

# TLJ29 M

# DIGITAL ELECTRONIC CONTROLLER FOR MILK CONSERVATION REFRIGERATION UNITS



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# FOREWARD



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# INDEX

- **1** INSTRUMENT DESCRIPTION
- 1.1 GENERAL DESCRIPTION
- 1.2 FRONT PANEL DESCRIPTION
- 2 PROGRAMMING
- 2.1 PROGRAMMING OF SET POINT
- 2.2 PARAMETERS PROGRAMMING
- 2.3 PARAMETER PROTECTION USING THE PASSWORD
- 2.4 PARAMETERS PROGRAMMING LEVEL
- 2.5 ACTIVE SET POINT SELECTION
- 2.6 ON / STAND-BY FUNCTION
  - 3 INFORMATION ON INSTALLATION AND USE
  - 3.1 PERMITTED USE
  - 3.2 MECHANICAL MOUNTING
  - 3.3 ELECTRICAL CONNECTIONS
  - 3.4 ELECTRICAL WIRING DIAGRAM
  - 4 FUNCTIONS
  - 4.1 MEASURING AND VISUALIZATION
  - 4.2 OUTPUTS CONFIGURATION
  - 4.3 TEMPERATURE CONTROL
  - 4.4 CONTINUOUS CYCLE FUNCTION
  - 4.5 COMPRESSOR PROTECTION FUNCTION AND DELAY AT POWER-ON
  - 4.6 AGITATOR CONTROL
  - 4.7 MANUAL AGITATOR CYCLES
  - 4.8 ALARM FUNCTIONS
  - 4.8.1 TEMPERATURE ALARMS
  - 4.8.2 EXTERNAL ALARM
  - 4.8.3 ALARM MEMORY
  - 4.9 DIGITAL INPUT
  - 4.10 AUXILIARY OUTPUT
  - 4.11 FUNCTION OF KEYS "U" AND "DOWN/AUX"4.12 PARAMETERS CONFIGURATION BY A01
  - 5 PROGRAMMABLE PARAMETERS TABLE
  - 6 PROBLEMS, MAINTENANCE AND GUARANTEE
  - 6.1 SIGNALLING
  - 6.2 CLEANING
  - 6.3 GUARANTEE AND REPAIRS
  - 7 TECHNICAL DATA
  - 7.1 ELECTRICAL DATA
  - 7.2 MECHANICAL DATA
  - 7.3 MECHANICAL DIMENSIONS, PANEL CUT-OUT AND MOUNTING
  - 7.4 FUNCTIONAL DATA
  - 7.5 INSTRUMENT ORDERING CODE

# **1 - INSTRUMENT DESCRIPTION**

# **1.1 - GENERAL DESCRIPTION**

The model TLJ 29 M is a digital controller with microprocessor for milk conservation applications that have temperature control with ON/OFF regulation and agitator control.

The instrument has up to 3 relay outputs, one input for PTC or NTC temperature probes and a digital input.

The 3 outputs can be used for controlling the compressor or the temperature control device (OUT), the agitator (AGIT), and an auxiliary device (AUX) or an alarm (AL).

The instrument is equipped with 4 programming keys, a 4-digit display and 9 LED signals, in addition may be equipped with an internal buzzer for the acoustic alarms signaling.

Other important characteristics of the instrument are: program parameters protection using personalised password, switching on and off (stand-by) of the instrument using the front keys or the digital input, configuration of parameters via the A01 device, memorising of two sets of temperature regulations that can be switched and the possibility of power supply in the range 100 ... 240 VAC.



 ${\bf 1}$  -  ${\bf Key}~{\bf P}$  : Used for setting the Set point and for programming the function parameters

2 - Key DOWN/Aux : Used for decreasing the values to be set and for selecting the parameters. It can also be programmed via the parameter "Fbd" to carry out other functions such as activating the Aux output, starting up the continuous cycle, selecting the active set point or turning on and off (stand-by) the device (see par. 4.11).
3 - Key UP/MAN : Used for increasing the value to be set, for selecting the parameters and for activating manual cycles.

**4 - Key U**: Can be programmed via the parameter "USrb" to carry out other functions, just like the key **DOWN/AUX** (see par. 4.11).

**5 – Led OUT** : Indicates the compressor output status (or the temperature control device) on (on), off (off) or inhibited (flashing)

6 - Led AGIT : Indicates the Agitator status

7 - Led MAN : Indicates the manual cycle in progress

8 - Led AUX : Indicates AUX output status

**9** - Led AL : Indicates the alarm status (on), off (off) and silenced or memorized (flashing)

**10 - Led SET** : Indicates the input in programming mode and the programming level of the parameters. It also serves to indicate the Stand-by status.

**11 - Led -** : Indicates that a low temperature alarm is in progress (on) or that a low temperature alarm has been memorised (flashing).

12 - Led OK : Indicates that no alarms are in progress

**13** - Led + : Indicates that a high temperature alarm is in progress (lit) or that a high temperature alarm has been memorised (flashing).

# 2 - PROGRAMMING

#### 2.1 - PROGRAMMING OF THE SET POINT

Press the key **P** then release it and the display will show **SP 1** (or **SP 2** if the second set is active at that time) alternating with the set value (see selection of the active set point).

To change it press the **UP** key to increase the value or **DOWN** to decrease it.

These keys increase or decrease the value one digit at a time, but if the buttons are pressed for more than one second the value increase or decreases rapidly, and after two seconds pressed, the speed increases even more to all the desired valued to be reached rapidly.

Exiting the Set mode is achieved by pressing the P key or automatically if no key is pressed for 15 seconds. After that time the display returns to the normal function mode.

#### 2.2 - PARAMETERS PROGRAMMING

To access the instrument's function parameters, press the key **P** and keep it pressed for about 5 seconds, after which the LED SET will light up, the display will visualised the code that identifies the first group of parameters (" $^{1}$ SP ") and the group of parameters that are to be edited are selected by pressing the UP and DOWN keys. Once the group of parameters has been selected, press the **P** and the code that identifies the first parameter in the selected group will be visualised.

Again using the **UP** and **DOWN** keys, the desired parameter can be selected and pressing the **P** key, the display will alternately show the parameter code and its setting that can be changed with the **UP** and **DOWN** keys.

Once the desired value has been set, press the key  ${\bf P}$  again: the new value will be memorised and the display will show only the abbreviation of the selected parameter.

Pressing the **UP** and **DOWN** keys, it is possible to select another parameter (if present) and change it as described.

To return to select another group of parameters, keep the **UP** or the **DOWN** key pressed for about 1 second, after which the display will return to showing the code of the parameter group.

Release the pressed key and using the **UP** and **DOWN** keys it will be possible to select another group (if present).

To exit the programming mode, do not press any key for about 20 seconds, or keep the **UP** or **DOWN** key pressed until it exits the programming mode.

PARAMETER GROUPS PARAMETERS SET PARAMETER Hold for Previous Previous ncrease Group Parameter Value P Ρ Π Hold for İ -**▲**: Hold for Hold Longer Next Group Next Decrease 2 sec. Parameter  $\forall$ Value EXIT

#### 2.3 - PARAMETER PROTECTION USING THE PASSWORD

The instrument has a parameter protection function using a password that can be personalised, through the **"PASS**" parameter in the **"PAn**" set.

If one wishes to have this protection, set the password number desired in the parameter **"PASS"**.

When the protection is working, press the **P** key to access the parameters and keep it press for about 5 seconds, after which the LED SET will flash and the display will show "0".

At this point, using the **UP** and **DOWN** keys, set the password number programmed and press the key **P**.

If the password is correct, the display will visualise the code that identifies the first group of parameters("**ISP** ") and it will be possible to program the instrument in the same ways described in the previous section.

Protection using a password can be disabled by setting the parameter "**PASS**" = OFF.

# 2.4 - PARAMETERS PROGRAMMING LEVELS

The instrument has two parameter programming levels.

The first level ("visible" parameters) is accessed according to the procedure described above (with or without password request) while the second level ("hidden" parameters) can be accessed according to the following procedure.

Remove the power supply to the instrument, press the key **P** and return power to the instrument, keeping the key pressed.

After about 5 sec. the LED SET will light up, the display will show the code that identifies the first group of parameters("**1SP** ") and it will be possible to set the parameters of the instrument using the same programming procedure described previously.

Once the parameter has been selected and the LED SET is on, it means that the parameter can be programmed even on the first level ("visible").

If the LED SET is off it means that the parameter can only be programmed on this level (i.e. "hidden").

To change the visibility of the parameter, press the key **U**: the LED SET will change status, indicating the accessibility level of the parameter (on = parameter "visible"; off = parameter "hidden").

The access procedure for "hidden" parameters allows the "**PASS**" parameter to be checked and changed, and is useful therefore if the password set has been forgotten.

#### 2.5 - ACTIVE SET POINT SELECTION

The instrument allows up to 2 different regulation Set points to be pre-set ("SP 1" and "SP 2") and then to choose which one to make active.

This function can be used if it is necessary to switch two different function temperatures (e.g. day and night or positive and negative etc).

The active set point can be selected:

- Using the parameter "SPAt"
- using the key **U** if the parameter "**USrb**" = 3.
- Using the key DOWN/AUX if the parameter "Fbd" = 3.
- Using the digital input if the parameter. "diF" = 8

(see par. 4.9 e 4.11)

The Set points "SP1" and "SP2" can be set with a value between the programmed value in parameter. "SPLL" and the programmed value in parameter "SPHL".

**Nota:** in the examples that follow, the Set point is generally indicated as "SP", how when operating the instrument will work according to the Set point selected as active.

#### 2.6 - ON / STAND-BY FUNCTION

The instrument, once powered up, can assume 2 different conditions:

- ON : means that the controller uses the control functions.

- STAND-BY : means that the controller does not use any control function and the display is turned off except for the green SET led. If there is no power, and then power returns, the system always sets itself in the condition it was in before the black-out.

The ON/Stand-by function can be selected:

- Using the key **U** if the parameter "USrb" = 4.

- Using the key **DOWN/AUX** if the parameter "Fbd" = 4.
- using the digital input if the parameter "diF" = 10

(see par. 4.9 e 4.11)

#### **3 - INFORMATION ON INSTALLATION AND USE**

# 3.1 - PERMITTED USE



The instrument has been projected and manufactured as a measuring and control device to be used according to EN61010-1 for the altitudes operation until 2000 ms.

The use of the instrument for applications not expressly permitted by the above mentioned rule must adopt all the necessary protective measures.

The instrument CANNOT be used in dangerous environments (flammable or explosive) without adequate protection.

The installer must ensure that EMC rules are respected, also after the instrument installation, if necessary using proper filters.

Whenever a failure or a malfunction of the device may cause dangerous situations for persons, thing or animals, please remember that the plant has to be equipped with additional devices which will guarantee safety.

#### **3.2 - MECHANICAL MOUNTING**

The instrument, in case 78 x 35 mm, is designed for flush-in panel mounting.

Make a hole 71 x 29 mm and insert the instrument, fixing it with the provided special bracket.

We recommend that the gasket is mounted in order to obtain the front protection degree as declared. Avoid placing the instrument in environments with very high humidity levels or dirt that may create condensation or introduction of conductive substances into the instrument.

Ensure adequate ventilation to the instrument and avoid installation in containers that house devices which may overheat or which may cause the instrument to function at a higher temperature than the one permitted and declared.

Connect the instrument as far away as possible from sources of electromagnetic disturbances such as motors, power relays, relays, solenoid valves, etc.

#### **3.3 - ELECTRICAL CONNECTION**

Carry out the electrical wiring by connecting only one wire to each terminal, according to the following diagram, checking that the power supply is the same as that indicated on the instrument and that the load current absorption is no higher than the maximum electricity current permitted.

As the instrument is built-in equipment with permanent connection inside housing, it is not equipped with either switches or internal

devices to protect against overload of current: the installation will include an overload protection and a two-phase circuit-breaker, placed as near as possible to the instrument, and located in a position that can easily be reached by the user and marked as instrument disconnecting device which interrupts the power supply to the equipment.

It is also recommended that the supply of all the electrical circuits connected to the instrument must be protect properly, using devices (ex. fuses) proportionate to the circulating currents.

It is strongly recommended to use cables with proper insulation, according to the working voltages and temperatures.

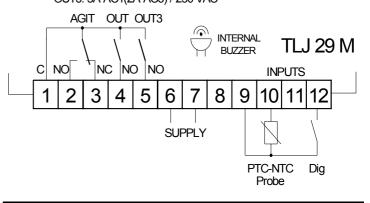
Furthermore, the input cable of the probe has to be kept separate from line voltage wiring. If the input cable of the probe is screened, it has to be connected to the ground with only one side.

Whether the instrument is 12 V version it's recommended to use an external transformer TCTR, or with equivalent features, and to use only one transformer for each instrument because there is no insulation between supply and input.

We recommend that a check should be made that the parameters are those desired and that the application functions correctly before connecting the outputs to the actuators so as to avoid malfunctioning that may cause irregularities in the plant that could cause damage to people, things or animals.

