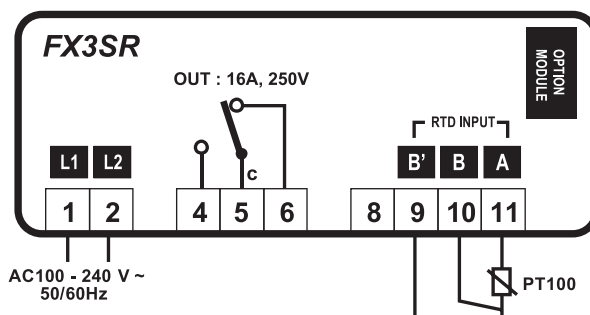


Multi Digital Temp. Controller (FX3SR SERIES)



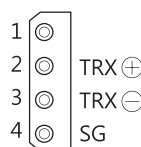
Connection Diagram



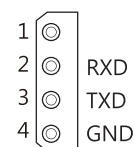
○ OUT : Cooling/Heating #1 ON/OFF output, Alarm output

Option

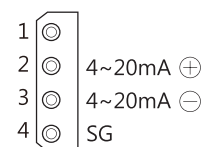
RS-485 COMM.
OPTION MODULE



RS-232 COMM.
OPTION MODULE



4~20mA Output
OPTION MODULE



PreCaution for Use

- This product may cause an electric shock in handling. Please do not attempt to open it with power turned on.
- This product should be installed in a place fixed secured by a rack or panel.
- This product can be used under the following environmental condition
① Indoor ② Pollution Degree 2 ③ At an altitude of 2000m or below ④ Installation Category II
- To turn on or turn off power supply for this product, please the circuit breaker or switch of a standard product of IEC 60947-1 or IEC 60947-3 product and install it within a close distance allowing convenient operation by user.
- Please be understood that if this product is dismantled or modified discretionary, after sales service will not be able to be provided.
- An output wire to be used for this product should be inflammable grade FV1 (V-1 grade or above), the thickness of the wire should be AWG No. 20 or above. (0.50mm)
- In order to prevent it from an inductive noise, please maintain the high-voltage wire and power wire separated.
- Please avoid installing the product in a place where a strong magnetism, noise, severe vibration and impact exist.
- When extending the sensor wire, use a shield wire and do not extend it unnecessary long.
- The sensor wire and signal wire should be away from the power and load wires using conduits separately installed.
- Please avoid using the product near a device generating strong high frequency noise (high-frequency welding machine, high-frequency sewing machine, high-frequency radiotelegraph, high capacity SCR controller)
- PRODUCT'S DAMAGES OTHER THAN THOSE DESCRIBED IN THE GUARANTEE CONDITIONS PROVIDED BY THE MANUFACTURER SHALL NOT BE RESPONSIBLE BY US.
- ※ The Aforementioned precautions must be observed, and if you fail to do so, it may cause a product's breakdown.

Basic Specification

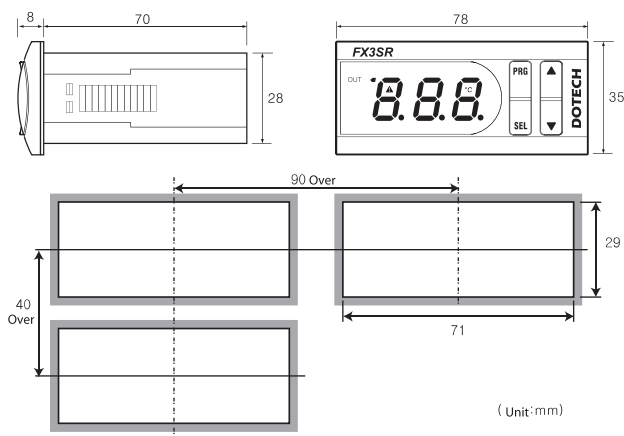
Model	FX3SR
Power	AC100 - 240V~, 50/60Hz
Current	MAX 4VA
Connector	Screw Bolt Connector (1.5mm ² Wire Use Possibility)
Input / Output	Relay output 1p (250Vac/16A) RTD (PT100) temp. sensor input 1p
Operation	Temp. -10~50°C (No condensation only)
Storage	Temp. -20~60°C, Humidity Under 90%RH
Sensor	PT100 3(2) (Wire measuring range : -200 ~ 800°C, Accuracy : ±0.3°C)
Display Range	-19.9~99.9°C : unit of 0.1°C / Other range : unit of 1°C

