Shimaden, Temperature and Humidity Control Specialists

°C

%RH

SHIMADEN

Series **SRS10A**

SHIMADEN DIGITAL CONTROLLER

BASIC FEATURES

- ***Multi-input and multi-range performance***
- ***Small instrument depths (62mm - 65mm) save space, thus securing a larger installation area.***
- ***SV setting: 3 points***
- ***PID Value: 3 types***
- ***2-output heating and cooling control available (optional)***
- ***Total 32 steps Program available (optional) (1-4 pattern, 32-8 step)***
- ***RS-485 Interface available (optional) (Master/slave function, Modbus/Shimaden Protocol)***
- ***Heater break/heater loop alarm (optional)***
- ***A wide selection of additional functions (optional) is available to suit various needs.***
- ***Possible to switch off SV/PV value by key operation***
- ***Parameter mask (non-display) / lock (key lock) function***

DIGITAL CONTROLLER

SMALLER INSTRUMENT DEPTHS

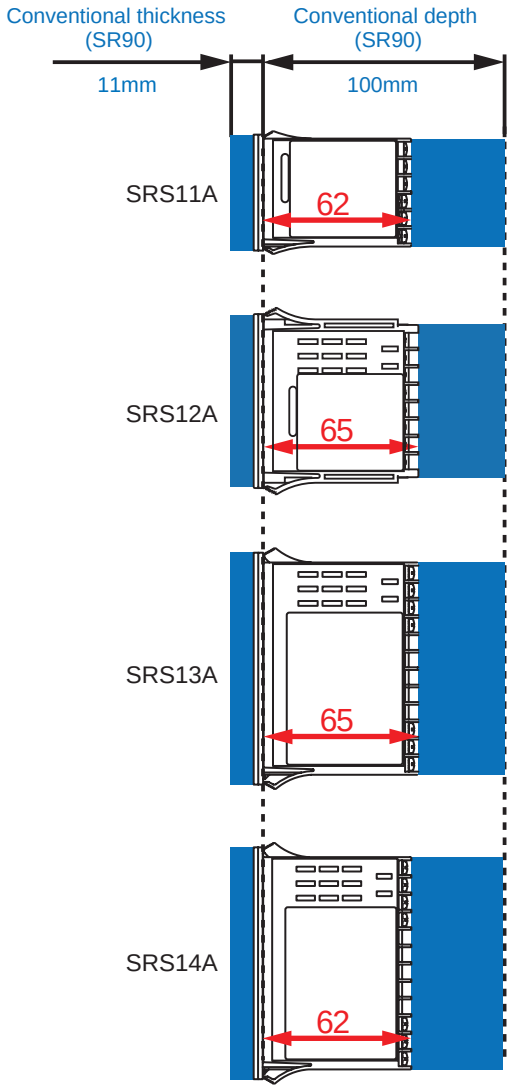
Smaller instrument depths save space and secure a larger and flexible installation area.

SRS11A Series
(48×48)

SRS12A Series
(72×72)

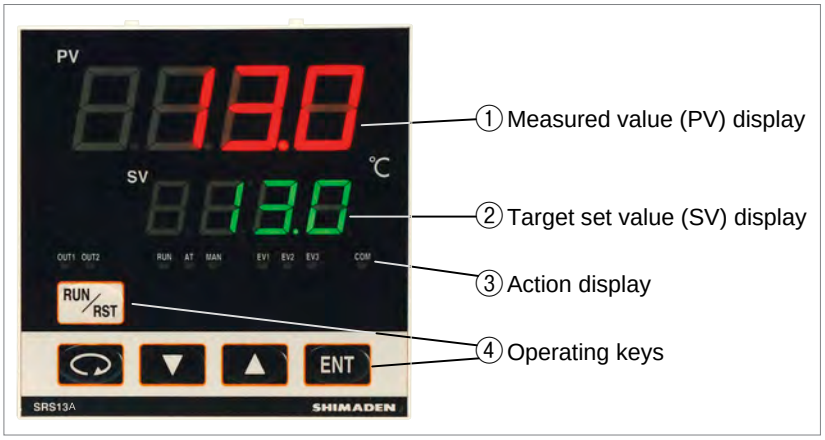
SRS13A Series
(96×96)

SRS14A Series
(48×96)



Blue part indicates the size of
the conventional instruments (SR90 Series).

NAMES AND FUNCTIONS



① Measured value (PV) display
Displays current PV value.

② Target set value (SV) display
Displays current SV value.

③ Action display
RUN/AT/MAN/OUT1/OUT2/EV1/EV2/
EV3/COM

④ Operating keys

[ ]...Parameter key
Displays the next screen in various screen groups.

[▼]...Down key
Decrements setting values.

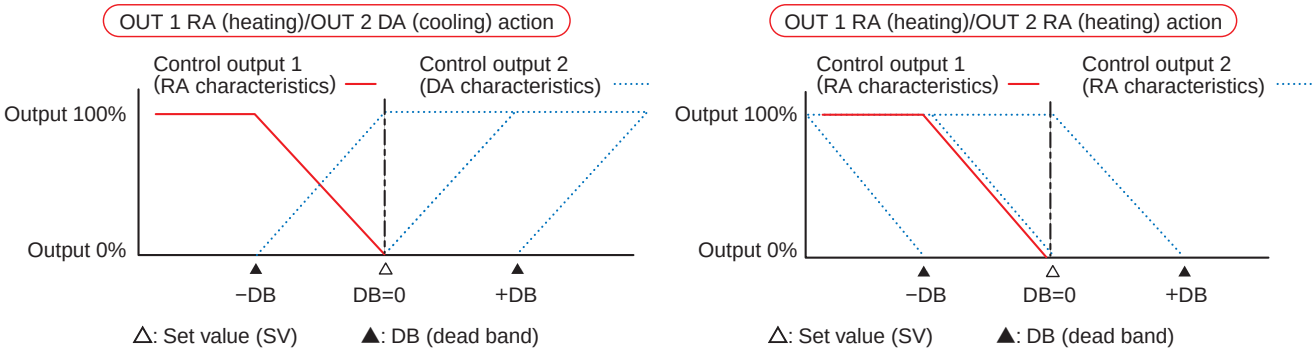
[▲]...Up key
Increments setting values.

[ENT]...Enter key
Enters setting values.

