

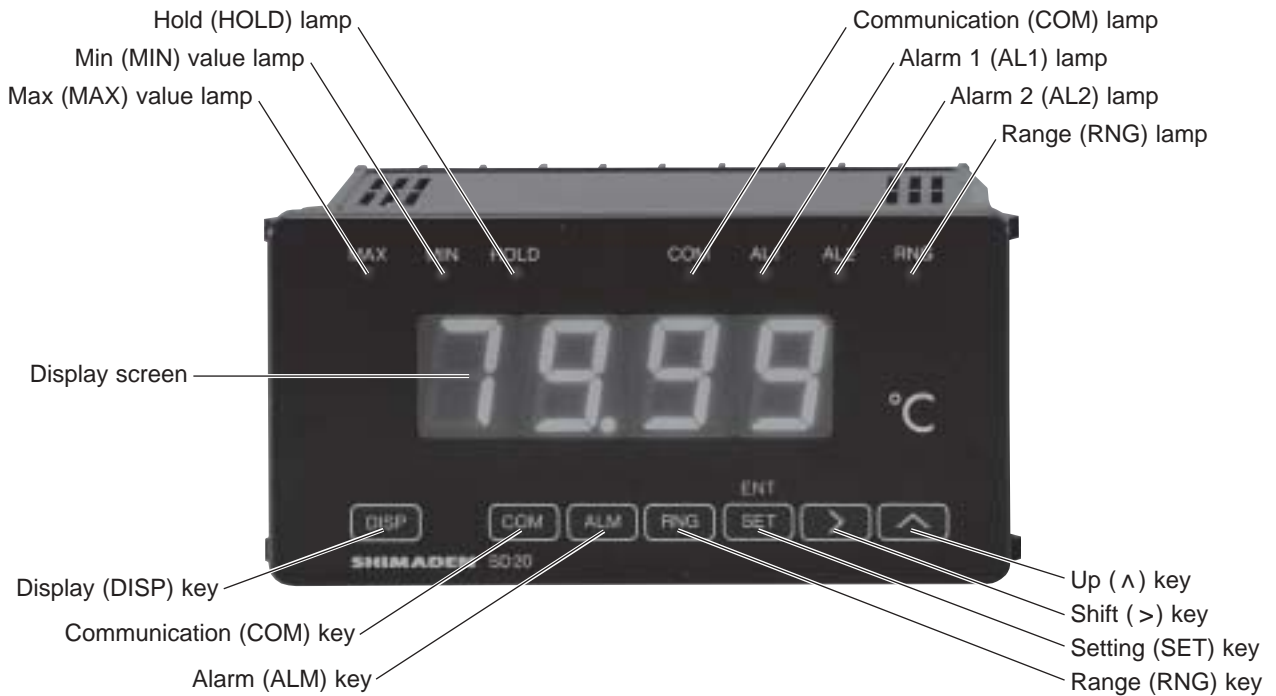
°C	MICROPROCESSOR-BASED	Series <b>SD20</b>
%RH	<b>DIGITAL INDICATORS</b>	
<b>SHIMADEN</b>		



