

ATR224-DRR224

Controller / Régulateur



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Introduction

Les régulateurs se distinguent par son affichage performant qui garantit une excellente lisibilité et augmente les informations que peuvent être utilisées par l'opérateur, en plus d'une utile fonction d'aide à défilement. Est introduite la modalité de programmation avec technologie NFC/RFID via App pour les appareils Android, la même déjà utilisée pour la gamme Pixsys de convertisseurs de signaux et d'indicateurs STR. Cette modalité vous permet de programmer l'instrument sans avoir besoin de câblage et ne nécessite pas la connexion du régulateur à l'alimentation, en outre, il simplifie la programmation sur le terrain et en déplacement. Les sorties peuvent être sélectionnées comme commande/plusieurs modes d'alarme. L'option de communication série est en RS485 avec protocole Modbus RTU/ Slave. Utile alimentation à large gamme étendue de 24 à 230V AC/DC avec isolation galvanique du réseau.

1 Consignes de sécurité

Lisez attentivement les consignes de sécurité et les instructions de programmation contenues dans ce manuel avant de connecter / utiliser le périphérique. Débranchez l'alimentation électrique avant de procéder aux réglages du matériel ou aux câblages électriques afin d'éviter tout risque d'électrocution, d'incendie ou de dysfonctionnement. Ne pas installer / utiliser l'appareil dans des environnements contenant des gaz inflammables / explosifs. Cet appareil a été conçu et développé pour les environnements et les applications industriels et est basé sur les réglementations nationales et internationales de sécurité du travail et des personnes. Toute application pouvant entraîner de graves dommages physiques / un risque pour la vie ou impliquer des dispositifs médicaux pour les personnes doit être évitée. L'appareil n'est pas conçu pour les applications liées aux centrales nucléaires, aux systèmes d'armes, aux commandes de vol et aux systèmes de transport en commun. Seul un personnel qualifié peut être autorisé à utiliser l'appareil et / ou à le réparer, uniquement en conformité avec les données techniques énumérées dans ce manuel. Ne démontez / modifiez / réparez aucun composant interne. L'appareil doit être installé et utilisé dans les conditions environnementales indiquées. Une surchauffe peut entraîner un risque d'incendie et de perte de durée de vie des composants électroniques.

1.1 Organisation des avis de sécurité

Les avis de sécurité dans ce manuel sont organisés comme suit:

Avis de sécurité	Description
Danger!	Le non-respect de ces notes et avis de sécurité pourrait être fatal.
Warning!	Le non-respect de ces instructions et avis de sécurité pourrait causer de graves blessures ou des dommages matériels importants.
Information!	Ces informations sont importantes pour éviter des défauts.

1.2 Avis de sécurité

Ce produit est classé comme équipement de contrôle du processus « type ouvert » (monté sur le panneau).	Danger!
Si les relais de sortie sont utilisés au-delà de leur durée de vie, il pourrait y avoir des fusions ou des brûlures de contacts.	
Tenez toujours compte des conditions d'application et utilisez les relais de sortie dans les limites de leur charge nominale et de leur durée de vie électrique. La durée de vie des relais de sortie change considérablement en fonction de la charge de sortie et des conditions de commutation.	Danger!
Pour les bornes à vis des relais et de l'alimentation, serrez les vis à un couple de 0,51 Nm. Pour les autres bornes, le couple est de 0,19 Nm.	Warning!
Il y a des cas où un mauvais fonctionnement du régulateur digital pourrait rendre les opérations de contrôle impossibles ou bloquer les sorties d'alarme, en causant des dommages matériels. Pour maintenir la sécurité en cas de mauvais fonctionnement, prenez des mesures de sécurité appropriées, par exemple en installant un dispositif de contrôle indépendant et sur une ligne séparée.	Warning!

1.3 Précautions pour l'usage en toute sécurité

Il faut faire attention à respecter les précautions suivantes pour éviter des défauts, de mauvais fonctionnements ou des effets négatifs sur les performances et les fonctions du produit. Autrement, il pourrait y avoir des événements inattendus. Ne pas utiliser le régulateur digital au-delà des valeurs nominales.

- Le produit a été conçu uniquement pour l'usage à l'intérieur. Ne pas utiliser ou stocker le produit à l'extérieur ou dans les environnements suivants:
 - Environnements directement exposés à la chaleur émise par des appareils de chauffage.
 - Environnements soumis à des projections de liquide ou d'huile.
 - Environnements soumis au soleil.
 - Environnements exposés à la poussière ou aux gaz corrosifs (en particulier les gaz de sulfure et d'ammoniac).
 - Environnements soumis à de fortes fluctuations de température.
 - Environnements soumis au givrage et à la condensation.
 - Environnements soumis à des vibrations et des impacts violents.
- L'utilisation de deux ou plus régulateurs côté à côté ou superposés pourrait causer une augmentation de la chaleur intérieure, en réduisant le cycle de vie. Dans ce cas, il est recommandé d'utiliser des ventilateurs pour le refroidissement forcé ou d'autres dispositifs pour conditionner la température intérieure du panneau.
- Vérifier toujours les noms des bornes ainsi que la polarité. Assurez-vous que le câblage est correct. Ne connectez pas les bornes inutilisées.
- Pour éviter les troubles inductifs, gardez le câblage de l'appareil loin des câbles d'alimentation sous haute tension ou à courant élevé. En outre, ne pas connecter les lignes électriques ensemble ou en parallèle avec le câblage du régulateur digital. Nous recommandons d'utiliser des câbles blindés et des conduits séparés. Connectez un limiteur de surcharge ou un filtre de bruit aux dispositifs générant du bruit (notamment les moteurs, les transformateurs, les solénoïdes, les bobines ou tout autre équipement doté de composants inductifs). Quand on utilise des filtres de bruit sur l'alimentation électrique, il faut vérifier la tension et le courant et connecter le filtre le plus proche possible à l'appareil. Laisser le plus d'espace possible entre le régulateur et les dispositifs d'alimentation générant des fréquences élevées (soudeuses à haute fréquence, machines à coudre à haute fréquence, etc.) ou des surcharges.
- Un interrupteur ou un sectionneur doit être placé à proximité du régulateur. L'interrupteur ou le sectionneur doit être facilement accessible pour l'opérateur et il doit être marqué comme moyen de déconnexion du régulateur.
- L'appareil doit être protégé par un fusible 1A (cl. 9.6.2).
- Prenez un chiffon doux et sec pour enlever la saleté de l'appareil. N'utilisez jamais de diluants, essence, alcool ou détergents contenant ces substances, ou d'autres solvants organiques, car une déformation ou décoloration pourrait se vérifier.
- Le nombre d'opérations d'écriture sur la mémoire non volatile est limité. Tenez compte de ce fait lorsque vous utilisez le mode d'écriture EEprom, par exemple pour modifier les données pendant les communications en série.
- N'utilisez pas de produits chimiques/solvants, détergents et autres liquides.
- Le non-respect de ces instructions peut réduire les performances et la sécurité des appareils et entraîner un danger pour les personnes et les choses.

1.4 Politique environnementale / DEEE

Ne pas jeter d'outils électriques avec les déchets ménagers. Conformément à la directive européenne 2012/19/EU concernant les déchets d'équipements électriques et électroniques ainsi que leur mise en œuvre conformément au droit national, les outils électriques arrivés en fin de vie doivent être collectés séparément et renvoyés à un centre de recyclage respectueux de l'environnement.

2 Identification du modèle

Modèle à montage sur panneau - Alimentation 24..230 VAC/VDC 50/60 Hz – 6 Watt/VA

ATR224-12ABC 1 A.I. + 2 relais 2 A + 1 SSR + 1 D.I.

Modèle de montage sur rail DIN - Alimentation 24..230 VAC/VDC 50/60 Hz – 6 Watt/VA

DRR224-12ABC 1 A.I. + 2 relais 2 A + 1 SSR + 1 D.I.

3 Données techniques

3.1 Caractéristiques générales

Visualisateurs	4 affichage 0,52", 5 affichage 0,30"
Conditions d'exercice	Température: 0-45 °C - Humidité: 35..95 uR% - Altitude max: 2000m
Protection	ATR224: Montage sur panneau avant NEMA type 1 - IP65 panneau frontal (avec joint) - IP20 boîtier et bornes (non testé UL) DRR224: Type ouvert, IP20 (non évalué UL)
Matériel	ATR224: Boîtier et panneau frontal PC UL94V2 DRR224: Boîtier et panneau frontal PC UL94V0
Poids	ATR224: Environ 185 g / DRR224: Environ 210 g

3.2 Caractéristiques Hardware

Entrée analogique	All Configurable via software. Entrée: Thermocouples type K, S, R, J,T,E,N,B. Compensation automatique de la jonction froide de -25..85 °C. Thermorésistances: PT100, PT500, PT1000, Ni100, PTC 1K, NTC 10K (β 3435K) Entrée V/mA: 0-1 V, 0-5 V, 0-10 V, 0-20 ou 4-20 mA, 0-60 mV. Entrée Puis.: 1..150 K Ω .	Tolérance (25 °C) +/-0.2% $\pm$ 1 digit (su F.s.) pour thermocouple, thermorésistance et V / mA. Précision jonction froide 0.1 °C/°C. Impedance: 0-10 V: Ri>110 K Ω 0-20 mA: Ri<5 Ω 0-40 mV: Ri>1 M Ω
Sorties relais	Config. comme sortie commande et alarme	Contacts: ATR224: 2A - 250 VAC pour charges résistives. DRR224: Q1, Q2: 5A - 250 VAC pour charges résistives.
Sortie SSR	Config. comme sortie commande et alarme	12/24 V, 25 mA
Alimentation	Alimentation à range étendue ATR224: 24..230 VAC/VDC $\pm$ 15% 50/60 Hz DRR224: 24..230 VAC/VDC $\pm$ 10% 50/60 Hz	Consommation: ATR224: 6 Watt/VA DRR224: 9 Watt/VA