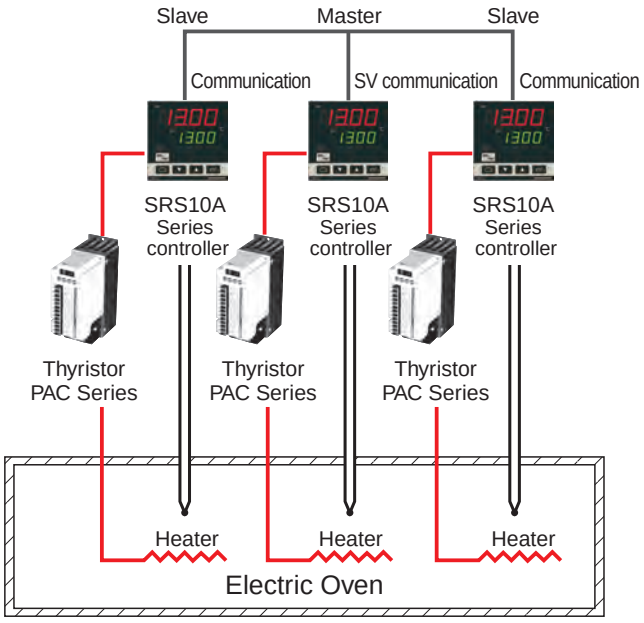
[RUN/RST]...RUN/RST key

EXAMPLES OF USE

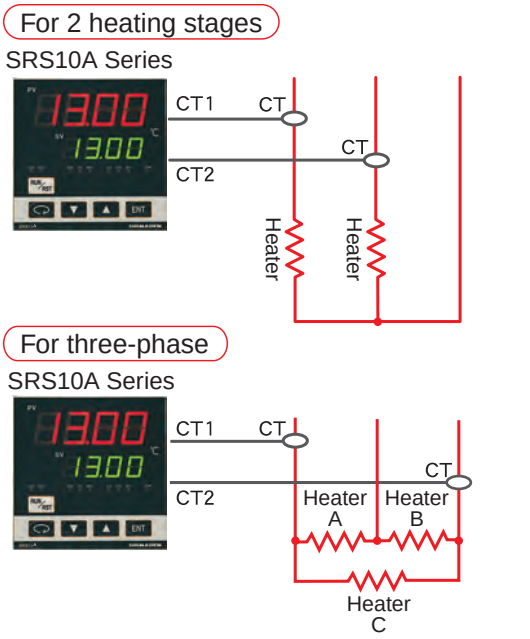
■ EXAMPLE OF 2-OUTPUT CONTROL BY SELECTING CONTROL OUTPUT 2



■ EXAMPLE OF TUNNEL FURNACE PROGRAM TEMPERATURE CONTROL



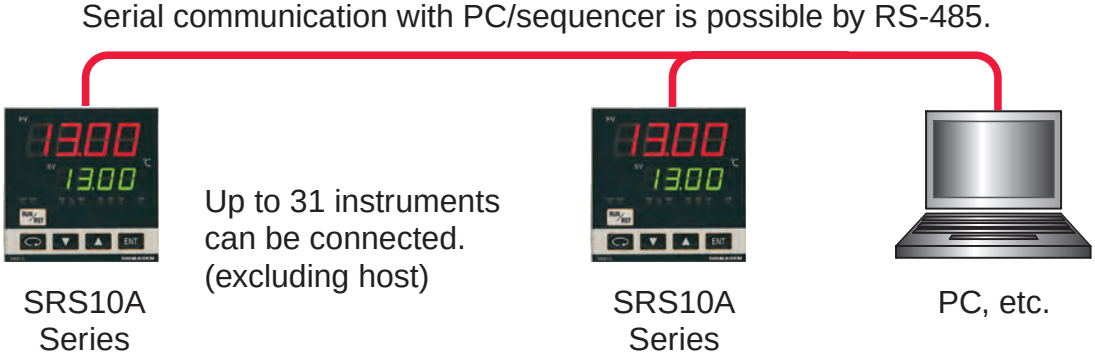
■ CT INPUT (CONTROL LOOP ALARM)



For three-phase

Broken area	A	B	C
CT1	Detectable	Undetectable	Detectable
CT2	Undetectable	Detectable	Detectable

■ COMMUNICATION



SPECIFICATIONS

■ Display

● Display methods		
Digital display	:	Measured value (PV)/7 segments red LED 4 digits, target set value (SV)/7 segments green LED 4 digits
		SRS11A PV height of character: Approx. 12mm SV height of character: Approx. 9mm
		SRS12A PV height of character: Approx. 15mm SV height of character: Approx. 12mm
		SRS13A PV height of character: Approx. 20mm SV height of character: Approx. 13mm
		SRS14A PV height of character: Approx. 12mm SV height of character: Approx. 9mm
Status display	:	LED lamp display
		Green: RUN, AT, MAN, OUT1, OUT2, COM
		Orange: EV1, EV2, EV3
● Display accuracy	:	±(0.25% FS+1 digit) Excluding cold junction temperature compensation accuracy of thermocouple input
		Accuracy if set value is lower than -100 ºC with K, T, U thermocouples is ±0.7%FS.
		Accuracy guarantee not applicable to 400 ºC and below of B thermocouple.
● Display accuracy maintaining range	:	23 ºC± 5 ºC
● Display resolution	:	Depends on measuring range and scaling (0.001, 0.01, 0.1, 1)
● Measured value display range	:	-10 to 110% of measuring range
		(Range of Pt-200 to 600 ºC is -240 to 680 ºC, range of JPt-200 to 500 ºC is -240 to 570 ºC.)
● Display updating cycle	:	0.25 seconds

■ Setting

● Setting method	:	By operating 5 keys (PARA, DOWN, UP, ENT, RUN/RST) on the front panel
● Target value setting range	:	Same as measuring range (within setting limiter)
● Set value limiter	:	Individual setting for higher and lower limits, any value is selectable within measuring range.
		(Lower limit value<Higher limit value)
● Key lock	:	OFF, 1 to 3 (4 level)
		OFF: No key lock
		1: Only user setting screen group and communication mode can be changed.
		2: Only SV and communication mode can be changed.
		3: Only key lock can be changed.

■ Parameter mask/lock function

: Controls parameter displays/key locks

● Target parameter	:	STBY/EXE (RST/RUN) switching screen and all parameters except monitor screen
		(control for each screen group possible)
PID screen group	:	Settings for each PID No. not possible (parameters are set by applying all PID Nos.)
PROG screen group	:	Settings for each PTN No. not possible (parameters are set by applying all PROG Nos.)
STEP screen group	:	Settings for each STEP No. not possible (parameters are set by applying all STEP Nos.)

■ Input

● Type of input	:	Selectable from multiple (TC, Pt, mV) and voltage (V)
● Thermocouple	:	B, R, S, K, E, J, T, N, PLII, C (WRe 5-26), U (DIN 43710), L (DIN 43710), Metal-chromel (AuFe-Cr)
Input resistance	:	500 kΩ minimum
External resistance tolerance	:	100 Ω maximum
Burnout function	:	Standard feature (up scale)
Cold junction compensation accuracy	:	±2 ºC (between 5 and 45 ºC of ambient temperature),
		When closely-mounted in series, cold junction compensation accuracy will be ±3˚C
● R.T.D.	:	Pt100/JPt100, 3-wire type
Amperage	:	0.25 mA
Lead wire tolerance resistance	:	5 Ω maximum/wire (3 lead wires should have the same resistance.)
Decimal Display	:	Show/hide decimal places
● Voltage	:	-10 to 10, 0 to 10, 0 to 20, 0 to 50, 10 to 50, 0 to 100 mV DC
		-1 to 1, 0 to 1, 0 to 2, 0 to 5, 1 to 5, 0 to 10 V DC
Input resistance	:	500 kΩ minimum
		Current input (0 to 20, 4 to 20 mA DC) is handled through external receiving impedance (250 Ω).
● Input scaling function	:	Scaling possible for voltage (mV, V) input
Scaling range	:	-1999 to 9999 digit
Span	:	10 to 10000 digit
Position of decimal point	:	None, 1, 2 and 3 digits on the right of decimal point
● Sampling cycle	:	0.25 seconds
● PV bias	:	-1999 to 2000 digit
● PV filter	:	0 to 9999 seconds
● PV gain	:	-5.00 to 5.00%
● Isolation	:	Not insulated from input, system, DI, and CT input but insulated from others