Order Information

- FX3SR - 00 : Basic Model
- FX3SR - R4 : RS-485 Comm. model (Comm. function MODBUS RTU MODE) ※
- FX3SR - R2 : RS-232 Comm. model (Install log printer, Trans text message) ※
- FX3SR - A1 : 4~20mA Trans output model Connection cable is provided basically

※ Comm. cable is provided basically

Dimensions and Panel Cut-Out Form



Constitution (Function of Display Lamp and Button)



Display function

OUT	Turn on when output #1 is ON (Flickering at standby)
°C	Display temp. value
▲	ON at trip, Flickering at alarm

Operating Switches

PRG	Use at program setup
SEL	Execute selected menu or Input setup value
▲	Move between menus & Increase setup value
▼	Move between menus & Decrease setup value
PRG ▼	Initializing setup value If pushing for 10 sec. at the same time, setup value is initialized

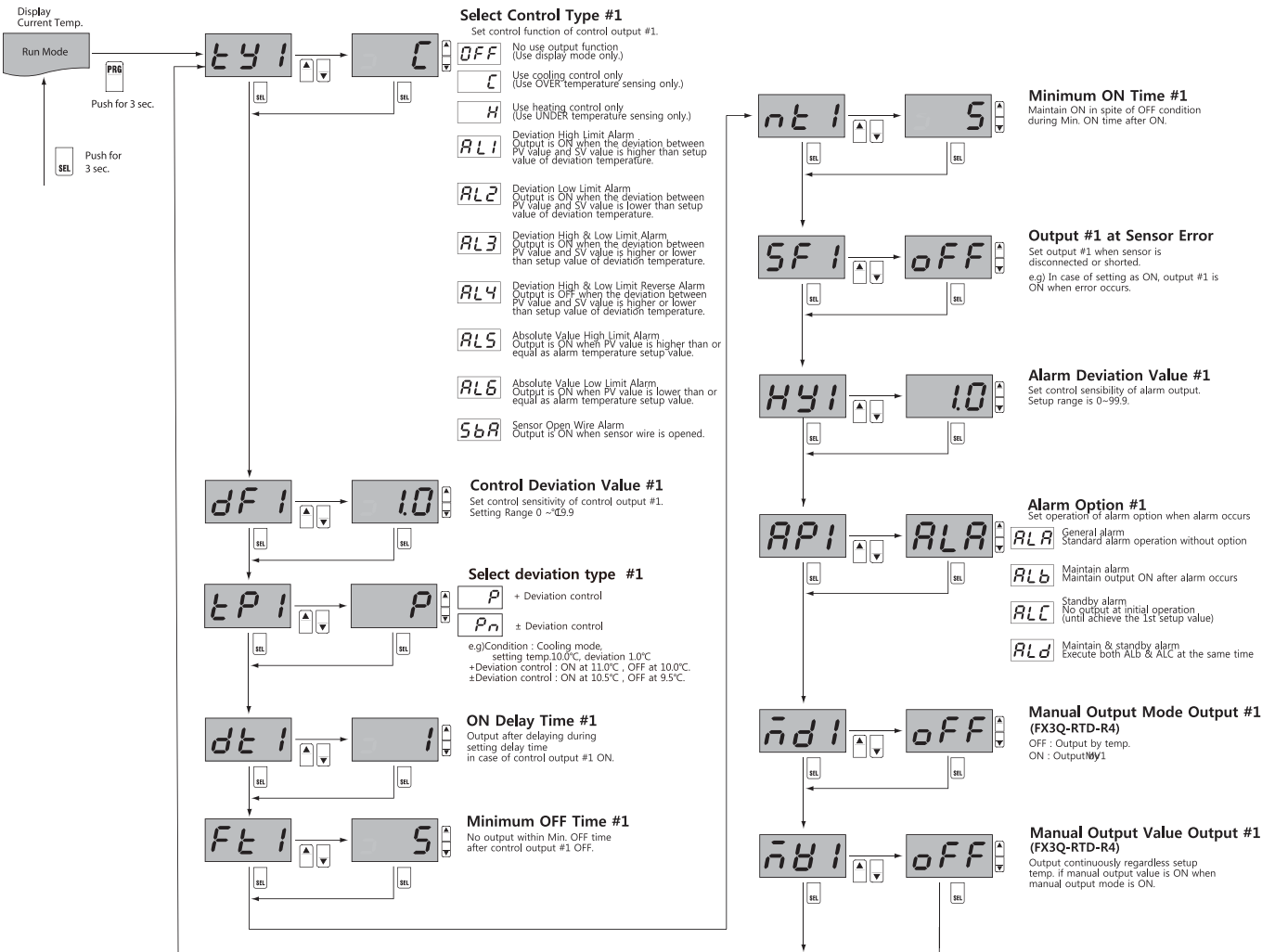
※ If pushing ▲, ▼ at the same time, it displays the 1st decimal place for the current temp.

