



DIGITAL CONTROLLER

MODEL SC-S20

Features

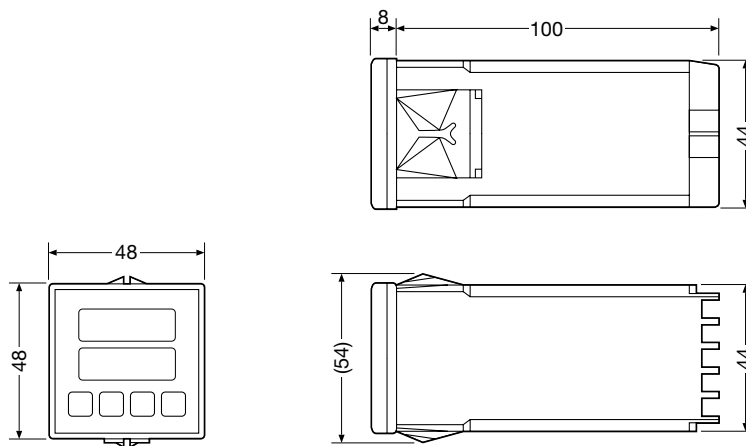
Compact digital controller used with motor valves, pneumatic valves, solenoid valves, PID-action valves or ON-OFF valves, to control the temperature in various processes.

1. Compact size takes up little space.
2. High accuracy ($\pm 0.5\%$ R.S.) at low cost.
3. Two-alarm output on standard models.
4. With auto-tuning function.
5. Conforms with CE marking.



Dimensions

Units: mm



Wiring Terminals

No.	Terminal	Function
1	 AL1 AL2	Relay contact output
2		Alarm 1
3		Alarm 2
4		Relay contact output
5		Control output

No.	Terminal	Function	
6	 AC100V-240V AC24V DC24V	AC 100 ~ 240V or DC 24V	
7		Power	
8	 ① ②	① RTD	
9		 ② Thermocouple	Measurement input
10			



Model SC-S20 must be used only after mounting in a grounded metal enclosure.

