NOVA
TEMPERATURE CONTROLLERS
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NOVA
A COMPLETE RANGE OF EXCEPTIONAL CONTROLLERS

What Unique Features in NOVA Controller?

No need Manual
When Set up or change Target value
No more need to have operation manual when you set up or change Target value any more

As Free
Get Timer!!

Multi Input/Output
Only one that can be workable!!
It's the best controller that can be workable for Multi-Input and Output signal in the world

Piece Bias
Effective!!

Lowest Price
High Accuracy (±0.1%)!!

Powerful
Digital Output Function!!
### ST SERIES
#### DIGITAL CONTROLLER

# NOVA

<table>
<thead>
<tr>
<th>Size</th>
<th>48(W)x48(D)x100(L)mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>PV/SP Data Display</td>
<td>each 4 Digits</td>
</tr>
<tr>
<td>Sampling Time</td>
<td>250ms</td>
</tr>
<tr>
<td>Indication Accuracy</td>
<td>±0.1% of FS</td>
</tr>
<tr>
<td>Control Loops and Mode</td>
<td>Single-Loop Control/Heating &amp; Cooling</td>
</tr>
<tr>
<td>Running Mode</td>
<td>Auto/Man, RUN/STOP (Timer or Key)</td>
</tr>
<tr>
<td>Number of Setpoint</td>
<td>4 SP (3 Zones PID, 1 Zone Deviation PID)</td>
</tr>
<tr>
<td>Sensor</td>
<td>Universal Input (1 Point)</td>
</tr>
<tr>
<td>T/C</td>
<td>Pt100 (1/100), JPt100</td>
</tr>
<tr>
<td>RTD</td>
<td>-10 ~ 20mV, 0 ~ 100mV</td>
</tr>
<tr>
<td>DCV</td>
<td>0.4 ~ 2.0VDC, 1 ~ 5VDC, 0 ~ 10VDC (4 ~ 20mA, 0 ~ 20mA with 250Ω, 500Ω)</td>
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<tr>
<td>Control Output</td>
<td>Universal Output (Max 3 Points)</td>
</tr>
<tr>
<td>Control</td>
<td>Relay, SSR(V-Pulse)</td>
</tr>
<tr>
<td>Time-proportional PID</td>
<td>SCR (4 ~ 20mA DC), (0 ~ 20mA DC : Option)</td>
</tr>
<tr>
<td>Continuous PID</td>
<td>20 Types (High/Low Temp Limit, Deviation Limit etc)</td>
</tr>
<tr>
<td>Alarm</td>
<td>STD 2 Points</td>
</tr>
<tr>
<td>Capacity</td>
<td>4 ~ 20mADC, 0 ~ 20mADC (Option) (PV, SP, MV)</td>
</tr>
<tr>
<td>Type</td>
<td>0 ~ 99min 59sec or 0 ~ 99hour 59min</td>
</tr>
<tr>
<td>Retransmission Output</td>
<td>2 Points</td>
</tr>
<tr>
<td>Communication Protocols</td>
<td>PC-Link, MODBUS (ASCII, RTU), SYNC (Master, Slave) * MAX : 19200bps</td>
</tr>
<tr>
<td>Power Supply and Consumption</td>
<td>100 ~ 240VAC, 50 ~ 60 Hz / Max 6W below</td>
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<table>
<thead>
<tr>
<th>Model</th>
<th>Suffix Code</th>
<th>Description</th>
<th>Remarks</th>
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<tbody>
<tr>
<td>ST540</td>
<td></td>
<td>Digital Controller</td>
<td></td>
</tr>
<tr>
<td>ST570</td>
<td></td>
<td>Standard</td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>0</td>
<td>Heating/Cooling</td>
<td></td>
</tr>
<tr>
<td>Power</td>
<td>0</td>
<td>100V ~ 240VAC</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>24VDC</td>
<td></td>
</tr>
<tr>
<td>Options</td>
<td>/RS</td>
<td>RS422 / RS485</td>
<td>*note 1</td>
</tr>
<tr>
<td></td>
<td>/AOOUT</td>
<td>Analog Output</td>
<td>*note 2</td>
</tr>
<tr>
<td></td>
<td>/DI</td>
<td>2 Points</td>
<td>*note 1</td>
</tr>
</tbody>
</table>

*ST540 = *note 1: RS/DI to be purchased separately
*ST570 = *note 1: RS/DI to be purchased separately
*note 2: If AOUT select, Relay2 can not be used.
**NOVA TEMPERATURE CONTROLLERS**

### ST560, ST580, ST590

- **Dimensions:**
  - ST560: 96(W)x48(D)x100(L)mm
  - ST580: 48(W)x96(D)x100(L)mm
  - ST590: 96(W)x96(D)x100(L)mm

- **Each 4 Digits**
- **250ms**
- **±0.1% of FS**
- **Single-Loop Control/Heating & Cooling**
  - Auto/Man, RUN/STOP (Timer or Key)
  - 4 SP (3 Zones PID, 1 Zone Deviation PID)
  - Universal Input (1 Point)
  - Pt100 (1/100), JPt100
  - -10 ~ 20mV, 0 ~ 100mV
  - 0.4 ~ 2.0VDC, 1 ~ 5VDC, 0 ~ 10VDC (4 ~ 20mA, 0 ~ 20mA with 250Ω, 500Ω)

**Universal Output (Max 5 Points)**
- Relay, SSR (V-Pulse)
- SCR (4 ~ 20mADC), (0 ~ 20mADC: Option)

**STD: 3 Points**
- 20 Types (High/Low Temp Limit, Deviation Limit etc)
- 4 ~ 20mADC, 0 ~ 20mADC (Option) (PV, SP, MV)
- 0 ~ 99min 59sec or 0 ~ 99hour 59min

