Temperature Controller

TD510 Programmable temperature controller

Specification

Model	TD510		
Appearance	CE 		
W×H×D (㎜)	145× 145× 33.5		
Power voltage	100 - 240 V a.c. Voltage regulation ±10 %		
Power frequency	50 - 60 Hz		
Power consumption	30 V A max		
Dielectric strength	Between 1st and 2nd terminals : Min. 1500 V a.c for 1 min Between 1st and FG terminals : Min. 1500 V a.c for 1 min Between 2nd and FG terminals : Min. 1500 V a.c for 1 min		
Input type	2 types of thermoresistor (Pt–100, KPt–100) ±0.1 % of FS ±1 Digit 11 types of thermocouple (K, J, E, T, R, B, S, L, N, U, Wire 5–26) ±0.1 % of FS ±1 Digit 4 types of DC voltage (–10 – 20 mV, 0 – 100 mV, 1 – 5 V, 0 – 30 V) ±0.1 % of FS ±1 Digit		
Sampling cycle	250 ms		
Contact output(DO)	Up to 32 relay	A Contact	30 V d.c. 3 A max, 250 V a.c. 3 A
		B Contact	NO : 30 V d.c. 5 A max, 250 V a.c. 5 A
Control output	SSR output	ON : 18 V d.c. Pulse voltage(800 Ω or more load resistance)	
	SCR output	4 – 20 mA d.c. (600 Ω or less load resistance)	
Transmission output	Current output	4 – 20 mA d.c.	
	Load resistance	600 Ω or less load resistance	
	Output type	Specific value(PV), Setting value(SV), Output(MV)	
	Refresh interval	250 ms	
Input	Input calibration (Sensor bias)	2 temperature points : EUS(0 – 100 %)	
	Scaling	DC voltage(VDC) : Input scaling according to conversion range	
	Input filter(LPF)	0 ~ 120 sec	
Control mode	Operation type	Constant–value / Program control	
Control output	Temperature control output	SSR output or SCR (4 – 20 mA d.c.) output	
Control operation	Pattern	100 patterns(1 pattern/100 segments)	
	Segment	2,000 segments	
	PID Group	4 groups (Each channel)	
	Auto tuning	Auto tuning according to target setting value	
	Proportional band	0.00 – 100.00 % (For 0.00 %, ON/OFF control)	
	Integral time	0.0 ~ 3,000 sec (OFF when 0 sec)	
	Derivative time		
	ON/OFF control	Set 0.0 to proportional band(PB)	
Transmission output	Temperatre(Ch.1 and 2)	4 – 20 mA d.c., Specific value(PV), Setting value(SV) and Output(MV)	
	Scaling	Auto scaling for defined upper/lower, limit range(4 – 20 mA d.c.)	
Alarm setting	Alarm setting	System alarm : 8 points, Assign 4 of 8 pattern alarms to a pattern	
	Alarm type	Absolute upper/lower limit, Offset upper/lower limit and Within/Out of range	
	Absolute alarm setting range	EU (0 ~ 100 %)	
Display	TFT color LCD (115.2 × 86.4 mm)		
Number of Pixels	640 × 480 pixel		
Back light	LED back light		
Life cycle of back light	Approx. 40,000 h		
Touch type	Resistive type (4 Wires)		
Language	Korean/English/Chinese(Simplified)		
Internal memory	Non–volatile memory : 80 MB - Saving of 15 days at 1 S interval		
External memory	SD card(2 GB) : Saving of 1 year at 1 S interval		
Saving interval	1 – 360 S		
Memory information	Program information, setting value, recovery, and temperature setting / specific / output value		
Ambient temperature	0 ~ 50 ℃		
Ambient humidity	20 ~ 90 % RH (Without condensation)		
Weight	Approx. 1.32 kg		

Suffix Code

Model	Code							Information
TD	□	1	□	–	□	□	□	Programmable temperature controller
Display device	5							5.7" TFT-LCD
Channel		1						1 Channel
		2						2 Channel
Input/output			1					8 input points/6 output points(1 module)
			2					8 input points/14 output points(2 modules)
			3					16 input points/16 output points(3 modules)
Language				S				Korean, English, and Chinese(Simplified)
				T				Korean, English, and Chinese(Traditional)
Communication							None	RS485
							E	RS485, Ethernet(OS)

※ Basic components (Power module, Control module)

※ This product consists of the display and control (Power, Control, Input, and Output Modules). (Up to 32 contact input/output points, respectively)

Components

Product	Model	Information
Display	TD510-DISPLAY	Display (5.7" TFT LCD)
Control module	TD510-MAIN	Temperature 2-channel control module
Power module	TM-PWR	Power module
Input module	TM-DI	Module with 16 input points
Output module	TM-DO	Module with 8 output points
Input/output module	TM-DIO	Module with 8 input and 6 output points

TD500 Programmable temperature controller

Specification

Model		TD500		
Appearance		CE 		
W×H×D(mm)		183×144×103		
Power supply		100 – 240 V a.c. (±10 %), 50 – 60 Hz 16 W max.		
Screen	LCD	5.7 inch color / Touch panel type		
Program	Pattern / Segment	100 patterns / 2400 segments, Pattern repetition : 999 times max., Partial repetition : 255 max.		
Input	Measuring range	Sensor type Pt 100 Ω(IEC751) T.C (K, J, E, T, R, S) V DC (Voltage Input : 0 – 10 V, 1 – 5 mV, –10 – 20 mV, 0 – 100 mV Current Input : 1 – 5 V d.c. (4 – 20 mA d.c., attach 250 Ωexternal resistance)	Accuracy ±0.1 % of FS ±0.1 % of FS ±0.1 % of FS	Measuring range – 200.0 ~ 640.0 ℃ – 200.0 ~ 1700.0 ℃ 0.0 ~ 10.0 V (Range setting)
	Sampling cycle	500 ms		
Output	Control output	2 points for each channel (Heating / Cooling)		
	Specification	Voltage pulse (SSR) : 24 V d.c., minimum pulse width 10 ㎳ Current (SCR) : 4 – 20 ㎃ d.c.(Below 600 Ω) Relay output : N/O 250 V a.c. 5 A/ 30 V d.c. 5 A, N/C : 250 V a.c. 2 A/ 30 V d.c., TR output (O/C) : Max. 24 V 100 ㎃ Sink		
Communication	Protocol	PC – Link(Check Sum), Modbus – ASCII		
	Communication Type	RS232C : 2400 ~ 115,200 bps Max. 10 m, RS422/485 : 2400 ~ 115,200 bps, Max.1.5㎞ 256 Mode		

Suffix Code

Model	Code				Information
TD500	□	□	□		Programmable Temperature Controller
Types	1				Communication (RS485/422 Communication, USB)
	2				Communication (RS232 Communication, USB)
	N				None (Only when need the I/O (Input/Output board))
Input-Output board		1			Contact input (DI) 8 contacts Contact output (DO) 8 contacts Transistor output (DO) 8 contacts
		N			Non (Only necessary standard body)
Language					Korean/English (Standard type)
			2		English/Chinese (Simplified Chinese character)

Temperature Controller

TD300 Programmable temperature controller

Specification

Model	TD300
Appearance	
W×H×D (㎜)	96×96×100
Program	Touch panel, 100 patterns (2,400 segments), 100 segments/1pattern setting
Screen	TFT LCD 70.08 × 52.56 mm (3.5″)
Function	Contact input (D.I) : 8 contacts, Output (D.O) : 8, RS232/485
Power voltage	100 – 240 V a.c. 50 – 60 Hz (Voltage variation rate ±10 %)
Input	TC(K, J, E, T, R, S), VDC(0 – 100 mV, 0 – 10 V)
Input cycle	500 ms
Display accuracy	±0.1 % of FS
Output	Control output : SSR 24 V d.c. / SCR 4 – 20 mA d.c., Retransmission output : 4 – 20 mA d.c.
Control type	PID automatic tuning

Suffix Code

Model	Code		Information
TD300	□	□	Programmable Temperature Controller (DIN 96 × 96)
Communication	1		RS485/422 communication
	2		RS232C communication
Language (Optional)		1	Korean and English (Standard type)
		2	English and Chinese (Simplified Chinese Characters)

TH300 Programmable temperature & Humidity controller

Specification

Model	TH300
Appearance	CE 
W×H×D (㎜)	96×96×100
Program	Touch panel, 100 patterns (2,000 segments), 100 segments / 1pattern setting
Screen	TFT LCD 70.08 × 52.56 mm (3.5″)
Function	Contact input (DI) : 4 contacts, Output (DO) : max 12, RS232/485
Power voltage	100 – 240 V a.c. 50 – 60 Hz (Voltage variation rate ±10 %)
Input	Pt100 Ω or 0 – 5 V d.c.
Input cycle	500 ms
Display accuracy	Temperature (℃) : ±0.2 % of FS Humidity (%RH) : ±2 % of FS
Output	Control output : SSR 24 V d.c. pulse, Retransmission output : 4 – 20 mA d.c.
Control type	PID automatic tuning

Suffix Code

Model	Code		Information
TH300	□	□	Programmable Temperature & Humidity controller (DIN 96 × 96)
Communication	1		RS232C communication
	2		RS485/422 communication
Language (Optional)		1	Korean and English (Standard type)
		2	English and Chinese (Simplified Chinese Characters)
		3	English and Chinese (Traditional Chinese Characters)

TH500 Programmable temperature & Humidity controller

Specification

Model	TH500	
Appearance	CE 	
W×H×D (㎜)	183× 144× 93.5	
Program	Max. 100 pattern (Max. 6,000 segment)	
Screen	5.7 inch STN color LCD screen (Touch screen type)	
Function	Pattern repetition : Max. 999 times, Partial repetition : Max. 255 times / Pattern link and editing	
Power voltage	100 – 240 V a.c., 50 – 60 Hz (Voltage variation rate : ±10 %)	
Input	Pt 100 Ω, 0(1) – 5 V d.c. or 4 – 20 ㎃ d.c. (External resistance 250 Ω)	
Input cycle	500 ㎳	
Measuring range	Temperature	–100.00 ~ 200.00 ℃
	Humidity	0.0 ~ 100.0 % RH
Display accuracy	Temperature : ±0.1 % of F.S, Humidity : ±1 % of F.S	
Control output	SSR output	Min. 24 V d.c. (Minimum pulse width : 0.2ms)
	Current output	4 – 20 ㎃ d.c.
Retransmission output	Temperature : 1 point, Humidity : 1 point (PV, SV, MV selection)	
	4 – 20 ㎃ Resistive Load Max. 600 Ω	
Contact input	D.I : 8 points	
Output	Max. 20 points (Relay : 12 points, Open collector : 8 points)	
Contact output type	Inner signal : 8 points, Alarm signal : 4 points each channel, Run/Stop signal : 1 point, 1st Ref. signal : 1 point, 2nd Ref. signal : 1 point	
	Temp. / Humi. Up/Down, Soak signal : 6 points, Temp./Humi. Control signal : 2 points, Time signal : 8 points / 1 segment	
	Error signal : 1 point, Sensor disconnection signal : 1 point, Wait signal : 1 point, Hold signal : 1 point, PT End signal : 1 point	
Communication output	RS485–Max. communication distance 1.2 ㎞, Max. 32 connections available, Communication speed : Max. 115,200 bps	
	RS 232, RS422/485	
Storage / Capacity	Internal FLASH memory, Temp./Humi. Each 86,400 points	
Storage function	Program information & Setting value back–up and recovery, Temp. / humi. Setting, Indicating value storage	
Ambient Temp. / Humidity	0 ~ 50 ℃, 10 ~ 90 % RH (No condensation)	

Suffix Code

Model	Code		Information	
TH500–	□	□ □	Programmable temperature & humidity controller	
Types	1		Standard type	Temperature&Humidity Retransmission output Temperature&Humidity control output (SSR/SCR drive) Temperature&Humidity signal input External digital input (DI) : 8 contacts Digital output (DO) : relay 12 contacts, open collector 8 contacts Communication specification: RS232, RS422/485, USB
	2		Additional type	※ Input and output boards are separated from the main body. Temperature/Humidity Retransmission output Temperature/Humidity signal input Communication specification: RS232, RS422/485 2CH, USB (PV Backup)
	N		–	No body part
Additional type board (optional)		1	Input/Output board–1 (12 contacts relay output), Temperature/Humidity control output (SSR/SCR drive) (D.I: 8 contacts, DO: 12 contacts relay output external power supply) 24 V d.c., 18 W	
		2	Input/Output board–2 (8 contacts open collector output external terminal board)	
		3	Input/Output board–3 (8 contacts relay output board)	
		4	Input/Output board–1 + (output board–2)	
		5	Input/Output board–1 + (output board–3)	
		N	No output board (when selected the main body)	
Language			N	Korean/English (Standard type)
			2	English/Chinese (Simplified Chinese Characters)
			3	English/Chinese (Traditional Chinese Characters)

