Autonics

High Accuracy PID Temperature Controller TK4 SERIES

INSTRUCTION MANUAL

(€ c**91**° us



Thank you for choosing our Autonics product Please read the following safety considerations before use.

Safety Considerations

**Please observe all safety considerations for safe and proper product operation to avoid hazards.

*A symbol represents caution due to special circumstances in which hazards may occur.

Marning Failure to follow these instructions may result in serious injury or death.

Caution Failure to follow these instructions may result in personal injury or product damage.

▲ Warning

- 1. Fail-safe device must be installed when using the unit with machinery that may cause serious injury 1. Fail-sare device must be installed winer using the unit with machinery that may cause serious injury or substantial economic loss. (e.g. nuclear power control, medical equipment, ships, vehicles, railways, aircraft, combustion apparatus, safety equipment, crime/disaster prevention devices, etc.)

 Failure to follow this instruction may result in fire, personal injury, or economic loss.

 2. Install on a device panel to use.

 Failure to follow this instruction may result in electric shock.

 3. Do not connect, repair, or inspect the unit while connected to a power source.

 Failure to follow this instruction may result in electric shock or fire.

- A Check 'Connections' before wiring.
 Failure to follow this instruction may result in fire.
 5. Do not disassemble or modify the unit.
 Failure to follow this instruction may result in electric shock or fire.

▲ Caution

- 1. When connecting the power input and relay output, use AWG 20 (0.50mm²) cable or over and tighten the terminal screw with a tightening torque of 0.74~0.90Nm.

 When connecting the sensor input and communication cable without dedicated cable, use AWG 28~16 cable or over and tighten the terminal screw with a tightening torque of 0.74~0.90Nm.

 Failure to follow this instruction may result in fire or malfunction due to contact failure.
- 2. Use the unit within the rated specifications.
- 2. Use the time within the trace apectations.
 Failure to follow this instruction may result in fire or product damage.
 3. Use dry cloth to clean the unit, and do not use water or organic solvent.
 Failure to follow this instruction may result in electric shock or fire.
 4. Do not use the unit in the place where flammable/explosive/corrosive ga
- radiant heat, vibration, impact, or salinity may be present. Failure to follow this instruction may result in fire or explosion.
- 5. Keep metal chip, dust, and wire residue from flowing into the unit Failure to follow this instruction may result in fire or product damage

Ordering Information

TK 4 N - 1 4 R N

┰┸	╜┯╜┖┯╜┯╜┯╜							
	OUT2 control	Stan	dard	N None *Select in case of standard control (heating or cooling)				
	output ^{×3}			R Relay output				
		Cool		C Current output or SSR drive output selectable				
	OUT1 control	R		av output				
	output**2	S ^{×4}						
		C						
			-					
	Power supply	2 *5		AC 50/60Hz, 24-48VDC				
		4	100	-240VAC 50/60Hz				
				Standard Alarm output 1+CT input*8				
			. 1	Heating&Cooling Alarm output 2**7				
				Standard Alarm output 1+Alarm output 2				
		N		Standard Alarm output 1+Digital input (DI-1, DI-2) Heating&Cooling Digital input (DI-1, DI-2)				
		14		Standard Alarm output 1+Transmission output				
			R	Heating&Cooling Transmission output				
				Standard Alarm output 1+RS485 communication output				
	Input/Output option ^{×1}		' F	Heating&Cooling RS485 communication output				
		SP		Alarm output 1				
				Alarm output 1				
		S		Alarm output 1+Alarm output 2				
		M		Alarm output 1+Transmission output				
		W		Alarm output 1+RS485 communication output				
		Н		Alarm output 1+Alarm output 2+Transmission output				
		L		Alarm output 1+Alarm output 2+RS485 communication output				
			D A	Alarm output 1+Alarm output 2+Digital input (DI-1, DI-2)*8				
		N	D	IN W48×H24mm				
		SP	D	IN W48×H48mm (11pin plug type) ^{*9}				
	Size	S	D	IN W48×H48mm (terminal block type)				
		М	D	IN W72×H72mm				
		W	D	IN W96×H48mm				
		Н	D	IN W48×H96mm				
	Digit	L	D	IN W96×H96mm				
	Digit	4	9	999 (4-digit)				
Item		TK	To	emperature / Process Controller				