■ Control

● Control mode

With 1 output	:	Expert PID control with auto tuning function
With 2 outputs	:	Expert PID control with auto tuning function PID (output 1) + PID (output 2)

● Type of control/rating (common to output 1 and 2)

Contact	:	1a 240 V AC 2A (resistive load) 1.2 A (inductive load)
SSR drive voltage	:	12 V±1.5 V DC (maximum load current 30mA)
Current	:	4 to 20 mA DC (maximum load resistance 600Ω)
Voltage	:	0 to 10 V DC (maximum load current 2mA)
Control output resolution	:	Control output 1: approx. 0.008% (1/13000)
		Control output 2: approx. 0.008% (1/13000)
Output accuracy	:	Control output 1: ±1.0%FS (5 to 100% output)
		Control output 2: ±2.0%FS (5 to 100% output)

● Control output 1

Proportional band (P)	:	OFF, 0.1 to 999.9%FS (ON/OFF action by OFF)
Integral time (I)	:	OFF, 1 to 6000 seconds (P or PD action by OFF)
Derivative time (D)	:	OFF, 1 to 3600 seconds (P or PI action by OFF)
Target value function	:	OFF, 0.01 to 1.00
ON/OFF hysteresis	:	1 to 999 digit (Effective when P=OFF)
Manual reset	:	-50.0 to 50.0% (Effective when I=OFF)
Output limiter	:	Lower limit 0.0 to 99.9%, higher limit 0.1 to 100.0% (Lower limit value < Higher limit value)
Proportional cycle	:	1 to 120 seconds (for contact and SSR drive voltage output)

● Control output 2 (option)

Proportional band (P)	:	OFF, 0.1 to 999.9%FS (ON/OFF action by OFF)
Integral time (I)	:	OFF, 1 to 6000 seconds (P or PD action by OFF)
Derivative time (D)	:	OFF, 1 to 3600 seconds (P or PI action by OFF)
Target value function	:	OFF, 0.01 to 1.00
ON/OFF hysteresis	:	1 to 999 digit (Effective when P=OFF)
Dead band	:	-1999 to 5000 digit
Output limiter	:	Lower limit 0.0 to 99.9%, higher limit 0.1 to 100.0% (Lower limit value < Higher limit value)
Proportional cycle	:	1 to 120 seconds (for contact and SSR drive voltage output)

● Manual control

Output setting range	:	0.0 to 100.0% setting resolution: 0.1%
Manual ↔ auto switching	:	Balanceless bumpless (within proportional range)

● Soft start	:	Set individually for output 1 and output 2
		OFF, 1 to 120 seconds
● AT point	:	SV value in execution
● Control output characteristic	:	RA (reverse action characteristic)/DA (direct action characteristic) switching by front key or communication
	:	Set individually for output 1 and output 2
		RA (reverse action characteristic): heating action
		DA (direct action characteristic): cooling action
● Isolation	:	Contact output isolated from all
	:	Analog output not insulated from SSR drive voltage, current and voltage output but insulated from others
		(Control output 1 and 2 not insulated other than contact output)

■ Event output (option, 3 points maximum)

- Number of output points : 3 points maximum (EV1, EV2, EV3)
  However, EV3 is exclusive selection from control output 2 and DI4.
- Types : Selectable from the following 21 types for EV1, EV2 and EV3:

Display	Action
NON	No assignment
Hd	Higher limit deviation alarm
Ld	Lower limit deviation alarm
od	Outside higher/lower limit deviation alarm
id	Inside higher/lower limit deviation alarm
HA	Higher limit absolute value alarm
LA	Llower limit absolute value alarm
So	Scaleover
EXE	EXE signal (Constant value control is in operation)
run	RUN signal (Program is in operation)
rot1	Output 1 inverted output (Contact output only)
HC1	Heater 1 break/loop alarm
HC2	Heater 2 break/loop alarm
STPS	Step signal
PTNS	Pattern signal
ENDS	Program end signal
HOLD	Hold signal
PROG	Program signal
U_SL	Upslope signal
D_SL	Downslope signal
GUA	Guarantee soak signal

- Event setting range
  - Absolute values : Within measuring range (both higher limit and lower limit)
  - Deviations : -1999 to 2000 digit (both higher limit and lower limit)
  - Higher/lower limit deviations : 0 to 2000 digit (within/outside)
- Event action : ON/OFF action
- Hysteresis : 1 to 999 digit
- Standby action : Selectable from following 4 types
  1 Without standby action
  2 Standby 1 (when power is applied, STBY (RST)→EXE (RUN))
  3 Standby 2 (when power is applied, STBY (RST)→EXE (RUN), execution SV is changed.)
  4 Control mode (without standby action: no alarm is output at the time of abnormal input.)
- Output type/rating : Contact (EV1, EV2/ 1a x 2 points common EV3/ 1a independent)/ 240V AC 2A (resistive load)
- Output updating cycle : 0.25 seconds
- Latching function : Alarm action holding function
  (can be assigned for deviation alarm/absolute value alarm and heater break alarm)
  ON (effective)/OFF (not effective) selection
  Unlatched by key operation, DI or communication when latching
- Output characteristic : Selectable from NO and NC
- Isolation : Isolated from all

■ Programming function (option)

- No. of pattern : Maximum 4 patterns (can be set to 1, 2 and 4)
- No. of step : Maximum 8 steps (4 patterns), 16 (2 patterns), 32 (1 pattern)
  Total number of steps = 32
- No. of PID type : Maximum 3
- Time setting : 0 minutes 0 seconds to 99 minutes 59 seconds/1 step or 0 hours 0 minutes to 99 hours 59 minutes/1 step
- Setting resolution : 1 minute or 1 second
- Time accuracy : ±(setting time x 0.005 + 0.25 seconds)
- Setting parameter for each step : SV, step time, PID No.
- No. of pattern execution : Maximum 9999
- PV start : ON/OFF
- Hold : Possible either by front panel key input, external control input or communication
- Advance : Possible either by front panel key input, external control input or communication
- Power failure compensation : None (setting contents are maintained and elapsed time, execution step and number of execution are reset.)
- Guarantee soak zone : OFF, 1 to 999 digit

■ External control input (DI) (option)

● Number of input points

SRS11A : Maximum 4 points: Exclusive selection with 3 points CT input (DI1, DI2, DI3)
Exclusive selection with 1 point (DI4), control output 2 and event output (EV3)

SRS12A, 13A, 14A : Maximum 4 points: 3 points (DI1, DI2, DI3) no exclusive selection
Exclusive selection with 1 point (DI4), control output 2 and event output (EV3)

● Type of DI assignment : Selectable from the following 14 types for each DI.

