

Autonics

TEMPERATURE CONTROLLER
TK4 SERIES



Thank you very much for selecting Autonics products.
For your safety, please read the following before using.

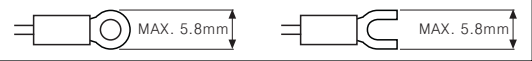
Caution for your safety

- Please keep these instructions and review them before using this unit.
- Please observe the cautions that follow;
Warning Serious injury may result if instructions are not followed.
- Caution** Product may be damaged, or injury may result if instructions are not followed.
- The following is an explanation of the symbols used in the operation manual.
caution:Injury or danger may occur under special conditions.

Warning

- In case of using this unit with machineries(Nuclear power control, medical equipment, vehicle, train, airplane, combustion apparatus, entertainment or safety device etc), it is required to install fail-safe device, or contact us. It may cause fire, human injury or property loss.
- Install the unit on a panel. It may cause an electric shock.
- Do not connect, inspect or repair when power is on. It may cause an electric shock.
- Wire properly after check terminal number. It may cause a fire.
- Do not disassemble the case. Please contact us if it is required. It may cause an electric shock or a fire.

Caution

- This unit shall not be used outdoors. It might shorten the life cycle of the product or give an electric shock.
- When connect wire, no.20AWG(0.50mm²) should be used and screw bolt on terminal block with 0.74N・m to 0.90N・m strength. It may cause a malfunction or fire due to contact failure.
- For crimped terminal, select following shaped terminal.

- Please observe the rated specifications. It might shorten the life cycle of the product and cause a fire.
- Do not use beyond of the rated switching capacity of relay contact. It may cause insulation failure, contact melt, contact failure, relay broken and fire etc.
- In cleaning unit, do not use water or an oil-based detergent and use dry towels. It may cause an electric shock or a fire.
- Do not use this unit in place where there are flammable or explosive gas, humidity, direct ray of the light, radiant heat, vibration and impact etc. It may cause a fire or an explosion.
- Do not inflow dust or wire dregs into the unit. It may cause a fire or a malfunction.
- Please wire properly after check the terminal polarity when connect temperature sensor. It may cause a fire or an explosion.
- In order to install the units with reinforced insulation, use the power supply unit which basic insulation level is ensured.

Ordering information

TK	4	S	-	1	R	R
OUT2 Control output (*3)						
OUT1 Control output(*2)						
Power supply						
Option output(*1)						
Size						
Digit						
Item						
Standard						
Heating, Cooling						
R						
S						
C						
4						
SP						
1						
2						
R						
T						
A						
B						
SP						
S						
M						
W						
H						
L						
4						
TK						

- 1: In case of SP series, option control output selection and digital input will be limited due to number of terminals.
- 2: "S" represents SSRP drive voltage output support model which SSR standard/cycle/phase control are available. "C" represents both current and SSR(standard) output support model.
- 3: Select "R" or "C" type in case of using heating&cooling control. Select "N" type in case of using standard control.
- 4: 11 Pin Socket(PG-11,PS-11): Sold separately

*The above specifications are subject to change without notice.

