INSTRUCTION MANUAL

STEP CONTROLLER

MODEL SC01-COS

KIKUSUI ELECTRONICS CORPORATION

32017

Power Requirements of this Product

Power requirements of this product have been changed and the relevant sections of the Operation Manual should be revised accordingly.
(Revision should be applied to items indicated by a check mark ☑.)

☐ Input voltage

The input voltage of this product is _____ VAC,
and the voltage range is _____ to _____ VAC. Use the product within this range only.

☐ Input fuse

The rating of this product's input fuse is _____A, _____VAC, and _____.

WARNING

- To avoid electrical shock, always disconnect the AC power cable or turn off the switch on the switchboard before attempting to check or replace the fuse.
- Use a fuse element having a shape, rating, and characteristics suitable for this product. The use of a fuse with a different rating or one that short circuits the fuse holder may result in fire, electric shock, or irreparable damage.

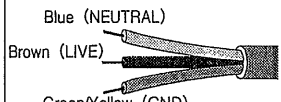
☐ AC power cable

The product is porvided with AC power cables described below. If the cable has no power plug, attach a power plug or crimp-style terminals to the cable in accordance with the wire colors specified in the drawing.

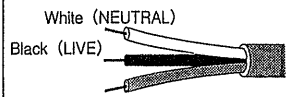
WARNING

- The attachment of a power plug or crimp-style terminals must be carried out by qualified personnel.

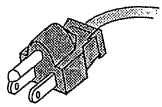
☐ Without a power plug



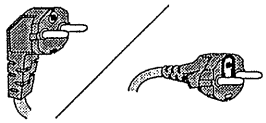
☐ Without a power plug



☐ Plugs for USA



☐ Plugs for Europe



☐ Provided by Kikusui agents

Kikusui agents can provide you with suitable AC power cable.
For further information, contact your Kikusui agent.

☐ Another Cable _____

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1. GENERAL

1-1. Description

Step Controller SC01-COS is used in conjunction with Remote Controller RC01-COS and Memory Unit MU01-COS to control steps of programs stored in memory of such devices.

1-2. Features

- o Various step control functions:

  The various types of step control operations can be done as follows: Each time the UP or DOWN button is pressed, control advances or retrogresses by one step. (If you press momentarily the UP or DOWN button, the step changes only by one step.) If you keep depressed either one of these buttons, the step goes on changing for rapid change by many steps. If you press the RESET button, the step returns to the initial one of the program. An automatic step advancement operation with a presettable time interval of approximately 3 to 30 seconds also is possible.

- o A step signal output:

  A step signal output, representing the current program step and in a format of BCD code, is provided for external use.

- o Two connection methods:

  This device can be connected to Remote Controller RC01-COS either directly to it making up a single unit or remotely to it using an inter-device connection cable (optional), to make the best use of space.

2. SPECIFICATIONS

Indication function

Program step indication: 0 - 95

Operating functions

MANUAL mode: The step can be changed by manually operating the UP, DOWN, and RESET buttons. If the UP or DOWN button is kept depressed, the step changes self-continueing.

AUTO mode: In addition to the functions when in the manual mode, if in the WRITE mode, the step number is counted up by 1 each time write operation on memory is over, being linked to the MEMORY button. If in the READ mode, the step number is counted up at each time-interval preset by the TIME INTERVAL knob.

Step indication output

Output code: BCD code, positive logic

Output connector: 14-pin Amphenol receptacle

Dimensions and weight

Outline dimensions

Maximum dimensions: 142 W × 76 H × 95 D mm
(5.59 W × 2.99 H × 3.74 D in.)

Mainframe: 130 W × 65 H × 85 D mm
(5.12 W × 2.60 H × 3.35 D in.)

Weight: Approx. 0.6 kg (1.3 lbs)

Ambient temperature and humidity

Ranges to satisfy specifications: +5°C to +35°C (41°F to 95°F), up to 85% RH

Operating ranges: 0°C to +40°C (32°F to 104°F), up to 90% RH

Accessories

Instruction manual 1

Screws for mounting 4

3. GENERAL PRECAUTIONS

3-1. Unpacking the Step Controller

Step Controller SC01-COS is shipped from the manufacturer's factory after full mechanical and electrical inspection to ensure perfect structures and performances. Please unpack the device immediately upon receiving it and check for any signs of damage which might have been caused when in transportation. If any sign of damage is found, please immediately notify the bearer and your Kikusui dealer.