3.3 Caractéristiques Software

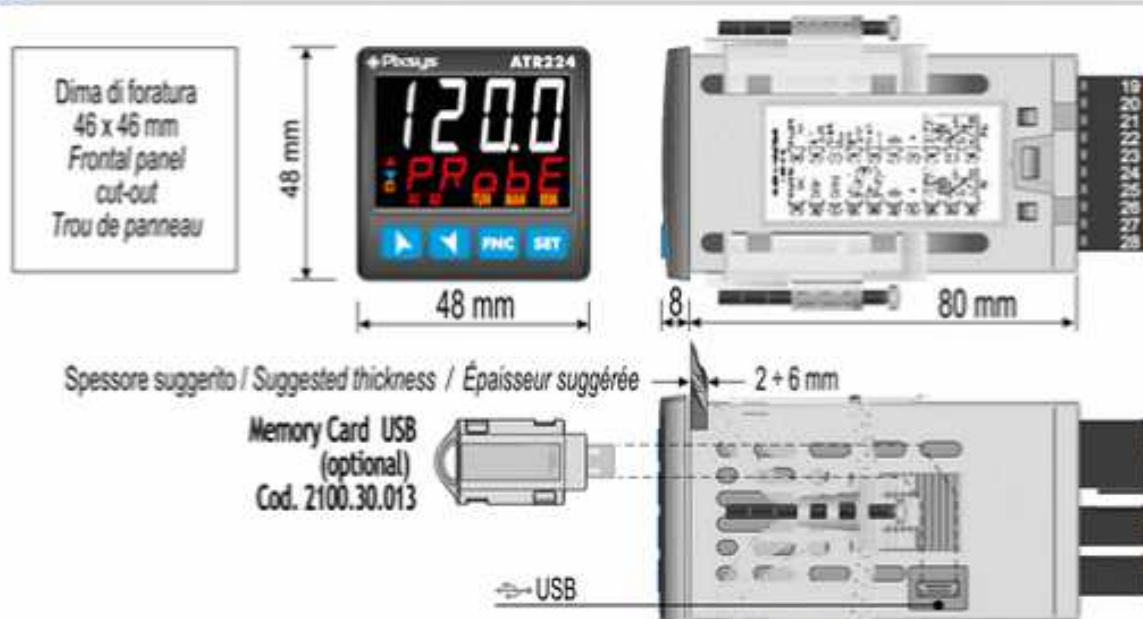
Algorithmes régulation	ON-OFF avec hystérésis. - P, PI, PID, PD à durée proportionnelle.
Bande proportionnelle	0..9999°C ou °F
Temps intégral	0,0..999,9 sec (0 exclut)
Temps dérivatif	0,0..999,9 sec (0 exclut)
Fonctions du régulateur	Tuning manual ou automatique, alarme programmable, protection set commande et alarme.

3.4 Mode de programmation

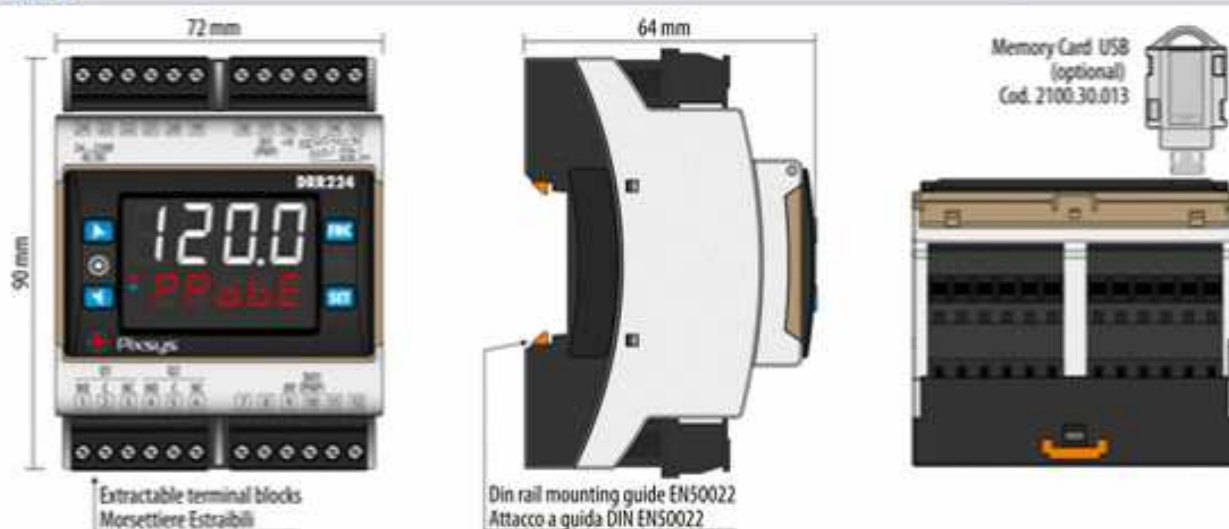
du clavier	..voir le paragraphe 12
soft. LabSoftview	..voir la section "Download" du site www.pixsys.net
App MyPixsys	..à travers le download de l'application de Google Play Store*, voir le par. 10 Lorsqu'il est interrogé par un lecteur qui supporte le protocole NFC-V, l'appareil doit être considéré comme un VICC (Vicinity Inductively Coupled Card) conformément à la directive ISO / IEC 15693 et fonctionne à une fréquence de 13,56 MHz. L'appareil n'émet pas intentionnellement d'ondes radio.

4 Dimensions et Installation

ATR224-12ABC



DRR224-12ABC



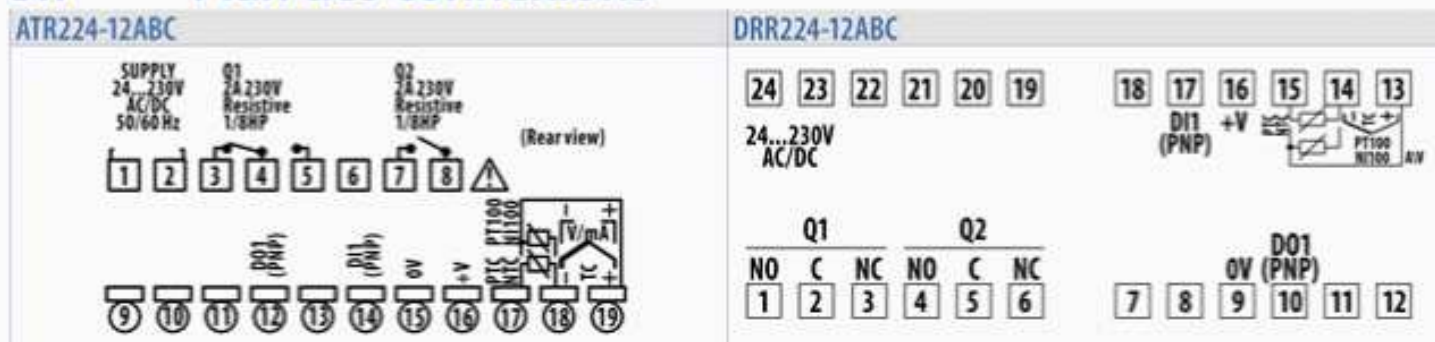
5 Raccordements électriques

Ce régulateur a été conçu et fabriqué conformément aux directives sur les basses tensions 2006/95/CE, 2014/35/UE (LVD) et Compatibilité électromagnétique 2004/108/CE et 2014/30/UE (EMC) pour l'installation dans des environnements industriels, il est recommandé de prendre les précautions suivantes:

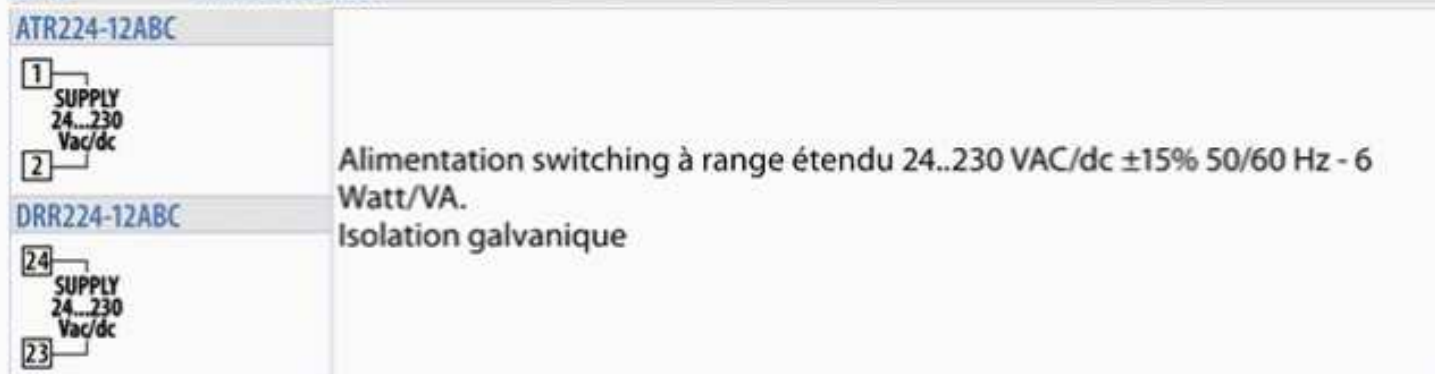
- Distinguer la ligne des alimentations de celles de puissance.
- Eviter la proximité de groupes de télérupteurs, compteurs électromagnétiques, moteurs de grosse puissance.
- Eviter la proximité de groupes de puissance, en particulier si à contrôle de phase.

