

ATR264

Programmer
Programmatore



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Introduction

The ATR264 controller in 48x48mm (1/8DIN) format provides several versions with varying numbers of analogue-digital inputs and outputs, which support a wide range of software features described in detail in the relevant sections.

Programming modes include the MyPixsys App, based on NFC communication without the need for adaptors and no wiring/power supply, or alternatively Labsoftview software via Micro-USB port. A cycle programmer function is also available.

1 Safety guidelines

Read carefully the safety guidelines and programming instructions contained in this manual before connecting/using the device.

Disconnect power supply before proceeding to hardware settings or electrical wirings to avoid risk of electric shock, fire, malfunction.

Do not install/operate the device in environments with flammable/explosive gases.

This device has been designed and conceived for industrial environments and applications that rely on proper safety conditions in accordance with national and international regulations on labour and personal safety. Any application that might lead to serious physical damage/ life risk or involve medical life support devices should be avoided.

Device is not conceived for applications related to nuclear power plants, weapon systems, flight control, mass transportation systems.

Only qualified personnel should be allowed to use device and/or service it and only in accordance to technical data listed in this manual.

Do not dismantle/modify/repair any internal component.

Device must be installed and can operate only within the allowed environmental conditions. Overheating may lead to risk of fire and can shorten the lifecycle of electronic components.

1.1 Organization of safety notices

Safety notices in this manual are organized as follows:

Safety notice	Description
Danger!	Disregarding these safety guidelines and notices can be life-threatening.
Warning!	Disregarding these safety guidelines and notices can result in severe injury or substantial damage to property.
Information!	This information is important for preventing errors.

1.2 Safety Precautions

This product is UL listed as open type process control equipment.	Danger!
If the output relays are used past their life expectancy, contact fusing or burning may occasionally occur.	
Always consider the application conditions and use the output relays within their rated load and electrical life expectancy. The life expectancy of output relays varies considerably with the output load and switching conditions.	Danger!
Loose screws may occasionally result in fire.	
For screw terminals of relays and of power supply, tighten screws to tightening torque of 0,51 Nm. For other terminals, tightening torque is 0,19 Nm	Warning!
A malfunction in the Digital Controller may occasionally make control operations impossible or prevent alarm outputs, resulting in property damage. To maintain safety in the event of malfunction of the Digital Controller, take appropriate safety measures, such as installing a monitoring device on a separate line.	Warning!

1.3 Precautions for safe use

Be sure to observe the following precautions to prevent operation failure, malfunction, or adverse affects on the performance and functions of the product. Not doing so may occasionally result in unexpected events. Do not handle the Digital Controller in ways that exceed the ratings.

- The product is designed for indoor use only. Do not use or store the product outdoors or in any of the following places.
 - Places directly subject to heat radiated from heating equipment.
 - Places subject to splashing liquid or oil atmosphere.
 - Places subject to direct sunlight.
 - Places subject to dust or corrosive gas (in particular, sulfide gas and ammonia gas).
 - Places subject to intense temperature change.
 - Places subject to icing and condensation.
 - Places subject to vibration and large shocks.
- Installing two or more controllers in close proximity might lead to increased internal temperature and this might shorten the life cycle of electronic components. It is strongly recommended to install cooling fans or other air-conditioning devices inside the control cabinet.
- Always check the terminal names and polarity and be sure to wire properly. Do not wire the terminals that are not used.
- To avoid inductive noise, keep the controller wiring away from power cables that carry high voltages or large currents. Also, do not wire power lines together with or parallel to Digital Controller wiring. Using shielded cables and using separate conduits or ducts is recommended. Attach a surge suppressor or noise filter to peripheral devices that generate noise (in particular motors, transformers, solenoids, magnetic coils or other equipment that have an inductance component). When a noise filter is used at the power supply, first check the voltage or current, and attach the noise filter as close as possible to the Digital Controller. Allow as much space as possible between the Digital Controller and devices that generate powerful high frequencies (high-frequency welders, high-frequency sewing machines, etc.) or surge.
- A switch or circuit breaker must be provided close to device. The switch or circuit breaker must be within easy reach of the operator, and must be marked as a disconnecting means for the controller.
- Wipe off any dirt from the Digital Controller with a soft dry cloth. Never use thinners, benzene, alcohol, or any cleaners that contain these or other organic solvents. Deformation or discoloration may occur.
- The number of non-volatile memory write operations is limited. Therefore, use EEPROM write mode when frequently overwriting data, e.g.: through communications.
- Do not use chemicals/solvents, cleaning agents and other liquids.
- Failure to follow these instructions may reduce the performance and safety of the devices and cause danger to persons and property.

For CT (Current Transformer) inputs:

- Warning: To reduce the risk of electric shock, always disconnect the circuit from the building's power distribution system before installing/repairing current transformers.
- Use certified current transformers for energy monitoring.
- Current transformers may not be installed in equipment where they exceed 75% of the wiring space in any cross-sectional area within the equipment.
- Avoid installing the current transformer in an area where it can block ventilation openings.
- Avoid installing the current transformer in an area where it may block arc vents.
- Not suitable for class 2 wiring methods.
- Not intended for connection to class 2 equipment.
- Secure the current transformer and route the conductors so that they do not come into contact with live terminals or buses.

1.4 Environmental policy / WEEE

Do not dispose electric tools together with household waste material.

According to European Directive 2012/19/EU on waste electrical and electronic equipment and its implementation in accordance with national law, electric tools that have reached the end of their life

must be collected separately and returned to an environmentally compatible recycling facility.

2 Model Identification

Power supply 24..220 VAC/VDC ±10% 50/60 Hz	
ATR264-12ABC-T	1 A.I. + 2 relays 2 A + 2 SSR / D.I. + 1 analogue output V/mA + RS485
ATR264-13ABC not UL tested	1 A.I. + 3 relays 2 A + 2 SSR + 2 D.I. + 1 analogue output V/mA + 1 CT

3 Technical Data

3.1 General Features

Displays	4 digits 0,52", 5 digits 0,30"
Operating temperature	Temperature: 0-45° C -Humidity 35..95 uR%
Sealing	Type 1 front panel mounting IP65 front panel (with gasket) - IP20 box and terminals (UL not evaluated)
Material	Box and front panel: PC UL94V2
Weight	Approx. 185 g

3.2 Hardware Features

Analogue input	AI1: Configurable via software. Input: Thermocouple type K, S, R, J, T, E, N, B. Automatic compensation of cold junction from -25...85° C. Thermoresistances: PT100, PT500, PT1000, Ni100, PTC 1K, NTC 10K (β 3435K) Input V/mA: 0-1 V, 0-5 V, 0-10 V, 0-20 or 4-20 mA, 0-60 mV. Pot. Input: 1...150 KΩ. CT: 50 mA.	Tolerance (@25° C) ± 0.2% ±1 digit (on F.s.) for thermocouple, thermoresistance and V/mA. Cold junction accuracy 0.1° C/°C. Impedence: 0-10 V: Ri>110 KΩ 0-20 mA: Ri<5 Ω 0-40 mV: Ri>1 MΩ
Relay outputs	Configurable as command and alarm output.	Contacts: 2 A - 250 VAC for resistive load.
Digital I/Os	-12ABC-T 2 DI/O -13ABC 2 DI + 2DO	PNP input or 12/24 V, 25 mA SSR output
SSR output	Configurable as command and alarm output.	12/24 V, 25 mA.
Analogue output	Configurable as command, alarm output or as retransmission of process / setpoints.	Configurable: 0-10 V with 40000 points +/-0.2% (on F.s.) @25 °C; load >= 1 KΩ 4-20 mA con 40000 points +/-0.2% (on F.s.) @25 °C; load <= 250Ω
Power-supply	Extended power-supply 24..230 VAC/ VDC ±15% 50/60 Hz	Consumption: ATR264-12ABC-T 9W/VA ATR264-13ABC 8W/VA

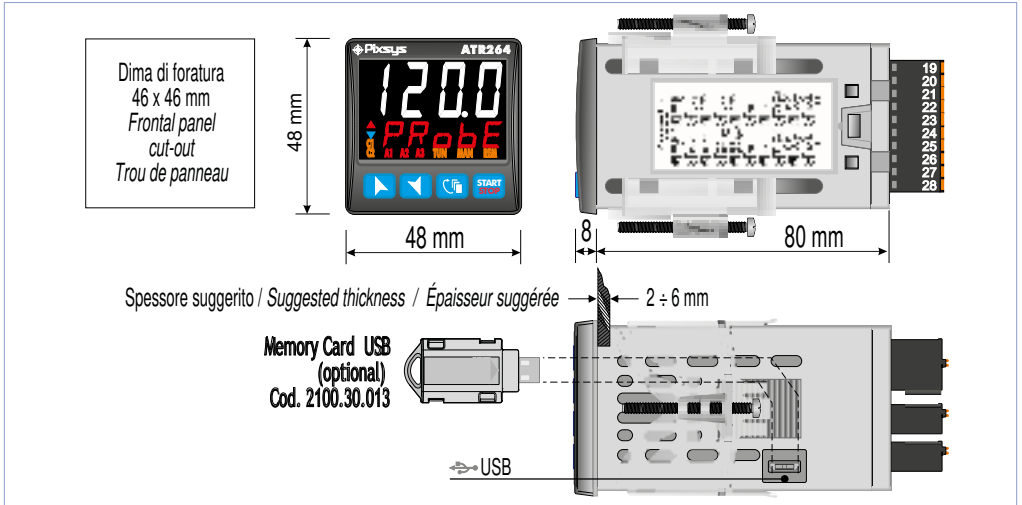
3.3 Software Features

Regulation algorithms	ON-OFF with hysteresis. - P, PI, PID, PD with proportional time
Proportional band	0..9999°C or °F
Integral time	0,0..999,9 sec (0 excludes)
Derivative time	0,0..999,9 sec (0 excludes)
Controller functions	Manual or automatic Tuning, selectable alarm, protection of command and alarm setpoints.

3.4 Programming mode

by keyboard	..see paragraph 14
software LabSoftview	..on "Download section" of official pixsys site: www.pixsys.net
App MyPixsys	..through download the App on Google Play Store®, see paragraph 17 When activated by a reader/interrogator supporting NFC-V protocol, controller ATR264 is to be considered a VICC (Vicinity Inductively Coupled Card) according to ISO/IEC 15693 and it operates at a frequency of 13.56 MHz. The device does not intentionally emit radio waves.

4 Dimensions and Installation



5 Electrical wirings

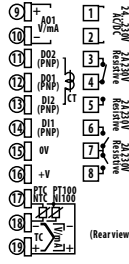
This controller has been designed and manufactured in conformity to Low Voltage Directive 2006/95/EC, 2014/35/EU (LVD) and EMC Directive 2004/108/EC, 2014/30/EU (EMC). For installation in industrial environments please observe following safety guidelines:

- Separate control line from power wires.
- Avoid proximity of remote control switches, electromagnetic contactors, powerful engines.
- Avoid proximity of power groups, especially those with phase control.
- It is strongly recommended to install adequate mains filter on power supply of the machine where the controller is installed, particularly if supplied 230Vac.


The controller is designed and conceived to be incorporated into other machines, therefore CE marking on the controller does not exempt the manufacturer of machines from safety and conformity requirements applying to the machine itself.

- Wiring of pins 1...15: use crimped tube terminals or flexible/rigid copper wire with diameter 0.2 to 2.5 mm² (min. AWG28, max. AWG12, operating temperature: min. 75°C). Cable stripping length 7 to 8 mm.
- Wiring of pins 16...35: use crimped tube terminals or flexible/rigid copper wire with diameter 0.2 to 1.5 mm² (min. AWG28, max. AWG14, operating temperature: min. 75°C). Cable stripping length 6 to 7 mm. Tighten the screws to a torque of 0.51 Nm.
- Use only copper or copper-clad aluminium or AL-CU or CU-AL conductors.

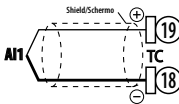
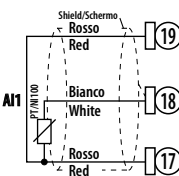
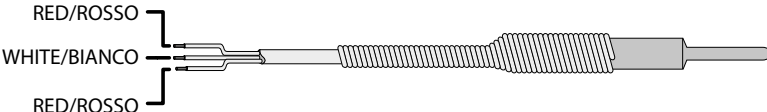
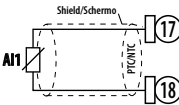
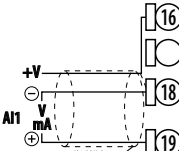
5.1 Wiring diagram

ATR264-12ABC-T	ATR264-13ABC
	


5.1.a Power Supply

	Switching power supply 24...230 VAC/VDC ±10% 50/60 Hz. Galvanic insulation (on all versions).
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5.1.b Analogue Input AI1

	For thermocouples K, S, R, J, T, E, N, B. <ul style="list-style-type: none">Comply with polarityFor possible extensions, use compensated cable and terminals suitable for the thermocouples used (compensated).When shielded cable is used, it should be grounded at one side only.
	For thermoresistances PT100, Ni100. <ul style="list-style-type: none">For the three-wire connection use wires with the same section.For the two-wire connection short-circuit terminals 16 and 18When shielded cable is used, it should be grounded at one side only. 
	For thermoresistances NTC, PTC, PT500, PT1000 and linear potentiometers. <p>When shielded cable is used, it should be grounded at one side only to avoid ground loop currents.</p>
	For linear signals in Volt and mA <ul style="list-style-type: none">Comply with polarityWhen shielded cable is used, it should be grounded at one side only to avoid ground loop currents.It's possible to select +V at 12Vdc or 24Vdc, by configuring parameter 192 u.o.u.t.

5.1.c CT input (ATR264-13ABC only)

	To enable input CT1, change parameter 195 c.t. I.F. <ul style="list-style-type: none">Input for 50 mA current transformer.Sampling time 100 ms.Configurable by parameters.
--	---

5.1.d Digital inputs	
12ABC-T	13ABC
<p>Digital inputs can be enabled by parameters.</p> <p>Close pin “DIx” on pin “+V” to enable digital input.</p> <p>It is possible to put in parallel the digital inputs of different devices joining together the 0V pins (20)</p>	

5.1.e Serial inputs (ATR264-12ABC-T only)	
	<p>Modbus RS485 communication. RTU Slave with galvanic insulation.</p> <p>It is recommended to use the twisted and shielded cable for communications.</p>

5.1.f Digital outputs	
12ABC-T	13ABC
<p>Digital output PNP (including SSR) for command or alarm. Range 12 VDC/25 mA or 24 VDC/15mA selectable by parameter 192 u.out.</p> <p>Wire the positive control (+) of the solid state relay to the pin DO(x). Wire the negative control (-) of the solid state relay to the pin 0V.</p>	

5.1.g Analogue output AO1	
	<p>Linear output in mA or V (galvanically isolated) configurable as command, alarm or retransmission of process-setpoint.</p> <p>The selection mA or Volt for the linear output depends on the parameters configuration.</p>

5.1.h Relay output Q1	
	<p>Capacity: 2 A, 250 Vac, resistive load 10⁵ operations. 20/2 A, 250 Vac, cosφ = 0.3, 1.2x10⁵ operations.</p>

5.1.i Relay output Q2 (ATR264-12x only)	
	<p>Capacity: 2 A, 250 Vac, resistive load 10⁵ operations. 20/2 A, 250 Vac, cosφ = 0.3, 1.2x10⁵ operations.</p>

5.1.j Relay output Q2 - Q3 (ATR264-13ABC only)	
	<p>Capacity: 2 A, 250 Vac, resistive load 10⁵ operations. 20/2 A, 250 Vac, cosφ = 0.3, 1.2x10⁵ operations.</p>

5.1.k Valve output	
12ABC-T	13ABC

6 Display and Key Functions



		Normally displays the process. During the configuration phase, it displays the parameter being inserted.
	<i>Probe</i>	Displays the size selected on par. 190 u.i.d.2. (factory setting: status) During the configuration phase, it displays the parameter value being inserted.

