Autonics

LCD Display PID Temperature Controller TX SERIES

INSTRUCTION MANUAL

C€ (**₹1**) IS [©



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

■ Safety Considerations

XPlease observe all safety considerations for safe and proper product operation to avoid hazards. $\times \underline{\Lambda}$ 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

- Fail-safe device must be installed when 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.
- 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.
 4. 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 to 0.90N·m.

 When connecting the sensor input and communication cable without dedicated cable, use AWG 28 to 16 cable and tighten the terminal screw with a tightening torque of 0.74 to 0.90N·m.

 Failure to follow this instruction may result in fire or malfunction due to contact failure.

 2. Use the unit within the rated specifications.

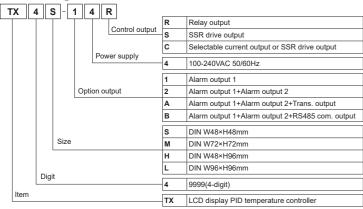
- 2. Use the unit within the rated specifications.
 Failure to follow this instruction may result in fire or product damage.

 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 gas 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



Input Type and Range

Input type		Decimal point	Display	Input range(°C)	Input range(°F)
	K (CA)	1	KERH	-50 to 1200	-58 to 2192
	K (CA)	0.1	KERL	-50.0 to 999 9	-58 0 to 999.9
	J (IC)	1	JI C.H	-30 to 800	-22 to 1472
	3 (10)	0.1	JI C.L	-30.0 to 800 0	-22 0 to 999.9
Thermocouple	1 (10)	1	LI C.H	-40 to 800	-40 to 1472
Thermocouple	L (IC)	0.1	LICL	-40.0 to 800 0	-40 0 to 999.9
	T (CC)	1	FECH	-50 to 400	-58 to 752
		0.1	FCCT	-50.0 to 400 0	-58.0 to 752.0
	R (PR)	1	RPR	0 to 1700	32 to 3092
	S (PR)	1	SPR	0 to 1700	32 to 3092
	DPt 100Ω	1	dРЕ,Н	-100 to 400	-148 to 752
RTD		0.1	dPE.L	-100.0 to 400 0	-148.0 to 752.0
	Cu50Ω	1	E US.H	-50 to 200	-58 to 392
		0.1	E U S.L	-50.0 to 200 0	-58.0 to 392.0

XThe above specifications are subject to change and some models may be discontinued without notice. Ee sure to follow cautions written in the instruction manual and the technical descriptions (catalog

Specifications

Series		TX4S	TX4M	TX4H	TX4L	
Power supply		100-240VAC~ 50/60	Hz			
Allowable voltage range		90 to 110% of rated voltage				
Power consumption		Max. 8VA				
Display m	ethod	11-segments (PV: wh	nite, SV: green), other	display (yellow) with	LCD method ^{※1}	
Character	PV(W×H)	7.2×14mm	10.7×17.3mm	7 2×15.8mm	16×26.8mm	
size	SV(W×H)	3.9×7.6mm	6 8×11mm	6 2×13.7mm	10.7×17 8mm	
Innut tuno	RTD	DPt100Ω, Cu50Ω (permissible line resistance max. 5Ω)				
Input type	TC	K (CA), J (IC), L (IC)	, T (CC), R (PR), S(P	R)		
Display	RTD	 At room temperature 	e: (23°C±5°C): (PV ±0	.3% or ±1°C, select the	e higher one) ±1-digit	
accuracy	TC TC	 Out of room temper 	ature: (PV ±0.5% or ±	2°C, select the higher	one) ±1-digit	
	Relay	250VAC~ 3A, 30VD	C== 3A, 1a			
Control	SSR	Max. 12VDC ±2V 20mA	Max. 13VDC ±3V 2	20mA		
output	Current	DC4-20mA or DC0-2	0mA (load resistance	max. 500Ω)		
0-4:	Alarm output	AL1, AL2: 250VAC 3	A~, 30VDC 3A 1a			
Option	Trans. output	DC4-20mA (load res	istance max. 500Ω, o	utput accuracy: ±0.39	6F.S.)	
output	Com. output	RS485 communication output (Modbus RTU method)				
Control m	ethod	ON/OFF control, P, PI, PD, P D control				
Hysteresis	s	1 to 100°C/°F (0.1 to 50.0°C/°F) variable				
Proportional band(P)		0.1 to 999 9°C/°F				
Integral time(I)		0 to 9999 sec				
Derivative time(D)		0 to 9999 sec				
Control pe	eriod(T)	0.5 to 120 0 sec				
Manual re	set	0.0 to 100 0%				
Sampling	period	50ms				
Dielectric	strength	3,000VAC 50/60Hz for 1 min (between primary circuit and secondary circuit)				
Vibration		0.75mm amplitude at frequency 5 to 55Hz (for 1 min) in each X, Y, Z direction for 2 hours				
Relay	Mechanical	OUT, AL1/2: min 5,000,000 operations				
life cycle Electrical		OUT, AL1/2: min 200,000 (250VAC 3A resistance load)				
Insulation	resistance	Min. 100MΩ (at 500VDC megger)				
Noise res	istance	Square shaped noise by noise simulator (pulse width 1µs) ±2kV R-phase, S-phase				
Memory retention		Approx. 10 years (non-volatile semiconductor memory type)				
Environ- Ambient temp.		-10 to 50°C, storage: -20 to 60°C				
ment Ambient humi. 35 to 85%RH, storage: 35 to 85%RH						
Protection structure		IP50 (front panel, IEC standards)				
Insulation type		Double insulation (mark: dielectric strength between primary circuit and secondary circuit: 3kV)				
Approval		(€ c 91) us [2]			- '	
Weight ^{×3}		Approx. 146.1g (approx. 86.7g)	Approx. 233g (approx. 143g)	Approx. 214g (approx. 133g)	Approx. 290g (approx. 206g)	

