

Sanup Electric

Temperature Solution



Sanup Electric Products Guide



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Since 1963



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- Temperature Controller
- Thermo-Couple & R.T.D
- Humidity Transmitter
- Temperature Indicator
- Humidity Controller
- 1P & 3P Thyristor Power Regulator





Fuzzy Logic Temperature Controller

	SDM 9000	SDM 4900	SDM 7000	SDM 9400	SDM 4000
Appearance					
Dimension	96 × 96 × 110 (mm)	48 × 96 × 110 (mm)	72 × 72 × 110 (mm)	96 × 48 × 110 (mm)	48 × 48 × 90 (mm)
Input	Universal Input (K, J, E, N, C, T, R, S, B. Pt100 Ω. JPT100 Ω. 1~5V, 0~5V)				
Output	Universal Output (Relay : 250V 3A(R Load). 4~20mA (Max600 Ω) SSR				Non-Universal
Control Mode	PID, PI, PD, P, ON-OFF (each direct/reverse mode), Heating-Cooling.				
Accuracy	T.C : ±0.3% of F.S + 1digit or 3°C, RTD, Volt : ±0.2% of F.S + 1digit				
Alarm	2-Points Relay 250V 3A (R Load)				1-Point
Power	AC 100~240V 50 / 60Hz. 0.5Amax				
Operating Condition	Temperature : 0~50°C, Humidity : 35~85%RH				
Others	<ul style="list-style-type: none"> • Program control - 2 pattern 12 segment • Digital Input • RS 485, MODBUS Interface(SDM 9000, SDM 7000) • Auto-Manual Control • Scan time : 0.16sec • Input Filter • TX Power Supply (17V 30mA) 				





PID Temperature Controller

	SDU 990	SDU 490	SDU 770	SDU 940	SDU 440
Appearance					
Dimension	96 × 96 × 110 (mm)	48 × 96 × 110 (mm)	72 × 72 × 110 (mm)	96 × 48 × 110 (mm)	48 × 48 × 90 (mm)
Input	Universal Input (K, J, E, N, C, T, R, S, B. Pt100 Ω, JPT100 Ω, 1~5V, 0~5V)				
Output	Relay : 250V 3A (R Load). 4~20mA : Max600 Ω. SSR				
Control Mode	PID. ON-OFF (each direct/reverse mode)				
Accuracy	T.C : ±0.3% of F.S + 1digit or 3°C, RTD, Volt : ±0.2% of F.S + 1digit				
Alarm	2-Points Relay 250V 3A (R Load)				1-Point
Power	AC 100~240V 50/60Hz. 0.5Amax				
Operating Condition	Temperature : 0~50°C, Humidity : 35~85%RH				
Others	<ul style="list-style-type: none"> • Control Output OFF Timer (99h 59m) • Delay Timer for Heater Protection (0~30m) • TX power supply (17V. 30mA) (SDU990, SDU940, SDU490 only) • Input Filter • RS 485, MODBUS Interface (SDU 990, SDU 770) 				






Digital Controllers

	SD 501S	SD 501	SD 505	SD 505-5
Appearance				
Dimension	96×96×140 (mm)	96×96×140 (mm)	48×96×143 (mm)	48×96×143 (mm)
Input	T.C : K, J, E, T, B, R, S. R.T.D : Pt100 Ω		T. C : K, J, E, T. R.T.D : Pt100 Ω	
Output	Relay-AC 250V 3A (R Load). Current : 4~20mA. SSR			
Control Mode	P, ON-OFF			
Accuracy	±0.5% of F.S			
Alarm	Relay 250V 3A	-	-	Relay 250V 3A
Power	AC 110V / 220V, 50 / 60Hz			
Operating Condition	Temperature : 0 ~ 50°C, Humidity : 35 ~ 85%RH			
Others	-			

Select Switch

	SD 301	SD 104	SD 302	SD 508
Appearance				
Dimension	72×72×125 (mm)	48×48×90 (mm)	72×72×133 (mm)	96×48×110 (mm)
Input	T.C : K, J, E, T. R.T.D : Pt100 Ω , JIS Pt100 Ω			-
Output	Relay-AC 250V 3A (R Load). Current : 4~20mA. SSR			-
Control Mode	P, ON-OFF			-
Accuracy	±0.5% of F.S			-
Alarm	-			
Power	AC 110V / 220V, 50 / 60Hz			
Operating Condition	Temperature : 0 ~ 50°C, Humidity : 35~85%RH			
Others	-		Analog setting and Digital indicating	

