Multi Loop Controller
SDC45A/46A

High-speed, high-accuracy and high-performance next-generation controllers.

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(13) CP-PC-1462E
1st Edition : Issued in Mar. 2007-BR
Thoughtful design responding to a variety of needs

- **Full multi-range input**
  Both inputs of the 2-input model are full multi-range. This versatile model is suitable for use with temperature sensors, signal transmitters, PH meters, and various linear signal applications. Customization is available on request, for applications such as signal for RS, 2-loop PID control, and cascade control.

- **IP65 front panel protection**
  If the included gasket is used, the front panel has IP65 splash-proof protection. This allows the controller to be used for food manufacturing processes, etc.

- **Easy-to-operate keys**
  All necessary keys are arranged for easy setting and operation. Mechanical keys click when used, enhancing usability.

- **Power supply can be installed for signal transmitter (optional).**
  Up to two 24Vdc 30mA power supplies can be installed (one for the SDC45A). An external power supply is not required, allowing simple wiring for use with signal transmitter, etc.

Software

- **Configure and monitor from a PC**
  The SDC45A/46A can connect to a PC via the Smart Loader Package (SLP), which includes a dedicated connector cable. The SLP software allows parameter setting, trend monitoring, and data output as CSV files.

- **Easy data logging function**
  The communications function of the SDC45A/46A allows data logging of multiple controllers using the Smart Loader Package. DI/DO status can be logged simultaneously.

Hardware

- **Event configuration functionality means less wiring, reduced labor costs**
  The SDC45A/46A provides 16 internal event settings, which can be assigned to relay output or DO. A robust event output function reduces wiring and labor costs and increases flexibility when expanding instrumentation.

A generous variety of I/O, to satisfy high-level control demands.

- **Suitable for multiple application requirements**

<table>
<thead>
<tr>
<th>PV1 input</th>
<th>PV2 input (optional)</th>
<th>Digital inputs (optional)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full multi-range</td>
<td>Full multi-range (also applicable as RSP)</td>
<td>Up to 14 digital inputs can be used to change modes or settings.</td>
</tr>
</tbody>
</table>

- **Available control modes**
  - PID, heat/cool, 2-loop PID, and cascade control.

- **Output**
  - A wide variety is available, including current, voltage and relay. Up to 7 can be selected (SDC45A).
  - Two outputs are used for heat/cool control.
  - Up to 8 DOs are available, including various event and device status outputs.

- **Communications (optional)**
  - RS-485 (3-wire system)
  - PC compatible
  - Configure and monitor on a PC using the Smart Loader Package.

- **Heat/cool function**
  - Two outputs are used for heat/cool control.

- **Digital outputs (optional)**
  - Up to 8 DOs are available, including various event and device status outputs.

Illustration shows the SDC46A.
**Control**

**Broad application support includes nonlinear processes**

- **I/O linearization table is a standard feature**
  - Features a 20-point linearization table for use just after input processing and just before control output processing.

- **Fixed output level function**
  - For equipment startup or in the initial processing stage, constant control output on a temporary basis is available for purposes of equipment startup or malfunction, bumpless transfer to a controller as DCS, and is interrupted due to power failure.

- **Heat/cool control**
  - Up to 7 outputs are available to handle a wide variety of application needs.

- **New algorithms for enhanced control**
  - Stable control that is unaffected by disturbances is achieved using highly accurate Ra-PID (RatioaLoop PID) control logic and the Just-FITTER algorithm for overshoot suppression.

- **3 types of auto-tuning (AT) are standard features**
  - The SDC45A/46A is equipped with:
    - Regular AT
    - Quick-response AT, optimal for systems that heat up easily
    - Stable operation AT, optimal for systems that heat up and cool down easily

**Cascade control (2-input model)**

PID cascade control can be done using only one controller acting as both master and slave. This is very effective for a process with a large dead time. When using 2 units for cascade control, the control mode can be easily switched (cascade control ⇒ slave control only).

**Backup controller (2-input model)**

When control is handled by another device such as DCS, and is interrupted due to power failure or malfunction, bumpless transfer to a controller can be initiated by a preset value or tracking of the other device’s output.
## Detailed model No. (useful for equipment manufacturers)

**SDC45A**

<table>
<thead>
<tr>
<th>Option 1</th>
<th>Option 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inputs 1, 2</td>
<td>Inputs 3, 4</td>
</tr>
<tr>
<td>Outputs 5, 6, 7</td>
<td>Outputs 1, 2</td>
</tr>
</tbody>
</table>

**SDC46A**

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</table>

### Notes:
1. There are no digital inputs if "SS" is selected for Outputs 3, 4.
2. There are 8 digital inputs if "SS" is selected for Outputs 3, 4.
3. Additional information and instruction manuals are available upon request. Please contact the sales department for details.

## Combined function model No. (with all-orange LED displays, CE marking) (useful for engineering manufacturers and factory maintenance staff)

### SDC46A

<table>
<thead>
<tr>
<th>Basic model No.</th>
<th>Option 1</th>
<th>Option 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outputs 6, 7</td>
<td>Outputs 1, 2</td>
<td></td>
</tr>
</tbody>
</table>

### Notes:
1. Not available if "CC" is selected for Outputs 3, 4 and "C" is selected for Output 5.
2. Additionally, tropicalization and anti-sulfidation treatments can be ordered.

## Accessories (sold separately)

### SDC46A

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Model No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Kit</td>
<td>Kit for testing</td>
<td>C46A000</td>
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</table>

### Notes:
- Test kit includes all necessary tools for testing.
- It is recommended for use with SDC46A.
- Contact sales for more information.

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**Detailed model No.** Specifications required for a particular application can be selected in detail, allowing purchasers of the optimal device (especially useful for equipment manufacturers).

**Combined function model No.** Easy selection from pre-made combinations of required functions. Selections feature multiple I/Os, so these devices can be used readily for a variety of application requirements (especially useful for engineering manufacturers and factory maintenance staff).