ZL-7918C Humidity and Temperature Controller

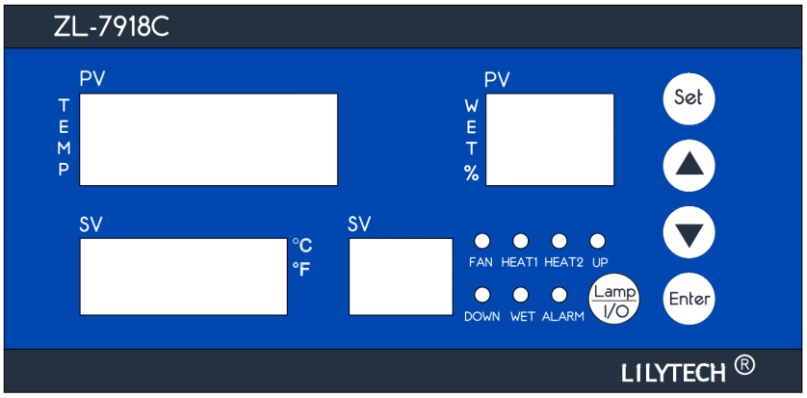
For Incubator A1.0

Feature

ZL-7918C is an intelligent temperature and humidity controller, safe and stable, convenient to operate, applicable for control of incubator, climate chamber, warehouse, and so on.

Specification

- Power supply: 100 ~ 240Vac, 50/60Hz.
- Input: One temperature sensor (L = 2.0 meter), one humidity sensor (L = 2.0 meter), One door switch.
- Setting range: Humidity: 10 ~ 99%RH, Temperature: 1 ~ 75℃(34.0 ~ 167.0℉).
- Display range: Humidity: 0 ~ 99%RH, Temperature: -9.9 ~ 99.9℃(14.0 ~ 212.0℉).
- Measuring accuracy: Humidity 3%@25℃, Temperature 1%@25℃.
- Output: 8 outputs (main-heater, aux-heater, lamp, humidity, ventilation fan, right-turning, left-turning, exhaustion fan).
- Output load: main-heater ≤ 1500W, aux-heater ≤ 1500W, lamp ≤ 100W, others ≤ 1A/250Vac.
- Hatched day counter: the maximum value is 99 days.
- Egg turn control: Period: 1 ~ 999 minutes. Turn driving time: 0 ~ 999 seconds. Turn times counter: 0 ~ 999 times.
- Air exhaustion control: Period: 1 ~ 999 minutes. Exhausting time: 0 ~ 999 seconds.
- Lamp control: Period: 1 ~ 999 minutes. Illuminating time: 1 ~ 999 seconds.
- Operation environment: -10 ~ 45℃, lower than 90% RH without dew.
- Device dimension: 160 * 80 * 95 mm.
- Installation drilling size: 151.5 * 76.5 mm.



Firmware Information

When power supplied, display shows: model “7918C”, and version “A1.0”.

Setting Parameters

Set *temperature and humidity setpoint*

When ***temperature setpoint* (P3)** or ***humidity setpoint* (P9)** has been set, the ***temperature and humidity control parameters*(P-)** will **be generated automatically and accordingly**.

Keeping【*Set*】depressed for 2 seconds to enter into **temperature and humidity setpoint setting status**.

Press【*Enter*】to switch between **temperature setting status** and **humidity setting status**:

SV window displays “****” + “**tt**”: **temperature setting status**.

SV window displays “****” + “**HH**”: **Humidity setting status**.

Press【▲】or【▼】to set the setpoint (Keeping the key depressed can fast set).

Keeping【*Enter*】depressed for 2 seconds will exit the setting status, the settings **will be saved**, and ***temperature and humidity control parameters*(P-)** will **be generated automatically and accordingly**.

The setting status will exit **without saving** if there is no key operation for 15 seconds.

***Temperature setpoint* (P3)**: factory default setting for is 37.8℃, set range is 1 ~ 75℃.

***Humidity setpoint* (P9)**: factory default setting is 60%RH, set range is 0 ~ 99%RH.

Set *temperature and humidity control parameter* (P-)

Note: Setting these parameters will change the **automatically generated values**!