Temperature Controller

TH510 Programmable temperature & Humidity controller

Specification

Model	TH510		
Appearance	CE 		
W×H×D (㎜)	145× 145× 33.5		
Power voltage	100 - 240 V a.c. Voltage regulation ±10 %		
Power frequency	50 - 60 Hz		
Power consumption	30 V A max		
Dielectric strength	Between 1st and 2nd terminals : Min. 1500 V a.c. for 1 min Between 1st and FG terminals : Min. 1500 V a.c. for 1 min Between 2nd and FG terminals : Min. 1500 V a.c. for 1 min		
Input type	2 types of thermoresistor (Pt-100, KPt-100) ±0.1 % of F.S ±1 Digit 2 types of DC voltage (1 – 5 V, 0 – 30 V) ±0.1 % of F.S ±1 Digit		
Sampling cycle	250 ms		
Contact output(DO)	Up to 32 relay	A Contact	30 V d.c. 3 A max, 250 V a.c. 3 A
		B Contact	NO : 30 V d.c. 5 A max, 250 V a.c. 5 A
Control output	SSR output	ON : 18 V d.c. Pulse voltage (800 Ω or more load resistance)	
	SCR output	4 – 20 mA d.c. (600 Ω or less load resistance)	
Transmission output	Current output	4 – 20 mA d.c.	
	Load resistance	600 Ω or less load resistance	
	Output type	Specific value(PV), Setting value(SV), Output(MV)	
	Refresh interval	250 ms	
Input	Input calibration (Sensor bias)	1 Temperature contact : EUS(0~100 %), 1 Humidity contact : EUS(0 ~ 100 %)	
	Dry/wet-bulb sensor compensation	Compensate the dry/wet sensor difference after removing the gauze of the wet-bulb sensor.	
	Scaling	DC voltage(VDC) : Input scaling according to conversion range	
	Input filter(LPF)	0 ~ 120 sec	
Control mode	Operation type	Constant-value / Program control	
Control output	Temperature control output	SSR output or SCR (4 – 20 mA d.c.) output	
	Humidity control output		
Control operation	Pattern	100 patterns(1 pattern/100 segments)	
	Segment	2,000 segments	
	PID Group	16 groups(temperature 4 zones X humidity 4 zones)	
	Auto tuning	Auto tuning according to target setting value	
	Proportional band	0.00 ~ 100.00 % (For 0.00 %, ON/OFF control)	
	Integral time	0.0 ~ 3,000 sec (OFF when 0 sec)	
	Derivative time		
	ON/OFF control	Set 0.0 to proportional band(PB)	
Transmission output	Temperature, Humidity	4 – 20 mA d.c. Specific value(PV), Setting value(SV) and Output(MV)	
	Scaling	Auto scaling for defined upper/lower limit range (4 – 20 mA d.c.)	
Alarm setting	Alarm setting	System alarm : 8 points Assign 4 of 8 pattern alarms to a pattern	
	Alarm type	Absolute high/low limit, deviation high/low limit, in range/out of range (alarm direction, hold)	
	Absolute alarm setting range	EU (0 ~ 100 %)	
Display	TFT color LCD (115.2 × 86.4 mm)		
Number of Pixels	640 × 480 pixel		
Back light	LED back light		
Life cycle of back light	Approx. 40,000 h		
Touch type	Resistive type (4 Wires)		
Language	Korean/English/Chinese(Simplified)		
Internal memory	Non-volatile memory : 80 MB - Saving of 15 days at 1 S interval		
External memory	SD card(2 GB) : Saving of 1 year at 1 S interval		
Saving interval	1 – 360 S		
Memory information	Program information, setting value, recovery, and temperature setting / specific / output value		
Ambient temperature	0 ~ 50 ℃		
Ambient humidity	20 ~ 90 % RH (Without condensation)		
Weight	Approx. 1.32 kg		

Suffix Code

Model	Code							Information
TH	□	1	0	–	□	□	□	Programmable temperature controller
Display device	5							5.7" TFT-LCD
Input/output					1			8 input points/6 output points(1 module)
					2			8 input points/14 output points(2 modules)
					3			16 input points/16 output points(3 modules)
Language						S		Korean, English, and Chinese(Simplified)
						T		Korean, English, and Chinese(Traditional)
Communication							None	RS485
							E	RS485, Ethernet(OS)

※ Basic components (Power module, Control module)

※ This product consists of the display and control (Power, Control, Input, and Output Modules). (Up to 32 contact input/output points, respectively)

Components

Product	Model	Information
Display	TD510-DISPLAY	Display (5.7" TFT LCD)
Control module	TD510-MAIN	Temperature 2-channel control module
Power module	TM-PWR	Power module
Input module	TM-DI	Module with 16 input points
Output module	TM-DO	Module with 8 output points
Input/output module	TM-DIO	Module with 8 input and 6 output points

Temperature Controller

NP200 Programmable temperature controller

Specification

Model	NP200
Appearance	
W×H×D(mm)	96×96×100
Function	• Retransmission output • Input correction • Auto/Manual output • Heating/Cooling Control
	• Constant-value control • 5 Inner signals • Zone PID • 5 Time signals
Power voltage	100 – 240 V a.c. (50/60Hz)
Power consumption	Max. 10 VA (except communication)
Input	Multi input a) T.C : K, J, E, T, R, B, S, L, N, U, W, PLII, b) R.T.D : Pt100(KS/IEC), KPt100(KS) c) DC Voltage input : 1 to 5 V, 0 to 10 V, –10 to 20 mV, 0 to 100 mV, d) DC Current input : 4 to 20 mA(Connect a 250 Ω resistor to the input terminals)
Control output	Universal-output: Relay, SSR, Current
Control action	PID or ON/OFF
Alarm	4 Alarm output
Communication	RS 485/422 (Optional)
Setting	By Up/Down key on the front
Display	PV : Digital LED, SV : LCD Back light
Setting and display accuracy	0.1 % of F.S (Full Scale)
Setting resolution	1 or 0.1 % (According to input range)
Memory protection	Semipermanent
External control	4 Alarm output (Run, Reset, Step, Hold)
Number of pattern	30
Number of segment	300
Number of pattern contact	30
Operation	1 ~ 99 times or limitless
Program inclination	Hour, Minute
Sampling cycle	250 ㎳
Insulation resistance	500 V a.c. 20 MΩ min.
Dielectric strength	2300 V a.c. 50/60 Hz for 1 minute (Between primary and secondary terminal & between primary and ground)
Ambient temperature & humidity	0 ~ 50 ℃, 35 ~ 85 % R.H.

Suffix Code

Model	Code	Information
NP200	□□	Programmable temperature controller, 96(W) X 96(H) ㎜
Control Types	0	Universal type (heating)
	1	Heating/cooling type (synchronous control type)
Option	0	None
	1	Communication function (RS485/422)
	2	Contact input(DI) 4 contacts
	3	Communication(RS485/422)+contact input 4 contacts

※ Option contact input 4 contacts are (DI-4) ~ (DI-7)

NP100 Programmable temperature controller

Specification

Model	NP100
Appearance	
W×H×D(mm)	96×96×100
Function	• Retransmission output • Input correction • Auto/Manual output • Heating/Cooling Control
	• 2 Alarm output (Relay) • 2 Time signals (Transistor)
Power voltage	100 – 240 V a.c. 50/60Hz
Power consumption	Max. 10 VA (except communication)
Input	Multi input 1) T.C : K, J, E, T, R, B, S, L, N, U, W, PLII, 2) R.T.D : Pt100(KS/IEC), KPt100(KS) 3) DC Voltage input : 1 to 5 V, 0 to 10 V, –10 to 20 mV, 0 to 100 mV, 4) DC Current input : 4 to 20 mA(Connect a 250 Ωresistor to the input terminals)
Control output	Universal–output : Relay, SSR, Current
Control action	PID or ON/OFF
Alarm	2 Alarm output
Communication	RS 485/422 (Optional)
Setting	By Up/Down key on the front
Display	PV/ SV : Digital LED
Setting and display accuracy	0.1 % of FS (Full Scale)
Setting resolution	1 or 0.1 % (According to input range)
Memory protection	Semipermanent
External control	3 Alarm output (Run, Reset, Hold)
Pattern and segment	2 Patterns, 20 Segments (10 Segments / 1 Pattern)
Operation	1 ~ 99 times or limitless
Program inclination	Hour, Minute
Sampling cycle	250 ㎳
Insulation resistance	500 V a.c. 20 MΩ min.
Dielectric strength	2,300 V a.c. 50/60 Hz for 1 minute (Between primary and secondary terminal & between primary and ground)
Ambient temperature & humidity	0 ~ 50 ℃, 35 ~ 85 % R.H.

Suffix Code

Model	Code		Information
NP100	□	□	Programmable temperature controller 96(W) X 96(H) ㎜
Control Types	0		Universal type (heating)
Option		0	None
		1	Time signal 2 contacts
		2	Communication function (RS485/422)
		3	Time signal 2 contacts and communication (RS485/422)

Temperature Controller

MC9 Multi channels digital temperature controller

Specification

Model	MC9
Appearance	CE 
W×H×D(mm)	96 X 96 X 100
Function	• Multi channels PID control device • Various alarm functions (15 types) • multi memory function (max 8 x 8 units) • 8/4 channels control device • DI contact input function • Heating/cooling function (4 channels are possible only)
Power Voltage	110 – 220 V a.c. 50 – 60 Hz
Power consumption	100 V a.c. (below 14 VA) / 240V a.c. (below 20 VA)
Input	Input(Sensor type) selection by the configuration suffix code. a) T.C : K, J, E, T, R, B, S, L, N, U, W, PLII, b) R.T.D : Pt100 Ω(KS/IEC), KPt100 Ω(KS) c) DC Voltage input : 0 to 5 V, 1 to 5 V,0 to 10 V, d) DC Current input : 4 to 20 mA(Connect a 250 Ωresistor to the input terminals)
Output	Type (Relay Output, Voltage Pulse Output, Triac Output, 4 – 20 mA Output, 0 – 20 mA Output)
Alarm	1a Contact Type / 250 V a.c., 1 A (for resistive load) / Life time: above 300,000 times ON/OFF
Communication	EIA RS485 / RS232C, Max. connecting units : 31 units (for RS485, Address can be set from 1 to 99) Communication method: 4–wire half duplex/ 2–wire half duplex, Communication Protocol: PC–LINK
Contact input	From Below 2 kΩ, ON, From Above 15 kΩ, OFF
Operating Environment	Temperature: 0 ~ 50 ℃ (32 ~ 122 ℉), Humidity: 45 ~ 85 % RH (but, without condensation) Magnetic field : Below 400 AT/m Without poisonous gas and without full of dust

Suffix Code

• MC9 (4 channels)

Model	Code						Information
MC9–4	□	□	□	□	□	□	4 channels digital temperature controller dimension : 96(W) X 96(H) mm
Control type	D						Direct action (cooling action)
	R						Reverse action (heating action)
	W						Heating / Cooling (synchronous output)
Intput type		□					Refer to the "Range and input code chart"
Heating output (output 1 ~ 4)			M				Relay
			S				SSR
			T				Triac
			4				4 – 20 mA d.c.
			5				0 – 20 mA d.c.
Cooling output (output 5~8) * in case of when control types are D and R then fix to N * in case of when control type is W then select among M,S,T, 4 and 5				N			NONE
				M			Relay
				S			SSR
				T			Triac
				4			4 – 20 mA d.c.
				5			0 – 20 mA d.c.
Optional					N		NONE
					1		AL2, AL3
					2		AL2, AL3 + RS232 + contact input
					3		AL2, AL3 + RS485 / 422 + contact input
					4		AL2, AL3 + heater break
Power Supply Voltage						2	100 – 240 V a.c. 50 / 60 Hz
						1	24 V d.c.

• MC9 (8 channels)

Model	Code	Information
MC9-8	□□□□□□	8 channel digital temperature controller. Dimension : 96(W) X 96(H) X 100(D)
Control type	D	Direct action (cooling action)
	R	Reverse action (heating action)
Intput type	□	Refer to the "Range and input code chart"
Heating output (output 1 ~ 4)	M	Relay
	S	SSR
	T	Triac
	4	4 – 20 ㎃ d.c.
	5	0 – 20 ㎃ d.c.
Cooling output (output 5~8) * in case of when control types are D and R then fix to N * in case of when control type is W then select among M,S,T, 4 and 5	N	NONE (when selected, input channels 5 ~ 8 are for indication)
	M	Relay
	S	SSR
	T	Triac
	4	4 – 20 ㎃ d.c.
	5	0 – 20 ㎃ d.c.
Optional	N	None
	2	RS232 + contact input
	3	RS485 / 422 + contact input
	4	Heater break
Power Supply Voltage	2	100 – 240 V a.c. 50/60 Hz
	1	24 V d.c.