6.1 Meaning of Status Lights (Led)

C1	ON when the command output 1 is active or when the valve is opening.
C2	ON when the valve is closing.
A1	ON when alarm 1 is active.
A2	ON when alarm 2 is active.
A3	ON when alarm 3 is active.
TUN	ON when the controller is executing an auto-tuning cycle.
MAN	ON when "Manual" function is active.
REM	ON when the controller communicates through serial.
	ON during the rising phase of the cycle;
	ON during the falling phase of the cycle;
	Both ON during parameter modification, when this is not a default value.

6.2 Keys

	<ul style="list-style-type: none"> • Scrolls through parameter groups and scrolls/changes parameters. • Scrolls through the cycles to be run or modified. • In cycle programming allows editing of time and setpoint values. • Changes setpoint during tHER function. • Changes the control output percentage during the MAn function. • Enables fast cycle advance when in "START".
	<ul style="list-style-type: none"> • Scrolls through parameter groups and scrolls/changes parameters. • Scrolls through the cycles to be run or modified. • In cycle programming allows editing of time and setpoint values. • Changes setpoint during tHER function. • Changes the control output percentage during the MAn function. • Allows fast cycle retraction when in "START".

	<ul style="list-style-type: none"> In configuration, it assigns a mnemonic name or number to the selected parameter. During a cycle it allows the setpoint and other data to be displayed cyclically. When the controller is in STOP mode it allows you to enter the selection of cycles to be modified and the configuration. During a cycle, if held down for 1 second it enables/disables the HOLD function.
	<ul style="list-style-type: none"> Starts a cycle or stops the one currently running. When configuring parameters and/or editing cycle data, it acts as the ESCAPE key

7 Programming and configuration

There are two levels of programming :

- Cycle programming** (for the **operator/user** of the system), i.e. the definition of the time-setpoint pairs that form the steps (breaks or steps) of the cycle.
- Configuration** (for the **plant manufacturer/installer**), i.e. the programming of basic parameters (probe type, output type, auxiliary output trip type, etc.).

7.1 Programming (or modifying) cycle data




With or without initial cycle setpoint, with or without time-related auxiliary outputs (auxiliary outputs). The above clarification emphasises the possibility for the system manufacturer (on the basis of construction requirements or simplification for the user) to customise the procedures and sequence of operations necessary for programming a firing cycle.

For the sake of completeness, this paragraph lists all available options, with the steps indicated in the "Execute" column.






If simpler programming methods are required, it is advisable to include the most concise sequence in the documentation accompanying the system.

With controller in STOP, follow the steps in the table below.







7.1.1 Selection of the cycle to be modified

Press	Display	Execute
1 	Display 2 shows CYC <i>n</i>	
2 		Decrease or increase to display: 1 (for cycle n.1), 2 (for cycle n.2) up to 15 for cycle n.15.
3 	If initial setpoint is enabled: (par.76 $5.5P_u = ENAB.$) <ul style="list-style-type: none"> Display1 shows 00-5 Display2 shows the data value 	Enter the value for the initial setpoint, see par. 7.1.2
	If initial setpoint is not enabled: <ul style="list-style-type: none"> Display1 shows 01-1 Display2 shows the data value 	Enter the time of break 1, see par. 7.1.3.

7.1.2 Programming the initial set point (if configured)







Press	Display	Execute
4 	Display 2 shows the flashing data value	
5 	Increases / decreases Display2 value	Set the initial setpoint (starting temperature)
6 	Display2 stops flashing	
7 	It scrolls through the various breaks.	At any time you can press the  key to exit programming by saving the modified data

7.1.3 Step programming (break/step)











	Press	Display	Execute
8		Display2 (value to be modified) flashes	Set the desired value with the arrows  or 
9		Display2 fixed ON	
10	 	<p>It scrolls through the various breaks. The data on Display1 provides two information:</p> <ul style="list-style-type: none"> the step number (first two digits) the type of data (time, temperature or auxiliary output status). 	<p>Es: 01-t time of break 1 01-S setpoint of break 1 01-A auxiliary of break 1. NB: the auxiliary setting is present only if enabled on at least one alarm parameter (<i>R.O.R.S</i> selection). Repeat steps 8 to 10 until the required sections have been programmed.</p>

7.1.4 Programming the end-of-cycle auxiliary alarm

In case alarms are set as auxiliary (*R.O.R.S*), program the status of the outputs at the end of the cycle

	Press	Display	Execute
11		Display1 shows <i>E n-R</i> Display2 shows <i>R .oFF</i>	
12		Display2 flashes	Activate or deactivate the alarm with the arrows  or 
13		Display2 fixed ON	
14	 	Scrolls through the various end-of-cycle alarms enabled.	Repeat steps from 12 to 14

7.1.5 Cycle Repetition and Chaining Programming

	Press	Display	Execute
15		Display1 shows <i>01-r</i> . The number of cycle repetitions appears on display 2.	
16		Display2 (value to be modified) flashes	<p>Set the number of repetitions of the current cycle using arrows  or  NB: Set: <i>5, INF.</i> for no repetition, <i>LoOP</i> for infinite repetition, or a value from 1..100 for the desired number of repetitions</p> <p>Confirm the change with </p>
17		Display 2 on fixed	
18		Display1 shows <i>01-C</i> . Display2 shows the number of the concatenated cycle	<p>Press  to modify value.</p> <p>Press  to exit programming.</p>
19		Increases, decreases value on display 2.	<p>Set the number of concatenated cycle. NB: Set: <i>oFF.</i> for no cycle or a value between 1..15 for cycle number.</p> <p>Confirm the change with </p>





7.1.6 End programming

	Press	Display	Execute
19		The controller returns to the STOP state, saving the cycle. The red display shows <i>Stop</i> .	

8 Starting a work cycle






8.1 Cycle start and delayed start setup

The red display shows *Stop*.

	Press	Display	Execute
1		The red display shows the cycle selection.	
2	 or 		Decrease or increase until desired programme <i>cycle</i> (for cycle no.1), <i>cycle</i> (for cycle no.2).
3		Cycle begins.	




8.1.1 Delayed start setup

If the initial wait is active (parameter 75 *delay*) set the following:

	Press	Display	Execute
4		The red display shows the waiting time.	
5	 or 	Increases or decreases the initial waiting time (hours:minutes).	Press  or  to modify the time.
6		The waiting begins. When the time expires, the cycle begins.	








8.2 Fast forward function

During operation or after a restart it may be useful to advance or retract the running cycle time to the desired setpoint.

	Press	Display	Execute
1	 or 	Advance or retreat in one-minute steps (one beep of the buzzer/buzzer every minute).	To end the cycle and bring the controller into <i>Stop</i> state, before normal termination, press and hold  for 1".

8.3 Simple controller function






Set the controller to the *StoP* state.

Press	Display	Execute
1 	The red display indicates the selected cycle.	
2 		Increase until <i>HEr</i> is displayed.
3 	The white flashing display shows the setpoint , the red display <i>SP.u.Lh</i> .	
4  or 	Increases or decreases the setpoint value.	Set the desired setpoint.
5 	The controller modulates the control output to maintain the set temperature.	
6 	Cyclic display of controller values.	To change <i>SP.u</i> setpoint press arrow buttons. To exit keep pressed "START STOP" for 1".

8.4 Manual control of output



This function allows manual variation of the process control output, thus excluding process-related control. The output is activated in percent from 0 to 100 % with the time base set to parameter 62 *t.c*. (cycle time) or parameter 25 *uRLt*. if parameter 16 *c.out* is set to *c.uRL*.

Set the controller to *StoP* status and follow the table.

Press	Display	Execute
1 	The red display indicates the selected cycle.	
2 		Increase until <i>nAn</i> is displayed.
3 	The white display shows the percentage value of the output. The red display <i>out.PI</i> The controller starts modulating the control output.	To change the percentage use the arrows. To exit, press and hold "START STOP" for 1".
4  or 	Increase or decrease output percentage	Set the desired value. o exit, press and hold "START STOP" for 1".

9 Controller Functions

9.1 Hold function

This function allows a cycle to be paused: the red display shows *HoLd* nd the cycle progress is stopped. You can also change the setpoint using  or 

To launch this function:

- From digital input 1: select *HoLd* on par.177 *d. i. IF*.
- From digital input 2: select *HoLd* on par.183 *d. i. 2F*.



9.2 Automatic Tune

The automatic tuning procedure stems from the need for precise tuning, without necessarily having to delve into the operation of the PID control algorithm. By setting Auto on parameter 53 *t.un.l* (for control loop 1), the controller analyses process fluctuations and optimises the PID parameters. The **TUN** led flashes. If the PID parameters have not already been set, when the instrument is switched on, the manual tuning procedure described in the next paragraph is launched automatically.

9.3 Manual Tune

The manual tuning procedure allows the user more flexibility in deciding when to update the PID tuning parameters. During manual tuning, the tool generates a step in order to analyse the inertia of the system to be tuned, and based on the data collected, modifies the PID parameters accordingly. After selecting *MAN* on par.53 *TUN.1* the procedure can be activated:

• **Launching tuning from the keyboard:**

Press	Execute
1 	Press until the green display shows <i>d.15.</i> and the red display shows <i>TUN</i>
2 	The white display shows <i>ENAB</i> , the TUN led lights up and the procedure starts.

• **Launch Tuning from digital input:**

Select *TUNE* on par. 177 *i.1.F.* or on par. 183 *d.1.2.F.*

At the first activation of the digital input (switching on front) the **TUN** led lights up, at the second it goes out.



To avoid overshoot, the reference threshold for calculating the new PID parameters is given by the result of the following operation:

Threshold Tune = Setpoint - "Set Deviation Tune"(par. 54 *5.d.1.*)

Es.: if setpoint is 100.0°C and Par.54 *5.d.1.* is 20.0°C, the threshold for calculating the PID parameters is (100.0 - 20.0) = 80.0°C.

For greater accuracy in calculating the PID parameters, it is advisable to start the manual tuning procedure when the process deviates significantly from the setpoint.

You can terminate the manual tuning procedure at any time by following the instructions below:

Press	Execute
1 	Press until the white display shows <i>TUN.1</i> or <i>TUN.2</i> and the red display shows <i>ENAB</i>
2 	The white display shows <i>d.15AB</i> , the TUN led goes off and the procedure ends. The PID parameters are not changed.

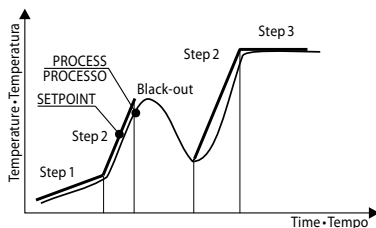
9.4 Recovery of interrupted cycle

The recovery function is particularly suitable for temperature control of ovens. In the event of a mains power failure, the ATR264 is able to continue the interrupted cycle and restart it in an optimal manner. The two cycle recovery modes are described below.

9.4.1 Recovery with automatic gradient

To enable cycle recovery with automatic gradient, set 1 on parameter 80 *r.1.c3.* This mode does not work for cold settings. When switched back on after a mains failure, the controller will behave as follows:

1. In the case of a power-off during a climb, the gradient will be that of the running step with the setpoint temperature equal to that of the probe.
2. In the case of power-off during a holding there are two possibilities: if the temperature has deviated a little (not more than the band fixed by par.39 *RLSE*) the cycle continues from the point of interruption; if the temperature has dropped further, but the regulator has not yet executed a descent step, the programme goes back to the nearest ascent step and the procedure indicated in point 1 is repeated.
3. In the event of a power-off during a descent or during a hold, after a descent has already taken place, the setpoint advances and realigns to the temperature of the probe, without rising (safeguard for glass processing), ensuring if necessary a jump to the next step.

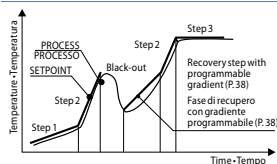


NB: After a power-off the stopwatch still restarts from 00:00.

9.4.2 Recovery with recovery gradient

To enable the cycle recovery with recovery gradient, set on par.41 *r.r.c.d.* a value (degrees/hour if temperature) greater than 1. At reactivation if the temperature of the oven (process) is lower than the setpoint, the ATR264 stops the cycle in execution, executing a step with the gradient rise set on par. 41 *r.r.c.d.* to return to the value of the setpoint generated before the black-out and reactivates the cycle from that point.

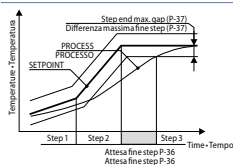
During recovery the point to the right of the red display flashes and instead of the cycle number the red display shows *rEc*.



- The recovery is only activated for holding steps or positive steps if the setting is hot and negative on cold.
- To manually exit the recovery condition press “^” or “v”.

9.5 Waiting step end

This function is particularly suitable for controlling baking cycles on ovens. It can happen that the oven cannot follow the gradients programmed by the user. If, at the end of a step, the process deviates from the setpoint by more than par.37 value, it starts with the next step only after waiting for the time programmed in par. 36 *U.t.S.E.*, or when this distance becomes less than parameter 37 *P.G.S.E.*



- To manually exit the end-of-step wait condition, press “^”.
- To disable this function set the end-of-step wait time *U.t.S.E.* to 0.
- During the end-of-step wait, instead of the cycle number, the red display shows *UAt*.

9.6 Gas operation

The ATR264-13ABC implements control functions for gas ovens.

The following settings must be checked for proper operation.

9.6.1 Gas - Outputs selection

- **Valve selection.** Set *c.u.RL* on parameter 16 *c.o.u.l* Q2,Q3 becomes valve control. The N.O. contacts of this output are operated independently of each other: this allows the “open” valve command to be connected between terminals 6 and 7, while the “close” command is connected to terminals 7 and 8.
- **Burner selection.** Set *burn* to an alarm selection parameter. E.g.: By setting *burn* on parameter 77 *RLIF* assign the burner function to alarm 1.
- **Fan selection.** Set *FAN5* to an alarm selection parameter. E.g.: by setting *FAN5* on parameter 97 *RL2F* assign fan function to alarm 2.

Referring to the description table in par.16 *c.o.u.l*, it is possible to trace the alarm-output association.

9.6.2 Gas – Managing mode

The management of gas ovens diversifies the output commands according to the type of regulated split: in the rise and hold steps the fans are switched on and when the setpoint exceeds the process the burners are switched on.

Phase	Description
1	Initialise servo control (all closed)
2	Switch-on of fan and wait for purging time (par.45 <i>UAS.t</i>)
3	Burner ignition, after the time set on par.46 <i>b.u.5.t</i> . has elapsed. , the controller considers the flame ignited and then updates the setpoint if necessary (the process may have dropped during this time).
4	Rising or holding step (positive or zero gradient). The temperature is regulated by modulating the hot air (burners switched on). If the setpoint is below the value set on par.47 <i>t.DF.b</i> (end temperature ON/OFF) there is no modulation, regulation is carried out by switching the burners on and off with the valve closed. If the temperature exceeds the setpoint of the value set on par.48 <i>t.5.o.b</i> . the burners are switched off, then switched on again when the temperature drops again. Par.49 <i>b. HY</i> . defines the hysteresis of the burner control.
5	Step down (negative gradient). The burners are switched off and the temperature is regulated by cold air modulation. If the temperature falls below the setpoint of the value set in parameter 50 <i>t.5.o.F</i> . the fans are switched off. For descent steps, the output management also varies according to the selection of par.44 <i>G.F.5</i> . The various possibilities are listed below: <ul style="list-style-type: none">• <i>G.F.oFF</i>: In the downward steps the burners remain off.• <i>G.F.5</i>. (Gas Falling Steps) (GID). In the falling steps the burners operate in ON/OFF mode: the servo regulates the air flow for cooling and is always closed when the burners are ignited.• <i>G.F.55</i>. (Gas Falling Steps Servovalve) (GIDS). In the falling steps the gas modulation also takes place via the servo valve: management is the same as in the rising and holding steps.

9.7 Dual Action (Heating-Cooling)

The ATR264 is also suitable for control on systems with combined hot-cold action.