Specifications

Series	TK4S	TK4SP	TK4M	TK4W	TK4H	TK4L
Power supply	100~240VAC 50/60Hz					
Allowable voltage range	90 ~ 110% of rated voltage					
Power consumption	Max. 8VA					
Display method	7 Segment(Red), Other display part(Green, Yellow, Red) LED					
Character size	PV(W×H) SV(W×H)	7.0mm×14.0mm 5.0mm×10.0mm	9.5mm×20.0mm 7.5mm×15.0mm	8.5mm×17.0mm 6.0mm×12.0mm	7.0mm×14.6mm 6.0mm×12.0mm	11.0mm×22.0mm 7.0mm×14.0mm
Input type	RTD	JPT 100Ω, DPT 100Ω, CU 100Ω, CU 50Ω, Nickel 120Ω (6types)				
Display accuracy	Thermocouples	K, J, E, T, L, N, U, R, S, B, C, G, PLII(13types) Voltage: 0~100mV, 0~5V, 1~5V, 0~10V(4types) / Current: 0~20mA, 4~20mA(2types)				
	RTD	(*1) At room temperature(23℃±5℃): (PV ±0.3% or ±1℃, select the bigger one) ±1Digit Out of range of room temperature: (PV ±0.5% or ±2℃, select the bigger one) ±1Digit In case of TK4SP series, ±1℃ will be added.				
	Analog	At room temperature(23℃±5℃): ±0.3% F・S ±1Digit, Out of range of room temperature: ±0.5℃ F・S ±1Digit				
Control output	Relay	250VAC 3A 1a				
	SSR	11VDC±2V 20mA Max.				
	Current	DC4~20mA or DC0~20mA (Load 500Ω Max.)				
Alarm output	Relay	AL1, AL2 Relay: 250VAC 3A 1a (TK4SP: AL1 only)				
Option output	Transmission	DC4~20mA (Load 500Ω Max., Accuracy: ±0.3% F・S)				
	Communication	RS485 communication output (Modbus RTU)				
Option input	CT	0.0~50.0A(Primary heater current value measuring range) *CT ratio = 1000:1(except TK4SP)				
	Digital input	• Contact Input: ON~Max. 2kΩ, OFF~Min. 90kΩ • Non-contact input: ON~Residual voltage max. 1.0V, OFF~leakage current max. 0.1mA * TK4S/M~1EA(due to limited terminals), TK4H/W/L~2EA(except TK4SP)				
Control type	heating,cooling	ON/OFF, P, PI, PD, PID control mode				
	heating&cooling					
Hysteresis		• Thermocouples / RTD: 1 ~ 100℃/°F (0.1 ~ 100.0℃/°F) variable • Analog: 1 ~ 100Digit				
Proportional band(P)		0.1 ~ 999.9% (0.1 ~ 999.9%)				
Integral time(I)		0 ~ 9999 sec.				
Derivative time(D)		0 ~ 9999 sec.				
Control period(T)		0.1 ~ 120.0 sec(*Relay output and SSR drive output only)				
Manual reset value		0.0 ~ 100.0%				
Sampling period		50ms				
Dielectric strength		2000VAC 50/60Hz for 1min. (between power source terminal and input terminal)				
Vibration resistance		0.75mm amplitude at frequency of 5 ~ 55Hz (for 1min.) in each X, Y, Z direction for 2 hours				
Relay life cycle	Mechanical	OUT1/2: Over 5,000,000 times, AL1/2: Over 20,000,000 times(TK4H/W/L: Over 5,000,000 times)				
Electrical	OUT1/2: Over 200,000 times, AL1/2: Over 100,000 times(TK4H/W/L: Over 200,000 times)					
	Insulation resistance	Over 100MΩ (500VDC megger)				
Noise resistance		Square shaped noise by noise simulator (pulse width 1μs) ±2kV R-phase, S-phase				
Memory retention		Approx. 10years(When using non-volatile semiconductor memory type)				
Ambient temperature		-10 ~ 50℃ (at non-freezing status)				
Storage temperature		-20 ~ 60℃ (at non-freezing status)				
Ambient humidity		35 ~ 85%RH(at non-dew status)				
Protection		IP65(Front panel) *TK4SP: IP50(Front panel)				
Insulation type(*2)		□				
Unit weight		Approx. 105g	Approx. 85g	Approx. 140g	Approx. 141g	Approx. 198g

- 1: ○ At room temperature(23℃±5℃)
➔ TC K, J, T, N, E type, below -100℃ / TC L, U, PL II type: (PV ±0.3% or ±2℃, select the bigger one) ±1Digit
➔ TC C, G type/TC R, S type, below 200℃: (PV ±0.3% or ±3℃, select the bigger one) ±1Digit
➔ TC B type, below 400℃: There is no accuracy standards.
○ Out of range of room temperature
➔ TC R, S, B, C, G: (PV ±0.5% or ±5℃, select the bigger one) ±1Digit
➔ Others: Below -100℃: Within ±5℃
○ In case of TK4SP series, ±1℃ will be added.
- 2: "□" represents that this unit is double or reinforced insulated.

