

# Communication Bus-Line Junction Box

# BRA-100A Instruction Manual

IM10BRA01-E3

Thank you for purchasing the RKC product. In order to achieve maximum performance and ensure proper operation of your new instrument, carefully read all the instructions in this manual. Please place this manual in a convenient location for easy reference.

## SYMBOLS

**WARNING** : This mark indicates precautions that must be taken if there is danger of electric shock, fire, etc., which could result in loss of life or injury.

**CAUTION** : This mark indicates that if these precautions and operating procedures are not taken, damage to the instrument may result.



: This mark indicates that all precautions should be taken for safe usage.



: This mark indicates supplemental information on installation, handling and operating procedures.



## WARNING

- An external protection device must be installed if failure of this instrument could result in damage to the instrument, equipment or injury to personnel.
- All wiring must be completed before power is turned on to prevent electric shock, fire or damage to instrument and equipment.
- This instrument must be used in accordance with the specifications to prevent fire or damage to instrument and equipment.
- This instrument is not intended for use in locations subject to flammable or explosive gases.
- RKC is not responsible if this instrument is repaired, modified or disassembled by other than factory-approved personnel. Malfunction can occur and warranty is void under these conditions.

## CAUTION

- This instrument is designed for installation in an enclosed instrumentation panel. All high-voltage connections such as power supply terminals must be enclosed in the instrumentation panel to avoid electric shock by operating personnel.
- All precautions described in this manual should be taken to avoid damage to the instrument or equipment.
- All wiring must be in accordance with local codes and regulations.

- Prevent metal fragments or lead wire scraps from falling inside instrument case to avoid electric shock, fire or malfunction.
- For proper operation of this instrument, provide adequate ventilation for heat dispensation.
- Do not connect wires to unused terminals as this will interfere with proper operation of the instrument.
- Turn off the power supply before cleaning the instrument.
- Do not use a volatile solvent such as paint thinner to clean the instrument. Deformation or discoloration will occur. Use a soft, dry cloth to remove stains from the instrument.

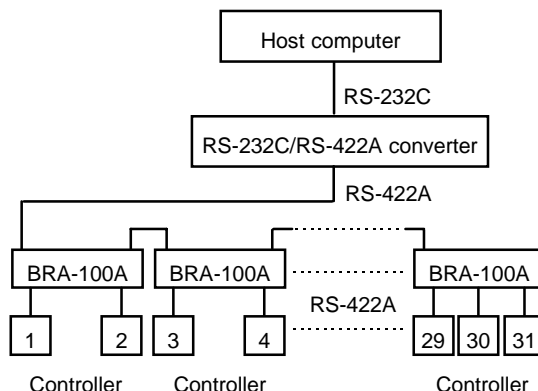
## NOTICE

- This manual assumes that the reader has a fundamental knowledge of the principles of electricity, process control, computer technology and communications.
- The figures, diagrams and numeric values used in this manual are only for purpose of illustration.
- RKC is not responsible for any damage or injury that is caused as a result of using this instrument, instrument failure or indirect damage.
- Every effort has been made to ensure accuracy of all information contained herein. RKC makes no warranty expressed or implied, with respect to the accuracy of the information. The information in this manual is subject to change without prior notice.
- No portion of this document may be reprinted, modified, copied, transmitted, digitized, stored, processed or retrieved through any mechanical, electronic, optical or other means without prior written approval from RKC.

## 1. OUTLINE

This is a branch box consisting of four D-SUB 25-pin connectors. This box, as an example, is used to branch the communication bus line when multi-drop-connected in communication using RS-485 or RS-422A.

### ■ Connecting example



## 2. PRODUCT CHECK

Check whether the delivered product is as specified by referring to the following model code list.

### Model code

BRA-100A-□

C: Connectors attached (4 pieces)  
N: No connectors attached

\*Attached connector

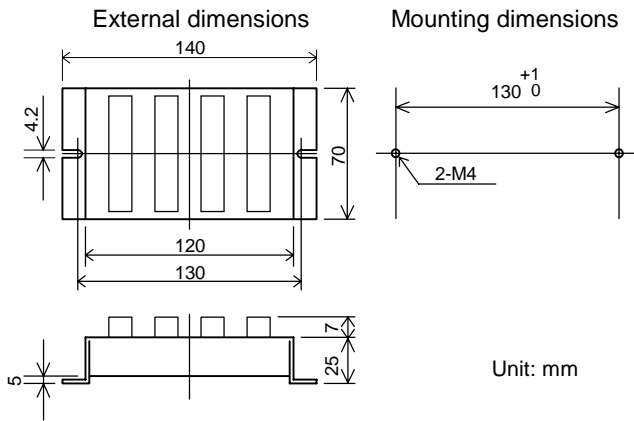
Connector: HDBB-25P (HIROSE ELECTRIC CO.,LTD)  
Plug case: HDB-CTF (HIROSE ELECTRIC CO.,LTD)