3-2. Environmental Conditions

This device can be operated within an ambient temperature range of 0°C to 40°C (32°F to 104°F) and ambient humidity of up to 90% RH. Note that malfunctioning may be caused if the device is operated in an ambient condition exceeding any of the above limits, if the device is subjected to rapid temperature and/or humidity change, or if it is subjected to vibration.

3-3. Inter-device Connection Cables

Never connect wrong devices with inter-device connection cables. Never connect or disconnect inter-device connection cables when the powers of devices connected by them are on. Such will cause damage to the devices. Be sure to correctly connect the cables upon insuring that the powers of the devices to be connected are off.

4. OPERATION METHOD

4-1. Description of Panel Items

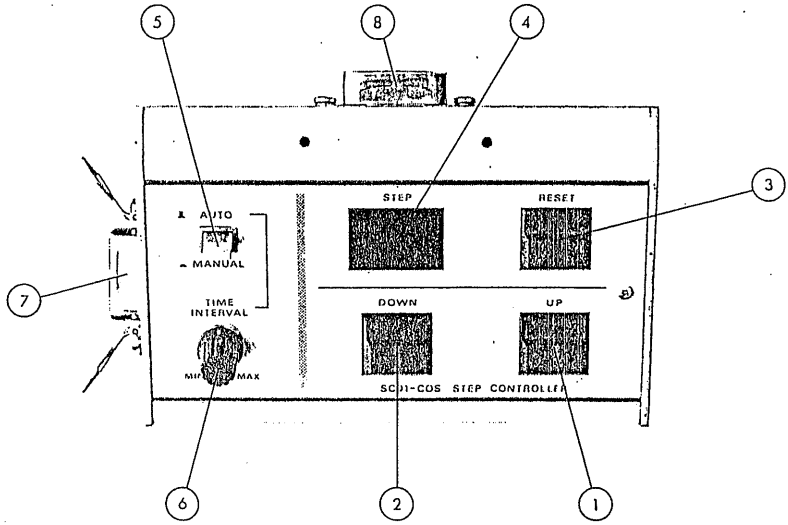

Figure 4-1

① UP: Each time this button is pressed momentarily, the program step number is counted up by 1. If it is kept depressed, the step number changes self-continueing.

② DOWN: Each time this button is pressed momentarily, the program step number is counted down by 1. If it is kept depressed, the step number changes continuously.

③ RESET: This button is to reset the program step. As you press this button, the step returns to the step number preset by the START digital switches of Remote Controller RC01-COS.

④ STEP: These lamps (LED's) indicates the program step for a range of 0 - 95.

⑤ AUTO: MANUAL — This button selects the step change operation mode between AUTO and MANUAL. In either case, the functions of above items ① - ③ remain effective.

⑥ TIME INTERVAL: This control is to preset the time interval for automatic count up of program step number when in the AUTO and READ mode. The adjustable range is approximately 3 - 30 seconds. The time interval becomes longer as this control is turned clockwise.

⑦ BCD OUTPUT: This output terminal provides a BCD signal representing the step number indicated by the lamps of item ④ STEP. The terminal is a 14-pin Amphenol connector.

⑧ Connector: This connector is for coupling the device onto Remote Controller RC01-COS. When the device is to be located separately from the remote controller or when it is to be used in conjunction with Memory Unit MU01-COS, connect to this connector the CA-1 or CA-2 cable (optional).

4-2. Inter-device Connection

(1) Connection to Remote Controller RC01-COS

Step Controller SC01-COS can be directly coupled onto Remote Controller RC01-COS making up a single unit or can be remotely connected to RC01-COS using an inter-device connection cable for remote operation.

To directly couple SC01-COS onto RC01-COS, turn off the power of RC01-COS, mate securely the connectors of the two devices, and securely fix SC01-COS to RC01-COS using the four mounting-screws supplied. (See Figure 4-2.)

To operate SC01-COS apart from RC01-COS, connect the two devices with inter-device connection cable CA-1 (1 meter long) or CA-2 (2 meters long). The cable has a clamp for fixing it to SC01-COS. Fix it securely with the clamp and the two screws. (See Figure 4-3.)