Input Sensor Type and Temperature Range

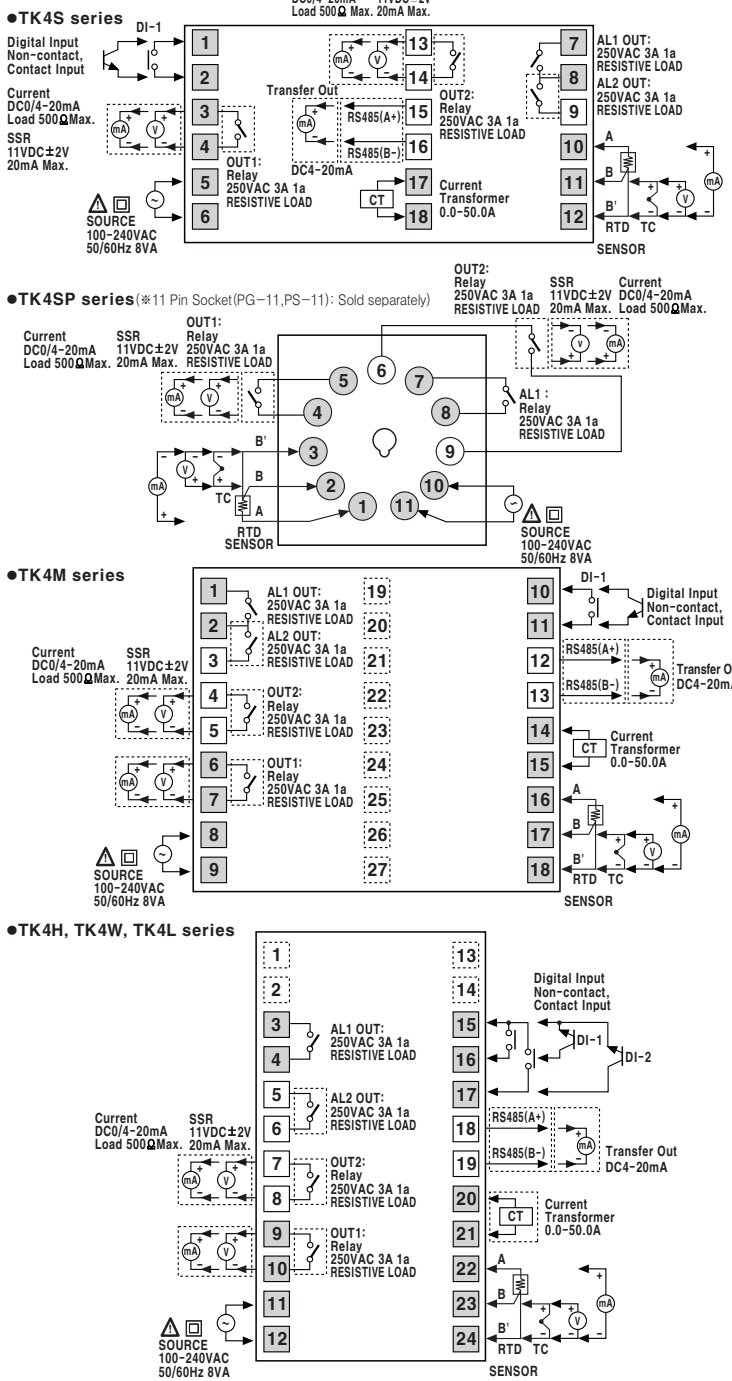
Input type	Dot	Display	Input range(℃)	Input range(°F)
ThermoCouple	K (CA)	1	ECRH	-200 ~ 1350
		0.1	ECRL	-199.9 ~ 999.9
	J (IC)	1	JICH	-200 ~ 800
		0.1	JICL	-199.9 ~ 800.0
	E (CR)	1	ECRH	-200 ~ 800
		0.1	ECRL	-199.9 ~ 800.0
	T (CC)	1	ECCH	-200 ~ 400
		0.1	ECCL	-199.9 ~ 400.0
	B (PR)	1	bPR	0 ~ 1800
		1	rPR	0 ~ 1750
RTD	S (PR)	1	sPR	0 ~ 1750
		1	nNN	-200 ~ 1300
	C (TT) (*1)	1	CtE	0 ~ 2300
		1	GtE	0 ~ 2300
	G (TT) (*2)	1	GtE	0 ~ 2300
		1	LICH	-200 ~ 900
	L (IC)	0.1	LICL	-199.9 ~ 900.0
		1	UCLH	-200 ~ 400
	U (CC)	0.1	UCLL	-199.9 ~ 400.0
		1	PLII	0 ~ 1390
Analog	CU 50Ω	0.1	CU5	-199.9 ~ 200.0
		0.1	CU10	-199.9 ~ 200.0
	JIS Standards	1	JPtH	-200 ~ 650
		0.1	JPtL	-199.9 ~ 650.0
	DIN Standards	0.1	dPt5	-199.9 ~ 600.0
		1	dPtH	-200 ~ 650
	Nickel 120Ω	1	nI12	-80 ~ 200
	Voltage	0 ~ 10V	Ru1	
		0 ~ 5V	Ru2	
Current	0 ~ 100mV		Rau1	
			Rau1	
	0 ~ 20mA		RaR1	
			RaR2	

(*1) Same as existing W5 (TT) type sensor (*2) Same as existing W(TT) type sensor

