

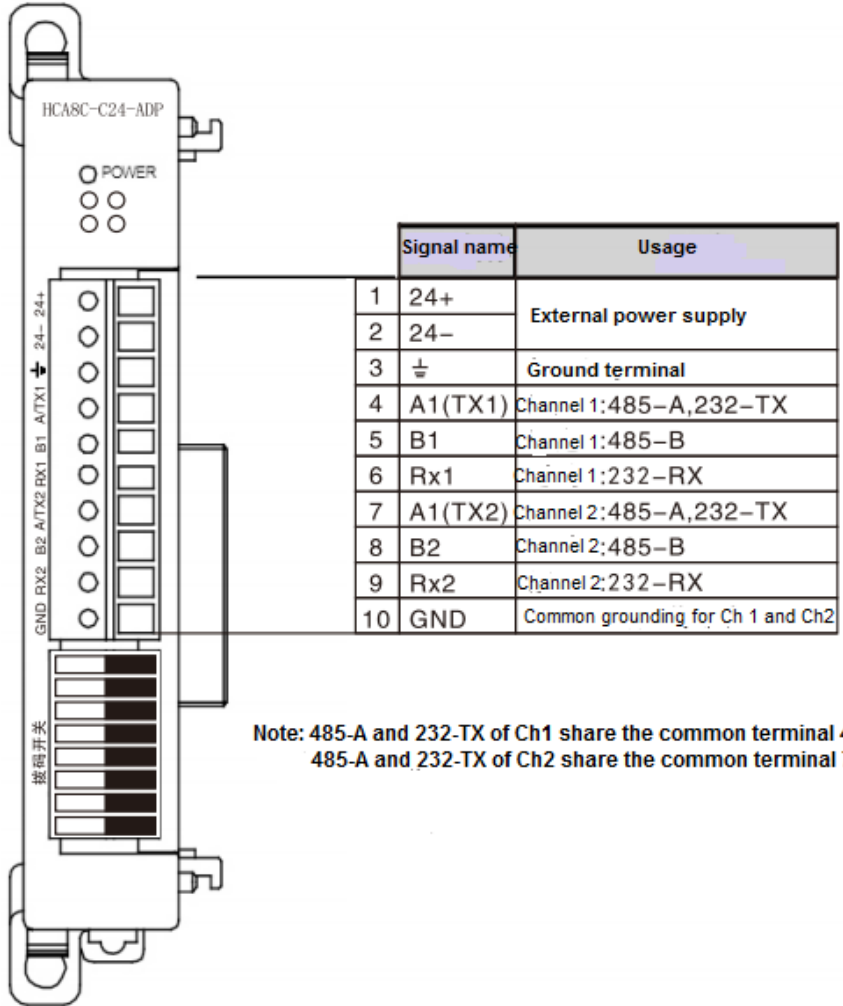
## HCA8C-C24-ADP User' Manual

### 1. Overview

HCA8C-C24-ADP is built in two communication ports, which can be configured to RS485 (half duplex two-wire) or RS232 by dial switch. It is completely isolated between the ports and the PLC.

### 2. Specifications

#### 2.1 Terminal layout



#### 2.2 Wiring

##### 1. Wiring of communication terminals

Terminal 485-A is connected to Place A of other 485 device.

Terminal 485-B is connected to Place B of other 485 device.

GND is connected to the GND of other device.

Terminal 232-TX is connected to the RX of other 232 device.

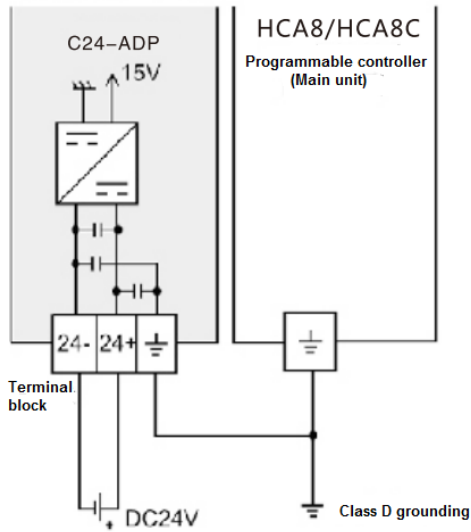
Terminal 232-RX is connected to the TX of other 232 device.

GND is connected to the GND of other device.

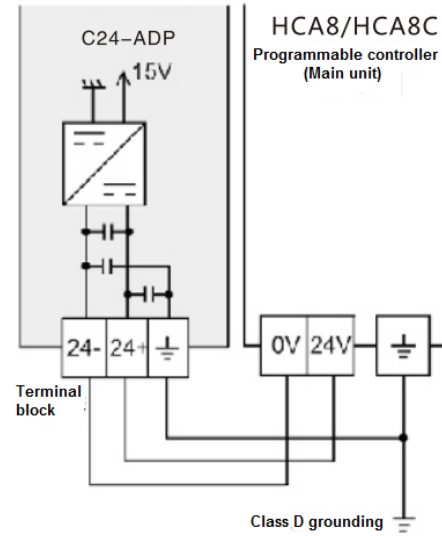
GND must be connected if communicated with the 232 device.