#### 3.4 - ELECTRICAL WIRING DIAGRAM

OUT: 16A-AC1(6A-AC3) / 250 VAC AGIT: 8A-AC1(3A-AC3) / 250 VAC OUT3: 5A-AC1(2A-AC3) / 250 VAC



## **4 - FUNCTIONS**

#### 4.1 - MEASURING AND VISUALIZATION

All the parameters concerning measuring are contained in the group "InP".

Via the parameter **"SEnS"** it is possible to select the type of probe that one wishes to use and which can be: thermistores PTC KTY81-121 (Ptc) or NTC 103AT-2 (ntc).

Once the type of probe used has been selected, through the parameter "**Unit**", it is possible to select the temperature unit of measurement (°C or °F) and, through the parameter "**dP**", the resolution of the desired measurement (OFF=1°; On =0,1°).

The instrument allows the measuring to be calibrated, that can be used for re-calibrating the instrument according to application needs, through the parameters **"OFS1"**.

Using the parameter "**FiL**", it is possible to set the time constant for the software filter for measuring the input values to be able to reduce the sensitivity to measurement disturbances (increasing the time).

#### **4.2 - OUTPUTS CONFIGURATION**

The instrument outputs are already configured to control the compressor, or however, the temperature control device (OUT) and for the agitator control (AGIT).

If the OUT3 is present , this output may be configured with the parameter **"Out3"** in the group **"<sup>1</sup>Out"** with the following functions:

= AuS - to control the auxiliary device (see par. 4.10)

= ALt - to control a silenceable alarm device through a contact that is normally open, and then closed when the alarm sounds

**= AL** - to control an alarm that cannot be silenced through a contact that is normally open and closed when the alarm sounds.

tact that is normally open and closed when the alarm sounds.

= -ALt - to control a silenceable alarm device through a contact that is normally closed, and then open when the alarm sounds.

= -AL - control an alarm that cannot be silenced through a contact that is normally closed and open when the alarm sounds.

= -ALL - to control an alarm with a memory function through a contact that is normally closed and open when the alarm sounds (see alarm memory).

= Out - to control the compressor, or however, the temperature control device.

= AGit - to control the agitator

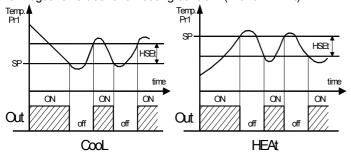
= OFF - Disabled output

#### **4.3 - TEMPERATURE CONTROL**

All the parameters concerning temperature regulation are contained in the group "'rEG".

The regulation of the instrument is ON/OFF and acts on the output configured as "Out" depending on the measuring of probe Pr1, of the active Set Point "SP" (1 or 2), the intervention differential "HSEt" and the function mode "Func" .

Depending on the function mode programmed on the parameter "Func" the differential is automatically considered by the regulator with positive values for a Refrigeration control ("Func"=CooL) or with negative values for a heating control ("Func"=HEAt).



In the event of probe error (Pr1), it is possible to set the instrument so that that the output "Out" continues to work in cycles according to the times programmed in the parameter "tonE" (activation time) and "toFE" (deactivation time).

If an error occurs on the probe Pr1 the instrument activates the output for the time "tonE", then deactivates it for the time "toFE" and so on whilst the error remains.

Programming "tonE" = OFF Ithe output in probe error condition will remain switched off.

Programming instead "tonE" to any value and "toFE" = OFF the output in probe error condition will remain switched on.

Remember that the temperature regulation function can be conditioned by the "Continuous Cycle", "Compressor Protection", "Minimum compressor function time" functions described below.

#### **4.4 - CONTINUOUS CYCLE FUNCTION**

The instrument has a continuous cycle function by which it is possible to maintain the configured output configured as "Out" always active for the time set in parameter "tCC" (in the group "IrEG") regardless of the temperature control command.

The function can be used for example, when rapid lowering of the product temperature is required after the refrigerator loading phase.

During the continuous cycle, the temperature alarms are disabled during the entire cycle and also later for the time set in parameter "dALc" (see par. 4.8).

Starting up a continuous cycle can only be done by a manual command using the U or DOWN/AUX ("UrSb" or "Fbd" = 2) keys or via the digital input ("diF"=3) if suitably programmed (see par. 4.9 and 4.11).

The continuous cycle in progress is shown on the display with the indication CC and can be stopped by a further action on the key or digital input (as for activation).

The continuous cycle function cannot be activated with "tCC" = OFF.

# = ALL - to control an alarm with a memory function through a con- 4.5 - COMPRESSOR PROTECTION FUNCTION AND DELAY AT **POWER-ON**

All the parameters concerning the compressor protection functions and the delay at power on are contained in the group "PrC".

The function "Compressor Protection" carried out by the machine aims to avoid close start ups of the compressor controlled by the instrument in cooling applications.

This function foresees a time control on the switching on of the "Out" output associated with the temperature regulation request.

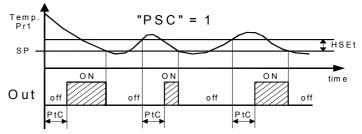
The protection consists of preventing the output being switched on during the time set in the parameter "PtC" and counted depending on what has been programmed in the parameter "PSC", and therefore that any activation occurs only after the "PtC" time has finished

If during the power on delay phase, the regulator request should disappear, due to an inhibition caused by the compressor protection function, the foreseen start up of the output is naturally cancelled.

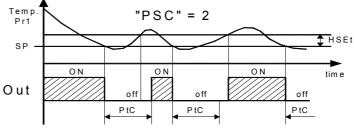
Using the parameter "PSC", it is possible to set the type of compressor protection and therefore from when the inhibition time "PtC" must start.

The parameter "PSC" can be set as:

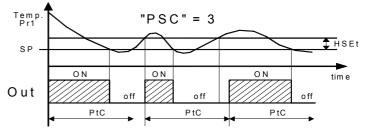
= 1 : Power on delay



= 2 : Delay after power off



= 3 : Delay between power on phases.



The function is disabled by programming "PtC" = 0. Through the parameter "LCt" it is also possible to set the minimum activation time of the output to avoid switching on of the compressor that is too short.

During the power on delay phases of the OUT output by inhibiting the function "Compressor Protection" or delay of power off caused by the minimum function time "LCt", the LED OUT flashes.

It is also possible to prevent activation of all the outputs after the instrument is turned on, for the time set in the parameter "od".

The function is disabled by "od" = OFF.

During the power on delay phase, the display shows the indication od, alternating with the normal programmed visualisation.

#### 4.6 - AGITATOR CONTROL

All the parameters concerning the agitator control are container in the group "AGi".

When the output OUT is on, the output AGIT is always active.

On the opposite, when the output OUT is off, the output AGIT is activated and dectivated cyclically according to the set times in the - temperature alarms "HI" and "LO" parameters:

"AGon" Activation time with compressor off

"AGoF" Deactivation time with compressor off.

In this way, when the Out output is deactivated, the output "AGIT" stay on for the time set in "AGon", then stay off for the time set in "AGoF", is set on for the time set in "AGon", and so on, until the output OUT is activated, according to the temperature control,

forcing the activation of the AGIT output indipendently from the parameters "AGon" and "AGoF" and simultaneously to the output OUT.

#### **4.7 - MANUAL AGITATOR CYCLES**

The manual agitator cycle may be started by pressing for 2 seconds the key UP/MAN or by the digital input, if properly programmed, only when the output OUT is off.

The manual cylcles may be executed in two ways, according to the parameter "tCC" (in the group "'rEG") that allows the continuous cycle function described above.

With "tCC" = OFF the manual cycle is simply a restart of the agitator cycle similarly to the switch off of OUT output.

The duration of the manual cycle, indicated with the on status of LED MAN, is meant as the first Agitator activation for the time "AGon".

With "tCC" programmed with a desired time, the manual cycle is realised with the forced activation of OUT output (similarly to a continous cycle) for the set time , after that time the OUT output is deactivated and the cycle restart as in the previus case. In such case the manual duration, indicated by the LED MAN, is calculated by the time "tCC"+ "AGon".

In both cases, whenever (within the manual cycle) the output OUT will be activated from the temperature controller, the manual cycle will be interrupted and the normal agitator functioning will be restored.

# **4.8 - ALARM FUNCTIONS**

All the parameters concerning the alarm functions are contained in group "IAL".

The alarm functions of the instrument work on the internal buzzer, if present, and on the output OUT3 if properly configured in the parameter "Out3".

The buzzer (if present) may be silenced manually by pressing any button on the instrument.

The possible selections of these parameters for the alarm signalling function are:

= ALt - when one wants the buzzer or output to be activated in alarm and can be disabled (alarm silencing) manually by pressing any key of the instrument (typical application for sound signal).

= AL - when one wants the buzzer or output to be activated in alarm status but cannot be disabled manually and are therefore only disabled when the alarm status ceases (typical application for a light signal).

= ALL - when one wants the buzzer or output to be activated in alarm status and that they remain activated even when the alarm has ceased (see par.4.8.3) Disablement (recognition of memorised alarm) can only be carried out manually by pressing any key when the alarm has ended (typical application for light signal).

= -ALt - when one wants the function described as ALt but with an inverse function (buzzer or output activated in normal condition and disabled in alarm status).

= -AL - when one wants the function described as AL but with inverse logic (buzzer or output activated in normal conditions and disabled in alarm status).

= -ALL - when one wants the function described as ALL but with inverse working logic (buzzer or output activated in normal conditions and disabled in alarm status).

When no alarms are present, the green LED OK is on.

Any active alarm is shown on the instrument display with the lighting up of the LED AL and the switching off of the LED OK.

Any silenced or memorised alarm status is shown by the LED AL flashing .

- Probe errors "E1", "-E1"

- External alarms "AL" **4.8.1 -TEMPERATURE ALARMS** 

The temperature alarms work according to the probe Pr1 measurements, the type of alarm set in the parameter "Aty" the alarm thresholds set in parameters "HAL" (maximum alarm) and "LAL" (minimum alarm) and the relative differential "dAL".Through the parameter "Aty" it is possible to set the alarm thresholds "HAL" and "LAL" which must be considered as absolute ("Aty"=Ab) or relative to the active Set Point ("Aty"=dE). Using some parameters it is also possible to delay the enablement and the intervention of these alarms.

These parameters are:

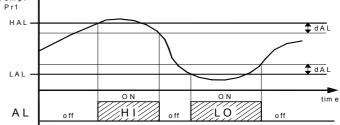
"PAL" - is the temperature alarm exclusion time on switching on the instrument if the instrument is in alarm status when it is switched on.

"dALc" - is the temperature alarm exclusion time at the end of a continuous cvcle.

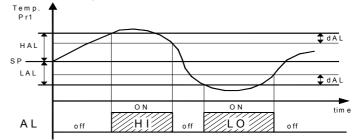
"ALd" - is the temperature alarm delay activation time

The temperature alarm is enabled at the end of exclusion time and is enabled after the "ALd" time when the temperature measured by the probe Pr1 exceeds or goes below the respective maximum and minimum alarm thresholds.

The alarm "HAL" and "LAL" if the alarms are absolute ("Aty"=Ab) Temp.



Or will be the values ["SP"+"HAL"] and ["SP"-"LAL"] if the alarms are relative ("Aty"=dE).



The maximum and minimum temperature alarms can be disabled by setting the relative parameters "HAL" and "LAL" = OFF.

At the same time as the signalling of the configured alarm (buzzer and/or output Out3), the instrument signals the alarm by turning on the LED AL, switching off the LED OK, turning on the LED - in case of minimum alarm or the LED + for maximum alarm, and visualises on the display:

- Alternately **HI** and the temperature value for maximum alarm

- Alternately **LO** and the temperature value for the minimum alarm.

# 4.8.2 - EXTERNAL ALARM

The instrument can signal an external alarm by activating the digital input with the function programmed as "diF" = 4 or 9 (see par. 4.9).

At the same time as the signalling of the configured alarm (buzzer and/or output), the instrument signals the alarm by turning on the LED AL, turning off the LED OK and visualising AL and the temperature value alternately on the display.

#### 4.8.3 -ALARM MEMORY

The instrument offers the possibility of arranging the alarm memory function via the parameter "tAL".

If "tAL" = no, the instrument cancels the alarm signal when the alarm status ends, if instead it is programmed as "vES", the LED AL flashes even when the alarm status has ended to indicate that there has been an alarm.

The alarm conditions of the instrument are:

If the memorised alarm is for temperature, it also keeps the LED - flashing to show a minimum alarm and LED + to show a maximum alarm.

To cancel the alarm memory signal, press any key.

It must be remembered that if an output function is desired (or the buzzer) with an alarm memory (=ALL or =-ALL) it is necessary to set the parameter "tAL" = yES.

# 4.9 - DIGITAL INPUT

All the parameters concerning the digital input functions are contained in the group "<sup>1</sup>din".

The digital input present on the instrument accepts contacts free of voltage, the function carried out is defined by the parameter "diF" and the action can be delayed for the time set in parameter "did".