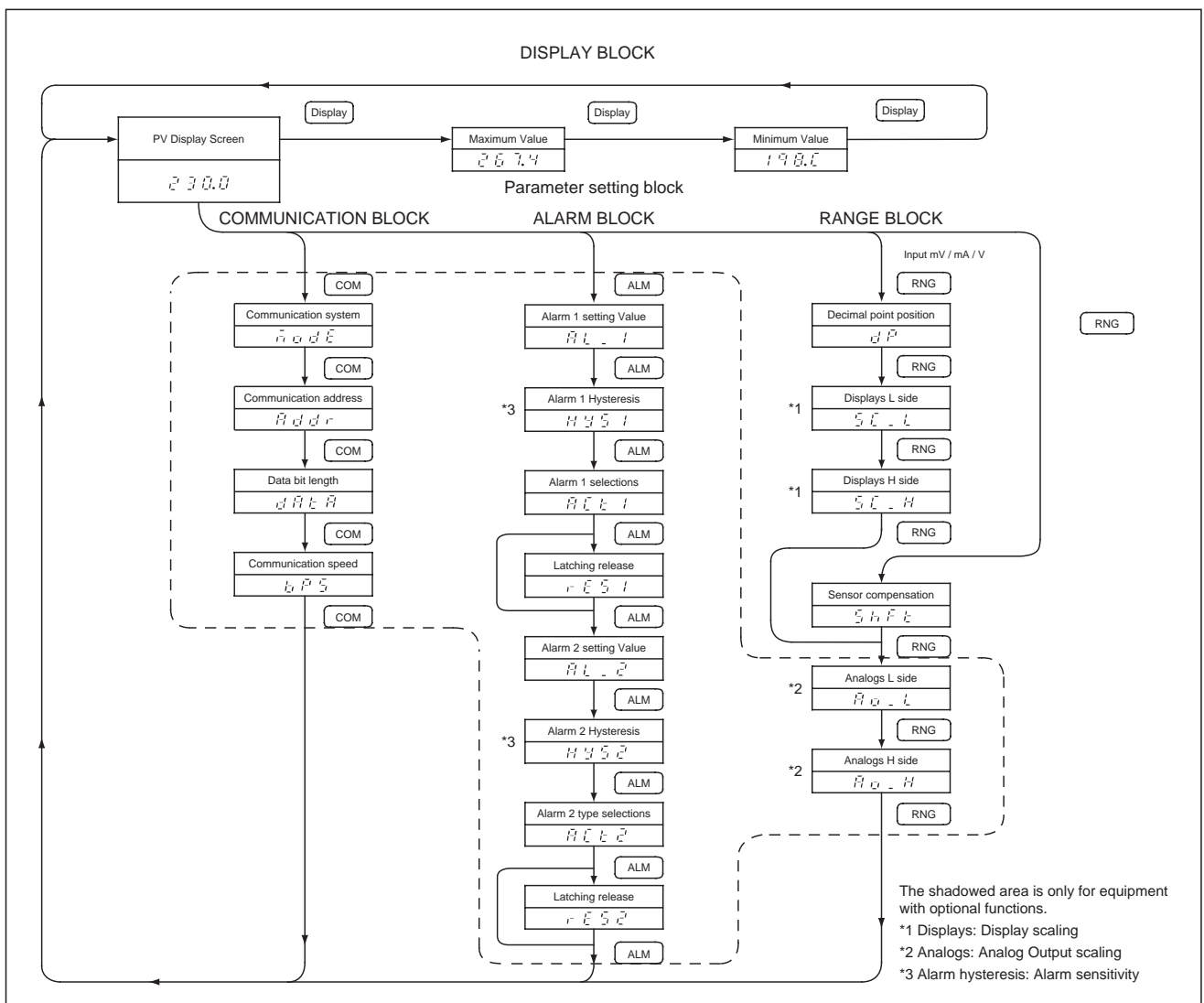
CE & NRTL/C approved

### BASIC FEATURES

- DIN Size 48 x 96 mm**
- ± 0.25% High Accuracy Indication**
- User-Selectable Inputs (Thermocouples)**
- User-Selectable Ranges**
- Programmable Scaling (DC mV, DC mA)**
- Power Supply (100~240V AC or 24V AC or 24V DC)**
- Versatile Alarm Configurations**
- Sensor Power Supply Available**
- Interface RS-485, RS-422A or RS-232C**
- Analog Output Scaling Available**



FLOW CHART



**Display**

- Range Display: 7-segment LED (4-digit)
- Displays: Measuring range, max., min., hold
- Display Accuracy:  $\pm 0.25\% + 1$  digit of measuring range
- Display Cycle Range: 0.25 sec. or 2 sec. (by internal switch)
- Legend Change:  $^{\circ}\text{C}$  or  $^{\circ}\text{F}$  (by internal switch)
- Monitor Display: Max., min., hold, communication, alarm and range

**Setting**

- Setting Method: By front key
- Setting Keys: Display, Communication, Alarm, Range, Setting, Shift and Up
- Type of Setting: Position of decimal point, display scaling, sensor compensation, analog output scaling, alarm, alarm sensitivity, latching OFF, communications (interface), etc.