## 3. MOUNTING

### 3.1 Installation Environment

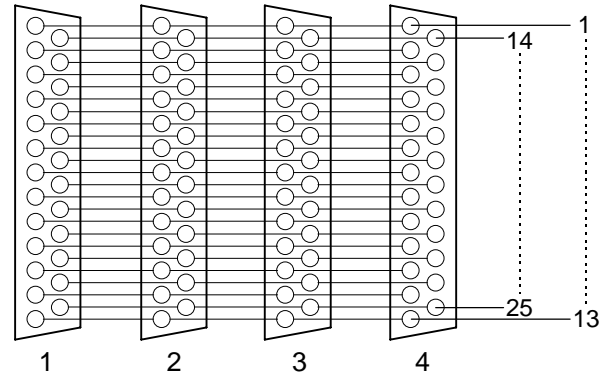
- (1) This instrument is intended to be used under the following environmental conditions. (IEC61010-1)  
[OVERVOLTAGE CATEGORY II, POLLUTION DEGREE 2]
- (2) Avoid the following when selecting the mounting location.
  - Ambient temperature of less than 0 °C or more than 50 °C.
  - Ambient humidity of less than 45 % or more than 85 % RH.
  - Rapid changes in ambient temperature which may cause condensation.
  - Corrosive or inflammable gases.
  - Direct vibration or shock to the mainframe.
  - Water, oil, chemicals, vapor or steam splashes.
  - Excessive dust, salt or iron particles.
  - Excessive induction noise, static electricity, magnetic fields or noise.
  - Direct air flow from an air conditioner.
  - Exposure to direct sunlight.
  - Excessive heat accumulation.

### 3.2 Dimensions




### ● Internal connection


The connector pin with the same pin number is mutually connected within the instrument.



### 3.3 Mounting Procedure

1. Make cutout in the panel corresponding to the number of instruments by referring to mounting dimensions.
2. Fix the instrument to the mounting panel by tightening two fixing screws (M4 SEMS pan-head screws).

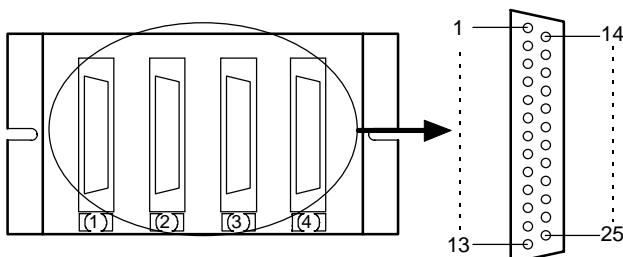
 Use the fixing screw with the threaded portion conforming to the thickness of the mounting panel.

 This mounting screw must be provided by the customer.

## 4. WIRING

### ● Pin layout

Each of the connectors from 1 to 4 (D-SUB 25 pins) has the same pin number for the corresponding connector pin.



Weight: Approx. 240 g

# Communication Bus-Line Junction Box

# BRA-100B

# Instruction Manual

IM10BRA02-E3

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## WARNING

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## CAUTION

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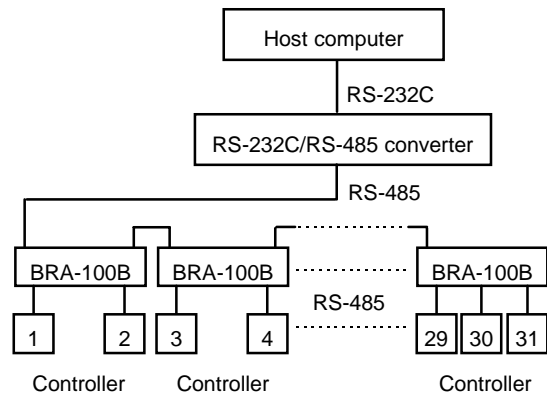
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## 1. OUTLINE

This instrument is used to branch the communication bus line when multi-drop-connected in communication using RS-485 or RS-422A.

### ■ Connecting example (RS-485)



## 2. MODEL CODE

Check whether the delivered product is as specified by referring to the following model code list.