The control output must be configured in hot PID (*Rct.t. = HEAt e P.b.* greater than 0), and one of the alarms (*AL.1, AL.2, AL.3, AL.4 or AL.5*) must be configured as *cool*. The command output must be connected to the actuator responsible for the heat action, the alarm will instead command the cooling action.

The parameters to be configured for the hot PID are as follows:

Rct.t. = HEAt Action type command output (Hot)

P.b. : Proportional band heat action

t. i. : Integral time hot action and cold action

t. d. : Derivative time hot action and cold action

t. c. : Hot action cycle time

The parameters to be configured for the cooling PID are (action associated, for example, with alarm1) the following:

AL.1 = cool Alarm1 selection (Cooling)

P.b.1. : Proportional band multiplier

o.u.d.b. : Overlap / Dead Band

co.c.t. : Cold action cycle time

The parameter *P.b.1.* (varying from 1.00 to 5.00) determines the proportional band of the cooling action according to the formula:

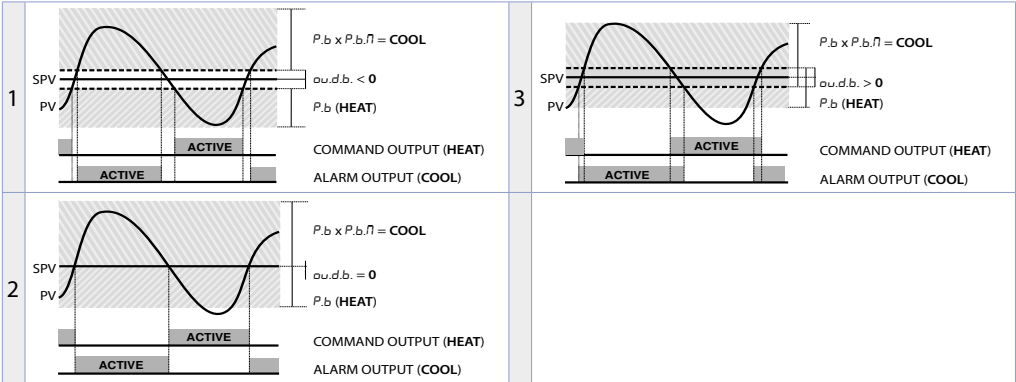
- **Proportional band cooling action** = $P.b. * P.b.1.$

This will result in a proportional band for the cooling action being equal to that of the hot action if $P.b.1. = 1.00$, or 5 times larger if $P.b.1. = 5.00$.

- **Integral time and derivative time** are the same for both actions.

The parameter *o.u.d.b.* determines the percentage overlap between the two actions. For systems in which the heating output and the cooling output must never be active at the same time, a dead band ($o.u.d.b. \leq 0$) will be configured, vice versa an overlap ($o.u.d.b. > 0$) can be configured.

The following figure shows example of a double-action (hot-cold) PID with $i.e. I = 0$ and $d.e. I = 0$.



The parameter $c.c.t.I$ has the same meaning as the cycle time for the hot action $c.e. I$.
The parameter $coo.F.$ (Cooling Fluid) pre-selects the proportional bandwidth multiplier $P.b.I.$ and the cycle time $co.c.t.$ of the cooling PID according to the type of cooling fluid:

$coo.F.$	Cooling fluid type	$P.b.I.$	$co.c.t.$
Air	Air	1.00	10
Oil	Oil	1.25	4
Water	Water	2.50	2

Once the $coo.F.$ parameter has been selected, the par. $P.b.I.$, $a.u.d.b.$ and $co.c.t.$ can still be changed.

9.8 LATCH ON Function

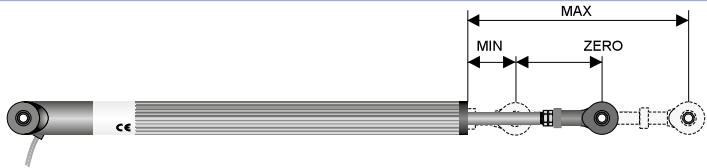
For use with input $P.o.t.$ and with linear input (0..10 V, 0..40 mV, 0/4..20 mA) it is possible to associate start value of the scale (par. 4 $L.L.I.I$) to the minimum position of the sensor and value of the scale end (par. 5 $U.L.I.I$) to the maximum position of the sensor (par. 11 $L.t.c.I$ configured as $S.t.n.d.r$).

It is also possible to fix the point in which the controller will display 0 (however keeping the scale range between $L.L.I.I$ and $U.L.I.I$) using the "virtual zero" option by selecting $u.0.5.e.o.$ or $u.0.5.o.n.$ on par. 11 $L.t.c.I$. Selecting $u.0.5.o.n.$ the virtual zero must be reset at each switching on; selecting $u.0.5.e.o.$ the virtual zero will remain fixed once calibrated.

To use the LATCH ON function, configure the par. 11 $L.t.c.I$








Then refer to the following table for the calibration procedure:

Press	Display	Execute
1	Exits parameter configuration. Display2 shows the message $L.A.t.c.h.$	Place sensor on minimum operating value (corresponding to $L.L.I.I$).
2	Store value on minimum. Display shows $L.o.U.$	Place sensor on maximum operating value (corresponding to $U.L.I.I$).
3	Store value on maximum. Display shows $H.i.G.h.$	o exit standard proceeding press . For "virtual zero" setting, place the sensor to zero point.
4	Set virtual zero. Display shows $z.E.r.o.$. If "Virtual zero at start" is selected, point 4 must be repeated at each starting.	To exit procedure press .



10 Loading Default Values

This procedure restores the instrument's factory settings.

Press	Display	Execute
1		The central display indicates the cycle selected.
2		Increase until <i>conF</i> is displayed.
3		<i>PASS</i> appears on Display1, while Display2 shows <i>0000</i> with the 1st digit flashing.
4	 or 	Change the flashing digit and move on to the next one with 
5		Enter password <i>9999</i> . On Display1 appears <i>LoAd</i> On red display appears <i>dEFAULT</i> After a few seconds the instrument restarts and loads the factory settings.

11 Reading and configuration through NFC





Programmabile
via RFID /NFC.
Non richiede
cablaggio!



Inquadra il Qr-Code
per scaricare l'app
su Google Play Store®

The controller is supported by the App MyPixsys: using an ANDROID smartphone with NFC connection it is possible to program the device without using a dedicated equipment. The App allows to read, set and backup all parameters which are stored into the internal memory of Pixsys devices.
Procedure:

- Identify the position of the NFC antenna on the smartphone (usually central, behind the back cover) or to one of the sides in case of metal chassis. The controller's antenna is placed on the frontal panel, under the function keys.
- Make sure that the NFC sensor of the phone is enabled or that there are no metal materials between the phone and the device (ex. aluminium cover or with magnetic stand)
- It is useful to enable the system sounds on the smartphone, as the notification sound confirms that the device has correctly been detected.

The App interface is provided with four tabs: SCAN, DATA, WRITE, EXTRA.
Select the first tab "SCAN" to read data stored into the internal memory of the device; place the smartphone in contact with the controller frontal panel, making sure that the phone's antenna matched with that of the controller.
Once detected the device, the App emits a notification sounds and proceeds with the model identification and the reading of the parameters.

The graphic interface shows the advancement and switches to the second tab "DATA". It is now possible to move the smartphone away from the controller to make the required modifications more easily. The device parameters are divided into collapsible groups and are displayed with name, current value and reference index to the manual. Click on a row to open the setting screen of the related parameter with the detailed view of available options (in case of multiple choice parameters) or of the minimum/maximum/decimals limits (for numeric parameters), included the text description (as per section n. 11

of the user manual). Once selected the chosen value, the related row will be updated and underlined into the tab “DATA” (hold down the line to cancel modifications).


To download the new configuration on your device, select the third tab “WRITE”, place again the smartphone in contact with the controller and wait for the notification.

The device will show a restart request, necessary to update the configuration with the new written modifications; if it does not restart, the controller will continue to work with the previous configuration. In addition to the classic operation of parameters reading->modification->writing, MyPixsys is provided with additional functions which can be accessed by the tab “EXTRA”, as save parameters / e-mail loaded values/ restore default values.

12 Configuration through memory card


The device can be configured through a memory card (2100.30.013). This one is linked to the micro-USB connector on the bottom of the device.

12.1 Memory card creation/update



In order to save a parameter configuration in the memory card, connect it to micro-USB connector and power the instrument. If the memory has never been configured, the device starts normally, but if its data are considered valid, it is possible to view on the display *nEno St iP*. Press **START/STOP** in order to start the product without uploading any data from the memory card. Configure, set the parameters and exit configuration.
Now, the device saves the configuration just created also in the memory.

12.2 Configuration loading from memory card



In order to load a configuration previously created and saved in the memory card, connect it to the micro-USB connector and power the instrument. Now, if the memory is detected and its data are considered valid, it is possible to view on the display *nEno St iP*. By pressing **▲** you see *nEno LoAd* and with **START/STOP** you confirm the uploading of parameters from the memory card to the controller. If, on the other hand, you press directly **START/STOP** when viewing *nEno St iP*, the product starts without uploading any data from the memory card.

13 Serial communication

The ATR264-12ABC-T, equipped with an isolated RS485 serial port, is able to receive and transmit data via MODBUS RTU protocol. The device can be configured as master or slave.

Modbus RTU protocol features	
Baud-rate	Selectable by parameter 212 <i>bd.r.t.</i> 4.8 4800 bit/sec 9.6 9600bit/sec 19.2 19200bit/sec 28.8 28800bit/sec 57.6 57600bit/sec 115.2 115200bit/sec
Format	Selectable by parameter 213 <i>SE.P.S.</i> 8.n.1 8 data bits, no parity, 1 stop bit. 8.o.1 8 data bits, odd parity, 1 stop bit. 8.E.1 8 data bits, even parity, 1 stop bit.
Functions supported	WORD READING (max 20 word) (0x03, 0x04) SINGLE WORD WRITING (0x06) MULTIPLE WORDS WRITING (max 20 word) (0x10)

13.1 Slave

The ATR264-12ABC-T operates in slave mode, this allows the control of several controllers connected to a supervisory system. Each instrument will only respond to a query from the Master if it contains the same address as contained in parameter 211 *SL.Ad*. The permitted addresses range from 1 to 254 and there must be no controllers with the same address on the same line. Address 255 can be used by the Master to communicate with a connected device (broadcast mode) without knowing its address, while with 0 all devices receive the command, but no response is expected. The ATR264 can introduce a delay (in milliseconds) in the response to the Master's request: this delay must be set on parameter 214 *SE.dE*.




Each time the parameters are changed, the instrument saves the value in EEPROM memory (100000 write cycles).

NB: Changes made to Word other than those shown in the table below may cause the instrument to malfunction.

Below is a list of all available addresses, having

RO = Read Only		R/W = Read / Write	WO = Write Only
Modbus address	Description	Read	Write Reset value
0	Device type	RO	670
1	Software version	RO	-
2	Boot version	RO	-
3	Slave address	R/W	-
50	Automatic addressing	WO	-
51	Plant code comparison	WO	-
500	Loading default values: 9999 restores all values excluding cycles 9989 restores all values including cycles	R/W	0
501	Restart ATR264 (write 9999)	R/W	0
551	First character of instrument logo	R/W	"A"
...			
565	Last character of instrument logo	R/W	0
601	First character of custom message of alarm 1	R/W	"u"
...			
620	Last character of custom message of alarm 1	R/W	0
651	First character of custom message of alarm 2	R/W	"u"
...			
670	Last character of custom message of alarm 2	R/W	0

Modbus address	Description	Read	Write	Reset value
701	First character of custom message of alarm 3	R/W		"u"
...				
720	Last character of custom message of alarm 3	R/W		0
751	First character of custom message of alarm 4	R/W		"u"
...				
770	Last character of custom message of alarm 4	R/W		0
801	First character of custom message of alarm 5	R/W		"u"
...				
820	Last character of custom message of alarm 5	R/W		0
926	First character of the unit of measure	R/W		"p"
...				
932	Last character of the unit of measure	R/W		0
...				
...				
...				
...				
1000	AI1 value (degrees with tenth)	RO		
1009	Actual setpoint (gradient) of control loop 1	RO		
1011	Alarm status (0=absent, 1=present) Bit0 = Alarm 1 Bit1 = Alarm 2 Bit2 = Alarm 3 Bit3 = Alarm 4 Bit5 = Alarm 5			
1012	Errors Flags 1 Bit0 = Generic error Bit1 = Hardware error Bit2 = AI1 process error (probe1) Bit3 = Cold junction 1 error Bit4 = Corrupt eeprom calibration bank Bit5 = Corrupt eeprom constants bank Bit6 = Corrupt parameters eeprom CPU bank Bit7 = Corrupt CPU eeprom data bank Bit8 = Corrupt CPU eeprom cycle bank Bit9 = Calibration error missing Bit10 = Parameter Out of range error Bit11 = Valve 1 not calibrated Bit12 = Error H.B.A. CT1 (partial load break) Bit13 = Error H.B.A. CT1 (SSR shorted) Bit14 = Overcurrent error CT1 Bit15 = RFid memory not formatted	RO		0




















Modbus address	Description	Read	Write	Reset value
	Errors Flags 2			
	Bit0 = AI2 disabled error			
	Bit1 = Security error			
	Bit2 = AI2 process error (probe 2)			
	Bit3 = Cold junction 2 error			
	Bit4 = CPU eeprom write error			
	Bit5 = RFid eeprom write error			
	Bit6 = Error reading CPU eeprom			
1013	Bit7 = Error reading RFid eeprom	RO		0
	Bit8 = Logo CPU eeprom bank corrupt			
	Bit9 = UDM CPU eeprom bank corrupt			
	Bit10 = Label Alarms CPU eeprom bank corrupt (See WORD 1031)			
	Bit11 = Reserved			
	Bit12 = Reserved			
	Bit13 = Reserved			
	Bit14 = Reserved			
	Bit15 = Label Digital Input eeprom CPU bank corrupt (See WORD 1031)			
1014	Digital inputs status (0=not active, 1=active) Bit0 = Digital input 1 Bit1 = Digital input 2	RO		0
	Outputs status (0=off, 1=on)			
	Bit 0 = Q1 (NO) Bit 1 = Q1 (NC)			
1015	Bit 2 = Q2. Bit 3 = Q3	RO		0
	Bit 4 = Q4 Bit 5 = Q5			
	Bit 6 = DO1 Bit 7 = DO2			
	Led status (0=off, 1=on)			
	Bit 0 = Arrow UP led Bit 8 = Reserved			
	Bit 1 = C1 Led Bit 9 = Reserved			
	Bit 2 = C2 Led Bit 10 = TUN			
1016	Bit 3 = A1 Led Bit 11 = MAN	RO		0
	Bit 4 = A2 Led Bit 12 = REM			
	Bit 5 = A3 Led Bit 13 = Point time 2 led			
	Bit 6 = Reserved Bit 14 = Point time 3 led			
	Bit 7 = Reserved Bit 15 = Arrow DOWN led			
	Buttons status (0=released, 1=pressed)			
	Bit 0 = Button  Bit 4 = Reserved			
1017	Bit 1 = Button  Bit 5 = Reserved	RO		0
	Bit 2 = Button  Bit 6 = Reserved			
	Bit 3 = Button START/STOP Bit 7 = Reserved			
1018	Cold junction temperature 1 (degrees with tenth)	RO		-
1020	Instantaneous CT1 current (Ampere with tenth)	RO		0
1021	Average CT1 current (Ampere with tenth)	RO		0
1022	CT1 current ON (Ampere with tenth)	RO		0
1023	CT1 current OFF (Ampere with tenth)	RO		0
1028	Retroacted valve position 1 (0-100)	RO		-

