

DIGITAL CONTROLLER

SERIES SR18, SR19

- $\pm 0.3\%$ High Accuracy Indication & Setting
- Twin Setting Function (SET 1, SET 2)
- SET 1: Proportional, 2-Position & PID Control Available.
Contact, Current & SSR Voltage Control Outputs Also Available.
- SET 2: Contact Output & 2-Position Control Modes Available.
Can Be Used for Auxiliary Control or Sequence Signal.
- Optional Function Available
— Analog Output



Series SR18



Series SR19

SPECIFICATIONS

Display (SR18 only):

Display type:	Digital (red, 7-segment LED)
Display tolerance:	$\pm 0.3\%$ + 1 digit of measuring range (at 25°C $\pm 5^\circ\text{C}$ temp. range)
Indication range:	See Measuring Range Codes.
Display range:	3, 3.5 or 4-digit
Input:	
Thermocouple:	T, J, E, K, R, S, B
Cold junction temp compensation range:	5~45°C
Burnout circuit:	Standard
Input resistance:	200k Ω
External resistance tolerance:	100 Ω max.
R.T.D.:	Pt100
Amperage:	2mA
Lead wire tolerable resistance:	5 Ω max./wire
Voltage:	0~10mV DC Linear
Input impedance:	200k Ω
Current:	4~20mA DC Linear
Receiving impedance:	250 Ω

Control Output Rating:

SET 1 Contact:	240V AC, 3A/resistive load, 1A/inductive load
Current:	4~20mA DC, RA/DA 600 Ω max. load resistance
Voltage:	0~10V DC, RA/DA Approx. 500 Ω output resistance
SSR Voltage:	15V DC, 20mA max.
SET 2 Contact:	240V AC, 3A/resistive load,

Control Action Display:

SET 1 Current output:	Green lamp will stay lit.
SSR voltage output:	When output is being emitted, green lamp will light.
Contact output:	
C-L/ON:	Green lamp will light.
C-H/ON:	Red lamp will light.
SET 2 Contact output:	
C-L/ON:	Green lamp will light.
C-H/ON:	Red lamp will light.
Setting Mode:	Twin digital switches
Setting Tolerance:	$\pm 0.3\%$
Setting Range:	See Measuring Range Codes.
Analog Output:	
Voltage:	0~10mV DC, linear, non-isolation Output resistance: 10 Ω
Current:	4~20mA DC, linear, non-isolation Load resistance: 300 Ω max.
Operating Ambient Temperature Range:	-10~+50°C
Operating Ambient Humidity:	90% RH max.
Power Supply:	See Ordering Information.
Power Consumption:	Approx. 8VA
Insulation Resistance:	500V DC, 20M Ω min. between input terminal and power supply terminal 500V DC, 20M Ω min. between power supply terminal and earth terminal
Dielectric Strength:	1 min. at 500V AC between input terminal and power supply terminal 1 min. at 1000V AC between power supply terminal and earth terminal
External Dimensions:	96 (H) \times 96 (W) \times 166 (D) mm
Weight:	Approx. 900g

