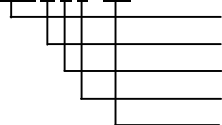


# Digital Indicating Controller

Model: **BCS2, BCR2, BCD2**

■ **Model**

(e.g.) BCS2 R 0 0-1 3



Size: 48 x 48 x 68 mm (W x H x D) (Depth of control panel interior 60)  
 Control output: Relay contact  
 Power supply: 100 to 240 V AC  
 Input: Multi-range  
 Option 1: Event output EV2  
 Option 2: Event input (2 points) + Heater burnout alarm (20A)

| Size | Control Output | Power Supply | Input (*1) | Option 1 (*2) | Option 2 (*2) | Specification  |
|------|----------------|--------------|------------|---------------|---------------|--|
| BCS2 |                |              |            |               |               | 48 x 48 x 68 mm (W x H x D) (Depth of control panel interior 60)                                 |
| BCR2 |                |              |            |               |               | 48 x 96 x 68 mm (W x H x D) (Depth of control panel interior 60)                                 |
| BCD2 |                |              |            |               |               | 96 x 96 x 68 mm (W x H x D) (Depth of control panel interior 60)                                 |
|      | R              |              |            |               |               | Relay contact: 1a  |
|      | S              |              |            |               |               | Non-contact voltage (for SSR drive): 12 V DC 15%   |
|      | A              |              |            |               |               | Direct current: 4 to 20 mA DC  |
|      |                | 0            |            |               |               | 100 to 240 V AC (Standard)   |
|      |                | 1            |            |               |               | 24 V AC/DC   |
|      |                |              | 0-         |               |               | Multi-range (*1)   |
|      |                |              |            | 0             |               | No option needed   |
|      |                |              |            | 1             |               | Event output EV2 (*3) EV2  |
|      |                |              |            | 2             |               | Heating/Cooling control output OUT2, Non-contact voltage DS                                      |
|      |                |              |            | 3             |               | Heating/Cooling control output OUT2, Direct current DA   |
|      |                |              |            | 4             |               | Insulated power output P24   |
|      |                |              |            | 0             |               | No option needed   |
|      |                |              |            | 1             |               | Event input (2 points) + Serial communication + Heater burnout alarm (20A) (*4) (*5) C5W (20A)   |
|      |                |              |            | 2             |               | Event input (2 points) + Serial communication + Heater burnout alarm (100A) (*4) (*5) C5W (100A) |
|      |                |              |            | 3             |               | Event input (2 points) + Heater burnout alarm (20A) (*5) EIW (20A)                               |
|      |                |              |            | 4             |               | Event input (2 points) + Heater burnout alarm (100A) (*5) EIW (100A)                             |
|      |                |              |            | 5             |               | Event input (2 points) + External setting input + Transmission output (*6) EIT                   |
|      |                |              |            | 6             |               | Serial communication C5  |
|      |                |              |            | 7             |               | Heater burnout alarm (20 A) (*5) W (20A)   |
|      |                |              |            | 8             |               | Heater burnout alarm (100 A) (*5) W (100A)   |
|      |                |              |            | 9             |               | Event input (2 points) EI  |

(\*1) Thermocouple, RTD, Direct current and DC voltage can be selected by keypad.

(\*2) Only one option can be selected from Option 1 and Option 2 respectively.

(\*3) Event output EV1 is standard.

The following outputs can be selected in [Event output EV1/EV2 allocation] by keypad:

Alarm output (12 alarm types and No alarm action), Heater burnout alarm output, Loop break alarm output, Time signal output, Output during AT, Pattern end output, Output by communication command, Heating/Cooling control output OUT2 (for EV2 option only)

For Event output EV1/EV2, Heater burnout alarm output and Output by communication command are available when C5W, EIW, C5 or W option is ordered.

(\*4) For the BCS2, 2 points of Event input are not available.

(\*5) For Direct current output type, Heater burnout alarm is disabled. The CT is sold separately.

(\*6) For the BCS2, 1 point of Event input is available.

■ **Accessories Sold Separately**

| Model   |
|---|
| Terminal cover                                    |
| CT for 20A (CTL-6-S-H) (*)                        |
| CT for 100A (CTL-12-S36-10L1U) (*)                |
| Console communication cable CMD-001               |
| USB cable (Between CMD-001 and Personal computer) |

(\*) Used for Heater burnout alarm (C5W, EIW, W options)

## Rating

### Rated Scale

| Input (TC)  | Scale Range        |                    | Resolution | Input (RTD)       | Scale Range         |                     | Resolution        |
|-------------|--------------------|--------------------|------------|-------------------|---------------------|---------------------|-------------------|
| K           | -200 to 1370 °C    | -328 to 2498 °F    | 1 °C(°F)   | Pt100             | -200.0 to 850.0 °C  | -328.0 to 1562.0 °F | 0.1 °C(°F)        |
|             | -200.0 to 400.0 °C | -328.0 to 752.0 °F | 0.1 °C(°F) |                   | -200 to 850 °C      | -328 to 1562 °F     | 1 °C(°F)          |
| J           | -200 to 1000 °C    | -328 to 1832 °F    | 1 °C(°F)   | JPt100            | -200.0 to 500.0 °C  | -328.0 to 932.0 °F  | 0.1 °C(°F)        |
| R           | 0 to 1760 °C       | 32 to 3200 °F      | 1 °C(°F)   |                   | -200 to 500 °C      | -328 to 932 °F      | 1 °C(°F)          |
| S           | 0 to 1760 °C       | 32 to 3200 °F      | 1 °C(°F)   | <b>Input (DC)</b> | <b>Scale Range</b>  |                     | <b>Resolution</b> |
| B           | 0 to 1820 °C       | 32 to 3308 °F      | 1 °C(°F)   | 4 to 20 mA        | -2000 to 10000 (*1) |                     | 1                 |
| E           | -200 to 800 °C     | -328 to 1472 °F    | 1 °C(°F)   | 0 to 20 mA        |                     |                     |                   |
| T           | -200.0 to 400.0 °C | -328.0 to 752.0 °F | 0.1 °C(°F) | 0 to 1 V          |                     |                     |                   |
| N           | -200 to 1300 °C    | -328 to 2372 °F    | 1 °C(°F)   | 0 to 5 V          |                     |                     |                   |
| PL-II       | 0 to 1390 °C       | 32 to 2534 °F      | 1 °C(°F)   | 1 to 5 V          |                     |                     |                   |
| C(W/Re5-26) | 0 to 2315 °C       | 32 to 4199 °F      | 1 °C(°F)   | 0 to 10 V         |                     |                     |                   |
|             |                    |                    |            |                   |                     |                     |                   |