- Il est recommandé d'utiliser des filtres de réseau spéciaux sur l'alimentation de la machine où l'instrument sera installé, en particulier dans le cas d'une alimentation électrique 230VAC. Il faut noter que le régulateur est conçu pour être assemblé à d'autres machines et que le marquage CE du régulateur n'exonère donc pas le fabricant du système des obligations de sécurité et de conformité prévues pour la machine dans son ensemble.
- Pour câbler les bornes 1...8 de l'ATR224-12ABC, utilisez des embouts tubulaires sertis ou un fil de cuivre souple ou rigide avec une section comprise entre 0,2 et 2,5 mm² (min. AWG28, max. AWG12; Température nominale minimale du câble à connecter aux bornes du câblage de terrain, 70°C). La longueur de dénudage est comprise entre 7 et 8 mm. Serrez les vis à un couple de 0,19 Nm.
- Pour câbler les bornes 9...19 de l'ATR224-12ABC, utilisez des embouts tubulaires sertis ou un fil de cuivre souple ou rigide avec une section comprise entre 0,2 et 1,5 mm² (min. AWG28, max. AWG12; Température nominale minimale du câble à connecter aux bornes du câblage de terrain, 70°C). La longueur de dénudage est comprise entre 6 et 7 mm. Serrez les vis à un couple de 0,51 Nm.
- Pour câbler les bornes 1...8 de DRR224-12ABC, utilisez des embouts tubulaires sertis ou un fil de cuivre souple ou rigide avec une section comprise entre 0,2 et 2,5 mm² (min. AWG30, max. AWG14; Température nominale minimale du câble à connecter aux bornes du câblage de terrain, 70°C). La longueur de dénudage est comprise entre 7 et 8 mm. Serrez les vis à un couple de 0,51 Nm.

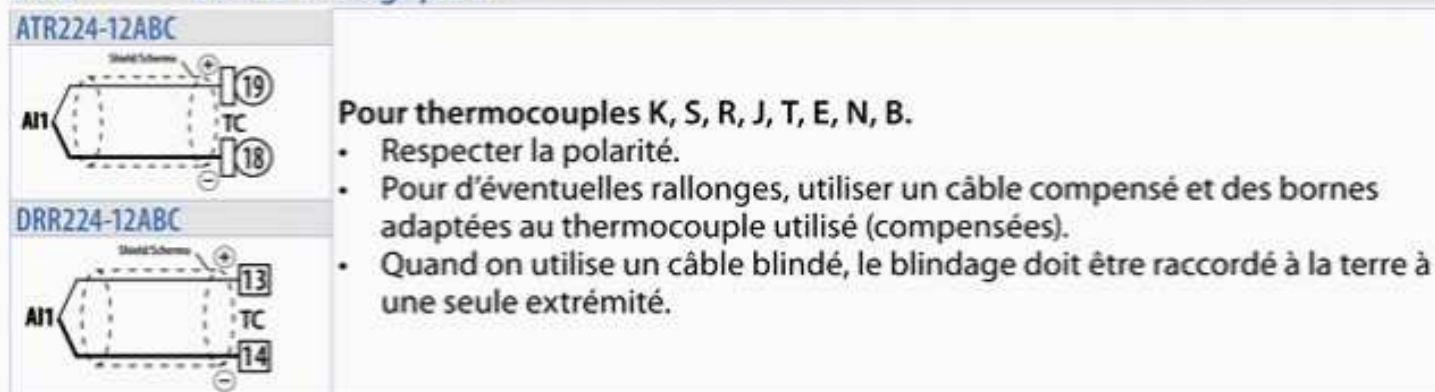
5.1 Plan des connexions



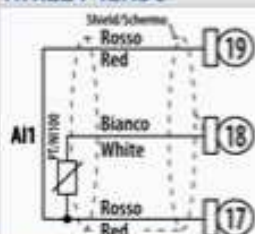
5.1.a Alimentation



5.1.b Entrée analogique AI1



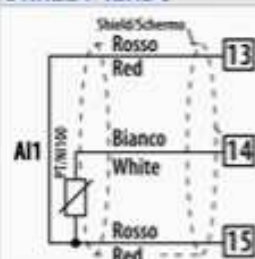
ATR224-12ABC



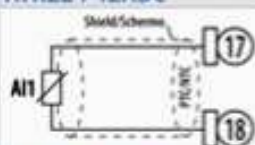
Pour thermorésistances PT100, NI100.

- Pour le raccordement à trois fils, utiliser des câbles de la même section.
- Pour le raccordement à deux fils, court-circuiter les bornes 17 et 19 pour ATR224 et bornes 13 et 15 pour DRR224.
- Quand on utilise un câble blindé, le blindage doit être raccordé à la terre à une seule extrémité.

DRR224-12ABC



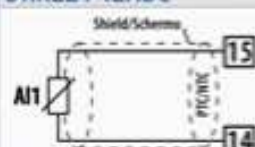
ATR224-12ABC



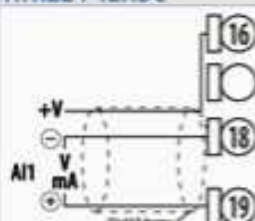
Pour thermorésistances NTC, PTC, PT500, PT1000 et potentiomètres linéaires.

- Quand on utilise un câble blindé, le blindage doit être raccordé à la terre à une seule extrémité.

DRR224-12ABC



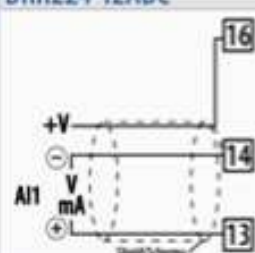
ATR224-12ABC



Pour signaux normalisés en courant et tension.

- Respecter la polarité.
- Quand on utilise un câble blindé, le blindage doit être raccordé à la terre à une seule extrémité.
- + V peut être sélectionné à 12Vdc ou 24Vdc en configurant le paramètre 282 uout (GROUPE R - d ISP - Affichage et interface).

DRR224-12ABC



5.1.c Entrées digitale

ATR224-12ABC



Entrées digitale activable par paramètres.

Fermer la borne "DI1" sur la borne "+V" pour activer l'entrée digitale.

DRR224-12ABC



Il est possible de mettre en parallèle les entrées digitales de différents instruments en reliant les bornes (0V).

5.1.d Sorties digitales

ATR224-12ABC



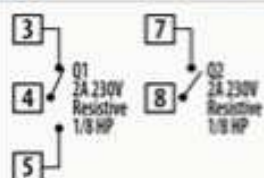
Sortie digital PNP (y compris le mode SSR) pour commande ou alarme.
Portée 12 VDC/25 mA ou 24 VDC/15mA sélectionnable par paramètre 282 u.out.

DRR224-12ABC

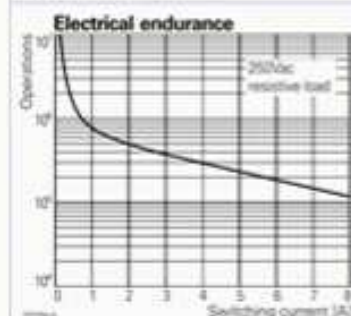


Connectez la commande positive (+) du relais statique à la borne DO1 (x).
Connectez la commande négative (-) du relais statique à la borne 0V.

5.1.e Sortie relai Q1 - Q2 (pour ATR224-12ABC)



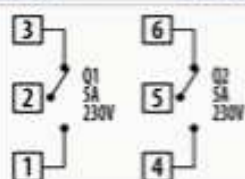
Portée contacts 2 A / 250 VAC pour charges résistives.
Voir le tableau ci-dessous.



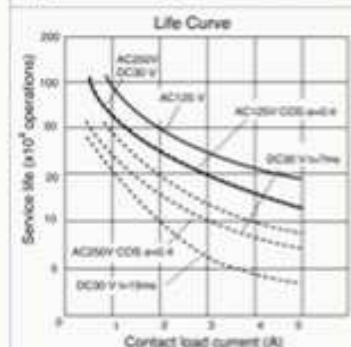
Electrical endurance Q1 - Q2:

- 2 A, 250 VAC, charge résistive, 10^5 operations.
- 20/2 A, 250 VAC, $\cos\phi = 0.3$, 10^5 operations.

5.1.f Sortie relai Q1 - Q2 (pour DRR224-12ABC)



Portée contacts 5 A / 250 VAC pour charges résistives.
Voir le tableau ci-dessous.



Electrical endurance Q1 - Q2:

- 5 A, 250Vac, charge résistive, 10^5 operazioni.
- 20/2A, 250Vac, $\cos\phi=0.3$, 10^5 operazioni.

Notes / Mises à jour

6 Display and Key Functions

		1 2	Normally displays the process. During the configuration phase, it displays the parameter being inserted. Normally displays the setpoint. During the configuration phase, it displays the parameter value being inserted.
--	--	------------	--

6.1 Meaning of Status Lights (Led)

3	C1	ON when the command output 1 is active.
5	A1	ON when alarm 1 is active.
6	A2	ON when alarm 2 is active.
8	TUN	ON when the controller is executing an auto-tuning cycle.
9	MAN	ON when "Manual" function is active.
10	REM	ON when the controller communicates through serial. Flashes when the remote setpoint is enabled.

6.2 Keys

11	▲	- Increases the main setpoint. - During configuration allows to scroll the parameters or the groups of parameters. - Increases the setpoints.
12	▼	- Decreases the main setpoint. - During configuration allows to scroll the parameters or the groups of parameters. - Decreases the setpoints.
13	SET	- Allows to visualize command and alarm setpoints. - During configuration allows to enter the parameter to be modified and confirms the variation.
14	FNC	- Allows to enter the Tuning launch function, automatic/manual selection. - During configuration works as exit key (ESCAPE).
15	▲▼	Both ON during parameter modification, when this is not a default value.

