

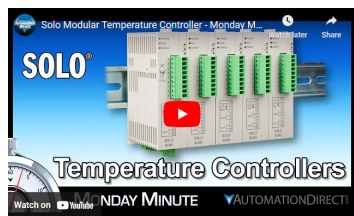
# SOLO - SLM Series Modular Temperature Controllers

## SLM Series Overview



**SLM1-C**  
Model Shown

**SLM2-V Model**  
Shown



Click on the thumbnail or go to  
<https://www.automationdirect.com/VID-PS-0028> for a short  
 introductory video on the SOLO Modular Temperature Controllers.

AutomationDirect's SOLO Modular single loop temperature controllers provide the means to assemble a compact, modular multi-loop temperature control system. Starting with a SOLO single loop temperature controller main module, up to seven additional SOLO single loop temperature controller extension modules can be easily connected to the main controller using the built-in extension ports for shared power and network communications.

All SOLO Modular temperature controller modules accept an input from numerous types of thermocouples or RTDs, as well as linear analog current, voltage or mV signals from temperature transmitters and provides two separate outputs. Depending on the controller model, available output types for Output 1 include either relay, voltage pulse, linear voltage, or linear current. Output 2 is a relay output. Configuring both outputs for control allows for both heating and cooling control or two stage heating control or two stage cooling control. Optionally one output can be configured for control of either a heating or cooling application and the other output an alarm or both outputs can be set to alarm independently. If the controller is equipped with either the linear voltage or linear current output, Output 1 can be configured for process variable retransmission. These versatile controllers can be configured to operate with PID with Auto Tuning, On/Off, Ramp/Soak, or Manual control modes, and twelve different alarm modes are available. SOLO Modular controllers mount on 35mm DIN rail, have removable terminal blocks, and are 24 VDC powered.

Configuration of SOLO Modular controllers is accomplished using free SL-SOFT SOLO configuration and monitoring software downloadable from AutomationDirect.com, or RS-485 digital communication using the Modbus protocol.

## Features

- Easy to assemble DIN rail mounted compact modular multi-loop temperature control system
- Add up to seven SOLO extension controllers to each SOLO main controller for a total of eight temperature control loops
- Heating and/or Cooling applications with PID with Auto Tuning, On/Off, Ramp/Soak, or Manual control modes
- Thermocouple, RTD, mA, mV, or voltage inputs
- Output 1: Relay, Voltage Pulse, Linear Voltage, or Linear Current, depending on model (Control, Alarm, or Process Variable Retransmission for linear current or linear voltage modules)
- Output 2: Relay (Control or Alarm)
- RS-485 Modbus communication
- Configuration using free SL-SOFT configuration and monitoring software downloadable from AutomationDirect.com

## SOLO - SLM Series Modular Temperature Controllers

| SOLO - SLM Series Modular Temperature Controllers |             |                                       |               |               |                   |               |              |         |
|---------------------------------------------------|-------------|---------------------------------------|---------------|---------------|-------------------|---------------|--------------|---------|
| Model                                             | Module Type | Inputs                                | Output 1      | Output 2      | Operating Voltage | Communication | Weight (lbs) | Price   |
| <a href="#">SLM1-C</a>                            | Main        | Current, voltage, thermocouple or RTD | 4-20mA        | 3A SPST relay | 24VDC             | RS-485        | 0.27         | \$79.00 |
| <a href="#">SLM1-L</a>                            |             |                                       | 0-10VDC       |               |                   |               | 0.27         | \$79.00 |
| <a href="#">SLM1-R</a>                            |             |                                       | 3A SPST relay |               |                   |               | 0.27         | \$79.00 |
| <a href="#">SLM1-V</a>                            |             |                                       | 12 VDC pulse  |               |                   |               | 0.27         | \$79.00 |
| <a href="#">SLM2-C</a>                            | Extension   |                                       | 4-20mA        |               |                   |               | 0.27         | \$79.00 |
| <a href="#">SLM2-L</a>                            |             |                                       | 0-10VDC       |               |                   |               | 0.27         | \$79.00 |
| <a href="#">SLM2-R</a>                            |             |                                       | 3A SPST relay |               |                   |               | 0.27         | \$79.00 |
| <a href="#">SLM2-V</a>                            |             |                                       | 12 VDC pulse  |               |                   |               | 0.27         | \$79.00 |

## Insert



Scan or click the above QR code to be taken to the SLM Series Installation Instructions and User Guide