- **2 Points**
  - SP Select, Run/Stop
  - PC Link, MODBUS (ASCII, RTU), SYNC (Master, Slave) *MAX: 19200bps

**100 ~ 240VAC, 50 ~ 60Hz/Max 6W below**

<table>
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<th>Model</th>
<th>Suffix Code</th>
<th>Description</th>
<th>Remarks</th>
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<tr>
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<td>Standard</td>
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</tr>
<tr>
<td></td>
<td>1</td>
<td>Heating/Cooling</td>
<td></td>
</tr>
<tr>
<td>Power</td>
<td>0</td>
<td>100V ~ 240VAC</td>
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<tr>
<td></td>
<td>1</td>
<td>24VDC</td>
<td></td>
</tr>
<tr>
<td>Options</td>
<td>/RS</td>
<td>RS422 / RS485</td>
<td>*note 1</td>
</tr>
<tr>
<td></td>
<td>/DI</td>
<td>2 Points</td>
<td>*note 1</td>
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<tr>
<td></td>
<td>/LPS</td>
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</tr>
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*ST560/580/590 = *note 1: RS/DI to be purchased separately*
## SP SERIES

**PROGRAMMABLE CONTROLLER**

### NOVA

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<tr>
<th>Size</th>
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<th>SP570</th>
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<tbody>
<tr>
<td>PV/SP Data Display</td>
<td>each 4 Digits</td>
<td>each 4 Digits</td>
</tr>
<tr>
<td>Sampling Time</td>
<td>250ms</td>
<td>250ms</td>
</tr>
<tr>
<td>Indication Accuracy</td>
<td>±0.1% of FS</td>
<td>±0.1% of FS</td>
</tr>
<tr>
<td>Control Loops and Mode</td>
<td>Single-Loop Control</td>
<td>Single-Loop Control</td>
</tr>
<tr>
<td>Running Mode</td>
<td>Prog/Reset (3 Zones PID, 1 Zone Deviation PID)</td>
<td>Prog/Reset (3 Zones PID, 1 Zone Deviation PID)</td>
</tr>
<tr>
<td>Number of Pattern</td>
<td>2 Patterns</td>
<td>2 Patterns</td>
</tr>
<tr>
<td>Number of Segment</td>
<td>15 Segments x 2 (in each Pattern : Max total 30 Segments)</td>
<td>15 Segments x 2 (in each Pattern : Max total 30 Segments)</td>
</tr>
<tr>
<td>Sensor</td>
<td>Universal Input (1 Point) K, J, E, T, R, S, L, N, U, W, Platinel II Pt100 (1/100), JPt100 -10 ~ 20mV, 0 ~ 100mV 0.4 ~ 2.0VDC, 1 ~ 5VDC, 0 ~ 10VDC (4 ~ 20mA, 0 ~ 20mA with 250Ω, 500Ω)</td>
<td>Universal Input (1 Point) K, J, E, T, R, S, L, N, U, W, Platinel II Pt100 (1/100), JPt100 -10 ~ 20mV, 0 ~ 100mV 0.4 ~ 2.0VDC, 1 ~ 5VDC, 0 ~ 10VDC (4 ~ 20mA, 0 ~ 20mA with 250Ω, 500Ω)</td>
</tr>
<tr>
<td>Control</td>
<td>Control Output</td>
<td>Control Output</td>
</tr>
<tr>
<td>Time-proportional PID</td>
<td>Time-proportional PID</td>
<td>Time-proportional PID</td>
</tr>
<tr>
<td>Continuous PID</td>
<td>Continuous PID</td>
<td>Continuous PID</td>
</tr>
<tr>
<td>EVENT (Max 7 Point)</td>
<td>Capacity</td>
<td>Capacity</td>
</tr>
<tr>
<td>Type</td>
<td>Type</td>
<td>Type</td>
</tr>
<tr>
<td>Inner Signal</td>
<td>Inner Signal</td>
<td>Inner Signal</td>
</tr>
<tr>
<td>Time Signal</td>
<td>Time Signal</td>
<td>Time Signal</td>
</tr>
<tr>
<td>Others</td>
<td>Others</td>
<td>Others</td>
</tr>
<tr>
<td>Retransmission Output</td>
<td>4 ~ 20mA DC, 0 ~ 20mA DC (Option) (PV, SP, MV) 2 Points</td>
<td>4 ~ 20mA DC, 0 ~ 20mA DC (Option) (PV, SP, MV) 2 Points</td>
</tr>
<tr>
<td>Digital Input</td>
<td>Communication Protocols</td>
<td>Communication Protocols</td>
</tr>
<tr>
<td>Capacity</td>
<td>PC Link, MODBUS (ASCII, RTU), SYNC (Master) *MAX : 19200bps</td>
<td>PC Link, MODBUS (ASCII, RTU), SYNC (Master) *MAX : 19200bps</td>
</tr>
<tr>
<td>Type</td>
<td>100 ~ 240VAC, 50 ~ 60 Hz / Max 6W below</td>
<td>100 ~ 240VAC, 50 ~ 60 Hz / Max 6W below</td>
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</table>

### Model

<table>
<thead>
<tr>
<th>Model</th>
<th>Suffix Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP540 / SP570</td>
<td>- □ □</td>
<td>Programmable Controller</td>
</tr>
<tr>
<td>Type</td>
<td>0</td>
<td>Standard</td>
</tr>
<tr>
<td>Power</td>
<td>0</td>
<td>100V ~ 240VAC</td>
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<tr>
<td></td>
<td>1</td>
<td>24VDC</td>
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</table>