Display	Action
NON	No assignment
EXE1 (RUN1)	control execution/suspension
EXE2 (RUN2)	control execution/suspension
MAN	manual output
AT	auto tuning
ESV2	SV external selection 2 bit
ACT1	output 1 output characteristics
ACT2	output 2 output characteristics
PROG	programming
HLD	hold
ADV	advance
PTN2	start pattern selection 2 bit
PTN3	start pattern selection 3 bit
L_RS	unlatching

● Action input : Non-voltage contact or open collector (level action) Approx. 5V DC 1mA maximum
● Input minimum holding time : 0.25 seconds
● Isolation : Not insulated from DI input, system, and CT input but insulated from others

■ CT input (option)

: 2 points selectable when the type of control output (OUT1, OUT2) is contact or SSR
In case of SRS11A, exclusive selection with DI1, DI2 and DI3

● Types of current detection target : Assignable for OUT1 and OUT2
● Current detection method : By CT sensor (sold separately)
● Current capacity : 30A/50A
● Current setting range : OFF, 0.1 to 50.0 A (alarm action off when set to OFF)
● Setting resolution : 0.1A
● Current display range : 0.0 to 55.0A
● Display accuracy : ±2.0 A (for sine wave 50 Hz)
● Alarm action : Heater break detection when control output ON: Alarm output ON
Heater loop alarm detection when control output OFF: Alarm output ON
● Alarm output : Assignable for event output (EV1, 2, 3)
● Minimum time for action confirmation : ±0.25 seconds for both ON and OFF (each 0.5 second)
● Alarm maintain mode : Selectable from latching function ON (effective)/OFF (non-effective)
● Standby action : Selection of "OFF" or "ON" (1, 2, 3) (Standby when power applied only)
● Sampling cycle : 0.25 seconds
● Isolation : Not insulated from CT input, input, system and DI but insulated from others

■ Communication function (option)

: Exclusive selection with analog output for SRS11A

● Type of communication : EIA standard RS-485
● Communication system : 2-line half duplex start-stop synchronization system
● Communication speed : 1200, 2400, 4800, 9600, 19200, 38400 bps
● Data format : Selectable from 7E1, 7E2, 7N1, 7N2, 8E1, 8E2, 8N1, 8N2
● Communication delay time : 1 to 100 (x 0.512 msec)
● Max. number of connections : 32 including host
● Communication address : 1 to 255
● Communication code : ASCII, MODBUS RTU binary code only
● Communication protocol : Shimaden standard protocol / MODBUS ASCII, RTU
● Other : Start character and BCC operating method can be selected.
● Communication memory mode : Selectable from EEP, RAM and r_E
● Communication master mode : Can be used as master device when using multiple digit
● Start slave address setting : Broadcast, 1 to 255
● End slave address setting : Start address to start address +30
● Write-in data address settng : 0000H to FFFFH
● Communication distance : Max. 500 m (differs according to conditions)
● Isolation : Isolation for all

■ Analog output (option) : Exclusive selection with communication for SRS11A

- Number of output points : 1 point
- Types of output : Selectable from measured value, target set value (execution SV), control output 1 and control output 2
- Output signal/rating : Current 4 to 20 mA DC (max. load resistance 300Ω)
  Voltage 0 to 10 V DC (max. load current 2 mA)
  Voltage 0 to 10 mV DC (output resistance 10Ω)
- Output scaling : Within measuring range or output range (Inversed scaling possible)
- Output accuracy : ±0.3%FS (for display value)
- Output resolution : Approx. 0.008% (1/13000)
- Output updating cycle : 0.25 seconds
- Output limiter : Lower limit 0.0 to 99.9%, higher limit 0.1 to 100.0% (Lower limit value<Higher limit value)
- Isolation : No isolation with control output P, I and V

■ General specifications

- Data storage : Non-volatile memory (EEPROM)
- Ambient conditions for operations
  - Temperature : -10 to 50 ºC
  - Humidity : Max. 90 %RH (no dew condensation)
  - Elevation : Max. 2000 m above sea level
  - Category : II
  - Pollution class : 2
- Storage temperature : -20 to 65 ºC
- Supply voltage : 100 to 240V AC±10%, 50/60Hz or 24 V AC/DC±10%
- Input/noise removal ratio : Normal mode 50dB minimum (50/60 Hz)
- Insulation resistance : Between input/output terminals and power terminal Min. 500V DC, 20 MΩ
- Dielectric strength : Between input/output terminals and power terminal, 2300 V AC, 1 minute
- Power consumption
  - SRS11A : Max. 11VA for 100 to 240 V AC
    6VA for 24 V AC
    4W for 24 V DC
  - SRS12A, 13A, 14A : Max. 14VA for 100 to 240 V AC
- Applicable standards : Safety IEC61010-1 and EN61010-1
  EN IEC 61010-2-030
  EMC EN61326-1
  RoHS directive supported
- Material of case : PC resin molding (UL94V-0)
- External dimensions : SRS11A: H48 × W48 × D66 mm (in panel 62mm)
  SRS12A: H72 × W72 × D69 mm (in panel 65mm)
  SRS13A: H96 × W96 × D69 mm (in panel 65mm)
  SRS14A: H96 × W48 × D66 mm (in panel 62mm)
- Panel thickness : 1.0 to 3.5 mm
- Panel cutout : SRS11A: H45 × W45 mm
  SRS12A: H68 × W68 mm
  SRS13A: H92 × W92 mm
  SRS14A: H92 × W45 mm
- Weight : SRS11A: Approx. 120 g
  SRS12A: Approx. 190 g
  SRS13A: Approx. 220 g
  SRS14A: Approx. 160 g