7 Controller Functions

7.1 Modification of main and alarm setpoint value

Setpoint value can be modified from keyboard as follows:

Press	Display	Do
1	Value on display 2 changes.	Increases or decreases the main setpoint value.
2	Visualizes the other setpoints on display 1. Display 2 shows the setpoint type.	
3	Value on display 1 changes.	Increases or decreases the alarm setpoint value.

7.2 Automatic Tune

Automatic tuning procedure allows a precise regulation without delving into the PID regulation algorithm. Selecting Auto on par. 73 *tun.l* (for the regulation loop 1), the controller analyzes the process oscillations and optimizes the PID parameters.

Led **TUN** flashes.

If the PID parameters are not yet selected, at the device switch-on, it is automatically launched the manual Tuning procedure described into the next paragraph.

7.3 Manual Tune

Manual procedure allows the user greater flexibility to decide when to update PID algorithm parameters. During the manual tuning, the device generates a step to analyze the system inertia to be regulated and, according to the collected data, modifies PID parameters.

After selecting *Manu.* on par. 73 *tun.l*, the procedure can be activated as follows:

- **Running Tuning by keyboard:**
Press **FNC** until display 2 shows *tunE* with display 1 on *dis.* and then press **SET**: display 1 shows *Enab.* Led **TUN** switches ON and the procedure starts.
- **Running Tuning by digital input:**
Select *tunE* on par. 231 *d. i.f.*. At first activation of digital input (commutation on front panel) led **TUN** switches on and at second activation switches off.

To avoid an overshoot, the threshold where the controller calculates new PID parameters is determined by this operation:

Tune threshold = Setpoint - "Set Deviation Tune" (par. 74 *S.d.t.*)

Ex.: if the setpoint is 100.0°C and the Par.32 *S.d.t.* is 20.0°C the threshold to calculate PID parameters is $(100.0 - 20.0) = 80.0^\circ\text{C}$.

For a greater precision on PID parameters calculation it is suggested to start the manual tuning procedure when the process deviates from the setpoint.

7.4 Tuning once

Set *once* on parameter 73 *tun.l*

Autotuning procedure is executed only once at next device restart. If the procedure doesn't work, will be executed at next restart.

7.5 Digital input functions

The ATR224 and DRR224 functions related to digital inputs, can be enabled by parameter 231 *d. i.f.*.

- *SetSU*: Two threshold setpoint modification: with digital input active the device regulates on **SET2**, otherwise regulates on **SET1**;
- *run*: The regulation is enabled only with digital input active,
- *tunE*: Enables/disables the Tuning if par. 73 *tun.l* is selected as *Manu*;
- *Run.PA.i*: If par. 48 *Run.PA.l* is selected as *EnAb.* or *En.Sto.*, with impulse command on digital input, the device switches the related regulation loop, from automatic to manual and vice versa.
- *Run.PA.c*: If par. 48 *Run.PA.l* is selected as *EnAb.* or *En.Sto.* the device switches to manual the related regulation loop, with digital input active, otherwise the regulation is automatic.
- *Act.ty*: the device execute a cooling type regulation with digital input active, otherwise the regulation is of heating type;
- *ResE5*: Allows the reset of the output if manual reset is active for the alarms and for the command outputs.

7.6 Automatic / Manual regulation for % output control

This function allows to switch from automatic functioning to manual command of the output percentage.

With par. 48 *MAN.L* (for regulation loop 1) it is possible to select two modes.

1 **First selection** (*ENAB*) allows to enable with **FNC** the writing *P---* on display 1, while on display 2 is showed *Auto*.

Press **SET** to visualize *MAN*; it's now possible, during the process visualization, modify through the keys **A** and **Y** the output percentage. To back to automatic, with the same procedure, select *Auto* on display 2: immediately led **MAN** switches off and functioning backs to automatic.

2 **Second selection** (*ENSto*) enables the same functioning but with two important variants:

- If there is a temporary power failure or after switch-off, the manual functioning as well as the previous output percentage value will be maintained at restarting.
- If the sensor breaks during automatic functioning, the controller switches to manual mode while maintaining the output percentage command unchanged as generated by the PID immediately before breakage.

Ex: on an extruder the command in percentage of the resistance (load) is maintained also in case of input sensor failure.

7.7 LATCH ON Function

For use with input *Pot.* 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 *LL.L*) to the minimum position of the sensor and value of the scale end (par. 5 *UL.L*) to the maximum position of the sensor (par. 10 *Ltcl* configured as *Stndr*).

It is also possible to fix the point in which the controller will display 0 (however keeping the scale range between *LL.L* and *UL.L*) using the "virtual zero" option by selecting *u0Sto* on par. 10 *Ltcl*. Selecting *u0Sto*, the virtual zero must be reset at each switching on; selecting *u0Sto*, the virtual zero will remain fixed once calibrated. To use the LATCH ON function, configure the par. *Ltcl*¹

Then refer to the following table for the calibration procedure:

	Press	Display	Do
1	FNC	Exit parameters configuration. Display 2 visualizes writing <i>Ltcl</i> .	Place the sensor on minimum operating value (corresponding to <i>LL.L</i>)
2	✓	Store value on minimum. Display shows <i>LoU</i> .	Place sensor on maximum operating value (corresponding to <i>UL.L</i>).
3	▲	Store value on max. Display shows <i>HiU</i> .	To exit standard proceeding press SET . For "virtual zero" setting, place the sensor to zero point.
4	FNC	Set virtual zero. Display shows <i>Zero</i> . If "Virtual zero at start" is selected, point 4 must be repeated at each starting.	To exit procedure press SET .



¹ The tuning procedure starts by exiting the configuration after changing the parameter.

7.8 Soft-Start Function

The device is provided with two types of softstart selectable on parameter 264 *SS.Tp* ("Softstart Type").

- 1 First selection (*GrAd*) enables gradient softstart. At starting the controller reaches setpoint basing on the rising gradient set on parameter 266 *SS.Gr* ("Softstart Gradient") in Unit/hour (ex. °C/h). If parameter 269 *SS.Ti* ("Softstart Time") is different to 0, at starting when the time selected on par. 269 is elapsed, the controller stops to follow the gradient and reaches setpoint with the maximum power.
- 2 Second selection (*PErc*) enables output percentage softstart. On par. 268 *SS.Th* it is possible to set the threshold under which starts the softstart ("Softstart Threshold"). On par. 267 *SS.PE* ("Softstart Percentage") an output percentage is selectable (from 0 to 100), which controller keeps until the process exceeds the threshold set on par. 268 or until the time in minutes set on par. 269 *SS.Ti* ("Softstart Time" word 2084).

If the Soft-Start function is active the automatic/manual Tuning function cannot be activated.

8 Reading and configuration through NFC



Programmable
via RFID /NFC.
No wiring required!



Scan the Qr-Code
to download the App
on Google Play Store®

The controller ATR224 and DRR224 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 antenna is placed on the frontal panel: between **↕** and **FNC** keys for the ATR224 and between **↕** **↕** keys for the DRR224.
- 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 devices 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.

8.1 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.

8.2 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 SIP**. Press **SET** 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.

8.3 Configuration loading from memory card



In order to charge 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 SIP**. By pressing **▲** you see **NENo LoRd** and with **SET** you confirm the uploading of parameters from the memory card to the controller. If, on the other hand, you press directly **SET** when viewing **NENo SIP**, the product starts without uploading any data from the memory card.

9 Loading default values

This procedure allows to restore factory settings of the device.

	Press	Display	Do
1	FNC for 3 sec	Display 1 shows PASS , while display 2 shows 0000 with the 1st digit flashing.	
2	▲ or ▼	Modify the flashing digit and move to the next one pressing SET .	Enter password 9999 .
3	FNC to confirm	The device loads default settings and restarts.	

10 Access configuration

	Press	Display	Do
1	FNC for 3 sec.	Display 1 shows <i>PRESS.</i> , while display 2 shows 0000 with the 1st digit flashing.	
2	▲ ▼	Modify flashing digit and move to next digit with SET .	Enter password 234.
3	FNC to confirm	Display 1 shows the first parameters group, display 2 shows the description.	
4	▲ or ▼	Scroll parameters groups.	
5	SET to confirm	Display 1 shows the first parameter of the group and display 2 shows its value.	Press FNC to exit configuration.
6	▲ or ▼	Scroll parameters.	
7	SET to confirm	Allows parameter modification (display 2 flashes)	
8	▲ or ▼	Increases or decreases visualized value ▲▼	Introduce new data
9	SET	Confirms and stores the new value. If the value is different from default values, the arrow keys light on.	
10	FNC	Backs to parameter groups selection (see point 3).	Press again FNC to exit configuration

10.1 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 **SET** it is possible to visualize a brief description of the selected parameter.

Finally, keeping pressed **FNC**, it is possible to move from the mnemonic visualization of the parameter to the numeric one, and vice versa. Ex. The first parameter can be displayed as *SEN.I* (mnemonic visualization) or as *P001* (numeric visualization).

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.