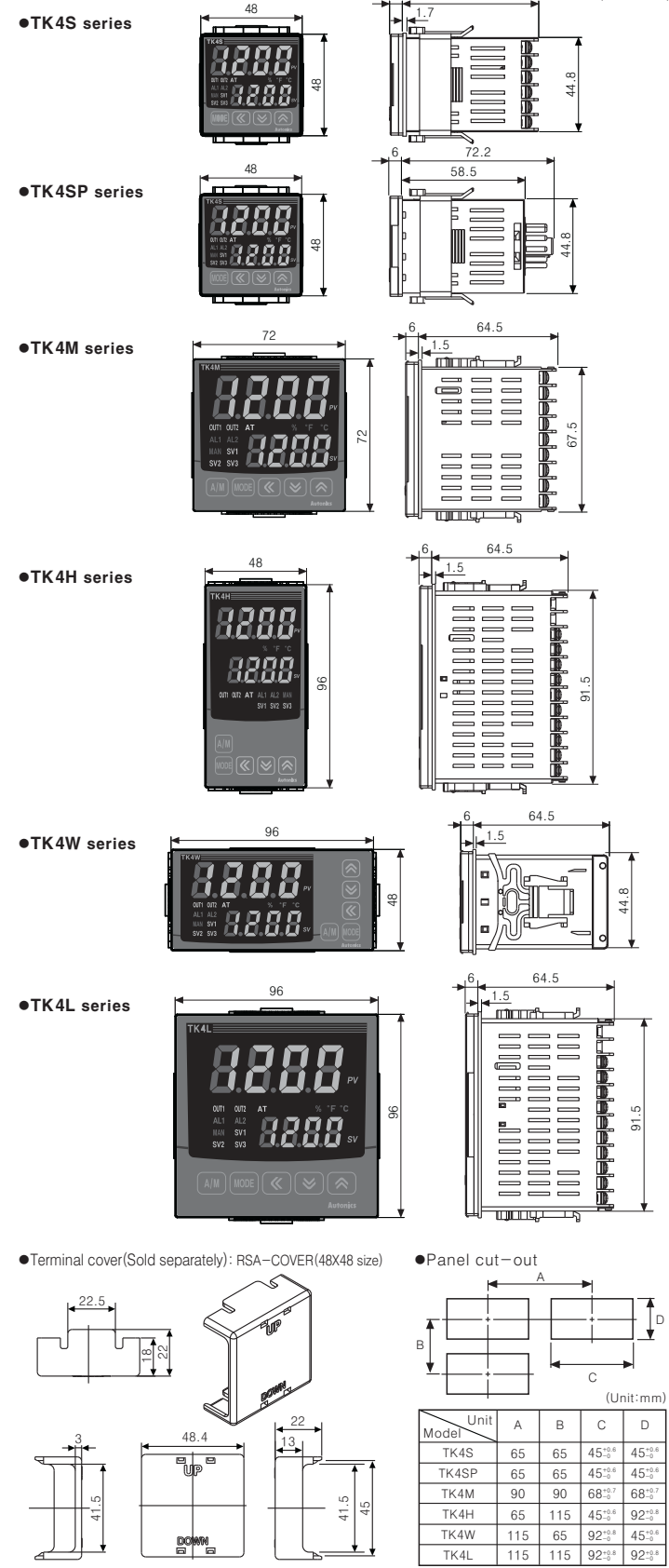
Parts description

- PV display part: It shows current temperature (PV) in RUN mode and parameters in Setting mode.
- SV display part: It shows setting temperature value (SV) to control in RUN mode and each parameter setting value in Setting mode.
- Temperature Unit(℃/°F/%) Indicator: It shows current temperature unit.
- Manual Control Indicator: It will be ON in case of selecting manual control mode.
- Multi SV Indicator: One of SV1~3 lamp will be ON in case of selecting multi SV function.
- Auto-Tuning Indicator: It will be flickering every 1 sec during Auto-tuning.
- Alarm output indicator: It will be ON when each alarm output is ON.
- Control output(Heating, Cooling) Indicator: It will be ON when control output is ON.
* In case of SSRP output support model, it will be on when MV is over 5.0%
* In case of selecting current output (4~20mA DC, 0~20mA DC),
- Manual control mode: It will be always ON except MV is 0.0%.
- Auto control mode: It will be ON when MV is over 3.0%, and OFF when MV is below 2.0%.
- key: Used when switching auto control mode ↔ manual control mode
* In case of TK4S/SP model(48x48), key will be used for the same function(auto control mode ↔ manual control mode switching).
- key: Used when entering into parameter setting mode and moving parameters.
- key: Used when entering into set value change mode and Digit moving.
- key: Used when entering into set value change mode and changing set value(Digit).
- Input selection switch: Used when switching sensor input (TC, RTD) ↔ analog input (mV, V, mA).
- PC loader port: It is serial communication PC loader port for PC parameter setting and monitoring used when connecting dedicated loader cable(SCM-US).

