LILYTECH ZL-6231A Temperature Controller Instruction Manual

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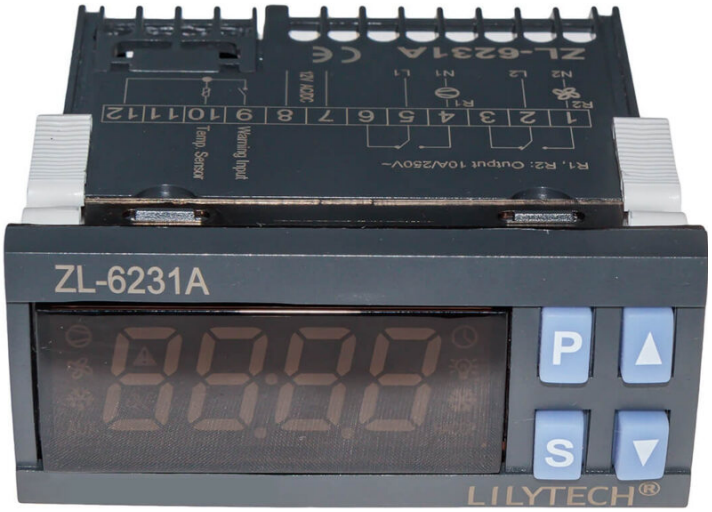
LILYTECH ZL-6231A Temperature Controller



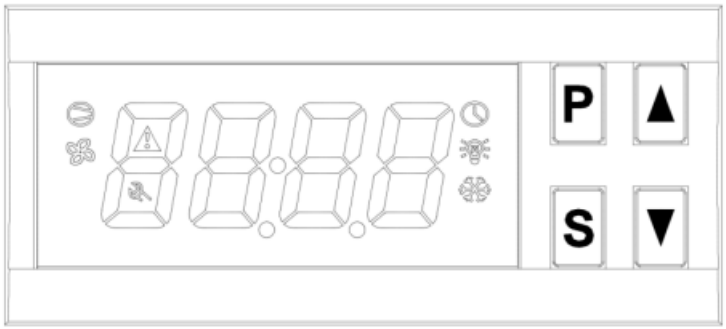
Introduction

ZL-6231A thermostat is for cooling or heating control, with IP65 front panel, buzzer beeping and warning function. There is a multifunction timer which is for incubator air exhaustion, or egg tray turning, or other application.

Specification

- **Power supply:** 185~245Vac, 50/60Hz
- **Sensor:** NTC, wire length is 2 meters
- **Output:** 10A, 250Vac resistance
- **Setting range:** -40~120℃
- **Display range:** -40~130℃
- **Working:** -10~45℃, 5~90%RH without dew
- **Dimension:** W78 x H34.5 x D71 (mm)
- **Installation drilling**: W71 x H29 (mm)
- **Case materials:** PC + ABS fire proof
- **Protection level:** IP65 (Front side only)

Display



Icon	Function	On	Off	Blinking
	R1 temp. control output	R1 Temp. Output en ergized	R1 Temp. Output de-en ergized	Within protecting delay
	Work mode	Cooling mode	—-	Setting set-point
		Heating mode		
	Maintenance	—-	No failure	Has failure
	Warning	—-	No warning	Has warning
	R2 output	R2 energized	R2 de-energized	
	Egg turn times re ached	—-	—-	U46 > U45 (when U45 not equal zero)

Display	Remark
E01	Sensor failure (short or open)
Hi	Room temp. is higher than the high limit
Lo	Room temp. is lower than the low limit
EE	Memory error
Err	Password error
iA	External warning
UnL	Parameters Will restore to factory default settings

Power up Display
The model (ZL-6231A) and software version (Version 2.0) will display after power supplied:

Operation

Set Set-Point (Factory Default Setting = 37.8°C)

- Keep S depressed for 3 seconds to enter into the status. The current set-point value displays.
- Press ▲ or ▼ to set the value (keeping depressed can fast set).
- Press S to exit, and save the settings.

