

NS710 LCD Display PID Temperature Controller

1. main features

- White large characters color LCD display and new higher contrast LCD with greatly improved visibility.
- Easy to Use, from Model Selection to Setup and Operation.
- The External waterproof sealing ring and the Internal waterproof sealing ring make the instrument reach the good waterproof performance.
- Plastic Handle waterproof type key, is a hard surface that won't scuff, Operation feel clear and smooth.
- Input type: K, E, J, N thermocouples and Pt100 platinum resistance freely programmable.
- Use digital calibration technology for input Measurement accuracy: 0.3%FS, maximum resolution is 0.1°C.
- Use advanced artificial intelligent control algorithm, no overshoot and with the function of auto tuning (AT) and self-adaptation.
- With worldwide power supply of AC/DC100-240V or DC12-24V.

2. Model defined

NS710 — ① ② — ③

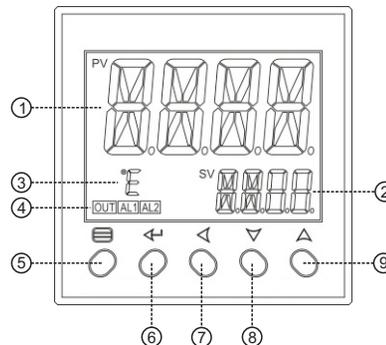
①		②		③	
Code	OUT(Master output)	Code	ALM(Alarm)	Code	Power
N	None	N	None	None	AC/DC100~240V
R	Relay contacts output	1	1 relay contact output	D	DC12-24V
Q	SSR voltage output	2	2 relay contact output		
W1	TRIAC no contact normally open output				
W2	TRIAC no contact normally closed output				

3. Technical parameters

Power supply voltage	AC/DC100~240V, or DC12-24V(-15%, +10%/50-60HZ)
Operating voltage range	85% to 110% of rated supply voltage
Power consumption	Approx. 5.2 VA at 100 to 240 VAC, Approx. 3 VA at 12 to 24 VDC
Measurement accuracy	0.3% FS ± 1 measurement unit
Input type and Measuring range	K(-50~+1300°C), E(0~800°C), J(0~1000°C), N(0~1300°C), Pt100(-200~+600°C)
Decimal point	0,0.0
Response time	≤0.5Sec(when digital filter parameter InF=0)
Control mode	one-stop regulating, Intelligent Fuzzy PID algorithm

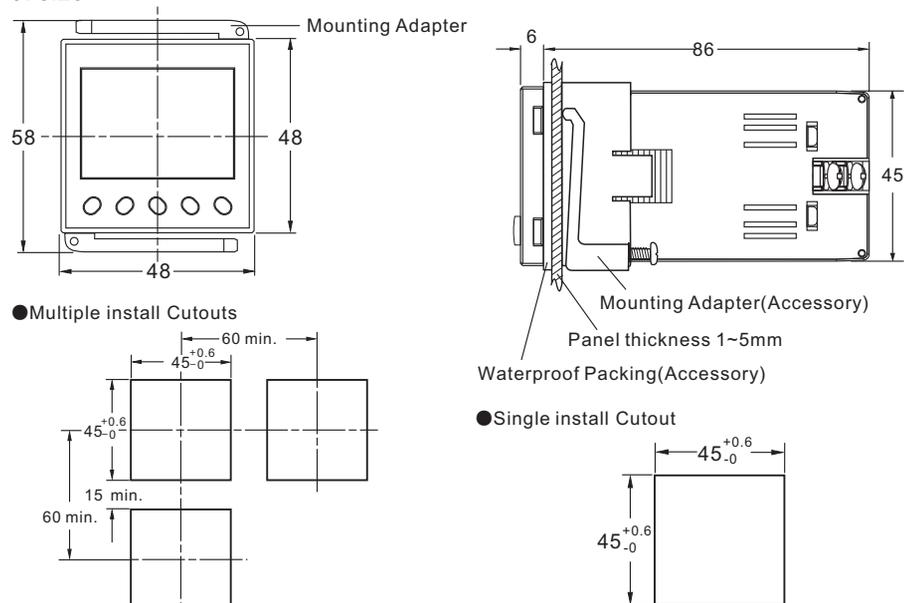
control output	Relay output	3A/250VAC 5A/30VDC
	SSR output	12VDC/50mA(Used to drive SSR)
Electromagnetic compatibility (EMC)		IEC61000-4-4(Electrical Fast Transient Burst)±4KV/5KHz; IEC61000-4-5(Surge),4KV
Isolation withstanding voltage		Between power, relay contact or signal terminals≥2300VDC; between isolated electroweak terminals≥600V
Operating Ambient		Temperature:0~60°C; Humidity≤90%RH