- X1. In case of TK4N/SP Series, option control selection and digital input will be limited due to number of terminals.
 X2. "S" represents SSR drive output support models which SSRP function (standard ON/OFF, cycle, phase) control are available. "C" represents selectable current and SSR drive output support models.
 X3. Select "R" or "C" type in case of using heating&cooling control and "N" type in case of using standard control.
 X4. Does not support in AC/IDC voltage type model.
 X5. Does not support in TK4N.
 X6. The CT input model of TK4N is selectable only for standard model which has alarm output 1.
 X7. The heating&cooling model of TK4N-I□□ has only alarm output 2.
 X8. Only for TK4S-D:□□ OUT2 output terminal is used as DI-2 input terminal.
 X9. 11Pin socket (PG-11, PS-11(N)) for TK4SP: sold separately.

(catalog, homepage).

- %Shaded descriptions are upgraded or added functions from the before TK Series.

 %The above specifications are subject to change and some models may be discontinued without notic

 ßBe sure to follow cautions written in the instruction manual, user manual and the technical descriptions

■ Specifications

Series		TK4N	TK4SP	TK4S	TK4M	TK4W	TK4H	TK4L
Power	AC voltage	100-240VAC	~ 50/60Hz					
supply	AC/DC voltage			60Hz, 24-48V	DC			
Allowable	voltage range	90 to 110% o						
Power	AC voltage	Max. 6VA	Max. 8VA	,				
	AC/DC voltage	_		4VAC 50/60H	z). max. 5W (24-48VDC)		
Display n		7-segment (F		reen), other o	<i></i>		red) LFD met	hod
	PV (W×H)	4.5×7.2mm				8.5×17.0mm		
size	SV (W×H)	3.5×5.8mm				6.0×12.0mm		
OILO	RTD			50Ω, Cu 100:				11.0 11.0111
Input	Thermcouple			, C, G, PLII (1		INC1 12012 (0 t	урсэ	
type	<u> </u>			-5VDC==, 1-5\		C- (4 types)	·	
.,,,,	Analog	·Current: 0-20			7DC, 0=10VI	70 (4 types)		
	RTD			°C ±5°C): (PV	+0.3% or +19	celect the h	nigher one) +1	1_digit ^{×1}
Display	Thermcouple	·Out of room	temperature	ranges: (PV ± ±1°C will be a	0.5% or ±2°C			
accuracy	Analog			°C ±5°C): ±0.3 ranges: ±0.5°				
	CT input	±5% F.S. ±1-						
	Relay	OUT1, OUT2	2: 250VAC~ 3	3A, 30VDC==	3A, 1a			
Control	SSR	Max. 11VDC						
output	Current	DC4-20mA o	r DC0-20mA	selectable (re	sistance load	: max. 500Ω)		
Alarm out	put Relay	AL1. AL2: 250	0VAC~ 3A 1a	XTK4N AL2:	250VAC~ 0.5	A. 1a (max. 1)	25VA), TK4SF	has only AL1
Option	Transmission			ad: max. 5000				,
output	Communication	,		tput (Modbus		,		
	СТ			current readi		CT ratio is 1/1	000 (except 1	K4SP)
	·			2kΩ, OFF - n		31 1000 10 17 1	осо (олоорг і	, ,
Option input Digital input Digital input Digital input Digital input On - residual vot Outflow current: approx. 0.5mA per i				esidual votag 0.5mA per inp	e max. 1.0VD ut			
Control method	Heating, Cooling Heating&Cooling	ON/OFF, P, F				,		
Hysteresi	is	·RTD/Thermo	couples: 1 to	100°C/°F (0.1	to 100.0°C/°F) variable ·A	nalog: 1 to 10	0-digit
	nal band (P)	0.1 to 999.9°	C/°F (0.1 to 9	99.9%)				
Integral ti	me (I)	0 to 9999 sed	C .					
Derivative		0 to 9999 sec	C					
Control p	eriod (T)			output: 0.1 to e output: 1.0 t				
Manual re	eset value	0.0 to 100.09	6					
Sampling	period	50ms						
Dielectric		2.000VAC 50)/60Hz for 1 r	nin (between	nower source	terminal and	input termina	I)
Vibration		,		uency of 5 to				,
				000 operations		, 2001171,	.,	
Relay	Mechanical			operations (T		.5,000,000 op	erations)	
life cycle	Electrical			in. 100.000 or				
Insulation	resistance	Over 100MΩ						
Noise im	munity			noise simulato	r (pulse width	1µs) ±2kV R-	-phase, S-pha	ase
Memory				itile semicondu	· ·		. , ,	
Environ	Ambient temp.	-10 to 50°C, s			,	/		
	Ambient humi	35 to 85%RH			-			
-ment	, androne nurill.				nanal\			
-ment	n	IP65 (front panel) %TK4SP: IP50 (front panel) Double insulation or reinforced insulation						
-ment Protection Insulation	-	Double insula	ation or reinfo	orced insulation	n	nnut nart c=d	the news	ort - 21/1/
Protection	-	Double insula	ation or reinfo		n	nput part and	the power pa	art : 2kV)