(\*1) Decimal point place change and scaling are possible.

### Input

|                        |   |
|------------------------|---|
| Thermocouple (TC)      | K, J, R, S, B, E, T, N, PL-II, C (W/Re5-26)<br>External resistance, 100 Ω or less (However, B input: External resistance, 40 Ω or less)   |
| RTD                    | Pt100, JPt100, 3-wire system<br>Allowable input lead wire resistance: 10 Ω or less per wire   |
| Direct current (mA DC) | 0 to 20 mA, 4 to 20 mA DC<br>Input impedance: 50 Ω or less<br>Allowable input current: 50 mA or less  |
| DC voltage (V DC)      | 0 to 1 V DC<br>Input impedance: 1 MΩ or more<br>Allowable input voltage: 5 V DC or less<br>Allowable signal source resistance: 2 kΩ or less<br>0 to 5 V, 1 to 5 V, 0 to 10 V DC<br>Input impedance: 100 kΩ or more<br>Allowable input voltage: 15 V DC or less<br>Allowable signal source resistance: 100 Ω or less |

## Indicating Performance

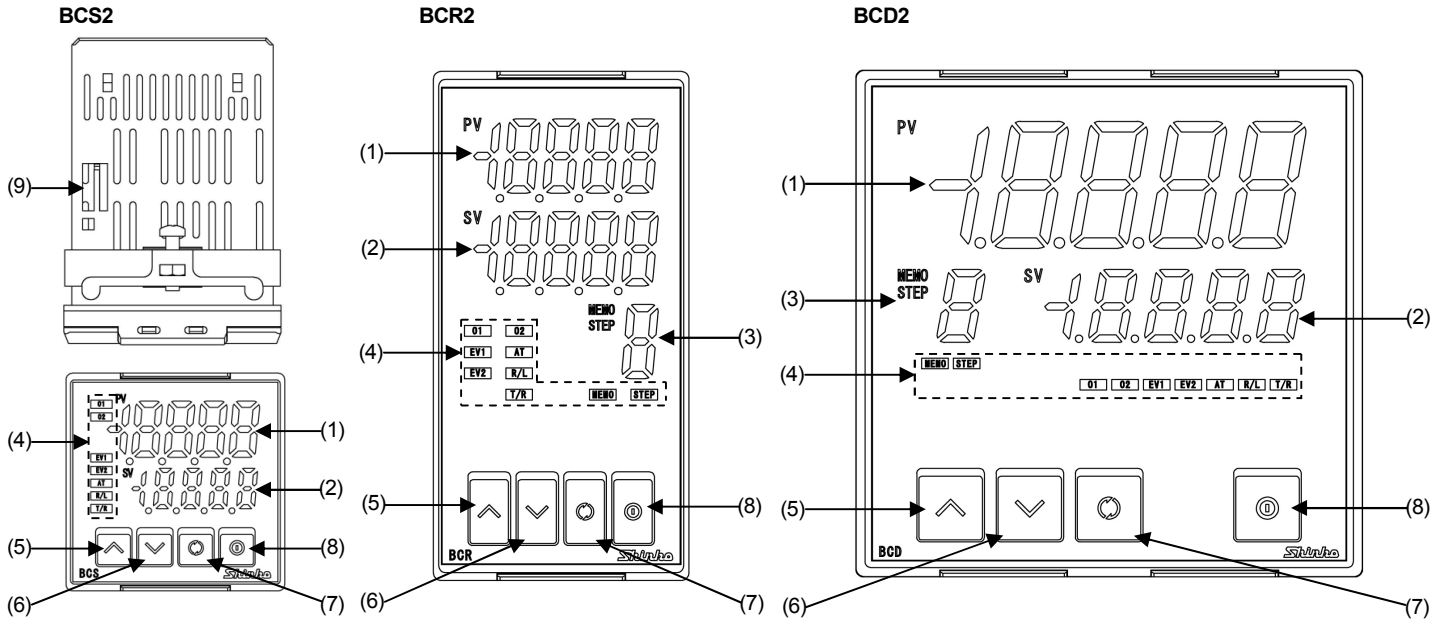
|                               |   |
|-------------------------------|---|
| Base accuracy                 | At ambient temperature 23°C (for a single unit mounting)  |
| Thermocouple                  | Within ±0.2% of each input span ±1 digit,<br>However R, S inputs, 0 to 200°C (32 to 392 °F): Within ±6°C (12°F)<br>B input, 0 to 300°C (0 to 572°F): Accuracy is not guaranteed.<br>K, J, E, T, N inputs, less than 0°C (32°F): Within ±0.4% of input span ±1 digit |
| RTD                           | Within ±0.1% of each input span ±1 digit  |
| Direct current                | Within ±0.2% of each input span ±1 digit  |
| DC voltage                    | Within ±0.2% of each input span ±1 digit  |
| Effect of ambient temperature | Within 50 ppm/°C of each input span   |
| Input sampling period         | 125 ms  |
| Time accuracy                 | Within ±1.0% of the setting time  |