### Options

<table>
<thead>
<tr>
<th>Options</th>
<th>RS422 / RS485</th>
<th>Analog Output</th>
<th>RS422 / RS485</th>
<th>Analog Output</th>
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<tbody>
<tr>
<td>/RS</td>
<td>*note 2</td>
<td>*note 1</td>
<td>*note 1</td>
<td>*note 2</td>
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<tr>
<td>/AOUT</td>
<td>Analog Output</td>
<td>*note 1</td>
<td>Analog Output</td>
<td>*note 1</td>
</tr>
<tr>
<td>/DI</td>
<td>2 Points</td>
<td>*note 2, 3</td>
<td>2 Points</td>
<td>*note 1, 2</td>
</tr>
<tr>
<td>/DO2</td>
<td>2 Points</td>
<td>*note 1, 3</td>
<td>2 Points</td>
<td>*note 2</td>
</tr>
<tr>
<td>/DO4</td>
<td>4 Points</td>
<td>4 Points</td>
<td>4 Points</td>
<td>Nomination</td>
</tr>
</tbody>
</table>

**Note:**
- SP540 = *note 1: AOUT/Do2/Relay2 to be purchased separately
- SP570 = *note 1: RS/Do to be purchased separately
- *note 2: RS/Do to be purchased separately
- *note 3: Do2/Do to be purchased separately
**NOVA TEMPERATURE CONTROLLERS**

### SP580

- **48(W)x96(D)x100(L)mm**
- **Programmable Controller**
- **Prog/Reset, 3 Zones PID, 1 Zone Deviation PID**
- **2 Patterns**
- **15 Segments x 2 (in each Pattern : Max total 30 Segments)**

**Universal Input (1 Point)**
- Pt100 (1/100), JPt100
- -10 ~ 20mV, 0 ~ 100mV
- 0.4 ~ 2.0VDC, 1 ~ 5VDC, 0 ~ 10VDC

**Universal Output (Max 5 Points)**
- SCR: 4 ~ 20mADC, 0 ~ 20mADC (Option)

**STD 3 Points**
- 2 Points (PV, SP, TSP)
- 1 Point

**STD 4 Points**
- 4 Points (PV, SP, TSP)
- 5 Points (0 ~ 59 min, 59sec, /0 ~ 599 hours, 59min.)
- 8 Points (RUN, ERROR, UP, SOAK, DOWN, Pattern END)
- 4 ~ 20mADC, 0 ~ 20mADC (PV, SP, MV)

**Options**
- RS: RS422 / RS485
- DI: 2 Points
- DO: 4 Points
- LPS: 24VDC

### SP590

- **96(W)x96(D)x100(L)mm**
- **Programmable Controller**
- **Prog/Reset, 3 Zones PID, 1 Zone Deviation PID**
- **2 Patterns**
- **15 Segments x 2 (in each Pattern : Max total 30 Segments)**

**Universal Input (1 Point)**
- Pt100 (1/100), JPt100
- -10 ~ 20mV, 0 ~ 100mV
- 0.4 ~ 2.0VDC, 1 ~ 5VDC, 0 ~ 10VDC

**Universal Output (Max 5 Points)**
- SCR: 4 ~ 20mADC, 0 ~ 20mADC (Option)

**STD 3 Points**
- 2 Points (PV, SP, TSP)
- 1 Point

**STD 4 Points**
- 4 Points (PV, SP, TSP)
- 5 Points (0 ~ 59 min, 59sec, /0 ~ 599 hours, 59min.)
- 8 Points (RUN, ERROR, UP, SOAK, DOWN, Pattern END)
- 4 ~ 20mADC, 0 ~ 20mADC (PV, SP, MV)

**Options**
- RS: RS422 / RS485
- DI: 2 Points
- DO: 4 Points
- LPS: 24VDC

### SP790

- **96(W)x96(D)x100(L)mm**
- **Programmable Controller**
- **Prog/Reset, 3 Zones PID, 1 Zone Deviation PID**
- **2 Patterns**
- **15 Segments x 2 (in each Pattern : Max total 30 Segments)**

**Universal Input (1 Point)**
- Pt100 (1/100), JPt100
- -10 ~ 20mV, 0 ~ 100mV
- 0.4 ~ 2.0VDC, 1 ~ 5VDC, 0 ~ 10VDC

**Universal Output (Max 5 Points)**
- SSR: 2 Points, SCR: 2 Points (Total 4 Points) PLY: 1 Point

**STD 3 Points**
- 2 Points (PV, SP, TSP)
- 1 Point

**STD 4 Points**
- 4 Points (PV, SP, TSP)
- 5 Points (0 ~ 59 min, 59sec, /0 ~ 599 hours, 59min.)
- 8 Points (RUN, ERROR, UP, SOAK, DOWN, Pattern END)
- 4 ~ 20mADC, 0 ~ 20mADC (PV, SP, MV)

**Options**
- RS: RS422 / RS485
- DI: 2 Points
- DO: 4 Points
- LPS: 24VDC

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**Remarks**
- SP580/590 = *note 1: RS/DI to be purchased separately*
# NOVA