- | Weight 2 | Paper 100 | Pape
 - (PV ±0.3% or ±2°C, select the higher one) ±1-digit

 Thermocouple B type, below 400°C itere is no accuracy standards.
- Thermocouple B type, below 400°C: there is no accuracy standards.
 Out of room temperature range
 RTD Cu500, DPt500: (PV ±0.5% or ±3°C, select the higher one) ±1-digit
 Thermocouple R, S, B, C, G type: (PV ±0.5% or ±5°C, select the higher one) ±1-digit
 Others, below -100°C: within ±5°C
 In case of TK45P Series, ±1°C will be added to the degree standard.

 2. The weight includes packaging. The weight in parenthesis is for unit only.

 Environment resistance is rated at no freezing or condensation.

Unit Description

* The input selection switch (TC, RTD/mV, V, mA) disappeared.







- 13. Measured value (PV) display part: RUN mode: It displays currently measured value (PV).

 2. Set value (SV) display part: RUN mode: It displays the parameter and the set value (SV).

 3. Unit (*C/*F/%) indicator: It displays the unit set at display unit [J_{OT} ! ·] in parameter 3 group.

 (In case of TK4N, % is not supported)

 4. Manual control indicator: It turns ON during manual controlling.

 5. Multi SV indicator: One of SV1 to 3 lamps will be ON in case of selecting multi SV function.

 6. Auto tuning indicator: It flashes by 1 sec. when executing auto tuning.

 7. Alarm output (AL1, AL2) indicator: It turns ON when the alarm output is ON.

 8. Control output (OUT1, OUT2) indicator: It turns ON when the control output is ON.

 8. Control output (OUT1, OUT2) indicator: It turns ON when the slarm output is ON.

 8. To use current ouput, when MV is 0.0% in manual control, it turns OFF. Otherwise, it always turns ON.

 8. When MV is over 3.0% in auto control, it turns ON and when MV is bole by 2.0%, it turns OFF.

 9. Link key: It is used when switching auto control to manual control.

 8. TK4N/SSP do not have the Eu& key. The Eu@Eb key operates switching simultaneously.

 10. MODE key: It is used when entering parameter groups, returning to RUN mode, moving parameter, saving the set value.

 11. € S. Reys: It is used when entering be set value changing mode and moving or changing up/down digit.

 12. Digital input key: When pressing S. + & keys for 3 sec. at the same time, it operates the function (RUNSTOP, alarm clear, auto tuning) set at digital input key [J₁ · J₂] in parameter 5 group.

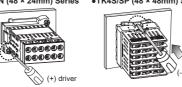
 13. PC loader port: It is the PC loader port for serial communication to set parameter with DAQMaster installed in PC. Use this for connecting SCM-US (USB/Serial converter, sold separately).