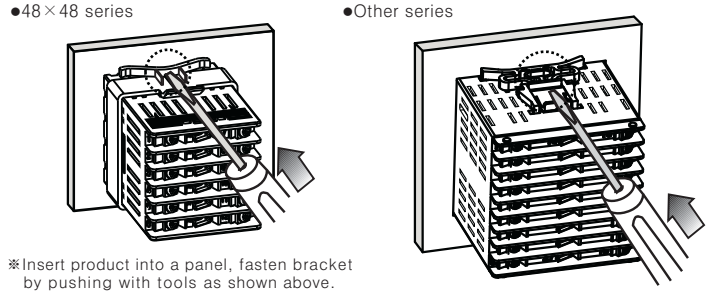
Connections



Dimensions



Product mounting



Run mode

- Press any key among [OK], [Enter], [Exit] once. → **MODE** 2 sec.
- A/M (*2) → Heating MV Monitoring / Cooling MV Monitoring.

PRr1 (When PW is valid)

- Control Output RUN/STOP (r-s) 1.5 sec.
- Multi SV Number (S_n-n)
- Heater Current Monitoring (Ct-R)
- Alarm output1 low-limit set value (RL1L)
- Alarm output1 high-limit set value (RH1H)
- Alarm output2 low-limit set value (RL2L)
- Alarm output2 high-limit set value (RH2H)
- SV-0 set value (S_v-0)
- SV-1 set value (S_v-1)
- SV-2 set value (S_v-2)
- SV-3 set value (S_v-3)

PRr2

- Auto-Tuning RUN/STOP (Rt) 1.5 sec.
- Heating Proportional Band (H-P)
- Cooling Proportional Band (C-P)
- Heating Integral Time (H-i)
- Cooling Integral Time (C-i)
- Heating derivative Time (H-d)
- Cooling derivative Time (C-d)
- Dead Band (db)
- Manual Reset (r-ESt)
- Heating Hysteresis (H.HYS)
- Heating OFF Offset (H.oSt)
- Cooling Hysteresis (C.HYS)
- Cooling OFF Offset (C.oSt)
- MV Low Limit (L-~su)
- MV High Limit (H-~su)
- RAMP-Up Change Rate (r-RU)
- RAMP-Down Change Rate (r-Rd)
- RAMP Unit (r-Jnt)

PRr3

- Input Type (I-n-t) 1.5 sec.
- Sensor temperature unit (Un-t)
- Analog low-limit input value (L-~G)
- Analog high-limit input value (H-~G)
- Decimal Point (dot)
- Low Scaling (L-~SC)
- High Scaling (H-~SC)
- Display Unit (dJnt)
- Input Bias (I-n-b)
- Moving Average Digital Filter (mAF)
- SV Low Limit (L-~su)
- SV High Limit (H-~su)
- Control output operation mode (o-Ft)
- Temperature control type (C-~nd)
- Auto-tuning mode (RtSt)
- OUT1 Control output selection (oUt1)
- OUT1 SSR output type (o1Sr)
- OUT1 Current output range (o1rA)
- OUT2 Control output selection (oUt2)
- OUT2 Current output range (o2rA)
- Heating Control Time (H-t)
- Cooling Control Time (C-t)

PRr4

- Alarm output1 operation mode (RL-1)
- Alarm output1 option (RL1L)
- Alarm output1 hysteresis (RH1H)
- Alarm 1 NO/NC (R1n)
- Alarm 1 ON Delay Time (R1oan)
- Alarm 2 OFF Delay Time (R2oF)
- Alarm output2 operation mode (RL-2)
- Alarm output2 option (RL2L)
- Alarm output2 hysteresis (RH2H)
- Alarm 2 NO/NC (R2n)
- Alarm 2 ON Delay Time (R2oan)
- Alarm 2 OFF Delay Time (R2oF)
- LBA Time (LbaRt)
- LBA Set (LbaRS)
- LBA Band (LbaRB)
- Analog Output Mode (Ra-o-n)
- Transmission OUT low scale (F5-L)
- Transmission OUT high scale (F5-H)
- Unit Address (Rad-S)
- Bit Per Second (bPS)
- Parity Bit (P-b-y)
- Stop Bit (StP)
- Response Waiting Time (r-wT)
- Communication Write (Cw-n-y)