The parameter "**diF**" can be configured for the following functions:

**= 0** - Digital input not active

= 1 - Manual agitator cycle start with contact normally open: on closing the input (and after the "did" time) a manual agitator cycle is activated.

With the input mantained closed the instrument executes anyway only one manual agitator cycle. To execute another cycle it is required to open and close again the contact.

**= 2** - Manual agitator cycle stop with contact normally open: on closing the input (and after the "**did**" time) a Manual agitator cycle is ended if in progress or is inhibited.

= 3 - continuous cycle activation command with contact normally open: on closing the input (and after the "did" time) a continuous cycle is started up as described in the paragraph on the continuous cycle function.

**= 4** - External alarm signal with contact normally open: on closing the input (and after the "did" time) the alarm is activated and the instrument visualises **AL** and the measured temperature.

**= 5** - Agitator disable with contact normally open: on closing the input (and after the "**did**" time) the agitator is stopped and the instrument visualises **AP** and the measured temperature.

**= 6** – Compresso and agitator disable with contact normally open: similar to "diF" **=** 5 but with Agitator and compressor block.

**= 7** - Remote control of auxiliary output AUX with contact normally open: on closing the input (and after the "**did**" time) the auxiliary output is activated as described in the "**FOA**" = 2 function mode of the auxiliary output.

**= 8** - Selecting the active set point with contact normally open: on closing the input (and after the "**did**" time) the temperature regulation set point "SP 2" is activated. When instead the input is open the set point "SP 1" is active (see selecting active set point)

**= 9** - Signalling of external alarm with disablement of all the control outputs with contact normally open: on closing the input (and after the "did" time) all the control outputs are disabled, the alarm is activated and the instrument visualises **AL** and the mesured temperature.

**= 10** - Switching on/switching off (Stand-by) of instrument with contact normally open: on closing the input (and after the "**"did"** time) the instrument is switched on while it is placed in Stand-by when opened.

**= -1, -2, -3** ..... **-10** - similar to the above but with function logic reversed.

#### 4.10 - AUXILIARY OUTPUT

All the parameters concerning the auxiliary output functions are contained in the group "<sup>1</sup>AuS". The auxiliary output can be configured to operate on the output OUT3 by programming the parameter of the desired output = AuS. The function carried out is defined by the parameter "FOA" and the function is conditioned by the time set in parameter "tuA". The parameter "FOA" can be configured for the following functions:

= 0 - Auxiliary output not active

**= 1** - Regulation output delayed with contact normally open: the auxiliary output is activated with delay that can be set on the parameter "**tuA**" compared to the output configured as Out. The output is then turned off at the same time as the OUT output is disabled. This function mode can be used as a command for a second compressor or for all other working utilities according to the

same OUT output conditions, but which must be delayed after the start up of the compressor to avoid excess electricity absorption.

**=** 2 - Activation by front key (**U** or **DOWN/AUX**) or by digital input with contact normally open: the output is activated by pressing the keys **U** or **DOWN/AUX** properly configured ("**USrb**" or "**Fbd**" = 1) or via activation of the digital input if suitably configured ("diF"=7). These commands have a bi-stable function, Which means that when first pressed, the output key is activated while the second is disabled. In this mode, the AUX output can be turned off automatically after a certain time that can be set on the parameter "tuA". With "tuA" = OFF the output is activated and deactivated only manually, using the front key (**U** or **DOWN/AUX**) or via the digital input. Differently, the output, once activated, is turned off automatically after the set time. This function can be used, for example, as a cell light command, for non-misting resistance or other utilities .

#### 4.11 - FUNCTIONING OF KEYS "U" AND "DOWN/AUX"

Two of the instrument keys, in addition to their normal functions, can be configured to operate other commands.

The **U** key function can be defined by the parameter "**USrb**" while the **DOWN/AUX** key function can be defined by the parameter "**Fbd**" both contained in the group "**PAn**".

Both the parameters have the same possibilities and can be configured for the following functions:

**= 0** - The key carries out no function.

**= 1** - Pressing the key for at least 1 second, it is possible to enable/disable the auxiliary output if configured ("**FOA**"=2).

**= 2** - Pressing the key for at least 1 second, it is possible to enable/disable a continuous cycle (see continuous cycle function).

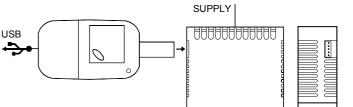
**= 3** - Pressing the key for at least 1 second, it is possible to select one of the 2 memorised set point in rotation. Once selection has been made, the display will flash the active set point code for about 1 sec. (SP 1or SP 2).

**= 4** - Pressing the key for at least 1 second, it is possible to switch the instrument from the ON status to Stand-by status and vice versa.

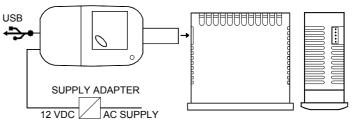
#### 4.12 - PARAMETERS CONFIGURATION BY "A01"

The instrument is equipped with a connector that allows the transfer from and toward the instrument of the functioning parameters through the device **ASCON TECNOLOGIC A01** with **5 poles** connector. This device it's mainly used for the serial programming of the instruments which need to have the same parameters configuration or to keep a copy of the programming of an instrument and allow its rapid retransmission. The same device allows the connection (with USB port) to a PC , by using this PC and the dedicated software "Tecnologic Universal config"is possible to configure the parameters. To use the device A01 is possible to power the device or just the instrument.

#### Instrument supplied and device not supplied



Instrument supplied from the device



For additional info, please have a look at the A01 instruction manual.

# 5 - PROGRAMMABLE PARAMETERS TABLE

Here below is a description of all the parameters available on the instrument. Some of them may not be present, either due to the fact they depend on the type of instrument or because they are automatically disabled as unnecessary.

Group <sup>1</sup>SP (parameters relative to Set Point)