11 Table of configuration parameters

GROUP A - $P_{in,1}$ - Analogue input 1

1 $SE_{n,1}$ Sensor AI1

Analogue input configuration / sensor AI1 selection

$tc, 1$	Tc-K	-260° C..1360° C. (Default)
$tc, 5$	Tc-S	-40° C..1760° C
tc, P	Tc-R	-40° C..1760° C
tc, J	Tc-J	-200° C..1200° C
tc, t	Tc-T	-260° C..400° C
tc, E	Tc-E	-260° C..980° C
tc, N	Tc-N	-260° C..1280° C
tc, b	Tc-B	100° C..1820° C
$Pt100$	Pt100	-200° C..600° C
$Ni100$	Ni100	-60° C..180° C
$Ntc 1$	NTC 10K β 3435K	-40° C..125° C
Ptc	PTC 1K	-50° C..150° C
$Pt500$	Pt500	-200° C..600° C
$Pt1k$	Pt1000	-200° C..600° C
$0-1$	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 the value on parameter 6)	
$Ni120$	Ni120	-60 °C..240 °C
$Ntc 2$	NTC 10K β 3694K	-40 °C..150 °C
$Ntc 3$	NTC 2252 β 3976K	-40 °C..150 °C

2 $dP, 1$ Decimal Point 1

Select number of displayed decimal points for AI1

0	Default
0.0	1 decimal
0.00	2 decimals
0.000	3 decimals

3 $dEG_{n,1}$ Degree

$^{\circ}C$	Celsius (Default)
$^{\circ}F$	Fahrenheit
K	Kelvin

4 $LL, 1, 1$ Lower Linear Input AI1

AI1 lower limit only for linear signals. Ex.: with input 4..20 mA this parameter takes value associated to 4 mA. The value may be greater than the one entered on the next parameter.
-9999..+30000 [digit¹⁶⁻³²] Default: 0.

5 $UL, 1, 1$ Upper Linear Input AI1

AI1 upper limit only for linear signals Ex: with input 4..20 mA this parameter takes value associated to 20 mA. The value may be lower than the one entered on the previous parameter.
-9999..+30000 [digit¹⁶⁻³²] Default:1000

6 $P_{uR,1}$ Potentiometer Value AI1

Selects the value of the potentiometer connected on AI1
1..150 kohm. Default: 10kohm

7 **Linear Input over Limits AI1**

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

dSRb. Disabled (**Default**)

ENRb. Enabled

8 **Offset Calibration AI1**

AI1 Offset calibration. Value added/subtracted to the process value (ex: usually correcting the ambient temperature value).

-9999..+9999 [digit²⁻³²] (degrees.tenths for temperature sensors). **Default** 0.

9 **Gain Calibration AI1**

Value multiplied to the process value to calibrate the working point. Ex: to correct the range from 0..1000°C showing 0..1010°C, set the parameter to -1.0

-100.0%...+100.0%, **Default**: 0.0.

10 **Latch-On AI1**

Automatic setting of limits for AI1 linear input

dSRb. Disabled (**Default**)

SEHRd. Standard

V.O.Sto. Virtual Zero Stored

V.O.toH. Virtual Zero at start

11 **Conversion Filter AI1**

ADC Filter: Number of sensor readings to calculate mean that defines process value. **NB**: When readings increase, control loop speed slows down. 1...15. (**Default**: 10)

12 **Conversion Frequency AI1**

Sampling frequency of digital / analogue converter for AI1. Increasing the conversion speed will slow down reading stability

(example: for fast transients, as the pressure, it is advisable to increase sampling frequency).

4.17Hz	4.17 Hz (Min. conversion speed)	33.2Hz	33.2 Hz
6.25Hz	6.25 Hz	39.0Hz	39.0 Hz
8.33Hz	8.33 Hz	50.0Hz	50.0 Hz
10.0Hz	10.0 Hz	62.0Hz	62.0 Hz
12.5Hz	12.5 Hz	123Hz	123 Hz
16.7Hz	16.7 Hz (Default) Ideal for noises filtering 50 / 60 Hz	242Hz	242 Hz
19.6Hz	19.6 Hz	470Hz	470 Hz (Max. speed conversion)

13 **Lower Current Error 1**

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

2.0 mA	(Default)	2.6 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	

14÷17 **Reserved Parameters - Group A**

Reserved parameters - Group A

GROUP C - *c* - Outputs and regulation Process 1

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

Selects the command output related to the process1 and the outputs related to the alarms.

- c. o2* Command on relay output Q2.
- c. o1* Command on relay output Q1. (Default)
- c. SSR* Command on digital output

	Command	AL. 1	AL. 2
<i>c. o2</i>	Q2	Q1	DO1
<i>c. o1</i>	Q1	Q2	DO1
<i>c. SSR</i>	DO1	Q1	Q2

37 *rES.* Reserved

Reserved parameter.

38 *Rc.t.1* Action type 1

Action type to control process 1.

- HEAt* Heating (N.A.) (Default)
- cool* Cooling (N.C.)

39 *c.H.1* Command Hysteresis 1

Hysteresis to control process 1 in ON/OFF.

-9999..+9999 [digit^{1p.3p}] (degrees.tenths for temperature sensors). **Default 0.2.**

40 *LLS.1* Lower Limit Setpoint 1

Lower limit setpoint selectable for command setpoint 1.

-9999..+30000 [digit^{1p.3p}] (degrees.tenths for temperature sensors). **Default 0.**

41 *ULS.1* Upper Limit Setpoint 1

Upper limit setpoint selectable for command setpoint 1.

-9999..+30000 [digit^{1p.3p}] (degrees for temperature sensors). **Default 1750.**

42 *c.rE.1* Command Reset 1

Type of reset for command contact 1 (always automatic in P.I.D. functioning)

- R. RES.* Automatic Reset (Default)
- M. RES.* Manual Reset (by keyboard or by digital input)
- M.RES.S.* Manual Reset Stored (keeps relay status also after an eventual power failure)
- R.RES.t.* Automatic reset with timed activation. The command remains active for the time set on the parameter 45 *c.dE.1.*, even if the conditions generating it are missing. To be able to act again, the conditions for activating the command must disappear.

43 *cSE.1* Command State Error 1

State of contact for command 1 output in case of error.

If the command output 1 (Par. 35 *c.o.u.1*) is relay or valve:

- oPEH* Contact or valve open. **Default**
- cLoSE* Contact or valve closed.

If the command output 1 is digital output (SSR):

- oFF* Digital output OFF. **Default**
- oH* Digital output ON.

44 *cLd.1* Command Led 1

Defines led C1 state corresponding to the relevant output.

- o.c.* ON with open contact or SSR switched off.
- c.c.* ON with closed contact or SSR switched on. (Default)

45 *c.dE.1* Command Delay 1

Command 1 delay (only in ON / OFF functioning).

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

Negative: delay when turning off output.

Positive: delay when turning on output.

46 *c.S.P.1* Command Setpoint Protection 1

Allows or not to modify command setpoint 1 value

FREE Modification allowed (**Default**)

Lock Protected

FP.in. Free Initialized. At start, setpoint 1 of command 1 is initialized to the value set on parameter 51 *i.SP.1* (Initial Value Setpoint 1).

48 *A.M.R.1* Automatic / Manual 1

Enables the automatic/manual selection for command 1

d.SRb. Disabled (**Default**)

ENRb. Enabled

EN.Sto. Enabled with memory

49 *in.1S.* Initial State

Choose the state of the controller when turning it on. This only works on the RS485 version or by enabling the Start/Stop from digital input or [S1](#) button.

StARt Start (**Default**)

StoP Stop

StoPE. Stored. State of Start/Stop prior to switching off.

51 *i.SP.1* Initial Value Setpoint 1

Determines the initial value (at start) of setpoint 1 of command 1 when *FP.in.* is selected on parameter 46 *c.S.P.1* (Command Setpoint Protection 1)

-9999..+30000 [digit¹⁻³²] (degrees for temperature sensors). **Default** 0.

52÷53 Reserved Parameters - Group C

Reserved parameters - Group C

GROUP E - rEE1 - Autotuning and PID 1

73 *tun.1* Tune 1

Selects autotuning type for command 1

dSRb. Disabled. If proportional band and integral time parameters are set to zero, the regulation is ON/OFF type.. **(Default)**

Autb. Automatic (Automatic P.I.D. parameters calculation)

MANu. Manual (launch by keyboards or by digital input)

oHcE Once (P.I.D. parameters calculation only at first start)

74 *S.d.t.1* Setpoint Deviation Tune 1

Selects deviation from command setpoint 1 as threshold used by autotuning to calculate P.I.D. parameters

0-10000 [digit^{10.30}] (degrees.tenths for temp. sensors). **Default: 30.0.**

75 *P.b. 1* Proportional Band 1

Proportional band or process 1 P.I.D. regulation (Process inertia).

0 ON / OFF if *t.i.* equal to 0 **(Default)**

1...10000 [digit^{10.30}] (degrees.tenths for temp. sensors).

76 *i.t. 1* Integral Time 1

Integral time for process 1 P.I.D. regulation (process inertia duration).

0.0...2000.0 sec. (0.0 = integral disabled), **Default 0.0**

77 *d.t. 1* Derivative Time 1

Derivative time for process 1 P.I.D. regulation (Normally ¼ of integral time).

0.0...1000.0 sec. (0.0 = derivative disabled), **Default 0**

78 *d.b. 1* Dead Band 1

Dead band of process 1 P.I.D..

0...10000 [digit^{10.30}] (degrees.tenths for temp. sensors) **(Default: 0)**

79 *P.b.c.1* Proportional Band Centered 1

Defines if the proportional band 1 must be centered or not on the setpoint. In double loop functioning (heating/cooling), always disabled.

dSRb. Disabled. Band under (heating) or over (cooling)**(Default)**

ENRb. Centered band

80 *o.o.S.1* Off Over Setpoint 1

In P.I.D. enables the command output 1 switching off, when a certain threshold is exceeded (setpoint + Par.81)

dSRb. Disabled **(Default)**

ENRb. Enabled

81 *o.d.t.1* Off Deviation Threshold 1

Selects deviation from command setpoint 1, to calculate the intervention threshold of "Off Over Setpoint 1" function.