ORDERING INFORMATION

ITEM	CODE	SPECIFICATIONS				
SERIES	SRS11A-	DIN 48x48 Digital Controller				
INPUT	8	Multi-input	Thermocouple:	B, R, S, K, E, J, T, N, PLII, C (WRe 5-26), U (DIN 43710), L (DIN 43710), Metal-chromel (AuFe-Cr)		
			R.T.D.:	Pt100/JPt100	Scaling Possible (inverse scaling impossible) Range: -1999–9999 Span: 10–10000	
			Voltage (mV):	-10–10, 0–10, 0–20, 0–50, 0–100, 10–50 mV DC		
	6	Voltage (V)	-1–1, 0–1, 0–2, 0–5, 1–5, 0–10 V DC Input resistance: Min. 500 kΩ			
CONTROL OUTPUT 1	Y	Contact: 1a, Contact capacity: 240 V AC 2A/resistive load Proportional cycle: 1 to 120 sec.				
	I	Current: 4–20 mA DC Load resistance: 600 Ω max.				
	P	SSR drive voltage: 12 V±1.5 V DC/30mA max. Proportional cycle: 1 to 120 sec.				
	V	Voltage: 0–10 V DC Load current: 2 mA max.				
CONTROL OUTPUT 2	N-	None				
	Y-	Contact: 1a, Contact capacity: 240 V AC 2A/resistive load Proportional cycle: 1 120 sec.				
	I-	Current: 4–20 mA DC Load resistance: 600 Ω max.				
	P-	SSR drive voltage: 12 V±1.5 V DC/30mA max. Proportional cycle: 0.5–120 sec.				
	V-	Voltage: 0–10 V DC Load current: 2 mA max.				
Additional event output	E-	Additional event output 1 point (EV3)				
Additional external control input signal (DI)	D-	Additional external control input 1 point (DI4)				
POWER SUPPLY	90-	100–240 V AC±10%, 50/60Hz				
	08-	24 V AC/DC±10%, 50/60Hz				
PROGRAM FUNCTION	N	None				
	P	Max. 4 patterns Total number of steps: 32				
EVENT OUTPUT	0	None				
	1	Event output 2 points (EV1, EV2)				
ANALOG OUTPUT/CONMMUNICATION FUNCTION	0	None				
	3	0–10 mV DC Output resistance: 10 Ω				
	4	4–20 mA DC Resistive load: 300 Ω max.				
	6	0–10 V DC Load current: 2 mA max.				
	5	RS-485 (Shimaden standard protocol, MODBUS protocol)				
EXTERNAL INPUT CONTROL SIGNAL (DI)/CT INPUT **Note: CT sold separately**	0	None				
	1	CT input 2 points	**Note: Available only when control output 1 or 2 is Y or P.**			
	2	Control input 3 points (DI1, DI2, DI3)				
REMARKS	0	Without				
	9	With				

OPTIONAL ACCESSORIES

Name	Code	Remarks
CT	QCC01	CT for 30A
CT	QCC02	CT for 50A
Shunt resistor	QCS002	250Ω External receiving impedance for current input
Terminal cover	QCR001	For SRS11A

DIGITAL CONTROLLER

ORDERING INFORMATION

ITEM	CODE	SPECIFICATIONS
SERIES	SRS12A-	DIN 72x72 Digital Controller
	SRS13A-	DIN 96x96 Digital Controller
	SRS14A-	DIN 96x48 Digital Controller
INPUT	8 Multi-input	Thermocouple: B, R, S, K, E, J, T, N, PLII, C (WRe 5-26), U (DIN 43710), L (DIN 43710), Metal-chromel (AuFe-Cr)
		R.T.D.: Pt100/JPt100
		Voltage (mV): -10–10, 0–10, 0–20, 0–50, 0–100, 10–50 mV DC
		Scaling Possible (inverse scaling impossible) Range: -1999–9999 Span: 10–10000
	6 Voltage (V)	-1–1, 0–1, 0–2, 0–5, 1–5, 0–10 V DC Input resistance: Min. 500 kΩ
CONTROL OUTPUT 1	Y	Contact: 1a, Contact capacity: 240 V AC 2A/resistive load Proportional cycle: 1–120 sec.
	I	Current: 4–0mA DC Load resistance: 600Ω max.
	P	SSR drive voltage: 12V±1.5V DC/30mA max. Proportional cycle: 1–120 sec.
	V	Voltage: 0–10 V DC Load current: 2 mA max.
CONTROL OUTPUT 2	N-	None
	Y-	Contact: 1a, Contact capacity: 240 V AC 2A/resistive load Proportional cycle: 1–120 sec.
	I-	Current: 4–20 mA DC Load resistance: 600 Ω max.
	P-	SSR drive voltage: 12 V±1.5 V DC/30 mA max. Proportional cycle: 1–120 sec.
	V-	Voltage: 0–10 V DC Load current: 2 mA max.
Additional event output	E-	Additional event output 1 point (EV3)
Additional external control input signal (DI)	D-	Additional external control input 1 point (DI4)
POWER SUPPLY	90-	100–240 V AC±10%, 50/60 Hz
PROGRAM FUNCTION	N	None
	P	Max. 4 patterns Total number of steps: 32
EVENT OUTPUT	0	None
	1	Event output 2 points (EV1, EV2)
ANALOG OUTPUT	0	None
	3	0–10 mV DC Output resistance: 10 Ω
	4	4–20 mA DC Resistive load: 300 Ω max.
	6	0–10 V DC Load current: 2mA max.
CT INPUT	0	None
Note: CT sold separately	1	CT input 2 points **Note: Available only when control output 1 or 2 is Y or P.**
EXTERNAL INPUT CONTROL SIGNAL (DI)	0	None
	2	Control input 3 points (DI1, DI2, DI3)
CONMMUNICATION FUNCTION	0	None
	5	RS-485 (Shimaden standard protocol, MODBUS protocol)
REMARKS	0	Without
	9	With

OPTIONAL ACCESSORIES

Name	Code	Remarks
CT	QCC01	CT for 30A
CT	QCC02	CT for 50A
Shunt resistor	QCS002	250Ω External receiving impedance for current input
Terminal cover	QCR002	For SRS12A (3 pcs./set)
	QCR007	For SRS13A, SRS14A (2 pcs./set)

MEASURING RANGE CODES

Input Type				Code	Measuring range						
Multi-input	Thermocouple	B		01 *1	0	– 1800	°C	0	– 3300	°F
		R		02	0	– 1700	°C	0	– 3100	°F
		S		03	0	– 1700	°C	0	– 3100	°F
		K		04 *2	-199.9	– 400.0	°C	-300	– 750	°F
				05	0.0	– 800.0	°C	0	– 1500	°F
				06	0	– 1200	°C	0	– 2200	°F
		E		07	0	– 700	°C	0	– 1300	°F
		J		08	0	– 600	°C	0	– 1100	°F
		T		09 *2	-199.9	– 200.0	°C	-300	– 400	°F
		N		10	0	– 1300	°C	0	– 2300	°F
		PLII *3		11	0	– 1300	°C	0	– 2300	°F
		C (WRe 5-26)		12	0	– 2300	°C	0	– 4200	°F
		U *5		13 *2	-199.9	– 200.0	°C	-300	– 400	°F
		L *5		14	0	– 600	°C	0	– 1100	°F
		Kelvin	K	15 *6	10.0	– 350.0	K	10.0	– 350.0	K
			AuFe-Cr	16 *7	0.0	– 350.0	K	0.0	– 350.0	K
			K	17 *6	10	– 350	K	10	– 350	K
			AuFe-Cr	18 *7	0	– 350	K	0	– 350	K
	R.T.D.	Pt100		30	-100.0	– 350.0	°C	-150.0	– 650.0	°F
				31	-200	– 600	°C	-300	– 1100	°F
				32	-100.0	– 100.0	°C	-150.0	– 200.0	°F
				33	-50.0	– 50.0	°C	-50.0	– 120.0	°F
				34	0.0	– 200.0	°C	0.0	– 400.0	°F
		JPt100		35	-200	– 500	°C	-300	– 1000	°F
				36	-100.0	– 100.0	°C	-150.0	– 200.0	°F
				37	-50.0	– 50.0	°C	-50.0	– 120.0	°F
				38	0.0	– 200.0	°C	0.0	– 400.0	°F
				39	-100.0	– 350.0	°C	-150.0	– 650.0	°F
		Pt100		40	-199.9	– 550.0	°C	-300	– 1000	°F
				41	0.0	– 350.0	°C	0.0	– 650.0	°F
				42	0.0	– 550.0	°C	0	– 1000	°F
		JPt100		43	-199.9	– 500.0	°C	-300	– 1000	°F
				44	0.0	– 350.0	°C	0.0	– 650.0	°F
				45	0.0	– 500.0	°C	0	– 1000	°F
	Voltage (mV)	-10 – 10		71	Measuring range can be set by scaling function within the following range. Initial value: 0.0 to 100.0 Scaling range: -1999 to 9999 digit Span: 10 to 10000 digit Decimal point position: None, 1/2/3 digits following decimal point Lower limit value is less than higher limit value. NOTE: For current input, install input terminals of the specified receiving impedance (250Ω) and use code 84 (0 to 20 mA) or 85 (4 to 20 mA).					
		0 – 10		72						
		0 – 20		73						
		0 – 50		74						
		10 – 50		75						
		0 – 100		76						
	Voltage (V)	-1 – 1		81						
		0 – 1		82						
		0 – 2		83						
		0 – 5		84						
		1 – 5		85						
		0 – 10		86						

