Board Type LCD Temp. Controller



SDL Series

Thank you very much for selecting Sanup temperature controller. For your safety, please read the following before using.

SANUP ELECTRIC
• URL: http://www.sanup.com
• E-Mail: sanup@sanup.com

■ H.Q & Factory
240-42, Uijeongbu 2dong, Uijeongbu. Gyounggido. Korea
Tel. +82 31 876 4641~3
Fax. +82 31 876 4640

■ Sales Shop
42, Jangsadong Jongro Seoul. Korea
Tel. +82 2 2265 2298
Fax. +82 2 2272 9450

● **Please keep these instructions and review before using this controller.**
● **This instruction manual uses WARNING and CAUTION as signal words for safety.**

CAUTION CAUTION indicates a potentially hazardous situation which, if not avoided, will result in minor or moderate injury and at other times or serious injury. I may also be used to alert against unsafe practice.

WARNING WARNING indicates a potentially hazardous situation which, if not avoided, will result in death or serious injury.

1. Ensure the surrounding ambient operating temperature is 0~50℃.
▶It may cause fire or wrong operation.
2. Ensure the power supply for the controller does not fluctuate. Main supply voltage fluctuation not exceed ±10% of the normal voltage.
▶It may cause fire.
3. This controller shall not be used outdoors.
▶It might shorten the life cycle or given an electric shock.
4. When wiring connection, #20AWG (0.5mm2) should be used and screw bolt on terminal block with 0.74N.m strength.
▶It may result in mulfunction or error.
5. Keep the controller away from high current and voltage circuits. The controller and connection wires (esp. compensation conductors and RTD lead wires) should be kept approximately 30cm away from high electric circuit to limit the possible affect of noise.
▶It may cause display fluctuation or error.
6. Do not use a place where temperature fluctuate or icing occurs. It may cause fire, explosive or error.
7. In cleaning the controller, do not use water or an oil-based detergent.
▶It might cause an electric shock or fire that will result in damage to the product.
8. Do not inflow dust or dregs into inside of this controller.
▶It may cause fire or trouble.
9. Installation Category II. Pollution Degree 2. Altitude over 0~2000m use.

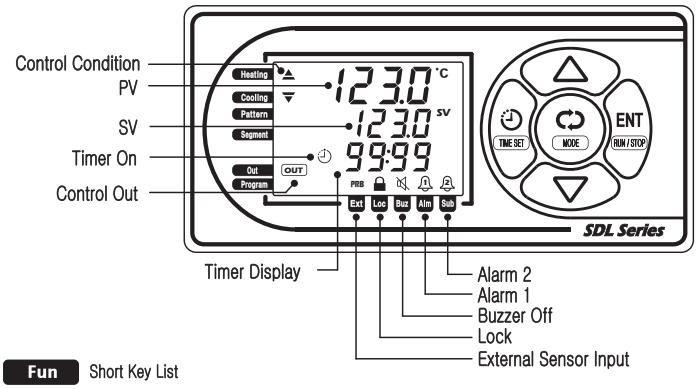
1. In case of using this unit with machineries (warehouse, medical equipments, vehicle, train, airplane, nuclear power ot safety devices etc.), it requires installing fail-safe device.
▶It may result in serious damage, fire or human injury.
2. Use a rated voltage to prevent damage or trouble.
▶It may result in fire.
3. Check the number of terminal when connect each line and signal input.
▶It may cause fire or trouble.
4. Do not turn on the power until the wiring completed.
▶It may cause electric shock.
5. Do not repair, wiring or checkup when electric power on.
▶It may cause electric shock.
6. Installation the controller where there is no dust, corrosive or explosive gas, direct ray of the sun, mechanical vibration or shock present.
▶It may cause fire or explosive.
7. This controller must be mounted pannel.
▶It may cause electric shock.
8. Do not repair beyond of authorized technician.
▶It may cause trouble.

