

UX Series

Built-in Fuzzy function "Smallest Temperature Controller"



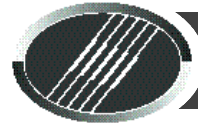
Model : UX100

Model : UX101

Features

- | | |
|--------------------------|-------------------------------------|
| Fuzzy | Output Limits |
| Alarm Output | IP65 front facia |
| Input Correction | Interface (RS485) |
| / Selectable | Heating / Cooling |
| Universal Input - Output | Auto Tuning (Standard, Low PV type) |







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Before using, please read this (SAFETY INFORMATION) and then use this controller.
It is most important that the instructions in this manual are followed when using this instrument.
Please keep this manual for future reference.
Precautions are classified in WARNING and CAUTION.

 WARNING	There is a possibility of death or heavy injury when handling in wrong way.
 CAUTION	There is a possibility of injury or physical damage when handling in wrong way.

WARNING

Caution on wiring

Use an external protection circuit if a fault in the control loop could possibly lead to a serious problem.

Power supply

A fuse is fitted inside the instrument. (Fuse rating 250V, 1A)

Use a rated voltage to prevent damage or trouble.

To avoid electrical shock or damage, do not turn ON the power until the wiring is completed.

Prohibit use in gas atmosphere

Do not use it at a place exposed to combustible or explosive gas.

Handling of unit

To avoid malfunction, electrical shock or fire, this unit must not be disassembled or repaired.

Do not touch the terminals to avoid electrical shock or malfunction.

Caution on maintenance


Turn OFF the power before mounting or removing the instrument.

To ensure continuous and safe operation of the instrument, periodical maintenance is recommended. Some parts are limited in life.

The warranty period is 1 year only if using in the correct way.

CAUTION

Caution on handling

 Do not install the instrument under any of the following conditions.

The ambient temperature exceeds 0 ~ 50

The ambient humidity exceeds 20 ~ 90%RH.

A place where temperature changes suddenly or icing occurs.

A place exposed to corrosive gas or combustible gas.

Vibration or shock is likely to be transmitted to the instrument.

A place exposed to water, oil, chemicals, steam, sunlight.

A place exposed to much dust, salt or iron.

A place with much inductive disturbance, static electricity, magnetism noise.

A place where heat such as radiant heat stays.

Installation

Attach the brackets (2 units) on the fixed halls and tighten with a screwdriver.
Fixing torque is about 14.7N. cm (1.5kg.cm) (Care should be taken not to tighten forcedly.)

Caution on terminal connections

Use a compensating cable with thermocouple.

For R.T.D input use a cable which is a small lead wire resistance and without resistance difference to 3wires.

If the wiring has noise, use the following step: connect a surge absorber to the conductor coil side if the conductors are connected to the load output, such as the relay contact output.

Use an insulating transformer with a noise filter when the power supply has much noise.

Noise filter should be mounted on a panel which has been earthed and the wiring between the noise filter output and the instrument power terminals should be shorten.

It is effective to use a twisted cable for power supply against noise.

The heater power supply and the instrument power supply should be connected using the same power supply when a heater break alarm.

Time for preparation of contact output is required at power ON. When the output signal is used for an external interlock circuit, connect a delay relay.

Other

Do not use organic solvents such as alcohol, benzene when cleaning. (Use neutral detergent)

Caution on key operation / trouble

If alarm function is not set correctly, alarm output can not be operated at a trouble.

Be sure to check the alarm operation.

If the input cable is disconnected, the display shows " *boUt* ".

When replacing the sensor, please turn OFF the power supply.

CAUTION

For connection

To avoid inductive noise to input wires separate from the power and output wires.

Keep input wires away from output wires and use shielded wires.

For load circuit connection

Use an extra relay when the frequency of operation is rather high. In this case, SSR output type is Recommended.

- Electromagnetic switch : Proportional cycle time is Min. 30sec
- SSR : Proportional cycle time is Min. 1 sec
- Contact output life : Mechanical : Min. 10 million times (no load)
Electrical : Min. 100 thousand times (rated load)
- SSR drive pulse voltage, DC 4~20mA are not insulated with internal circuit.
Use non-grounded sensor to R.T.D and thermocouple.