Thermocouple: B, R, S, K, E, J, T, N: JIS/IEC

R.T.D. Pt100: JIS/IEC JPt100

*1 Thermocouple B: Accuracy guarantee not applicable to 400˚C or below.

*2 Thermocouple K, T, U: Accuracy of those readings below -100.0˚C is 0.75% FS.

*3 Thermocouple PLII: Platinel

*4 Thermocouple U, L: DIN 43710

*5. Thermocouple K (Kelvin) accuracy

Temperature range	External CJ	Internal CJ
10.0 to 30.0K	±(2.0%FS	+40 °C+1 digit)
30.0 to 70.0K	±(1.0%FS	+14 °C+1 digit)
70.0 to 170.0K	±(0.7%FS	+ 6 °C+1 digit)
170.0 to 270.0K	±(0.5%FS	+ 3 °C+1 digit)
270.0 to 350.0K	±(0.3%FS	+ 2 °C+1 digit)

*6. Thermocouple Metal-chromel (AuFe-Cr) (Kelvin) accuracy

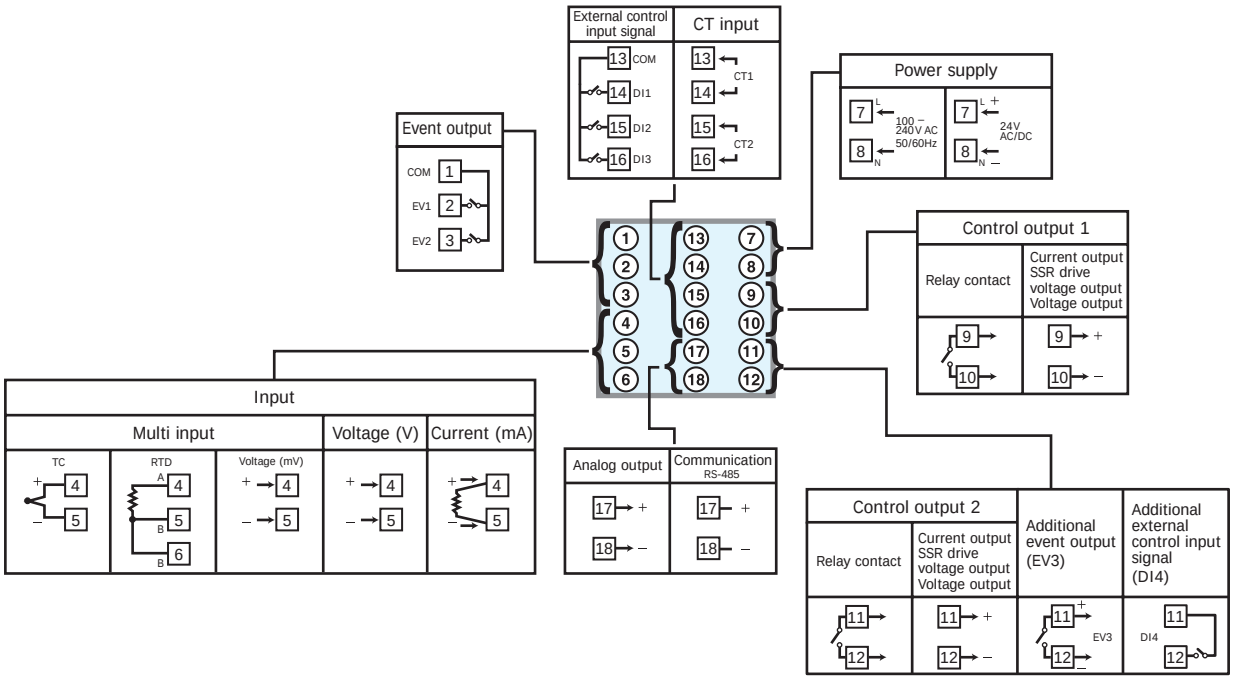
Temperature range	External CJ	Internal CJ
0.0 to 30.0K	±(0.7%FS	+6 °C +1 digit)
30.0 to 70.0K	±(0.5%FS	+3 °C +1 digit)
70.0 to 170.0K	±(0.3%FS	+2.4 °C+1 digit)
170.0 to 280.0K	±(0.3%FS	+2°C +1 digit)
280.0 to 350.0K	±(0.5%FS	+2°C +1 digit)

NOTE: Unless otherwise specified, the measuring range will be set as follows when shipped from the factory:

