



CA Series PC/104 Quick Installation Guide

Third Edition, July 2015

1. Overview

The CA Series multiport serial module provides serial port expansion for embedded PCs. It is designed for PC/104 CPU boards that accept the PC/104 expansion interface. Optional DB9 and DB25 cables are available to connect different devices. The device drivers make full use of the 64-byte Tx/Rx FIFO and on-chip flow control, which allows up to 921.6 Kbps data transmission. Six different models are available as follows:

- **CA-108:** 8 ports, RS-232
- **CA-114:** 4 ports, RS-232/422/485
- **CA-1341:** 4 ports, RS-422/485 w/2 KV optical isolation protection
- **CA-104 V2:** 4 ports, RS-232
- **CA-132 V2:** 2 ports, RS-422/485
- **CA-1321 V2:** 2 ports, RS-422/485 w/2 KV optical isolation protection

2. Package Checklist

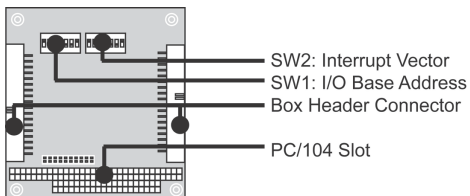
Before installing the CA Series multiport serial module, verify that the package contains the following items:

- CA Series PC/104 multiport serial module
- Documentation and Software CD-ROM
- Quick Installation Guide
- 5-year product warranty statement

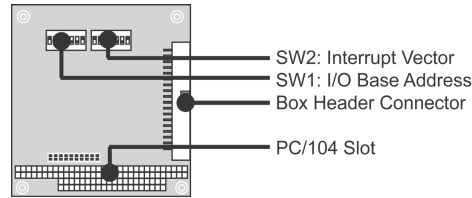
Please notify your sales representative if any of the above items are missing or damaged.

3. I/O Base Address, Interrupt Vector, Serial Interface

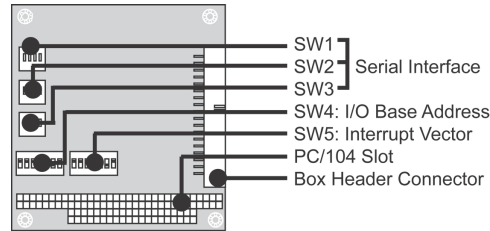
CA-108



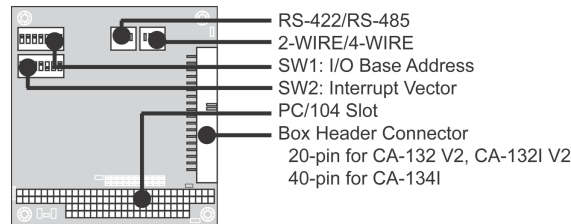
CA-104 V2



CA-114

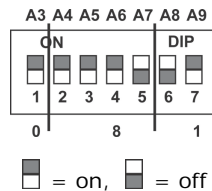


CA-1341, CA-132 V2, CA-1321 V2



I/O Base Address

Use DIP switch SW1 to set port 1's I/O base address. The other ports will be configured automatically. The default I/O base address is 0x180 and allows settings from 0x000 to 0x3FF. Some popular settings are provided below:



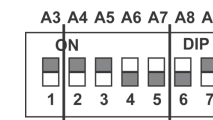
For example, an I/O base address of 0x180 should be set as follows:

A3	A4	A5	A6	A7	A8	A9	Hex
ON	ON	ON	ON	off	off	ON	0x180

The other serial ports will be set automatically to 0x188, 0x190, 0x198, etc.