Par.         Description         Range         Def.         Note           1         SPR1         Set Point 1         SPLL + SPHL         0.0           2         SP1         Set Point 1         SPLL + SPHL         0.0           3         SP2         Set Point 2         SPLL + SPHL         0.0           4         SPL         Maximum Set Point         SPLL + S0.0         0           5         SPHL         Maximum Set Point         SPLL + S0.0         0         0         Note           5         SPS         Probe Type         Probe - nr.         Probe         Set S         Probe Type         Probe - nr.         Probe         Set S         Probe Type         Probe - nr.         Probe         Set S         Probe Type         Set S         Probe Type         Note         Set S         Set Point 2         Set S         Set Point 2         Set S         Set Point 2	_		(parameters relative to Set Point)			Group Idin (parameters relative to dig			
2       SP1       Set Point 1       SPLL + SPHL       0.0         3       SP2       Set Point 2       SPLL + SPHL       0.0         4       SPLL       Minimum Set Point       -58 + SPHL       -50.0         5       SPHL       Maximum Set Point       SPL + 302       100.0         7       OFS1       Probe Type       Ptc - ntc       Ptc         8       Unit       Unit of measurement       *C.*F       *C.         9       dP       Decimal point       0 - 0FF       0.0         11       Heasurement filter       OF* 7       *C.         9       dP       Decimal point       0 - 30       2.0         9       eFL       Masurement filter       OF* 7       *C.         11       Hest       Differential       0 - 30       2.0         9       eFL       Matual on time output       OFF - 99.59       OFF         12       tone       Activation time output       OFF - 99.59       OFF         10       DUT for probe broken       min.sec       Par.       Description         14       Func (nuction mode output HEA1 - Cool Cool OUT       Output       0 = Notection         16       AGon Agitator Activation ti	-	-	Description			Note			Description
Image: Start Point 2         SPLL + SPHL 0.0           4         SPLL Minimum Set Point SPLL + 302, 100.0           Group InP (parameters relative to measuring inputs)           Par.         Description           0         9           0         9           0         9           0         9           0         9           0         9           0         9           0         9           0         Par.           0         FEG (parameters relative to temperature control)           Par.         Description           0         -70 (FF 20.0           11         HSEL (Differential         0 + 30           0         0.0 (C/F 90.59)           0.0 (T)         File (Differential         0 + 30           12         tore (Dacativation time outp) (OFF + 99.59)         OFF           013         tote (Dacativation time outp)         OFF + 99.59)           014         Func         Function mode output           14         Func         Function mode output           14         Func         Function mode output           14         Func         Func           13         tote (Da							30	diF	
4         SPLL         Minimum Set Point         28 + SPL1         200           5         SPHL         Maximum Set Point         SPL + 302         100.0           5         Group InP (parameters relative to measuring inputs).	2	SP1	Set Point 1		0.0				
is SPHL Maximum Set Point         SPLL + 302         100.0           Group InP (parameters relative to measuring inputs)         Bar. Description         Range         Def.         Note           Par.         Description         Range         Def.         Note           9         dP Decimal point         On OFF         On           10         FiL         Measurement         'C - 'F         'C           9         dP Decimal point         On OFF         On           10         FiL         Measurement filter         OF + 20.0         2.0           Group /HG (parameters relative to temperature control)         Sec         10 = Switch on Joswitch of outputs           11         HSEL (Differential         0 + 30         2.0           12         tore Activation time output OFF + 99.59         OFF         10 = Switch on Joswitch off (Stand-by)           13         tore Decivation time output OFF + 99.59         OFF         Immin.sec           14         Func Function mode auxiliary output 0= Note         Immis.sec         Par.           16         AGor Aplator Activation time OFF + 99.59         OFF         Immis.sec           16         AGor Aplator Activation of OFF + 99.59         OFF         Immis.sec           17         AGoF Aplator Act	3	SP2	Set Point 2	SPLL + SPHL	0.0				
3       Fart. [Instantets relative to measuring inputs)         Par.       Description       Range       Def.       Note         7       OFS1       Probe Type       Pitc - ntc. Pitc       Sens.       Fart.       Fart.       Agliator and compressor block         8       Unit       Unit of measurement       °C - °F       °C       Sens.       Fart.       Aggiator and compressor block         9       dP       Decimal point       On - OFF       On       Sens.       Command       Sens.       Sens.       Command       Sens.       Command       Sens.       Command       Sens.       Command       Sens.       Command       Sens.       Command       Sens.       Sens.       Command       Sens.       Command       Sens.       Sens.       Command       Sens.       Command       Sens.       Sens.       Command       Sens.	4	SPLL	Minimum Set Point	-58 ÷ SPHL	-50.0				
Group InP (parameters relative to measuring inputs)       4 = External alarm         Par.       Description       Range       Def.         8       Unit       Unit of measurement       °C.°F       °C         9       dP       Decimal point       On - OFF       On         10       FiL       Measurement filter       Sec       Sec         Group <sup>1</sup> FG (parameters relative to temperature control)       Sec       Sec       Set Point         9       dP       Description       Range       Def.       Note         11       HSE Differential       0 + 30       2.0       °C.°F       2.0         12       tore Activation time output OFF + 99.59       OFF       Def.       Note       31       did       Delay in acquiring digital input.         13       tore Decivation       min.sec       Far.       Description       Range       Def.       Note         16       AGen Agitator Activation time of PF + 99.59       OLO       min.sec       Par.       Description       Range       Def.       Note         17       AGeF Agitator de-activation time with compressor off       min.sec       min.sec       Par.       Description       Range       Def.       Note         19	5	SPHL	Maximum Set Point	SPLL ÷ 302	100.0				
Par.         Description         Range         Def.         Note           6         SEnS         Probe Type         Pitc         Pitc           7         OFS1         Probe Calibration         -30 + 30         0.0           8         Unit         Unit of measurement         °C - F         °C           9         dP         Decimal point         On - OFF         On           10         Fil.         Measurement filter         OFF + 20.0         2.0           9         dP         Description         Range         Def.         Note           11         HSE         Differential         0 + 30         2.0         .0         .0           12         torE         Description         Range         Def.         Note           13         toFE         Description         Range         Def.         Note           14         Func         Function mode output         OFF + 99.59         OFF	Gro	up <sup>]</sup> InP	(parameters relative to m	easuring inputs	)				
6       SEnS       Probe Vipe       Ptc - ntc       Ptc         7       OFS1       Probe Calibration       -30 + 30       -00         8       Unit       Unit of measurement       °C/°F       °C         9       dP       Decimal point       On - OFF       On         10       FiL       Measurement filter       OFF + 20.0       2.0         group <sup>1</sup> FG (parameters relative to temperature control)       with deactivation of active Set Point       Set Point         11       HSE       Differential       0 * 30       2.0         (11       HSE       Differential       0 * 30       2.0         (21       tore       Activation time output       OFF + 99.59       OFF         (21       tore       Decivation time output       OFF + 99.59       OFF         (21       tore       Decivation       OFF + 99.59       OFF         (21       for Agitator Activation time of PF + 99.59       OFF       Min.sec       Par.       Description         (21       Agitator Activation time       OFF + 99.59       OFF       Note       Note         (21       Agitator Activation time       OFF + 99.59       OFF       Note       Note         (23       T						Note			
7       OFS1       Probe Calibration       -30 + 30       0.0         8       Unit       Unit of measurement       °C * F       °C         9       dP       Decimal point       On - OFF       On         10       FiL       Measurement filter       OFF + 20.0       20         9       dP       Decimal point       On - OFF       On         10       FiL       Measurement filter       OFF + 20.0       20         9       dP       Decimal point       On - OFF       On         11       HSEt       Differential       0 + 30       2.0         12       tore       Activation time output OFF + 99.50       OFF         13       toFE       Deactivation time output OFF + 99.50       OFF         14       Func       Function mode output HEAt - Cool.       Cool.         0T       Out       Time relative to agalitato activation file opticator activation file activation file opticator activation file opticator activation file opticator activation file opticator activation file activation file activation file activation file opticatopticativ			•						
Image: Cr/F         Cr/F           8         Unit Unit of measurement         °C/F         C           9         GP         Decimal point         On - OFF         On           10         FiL         Measurement filter         Sec         C           Group IrEG (parameters relative to temperature control)         Sec         Set Point         Set Point           11         HSEt         Differential         0 + 30         2.0         Set Point           12         tonE         Activation time output OFF + 99.59         OFF         OFF         Sec           13         toFE         Deactivation time output OFF + 99.59         OFF         Sec         Par.         Description           14         Func. Function mode output OUT for probe broken         Min.sec         Par.         Description           15         tCC         Continuous cycle Time OFF + 99.59         OFF         Note         33         UA         Time relative to auxiliary output delayed           20         Configuration of output time with compressor off         min.sec         Note         33         UA         Configuration of output delayed           17         AGG         Agitator Activation time OFF + 99.59         10.00         Min.sec         Description         R									•
8       Unit       Unit of measurement       °C - °F       °C       or         9       dP       Decimal point       On - OFF       On       B         9       dP       Decimal point       On - OFF       On       B       Selection of active         9       dP       Decimal point       On - OFF       On       B       Selection of active         9       dP       Description       Range       Def.       Note       Note         11       HSEt       Differential       0 + 30       2.0       C/F       C/F         12       tonE       Activation time output OFF + 99.59       OFF       Min.sec       Par.       Description         13       toFE       Description       Range       Def.       Note         14       Func       Function mode output       HEAt - Cool       Cool       O         15       tCC       Continuous cycle Time       NFF + 99.59       OFF       Mose         16       AGon       Agitator       Activation time       CFF + 99.59       10.00       Tar output         16       AGon       Agitator       Compressor       Incention       O       Par.       Descripition         17<					0.0				•
9       dP       Decimal point       On - OFF       On         10       FiL       Measurement filter       OFF + 20.0       2.0         9       FiL       Measurement filter       OFF + 20.0       2.0         9       Par.       Description       Range       Def.       Note         11       HSEL       Differential       0 + 30       2.0       Set Point         12       torE       Activation time output OFF + 99.59       OFF       OFF       OFF         13       toFE       Description       Range       OFF       Set Point       Set Point         14       Func Function mode output HEAt - Cool.       Cool.       OUT       Outplation       Octup ALS (parameters relative to a gitator control)         Par.       Description       Range       Def.       Note         16       AGor Agitator Activation time ofFF + 99.59       10.00       Time relative to auxiliary output:         17       AGoF Agitator de-activation 0.01 + 99.59       10.00       Time relative to auxiliary output:         18       PSC       Type of compressor protection       Note off       Set Point         19       PtC       Compressor protection OFF + 99.59       OFF       Alaram not silenceable alarm AL=	8	Unit	Unit of measurement	°C - °F	°C				
10       FiL       Measurement filter       OFF + 20.0       2.0         Group <sup>1</sup> /FG (parameters relative to temperature control)       Par.       Description       Range       Def.       Note         11       HSEt       Differential       0 + 30       2.0       C/F	9			On - OFF	On				8= Selection of active
Sec         Sec           Group <sup>1</sup> FEG (parameters relative to temperature control)         Meactivation of control outputs           11         HSEt         Differential         0 + 30         2.0           12         tonE         Activation time output         OFF + 99.59         OFF           13         toFE         Deactivation time output         OFF + 99.59         OFF           14         Func         Function mode output         HEAt - Cool.         Cool.           15         tCC         Continuous cycle Time OUT         OFF + 99.59         OFF           16         AGon         Agitator Activation time         OFF + 99.59         OFF           16         AGon         Agitator Activation time         OFF + 99.59         Note           17         AGoF         Agitator Activation time OFF + 99.59         Note           18         PSC         Type of compressor off         min.sec           19         PtC         Compressor protection         OFF + 99.59         OFF           19         PtC         Compressor protection         Min.sec         OFF = No function           19         PtC         Compressor protection         Min.sec         OFF = No function           19         PtC         <	10								Set Point
Group TLC (parameters relative to deriperative control)       outputs 10 = Switch on/Switch off (Stand-by)         11       HSEt       Differential       0 + 30       2.0       off       10 = Switch on/Switch off (Stand-by)         12       tonE       Activation time output       OFF + 99.59       OFF       OFF       90.59       OFF         13       toFE       Description       min.sec       Par.       Description       StopE       Par.       Description onede auxiliary output         14       Func       Function mode output       HEAt - Cool.       Cool.       Image: Cool output       Image: Cool									
Par.DescriptionRangeDef.Note11HSEtDifferential0 + 302.0012tonEActivation time outputOFF + 99.59OFF13toFEDeactivation time out-OFF + 99.59OFF14FuncFunction mode outputHEAt - Cool.Cool.15tCCContinuous cycle TimeOFF + 99.59OFF16AGonAgitator Activation timeOFF + 99.59OFF17AGoFAgitator Activation timeOFF + 99.5910.0018PSCType ofcompressor1 - 2 - 3119PtCCompressorOFF + 99.59OFF18PSCType ofcompressor1 - 2 - 3119PtCCompressor protection:1 - 2 - 31OFF = Note19PtCCompressor protection:Time relative to alarmsOFF + 99.59OFF21odDelay at power onOFF + 99.59OFFOFF = No function21odDelay at power onOFF + 99.59OFFSilator22AtyTemperature alarmsAb - dEAb22AtyTemperature alarmsAb - dEAb23HALHigh temperature alarmsAb - dEAb24LALLow temperature alarmOFF / - 58 + OFF36USrb25dALTemperature alarmOFF / - 58 + OFF36USrb24LALLow temperature AlarmOFF / - 58 +	Gro	up <sup>1</sup> rEC	coarameters relative to te	emperature con	trol)				