● To connect to HCA8, HCA8C series PLC

1. When external power supply used



2. When 24VDC on PLC used



Cautions for wiring

- Ground the "  $\perp$  " terminal to a class-D grounded power supply line (100Ω or less) together with the grounding terminal of the PLC main unit.
- When using an external power supply, please refer to the related manual of PLC to be connected for the timing of power ON/OFF.

### 2.3 Communication specifications

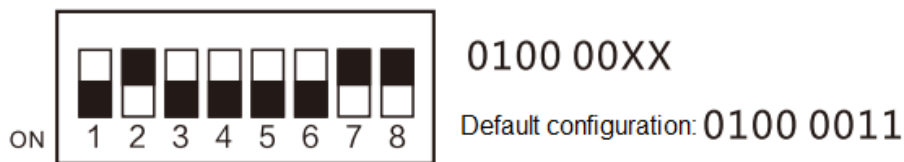
Items		RS232	RS485	Note
The number of occupied channels		1 channel		Either MODBUS master or slave station occupies 1 channel.
Communication spec.	Transmission speed	300,600,1200,2400,4800, 9600,19200,38400,57600,115200 bps		See communication format
	Data length	7 or 8 bits		
	Stop bit	1 or 2 bits		
	Transmission distance	Max. 15m	Max. 500m	Depending on communication device type
	Communication protocol	RTU or ASCII		
Master function	Number of slaves	1	16	Depending on communication device type
	Number of functions	14 (+14 diagnostic functions)		
	Number of written data	123 words or 1968 coils		
	Number of read data	125 words or 2000 coils		
	Number of commands given at	1 command		

	the same time		
Slave function	Number of functions	14 (+14 diagnostic functions)	
	Number of slaves	1 to 247	
	Number of request received at the same time	1 request	

### 3. Communication configuration

Three communication modes can be set by the dial switch. Please configure the dial switch before power ON and following the instructions below strictly.

#### 3.1



The seventh: X=0, the terminal resistor of channel 1 (120 Ω) is ON. X=1, OFF.

The eighth: X=0, the terminal resistor of channel 2 (120 Ω) is ON. X=1, OFF.

Select to open the terminal resistor according to the actual situation. The terminal resistor is OFF by default when leaving the factory.

The ports status for 2 channels is RS485 (half-duplex, two-wire)

#### 3.2



The ports status for 2 channels is RS232.

#### 3.3



The eighth: X=0, the terminal resistor of channel 2 (120 Ω) is ON. X=1, OFF.

Select to open the terminal resistor according to the actual situation. The terminal resistor is OFF by default when leaving the factory.

Now, channel 1 (COM1) is RS232, channel 2 (COM2) is RS485 (half-duplex, two-wire)

## 4. Communication function

### 4.1 Programming communication function

Port 232 can be used as the common communication port to have the programming communication with PC programming software, HMI etc. Please clear the PLC internal data, and then write the programs before using this function.

Note: Port 485 has no this function.

### 4.2 Non-programming communication function

Non-programming communication function contains N:N network, Parallel link, Computer link, Non-protocol communication (RS, RS2 instruction) and MODBUS master-slave protocol.

Please make sure whether to use the devices of communication format (D8120, D8400, D8420), N:N network (D8176 to D8180) and parallel link (M8070, M8071) in Sequence Control. If the devices are used, it cannot communicate normally.

If other functions are needed, refer to Special function register.

Channel 1: D8400 to D8419, D8470 to D8485

Channel 2: D8420 to D8439, D8470 to D8485

## 5. Communication methods by sequence control program

The method of taking sequence control is to send data to communication format (D8120, D8400, D8420) and make the settings. Here explains the setting method of related devices and sequence control.

### 5.1 Communication setting by RS instruction

The used device in communication setting is shown below.

#### 1. D8120 (communication format)

You can make the communication setting, such as data length, parity check, baud rate in D8120.