For waterproof (Waterproof type)

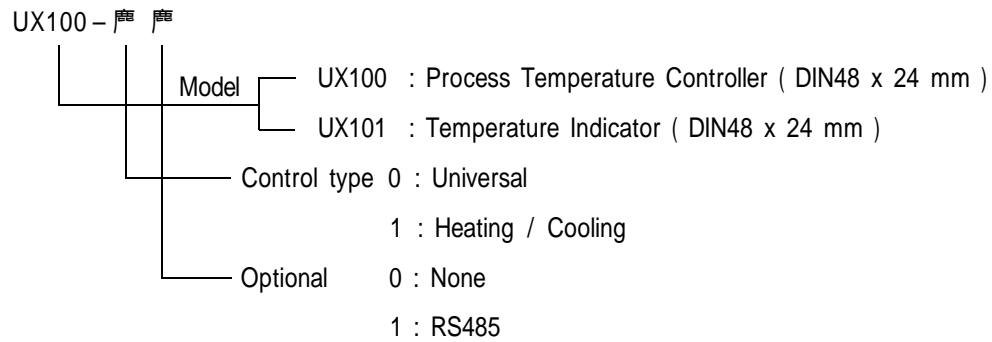
The instrument has IP65. Use rubber packing when installing the instrument to panel.

Please attach the rubber in correct way.

2 INSTRUCTION

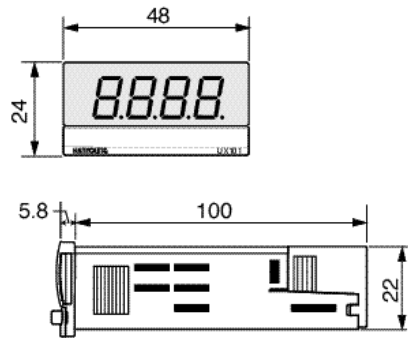
This instrument has process-value (PV) and set-value (SV) each 4 digits with 7 segment FND. This instrument is divided universal type and heating-cooling type and each setting items has 10 groups. Function and feature : Group P.I.D, Universal-input (19 types), Universal-output (Relay, SSR, Current), Local input, Remote input, External contact input, Ramp function, Auto-tuning 2 types (standard type, low PV type), Retransmission, Communication (RS485 /422), Power supply for sensor, 20 types of alarm, Sampling cycle 250ms, $\pm 0.5\%$ of FS high accuracy.

3 MODEL & SUFFIX CODE

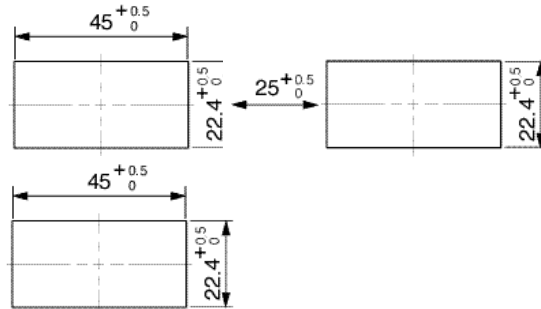


4 DIMENSIONS & PANEL CUTOUT

1) Dimensions



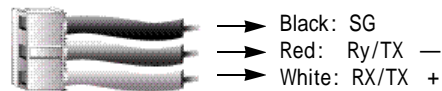
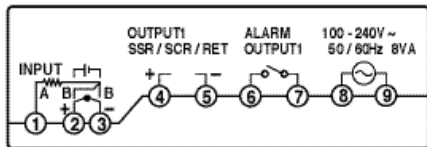
Panel cutout



(Unit: mm)

2) Terminal Arrangement

Model: UX100



5 INPUT & OUTPUT

1) Input signal Input code

Input type (Input signal)	Input code	Range ()	Range()	Accuracy	Remarks	
Thermocouple (T.C)	K § 2	1	-200~1370	-300~2500	$\pm 0.5\%$ of F.S ± 1 digit	§ 1 0~400 : $\pm 10\%$ of F.S ± 1 digit § 2 0 and below : $\pm 1.0\%$ of F.S ± 1 digit § 3 -150.0~150.0 range : $\pm 1.0\%$ of F.S ± 1 digit
	K § 2	2	-199.9~999.9	0~2300		
	J § 2	3	-199.9~999.9	-300~2300		
	E § 2	4	-199.9~999.9	-300~1800		
	T § 2	5	-199.9~400.0	-300~750		
	R § 2	6	0~1700	32~3100		
	B § 1	7	0~1800	32~3300	$\pm 0.8\%$ of F.S ± 1 digit	
	S	8	0~1700	32~3100	$\pm 0.5\%$ of F.S ± 1 digit	
	L § 2	9	-199.9~900.0	-300~1300	$\pm 1.0\%$ of F.S ± 1 digit	
	N	10	-200~1300	-300~2400	$\pm 0.5\%$ of F.S ± 1 digit	
	U § 2	11	-199.9~400.0	-300~750	$\pm 0.5\%$ of F.S ± 1 digit	
	W	12	0~2300	32~4200	$\pm 0.5\%$ of F.S ± 1 digit	
	Platinel	13	0~1390	32~2500		
R.T.D	JPt100 § 3	20	-199.9~500.0	-199.9~999.9	$\pm 0.5\%$ of F.S	
	Pt100 § 3	21	-199.9~640.0	-300~1180	± 1 digit	
Direct voltage (VDC/mVDC)	1.000~5.000V	30	1.000~5.000V		$\pm 0.5\%$ of F.S ± 1 digit	
	-10.00~20.00mV	32	-10.00~20.00mV			
	0.0~100.0mV	33	0.0~100.0mV			
Direct current (mA)	DC 4~20mA	30	When using current input, use the resistor 250 $\pm 0.1\%$ on input terminal.			