(2) Connection to Memory Unit MU01-COS

Step Controller SC01-COS can be used as a step controller for Memory Unit MU01-COS. In such case, SC01-COS cannot be directly coupled. It should be connected using inter-device connection cable CA-1 or CA-2 (optional). For cable connection, see Figure 4-3.

4-3. Operation Method

(1) Up operation:

Each time as you press momentarily (1) UP button, the indicated step number is counted up by 1. When the step number has exceeded that which has been preset by the END digital switches of Remote Controller RC01-COS, the step number automatically returns to that which has been preset by the START digital switches of RC01-COS. If you keep depressed the UP button, the step number goes on changing, enabling you to rapidly readh the required program step.

(2) DOWN operation:

Each time as you press momentarily (2) DOWN button, the indicated step number is counted down by 1. When the step number has exceeded that which has been preset by the START digital switches of Remote Controller RC01-COS, the step number automatically returns to that which has been preset by the END digital switches of RC01-COS. If you keep depressed the DOWN button, the step number goes on changing, enabling you to rapidly reach the required program step.

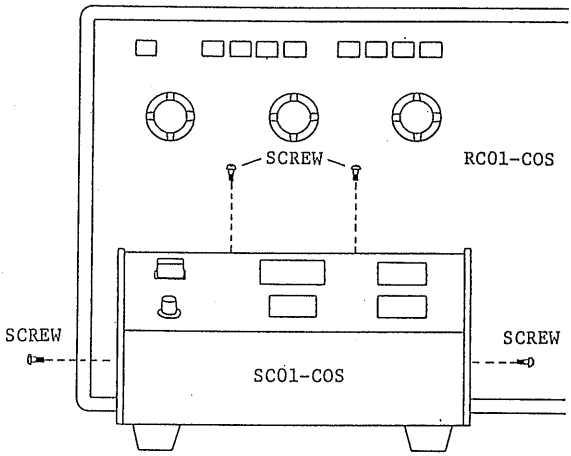

Figure 4-2

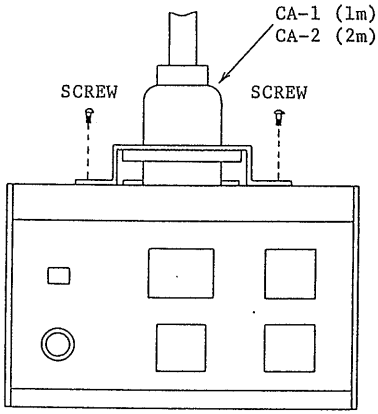

Figure 4-3

(3) RESET operation:

As you press ③ RESET button, the program step number returns with a higher priority over other settings to the step number which has been preset by the START digital switches of Remote Controller RC01-COS.

(4) AUTO operation:

Step Controller SC01-COS is capable of automatic step up operation either when in the READ or WRITE mode. When ⑤ AUTO/MANUAL switch is set in the AUTO (⊓) state, the following operations can be done.

If Remote Controller RC01-COS is in the READ mode, the step number automatically advances at each time-interval preset by ⑥ TIME INTERVAL control. The time interval is adjustable for a range of approximately 3 to 30 seconds, with the time interval longest when ⑥ TIME INTERVAL control turned to the clockwise extreme position. Even when in the AUTO mode, the UP, DOWN, and RESET buttons remain effective and the step number can be changed also manually, enabling you to review or jump steps as required.

If Remote Controller RC01-COS is in the WRITE mode and the MEMORY button is depressed, each time writing of data on memory for the step is over, the step number advances by 1 in order to be ready for writing of data of the next step. In this case also, manual operations with the UP, DOWN, and RESET buttons remain effective.

(5) MANUAL operation:

When ⑤ AUTO/MANUAL button is set in the MANUAL (⊔) state, the program step number can be changed only with the UP, DOWN, and RESET buttons.

4-4. BCD OUTPUT Signal

This device provides a signal representing the indicated program step number. This signal is of a BCD code of positive logic. The connector pins are as shown in the following table.

Pin number	1	2	3	4	5 6	7	8	9	10	11	12 13	14
Output	A	B	C	D		GND	A	B	C	D		GND
	Least significant digit						Most significant digit					