## SD SERIES
**DIGITAL INDICATOR**

<table>
<thead>
<tr>
<th>Size</th>
<th>96(W)x48(D)x100(L)mm</th>
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<tbody>
<tr>
<td>PV/SP Data Display</td>
<td>each 4 Digits</td>
</tr>
<tr>
<td>Sampling Time</td>
<td>250ms</td>
</tr>
<tr>
<td>Indication Accuracy</td>
<td>±0.1% of FS</td>
</tr>
<tr>
<td>Sensor</td>
<td></td>
</tr>
<tr>
<td>PV Input</td>
<td>Universal Input(1 Point)</td>
</tr>
<tr>
<td>RTD</td>
<td>Pt100 (1/100), JPt100</td>
</tr>
<tr>
<td>DCV</td>
<td>-10 ~ 20mV, 0 ~ 100mV</td>
</tr>
<tr>
<td></td>
<td>0.4 ~ 2.0VDC, 1 ~ 5VDC, 0 ~ 10VDC (4 ~ 20mA, 0 ~ 20mA with 250Ω, 500Ω)</td>
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<tr>
<td>Alarm</td>
<td></td>
</tr>
<tr>
<td>Capacity</td>
<td>STO 3 Points</td>
</tr>
<tr>
<td>Type</td>
<td>8 Types(High/Low Temp Limit, Waitly High/Low Temp Limit)</td>
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<tr>
<td>Retransmission Output</td>
<td>4 ~ 20ADC, 0 ~ 20mA(Option) (PV)</td>
</tr>
<tr>
<td>Digital Input</td>
<td></td>
</tr>
<tr>
<td>Capacity</td>
<td>2 Points</td>
</tr>
<tr>
<td>Type</td>
<td>2 Types (PV Min/Max, Reset Min/Max)</td>
</tr>
<tr>
<td>Communication Protocols</td>
<td>PC Link, MODBUS(ASCII, RTU) * MAX : 19200bps</td>
</tr>
<tr>
<td>Power Supply and Consumption</td>
<td>100 ~ 240VAC, 50 ~ 60 Hz/ Max 6W below</td>
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<tr>
<th>Model</th>
<th>Suffix Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>SD560 / SD590</td>
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<td>Standard</td>
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<tr>
<td>Power</td>
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<td>100V ~ 240VAC</td>
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<td>24VDC</td>
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<tr>
<td>Options</td>
<td>i/R</td>
<td>RS422/RS485</td>
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<td>i/D</td>
<td>2 Points</td>
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<td></td>
<td>i/L</td>
<td>24VDC</td>
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</table>

*SD560/590 = *note 1: RS/DI to be purchased separately
## NOVA TEMPERATURE CONTROLLERS

### SL SERIES

**LIMIT CONTROLLER**

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<tr>
<th>Model</th>
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<th>Description</th>
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<tbody>
<tr>
<td>SL540 / SL590</td>
<td>- □ □</td>
<td>Limit Controller</td>
</tr>
<tr>
<td>Type</td>
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<td>Standard</td>
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<tr>
<td>Power</td>
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<td>100V ~ 240VAC</td>
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</tr>
<tr>
<td>Options</td>
<td>/RS</td>
<td>RS422/RS485</td>
</tr>
</tbody>
</table>

**SL540**

- Size: 48(W) x 48(D) x 100(L) [mm]
- PV/SP Data Display: each 4 Digits
- Sampling Time: 250ms
- Indication Accuracy: ±0.1% of FS
- Control Mode: High or Low
- PV Input: Universal Input (1 Point)
  - Pt100 (1/100), JPt100 (1/100)
  - -10 ~ 20mV, 0 ~ 100mV
  - 0.4 ~ 2.0VDC, 1 ~ 5VDC, 0 ~ 10VDC
- Sensor: T/C, RTD, DCV
- Alarm: Capacity, Type
- Retransmission Output: 4 ~ 20mADC, 0 ~ 20mADC (PV, SP)
- Digital Input Capacity, Type
- Communication Protocols: PC Link, MODBUS (ASCII, RTU) * MAX : 19200bps
- Power Supply and Consumption: 100 ~ 240VAC, 50 ~ 60 Hz/Max 6W below

**SL590**

- Size: 96(W) x 96(D) x 100(L) [mm]

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*NOVA TEMPERATURE CONTROLLERS*
What's Unique Features in Nova Series Controller

1. Available for Multi and Simultaneous Output (Max 5 Points)
   - Simultaneous and Multi Output available: Relay, SSR(V-Pulse), SCR(4 ~ 20mA), 0 ~ 20mA (Option)
   - Maximum 5 Heaters can be controlled by using just 1 controller

<table>
<thead>
<tr>
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<th>TYPE</th>
<th>CONTROL OUTPUT</th>
<th>SUB Relay OUTPUT</th>
<th>DO OUTPUT</th>
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<tbody>
<tr>
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<td>●</td>
<td>D01~D04</td>
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<td>SP</td>
<td>ALARM1</td>
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<td>SP</td>
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<td>PT END</td>
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</tr>
<tr>
<td>SP</td>
<td>UP, DOWN, SOAK, RUN</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
</tbody>
</table>

* SP790 is DO 12 Points (Relay 8 Points, O.C. 4 Points) STD: IS 4 Points, TS 5 Points, ALARM 4 Points → See the Manual for

2. Easy and Set Up Parameter in LED Display
   - Easy change and setup parameter followed by display name in LED
   - SP790 is LCD(128 × 64 DOT) Display

3. Built-In Reserve Function of RUN and STOP (Timer and Key)
   - Reserve Function of Run is to start control temperature after setting time
   - Reserve Function of End is to stop control output when after pass the setting time
   - SP790 has a built-in Reserve Function - See the manual for Details.

4. Input Piece Bias Function (Max 4 Zones)

   The actual temperature of machine in range of 0℃ ~ 100℃ and in case of doing Piece Bias on +2℃ in 25℃, -1℃ in 50℃, +3℃ in 75℃, each parameters are shown as under
   (RL=0℃, BSP1=25℃, BSP2=50℃, BSP3=75℃, RH=100℃)
   BS0=0℃, BS1=+2℃, BS2=+1℃, BS3=+3℃, BS4=0℃

   BSP1, BSP2, BSP3 : Setting Temperature for Bias range
   BS1, BS2, BS3 : Bias Value for Temperature

   * SP790 is MAX 10 Zones.
5. Setting up Gain Automatically by Auto-Tuning (AT Gain)

- It is setting up when PID parameter is obtaining by Auto Tuning.
- To get rapid sampling time is to reduce the value of Gain.
- To stabilize control value is to increase the value of Gain.
- However, it will be having more violent of Hunting under lower leveled Gain.
- Auto-Tuning is the function in the controller itself automatically obtains and sets PID parameter values.