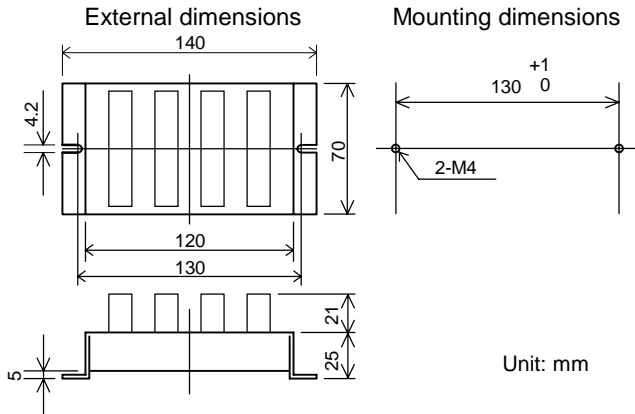
BRA-100B-□  
↑  
2: 2-wire system  
4: 4-wire system

## 3. MOUNTING

### 3.1 Installation Environment

- (1) This instrument is intended to be used under the following environmental conditions. (IEC61010-1)  
[OVERVOLTAGE CATEGORY II, POLLUTION DEGREE 2]
- (2) Avoid the following when selecting the mounting location.
- Ambient temperature of less than 0 °C or more than 50 °C.
  - Ambient humidity of less than 45 % or more than 85 % RH.
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  - Direct air flow from an air conditioner.
  - Exposure to direct sunlight.
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### 3.2 Dimensions



### 3.3 Mounting Procedure

1. Make cutout in the panel corresponding to the number of instruments by referring to mounting dimensions.
2. Fix the instrument to the mounting panel by tightening two fixing screws (M4 SEMS pan-head screws).

Use the fixing screw with the threaded portion conforming to the thickness of the mounting panel.

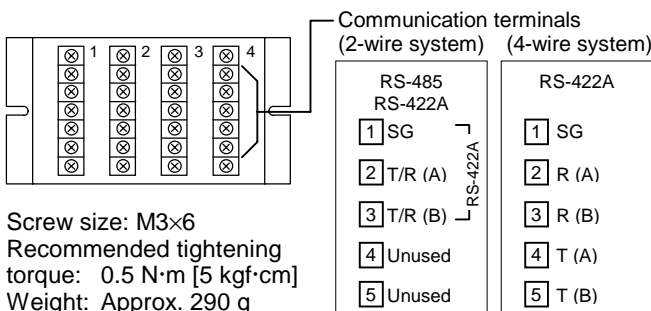
This mounting screw must be provided by the customer.

## 4. WIRING

### Terminal Configuration

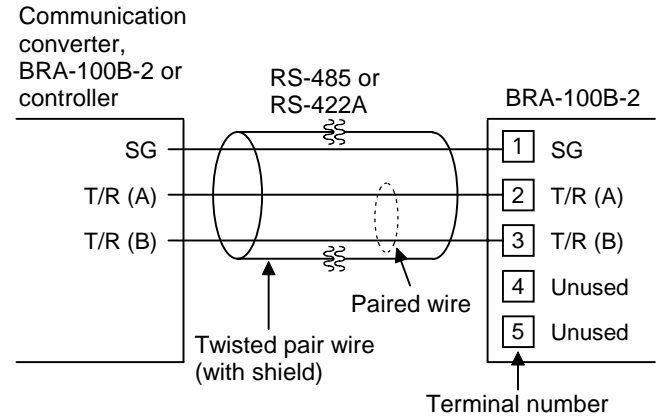
These four terminal boards from 1 to 4 have the same terminal configuration.

For the 2-wire system the terminal nameplate corresponding to each terminal board is for RS-422A, but the terminal board can also be used for RS-485.



### Wiring details of communication cable

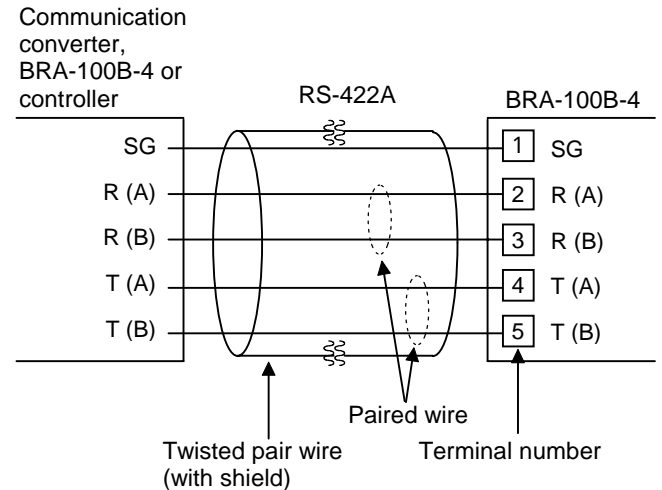
#### 2-wire system



Signal name (RS-485, RS-422A)

Terminal No.	Signal name	Symbol
1	Signal data	SG
2	Send data/Receive data	T/R (A)
3	Send data/Receive data	T/R (B)

#### 4-wire system



Signal name (RS-485, RS-422A)

Terminal No.	Signal name	Symbol
1	Signal data	SG
2	Receive data	R (A)
3	Receive data	R (B)
4	Send data	T (A)
5	Send data	T (B)

Twisted pair wire provided by customer.

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