

# SRS1 Shimaden Digital Controller

## Features

- Multi-input and multi-range performance.
- Small instrument depths (62mm/65mm) saves space, therefore securing a larger installation area.
- Large 13.8 mm bright display.
- 1 Pattern, 10 step program function available (option).
- External digital control input as standard.
- Power supply 100~240Vac.
- Low cost.



## Description

The SRS1 controller is a low cost, high featured controller. With  $\pm 0.3\%$  accuracy and a list of options including selectable input: Thermocouple, R.T.D. (Pt-100 3 wire) and mV (-10~ +50mV), External Control Input (DI) as standard, PID control Auto/Manual and selectable event outputs. The SRS1 controllers are extremely versatile which makes them suitable for a wide range of applications.

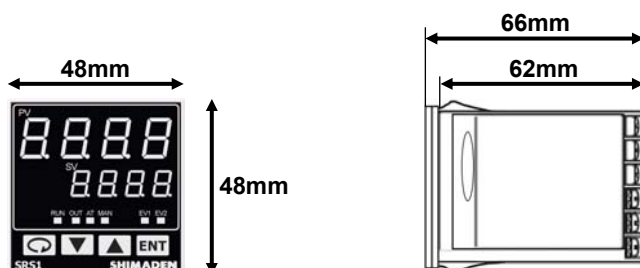
## Ordering Information

**SRS1-Y-N10** Digital Controller, H48 x W48 x D70mm, Universal Input, Contact Control Output, 2 Events Outputs, 1 Digital Input, 100~240Vac.

**SRS1-Y-P10** Digital Controller, H48 x W48 x D70mm, Universal Input, Contact Control Output, 2 Events Outputs, 1 Digital Input, 100~240Vac with Patterns.

*More SRS1 controller models available on special request.*

## SRS1 External Dimensions & Panel Cut-out:



# SRS1 Specifications 48 x 48 Digital Controller

## Display

Digital display: (PV) 7-segment Red LED, 4 digits.  
(SV) 7-segment Green LED, 4 digits.  
Display accuracy: Thermocouple:  $\pm (0.3\%FS + 1 \text{ digit} + 2^\circ C)$ .  
RTD:  $\pm (0.3\%FS + 1 \text{ digit} + 0.1^\circ C)$ .  
mV:  $\pm (0.3\%FS + 1 \text{ digit})$ .  
V:  $\pm (0.3\%FS + 1 \text{ digit})$ .  
Display resolution: Depends on measuring range (0.001, 0.01, 0.1, 1).  
Display updating cycle: 0.5 seconds.  
Action display: 5 LED lamp displays (RUN/OUT/AT/MAN/EV1/EV2).

## Setting

Setting method: By operating 4 keys (▲, ▼, ENT, ⏪)(front panel).  
Target value setting range: Same as measuring range (within setting limiter).  
Setting limiter: Individual setting for higher & lower limits are possible within measuring range (Lower limit value < Higher limit value).

**Input** Thermocouple, RTD, mV or V Selectable.  
Input scaling: Settable within measurement range.  
Decimal point position: Settable from 1, 0.1, 0.01, 0.001.  
PV ramp: 0.5~1.5 times input value.  
PV bias: -1999~2000 digits.  
PV filter: OFF, 0~9999 seconds.  
Isolation: Uninsulated from system and DI, but insulated from other input.

Thermocouple Input: B, R, S, K, E, J, T, N, PL II, C (WRe 5-26),  
AuFe-Cr, {U, L (DIN43710)}.  
Input impedance: 500k $\Omega$  minimum.  
External resistance tolerance: 100 $\Omega$  maximum.  
Burnout function: Upscale.  
Internal Cold junction compensation.  
Cold junction compensation accuracy:  $\pm 2^\circ C$  (5~45 $^\circ C$ ).

R.T.D. Input: Pt100 3-wire type.  
Amperage: 0.25mA Approx.  
Resistance range: 10 $\Omega$  max per wire.  
(All wires should have the same resistance).