-9999...+9999 [digit^{10.30}] (degrees.tenths for temp. sensors) **(Default: 0)**

82 *c.t. 1* Cycle Time 1

Cycle time for P.I.D. regulation of process 1 (for P.I.D. on remote control switch 15 s; for PID on SSR 2s). For valve refer to parameter 47 *uR.t.1*

1-300 seconds **(Default:15 s)**

- 87** **LLP1** **Lower Limit Output Percentage 1**
Selects min. value for command output 1 percentage.
0%...100%, **Default:** 0%.
- 88** **ULP1** **Upper Limit Output Percentage 1**
Selects max. value for command output 1 percentage.
0%...100%, **Default:** 100%.
- 89** **PGT1** **Max Gap Tune 1**
Selects the max. process-setpoint gap beyond which the automatic tune recalculates PID parameters of process 1.
0-10000 [digit¹⁰⁻³³] (degrees.tenths for temp. sensors). **Default:** 2.0
- 90** **PNP1** **Minimum Proportional Band 1**
Selects the min. proportional band 1 value selectable by the automatic tune for the P.I.D. regulation of process 1.
0-10000 [digit¹⁰⁻³³] (degrees.tenths for temp. sensors). **Default:** 3.0
- 91** **PRP1** **Maximum Proportional Band 1**
Selects the max. proportional band 1 value selectable by the automatic tune for the P.I.D. regulation of process 1.
0-10000 [digit¹⁰⁻³³] (degrees.tenths for temp. sensors). **Default:** 80.0
- 92** **PII1** **Minimum Integral Time 1**
Selects the min. integral time 1 value selectable by the automatic tune for the P.I.D. regulation of process 1.
0.0...1000.0 seconds. **Default:** 30.0 s.
- 93** **OC1** **Overshoot Control Level 1**
The overshoot control function prevents this event during device switching on or when the setpoint is modified.
Setting a too low value the overshoot may not be fully absorbed, while with high values the process could reach the setpoint more slowly.
- | | | | |
|--------|------------------|--------|---------|
| Disab. | Lev. 3 | Lev. 6 | Lev. 9 |
| Lev. 1 | Lev. 4 | Lev. 7 | Lev. 10 |
| Lev. 2 | Lev. 5 (Default) | Lev. 8 | |
- 94÷97** **Reserved Parameters - Group E**
Reserved parameters - Group E

GROUP G - **RL 1** - Alarm 1

123 **RL.F.** Alarm 1 Function

Alarm 1 selection.

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

Ab.uP.R. Absolute Upper Activation. Absolute referred to the process, active over

Ab.Lo.R. Absolute Lower Activation. Absolute referred to the process, active under

bRIId Band alarm (command setpoint $\pm$ alarm setpoint)

uP.dEt. Upper Deviation alarm

Lo.dEt. Lower Deviation alarm

126 **RI.S.o.** Alarm 1 State Output

Alarm 1 output contact and intervention type.

N.o. St. (N.O. Start) Normally open, active at start (**Default**)

N.c. St. (N.C. Start) Normally closed, active at start

N.o. tH. (N.O. Threshold) Normally open, active on reaching alarm^{2 p. 33}

N.c. tH. (N.C. Threshold) Normally closed, active on reaching alarm^{2 p. 33}

N.o.tH.t. (N.O. Threshold Variation) disabled after changing control setpoint^{2 p. 33}

N.c.tH.t. (N.C. Threshold Variation) disabled after changing control setpoint^{2 p. 33}

127 **rES.** Reserved

Reserved parameter.

128 **RI.HY.** Alarm 1 Hysteresis

Alarm 1 hysteresis

-9999..+9999 [digit^{1 p. 33}] (degrees for temp. sensors). **Default** 0.5.

129 **RI.LL.** Alarm 1 Lower Limit

Lower limit selectable for the alarm 1 setpoint.

-9999..+30000 [digit^{1 p. 33}] (degrees for temp. sensors). **Default** 0.

130 **RI.uL.** Alarm 1 Upper Limit

Upper limit selectable for the alarm 1 setpoint

-9999..+30000 [digit^{1 p. 33}] (degrees for temp. sensors). **Default** 1750.

131 **RI.rE.** Alarm 1 Reset

Alarm 1 contact reset type (always automatic if **RL.I.F.** = c. **RI.u.**).

R. PES. Automatic reset (**Default**)

M. PES. Manual reset (manual reset by keyboard or by digital input)

M.PES.S. Stored manual reset (keeps the output status also after a power failure)

R. PES.t. Automatic reset with timed activation. The alarm remains active for the time set on the parameter 134 **RI.dE.**, even if the conditions generating it are missing. To be able to act again, the alarm conditions must disappear.

132 **RI.SE.** Alarm 1 State Error

Alarm 1 output status in case of error.

oPEH Open contact. **Default**

cLoSE Closed contact.

133 **RI.Ld.** Alarm 1 Led

Defines the status of the led **A1** in correspondence of the relevant output

o.c. ON with open contact or DO switched off.

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

134 *R.LdE.* Alarm 1 Delay

Alarm 1 Delay.

-60:00..60:00 mm:ss (hh:mm if *R.L.F.* = *c.* *R.U.*). **Default:** 00:00.

Negative value: delay when exit alarm status.

Positive value: delay when enter alarm status.

135 *R.ISP.* Alarm 1 Setpoint Protection

Allows or not to change the alarm 1 setpoint

FPEE Editable by the user (**Default**)

Lock Protected

Hide Protected and not visualized

136 *R.Lb.* Alarm 1 Label

Selects the message displayed in case of alarm 1 intervention.

d.SRb. Disabled. (**Default**) 0.

Lb. 01 Message 1 (see table on paragraph 14.1)

..

Lb. 16 Message 16 (see table on paragraph 14.1)

uSEP.L. Custom message (modifiable by the user through the App or via modbus)

137÷140 Reserved Parameters - Group G

Reserved parameters - Group G

GROUP H - *R.L. 2* - Alarm 2

141 *R.L2F.* Alarm 2 Function

Alarm 2 selection.

d.SRb. Disabled (**Default**)

Rb.uP.R. Absolute Upper Activation. Absolute referred to the process, active over

Rb.Lo.R. Absolute Lower Activation. Absolute referred to the process, active under

bRId Band alarm (command setpoint $\pm$ alarm setpoint)

uP.dEi. Upper Deviation alarm

Lo.dEi. Lower Deviation alarm

144 *R2S.o.* Alarm 2 State Output

Alarm 2 output contact and intervention type.

H.o. St. (N.O. Start) Normally open, active at start (**Default**)

H.c. St. (N.C. Start) Normally closed, active at start

H.o. tH. (N.O. Threshold) Normally open, active on reaching alarm^{2p.33}

H.c. tH. (N.C. Threshold) Normally closed, active on reaching alarm^{2p.33}

H.o.tH.t. (N.O. Threshold Variation) disabled after changing control setpoint^{2p.33}

H.c.tH.t. (N.C. Threshold Variation) disabled after changing control setpoint^{2p.33}

145 *rES.* Reserved

Reserved parameter.

146 *R2HY.* Alarm 2 Hysteresis

Alarm 2 hysteresis

-9999..+9999 [digit^{2p.33}] (degrees for temp. sensors). **Default** 0.5.

147 *R2LL.* Alarm 2 Lower Limit

Lower limit selectable for the alarm 2 setpoint.

-9999..+30000 [digit^{2p.33}] (degrees for temp. sensors). **Default** 0.

148 *R2uL* Alarm 2 Upper Limit

Upper limit selectable for the alarm 2 setpoint
-9999..+30000 [digit^(+/-)] (degrees for temp. sensors). **Default** 1750.

149 *R2rE* Alarm 2 Reset

Alarm 2 contact reset type (always automatic if *RL2.F.* = c. *Ru:*).

R.PES. Automatic reset (**Default**)

M.PES. Manual reset (manual reset by keyboard or by digital input)

M.PES.S. Stored manual reset (keeps the output status also after a power failure)

R.PES.t. Automatic reset with timed activation. The alarm remains active for the time set on the parameter 152 *R2.dE.*, even if the conditions generating it are missing. To be able to act again, the alarm conditions must disappear.

150 *R2SE* Alarm 2 State Error

Alarm 2 output status in case of error

If the alarm output is relay

oPEH Contact or open valve. **Default**

cLoSE Contact or closed valve.

If the alarm output is digital (SSR):

oFF Digital output OFF. **Default**

oH Digital output ON.

151 *R2Ld* Alarm 2 Led

Defines the status of the led **A2** in correspondence of the relevant output.

o.c. ON with open contact or DO switched off.

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

152 *R2.dE.* Alarm 2 Delay

Alarm 2 Delay. -60:00..60:00 mm:ss (hh:mm if *RL2.F.* = c. *Ru:*). **Default**: 00:00.

Negative value: delay when exit alarm status.

Positive value: delay when enter alarm status

153 *R2SP* Alarm 2 Setpoint Protection

Allows or not to change the alarm 2 setpoint

FPEE Editable by the user (**Default**)

LoCl Protected

Hi.dE Protected and not visualized

154 *R2Lb* Alarm 2 Label

Selects the message displayed in case of alarm 2 intervention.

d.SRb. Disabled. (**Default**) 0.

Lb. 01 Message 1 (see table on paragraph 14.1)

..