## Manual



Scan or click the above QR code to be taken to the SLM Series User Manual

# SOLO - SLM Series Modular Temperature Controllers

| Specifications                |                                                                                                                                                                                                                                       |
|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Operating Voltage</b>      | 21.6 to 26.4 VDC                                                                                                                                                                                                                      |
| <b>Power Consumption</b>      | Rated 24 VDC, Max. 24 W combined, 3W + 3W x number of SLM2 controllers (Max. 7)                                                                                                                                                       |
| <b>Input Sensors</b>          | Thermocouple: K, J, T, E, N, R, S, B, L, U, TXK<br>Platinum RTD: Pt100, JPt100<br>Linear DC input: 0 ~ 5V, 0 ~ 10V, 0 ~ 20mA, 4 ~ 20mA, 0 ~ 50mV                                                                                      |
| <b>Input Accuracy</b>         | Thermocouples: $\pm 0.3\%$ full scale<br>RTD: $\pm 0.2\%$ full scale<br>Analog input: $\pm 0.3\%$ full scale $\pm 1$ digit                                                                                                            |
| <b>Sampling Rate</b>          | Analog input: 0.15 sec. Thermocouple or platinum RTD: 0.4 sec.                                                                                                                                                                        |
| <b>Control Method</b>         | PID, ON/OFF, Ramp / Soak control or Manual                                                                                                                                                                                            |
| <b>Output Types</b>           | Relay: SPST, Max. load 250 VAC / 30VDC, 3A resistive load<br>Voltage pulse: 12VDC, Max. output current: 40mA<br>Current: DC 4 ~ 20mA (Load resistance: $< 500\Omega$ )<br>Analog voltage: 0 ~ 10V (Load resistance: $> 1,000\Omega$ ) |
| <b>Output Function</b>        | Control output, alarm output, retransmission output<br>Retransmission output is available only when output 1 is linear voltage or current output.                                                                                     |
| <b>Alarm</b>                  | 12 alarm modes                                                                                                                                                                                                                        |
| <b>Communication</b>          | RS-485 communication, 2,400 bps ~ 38,400 bps                                                                                                                                                                                          |
| <b>Communication Protocol</b> | Modbus protocol, ASCII/RTU format                                                                                                                                                                                                     |
| <b>Vibration Resistance</b>   | 10 ~ 55Hz, 10m/s <sup>2</sup> for 10mins, each in X, Y and Z direction                                                                                                                                                                |
| <b>Shock Resistance</b>       | Max. 300m/s <sup>2</sup> , 3 times in each 3 axes, 6 directions                                                                                                                                                                       |
| <b>Ambient Temperature</b>    | 0 to 50°C (32 to 122°F)                                                                                                                                                                                                               |
| <b>Storage Temperature</b>    | -20 to +65°C (-4 to 149°F)                                                                                                                                                                                                            |
| <b>Altitude</b>               | 2,000m or less                                                                                                                                                                                                                        |
| <b>Ambient Humidity</b>       | 35% ~ 85% RH (non-condensing)                                                                                                                                                                                                         |
| <b>Pollution Degree</b>       | 2                                                                                                                                                                                                                                     |

## Available Input Types

SOLO Modular temperature controllers support these input types.

| Thermocouple Type and Range*               |                                 |
|--------------------------------------------|---------------------------------|
| Input Temperature Sensor Type              | Temperature Range               |
| Thermocouple TXK type                      | -328 to 1472°F (-200 to 800°C)  |
| Thermocouple U type                        | -328 to 932°F (-200 to 500°C)   |
| Thermocouple L type                        | -328 to 1562°F (-200 to 850°C)  |
| Thermocouple B type                        | 212 to 3272°F (100 to 1800°C)   |
| Thermocouple S type                        | 32 to 3092°F (0 to 1700°C)      |
| Thermocouple R type                        | 32 to 3092°F (0 to 1700°C)      |
| Thermocouple N type                        | -328 to 2372°F (-200 to 1300°C) |
| Thermocouple E type                        | 32 to 1112°F (0 to 600°C)       |
| Thermocouple T type                        | -328 to 752°F (-200 to 400°C)   |
| Thermocouple J type                        | -148 to 2192°F (-100 to 1200°C) |
| Thermocouple K type                        | -328 to 2372°F (-200 to 1300°C) |
| * Note: Use only ungrounded thermocouples. |                                 |

| RTD Type and Range                  |                                |
|-------------------------------------|--------------------------------|
| Input Temperature Sensor Type       | Temperature Range              |
| Platinum Resistance (Pt100)         | -328 to 1112°F (-200 to 600°C) |
| Platinum Resistance (JPt100)        | -4 to 752°F (-20 to 400°C)     |
| Note: Default setting: Pt100 input. |                                |