Range and input code chart

Classification	Code	Input type	Range(℃)	Accuracy
Thermocouple	K0	K	–200 ~ 1370	Bigger one between the ±(0.3 % of FS ±1 Digit) or ±2 ℃
	K1	K	–199.9 ~ 999.9	
	J0	J	–200 ~ 1200	
	J1	J	–199.9 ~ 999.9	
	E0	E	–199.9 ~ 999.9	
	E1	E	–199.9 ~ 999.9	
	T0	T	–199.9 ~ 400.0	
	R0	R	0 ~ 1700	
	R1	R	0.0 ~ 999.9	
	B0	B	0 ~ 1800	
	B1	B	0.0 ~ 999.9	
	S0	S	0 ~ 1700	
	S1	S	0.0 ~ 999.9	
	L0	L	–199.9 ~ 900.0	
	N0	N	–200 ~ 1300	
	N1	N	–199.9 ~ 999.9	
	U0	U	–199.9 ~ 400.0	
	W0	W	0 ~ 2300	
	A0	PL2	0 ~ 1390	
RTD	P0	KPt100 Ω	–199.9 ~ 500.0	Bigger one between the ±(0.3 % of FS ±1 Digit) or ±0.8 ℃
	D0	Pt100 Ω	–199.9 ~ 600.0	
DC voltage	V0	0 – 5 V	–199.9 ~ 999.9	± (0.3 % of FS ± 1 Digit)
	V1	1 – 5 V	–199.9 ~ 999.9	
	V2	0 – 10 V	–199.9 ~ 999.9	

Temperature Controller

ML Multi channels temperature controller (Module type)

Specification

Model			ML-D2H	ML-D4	ML-E
Appearance			CE 		
W×H×D(mm)			30 X 100 X 96.9		
Power source voltage			24 V d.c.		
Voltage regulation			±10 % of power source voltage		
Power consumption			ML-D4S/C: Maximum 7W below	ML-D4M: Maximum 5W below	ML-D2HMS/SS: Maximum 7W below / ML-D2H: Maximum 5W below / ML-E: Maximum 3W below
Thermo couple			K, J, E, T, R, B, S, L, N, U, W, PL2		Each ch can be selected by INP parameter
Thermo-resistor			Pt100 Ω, KPt100 Ω		
Direct current voltage			0 – 100 mV, 1 – 5 V, 0 – 10 V		
Sampling cycle			50 ms.		
Input indication resolution			Below minimum unit of input range		
Input impedance			Thermo couple and direct current voltage input: over 1 MΩ		
Impact of allowed input resistance			About 0.2 uV / Ω		
Allowed input conducting wire resistance			Thermo-resistor (below 10 Ω, however, resistance among 3 lines should be same)		
Allowed input voltage			Within -2 - 5 (Thermo couple, thermo-resistor), within -5 - 12 V (direct current, voltage)		
Input compensation			±100% of input range		
Cold junction compensation error			±1.5 ℃ (0 ~ 50 ℃)		
Input signal break detection			up scale		
Control output	RELAY		1a contract point		–
			250 V a.c. 3 A, 30 V d.c. 3 A		
	SSR		Over 12 V (over 600 Ω of load resistance) if short circuit, limit to about 25 mA		
			Time resolving power : larger side between control cycle 0.1% or 10 ms		
	SCR		Resolution 4 -20 mA d.c. (below load resistance 600 Ω)		
			Degree : ±0.1% of FS (4-20 mA scope)		
RS485 communication	Communication method		RS-485 EIA standard / 2 line type half duplex		
	Maximum number of access		31 units		
	Maximum communication distance		1200 m		
	Communication sequence		No sequence		
	Communication speed		9600, 19200, 38400, 76800, 87600 bps [initial value: 9600]		
	Start bit		1 bit		
	Data length		7, 8 bit [initial value: 8]		
	Parity bit		None, Odd, Even [initial value: Even]]		
	Stop bit		1, 2 bit [initial value: 1]		
	Response time		Reception handling time + (response time x 10 ms)		
	Support protocol		PC-Link, PC-Link with SUM, Modbus ASCII/RTU [initial value: PC-Link]		
Usage surroundings temperature			0 ~ 50 ℃		
Usage surroundings humidity			35 ~ 85% RH (however, there should not be condensation)		
Run environment			Should not be used in areas with toxic gas, magnetic field or dust		
Warming up time			Minimum 30 minutes		
Influence by surrounding temperature			Thermo couple, direct current voltage: Larger side between ±3 uV / ℃ or ±0.03% of FS / ℃ Thermo-resistor: Below ±0.1 ℃ / ℃		
Influence by power supply change			Larger side between ±3 uV / 10 V or ±0.03 % of FS / 10 V		
Storage temperature			-25 ~ 65 ℃		
Storage humidity			5 ~ 95% RH (however, there should not be condensation)		
Shock			Less than 1 m in packaged condition		
Weight			About 220g (excluding box)		

Suffix Code

■ Module type temperature controller (ML–D2H)

Model	Code			Information	
ML–D	2	H	□	Module type temperature controller	
Number of channels	2			2 channel	
Intput		H		Heating/cooling control (simultaneous), heater break alarm (HBA)	
Control output			MM	OUT1 (heating)	Relay output
				OUT2 (cooling)	
			SM	OUT1 (heating)	SSR / SCR (4 –20 mA d.c.) parameter optional output
				OUT2 (cooling)	
			SS	OUT1 (heating)	SSR / SCR (4 –20 mA d.c.) parameter optional output
				OUT2 (cooling)	

■ Module type temperature controller (ML–D4)

Model	Code		Information
ML–D	4	□	Module type temperature controller
Number of channels	4		4 channel
Control output		M	Relay output
		S	SSR output (12 V d.c.)
		C	SCR output (4 – 20 mA d.c.)

Ex: Temperature control system 4 channel relay output : ML–D4M

■ Module type event output (ML–E)

Model	Information
ML–E	Module type 8 events output unit

Temperature Controller

SM100 Multi channel temperature controller (Board type)

Specification

Model		SM100-□ □12	SM100-□ □16	SM100-□ □20
Appearance		CE		
Number of channels		12 Channel	16 Channel	20 Channel
Measurement Input	Input type	Thermocouple (K type), RTD (Pt100 Ω IEC 751)		
	Display accuracy	±0.5 % of FS (※±0.5 % of max range)		
	RJC compensation accuracy	±3.5 ℃		
	Sampling Input	1 sec		
	Input filter	0 ~ 120.0 sec		
	Burn-out action	Thermocouple: Up Scale when break, RTD: Up Scale when break		
	compensation	±1200.0 ℃		
Control Output	Output type	SSR driving voltage pulse output (min 12 V d.c.), Load resistance (min 600 Ω)		
	Control action	Time proportional PID or ON / OFF control		
	Proportional cycle	1 ~ 100 sec		
	Proportional band	0 ~ 1200.0 ℃		
	Integral time	1 ~ 3600 sec		
	Derivative time	1 ~ 3600 sec		
	Over integral limitation (ARW)	0.1 ~100.0 %, ※ "0"setting (Auto)		
	Hysteresis	0 ~ 120.0 ℃ (※ ON/OFF width when selecting ON/OFF control)		
	Manual reset	0.0 ~ 100.0 % (※ when selecting ON/OFF control)		
	Output amount in emergency situation	0.0 ~ 100.0 % (output amount)		
	Output limit	0 ~ 100 %		
	Output action change	Direct/Reverse action (selectable by internal parameter)		
Power supply voltage		100 – 240 V a.c. 50 – 60 HZ, 24 V d.c.		
Power supply voltage fluctuation		± 10 % of the rated power supply voltage		
Power consumption		25 V A max.		
Insulation resistance		20 MΩ min. power terminal and earth (ground) terminal (500 V d.c. mega)		
Dielectric strength		2,000 V a.c. for 1min. power terminal and earth (ground) terminal		
Ambient temperature		0 ℃ ~ 50 ℃		
Ambient humidity		20 % ~ 85 RH (dew condensation not allowed)		
Storage temperature		-20 ℃ ~ 70 ℃ (dew condensation not allowed)		
Vibration resistance		10 – 55 Hz 19.6 ㎨ 3 axis 6 directions 2 h		
Shock resistance		196 ㎨ 3 axes 3 times to each of 6 directions		
Case material		SPC		
Installation		Fixed with screws		
Weight		approx. 1,000 g		

Suffix Code

Model	Code			Information
SM100-	□	□	□	Multi channel temperature controller (Board type)
Intput type	K			K type thermocouple input
	P			Pt100 Ω RTD input
Output form		N		No control output (exclusive for measured value)
		A		Control output
Number of control contact			12	12 channel
			16	16 channel
			20	20 channel
Power				A 100 – 240 V a.c. 50 – 60 Hz
				D 24 V d.c.

PX series Digital temperature controller

Specification

Model	PX9	PX7
Appearance		
W×H×D(mm)	96×96×100	72×72×100
Function	• Fuzzy • Zone PID • Group PID • Auto tuning • 3 Alarm outputs • Universal-input/output • External contact input • Ramp & Soak • Output limitation • Heating/Cooling control • Interface (RS485 / 422) • Protection : IP 65 (Front) • Input filter : OFF, 1 ~ 120 sec. • Retransmission output (PV, SV, MV) • Heating/Cooling hysteresis	
Input	Multi input a) TC : K, J, E, T, R, B, S, L, N, U, W, PLII, b) RTD : Pt100(KS/IEC), KPt100(KS) c) DC Voltage input : 1 to 5 V, -10 to 20 mV, 0 to 100 mV, d) DC Current input : 4 to 20 mA(Connect a 250 Ω resistor to the input terminals)	
Sampling cycle	250 ㎳ (Remote input : 500 ㎳)	
Input display resolution	Below decimal point of Input signal and measuring range	
Input impedance	Min 1 ㏁ (Thermocouple, DC voltage input)	
Source tolerable resistance	Thermocouple : 250 Ωmax, DC voltage : 2 kΩ max	
Lead wire tolerable resistance	RTD : Max. 10 Ω/wire (notice : Identical conductor resistance between 3 wires)	
Input tolerable voltage	±10 V (TC, RTD, DC voltage : mV d.c.), ±20 V (Voltage : V d.c.)	
Scaling	According to setting max. value(SH), min. value(SL) of measuring range, scaling is available (-1999 ~ 9999)	
Cold junction temp. compensation tolerance	±1.5 ℃(15 ~ 35 ℃), ±2.0 ℃(0 ~ 50 ℃)	
Accuracy	±0.1 % (Full scale)	

Suffix Code

Model	Code	Information
PX-	□□□	Multi input/output temperature controller
Dimension	7	72(W) X 72(H) ㎜
	9	96(W) X 96(H) ㎜
Control type	0	Standard
	1	Heating/cooling control (synchronous control output)
Option	0	NONE
	1	PX7 : RS485/422, OUT2, REM(Remote input function) PX9 : RS485/422, HBA 2 Contact, REM
	2	RS485/422, OUT2, HBA 1 Contact
	3	Contact input (D.I), OUT2, HBA 1 Contact

Note) 1) Only option 1 is available with PX9. 2) All options are available with PX7

Temperature Controller

AX series Multi input digital temperature controller

Specification

Model		AX9	AX2	AX7	AX3	AX4
Appearance						
W×H×D (mm)		96 X 96 X 63	48 X 96 X 63	72 X 72 X 63	96 X 48 X 63	48 X 48 X 63
Input type		Multi input (Thermocouple: K, J, R, T, IEC 584-1), (RTD: Pt 100 Ω, IEC751)				
Sampling cycle		100 ms				
Input impedance		max 1 MΩ				
Allowable input voltage		10 V d.c. max				
Display accuracy		±0.3 % of FS ±1 digit (In case of R type, ±1.0 % of ±1 digit in the 0 ~ 600 ℃ range)				
Display type		7 Segment LED (PV: red, SV: green)				
Front Size (mm)	PV	22.5×11.2	14.5×7.0	14.5×7.0	15.9×7.6	13.0×6.5
	SV	18.7×9.3	10.8×5.2	9.4×4.7	12.0×6.0	9.2×5.2
Input		• Thermocouple : 0.1 ℃ (TC-K2, TC-J), 0.5 ℃ (TC-K1) • RTD : 0.03 ℃, (0.1 ℉)				
Insulation resistance		min 20 MΩ, 500 V d.c. 1 minute (primary terminal-secondary terminal)				
Dielectric strength		2300 V a.c. 50/60 Hz, for 1min (primary terminal-secondary terminal)				
Control method		PID control by Auto-Tuning, ON / OFF control.				
Control output operation		Reverse operation / Direct operation selectable by the parameter setting				
Control output		• Relay output ※Selectable by the parameter setting 1a contact, 3A 240 V a.c., 3 A 30 V d.c. (resistive load)				
		• Voltage pulse output for running SSR [time sharing proportional control (CYC)] • Voltage pulse output for running SSR 0/12 V d.c., pulse voltage (resistive load minimum 600 Ω)				
Power supply voltage		100 – 240 V a.c. 50 / 60 Hz				
Voltage fluctuation		± 10 % of the power supply voltage				
Power consumption		Within 5.5 VA				
Ambient temperature		– 5 ~ 50 ℃				
Ambient humidity		35 ~ 85 % R.H(but without dew condensation)				
Vibration resistance		10 – 55 Hz, 0.75 mm, each to direction X, Y and Z for 2 hours				
Shock resistance		300 m/s² to direction 6 each 3 times				
Weight (Weight included the weight of box)		320 g	320 g	180 g	300 g	400 g

Suffix Code

Model	Code		Information	
AX	□– □ □		Digital temperature controller (Multi input: K, J, Pt100 Ω)	
Dimension	2		AX2 : 48 X 96 ㎜	
	3		AX3 : 96 X 48 ㎜	
	4		AX4 : 48 X 48 ㎜	
	7		AX7 : 72 X 72 ㎜	
	9		AX9 : 96 X 96 ㎜	
Output selection		1	SSR + Relay1 + Relay2	Relay or SSR as control output (Selectable in operator setup mode)
		2	SSR + Relay1 + Relay2 + Relay3	
		1B	SSR + Relay1(Form c) + Relay2	Only for AX2, 3, 7, 9
		2B	SSR + Relay1(Form c) + Relay2 + Relay3	
		3	4 – 20 ㎃ + Relay2	Current output as control output
		4	4 – 20 ㎃ + Relay2 + Relay3	
Power supply voltage		A	100 – 240 V a.c. 50 / 60 Hz	

※ Form C : Normal close type contact.