  The status will exit, and the setting will not be saved if no key operation within 30 seconds.

Set System Parameters

- Keep P depressed for 3 seconds, digits show “—0”.

- Press ▼ to select the digit of the password, press ▲ to set the value of the digit.
- Press S to confirm: If the password is correct, enter into the parameter setting status, else display “Err”, and exit.

Set in parameter setting status:

- Press ▲ or ▼ to select the parameter code (see parameter code table below).
- Press S to display the value of the code. Press ▲ or ▼ to set the value. Press S to return to parameter code selection.
- Keep P depressed for 3 seconds to exit, and save the settings.
  The status will exit, and the settings will not be saved if no key operation for 30 seconds.

Parameter Code Table

Code	**Function**	**Range**	**Remark**	**Factory Default**
U10	Minimum time for Temp. Output to keep de-energized	0 ~ 100 min	Only for cooling	0
U20	Sensor calibration	-9.9 ~ +9.9℃		0.0
U22	Hysteresis for temperature control	0.1 ~ +10.0℃		0.1
U40	Timer period 1, time unit	0 ~ 2	0: sec; 1: min; 2: hour	0
U41	Timer period 1, time	1 ~ 9999	R2 on	30
U42	Timer period 2, time unit	0 ~ 2	0: sec; 1: min; 2: hour	1
U43	Timer period 2, time	1 ~ 9999	R2 off	60
U44	R2 working mode	1 ~ 2	1: Timer output 2: Timer output + limit_protection	2
U45	Timer repeats times	0 ~ 9999	If 0: Timer never stops running Else: R2 never on, when U46 reaches U45	0
U46	Timer counter (the value saved to permanent memory once every hour, keeps even without power supply)	0 ~ 9999	One period = timer period 1 + timer period 2 **Clear to 0 before every hatching**	0

U52	Over temp. warning delay	0 ~ 180 min		0
U53	1st over temp. warning delay after power supplied	0 ~ 180 hour	0: disable	0
U54	Temp. up limit (relative value)	0.0 ~ 120.0℃	Absolute point = (Set-point + U54)	0.2
U55	Temp. low limit (relative value)	0.0 ~ 120.0℃	Absolute point = (Set-point – U55)	37.8
U60	External input warning mode	0 ~ 4	0: disable 3: NC, locked 1: NO, locked 4: NC, unlocked 2: NO, unlocked	0
U61	Delay for external input warning	0 ~ 120 min		0
U62	Buzzing warning	0 ~ 1	0: no waring / 1: enable warning	0
U90	Control mode	CO/HE	CO: cool / HE: heat	HE
U99	Password	0000 ~ 9999	When 0000, equals no password	0000

Note:

- U46 will be saved to permanent memory once every hour.
- **Limit Protection:**
  - Troom: Temperature of the room.
  - SP: Temperature set point.
- **When U44 = 2:**
  If Troom ≥ SP + U54 in heating mode (U90 = HE), or if Troom ≤ SP – U55 in cooling mode (U90 = CO), then R2 will be energized.

Control

- **Cooling Control (U90 = C0)**
  - If Troom ≥ Set-point + U22, and Temp. Output has been de-energized for U10, then Temp. Output energized.
  - If Troom ≤ Set-point, then Temp. Output de-energized.
- **Heating Control (U90 = HE)**
  - If Troom ≤ Set-point – U22, then Temp. Output energized.
  - If Troom ≥ Set-point, then Temp. Output de-energized.
- **Temp. Output Load Delay Protection (only for cooling control)**

- After power supplied, Temp. Output could be energized after U10;
- After Temp. Output de-energized, it could be energized again after U10.

- **Buzzer Function**

  Every key press, there will be a short beep. Every confirmation key press, there will be a long beep. Every error operation, there will be three short beeps.

  When there is failure, or external warning input: If U62 = 0, no buzzing warning. If U62 = 1, there will be continuous buzzing of warning.