Lb. 20 Message 20 (see table on paragraph 14.1)

uSEP.L. Custom message (modifiable by the user through the App or via modbus)

155÷158 Reserved Parameters - Group H

Reserved parameters - Group H

GROUP M - d.i. 1 - Digital input 1

231 d.i.F. Digital Input 1 Function

Digital input 1 functioning.

d.SRb. Disabled (**Default**)

2t. SW. 2 Setpoints Switch

Run Run

tUNE Performing manual tune

Auto.M.I. Automatic / Manual Impulse (if enabled on parameter 48 or 67)

Auto.M.C. Automatic / Manual Contact (if enabled on parameter 48 or 67)

Act.tY. Action Type. Cooling regulat. if D.I. is active, otherwise heating reg.

M. RES. Manual reset. Reset the outputs if selected as manual reset.

232 d.i.C. Digital Input 1 Contact

Defines the resting contact of the digital input 1.

N.oPE# Normally open (**Default**)

N.cLoS. Normally closed

235÷238 Reserved Parameters - Group M

Reserved parameters - Group M

GROUP Q - SFE5 - Soft-start and mini cycle

264 SFEY. Soft-Start Type

Enables and selects the soft-start type

d.SRb. Disabled (**Default**)

GPRd. Gradient

PERc. Percentage (only with pre-programmed cycle disabled)

266 SSGr. Soft-Start Gradient

Rising/falling gradient for soft-start and pre-programmed cycle.

0..20000 Digit/hour^{°.10} (degrees.tenths/hour if temperature). (**Default**: 100.0)

267 SSPE. Soft-Start Percentage

Output percentage during soft-start function.

0..100%. (**Default**: 50%)

268 SStH. Soft-Start Threshold

Threshold under which the soft-start percentage function is activated, at starting.

-9999...30000 [digit^{°.10}] (degrees.tenths for temp. sensors) (**Default**: 1000)

269 SStT. Soft-Start Time

Max. Softstart duration: if the process will not reach the threshold selected on par. SStH. within the selected time, the controller starts to regulate on setpoint.

00:00 Disabled

00:01-24:00 hh:mm (**Default**: 00:15)

GROUP R - d,SP. - Display and interface

277 uFLt Visualization Filter

d,SRb.	Disabled
Pt,CHF	Pitchfork filter (Default)
F,OPd.	First Order
F,OP.P.	First Order with Pitchfork
2,SR.M.	2 Samples Mean
....	...n Samples Mean
10,SR.M.	10 Samples Mean

278 u,d,2 Visualization Display 2

Selects visualization on display 2.

c,1,SP.	Command 1 setpoint (Default)
ou,PE.1	Percentage of command output 1

279 tNo.d. Timeout Display

Determines the display timeout

d,SRb.	Disabled. Display always ON	5 M.	5 minutes
	(Default)	10 M.	10 minutes
15 S	15 seconds	30 M.	30 minutes
1 H.	1 minute	1 H	1 hour

280 tNo.S. Timeout Selection

Selects which display is switched off when Display Timeout expires

d,SP.1	Display 1
d,SP.2	Display 2 (Default)
d,SP.1.2	Display 1 and 2
d,1.2.Ld.	Display 1, 2 and led

282 u,out Voltage Output

Selects the voltage on the sensors power terminals and of the digital outputs (SSR).

12 V	12 volt (Default)
24 V	24 volt

283 ScL.t. Scrolling Time

Select the duration for the visualization of the user menu data, before returning to the default page.

3 S	3 seconds	1 M.	1 minutes
5 S	5 seconds (Default)	5 M.	5 minutes
10 S	10 seconds	10 M.	10 minutes
30 S	30 seconds	MAN.Sc.	Manual scroll

284 d,SPF. Display Special Functions

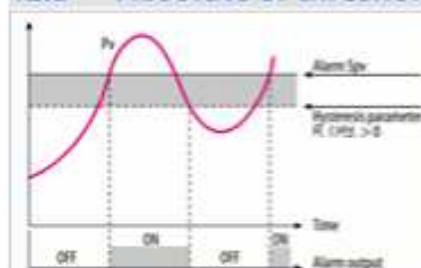
d,SRb.	Special functions disabled
SWAP	Shows the setpoint on display 1 and the process on display 2 (only if Par. 278 u,d,2 set on c,1,SP.)

285 nFeL NFC Lock

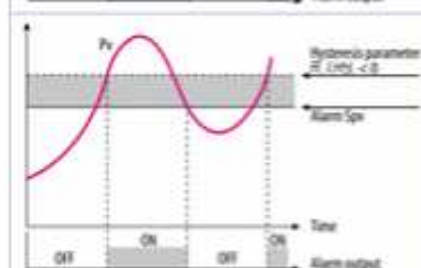
d,SRb.	NFC lock disabled: NFC accessible.
ENRb.	NFC lock enabled: NFC not accessible.

12 Alarm Intervention Modes

12.a Absolute or threshold alarm active over (par. 123 $R_L IF = Rb.uPR$)

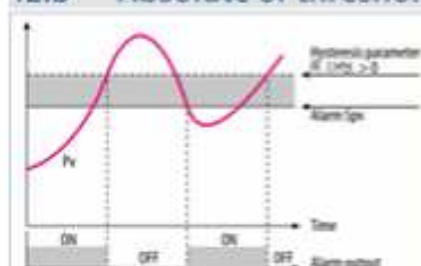


Absolute alarm active over.
Hysteresis value greater than "0" (Par. 128 $R.L.HY > 0$).

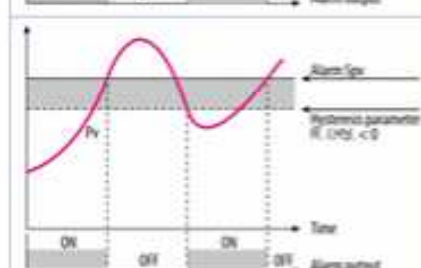


Absolute alarm active over.
Hysteresis value lower than "0" (Par. 128 $R.L.HY < 0$).

12.b Absolute or threshold alarm active below (par. 123 $R_L IF = Rb.uPR$)



Absolute alarm active below.
Hysteresis value greater than "0" (Par. 128 $R.L.HY > 0$).



Absolute alarm active below.
Hysteresis value lower than "0" (Par. 128 $R.L.HY < 0$).

12.c Absolute or threshold alarm referred to command setpoint active over (par. 123 $R_L IF = Rb.c.uR$)



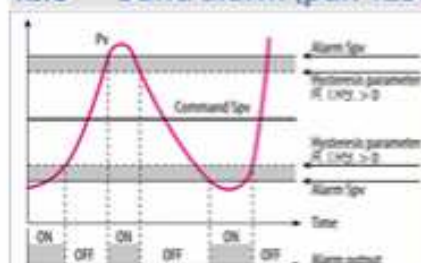
Absolute alarm referred to command setpoint active over. Hysteresis value greater than "0" (Par. 128 $R.L.HY > 0$).

12.d Absolute or threshold alarm referred to command setpoint active below (par. 123 $R_L IF = Rb.c.LR$)

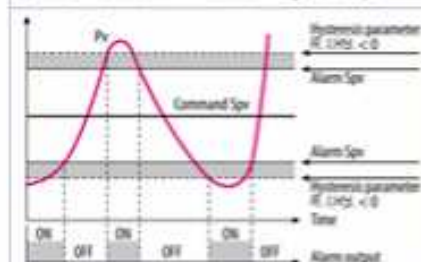


Absolute alarm referred to command setpoint active below.
Hysteresis value greater than "0" (Par. 128 $R.L.HY > 0$).

12.e Band alarm (par. 123 $R_{LF} = bR_{nd}$)

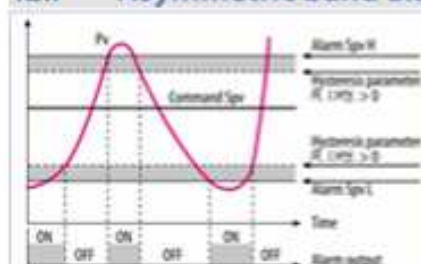


Band alarm hysteresis value greater than "0" (Par. 128 $R_{LHF} > 0$).

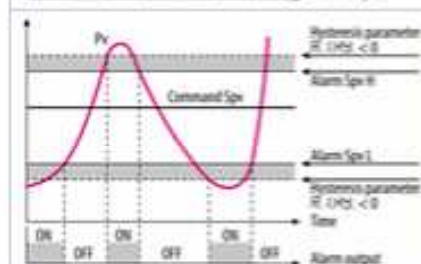


Band alarm hysteresis value lower than "0" (Par. 128 $R_{LHF} < 0$).

12.f Asymmetric band alarm (par. 123 $R_{LF} = R_{bR_{nd}}$)

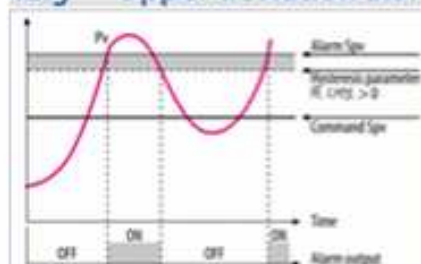


Asymmetric band alarm with hysteresis value greater than "0" (Par. 128 $R_{LHF} > 0$).



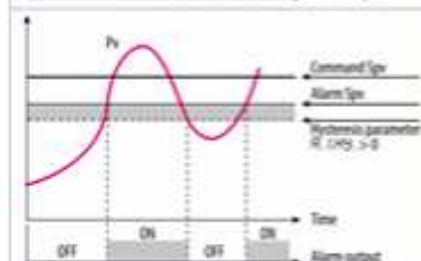
Asymmetric band alarm with hysteresis value lower than "0" (Par. 128 $R_{LHF} < 0$).

12.g Upper deviation alarm (par. 123 $R_{LF} = uP.dE_u$)



Upper deviation alarm value of alarm setpoint greater than "0" and hysteresis value greater than "0" (Par.128 $R_{LHF} > 0$).