## General Structure

|                       |  |
|-----------------------|--|
| Case material, Color  | Flame-resistant resin, Black                               |
| Panel                 | Membrane sheet   |
| Dust-proof/Drip-proof | Front panel: IP66, Rear case: IP20, Terminal section: IP00 |
| Standards             | EN EN61010-1 (Pollution degree 2, Overvoltage category II) |

## Indication Structure



### Display

|     |                   |   |
|-----|-------------------|---|
| (1) | PV Display        | Indicates the PV (process variable) or setting characters in setting mode.  |
| (2) | SV Display        | Indicates the SV (desired value) or set data in setting mode. In Monitor mode, indicates MV (manipulated variable), remaining step time (Program control), step number (Program control) (*), or Set value memory number (Fixed value control) (*). (*) For BCS2 only |
| (3) | MEMO/STEP Display | Indicates Set value memory number or Step number (Program control). (BCR2, BCD2)  |

### Action Indicator

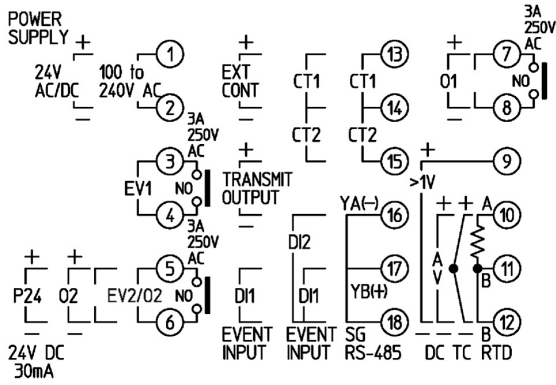
|     |      |  |
|-----|------|--|
| (4) | O1   | Lit when control output OUT1 is ON. For direct current output type, flashes corresponding to the MV in 125 ms cycles.  |
|     | O2   | Lit when control output OUT2 (EV2, DS, DA option) is ON.<br>For direct current output type, flashes corresponding to the MV (manipulated variable) in 125 ms cycles. |
|     | EV1  | Lit when Event output 1 is ON.   |
|     | EV2  | Lit when Event output 2 (EV2 option) is ON.  |
|     | AT   | Flashes while AT or Auto-reset is performing.  |
|     | R/L  | Lit while in Remote action (EIT option).   |
|     | T/R  | Lit during Serial communication (C5W option) TX (transmitting) output.   |
|     | MEMO | Lit when Set value memory number is indicated. (BCR2, BCD2)  |
|     | STEP | Lit when Step number (Program control) is indicated. (BCR2, BCD2)  |

### Keys, Connector

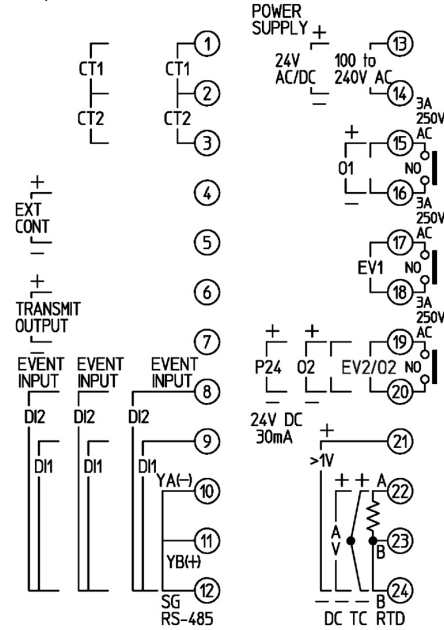
|     |                   |  |
|-----|-------------------|--|
| (5) | UP key            | Increases the numeric value.<br>If this key is pressed for 1 sec during program operation, the unit proceeds to the next step. (Advance function.)   |
| (6) | DOWN key          | Decreases the numeric value.   |
| (7) | MODE key          | Selects the setting mode, and registers the set data.<br>If the MODE key is pressed in RUN mode for 3 sec, the unit moves to Monitor mode.   |
| (8) | OUT/OFF key       | OUT/OFF function: Turns control output ON or OFF. Auto/Manual control: Switches the Auto/Manual control.<br>Program control: Starts or stops the Program control.  |
| (9) | Console connector | By connecting the tool cable (CMD-001, sold separately), the following operations can be conducted from an external computer using the Console software SWC-BCx01M. • Reading and setting of SV, PID and various set values<br>• Reading of PV and action status • Function change.<br>(Console connector is located on the top of the BCS2, BCR2, and BCD2 case.) |

## Terminal Arrangement

### BCS2



### BCR2, BCD2



|                 |   |
|-----------------|---|
| POWER SUPPLY    | 100 to 240 V AC or 24 V AC/DC (For 24 V DC, ensure polarity is correct.)  |
| EV1             | Event output 1  |
| EV2             | Event output 2 (EV2 option)   |
| O2              | Control output OUT2 (EV2, DS, DA option)  |
| P24             | Insulated power output (P24 option)   |
| O1              | Control output OUT1   |
| TC              | Thermocouple input  |
| RTD             | RTD input   |
| DC              | Direct current, DC voltage inputs   |
| CT1             | CT input 1 (C5W, EIW, W option)   |
| CT2             | CT input 2 (C5W, EIW, W option)   |
| RS-485          | Serial communication RS-485 (C5W option)  |
| EVENT INPUT     | Event input DI1 (BCS2: EIW, EIT, EI options, BCR2/BCD2: C5W, EIW, EIT, EI options)<br>Event input DI2 (BCS2: EIW, EI options, BCR2/BCD2: C5W, EIW, EIT, EI options) |
| EXT CONT        | External setting input (EIT option)   |
| TRANSMIT OUTPUT | Transmission output (EIT option)  |