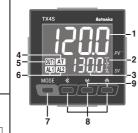
- - , over 200°C: (PV ±0.5% or ±2°C, select the higher one) \pm 1-digit TC L(IC), RTD Cu50 Ω : (PV \pm 0.5% or \pm 2°C, select the higher one) \pm 1-digit
- * ICCI(IC), KID CUDUL: (IV 10.3% or £c.v., seeds the higher one) £1-393.

 Out of room temperature range
 *TC R(PR), S(PR): (PV ±1.0% or ±5°C, select the higher one) ±1-digit
 *TC L(IC), RTD Cu500: (PV ±0.5% or ±3°C, select the higher one) ±1-digit

 %3: The weight includes packaging. The weight in parenthesis is for unit only.

 *Environment resistance is rated at no freezing or condensation.

Unit Description



- 1. Measured value (PV) component
- RUN mode: Displays current measured value (PV). SETT NG mode: Displays parameters.
- 2. Temperature unit(°C/°F) indicator
 Displays the set temperature unit as temperature unit [UNI E] of
- parameter 2 group.
- Setting value (SV) display component
- RUN mode: Displays setting value(SV).
 SETT NG mode: Displays setting value of parameter.

- 4. Auto-tuning indicator
 Flashes during auto-tuning every 1 sec.
 5. Control output (OUT1) indicator Turns ON while control output is ON. XTurns ON when MV is over 3 0% at cycle/phase control of SSR driv output method.
- 6. Alarm output (AL1, AL2) indicator
- Turns ON when the corresponding alarm output turns ON.
- 7. $\boxed{\mbox{MODE}}$ key $\mbox{ Enters parameter group, returns to RUN mode, moves parameters,}$
- New Enters parameter group, returns to RUN mode, moves parameters, and saves the setting value.

 Setting value adjutment key Enters SV setting mode and move digits.

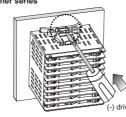
 Digital input key Press the ☑+ਿ② keys for 3 sec to execute the digital input key functions which is set at digital input key I/O parameter 2 group (RUN/STOP). clear alarm output, auto-tuning).
- 10. PC loader port It is for serial communication to set parameter by DAQMaster ed in PC. Use this for connection EXT-US (converter cable, sold separately) + SCM-US (USB/Serial converter, sold separately).

Installation

• TX4S (48×48mm) series



Other series



XInsert the unit into a panel, fasten the bracket by pushing with tools with a (-) driver.