2) Type of control output

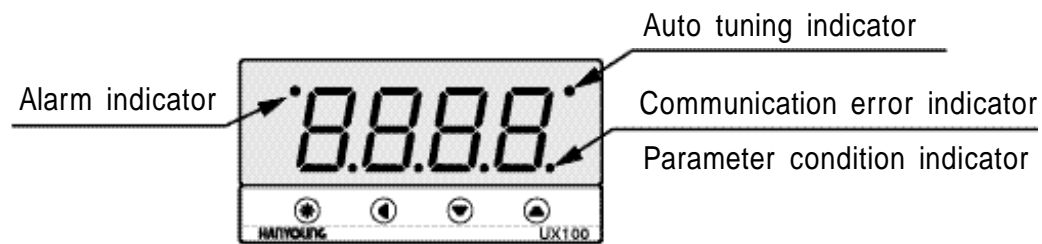
Output type (Universal type)

Spec.	OT	OUT 1	
		Terminal no. -	Terminal no. -
UX100-0 (Universal)	0	ON / OFF control output	Retransmission (RET)
	1	Alarm Output	SSR (Voltage pulse)
Output (0~3)	2	Alarm output	SCR (4-20mA DC)
	3	Relay control output	Retransmission (RET)




















Output type (Heating / Cooling type)

Spec.	OT	OUT 1 (Heating)	OUT 1 (Cooling)
		Terminal no. —	Terminal no. —
UX100-1 (Heating • Cooling) Output (4~5)	4	SSR (Voltage pulse)	Relay
	5	SCR (4-20mA DC)	Relay

1) Functional Description



2) Description

Key	Description
 SET	<p>In 「Operation Screen」, Setting Value Modifying Screen, Output Amount Indication screen, and Indication Value Indication Screen are called up in turn each time  key is pressed.</p> <p>In Setting Value Modifying Screen, setting value indication mark and setting value are shown in turn.</p> <p>Setting value is shown while  key is pressed. Modify setting value by using   or  key while  key is pressed.</p> <p>Used when entering control group in display level Setting Mode.</p> <p>Use  key to move from one parameter to another in each group.</p>
 UP  DOWN	<p>Press  and  key at the same time for 3 seconds or more to enter Display Level setting Screen in 「Operation Screen」.</p> <p>Press  and  key at the same time for 3 seconds or more to enter 「Operation Screen」 from 「Menu Screen」.</p> <p>Press  key to increase parameter value ; and  key to decrease it.</p>
 SHIFT	<p>Used to modify the cipher of the number to be set. (Press  while  is pressed.)</p>

LED	Description
ALARM	Lighting during alarm.
AUTO TUNING	Flashing during auto-tuning.
PARAMETER VALUE CHANGING	Flashing when parameter value is modified.

UX100 Temperature Controller has three screens: “ Operation Screen ”, “ Menu Screen ”, and “ Group Indication Level Selection Screen. ”

Menu Screen is composed of each group; therefore, concerned parameters can be grasped at a glance. It is the simplest and safest design for users.

Parameters should be set in the order of “ Input Group Output Group Other Group. ” Input Group and Output Group must be set first since the parameters affect other groups. This Controller’s Group Indication Level Mode (**LEHL**) has three levels from Level 1 to Level 3.

Level 1 is composed of the groups which users frequently modify and check during operation.

Level 2 adds enhanced features for more convenient use of the Controller to Level 1.

Level 3 adds the groups for setting the Controller to Level 2; and is composed of the parameters which are set only one time in the first setting.