6. Limit Controller for checking over temperature

- For the purpose of checking over temperature, it is followed by international standard.
- When over temperature occure, the power of Heater and machine is cut.
- If the temperature will be return the setting range, the controller is keeping the power off and will be power on after confirmation button push for resetting.
- 2 mode in high temperature limit and low temperature limit
- Display and memory function for high temperature and low temperature
- Display function of time period from the power off to the reset

7. Reference Universal Input

<table>
<thead>
<tr>
<th>Input</th>
<th>Temperature Range (°C)</th>
<th>Temperature Range (°F)</th>
<th>Indicating Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>K1</td>
<td>-200~1370</td>
<td>-300~2500</td>
<td>Temp Range ≥ 0°C : ±0.1%±1digit</td>
</tr>
<tr>
<td>K2</td>
<td>-199.9~999.9</td>
<td>0~2300</td>
<td>Temp Range &lt; 0°C : ±0.2%±1digit</td>
</tr>
<tr>
<td>J</td>
<td>-199.9~999.9</td>
<td>-300~2300</td>
<td>Temp Range ≥ 400°C : ±0.15%±1digit</td>
</tr>
<tr>
<td>T</td>
<td>-199.9~400.0</td>
<td>-300~750</td>
<td>Temp Range &lt; 400°C : ±5%±1digit</td>
</tr>
<tr>
<td>B</td>
<td>0~1800</td>
<td>32~3300</td>
<td>All Temp. Range : ±0.15%±1digit</td>
</tr>
<tr>
<td>R</td>
<td>0~1700</td>
<td>32~3100</td>
<td>Temp Range ≥ 0°C : ±0.1%±1digit</td>
</tr>
<tr>
<td>S</td>
<td>0~1700</td>
<td>32~3100</td>
<td>Temp Range &lt; 0°C : ±0.2%±1digit</td>
</tr>
<tr>
<td>E</td>
<td>-199.9~999.9</td>
<td>-300~1800</td>
<td>Temp Range ≥ 0°C : ±0.1%±1digit</td>
</tr>
<tr>
<td>L</td>
<td>-199.9~900.0</td>
<td>-300~1300</td>
<td>Temp Range &lt; 0°C : ±0.25%±1digit</td>
</tr>
<tr>
<td>U</td>
<td>-199.9~400.0</td>
<td>-300~750</td>
<td>All Temp. Range : ±0.2%±1digit</td>
</tr>
<tr>
<td>N</td>
<td>-200~1300</td>
<td>-300~2400</td>
<td>All Temp. Range : ±0.1%±1digit</td>
</tr>
<tr>
<td>W</td>
<td>0~2300</td>
<td>32~4200</td>
<td>All Temp. Range : ±0.1%±1digit</td>
</tr>
<tr>
<td>Platine</td>
<td>0~1390</td>
<td>32~2500</td>
<td>All Temp. Range : ±0.1%±1digit</td>
</tr>
</tbody>
</table>

| RTD   | -199.9~850.0           | -300~1560              | All Temp. Range : ±0.1%±1digit |
|       | -199.9~500.0           | -199.9~999.9           | All Temp. Range : ±0.2%±1digit |
|       | -199.9~99.99           | -4.0~212.0             | All Temp. Range : ±0.1%±1digit |
|       | -150.0~500.0           | -199.9~999.9           | All Temp. Range : ±0.1%±1digit |
|       | -150.0~150.0           | -199.9~300.0           | All Temp. Range : ±0.1%±1digit |

| DC Voltage | 0.4~2.0V | 0.400~2.000V | All Temp. Range : ±0.1%±1digit |
|            | 1~5V     | 1~5V         | Scaling Range : -1999~9999 |
|            | 0~10V    | 0~10V        |                           |
|            | -10~20mA | -10~20V      |                           |
|            | 0~100mA  | 0~100V       |                           |

*SP790: Pt, JPB(50.00 ~ 150.00)
*Function at Standard Operation Situation [23±2°C, 55±10%RH, 50/60Hz]
*When it receive 4 ~ 20mA DC, Choose 1 ~ 5VDC and connect 250Ω resistance.
8 Control Mode

<table>
<thead>
<tr>
<th>Type of Control Mode</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuous PID</td>
<td>Output Current: 4 ~ 20mA (below 600Ω in road resistance), 0 ~ 20mADC (Option)</td>
</tr>
<tr>
<td></td>
<td>Output Accuracy: ±0.3% of SPAN</td>
</tr>
<tr>
<td>Time-proportional PID Voltage Pulse Output</td>
<td>Voltage in 'On': 15VDC (over 600Ω in road resistance, limit current of 30mA when it is open)</td>
</tr>
<tr>
<td></td>
<td>Voltage in 'Off': below 0.1VDC</td>
</tr>
<tr>
<td></td>
<td>Cycle Time: 1 ~ 300 sec selectable</td>
</tr>
<tr>
<td>Time-proportional PID Relay Output</td>
<td>Contact Rating: 250VAC 3A, 30VDC 3A (road resistance)</td>
</tr>
<tr>
<td></td>
<td>Cycle Time: 1 ~ 300 sec selectable</td>
</tr>
</tbody>
</table>

9 Alarm Display

![Diagram of alarm display with conditions and types]