A3	A4	A5	A6	A7	A8	A9	Hex
8	1	2	4	8	1	2	Hex
ON	ON	ON	ON	ON	ON	ON	0x000
ON	ON	ON	ON	ON	ON	off	0x200
ON	ON	ON	ON	ON	off	off	0x300
ON	ON	ON	ON	off	off	off	0x380
ON	ON	ON	off	off	off	off	0x3C0
ON	ON	off	off	off	off	off	0x3E0
ON	off	off	off	off	off	off	0x3F0
off	off	off	off	off	off	off	0x3F8
off	ON	ON	ON	ON	ON	ON	0x008
off	off	ON	ON	ON	ON	ON	0x018
off	off	off	ON	ON	ON	ON	0x038
off	off	off	off	ON	ON	ON	0x078
off	off	off	off	off	ON	ON	0x0F8
off	off	off	off	off	off	ON	0x2F8

Interrupt Vector



Use DIP switch SW2 to set port 1's interrupt vector. The default interrupt vector is 0x1C0, with SW2 set as follows:

A3	A4	A5	A6	A7	A8	A9	Hex
ON	ON	ON	off	off	off	ON	0x1C0

☐ = on, ◼ = off

Serial Interface

For the CA-114, use SW1, SW2, and SW3 to select the serial interface:

Interface	RS-232	RS-422	4w RS-485	2w RS-485
SW1	–	–	ON	OFF
SW2	–	ON	OFF	OFF
SW3	ON	OFF	OFF	OFF

For the CA-1341, CA-132 V2, and CA-1321 V2, use the 2-WIRE/4-WIRE and RS-422/RS-485 DIP switches to select the serial interface:

Interface	2-WIRE/4-WIRE	RS-422/RS-485
RS-422	–	OFF
4-wire RS-485	OFF	ON
2-wire RS-485	ON	ON

4. Hardware Installation

Do not install the drivers until the module has been installed in the embedded computer. Install the module in the embedded computer as follows:

- STEP 1:** Turn the embedded computer off.
- STEP 2:** On the module, set the I/O base address, interrupt vector, IRQ, and serial interface (if applicable).
- STEP 3:** Insert the module into an available PC/104 slot.
- STEP 4:** Screw the control board in place.
- STEP 5:** Connect the cables.
- STEP 6:** Turn the embedded computer on.

5. Software Installation

For detailed software installation instructions, please refer to the CA Series User's Manual.

Windows Vista (32-bit)

- After turning the embedded computer on, log into Windows as Administrator.
- Insert the Document and Software CD in the CD-ROM drive.
- Select **Add Hardware** from the Control Panel.
- A window will appear stating that "Windows needs your permission to continue". Click **Continue**.
- The "Add Hardware Wizard" will open. Click Next to continue.
- Select **Install the hardware that I manually select from a list (Advanced)** and click **Next** to continue.
- Select **Multi-port serial adapters** and click **Next** to continue.
- Click **Have Disk**. For 32-bit (x86) platforms, select the **\CA Series\Software\Windows Vista\x86** folder on the CD and click **OK** to continue.
- Select your CA Series model and click **Next** to continue.
- If you see a warning that the software has not passed Windows Logo testing, click **Install this driver software anyway**.
- The installation wizard will guide you through the port installation procedure, starting with port 0.
- If the default configuration is not used, you will need to change the driver settings to match the hardware configuration. Use Windows Device Manager to check and set the correct resource.

Windows 2003 and XP (32-bit)

- After turning the embedded computer on, log into Windows as Administrator.
- Insert the Document and Software CD in the CD-ROM drive.
- Select **Add/Remove Hardware** from Control Panel.
- Select **Yes, I have already connected the hardware**.
- Select **Add new hardware device**.
- Select **Install the hardware that I manually select from a list (Advanced)**.
- Select **Multi-port serial adapters**.

- Select **Have Disk**. Select the **\CA Series\Software\Windows XP_2003\x86** folder on the CD.
- If you see a warning that the software has not passed Windows Logo testing, click **Continue Anyway**.
- Click **Finish** to complete the driver installation.
- If the default configuration is not used, you will need to change the driver settings to match the hardware configuration. Use Windows Device Manager to check and set the correct resource.

Windows 2000

- After powering on your PC, log into Windows 2000 as Administrator.
- Insert the Document and Software CD in the CD-ROM drive.
- Select **Add/Remove Hardware** from Control Panel.
- Select **Add/Troubleshoot a device**.
- Select **Add new device**.
- Select **No, I want to select the hardware from a list**.
- Select **Multi-port serial adapters**.
- Select **Have Disk**. Select the **\CA Series\Software\Windows 2K** folder on the CD and click **Next** to continue.
- If you see a warning that the software has not passed Windows Logo testing, click **Yes** to proceed with the installation.
- Click **Finish** to complete the driver installation.
- If the default configuration is not used, you will need to change the driver settings to match the hardware configuration. Use Windows Device Manager to check and set the correct resource.