Temperature Setting Group

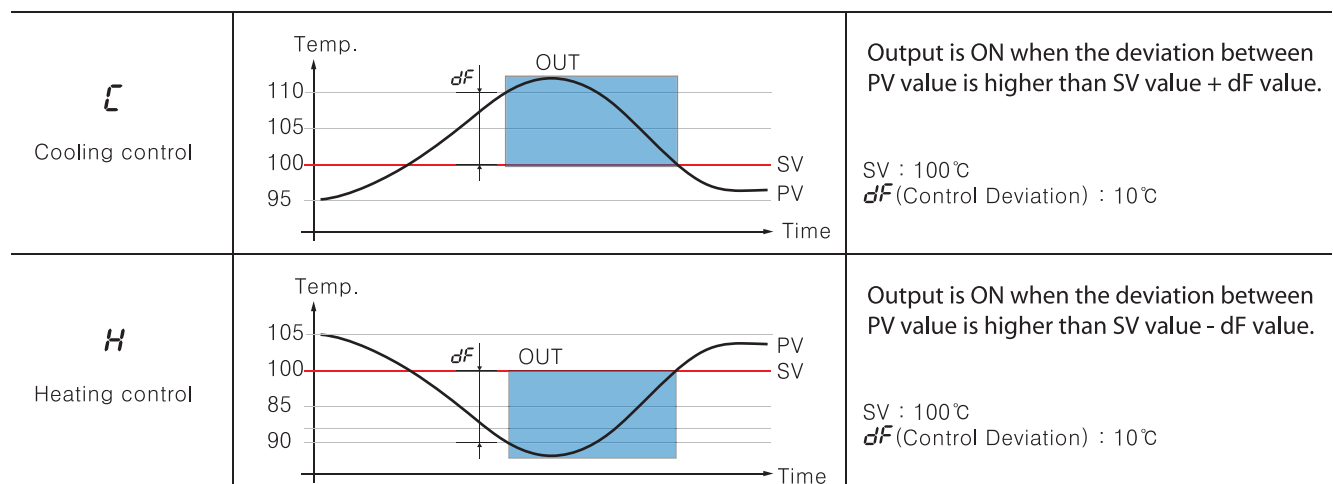


- The set point is indicated by flickering at every 0.5 seconds intervals and this set point can be established by using the ▲ key or ▼ key. After changing set point, it displays the current temp.
- If there's no input made for a period of 60 seconds during the setting, then it returns back to the run mode automatically.