<table>
<thead>
<tr>
<th>No.</th>
<th>Type</th>
<th>Display Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Absolute-Value Upper-Limit Alarm (Forward)</td>
<td>AH.F</td>
</tr>
<tr>
<td>2</td>
<td>Absolute-Value Lower-Limit Alarm (Forward)</td>
<td>AL.F</td>
</tr>
<tr>
<td>3</td>
<td>Upper-Limit Alarm of Deviation (Forward)</td>
<td>DH.F</td>
</tr>
<tr>
<td>4</td>
<td>Lower-Limit Alarm of Deviation (Forward)</td>
<td>DL.F</td>
</tr>
<tr>
<td>5</td>
<td>Upper-Limit Alarm of Deviation (Reverse)</td>
<td>DH.R</td>
</tr>
<tr>
<td>6</td>
<td>Lower-Limit Alarm of Deviation (Reverse)</td>
<td>DL.R</td>
</tr>
<tr>
<td>7</td>
<td>Upper-and-Lower-Limit Alarm of Deviation (Forward)</td>
<td>DO.F</td>
</tr>
<tr>
<td>8</td>
<td>Upper-and-Lower-Limit Range Alarm of Deviation (Forward)</td>
<td>DL.F</td>
</tr>
<tr>
<td>9</td>
<td>Absolute-Value Upper Limit Alarm (Reverse)</td>
<td>AH.R</td>
</tr>
<tr>
<td>10</td>
<td>Absolute-Value Lower Limit Alarm (Reverse)</td>
<td>AL.R</td>
</tr>
<tr>
<td>11</td>
<td>Absolute-Value Upper-Limit Alarm with Standby (Forward)</td>
<td>AH.FS</td>
</tr>
<tr>
<td>12</td>
<td>Absolute-Value Lower-Limit Alarm with Standby (Forward)</td>
<td>AL.FS</td>
</tr>
<tr>
<td>13</td>
<td>Upper-Limit Alarm of Deviation with Standby (Forward)</td>
<td>DH.FS</td>
</tr>
<tr>
<td>14</td>
<td>Lower-Limit Alarm of Deviation with Standby (Forward)</td>
<td>DL.FS</td>
</tr>
<tr>
<td>15</td>
<td>Lower-Limit Alarm of Deviation with Standby (Reverse)</td>
<td>DH.RS</td>
</tr>
<tr>
<td>16</td>
<td>Upper-Limit Alarm of Deviation with Standby (Reverse)</td>
<td>DL.RS</td>
</tr>
<tr>
<td>17</td>
<td>Upper-and-Lower-Limit Alarm of Deviation with Standby (Forward)</td>
<td>DO.FS</td>
</tr>
<tr>
<td>18</td>
<td>Upper-and-Lower-Limit Range Alarm of Deviation with Standby (Forward)</td>
<td>DL.FS</td>
</tr>
<tr>
<td>19</td>
<td>Absolute-Value Upper-Limit Alarm with Standby (Reverse)</td>
<td>AH.RS</td>
</tr>
<tr>
<td>20</td>
<td>Absolute-Value Lower-Limit Alarm with Standby (Reverse)</td>
<td>AL.RS</td>
</tr>
</tbody>
</table>

If Standby On, display 'S' in LED.
NC: F  (Forward: On in Alarm occur)
NC: R  (Reverse: Off in Alarm occur)
Display in Decimal point always.
Absolute High: H
Absolute Low: L
Outside range of Deviation Band: O
Inside range of Deviation Band: I
Absolute Value Alarm: A
Deviation Value Alarm: D
**NOVA ST SERIES**

**ST540**

**Digital controller ST540**
- Easy Change and Setting up Parameter, followed by display name in LED
- Available function to protect Over-Shot (Fuzzy)
- 2 Points Alarm output as Standard
- Function of RUN/STOP
- Reserve function of RUN/END (Timer or Key)
- Display of Running status in Auxillary Output
- Input Piece Bias Function (Max 4 zones)
- Heating and Cooling Control
- Automatic PID Parameter Calculation (AT Gain)
- Variety of communication Protocols
- Reliable quality (CE, CUL, ISO, IP65 applied)

**Special Features**
- A/D Convert : 16bit
- High Accuracy (±0.1%) with excellent Function
- Multi Input : TC, RTD, DCV
- Simultaneous and Multi output available in Max 5 Points

**Operating Display**
- Display of the status in Stop running
- Display of the value of PV and Control Output
- Select SP No
- Set Alarm value

**Terminal Assignment**

**DIGITAL INPUT**
- DI1, DI2

**RELAY**
- Select Type

**POWER**
- 100~240VAC 50/60Hz

**TC INPUT**
- Select Type

**MOV/V INPUT**
- RTD INPUT

**OUT**
- Select Type

**SUB OUT**
- Select Type

**Contact Rating**
- 250VAC 3A
- 30VDC 3A

**4-20mA O/P 6-20mA (option)**
Special Features
- A/D Convert : 16bit
- High Accuracy (±0.1%) with excellent Function
- Multi Input : TC, RTD, DCV
- Simultaneous and Multi output available in Max 5 Points

Operating Display
- Display of the status in Stop running
- Display of the value of PV and Control Output
- Select SP No
- Set Alarm value

Terminal Assignment

Digital controller ST570
- Easy Change and Setting up Parameter, followed by display name in LED
- Available function to protect Over-Shot (Fuzzy)
- 1 Point Alarm output as Standard Option
- Function of RUN/STOP
- Reserve function of RUN/END (Timer or Key)
- Display of Running status in Auxiliary Output
- Input Piece Bias Function (Max 4 zones)
- Heating and Cooling Control
- Automatic PID Parameter Calculation (AT Gain)
- Variety of communication Protocols
- Reliable quality (CE, CUL, ISO, IP55 applied)
**Special Features**

- A/D Convert : 18bit
- High Accuracy (±0.1%) with excellent Function
- Multi Input : TC, RTD, DCV
- Simultaneous and Multi output available in Max 5 Points