Modbus address	Description	Read	Write	Reset value
Error Flags 3				
1031	Bit0 = Label Alarm 1 Eeprom CPU bank corrupt			
	Bit1 = Label Alarm 2 Eeprom CPU bank corrupt			
	Bit2 = Label Alarm 3 Eeprom CPU bank corrupt			
	Bit3 = Label Alarm 4 Eeprom CPU bank corrupt			
	Bit4 = Label Alarm 5 Eeprom CPU bank corrupt			
	Bit5 = Label Alarm 6 Eeprom CPU bank corrupt			
	Bit6 = Label Alarm 7 Eeprom CPU bank corrupt			
	Bit7 = Reserved			
	Bit8 = Label Digital Input 1 Eeprom CPU bank corrupt			
	Bit9 = Label Digital Input 2 Eeprom CPU bank corrupt			
	Bit10 = Label Digital Input 3 Eeprom CPU bank corrupt			
	Bit11 = Label Digital Input 4 Eeprom CPU bank corrupt			
1100	All value with decimal point selection	RO		0
1109	Actual setpoint (gradient) of regulation loop 1 with decimal point selection	RO		0
1220	Number of current cycle	RO		-
1221	Number of executing break	RO		-
1222	Start / Stop			
	0 = Controller in Stop			
	1..15 = Controller in Start (n = nr. executing cycle)	R/W		-
	17 = Controller in Start (thermo regulator function) 18 = Controller in Start (manual function)			
1223	Hold ON/OFF			
	0 = Hold OFF	R/W		-
	1 = Hold ON			
1224	Tune managing for regulation loop 1			
	With automatic Tune (par.53 $t_{un.l} = R_{uto}$):			
	0 = function autotuning OFF	RO		0
	1 = autotuning running			
1226	With automatic Tune (par.53 $t_{un.l} = P_{Rnu}$ or P_{ncE}):			
	0 = function autotuning OFF	R/W		0
	1 = autotuning running			
1226	Automatic/manual selection for regulation loop 1	RO		0
1228	0 = automatic 1 = manual			
1228	Percentuale uscita comando per loop di regolazione 1 (0-10000)	R/W		0
1229	Percentuale uscita caldo con regolazione 1 in doppio loop (0-10000)			
1229	Control output percentage for control loop 1 (0-1000)	R/W		0
1230	Hot output percentage for control loop 1 in double loop (0-1000)			
1230	Control output percentage for control loop 1 (0-100)	R/W		0
1231	Hot output percentage for control loop 1 in double loop (0-100))			
1231	Percentage of cold output with control 1 in double loop (0-10000)	R/W		0
1232	Percentage of cold output with control 1 in double loop (0-1000)	R/W		0
1233	Percentage of cold output with control 1 in double loop (0-100)	R/W		0
1241	Manual alarm reset: write 0 to reset all alarms			
	Bit0 = Alarm 1 Bit1 = Alarm 2			
	Bit2 = Alarm 3 Bit3 = Alarm 4			
	Bit5 = Alarm 5 Bit6 = Alarm 6			
		R/W		0
1243	Status Alarm 1 remote (0=absent, 1=present)	R/W		
1244	Status Alarm 2 remote (0=absent, 1=present)	R/W		
1245	Status Alarm 3 remote (0=absent, 1=present)	R/W		
1246	Status Alarm 4 remote (0=absent, 1=present)	R/W		
1247	Status Alarm 5 remote (0=absent, 1=present)	R/W		

Modbus address	Description	Read Write	Reset value
1250	AO1 value from serial (par.203 $r \in \Pi. l = \Pi d. b u 5$)	R/W	0
1252	Zero tare AI1 AI1 (1=tara; 2= reset tara)	R/W	0
1601	Current cycle: Initial waiting time in minutes	R/W	0
1602	Current cycle: Initial Setpoint (degrees with tenth)	R/W	0
1603	Current cycle: Break nr.1 TIME (minute)	R/W	0
1604	Current cycle: Break nr.1 SETPOINT (degrees with tenth)		
	Current cycle: Break nr.1 Auxiliary step ($R L. . F. = R. o. r. 5$)		
1605	Bit 0 = 0 output OFF for AL 1, Bit 0 = 1 output ON for AL 1	R/W	0
...	...		
	Bit 0 = 0 output OFF for AL 7, Bit 0 = 1 output ON for AL 7		
1606	Current cycle: Break nr.2 TIME (minute)	R/W	0
1607	Current cycle: Break nr.2 SETPOINT (degrees with tenth)		
	Current cycle: Break nr.2 Auxiliary step ($R L. . F. = R. o. r. 5$)		
1608	Bit 0 = 0 output OFF for AL 1, Bit 0 = 1 output ON for AL 1	R/W	0
...	...		
	Bit 0 = 0 output OFF for AL 7, Bit 0 = 1 output ON for AL 7		
...	...		
...	...		
1690	Current cycle: Break nr.30 TIME (minute)	R/W	0
1691	Current cycle: Break nr.30 SETPOINT (degrees with tenth)		
	Current cycle: Break nr.30 Auxiliary step ($R L. . F. = R. o. r. 5$)		
1692	Bit 0 = 0 output OFF for AL 1, Bit 0 = 1 output ON for AL 1	R/W	0
...	...		
	Bit 0 = 0 output OFF for AL 7, Bit 0 = 1 output ON for AL 7		
	Current cycle: End step auxiliary ($R L. . F. = R. o. r. 5$)		
1693	Bit 0 = 0 output OFF for AL 1, Bit 0 = 1 output ON for AL 1		
...	...		
	Bit 0 = 0 output OFF for AL 7, Bit 0 = 1 output ON for AL 7		
1694	Nr. of repetition of current cycle	R/W	0
1695	Nr. of concatenated cycle	R/W	0
1701	First character of the customised digital input message 1	RW	"d"
...	...		
1720	Last character of the customised digital input message 1	RW	0
1751	First character of the customised digital input message 2	RW	"d"
...	...		
1770	Last character of the customised digital input message 2	RW	0
2001	Parameter 1	R/W	EEPROM
....	R/W	EEPROM
2222	Parameter 222	R/W	EEPROM


14 Access configuration

To access the configuration parameters, the controller must be in the *SEtP* state.

Tasto	Effetto	Eseguire
1	 The central display indicates the cycle selected.	
2		Increase until <i>conF</i> is displayed.
3	 <i>PASS</i> appears on Display1, while Display2 shows <i>0000</i> with the 1st digit flashing	
4	 or  Si modifica la cifra lampeggiante e si passa alla successiva con il tasto 	Insert password <i>1234</i> .
5	 The name of the first parameter group appears on Display1 and the description on display 2.	
6	 or 	Scroll through the parameter groups
7	 The name of the first parameter group appears on Display1 and the description on display 2.	Press  to exit configuration
8	 or 	Scroll parameters
9	 Allows parameter modification (display 2 flashes)	
10	 or 	Increases or decreases visualized value.
11	 Confirms and stores the new value. If the value is different from default values, the arrow keys light on	
	 Backs to parameter groups selection (see point 5)..	Press  again to exit configuration

14.1 Parameters list functioning

The controller integrates many features that make the configuration parameters list very long. To make it more functional, the parameters list is dynamics and it changes as the user enables / disables the functions. Practically, using a specific function that occupies a given input (or output), the parameters referred to other functions of that resource are hidden to the user making the parameters list more concise.

To simplify the reading/interpretation of the parameters, pressing  it is possible to visualize a brief description of the selected parameter.

Set the product parameters so that they are suitable for the system to be controlled. If they are not suitable, unexpected operations may occasionally cause materials damage or accidents.

15 Table of configuration parameters

GROUP A1 - *A_{in}I* - Analogue input 1

1 *SEn.I* Sensor

Analogue input configuration / AI1 sensor selection

<i>Ec. F</i>	Tc-K	-260° C..1360° C. (Default)
<i>Ec. S</i>	Tc-S	-40° C..1760° C
<i>Ec. R</i>	Tc-R	-40° C..1760° C
<i>Ec. J</i>	Tc-J	-200° C..1200° C
<i>Ec. t</i>	Tc-T	-260° C..400° C
<i>Ec. E</i>	Tc-E	-260° C..980° C
<i>Ec. N</i>	Tc-N	-260° C..1280° C
<i>Ec. b</i>	Tc-B	40° C..1820° C
<i>Pt100</i>	Pt100	-200° C..600° C
<i>Ni100</i>	Ni100	-60° C..180° C
<i>Ni120</i>	Ni120	-60° C..240° C
<i>Ntc 1</i>	NTC 10K β3435K	-40° C..125° C

Ntc 2	NTC 10K β 3694K	-40 °C..150 °C
Ntc 3	NTC 2252 β 3976K	-40 °C..150 °C
Ptc	PTC 1K	-50° C..150° C
Pt500	Pt500	-200° C..600° C
Pt1k	Pt1000	-200° C..600° C
RSvd.1	Reserved	
RSvd.2	Reserved	
0-1	0..1 V	
0-5	0..5 V	
0-10	0..10 V	
0-20	0..20 mA	
4-20	4..20 mA	
0-60	0..60 mV	
Pot.	Potentiometer (set value in parameter 6)	

2 dP. 1 Decimal Point 1

Select decimal type to display.

0 (Default)

0.0

0.00

0.000

3 dEGr. Degree

Select degrees type.

°C Celsius degrees (Default)

°F Fahrenheit degrees.

K Kelvin degrees

4 LL. 1 Lower Linear Input AI1

Lower limit of analogue input AI1 only for normalised. E.g.: with 4..20 mA input, this parameter assumes the value associated with 4 mA. The value can be higher than the value entered in the following parameter.

-9999..+30000 [digit]. **Default** 0.

5 UL. 1 Upper Linear Input AI1

Upper limit of analogue input AI1 only for normalised. E.g.: with 4..20 mA input, this parameter assumes the value associated with 20 mA. The value can be lower than the value entered in the previous parameter.

-9999..+30000 [digit]. **Default** 1000.

6 P. AI1 Potentiometer Value AI1

Select the value of the potentiometer connected to AI1

1...150 kohm. (Default: 10kohm)

7 L. AI1 Linear Input over Limits AI1

If AI1 is a linear input, it allows the process to exceed the limits (parameters 4 and 5).

d. SRb. Disabilitato (Default)

ENRb. Abilitato

8 L. c. E. 1 Lower Current Error 1

If AI1 is a 4-20 mA input, it determines the current value below which probe error E-05 is reported.

2.0 mA (Default) 2.5 mA 3.2 mA 3.8 mA

2.2 mA 2.8 mA 3.4 mA

2.4 mA 3.0 mA 3.6 mA

9 *a.c.R.1* Offset Calibration A11

Calibration offset A11. Value which is added to or subtracted from the displayed process (e.g. normally corrects the ambient temperature value).

-9999..+9999 [digit] (degrees.tenths for temperature sensors). **Default** 0.0

10 *G.c.R.1* Gain Calibration A11

Calibration gain A11. Value which is multiplied by the process to perform calibration at the operating point. E.g.: to correct the working scale from 0..1000°C displaying 0..1010°C, set the parameter to -1.0

-100.0 ...100.0 %. (**Default**: 0.0)

11 *L.c.c.1* Latch-On A11

Automatic limit setting for linear input A11

a.5Rb. Disabled. (**Default**)

5EtNRd Standard

V.0.5Ed. Virtual zero stored

V.0.E.aN. Virtual zero at start

12 *c.F.L.1* Conversion Filter A11

ADC filter: number of sensor readings connected to A11 for averaging, which defines the process value. As averaging increases, the speed of the control loop slows down.

1...15 (**Default**: 10)

13 *c.Fr.1* Conversion Frequency A11

Sampling frequency of the analogue/digital converter for A11.

Increasing the conversion speed decreases the reading stability (e.g. for fast transients such as pressure it is advisable to increase the sampling rate).

4.17.HZ	4.17 Hz (Minimum conversion speed)	33.2HZ	33.2 Hz	
		39.0HZ	39.0 Hz	
6.25HZ	6.25 Hz	50.0HZ	50.0 Hz	
8.33HZ	8.33 Hz	62.0HZ	62.0 Hz	
10.0HZ	10.0 Hz	123HZ	123 Hz	
12.5HZ	12.5 Hz	242HZ	242 Hz	
16.7HZ	16.7 Hz (Default) Ideal for 50/60Hz noise filtering	470HZ	470 Hz (Maximum conversion speed)	
19.6HZ	19.6 Hz			

14÷15 Reserved Parameters - Group A1

Reserved parameters - Group A1

GROUP B1 - *c.Nd.1* - Process outputs 1

16 *c.o.u.1* Command Output 1

Selects process1-related control output and alarm-related outputs.

c. a2 Command on relay output Q2.

c. a1 Command on relay output Q1. (**Default**)

c. 5SR Command on digital output.

c. VRL. Servo-valve command.

c.0-10 0-10 V command on analogue output AO1.

c.4-20 4-20 mA command on analogue output AO1.

0.10.S.R. 0-10 V command on analogue output AO1 with split range function: analogue output controls cold from 0 to 5V and hot from 5 to 10V.

4.20.S.R. 4-20 mA command on analogue output AO1 with split range function: the analogue output regulates cold from 4 to 12mA and hot from 12 to 20mA

ATR264-12ABC-T							
	Command	AL. 1	AL. 2	AL. 3	AL. 4		
c. o2	Q2	Q1	DO1	DO2	AO1		
c. o1	Q1	Q2	DO1	DO2	AO1		
c. SSR	DO1	Q1	Q2	DO2	AO1		
c. uRL	Q1(apri) Q2(chiudi)	DO1	DO2	AO1	-		
c.D-ID (0..10V)	AO1 (0..10 V)	Q1	Q2	DO1	DO2		
c.4-20 (4..20mA)	AO1 (4..20 mA)	Q1	Q2	DO1	DO2		

ATR264-13ABC							
	Command	AL. 1	AL. 2	AL. 3	AL. 4	AL. 5	
c. o2	Q2	Q1	Q3	DO1	DO2	AO1	
c. o1	Q1	Q2	Q3	DO1	DO2	AO1	
c. SSR	DO1	Q1	Q2	Q3	DO2	AO1	
c. uRL	Q2(apri) Q3(chiudi)	Q1	DO1	DO2	AO1	-	
c.D-ID (0..10V)	AO1 (0..10 V)	Q1	Q2	Q3	DO1	DO2	
c.4-20 (4..20mA)	AO1 (4..20 mA)	Q1	Q2	Q3	DO1	DO2	

NB: If an output is used for functions other than alarms (e.g. retransmission), this resource will no longer be available as an alarm and the corresponding group will be hidden from the parameter list. However, the correspondence of functions/outputs remains as shown in the tables above.

17 c.Pr.1 Reserved
Reserved parameter.

18 R.c.t.1 Action Type 1
Type of control for the control output
 HEAT Heat regulation (n.o.). **(Default)**
 COOL Cool regulation (n.c.).
 GAS Regulation for ovens. (See "GROUP D1 - GAS -Gas oven management (ATR264-13ABC only)")

19 c.H.1 Command Hysteresis 1
Hysteresis for process 1 control in ON/OFF operation.
 -9999..+9999 [digit] (degrees.tenths for temperature sensors). **Default 0.2**

20 L.L.1 Lower Limit Setpoint 1
Adjustable lower limit for command 1 setpoint.
 -9999..+30000 [digit] (degrees for temperature sensors). **Default 0.**

21 U.L.1 Upper Limit Setpoint 1
Adjustable upper limit for command 1 setpoint.
 -9999..+30000 [digit] (degrees for temperature sensors). **Default 1750.**

22 c.S.E.1 Command State Error 1
Status of control output 1 in the event of an error.
If control output 1 (Par. 16 c.o.u.1) is relay or valve:
 OPEN Contact or valve open. **Default**
 CLOSE Contact or valve close.
If control output 1 is digital (SSR):
 OFF Digital output off. **Default**
 ON Digital output on.
If control output 1 is 0-10V:
 0 V. **Default**
 10 V
If control output 1 is 4-20 mA:

0 mA	0 mA. Default
4 mA	4 mA
20 mA	20 mA
21.5 mA	21.5 mA

23 cSS.1 Command State Stop 1

Contact status for control output 1 with controller in STOP.

If control output 1 (Par. 37 c.o.u.) is relay or valve:

oPE_n Contact or valve open. **Default**

CLoSE Contact or valve close.