Press【*Set*】and【▲】simultaneously to enter into ***temperature and humidity control parameter* (P-) setting status**.

Press【*Enter*】to select parameter among all ***temperature and humidity control parameters* (P-)**:

SV window displays the selection from “****” + “**P0**” to “****” + “**Pt**”.

Press【▲】or【▼】to set the value of the parameter (Keeping the key depressed can fast set).

Keeping【*Enter*】depressed for 2 seconds will exit setting status, the settings **will be saved**.

The setting status will exit **without saving** if there is no key operation for 15 seconds.

***Temperature and humidity control parameter* (P-)** code table:

Code	Function	Range	Note	Factory Default
P0	High temperature warning point	0 ~ 75.0℃(32.0 ~ 167.0℉)		38.5℃(101.3℉)
P1	Exhaustion temperature up limit	0 ~ 75.0℃(32.0 ~ 167.0℉)	Start exhausting for cooling	38.0℃(100.4℉)
P2	Exhaustion temperature low limit	0 ~ 75.0℃(32.0 ~ 167.0℉)	Stop cooling exhausting	37.8℃(100.0℉)
P3	Main temperature up limit	0 ~ 75.0℃(32.0 ~ 167.0℉)	Main heater stops heating	37.8℃(100.0℉)
P4	Main temperature low limit	0 ~ 75.0℃(32.0 ~ 167.0℉)	Main heater starts heating	37.7℃(99.9℉)
P5	Aux temperature up limit	0 ~ 75.0℃(32.0 ~ 167.0℉)	Aux heater stops heating	37.5℃(99.5℉)
P6	Aux temperature low limit	0 ~ 75.0℃(32.0 ~ 167.0℉)	Aux heater starts heating	37.3℃(99.1℉)
P7	Low temperature warning point	0 ~ 75.0℃(32.0 ~ 167.0℉)		37.0℃(98.6℉)
P8	High humidity warning point	0 ~ 99%		70
P9	Humidity up limit	0 ~ 99%	Humidify load stops humidifying	60
Pb	Humidity low limit	0 ~ 99%	Humidify load starts humidifying	58
Pc	Exhaustion humidity up limit	0 ~ 99%	Start exhaustion for de-humidifying	65
Pd	Exhaustion humidity low limit	0 ~ 99%	Stop de-humidifying exhaustion	60
PE	Over wet exhaustion protection	0/1	0: disable, 1: enable	0
PP	Low humidity warning point	0 ~ 99%		50
Pt	Temperature unit selection	0/1	0：Celsius；1：Fahrenheit	0

Set *function control parameter* (F-)

Press【*Set*】and【▼】simultaneously to enter into ***function control parameter* (F-) setting status**.

Press【*Enter*】to select parameter among all ***function control parameters* (F-)**.

SV window displays the selection from "****" + "**F1**"

to "****" + "**FB**".

Press【▲】or【▼】to set the value of the parameter (Keeping the key depressed can fast set).

Keeping【*Enter*】depressed for 2 seconds will exit setting status, the settings **will be saved**.

The setting status will exit **without saving**, if there is no key operation for 15 seconds.

***Function control parameter* (F-)** code table:

Code	Function	Range	Note	Factory Default
F1	Egg turn period	1 ~ 999 min		90
F2	Egg turn time	0 ~ 999 sec	0: no egg turning	180
F3	***Egg turn times***	0 ~ 999 times	0: egg tray will turn for ever without stop	0
F4	Air exhausting period	1 ~ 999 min		120
F5	Air exhausting time	0 ~ 999 sec	0: no air exhausting	30
F6	Temperature calibration	-9.9 ~ 9.9℃ (-17.8 ~ 17.8℉)		0.0
F7	Humidity calibration	-20 ~ 20%		0
F8	Illumination period	0 ~ 999 min	0: no illuminating timer function	0
F9	Illumination time	1 ~ 999 sec		120
FF	***Incubated days***	0 ~ 99 day	Can reset only	0
Ft	Egg turn period time saving	0/1	0: not saving. 1: saving	0
FM	***Egg turned counter***	0 ~ 999 times	Can reset only	0
FE	***Egg turned counter* reset**	0/1	0: reset to zero when turn offline or power supplied. 1: keeps	0
FR	Door control function	0/1	0: Off, do not check the door switch. 1: On.	1
FB	Buzzing when alarming	0/1	0: Not buzzing, 1: buzzing when alarm happens.	1

FM displays as 

Fast Check *Incubated Days*(FF) and *Egg Turned Counter*(FM)

Press【*Enter*】and【▲】simultaneously, SV window displays ***Incubated days* (FF):** "days: hours" + "t1" for 2 seconds.