Installation

Militaria

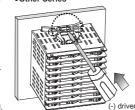
XInsert the unit into a panel

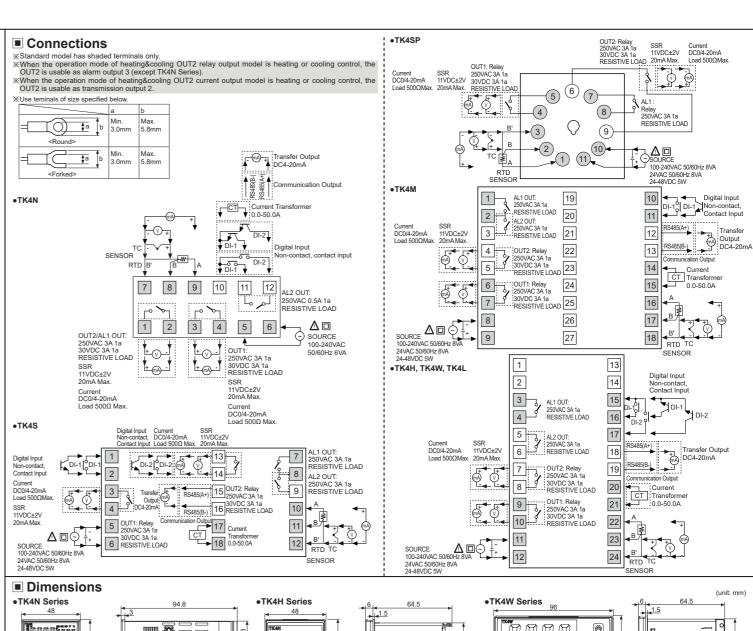
•TK4S/SP (48 × 48mm) Series





*Insert the unit into a panel, fasten the bracket by pushing with tools with a (-) drive