## Standard Functions

### EV1 Output

|        |   |
|--------|---|
| Output | Relay contact: 1a<br>Control capacity: 3 A 250 V AC (resistive load)<br>1 A 250 V AC (inductive load $\cos\phi=0.4$ )<br>Electrical life: 100,000 cycles<br>Minimum applicable load: 10 mA 5 V DC |
|--------|---|

### Alarm Action

|            |   |
|------------|---|
| Alarm type | High limit alarm, Low limit alarm, High/Low limits alarm, High/Low limits independent, High/Low limit range, High/Low limit range independent, Process high alarm, Process low alarm, High limit alarm with standby, Low limit alarm with standby, High/Low limits with standby, High/Low limits with standby independent.<br>Energized/De-energized action are applied to the above alarms, totaling 24 alarm types. No alarm action can also be selected. |
| Action     | ON/OFF action   |
| Hysteresis | Thermocouple, RTD inputs: 0.1 to 1000.0°C (°F) (Factory default: 1.0°C)<br>Direct current, DC voltage inputs: 1 to 10000 (The placement of the decimal point follows the selection)   |
| Output     | EV1, EV2 outputs for which Alarm output (000 to 012) is selected in [Event output EV1/EV2 allocation].  |

### Loop Break Alarm

|               |   |
|---------------|---|
| Setting range | Loop break alarm time: 0 to 200 minutes<br>Loop break alarm span: TC, RTD inputs: 0 to 150°C (°F), 0.0 to 150.0°C (°F)<br>Direct current, DC voltage inputs: 0 to 1500 (The placement of the decimal point follows the selection) |
| Output        | EV1, EV2 outputs for which Loop break alarm (014) is selected in [Event output EV1/EV2 allocation].   |

### Simplified Program Control

|                       |  |
|-----------------------|--|
| Number of patterns    | 1  |
| Number of steps       | 9  |
| Number of repetitions | 0 to 10000 times   |
| Program time range    | 0 to 99 hours:59 min. /step, or 0 to 99 min.:59 sec./step                                      |
| Setting range         | Scaling low limit value to Scaling high limit value (Factory default: 0°C)                     |
| Time accuracy         | Within $\pm 1.0\%$ of the setting time   |
| Wait value            | 0 to Converted value of 20% of input span (Scaling span for Direct current, DC voltage inputs) |

### Simplified Controller Function

|  |
|--|
| Input signals can be converted to insulated 4 to 20 mA DC output (for Direct current output type). |
|--|

## ■ Optional Functions

### Event Input (Option code: EIW, EIT, EI)

|   |  |
|---|--|
| If Set value memory function is selected in [Event input DI1/DI2 allocation], SV1 to SV4 can be switched. |  |
| Event input   | 2 points [For the BCS2, if the C5W option is ordered, Event input (2 points) is not available.<br>If the EIT option is ordered, 1-point Event input is available.] |
| Circuit current when closed   | Approx. 16 mA  |

### EV2 Output (Option code: EV2)

|                             |
|-----------------------------|
| Same as standard EV1 output |
|-----------------------------|

### Heater Burnout Alarm (Option code: C5W, EIW, W)

|   |   |
|---|---|
| For direct current output type, Heater burnout alarm is disabled. |   |
| Rated current   | 20A, 100A (Must be specified)<br>Single-phase: Detects burnout with CT1 input<br>3-phase: Detects burnout with CT1 and CT2 inputs |
| Setting range   | 20A: 0.0 to 20.0 A (Off when set to 0.0)<br>100A: 0.0 to 100.0 A (Off when set to 0.0)  |
| Setting accuracy  | $\pm 5\%$ of rated current  |
| Action point  | Set value   |
| Action  | ON/OFF action   |
| Output  | EV1, EV2 outputs for which Heater burnout alarm (013) is selected in [Event output EV1/EV2 allocation].                           |

### Heating/Cooling Control Output (Option code: DS, DA, EV2)

|                                 |   |
|---------------------------------|---|
| OUT2 proportional band          | 0.0 to 10.0 times OUT1 proportional band (ON/OFF control when set to 0.0)   |
| Integral time (I)               | Same as that of OUT1  |
| Derivative time (D)             | Same as that of OUT1  |
| OUT2 proportional cycle         | 0.5 sec, or 1 to 120 sec [Factory default: DS option: 3 sec, EV2 option (When '019' is selected in [Event output EV2 allocation]): 30 sec, Direct current (DA option): Not available]   |
| Overlap/Dead band setting range | Thermocouple, RTD inputs: -200.0 to 200.0°C (°F),<br>Direct current, DC voltage inputs: -2000 to 2000 (The placement of the decimal point follows the selection)  |
| OUT2 ON/OFF hysteresis          | Thermocouple, RTD inputs: 0.1 to 1000.0°C (°F) (Factory default: 1.0°C)<br>Direct current, DC voltage inputs: 1 to 10000 (The placement of the decimal point follows the selection)   |
| OUT2 high limit, OUT2 low limit | 0 to 100% (Direct current output: -5 to 105%) (Not available for ON/OFF control)<br>(Factory default: OUT2 low limit: 0%, OUT2 high limit: 100%)  |
| OUT2 cooling method             | (1) Air cooling (linear characteristics) (Factory default: Air cooling)<br>(2) Oil cooling (1.5th power of the linear characteristics)<br>(3) Water cooling (2nd power of the linear characteristics)   |
| Output                          | Relay contact 1a EV2 option: When '019' is selected in [Event output EV2 allocation]<br>Control capacity: 3 A 250 V AC (resistive load)<br>1 A 250 V AC (inductive load $\cos\phi=0.4$ )<br>Electrical life: 100,000 cycles<br>Non-contact voltage (for SSR drive) DS option<br>12 V DC $\pm 15\%$<br>Max. 40 mA (short circuit protected)<br>Direct current DA option<br>4 to 20 mA DC (Resolution: 12000)<br>Load resistance: Max. 550 $\Omega$ |