If control output 1 is digital (SSR):

oFF Digital output off. **Default**

o_n Digital output on.

If control output 1 is 0-10V:

0 V. **Default**

10 V

If control output 1 is 4-20 mA:

0 mA. **Default**

4 mA

20 mA

21.5 mA

24 cLd.1 Command Led 1

Defines the status of LED C1 at the corresponding output. If the command for the valve is set, the parameter is not managed.

o.c. On with open contact or SSR off. If command AO1, on with output percentage 0%, off if 100% and flashing between 1% and 99%.

c.c. On with closed contact or SSR on. If command AO1, on with output percentage 100%, off if 0% and flashing between 1% and 99%. **(Default)**

25 uPL.1 Valve Time 1

Servo valve open/close time (value stated by servomotor manufacturer). Not valid for feedback valves (potentiometer).

1...300 secondi. **Default: 60**

26 n.o.c.1 Minimum open/close Time 1

Minimum servo valve opening/closing time.

0.01...3.00 secondi. **Default: 0.25** (250ms)

27 S.u.S.1 State Valve Saturation 1

Selects the status of valve 1 when the output percentage is 100%

PER_c. The valve open relay is activated for a time equal to 5% of the valve time **(Default)**

FixEd Valve opening relay is always active

28 L.P.r.1 Load Power Rating 1

Defines the rated power of the load (in kW) connected to control output 1, for calculating the energy consumed by the system.

0.0..1000.0 kW. **Default: 0.0** kW

29÷31 Reserved Parameters - Group B1

Reserved parameters - Group B1

GROUP C1 - Cycles


32 SP.F.u. Special Functions

Enables simple temperature controller functions and manual output percentage setting.

d,SRb. (Disabled) No function available. **(Default)**

THEr. (Thermoregulator) Enable thermoregulator function.
MAN. (Manual) Enable manual mode.
THEMAN. (Thermoregulator and Manual) Enables the simple thermoregulator function and the manual function.

33 *HLD.F.* **Hold Function**

Enables "Hold" function; allows the cycle to be paused using button  and to change the setpoint by keyboard.

disAb. (Disabled) "Hold" function disabled. **(Default)**
EnAb. (Enabled) "Hold" function enabled.

34 *CY.Av.* **Cycles Available**

Sets the number of cycles available to the user.

1..15 Cycles nr. **Default:** 15

35 *BL.P.C.* **Block Programming Cycles**

Sets the number of cycles that the user cannot programme, to prevent specific machining operations from being lost due to incorrect programming. E.g.: setting 3 blocks the programming of the first 3 cycles.

1..15 Cycles nr. **Default:** 0

36 *DESt.* **Delayed Start**

Enables initial wait for delayed cycle start.

disAb. (Disabled) Initial wait disabled. **(Default)**
EnAb. (Enabled) Initial wait set by the user. See par. 8.1.1

37 *SSPv* **Starting Setpoint**

Enables the cycle start setpoint to guarantee the programmed gradient for the first split.

disAb. (Disabled) Cycle start setpoint disabled. **(Default)**
EnAb. (Enabled) Cycle start setpoint settable by the user.
En.A.T. (Enabled Ambient Temperature) Fixed cycle start setpoint (25°C for temperature sensors and 0 for normalised sensors).

38 *U.E.S.E.* **Waiting Time Step End**

Set end-of-step wait time or Gap Process in hh:mm.

00:01..24:00 Tempo in hh:mm. **Default:** 0 1:00

39 *MG.S.E.* **Max. Gap Step End**

Sets the maximum deviation for activating the end-of-step wait. When the setpoint-process difference becomes less than this parameter, the controller switches to the next step even without having waited the time programmed in parameter 38 *U.E.S.E.*

0 Waiting for end of step excluded.
 1..9999 [digit] (degrees.tenths for temperature sensors). **Default:** 5.0

40 *RES.P.* **Reserved**

Reserved parameter.

41 *RICY.* **Recovery Interrupted Cycle**

Enables the interrupted cycle recovery function.

0 Cycle recovery disabled
 1 Cycle recovery enabled with automatic gradient. **(Default)**
 2..20000 [digit]. Set the recovery (ascent) gradient.

42 *INIT.* **Initial state**

Selects the status of the programmer at switch-on.

<code>Stop</code>	Programmer in STOP (Default)
<code>r.cYc.1</code>	Cycle No.1 starts at switch-on
<code>r.cYc.2</code>	Cycle No.2 starts at switch-on
<code>r.cYc.3</code>	Cycle No.3 starts at switch-on
<code>r.cYc.4</code>	Cycle No.4 starts at switch-on
<code>r.cYc.5</code>	Cycle No.5 starts at switch-on
<code>r.LR.cY</code>	Last cycle executed starts at switch-on
<code>r.tHEr.</code>	At switch-on the simple controller starts.

43 Reserved Parameters - Group C1

Reserved parameters - Group C1

GROUP D1 - `GFS` -Gas oven management (ATR264-13ABC only)

44 `GFS` Gas Falling Step

Defines the operation of the burners and servo-valves in the downward steps.

`GFS.oFF` The burners remain off in the down steps (**Default**)

`GFS.` (Gas Falling Steps) (GID). Heat regulation with burner and fan management for gas ovens. In the falling steps the burners operate in ON/OFF mode (servo always closed).

`GFS.S.` (Gas Falling Steps Servovalve) (GIDS). Heat regulation with burner and fan management for gas ovens. In the falling steps, gas modulation also takes place via servovalve.

45 `WPS.t.` Washing Time

Burner purge time. Defines the time between the activation of the fan control and the activation of the burner control

`00:00..15:00` mm.ss **Default:** `0 1:00`.

46 `b.u.S.t.` Burners Start Time

Burner start time. Defines the time between the activation of the fan control and the activation of the burner control.

`00:00..15:00` mm.ss **Default:** `0 1:00`.

47 `t.OF.b.` Threshold ON/Off Burners

Defines the threshold below which the regulator modulates in ON/OFF, excluding P.I.D. If you want to use the regulator only in ON/OFF it will be sufficient to set this parameter above the upper limit (par. 21 `u.L.S.l`). On the other side, if you want to exclude this type of modulation it will be sufficient to set it below the lower limit (par. 20 `L.L.S.l`).

`-9999..+30000` [digit] (degrees for temperature sensors). **Default** - `l`.

48 `t.S.o.b.` Threshold Switch Off Burners

Burner off threshold. Defines the deviation above the setpoint, beyond which the burners are switched off.

`0..200` [digit](degrees for temperature sensors). **Default:** `30`

49 `b.H` Burners Hysteresis

Defines hysteresis for burner control.

`-999..+999` [digit] (degrees.tenths for temperature sensors). **Default:** `5.0`

50 `t.S.o.F.` Threshold Switch Off Fans

Fan Off Threshold. Defines the deviation below the setpoint, beyond which the fans are switched off, in the downward steps. In the GFS function (GID), at this threshold instead of switching off the fans, the burners are switched on. The burners are switched off when the command setpoint is exceeded.

`0..200` [digit](degrees for temperature sensors). **Default:** `10`

51÷52 Reserved Parameters - Group D1

Reserved parameters - Group D1

GROUP E1 - ~~TE1~~ - Autotuning and PID 1

53 ~~Aut.~~ Tune 1

Select autotuning type.

~~dis.~~ Disabled. **(Default)**

~~Auto~~ Automatic. (PID with automatic parameter calculation)

~~MAN.~~ Manual. (PID with parameter calculation launched from keys or digital input)

~~once~~ Once (PID with parameter calculation only once at switch-on)

54 ~~S.d.E.1~~ Setpoint Deviation Tune 1

Selects the deviation from the command setpoint, for the threshold used by the manual tune, for the calculation of P.I.D. parameters.

~~0..9999~~ [digit] (degrees.tenths for temperature sensors). **Default: 30.0**

55 ~~P.b.1~~ Proportional Band 1

Proportional band. Process inertia in units (e.g. if temperature in °C)

~~0~~ ON/OFF se anche ~~E.1.~~ uguale a 0.0 **(Default)**.

~~1..9999~~ [digit] (degrees.tenths for temperature sensors).

56 ~~E.1.1~~ Integral Time 1

Integral time. Process inertia in seconds.tenths

~~0~~ Integral disabled **(Default)**

~~0.0..999.9~~ secondi.decimi

57 ~~E.d.1~~ Derivative Time 1

Derivative time. Usually ¼ of integral time

~~0~~ Derivative disabled **(Default)**

~~0.0..999.9~~ secondi.decimi

58 ~~d.b.1~~ Dead Band

Dead band relative to PID of process 1.

~~0..10000~~ [digit] (degrees.tenths for temperature sensors) **(Default: 0.0)**

59 ~~P.b.c.1~~ Proportional Band Centered 1

Defines whether Proportional band 1 is to be centred on the setpoint or not. In double loop operation (hot/cold) it is always disabled (not centred).

~~disAb.~~ Disabled. Band below (hot) or above (cold) **(Default)**

~~ENAb.~~ Band centred

60 ~~o.o.S.1~~ Off Over Setpoint 1

In PID operation it enables the switch-off of control output 1, when a certain threshold is exceeded (setpoint + Par.61 ~~o.d.E.1~~)

~~disAb.~~ Disabled **(Default)**

~~ENAb.~~ Enabled

61 ~~o.d.E.1~~ Off Deviation Threshold 1

Set the deviation from command setpoint 1, for the calculation of the intervention threshold for the "Off Over Setpoint 1" function.

~~-9999..+9999~~ [digit] (degrees.tenths for temperature sensors) **(Default: 0)**

62 ~~E.c.1~~ Cycle Time 1

Cycle time (10"/15" for P.I.D. on contactor, 1" for P.I.D. on SSR). For time-controlled valves see parameter 25 ~~uAL.1~~.

~~1..300~~ secondi. **Default: 10.**

63 ~~co.F.1~~ Cooling Fluid 1

Defines the cooling fluid type.

Air	Air (Default)
oil	Oil
H ₂ O	Water

64 P.b.P.1 Proportional Band Multiplier 1

Proportional band multiplier
1.00 .. 5.00 multiplicatore (Default 1.00)

65 o.d.b.1 Overlap/Dead Band 1

Overlap / Dead band.
-20.0 .. 50.0 Percentuale (Default 0.0)

66 c.c.t.1 Cooling Cycle Time 1

Cycle time for refrigerant output.
1 .. 300 Secondi (Default 10)

67 L.L.P.1 Lower Limit Output Percentage 1

Selects the minimum value for the control output percentage.
0 .. 100 Percentuale (Default 0)

68 U.L.P.1 Upper Limit Output Percentage 1

Selects the maximum value for the control output percentage.
0 .. 100 Percentuale (Default 100)

69 P.G.T.1 Max Gap Tune 1

Sets the maximum process-setpoint deviation beyond which the automatic tune recalculates the P.I.D. parameters
1 .. 500 [digit] (degrees.tenths for temperature sensors) (Default 1.0)

70 P.n.P.1 Minimum Proportional Band 1

Selects the minimum proportional bandwidth value that can be set by the automatic tune.
0 .. 9999 [digit] (degrees.tenths for temperature sensors) (Default 5.0)

71 P.A.P.1 Maximum Proportional Band 1

Selects the maximum proportional bandwidth value that can be set by the automatic tune
0 .. 9999 [digit] (degrees.tenths for temperature sensors) (Default 50.0)

72 P.n.I.1 Minimum Integral Time 1

Selects the minimum integral time value that can be set by the automatic tune.
0 .. 9999 secondi (Default 10.0)

73 d.c.R.1 Derivative Calculation 1

Determines whether during auto-tuning, the drift time is to be calculated or left at zero.
AutoP. The derivative is only forced to zero if the control is valve type; in all other cases it is calculated by auto-tuning.(Default)
Zero The derivative is always forced to zero.
cR.c. The derivative is always calculated by auto-tuning.

74 o.c.L.1 Overshoot Control Level 1

The overshoot control function prevents this when the instrument is switched on or when the setpoint is changed. Setting a value too low may result in the overshoot not being fully absorbed, whereas with high values the process may reach the setpoint more slowly.

dSRb. Disabled (Default)

LEu. 1 Level 1

.....
LEu. 10 Level 10

Reserved parameters - Group E1.

GROUP F1 - *RL*. 1 - Alarm 1**77 *RL*.IF. Alarm 1 Function**

Alarm 1 selection.

*d*5*Ab*. Disabled (**Default**)*Ab*.*uP*.*A*. Absolute referred to the process, active above.*Ab*.*Ld*.*A*. Absolute referred to the process, active below.*b**And*. Band Alarm (command setpoint ± Alarm setpoint).*A*.*b**And*. Asymmetrical band Alarm (command setpoint + Alarm setpoint and command setpoint - Alarm setpoint 1 L).*uP*.*dEu*. Alarm in upper deviation (command setpoint + deviation).*Ld*.*dEu*. Alarm in lower deviation (command setpoint + deviation).*Ab*.*c.u*.*A*. Absolute referred to setpoint, active above.*Ab*.*c.L*.*A*. Absolute referred to setpoint, active below.*c*o*oL*. Cold actuator output during double loop operation..*P*r*b*.*E*.*r*. Probe error. Alarm active in case of sensor breakage*r*u*n*.*U*.*t*. Status alarm, Active during initial hold.*r*u*n*. Status alarm, Active during RUN/START.*r*u*n*.*OP*. Status alarm, Active if one of the digital inputs is active and set to *oP**E*.*n*.*E*nd.*c*Y. (End Alarm). Active at the end of the cycle.*A*.*o*.*r*.*S*. (Auxiliary Output Related to the Step). ON or Off on each step.*A*.*o*.*r*.*M*. (Auxiliary Output Rising Maintenance). Auxiliary output active on the rising and maintaining steps.*A*.*o*.*F*.*A*. (Auxiliary Output Falling). Auxiliary output active on falling breaks.*b*u*r*n. (Burners). Burner output for gas operation.*F*A*n*S. (Fans). Fans output for gas operation.*H*.*b*.*A*. Heater Break Alarm and Overcurrent Alarm*d*.*i*. 1 Digital Input 1. Active when digital input 1 is active*d*.*i*. 2 Digital Input 2. Active when digital input 2 is active*r*E*N*. Remote. Alarm is enabled by word 1243**78 *RL*.P. Reserved**

Reserved parameter.

79 *RL*.P.C. Reserved

Reserved parameter.

80 *RL*.S.O. Alarm 1 State Output

Contact output Alarm 1 and intervention type.

n.*o*. *S*t. (N.O. Start) Norm. open, operating from start (**Default**)*n*.*c*. *S*t. (N.C. Start) Norm. closed, operating from start*n*.*o*. *t*H. (N.O. Threshold) operating when Alarm is reached*n*.*c*. *t*H. (N.C. Threshold) operating when Alarm is reached**81 *RL*.O.E. Reserved**

Reserved parameter.

82 *RL*.H.L. Alarm 1 Setpoint High

Setpoint of Alarm 1

-9999..+30000 [digit] (degrees for temperature sensors). **Default** 0.**83 *RL*.O.L. Alarm 1 Setpoint Low**Lower setpoint of Alarm 1 (only for par.77 *RL*.IF. = *Ab**And*)-9999..+30000 [digit] (degrees for temperature sensors). **Default** 0.

84 *A.1.H* Alarm 1 Hysteresis


Set hysteresis for Alarm 1.

-9999..+9999 [digit] (degrees.tenths for temperature sensors). **Default:** 0.5

85 *A.1.r.E.* Alarm 1 Reset

Contact reset type of Alarm 4

A.r.E.S. Automatic reset (**Default**)

ñ.r.E.S. Manual reset (manual reset with  key or from digital input)

ñ.r.E.S.S. Manual reset stored (maintains output status even after power failure)

86 *A.1.S.E.* Alarm 1 State Error

Contact status for Alarm 1 output in the event of an error.

If Alarm output is relay	If Alarm output is digital (SSR)
<i>OPEN</i> Contact open. (Default)	<i>OFF</i> Digital output off. (Default)
<i>CLOSE</i> Contact closed.	<i>ON</i> Digital output on.