PRr5

- Multi SV (rt S_v) 1.5 sec.
- Digital Input Key Function (di-t)
- Digital Input 1 (di-1)
- Digital Input 2 (di-2)
- Initial Manual MV (I-mSt-su)
- Preset Manual MV (Pr-su)
- Error MV (Er-su)
- Stop MV (St-su)
- User Level (USer)
- SV setting group lock (LC.Sv)
- Parameter group1 lock (LC.P1)
- Parameter group2 lock (LC.P2)
- Parameter group3 lock (LC.P3)
- Parameter group4 lock (LC.P4)
- Parameter group5 lock (LC.P5)
- Password setting (Pwd)

Navigation Rules:

- *1: Press any key among [OK], [Enter], [Exit] once to shift to password code required window. Press any key among [OK], [Enter], [Exit] to return to RUN mode.
- *2: In case of TK4S/SP model, A/M key function will be replaced by MODE key.
- * Each parameter holds its own Memory Address for communication function.
- * Press [MODE] key over 2 sec in RUN mode to enter into setting mode.
- * Press [MODE] key for 1.5 sec while in setting mode to move to other parameter group.
- * Press [MODE] key over 3 sec while in setting mode to return to RUN mode.
- * Press [MODE] key at the lowest level of parameter to move parameter group screen and move to other parameter group.
- * If there is no additional key operation within 30 sec after entering into setting mode, it will be automatically returned to RUN mode and previous setting value will be remained.
- * If selecting standard user level, shaded parameters are shown only. Rest parameters will be shown when selecting high user level. (User level can be set in Parameter Setting Group 5.)

Mode	Alarm output operation	Description(Default Deviation)
OFF	—	■ No alarm output
duLL	High deviation : Set as 10°C High deviation : Set as -10°C	■ Deviation high-limit alarm (Temperature, analog : +F : S) If PV/SV deviation is occurring higher than set value of deviation temperature, alarm output will be ON. Deviation temperature is set in RL 1H / RL 2H.
LLdu	Lower deviation : Set as 10°C Lower deviation : Set as -10°C	■ Deviation low-limit alarm (Temperature, analog : +F : S) If PV/SV deviation is occurring lower than set value of deviation temperature, alarm output will be ON. Deviation temperature is set in RL 1L / RL 2L.
duLC	Lower deviation : Set as 10°C , High deviation : Set as 20°C	■ Deviation high / low-limit alarm (Temperature, analog : +F : S) If PV/SV deviation is occurring higher or lower than set value of deviation temperature, alarm output will be ON. High-limit deviation temperature is set in RL 1H / RL 2H. Low-limit deviation temperature is set in RL 1L / RL 2L.
LCdu	Lower deviation : Set as 10°C , High deviation : Set as 20°C	■ Deviation high / low-limit reverse alarm (Temperature : 0, analog : 0) If PV/SV deviation is occurring higher or lower than set value of deviation temperature, alarm output will be ON. High-limit deviation temperature is set in RL 1H / RL 2H. Low-limit deviation temperature is set in RL 1L / RL 2L.
PuLL	Absolute-value Alarm : Set as 90°C Absolute-value Alarm : Set as 110°C	■ Absolute value high-limit alarm (Temperature : High-limit value, analog : H-5C or L-5C, Select the higher one.) If PV is higher than absolute value of alarm temperature, alarm output will be ON. Absolute alarm value is set in RL 1H / RL 2H.
LLPu	Absolute-value Alarm : Set as 90°C Absolute-value Alarm : Set as 110°C	■ Absolute value low-limit alarm (Temperature : Low-limit value, Analog : H-5C or L-5C, Select the lower one.) If PV is lower than absolute value of alarm temperature, alarm output will be ON. Absolute alarm value is set in RL 1L / RL 2L.
LbAr	It will be ON when it detects loop break.	■ Loop Break Alarm
SbAr	It will be ON when it detects sensor disconnection.	■ Sensor Break Alarm
HbAr	It will be ON when it detects heater break using CT.	■ Heater Break Alarm

Setting an Initial Password

Changing an Initial Password (1234 to 5678)

Flowchart illustrating the steps to set an initial password:

- Enter into parameter setting group 5 and move to password setting parameter [Pw5].
- Press **[MODE]** key to move Digit and press **[0]**, **[3]** key to set desired password.
- Press **[MODE]** key after setting new password. Afterwards, it is required to re-enter password in order to prevent password error. Previous password will be shown on SV display part.
- Re-enter the password to ensure newly set password as specified in ②.
 - If re-entered password is matched to an initial password set in ②, the setting value will be flickering twice and password setting will be completed.
 - If re-entered password is not matched to an initial password set in ②, an Error[Err] message will be flickering twice and password setting window.