### Serial Communication (Option code: C5W, C5)

| Communication line     | EIA RS-485   |                           |                           |                        |                 |              |            |           |   |   |   |          |   |        |   |        |            |                           |                           |          |   |        |        |
|------------------------|--|---------------------------|---------------------------|------------------------|-----------------|--------------|------------|-----------|---|---|---|----------|---|--------|---|--------|------------|---------------------------|---------------------------|----------|---|--------|--------|
| Communication method   | Half-duplex communication  |                           |                           |                        |                 |              |            |           |   |   |   |          |   |        |   |        |            |                           |                           |          |   |        |        |
| Synchronization method | Start-stop synchronization   |                           |                           |                        |                 |              |            |           |   |   |   |          |   |        |   |        |            |                           |                           |          |   |        |        |
| Communication speed    | 9600, 19200, 38400 bps Selectable by keypad (Factory default: 9600 bps)  |                           |                           |                        |                 |              |            |           |   |   |   |          |   |        |   |        |            |                           |                           |          |   |        |        |
| Data bit/Parity        | Data bit: 7, 8<br>Parity: Even, Odd and No parity (Selectable by keypad) (Factory default: 7 bits/Even)<br>Stop bit: 1 bit, 2 bits (Selectable by keypad) (Factory default: 1 bit)   |                           |                           |                        |                 |              |            |           |   |   |   |          |   |        |   |        |            |                           |                           |          |   |        |        |
| Data format            | <table border="1"> <thead> <tr> <th>Communication protocol</th> <th>Shinko protocol</th> <th>Modbus ASCII</th> <th>Modbus RTU</th> </tr> </thead> <tbody> <tr> <td>Start bit</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>Data bit</td> <td>7</td> <td>7 or 8</td> <td>8</td> </tr> <tr> <td>Parity</td> <td>Yes (Even)</td> <td>Yes (Even, Odd) No parity</td> <td>Yes (Even, Odd) No parity</td> </tr> <tr> <td>Stop bit</td> <td>1</td> <td>1 or 2</td> <td>1 or 2</td> </tr> </tbody> </table> |                           |                           | Communication protocol | Shinko protocol | Modbus ASCII | Modbus RTU | Start bit | 1 | 1 | 1 | Data bit | 7 | 7 or 8 | 8 | Parity | Yes (Even) | Yes (Even, Odd) No parity | Yes (Even, Odd) No parity | Stop bit | 1 | 1 or 2 | 1 or 2 |
| Communication protocol | Shinko protocol  | Modbus ASCII              | Modbus RTU                |                        |                 |              |            |           |   |   |   |          |   |        |   |        |            |                           |                           |          |   |        |        |
| Start bit              | 1  | 1                         | 1                         |                        |                 |              |            |           |   |   |   |          |   |        |   |        |            |                           |                           |          |   |        |        |
| Data bit               | 7  | 7 or 8                    | 8                         |                        |                 |              |            |           |   |   |   |          |   |        |   |        |            |                           |                           |          |   |        |        |
| Parity                 | Yes (Even)   | Yes (Even, Odd) No parity | Yes (Even, Odd) No parity |                        |                 |              |            |           |   |   |   |          |   |        |   |        |            |                           |                           |          |   |        |        |
| Stop bit               | 1  | 1 or 2                    | 1 or 2                    |                        |                 |              |            |           |   |   |   |          |   |        |   |        |            |                           |                           |          |   |        |        |
| Response delay time    | 0 to 1000 ms (Factory default: 10 ms)<br>Response from the controller can be delayed after receiving command from the host computer.   |                           |                           |                        |                 |              |            |           |   |   |   |          |   |        |   |        |            |                           |                           |          |   |        |        |

### External Setting Input (Option code: EIT)

|                       |                            |
|-----------------------|----------------------------|
| Setting signal        | Direct current: 4 to 20 mA |
| Allowable input       | 50 mA DC or less           |
| Input impedance       | 50 Ω or less               |
| Input sampling period | 125 ms                     |

### Transmission Output (Option code: EIT)

|   |   |
|---|---|
| Converting the value (PV, SV, MV, DV) to analog signal every 125 ms, the value is outputted in current.<br>Factory default: PV transmission |   |
| Resolution  | 12000                                       |
| Output  | 4 to 20 mA DC (Load resistance, Max. 550 Ω) |
| Output accuracy   | Within ±0.3% of full scale                  |

### Insulated Power Output (Option code: P24)

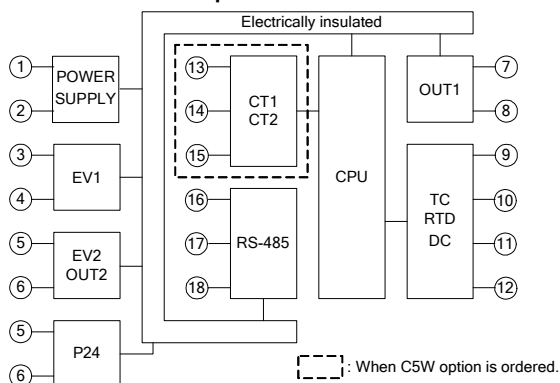
|                   |  |
|-------------------|--|
| Output voltage    | 24 V ±3 V DC (when load current is 30 mA)  |
| Ripple voltage    | Within 200 mV (when load current is 30 mA) |
| Max. load current | 30 mA DC                                   |