※ Relay output operates as control output, alarm output and LBA output depending on the internal parameter setting.

NX series Multi input/output digital temperature controller (PID Auto-tuning)

Specification

Model	NX9	NX2	NX7	NX3
Appearance				
W×H×D(mm)	96×96×100	48×96×100	72×72×100	96×48×100
Function	• Fuzzy • Zone PID • Group PID • Auto tuning • 2 Alarm outputs • Universal-input/output • External contact input • Output limitation • Heating/Cooling control • Heater Break Alarm (HBA1) • Interface (RS485 / 422) • Protection:IP 65 (Front) • Input filter : OFF, 1~120 sec. • Retransmission output (PV, SV, MV) • Heating/Cooling hysteresis			
Input	Multi input a) T.C : K, J, E, T, R, B, S, L, N, U, W, PLII, b) R.T.D : Pt100(KS/IEC), KPt100(KS) c) DC Voltage input : 1 to 5 V, -10 to 20 mV, 0 to 100 mV, d) DC Current input : 4 to 20 mA(Connect a 250 Ω resistor to the input terminals)			
Sampling cycle	250 ms			
Input display resolution	Below decimal point of Input signal and Measuring range			
Input impedance	TC and DC mV input : Min 1 MΩ, DCV : Approx. 1 MΩ			
Source tolerable resistance	Thermocouple : Max. 250 Ω, Voltage : Max. 2 kΩ			
Lead wire tolerable resistance	RTD : Max. 10 Ω /wire (notice : Identical conductor resistance between 3 wires)			
Input tolerable voltage	±10 V (TC, RTD, Voltage : mV d.c.), ±20 V (Voltage: V d.c.)			
Cold junction temp. compensation tolerance	±1.5 ℃ (15 ~ 35 ℃), ±2.0 ℃ (0 ~ 50 ℃)			
Accuracy	±0.5 % (Full scale)			

Suffix Code

Model	Code		Information
NX	□- □ □		Multi input/output temperature controller
Dimension	2		48(W) X 96(H) ㎜
	3		96(W) X 48(H) ㎜
	7		72(W) X 72(H) ㎜
	9		96(W) X 96(H) ㎜
Control type		0	Standard
		1	Heating/Cooling control (synchronously)
NX9 Option		0	NONE
		1	RS485, HBA
NX7 Option		0	NONE
		1	RS485, HBA
		2	SV2, SV3, HBA
NX2, 3 Option		0	SV2, SV3
		1	HBA
		2	RS485

Temperature Controller

NX4 Multi input/output digital temperature controller (PID Auto-tuning)

Specification

Model	NX4
Appearance	
W×H×D(mm)	48 X 48 X 100
Function	• Zone PID • Group PID • Auto tuning • 2 Alarm outputs • Universal-input/output • External contact input • Output limitation • Heating/Cooling control • Heater Break Alarm (HBA1) • Interface (RS485 / 422) • Protection:IP 65 (Front) • Input filter : OFF, 1~120 sec. • Retransmission output (PV, SV, MV) • Heating/Cooling hysteresis
Input	Multi input a) T.C : K, J, E, T, R, B, S, L, N, U, W, PLII, b) R.T.D : Pt100(KS/IEC), KPt100(KS) c) DC Voltage input : 1 to 5 V, -10 to 20 mV, 0 to 100 mV, d) DC Current input : 4 to 20 mA(Connect a 250 Ωresistor to the input terminals)
Sampling cycle	250 ms
Input display resolution	Below decimal point of Input signal and Measuring range
Input impedance	TC and DC mV : Min 1 MΩ, DCV : Approx. 1 MΩ
Source tolerable resistance	Thermocouple : Max. 250 Ω, Voltage : Max. 2 kΩ
Lead wire tolerable resistance	RTD : Max. 10 Ω / wire (notice : Identical conductor resistance between 3 wires)
Input tolerable voltage	±10 V (TC, RTD, Voltage : mV d.c.), ±20 V (Voltage : V d.c.)
Cold junction temp. compensation tolerance	±1.5 ℃ (15 ~ 35 ℃), ±2.0 ℃ (0 ~ 50 ℃)
Accuracy	±0.5 % (Full scale)

Suffix Code

Model	Code		Information
NX4-	□	□	Multi input/output temperature controller, 48(W) X 48(H)
Control type	0		Standard
	1		Heating/cooling control (synchronous control)
	2		Heating/cooling control (only for NX4-20)
NX4 Option		0	NONE
		1	HBA, AL2
		2	SV2, SV3
		3	RET, RS485
		4	RS485, SSR / SCR
		5	AL1, AL2
		6	AL1, AL2, SV2
		7	RS485, HBA

Note) Option 1: OUT1 (terminal 1-2-3) is applied as AL1 But, only with control output SSR/SCR selection
Option 3: OUT2 (terminal 11-12) is applied as RET
Option 4: OUT2 (terminal 11-12) is applied as SSR / SCR
Option 5: OUT1 (terminal 6-7) is impossible to apply as SV2
Option 6: OUT1 (terminal 6-7) is applied as SV2 but only with relay control output.

NX1 Multi input/output digital temperature controller (PID Auto-tuning)

Specification

Model	NX1
Appearance	
W×H×D(mm)	48 X 24 X 100
Function	• Zone PID • Group PID • Auto tuning • 2 Alarm outputs • Universal-input/output • External contact input • Output limitation • Heating/Cooling control • Heater Break Alarm (HBA1) • Interface (RS485 / 422) • Protection:IP 65 (Front) • Input filter : OFF, 1~120 sec. • Retransmission output (PV, SV, MV) • Heating/Cooling hysteresis
Input	Multi input a) T.C : K, J, E, T, R, B, S, L, N, U, W, PLII, b) R.T.D : Pt100(KS/IEC), KPt100(KS) c) DC Voltage input : 1 to 5 V, -10 to 20 mV, 0 to 100 mV, d) DC Current input : 4 to 20 mA(Connect a 250 Ωresistor to the input terminals)
Sampling cycle	250 ms
Input display resolution	Below decimal point of Input signal and Measuring range
Input impedance	TC and DC mV : Min 1 MΩ, DCV : Approx. 1 MΩ
Source tolerable resistance	Thermocouple: Max. 250 Ω, Voltage: Max. 2 kΩ
Lead wire tolerable resistance	RTD: Max. 10 Ω /wire (notice: Identical conductor resistance between 3 wires)
Input tolerable voltage	±10 V (TC, RTD, Voltage : mV d.c.), ±20 V (Voltage : V d.c.)
Standard junction temp. compensation tolerance	±1.5 ℃ (15 ~ 35 ℃), ±2.0 ℃ (0 ~ 50 ℃)
Accuracy	±0.5 % (Full scale)

Suffix Code

Model	Code	Information		
NX1-	□□	Multi input/output temperature controller. 48(W) X 24(H) ㎜		
Control type	0	Universal type		
	1	Heating/Cooling control (synchronously)		
		Type options	Heating output	Cooling output
Regular type option	0	RET	Relay	-
	1	None	SSR/SCR	-
	2	RS485/RET	Relay	-
	3	RS485	SSR/SCR	-
	4	ALM	SSR/SCR	-
	5	ALM/RS485	SSR/SCR	-
Heating / cooling type option	0	None	Relay	SSR/SCR
	1	None	SSR/SCR	Relay
	2	RS485	Relay	SSR/SCR

Temperature Controller

HX series Multi input/output Digital temperature controller

Specification

Model		HX9	HX2	HX7	HX3	HX4
Appearance						
W×H×D (mm)		96 X 96 X 63	48 X 96 X 63	72 X 72 X 63	96 X 48 X 63	48 X 48 X 63
Power supply Voltage		100 – 240 V a.c. (±10 %), 50/60 Hz				
Power consumption		6 W max, 10 VA max				
Input	Type	Refer to "input code for input type and range"				
	Sampling cycle	62.5 ms				
	Accuracy	±0.5 % of FS (refer to "input code for input type and range")				
	Allowable voltage	Within ±20 V d.c. (VDC), within ±10 V d.c. (TC, RTD)				
	Reference junction compensation accuracy	±3.5 ℃ (0 ~ 50 ℃)				
	Operation after input break	TC: OFF, UP/DOWN RTD: UP				
Control output	Relay	NO : 5 A 250 V a.c., 5 A 30 V d.c. (resistive load), NC : 3 A 250 V a.c., 1 A 30 V d.c. (resistive load)				
	SSR (voltage pulse)	ON voltage : 12 V d.c. min, OFF voltage : 0.1 V d.c. max, Load resistance 600 Ω min				
	SCR (current)	range : 4 - 20 mA (±5%), accuracy : ±0.2 mA, Load resistance 600 Ω max				
Retransmission output		■ range : 4 - 20 mA (±5%), accuracy : ±0.2 mA Load resistance 600 Ω max ■ range : 0 - 20 mA (±5%), accuracy : ±0.2 mA Load resistance 600 Ω max				
Alarm output		5 A 250 V a.c., 5 A 30 V d.c. (Resistive load)				
Contact input		OFF resistance : 10 kΩ min, ON resistance : 1 kΩ max				
Control	Method	ON/OFF, PID control				
	Output operation	Reverse operation, Direct operation				
	Anti-reset windup	Auto(A=0), 0.1 ~ 100.0 %				
Interface	Standard	EIA RS485				
	Max connection unit	31 units (but, ADDRESS setting : 1 ~ 99)				
	Communication method	2 wire half duplex				
	Data transmission	asynchronous				
	Communication sequence	None				
	Communication distance	Within1.2 km				
	Communication Speed	2400, 4800, 9600, 14400, 19600 BPS (selectable by parameter)				
	Start bit	1 BIT				
	Data length	7 or 8 BIT				
	Parity bit	NONE, EVEN, ODD				
	Stop bit	1 or 2 BIT				
	Protocol	PC.LINK, PC.LINK SUM, MODBUS-ASCII, MODBUS-RTU				
	Response time	Processing time in receiving + (response time x 25 ms)				
Insulation resistance		20 MΩ min (primary terminal - secondary terminal)				
Dielectric strength		2,300 V a.c., for 1 minute (primary terminal - secondary terminal)				
Operating ambient temperature		0 ~ 50 ℃, (without condensation)				
Operating ambient humidity		35 ~ 85 % RH (without condensation)				

Suffix Code

Model	Code	Information
HX	□-□□□	Multi-input and output digital temperature controller
Dimension	2	48(W) × 96(H) mm
	3	96(W) × 48(H) mm
	4	48(W) × 48(H) mm
	7	72(W) × 72(H) mm
	9	96(W) × 96(H) mm
Control output	0	Standard
	1	Heating/cooling control (simultaneous control)
HX2/3/9 option	0	None
	1	RS485 communication + Heater break alarm (HBA)
HX7 option	0	None
	1	RS485 communication + D.I 2 contacts (SV2, SV3)
	2	RS485 communication + Heater break alarm (HBA)
HX4 option	0	None
	1	RS485 communication + D.I 1 contact (SV2)
	2	RS485 communication + Heater break alarm (HBA)

Range and input code chart

Input signal	Input signal	Input type		Range (℃)	Accuracy	Note
Thermocouple (TC)	1	K	*1	−200 ~ 1370	±0.5 % of FS ±1 Digit	• FS is the measurable range from the maximum to the minimum for each range. • Digit is the minimum display value *1 below 0 ℃ : ±1.0 % of FS ± 1 digit *2 0 ~ 400℃ range : ±10 % of FS ± 1 digit *3 20 → KPt100 Ω (C1603) 21, 22 → Pt100 Ω(IEC751) *4 In case of using Current input, Resistor 250 Ω 0.1 % should be installed in the input terminal.
	2	K	*1	−199.9 ~ 999.9		
	3	J	*1	−100.0 ~ 999.9		
	4	E	*1	−100.0 ~ 999.9		
	5	T	*1	−199.9 ~ 400.0		
	6	R		0 ~ 1700		
	7	B	*2	0 ~ 1800		
	8	S		0 ~ 1700		
	9	L	*1	−100.0 ~ 900.0		
	10	N		−200 ~ 1300	±1.0 % of FS ±1 Digit	
	11	U	*1	−199.9 ~ 400.0	±0.5 % of FS ±1 Digit	
	12	W		0 ~ 2300		
	13	Platinel II		0 ~ 1390		
Resistance temperature detector (RTD)	20	KPt100 Ω	*3	−199.9 ~ 500.0	±0.5 % of FS ±1 Digit	
	21	Pt100 Ω	*3	−199.9 ~ 640.0		
	22	Pt100 Ω	*3	−200 ~ 640		
DC voltage (VDC / ㎷ DC)	30	1.000 – 5.000 V DC		−1999 ~ 9999 Scaling function(SL–H/SL–L) necessary	±0.5 % of FS ±1 Digit	
	31	0.0 – 100.0 ㎷ DC				
DC current	30	4 – 20 ㎃ DC	*4			