Comprehensive Device Management Program[DAQMaster]

DAQMaster is a comprehensive device management software for setting parameters and

Item	Minimum specifications			
System	BM 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			

Connections

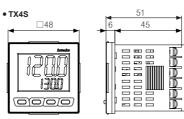
*Shaded terminals is standard model

TX4S Series TX4M Series • TX4H, L Series SSR 12VDC±2V 20mA Max 14 10 7 13 Relay 250VAC 3A 1a 30VDC 3A 1a RFSISTIVE LOAD 3 15 20 21 22 23 24 25 26 2 14 8 utput ansfer Output 16 4 12 3 3 5 17 4 OUT Relay 250VA0 30VDC RESIS 13 Current OUT DC4-20mA SSR Load 13VDC 3V 500ΩMax. 20mA Max. 6 14 11 17 OUT Current OUT DC4-20mA SSR Load 13VDC 3V 500ΩMax. 20mAMax. AL1 OUT 15 ∆□ Ģ ౖ 12 250VAC 3A 1a 30VDC 3A 1a RESISTIVE I 20 16 17 B 21 Δ□ ὑ, 22 27 18 B' SOURCE 23 **△**□ 😌

Dimensions

a Min. 3.0mm b Max.5.8mm

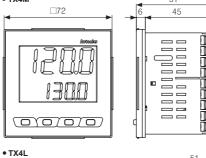
• TX4H

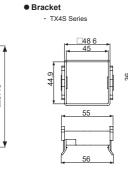


<Forked>

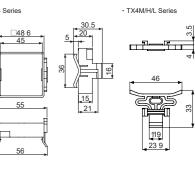
Max.5.8mm





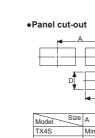


SOURCE



24 ◀B'

(unit: mm)

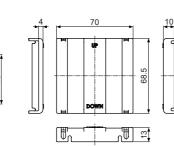


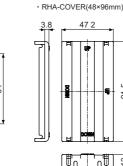
			(unit: mm
Α	В	С	D
Min. 65	Min. 65	45 0.6	45 🔐
Min. 90	Min. 90	68 0.7	68 ° 7
Min. 115	Min. 65	45 0.6	92 08
Min. 115	Min. 115	92 0.8	92 🔐
	Min. 65 Min. 90 Min. 115	Min. 65 Min. 65 Min. 90 Min. 90 Min. 115 Min. 65	A B C Min. 65 Min. 65 45 % Min. 90 Min. 90 68 %

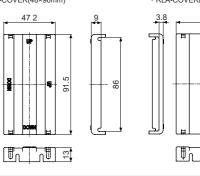
Terminal cover (sold separately)







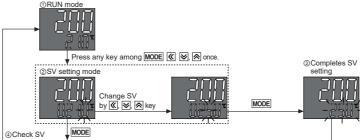




· RLA-COVER(96×96mm)

SV Setting

※To change set temperature from 210°C to 250°C



XIf there is no key input for 3 sec while setting SV, the new setting is applied and the unit will return to

Factory Default

SV setting

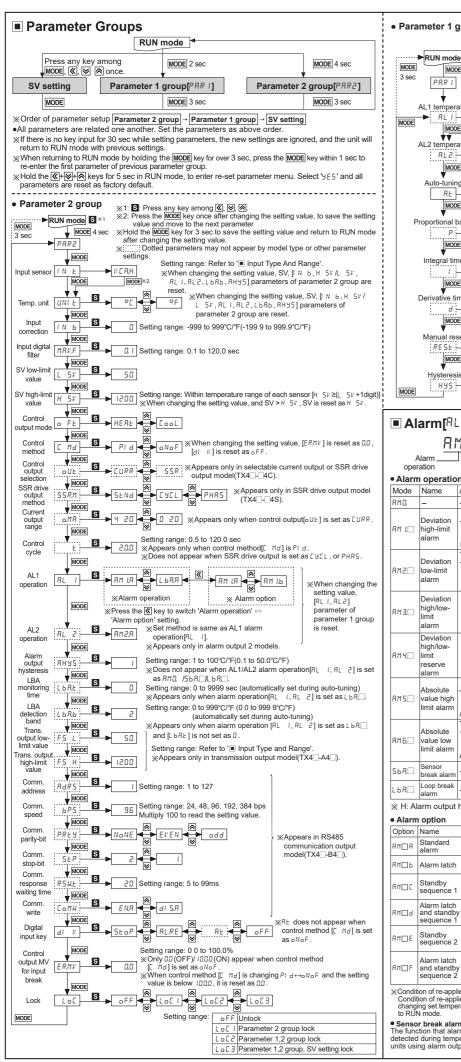
y default
0
р
μ

	r dramotor r group				
	Parameter	Factory default			
	AL I	1250			
	RL2	1630			
	RE	oFF			
.	Р	10.0			
	l	240			
	В	49			
	RESE	5 0.0			
	HY5	2			