## ■ Insulation, Dielectric Strength

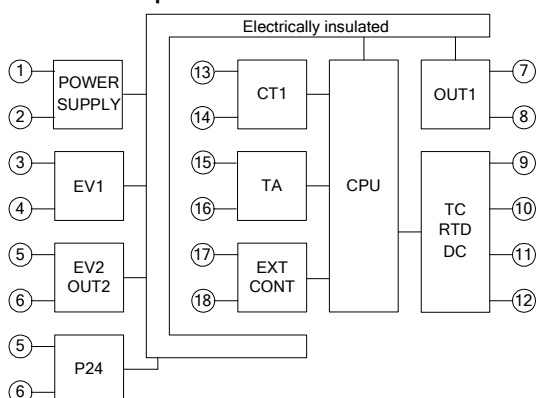
### Circuit Insulation Configuration

#### BCS2

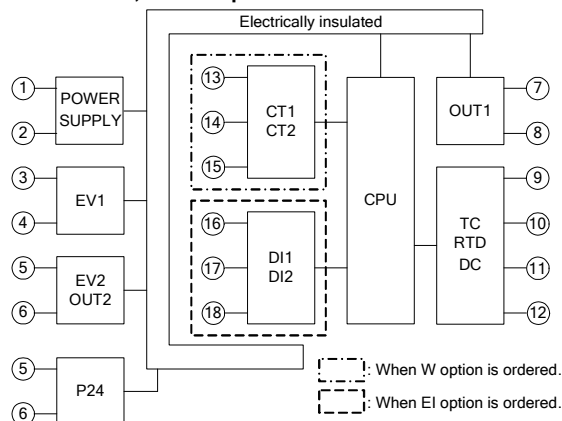
##### When the C5W or C5 option is ordered



##### When the EIT option is ordered



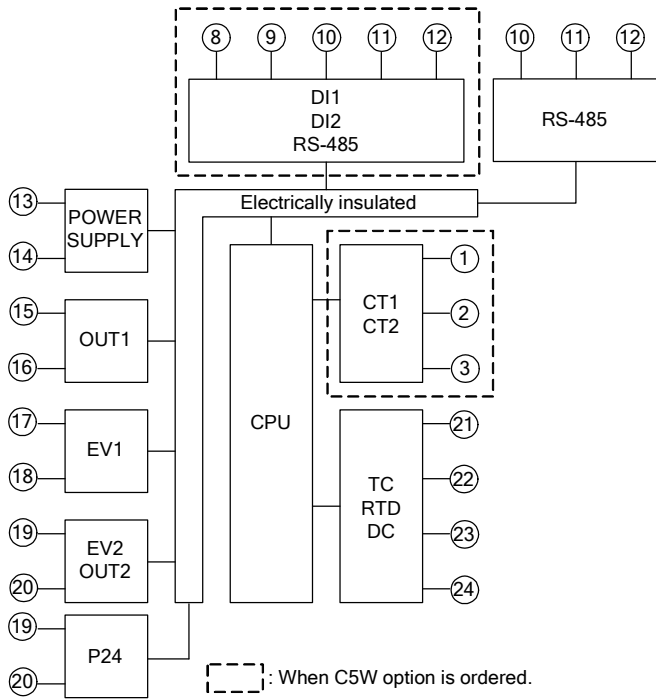
##### When the EIW, EI or W option is ordered



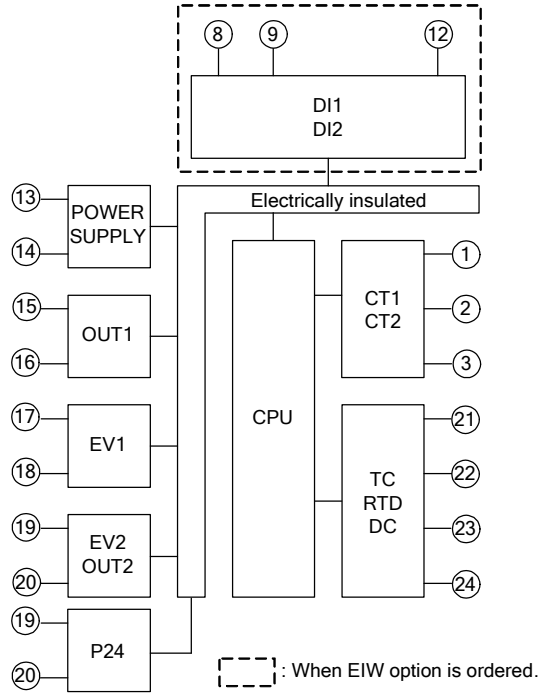
If OUT1 is a non-contact voltage output or direct current output, and if OUT2 is a non-contact voltage output or direct current output, OUT1 is not electrically insulated from OUT2.