  The waring will stop, if press P , or warning condition disappears.
- **External Warning Input**
  - **NO:** normal open. If open, no warning; if closed, warning.
  - **NC:** normal close. If closed, no warning; if open, warning.
  - **Locked:** Warning keeps after the external warning disappeared. Press P to stop warning.
  - **Unlocked:** Warning stops after the external warning disappeared.

    Note: When there is external warning, the output(s) will be de-energized.
- **Sensor Fail**

  R1 stop energized.
- **Sensor Calibration**

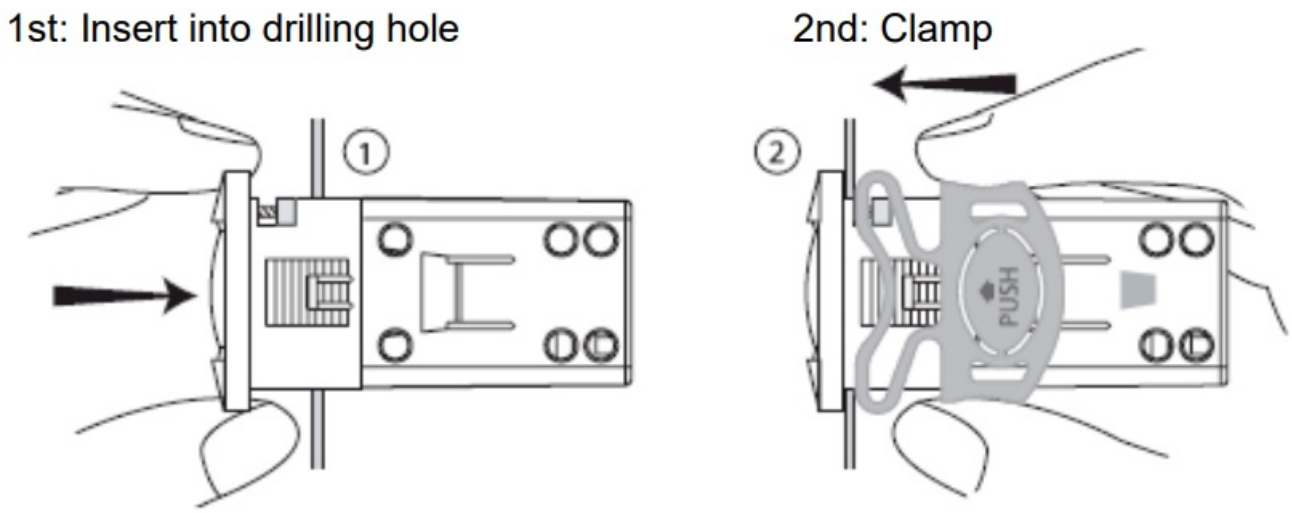
  The sensor can be calibrated by U20.
- **Restore to Factory Default Settings**

  Keep P and ▲ depressed simultaneously for 5 sec, there will be a beep, and “UnL” displays.

  Press ▼ twice, there will be a beep, all settings will be restored to factory default settings.

