x 84 x 34 mm.

Up to 32 instruments

TCP-485

RJ-45

Sitrad

Up to 32 instruments

TCP-485

RJ-45

Intranet

Sitrad

Up to 32 instruments

TCP-485

RJ-45

Modem

Internet

Sitrad

CONNECTIVITY PROVIDING COMMAND, ANYTIME, FROM ANYWHERE IN THE WORLD.

The first version of Sitrad emerged in 1997 and the company has been working to update it constantly since then. Always seeking to anticipate the market requirements and constantly exceeding the customer's expectations, the company has been always causing surprise with the introduction of new features in new versions made available more than once a year. Sitrad became an essential tool for the smooth running of businesses and facilities around the world.

ADVANTAGES:

At the site of installation, you can opt for a computer or a TCP-485 interface connected to a 3G router

Remote monitoring minimizes waste and increase productivity

Graphic and text reports quickly and easily

5 to 20% energy savings without large investments

You take part in the evolution of Sitrad by sending your suggestions directly to Full Gauge's team of developers

FOR OEM's

- Competitive advantages;

- Adding extra features without adding extra costs;

- Being recognized as synonimous of innovation.

FOR CONTRACTORS

- Grow your business and profit margins by adding value to your project;

- Save unecessary trips to the project site.

FOR END USERS

- Ensure the temperature of stored goods;

- Increasing shelf life and minimizing waste;

- Reduce operational and energy costs.

SITRAD, DELIVERING CUTTING EDGE CONTROL TECHNOLOGY AND SIMPLICITY TO YOUR HVAC-R PROJETC.

1 **Continuous data collection and storage.**

3 **Regular monitoring of energy consumption, optimizing the refrigeration systems and other equipament.**

2 **Quickly diagnoses**
Remote monitoring permits a quickly diagnose of system inefficiency, raising the possibilities of preventive actions, contributing for reducing the maintenance expenses.

4 **Follow-up reporting**
Assure that the temperature remains within the setpoint, 24 hours a day, 7 days a week, reducing chance of spoilage, increasing shelf life, and reducing product loss.

CONVERTERS AND
Sitrad

15

SITRAD COMPRISES FOUR DIFFERENT MODULES:

1
LOCAL
To be installed in the computer which the instruments are connected via interface. You can opt to use a TCP-485 interface instead of the computer.

3
MOBILE
Manages facilities via cell phone or tablet*, communicating with the Local Module.
*Android, Windows, iOS (Apple), BlackBerry, among others.

2
REMOTE
To be installed in the computer that will remotely manage the installation, via internet, communicating with the Local Module.

4
VIEWER
It works as a monitoring center, as it joins all the Local Module installations on a single screen, facilitating the administration of various installations points.

SITRAD INSTALLATION MODES:

Watch Sitrad's video lecture

Free to download at:
www.sitrad.com

WITH A COMPUTER IN THE LOCAL MODULE:
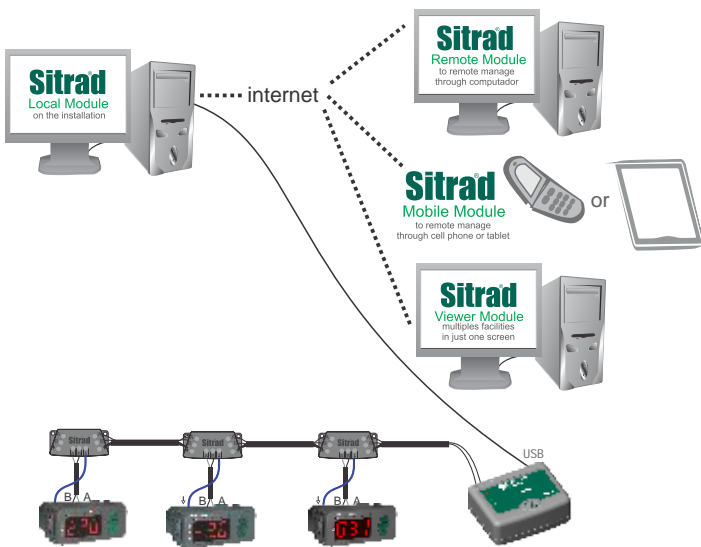

Sitrad® uses a client/server access, which is a type of communication allowing an exclusive exchange of data (encrypted) between modules, ensuring full accuracy and safety without interfering with the other programs installed in the computer and being independent from Internet providers.

The controllers can also be managed via the Internet without the need for a computer on site (Local Module) through TCP/IP communication (TCP-485 Interface). If there is a need for data storage, just keep a computer remotely connected to this system.