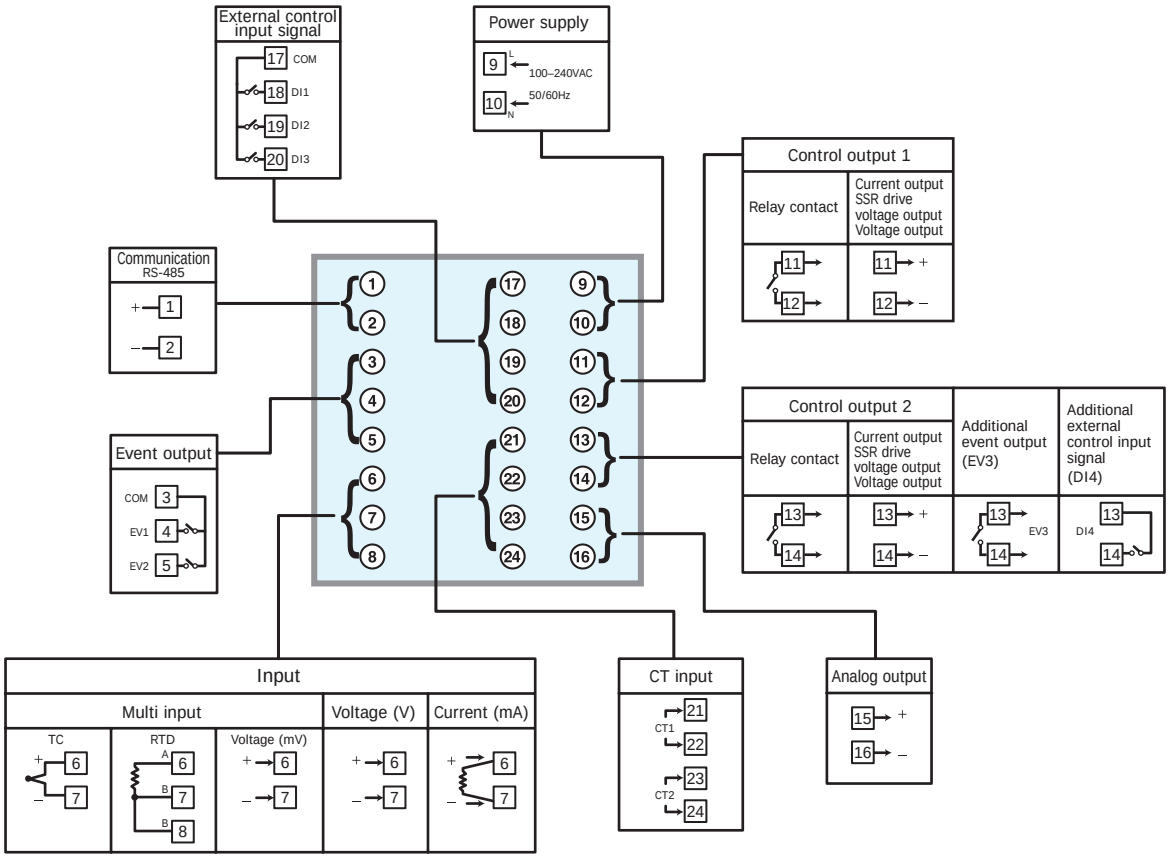
Input	Standard/rating	Measuring range
Multi-input	K thermocouple	0.0–800.0 ˚C
Voltage (V)	0–10 V DC	0.0–100.0 no legend

TERMINAL DIAGRAM

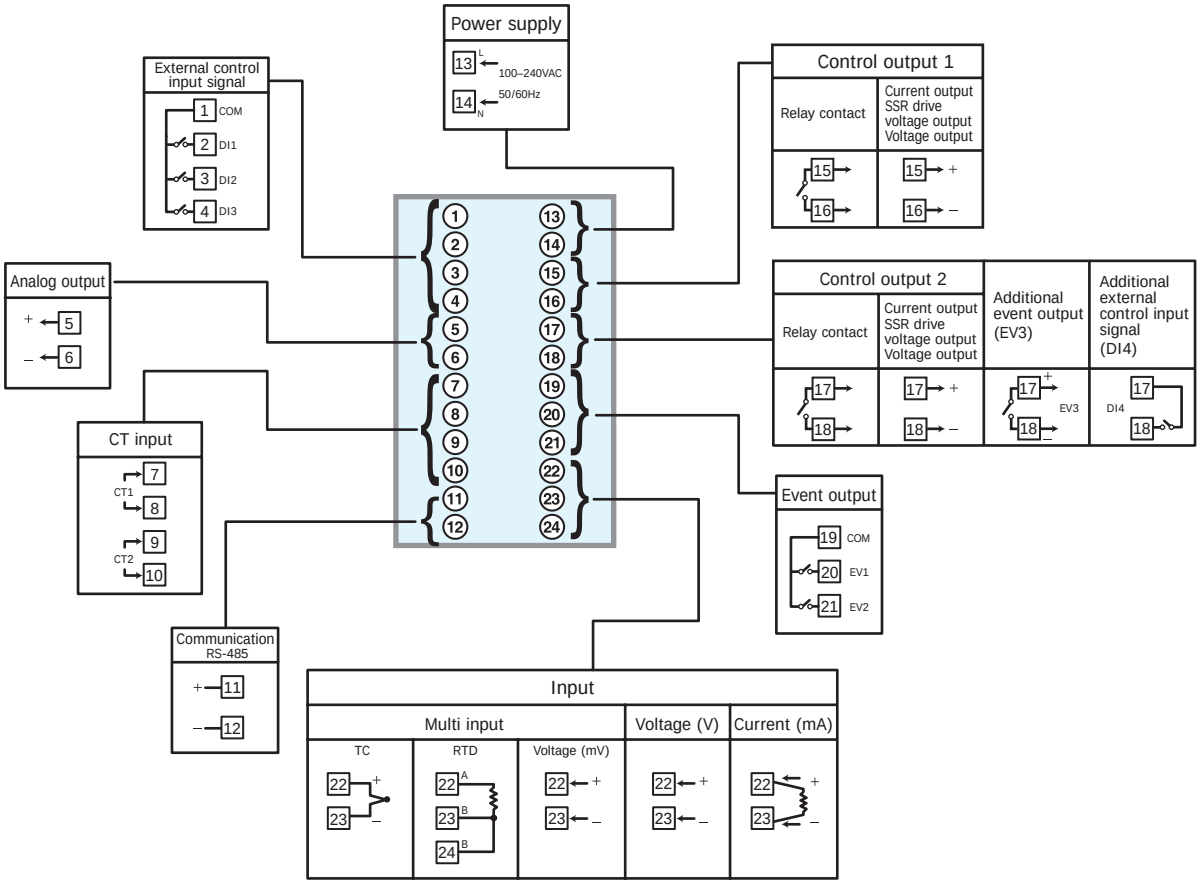
■ SRS11A



■ SRS12A

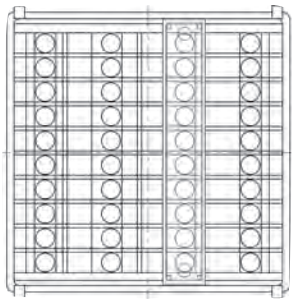


■ SRS13A/14A

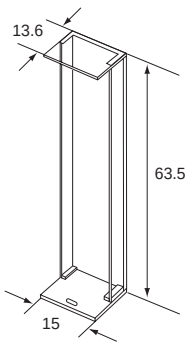


OPTIONAL TERMINAL COVER

QCR001

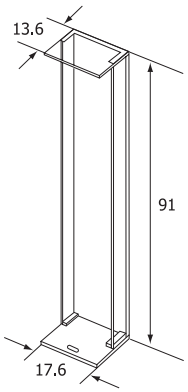


QCR002

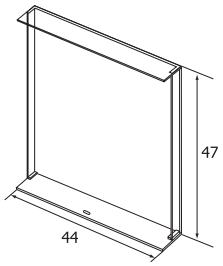


× 3 pcs.

QCR007



× 2 pcs.