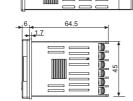




TK4SP Series

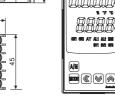
TK4M Series

Bracket



72.2

64.5

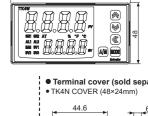


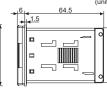
•TK4L Series





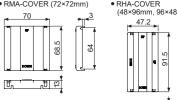
64.5

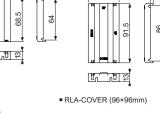


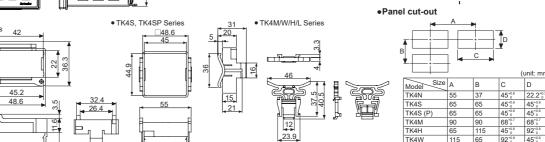


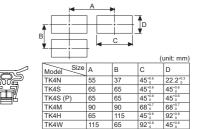


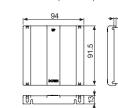


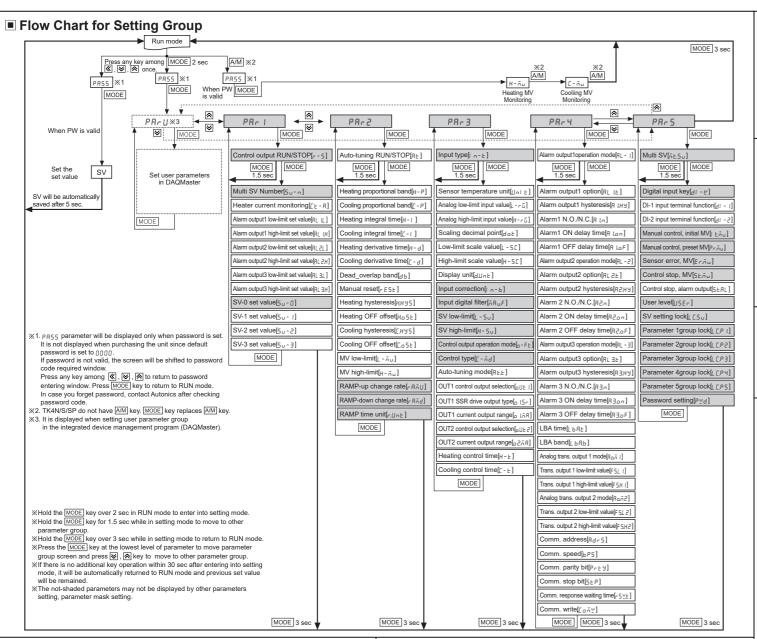












Input Types and Range

pat .	, p = 0 a				
Input type		Decimal point	Display	Input range (°C)	Input range (°F)
	K (CA)	1	EC R.H	-200 to 1350	-328 to 2463
	(OA)	0.1	PERL	-199.9 to 999.9	-199.9 to 999.9
	J (IC)	1	JI E.H	-200 to 800	-328 to 1472
	3 (10)	0.1	JI C.L	-199.9 to 800.0	-199.9 to 999.9
	E (CR)	1	ECr.H	-200 to 800	-328 to 1472
	L (CK)	0.1	ECr.L	-199.9 to 800.0	-199.9 to 999.9
	T (CC)	1	E C C.H	-200 to 400	-328 to 752
	(00)	0.1	E C C.L	-199.9 to 400.0	-199.9 to 752.0
Thermocouple	B (PR)	1	ьРг	0 to 1800	32 to 3272
	R (PR)	1	r Pr	0 to 1750	32 to 3182
	S (PR)	1	5 Pr	0 to 1750	32 to 3182
	N (NN)	1	0.00	-200 to 1300	-328 to 2372
	C (TT)*1	1	[EE	0 to 2300	32 to 4172
	G (TT)**2	1	G E E	0 to 2300	32 to 4172
	L (IC)	1	LI E.H	-200 to 900	-328 to 1652
		0.1	LI C.L	-199.9 to 900.0	-199.9 to 999.9
	II (CC)	1	UE C.H	-200 to 400	-328 to 752
	0 (00)	0.1	UC C.L	-199.9 to 400.0	-199.9 to 752.0
	Platinel II	1	PLII	0 to 1390	32 to 2534
	Cu 50Ω	0.1	EU 5	-199.9 to 200.0	-199.9 to 392.0
	Cu 100Ω	0.1	CU 10	-199.9 to 200.0	-199.9 to 392.0
S (PR) N (NN C (TT) G (TT) G (TT) L (IC) U (CC Platine Cu 505 Cu 100 JPt 10 DPt 56 DPt 10 DP	JPt 1000	1	JPE.H	-200 to 650	-328 to 1202
	31 (10002	0.1	JPE.L	-199.9 to 650.0	-199.9 to 999.9
INID	DPt 50Ω	0.1	dPE.5	-199.9 to 600.0	-199.9 to 999.9
	DPt 100Ω	1	dPE.H	-200 to 650	-328 to 1202
	DF1 10012	0.1	dPE.L	-199.9 to 650.0	-199.9 to 999.9
	Nickel 120Ω	1	n! 12	-80 to 200	-112 to 392
		0-10V	Ru I		
	Voltage	0-5V	R∪2]	
Analag	voltage	1-5V	Ru3	-1999 to 9999 (Display point will be	ahangad
Analog		0-100mV	Rñu I	according to decimal	
	C	0-20mA	RAR I		p pooluoi,
	Current	4-20mA	8ñ82	7	

X1: C (TT): Same temperature sensor as former W5 (TT) ×2: G (TT): Same temperature sessor as former W (TT)

Initial Display When Power ON

When power is supplied, whole display parts flash for 1 sec. Afterwards, model name and input sensor type will be flash twice and then in enters into RLIN mode







 Whole display part ② Model type display
③ Input type display twice
④ Run mode Set Value (SV) Setting

You can set the temperature to control with $[\underline{\mathbb{G}}, \underline{\mathbb{G}}]$, $[\underline{\mathbb{G}}]$ keys. Set range is within SV low-limit value $[\underline{\mathbb{E}}, -5_{\cup}]$ to SV high-limit value $[\underline{\mathbb{E}}, -5_{\cup}]$. Ex) In case of changing set temperature from 210°C to 250°C







ey operations in 3 sec,

ne changed SV is



Parameter Reset

Press (+) + (to reset all parameters in memory to default value.

Set [j n/ k] parameter to '9£5' to reset all parameters. In case password function is on, it is required to enter valid password to reset parameters. Password is also reset.

Parameter Mask

This function is able to hide unnecessary parameters to user environment or less frequently used parameters in parameter group. You can set this in the integrated device management program (DAQmaste Masked parameters are not only displayed. The set value of masked parameters are applied.

