

BIT25A1S3E-3TM INSTRUCTIONS FOR USE

Thank you for having chosen an LAE electronic product. Before installing the instrument, please read this instruction booklet carefully in order to ensure safe installation and optimum performance.

DESCRIPTION



Fig.1 - Front panel

- Info / Setpoint button.
- Increase button / Manual activation.
- Decrease button.
- Exit / Stand-by button.

INDICATIONS

- Thermostat output
- Alarm

INSTALLATION

- The BIT-25 controller has a size 87x83x40 mm (WxHxD).
- Make sure that electrical connections comply with the paragraph "wiring diagrams". To reduce the effects of electromagnetic disturbance, keep the sensor and signal cables well separate from the power wires.
- Place the probe T1 inside the room in a point that truly represents the temperature of the stored product.

OPERATION

DISPLAY
During normal operation, the display shows either the temperature measured or one of the following indications:

oFF	Controller in stand-by	h _i	Room high temperature alarm
dO	Door open alarm	L _O	Room low temperature alarm
ALr	Generic Alarm	E _i	Probe T1 failure

INFO MENU

The information available in this menu is:

t _i	Instant probe 1 temperature	t _{Lo}	Minimum probe 1 temperature recorded
t _h	Maximum probe 1 temperature recorded	L _{oC}	Keypad state lock

Access to menu and information displayed.

- Press and immediately release button (i).
- With button (v) or (a) select the data to be displayed.
- Press button (i) to display value.
- To exit from the menu, press button (x) or wait for 10 seconds.
- Reset of TH_i, TLO recordings**
 - With button (v) or (a) select the data to be reset.
 - Display the value with button (i).
 - While keeping button (i) pressed, use button (x).

SETPOINT : display and modification

- Press button (i) for at least half second, to display the setpoint value.
- By keeping button (i) pressed, use button (v) or (a) to set the desired value (adjustment is within the minimum SPL and the maximum SPH limit).
- When button (i) is released, the new value is stored.

STAND-BY

Button (s), when pressed for 3 seconds, allows the controller to be put on a standby or output control to be resumed (with SB=YES only).

KEYPAD LOCK

The keypad lock avoids undesired, potentially dangerous operations, which might be attempted when the controller is operating in a public place. In the INFO menu, set parameter LOC=YES to inhibit all functions of the buttons. To resume normal operation of keypad, adjust setting so that LOC=NO.

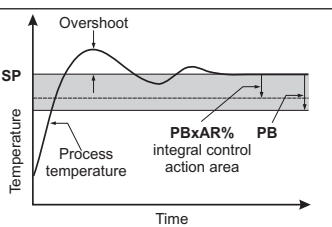
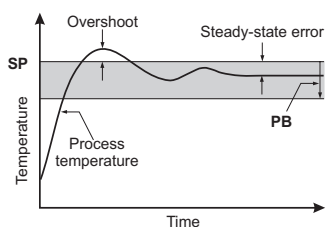
SETPOINT ADJUSTMENT VIA POTENTIOMETER

With DI2=PSP the setpoint is set via a 10KΩ linear potentiometer connected to DI2. The setpoint changes between PSL (10KΩ) and PSL+PSR (0Ω) proportionally. With POF=YES, if the potentiometer is turned to the maximum (10kΩ), the controller will be put on standby.

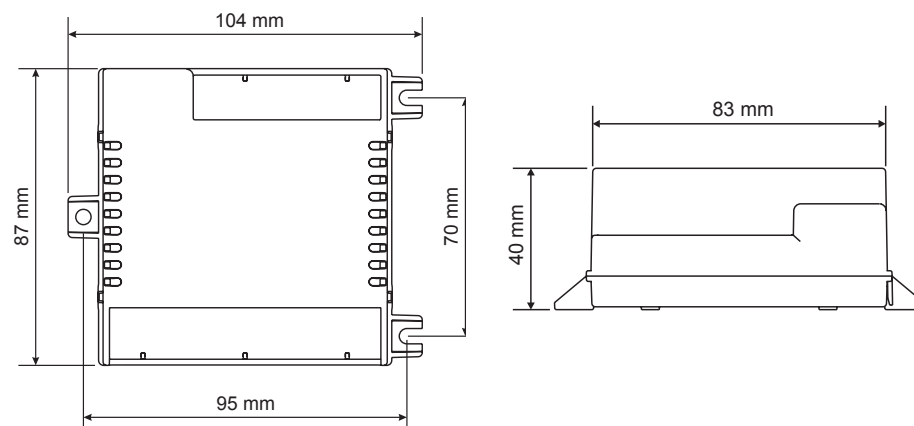
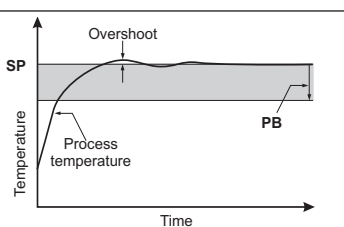
CONFIGURATION PARAMETERS