• Parameter 2 group

AL-2

1 N-E	K E R.H	AHY5	1
UNI E	٥٥	L b R.E	0
1 N-P	0	L b R.b	2
MAV.F	D. 1	F5-L	-50
L-51/	-50	F5-H	1500
H-51/	1500	AdRS	1
o-FŁ	HERL	6P5	96
[-Md	PId	PRES	NoNE
oUL	CURR	SEP	2
5 S R.M	5 E N d	R S W.E	20
o.M A	4-20	C o M W	E N.A
Ŀ	20.0 (Relay)	d1 -K	StoP
_	2.0 (SSR drive)	E R.MV	0.0
AL-I	AM LA	LoC	oFF



Parameter 1 group ► RUN mode MODE MODE 2 sec 3 sec PAR I

x2: Press the MODE key once after changing the setting value, to save the setting value and move to the next paramete %Hold the MODE key for 3 sec to save the setting value and return to RUN mode

after changing the setting value.

AL1 temperature Setting range: Deviation alarm(-[F.S] to [F.S]), of parameter 2 group is set as AMD. /56A L6A. ▶ 1250 ※Only alarm output 2 models have [AL ≥]. BL2:-MODE

S OFF ON NO NOTICE THE ACT OF THE Rt-MODE flashes (every 1 sec). Proportional band Setting range: 0.1 to 999.9°C/°F MODE Integral time Setting range: 0 to 9999 sec 240 Integral operation will be OFF
 when the setting value is '0' «Only appears when control method [E Md] of parameter 2 group is set as Pl d. MODE Derivative time <u>S</u> **Derivative operation will be OFF
 when the setting value is '0' d L

MODE Setting range: 0 0 to 100.0% RESE S 50.0 »Only appears in P. PD control. MODE Setting range: 1 to 100°C/°F (0.1 to 50 0°C/°F) H95

■ Alarm[AL - 1/AL - 21 AM I.A Alarm ______ Larm operation option

Set both alarm operation and alarm option by combining. Set both alarm operation and airm option by combining. Each alarm operates individually in two alarm output models. When the current temperature is out of alarm range, alarm clears automatically. If alarm option is alarm latch or alarm latch and standby sequence 1/2, press digital input key[\otimes]+ \otimes] 3 sec, digital input key[d| κ] of parameter 2 group set as RLRE), or turn OFF the power and turn ON to clear alarm.

Alarn	n operatio	n			
Mode	Name	Alarm operation		Description	
AMO.	-	-		No alarm output	
ЯМ [Deviation high-limit alarm	OFF H ON SV PV 100°C 110°C High-limit deviation: Set as 10°C	OFF H ON A PV SV 90°C 100°C High-limit deviation: Set as -10°C	If deviation between PV and SV as high-limit is higher than set value of deviation temperature, the alarm output will be ON.	
Am 2.□	Deviation low-limit alarm	ON H OFF A PV SV 90°C 100°C Low-limit deviation: Set as 10°C	ON THOSE SV PV 100°C 110°C Low-limit 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.	
Am 3.	Deviation high/low- limit alarm	ON H OF DV ST 90°C 100 High, Low-limit dev	If deviation between PV and SV as high/low-limit is higher than set value of deviation temperature, the alarm output will be ON.		
ЯМЧ□	Deviation high/low- limit reserve alarm	OFF ↓H ↑ ON ↑H ↓OFF DV SV PV 90°C 100°C 110°C High, Low-limit deviation; Set as 10°C		If deviation between PV and SV as high/low-limit is higher than set value of deviation temperature, the alarm output will be OFF.	
Am 5.	Absolute value high limit alarm	OFF H ON DV SV 90°C 100°C Alarm absolute-value: Set as 90°C	OFF HON SV PV 100°C 110°C Alarm absolute-value: Set as 110°C	If PV is higher than the absolute value, the output will be ON.	
ЯМБ.□	Absolute value low limit alarm	ON TH OFF A PV SV 90°C 100°C Alarm absolute-value: Set as 90°C	ON H OFF SV PV 100°C 110°C Alarm absolute-value: Set as 110°C	If PV is lower than the absolute value, the output will be ON.	
56R.	Sensor break alarm			t will be ON when it detects sensor disconnection.	
L b R.	Loop break alarm	_		t will be ON when it detects loop break.	
	NY 11. Alama antanà hantana dia 1000053				