Press【*Enter*】and【▼】simultaneously, SV window displays ***Egg turned counter* (FM):** "times" + "t2" for 2 seconds.

Control and Operation

On/off operation

Keep【Lamp - I/O】depressed for 2 seconds, controller switches between online and offline.

Illumination operation

Manual control (effective in both online and offline status)

Press【Lamp - I/O】, lamp turns on for **Illumination time (F9)**.

Press【Lamp - I/O】, lamp turns off, when lamp is on.

Timer control (effective in online status)

Lamp turns off for every **Illumination period (F8)**, then turns on for **Illumination time (F9)**.

Lamp control according to door status

If **Door control function (FR)** = 1:

When door opens, the lamp will be on for **Illumination time (F9)**. When door is closed, the lamp will be off.

Temperature control

Main heater: When room temperature ≤ **Main temperature low limit (P4)**, the main heater will be on.
When room temperature ≥ **Main temperature up limit (P3)**, the main heater will be off.

Aux. heater: When room temperature ≤ **Aux temperature low limit (P6)**, the aux. heater will be on.
When room temperature ≥ **Aux temperature up limit (P5)**, the aux. heater will be off.

Exhaustion fan: When room temperature ≥ **Exhaustion temperature up limit (P1)**, the fan will be on.
When room temperature ≤ **Exhaustion temperature low limit (P2)**, the fan will be off.

If **Door control function (FR)** = 1:

When door opens, all temperature outputs will be off. When door is closed, temperature control continues.

Humidity control

Humidifier: When room humidity ≤ **Humidity low limit (Pb)**, humidity output will be on.
When room humidity ≥ **Humidity up limit (P9)**, humidity output will be off.

Exhaustion fan:

If **Over wet exhaustion protection (PE)** = 1:

When room humidity ≥ **Exhaustion humidity up limit (Pc),** the exhaustion fan will be on.

When room humidity ≤ **Exhaustion humidity low limit (Pd)**, the exhaustion fan will be off.

If **Over wet exhaustion protection (PE)** = 0: no protecting exhaustion when over wet.

If **Door control function (FR)** = 1:

When door opens, the humidity output will be off. When door is closed, humidity control continues.

Ventilation fan control

When turned online, ventilation fan is on. When offline, ventilation fan is off.

If **Door control function (FR)** = 1:

When door opens, ventilation fan stops. When door is closed, ventilation fan control continues.

Egg Turn control

Timer egg turning:

For every **Egg turn period (F1)**, egg turn output will be on for **Egg turn time (F2)**.

Egg turn left output and right output will be on alternatively.

1 left turn + 1 right turn = 1 egg-turn. Every egg-turn, ***egg turned counter*** **(FM)** increases 1.

When ***Egg turned counter*** **(FM)** reaches ***Egg turn times*** **(F3)**, stop egg turn, and "UP" and "DOWN" will be blinking.

Manual egg turning:

Manual egg turning could be operated both in online and offline status.

Keeping【▲】depressed can force left turning. Keeping【▼】depressed can force right turning.

Egg turning status saving:

After power supplied, or every time turned online, the direction of egg turning will be changed.

If power supply loses during egg turning, it will continue after power supply comes back.

Fast check ***Egg turned counter*** **(FM):**

See paragraph at page 2: Fast Check ***Incubated Days*** **(FF)** and ***Egg Turned Counter*** **(FM).**

Reset the value of ***Egg turned counter*** **(FM)** to zero**:**

If ***Egg turned counter*** **reset (FE)** = 0**, *Egg turned counter*** **(FM)** will be reset to after power supplied or tuned offline.