Analog Controllers





	IS	SM	IS 3	DIC 1	DIC 2
Appearance					
Dimension	96×96×130 (mm)	72×72×132 (mm)	48×48×100 (mm)	96×96×130 (mm)	48×96×143 (mm)
Input	T.C : K, J, E, T, B, R, S. R.T.D : Pt100 Ω , JIS Pt100 Ω				
Output	Relay-AC 250V 3A (R Load). Current : 4~20mA. SSR				
Control Mode	P, ON-OFF				
Accuracy	±1.0% of F.S				
Alarm	-				
Power	AC 110V / 220V, 50 / 60Hz				
Operating Condition	Temperature : 0 ~ 50°C, Humidity : 35 ~ 85%RH				
Others	Analog setting, none indicating		-	Deviation indicating, Analog setting	

Digital Indicator




	SDM 560	SD506
Appearance		
Dimension	96×48×110 (mm)	
Input	Universal Input (K, J, E, N, C, T, R, S, B, Pt100 Ω , JPt100 Ω , 1~5V, 0~5V)	TC, RTD
Output	TX Power (17V. 30mA). Ret-output (4 ~ 20mA)	-
Control Mode	-	-
Accuracy	T.C : ±0.3% of F.S +1digit or 3°C, RTD, Volt : ±0.2% of F.S +1digit	-
Alarm	2-Points Alarm (250V 3A. R-Load)	-
Power	AC 100 ~ 240V 50 / 60Hz. 0.5Amax	AC 110/220V, 50/60Hz
Operating Condition	Temperature : 0 ~ 50°C, Humidity : 35 ~ 85%RH	
Others	<ul style="list-style-type: none"> • Universal Input • Retransmission output • Sensor power supply (17V 30mA DC) • Input Filter • Peak Hold • RS 485 Interface 	

Digital Indicator




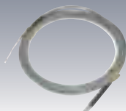
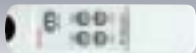
Thermometer

	SD 503	SDM 503-5	SD 103	SD 803
Appearance				
Dimension	96 × 96 × 139 (mm)	96 × 48 × 140 (mm)	48 × 48 × 100 (mm)	75 × 160 × 34 (mm)
Input	T.C : K, J, E, T, B, R, S. R.T.D : Pt100 Ω , JIS Pt100 Ω			T.C : K, R.
Output	-			-
Control Mode	-			-
Accuracy	±0.5% of F.S			±1.0% of F.S R.S
Alarm	-			-
Power	AC 110V / 220V, 50 / 60Hz			DC 9V Battery
Operating Condition	Temperature : 0 ~ 50°C, Humidity : 35 ~ 85%RH			
Others		5-Point Selectable Indicator		



Others

	SDU-880	Thermocouple Plug	HMI-DAQ
Appearance			
Dimension	Main Board:85X110(mm) Display Board:60X44(mm) Cable:300mm		For SDM, SDU, TPR3E-Plus TPR-Xpro, SDM700 etc.
Input	Universal(TC.RTD.V.mA)		Version
Output	Relay. SSR. 4~20mA		DAQ-Factory
Control Mode	PID		DAQ-Pro
Accuracy	±0.3% of F.S		DAQ-Lite
Alarm	1-Point		
Power	100~240V ac 50/60Hz		
Operating Condition	Temp.: 0~50°C Humi: 35~85%RH	Mini. type	
Others	Base Model is SDU 440	Type: K.J.T	



Water-Proof Indicator

	SD-700WR - S	SD-700WR - R		
Appearance				
Dimension	275 x 160 x 51 (mm)			
Input	Pt100Ω	Pt100Ω, 4~20mA dc		
Range	0~99.9°C, 0~199°C, -50~50°C	-10~200°C		
Accuracy	+/-0.5%	+/-0.2%		
Power	12V dc 300mA			
Operating Condition	0~60°C			
Function	Non	<ul style="list-style-type: none"> • Wireless Rimocon • Clock Display • Burn Output 		
Material	ABS			
Accessory	 Stand	 Sensor	 Adaptor	 Rimocon