Specifications

Item	Description														
Input Signal*	<table border="1"> <tr> <td>Input Signal Type* (See next page for ranges)</td> <td> <table border="1"> <tr> <td>Thermocouple</td> <td>RTD</td> </tr> <tr> <td>·K ·J ·E ·R ·S ·B ·N ·L ·PLII ·W5Re/W26Re ·T ·U</td> <td>·Pt100 ·JPt100</td> </tr> </table> </td> </tr> <tr> <td>Measurement Accuracy</td> <td>± (0.5% R.S. + 1 digit) or ± 3°C, whichever is greater</td> </tr> <tr> <td>Signal Source Resistance</td> <td>Approximately 0.35 μV/Ω</td> </tr> <tr> <td>Acceptable Input Wiring Resist.</td> <td>—</td> </tr> <tr> <td>Action when Input is Cut</td> <td>Up-scale</td> </tr> </table>	Input Signal Type* (See next page for ranges)	<table border="1"> <tr> <td>Thermocouple</td> <td>RTD</td> </tr> <tr> <td>·K ·J ·E ·R ·S ·B ·N ·L ·PLII ·W5Re/W26Re ·T ·U</td> <td>·Pt100 ·JPt100</td> </tr> </table>	Thermocouple	RTD	·K ·J ·E ·R ·S ·B ·N ·L ·PLII ·W5Re/W26Re ·T ·U	·Pt100 ·JPt100	Measurement Accuracy	± (0.5% R.S. + 1 digit) or ± 3°C, whichever is greater	Signal Source Resistance	Approximately 0.35 μV/Ω	Acceptable Input Wiring Resist.	—	Action when Input is Cut	Up-scale
	Input Signal Type* (See next page for ranges)	<table border="1"> <tr> <td>Thermocouple</td> <td>RTD</td> </tr> <tr> <td>·K ·J ·E ·R ·S ·B ·N ·L ·PLII ·W5Re/W26Re ·T ·U</td> <td>·Pt100 ·JPt100</td> </tr> </table>	Thermocouple	RTD	·K ·J ·E ·R ·S ·B ·N ·L ·PLII ·W5Re/W26Re ·T ·U	·Pt100 ·JPt100									
	Thermocouple	RTD													
	·K ·J ·E ·R ·S ·B ·N ·L ·PLII ·W5Re/W26Re ·T ·U	·Pt100 ·JPt100													
	Measurement Accuracy	± (0.5% R.S. + 1 digit) or ± 3°C, whichever is greater													
	Signal Source Resistance	Approximately 0.35 μV/Ω													
Acceptable Input Wiring Resist.	—														
Action when Input is Cut	Up-scale														
Sampling Period	500mSEC														
Display	Data Displayed	·Measurement value ·Target set value ·Alarm ·Control output status ·Others													
	Measurement/Setting Display	Double-row 4-digit, 7 segment LED													
	Indicator/Setting Accuracy	Same as measurement accuracy													
Action Control	Control Action Types	·PID action with auto-tuning (Reverse Action) ·PID action with auto-tuning (Direct Action)													
	Output Specifications	Relay contact output: 1a contact 250V AC, 3A (resistive load) Battery life: minimum 300,000 times (constant load)													
Control Output	Output Replacement Period	500mSEC													
	Time Proportion Period	Variable between 1 ~ 100 seconds													
	Auto-tuning	Available													
	Proportional Band (P)	1 or 0.1 ~ span °C or °F (ON/OFF at 0)													
	Integral Time (I)	1 ~ 3600 seconds (PD action at 0)													
	Derivative Time (D)	1 ~ 3600 seconds (PI action at 0)													
	Control Mode	Auto mode													
Target Setting	Number of Target Settings	1													
	Number of Alarm Points	Possible to add a maximum of 2 points													
Alarm	Output Specifications	Relay contact output: 1a contact 250V AC, 1A (resistive load)													
	Types of Alarm*	Upper limit, lower limit, upper limit deviation, lower limit deviation, upper/lower limit deviation, within limit deviation, FAIL (with standby action)													
	Insulation Resistance	Between power terminal and ground: 500V DC/20MΩ minimum Between measurement terminal and ground: 500V DC/20MΩ minimum													
General	Withstand Voltage	Between power terminal and ground: 1500V AC for 1 minute Between measurement terminal and ground: 1000V AC for 1 minute													
	Power Voltage	Three types: 1) Free between 100 ~ 240V AC (50/60Hz) 2) 24V AC (50/60Hz) 3) 24V DC													
	Power Consumption	100 ~ 240V AC: 17VA max.; 24V AC: 7.5VA max.; 24V DC: 200mA max.													
	Effect of Power Interruption	No influence on action if less than 20mSEC power interruption (keep setting value in non-dissipating memory)													
	Ambient Temperature Range	0 ~ 50°C													
	Ambient Humidity Range	45 ~ 85% RH (non-condensing)													
	Vibration Resistance	0.2G maximum													
	Installation Method	Panel installation													
	Weight	Approximately 170g													
	Material	ABS resin (black)													

* Note: When ordering, please specify input signal type, range and alarm type



CAUTION

This is a Class A product. In a domestic environment this product may cause radio interference, in which case the user is required to take adequate measures.



CAUTION

To avoid abnormal operation, accidents or serious injury, DO NOT use this product outside of the specification range. Local regulations may restrict the use of this product to below the conditions quoted.