UX100 Multi input/output digital temperature controller

Specification

Model	UX100
Appearance	
W×H×D (mm)	48 X 24 X 100
Function	• Fuzzy • Input correction • Interface (RS485) • Heating/Cooling control • Output limitation • Auto tuning • ARW • Input filter: OFF, 1 ~ 120 sec. • Universal–input • Heating/Cooling hysteresis • Alarm output
Input	Multi input a) T.C : K, J, E, T, R, B, S, L, N, U, W, PLII, b) R.T.D : Pt100(KS/IEC), KPt100(KS) c) DC Voltage input : 1 to 5 V, −10 to 20 mV, 0 to 100 mV, d) DC Current input : 4 to 20 mA(Connect a 250 Ωresistor to the input terminals)
Sampling cycle	250 ms
Input display resolution	Below decimal point of Input signal and Measuring range
Input impedance	TC and DC mV : Min 1 ㏁, DCV : Approx. 1 ㏁
Source tolerable resistance	Thermocouple: Max. 250 Ω, Voltage: Max. 2 ㏀
Lead wire tolerable resistance	RTD: Max. 10 Ω/wire
Input tolerable voltage	±10 V (TC, RTD, Voltage: mV d.c.), ±20 V (Voltage: V d.c.)
Scaling	According to setting Max. value(SH), Min. value(SL) of measuring range, scaling is available (−1999 ~ 9999)
Cold junction temp. compensation tolerance	±1.5 ℃ (15 ~ 35 ℃), ±2.0 ℃ (0 ~ 50 ℃)
Accuracy	±0.5 % (Full scale)

Suffix Code

Model	Code		Information
UX100–	□	□	Multi input/output temperature controller. 48(W) X 24(H) ㎜
Control type	0		Standard
	1		Heating/cooling control (but heating side cannot use relay)
Option		0	None
		1	Communication function (RS 485)

Temperature Controller

KX series Multi input Digital temperature controller (PID Auto-tuning)

Specification

Model	KX9N	KX2N	KX7N	KX3N	KX4N
Appearance					
W×H×D(mm)	96 X 96 X 100	48 X 96 X 100	72 X 72 X 100	96 X 48 X 100	48 X 48 X 100
Function	• Built-in PID auto tuning function • Direct/Reverse operation selection function • Alarm (ALH, ALL, LBA) • Upper/Lower limit setting limitation function • Setting data lock function • Input compensation function • Decimal point display function				
Power Voltage	100 – 240 V a.c. 50 – 60 Hz (voltage fluctuation rate: ±10 %)				
Power Consumption	approx. 11 VA max				
Input	Multi input a) TC : K, J, E, T, R, B, S, L, N, U, W, PLII, b) RTD : Pt100(KS/IEC), KPt100(KS) c) DC Voltage input : 1 to 5 V, 0 to 10 V, d) DC Current input : 4 to 20 mA(Connect a 250 Ωresistor to the input terminals)				
Control Output	• Relay: 250 V a.c. 3 A (Resistive load) • SSR : 12 V d.c. pulse voltage(Load resistance ±0.2 mA 600 Ω min) • Current Output: 4 – 20 mA d.c. (Load resistance 600 Ωmax)				
Control type	• PID operation • ON/OFF operation				
Alarm Output	ALH, ALL (250 V a.c. 3 A)				
Loop Break Alarm	LBA (250 V a.c. 3 A)				
Setting Method	Digital Setting by Up/Down Keys				
Accuracy	±0.5 % of FS (Please refer to Input code)				
Dielectric Strength	2,300 V a.c. 50/60 Hz, for 1 minute (Primary terminal-secondary terminal)				
Operating Ambient Temperature/Humidity	0 ~ 50 ℃ / 35 ~ 85 % RH (without condensation)				

Suffix Code

Model	Code						Information	
KX	□–	□	□	□	□	□	Digital Temperature Controller	
Dimension	2N						48(W) X 96(H) ㎜	
	3N						96(W) X 48(H) ㎜	
	4N						48(W) X 48(H) ㎜	
	7N						72(W) X 72(H) ㎜	
	9N						96(W) X 96(H) ㎜	
	4S						48(W) X 48(H) ㎜	for 11 pin socket
Control output		M					Relay	
		S					SSR (voltage pulse 12 V d.c.)	
		C					SCR (Current 4 – 20 ㎃ d.c.)	
Alarm output			C				※ KX4N, KX4S selection only	ALH, ALL, LBA (1a common output)
			E				※ Unavailable KX4S	
							KX2N, KX3N, KX9N	ALH(1c),ALL(1a)
							KX7N, KX4N (optional)	ALH(1a),ALL(1a)
			K				※ Unavailable KX4N, KX4S	
							KX2N, KX3N, KX9N (optional)	ALH(1c),ALL(1a),LBA(1a)
							KX7N (optional)	ALH(1a),ALL(1a),LBA(1a)
Retransmission output (Optional)				A			※ Only selectable with models given in the below KX4N-□C KX2N-□E, KX3N-□E, KX9N-□E KX2N-□K, KX3N-□K, KX9N-□K	Retransmission output(RET) 4 – 20 ㎃ d.c.
				N			None	
Power Supply Voltage					A		100 – 240 V a.c. 50 – 60 Hz	
					D		24 V d.c. (Unavailable in KX4S)	

※ When using 4 – 20 ㎃ input, attach 0.1 % of 250 Ω resistance to the input terminal of 1 – 5 V d.c.

DX series Simple operation, approved function (PID Auto-tuning)

Specification

Model		DX9	DX2	DX7	DX3	DX4
Appearance						
W×H×D (mm)		96 X 96 X 100	48 X 96 X 100	72 X 72 X 100	96 X 48 X 100	48 X 48 X 100
Power supply		100 – 240 V a.c. (± 10 %), 50 – 60 Hz				
Power consumption		Max. 12 VA				
Input	Type	Input(Sensor type) selection by the configuration suffix code. a) Thermo couple : K, J,R, b) R.T.D : KPt100 Ω(KS), Pt100 Ω(IEC751), c) DC current input : 4 to 20 mA, d) DC voltage : 1 to 5 V, 0 to 10 V				
	Sampling Cycle	250 ms				
	Accuracy	± 0.5 % of FS (DCV Input : ±1 % of FS)				
	Tolerable voltage	20 V d.c. for 1 minute				
	Cold junction compensation error	± 3.5 ℃ (Within 0 ~ 50℃)				
	Input disconnection	Up Scale				
Output	Relay output	NO : 5 A 250 V a.c., 5 A 30 V d.c. (Resistive load), NC : 3 A 250 V a.c., 1 A 30 V d.c. (Resistive load), Switching Life : 1,000,000 times (No-load)				
	Voltage output	ON voltage : 12 V d.c. Min, OFF voltage : 0.1 V d.c. max, Resistive load 600 Ωmin.				
	Current output	4 – 20 mA d.c. (Load resistance 600 Ω max.) Accuracy : ±0.2 mA				
Transmission output		4 – 20 mA d.c. (Load resistance 600 Ω max.) Accuracy : ±0.2 mA				
Alarm		5 A 250 V a.c., 5 A 30 V d.c. (Resistive load), Switching Life : 1,000,000 times (No-load)				
Control	Type	ON/OFF, PID control				
	Operation	Reverse, Direct				
	ARW	Auto(A=0), 0.1 ~ 100.0 %				
Insulation resistance		More than 20 MΩ between Primary terminal and secondary terminal				
Dielectric strength		2,300 V a.c., for 1 minute between Primary terminal and secondary terminal				
Operating environment	Temp. & Humidity	0 ~ 50 ℃, 35 ~ 85 % RH (No condensation)				
	Environment	Refer to "safety information"				

Suffix Code

Model	Code								Information
DX	□–	□	□	□	□	□	□	□	Digital temperature controller
Dimension	2								48(W) x 96(H) ㎜
	3								96(W) x 48(H) ㎜
	4								48(W) x 48(H) ㎜
	7								72(W) x 72(H) ㎜
	9								96(W) x 96(H) ㎜
Intput		K							K thermocouple
		J							J thermocouple
		R							R thermocouple
		D							RTD (KPt 100 Ω)
		P							RTD (Pt 100 Ω)
		V							1 – 5 V d.c.
		C							4 – 20 ㎃ d.c.
		F							0 – 10 V d.c.
Control output			M						Relay contact output
			C						Current output (4 – 20 ㎃ d.c.)
			S						SSR (voltage pulse output, 12 V d.c.)
Alarm output				S					Alarm output 1 contact (model : DX4)
				W					Alarm output 2 contact (all models except DX4)
Optional					A				Retransmission output (4 – 20 ㎃ d.c. measured value)
					N				None (DX4, DX7 No retransmission output)
Control operation ※selection by SL9 (initial value : R)						R			Reverse action (heating control)
						D			Direct action (cooling control)
Power Supply Voltage							•		No indication (100 – 240 V a.c.)
							C		24 V d.c. / a.c.

Temperature Controller

BR6A Refrigeration temperature controller

Specification

Model		BR6A
Appearance		
W×H×D(mm)		75 X 33 X 69.5
Power consumption		5 VA max (220 V a.c. 60 Hz)
Input sensor		Company exclusive sensor (TH-570N) ※ Thermistor (-50.0 ~ 150.0 ℃)
Display accuracy		±1 % of FS ±1 Digit
Control output (Main Output)	Relay output	Contact composition : 1c, 250 V a.c., 5 A (Resistive load)
	SSR	10 V d.c. more than (Resistive load 500 Ω min)
Alarm/Defrost	Relay	Contact composition : 1c, 250 V a.c., 5 A (Resistive load)
Control action		Proportional control (P control), ON/OFF control
Setting method		Digital setting with operation buttons
Other function		Deforsting Timer, Alarm function, Heating/cooling control
Ambient temperature		0 ~ 50 ℃
Resistance between wires		Below 10 Ω for each wire
Ambient humidity		35 ~ 85 % RH (With no condenssation)
Weight		120 g

Suffix code

Model	Code					Description
BR6A -	□	□	□	□	-□	Digital temperature controller (Selective control type in parameter (Proportional or ON/OFF control))
Input	N					Company exclusive sensor (TH-570N) ※ Thermistor
Control output	M					Relay connect output
	S					SSR output (Voltage pulse 12 V d.c.)
Option		0				None
		1				Communication (RS-485, MODBUS ASCII / RTU)
Power supply voltage			P4			100 ~ 240 V a.c. 50 ~ 60 Hz
LED color				W		White LED display
				R		Red LED display

BR6 Refrigeration temperature controller

Specification

Model		BR6
Appearance		
W×H×D(mm)		77 X 35 X 70.5
Power Voltage		100 ~ 240 V a.c. 50 ~ 60 Hz, 10 ~ 24 V d.c./a.c. 50 ~ 60 Hz
Power Consumption		5 VA max(220 V a.c. 60 Hz)
Input		Thermistor (HANYOUNG NUX exclusive)
Display accuracy		±1 % of FS ±1 digit
Control&Auxiliary output	Relay	Form C contact, 250 V a.c. 5 A (Resistive load)
	SSR	Approx 5 V d.c. 500 Ω min (Load resistance)
Control mode		ON / OFF, Proportion
Setting method		Digital method by up and Down key
Other function		Defrosting Timer, Alarm function, Heating / cooling control
Ambient temperature		0 ~ 50 ℃
Ambient humidity		Max. 85 % RH

Suffix code

Model	Code					Information
BR6-	□	□	□	□		Digital temperature controller
Control type	F					ON/OFF control
	P					Proportional control
Input		N				Company exclusive sensor (TH-540N) *Thermistor
Control output			M			Relay
			S			SSR (voltage pulse output 5 V d.c.)
Power Supply Voltage				P3		10 ~ 24 V d.c. / a.c. 50 ~ 60 Hz
				P4		100 ~ 240 V a.c. 50 ~ 60 Hz