For more information, refer to the DAQMaster user manual.

VISIT OUT WEDSITE (WWW	v.autonics.com)	to download the	DAQmaster	program an	a the user	manuai.	
Before applying mask	PRr2 →	RE ► H-P	[-P	H-1 →	[-]	H-d →	[-d •••

After applying mask PR-2 → H-P → H-1 → H-d · · ·

The above is masking auto tuning [g_E], cooling proportional band [$g_E - p$], cooling integral time [$g_E - g_E$], cooling derivative time [$g_E - g_E$] parameters in parameter 2 group.

■ User Parameter Group [P A - U] Setting

This function is able to set the frequently used parameters to the user parameter group. You can quickly and easily set parameter settings. User parameter group can have up to 30 parameters in the integrated device management program (DAQMaster).
For more information, refer to the DAQMaster user manual.

Visit our website (www.autonics.com) to download the DAQmaster program and the user manual.



The above is setting user parameter group in the DAQMaster with alarm output 1 low-limit value [AL IL], alarm output 1 high-limit value [RL IH], SV-0 set value [Su-0] parameter of parameter 1 group, heating hysteresis[HH5], cooling hysteresis [LH5] parameters of parameter 2 group, input correction [In-B] parameter of parameter 3 group, alarm output 1 hysteresis [R IH5], alarm output 2 hysteresis [R2H5] parameters of parameter 4 group.

Auto-tunning

Run mode

Auto-tuning measures the control subject's thermal characteristics and thermal response rate, and ther determines the necessary PID time constant. Application of the PID time constant realizes fast response and high precision temperature control. (when setting control type $[r-\bar{a}_d]$ is set as P_l d, it is displayed.)

Set $[R_L]$ parameter to $[a_n]$ in parameter 2 group to start auto-tuning. To stop auto-tuning, change the set as $[a_kF_L]$.

(It maintains P, I, D values of before auto-tuning.)
If sensor break error [oPEn] occurs during auto-tuning, it stops this operation. If the measured temperature is over or below the input range, it operates continuously.

During auto-tuning operation, whole parameters are only available to check.

Alarm

Alarm operation

Mode	Name	Alarm operation	Description
oFF	_	_	No alarm output
duCC	Deviation high-limit alarm	OFF H ON OFF H ON SV PV N	If deviation between PV and SV as high-limit is higher than set value of deviation temperature, the alarm output will be ON.
33du	Deviation low-limit alarm	ON H OFF PV SV 90°C 100°C Low deviation: Set as 10°C ON H OFF SV PV SV PV 100°C 110°C Low deviation: Set as -10°C	If deviation between PV and SV as low-limit is higher than set value of deviation temperature, the alarm output will be ON.
JduC	Deviation high/low-limit alarm	ON H OFF H ON PV SV PV 90°C 100°C 120°C Low deviation : Set as 10°C , High deviation : Set as 20°C	If deviation between PV and SV as high/low-limit is higher than set value of deviation temperature, the alarm output will be ON.
[du]	Deviation high/low-limit reserve alarm	OFF H ON H OFF PV SV PV 90°C 100°C 120°C Low deviation : Set as 10°C , High deviation : Set as 20°C	If deviation between PV and SV as high/low-limit is lower than set value of deviation temperature, the alarm output will be OFF.
PuCC	Absolute value high-limit alarm	OFF H ON OFF H ON PV SV SV PV 90°C 100°C 100°C 110°C Absolute-value: Set as 90°C Absolute-value: Set as 110°C	If PV is higher than the absolute value, the output will be ON.
33Pu	Absolute value low-limit alarm	ON H OFF PV SV SV PV 90°C 100°C 100°C 110°C Absolute-value: Set as 90°C Absolute-value: Set as 110°C	If PV is lower than the absoulte value, the output will be ON.
LЬЯ	Loop break alarm	_	It will be ON when it detects loop break.
SER	Sensor break alarm	_	It will be ON when it detects sensor disconnection.
нья	Heater break alarm	_	It will be ON when CT detects heater break.