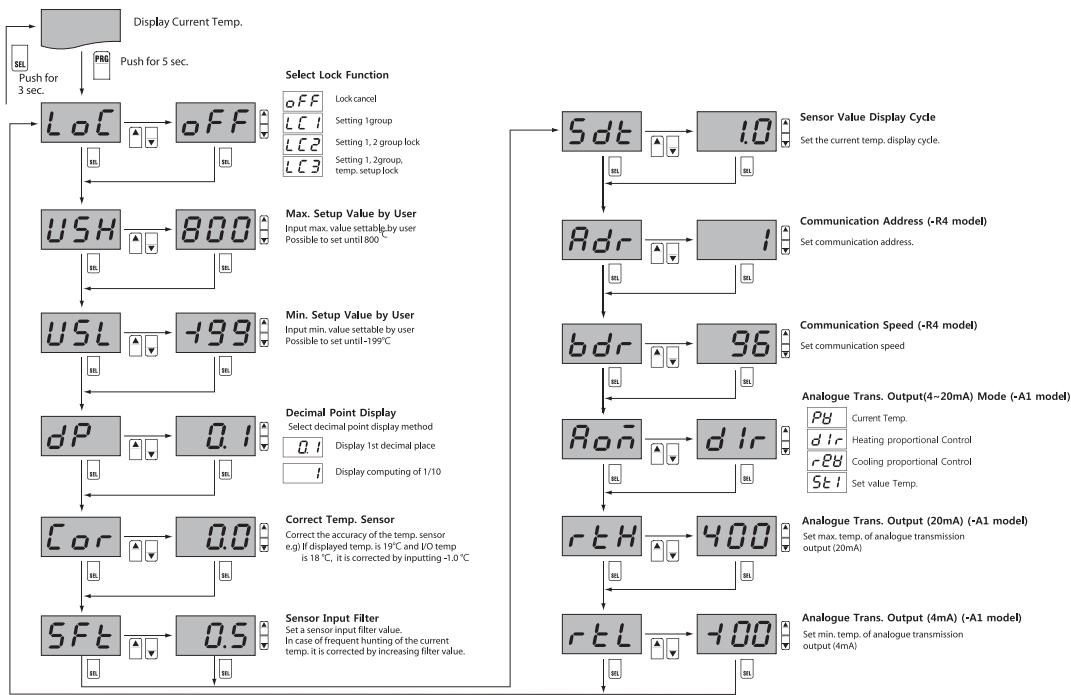
Setting 1 Group



Cooling , Heating Control Operation



Setting 2 Group



Setting 1 Group Table

NO	DESCRIPTION	CODE	UNIT	STEP	MIN	MAX	DEFAULT	USER SETUP	
100	Select Control Type	ty1			oFF: No use AL1: Deviation high limit alarm AL2: Deviation low limit alarm	C: Cooling mode H: Heating mode AL3: Deviation high, low limit alarm AL4: Deviation high, Low limit reverse alarm	SbR: Sensor open wire alarm AL5: Absolute value high limit alarm AL6: Absolute value low limit alarm	C	
101	Control Deviation Value	df1	K	0.1	0.1	99.9	1.0		
102	Select Deviation Value	tp1		P: +Deviation Pn: ±Deviation			P		
104	ON Delay Time (※1)	dt1	Sec.	1	0	999	1		
105	Minimum OFF Time (※2)	ft1	Sec.	1	0	999	5		
106	Minimum ON Time (※3)	nt1	Sec.	1	0	999	5		
107	Output at Sensor Error (※4)	sf1			oFF / On		oFF		
108	Alarm Deviation Value	hy1	K	0.1	0	99.9	1.0		
109	Alarm Option	ap1			ALa: General alarm ALb: Maintain alarm ALc: Standby alarm ALd: Maintain & standby alarm		ALa		
112	Manual Output Mode Output (※5)	nd1			oFF / On		oFF		
113	Manual Output Value Output (※6)	nb1			oFF / On		oFF		

- ※1) ON delay time: It outputs after setting delay time in spite of output condition. During ON delay time, output lamp is turned on with output after flickering in fast cycle
- ※2) Min OFF Time: It lets output not occur within min. OFF time after it is turned off. During min. OFF time, output lamp is turned on with output after it flickers every 1 second intervals.
- ※3) Min ON Time: It is for avoiding frequent ON/OFF of control output and maintains ON condition in spite of OFF condition during Min ON Time after being turned on. (In case of sensor error, OFF at once)
- ※4) Output at Sensor Error: In case of sensor error such as open wire/short, it sets ON/OFF status of the related output.
- ※5) Manual Output Mode: OFF: Output by temperature / ON: Output by $\bar{n}B1$ (FX3Q-RTD-R4)
- ※6) Manual Output Value Setup: It outputs continuously regardless setup temp. if manual output value is ON when manual output mode is ON. (FX3Q-RTD-R4)

Setting 2 Group Table

NO	DESCRIPTION	CODE	UNIT	STEP	MIN	MAX	DEFAULT	USER SETUP
500	Select Lock Function	LoC			oFF: Lock cancel LC2: Setting 1, 2 group lock	LC1: Setting 1 group lock LC3: Setting 1, 2group, temp. setup lock	oFF	
502	Max. Setup Value by User (※7)	USH	-	1	USL	800	800	
503	Min. Setup Value by User (※7)	USL	-	1	-199	USH	-199	
505	Decimal Point Display (※8)	dP			0.1: 0.1 /: 1		0.1	
506	Correct Temp. Sensor	Cor	K	0.1	-19.9	+19.9	0.0	
507	Sensor Input Filter (※9)	Sft	Sec.	0.1	0.1	5.0	0.5	
508	Sensor Value Display Cycle	Sdt	Sec.	0.1	0.0	5.0	1.0	
510	Communication Address (-R4 model)	Adr	-	1	1	128	1	
511	Communication Speed (-R4 model)	bdr			48: 4800BPS, 96: 9600BPS, 192: 19200BPS, 384: 38400BPS		96	
512	Analogue Trans. Output(4~20mA) Mode (-A1 model)	Ronn			PB: Current Temp. rPB: Cooling proportional control	dir: Heating proportional control Set: Set value Temp.	dir	
513	Analogue Trans. Output (20mA) (-A1 model)	rth	°C	1	-200	800	400	
514	Analogue Trans. Output (4mA) (-A1 model)	rtl	°C	1	-200	800	-100	

- ※7) User Setup Max./Min.: It inputs the range of temperature setup value.
- ※8) Decimal Point Display: In case of setting as '1', it displays the current value with cutting the decimal place.
- ※9) Sensor Input Filter Value: It avoids hunting by giving temperature measuring delay.