ED6 Economical Digital temperature controller

Specification

Model		ED6
Appearance		
W×H×D(mm)		77 X 35 X 70.5
Power Voltage		100 – 240 V a.c. 50 – 60 Hz, 10 – 24 V d.c./a.c. 50 – 60 Hz
Power Consumption		5 VA max(220 V a.c. 60 Hz)
Input		Thermocouple : K, RTD : Pt100 Ω(IEC751)
Display accuracy		±1 % of FS ±1 digit
Control&Auxiliary output	Relay	SPDT(Form C contact) 250 V a.c. 5 A (Resistive load)
	SSR	Approx 5 V d.c. 500 Ω min (Load resistance)
Control mode		ON / OFF or Proportional
Setting method		Digital method by up and Down key
Other function		Defrosting Timer, Alarm function, Heating / cooling control
Ambient temperature		0 – 50 ℃
Ambient humidity		35 ~ 85 % RH (Without Condensation)

Suffix code

Model	Code						Information
ED6	□	□	□	□	□		Digital temperature controller
Control type	F						ON/OFF control
	P						Proportional control
Input		K					Thermocouple K
		P					RTD Pt100 Ω (IEC)
		C					4 – 20 ㎃ d.c. (attach 250 Ω of external resistance), 1 – 5 V d.c.
Control output			M				Relay
			S				SSR (voltage pulse output 5 V d.c.)
Optional				A			Alarm or defrosting timer
				N			NONE
Power Supply Voltage					P3		10 – 24 V d.c. / a.c. 50 – 60 Hz
					P4		100 – 240 V a.c. 50 – 60 Hz

HD6 Economical Digital temperature controller

Specification

Model	HD6
Appearance	
W×H×D(mm)	77 X 35 X 70.5
Power Voltage	100 – 240 V a.c. 50 – 60 Hz, 10 – 24 V d.c./a.c. 50 – 60 Hz
Power Consumption	5 VA max (220 V a.c. 60 Hz)
Input	Thermistor(HANYOUNG NUX exclusive)
Display accuracy	±1 % of FS ±1 Digit
Control output (Relay contact)	From A contact X 2, 250 V a.c. (Resistive load)
Control mode	ON/OFF control
Setting method	Digital method by up and Down key
Other function	Output for motor control of operation/closing window of green house
Ambient temperature	0 ~ 50 ℃
Ambient humidity	35 ~ 85 % RH (without dew condensation)

Suffix code

Model	Code					Information
HD6	□	□	□	□		Economical digital temperature controller
Control type	F					ON/OFF control
Input		N				Company exclusive sensor (TH–540N) *Thermistor
Control output			M			Relay
Power Supply Voltage				P4		100 – 240 V a.c. 50 – 60 Hz

Temperature Controller

HY series Economical digital temperature controller

Specification

Model	HY-8000S	HY-8200S	HY-72D	HY-48D
Appearance				
W×H×D(mm)	96 X 96 X 125	96 X 96 X 125	72 X 72 X 110	48 X 48 X 100
Power Voltage	110 / 220 V a.c. (50 / 60 Hz)			
Power Consumption	3 VA			
Input	Input(Sensor type) selection by the configuration suffix code. a) Thermo couple : K, J, R b) RTD : KPt100 Ω(KS), Pt100 Ω(IEC 751) c)DC current : 4 to 20 mA d) DC voltage : 1 to 5 V d.c.			
Control Output	Relay contact : 250 V a.c. 3 A (Resistive load), SSR: 12 V d.c. (Constant voltage pulse) [Load resistance min. 800 Ω], Current: 4 – 20 mA d.c. [Load resistance max. 600 Ω]			
Control action	Proportional or ON/OFF control			
Alarm Output	–	Relay contact : 250 V a.c. 3 A	–	
Setting Method	By B.C.D S/W			
Indication range	Setting temperature range			
Display	LED Display			
Setting and display accuracy	Set Value : ±1.0 % of FS, Display :±0.5 % of FS			
Control sensitivity	Approx 0.2 % FS (Fixed)			
Proportional Cycle	Relay contact : 25 ~ 30 sec SSR : 2 ~ 4 sec			
Reset Range	Max. ±1.5 % of Range			
Dielectric Strength	2,000 V a.c. 50/60 Hz for 1 minute (Primary terminal-secondary terminal)			
Vibration – Malfunction Resistance	2 – 55 Hz, X·Y·Z each position for 10 minutes			
Vibration – Mechanical Durability	10 – 55 Hz, 0.76 mm, X·Y·Z each positions for 2 hours			
Shock – Malfunction Resistance	100 ㎨ 6 positions, each 3 times			
Shock – Mechanical Durability	300 ㎨ 6 positions, each 3 times			
Life – Mechanical	Min.10 million times (Relay type)			
Life – Electrical	Min. 0.3 million times (Relay type)			
Ambient temperature and humidity	0 ~ 50 ℃ (32 ~122 ℉) 35 ~ 85 % RH (Without freeze)			

Suffix Code

Model	Code	Information
HY-	□- □□□□□□□	Digital temperature controller
Dimension	8000S	96 X 96 ㎜
	8200S	96 X 96 (alarm setting general specification)
	72D	72 X 72
	48D	48 X 48
Control type	F	ON/OFF control
	P	Proportional control
Input	K	K thermocouple
	J	J thermocouple
	R	R thermocouple
	D	RTD KPt 100 Ω
	P	RTD Pt 100 Ω (IEC)
	V	1 – 5 V d.c.
	C	4 – 20 ㎃ d.c.
Control output	M	Relay
	C	Current output (4 – 20 ㎃ d.c.)
	S	SSR (voltage pulse output, 12 V d.c.)
Alarm output	N	None
	O	High alarm (HY-8200S)
Control action(Internal selection)	R	Reverse action (heating control)
	D	Direct action (cooling control)
Range code		Refer to the range and input code

Range and input code chart

Classification	Code	HY-8000S, 8200S		HY-72D		HY-48D	
		Input type	Range (℃)	Input type	Range (℃)	Input type	Range (℃)
Thermocouple	4	–	–	–	–	K, J	0 ~ 299
	5	–	–	–	–		0 ~ 399
	6	K, J	0 ~ 199	K,J	0 ~ 199	–	–
	7		0 ~ 299		0 ~ 299		
	8		0 ~ 399		0 ~ 399		
	9		–		0 ~ 599		
	10		0 ~ 599	K	0 ~ 799		
	11	K	0 ~ 799		–		
	12		–		0 ~ 1199		
	13		0 ~ 1199	R	600 ~ 1699		
	14	R	600 ~ 1699	–	–		
RTD	1	–	–	–	–	Pt100 Ω	-49 ~ 49
	2	Pt100 Ω	-99 ~ 99	Pt100 Ω	-99 ~ 99		-99 ~ 99
	3		-99 ~ 199		-99 ~ 199		0 ~ 199
	4		0 ~ 99		0 ~ 99		0 ~ 299
	5		–		–		0 ~ 399
	6		0 ~ 199		0 ~ 199	–	–
	7		0 ~ 299		0 ~ 299		
	8		0 ~ 399		0 ~ 399		
Voltage/ current (DC)	–	1 – 5 V	0 ~ 99	1 – 5 V	0 ~ 99	1 – 5 V	0 ~ 99
	–	4 – 20 mA	0 ~ 99	4 – 20 mA	0 ~ 99	4 – 20 mA	0 ~ 99

DF series Economical digital temperature controller

Specification

Model		DF2	DF2(SUB)	DF4
Appearance				
W×H×D(mm)		48 X 96 X 100	48 X 96 X 100	48 X 48 X 100
Power voltage		110 / 220 V a.c. (50/60 Hz)		220 V a.c. (110 V, option)
Power consumption		3 VA	4 VA	3 VA
Input		See range and input code chart(TC, RTD, 4 to 20 mA d.c., 1 to 5 d.c.) ※ Range(0 to 99) of Current and voltage input		
Control output		Relay contact : 250 V a.c. 3 A (Resistive load), SSR : 12 V d.c. (constant voltage pulse) (Load resistance min. 800 Ω), Current: 4 – 20 mA d.c. (Load resistance max. 600 Ω)		
Control action		–	Proportional or ON/OFF control	–
Alarm		Relay contact : 250 V a.c. 3 A		
Setting		By BCD S/W		
Display range		Setting value		
Display		Digital indicator		
Setting and display accuracy		Display ±0.5 % of FS Range, Max. Set value ±1.0 % of FS		
Hysteresis		0.2 % FS (fixing), ON/OFF control.		
Proportional cycle		Relay contact : 25 ~ 30 sec SSR : 2 ~ 4 sec		
Reset range		±1.5 % of Max. Range		
Dielectric strength		2,000 V a.c. 50/60 Hz for 1 minute (Primary terminal–secondary terminal)		
Vibration	Malfunction Resistance	2 – 55 Hz, X, Y, Z each position for 10 minutes		
	Mechanical Durability	10 – 55 Hz, 0.76 mm, X, Y, Z each position for 2 hours		
Shock	Malfunction Resistance	100 ㎨ 6 positions, Each 3 times		
	Mechanical Durability	300 ㎨ 6 positions, Each 3 times		
Life	Mechanical	More than 10 million times		
	Electrical	More than 0.3 million times		
Ambient temperature and humidity		0 ~ 50 ℃(32 ~ 122 ℉) 35 ~ 85 % RH (Without condensation)		

Suffix code

Model	Code							Information
DF	□–	□	□	□	□	□	□	Economical digital temperature controller
Dimension	2							48(W) X 96(H) ㎜
	4							48(W) X 48(H) ㎜ (socket type, 8 pin)
Control type		F						ON/OFF control
		P						Proportional control
Input			K					K thermocouple
			J					J thermocouple
			D					RTD KPt100 Ω
			P					RTD Pt100 Ω (IEC)
			V					1 – 5 V d.c.
			C					4 – 20 ㎃ d.c.
Control output				M				Relay
				C				Current output (4 – 20 ㎃ d.c.)
				S				S.S.R (voltage pulse output, 12 V d.c.)
Auxiliary output (SUB) ※ only with DF2					N			None
					O			High deviation
					P			Low deviation
					W			High/Low deviation
Control action (internal selection)						R		Reverse action (heating control)
						D		Direct action (cooling control)
Range code								Refer to the range and input code

※ Model DF4 selects proportional control/ON–OFF control by using internal dip switch.
※ Model DF4 with 110 V power voltage is available as order–made.

Range and input code chart

Classification	Code	DF2		DF4	
		Input type	Range (℃)	Input type	Range (℃)
Thermocouple	4	K,J	–	K, J	0 ~ 199
	5		0 ~ 199		0 ~ 299
	6		0 ~ 299		0 ~ 399
	7		0 ~ 399		0 ~ 599
	8		–	K	0 ~ 799
RTD	1	Pt100 Ω	–99 ~ 99	Pt100 Ω	–
	2		–		–99 ~ 99
	3		–		0 ~ 99
	4		0 ~ 99		0 ~ 199
	5		0 ~ 199		0 ~ 299
	6		0 ~ 299		0 ~ 399
	7		0 ~ 399		–
DC voltage	–	1 – 5 V	0 ~ 99	1 – 5 V	0 ~ 99
DC current	–	4 – 20 mA	0 ~ 99	4 – 20 mA	0 ~ 99

Temperature Controller

RS6 Digital temperature controller

Specification

Model	RS6
Appearance	
W×H×D(mm)	72 X 36 X 76
Power Supply Voltage	12 V a.c. 60 Hz
Power Consumption	5 VA max
Input Sensor	Pt100 Ω(IEC751), NTC(Company exclusive)
Display accuracy	±1 % of FS ±1 Digit
Output (Relay contact)	Control output : From C contact, 250 V a.c. 3A(Resistive load), Alarm output : From A x 2, 250 V a.c. 3A (Resistive load)
Control mode	Only for ON/OFF control
Setting method	Digital method by up and Down key
Other function	Reverse action (heating) or direct action (cooling) selection
Ambient temperature	0 ~ 50 ℃
Ambient humidity	35 ~ 85 % RH (without dew condensation)

Suffix code

Model	Code	Information
RS6	□	Digital temperature controller
Input	K	K thermocouple
	P	RTD Pt100 Ω (IEC)
	N	Company exclusive NTC

TP3 5 channel digital indicator

Specification

Model	TP3
Appearance	
W×H×D(mm)	96 X 48 X 100
Power Supply Voltage	100 – 240 V a.c. (±10 %) 50 – 60 Hz
Power consumption	Max. 5 VA
Input	Thermocouple : K, J, RTD : Pt 100 Ω(IEC)
Display accuracy	Thermocouple : ±0.5 % of display value ±1 digit or ±3 ℃ RTD : ±0.5 % of display value ±1 digit or ±2 ℃
Control operation	Indicator only (5 channels)
Setting method	Digital method by setting key
Function	1 to 5 channel display by automatic or fixed 1 channel
	Offset correction for each channel
Ambient Temp. / Humidity	Max. 0 ℃ ~ 50 ℃ / 35 ~ 85 % RH

Suffix code

Model	Code		Information
TP3 –	□	□	5 channel indication thermometer 96(W) X 48(H)
Input	K		K thermocouple
	J		J thermocouple
	P		Resistance Temperature Detector(RTD) Pt 100 Ω (IEC)
Power Supply Voltage	P4		100 – 240 V a.c. 50 – 60 Hz

BK6-M Multi input digital indicator

Specification

Model	BK6-M	
Appearance		
W×H×D(mm)	72 X 36 X 86	
Power Supply Voltage	100 – 240 V a.c. 50 – 60 Hz	
Input	Multi input	Thermocouple : K, J, E, T, R, B, S, L, N, U, W, PLII RTD : Pt100 Ω(IEC), KPt100 Ω(KS)
Display accuracy	±0.5 % of FS ±1 digit	
Voltage fluctuation	±10 % of power supply voltage	
Power consumption	4 VA max	
Ambient temperature	0 ~ 50 ℃ (Without condensation)	
Ambient humidity	35 ~ 85 % RH	
Storage temperature	–25 ~ 65 ℃ (Dew condensation)	

Suffix code

Model	Code	Information
BK6-M	□	Multi input digital indication thermometer
Optional	0	None
	1	RET(Retransmission output 4 – 20 mA d.c.)