Voltage Input: -10~50mVdc.  
Input impedance: 500k $\Omega$  minimum.  
Scaling range: -1999~9999 digits.  
Span: 10~9999 digits.

## Control

Control mode: Expert PID control with auto tuning function.  
Contact Rating (Y): Contact (1a), 240V AC,  
2.5A resistive load, 1A inductive load.  
Proportional band: OFF, 0.1~999.9%(ON-OFF action when OFF).  
Integral time: OFF, 1~6000 seconds (P or PD action when OFF).  
Derivative time: OFF, 1~3600 seconds (P or PI action when OFF).  
Manual reset: -50.0~50.0% (Effective when I=OFF).  
ON-OFF hysteresis: 1~999 units (Effective when P=OFF).  
Proportional cycle: 1~120 seconds (for contact and SSR drive voltage output).  
Control output characteristic:  
Reverse action (Default setting).  
Direct action.  
\*P=OFF by default for contact output, others: PID control.

## Event output

Number of events: Total 2 points of EV1 and EV2 as standard.  
Output type/rating: Contact (1a), 240 V AC, 1 A: Resistive load (common).  
Action display: 2 LED lamp displays (EV1/EV2).  
Event Types: Selectable from the following:  
Hd: Higher limit deviation value action.  
Ld: Lower limit deviation value action.  
od: Outside higher/lower limit deviation action.  
id: Inside higher/lower limit deviation action.  
HA: Higher limit absolute value action.  
LA: Lower limit absolute value action.  
SO: Scale over.  
RUN: Control execution.  
ROT1: Control output inverted output (contact output only).  
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.

Event setting range:  
Absolute values: Within both measuring range and PV limiter (both higher and lower limit).  
Deviation: -1999~2000 digits (both higher limit and lower limit).  
Higher/lower limit deviation: 0~2000 digits (within/outside).  
Event action: ON-OFF action.  
Hysteresis: 1~999 units.  
Standby action: Separate setting (separate output),  
Selectable from the following 4 types:  
(1) None.  
(2) When starting power, when RST ON g OFF.  
(3) When starting power, when RST ON g OFF,  
when execution SV is changed).  
(4) Does not output when there is input abnormality.

## External Control Input

Input type: Level input, edge input.  
Input rating: Voltage 5Vdc (2.5mA/1 input).  
Input action: Non-voltage contact or open collector.  
Input holding time: 500 ms (0.5 sec.).  
Isolation: Uninsulated from input & system, but insulated with other  
Function: Selectable from the following:  
NON: No Selection. RAMP: Ramp halt.  
RUN1: Starts control when ON. ACT: Output characteristics.  
RUN2: Starts control when ON. L\_RS: Event latching release.  
MAN: Manual control output. PROG: Program switch  
AT: AT execution. HLD: Hold signal  
SV: SV switch. ADV: Advance signal

## General Specifications

Data storage: Non-volatile memory (EEPROM).  
Operating Temperature -10~50 $^\circ C$ .  
Operating Humidity 90%RH or less (no condensation).  
Storage temperature: -20~65 $^\circ C$ .  
Supply voltage: 100-240Vac  $\pm 10\%$  50/60Hz.  
Power consumption: 10VA.  
External dimensions: H48 x W48 x D66mm (Panel depth: 62mm).  
Mounting: Panel Flush Mounting.  
Panel thickness: 1.0~3.5mm.  
Panel cut-out: H45 x W45mm.  
Weight: Approx. 100g.

**Product Liability.** This information describes our products. It does not constitute guaranteed properties and is not intended to affirm the suitability of a product for a particular application. Due to on-going research and development, designs, specifications, and documentation are subject to change without notification. Regrettably, omissions and exceptions cannot be completely ruled out. No liability will be accepted for errors, omissions or amendments to this specification. Technical data are always specified by their average values and are based on Standard Calibration Units at 25C, unless otherwise specified. Each product is subject to the 'Conditions of Sale'.

**Warning: These products are not designed for use in, and should not be used for patient connected applications. In any critical installation an independent fail-safe back-up system must always be implemented.**