11       HSEt       Differential       0 + 30       2.0         12       tonE       Activation time output OUT for probe broken       OFF + 99.59       OFF         13       toFE       Deactivation time out- put OUT for probe broken       OFF + 99.59       OFF         14       Func Function mode output OUT       HEAT - Cool       Cool       Cool         14       Func Function mode output OUT       HEAT - Cool       Cool       Par.       Description         15       tCC       Continuous cycle Time OUT       Note       Note       Note         16       AGon Agitator Activation time outh       OFF + 99.59       10.00       Note       Note         17       AGoF Agitator Activation time ower on delay)       O1+ 99.59       10.00       min.sec       Par.       Description         19       PtC       Compressor       0.1+ 99.59       10.00       Soft Configuration of output function OUT3:         19       PtC       Compressor       0.1+ 99.59       10.00       Soft Configuration of output function OUT3:         19       PtC       Compressor       0FF + 99.59       0FF       Note         19       PtC       Compressor of CFF + 99.59       0FF       Note         22       Atgremerature	-	-				Note			
C/FF         C/FF           12         tonE         Activation time output put OUT for probe broken         OFF + 99.59         OFF           13         toFE         Deactivation time out- put OUT for probe broken         OFF + 99.59         OFF           14         Func         Func function mode output OUT         OFF + 99.59         OFF           15         tCC         Continuous cycle Time OUT         OFF + 99.59         OFF           16         AGon Agitator Activation time with compressor         OFF + 99.59         OFF           17         AGoF         Agitator de-activation time with compressor         0.01 + 99.59         10.00           18         PSC         Type of compressor protection: 1 = delay attreswitch off 2 = delay between starts         1 - 2 - 3         1           19         PtC         Compressor protection time         OFF + 99.59         OFF           19         PtC         Compressor protection time         OFF + 99.59         OFF           21         od         Delay at power on time         OFF + 99.59         OFF           21         od         Delay at power on time         OFF + 99.59         OFF           22         Aty         Temperature alarms Ab - Absolute dE = Relative to Set         Ab - dE         Ab		-							
12       tonE       Activation time output OUT for probe broken       OFF + 99.59       OFF         13       toFE       Deactivation time output Deactivation mode output       HEAt - CooL       CooL         14       Func       Function mode output       HEAt - CooL       CooL         15       tCC       Continuous cycle Time       OFF + 99.59       OFF         16       Activation time output       MEAt - CooL       CooL         17       AGoF       Agitator       Activation time       OFF + 99.59       10.00         16       AGon       Agitator       Activation time       OFF + 99.59       10.00         16       AGor       Agitator       Activation time       OFF + 99.59       10.00         17       AGoF       Agitator       Activation time       OIT + 99.59       10.00         18       PSC       Type of compressor       1 - 2 - 3       1         20       LtC       Minimum compressor       OFF + 99.59       OFF         21       od       Delay at switch on       2 - 3       1         24       LAC       Compressor protection:       1 - 2 - 3       1         21       od       Delay at switch on       2 - 6       1							24	ا- ئام	
OUT for probe brokenmin.sec13toFFDeactivation time out- put OUT for probe brokenOFF + 99.59OFF14FuncFunction mode output OUTHEAt - Cool.Cool.15tCCContinuous cycle Time OUTOFF + 99.59OFF16AGon Agitator Activation timeOFF + 99.59OFF16AGon Agitator de-activation offRange Min.secDef.17AGof Agitator de-activation offOFF + 99.5910.00 min.sec17AGof Agitator de-activation time offOFF + 99.5910.00 min.sec18PSCType of compressor function time me1 - 2 - 3119PtCCompressor protection min.secOFF + 99.59OFF min.sec20LtCMinimum compressor function time meOFF + 99.59OFF min.sec21odDelay at power on timeOFF + 99.59OFF min.sec21odDelay at power on the chart strelative to alarms)OFF + 99.59OFF22AtyTemperature alarms Type: A b - Absolute dE = Relative to SetAb - dE 302 °C/°FNote23HALHigh temperature Alarm thresholdOFF / - 58 + 302 °C/°FOFF24LALLow temperature Alarm thresholdOFF / - 58 + 302 °C/°FSi25dALTemperature Alarm thresholdOFF / - 58 + 302 °C/°FSi24LALTemperature Alarm thresholdOFF / - 58 + 302 °C/°F <td>12</td> <td>tonE</td> <td>Activation time output</td> <td></td> <td>OFF</td> <td></td> <td>31</td> <td>aia</td> <td></td>	12	tonE	Activation time output		OFF		31	aia	
13       toFE       Deactivation time output put OUT for probe broken       OFF + 99.59       OFF         14       Func       Function mode output OUT       HEAt - Cool.       Cool.         15       tCC       Continuous cycle Time       OFF + 99.59       OFF hrs.min         32       FOA       Function mode output OUT       FoA       Function mode auxiliary output:         Group 'AGi (parameters relative to agitator control)       Par.       Description       Range       Def.         74       AGor       Agitator       Activation time off.       OFF + 99.59       10.00       min.sec         16       AGon       Agitator       Activation       .01 + 99.59       10.00       min.sec         17       AGor       Agitator       Activation       .01 + 99.59       10.00       min.sec         18       PSC       Type of compressor       1 - 2 - 3       1       AGit = Agitator       AGit = Agitator         20       LtC       Minimum compressor       OFF + 99.59       OFF       Note       AGit = Agitator         19       PtC       Compressor protection time       min.sec       Group 'An (parameters relative to activato of activato activato of activato activa									
14       Func Dor Not proce       Immissec         14       Func Function mode output OUT       HEAt - Cool.       Cool.         15       tCC       Continuous cycle Time       OFF + 99.59       OFF         16       AGon       Agitator Activation time       OFF + 99.59       10.00         16       AGon       Agitator Activation time       OFF + 99.59       10.00         17       AGoF       Agitator Activation       0.01 + 99.59       10.00         17       AGoF       Agitator de-activation       0.01 + 99.59       10.00         min.sec       min.sec       Description       Range       Def.       Note         17       AGoF       Agitator de-activation       0.01 + 99.59       10.00       Min.sec       Par.       Description         Group <sup>1</sup> PC       (parameters relative to compressor protection and power on delay)       1 - 2 - 3       1       Mote         18       PSC       Type of compressor protection fin.sec       Mote       AGiE - Agitator Activation time       Malt = Alarm not silenceable alarm ALE = Alarm ont silenceable alarm tale         19       PtC       Compressor protection fin.sec       Min.sec       Par.       Description         21       Delay at power on funce       OFF + 99.59 <td< td=""><td>13</td><td>toFE</td><td></td><td></td><td>OFF</td><td></td><td></td><td></td><td></td></td<>	13	toFE			OFF				
14       Function mode output OUT       HEAt - Cool.       Cool.         15       tCC       Continuous cycle Time       OFF + 99.59       OFF         droup 'AGi (parameters relative to agitator control)       Par.       Description       Range       Def.       Note         16       AGon Agitator Activation time with compressor off       OFF + 99.59       10.00       33       tuA       Time relative to auxil- iary output         17       AGoF       Agitator de-activation off       0.01 + 99.59       10.00       34       Out3       Configuration of output function OUT3:         Group 'IPC       (parameters relative to compressor off       min.sec       1- 2 - 3       1         18       PSC       Type of compressor protection:       1 - 2 - 3       1         19       PCC       Compressor protection min.sec       Note         19       PCC       Compressor protection function time       OFF + 99.59       OFF         20       LtC       Minimum compressor OFF + 99.59       OFF       Stenceino mode key         21       od       Delay at power on function time       OFF + 99.59       OFF         21       od       Delay at power on function time       Ab - dE       Ab         22       Aty       Temperature a				min.sec					
14       Function       Indext or output       Indext or output       Indext or output         15       tCC       Continuous cycle Time       OFF + 99.59       OFF         16       AGon       Agitator Activation time       OFF + 99.59       10.00         17       AGoF       Agitator Activation time       OFF + 99.59       10.00         17       AGoF       Agitator de-activation       0.01 + 99.59       10.00         17       AGoF       Agitator de-activation       0.01 + 99.59       10.00         17       AGoF       Agitator de-activation       0.01 + 99.59       10.00         18       PSC       Type of compressor protection:       1 - 2 - 3       1         18       PSC       Type of compressor protection:       1 - 2 - 3       1         19       PtC       Compressor protection:       1 - 2 - 3       1         20       LtC       Minimum compressor       OFF + 99.59       OFF         31       unction time       min.sec       1 - 2 - 3       1         20       LtC       Minimum compressor       OFF + 99.59       OFF         21       od       Delay at power on       OFF + 99.59       OFF         21       od       D							32	FUA	<u> </u>
Image: Continuous cycle Time       OFF + 99.59       OFF         Group <sup>1</sup> AGi (parameters relative to agitator control)       Range       Def.       Note         Par.       Description       Range       Def.       Note         16       AGon Agitator Activation time with compressor off       min.sec       1000       33       tuA       Time relative to auxiliary output         17       AGoF       Agitator de-activation       0.01 + 99.59       10.00       34       Outs       Configuration of output         Group <sup>1</sup> PrC (parameters relative to compressor off       min.sec       1       34       Outs       Configuration of output         Par.       Description       Range       Def.       Note       Note       Nation of output         18       PSC       Type of compressor       1 - 2 - 3       1       34       Outs       Configuration of output         19       PtC       Compressor protection OFF + 99.59       OFF       Mal.L= memorised alarm       AL= Alarm not         20       LtC       Minimum compressor OFF + 99.59       OFF       St       Down/AUX       OFF= No function         21       Od       Delay at power on       OFF + 99.59       OFF       Note       As       Ab - Absolute       Ab - Absolute	14	Func		HEAt - CooL	CooL				
Isol       Cold       Cold Infrage       Cold Infrage <thcold infrage<="" th="">       Cold Infrage<td></td><td></td><td></td><td>-</td><td></td><td></td><td></td><td></td><td></td></thcold>				-					
Par.DescriptionRangeDef.Note16AGonAgitator Activation time with compressor offOFF + 99.5910.0033tuATime relative to auxil- iary output17AGoFAgitator Activation0.01 + 99.5910.0033tuATime relative to auxil- iary output17AGoFAgitator de-activation time with compressor off0.01 + 99.5910.0033tuATime relative to auxil- iary outputGroup <sup>1</sup> PC (parameters relative to compressor off0.01 + 99.5910.00Par.Description14Out3Configuration of output function OUT3: OFF= No function AGit= Agitator AUI= Alarm not silenceable AL=Alarm not silenceable AL=Nate18PSC protection: 1 = delay at switch on 2 = delay after switch off 3 = delay between starts1 - 2 - 31AL=Aus= Auxiliary AL= Alarm not silenceable AL=Aus= Auxiliary AL= Alarm not silenceable AL=Aus= Auxiliary AL=Aus= Auxiliary AL=20LtCMinimum compressor function time Type: Ab = Absolute dE = Relative to alarmsOFF + 99.59 min.secOFFSFbdFunction mode key DOWN/AUX: OFF= No function 1 = Auxiliary output command 	15	tCC	Continuous cycle Time		OFF				
Broup 'AG' (parameters relative to agitator Control)key or digital input.Par.DescriptionRangeDef.Note17AGoFAgitator Activation time0.01 ÷ 99.5910.00Immerelative to auxiliary output17AGoFAgitator de-activation0.01 ÷ 99.5910.00Group <sup>1</sup> Out (parameters relative to compressor off17AGoFAgitator de-activation0.01 ÷ 99.5910.00Group <sup>1</sup> Out (parameters relative to compressor protection and power on delay)Group <sup>1</sup> DrCConfiguration of output function OUT3:18PSCType of compressor protection:1 - 2 - 31Group <sup>1</sup> AL (parameters relative to alarms)OFF + 99.5919PtCCompressor protection0FF + 99.59OFFAGit - Alarma not silenceable alarm not silenceableALL = Marm not silenceable alarm AL =20LtCMinimum compressor function timeOFF + 99.59OFFGroup <sup>1</sup> PAn (parameters relative to alarms)21odDelay at power onOFF + 99.59OFFGroup <sup>1</sup> PAn (parameters relative to alarms)22AtyTemperature alarms type: Ab = Absolute dE = Relative to SetAbAb23HALHigh temperature AlarmOFF / - 58 +OFF3624LALLow temperature AlarmOFF / - 58 +OFF3625GALTemperature AlarmOFF / - 58 +OFF3625GALTemperature AlarmOFF / - 58 +OFF3725GALTemperature AlarmOF / - 58 +OF		1	-						
Par.       Description       Range       Det.       Note         16       AGon       Agitator Activation time with compressor off min.sec       10.00       33       tuA       Time relative to auxiliary output         17       AGoF       Agitator de-activation time with compressor off       0.01 ÷ 99.59       10.00       60000       Par.       Description       Configuration of output function OUT3:       OFF = No function       Out = Temperature control (compressor)       AL = Alarm not silenceable alarm         18       PSC       Type of compressor protection:       1 - 2 - 3       1       AL = Alarm not silenceable alarm       AL = Alarm not silenceable alarm       AL = Alarm not silenceable alarm         19       PtC       Compressor protection       OFF + 99.59       OFF       OFF + No function mode key         20       LtC       Minimum compressor       OFF + 99.59       OFF       Min.sec       DOW/N/UX:       OFF = No function         21       od       Delay at power on       OFF + 99.59       OFF       Min.sec       DOW/N/UX:       OFF = No function         22       Aty       Temperature alarms       Ab - dE       Ab       Ab       2= Continuous cycle command <td< th=""><th></th><th></th><th></th><th></th><th>_</th><th></th><th></th><th></th><th></th></td<>					_				
16       AGon       Agitator Activation time with compressor off min.sec       10.00 min.sec       iary output         17       AGoF       Agitator de-activation time with compressor off       0.01 ÷ 99.59 min.sec       10.00       Par.       Description         Group <sup>1</sup> PrC       (parameters relative to compressor power on delay)       Type of compressor       1 - 2 - 3       1       34       Out3       Configuration of output function OUT3: OFF= No function         18       PSC       Type of compressor       1 - 2 - 3       1       -		-				Note	33	tuA	
Image:	116		Agitator Activation time						
Par.       Description         11 delay at switch on       1 - 2 - 3         20 delay after switch off       see delay attrast         19       PtC         Compressor protection       OFF + 99.59         function time       min.sec         20       LtC         Minimum compressor       OFF + 99.59         function time       min.sec         21       Od         Delay at power on       OFF + 99.59         min.sec       OFF - No function         Type:       Ab - Absolute         Ab = Absolute       Ab - dE         dE = Relative to Set       Ab - dE         23       HAL         High temperature Alarm       OFF / - 58 + OFF         32       HAL         Low	10	AGon			10.00				lary output
Image: Section of the section of output function of output function OUT3:         Group <sup>1</sup> PrC (parameters relative to compressor protection and power on delay)         Par.       Description       Range       Def.       Note         18       PSC       Type of compressor protection:       1 - 2 - 3       1       OFF = No function OUT3:       OFF = No function OUT3:         19       PtC       Compressor protection ime       1 - 2 - 3       1       AGit= Agitator         20       LtC       Minimum compressor OFF + 99.59       OFF min.sec       MLL = memorised alarm         20       LtC       Minimum compressor OFF + 99.59       OFF min.sec       Par.       Description         21       od       Delay at power on       OFF + 99.59       OFF min.sec       Silenceable         21       od       Delay at power on       OFF + 99.59       OFF min.sec       Silenceable         22       Aty       Temperature alarms       Ab - dE       Ab       Ab         22       Aty       Temperature alarms       Ab - dE       Ab       Ab = Absolute       Ab = Absolute         dE = Relative to Set       302 °C/°F       302 °C/°F       Sie       OFF       Sie       Sie         23       HAL       High temperature Alarm       OF			with compressor off	min.sec			Gro	up <sup>1</sup> Out	
Group <sup>1</sup> PrC(parameters relative to compressor protection and power on delay)function OUT3: OFF= No function Out= Temperature control (compressor) AGit= Agitator AUS= Auxiliary ALt= Silenceable alarm AL= Alarm not silenceable alarm AL= Marm not silenceable alarm AL= Marm not silenceable alarm AL= Alarm not silenceable alarm AL= Alarm not silenceable AL= Note19PtCCompressor protection function time function time min.secOFF + 99.59 			with compressor off Agitator de-activation	min.sec 0.01 ÷ 99.59					t (parameters relative to o