HN100 Digital indicator

Specification

Model	HN100
Appearance	
W×H×D(mm)	275×170×34.4
Use	Sauna facility, bathroom, fitness center, hospital, greenhouse, etc temperature display in spacious places
FND size	24 x 34
Protection degress	IP57
Input	RTD : Pt100 Ω(IEC751), DC current : 4 to 20 mA(for 0 to 100 ℃)
Input display accuracy	Full span of ±0.5 % reg ±1 Digit
Sensor appearance	Waterproof SUS TUBE
Sensor cable length	1.5 m
Power cable length	1.8 m
Power Voltage	12 V d.c.

Suffix code

Model	Code		Information
HN100–	□	□	Digital temperature indicator 275(W)×170(H)
Input	1		Resistance Temperature Detector(RTD) Pt100 Ω
	2		4 – 20 ㎃ d.c. (measurement range 0 ~ 100 ℃ fixed)
Measurement range		1	–100 ~ 400 ℃
		2	–19.9 ~ 99.9 ℃

Temperature Controller

AT series Digital indicator

Specification

Model		AT3	AT6
Appearance			
W×H×D(mm)		96 X 48 X 100	72 X 36 X 95
Power Voltage		110 / 220 V a.c. (50/60 Hz)	100 – 240 V a.c. (50 – 60 Hz)
Power Consumption		4 VA	5 VA
Input		K thermocouple, RTD Pt 100 Ω, R thermocouple	K thermocouple, J thermocouple, RTD : Pt100 Ω(IEC) –199 ~ 600 ℃, RTD : Pt100 Ω(IEC) –199.9 ~ 199.9 ℃, DC voltage : G (0 – 5 V d.c.), V (1 – 5 V d.c.), F (0 – 10 V d.c.), DC current : C (4 – 20 ㎃ d.c.)
Permissible input resistance		TC : 100 Ω max. , RTD : 10 Ω max.	
Display accuracy		Max. 0.5 % of Max. range	
Display		Digital indicator	
Dielectric strength		2,000 V a.c. 50/60 Hz for 1 minute(Between + and – charged terminals)	
Vibration	Malfunction Resistance	2 – 55 Hz, X·Y·Z each position for 10 minutes	
	Mechanical Durability	10 – 55 Hz, 0.76 ㎜, X·Y·Z each position for 2 hours	
Shock	Malfunction Resistance	100 ㎨ 6 positions , Each 3 time (Approx. 10 G)	
	Mechanical Durability	300 ㎨ 6 positions , Each 3 time (Approx. 30 G)	
Ambient temperature and humidity		0 ~ 50 ℃ 35 ~ 85 %RH (without condensation)	

Suffix code

Model	Code		Information	
AT	□– ⋮ □		Digital Temperature Indicator	
Dimension	6 ⋮		72 (W) × 36 (H) ㎜	
	3 ⋮		96 (W) × 48 (H) ㎜	
AT3		KP	K thermocouple, RTD Pt 100 Ω	Select K or RTD by internal dip switch
		R	R thermocouple	
AT6		K	K thermocouple	
		J	J thermocouple	
		P1	Resistance Temperature Detector(RTD) Pt100 Ω(IEC) –199 ~ 600 ℃	
		P2	Resistance Temperature Detector(RTD) Pt100 Ω(IEC) –199.9 ~ 199.9 ℃	
		G	0 – 5 V d.c.	
		V	1 – 5 V d.c.	
		F	0 – 10 V d.c.	
		C	4 – 20 ㎃ d.c.	

BK3 Digital indicator

Specification

Model	BK3
Appearance	
W×H×D(mm)	96 X 48 X 100.2
Power Voltage	110/220 V a.c. 50/60 ㎐ (dual usage)
Power Consumption	4 VA max
Input	Input(Sensor type) selection by the configuration suffix code. a) Thermo couple : K, J, R b) R.T.D : Pt100 Ω(IEC). c) DC current : 4 to 20 mA (for 0 to 100 ℃). e) DC voltage : 0 to 5 V, 0 to 10 V, 1 to 5 V d.c.(for 0 to 100 ℃)
Display accuracy	±0.5 % of FS ±1 Digit (But, input type R is not applicable in the range of below 599 ℃)
Ambient temperature	0 ~ 50 ℃
Storage temperature	–25 ~ 65 ℃

Suffix code

Model	Code	Information
BK3–	□	Digital Temperature Indicator 96(W) X 48(H)
Input	K	K thermocouple (refer to the range and input code chart)
	K1	
	J	J thermocouple
	R	R thermocouple
	P1	Resistance Temperature Detector(RTD) Pt100 Ω (refer to the range and input code chart)
	P2	
	G	0 – 5 V d.c.
	V	1 – 5 V d.c.
	F	0 – 10 V d.c.
	C	4 – 20 mA d.c.

HY-4500S / 4700S / 5000 Analog indication temperature controller

Specification

Model	HY-4500S	HY-4700S	HY-5000
Appearance			
W X H X D (mm)	96 X 96 X 125	96 X 96 X 125	72 X 72 X 110
Power voltage	100 / 220 V a.c. (50/60 Hz)		
Power Consumption	3 VA	3 VA	3 VA
Input	Input(Sensor type) selection by the configuration suffix code. a) Thermo couple : K, J, R. b) R.T.D : KPt100 Ω(KS), Pt100 Ω(IEC751). c) DC current : 4 to 20 mA (for 0 to 100 ℃). e) DC voltage : 1 to 5 V d.c.(for 0 to 100 ℃)		
Control output	Relay contact : 250 V a.c. 3 A (Resistive load), SSR: 12 V d.c. (Constant voltage pulse) (Load resistance 800 Ωmin), current output: 4 – 20 mA d.c. (Load resistance 600 Ωmax)		
Control action	Proportional or ON/OFF contact		
Alarm output	–	Relay contact: 250 V a.c. 3 A(Resistive load)	–
Control sensitivity	±0.2 % of FS		
Setting	Volume		
Display	Meter		
Setting and display accuracy	The same as SV, ±2.0 % of FS		
Alarm setting range	–	Within 1~10% of Max. range for operation point of SV	–
Proportional cycle	Relay contact : 25 ~ 30 sec , SSR : 2 ~ 4 sec		
Reset range	±1.5 % of FS		
Dielectric strength	2,000 V a.c. for 1 minute		
Ambient temperature and humidity	0 ~ 50 ℃(32 ~ 122 ℉)·35 ~ 85 % RH (Without condensation)		

Suffix code

Model	Code								Information
HY-	□	□	□	□	□	□	□		Analog indication temperature controller
Dimension	4500S								96(W) X 96(H)
	4700S								96(W) X 96(H) (auxiliary output: L,M)
	5000								72(W) X 72(H)
Control type		F							ON/OFF control (2 position control)
		P							Proportional control
Input			K						K thermocouple
			J						J thermocouple
			R						R thermocouple
			D						Resistance Temperature Detector(RTD) KPt100 Ω
			P						Resistance Temperature Detector(RTD) Pt100 Ω(IEC)
			V						1 – 5 V d.c.
			C						4 – 20 mA d.c.
Control output				M					Relay
				C					Current output (4 – 20 mA d.c.)
				S					SSR (12 V d.c. voltage pulse output)
Sub output (L,M) (apply only with the model HY-4700)					N				NONE
					O				Low action
					P				High action
					W				Low/High action
Control operation						R			Reverse action (heating control)
						D			Direct action (cooling control)
Range code									Refer to the "Range and input code chart"

Range and input code chart

Code	HY-4500S, HY-4700S		HY-5000	
	Input type	Range (℃)	Input type	Range (℃)
1	Pt100 Ω	–50 ~ 50	Pt100 Ω	–50 ~ 50
3	Pt100 Ω	–50 ~ 100	Pt100 Ω	–0 ~ 100
5	Pt100 Ω	0 ~ 100	K, Pt100 Ω	0 ~ 200
6	–	–	K, Pt100 Ω	0 ~ 300
7	K, Pt100 Ω	0 ~ 200	K, Pt100 Ω	0 ~ 400
8	K, Pt100 Ω	0 ~ 300	K	0 ~ 600
9	K, J, Pt100 Ω	0 ~ 400	K	0 ~ 800
10	K	0 ~ 600	K	0 ~ 1200
11	K	0 ~ 800	–	–
13	K	0 ~ 1200	–	–
14	R	0 ~ 1600	–	–

Temperature Controller

HY-3000, AF1 Deviation indicating temperature controller

Specification

Model	HY-3000	AF1	AF1(SUB)
Appearance			
W×H×D(mm)	96 X 96 X 104	48 X 96 X 100	48 X 96 X 100
Power voltage	100 / 220 V a.c. 50/60 Hz		
Power Consumption	3 VA		
Input	Input(Sensor type) selection by the configuration suffix code. a) Thermo couple : K, J b) RTD : Pt100 Ω(IEC751). c) DC current : 4 to 20 mA (for 0 to 100 ℃) e) DC voltage : 1 to 5 V d.c.(for 0 to 100 ℃)		
Control output	Relay contact : 250 V a.c. 5 A (Resistive load), SSR : 12 V d.c. (Constant voltage pulse) (Load resistance more than 800 Ω)		
Control action	Proportional or ON/OFF control		
Alarm output	–		Relay contact : 250 V a.c. 5 A
Alarm setting	–		Variation setting for SV
Setting	Volume	BCD switch	
Display range	–50 ~ 50 ℃		
Display	Meter		
Setting and display accuracy	Setting temperature: within ±2 % of FS, Display accuracy : Within ±2.5 % of FS		
Proportional band	3 % of FS (Fixing)		
Proportional cycle	Relay contact : 25 ~ 30 sec SSR : 2 ~ 4 sec		
Reset range	±1.5 % of FS (Primary terminal–secondary terminal)		
Dielectric strength	2,000 V a.c. 50/60 Hz for 1 minute		
Ambient temperature and humidity	0 ~ 50 ℃ (32 ~ 122 ℉) 35 ~ 85 % RH (without condensation)		

Suffix code

Model	Code						Information
HY-1000	□	□	□	□	□		96X96
AF1							48X96
Control type	F						ON/OFF control (2 position control)
	P						Proportional control
Input		K					K thermocouple
		J					J thermocouple
		P					Resistance Temperature Detector(RTD) Pt100 Ω(IEC)
		V					1 – 5 V d.c.
		C					4 – 20 ㎃ d.c.
Control output			M				※ Relay
			C				※ Current output (4 – 20 ㎃ d.c.)
			S				SSR (12 V d.c. voltage pulse output)
Sub output(SUB) (only with model AF1)				N			※ NONE
				O			※ High action
				P			Low action
				W			※ High/Low action
Control operation					R		※ Reverse action (heating control)
					D		※ Direct action (cooling control)
Range code							Refer to the "Range and input code chart"

※ Applied only to the AF1

Range and input code chart

Code	HY-3000		AF1	
	Input type	Range (℃)	Input type	Range (℃)
1	–	–	Pt100 Ω	–99 ~ 99
3	Pt100 Ω	–50 ~ 100	–	–
4	K, J, Pt100 Ω	0 ~ 100	Pt100 Ω	0 ~ 99
5	K, J, Pt100 Ω	0 ~ 200	K, Pt100 Ω	0 ~ 199
6	K, J, Pt100 Ω	0 ~ 300	K, Pt100 Ω	0 ~ 299
7	K, J, Pt100 Ω	0 ~ 400	K, Pt100 Ω	0 ~ 399
8	K	0 ~ 600	–	–
9	K	0 ~ 800	–	–
11	K	0 ~ 1200	–	–

HY-2000, HY-1000, ND4 Non-indicating temperature controller

Specification

Model	HY-2000	HY-1000	ND4	ND4(For socket)
Appearance				
W×H×D(mm)	96 X 96 X 104	72 X 72 X 100	48 X 48 X 80	48 X 48 X 78
Power voltage	110 /220V a.c. 60 Hz			
Power consumption	3VA			
Input	Thermocouple : K, J RTD : Pt100 Ω(IEC751)			
Control Output	Relay contact : 250 V a.c. (Resistive load)			
Control action	Proportional or ON/OFF control			
Setting	Volume			
Setting and display accuracy	±1.0 % of FS			
Proportional band	1 ~ 10 % of FS (HY-4500) (Model HY-4700, HY-5000 fixing to 3% of FS)			
Proportional cycle	Relay contact : 25 ~ 30 sec.			
Dielectric strength	2,000 V a.c. 50/60 Hz for 1 minute (Primary terminal-secondary terminal)			
Ambient temperature and humidity	0 ~ 50 ℃ (32 ~ 122 ℉) 35 ~ 85 % RH (without condensation)			

Suffix code

Model	Code								Information
HY-1000									72(W) X 72(H) ㎜
HY-2000	□	□	□	□	□	□	□		96(W) X 96(H) ㎜
ND4									48(W) X 48(H) ㎜
Control type	F								ON/OFF control (2 position control)
	P								Proportional control
Input		K							K thermocouple
		J							J thermocouple
		P							Resistance Temperature Detector(RTD) Pt100 Ω(IEC751)
Control output			M						Relay
Alarm output				N					None (*.Model ND4 does not display)
Control action					R				Reverse action (heating control)
					D				Direct action (cooling control)
Range code									Refer to the "Range and input code chart"
Terminal								T	ND4 terminal type

※ ND4 : Please select power voltage (110 V a.c. or 220 V a.c.)