**BCR2, BCD2**

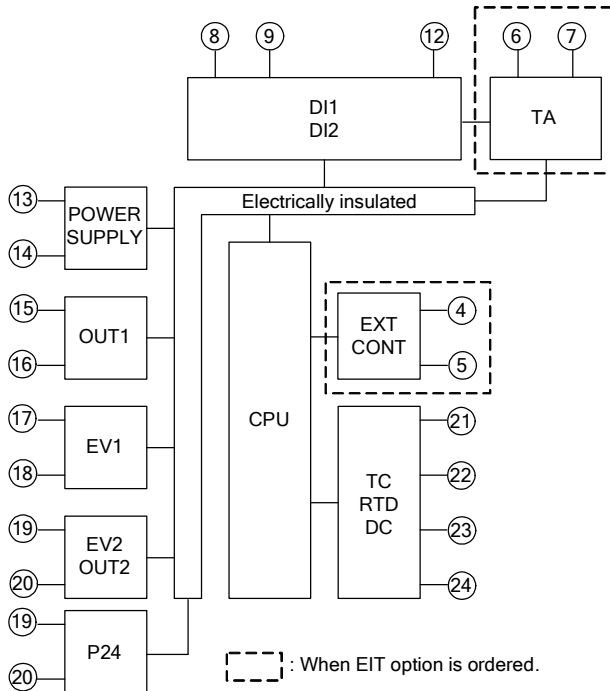
**When the C5W or C5 option is ordered**



**When the EIW or W option is ordered**



**When the EIT or EI option is ordered**



If OUT1 is a non-contact voltage output or direct current output, and if OUT2 is a non-contact voltage output or direct current output, OUT1 is not electrically insulated from OUT2.

|                       |  |
|-----------------------|--|
| Insulation resistance | 10 MΩ or more, at 500 V DC   |
| Dielectric strength   | Between input terminal and power terminal: 1.5 kV AC for 1 minute<br>Between output terminal and power terminal: 1.5 kV AC for 1 minute<br>Between output terminal (P24) and power terminal: 500 V AC for 1 minute |



## ■ Attached Functions

Sensor correction value, Sensor correction, Set value lock, Auto/Manual control, Auto/Manual after restoration, SV ramp, SV Rise rate/Fall rate, Program control, Step time unit, Program start temperature, Program control start type, Power restore action, Pattern end output, Power failure countermeasure, Self-diagnosis, Automatic cold junction temperature compensation, Indication range/Control range, Input error (Overscale, Underscale), Burnout, Warm-up indication, Console communication

## ■ Error Code

| Error Code | Error Contents  | Occurance Status        |
|------------|---|-------------------------|
| E_01 (*1)  | Non-volatile IC memory (EEPROM) is defective.   | When power is turned ON |
| E_02 (*1)  | Data writing error when power failure occurs  | When power is turned ON |
| E_05       | When input value exceeds input range high limit value (Scaling high limit value for DC input)   | During usual operation  |
| E_06       | When input value drops below input range low limit value (Scaling low limit value for DC input) | During usual operation  |
| E_07       | Input burnout, or input value is outside the control and indication ranges.                     | During usual operation  |
| E_10       | Hardware malfunction, or in error status. Errors cannot be solved.                              | During usual operation  |
| E_20 (*1)  | Indicated after 4 hours have passed since AT is performed.                                      | After AT is performed   |

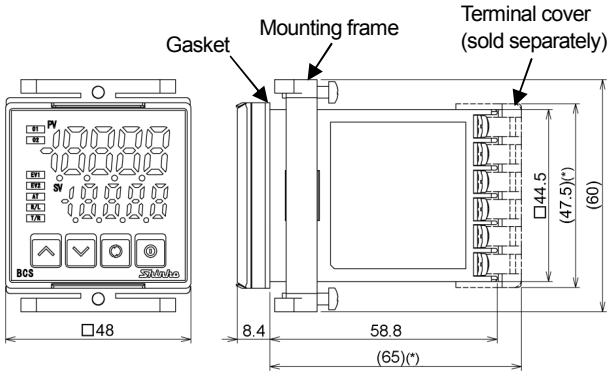
(\*1) can be cancelled with the MODE key.

## ■ Other

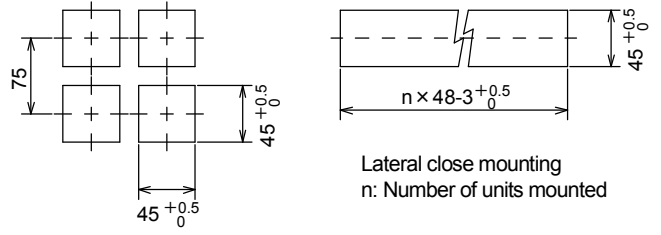
|   |  |  |
|---|--|--|
| Power supply voltage<br>(Must be specified when ordering) | 100 to 240 V AC, 50/60 Hz, Allowable fluctuation range 85 to 264 V AC<br>24 V AC/DC, 50/60 Hz, Allowable fluctuation range 20 to 28 V AC/DC  |  |
| Power consumption   | 100 to 240 V AC  | Approx. 8 VA max. (When the maximum number of options are added: Approx. 11 VA max.) |
|   | 24 V AC  | Approx. 5 VA max. (When the maximum number of options are added: Approx. 8 VA max.)  |
|   | 24 V DC  | Approx. 5 W max. (When the maximum number of options are added: Approx. 8 W max.)    |
| Rush current  | 100 to 240 V AC  | Max. 14 to 34 A  |
|   | 24 V AC  | Max. 34 A  |
|   | 24 V DC  | Max. 34 A  |
| Ambient temperature                                       | -10 to 55°C (Non-condensing, No icing)   |  |
| Ambient humidity  | 35 to 85%RH (Non-condensing)   |  |
| Weight  | BCS2: Approx. 110 g, BCR2: Approx. 160 g, BCD2: Approx. 220 g  |  |
| Accessories included                                      | Mounting frame 1 piece (BCS2), Screw type mounting bracket 1 set (BCR2, BCD2),<br>Instruction manual (excerpt) 1 copy  |  |
| Accessories sold separately                               | Terminal cover, CT(CTL-6S) for Heater burnout alarm 20 A, CT(CTL-12-S36-10L1U) for Heater burnout alarm 100 A, Tool cable CMD-001  |  |
| Instruction manual  | Please download the full Instruction Manual and Communication Instruction Manual from Shinko's website:<br><a href="http://www.shinko-technos.co.jp/e/">http://www.shinko-technos.co.jp/e/</a> |  |
| Environmental specification                               | RoHS directive compliant   |  |