SRS11A

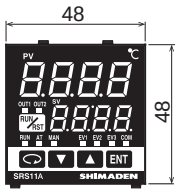
SRS12A

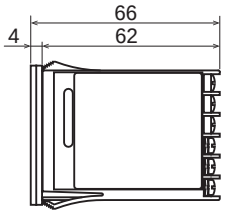
SRS13A & SRS14A

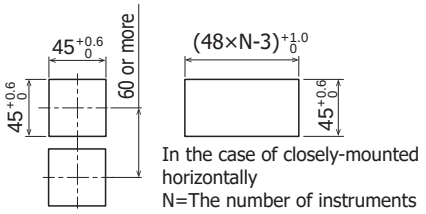
Unit: mm

EXTERNAL DIMENSIONS/PANEL CUTOUT

■ SRS11A

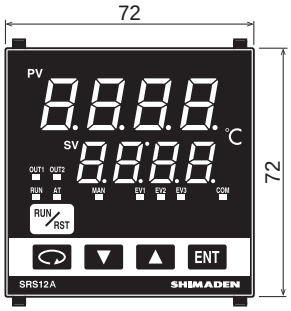


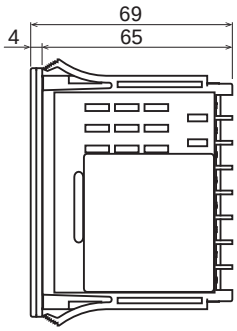


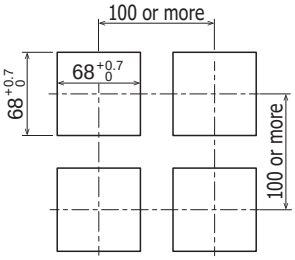


Unit: mm

■ SRS12A

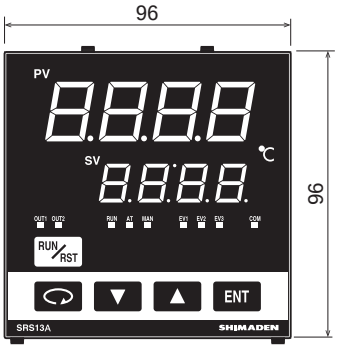


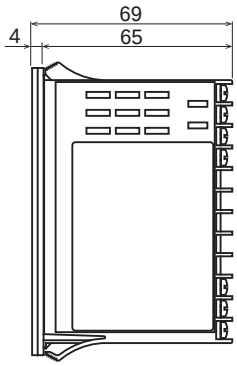


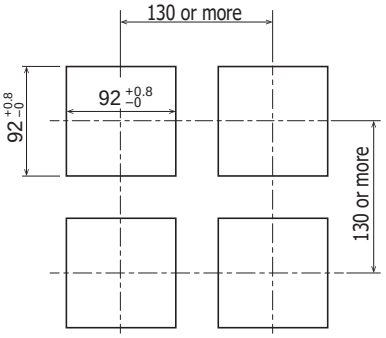


Unit: mm

■ SRS13A

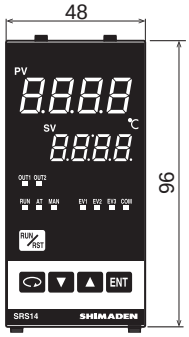


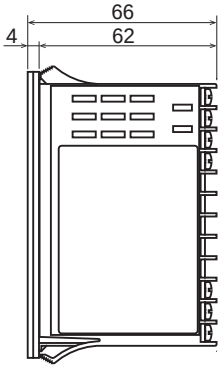


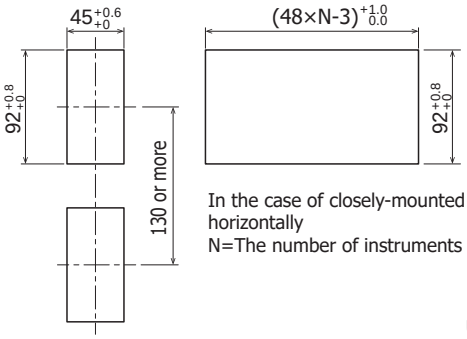


Unit: mm

■ SRS14A



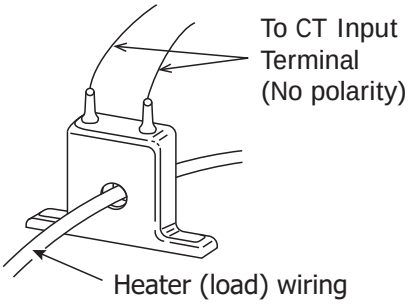




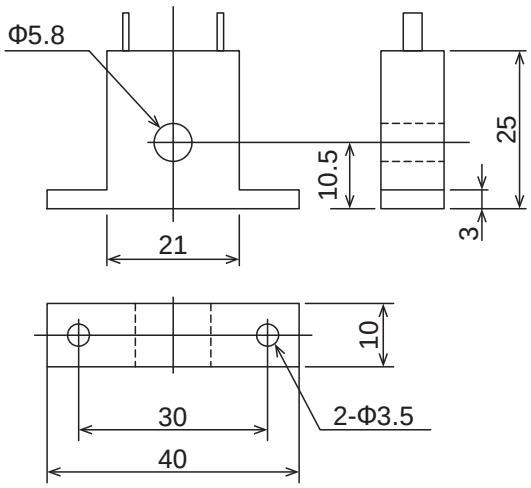
Unit: mm

ACCESSORIES REQUIRED FOR CT INPUT

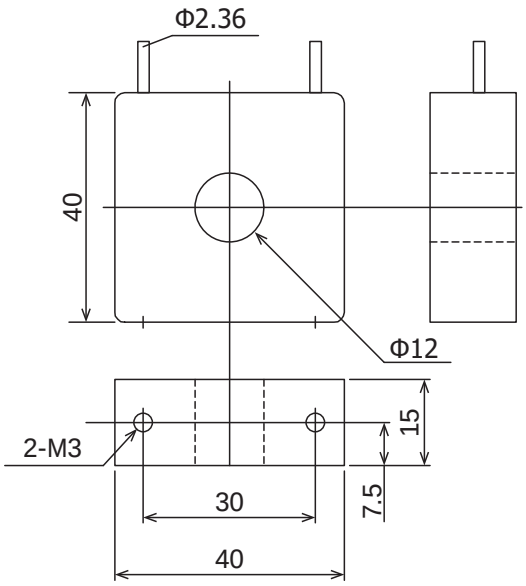
● CT-wiring example



■ QCC01 for 0 to 30 A



■ QCC02 for 0 to 50 A



Unit: mm

■ **The contents of this material are subject to change without notice.**

WARNING	* Be sure to follow the instruction manual when operating this device. * This device is designed for industrial use to control temperature, humidity and other physical values. Avoid using it for control of devices upon which human life is dependent. * If the possibility of loss or damage to your system or property as a result of failure of any parts of the process exists, proper safety measures must be made before the instrument is put into use so as to prevent the occurrence of trouble.

Head Office & Saitama Factory
ISO 9001/ISO14001 Certification Obtained

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