**Input**

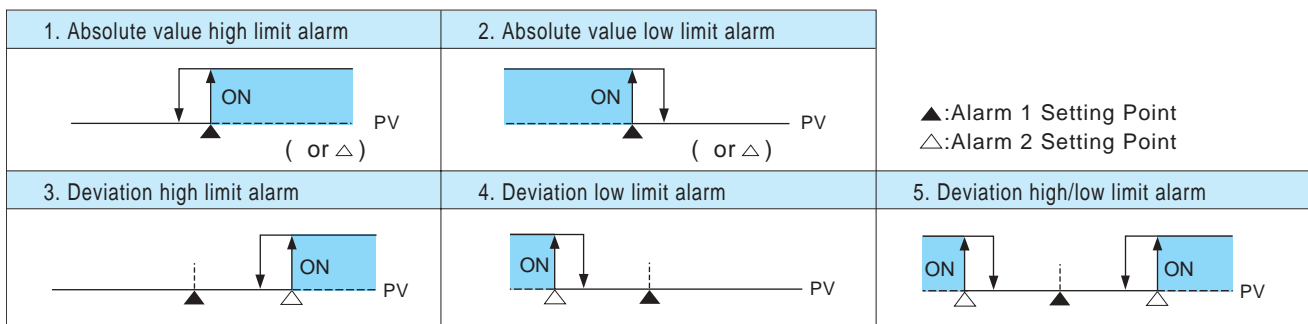
- Sampling Cycle: 0.25 sec.
- Thermocouples: T, J, E, K, R, S, B, WRe5-26, {U, L (DIN 43710)}
- Kelvin Legend: 70.0~400.0k (available only T / C K, option)
- Input Resistance: 500k $\Omega$  min.
- External Resistance Allowable Range: 100 $\Omega$  max.
- Sensor Compensation:  $\pm 99.9$  or  $\pm 999$  Unit (depending on communication signal)
- Burnout Scaling: Up-scale (standard feature)
- R.T.D.: JPt100 / Pt100 (DIN / JIS) changeable
- Rated Amperage: Approx. 0.5mA
- Lead Wire Resistance: 5 $\Omega$  max. per wire
- Sensor Compensation:  $\pm 99.9$  or  $\pm 9.99$  Unit (depending on communication signal)
- Voltage: 0~10mV, 0~50mV or 0~100mV DC changeable  
0~1V, 0~5V, 0~10V DC changeable
- Input Resistance: 500k $\Omega$  min
- Current: 4~20mA or 0~20mA DC changeable
- Receiving Resistance: 250 $\Omega$
- Display Scaling: Only voltage and current inputs available (-1999~+9999, 100~10000 counts)
- Setting Method & Decimal Point Position: By front key
- Isolation: Between input, system and various outputs

**Optional Functions**

**Alarm**

- Alarm Points: 2 Point
- Alarm Method: Individual setting / individual output
- Type of Alarm
  - Alarm 1: Absolute value high limit or absolute value low limit (selectable)
  - Alarm 2: Absolute value high limit, absolute value low limit, deviation high limit, deviation low limit or deviation high / low limit (selectable)
  - Deviation high limit, deviation low limit and deviation high / low limit alarm can be selected deviation for alarm 1.

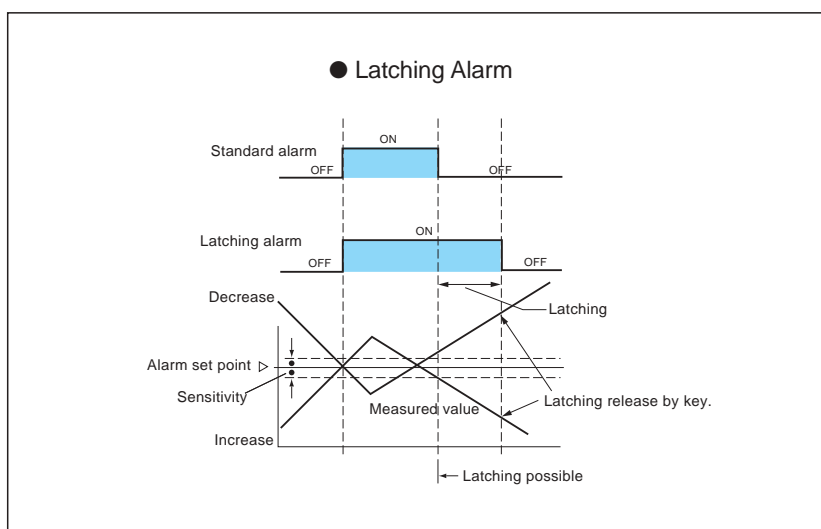
● Alarm Mode



● Alarm Setting:

	Alarm 1	Alarm 2
Alarm Setting (Mode 1, 2, 3, 4)	-1999~9999	-1999~9999
Alarm Setting (Mode 5)		1~9999