ORDERING INFORMATION

ITEM	CODE		SPECIFICATIONS
SERIES	SR18-		Twin Setting Digital Controller
	SR19-		Twin Setting Digital Controller (Non-Display)
INPUT		1	Thermocouple, Input Resistance: 200k Ω
		2	R.T.D. (Pt100), Amperage: 2mA DC
		3	Voltage, 0~10mV DC Linear, Input Impedance: 200k Ω
		4	Current, 4~20mA DC Linear, Receiving Impedance: 250 Ω
		9	Others (Please consult before ordering.)
SET 1	CONTROL MODE	01	Proportioning, PB: 1~20% FS w/Manual Reset
		02	On/Off (2-position), Not available with control output I or V.
		05	P.I.D., PB: 1~20% FS, IT: 0.1~10 min. DT: 0~5 min.
	CONTROL OUTPUT	Y-	Others (Please consult before ordering.)
		I-	Contact, 240V AC, 3A/Resistive Load, 1A/Inductive Load
SET 2	CONTROL MODE	02	On/Off (2-Position), SA: 0.2~5% FS
		99	Others (Please consult before ordering.)
	CONTROL OUTPUT	Y-	Contact, 240V AC, 3A/Resistive Load, 1A/Inductive Load
		I-	Current, 4~20mA DC, RA/DA [※] , Load Resistance: 600 Ω max.
		V-	SSR Voltage, 15V DC, 20mA max. Only RA is available.
ANALOG OUTPUT		0	None Provided
		3	0~10mV DC Linear, Non-Isolation, Output Resistance: 10 Ω
		4	4~20mA DC Linear, Non-Isolation, Load Resistance: 300 Ω max.
		9	Others (Please consult before ordering.)
	POWER SUPPLY		11-
		12-	110~120V/220~240V AC \pm 10%, 50/60Hz
		99-	Others (Please consult before ordering.)
INPUT STANDARD		N	None
		J	JIS
		F	JIS (New Pt100-JIS)
		D	DIN
		A	ANSI
		X	Others (Please consult before ordering.)
TYPE OF INPUT		T	Thermocouple (T)
		J	Thermocouple (J)
		E	Thermocouple (E)
		K	Thermocouple (K)
		S	Thermocouple (S)
		R	Thermocouple (R)
		B	Thermocouple (B)
		P	R.T.D. (Pt100)
		L	Linear — Voltage and Current Inputs
		X	Others (Please consult before ordering.)
MEASURING RANGE		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	See Measuring Range Codes.
LEGEND		N	No Legend
		C	$^{\circ}$ C Temperature
		F	$^{\circ}$ F Temperature
		H	%RH Humidity
		P	% Percent
		V	V Voltage
		E	mV Voltage
		A	A Current
		I	mA Current
		X	Others (Please consult before ordering.)
REMARKS		0	Without
		9	With (Please consult before ordering.)

RA/Reverse Action (heating) or DA/Direct Action (cooling) can be selected by means of an internal switch. Factory setting will be RA/Reverse Action.

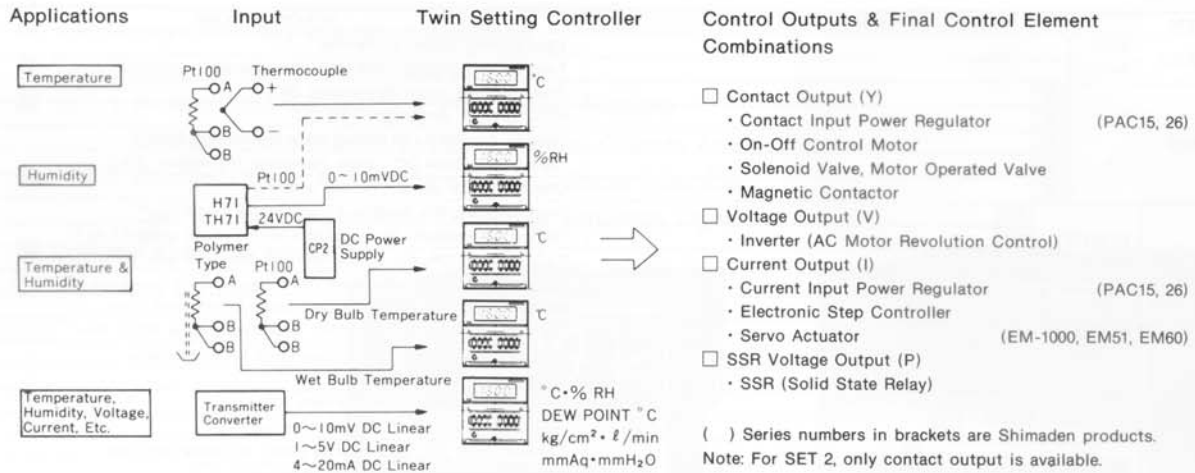
MEASURING RANGE CODES

INPUT	RANGE	CODE	
R.T.D. (Pt100)	-99.9~+ 99.9 $^{\circ}$ C	579	
	-99.9~+199.9 $^{\circ}$ C	580	
	0~ 99.9 $^{\circ}$ C	781	
	0~ 199.9 $^{\circ}$ C	786	
	0~ 299 $^{\circ}$ C	789	
	0~ 399 $^{\circ}$ C	792	
Thermocouple	T -199~+ 199 $^{\circ}$ C	573	
	J 0~ 399 $^{\circ}$ C	792	
	E 0~ 399 $^{\circ}$ C	792	
	K	0~ 399 $^{\circ}$ C	792
		0~ 999 $^{\circ}$ C	874
		0~ 1199 $^{\circ}$ C	877
	S 0~ 1699 $^{\circ}$ C	885	
	R 0~ 1699 $^{\circ}$ C	885	
B 0~ 1799 $^{\circ}$ C	886		