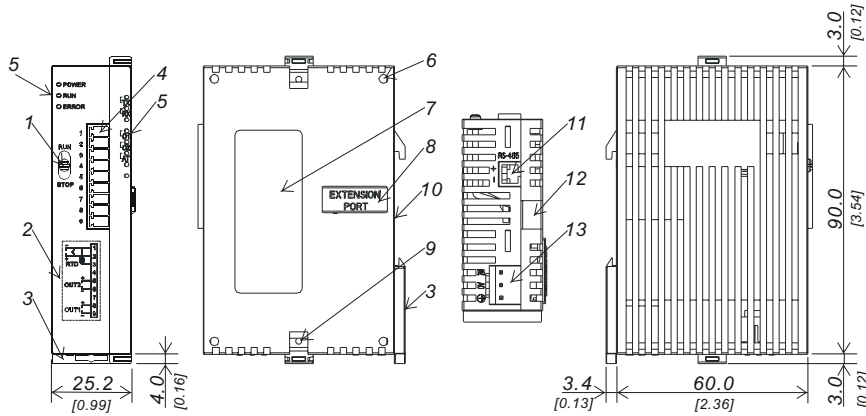
| Voltage Input Type and Input Range |                   |
|------------------------------------|-------------------|
| Voltage Input Type                 | Engineering Range |
| 0~50mV Analog Input                | -999 to 9999      |
| 0V~10V Analog Input                | -999 to 9999      |
| 0V~5V Analog Input                 | -999 to 9999      |

| Current Input Type and Range*                                                                 |                   |
|-----------------------------------------------------------------------------------------------|-------------------|
| Current Input Type                                                                            | Engineering Range |
| 4~20mA Analog Input                                                                           | -999 to 9999      |
| 0~20mA Analog Input                                                                           | -999 to 9999      |
| * Install the supplied 249 ohm resistor between terminal #1 and #2 for linear current inputs. |                   |

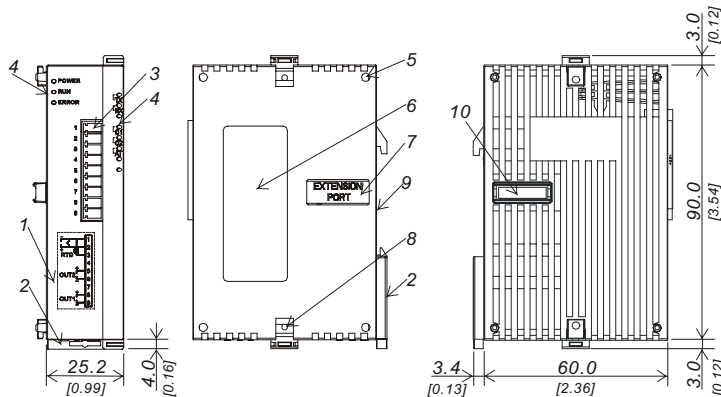
# SOLO - SLM Series Modular Temperature Controllers

## Dimensions

mm [inches]



SLM1

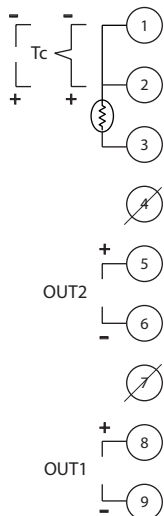


SLM2

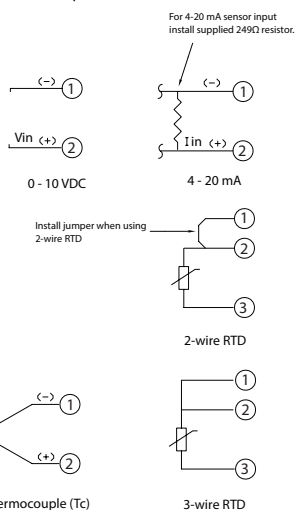
| Feature | SLM1                      | SLM2                  |
|---------|---------------------------|-----------------------|
| 1       | RUN/STOP switch           | Wiring and Model name |
| 2       | Wiring and Model name     | DIN rail clip         |
| 3       | DIN rail clip             | I/O terminals         |
| 4       | I/O terminals             | LED indicators        |
| 5       | LED indicators            | Mounting hole         |
| 6       | Mounting hole             | Specification label   |
| 7       | Specification label       | Extension port        |
| 8       | Extension port            | Extension clip        |
| 9       | Extension clip            | DIN rail              |
| 10      | DIN rail                  | Extension port        |
| 11      | RS-485 communication port | N/A                   |
| 12      | Extension clip            | N/A                   |
| 13      | DC power input            | N/A                   |

## Wiring

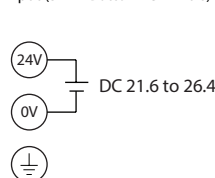
Input and Outputs (SLM1 & SLM2 Front Terminals)



Sensor Input



Power Input (SLM1 Bottom Terminals)



RS-485 (SLM1 Bottom Terminals)