- The above-mentioned items do not apply to indicator.
- Groups Shown Per Display (DISP) (UX100 Only)

DISP	GROUP INDICATION LEVEL
1	G.CTL
2	G.CTL, G.AT, G.PID, G.ALM, G.TRN, G.COM
3	G.CTL, G.AT, G.PID, G.ALM, G.TRN, G.COM, G.OUT, G.IN

Power ON	When power is input, it enters 「Operation Screen」 and shows indication value only.
Display Indication value and Output amount	In the screen with indication value shown, setting mode and setting value are called up in turn when key is pressed. If in this status you keep pressing key, only setting value is shown thus setting value can be Modified. While keep pressing key, if you move cipher by using key, modify setting value as desired by using or key, and release key, setting is done as modified and output amount is shown. Setting value is shown if key is pressed again.
Enter Menu screen from operation screen	If in Operation Screen you press and key at the same time for 3 seconds or more, "DISP" and "3" are called up in turn; and you are entered into Menu Screen.
Enter Group	When "DISP" and "3" are called up in turn, you can enter Control Group by pressing key. You should first enter Input Group using or key and pressing key. Then setting mark and setting value are called up in turn. Set input parameter using or key while pressing key. In Input Group mode, set each parameters of Output Group by using or key; then set other group parameters. Input Group and Output Group must be set first since then affect other groups. Press key to move to the group with desired item. At this time, group name is shown without being replaced by something else.
Move from one group to another	Use or key to move from one group to another. When entered into a group by using key, setting mark and setting value are called up in turn. Modifying method is the same with setting value modifying method of operation screen.
Enter Operation screen from Menu screen	In 「menu screen」, if you press and key at the same time for 3 seconds or more, you will enter 「Operation Screen」.

For instance

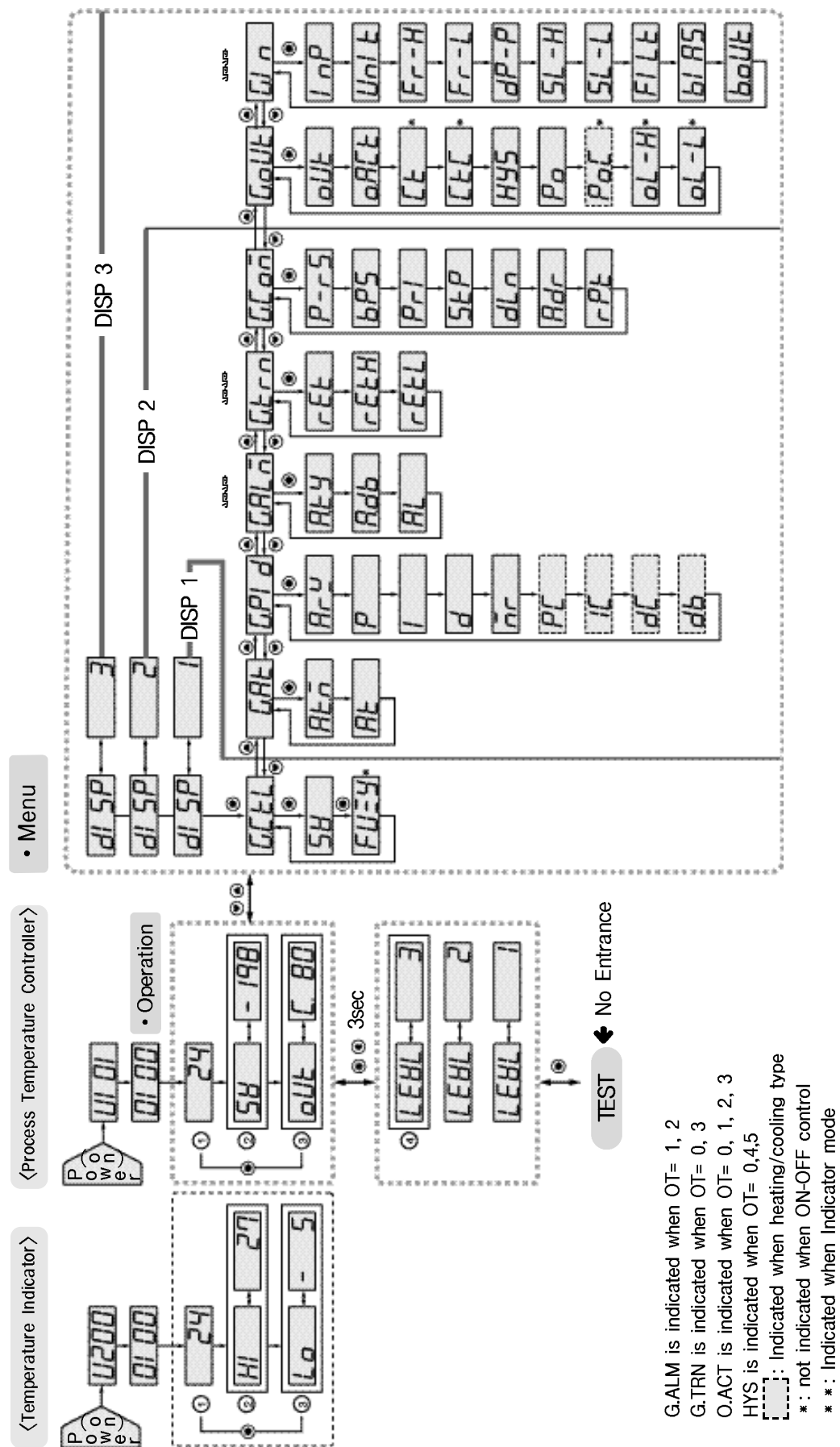
You wish to make FUZZY ON status when it 's OFF now.