- To get access to the parameter configuration menu, press button (i) + (i) for 5 seconds.
- With button (v) or (a) select the parameter to be modified.
- Press button (i) to display the value.
- By keeping button (i) pressed, use button (v) or (a) to set the desired value.
- When button (i) is released, the newly programmed value is stored and the following parameter is displayed.
- To exit from the setup, press button (x) or wait for 30 seconds.

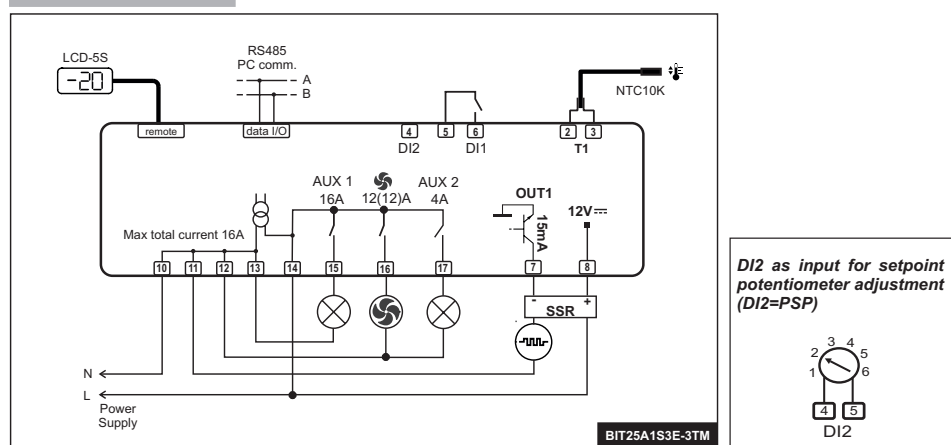
PAR	RANGE	DESCRIPTION
SPL	-10...SPH	Minimum limit for SP setting.
SPH	SPL...120°C	Maximum limit for SP setting.
SP	SPL...SPH	Setpoint (value to be maintained in the room).
CM	HY; PID.	Control mode. With CM=HY you select control with hysteresis: parameters HYS, TOF and TON are used. With CM=PID you select a Proportional-Integral-Derivative control mode: parameters PB, IT, DT, AR, CT will be used
CM = HY	HYS	1.0...10.0° OFF/ON thermostat differential.
	TON	0...30min Minimum on time. After output 1 has been turned on, it remains active for TON minutes regardless of the temperature value measured.
	TOF	0...30min Minimum off time. (the following parameter will be PF). After output 1 has been turned off, it remains inactive for TOF minutes regardless of the temperature value measured.
CM = PID	PB	1.0...30.0° Proportional bandwidth. Temperature control takes place by changing the ON time of the output: the closer the temperature to the setpoint, the less time of activation. A small proportional band increases the promptness of response of the system to temperature variations, but tends to make it less stable. A purely proportional control stabilises the temperature within the proportional band but does not cancel the deviation from setpoint.
	IT	0...900s Integral action time. The steady-state error is cancelled by inserting an integral action. The integral action time, determines the speed with which the steady-state temperature is achieved, but a high speed (IT low) may be the cause of overshoot and instability in the response. With IT=0 the integral control is disabled.