power on delay)DescriptionRangeDef.Note18PSCType of compressor1 - 2 - 3118PSCType of compressor1 - 2 - 3119PtCCompressor protectionOFF + 99.59OFF19PtCCompressor protectionOFF + 99.59OFF20LtCMinimum compressorOFF + 99.59OFF21odDelay at power onOFF + 99.59OFF21odDelay at power onOFF + 99.59OFF21odDelay at power onOFF + 99.59OFF22AtyTemperature alarmsAb - dEAb22AtyTemperature alarmsAb - dEAb23HALHigh temperature AlarmOFF / - 58 +OFF24LALLow temperature AlarmOFF / - 58 +OFF24LALLow temperature Alarms0 + 302.025dALTemperature Alarms0 + 302.0			with compressor off Agitator de-activation time with compressor	min.sec 0.01 ÷ 99.59			F	Par.	t (parameters relative to on <b>Description</b>
Par.DescriptionRangeDef.Note18PSCType of compressor protection: 1 = delay at switch on 2 = delay after switch off 3 = delay between starts1 - 2 - 3119PtCCompressor protection function timeOFF ÷ 99.59 min.secOFF min.secAL= Alarm not silenceable20LtCMinimum compressor function timeOFF ÷ 99.59 min.secOFF min.secGroup <sup>1</sup> PAn (parameters relative to c Par.21odDelay at power on Delay at power onOFF ÷ 99.59 min.secOFF min.secGroup <sup>1</sup> PAn (parameters relative to c 	17	AGoF	with compressor off Agitator de-activation time with compressor off	min.sec 0.01 ÷ 99.59 min.sec	10.00	ion and	F	Par.	t (parameters relative to on <b>Description</b> Configuration of output function OUT3:
18       PSC       Type of compressor protection: 1 = delay at switch on 2 = delay after switch off 3 = delay between starts       1 - 2 - 3       1         19       PtC       Compressor protection OFF ÷ 99.59 function time       OFF ÷ 99.59 min.sec       OFF         20       LtC       Minimum compressor function time       OFF ÷ 99.59 min.sec       OFF         21       od       Delay at power on function time       OFF ÷ 99.59 min.sec       OFF         21       od       Delay at power on function time       OFF ÷ 99.59 min.sec       OFF         22       Aty       Temperature alarms Type: Ab = Absolute dE =Relative to Set       Ab - dE       Ab         23       HAL       High temperature Alarm threshold       OFF / - 58 ÷ 302 °C/°F       OFF       36       USrb       Function mode key U: see "Fbd"         24       LAL       Low temperature Alarms       OFF / - 58 ÷ 302 °C/°F       OFF       37       PASS       Access Password to	17 <b>Gro</b>	AGoF	with compressor off Agitator de-activation time with compressor off C (parameters relative t	min.sec 0.01 ÷ 99.59 min.sec	10.00	ion and	F	Par.	t (parameters relative to on <b>Description</b> Configuration of output function OUT3: OFF= No function
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3= delay between starts       3= delay between starts         19       PtC       Compressor protection of time       OFF ÷ 99.59 of time.         20       LtC       Minimum compressor function time       OFF ÷ 99.59 of time.         21       od       Delay at power on of function time       OFF ÷ 99.59 of time.         21       od       Delay at power on of function time       OFF ÷ 99.59 of time.         22       Aty       Temperature alarms about e dE = Relative to alarms)       Ab - dE       Ab         22       Aty       Temperature alarms about e dE = Relative to Set       Ab - dE       Ab         23       HAL       High temperature Alarm of threshold       OFF / - 58 ÷ 302 °C/°F       OFF         24       LAL       Low temperature Alarms of ÷ 30       0.4 °C/°F       OFF         25       dAL       Temperature Alarms of ÷ 30       2.0       37       PASS Access Password to	17 Gro pow	AGoF up <sup>1</sup> Prover on do Par.	with compressor off Agitator de-activation time with compressor off C (parameters relative t elay) Description Type of compressor protection:	min.sec 0.01 ÷ 99.59 min.sec o compressor Range	10.00 protect <b>Def.</b>		F	Par.	t (parameters relative to on <b>Description</b> Configuration of output function OUT3: OFF= No function Out= Temperature con- trol (compressor) AGit= Agitator AuS= Auxiliary
19       PtC       Compressor protection of F ÷ 99.59 min.sec       OFF       ALL= memorised alarm         20       LtC       Minimum compressor of F ÷ 99.59 min.sec       OFF       Par.       Description         21       od       Delay at power on of person of time min.sec       OFF       Par.       Description         22       Aty       Temperature alarms relative to alarms)       Ab - dE       Ab         22       Aty       Temperature alarms run alarms of threshold       Ab - dE       Ab         23       HAL       High temperature Alarm of threshold       OFF / - 58 ÷ of core of	17 Gro pow	AGoF up <sup>1</sup> Prover on do Par.	with compressor off Agitator de-activation time with compressor off C (parameters relative t elay) Description Type of compressor protection: 1= delay at switch on	min.sec 0.01 ÷ 99.59 min.sec o compressor Range	10.00 protect <b>Def.</b>		F	Par.	t (parameters relative to o Description Configuration of output function OUT3: OFF= No function Out= Temperature con- trol (compressor) AGit= Agitator AuS= Auxiliary ALt= Silenceable alarm
timemin.secGroup <sup>1</sup> PAn (parameters relative to c20LtCMinimum compressor function timeOFF ÷ 99.59 min.secOFF21odDelay at power on min.secOFF ÷ 99.59 min.secOFF21odDelay at power on min.secOFF ÷ 99.59 min.secOFF22Aty(parameters relative to alarms)Oef.Note22AtyTemperature alarms Type: Ab = Absolute dE =Relative to SetAb - dE AbAb23HALHigh temperature Alarm thresholdOFF / - 58 ÷ 302 °C/°FOFF24LALLow temperature Alarm thresholdOFF / - 58 ÷ 302 °C/°FOFF25dALTemperature Alarms0 ÷ 302.0	17 Gro pow	AGoF up <sup>1</sup> Prover on do Par.	with compressor off Agitator de-activation time with compressor off C (parameters relative t elay) Description Type of compressor protection: 1= delay at switch on 2= delay after switch off	min.sec 0.01 ÷ 99.59 min.sec o compressor Range	10.00 protect <b>Def.</b>		F	Par.	t (parameters relative to o Description Configuration of output function OUT3: OFF= No function Out= Temperature con- trol (compressor) AGit= Agitator AuS= Auxiliary ALt= Silenceable alarm AL= Alarm not
20       LtC       Minimum compressor function time       OFF ÷ 99.59 min.sec       OFF       Par.       Description       Mode key min.sec         21       od       Delay at power on on time       OFF ÷ 99.59 min.sec       OFF       35       Fbd       Function mode key DOWN/AUX: OFF= No function time         Group <sup>1</sup> AL (parameters relative to alarms)       Par.       Description       Range       Def.       Note         22       Aty       Temperature alarms Ab - dE       Ab       Ab       2=       Continuous cycle command 3=       Selection of active Set         23       HAL       High temperature Alarm threshold       OFF / - 58 ÷       37       PASS       Access       Password to	17 Gro pow 18	AGoF up <sup>1</sup> Pr er on d Par. PSC	with compressor off         Agitator       de-activation         time       with compressor         off       0         C       (parameters relative telay)         Description         Type       of         protection:         1= delay at switch on         2= delay after switch off         3= delay between starts	min.sec 0.01 ÷ 99.59 min.sec o compressor <b>Range</b> 1 - 2 - 3	10.00 protect Def. 1		F	Par.	t (parameters relative to o Description Configuration of output function OUT3: OFF= No function Out= Temperature con- trol (compressor) AGit= Agitator AuS= Auxiliary ALt= Silenceable alarm AL= Alarm not silenceable
Image: Construction timemin.sec35FbdFunction mode key DOWN/AUX: OFF = No function 1 = Auxiliary output command 2 = Continuous cycle command 3 = Selection of active Set Point21odDelay at power on Delay at power on OFF ÷ 99.59 min.secOFF35FbdFunction mode key DOWN/AUX: OFF = No function 1 = Auxiliary output command 3 = Selection of active Set Point 4 = Switch on/Switch off (Stand-by)22AtyTemperature alarms Ab = Absolute dE =Relative to SetAb - dEAb2Continuous cycle command 3 = Selection of active Set Point 4 = Switch on/Switch off (Stand-by)24LALLow temperature Alarm thresholdOFF / - 58 ÷ 302 °C/°FOFF36USrbFunction mode key U: see "Fbd"25dALTemperature Alarms0 ÷ 302.037PASSAccessPassword to	17 Gro pow 18	AGoF up <sup>1</sup> Pr er on d Par. PSC	with compressor off         Agitator       de-activation         time       with compressor         off       0         C       (parameters relative telay)         Description       1         Type       of       compressor         protection:       1       delay at switch on         2       delay after switch off       3         3       delay between starts       Compressor         Compressor       protection       1	min.sec 0.01 ÷ 99.59 min.sec o compressor <b>Range</b> 1 - 2 - 3 OFF ÷ 99.59	10.00 protect Def. 1 OFF		34	Par. Out3	t (parameters relative to o Description Configuration of output function OUT3: OFF= No function Out= Temperature con- trol (compressor) AGit= Agitator AuS= Auxiliary ALt= Silenceable alarm AL= Alarm not silenceable ALL= memorised alarm
21       od       Delay at power on       OFF ÷ 99.59 min.sec       OFF         Group <sup>1</sup> AL (parameters relative to alarms)       min.sec       DOWN/AUX:         Par.       Description       Range       Def.       Note         22       Aty       Temperature alarms Type: Ab = Absolute dE =Relative to Set       Ab - dE       Ab       Ab         23       HAL       High temperature Alarm threshold       OFF / - 58 ÷ 302 °C/°F       OFF       OFF         24       LAL       Low temperature Alarm threshold       OFF / - 58 ÷ 302 °C/°F       OFF       36       USrb       Function mode key U: see "Fbd"         25       dAL       Temperature Alarms       0 ÷ 30       2.0       37       PASS       Access       Password to	17 Gro pow 18	AGoF up <sup>1</sup> Pro er on do Par. PSC PtC	with compressor off         Agitator       de-activation         time       with compressor         off       C         C       (parameters relative telay)         Description         Type       of         compressor       protection:         1= delay at switch on       2= delay after switch off         3= delay between starts       Compressor         Compressor       protection         time       Minimum	min.sec 0.01 ÷ 99.59 min.sec o compressor <b>Range</b> 1 - 2 - 3 OFF ÷ 99.59 min.sec	10.00 protect Def. 1 OFF		34 Gro	Par. Out3 up <sup>1</sup> PA	t (parameters relative to or Description Configuration of output function OUT3: OFF= No function Out= Temperature con- trol (compressor) AGit= Agitator AuS= Auxiliary ALt= Silenceable alarm AL= Alarm not silenceable ALL= memorised alarm n (parameters relative to or
Group <sup>1</sup> AL (parameters relative to alarms)       min.sec       OFF = No function         Par.       Description       Range       Def.       Note         22       Aty       Temperature alarms       Ab - dE       Ab       1 = Auxiliary output command         22       Aty       Temperature alarms       Ab - dE       Ab       2 = Continuous cycle command         23       HAL       High temperature Alarm       OFF / - 58 ÷       OFF       302 °C/°F       36       USrb       Function mode key U: see "Fbd"         24       LAL       Low temperature Alarm       OFF / - 58 ÷       OFF       36       USrb       Function mode key U: see "Fbd"         25       dAL       Temperature Alarms       0 ÷ 30       2.0       37       PASS       Access       Password to	17 Gro pow 18	AGoF up <sup>1</sup> Pro er on do Par. PSC PtC	with compressor off         Agitator       de-activation         time       with compressor         off       0         C       (parameters relative telay)         Description       1         Type       of       compressor         protection:       1       delay at switch on         2= delay after switch off       3       delay between starts         Compressor       protection       time         Minimum       compressor       fortection	min.sec           0.01 ÷ 99.59           min.sec           co           compressor           Range           1 - 2 - 3           OFF ÷ 99.59           min.sec           OFF ÷ 99.59           min.sec	10.00 protect <b>Def.</b> 1 OFF OFF		34 Gro	Par. Out3 up <sup>1</sup> PA	t (parameters relative to o Description Configuration of output function OUT3: OFF= No function Out= Temperature con- trol (compressor) AGit= Agitator AuS= Auxiliary ALt= Silenceable alarm AL= Alarm not silenceable ALL= memorised alarm n (parameters relative to on Description
Group 'AL (parameters relative to alarms)Par.DescriptionRangeDef.Note22AtyTemperature alarmsAb - dEAb2= Continuous cycle command22AtyTemperature alarmsAb - dEAb2= Continuous cycle command23HALHigh temperature AlarmOFF / - 58 ÷ 302 °C/°FOFF36USrb24LALLow temperature AlarmOFF / - 58 ÷ 302 °C/°FOFF36USrbFunction mode key U: see "Fbd"25dALTemperature Alarms0 ÷ 302.037PASSAccessPassword to	17 Gro pow 18 19 20	AGoF up <sup>1</sup> Prr er on dr Par. PSC PtC LtC	with compressor off         Agitator       de-activation         time       with compressor         off       0         C       (parameters relative telay)         Description       1         Type       of       compressor         protection:       1       delay at switch on         2= delay after switch off       3       delay between starts         Compressor       protection       time         Minimum       compressor       fortection	min.sec 0.01 ÷ 99.59 min.sec 0 compressor Range 1 - 2 - 3 OFF ÷ 99.59 min.sec OFF ÷ 99.59 min.sec OFF ÷ 99.59	10.00 protect <b>Def.</b> 1 OFF OFF		34 Gro	Par. Out3 up <sup>1</sup> PA	t (parameters relative to o Description Configuration of output function OUT3: OFF= No function Out= Temperature con- trol (compressor) AGit= Agitator AuS= Auxiliary ALt= Silenceable alarm AL= Alarm not silenceable ALL= memorised alarm n (parameters relative to o Description Function mode key
Par.DescriptionRangeDef.Note22AtyTemperature alarms Type: Ab = Absolute dE =Relative to SetAb - dEAb2= Continuous cycle command 3= Selection of active Set Point 4= Switch on/Switch off (Stand-by)23HALHigh temperature Alarm thresholdOFF / - 58 ÷ 302 °C/°FOFFoff set Point 302 °C/°F24LALLow temperature Alarm thresholdOFF / - 58 ÷ 302 °C/°FOFFoff set Point25dALTemperature Alarms0 ÷ 302.037PASSAccess Password to	17 Gro pow 18 19 20 21	AGoF up <sup>1</sup> Pr er on de Par. PSC PtC LtC od	with compressor off         Agitator       de-activation         time       with compressor         off       c         C       (parameters relative telay)         Description         Type       of         Type       of         compressor       protection:         1=       delay at switch on         2=       delay after switch off         3=       delay between starts         Compressor       protection         time       Minimum         Minimum       compressor         function time       Delay at power on	min.sec           0.01 ÷ 99.59           min.sec           co           compressor           Range           1 - 2 - 3           OFF ÷ 99.59           min.sec	10.00 protect <b>Def.</b> 1 OFF OFF		34 Gro	Par. Out3 up <sup>1</sup> PA	t (parameters relative to o Description Configuration of output function OUT3: OFF= No function Out= Temperature con- trol (compressor) AGit= Agitator AuS= Auxiliary ALt= Silenceable alarm AL= Alarm not silenceable ALL= memorised alarm n (parameters relative to o Description Function mode key DOWN/AUX:
Type:       Ab = Absolute       command         Ab = Absolute       dE =Relative to Set       and an anti-active         23       HAL       High temperature Alarm       OFF / - 58 ÷       OFF         24       LAL       Low temperature Alarm       OFF / - 58 ÷       OFF         25       dAL       Temperature       Alarms       0 ÷ 30       2.0       37       PASS       Access       Password       to	17 Gro pow 18 19 20 21 Gro	AGoF up <sup>1</sup> Priver on du Par. PSC PtC LtC od up <sup>1</sup> AL	with compressor off         Agitator       de-activation         time       with compressor         off       C         C       (parameters relative telay)         Description         Type       of         Type       of         compressor       protection:         1=       delay at switch on         2=       delay between starts         Compressor       protection         time       Minimum         Minimum       compressor         function time       Delay at power on         (parameters relative to alage)       (parameters relative to alage)	min.sec 0.01 ÷ 99.59 min.sec 0 compressor Range 1 - 2 - 3 OFF ÷ 99.59 min.sec OFF ÷ 99.59 min.sec OFF ÷ 99.59 min.sec OFF ÷ 99.59 min.sec arms)	10.00 protect <b>Def.</b> 1 OFF OFF	Note	34 Gro	Par. Out3 up <sup>1</sup> PA	t (parameters relative to o Description Configuration of output function OUT3: OFF= No function Out= Temperature con- trol (compressor) AGit= Agitator AuS= Auxiliary ALt= Silenceable alarm AL= Alarm not silenceable ALL= memorised alarm n (parameters relative to o Description Function mode key DOWN/AUX: OFF= No function