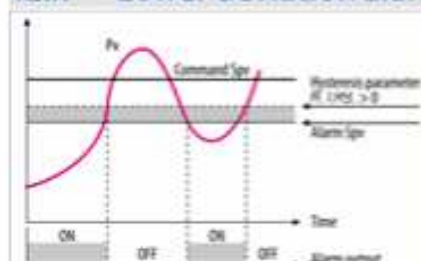
NB: with hysteresis value less than "0" ($R_{LHF} < 0$) the dotted line moves under the alarm setpoint.



Upper deviation alarm value of alarm setpoint less than "0" and hysteresis value greater than "0" (Par.128 $R_{LHF} > 0$).

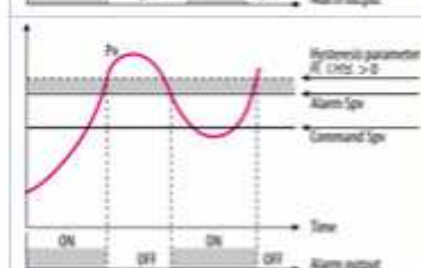
NB: with hysteresis value less than "0" ($R_{LHF} < 0$) the dotted line moves under the alarm setpoint.

12.h Lower deviation alarm (par. 123 $R_{LIF} = Lo.dEu$)



Lower deviation alarm value of alarm setpoint greater than "0" and hysteresis value greater than "0" (Par.128 $R_{LH} > 0$).

NB: with hysteresis value less than "0" ($R_{LH} < 0$) 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.128 $R_{LH} > 0$).

NB: with hysteresis value less than "0" ($R_{LH} < 0$) the dotted line moves under the alarm setpoint.

12.1 Alarms label

By setting a value from 1 to 20 on the parameters 136 $R_{1.Lb.}$ and 154 $R_{2.Lb.}$, the display 2 will show one of the following messages in case of alarm:

Selection	Message displayed in the alarm event
1 ... 2	alarm 1 ... 2
7	open door
8	closed door
9	light on
10	light off
11	warning
12	waiting
13	high limit

Selection	Message displayed in the alarm event
14	low limit
15	external alarm
16	temperature alarm
17	pressure alarm
18	fan command
19	cooling
20	operating

By setting 0, no message will be displayed. While setting 21, the user will have up to 23 characters available to customize his message via the "MyPyxsys" App or via modbus.

13 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
E-02 SYSTEM Error	Cold junction temperature sensor failure or environment temperature out of range	Call assistance
E-04 EEPROM Error	Incorrect configuration data. Possible loss of instrument calibration	Verify that configuration parameters are correct.
E-05 Probe 1 Error	Sensor connected to AI1 broken or temperature out of range	Control connection with probes and their integrity.
E-08 SYSTEM Error	Missing calibration	Call assistance
E-80 rFid Error	Tag rfid malfunctioning	Call assistance

Notes / Updates

- 1 *Display of decimal point depends on setting of parameter $SEn.l$ and $d.P.l$*
- 2 *On activation, the output is inhibited if the controller is in alarm mode. Activates only if alarm condition reappears, after that it was restored.*
- 3 *Changing the control setpoint, the alarm will be disabled. It will stay disabled as long as the parameters that created it are active. It only works with deviation alarms, band alarms and absolute alarms (referring to the control setpoint).*

Table of configuration parameters

GROUP A - *R.in.1* - Analogue input 1

1	<i>SEn.1</i>	Sensor AI1	19
2	<i>dP.1</i>	Decimal Point 1	19
3	<i>dEGr.</i>	Degree	19
4	<i>LLi.1</i>	Lower Linear Input AI1	19
5	<i>ULi.1</i>	Upper Linear Input AI1	19
6	<i>PuR.1</i>	Potentiometer Value AI1	19
7	<i>LoL.1</i>	Linear Input over Limits AI1	20
8	<i>o.cR.1</i>	Offset Calibration AI1	20
9	<i>G.cR.1</i>	Gain Calibration AI1	20
10	<i>Ltc.1</i>	Latch-On AI1	20
11	<i>cFL.1</i>	Conversion Filter AI1	20
12	<i>cFr.1</i>	Conversion Frequency AI1	20
13	<i>LcE.1</i>	Lower Current Error 1	20
14÷17		Reserved Parameters - Group A	20

GROUP C - *cnd.1* - Outputs and regulation Process 1

35	<i>c.oU.1</i>	Command Output 1	21
37	<i>rES.</i>	Reserved	21
38	<i>Act.1</i>	Action type 1	21
39	<i>cHY.1</i>	Command Hysteresis 1	21
40	<i>LLS.1</i>	Lower Limit Setpoint 1	21
41	<i>ULS.1</i>	Upper Limit Setpoint 1	21
42	<i>c.rE.1</i>	Command Reset 1	21
43	<i>cSE.1</i>	Command State Error 1	21
44	<i>cLd.1</i>	Command Led 1	21
45	<i>c.dE.1</i>	Command Delay 1	22
46	<i>cSP.1</i>	Command Setpoint Protection 1	22
48	<i>RAA.1</i>	Automatic / Manual 1	22
49	<i>ini.S.</i>	Initial State	22
51	<i>iSP.1</i>	Initial Value Setpoint 1	22
52÷53		Reserved Parameters - Group C	22

GROUP E - *rEG.1* - Autotuning and PID 1

73	<i>tun.1</i>	Tune 1	23
74	<i>S.d.t.1</i>	Setpoint Deviation Tune 1	23
75	<i>P.b.1</i>	Proportional Band 1	23
76	<i>i.t.1</i>	Integral Time 1	23
77	<i>d.t.1</i>	Derivative Time 1	23
78	<i>d.b.1</i>	Dead Band 1	23
79	<i>P.b.c.1</i>	Proportional Band Centered 1	23
80	<i>o.o.S.1</i>	Off Over Setpoint 1	23
81	<i>o.d.t.1</i>	Off Deviation Threshold 1	23
82	<i>c.t.1</i>	Cycle Time 1	23
87	<i>LLP.1</i>	Lower Limit Output Percentage 1	24
88	<i>ULP.1</i>	Upper Limit Output Percentage 1	24
89	<i>MGt.1</i>	Max Gap Tune 1	24
90	<i>Min.P.1</i>	Minimum Proportional Band 1	24
91	<i>Max.P.1</i>	Maximum Proportional Band 1	24
92	<i>Min.i.1</i>	Minimum Integral Time 1	24
93	<i>o.c.L.1</i>	Overshoot Control Level 1	24

94÷97	Reserved Parameters - Group E	24
GROUP G - <i>RL 1</i> - Alarm 1		
123 <i>RL1F</i>	Alarm 1 Function	25
126 <i>RL1S.o</i>	Alarm 1 State Output	25
127 <i>rES</i>	Reserved	25
128 <i>RL1HY</i>	Alarm 1 Hysteresis	25
129 <i>RL1LL</i>	Alarm 1 Lower Limit	25
130 <i>RL1UL</i>	Alarm 1 Upper Limit	25
131 <i>RL1rE</i>	Alarm 1 Reset	25
132 <i>RL1S.E</i>	Alarm 1 State Error	25
133 <i>RL1Ld</i>	Alarm 1 Led	25
134 <i>RL1dE</i>	Alarm 1 Delay	26
135 <i>RL1S.P</i>	Alarm 1 Setpoint Protection	26
136 <i>RL1Lb</i>	Alarm 1 Label	26
137÷140	Reserved Parameters - Group G	26
GROUP H - <i>RL 2</i> - Alarm 2		
141 <i>RL2F</i>	Alarm 2 Function	26
144 <i>RL2S.o</i>	Alarm 2 State Output	26
145 <i>rES</i>	Reserved	26
146 <i>RL2HY</i>	Alarm 2 Hysteresis	26
147 <i>RL2LL</i>	Alarm 2 Lower Limit	26
148 <i>RL2UL</i>	Alarm 2 Upper Limit	27
149 <i>RL2rE</i>	Alarm 2 Reset	27
150 <i>RL2S.E</i>	Alarm 2 State Error	27
151 <i>RL2Ld</i>	Alarm 2 Led	27
152 <i>RL2dE</i>	Alarm 2 Delay	27
153 <i>RL2S.P</i>	Alarm 2 Setpoint Protection	27
154 <i>RL2Lb</i>	Alarm 2 Label	27
155÷158	Reserved Parameters - Group H	27
GROUP M - <i>d.i. 1</i> - Digital input 1		
231 <i>d.i.1F</i>	Digital Input 1 Function	28
232 <i>d.i.1c</i>	Digital Input 1 Contact	28
235÷238	Reserved Parameters - Group M	28
GROUP Q - <i>SS&S</i> - Soft-start and mini cycle		
264 <i>SS&S</i>	Soft-Start Type	28
266 <i>SSGr</i>	Soft-Start Gradient	28
267 <i>SSPE</i>	Soft-Start Percentage	28
268 <i>SS.tH</i>	Soft-Start Threshold	28
269 <i>SS.t.r</i>	Soft-Start Time	28
GROUP R - <i>d.SP</i> - Display and interface		
277 <i>v.FLt</i>	Visualization Filter	29
278 <i>v.i.d.2</i>	Visualization Display 2	29
279 <i>t.No.d</i>	Timeout Display	29
280 <i>t.No.S</i>	Timeout Selection	29
282 <i>v.out</i>	Voltage Output	29
283 <i>ScL.t</i>	Scrolling Time	29
284 <i>d.SP.F</i>	Display Special Functions	29
285 <i>nFcL</i>	NFC Lock	29

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.

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



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2300.10.325-RevB
Rev. firmware 2.09
211221