87 *A.1.S.S.* Alarm 1 State Stop

Status of Alarm 1 output with controller in stop.

If Alarm output is relay	If Alarm output is digital (SSR)
<i>Active.A.</i> Alarm Active if an auxiliary alarm is selected (Default)	
<i>OPEN</i> Contact open.	<i>OFF</i> Digital output off.
<i>CLOSE</i> Contact closed.	<i>ON</i> Digital output on.

88 *A.1.L.d.* Alarm 1 Led

Defines the ON state of LED **A1** at the corresponding contact.


a.c. On with open contact or DO off.

c.c. On with contact closed or DO on. (**Default**)

89 *A.1.S.c.* Alarm 1 State Cycle

Defines the type of action of the Alarm on the current cycle.

no.A.c. No action on the cycle. Switches only the output related to the Alarm. (**Default**)

E.c.Y.S. (End Cycle Signal). End of cycle (STOP) with visual signal. Switches the output relative to the Alarm and the label set in par. 91 *A.1.L.b.* flashes on display until the key  is pressed

90 *A.1.d.E.* Alarm 1 Delay

Alarm 1 delay

-60:00..60:00 mm:ss **Default:** 00:00.

Negative value: delay when exiting the Alarm state.

Positive value: delay when entering Alarm status.

91 *A.1.L.b.* Alarm 1 Label

Sets the message to be displayed when Alarm 1 is triggered.

disAb. Disabled (**Default**)

L.b. 01 Message 1 (See table par. 16.1)

...

L.b. 19 Message 19 (See table par. 16.1)

user.. Customised message (modifiable by the user through the App or via modbus)

92÷96 Reserved Parameters - Group F1

Reserved parameters - Group F1.

GROUP F2 - *AL. 2* - Alarm 2

97 *AL2F.* Alarm 2 Function

Alarm 2 selection.

d15Ab. Disabled (**Default**)

Ab.uP.A. Absolute referred to process, active above

Ab.Lo.A. Absolute referred to process, active below

bAnd. Band Alarm (command setpoint \pm Alarm setpoint)

A.bAnd Asymmetrical band alarm(command setpoint + Alarm setpoint and command setpoint - Alarm setpoint 1 L)

uP.dEu Alarm in upper deviation (command setpoint + deviation)

Lo.dEu Alarm in lower deviation (command setpoint - deviation)

Ab.c.u.A. Absolute referred to setpoint, active above

Ab.c.L.A. Absolute referred to setpoint, active below

cooL Actuator output for cold during double loop operation.

Prb.Er. Probe error. Alarm active in case of sensor failure.

run.U.L. Status alarm, Active during initial hold.

run Status alarm, Active during RUN/START.

run.OP. Status alarm, Active if one of the digital inputs is active and set to *oPEn*.

ENd.cY. (End Alarm). Active at the end of the cycle.

A.o.r.S. (Auxiliary Output Related to the Step) ON or Off on each step.

A.o.r.A. (Auxiliary Output Rising Maintenance). Auxiliary output active on the rising and maintaining steps.

A.o.FA. (Auxiliary Output Falling). Auxiliary output active on falling breaks.

burn (Burners). Burner output for gas operation.

FAnS (Fans). Fans output for gas operation.

Hb.A. Heater Break Alarm and Overcurrent Alarm

d.i. 1 Digital Input 1. Active when digital input 1 is active

d.i. 2 Digital Input 2. Active when digital input 2 is active

rEn. Remote. Alarm is enabled by word 1244

98 *A2Pr.* Reserved

Reserved parameter.

99 *A2r.c.* Reserved

Reserved parameter.

100 *A2S.o.* Alarm 2 State Output

Contact output Alarm 2 and intervention type.

n.o. St. (N.O. Start) Norm. open, operating from start (**Default**)

n.c. St. (N.C. Start) Norm. closed, operating from start

n.o. tH. (N.O. Threshold) operating when Alarm is reached

n.c. tH. (N.C. Threshold) operating when Alarm is reached

101 *A2o.L.* Reserved

Reserved parameter.

102 *A2Hi.* Alarm 2 Setpoint High

Alarm 2 setpoint

-9999..+30000 [digit] (degrees for temperature sensors). **Default 0.**

103 *A2Lo.* Alarm 2 Setpoint Low

Lower setpoint of Alarm 2 (only for par.97 *AL.2F.* = *A.bAnd*)

-9999..+30000 [digit] (degrees for temperature sensors). **Default 0.**

104 *A2Hy* Alarm 2 Hysteresis

Set Hysteresis for Alarm 2.

-9999..+9999 [digit] (degrees.tenths for temperature sensors). **Default: 0.5**

105 *A.2.rE.* Alarm 2 Reset

Contact reset type of Alarm 2

A.rES. Automatic reset (**Default**)

ñ.rES. Manual reset (manual reset by keyboard or by digital input)

ñ.rESS. Manual reset stored (maintains output status even after power failure)

106 *A.25.E.* Alarm 2 State Error

Contact status for Alarm 2 output in the event of an error.

If Alarm output is relay		If Alarm output is digital (SSR)	
<i>OPEn</i>	Contact open. (Default)	<i>OFF</i>	Digital output off. (Default)
<i>CLoSE</i>	Contact closed.	<i>On</i>	Digital output on.

107 *A.25.5.* Alarm 2 State Stop

Status of Alarm 2 output with controller in STOP.

If Alarm output is relay		If Alarm output is digital (SSR)	
<i>ActuA.</i>	Alarm Active if auxiliary alarm selected (Default)		
<i>OPEn</i>	Contact open.	<i>OFF</i>	Digital output off.
<i>CLoSE</i>	Contact closed.	<i>On</i>	Digital output on.

108 *A.2.Ld.* Alarm 2 Led

Defines the ON state of LED **A2** at the corresponding output

a.c. On with open contact or DO off or AO deactivated.

c.c. On with closed contact or DO on or AO activated (**Default**)

109 *A.25.c.* Alarm 2 State Cycle

Defines the type of action of the Alarm on the current cycle.

no.Ac. No action on the cycle. Switches only the output related to the Alarm. (**Default**)

E.c.YS. (End Cycle Signal). End of cycle (STOP) with visual signal. Switches the output relating to the Alarm and the label set in parameter 111 *A.2.Lb.* flashes on the display until the key **START/STOP** is pressed.

110 *A.2.dE.* Alarm 2 Delay

Alarm 2 delay.

-60:00.60:00 mm:ss **Default:** 00:00.

Negative value: delay when exiting the Alarm state.

Positive value: delay when entering Alarm status.

111 *A.2.Lb.* Alarm 2 Label

Set the message to be displayed when alarm 2 is triggered.

d.SAb. Disabled (**Default**)

Lb. 01 Message 1 (See table par. 16.1)

...

Lb. 19 Message 19 (See table par. 16.1)

uSEr.L. Customised message (modifiable by the user through the App or via modbus)

112÷116 Reserved Parameters - Group F2

Reserved parameters - Group F2.

GROUP F3 - *A.L. 3* - Alarm 3

117 *A.L.3.F.* Alarm 3 Function

d.SAb. Disabled (**Default**)

Ab.uP.A. Absolute referred to process, active above

Ab.Lo.A. Absolute referred to process, active below

bA.nd. Band Alarm (command setpoint ± Alarm setpoint)

A.bA.nd Asymmetrical band alarm (command setpoint + Alarm setpoint and command setpoint)

	- Alarm setpoint 1 L)
<i>uP.dEv</i>	Alarm in upper deviation (command setpoint + deviation)
<i>Lo.dEv</i>	Alarm in lower deviation (command setpoint - deviation)
<i>Ab.c.u.A.</i>	Absolute referred to setpoint, active above
<i>Ab.c.L.A.</i>	Absolute referred to setpoint, active below
<i>cool</i>	Actuator output for cold during double loop operation.
<i>Prb.Er.</i>	Probe error. Allarme attivo in caso di rottura del sensore.
<i>run.U.t.</i>	Status alarm, Active during initial hold.
<i>run</i>	Status alarm, Active during RUN/START.
<i>run.OP.</i>	Status alarm, Active if one of the digital inputs is active and set to <i>oPEn</i> .
<i>End.cY.</i>	(End Alarm). Active at the end of the cycle.
<i>A.o.r.S.</i>	(Auxiliary Output Related to the Step). ON or Off on each step.
<i>A.o.r.M.</i>	(Auxiliary Output Rising Maintenance). Auxiliary output active on the rising and maintaining steps.
<i>A.o.FA.</i>	(Auxiliary Output Falling). Auxiliary output active on falling breaks.
<i>burn</i>	(Burners). Burner output for gas operation.
<i>FArS</i>	(Fans). Fans output for gas operation.
<i>H.b.A.</i>	Heater Break Alarm e Overcurrent Alarm
<i>d.i. 1</i>	Digital Input 1. Active when digital input 1 is active
<i>d.i. 2</i>	Digital Input 2. Active when digital input 2 is active
<i>rEn</i>	Remote. Alarm is enabled by word 1245

118 *ABP.* **Reserved**

Reserved parameter.

119 *AB.c.* **Reserved**

Reserved parameter.

120 *AB5.o.* **Alarm 3 State Output**

Contact output Alarm 3 and intervention type.

n.o. St. (N.O. Start) Norm. open, operating from start (**Default**)

n.c. St. (N.C. Start) Norm. closed, operating from start

n.o. tH. (N.O. Threshold) operating when Alarm is reached

n.c. tH. (N.C. Threshold) operating when Alarm is reached

121 *AB.o.t.* **Alarm 3 Output type**

Defines the type if alarm 3 is analogue.

0.10 v Output 0-10 V (**Default**)

4.20mA Output 4-20 mA

10.0 v Output 10-0 V

20.4mA Output 20-4 mA

122 *AB.H.* **Alarm 3 Setpoint High**

Alarm 3 setpoint

-9999..+30000 [digit] (degrees for temperature sensors). **Default** 0.

123 *AB.Lo.* **Alarm 3 Setpoint Low**

Lower setpoint of Alarm 3 (only for par.117 *AL.3.F.* = *ABAnd*)

-9999..+30000 [digit] (degrees for temperature sensors). **Default** 0.

124 *AB.HY.* **Alarm 3 Hysteresis**

Set Hysteresis for Alarm 2.

-9999..+9999 [digit] (degrees.tenths for temperature sensors). **Default:** 0.5

125 *AB.rE.* **Alarm 3 Reset**

Contact reset type of Alarm 3

A. rES. Automatic reset (**Default**)

- Al.rES.* Manual reset (manual reset by keyboard or by digital input)
Al.rESS. Manual reset stored (maintains output status even after power failure)

126 *Al3SE.* Alarm 3 State Error

Contact status for Alarm 3 output in the event of an error.

If Alarm output is relay		If Alarm output is digital (SSR)	
<i>Al3PEn</i>	Contact open. (Default)	<i>Al3OFF</i>	Digital output off. (Default)
<i>Al3LOSE</i>	Contact closed.	<i>Al3On</i>	Digital output on.

If Alarm output is analogue 0-10V		If Alarm output is analogue 4-20mA	
<i>Al30V</i>	Output 0 V. (Default)	<i>Al34mA</i>	Output 4 mA. (Default)
<i>Al310V</i>	Output 10 V.	<i>Al320mA</i>	Output 20mA.

127 *Al3SS.* Alarm 3 State Stop

Status of Alarm 3 output with controller in STOP.

If Alarm output is relay		If Alarm output is digital (SSR)	
<i>Al3Actu.R.</i>	Active alarm (Default)		
<i>Al3PEn</i>	Contact open.	<i>Al3OFF</i>	Digital output off.
<i>Al3LOSE</i>	Contact closed.	<i>Al3On</i>	Digital output on.

If Alarm output is analogue 0-10V		If Alarm output is analogue 4-20mA	
<i>Al3Actu.R.</i>	Active alarm (Default)		
<i>Al30V</i>	Output 0 V.	<i>Al34mA</i>	Output 4 mA.
<i>Al310V</i>	Output 10 V.	<i>Al320mA</i>	Output 20mA.

128 *Al3Ld.* Alarm 3 Led

Defines the ON state of LED **A3** at the corresponding output

- Al3o.c.* On with open contact or DO off or AO deactivated.
Al3c.c. On with closed contact or DO on or AO activated **(Default)**

129 *Al3SC.* Alarm 3 State Cycle

Defines the type of action of the Alarm on the current cycle.

- Al3no.Ac.* No action on the cycle. Switches only the output related to the Alarm. **(Default)**
Al3End.CS. (End Cycle Signal). End of cycle (STOP) with visual signal. Switches the output relating to the Alarm and the label set in parameter 131 *Al3Lb.* flashes on the display until the key **START/STOP** is pressed.

130 *Al3dE.* Alarm 3 Delay

Alarm 3 delay.

-60:00..60:00 mm:ss. **Default:** 00:00

Negative value: delay when exiting the Alarm state.

Positive value: delay when entering Alarm status.

131 *Al3Lb.* Alarm 3 Label

Set the message to be displayed when the alarm 3 is triggered.

- Al3dSAb.* Disabled **(Default)**
Al3Lb. 01 Message 1 (See table par. 16.1)
 ...
Al3Lb. 19 Message 19 (See table par. 16.1)
Al3UserL. Customised message (modifiable by the user through the App or via modbus)

132÷136 Reserved Parameters - Group E3

Reserved parameters - Group E3.

GROUP F4 - *AL. 4* - Alarm 4

137 *AL4.F.* Alarm 4 Function

<i>d.SAb.</i>	Disabled (Default)
<i>Ab.uP.A.</i>	Absolute referred to process, active above
<i>Ab.Lo.A.</i>	Absolute referred to process, active below
<i>bAnd.</i>	Band Alarm (command setpoint \pm Alarm setpoint)
<i>A.bAnd</i>	Asymmetrical band alarm(command setpoint + Alarm setpoint and command setpoint - Alarm setpoint 1 L)
<i>uP.dEu</i>	Alarm in upper deviation (command setpoint + deviation)
<i>Lo.dEu</i>	Alarm in lower deviation (command setpoint - deviation)
<i>Ab.c.u.A.</i>	Absolute referred to setpoint, active above
<i>Ab.c.L.A.</i>	Absolute referred to setpoint, active below
<i>cool</i>	Actuator output for cold during double loop operation.
<i>Prb.Er.</i>	Probe error. Alarm active in case of sensor failure.
<i>run.U.t.</i>	Status alarm, Active during initial hold.
<i>run</i>	Status alarm, Active during RUN/START.
<i>run.OP.</i>	Status alarm, Active if one of the digital inputs is active and set to <i>oPEN</i> .
<i>EMd.cY.</i>	(End Alarm). Active at the end of the cycle.
<i>A.o.r.S.</i>	(Auxiliary Output Related to the Step). ON or Off on each step.
<i>A.o.r.N.</i>	(Auxiliary Output Rising Maintenance). Auxiliary output active on the rising and maintaining steps.
<i>A.o.FA.</i>	(Auxiliary Output Falling). Auxiliary output active on falling breaks.
<i>burn</i>	(Burners). Burner output for gas operation.
<i>FANs</i>	(Fans). Fans output for gas operation.
<i>H.b.A.</i>	Heater Break Alarm and Overcurrent Alarm
<i>d.i. 1</i>	Digital Input 1. Active when digital input 1 is active
<i>d.i. 2</i>	Digital Input 2. Active when digital input 2 is active
<i>rEn</i>	Remote. Alarm is enabled by word 1246

138 *AL4.Pr.* Reserved

Reserved parameter.

139 *AL4.r.c.* Reserved

Reserved parameter.

140 *AL4.S.o.* Alarm 4 State Output

Contact output Alarm 4 and intervention type.

<i>n.o. St.</i>	(N.O. Start) Norm. open, operating from start (Default)
<i>n.c. St.</i>	(N.C. Start) Norm. closed, operating from start
<i>n.o. tH.</i>	(N.O. Threshold) operating when Alarm is reached
<i>n.c. tH.</i>	(N.C. Threshold) operating when Alarm is reached

141 *AL4.o.t.* Alarm 4 Output type

Defines the type if alarm 4 is analogue.