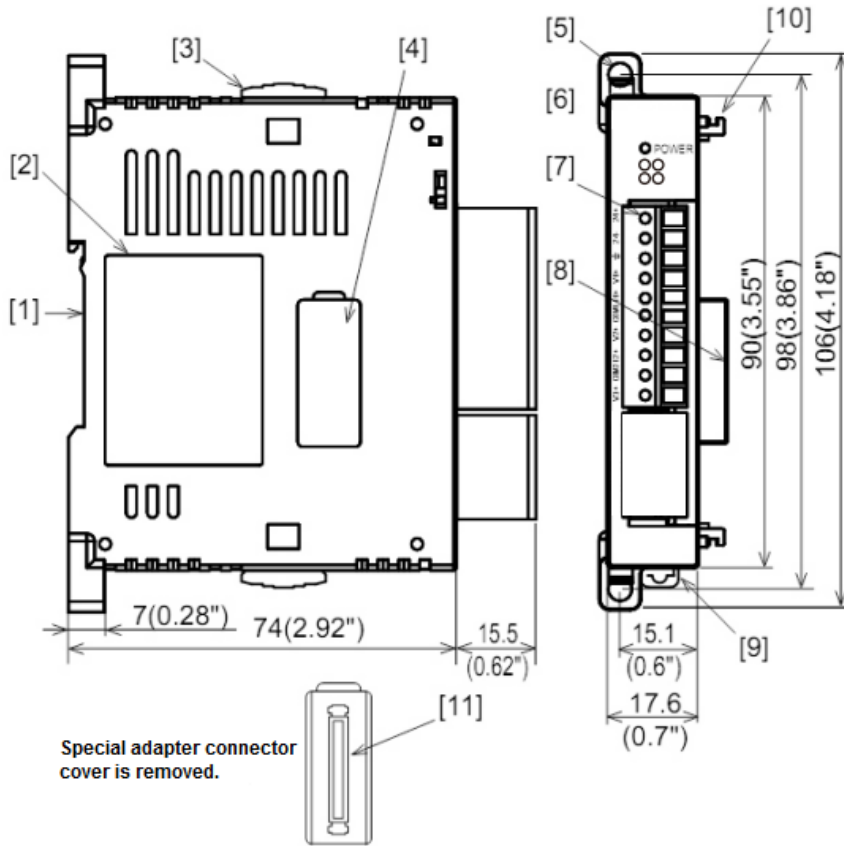
The setting of D8120 is shown below.

Bit No.	Name	Contents	
		0 (bit = OFF)	1 (bit = ON)
b0	Data length	7-bit	8-bit
b1 b2	Parity	b2, b1 (0, 0): No parity (0, 1): Odd (1, 1): Even	
b3	Stop bit	1-bit	2-bit
b4 b5 b6 b7	Baud rate (bps)	b7, b6, b5, b4 (0, 0, 1, 1): 300 (0, 1, 0, 0): 600 (0, 1, 0, 1): 1200 (0, 1, 1, 0): 2400	b7, b6, b5, b4 (0, 1, 1, 1): 4800 (1, 0, 0, 0): 9600 (1, 0, 0, 1): 19200 (1, 0, 1, 0): 38400  b7, b6, b5, b4 (1, 0, 1, 1): 57600 (1, 1, 0, 0): 115200
b8	Header	None	D8124 Initial value: STX(02H)
b9	Terminator	None	D8125 Initial value: ETX(03H)
b10 b11	Control line	Non-protocol	b11, b10 (0, 0): None <RS-232C interface> (0, 1): Normal mode <RS-232C interface> (1, 0): Interlink mode<RS-232C interface> (1, 1): MODEM mode <RS-232C interface, RS-485/RS-422 interface <sup>2</sup> >





**6. External dimensions, part names and terminal layout**



[1] DIN rail mounting groove (DIN rail: DIN46277)

[2] Name plate

[3] Special adapter slide lock:

Used to connect additional special adapters onto left side of this special adapter.

[4] Special adapter connector cover:

Remove this cover to connect additional special adapters on the left side.

[5] Direct mounting hole: 2 holes of  $\phi 4.5$  (0.18") (mounting screw: M4 screw)

Not used when connecting to TX3UCSeries PLC

[6] POWER LED (green): Lit while 24V DC power is supplied from main unit

[7] Terminal block (European type) for connecting analog voltage/ current signal and 24VDC.

[8] Special adapter connector: Used to connect this special adapter to PLC main unit or special adapter.

[9] DIN rail mounting hook

[10] Special adapter fixing hook

[11] Special adapter connector:

Used to connect communication or analog special adapter to the left side of the C24-ADP.

**7. Guidelines for the safety of the user and protection of the C24-ADP**

◆ If any doubt at any stage during the installation of C24-ADP, always consult a professional electrical engineer who is qualified and trained to local and national standards. If in doubt about the operation and use of the C24-ADP, please consult the nearest BRASILTEC distributor.

◆ All the examples and diagrams shown in this manual are intended only as an aid to understanding the text, not to guarantee

the operation. BRASILTEC Corporation will accept no responsibility for the actual use of the product based on these illustrative examples.

◆ This manual confers no industrial property rights or any rights of any other kind, nor does it confer any patent licenses.

BRASILTEC Corporation cannot be held responsible for any problems involving industrial property rights which may occur as a result of using the contents noted in this manual.

◆ Under no circumstances will BRASILTEC Corporation be liable or responsible for any consequential damage that may arise as a result of the installation and use of this equipment.

Manual No.: DOC-HCA8C-C24-ADP

Manual version: V1.1

Date: Oct.15th, 2015