※ H: Alarm output hysteresis [AHY5]

Alarm ontion

Option	Name	Description	
AM 🗆 A	Standard alarm	If it is an alarm condition, alarm output is ON. If it is a clear alarm condition, alarm output is OFF.	
ЯМ□Ь	Alarm latch	If it is an alarm condition, alarm output is ON and maintains ON status. (Alarm output HOLD)	
AM□C	Standby sequence 1	First alarm condition is ignored and from second alarm condition, standard alarm posteries. When power is supplied and it is an alarm condition, this first alarm condition is gnored and from the second alarm condition, standard alarm operates.	
AW□9	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 alarm condition, alarm latch operates.	
ям□ε	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.	
ЯМ□Е	Alarm latch and standby sequence 2	Basic operation is same as alarm latch and standby sequence 1. It operates not only by power ON/OFF, but also alarm setting value, or alarm option changing. When re-applied standby sequence and if it is alarm condition, alarm output does not turn ON. After clearing alarm condition, alarm latch operates.	

XCondition of re-applied standby sequence for standby sequence 1, alarm latch and standby sequence 1: Power ON Condition of re-applied standby sequence for standby sequence 2, alarm latch and standby sequence 2: Power ON, changing set temperature, alarm temperature [RL , RL] or alarm operation [RL , RL], switching STOP mode to RUN mode.

Sensor break alarm

The function that alarm output will be ON when sensor is not connected or when sensor's disconnection is detected during temperature controlling. You can check whether the sensor is connected with buzzer or other units using alarm output contact. It is selectable between standard alarm [5৮৪৪] or alarm latch [5৮৪৮].

Functions

• Input correction[| N b]

Controller itself does not have errors but there may be error by external input temperature sensor. This function

Ex) If actual temperature is 80°C but controller displays 78°C, set input correction value [N b] as '2' and controller displays 80°C.

Solution of the content of the co sensor, it displays HHHH or LLLL

Input digital filter[MBV.F1

If current temperature (PV) is fluctuating repeatedly by rapid change of input signal, it reflects to MV and stable control is impossible. Therefore, digital filter function stabilizes current temperature value. For example, set input digital filter value as 0.4 sec, and it applies digital filter to input values during 0.4 sec and displays these values. Current temperature may be different by actual input value.

- SSR drive output method (SSRP function)[55RM]
 SSRP function is selectable one of standard ON/OFF control, cycle control, phase control by utilizing standard SSR drive output.

- utilizing standard SSR drive output.

 This function parameter appears only in SSR drive output model (TX4□+□4S).

 Realizing high accuracy and cost effective temperature control with both current output (4-20mA) and linear output(cycle control and phase control)

 Select one of standard ON/OFF control [5±Nd], cycle control [5±Ld], phase control [PHR5] at 55RM parameter of parameter 2 group. For cycle control, connect a zero cross turn-on SSR or random turn-on SSR. For phase control, connect random turn-on SSR.

SSR voltage output
(TX4S 12VDC) TX4MH/L 13VDC) W 1500 (TX Series) INPUT LOAD 100-240VAC 50/60Hz

When selecting cycle or phase control mode, the power supply for a load and a temperature

※Control cycle[₺] is able to set only when control method[[M월] of parameter group 2 is set as P₺ 월 and SSR. drive output method [55㎡] is set as 5₺₦d . is n case of selectable current output or SSR drive output model(TX4⊟-⊒4C), this parameter does not appear.