- Alarm Sensitivity: 0.2~9.9 or 2~99 by front key
  - Alarm Output: 1c contact, 250V AC, 2.5A / Resistive load
  - Inhibit / Non-Inhibit: Selectable by internal switch
  - Latching Alarm: Available as option
- Analog Output
- Output: 0~10mV DC (output resistance: 10Ω)  
0~10V DC (load current: 2mA max)  
4~20mA DC (load resistance: 300Ω max.)
  - Output Accuracy: ±0.25%FS of display value
  - Resolution: Approx. 0.01%FS
  - Isolation: Isolated between analog output, system and various outputs
  - Output Scaling: By front key
- Interface
- Type of Interface: RS-232C, RS-422A or RS-485
  - Speed: 1200, 2400, 4800 or 9600 bps selectable
  - Data Bit: 7-bit odd-parity or 8-bit non parity
  - Address: 0~31
  - Code: ASCII Code
  - Isolation: Isolated between communication signal, system and various inputs and outputs
- Sensor Power Supply
- Output Rating: 24V DC (±3V) 50mA
- Others
- Data Storage: By non-volatile memory
  - Operating Ambient Temperature / Humidity Range: -10~50°C / 90% RH max. (no dew condensation)
  - Applicable Standard: Safety: IEC1010-1 and EN61010-1  
EMC: EN50081-2 (EMI/emission)  
EN50082-2 (EMS/immunity)  
During EMC testing, the apparatus continues to operate at a measurement accuracy within ±10% of the range
  - Power Supply: 100~240V AC 50/60Hz, 24V AC or 24V DC
  - Power Consumption: 100~240V AC: 14 VA max.  
24V AC: 8 VA max.  
24V DC: 5W max.
  - Insulation Resistance: 500V DC 20MΩ between input terminal and earth terminal  
500V DC 20MΩ between power supply terminal and earth terminal
  - Dielectric Strength: One minute at 1000V AC between input terminal and earth terminal  
One minute at 1500V AC between power supply terminal and earth terminal
  - External Dimensions: 48 (H) x 96 (W) x 110 (D) mm
  - Weight: Approx. 300g



ITEMS	CODE		SPECIFICATIONS	
SERIES	SD20-		48 × 96 DIN Size Digital Indicator	
INPUT	1		Thermocouple T, J, E, K, S, R, B, WRe5-26, U, L (DIN 43710) multiple input	
	2		R.T.D. JPt100 / Pt100 (IEC) multiple range	
	3		Voltage (mV) 0~10, 0~50, 0~100mV DC	Multiple input programmable range Scaling range -1999~9999
	4		Current (mA) 4~20, 0~20mA DC	
	6		Voltage (V) 0~1, 0~5, 0~10V DC	
	8		Kelvin scale (only K thermocouple) Measuring range 70.0~400.0K	
POWER SUPPLY	90-		100~240V AC±10% 50 / 60Hz	
	02-		24V DC ±10%	
	10-		24V AC ±10% (50 / 60Hz)	
ALARM	00		None	
	10		Individual setting, individual output 2 points (1c contact) Contact capacity: 250V AC 2.5A / resistive load	
	11		Ditto with latching function	
ANALOG OUTPUT OR INTERFACE	00		None	
	03		0~10mV DC Output resistance: 10Ω	Scaling possible (within measuring)
	04		4~20mA DC Load resistance: 300Ω max.	
	06		0~10V DC Max. load current: 2mA max.	
	15		RS-485	Note: Sensor DC power supply can not be
	16		RS-422A	
17		RS-232C		
SENSOR DC POWER SUPPLY (WHEN USING HUMIDITY SENSOR OR UNGROUNDED SENSOR)	* 00-		None	
	24-		24V DC 50mA (capable of driving two sensors H71 / TH71)	
FRONT PANEL INFORMATION	J		In Japanese	
	E		In English	
REMARKS	0		Without (for CE Marking)	
	9		With (for remarks other than CE Marking)	

\*When 24V AC or 24V DC is selected, sensor DC power supply can not be selected.

**STANDARD RANGE & USER-PROGRAMMABLE SCALING**

Since the Series SD20 has been designed for user-selectable inputs, user-selectable ranges and user-programmable scaling, the unit will be shipped with one factory-set standard range.

If a range selection other than the standard is required, user-selectable inputs (T / C's) and user-selectable ranges (T / C's & RTD) are available as listed below at the specific application.

Standard Range (Factory-set When shipped)

Input	Standard / Rating	Ranges
Thermocouple	JIS (K)	-100.0~800.0°C
R.T.D	Pt100-DIN	-199.9~600.0°C
DC Voltage	0~10mV	0.0~100.0 No Legend
DC Current	4~20mV	0.0~100.0 No Legend
DC Voltage	0~1V	0.0~100.0 No Legend

**CODING EXAMPLES**

Example 1) SD20-190-100300-E0

Thermocouple input

Example 2) SD20-390-100300-E0

mV input (0~10mV input)