First press key in Control Group (G.CTL), then "SV" and "OFF" will be called up in turn. Keep pressing key, then only "OFF" will be shown.

While pressing it, press key to set "ON", then "FUZZY" and "ON" will be called up in turn.

9 SETTING MODE

■ Setting items and Parameter



SETTING AND DISPLAY LEVEL (\overline{DISP})

This controller has 3 different levels of setting, there by restricting operator access if so desired. The following describes these levels;
 Level 1: Access available to setting and displaying only up Group #3 (Group Set value)
 Level 2: Access available to setting and displaying only up Group #9 (Group Communication)
 Level 3: Access available to setting and displaying of all Groups.

Signal	Name	Description	Condition	Initial value
\overline{DISP}	Display Level	1~3	Always	3
\overline{LEHL}	Setting Level	0~3	Always	3

CONTROL GROUP (\overline{GCEL})

Set SV for temperature control.
 Fuzzy function is selectable (Fuzzy function is operating in the PID control.)

Signal	Name	Description	Condition	Initial value
\overline{GCEL}	Control group display	Operation set a control mode	—	—
\overline{SV}	Set SV	EU (0.0~100.0%)	Always	EU(0.0%)
\overline{FUZY}	Fuzzy function selection	OFF, ON	PID control	OFF

AUTO TUNING GROUP (\overline{GAE})

This controller has two type of auto tuning a STD (Standard type) and Low PV type (SV-10%). Auto tuning is starting when auto tuning selection is 「ON」.

Signal	Name	Description	Condition	Initial value
\overline{GAE}	Auto tuning group	Indicates Auto tuning	—	—
\overline{AET}	Auto tuning type	STD / LOW PV (§ 1)	ABS	STD
\overline{AEL}	Auto tuning start	OFF, ON	ABS	OFF

§ 1: Starting auto tuning at SV-10% of Max. range

PID GROUP ($\overline{GPI d}$)

Signal	Name	Description	Condition	Initial value
$\overline{GPI d}$	P.I.D group	Set P.I.D mode	—	—
\overline{ARU}	ANTI-RESET WIND-UP	AUTO or 50.0 ~ 200.0%	P.I.D control	Auto
\overline{P}	Proportional band	0.1 ~ 999.9%	P.I.D control	5.0%
\overline{I}	Integral time	OFF, 1 ~ 6000 sec	P.I.D control	240 sec
\overline{d}	Derivative time	OFF, 1 ~ 6000 sec	P.I.D control	60 sec
\overline{nr}	Manual Reset	-5.0 ~ 105.0%	1=0	50.0%
\overline{PC}	Proportional band of cooling side	0.0 (ON/OFF control), 0.1~999.9%	P.I.D & HC	5.0%
\overline{IC}	Integral time of cooling side	OFF, 1 ~ 6000 sec	P.I.D & HC	240 sec
\overline{dC}	Derivative time of cooling side	OFF, 1 ~ 6000 sec	P.I.D & HC	60 sec
\overline{db}	Hysteresis of heating / cooling	-100.0 ~ 50.0%	P.I.D & HC	3.0%

ALARM GROUP (\overline{GALn})