ЖH: Alarm output □ hysteresis[п□ну]

Alarm option

Mode	Name	Description
AL-A	Standard alarm	If it is an alarm condition, alarm output is ON. If it is a clear alarm condition, alarm output is OFF.
AL-b	Alarm latch	If it is an alarm condition, alarm output is ON and maintains ON status.
AL-E	Standby sequence 1	First alarm condition is ignored and from second alarm condition, standard alarm operates. When power is supplied and it is an alarm condition, this first alarm condition is ignored and from the second alarm condition, standard alarm operates.
AL-d	Alarm latch and standby sequence 1	If it is an alarm condition, it operates both alarm latch and standby sequence. When power is supplied and it is an alarm condition, this first alarm condition is ignored and from the second 1alarm condition, alarm latch operates.
AL-E	Standby sequence 2	First alarm condition is ignored and from second alarm condition, standard alarm operates. When re-applied standby sequence and if it is alarm condition, alarm output does not turn ON. After clearing alarm condition, standard alarm operates.
AL-F	Alarm latch and standby sequence 2	Basic operation is same as alarm latch and standby sequence1. It operates not only by power ON/OFF, but also alarm set value, or alarm option changing. When reapplied standby sequence and if it is alarm condition, alarm output does not turn ON. After clearing alarm condition, alarm latch operates.

Condition of re-applied standby sequence for standby sequence 2, alarm latch and standby sequence 2; Power ON, changing set temperature, alarm temperature [AL 1, AL 2] or alarm operation [AL - 1, AL - 2], switching STOP mode

■ Factory Default

•SV setting group [5u] Parameter

9 9. oap [] 0]	•1 a33wo
Factory default	Paramete
0	PRSS
Ü	PHSS

_	i assword input	parameter				
	Parameter	Factory default				
	PRSS	0001				

•	Parameter 1 group [PRc +]											
	Parameter	Factory default	Parameter	Factory default	Parameter	Factory default	Parameter	Factory default				
	r-5	rUn	AL IH	1550	RL 3.H	1550	5u-3	0000				
	5u-n	5u-0	AL 2.L	1550	5u-0	0000						
	CE-A	0.0	RL 2.H	1550	5u-1	0000	_					
	AL IL	1550	RL 3.L	1550	50-2	0000						

Parameter 2 group [PR-2]

		_					
Parameter	Factory default						
RĿ	oFF	H-d	0000	H.o5t	000	rRāU	000
H-P	0 10.0	[-d	0000	C.H 9 5	002	rRād	000
[-P	0 10.0	db	0000	E.o5t	000	r.Unt	ñl n
H-1	0000	rE5t	050.0	L-ñu	+0 0.0		_
[-1	0000	HH 95	002	H-ñu	10 0.0		

Parameter 3 group [PR∈∃]

Parameter	Factory default						
In-E	LC U.H	H-5E	100.0	o-Ft	HERL	o 1.5 r	Stnd
Uni E	٥٢	d.Unt	٥٠٥	0-70	н-[o lãR	4-20
L6	0 0.0 0	In-b	0000	[-ñd	PId	oUE2	Eurr
H5	10.00	ñRu.F	000.1	r-ua	P.P	a 2.5 B	4-20
dot	0.0	L-5u	-200	R Ł.Ł	EUn I	H-E	0 2 0.0 (Relay)
L-5[000.0	H-5u	1350	oUt I	Curr	[-E	002.0 (SSR)

Parameter 4 group [₽Яс Ч]

	5 1 1						
Parameter	Factory default	Parameter	Factory default	Parameter	Factory default	Parameter	Factory defaul
AL-1	du[[R2.n	no	LЬR.E	0000	6P5	96
AL IL	AL-A	R2.on	0000	L b R.b	002	Prty	nonE
A THA	001	R2.oF	0000	Ro.ñ I	Pu	SEP	2
A Lo	no	RL-3	oFF	F 5.L 1	-200	r526	20
A Lon	0000	RL 3.E	AL-A	F 5.H 1	1350	Coñy	E n.A
A LoF	0000	R3.HY	001	Ro.ñ2	Pu		
AL-2	JJdu	R3.n	no	F 5.L 2	-200		
AL 2.E	AL-A	R3.on	0000	F 5.H2	1350		
R2.H9	001	R 3.o F	0000	Adr 5	0 1		