**Digital controller ST560**

- Easy Change and Setting up Parameter, followed by display name in LED
- Available function to protect Over-Shoot (Fuzzy)
- 1 Point Alarm output as Standard Option
- Function of RUN/STOP
- Reserve function of RUN/END (Timer or Key)
- Display of Running status in Auxiliary Output
- Input Piece Bias Function (Max 4 zones)
- Heating and Cooling Control
- Automatic PID Parameter Calculation (AT Gain)
- Variety of communication Protocols
- Reliable quality (CE, CUL, ISO, IP65 applied)

**Operating Display**

- Display of the status in Stop running
- Display of the value of PV and Control Output
- Select SP No
- Set Alarm value

**Terminal Assignment**

- Contact Rating: 250VAC 1A, 30VDC 1A
- MAX: 12000bps
- Options

- Relay Select Type
- Di
- RS485
- N/V INPUT
- RTD INPUT
- TC INPUT

- 100~240VAC 50/60Hz

- 0~20mA DC (Option)
NOVA
ST SERIES
ST580

Digital controller ST580

- Easy Change and Setting up Parameter, followed by display name in LED
- Available function to protect Over-Shoot (Fuzzy)
- 1 Point Alarm output as Standard Option
- Function of RUN/STOP
- Reserve function of RUN/END (Timer or Key)
- Display of Running status in Auxiliary Output
- Input Piece Bias Function (Max 4 zones)
- Heating and Cooling Control
- Automatic PID Parameter Calculation (AT Gain)
- Variety of communication Protocols
- Reliable quality (CE, CUL, ISO, IP65 applied)

Special Features

- A/D Convert : 16bit
- High Accuracy (± 0.1%) with excellent Function
- Multi Input : TC, RTD, DCV
- Simultaneous and Multi output available in Max 5 Points

Operating Display

- Display of the status in Stop running
- Display of the value of PV and Control Output
- Select SP No
- Set Alarm value

User can set the value

Terminal Assignment

OUT1
RELAY Relay Select Type

- NO
- NC
- COM
- HEAT
- COOL
- ALM1
- ALM2
- ALM3
- ALM4
- RUN

Contact Rating 250VAC 1A
30VDC 1A

SUB OUT
RELAY Relay Select Type

- NO
- NC
- COM
- HEAT
- COOL
- ALM1
- ALM2
- ALM3
- ALM4
- RUN

Contact Rating 250VAC 1A
30VDC 1A

DI
RS485

- D1
- D2
- TX+
- RX-
- COM
- GND

MAX:1600kbps

POWER

100~240VAC 50/60Hz

No-voltage relay Contact Rating or TR Contact Rating

TC INPUT

NOVA TEMPERATURE CONTROLLERS
Special Features
- AD Convert. : 18bit
- High Accuracy (±0.1%) with excellent Function
- Multi Input : TC, RTD, DCV
- Simultaneous and Multi output available in Max 5 Points

Operating Display
- Display of the status in Stop running
- Display of the value of PV and Control Output
- Select SP No
- Set Alarm value

Terminal Assignment

Digital controller ST590
- Easy Change and Setting up Parameter, followed by display name in LED
- Available function to protect Over-Shoot (Fuzzy)
- 1 Point Alarm output as Standard Option
- Function of RUN/STOP
- Reserve function of RUN/END (Timer or Kay)
- Display of Running status in Auxiliary Output
- Input Piece Bias Function (Max 4 zones)
- Heating and Cooling Control
- Automatic PID Parameter Calculation (AT Gain)
- Variety of communication Protocols
- Reliable quality (CE, CUL, ISO, IP55 applied)
Special Features
- A/D Convert : 18bit
- High Accuracy (±0.1%) with excellent Function
- Multi Input : TC, RTD, DCV
- Simultaneous and Multi output available in Max 3 Points
- Easy parameter and program pattern setting
- Function to protect Over-Shoot (Fuzzy)

Programmable controller SP540
- Freerecension Output, 1Alarm Output
- RUN/STOP Function in the external Input contact point
- Display of Running status in Auxiliary Output
- Large Program Capacity : 2 Patterns / 30 Segments
- Variety of Auxiliary Output available (ex IS, TS, PEND etc)
- Input Piece Bias Function (Max 4 zones)
- Automatic PID Parameter Calculation(AT Gain)
- Variety of communication Protocols
- Reliable quality (CE, CUL, ISO, IP65 applied)

Operating Display
- Display of the status in Stop running
- Display of the value of PV and Control Output
- Display of Step Program Run
- Current Run Seg shift for Next Seg : "STEP=ON"
- Program Run is to Hold "HOLD=ON"

Terminal Assignment

- Options

No-voltage relay Contact Rating or TR Contact Rating

100~240VAC 50/60Hz

Transistor Contact Rating: 24VDC 50mA below

Contact Rating: 250VAC 1A 30VDC 1A

4~20mA DC or Voltage Pulse 0~20mA DC (Option)

SCR/STK/RET Select Type

Input Type

Power
Programmable controller SP570
- 16 bit A/D Convert
- High Accuracy (±0.1%) with excellent Function
- Multi Input: TC, RTD, 4–20mA DC
- Simultaneous and Multi output available in Max 5 Points
- Easy parameter and program pattern setting
- Function to protect Over-Shoot (Fuzzy)

Operating Display
- Display of the status in Stop running
- Display of the value of PV and Control Output
- Display of Stop Program Run
- Current Run Seg shift for Next Seg “STEP=ON”
- Program Run is in Hold “HOLD=ON”

Terminal Assignment

<table>
<thead>
<tr>
<th>MO1</th>
<th>MO2</th>
<th>MO3</th>
<th>MO4</th>
<th>MO5</th>
<th>MO6</th>
<th>MO7</th>
<th>MO8</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
</tr>
</tbody>
</table>