Measurement Input Types & Ranges

	Input Type	Input Range	Code	Input Range	Code
Thermocouple	Type K (EX: CA) [JIS/IEC]	0 ~ 200	K01	0 ~ 800	KA1
		0 ~ 400	K02	0 ~ 1600	KA2
		0 ~ 600	K03	0 ~ 2502	KA3
		0 ~ 800	K04	20 ~ 70	KA9
		0 ~ 1000	K05		
		0 ~ 1200	K06		
		0 ~ 1372	K07		
		0 ~ 100	K13		
		0 ~ 300	K14		
		0 ~ 500	K20		
	Type J (EX: IC) [JIS/IEC]	0 ~ 200	J01	0 ~ 800	JA1
		0 ~ 400	J02	0 ~ 1600	JA2
		0 ~ 600	J03	0 ~ 2192	JA3
		0 ~ 800	J04	0 ~ 400	JA6
		0 ~ 1000	J05		
		0 ~ 1200	J06		
	Type E (EX: CRC) [JIS/IEC]	0 ~ 800	E01	0 ~ 1600	EA1
		0 ~ 1000	E02	0 ~ 1832	EA2
	Type R* [JIS/IEC]	0 ~ 1600	R01	0 ~ 3200	RA1
0 ~ 1769		R02	0 ~ 3216	RA2	
0 ~ 1350		R04			
Type S* [JIS/IEC]	0 ~ 1600	S01	0 ~ 3200	SA1	
	0 ~ 1769	S02	0 ~ 3216	SA2	
Type B* [JIS/IEC]	400 ~ 1800	B01	800 ~ 3200	BA1	
	0 ~ 1820	B02	0 ~ 3308	BA2	
Type N [NBS]	0 ~ 1200	N01	0 ~ 2300	NA1	
	0 ~ 1300	N02	0 ~ 2372	NA2	
Type L [DIN]	0 ~ 400	L01	0 ~ 800	LA1	
	0 ~ 800	L02	0 ~ 1600	LA2	
Type PLII [NBS]	0 ~ 1300	A01	0 ~ 2400	AA1	
	0 ~ 1390	A02	0 ~ 2534	AA2	
	0 ~ 1200	A03			
Type W5Re/W26Re [ASTM]	0 ~ 2000	W01	0 ~ 4000	WA1	
	0 ~ 2320	W02			
Type T (EX: CC) [JIS/IEC]	-199.9~400.0	T01	-199.9~752.0	TA1	
	-199.9~100.0	T02	-100.0~200.0	TA2	
	-100.0~200.0	T03	-100.0~400.0	TA3	
	0.0~350.0	T04	0.0~450.0	TA4	
			0.0~752.0	TA5	
Type U [DIN]	-199.9~600.0	U01	-199.9~999.9	UA1	
	-199.9~100.0	U02	-100.0~200.0	UA2	
	0.0~400.0	U03	0.0~999.9	UA3	
Pt100 [JIS/IEC]	-199.9~649.0	D01	-199.9~999.9	DA1	
	-199.9~200.0	D02	-199.9~400.0	DA2	
	-100.0~ 50.0	D03	-199.9~200.0	DA3	
	-100.0~100.0	D04	-100.0~100.0	DA4	
	-100.0~200.0	D05	-100.0~300.0	DA5	
	0.0~ 50.0	D06	0.0~100.0	DA6	
	0.0~100.0	D07	0.0~200.0	DA7	
	0.0~200.0	D08	0.0~400.0	DA8	
	0.0~300.0	D09	0.0~500.0	DA9	
	0.0~500.0	D10			
JPt100 [JIS]	-199.9~649.0	P01			
	-199.9~200.0	P02			
	-100.0~ 50.0	P03			
	-100.0~100.0	P04			
	-100.0~200.0	P05			
	0.0~ 50.0	P06			
	0.0~100.0	P07			
	0.0~200.0	P08			
	0.0~300.0	P09			
	0.0~500.0	P10			

*Accuracy between 0 ~ 399°C (0 ~ 749°F) is not guaranteed

Specifications Checksheet

		Code					Remarks	
Model	SC-S20			M	*			Power <input type="checkbox"/> AC100 ~ 240V <input type="checkbox"/> DC24V <input type="checkbox"/> AC24V
	Control Operation Type	<ul style="list-style-type: none"> ●PID action with auto-tuning (Reverse) ●PID action with auto-tuning (Forward) 	F	D				When proportional band P = O, ON-OFF action
Basic Specifications	Measurement Input Types & Ranges (PV)	<ul style="list-style-type: none"> ●Pt100 (0.0 ~ 200.0°C) ● (0 ~ 200.0°C) ● (0 ~ 200.0°C) ● 		D08	K01	J01	()	Select the type and range code from "Table of Measurement Input Types and Ranges."
	Control Output (OUT)	Relay control output			M			When ON-OFF action, Hysteresis: 2°C (4°F)
	First Alarm Types (AL1)	<ul style="list-style-type: none"> ●Deviation upper limit ●Deviation lower limit ●Deviation upper/lower limits ●Within deviation range ●Deviation upper limit with standby ●Deviation lower limit with standby ●Deviation upper/lower limits with standby ●Measurement upper limit ●Measurement lower limit ●Measurement upper limit with standby ●Measurement lower limit with standby ●No 1st alarm function 					A B C D E F G H J K L N	Alarm Hysteresis: 2°C (4°F) or 2.0°C (4.0°F)
	Second Alarm Types (AL2)	<ul style="list-style-type: none"> ●Deviation upper limit ●Deviation lower limit ●Deviation upper/lower limits ●Within deviation range ●Deviation upper limit with standby ●Deviation lower limit with standby ●Deviation upper/lower limits with standby ●Measurement upper limit ●Measurement lower limit ●Measurement upper limit with standby ●Measurement lower limit with standby ●No 2nd alarm function 					A B C D E F G H J K L N	

Manufacturer
TLV® CO., LTD.
 Kakogawa, Japan
is approved by LRQA Ltd. to ISO 9001/14001

ISO 9001/ISO 14001