<i>0.10 v</i>	Output 0-10 V (Default)
<i>4.20mA</i>	Output 4-20 mA
<i>10.0 v</i>	Output 10-0 V
<i>20.4mA</i>	Output 20-4 mA

142 *AL4.H.* Alarm 4 Setpoint High

Alarm 4 setpoint

-9999..+30000 [digit] (degrees for temperature sensors). **Default** 0.

143 *AL4.L.* Alarm 4 Setpoint Low

Setpoint inferiore di allarme 4 (solo per par.137 *AL.4.F.* = *A.bAnd*)

-9999..+30000 [digit] (degrees for temperature sensors). **Default** 0.

144 *A3.H.* Alarm 4 Hysteresis

Set Hysteresis for Alarm 4.

-9999..+9999 [digit] (degrees.tenths for temperature sensors). **Default:** 0.5

145 *A4.rE.* Alarm 4 Reset

Contact reset type of Alarm 4

A.rES. Automatic reset (**Default**)

A.rES. Manual reset (manual reset by keyboard or by digital input)

A.rES.S. Manual reset stored (maintains output status even after power failure)

146 *A4.S.E.* Alarm 4 State Error

Alarm 4 output status in the event of an error.

If Alarm output is relay		If Alarm output is digital (SSR)	
<i>OPEn</i>	Contact open. (Default)	<i>OFF</i>	Digital output off. (Default)
<i>CLoSE</i>	Contact closed.	<i>On</i>	Digital output on.

If Alarm output is analogue 0-10V		If Alarm output is analogue 4-20mA	
<i>0 V</i>	Output 0 V. (Default)	<i>4 mA</i>	Output 4 mA. (Default)
<i>10 V</i>	Output 10 V.	<i>20 mA</i>	Output 20mA.

147 *A4.SS.* Alarm 4 State Stop

Alarm 4 output status with controller in STOP.

If Alarm output is relay		If Alarm output is digital (SSR)	
<i>Actu.A.</i>	Active alarm (Default)		
<i>OPEn</i>	Contact open.	<i>OFF</i>	Digital output off.
<i>CLoSE</i>	Contact closed.	<i>On</i>	Digital output on.

If Alarm output is analogue 0-10V		If Alarm output is analogue 4-20mA	
<i>Actu.A.</i>	Active alarm (Default)		
<i>0 V</i>	Output 0 V.	<i>4 mA</i>	Output 4 mA.
<i>10 V</i>	Output 10 V.	<i>20 mA</i>	Output 20mA.

148 *A4.L.d.* Reserved

Reserved parameter.

149 *A4.S.c.* Alarm 4 State Cycle

Defines the type of action of the Alarm on the current cycle.

no.Ac. No action on the cycle. Switches only the output related to the Alarm. (**Default**)

E.c.YS. (End Cycle Signal). End of cycle (STOP) with visual signal. Switches the output relating to the Alarm and the label set in parameter 151 *A4.Lb.* flashes on the display until the key **START/STOP** is pressed.

150 *A4.dE.* Alarm 4 Delay

Alarm 4 delay.

-60:00..60:00 mm:ss. **Default:** 00:00

Negative value: delay when exiting the Alarm state.

Positive value: delay when entering Alarm status.

151 *A4.Lb.* Alarm 4 Label

Set the message to be displayed when Alarm 4 is triggered.

d.SAb. Disabled (**Default**)

Lb. 01 Message 1 (See table par. 16.1)

...

Lb. 19 Message 19 (See table par. 16.1)

uSEr.L. Customised message (modifiable by the user through the App or via modbus)

152÷156 Reserved Parameters - Group F4

Reserved parameters - Group F4.

GROUP F5 - *RL 5* - Alarm 5 (*ATR264-13ABC only*)

157 *RLSF* Alarm 5 Function

<i>dSRb.</i>	Disabled (Default)
<i>Rb.uP.R.</i>	Absolute referred to process, active above
<i>Rb.Lo.R.</i>	Absolute referred to process, active below
<i>bRnd.</i>	Band Alarm (command setpoint \pm Alarm setpoint)
<i>R.bRnd</i>	Asymmetrical band alarm (command setpoint + Alarm setpoint and command setpoint - Alarm setpoint 1 L)
<i>uP.dEu</i>	Alarm in upper deviation (command setpoint + deviation)
<i>Lo.dEu</i>	Alarm in lower deviation (command setpoint - deviation)
<i>Rb.c.u.R.</i>	Absolute referred to setpoint, active above
<i>Rb.c.L.R.</i>	Absolute referred to setpoint, active below
<i>cool</i>	Actuator output for cold during double loop operation
<i>Prb.Er.</i>	Probe error. Alarm active in case of sensor failure.
<i>run.U.t.</i>	Status alarm, Active during initial hold.
<i>run</i>	Status alarm, Active during RUN/START.
<i>run.OP.</i>	Status alarm, Active if one of the digital inputs is active and set to <i>oPEN</i> .
<i>End.cY.</i>	(End Alarm). Active at the end of the cycle.
<i>R.o.P.S.</i>	(Auxiliary Output Related to the Step). ON or Off on each step.
<i>R.o.r.M.</i>	(Auxiliary Output Rising Maintenance). Auxiliary output active on the rising and maintaining steps.
<i>R.o.FA.</i>	(Auxiliary Output Falling). Auxiliary output active on falling breaks.
<i>burn</i>	(Burners). Burner output for gas operation.
<i>FArS</i>	(Fans). Fans output for gas operation.
<i>H.b.R.</i>	Heater Break Alarm and Overcurrent Alarm
<i>d.i. 1</i>	Digital Input 1. Active when digital input 1 is active
<i>d.i. 2</i>	Digital Input 2. Active when digital input 2 is active
<i>rEn.</i>	Remote. Alarm is enabled by word 1247

158 *RS.Pr.* Reserved

Reserved parameter.

159 *RS.r.c.* Reserved

Reserved parameter.

160 *RSS.o.* Alarm 5 State Output

Contact output Alarm 5 and intervention type.

<i>n.o. St.</i>	(N.O. Start) Norm. open, operating from start (Default)
<i>n.c. St.</i>	(N.C. Start) Norm. closed, operating from start
<i>n.o. tH.</i>	(N.O. Threshold) operating when Alarm is reached
<i>n.c. tH.</i>	(N.C. Threshold) operating when Alarm is reached

161 *RS.o.t.* Alarm 5 Output type

Defines the type if alarm 5 is analogue.

<i>0.10 v</i>	Output 0-10 V (Default)
<i>4.20mA</i>	Output 4-20 mA
<i>10.0 v</i>	Output 10-0 V
<i>20.4mA</i>	Output 20-4 mA

162 *RS.H.* Alarm 5 Setpoint High

Alarm 5 setpoint

-9999..+30000 [digit] (degrees for temperature sensors). **Default 0.**

163 *ASLo.* Alarm 5 Setpoint Low

Lower setpoint of Alarm 5 (only for par.157 *AL.S.F.* = *ABAND*)
-9999..+30000 [digit] (degrees for temperature sensors). **Default** 0.

164 *ASHY.* Alarm 5 Hysteresis

Set Hysteresis for Alarm 5.
-9999..+9999 [digit] (degrees.tenths for temperature sensors). **Default:** 0.5

165 *ASrE.* Alarm 5 Reset

Contact reset type of Alarm 5
Ar.rES. Automatic reset (**Default**)
Ar.rES. Manual reset (manual reset by keyboard or by digital input)
Ar.rES.S. Manual reset stored (maintains output status even after power failure)

166 *ASS.E.* Alarm 5 State Error

Alarm 5 output status in the event of an error.

If Alarm output is digital (SSR)	
OFF	Digital output off. (Default)
On	Digital output on.

If Alarm output is analogue 0-10V		If Alarm output is analogue 4-20mA	
0 V	Output 0 V. (Default)	4 mA	Output 4 mA. (Default)
10 V	Output 10 V.	20 mA	Output 20mA.

167 *ASS.S.* Alarm 5 State Stop

Alarm 5 output status with controller in STOP.

If Alarm output is digital (SSR)	
<i>Actu.Ar.</i> Active alarm (Default)	
OFF	Digital output off.
On	Digital output on.

If Alarm output is analogue 0-10V		If Alarm output is analogue 4-20mA	
<i>Actu.Ar.</i> Active alarm (Default)			
0 V	Output 0 V.	4 mA	Output 4 mA.
10 V	Output 10 V.	20 mA	Output 20mA.

168 *ASLd.* Alarm 5 Led

Reserved parameter.

169 *ASS.c.* Alarm 5 State Cycle

Defines the type of action of the Alarm on the current cycle.

no.Ac. No action on the cycle. Switches only the output related to the Alarm. (**Default**)
E.c.YS. (End Cycle Signal). TEnd of cycle (STOP) with visual signal. Switches the output relating to the Alarm and the label set in parameter 171 *AS.Lb.* flashes on the display until the key **START/STOP** is pressed.

170 *AS.dE.* Alarm 5 Delay

Alarm 5 delay.
-60:00..60:00 mm:ss . **Default:** 00:00
Negative value: delay when exiting the Alarm state.
Positive value: delay when entering Alarm status.

171 *AS.Lb.* Alarm 5 Label

Set the message to be displayed when Alarm 5 is triggered.

d.SAb. Disabled (**Default**)
Lb. 01 Message 1 (See table par. 16.1)

...

Lb. 19 Message 19 (See table par. 16.1)
 uSerL Customised message (modifiable by the user through the App or via modbus)

172÷176 Reserved Parameters - Group F5

Reserved parameters - Group F5.

GROUP G1 - d. 1 - Digital input 1

177 d. 1.F. Digital Input 1 Function

Operation for digital input.

dSAb. Disabled (**Default**)

oPEn Temporary control block input (cycle paused, oPEn ^{1 p. 47} text on display and control output switched off)

ENrG. (Emergency) Emergency input: device stop. Display ENrG. ^{1 p. 47} until **START/STOP** key is pressed.

Act.ty. Action type. "cold" setting if DI active, otherwise "hot" setting

R. kWh Reset kWh. Resets the value of energy consumed by the system to zero

R. i.0 Reset AI. Resets the value of parameter AI to zero. (see par. 179 d. 1.Pr.)

M. RES. Manual reset. Resets outputs if set to manual reset.

Lo.cFG. Blocks access to configuration and setpoint changes

Hold With active input, pauses cycle with setpoint modifiable by keypad display PAUSE. ^{1 p. 47}

r.cY.1 (Run Cycle 1) RUN input as long as active: cycle1

r.cY.2 (Run Cycle 2) RUN input as long as active: cycle2

r.cY.3 (Run Cycle 3) RUN input as long as active: cycle3

r.cY.4 (Run Cycle 4) RUN input as long as active: cycle4

r.cY.5 (Run Cycle 5) RUN input as long as active: cycle5

r.L.cY. (Run Last Cycle) RUN input as long as active: last cycle executed starts

r.tHE. (Run Thermoregulator) With active input, the temperature controller function starts

r.MAn. (Run Manual) With active input, manual mode starts

tunE Manual auto-tuning function start input

StEP. Pulse input, advance one step with the cycle in start

nE.cY. Pulse input, advance to next cycle

LABEL Label, displays the label set in par. 181 d. 1.Lb.

178 d. 1.c.t. Digital Input Contact Type

Contact type for digital input.

n.oPEn (Normally open) Closed contact action (**Default**)

n.cLoS (Normally closed) Open contact action

179 d. 1.Pr. Digital Input 1 Process

Selects the quantity related to digital input 2 if par. 177 d. 1.F. = R. i.0

R. i.1 Value read on input AI1. (**Default**)

180 d. 1.r.c. Reserved

Reserved parameter.

181 d. 1.Lb. Digital Input 1 Label

Sets the message to be displayed when digital input 1 is tripped

dSAb. Disabled (**Default**)

Lb. 01 Message 1 (See table par. 16.2)

...

Lb. 20 Message 20 (See table par. 16.1)

uSerL Customised message (modifiable by the user through the App or via modbus)

182 Reserved Parameters - Group G1

Reserved parameters - Group G1.

¹ If parameter 181 d. 1.Lb is enabled, it displays the set label.

GROUP G2 - d.1.2 - Digital input 2

183 d.1.2F. Digital Input 2 Function

Operation for digital input.

d.5Ab. Disabled (**Default**)

oPEn Temporary control block input (cycle paused, oPEn ^{2 p. 48} text on display and control output switched off)

EΠΓ. (Emergency) Emergency input: instrument stop. Display EΠΓ. ^{2 p. 48} until the **START/STOP** key is pressed.

Rc.t.tY. Action type. "cold" setting if DI active, otherwise "hot" setting

R. kWh Reset kWh. Resets the value of energy consumed by the system to zero

R. AI Reset AI. Resets the value of parameter AI to zero. (see par. 185 d.2.Pr.)

M. RES. Manual reset. RResets outputs if set to manual reset.

Lo.cFG. Blocks access to configuration and setpoint changes

Hold With active input, pauses cycle with setpoint modifiable from keypad, display PRUSE.^{1 p.}

47

r.cY.1 (Run Cycle 1) RUN input as long as active: cycle1

r.cY.2 (Run Cycle 2) RUN input as long as active: cycle2

r.cY.3 (Run Cycle 3) RUN input as long as active: cycle3

r.cY.4 (Run Cycle 4) RUN input as long as active: cycle4

r.cY.5 (Run Cycle 5) RUN input as long as active: cycle5

r.L.cY (Run Last Cycle) RUN input as long as active: last cycle executed starts

r.tHE. (Run Thermoregulator) With active input, the temperature controller function starts

r.MAn. (Run Manual) With active input, manual mode starts

t.unE Manual auto-tuning function start input

StEP. Pulse input, advance one step with the cycle in start

nE.cY. Pulse input, advance to next cycle

LRbEL Label, displays the label set in par. 187 d.2.Lb.

184 d.2.c.t. Digital Input 2 Contact Type

Contact type for digital input 2

n.oPEn (Normally open) Closed contact action (**Default**)

n.cLoS (Normally closed) Open contact action

185 d.2Pr. Digital Input 2 Process

Selects the quantity related to digital input 2 if par. 183 d.1.2F. = R. i. 0

R. AI.1 Value read on input AI1. (**Default**)

186 d.1.r.c. Reserved

Reserved parameter.

187 d.2.Lb. Digital Input 2 Label

Sets the message to be displayed when digital input 2 is tripped

d.5Ab. Disabled (**Default**)

Lb. 01 Message 1

...

Lb. 20 Message 20 (See table par. 16.1)

uSEr.. Customised message (modifiable by the user through the App or via modbus)

188 Reserved Parameters - Group G2

Reserved parameters - Group G2.

2 If parameter 187 d.2.Lb is enabled, it displays the set label.

GROUP H1 - dISP. - Display and interface

189 u.FLT. Visualization Filter

Visualization filter.

dISAb.	Disabled
PtchF	Pitchfork filter (Default)
F1ord.	First Order
F1ordP.	First Order with Pitchfork
2SR.N.	2 Samples Mean
...	n Samples Mean
10SR.N.	10 Samples Mean

190 u.r.d.2 Visualization Red Display

Set the visualization on red display

StRE	Controller status. RUN, END, STOP, MANUAL , STEP1... STEP8
E.St.SP.	(End Step Setpoint) End temperature of the running step (Default)
r.SP.u.	(Real Setpoint) Real setpoint: is updated with the programmed gradient
Cyc.nu.	(Cycle Number) Number of the cycle being executed
StP.nu.	(Step Number) Number of the cycle being executed
t.tE	Elapsed time from start of cycle
ou.PE.l	(Output Percentage) Output Percentage
PRo.d.1	(Process Display 1) Displays which process is displaying display 1 (Es. a.in.1)
u.o.M.	(Unit Of Measure) Unit of measure set in parameter 191 u.o.n.
AMP. 1	Ampere from current transformer 1 (ATR264-13ABC only)
d.S.P.c.1	Deviation setpoint control process 1
VAL.c.1	Valve position for control 1
W.c.1	Power on load of control 1
WH.c.1	Energy transferred to the load of control 1
R.i.N.1	Value read at input AI1.