Range and input code chart

Code	HY-2000		HY-1000		ND4	
	Input type	Range (℃)	Input type	Range (℃)	Input type	Range (℃)
1	–	–	Pt100 Ω	–50 ~ 50	Pt100 Ω	–50 ~ 50
2	Pt100 Ω	–50 ~ 100	–	–	Pt100 Ω	–100 ~ 100
3	–	–	Pt100 Ω	0 ~ 100	Pt100 Ω	0 ~ 100
4	K, J, Pt100 Ω	0 ~ 100	–	–	–	–
5	K, J, Pt100 Ω	0 ~ 200	K, Pt100 Ω	0 ~ 200	K, Pt100 Ω	0 ~ 200
6	K, J, Pt100 Ω	0 ~ 300	K, Pt100 Ω	0 ~ 300	K, Pt100 Ω	0 ~ 300
7	K, J, Pt100 Ω	0 ~ 400	K, Pt100 Ω	0 ~ 400	K, Pt100 Ω	0 ~ 400
8	K	0 ~ 600	K	0 ~ 600	–	–
9	K	0 ~ 800	K	0 ~ 800	–	–
10	–	–	K	0 ~ 1200	–	–
11	K	0 ~ 1200	–	–	–	–

Temperature Controller

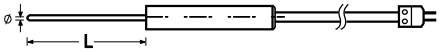
D55 Portable thermometer

Specification

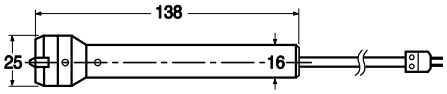
Model	D55
Appearance	CE 
W×H×D(mm)	71 X 158 X 32
Power Supply Voltage	9 V d.c.
Input	K, J
Display method	LCD digital
Display accuracy	±0.5 % of FS
Measuring range	–200.0 ~ 1370.0 ℃
Ambient temperature and humidity	0 ~ 50 ℃(32 ~122 ℉) 35 ~ 85 % RH (without condensation)

Thermocouple

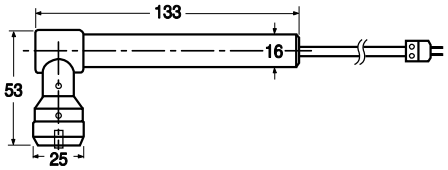
• TC–PJP



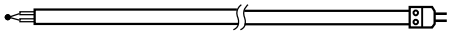
• TC–PIP



• TC–PLP



• TC–POP



EM310 Data storage device

Specification

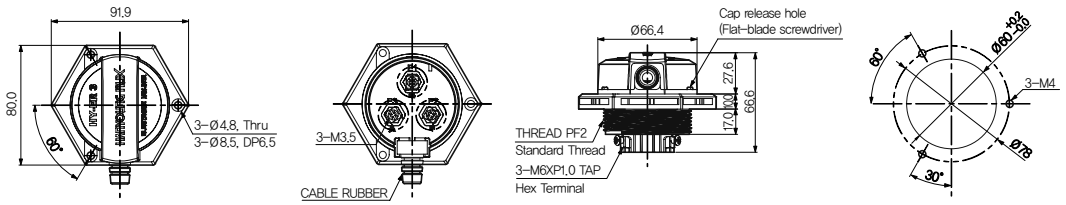
Model	EM310
Appearance	
Power voltage	24 V d.c., 500 ㎃
Communication type	Asynchronous type serial communication (RS232C)
Communication speed	38400 bps
Communication distance	Max 5 m
Setting type	Set by front switch
Saving media	USB MEMORY STICK
File system	Support FAT16, 32
Internal memory	32 Mbyte (Non–volatile)

FS-3A Floatless level switch

Specification

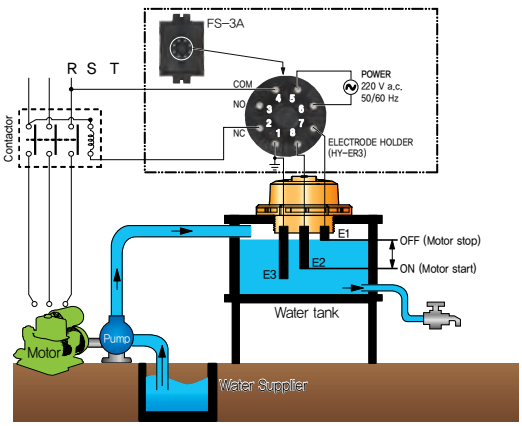
Model	FS-3A	
Appearance		
Model	FS-3 A (high sensitivity)	FS-3 A (low sensitivity)
Power Supply Voltage	110 V a.c. / 220 V a.c. 50 – 60 Hz	
Allowable voltage fluctuation range	± 10 % of the power supply voltage	
Voltage between the electrodes secondary voltage	24 V a.c.	8 V a.c.
Power consumption	Approx. 3.2 VA	
Response time	Max 80 ㎳ when operating, max 160 ㎳ when returning	
Operation resistance between electrodes	0 – approx. 27 KΩ	0 – approx. 7 KΩ
Return resistance between electrodes	approx. 38 KΩ – ∞ Ω	approx. 15 KΩ – ∞ Ω
Control output	Relay contact output (1c) : 250 V a.c. 5 A (resistive load)	
Insulation resistance	100 MΩ min (with 500 V d.c. mega) electric conduction part and exposed non-charged metal part	
Dielectric strength	2,000 V a.c. 50 – 60 Hz for 1 min (Primary terminal-secondary terminal)	
Vibration resistance	10 – 55 Hz (for cycle 1 min) single amplitude for 2 hrs each in X, Y and Z direction 0.76 mm	
Shock resistance	300 m/s²	
Life expectancy	Mechanically more than 5 million times (relay type), electrically more than 500 thousand times (load resistance)	
Ambient temperature	-10 ~ 50 ℃ (without condensation)	
Ambient humidity	35 ~ 85 % RH	

HY-ER3 Electrode Holder

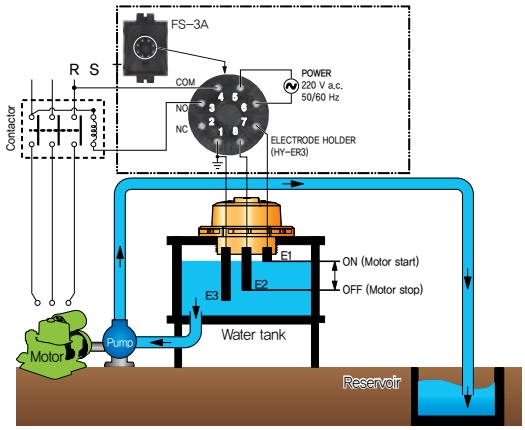
Appearance	Dimession
	

Using the example

·Example of Water Supply connection (FS-3A)



·Example of Drain connection (FS-3A)



Temperature Controller

HMCW-103 Wi-Fi_to_Serial Converter

Specification

Model	HMCW-103
Appearance	
CPU	PIC32MX695F512L
Memory	SRAM : 128 Kbit, Flash : 512 Kbit
Input Voltage	5 V d.c. (±10 %)
Maximum Current	Maximum under 250 mA
RS-232 Communication	Data communication / Serial console Male DB9 Serial Port
	Communication speed : 4800 ~ 115200bps
	Flow control: None
	Signal : TX, RX, GND
RS-485 Communication	For 2 and half wires and duplex method for data communication
	Communication speed : 4800 ~ 115200bps
	Flow control : DE/RE
	Signal : TX+, TX-
RS-422 Communication	4 wires and duplex method for data communication
	Communication speed : 4800 ~ 115200bps
	Flow control : None
	Signal : TX+, RX+, TX-, RX-
Ethernet Communication	Wi-Fi
	fluid IP support
	It is possible to access a lot of Clients (maximum 3 devices)
	ARP, IP/ICMP, TCP, Telnet, DHCP support
Configuration	Telnet or Serial Console Interface
LED	Power Supply Input mark
	Activating Condition Mark
Weight	74 g
Ambient Temperature	-10 ℃ ~ 60 ℃
Storage temperature	-30 ℃ ~ 80 ℃
Certification Standard	MSIP-CRM-NUX-HMCW-103
Warranty period	1 year

CV300 Communication converter

Specification

Model	CV300
Appearance	
Power	9 V, 300 mA d.c. Adapter (1.3 Ø DC Jack)
Communication speed	2400 ~ 115200 bps
Communication distance	1.5km max and possible to connect max 256 devices
Safety	1/2 circuit insulation, built in the surge protective device, automatically forms ±15 KV ESD Protection Line Drive signal
Function setting	2 wires/4 wires, usage of the built in terminating resistance, full duplex/half duplex setting Possible
Connection method	RS232 -> DB-9 Female (possible to connect directly to the serial port of PC), RS422/485 -> method of inserting communication wire to the 4 pin terminal block.
Switch setting	6 Pin Piano Type Dip-Switch
Case material	Made of plastic
Weight	Body : 60 g, Adapter 300 g
Dimension	52 x 90 x 20 ㎜

HMCE-103 Ethernet_to_Serial Converter

Specification

Model	HMCE-103
Appearance	
CPU	PIC32MX695F512L
Memory	SRAM : 128 Kbit, Flash : 512 Kbit
Input Voltage	5 V d.c. (±10 %)
Maximum Current	Maximum under 200 mA
RS-232 Communication	Data communication / Serial console Male DB9 Serial Port
	Communication speed : 2400 ~ 115200 bps
	Flow control : None
	Signal : TX, RX, GND
RS-485 Communication	For 2 and half wires and duplex method for data communication
	Communication speed : 2400 ~ 115200 bps
	Flow control : DE/RE
	Signal : TX+, TX-
RS-422 Communication	4 wires and duplex method for data communication
	Communication speed : 2400 ~ 115200 bps
	Flow control : None
	Signal : TX+, RX+, TX-, RX-
Ethernet Communication	10/100 Base-T Ethernet (RJ-45 Connector)
	Fixed and fluid IP support
	Multi-client access (maximum 3 devices)
	ARP, IP/ICMP, TCP, Telnet, DHCP
Configuration	Telnet or Serial Console Interface
LED	Power Supply Input mark
	Activating Condition Mark
Weight	74 g
Ambient Temperature	-10 ℃ ~ 60 ℃
Storage temperature	-30 ℃ ~ 80 ℃
Certification Standard	KCC-REM-NUX-HMCE-103
Warranty period	1 year

CV250 Dry/wet type temperature/humidity converter

Specification

Model	CV250
Appearance	
Power Supply Voltage	100 / 240 V a.c., 50 – 60 Hz
Power consumption	Approx. 3 VA
Input signal	Resistance Temperature Detector(RTD) : Pt100 Ω (IEC751), dry/wet each 1 example ※ Dry/Wet transmitter (Company model HY-PT230)
Measurement range	Temperature : 0 ~ 100 ℃, Humidity : 0 ~ 100 % RH
Accuracy	Temperature : ±0.5 %, Humidity : ±1 %
Output signal	Temperature/humidity yields 1 output individually (current by the suffix code/voltage output selectable) 4 – 20 ㎃ d.c. (Load resistance 600 Ωmax), 1 – 5 V d.c. (Load resistance 1 KΩmin)
Output compensation	±5 % (Off-set compensation by the variable resistance)
Insulation resistance	Min 20 ㏁ (500 V d.c.)
Dielectric strength	2,500 V a.c. (power terminal-signal input/output terminal)
Ambient temperature	0 ~ 50 ℃
Ambient humidity	35 ~ 85 % RH (without dew condensation)
Storage temperature	-25 ~ 65 ℃
Vibration resistance	10 – 55 Hz, single amplitude 0.76 ㎜, for 1 min each in 3 axis direction
Shock resistance	300 ㎨, 6 directions each 3 times
Weight	Approx. 300 g

Suffix code

Model	Code	Information
CV250-	□	Temperature/Humidity converter
Output signal	C	4 – 20 ㎃ d.c.
	V	1 – 5 V d.c.