INPUT	RANGE	CODE	
R.T.D. (Pt100)	-99.9~+199.9 $^{\circ}$ F	580	
	0~ 199.9 $^{\circ}$ F	786	
	0~ 299 $^{\circ}$ F	789	
	0~ 499 $^{\circ}$ F	795	
	0~ 799 $^{\circ}$ F	871	
	0~ 499 $^{\circ}$ F	795	
Thermocouple	J 0~ 799 $^{\circ}$ F	871	
	E 0~ 799 $^{\circ}$ F	871	
	K	0~ 799 $^{\circ}$ F	871
		0~ 1499 $^{\circ}$ F	881
		0~ 1999 $^{\circ}$ F	887
	0~ 2499 $^{\circ}$ F	891	
	S 0~ 3199 $^{\circ}$ F	894	
	R 0~ 3199 $^{\circ}$ F	894	
	B 0~ 3199 $^{\circ}$ F	894	

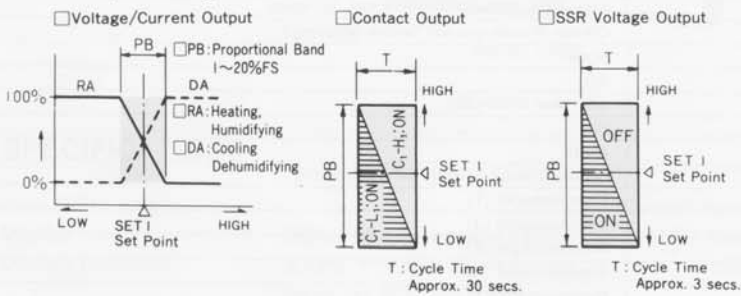
DIGITAL CONTROLLER

BASIC CONFIGURATIONS

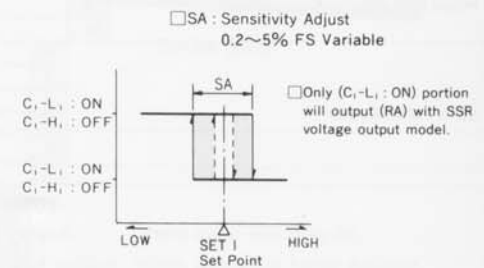


CONTROL ACTION CONFIGURATIONS

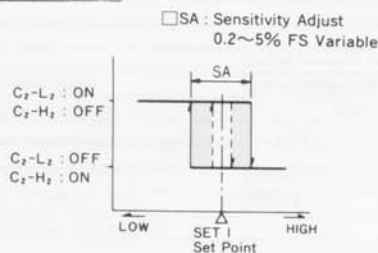
SET 1 Proportioning, PID



Set 1 On/Off



SET 2 On/Off

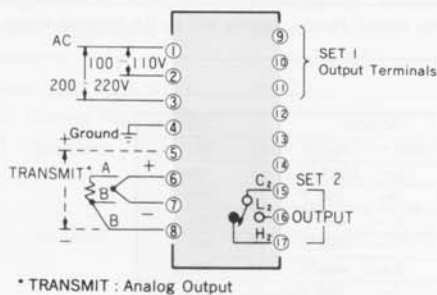


P.I.D. Action

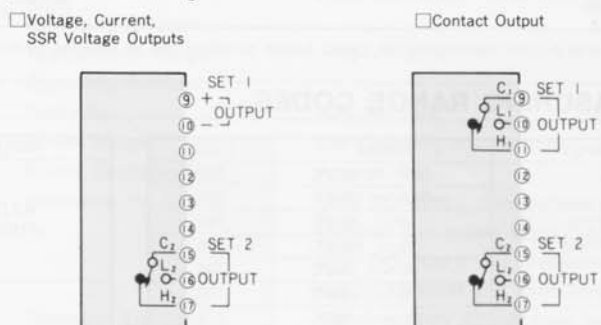
- Proportional Band (PB): 1~20%FS
- Integral Time (IT) : 0.1~10 min.
- Derivative Time (DT) : 0~5 min.
- ※Anti-reset windup circuit installed
- Proportional Action (P): Output in proportion to deviation
- Integral Action (I): Deviation is corrected until zero deviation is achieved.
- Derivative Action (D): Output in proportion to varying velocity of input