Linux

Please refer to the user's manual for instructions on installing the Linux drivers.

6. Pin Assignments and Cable Wiring

The box header connector on the module can be used with optional serial cables to connect to your serial devices. The pin assignments are as follows:

RS-232 (CA-108*, CA-114, CA-104 V2)

Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
1	DCD0	11	DCD1	21	DCD2	31	DCD3
2	DSR0	12	DSR1	22	DSR2	32	DSR3
3	RxD0	13	RxD1	23	RxD2	33	RxD3
4	RTS0	14	RTS1	24	RTS2	34	RTS3
5	TxD0	15	TxD1	25	TxD2	35	TxD3
6	CTS0	16	CTS1	26	CTS2	36	CTS3
7	DTR0	17	DTR1	27	DTR2	37	DTR3
9	GND0	19	GND1	29	GND2	39	GND3

*There are two 40-pin box header connectors on the CA-108, each of which connects to 4 serial ports.

RS-422, 4-wire RS-485 (CA-132 V2, CA-132I V2, CA-114, CA-134I)

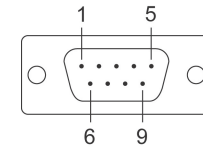
Pin	Signal	Pin	Signal	Pin*	Signal*	Pin*	Signal*
1	TxD0-(A)	11	TxD1-(A)	21	TxD2-(A)	31	TxD3-(A)
3	TxD0+(B)	13	TxD1+(B)	23	TxD2+(B)	33	TxD3+(B)
5	RxD0+(B)	15	RxD1+(B)	25	RxD2+(B)	35	RxD3+(B)
7	RxD0-(A)	17	RxD1-(A)	27	RxD2-(A)	37	RxD3-(A)
9	GND0	19	GND1	29	GND2	39	GND3

*Pins 21 to 40 are for CA-114, CA-134I only

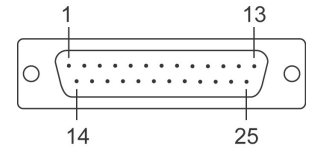
2-wire RS-485 (CA-132 V2, CA-132I V2, CA-114, CA-134I)

Pin	Signal	Pin	Signal	Pin*	Signal*	Pin*	Signal*
5	Data0+(B)	15	Data1+(B)	25	Data2+(B)	35	Data3+(B)
7	Data0-(A)	17	Data1-(A)	27	Data2-(A)	37	Data3-(A)
9	GND0	19	GND1	29	GND2	39	GND3

*Pins 21 to 40 are for CA-114, CA-134I only



DB9 (M) connectors
(CBL-F40M9x4-50,
CBL-F20M9x4-50)



DB25 (M) connectors
(CBL-F40M25x4-50,
CBL-F20M25x4-50)

Pin	RS-232	RS-422, 4-wire RS-485	2-wire RS-485	Pin	RS-232	RS-422, 4-wire RS-485	2-wire RS-485
1	DCD	TxD-(A)	---	2	TxD	RxD+(B)	Data+(B)
2	RxD	TxD+(B)	---	3	RxD	TxD+(B)	---
3	TxD	RxD+(B)	Data+(B)	4	RTS	---	---
4	DTR	RxD-(A)	Data-(A)	5	CTS	---	---
5	GND	GND	GND	6	DSR	---	---
6	DSR			7	GND	GND	GND
7	RTS			8	DCD	TxD-(A)	---
8	CTS			20	DTR	RxD-(A)	Data-(A)

MOXA

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The Americas: +1-714-528-6777 (toll-free: 1-888-669-2872)
Europe: +49-89-3 70 03 99-0
Asia-Pacific: +886-2-8919-1230
China: +86-21-5258-9955 (toll-free: 800-820-5036)

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