Flowchart illustrating the steps to change an initial password (1234 to 5678):

- Enter into parameter setting group 5 and move to password setting parameter [Pw5].
- Press **[MODE]** key to move Digit and press **[1]**, **[2]**, **[3]**, **[4]** key to set desired password.
- Press **[MODE]** key after setting new password. Afterwards, it is required to re-enter password in order to prevent password error. Previous password will be shown on SV display part.
- Re-enter the password to ensure newly set password as specified in ②.
 - If re-entered password is matched to an initial password set in ②, the setting value will be flickering twice and password setting will be completed.
 - If re-entered password is not matched to an initial password set in ②, an Error[Err] message will be flickering twice and password setting window.

① : Enter into parameter setting group 5 and move to password setting parameter [Pw5].

② : Press **[MODE]** key to move Digit and press **[0]**, **[3]** key to set desired password.

③ : Press **[MODE]** key after setting new password. Afterwards, it is required to re-enter password in order to prevent password error. Previous password will be shown on SV display part.

④ : Re-enter the password to ensure newly set password as specified in ②.

⑤ : Press **[MODE]** key after re-entering password. Newly set password will be flickering twice and password setting will be completed. Then, [PAR5] will be shown again.

If re-entered password is not matched to an initial password, error message will be flickering twice and it will be returned to initial password setting window.

Heating Manual Control

① Run mode

② Heating MV monitoring

③ Execute Heating manual control

④ Change Heating Manual MV

⑤ Finish Heating manual control

Return to auto control

In case of standard control, cooling control is executed

In case of standard control, return to auto control mode

Cooling Manual Control

① Cooling MV monitoring

② Execute Cooling manual control

③ Change Cooling manual control

④ Finish Cooling manual control

In case of Heating & Cooling control

● Manual control switching in standard control mode (Heating control or Cooling control)

①, ⑤ : Press **A/M** key in RUN mode to enter into MV monitoring mode. "H" (Heating control) or "C" (Cooling control) will be shown with current MV on SV display part.

②, ⑥ : Press any key among **1**, **2**, **3**, **4** during MV monitoring to switch to manual control mode. Then, the last Digit will be flickering and MAN lamp will be ON.

③, ⑦ : Press **5** key to move flickering Digit.

④, ⑧ : Press **1**, **2** key continuously to set desired MV value.
Press **3**, **4** key to set MV.

⑨ : Press **A/M** key (**MODE** key for S, SP model) while ①~⑧ to return to auto control mode. MAN lamp will be OFF.

● Manual control switching in Heating control & Cooling control mode

① : Press **A/M** key (**MODE** key for S, SP model) to enter into heating MV monitoring mode. "H" will be shown with current heating MV on SV display part.

② : Press any key among **1**, **2**, **3**, **4** during heating MV monitoring to switch to manual control mode. Then, the last Digit will be flickering and MAN lamp will be ON.

③ : Press **5** key to move flickering Digit.

④ : Press **1**, **2** key continuously to set desired MV value.

⑤ : Press **A/M** key (**MODE** key for S, SP model) while ①~④ to enter into cooling MV monitoring mode. "C" will be shown with current cooling MV on SV display part.

⑥ : Press any key among **1**, **2**, **3**, **4** during cooling MV monitoring to switch to manual control mode. Then, the last Digit will be flickering.

⑦ : Press **5** key to move flickering Digit.

⑧ : Press **1**, **2** key continuously to set desired MV value.

⑨ : Press **A/M** key (**MODE** key for S, SP model) while ⑤~⑧ to return to auto control mode. MAN lamp will be OFF.

* In case of heating & cooling control, heating MV output will be continuously provided while cooling monitoring or cooling MV setting is executed.

● SV setting group [Su]				● Password input Parameter			
Mode	Factory Default	Mode	Factory Default	Mode	Factory Default	Mode	Factory Default
Su	0			PR55	0001		

● Parameter 1 setting group [PR-1]							
Mode	Factory Default	Mode	Factory Default	Mode	Factory Default	Mode	Factory Default
r-r5	rUn	RL IL	1550	RL2H	1550	Su-2	0000
Su-n	Su-0	RL IH	1550	Su-0	0000	Su-3	0000
CLt-A		RL2L	1550	Su-1	0000		

● Parameter 2 setting group [PR-2]							
Mode	Factory Default	Mode	Factory Default	Mode	Factory Default	Mode	Factory Default
At	oFF	H-d	0000	H.o5t	000	rRAU	000
H-P	0 10.0	C-d	0000	C.HY5	002	rAnU	000
C-P	0 10.0	db	0000	C.o5t	000	rAnU	n n
H-1	0000	rESL	050.0	L-nu	100.0		
C-1	0000	H.HY5	002	H-nu	100.0		