Signal	Name	Description	Condition	Initial value
\overline{GALn}	Alarm group	Set alarm mode	—	—
\overline{AET}	Type of alarm	OFF, 1 ~ 20 (PH,PL,DH,DL,DV) § Refer to "Alarm type and code"	OUT=1 or 2	1
\overline{Adb}	Dead band of alarm	EUS (0.0 ~ 100.0%)	OUT=1 or 2	EUS(0.5%)
\overline{AL}	Set value of alarm	PV alarm, Deviation alarm EU (-100.0 ~ 100.0%)	OUT=1 or 2	EU(100.0%)

RETRANSMISSION GROUP (Grn)

Signal	Name	Description	Condition	Initial value
<u>Grn</u>	Retransmission group	Set retransmission	Reference	—
<u>rEt</u>	Retransmission output type	PV, SV, MV	OUT=0,3	1
<u>rEtH</u>	High limit of retransmission	T/C, RTD: RH~RL mV, V : SH~SL	OUT=0,3 & RET = 1 or 2	T/C, RTD: RH mV, V : SH
<u>rEtL</u>	Low limit of retransmission	(Notice) RET.H > RET.L		T/C, RTD: RL mV, V : SL

Retransmission group is always shown in UX101 (Indicator).
Reference : Retransmission group display is only shown if you choose Output 0, 3.

COMMUNICATION GROUP (GCon)

Signal	Name	Description	Condition	Initial value
<u>GCon</u>	Communication group	Set communication mode	—	—
<u>P-rS</u>	RS485, RS422 protocol	PC LINK: 0, PC LINK + SUM: 1	Optional	0
<u>bPS</u>	Communication rate	600 : 0, 1200 : 1, 2400 : 2, 4800 : 3, 9600 : 4	Optional	4
<u>PrI</u>	Parity check	NONE(0), EVEN(1), ODD(2)	Optional	0
<u>SEp</u>	STOP BIT	1, 2	Optional	1
<u>dLn</u>	DATA LENGTH	7 or 8 Bit	Optional	8
<u>Adr</u>	ADDRESS	1 ~ 99, Maximum 31 devices	Optional	1
<u>rPt</u>	RESPONSE TIME	0 ~ 10 Handling time + Response time x 10mS	Optional	0

OUTPUT GROUP (GOUT)

Signal	Name	Description	Condition	Initial value
<u>GOUT</u>	Output group	Output type and mode selection	—	—
<u>oUt</u>	Output selection	0 ~ 5	Condition display	1
<u>oRct</u>	Direct / Reverse	REV: Reverse, DIR: Direct	OUT=0-3	REV
<u>Ct</u>	Cycle time 1	1 ~ 1000 sec	OUT=1,3,4,5	30 sec
<u>CtC</u>	Cycle time of Cooling side	1 ~ 1000 sec	OUT=4	30 sec
<u>HYS</u>	Hysteresis of ON / OFF control	EUS(0.0~100.0%)	ON/OFF (OUT=0)	EUS(0.5%)
<u>Pa</u>	Hysteresis of Heating • Cooling type	0.0 ~ 10.0%	HC(OUT=4,5)	0.5%
<u>PaC</u>	Output volume when input disconnection(OUT1)	-5.0 ~ 105.0% Heating • Cooling type:0.0~105.0%	Always	0.0%
<u>oL-H</u>	Output volume when input disconnection(OUT2)	0.0 ~ 105.0%	HC(OUT=4,5)	0.0%
<u>oL-L</u>	Maximum value of output	OL+1Digit ~ 105.0% Heating • Cooling type:0 ~ 105.0%	PID(OUT=1-5)	100.0%
	Minimum value of output	-5.0% ~ OH-1Digit Heating • Cooling type:0~105.0%	PID(OUT=1-5)	0.0% HC:100.0%

INPUT GROUP (GIn)

Signal	Name	Description	Condition	Initial value
<u>GIn</u>	Input group	set input type and mode	—	—
<u>InP</u>	Input signal selection	refer to input signal and range	Always	Type K (1)
<u>Unit</u>	Unit	/	T/C, RTD	
<u>Fr-H</u>	High limit	Refer to input signal and range	Always	1370
<u>Fr-L</u>	Low limit	(Notice:FR-H > FR-L)	Always	-200
<u>ddr</u>	Display condition of SV	0: Display from Low value to High value 1: Display from High value to Low value	ABS	0
<u>dP-P</u>	Decimal point	0 ~ 2	mV, V	1
<u>SL-H</u>	Maximum on scale	-1999 ~ 9999 (Notice:SL-H > SL-L)	mV, V	100.0
<u>SL-L</u>	Minimum on scale	Decimal point : according to DP-P		0.0
<u>FiLr</u>	PV filter	OFF, 1 ~ 120 sec.	Always	OFF
<u>biAS</u>	PV bias	-100.0~100.0%	Always	EUS (0.0%)
<u>boUt</u>	Burn-out	OFF, UP, DOWN	Always	UP

: Input group is always shown in UX101 (Indicator).
: Display only when you choose Voltage, Current input (30,32,33)
: Display only in Temperature input mode.
: Display only in Indicator / Voltage input.