Alarm Operation Group

AL-1		Deviation High Limit Alarm Output is ON when the deviation between PV value and SV value is higher than setup value of deviation temperature. Deviation temperature is set up at dF in setting 1 group.
AL-2		Deviation Low Limit Alarm Output is ON when the deviation between PV value and SV value is lower than setup value of deviation temperature. Deviation temperature is set up at dF in setting 1 group.
AL-3		Deviation High & Low Limit Alarm Output is ON when the deviation between PV value and SV value is higher or lower than setup value of deviation temperature. Deviation temperature is set up at dF in setting 1 group.
AL-4		Deviation High & Low Limit Reverse Alarm Output is OFF when the deviation between PV value and SV value is higher or lower than setup value of deviation temperature. Deviation temperature is set up at dF in setting 1 group.
AL-5		Absolute Value High Limit Alarm Output is ON when PV value is higher than or equal as alarm temperature setup value. Alarm temperature is set up at dF in setting 1 group.
AL-6		Absolute Value Low Limit Alarm Output is ON when PV value is lower than or equal as alarm temperature setup value. Alarm temperature is set up at dF in setting 1 group.
SbA		Sensor Open Wire Alarm Output is ON when sensor wire is opened.

* SV : $St1$

* dF : $dF1$

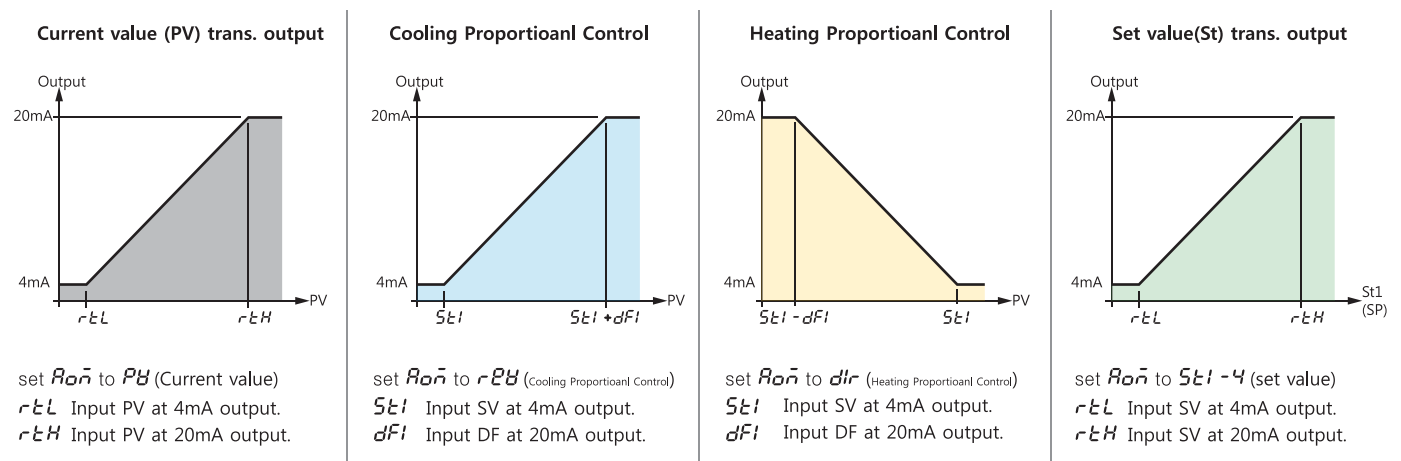
* HY : $HY1$

Alarm Option Group

CODE	OPERATION TITLE	DESCRIPTION FOR ALARM OPTION OPERATION
ALa	General alarm	Standard alarm operation without option
ALb	Maintain alarm	Maintain output ON after alarm occurs
ALc	Standby alarm	No output at initial operation (until achieve the 1st setup value)
ALd	Maintain & standby alarm	Execute both ALb & ALc at the same time

※ Reboot or push PRG button in 2 successive time when alarm output is removed.

Analog(4~20mA)Output Mode



Simple Trouble Check Point

In case of error occurring, the following messages are flickering at every 0.5 sec intervals.

oPn	In Case of Input Sensor Open Wire (Normal operation after sensor connecting)	LLL	Lower Sensor Input than Measuring Range
SHt	In Case of Sensor Short Circuit	HHH	Higher Sensor Input than Measuring Range
SY5	In Case of change of set value by an unknown case.		

※ In case of the above-mentioned error, it will be normally operated with cancelling error status if the reason of error is solve