● Parameter 3 setting group [PR-3]							
Mode	Factory Default	Mode	Factory Default	Mode	Factory Default	Mode	Factory Default
1-nb	PLRAH	H-5C	100.0	o-Ft	HEAT (Standard type)	o 15r	5tnd
Unlt	oC	dUnlt	oFo		H-C (Heating, Cooling type)	o 15R	4-20
L-rG	0000	1-nb	0000	C-nd	Pl d (Standard type)	oUtZ	CUrr
H-rG	10.00	AnuF	000.1		P.P (Heating, Cooling type)	oE.nR	4-20
dot	0.0	L-5u	-200	At.t	tUn 1	H-t	020.0 (RELAY)
L-5C	000.0	H-5u	1350	oUt 1	CUrr	C-t	002.0 (SSR drive)

● Parameter 4 setting group [PR-4]							
Mode	Factory Default	Mode	Factory Default	Mode	Factory Default	Mode	Factory Default
AL-1	duCL	AL-2	33du	LbALt	0000	Adr-5	0 1
AL-1t	AL-A	AL2t	AL-A	LbAL5	008	bPS	96
RIHY	00 1	R2HY	00 1	LbALb	003	PrtY	nanE
R 1n	no	R2n	no	Ro-n	Pu	5tP	2
R 1on	0000	F5-on	0000	F5-L	-200	r5Yt	20
R 1oF	0000	R2oF	0000	F5-H	1350	CoNY	E.nR

● Parameter 5 setting group [PR-5]							
Mode	Factory Default	Mode	Factory Default	Mode	Factory Default	Mode	Factory Default
An5u	1	Pr-nu	000.0	Lc5u	oFF	LcPS	oFF
dl-5t	5tOP	E-nu	000.0	LcP 1	oFF	P2d	0000
dl-1	5tOP	5t-nu	000.0	LcP2	oFF		
dl-2	AL-rE	5tAL	ConE	LcP3	oFF		
1t-nu	RUto	USEr	5tnd	LcP4	oFF		

- Refer to User Manual for more detailed product descriptions and usage.
- Visit our web site(www.autonics.com) to download user manual and PC loader program.

– PC loader program : DAQMaster is used for parameter setting and monitoring.

Item	Recommended Requirement
System	IBM PC compatible PC, Intel Pentium III above
Memory	256MB
Hard Disk	100M of Hard Disk Space or more
Resolution	1024X768
Operating system	Windows 98/NT/XP/Vista/Window 7(In case of Windows 98, only English supported)
Communication Port	RS-232 Serial Port (9Pin), USB Port

- A function to set user levels(Standard Level/High Level) to place limitations on parameter display.
- User level can be set in Parameter Setting Group 5. When selecting Standard Level, shaded parameters specified in "**Flow Chart for Setting Group**" will be displayed only.
- Setting Range : $SEnd, H, GH$ - Default : $SEnd(Unit : -)$

- Press + + to initialize all parameters in memory to default value.
- Set [I nI t] parameter to "yE5" to initialize all parameters.
- In case password function is on, it is required to enter valid password to initialize parameters. (Password is also initialized.)
- Setting range : yE5, n0

- Default : n0 (Unit : -)

1. Installation environment
①It shall be used indoor. ②Altitude Max. 2000m. ③Pollution Degree 2. ④Installation Category II.
2. Please use separated line from high voltage line or power line in order to avoid inductive noise.
3. Please install power switch or circuit-breaker in order to cut power supply off.
The switch or circuit-breaker should be installed near by users.
4. This unit is designed for temperature controlling only. Do not apply this unit as a voltage meter or a current meter.
6. In case of using RTD sensor, 3wire type must be used. If you need to extend the line, 3wires must be used with the same thickness as the line.
It might cause temperature difference if the resistance of line is different.
7. In case of making power line and input signal line close, line filter for noise protection should be installed at power line and input signal line should be shielded.
8. Keep away from the high frequency instruments. (High frequency welding machine & sewing machine, big capacitive SCR controller)

***It may cause malfunction if above instructions are not followed.**

- Proximity sensors
- Area sensors
- Door/Door side sensors
- Counters
- Rotary encoders
- Power controllers
- Panel meters
- Temperature controllers
- Temperature/Humidity transducers
- Stepping motors/drivers/motion controllers
- Laser marking system (CO₂, Nd:YAG)
- Laser welding/soldering system
- Photoelectric sensors
- Fiber optic sensors
- Pressure sensors
- Timers
- Display units
- Sensor controllers
- Graphic/Logic panels
- Tachometer/Pulse(Rate) meters

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