1) INPUT

Input	Thermocouple: K, J, E, T, R, S, B, L, N, U, WRe 5-26, PL- R.T.D: Pt 100 , KPt 100 Direct voltage: 1~5V, -10~20mV, 0~100mV (Free scale type)
Sampling time	250mS
Input resolution	Below decimal point of measurement range
Input impedance	T/C and mV input: 1M min., DC V: 1M
Lead wire tolerable resistance	R.T.D: 10 max. / wire
Input tolerable voltage	±10V (T/C, R.T.D, Voltage: mV DC) ±20V (Voltage: V DC)
Noise removal rate	NMRR(normal mode): 40dB min. CMRR(common mode): 120dB min. (50/60Hz ±1%)
Standard	T/C, R.T.D: KS, IEC, DIN
Standard junction temp. compensation tolerance	±1.5 (15~35), ±2.0 (0~50)
Burn-out	T/C: OFF, Up/Down scale selectable R.T.D: OFF, Up/Down scale selectable (Detection current: 50nA)
Accuracy	±0.5% (Full scale)
Input range	Refer to "Input signal and Measurement range" T/C and R.T.D are changeable within range of input signal and measurement range. Voltage: Min. voltage and max. voltage are available within range of measurement. Scaling available.

2) OUTPUT

ALARM (Terminal no. -)

Relay contact output	Contact capacity: 240VAC 1A, 30V DC 1A(resistive load) Contact: 1a Output points: Refer to "Terminal Arrangement "
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RETRANSMISSION OUTPUT (Terminal no. -)

Current output	Current output range: 4~20mA DC Resistive load: 600 max. Accuracy: ±0.5% of max. scale (4~20mA range) Resolution: Approx. 3,000 Output ripple: 0.3% (P-P)max. of scale (150Hz) Sampling: 250mS
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CONTROL OUTPUT

Relay contact output	Contact capacity: 240VAC 1A, 30VDC 1A (resistive load) Contact: 1a Output operation: P.I.D control, ON/OFF Proportional cycle: 1~1,000 sec. Output limit: 0.0~100.0% range, higher limit(OH) or lower limit(OL) selectable ON/OFF hysteresis: 0~100%(Full scale) Time resolution: 0.1% or 10mS
SSR drive voltage output	ON voltage: 24VDC min.(resistive load 600 min., 30mA limit when short) OFF voltage: 0.1VDC max. Proportional cycle: 1~1,000 sec. Output operation: P.I.D control Output limit: 0.0~100.0% range, higher limit(OH) or lower limit(OL) selectable Time resolution: 0.1% or 10mS
Current output	Current output range: 4~20mA DC Resistive load: 600 max. Accuracy: ±0.5% of full scale (4~20mA range), Resolution: Approx. 3,000 Output ripple: 0.3%(P-P) of max. scale (150Hz) Sampling time: 250mS Output operation: P.I.D control Output limit: -5.0~105.0% range, higher limit(OH) or lower limit(OL) selectable

3) POWER SUPPLY

Power supply	100~240VAC(90~264VAC)
Frequency	50/60Hz
Power consumption	6.0W max., 10VA max.
Insulation resistance	Between primary terminal and secondary terminal : DC 500V, 20M min. Between primary terminal and ground : DC 500V, 20M min. Between ground and secondary terminal : DC 500V, 20M min.
Dielectric strength	Between primary terminal and secondary terminal : 2,300VAC 50/60Hz for 1 min. Between primary terminal and ground : 2,300VAC 50/60Hz for 1 min. Between F · G and secondary terminal : 1,500VAC 50/60Hz for 1 min.