1 Ordering Code

SDL 880 - □□□□□

Option	N(None), C(RS485), E(Ext Sensor)
Power	100-240Vac,50-60Hz
Output	M(Relay), C(4-20mA), V(SSR), T(Triac)
Range	Full Scale
Input	Universal
Type	Board type
Model	LCD PID Controller

2 Functional Description



Fun Short Key List

No	Function	Key	Action
1	Auto-Tuning	ENT + UP	START/ STOP
2	Contol Start/Stop	ENT 3 sec. over	RUN/ STOP
3	Set Timer	TM	HH:MM/ MM:SS
4	Timer Start/Stop	TM 3 sec. over	START/ STOP
5	Display PV/Output Rate	MD	MV/ SV
6	Set Manual Output	ENT + MD	0.0~100.0%
7	Lock/Unlock	ENT + DN	LOCK/ UNLOCK
8	Set Parameter Set Mode	MD 3 sec. over	General Mode
9	Set Special Parameter Group 1	PASS= 5 / MD 3 sec. over	Special 1 Mode
10	Set Special Parameter Group 2	PASS=15/ MD 3 sec. over	Special 2 Mode

3 Function Parameter

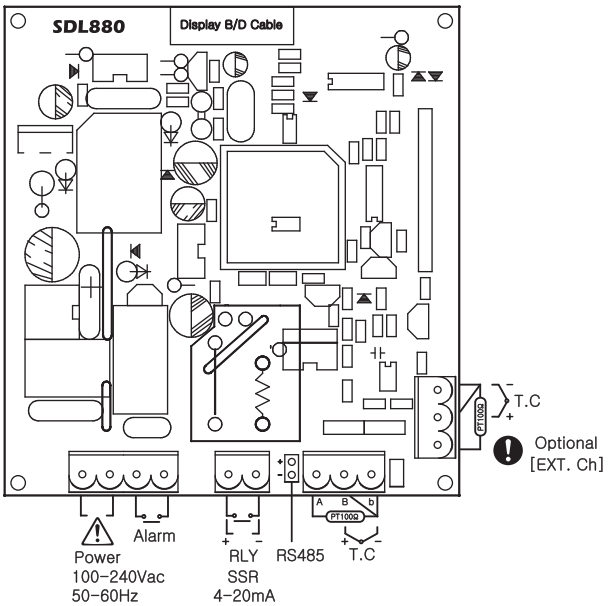
No	Mode	Sign	Set Parameter	Range	Unit	Init. Value
1	Operating Parameters	P	Proportional Band	ON-OFF, 0.1~999.8	%	5.0
2		I	Integral Time	5~9998	Sec	240
3		D	Derivative Time	0~2500	Sec	600
4		HYS	ON-OFF Hysteresys	1~120	℃	1
5		AL-1	Set alarm 1	-1999~9999	℃	F.S 100%
6		INS	Input Modification	-100.0~100.0	℃	0.0
7		CP	Control Period	1~60	Sec	10
8		TMMD	Time Unit	HH:MM/ MM:SS	-	HH:MM
9		PASS	Password	5, 15	-	0000
10	Special Parameters 1	INPT	Input	See Input Table	-	K
11		UNIT	Unit for Temperature	℃/ °F	-	℃
12		ALS.1	Alarm 1 Mode	See Alarm Table	-	-HI-
13		HYS.1	Alarm 1 Hysteresys	1~100	℃	1
14		CACT	Control Action	REV/ DIR	-	REV
15		MV-H	Output High Limit	50.0~105.0	%	100
16		MV-L	Output Low Limit	-5.0~30.0	%	0
17		D-TM	Delay Output Time	OFF, 00.01~30.00	M/S	OFF
18		BOUT	Control Output at Burn-Out	0.0~100.0	%	0.0
19		FILT	Input Filter	OFF, 1~60	Sec	OFF
20		SVHI	Set Value High Limit	250~6000	℃	6000
21		SVLO	Set Value Low Limit	-200~250	℃	-200
22		STMD	Start Mode	AUTO/MANU	-	AUTO
23		BUZ	Buzzer	OFF/ALL/ALM/TIME	-	ON
24		LBA	Loop Break	1~7200	Sec	60
25	Special Parameters 2	BL-C	Backlight Brightness	1/ 2/ 3	-	3
26		BL-T	Backlighe On Time	On/ 1~60	Min	ON
27		SCAN	Scaning Sensor	AUTO/ OUT/ IN	-	AUTO
28		ADDS	Address for RS485	1~99	-	1
29		SPED	Speed	2400/ 4800/ 9600	BPS	9600
30		PARY	Check Parity	NONE/ ODD/ EVEN	-	NONE
31		CDLY	Response Delay	1/ 2/ 3	mS	1
32		LDDF	Parameter Initializing '123'	0~9999	-	0