Universal Input Large Indicator

	SD-700T	SD-700TH
Appearance		
Dimension	310 x 207 x 82 (mm)	310 x 207 x 82 (mm)
Input	Universal Input (K, J, E, N, C, T, R, S, B. Pt100Ω, JPt100Ω, 1~5V, 0~5V)	
Output	Re-transmission output 4 ~ 20mA dc. TX-Power (17V, 30mA).	
Control Mode	-	
Accuracy	T.C : ±0.3% of F.S + 1digit or 3°C, RTD, Volt : ±0.2% of F.S + 1digit	
Alarm	2-Points Alarm 250V 3A (R Load) each	
Power	AC 100 ~ 240V 50 / 60Hz	
Operating Condition	Temperature : 0 ~ 50°C, Humidity : 35 ~ 85%RH	
Others	<ul style="list-style-type: none"> • Display size : 32.8 x 56.9 x 6.0 (mm) • Input Filter • Configurable range • Parameter protect by password 	<ul style="list-style-type: none"> • Display size : 26.0 x 45.0 x 4.2 (mm) • Input Filter • Configurable range • Parameter protect by password





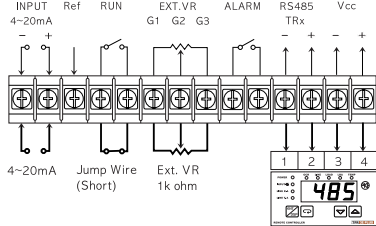
Large Indicator

	SD 700T	SD 700TH
Appearance		
Dimension	274 × 182 × 74 (mm)	310 × 207 × 82 (mm)
Input	T.C : K, J, E, T, B, R.T.D : Pt100 Ω , 1~5V, 4 ~ 20mA, 0 ~ 10V.	
Output	-	
Control Mode	-	
Accuracy	±0.5% of F.S	
Alarm	-	
Power	AC 110V / 220V, 50 / 60Hz	
Operating Condition	Temperature : 0 ~ 50°C, Humidity : 35 ~ 85RH	
Others	Dispaly size : 32.8 × 56.9 × 6.0mm	Dispaly size : 26.0 × 45.0 × 4.2mm
	Extension display size <ul style="list-style-type: none"> • 3.0" (43.5 × 76.0 × 8.0(mm)) • 4.0" (60.0 × 100.0 × 11.0(mm)) • 6.0" (87.5 × 152.4 × 16.0(mm)) • 8.0" (117.0 × 200.0 × 21.0(mm)) 	

Power Regulators

	SPR-Pro	TPR-Pro	TPR-XPro
Appearance			
Dimension	86 × 130 × 76 (mm)	126 × 191 × 130 (mm)	100A:190 × 280 × 190 (mm) 20~240A:240 × 350 × 240 (mm)
Input	Current : DC 4~20mA. Contact : Zero Voltage Contact		
Output	0~95% min. of Input Volatge		
Control Mode	Phase angle		
Accuracy	All Resistance Load		
Alarm	30A	50, 75A	100, 120, 150, 200, 240A
Power	AC 100, 220, 380, 415, 440, 460A 50 / 60Hz		
Operating Condition	Temperature : 0 ~ 50°C Humidity : 35 ~ 85%RH		
Others	TRIAC	SCR+SCR	SCR+SCR

Power Regulators

TPR 3E-Plus			
Appearance			
Dimension	190W ×280H ×190D (mm)	240W ×350H ×240D (mm)	300W ×350H ×240D (mm)
Current Capacity	35, 50A	80, 100A	120, 150, 200, 240A
Control Input	Current : DC 4~20mA. Contact : Zero Voltage Contact		
Output Voltage	0~95% min. of Input Voltage		
Control Mode	Phase angle		
Possible Load	All Resistance Load		
SCR Element	SCR ×3 and SCR ×3 3-Phase Anti-Parallel Connection.		
Power	AC 100, 220, 380, 415, 440, 460V, 50 / 60Hz		
SCR Element Cooling	35~100A : Natural Air 120~240A : Fan		
Others	1) Operation by analog (4-20mA) or digital (RS 485) input signals 2) Indicating of analog (4-20mA) signal and output current (line R or T) 3) Automatic output-limit cognition of external volume or internal limit setting 4) Various alarm mode (over current, line failed, Un-load, over-temp. load unbalance) 5) Relay alarm output 6) Programmable Soft start 7) Anti-fluctuation by input filtering function 8) Easy alarm confirm by built-in buzzer 9) Output current limit function 10) Built-in watchdog timer 11) RS-485 interface (MODBUS® protocol) (Optional) 12) Remote control function by Remote Controller (Optional) 13) Compact Size		
Remote Controller RC-1000		<ul style="list-style-type: none"> • All remote controller functions are almost same with main unit controller function except below. 1) Reset key function from front panel 2) Fixed interface parameters: Address 1 • Speed; 9600 BPS, Delay Time; 1 	
		Connect to TPR3E-Plus 	