- Options

Diagnosis
- Without relay Contact Rating: 10VDC 50mA below

4–20mA DC or Voltage Pulse 0–20mA DC (Option)
**Special Features**

- A/D Convert : 18bit
- High Accuracy (±0.1%) with excellent Function
- Multi Input : TC, RTD, DCV
- Simultaneous and Multi output available in Max 5 Points
- Easy parameter and program pattern setting
- Function to protect Over-Shoot (Fuzzy)

**Operating Display**

- Display of the status in Stop running
- Display of the value of PV and Control Output
- Display of Stop Program Run
- Current Run Seg shift for Next Seg : “STEP=ON”
- Program Run is to Hold “HOLD=ON”

**Terminal Assignment**

- Options

![Diagram showing terminal assignment and operation details]
Special Features
- A/D Convert : 18bit
- High Accuracy (±0.1%) with excellent Function
- Multi Input : TC, RTD, DCV
- Simultaneous and Multi output available in Max 5 Points
- Easy parameter and program pattern setting
- Function to protect Over-Shoot (Fuzzy)

Operating Display
- Display of the status in Stop running
- Display of the value of PV and Control Output
- Display of Step Program Run
- Current Run Seq shift for Next Seg “STEP=ON”
- Program Run is to Hold “HOLD=ON”

Terminal Assignment
- Options
- Relay Contact Rating: 250VAC 3A 30VDC 1A
- 4~20mA or Voltage Pulse 0~20VAC/DC (Optional)
- POWER: 100~240VAC 50/60Hz
- Relay Contact Rating: 24VDC 50mA below
- MAX: 182000bps
- Input Type: TC, RTD, DI, DO, AO, PID, CAN, RS232, RS485
- Output Type: Relay, SSR, LED, Display
- Input Range: 0~9999
- Output Range: 0~9999
- Sampling Time: 1s
- Relay Contact Rating: 250VAC 3A 30VDC 1A
- Contact Rating: 250VAC 3A 30VDC 1A
Special Features

- A/D Convert : 18bit
- High Accuracy(±0.1%) with excellent Function
- Multi Input : TC, RTD, DCV
- Output : SCR(4~20mAADC), 0~20mAADC, SSR, Relay
- 8 Relay Output, 4 O.C Output
- Variety of Auxiliary Output available (Ex: IS, TS, PEND etc)

Programmable controller SP790

- Flow Type Parameter Input (Textual Type)
- Large Program Capacity : 30 Patterns / 300 Segments
- Automatic PID Parameter Calculation
- Function to protect Over-Shoot (Fuzzy)
- Input Device Bias Function (Max. 10 zones)
- Programs Fix, On/Off, Heating/Cooling, Auto/Man Function
- Reliable quality (CE, CUL, ISO, IP55 applied)

Operating Display

- Programming
- Setup Menu
- Pattern Set
- DO Set

Terminal Assignment

- DD
- Relay
- SSR
- Input
- Output
- Power

Options
**Special Features**
- High Accuracy (±0.1%)
- Multi Input: TC, RTD, DCV
- ALARM Output Max 3 Points

**Operating Display**
- Display Input Value
- Display Value of Maximum Measuring
- Display Value of Minimum Measured

**Terminal Assignment**
- POWER
- RET
- ALARM
- DI
- RS485
- ALARM1
- ALARM2

**Digital Indicator SD560**
- Easy parameter and value setting
- Reset function by the external input contact point
- Memory and Display Function of High and Low temperature value
- Standard Option of Retransmission and Alarm output 1 Point
- Variety of communication Protocols
- Reliable quality (CE, CUL, ISO, IP65 applied)
**Special Features**

- High Accuracy (±0.1%)
- Multi Input - TC, RTD, DCV
- ALARM Output Max 3 Points

**Operating Display**

- Display Input Value
- Display Value of Maximum Measuring
- Display Value of Minimum Measured

**Terminal Assignment**

- Options

**Digital Indicator SD590**

- Easy parameter and value setting
- Reset function by the external input contact point
- Memory and Display Function of High and Low temperature value
- Standard Option of Retransmission and Alarm output 3 Points
- Variety of communication Protocols
- Reliable quality (CE, CUL, ISO, IP65 applied)
Special Features

- High Accuracy (±0.1%)
- Multi input: TC, RTD, DCV
- ALARM Output Max 1 Point
- Easy parameter and value setting

Limit controller SL540

- Reset RELAY after confirmed by user when Over Temperature occur
- Memory and Display Function of High and Low temperature value
- Memory and display function of time period from the power off to the reset
- Variety of communication Protocols
- Reliable quality (CE, CUL, ISO, IP65 applied)
- Standard Alarm

Operating Display

- Display status of PV, SP
- Display status of On, Off Output
- Display Time the overtemp occurred
- Display maximum value of measuring
- Display minimum value of measuring

Terminal Assignment
### Special Features
- High Accuracy (±0.1%)
- Multi Input: TC, RTD, DCV
- ALARM Output Max 1 Point
- Easy parameter and value setting

### Limit controller SL590
- Reset RELAY after confirmed by user when Over Temperature occur
- Memory and Display Function of High and Low temperature value
- Memory and display function of time period from the power off to the reset
- Variety of communication Protocols
- Reliable quality (CE, CUL, ISO, IP55 applied)
- Standard Alarm

### Operating Display
- Display status of PV, SP
- Display status of On/Off Output
- Display Time the overtemp occurred
- Display maximum value of measuring
- Display minimum value of measuring

### Terminal Assignment
- [Diagram showing terminal assignments and options]

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26 NOVA TEMPERATURE CONTROLLERS