191 u.o.n Unit Of Measure

Selects the unit of measurement to be shown on red displays if enabled on parameter 190.

Default	hPa	h	M/h	KgP
F	kPa	N	L/S	k/P
K	MPa	kN	L/M	LbF
V	Atm	G	L/h	ozF
MV	MHz	KG	RPM	PcS
R	mmHg	Q	PH	PER5.
MR	mm	t	PH	(from App)
bRR	cm	oz	L	
MbRR	dm	Lb	MM	
PSi	M	M/S	MM	
PR	kM	M/M	KGF	

192 u.out Voltage Output

Selects the voltage at the power supply terminals of the probes and digital outputs (SSR).

12 u	12 volt (Default)
24 u	24 volt

193 nFCL. NFC Lock

dISAb.	NFC Lock disabled: NFC accessible
EnAb.	NFC Lock enabled: NFC not accessible

194 Reserved Parameters - Group H1

Reserved parameters - Group H1

GROUP J1 - $\epsilon\epsilon$ I - Current transformer 1 (ATR264-13ABC only)

195 $\epsilon\epsilon.I.F.$ Current Transformer 1 Function
Enable CT 1 input and select network frequency
 $d.5Pb.$ Disabilitato (**Default**)
 $50\ HZ$ 50 Hz
 $60\ HZ$ 60 Hz

196 $\epsilon\epsilon.I.v.$ Current Transformer 1 Value
Selects the bottom scale of the current transformer 1
 1.300 Ampere (**Default: 50**)

197 $H.b.l.r.$ Reserved
Reserved parameter.

198 $H.b.l.t.$ Heater Break Alarm 1 Threshold
CT1 Heater Break Alarm Threshold
 0 Disabled alarm. (**Default:**)
 $0..300.0$ Ampere.

199 $oc.l.t.$ Overcurrent 1 Alarm Threshold
CT1 Overcurrent Alarm threshold
 0 Disabled alarm. (**Default**)
 $0...300.0$ Ampere

200 $H.b.l.d.$ Heater Break Alarm 1 Delay
Delay time for tripping of Heater Break Alarm and CT1 Overcurrent Alarm.
 $00:00-60:00$ mm:ss (**Default: 01:00**)

201÷202 Reserved Parameters - Group J1
Reserved parameters - Group J1

GROUP K1 - R.O. 1 - Retransmission 1

203 *r.t.1* Retransmission 1

Retransmission for output AO1. Parameters 205 and 206 define the lower and upper limit of the operating range.

d.s.a.b. Disabled (**Default**)

R.in.1 The value read on input AI1

c.1.s.p. Command 1 setpoint

o.u.p.e.1 Percentage of command output 1

d.s.p.c.1 Deviation command process setpoint 1

A.M.P. 1 Ampere from current transformer 1

R.d.b.u.s Retransmits the value written to word 1241

204 *r.t.t.y.* Retransmission 1 Type

Select retransmission type.

0-10 0..10V output

4-20 4..20mA output (**Default**)

205 *r.l.l.l.* Retransmission 1 Lower Limit

Lower limit retransmission range continue output.

-9999...+30000 [digit] (degrees.tenths for temperature sensors), **Default**: 0

206 *r.u.u.l.* Retransmission 1 Upper Limit

Upper limit retransmission range continue output.

-9999...+30000 [digit] (degrees.tenths for temperature sensors), **Default**: 1000.

207 *r.i.s.e.* Retransmission 1 State Error

Determines the value of retransmission 2 in the event of an error or fault

If the retransmission output 0-10V:

0 V 0 V. (**Default**)

10 V 10 V

If the retransmission output 4-20 mA:

0 mA 0 mA. (**Default**)

4 mA 4 mA

20 mA 20 mA

21.5 mA 21.5 mA

208 *r.i.s.s.* Retransmission 1 State Stop

Determines the value of retransmission 1 with controller in STOP

If the retransmission output 0-10V:

R.e.t.v. P. Active retransmission

0 V 0 V. (**Default**)

10 V 10 V

If the retransmission output 4-20 mA:

R.e.t.v. P. Active retransmission

0 mA 0 mA. (**Default**)

4 mA 4 mA

20 mA 20 mA

21.5 mA 21.5 mA

209÷210 Reserved Parameters - Group K1

Reserved parameters - Group K1

GROUP L1 - 5Er - Seriale (ATR264-12ABC-T only)

211 5LAd. Slave Address

Select slave address for serial communication.

1..254 **Default:** 254.

212 bd.rte. Baud rate

Selects the baud rate for serial communication.

1.2 K	1200 bit/s	28.8 K	28800 bit/s
2.4 K	2400 bit/s	38.4 K	38400 bit/s
4.8 K	4800 bit/s	57.6 K	57600 bit/s
9.6 K	9600 bit/s	115.2 K	115200 bit/s
19.2 K	19200 bit/s (Default)		

213 5PP. Serial Port Parameters

Selects the data format for serial communication.

8.n.1	8 data bits, no parity, 1 stop bit (Default)
8.o.1	8 data bits, odd parity, 1 stop bit
8.E.1	8 data bits, even parity, 1 stop bit
8.N.2	8 data bits, no parity, 2 stop bit
8.o.2	8 data bits, odd parity, 2 stop bit
8.E.2	8 data bits, even parity, 2 stop bit

214 5EdE. Serial Delay

Select serial delay.

0..100 ms. **Default:** 5.

215 oFFL. Off Line

Selects the off-line time. If there is no serial communication within the set time, the controller will go to STOP and switch off the control output.

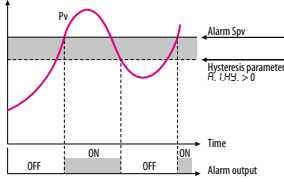
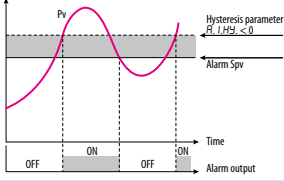
0.	Off-line disabled. (Default)
1..600	Tenths of second (1=100ms, 600=60seconds).

216÷217 Reserved Parameters - Group L1

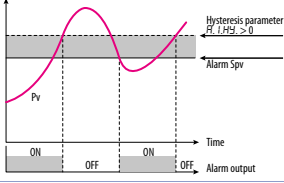
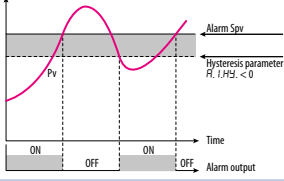
Reserved parameters - Group L1

16 Alarm intervention modes

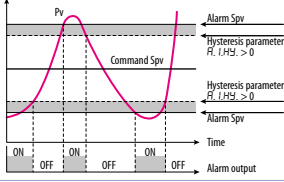
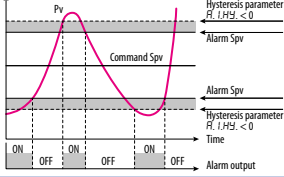
16.a Absolute or threshold alarm active over (par. $RL_nF = Ab_{uPA}$)

	<p>Absolute alarm active over. Hysteresis value greater than "0" (Par. $R.L.Hyst. > 0$).</p>
	<p>Absolute alarm active over. Hysteresis value lower than "0" (Par. $R.L.Hyst. < 0$).</p>

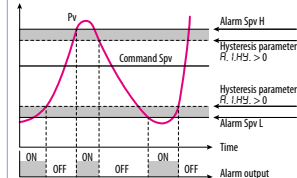
16.b Absolute or threshold alarm active below (par. $RL_nF = Ab_{LoPA}$)

	<p>Absolute alarm active below. Hysteresis value greater than "0" (Par. $R.L.Hyst. > 0$).</p>
	<p>Absolute alarm active below. Hysteresis value lower than "0" (Par. $R.L.Hyst. < 0$).</p>

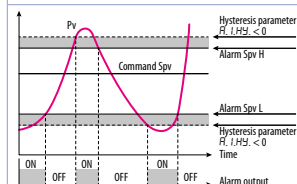
16.c Band alarm (par. $RL_nF = bAnd$)

	<p>Band alarm hysteresis value greater than "0" (Par. $R.L.Hyst. > 0$).</p>
	<p>Band alarm hysteresis value lower than "0" (Par. $R.L.Hyst. < 0$).</p>

16.d Asymmetric band alarm (par. $R_{L.nF} = R_{bRnD}$)

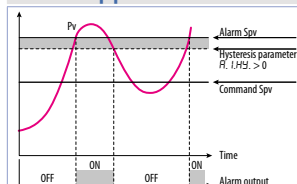


Asymmetric band alarm with hysteresis value greater than "0" (Par. $R_{L.nH} > 0$).

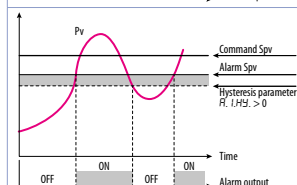


Asymmetric band alarm with hysteresis value lower than "0" (Par. $R_{L.nH} < 0$).

16.e Upper deviation alarm (par. $R_{L.nF} = uP.dEu$)

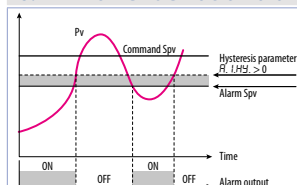


Upper deviation alarm value of alarm setpoint greater than "0" and hysteresis value greater than "0" (Par. $R_{L.nH} > 0$).
N.B.: with hysteresis value less than "0" ($R_{L.nH} < 0$) the dotted line moves under the alarm setpoint.

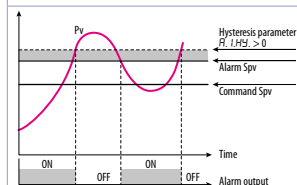


Upper deviation alarm value of alarm setpoint less than "0" and hysteresis value greater than "0" (Par. $R_{L.nH} > 0$).
N.B.: with hysteresis value less than "0" ($R_{L.nH} < 0$) the dotted line moves under the alarm setpoint.

16.f Lower deviation alarm (par. $R_{L.nF} = Lo.dEu$)

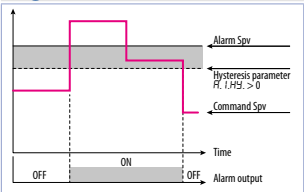


Lower deviation alarm value of alarm setpoint greater than "0" and hysteresis value greater than "0" (Par. $R_{L.nH} > 0$).
N.B.: with hysteresis value less than "0" ($R_{L.nH} < 0$) the dotted line moves under the alarm setpoint.



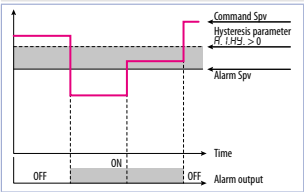
Lower deviation alarm value of alarm setpoint less than "0" and hysteresis value greater than "0" (Par. $R_{L.nH} > 0$).
N.B.: with hysteresis value less than "0" ($R_{L.nH} < 0$) the dotted line moves under the alarm setpoint.

16.g Absolute alarm referred to command setpoint active over (par. $R_{LnF} = Ab.c.uA$)



Absolute or threshold alarm referred to command setpoint active over.
Hysteresis value greater than “0” (Par. $R_{LnH} > 0$).

16.h Absolute alarm referred to command setpoint active below (par. $R_{LnF} = Ab.c.lA$)



Absolute or threshold alarm referred to command setpoint active below.
Hysteresis value lower than “0” (Par. $R_{LnH} < 0$).

16.1 Alarms label

By setting a value from 1 to 21 on the parameters 91 $A.1.Lb.$, 111 $A.2.Lb.$, 131 $A.3.Lb.$, 151 $A.4.Lb.$, 171 $A.5.Lb.$, display 2 will show one of the following messages in case of alarm:

Selection	Message displayed in case of alarm	Selection	Message displayed in case of alarm
Lb. 01	ALARM 1	Lb. 12	HIGH LIMIT
...	...	Lb. 13	LOW LIMIT
Lb. 05	ALARM 5	Lb. 14	EXTERNAL ALARM
Lb. 06	OPEN door	Lb. 15	TEMPERATURE ALARM
Lb. 07	CLOSED door	Lb. 16	PRESSURE ALARM
Lb. 08	LIGHT ON	Lb. 17	FAN command
Lb. 09	LIGHT OFF	Lb. 18	COOLING
Lb. 10	WARNING	Lb. 19	OVERHEATING
Lb. 11	WARNING		

By setting $d.5Ab$ (value 0) no message will be displayed.
By setting $uSER.L$ (value 22) the user will have up to 20 characters available to customize his message via the “MyPyxsys” App or via modbus.

16.2 Digital inputs label

By setting a value from 1 to 6 on the parameters 181 $d.1.Lb.$, 187 $d.2.Lb.$

Selection	Message displayed in case of alarm	Selection	Message displayed in case of alarm
Lb. 01	DIGITAL INPUT 1		
Lb. 02	DIGITAL INPUT 2		
Lb. 03	DIGITAL INPUT 3		
Lb. 04	DIGITAL INPUT 4		
Lb. 05	OPEN door		
Lb. 06	CLOSED door		

By setting $d.5Ab$ (value 0) no message will be displayed.
By setting $uSER.L$ (value 22) the user will have up to 20 characters available to customize his message via the “MyPyxsys” App or via modbus.

17 Table of Anomaly Signals

If installation malfunctions, the controller switches off the regulation output and reports the anomaly noticed. For example, controller will report failure of a connected thermocouple visualizing *E-05* (flashing) flashing on display.

For other signals see table below.

	Cause	What to do
<i>E-02</i> <i>SYSTEM</i> <i>Error</i>	Cold junction temperature sensor failure or environment temperature out of range	Call assistance
<i>E-04</i> <i>EEPROM</i> <i>Error</i>	Incorrect configuration data. Possible loss of instrument calibration	Verify that configuration parameters are correct.
<i>E-05</i> <i>Probe 1</i> <i>Error</i>	Sensor connected to AI1 broken or temperature out of range	Control connection with probes and their integrity.
<i>E-08</i> <i>SYSTEM</i> <i>Error</i>	Missing calibration	Call assistance
<i>E-80</i> <i>rFid</i> <i>Error</i>	Tag rfid malfunctioning	Call assistance

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This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins or other markings on the paper.

Table of configuration parameters

GROUP A1 - *A.n.I* - Analogue input 1

1	<i>SEn.I</i>	Sensor	28
2	<i>dP. I</i>	Decimal Point 1	29
3	<i>dEGr.</i>	Degree	29
4	<i>LL.I.I</i>	Lower Linear Input AI1	29
5	<i>UL.I.I</i>	Upper Linear Input AI1	29
6	<i>P.vA.I</i>	Potentiometer Value AI1	29
7	<i>L.o.L.I</i>	Linear Input over Limits AI1	29
8	<i>L.c.E.I</i>	Lower Current Error 1	29
9	<i>o.cA.I</i>	Offset Calibration AI1	30
10	<i>G.cA.I</i>	Gain Calibration AI1	30
11	<i>LtC.I</i>	Latch-On AI1	30
12	<i>cFL.I</i>	Conversion Filter AI1	30
13	<i>cFr.I</i>	Conversion Frequency AI1	30
14÷15		Reserved Parameters - Group A1	30

GROUP B1 - *cNd.I* - Process outputs 1

16	<i>c.ov.I</i>	Command Output 1	30
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Read carefully the safety guidelines and programming instructions contained in this manual before using/connecting the device.

Prima di utilizzare il dispositivo leggere con attenzione le informazioni di sicurezza e settaggio contenute in questo manuale.

Vor Verwendung des Gerätes sind die hier enthaltenen Informationen bezüglich Sicherheit und Einstellung aufmerksam zu lesen.

Antes de usar el dispositivo leer con atención las informaciones de seguridad y configuración contenidas en este manual.

Avant d'utiliser le dispositif lire avec attention les renseignements de sûreté et installation contenus dans ce manuel.



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