**■ Dimensions (Scale: mm)**

**BCS2**

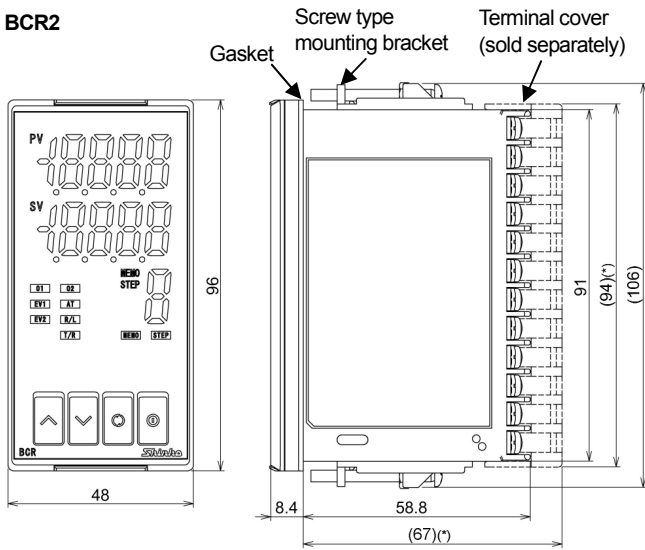


**Panel cutout (Scale: mm)**

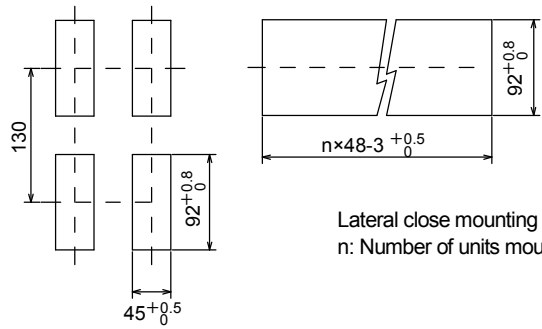


Lateral close mounting  
n: Number of units mounted

**BCR2**

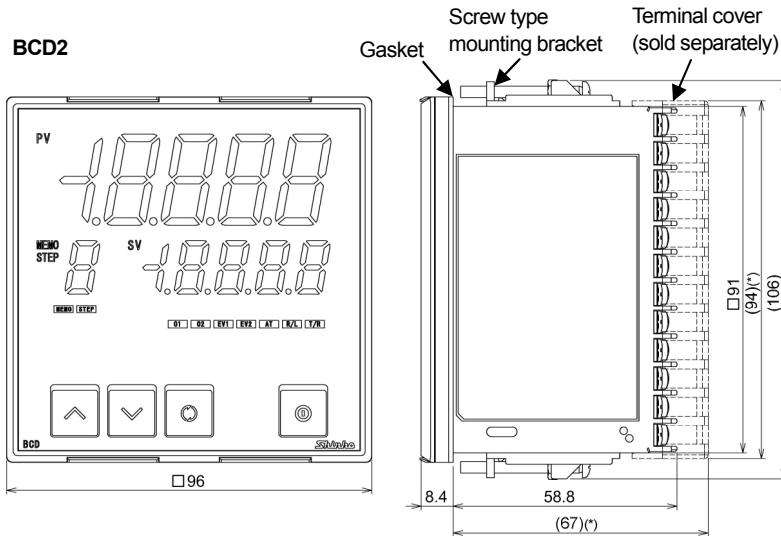


**Panel Cutout (Scale: mm)**

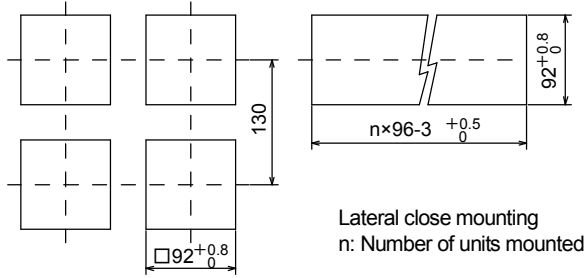


Lateral close mounting  
n: Number of units mounted

**BCD2**



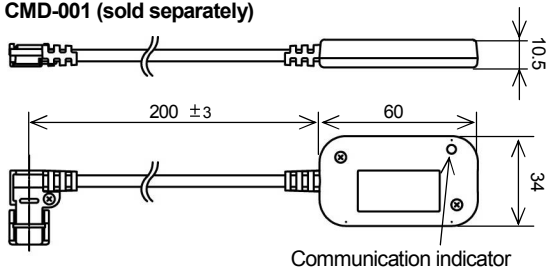
**Panel cutout (Scale: mm)**



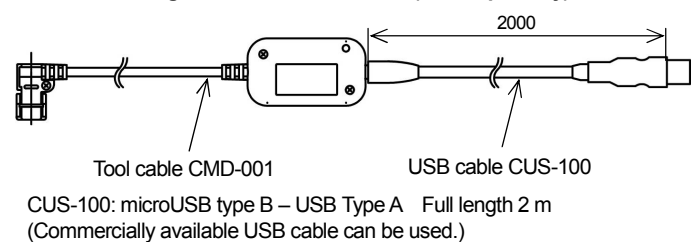
Lateral close mounting  
n: Number of units mounted

(\*) When the terminal cover is used

**CMD-001 (sold separately)**



**When connecting the USB cable CUS-100 (sold separately)**



CUS-100: microUSB type B – USB Type A Full length 2 m  
(Commercially available USB cable can be used.)