If ***Egg turned counter*** **reset (FE)** = 1**, *Egg turned counter*** **(FM)** will keep after power supplied or tuned offline.
You could set it to zero manually.

Egg tray period status memorized:

If **Egg turn period time saving (Ft)** = 0, the period status of egg tray is not saved.

If **Egg turn period time saving (Ft)** = 1, the period status of egg tray will be saved every 3 minutes.

When power supply comes back, the period timing will continue, with max time error no more than 3 minutes.

Door control:

If **Door control function (FR)** = 1:

When door opens, egg tray stops turning. When door is closed, egg tray control continues.

Exhaustion Timer control

For **every Air exhausting period (F4)**, the exhaustion fan will be on for **Air exhausting time (F5).**

If **Door control function (FR)** = 1: When door opens, the fan stops. When door is closed, the fan continues.

Door control

The door switch is shown in wring diagram as S1. When door opens, S1 is open. When door is closed, S1 is closed.

If **Door control function (FR)** = 1:

When door opens, alarming:

buzzing, display room temperature and “door” alternatively, alarm indication blinking, all outputs are deenergized.

When door is closed, all control continues.

During alarming buzzing, pressing【*Enter*】could stop buzzing.

Temperature and humidity Alarm

When room temperature ≥ **High temperature warning point (P0)**, buzzing, and room temperature display blinks.

When room temperature ≤ **Low temperature warning point (P7)**, buzzing, and room temperature display blinks.

When room humidity ≥ **High humidity warning point (P8)**, buzzing, and room humidity display blinks.

When room humidity ≤ **Low humidity warning point (PP)**, buzzing, and room humidity display blinks.

During alarming buzzing, pressing【*Enter*】could stop/restore buzzing.

Temperature and humidity calibration

The sensors have tolerance. They can reach to absolute 0.1℃ and 1% RH accuracy by calibration.

Room temperature can be calibrated by setting **Temperature calibration (F6)**.

Room humidity can be calibrated by setting **Humidity calibration (F7)**.

***Incubated days* (FF)**

***Incubated days* (FF)** records the incubated days.

Fast check ***Incubated days* (FF)**: see page 2: Fast Check ***Incubated Days* (FF) and ***Egg Turned Counter* (FM).**

***Incubated days* (FF)** is saved in memory. It is not reset after power supply loses, and controller is turned on/offline.

To make use of it, ***Incubated days* (FF)** is necessary to reset manually by setting, before starting a new incubation.

When it reaches to 99, it will not increase any more, and will stay at 99.

Restore to factory setting

Keep【▲】and【▼】depressed simultaneously for 2 seconds, SV window displays “0000” + “00”. Press【*Lamp - I/O*】twice, buzzer beeps, the controller will restore to factory default settings.