Standard ON/OFF control by SSR is only available

1)Standard ON/OFF control [5± Nd] Controls ON (100% output)/OFF (0% output) as same as standard relay output.

2)Cycle control [[][] Controls the load by repeating output ON / OFF according to the output ON / OFF according to the rate of output within setting cycle based on certain period (50-cycle). Control accuracy is almost the same with phase control's. This control has improved ON/ OFF noise than phase control's the to zero street have which turns. due to zero cross type which turns ON/OFF at zero point of AC.

3)Phase control [PHR5] Controls the load by controlling the phase within AC half cycle Serial control is available.

Must use random turn-on SSR for

50 Cycle 50 Cycle 80%

Current output range[oMA]

In case of selectable current output or SSR drive output model(TX4S-4C), when control output [aUE] parameter 2 group is set as [EURR], you can select high/low-limit range, 4-20mA [Y 20] or 0-20mA [D 20] of current output.

Hysteresis[HY5]

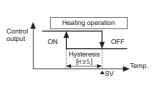
Set interval between ON and OFF of control output for ON/OFF

control.

If hysteresis is too narrow, hunting(oscillation, chattering) could occur due to external noise.

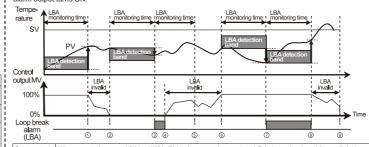
•In case of ON / OFF control mode, even if PV reaches stable

•In case of ON / OFF control mode, even if PV reaches stable status, there still occurs hunting. It could be due to hysteresis [H95] setting value, load's response characteristics or sensor's location. In order to reduce hunting to a minimum, it is required to take into following factors consideration when designing temp. controlling; proper Hysteresis [H95], heater's capacity, thermal characteristics, sensor's response and location.



Loop break alarm(LBA)

t checks control loop and outputs alarm by temperature change of the subject. For heating control control), when control output MV is 100%(0% for cooling control) and PV is not increased over than LBA detection band $[L : B : B_L]$ during LBA monitoring time $[L : B : E_L]$ or when control output MV is 0%(100% for cooling control) and PV is not decreased below than LBA detection band $[L : B : B_L]$ during LBA monitoring time $[L : B : E_L]$ or when control output MV is 0%(100% for cooling control) and PV is not decreased below than LBA detection band $[L : B : B_L]$ during LBA monitoring time $[L : B : E_L]$. alarm output turns ON.



Start control to ①	When control output MV is 100%, PV is increased over than LBA detection band [¿ b ብይ] during LBA monitoring time [ಓ b ብይ].		
1) to (2)	The status of changing control output MV (LBA monitoring time is reset.)		
② to ③	to ③ When control output MV is 0% and PV is not decreased below than LBA detection band [ይ ይጸይ] during LBA monitoring time [ይ ይጸይ], loop break alarm (LBA) turns ON after LBA monitoring time.		
3 to 4	Control output MV is 0% and loop break alarm (LBA) turns and maintains ON.		
4 to 6	The status of changing control output MV (LBA monitoring time is reset.)		
6 to 7	When control output MV is 100% and PV is not increased over than LBA detection band [L bAb during LBA monitoring time [L bAb], loop break alarm (LBA) turns ON after LBA monitoring time		
7 to 8	When control output MV is 100% and PV is increased over than LBA detection band [L bRb] during LBA monitoring time [L bRt], loop break alarm (LBA) turns OFF after LBA monitoring time.		
8 to 9	The status of changing control output MV (LBA monitoring time is reset.)		

When executing auto-tuning, LBA detection band[L bRb] and LBA monitoring time are automatically set based on auto tuning value. When alarm operation mode [RL 1, RL 2] is set as loop break alarm(LBA)[L bR□], LBA detection band [L bRb] and LBA monitoring time [L bRb] parameter is displayed.