TERMINAL ARRANGEMENT

Common Terminal Arrangement

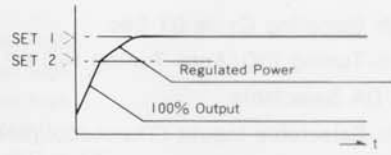
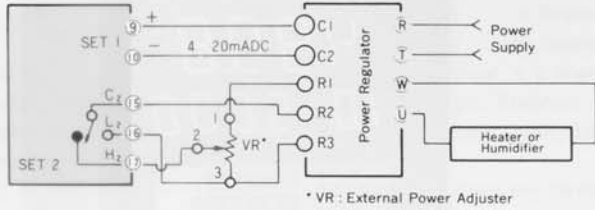


Output Terminal Arrangement



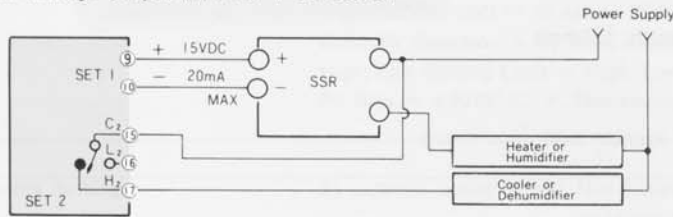
APPLICATIONS

Current Output (P, PID) + 2-Position

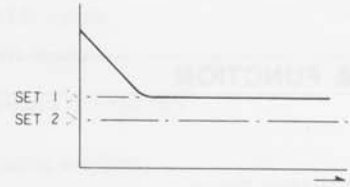


□ 100% Output is emitted up to SET 2 set point, where optimum power is altered by external power adjuster and SET 1 control begins.

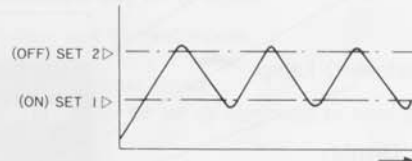
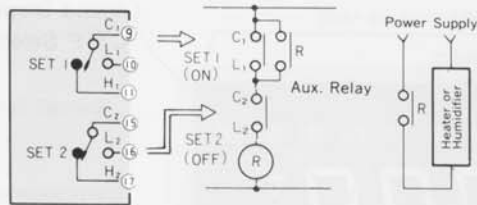
SSR Voltage Output (P, PID) + 2-Position



□ Control cooler or dehumidifier with SET 2, and heater or humidifier with SET 1

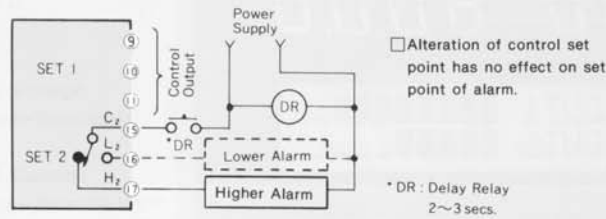


2-Position + 2-Position (Wide Hysteresis)

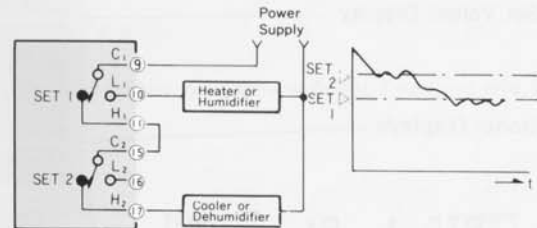


□ When using cooler or dehumidifier, use C-H contacts and wire so that SET 1 is OFF and SET 2 is ON.

SET 2 + Alarm



2-Position + 2-Position (Heating + Cooling)



EXTERNAL DIMENSIONS & PANEL CUTOUT