LOCAL MODULE HOSTED ON OFF SITE COMPUTER:
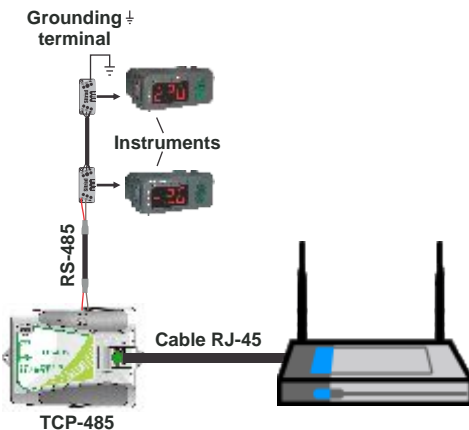
A remotely connected computer is required for data storage.

TRANSMITTERS

FG-Wi Converter
Transmitter (or receiver) that converts RS–485 data to radiofrequency (RF) and vice-versa, so that plus Line controllers can communicate wirelessly with Sitrad. Using this converter, installations communicating with Sitrad through twisted pair (RS-485) can change to wireless communication.
Dimension: 81 x 63 x 31 mm.

FG-Wi Router
The FG-Wi Router allows increasing the signal range of a FG wireless network (signal repeater) and the network identification, thereby avoiding interference between other wireless networks that may be in the same coverage area. It is placed in the network in a way that FG-Wi Converter (SLAVE) reaches the signal of FG-Wi Converter (MASTER).
Dimension: 81 x 63 x 31mm.

EXPANSION MODULE

MOD64
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 voltage. These inputs can be connected to a range of sensors (volume, mass, percentage, level, smoke, presence, pressure, temperature and humidity, for example). It also has four 16A relay outputs with two configurable as a cyclic timer and events agenda. Furthermore, the MOD64 allows to create operating rules for its applications through SITRAD:
Application Examples:
-Safety systems: when opening a door or window it is possible to activate an alarm through the relay outputs;
-Generator activation: in the case a lack of electric energy in the voltage inputs;
-Lighting activation: it is possible to activate lighting in a number of rooms and parking areas through the 16A relays and events agenda;
-Irrigation systems: a number of irrigation pumps are activated using the events agenda;
-Monitored rooms: a security camera is activated when a door is opened.
Dimension: 115 x 90 x 40 mm.

Sitrad
-COMPATIBLE-

hint:
The products identified in this catalog which display the **Sitrad** logo are equipped with a serial port for management via **Sitrad** .

PROGRAMMING KEY

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.
Dimension: 45 x 87 x 15 mm.
See the controller's manual to check if it is compatible with EasyProg before connecting them.

Sitrad
-COMPATIBLE-

hint:
The communication cables for **Sitrad** may be extended up to 1,000m or 3280 FT.

MAKING INSTALLATION EASIER AND SAFER

ENCLOSURE

It allows you to install the R$_\iota$ controller in the following situations:
- Wall mounting type (surface);
- Din rail or screw fixing;
- Built in the panel with screw fixing.
Connection types:
- X System;
- Conduit.
For embed, use the enclosure template to drill the hole.
Come along with 2 16A switches that can turn the internal light, the air curtain, compressor and fan on.
Dimension: 140 x 89,6 x 98,28 mm.
Image merely illustrative (product not included).

ECASE

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

EXTENSION FRAME

For installation of instruments with measures 71x28x71mm 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).

hint:

Browse our website to find out datalogger featured products.

Sensor SB28

Screw sensor to be directly inserted in the solar heating piping, ensuring even more precision in the control of hot water temperature and facility in installation. Sealed with a special resin, it prevents interference caused by humidity when measuring the temperature.

Sensor SB41

Sensor with thermoplastic polyester cable and individual isolation. Operates at temperatures of -50 to 105°C.

Sensor SB56

Sensor conjugate of temperature and relative humidity for use in conjunction with MT-530 ☰ super.

Pressure Transducer SB69

Manufactured from stainless steel 316L, it has high stability and accuracy, being immune to interference and vibration. It operates from -40 to 212 °F (- 40 and 100 °C), for pressures ranging from 0 to 200 psi or from 0 to 500 psi. It has a male SAE ¼ fitting, featuring both voltage output signal from 0.5 to 4.5 Vdc and current output signal from 4 to 20 mA.
It allows measuring pressure in the following fluids: compressed air, water, oil, and cooling gases (including ammonia water).

Penetration Probe

An accessory that can be used in Full Gauge Controls temperature instruments, allowing for the internal temperature of products to be checked. Available in two sizes: 150mm (SB-32) and 75mm (SB-57).

The sensor cables included with Full Gauge Controls® products can be supplied in different length. Please consult at the time of ordering.

Watch Sitrad's video lecture

Free to download at:
www.sitrad.com

Talk to Full Gauge Controls. We want to hear from you!

The company provides a series of communication channels so that clients can share their comments, questions, criticism, praise and suggestions. Through these channels, you can receive all the information related to Full Gauge Controls and find out about the technical training schedule for your region. Through the site you can access technical videos with instrument configuration instructions.

Telephone: +55 51 3475-3308
Technical Questions: +55 51 3778-3434
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Coordinates:
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Longitude: 51° 10' 25" West