Type:       Ab = Absolute       Command         Ab = Absolute       Selection of active         dE =Relative to Set       Set Point         23       HAL       High temperature Alarm       OFF / - 58 ÷       OFF         24       LAL       Low temperature Alarm       OFF / - 58 ÷       OFF         24       LAL       Low temperature Alarm       OFF / - 58 ÷       OFF         25       dAL       Temperature       Alarms       0 ÷ 30       2.0       37       PASS       Access       Password to	17 Gro pow 18 19 20 21 Gro	AGoF up <sup>1</sup> Priver on du Par. PSC PtC LtC od up <sup>1</sup> AL	with compressor off         Agitator       de-activation         time       with compressor         off       C         C       (parameters relative telay)         Description         Type       of         Type       of         compressor       protection:         1=       delay at switch on         2=       delay between starts         Compressor       protection         time       Minimum         Minimum       compressor         function time       Delay at power on         (parameters relative to alage)       (parameters relative to alage)	min.sec 0.01 ÷ 99.59 min.sec 0 compressor Range 1 - 2 - 3 OFF ÷ 99.59 min.sec OFF ÷ 99.59 min.sec OFF ÷ 99.59 min.sec OFF ÷ 99.59 min.sec arms)	10.00 protect Def. 1 OFF OFF OFF	Note	34 Gro	Par. Out3 up <sup>1</sup> PA	t (parameters relative to o Description Configuration of output function OUT3: OFF= No function Out= Temperature con- trol (compressor) AGit= Agitator AuS= Auxiliary ALt= Silenceable alarm AL= Alarm not silenceable ALL= memorised alarm n (parameters relative to o Description Function mode key DOWN/AUX: OFF= No function 1= Auxiliary output
dE =Relative to Set       Set Point         23       HAL       High temperature Alarm or F / - 58 ÷ 302 °C/°F       OFF       Set Point         24       LAL       Low temperature Alarm or F / - 58 ÷ 302 °C/°F       OFF       36       USrb       Function mode key U: see "Fbd"         25       dAL       Temperature Alarms       0 ÷ 30       2.0       37       PASS       Access       Password to	17 Gro pow 18 19 20 21 Gro	AGoF up <sup>1</sup> Pri er on di Par. PSC PtC LtC od up <sup>1</sup> AL Par.	with compressor off         Agitator       de-activation         time       with compressor         off       0         C       (parameters relative tealy)         Description       0         Type       of         Compressor       protection:         1= delay at switch on       2= delay after switch off         3= delay between starts       Compressor         Compressor       protection         time       Minimum         Minimum       compressor         function time       Delay at power on         (parameters relative to ala       Description         Temperature       alarms	min.sec           0.01 ÷ 99.59 min.sec           o         compressor           Range           1 - 2 - 3           OFF ÷ 99.59 min.sec           OFF ÷ 98.59 min.sec           Min.sec           OFF ÷ 98.59 min.sec           Min.sec           Arms)           Range	10.00 protect Def. 1 OFF OFF OFF	Note	34 Gro	Par. Out3 up <sup>1</sup> PA	t (parameters relative to o Description Configuration of output function OUT3: OFF= No function Out= Temperature con- trol (compressor) AGit= Agitator AuS= Auxiliary ALt= Silenceable alarm AL= Alarm not silenceable ALL= memorised alarm n (parameters relative to o Description Function mode key DOWN/AUX: OFF= No function 1= Auxiliary output command
23       HAL       High temperature Alarm       OFF / - 58 ÷       OFF       4= Switch on/Switch off (Stand-by)         24       LAL       Low temperature Alarm       OFF / - 58 ÷       OFF       36       USrb       Function mode key U: see "Fbd"         25       dAL       Temperature Alarms       0 ÷ 30       2.0       37       PASS       Access       Password to	17 Gro pow 18 19 20 21 Gro	AGoF up <sup>1</sup> Pri er on di Par. PSC PtC LtC od up <sup>1</sup> AL Par.	with compressor off         Agitator       de-activation         time       with compressor         off       C         C       (parameters relative telay)         Description         Type       of         Type       of         protection:       1= delay at switch on         2= delay after switch off       3= delay between starts         Compressor       protection         time       Minimum         Minimum       compressor         function time       Delay at power on         (parameters relative to ala       Description         Temperature       alarms         Type:       alarms	min.sec           0.01 ÷ 99.59 min.sec           o         compressor           Range           1 - 2 - 3           OFF ÷ 99.59 min.sec           OFF ÷ 98.59 min.sec           Min.sec           OFF ÷ 98.59 min.sec           Min.sec           Arms)           Range	10.00 protect Def. 1 OFF OFF OFF	Note	34 Gro	Par. Out3 up <sup>1</sup> PAr Par.	t (parameters relative to o Description Configuration of output function OUT3: OFF= No function Out= Temperature con- trol (compressor) AGit= Agitator AuS= Auxiliary ALt= Silenceable alarm AL= Alarm not silenceable ALL= memorised alarm n (parameters relative to o Description Function mode key DOWN/AUX: OFF= No function 1= Auxiliary output command 2= Continuous cycle command
threshold     302 °C/°F     (Stand-by)       24     LAL     Low temperature Alarm     OFF / - 58 ÷ 302 °C/°F     OFF     36     USrb     Function mode key U: see "Fbd"       25     dAL     Temperature     Alarms     0 ÷ 30     2.0     37     PASS     Access     Password to	17 Gro pow 18 19 20 21 Gro	AGoF up <sup>1</sup> Pri er on di Par. PSC PtC LtC od up <sup>1</sup> AL Par.	with compressor off         Agitator       de-activation         time       with compressor         off       0         C       (parameters relative tealy)         Description       0         Type       of         Compressor       protection:         1= delay at switch on       2= delay after switch off         3= delay between starts       Compressor         Compressor       protection         time       Minimum         Minimum       compressor         function time       Delay at power on         (parameters relative to ala       Description         Temperature       alarms         Type:       Ab = Absolute	min.sec           0.01 ÷ 99.59 min.sec           o         compressor           Range           1 - 2 - 3           OFF ÷ 99.59 min.sec           OFF ÷ 98.59 min.sec           Min.sec           OFF ÷ 98.59 min.sec           Min.sec           Arms)           Range	10.00 protect Def. 1 OFF OFF OFF	Note	34 Gro	Par. Out3 up <sup>1</sup> PAr Par.	t (parameters relative to o Description Configuration of output function OUT3: OFF= No function Out= Temperature con- trol (compressor) AGit= Agitator AuS= Auxiliary ALt= Silenceable alarm AL= Alarm not silenceable ALL= memorised alarm n (parameters relative to o Description Function mode key DOWN/AUX: OFF= No function 1= Auxiliary output command 2= Continuous cycle command 3= Selection of active
24       LAL       Low temperature Alarm       OFF / - 58 ÷       OFF       36       USrb       Function mode key U: see "Fbd"         25       dAL       Temperature       Alarms       0 ÷ 30       2.0       37       PASS       Access       Password to	17 Gro pow 18 19 20 21 Gro C 22	AGoF up <sup>1</sup> Pri er on di Par. PSC PtC LtC od up <sup>1</sup> AL Par. Aty	with compressor off         Agitator       de-activation         time       with compressor         off       0         C       (parameters relative tealy)         Description       0         Type       of         Compressor       protection:         1= delay at switch on       2= delay after switch off         3= delay between starts       Compressor         Compressor       protection         time       Minimum         Minimum       compressor         function time       Delay at power on         (parameters relative to ala       Description         Temperature       alarms         Type:       Ab = Absolute         dE =Relative to Set       Set	min.sec           0.01 ÷ 99.59 min.sec           o         compressor           Range           1 - 2 - 3           OFF ÷ 99.59 min.sec           OFF ÷ 99.59 min.sec           OFF ÷ 99.59 min.sec           OFF ÷ 99.59 min.sec           Aff ÷ 98.59 min.sec           Ab - dE	10.00 protect Def. 1 OFF OFF OFF OFF OFF	Note	34 Gro	Par. Out3 up <sup>1</sup> PAr Par.	t (parameters relative to o Description Configuration of output function OUT3: OFF= No function Out= Temperature con- trol (compressor) AGit= Agitator AuS= Auxiliary ALt= Silenceable alarm AL= Alarm not silenceable ALL= memorised alarm n (parameters relative to o Description Function mode key DOWN/AUX: OFF= No function 1= Auxiliary output command 2= Continuous cycle command 3= Selection of active Set Point
threshold     302 °C/°F     see "Fbd"       25     dAL     Temperature     Alarms     0 ÷ 30     2.0     37     PASS     Access     Password     to	17 Gro pow 18 19 20 21 Gro C 22	AGoF up <sup>1</sup> Pri er on di Par. PSC PtC LtC od up <sup>1</sup> AL Par. Aty	with compressor off         Agitator       de-activation         time       with compressor         off       0         C       (parameters relative tealy)         Description       0         Type       of         protection:       1= delay at switch on         2= delay after switch off       3= delay between starts         Compressor       protection         time       1         Minimum       compressor         function time       0         Delay at power on       0         (parameters relative to ala       0         Description       0         Temperature       alarms         Type:       Ab = Absolute         dE = Relative to Set       High temperature Alarm	min.sec           0.01 ÷ 99.59 min.sec           o         compressor           Range           1 - 2 - 3           OFF ÷ 99.59 min.sec           OFF ÷ 99.59 min.sec           OFF ÷ 99.59 min.sec           OFF ÷ 99.59 min.sec           Ab - dE           OFF / - 58 ÷	10.00 protect Def. 1 OFF OFF OFF OFF OFF	Note	34 Gro	Par. Out3 up <sup>1</sup> PAr Par.	t (parameters relative to or Description Configuration of output function OUT3: OFF= No function Out= Temperature con- trol (compressor) AGit= Agitator AuS= Auxiliary ALt= Silenceable alarm AL= Alarm not silenceable ALL= memorised alarm n (parameters relative to or Description Function mode key DOWN/AUX: OFF= No function 1= Auxiliary output command 2= Continuous cycle command 3= Selection of active Set Point 4= Switch on/Switch off
25 dAL Temperature Alarms 0 ÷ 30 2.0 37 PASS Access Password to	17 Gro pow 18 19 20 21 Gro 22 23 23	AGoF up <sup>1</sup> Pri er on di Par. PSC PtC LtC od up <sup>1</sup> AL Par. Aty HAL	with compressor off         Agitator       de-activation         time       with compressor         off       0         C       (parameters relative tealy)         Description       0         Type       of         Compressor       protection:         1= delay at switch on       2= delay after switch off         3= delay between starts       Compressor         Compressor       protection         time       Minimum         Minimum       compressor         function time       Delay at power on         (parameters relative to ala       Description         Temperature       alarms         Type:       Ab = Absolute         dE =Relative to Set       High temperature Alarm         threshold       Note	min.sec           0.01 ÷ 99.59 min.sec           o           co           compressor           Range           1 - 2 - 3           OFF ÷ 99.59 min.sec           OFF ÷ 99.59 min.sec           OFF ÷ 99.59 min.sec           OFF ÷ 99.59 min.sec           arms)           Range Ab - dE           OFF / - 58 ÷ 302 °C/°F	10.00 protect <b>Def.</b> 1 OFF OFF OFF <b>Def.</b> Ab	Note	34 34 Gro 35	Par. Out3 <sup>1</sup> PA Par. Fbd	t (parameters relative to or Description Configuration of output function OUT3: OFF= No function Out= Temperature con- trol (compressor) AGit= Agitator AuS= Auxiliary ALt= Silenceable alarm AL= Alarm not silenceable ALL= memorised alarm n (parameters relative to or Description Function mode key DOWN/AUX: OFF= No function 1= Auxiliary output command 2= Continuous cycle command 3= Selection of active Set Point 4= Switch on/Switch off (Stand-by)
	17 Gro pow 18 19 20 21 Gro 22 23 23	AGoF up <sup>1</sup> Pri er on di Par. PSC PtC LtC od up <sup>1</sup> AL Par. Aty HAL	with compressor off         Agitator       de-activation         time       with compressor         off       0         C       (parameters relative tealy)         Description       0         Type       of         protection:       1= delay at switch on         2= delay after switch off       3= delay between starts         Compressor       protection         time       Minimum         Minimum       compressor         function time       Delay at power on         (parameters relative to ala       Description         Temperature       alarms         Type:       Ab = Absolute         dE =Relative to Set       High temperature Alarm         threshold       Low temperature Alarm	min.sec         0.01 ÷ 99.59         min.sec         o compressor         Range         1 - 2 - 3         OFF ÷ 99.59         min.sec         OFF ÷ 90.59         Min.sec         OFF ÷ 0.58         OFF / - 58 ÷         302 °C/°F         OFF / - 58 ÷	10.00 protect <b>Def.</b> 1 OFF OFF OFF <b>Def.</b> Ab	Note	34 34 Gro 35	Par. Out3 <sup>1</sup> PA Par. Fbd	t (parameters relative to or Description Configuration of output function OUT3: OFF= No function Out= Temperature con- trol (compressor) AGit= Agitator AuS= Auxiliary ALt= Silenceable alarm AL= Alarm not silenceable ALL= memorised alarm n (parameters relative to or Description Function mode key DOWN/AUX: OFF= No function 1= Auxiliary output command 2= Continuous cycle command 3= Selection of active Set Point 4= Switch on/Switch off (Stand-by) Function mode key U:
	17 Gro pow 18 19 20 21 Gro 22 23 24	AGoF up <sup>1</sup> Pri er on di Par. PSC PtC LtC od up <sup>1</sup> AL Par. Aty HAL LAL	with compressor off         Agitator       de-activation         time       with compressor         off       0         C       (parameters relative tealy)         Description       0         Type       of         protection:       1= delay at switch on         2= delay after switch off       3= delay between starts         Compressor       protection         time       Minimum         Minimum       compressor         function time       Delay at power on         (parameters relative to ala       Description         Temperature       alarms         Type:       Ab = Absolute         dE =Relative to Set       High temperature Alarm         threshold       Low temperature Alarm	min.sec           0.01 ÷ 99.59 min.sec           o         compressor           Range           1 - 2 - 3           OFF ÷ 99.59 min.sec           OFF ÷ 90.59 min.sec           OFF ÷ 58 ÷ 302 °C/°F	10.00 protect <b>Def.</b> 1 OFF OFF OFF <b>Def.</b> Ab	Note	34 34 35 35	USrb	t (parameters relative to or Description Configuration of output function OUT3: OFF= No function Out= Temperature con- trol (compressor) AGit= Agitator AuS= Auxiliary ALt= Silenceable alarm AL= Alarm not silenceable ALL= memorised alarm n (parameters relative to or Description Function mode key DOWN/AUX: OFF= No function 1= Auxiliary output command 2= Continuous cycle command 3= Selection of active Set Point 4= Switch on/Switch off (Stand-by) Function mode key U: see "Fbd"
	17 Gro pow 18 19 20 21 Gro 22 23 24	AGoF up <sup>1</sup> Pri er on di Par. PSC PtC LtC od up <sup>1</sup> AL Par. Aty HAL LAL	with compressor off         Agitator       de-activation         time       with compressor         off       0         C       (parameters relative tealy)         Description       0         Type       of         protection:       1= delay at switch on         2= delay after switch off       3= delay between starts         Compressor       protection         time       Minimum         Minimum       compressor         function time       Delay at power on         (parameters relative to ala       Description         Temperature       alarms         Type:       Ab = Absolute         dE =Relative to Set       High temperature Alarm         threshold       Low temperature Alarm         threshold       Temperature	min.sec           0.01 ÷ 99.59 min.sec           o         compressor           Range           1 - 2 - 3           OFF ÷ 99.59 min.sec           OFF ÷ 99.59 min.sec           OFF ÷ 99.59 min.sec           OFF ÷ 99.59 min.sec           OFF ÷ 0.58 min.sec           OFF - 58 ÷ 302 °C/°F           OFF / - 58 ÷ 302 °C/°F           0 ÷ 30	10.00 protect <b>Def.</b> 1 OFF OFF OFF <b>Def.</b> Ab	Note	34 34 35 35	USrb	t (parameters relative to or Description Configuration of output function OUT3: OFF= No function Out= Temperature con- trol (compressor) AGit= Agitator AuS= Auxiliary ALt= Silenceable alarm AL= Alarm not silenceable ALL= memorised alarm n (parameters relative to or Description Function mode key DOWN/AUX: OFF= No function 1= Auxiliary output command 2= Continuous cycle command 3= Selection of active Set Point 4= Switch on/Switch off (Stand-by) Function mode key U: see "Fbd" Access Password to