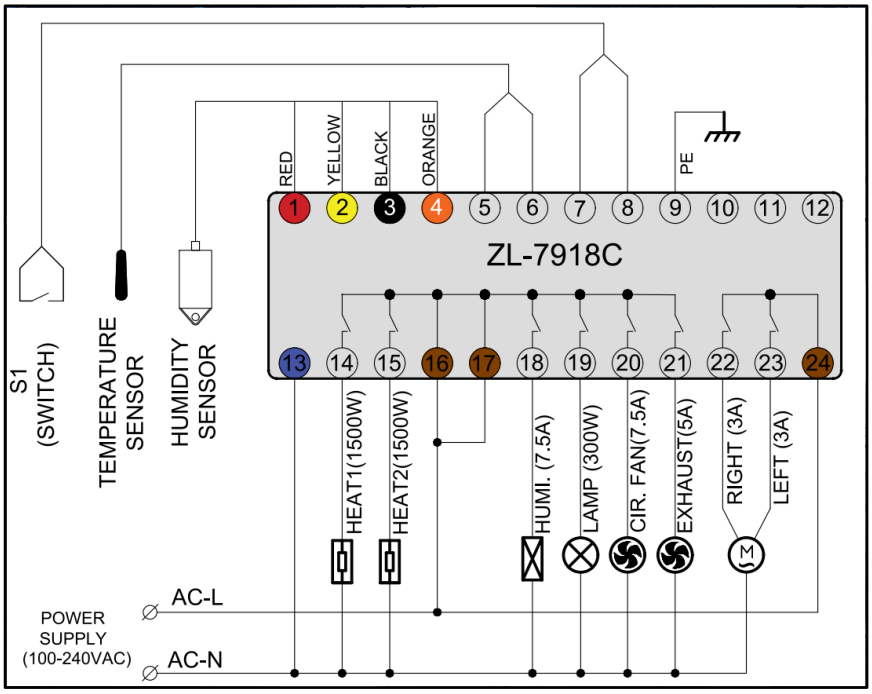
LED indication

LED	On	Blinking	Off
FAN	Fan on during **Air exhausting time (F5)**	Fan on, because of temperature and humidity protection exhaustion.	Fan off
HEAT1	Main heater on		Main heater off
HEAT2	Aux. heater on		Aux. heater off
UP	Egg left turning now	**Egg turned counter (FM)** reaches **Egg turn times (F3)**	No left turning
DOWN	Egg right turning now	**Egg turned counter (FM)** reaches **Egg turn times (F3)**	No right turning
WET	Humidifying output on		Humidify output off
ALARM		Room temperature or humidity is over warning points, or sensor fails	

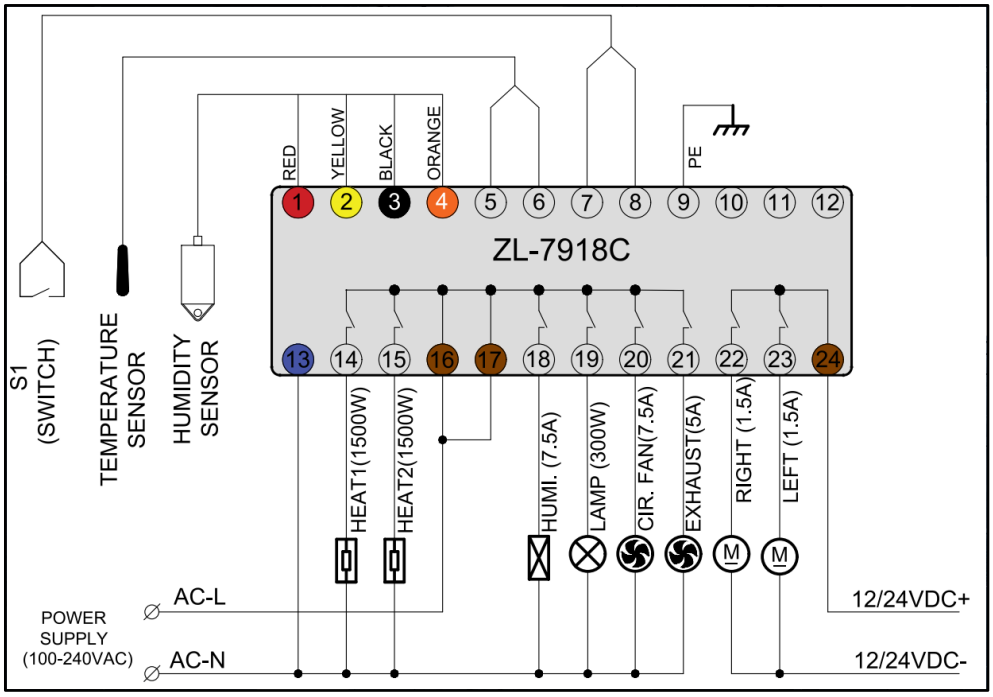
Warning code

Code	Indication	Code	Indication	Code	Indication	Code	Indication
E1	Temperature sensor failure	E3	High temperature alarm	E5	High humidify alarm	door	Door opening alarm
E2	Humidity sensor failure	E4	Low temperature alarm	E6	Low humidify alarm		

Wiring Diagram



AC220V egg-turning motor



DC12V/24V egg-turning motor

Attention

Humidity sensor will not work correctly when covered with dust, water or dew. Please keep it clean and dry. Before clean sensor, be sure there is no static electricity in hands!

Manufacturer is responsible for the device itself, is not responsible to losses resulted by the failure of this device.