4 Input type & Measurment range

Sign	Input Signal	Celsius (℃)	Fahrenheit(°F)
K-tc	K type TC	-100~1370	-148~2498
J-tc	J type TC	-100~950	-148~1742
E-tc	E type TC	-100~750	-148~1382
n-tc	N type TC	-100~1300	-148~2372
C-tc	C type TC	0~2300	32~4172
t-tc	T type TC	-200~400	-328~752
K.1tc	K type TC	-100.0~400.0	-148~752
r-tc	R type TC	0~1760	32~3200
S-tc	S type TC	0~1760	32~3200
b-tc	B type TC	0~1800	32~3272
JPt	JIS PT100Ω RTD	-200~600	-328~1112
dPt	DIN PT100Ω RTD	-200~600	-328~1112
JPt1	JIS PT100Ω RTD	-200.0~600.0	-328~1112
dPt1	DIN PT100Ω RTD	-200.0~600.0	-328~1112

Note
▶ Caution for intialazing when change input signal.
▶ Caution for using decimal point mode of K type/Pt100ohm

5 Terminal Arrangement

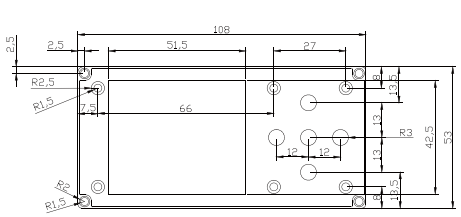


Note
▶ Caution input signal polarity
▶ Warning AC power input wiring

6 Specifications

Items		Specifications
Power	Power	100~240Vac (90~264Vac)
	Frequency	50~60Hz
	Power Consumption	6.0w max. 10VA less
	Insulation	between primary & secondary terminal: 500Vdc 20MΩ over
		between primary & ground terminal: 500Vdc 20MΩ over
		between secondary & ground terminal: 500Vdc 20MΩ over
	Dielectric Strength	between primary & secondary terminal: 2300Vdc 50/60Hz 1min.
		between primary & ground terminal: 2300Vdc 50/60Hz 1min.
		between secondary & ground terminal: 1500Vdc 50/60Hz 1min.
Input	Input	T.C: K/J/E/T/R RTD:Din Pt100/Pt100Ω Vdc: 1-5V/0-5V/0-10V/4-20mA(use Res.)
	Scan Time	250ms
	Impedance	T.C: 1MΩ
	Accuracy	T.C: ±0.3%+1digit or 3℃
		RTD: ±0.2%+1digit
Output	Relay	250Vac. 2A(R load)
	SSR	20Vdc pulse. 20mA max.
	Current	4-20mA. 600Ω max.
	Alarm	250Vac 1A(R load)
Installation Condition	Continuous Vibration	5-14Hz: forward width 1.2m max. 4-150Hz: 4.9m/cm2
	Vibration	14.7m/cm2 15sec. max. each 3 direction
	Shock	147m/cm2 11msec. max. 6 direction 3 times
Operating Condition	Temperature	0~50℃
	Humidity	35~85%RH. no condensation
	Influence of Magnetic	400AT/m max.
	Warm-up Time	30min. min.
Operating Environment	Thermocouples	±1μV/℃ or ±0.01%/℃ of F.S
	RTD	±0.05Ω/℃
	Analog Output	±0.05%/℃ of F.S
Storage	Temperature	-25~70℃
	Humidity	5~95%RH. no condensation