• Digital input key(⊠ + 🖄 3 sec)[dl				
Parameter		Operation		
OFF	oFF	It does not use digital input key function.		
RUN/STOP	StoP	Pauses control output. Auxiliary output (except loop break alarm, sensor break alarm) except Control output operates as setting. Hold the digital input keys for 3 sec to restart. It Digital input key (t: over 3 sec)		
Clear alarm	AL.RE	Clears alarm output by force. (only when alarm option is alarm latch, or alarm latch and standby sequence 1/2.) This function is applied when present value is out of alarm operation range but alarm output is ON. Alarm operates normally right after clearing alarm.		
Auto-tuning	RE	Starts/Stops auto-tuning. This function is same as auto-tuning[$\Re E$] of parameter 1 group. (You can start auto-tuning [$\Re E$] of parameter 1 group and stop it by digital input key.) %This parameter $\Re E$ appears only when control method [E Md] parameter 2 group is set as PId . When control method [E Md] parameter 2 group is set as B 0. B 1, this parameter is changed as B 2.		

Control output MV for input break[ERMV]

When input sensor is break, set control output MV.

When control method[[Md] of parameter 2 group is set as pNpF, set control output MV as @@ (OFF)

or IDDD (ON). When control method[[Md] is set as Pl d, setting range for control output MV is DD to IDDD.

■ Communication Setting

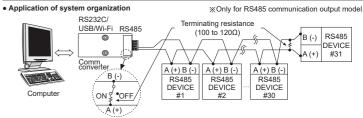
It is for parameter setting and monitoring via external devices (PC, PLC, etc.).

Applicable for models with RS485 communication output through option output(TX4□-B4□).

Please refer to ■Ordering Information'.

Interface 4800, 9600 (default), 19200, 38400, 115200 bps Comm. protocol Comm. speed Response waiting time 5 to 99ms (default: 20ms)
Start bit 1-bit (fixed) 31 units (address: 01 to 127 Data bit





CRL 18 recommended to use Autonics communication converter; SCM-WF48 (Wi-Fi to RS485 USB wireless communication converter, sold separately), SCM-US48I (USB to RS485 converter, sold separately), SCM-US (USB to Serial converter, sold separately), SCM-US (USB to Serial converter, sold separately). Please use twisted pair wire, which is suitable for RS485 communication, for SCM-WF48, SCM-US48I and SCM-38I. *It is recommended to use Autonics communication converter: SCM-WF48 (Wi-Fi to RS485 USB wireless

Manual

For the detail information and instructions of communication setting and Modbus mapping table, please refer to user manual for communication, and be sure to follow cautions written in the technical descriptions (catalog

■ Frror

<u>-</u> Litoi			
Display	Description	Troubleshooting	
oPEN	Flashes when input sensor is disconnected or sensor is not connected.	Check input sensor status.	
нннн		When input is within the	
LLLL	Flashes when measured value is lower than input range.	rated input range, this display disappears.	

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 wite at installing the line and shielded.

wire at input signal line.

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

Do not apply excessive power when connecting or disconnecting the connectors of the product.
 Install a power switch or circuit breaker in the easily accessible place for supplying or disconnecting the

power.

6. Do not use the unit for other purpose (e.g. voltmeter, ammeter), but temperature controller

7. When changing the input sensor, turn off the power first before changing.

After changing the input sensor, modify the value of the corresponding parameter.

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.

Make a required space around the unit for radiation of heat.

Make a required space around the unit for radiation of near.
 For accurate temperature measurement, warm up the unit over 20 min after turning on the power.
 Make sure that power supply voltage reaches to the rated voltage within 2 sec after supplying power

11. Do not wire to terminals which are not used. 12. This unit may be used in the following environments

①Indoors (in the environment condition rated in 'Specifications') ③Pollution degree 2 ②Altitude max 2 000m

■ Major Products

Photoelectric Sensors
■ Fiber Optic Sensors
■ Door Sensors
■ SSR/Power Controllers

■ Fiber Optic Sensors ■ Lenm
Door Sensors ■ SSR
■ Door Side Sensors ■ Cou
Area Sensors ■ Time
Proximity Sensors ■ Pan
Pressure Sensors ■ Time
Rotary Encoders ■ Disp
■ Connector/Sockets ■ Sens
■ Switching Mode Power Supplies
■ Control Switches/Lamps/Buzzers
■ // O Terminal Blocks & Cables
■ Stenper Motors/Divers/Motion Co

■ Stepper Motors/Drivers/Motion Controller ■ Graphic/Logic Panels

■ Field Network Devices
■ Laser Marking System(Fiber, Co₂, Nd:yag)
■ Laser Welding/Cutting System

DRW170805AF