Thermocouple, R.T.D & Probes

SU-HL for Small Surface



Type - K. E Max - 200OC

SU-H for Surface



Type - K. J. E Max - 400OC

SU-L for Rolling Wheel



Type - K. E Max - 400OC

SU-P for Needle Type



Type - K. E Max - 200OC

SU-PS for Sharp Needle Type



Type - K. E Max - 400OC

SU-V for Air Temperature



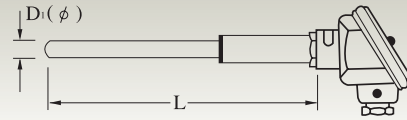
Type - K. E Pt 1000 Ω (Max 200 OC) Max - 400OC

SU-K for High Temperature Surface



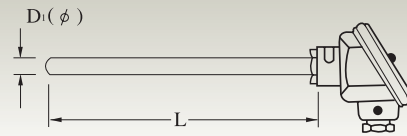
Type - K Max - 800OC
Stainless steel pipe has three kinds of angle type which consists of straight, 45 and 90

SU-A Ceramic Protection Tube.
(Metal Support)

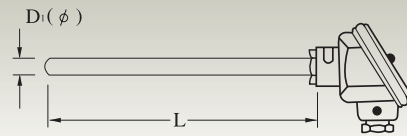


Alumina HB or SSA-S. High Temp.

SU-B Metal Protection Tube

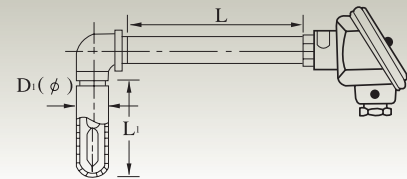


SU-D Metal Protection Tube (Flanged)

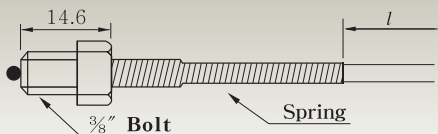


SUS 304. 316. 310S. or Inconel

SU-F Metal Protection tube (900)

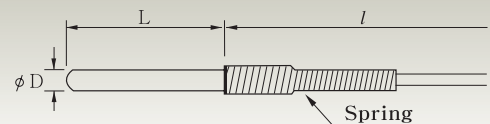


SU-M Bolt Type

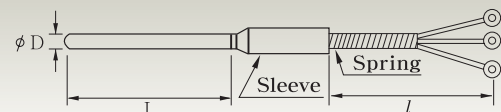


Thermo-Couple Type-K




SU-N Stainless Steel Protection Tube



SU-S Stainless Steel Protection Tube.
(Sleeved)



Temp. & Humidity Transmitter

	SRN 200		SRN 300		SRO	
Appearance						
Dimension	W70 X L114 X D30 (mm)		W86 X L86 X D293 (mm)		W80 X L105 X D31 (mm)	
Power	15~30Vdc		15~30Vdc		15~30Vdc	
	Temp.	Humi.	Temp.	Humi.	Temp.	Humi.
Accuracy at 25 °C	±0.3°C	±3%RH	±0.3°C	±3%RH	±0.3°C	±3%RH
Output	dPt100 Ω or 4~20mA dc	4~20mA dc	dPt100 Ω or 4~20mA dc	4~20mA dc	4~20mA dc	4~20mA dc
Element	dPt100 Ω	IC Type	dPt100 Ω	IC Type	NTC	IC Type
Operating Condition	-10~70°C (Non icing)				0~50°C (Non icing)	
Sensing Range	-5~60°C	0~100%	-10~70°C	0~100%	0~50°C	0~100%

Thermocouple and Extension wire Color Codes

T/C TYPE	TYPE B	TYPE E	TYPE J	TYPE K	TYPE N	TYPE R	TYPE S	TYPE T
ANSI MC96.1 T/C								
ANSI MC96.1 EXTENSION								
UK BS 1843								
Germany DIN 43714								
Japan JIS C1610-1981								
IEC 584-3								

Sanup Electric Co. reserves the right to make changes in design and specification of any product as engineering advances or necessity requires.