4) FUNCTION

Measurement input	Input correction (Bias): -100.0~100.0% for instrument range Scaling : According to SH, SL of measurement range Filter : OFF, 1~120 sec.
Control	3 settings (SV1, SV2 and SV3) and P.I.D setting each Auto tuning : According to set value (Standard type, Low PV type) Proportional Band : 0.1~999.9% (Max. range), 0.0~999.9% (When heating · cooling control) Integral Time : OFF, 1~6000 sec. Derivative Time : OFF, 1~6000 sec. ON/OFF control: By selecting output code (OT)“ 0 ” P.I.D selection : Zone PID/Segment PID selectable Manual Reset : -5.0~105.0% of output (valid when I=OFF) Direct / Reverse action : Changeable by parameter Preset output limit : -5.0~105.0% of output value, 0.0~105.0% when heating, cooling control ON/OFF hysteresis (HYS): 0.0~100.0% of instrument range (valid when ON/OFF control) Heating-Cooling hysteresis : -100.0~50.0% of output value A.R.W(Anti Reset Wind-up): AUTO, 50.0~200.0% Fuzzy : Selection ON/OFF by parameter
Retransmission output	Signal : Process value(PV), Set value(SV), Output value(MV) Scaling : PV, SV
Alarm output	Set point : 1 Point (1a) Multi-alarm : High/Low process alarm, High/Low deviation alarm, Hold function of alarm, Heater break alarm (H.B.A) Setting range : Process alarm 0~100% of instrument range Deviation alarm -100~100% of instrument range Alarm hysteresis : 0.0~100.0% of instrument range

5) OPERATING ENVIRONMENT

Installation environment	Continuous vibration (5~14Hz) : Forward width 1.2mm max. (4~150Hz) : 4.9m/s ² (0.5G) max. Vibration : 14.7m/s ² (1.5G), 15 sec. max. (each 3 direction) Shock : 147m/s ² (15G), 11msec max. (6 direction each 3 times) Panel cutout: Page 7
Normal operation condition	Ambient temperature : 0~50 Ambient humidity : 20~90%RH (no condensation) Influence of magnetic : 400AT/m max. Warm-up time: 30 min. min.
Influence of ambient temperature	T/C, Voltage input : ±1 μV/ or ±0.01%/ of max. range R.T.D input : ±0.05 / max. Analog output : ±0.05%/ max. (continuous output)

6) STORAGE CONDITION

Storage temperature	-25~70
Storage humidity	5~95%RH (no condensation)
Shock	1m max. in packing condition

7) STRUCTURE

MODEL	EXTERNAL DIMENSION	PROTECTION	WEIGHT	MATERIAL
UX100 UX101	48(W)×26(H)×100(D)mm	IP 65 front facia	94g	Plastic case (ABS)

8) SAFETY AND EMC STANDARD

Safety standard	UL 508 (Approval expected) CSA 1010 (Approval expected) EN 61010 (Under inspecting)
EMC	EMI, EMS (Under inspecting)

9) INTERFACE

Standard	EIA RS485
Communication address	0~31, 1~99 setting available
Communication method	2 wire half duplex or 4 wire half duplex
Synchronization	Start-stop synchronous mode
Communication sequence	None
Communication distance	1.2Km max.
Communication speed	600, 1200, 2400, 4800, 9600 BPS (Speed is changeable by parameter)
Start bit	1 BIT
Data bit	7 or 8 BIT
Parity bit	None, even numbers, odd numbers
Stop bit	1 or 2 BIT
Communication protocol	PC LINK WITHOUT SUM(0), PC LINK WITH SUM(1)
Response time	Reception treatment time + (Response time × 10mS)

- It is not available to use alarm function when you choose output code 0, 3.
- (Notice) : Display lamp will be ON when output OFF in inverted type.

Hysteresis (: Set point , Minus Alarm set point , : Alarm set point)

Code NO.	Alarm type	Function
♯ 1	High absolute value	
♯ 2	Low absolute value	
3	High deviation value	
4	Low deviation value	
5	High deviation value (inverted)	
6	Low deviation value (inverted)	
7	High · Low deviation value	
8	High · Low band	
♯ 9	High absolute (inverted)	
♯ 10	Low absolute (inverted)	
♯ 11	High absolute with hold function	
♯ 12	Low absolute with hold function	
13	High deviation with hold function	
14	Low deviation with hold function	
15	High deviation with hold function (inverted)	
16	Low deviation with hold function (inverted)	
17	High · Low deviation with hold function	
18	High · Low band with hold function	
♯ 19	High absolute value with hold function (inverted)	
♯ 20	Low absolute value with hold function (inverted)	

♯ : Alarm marked are only available (1,2,9,10,11,12,19,20) in Indicator.