Parameter 5 group [PR-5]

	ciault i aiairietei	ractory delault	Parameter	Factory default	Parameter	Factory default
ñt.5u 1	Pr.ñu	0.00.0	L C.5 u	oFF	L C.P.S	oFF
di-E StoP	Er.ñu	0 0 0.0	L C.P I	oFF	Pig	0000
di - i off	5t.ñu	0.00.0	L C.P.2	oFF		
di -2 off	5t.AL	Cont	L C.P3	oFF		
I E.ñu RUE o	USEr	Stnd	L C.P4	oFF		

*Shaded parameters are for the heating&cooling model.

User Manual

For the detail information and instructions, please refer to user manual and user manual for communication and be sure to follow cautions written in the technical descriptions (catalog, homepage). Visit our homepage (www.autonics.com) to download manuals.

Comprehensive Device Management Program[DAQMaster]

DAQMaster is a comprehensive device management software for setting parameters and monitoring processes. DAQMaster can be downloaded from our website at www.autonics.com.

Item	Minimum specifications		
System	IBM PC compatible computer with Pentium III or above		
Operations	Windows 98/NT/XP/Vista/7/8/10		
Memory	256MB+		
Hard disk	1GB+ of available hard disk space		
VGA	Resolution: 1024×768 or higher		
Others	RS232C serial port (9-pin), USB port		

Cautions during Use

1. Follow instructions in 'Cautions during Use'. Otherwise, It may cause unexpected accidents.
2. Check the polarity of the terminals before wiring the temperature sensor.
For RTD temperature sensor, wire it as 3-wire type, using cables in same thickness and length.
For thermocouple (CT) temperature sensor, use the designated compensation wire for extending wire.
3. Keep away from high voltage lines or power lines to prevent inductive noise.

In case installing power line and input signal line closely, use line filter or varistor at power line and shielded wire at input signal line.

Do not use near the equipment which generates strong magnetic force or high frequency noise.

4. Do not apply excessive power when connecting or disconnecting the connectors of the product.

5. Install a power switch or circuit breaker in the easily accessible place for supplying or disconnecting the

This is a power structure of the purpose (e.g. voltmeter, ammeter), but temperature controller.
 To not use the unit for other purpose (e.g. voltmeter, ammeter), but temperature controller.
 When changing the input sensor, turn off the power first before changing.
 After changing the input sensor, modify the value of the corresponding parameter.
 24VAC, 24-48VDC power supply should be insulated and limited voltage/current or Class 2, SELV power carriers during.

8. 24/AC, 24-AB/DC power supply should be insulated and illimited voltage reunient of oldob 2, 000 pour supply device.
9. Do not overlapping communication line and power line.
Use twisted pair wire for communication line and connect ferrite bead at each end of line to reduce the effect of external noise.
10. Make a required space around the unit for radiation of heat.
For accurate temperature measurement, warm up the unit over 20 min after turning on the power.
11. Make sure that power supply voltage reaches to the rated voltage within 2 sec after supplying power.
12. Do not wire to terminals which are not used.
13. This unit may be used in the following environments.

© Indoors (in the environment condition rated in 'Specifications')

@ Pollution degree 2

@ Installation category II

■ Major Products

■ Photoelectric Sensors ■ Temperature Controller
■ Fiber Optic Sensors ■ Temperature/Humidity

SSRs/Power Controllers Counters
Timers
Panel Meters
Tachometer/Pulse (Rate) Meters ■ Door Side Sensors

Proximity Sensors
Pressure Sensors
Rotary Encoders
Connector/Sockets ■ Display Units ■ Sensor Controllers

■ Connector/Sockets ■ Sensor Controllers
Switching Mode Power Supplies
■ Control Switches/Lamps/Buzzers
■ I/O Terminal Blocks & Cables
Stepper Motors/Drivers/Motion Controllers
Graphic/Logic Panels
Frield Network Devices

Laser Marking System (Fiber, CO₂, Nd: YAG)
■ Laser Welding/Cutting System

Autonics Corporation http://www.auto

HEADQUARTERS

■ E-mail: sales@autonics.com

DRW170598AB