azbil

International Business Department
Advanced Automation Company

No. 08-A-0145E

Date: October 1, 2008

To: Those listed

Issued by: T. Kurasawa, General Manager

Subject: **SDC45/46** High-Accuracy Models

Summary: **SDC45R/46R** high-accuracy models, featuring PV input with high accuracy and resolution, will be added to the **SDC45/46** line of digital indicating controllers.

Background: We will introduce the **SDC45R/46R** for applications on semiconductor and flat panel display manufacturing equipment and utilities, which are expanding markets. There is strong demand for HVAC and high-accuracy chiller control in order to achieve higher efficiency and yield.

Required action:

The **SDC45R/46R** supports 4-wire Pt RTD input, enabling high-accuracy and high-resolution temperature measurement. Suggest the **SDC45R/46R** to equipment makers of air conditioning chambers, chillers, and clean booths for semiconductor and FPD manufacturing equipment.

Product advantages:

High accuracy:

- PV input supports 4-wire RTDs.
- Input accuracy of ±0.05 °C
- Resolution of 0.001 °C (RTD input)

Heater power voltage compensation:

- Monitors the AC heater power voltage and adjusts the control output to compensate for fluctuations (2 AC inputs; use of step-down transformer **81406725-003** is recommended).

Other:

- PV sampling period and control period of 100 ms
- Control of up to 2 loops
- Output type options: relay, current and voltage pulse models
- Smart Loader Package is supported.
- RS-485 communications (optional)
- CE-marked, IP65 ingress protection

YAMATAKE CORPORATION
1-12-2 KAWANA, FUJISAWA-SHI, KANAGAWA 251-8522 JAPAN. TEL: 81-466-20-2307. FAX: 81-466-27-9264

Input types:

Input type	Sensor	Range	Input accuracy	Ambient temperature characteristics
RTD	Pt100 (3-wire)	0.00 to 100.00 °C 0.000 to 32.000 °C	±0.05 °C	0.004 °C/°C
	Pt100 (4-wire)			
	JPt100 (3-wire)			
	JPt100 (4-wire)			
Linear	0–1 V	Scaling from -19999 to 32000 U	±0.1 % FS ±1 digit	±100 ppm/°C
	1–5 V			
	0–5 V			

Heater power voltage input:

Recommended step-down transformer:	**81406725-003**
Input range:	0 to 12 Vac
Measurement voltage range:	0 to 13.2 Vac (accuracy is not guaranteed if the voltage is less than 0.5 Vac)
Indication accuracy:	±0.5 % FS ±1 digit
Indication resolution:	0.01 Vac
Input impedance:	126 kΩ (typical)

Available dates:

Orders: Immediately
Shipment: October 15, 2008

Selection guide:

C45R

Basic No.	Inputs	Power	Outputs 1, 2	Outputs 3, 4	Output 5	Outputs 6, 7	Options	Additional features 1	Additional features 2	Description
C45R										High-accuracy model (mask size 48 × 96)
	1									2 inputs (1 RTD, 1 linear)
	2									2 inputs (RTD)
		A								100 to 240 Vac
		D								24 Vdc
			1							Form 1a1b relay
			2							2 form 1a relays
				CC						2 current outputs
				VV						2 voltage pulse outputs
					R					Form 1a relay
						0				None
							0			2 AC inputs for heater power voltage compensation
							1			2 AC inputs + 8 digital inputs
							8			2 AC inputs + RS-485 communications
								D		Inspection certificate
								Y		Traceability certification
									0	None

C46R

Basic No.	Inputs	Power	Outputs 1, 2	Outputs 3, 4	Output 5	Outputs 6, 7	Options	Additional features 1	Additional features 2	Description
C46R										High-accuracy model (mask size 96 × 96)
	1									2 inputs (1 RTD, 1 linear)
	2									2 inputs (RTD)
		A								100 to 240 Vac
		D								24 Vdc
			1							Form 1a1b relay
			2							2 form 1a relays
				CC						2 current outputs
				VV						2 voltage pulse outputs
					R					Form 1a relay
						0				None
						3				2 current outputs
							0			2 AC inputs for heater power voltage compensation
							1			2 AC inputs + 12 digital inputs
							8			2 AC inputs + RS-485 communications
								D		Inspection certificate
								Y		Traceability certification
									0	None

No. 08-A-0145E

Product PR Guide

SDC45R/46R New Functions

1 PV setting and input range

a) Function

Input types depend on the model. Available input ranges in each input type are shown below.

Table 1 RTD input

Range No.	Sensor type	Range (°C)	RTD wiring
23	Pt100	0.00 to 100.00 0.000 to 32.000	3-wire
24	Pt100	0.00 to 100.00 0.000 to 32.000	4-wire
33	JPt100	0.00 to 100.00 0.000 to 32.000	3-wire
34	JPt100	0.00 to 100.00 0.000 to 32.000	4-wire

Table 2 Linear input

Range No.	Sensor type	Range	Scaling
47	Voltage	0–1 V	-19999 to 32000 U
49		1–5 V	
50		0–5 V	

b) Parameter used

Bank	Item display	Item name	Settings
Pv	Pv-01	Range type	Setting range No.

2 Heater power voltage compensation

a) Function

This function monitors the AC heater power voltage and adjusts the control output to compensate for fluctuations. AC power stepped down to 5–10 V is connected to the AC input port. The formula used for compensation is:

$$\text{Compensated output} = (100 \div \%\ \text{Vac})^2 \times \text{MV}$$

Where: % Vac = (stepped-down AC input voltage ÷ reference voltage) × 100

The compensation calculation is disabled under the following conditions:

- CO-08/TPO.08 *(Power voltage compensation select)* is set to 0 (disabled).
- % Vac is less than 80 %.

When % Vac is over 120 %, 120 % is used in calculating the compensated output. The compensated output is indicated in monitor bank AO.

b) Parameters used

<Output (analog) bank>

Item display	Item name	Settings	Factory setting	Remarks
CO-08	Power voltage compensation select	0: Disabled 1: Compensated with AC1 input 2: Compensated with AC2 input	0	Indicated where output type is 1 to 7 or 2048 to 3071

<Output (ON/OFF) bank>

Item display	Item name	Settings	Factory setting	Remarks
TPO.08	Power voltage compensation select	0: Disabled 1: Compensated with AC1 input 2: Compensated with AC2 input	0	Indicated where output type is 1 to 12 (MV-related outputs)

<AC input bank>

Item display	Item name	Setting range	Factory setting	Remarks
AC-01	Reference voltage	4.00 to 11.00 V	10.00	—
AC-02	Filter	0.00 to 120.00 s	0.00	—

The setting for AC-01 (*reference voltage*), is heater rated voltage × transformer ratio. (Transformer ratio = 1/20 for **81406725-003**, the recommended step-down transformer)

Example:

If heater rated voltage = 100 V and transformer ratio = 1/20,

Reference voltage = 100 V × 1/20 = 5 V

c) Data monitoring

Measurement status is indicated in the monitor bank.

Stepped-down AC input voltage (AC1):	28B0H
Stepped-down AC input voltage (AC2):	28B4H
% Vac (AC1):	28B1H
% Vac (AC2):	28B5H