4. Front Panel Description



- ① No.1 display, PV or specified parameter
- ② No.2 display, SP or specified parameter value
- ③ Temperature unit: °C/°F
- ④ Operation indicators: OUT indicators, AL1 indicators, AL2 indicators
- ⑤ Setup key: For accessing parameter table and conforming parameter modification.
- ⑥ Enter key: For Confirm and change to another parameter
- ⑦ Data shift key
- ⑧ Data decrease key
- ⑨ Data Increase key

5. size



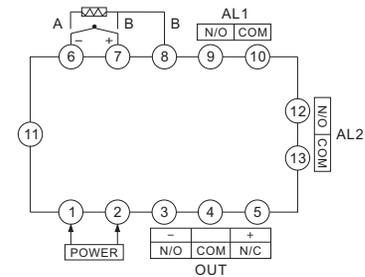
CntL	Control mode	onoF: on-off control. For situation not requiring high precision. FPId: advanced artificial intelligence "FUZZY PID" control.	onoF FPId
orEv	Selection of heating refrigeration	onr: Reverse acting. Increase in measured variable causes a decrease in the output, such as heating control. ond: Direct acting. Increase in measured variable causes an increase in the output, such as refrigerating control.	onr ond
P	Proportional band	Proportional band in PID and APID control. Instead of percentage of the measurement range, the unit is the same as PV. Generally, optimal P, I, D and CP can obtained by auto tuning. They can also be manually inputted if you already know the correct values.	1~32000
I	Integration time	No integral effect when I=0	1~9999 seconds
d	Differential time	No derivative effect when d=0	0~3200 seconds
CP	Control cycle	CP reflect the instrument operator to adjust the speed, the size of the CP that affect the control accuracy. With SSR, SCR output control cycle preferable to shorter, usually 0.5-3.0 Seconds. The relay switch output is generally in 15-40 sec. When the output relay switches, the CP will be limited to 3 seconds, And self-tuning At will automatically set the CP as the appropriate value, taking into account the control accuracy And mechanical switch life. When the control mode CntL = onoF, the action of the CP as an output disconnect or power-on output ON Delay time.	0.2~ 300.0
HYS	Control hysteresis	HYS is used for on-off control to avoid frequent on-off action of relay. For a reverse acting (heating) system, when PV > SV, output turns off; when PV < SV-HYS, output turns on. For a direct acting (cooling) system, when PV < SV, output turns off; when PV > SV+HYS, output turns on.	0~200.0
Int	Input Signal	Input spec: K, E, J, N, Pt (Pt100)	
dp	Decimal point	0 (no decimal), 0.0 (one decimal place).	0 0.0
SC	Input Shift Adjustment	Sc is used to shift input to compensate the error caused by transducer, input signal, or auto cold junction compensation of thermocouple. PV after compensation=PV before compensation + Sc It is generally set to 0. The incorrect setting will cause measurement inaccurate.	-199.9~ +400.0
InF	PV input filter	The value of InF will determine the ability of filtering noise. When a large value is set, the measurement input is stabilized but the response speed is slow. Generally, it can be set to 1 to 3. If great interference exists, then you can increase parameter "InF" gradually to make momentary fluctuation of measured value less than 2 to 5. When the instrument is being metrological verified, "InF" s can be set to 0 or 1 to shorten the response time.	0~40
dU	Temperature unit selection	°C: celsius equals °F: fahrenheit equals	°C °F
SvL	Low limit of SV	Minimum value that SV is allowed to be.	-999~ +3200
SvH	Upper limit of SV	Maximum value that SV is allowed to be.	

8. default settings.

Parameter code	factory setting	Parameter code	factory setting	Parameter code	factory setting
HRL1	3200	CntL	FPId	dP	0
LRL1	-999	orEv	onr	Sc	0
HRL2	3200	P	25	InF	2
LRL2	-999	I	200	dU	°C
SrUn	rUn	d	500	SPL	-99
Loc	0	CP*		SPH	999
AHYS	2	HYS	2		
RLtd	0	InE	μ		

* solid state relay output type CP factory is set to 20 ,
the relay contact output type CP factory set to 150 .

9. Wiring diagram.



10. Note

- (1) Can not normally display measured values in the display window alternating show "orAL" character, indicating that the input of the measurement signal abnormalities or Out of range; check Int parameter settings, and then the input sensor signals are the same category, if it is determined the same, check the input sensing Signal not pick the wrong line, if it is determined to not pick the wrong line, check whether the sensor problem, replace another sensor to try.
- (2) The instrument used by the local environmental temperature and humidity can not exceed the scope of the provisions, the instrument around should allow sufficient space for heat dissipation, instrument internal temperature rise due to thermal radiation will lead to a result of the measurement accuracy and service life of the affected. In this Case, to be taken to a forced cooling fan or other measures to reduce the ambient temperature.
- (3) the extension or connection then the thermocouple leads should be used with the thermocouple type to match the compensation conductor; extend or connect the thermoelectric Resistance of the lead, you should use the minimal resistance of the wire and cable away from power lines and load connection, in order to avoid signal interference.

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