Installation

1st: Insert into drilling hole

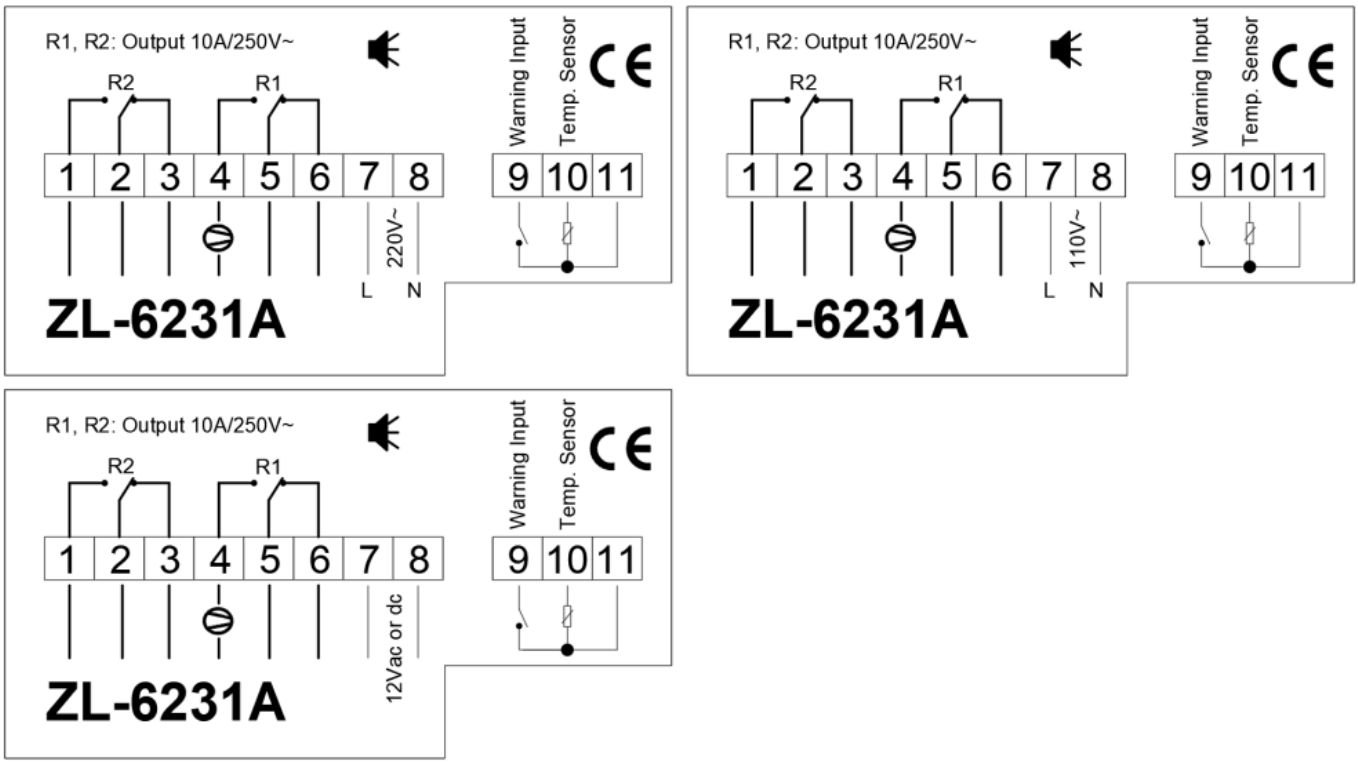


Attention

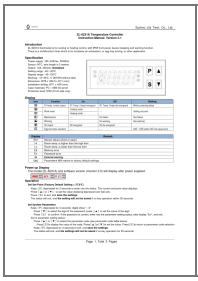
- Wiring work should be manipulated by certified technicians.
- Wrong connection could damage the controller, and the loads. Power supply to terminal 7 and 8 to check the controller. If there is a multimeter, check the outputs, as well as input, by the help of settings.
- Sensor and input signal wires should not be laid together with power supply wire, and even in same pipe.

- Sensor wire is better as short as possible. Not wind the redundant length wire to electrical noise equipment.
- The loads should be within the specification of the controller output driving ability. If using ac/dc module as load, or tungsten lamp, or motor, following the below requirements to avoid surging current damaging or shorten the lifetime of the controller outputs:
  - For ac/dc module as load, the rated current should be no more 1/10th of output specification under pure resistance.
  - For tungsten lamp as load, the rated current should be no more 1/15th of output specification under pure resistance.
  - For motor, the rate current should be no more 1/5th of output specification under pure resistance.
- For example: if drive a 1500W tungsten lamp with 7A (pure resistance spec.) relay, the relay contactor will be burnt immediately.
- Don't touch inside components.
- Avoid installing controller in the following environment:
  More wet than 90%RH, or easily dew; Vibrating, or will be shocked; Possible sprayed; Under erosive air; Under explosive air.

Electrical Wiring



Documents / Resources

	LILYTECH ZL-6231A Temperature Controller [pdf] Instruction Manual ZL-6231A Temperature Controller, ZL-6231A, Temperature Controller, Controller