7 Dimensions & Panel cut



[Front Plate] [Main Board]

Note
- ▶ Useful for front sticker making and caution tact switch height.
- ▶ Warning leak current and shock when mounting boards.

8 Alarm Type

no	Alarm	Sign	Action
1	Alarm OFF	----	Alarm OFF
2	High	-HI-	High alarm based PV
3	Standby High	-SH-	Standby high alarm based PV
4	Low	-LO-	Low alarm based PV
5	Standby Low	-SL-	Standby low alarm based PV
6	Deviation High	-Hd-	Deviation high alarm based SV
7	Deviation Low	-Ld-	Deviation low alarm based SV
8	Deviation High/Low	-dE-	Deviation high/low alarm based SV
9	Burn Out	-bA-	Alarm on when sensor break
10	LBA	-Lb-	Loop break alarm
11	Timer End	-tn-	Alarm on when timer end

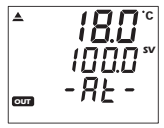
9 Features

- PRB Secondary Sensor Input — Selection 1'st/ 2'nd sensor
- LCD STN LCD pannel (wide view) — Bright and clear LCD
- Control End Timer (Max 99h59m /99m59s) — Useful timer
- Various Alarm Mode (B.out, LBA, Time END, Alarm) — Various alarm mode
- Control Start/Stop (RUN/STOP) — Enable only display mode
- Set Value Protection (Function Lock/Unlock) — Setting protection
- Manual Control Output (Manual Output) — Useful manual control mode
- Short Key (Function KEY) — Easy use
- PC Board Type (OEM Front Sticker) — OEM

Note
- ▶ Alarm contact output is one point. Sign by set mode AL1, AL2.
- ▶ Secondary sensor function is set by user selection or auto change when second sensor connected.

10 Operating

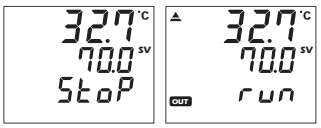
Auto Tuning



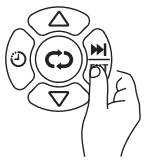
▶ set target value first. 3 sec. over 'UP' and 'ENT' at same time when control run



Control Start/Stop



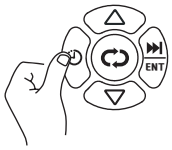
▶ 3 sec. over 'ENT' key



Set Timer



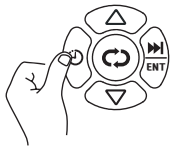
▶ click 'TIM' key



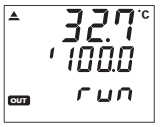
Timer Start/Stop



▶ 3 sec. over 'TIM' key when control 'RUN'



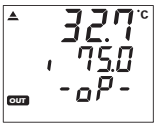
Change Display



▶ 'MD' key click when SV display display change SV↔Output Rate



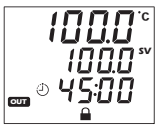
Set Manual Output



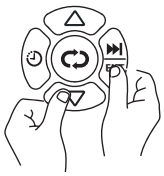
▶ 3 sec. over 'MD' and 'ENT' at same time when control 'RUN'



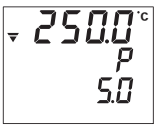
Set Lock/Unlock



▶ 3 sec. over 'DN' and 'ENT' keys at same time



Set Parameter



▶ 3 sec. over 'MD' key



Set Special Parameter 1



▶ enter set pass '5'



Set Special Parameter 2



▶ enter set pass '15' for optional functions