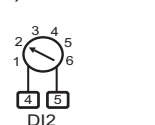
CM = PID	DT	0...900s	Derivative action time. Response overshoot may be reduced by inserting a derivative Action. A high derivative action (DT high) makes the system very sensitive to small temperature variations and causes instability. With DT=0 the derivative control is disabled.
	AR	0...100%	Reset of integral action time referred to PB Decreasing the parameter AR reduces the integral control action zone, and consequently the overshoot (see figure on paragraph IT).
	CT	1...250s	Cycle time. It's the period in which the output ON time changes. The quicker the system to be controlled reacts to temperature variations, the smaller the cycle time must be, in order to obtain higher temperature stability and less sensitivity to load variations.
PF	ON/OFF		Output state in case of probe failure.
HSD	0...30min		Heater stop delay after the door has been opened. (Active only if DI1=DOR or DI2=DOR)
ATM	NON; ABS; REL		Alarm threshold management. NON : all temperature alarms are inhibited (the following parameter will be ADO). ABS : the values programmed in ALA and AHA represent the real alarm thresholds. REL : the values programmed in ALR and AHR are alarm differentials referred to SP-PB (SP-HYS) and SP.
ATM = ABS	ALA	-10 ... 120°C	Low temperature alarm threshold.
	AHA	-10 ... 120°C	High temperature alarm threshold.
	ALR	-12.0...0.0°C	Low temperature alarm differential. With ALR=0 the low temperature alarm is excluded.
ATM = REL	AHR	0.0 ... 12.0°C	High temperature alarm differential. With AHR=0 the high temperature alarm is excluded.
	ATD	0 ... 120min	Delay before alarm temperature warning.
ADO	0 ... 30min		Delay before door open alarm warning.
SB	NO/YES		Stand-by button (s) enabling.
DI1	NON; DOR; ALR.		DI1 digital input operation NON : digital input 1 not active. DOR : door input. ALR : when contact opens an alarm is generated.
	NON; DOR; ALR; PSP		DI2 digital input operation NON : digital input 2 not active. DOR : door input. ALR : when contact opens an alarm is generated. PSP : potentiometer setpoint input.
	PSL	-10...70°C	Minimum setpoint adjusted via potentiometer.
DI2 = PSP	PSR	0.0...15.0 °C	Range of setpoint adusted via potentiometer Example: with PSL=2.0 and PSR=8.0, the setpoint changes between 2.0°C and 10.0°C (PSL+PSR).
	POF	NO/YES	Potentiometer standby enabling. With POF=YES, when the potentiometer is turned to the maximum, the controller will be put on standby.
DSM	ALR; STP.		Door switch input mode (closed when door is closed). ALR : when the door is opened, an alarm will occur after ADO minutes; STP : in addition to an alarm being generated, the heater is stopped after HSD minutes.
LSM	NON; MAN; D1O; D2O.		Light control mode. NON : light output not controlled. MAN : light ouput controlled through button (M) D1O : when DI1 is open, light output is on. D2O : when DI2 is open, light output is on.
OA1	NON; LGT; 0-1; ALO; ALC		AUX 1 output operation NON : output disabled (always off). LGT : output enabled for light control. 0-1 : the relay contacts follow the on/standby state of controller. ALO : contacts open when an alarm condition occurs. ALC : contacts make when an alarm condition occurs.
OA2	See OA1		AUX2 output operation. See OA1.
OS1	-12.5...12.5°C		Probe T1 offset.
TLD	1...30 min		Delay for minimum temperature (TLO) and maximum temperature (THI) logging.
SCL	1°C; 2°C; °F		Readout scale. 1°C : measuring range -10...120°C (0.1°C resolution within 0.0 ÷ 39.9°C interval, 1°C outside) 2°C : measuring range -10...120°C °F : measuring range 10...230°F
SIM	0...100		Display slowdown.
ADR	1...255		BIT25 address for PC communication.



WIRING DIAGRAMS



DI2 as input for setpoint potentiometer adjustment (DI2=PSP)



TECHNICAL DATA

Power supply
BIT25...E 230Vac±10%, 50/60Hz, 3W
BIT25...U 115Vac±10%, 50/60Hz, 3W
BIT25...W 100...240Vac±10%, 50/60Hz, 3W

Outputs max loads
Thermostat 15mA 12Vdc
Fan 12(12)A 240Vac
Auxiliary loads 1 16A 240Vac
Auxiliary loads 2 4A 240Vac

Input
NTC 10KΩ@25°C LAE Part No. SN4...

Measurement Range

-10 / 0.0 ... 39.9 / 120°C
-10...120°C, 10...230°F

Measurement accuracy

<0.5°C within the measurement range

Operating conditions

-10 ... +50°C; 15%...80% r.H.

CE (Approvals and Reference norms)

EN60730-1; EN60730-2-9; EN55022 (Class B); EN50082-1

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