26	ALd	Temperature Alarms	OFF ÷ 99.59	OFF	
		delay	min.sec		
27	tAL	Alarm memory	no - yES	no	
28	PAL	Temperature Alarms	OFF ÷ 99.59	2.00	
		delay at power on	hrs.min		
29	dALc	Temperature alarms	OFF ÷ 99.59	OFF	
		delay after continuous	hrs.min		
		cycle			

# Group <sup>1</sup>din (parameters relative to digital input)

	Par.	Description	Range	Def.	Note
30	diF	Function and function		0	
00	un	logic of digital input:	-7 / -6 / -5 / -4	U	
		0 = No function	/-3/-2/-1/		
		1= Start manual cycle	0/1/2/3/4		
		2= Stop manual cycle	/5/6/7/8/		
		3= Continuous cycle	9/10		
		4= External alarm	5710		
		5= Agitator block			
		6= Agitator and com-			
		pressor block			
		7= Auxiliary output			
		command			
		8= Selection of active			
		Set Point			
		9= External alarm with			
		deactivation of control			
		outputs			
		10= Switch on/Switch			
		off (Stand-by)			
31	did	Delay in acquiring digi-	OFF ÷ 99.59	OFF	
		tal input	min.sec		
Gro	up <sup>1</sup> Au	S (parameters relative to a	auxiliary output)		
	Par.	Description	Range	Note	
32	FOA	Function mode auxiliary		<b>Def.</b> 0	
		output:	••••=	· ·	
		0= No Function			
		1= regulation output			
		delayed			
		2= manual activation by			
		key or digital input.			
33	tuA	Time relative to auxil-	OFF ÷ 99.59	OFF	
		iary output	min.sec	-	
<b>Group</b> <sup>1</sup> <b>Out</b> (parameters relative to configuration of outputs)					
	Par.	Description	Range	Def.	Note
34		Configuration of output		ALt	
<b>,</b>	Calo	function OUT3:	/AuS/ALt/	, . <u> </u>	
		OFF= No function	AL/ALL/ -ALt/		
		Out= Temperature con-			
		trol (compressor)			
		AGit= Agitator			
		AuS= Auxiliary			
		ALt= Silenceable alarm			
		AL= Alarm not			
		silenceable			
		ALL= memorised alarm			
<b>Group</b> <sup>1</sup> <b>PAn</b> (parameters relative to configuration of the keyboard)					
	Par.	Description	Range	Def.	Note
35	Fbd	Function mode key	OFF / 1 / 2 / 3	OFF	
				0.1	
		DOWN/AUX:	/4		

OFF

OFF

OFF / 1 / 2 / 3

/4

OFF ÷ 9999

#### 6 - PROBLEMS, MAINTENANCE AND GUARANTEE

# 6.1 - SIGNALLING

# Error Signalling:

Error olghannig.				
Error	Reason	Action		
E1 -E1	The probe Pr1 may be interrupted or in short circuit, or may meas- ure a value outside the range allowed	Check the correct connec- tion of the probe with the instrument and check the probe works correctly		
EEPr	Internal memory error	Check and if necessary re- programme the parameters function.		

In probe error status, the output OUT behaves as set by the parameters "tonE" and "toFE".

Other Signalling:

Message	Reason
od	Delay in switching on in progress
CC	Continuous cycle in progress
HI	Maximum temperature alarm in progress
LO	Minimum temperature alarm in progress
AL	Digital input alarm in progress
AP	Door open

#### 6.2 - CLEANING

We recommend cleaning of the instrument only with a slightly wet cloth using water and not abrasive cleaners or solvents.

# 6.3 - GUARANTEE AND REPAIRS

The instrument is under warranty against manufacturing flaws or faulty material, that are found within 12 months from delivery date. The guarantee is limited to repairs or to the replacement of the

instrument.

The eventual opening of the housing, the violation of the instrument or the improper use and installation of the product will bring about the immediate withdrawal of the warranty's effects.

In the event of a faulty instrument, either within the period of warranty, or further to its expiry, please contact our sales department to obtain authorisation for sending the instrument to our company.

The faulty product must be shipped to ASCON TECNOLOGIC with a detailed description of the faults found, without any fees or charge for ASCON TECNOLOGIC, except in the event of alternative agreements.

# 7 - TECHNICAL DATA

# 7.1 - ELECTRICAL DATA

<u>Power supply:</u> 12 VAC/VDC, 24 VAC/VDC, 100..240 VAC +/- 10% <u>Frequency AC:</u> 50/60 Hz

Power consumption: 4 VA approx.

<u>Input/s:</u> 1 inputs for temperature probes: PTC (KTY 81-121, 990  $\Omega$  @ 25 °C) or NTC (103AT-2, 10K $\Omega$  @ 25 °C); 1 digital input for free voltage contacts

<u>Output/s:</u> up to 3 relay outputs: OUT1 SPST-NO (16A-AC1, 6A-AC3 250 VAC), AGIT SPDT (8A-AC1, 3A-AC3 250 VAC), and OUT3 SPST-NO (5A-AC1, 2A-AC3 250 VAC). 16 A Max. for common (pin. 1)

Electrical life for relay outputs: 100000 operat. (VDE om.)

Installation category: II

Measurement category: I

<u>Protection class against electric shock:</u> Class II for Front panel <u>Insulation:</u> Reinforced insulation between the low voltage part (supply H type and relay outputs) and front panel; Reinforced insulation between the low voltage section (supply type H and relay outputs) and the extra low voltage section (inputs); Reinforced between supply and relay outputs; No insulation between supply F type and inputs.

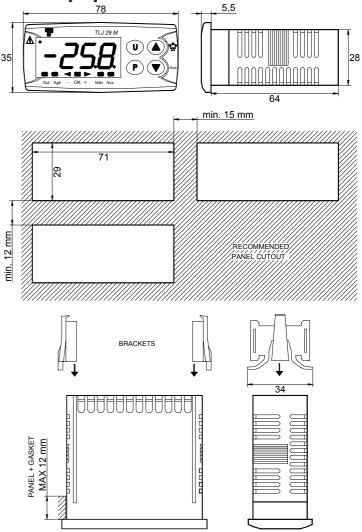
#### 7.2 - MECHANICAL DATA

Housing: Self-extinguishing plastic, UL 94 V0 <u>Dimensions:</u> 78 x 35 mm, depth 64 mm <u>Weight:</u> 115 g approx. <u>Mounting:</u> Flush in panel in 71 x 29 mm hole <u>Connections:</u> 2,5 mm<sup>2</sup> screw terminals block <u>Degree of front panel protection :</u> IP 65 mounted in panel with gasket <u>Pollution situation:</u> 2 <u>Operating temperature:</u> 0 ... 50 °C Operating temperature: 0 ... 50 °C

Operating humidity: 30 ... 95 RH% without condensation

Storage temperature: -10 ... +60 °C

# 7.3 – MECHANICAL DIMENSIONS, PANEL CUT-OUT AND MOUNTING [mm]



# 7.4 - FUNCTIONAL FEATURES

Temperature Control: ON/OFF mode <u>Defrost control:</u> interval cycles or at programmed times (Real Time Clock Defrosting) by Electric Heating or hot-gas / reverse cycle <u>Measurement range:</u> PTC: -50...150 °C / -58 ... 302 °F; NTC: -50...109 °C / -58...228 °F <u>Display resolution:</u> 1 ° or 0,1° <u>Overall accuracy:</u> +/- 0,5 % fs <u>Sampling rate:</u> 130 ms. <u>Display:</u> 4 Digit Red h 12 mm <u>Endurance time of the internal clock without power supply:</u> 4 hours approx. by internal condenser

<u>Compliance:</u> ECC directive EMC 2004/108/CE (EN 61326), ECC directive LV 2006/95/CE (EN 61010-1)

#### 7.5 - INSTRUMENT ORDERING CODE

TLJ 29 abcdeff M

# a : POWER SUPPLY

H = 100...240 VAC L = 24 VAC/VDC F = 12 VAC/VDC

# **b : AGIT OUTPUT**

**R** = RELAY

# **b : OUT3 OUTPUT**

R = RELAY - = No

# d : BUZZER

**B** = BUZZER

- = No

#### e : Not available code ff: Special codes