Multiport Serial Boards

PCI Express Serial Boards

	CP-118EL	CP-168EL	CP-114EL	CP-114EL-I	CP-104EL	CP-102E	CP-102EL	CP-132EL	CP-132EL-I
Hardware									
Comm. Controller	MU860		16C550C compatible		MU860	16C550C compatible			
Bus	PCI Express x1								
Connector	VHDCI 68		DB44 female			DB9 male	DB25 female		
Serial Interface									
RS-232 Ports	---	8	---	---	4	2	2	---	---
RS-422 Ports	---	---	---	---	---	---	---	---	---
RS-422/485 Ports	---	---	---	---	---	---	---	2	2
RS-232/422/485 Ports	8	---	4	4	---	---	---	---	---
Communication Parameters	Data Bits: 5, 6, 7, 8; Stop Bits: 1, 1.5, 2; Parity: None, Even, Odd, Space, Mark								
Flow Control	RTS/CTS, XON/XOFF							XON/XOFF	
Baudrate	50 bps to 921.6 Kbps								
ESD Protection	15 KV	15 KV	15 KV	15 KV	15 KV	15 KV	15 KV	15 KV	15 KV
Optical Isolation	---	---	---	2 KV	---	---	---	---	2 KV
Driver Support									
Windows 9X/ME/NT	---	---	---	---	---	---	---	---	---
Windows 2000	√	√	√	√	√	√	√	√	√
Windows XP/2003/Vista x86/x64	√	√	√	√	√	√	√	√	√
Windows 2008 x86/x64	√	√	√	√	√	√	√	√	√
Windows CE 5.0	√	√	---	---	√	---	---	---	---
Windows CE 6.0	---	---	---	---	---	---	---	---	---
Windows XP Embedded	√	√	√	√	√	√	√	√	√
DOS	√	√	---	---	√	---	---	---	---
Linux 2.4/2.6	√	√	√	√	√	√	√	√	√
FreeBSD 4/5	√	√	---	---	√	---	---	---	---
QNX 4	---	---	---	---	---	---	---	---	---
QNX 6	√	√	√	√	√	√	√	√	√
SCO Open Server 5/6	√	√	√	√	√	√	√	√	√
UnixWare 7	√	√	√	√	√	√	√	√	√
Environmental Factors									
Dimensions (mm)	64.4 x 132	62.7 x 102	67.2 x 136.9	67.2 x 136.9	62.7 x 100	85.0 x 100	67.2 x 102.0	67.2 x 102.0	67.2 x 104.0
Operating Temperature	0 to 55°C	0 to 55°C	0 to 55°C	0 to 55°C	0 to 55°C	0 to 55°C	0 to 55°C	0 to 55°C	0 to 55°C
Operating Humidity	5 to 95% RH	5 to 95% RH	5 to 95% RH	5 to 95% RH	5 to 95% RH	5 to 95% RH	5 to 95% RH	5 to 95% RH	5 to 95% RH
Storage Temperature	-20 to 85°C	-20 to 85°C	-20 to 85°C	-20 to 85°C	-20 to 85°C	-20 to 85°C	-20 to 85°C	-20 to 85°C	-20 to 85°C
Regulatory Approvals									
FCC, Part 15 Class	B	B	B	B	B	B	B	B	B
EN55022 Class B	---	---	---	---	---	---	---	---	---
EN55022	---	---	---	---	---	---	---	---	---
EN55024	√	√	√	√	√	√	√	√	√
EN61000-3-2	√	√	√	√	√	√	√	√	√
EN61000-3-3	√	√	√	√	√	√	√	√	√
EN61000-6-2	√	√	√	√	√	√	√	√	√
EN61000-6-4	---	---	---	---	---	---	---	---	---
IEC 61000-4-2	√	√	√	√	√	√	√	√	√
IEC 61000-4-3	√	√	√	√	√	√	√	√	√
EC 61000-4-4	√	√	√	√	√	√	√	√	√
IEC 61000-4-5	√	√	√	√	√	√	√	√	√
IEC 61000-4-6	√	√	√	√	√	√	√	√	√
IEC 61000-4-8	√	√	√	√	√	√	√	√	√
IEC 61000-4-11	√	√	√	√	√	√	√	√	√
IEC 61000-4-11 (DIPS)	---	---	---	---	---	---	---	---	---
ENV5204	---	---	---	---	---	---	---	---	---
Reliability									
Warranty	5 years (see www.moxa.com/warranty)								

Universal PCI Serial Boards

	C320Turbo/PCI	C218Turbo/PCI	CP-118U CP-118U-T	CP-138U CP-138U-T	CP-118U-I CP-118U-I-T	CP-138U-I CP-138U-I-T	CP-168U CP-168U-T	CP-114UL CP-114UL-T	CP-114UL-I CP-114UL-I-T	CP-104UL CP-104UL-T
Hardware										
Comm. Controller	16C550C or compatible		MU860							
Bus	32-bit Universal PCI									
Connector	DB25 female	DB62 female			DB78 female		DB62 female	DB44 female		
Serial Interface										
RS-232 Ports	32	8	---	---	---	---	8	---	---	4
RS-422 Ports	---	---	---	---	---	---	---	---	---	---
RS-422/485 Ports	---	---	---	8	---	8	---	---	---	---
RS-232/422/485 Ports	---	---	8	---	8	---	---	4	4	---
Communication Parameters	Data Bits: 5, 6, 7, 8; Stop Bits: 1, 1.5, 2; Parity: None, Even, Odd, Space, Mark									
Flow Control	---	---	RTS/CTS, XON/XOFF				RTS/CTS, XON/XOFF			
Baudrate	50 bps to 460.8 Kbps	50 bps to 921.6 Kbps								
ESD Protection	---	Optional	15 KV	15 KV	15 KV	15 KV	15 KV	15 KV	15 KV	15 KV
Optical Isolation	---	Optional	---	---	2 KV	2 KV	Optional	---	2 KV	---
Driver Support										
Windows 9X/ME/NT	√	√	√	√	√	√	√	√	√	√
Windows 2000	√	√	√	√	√	√	√	√	√	√
Windows XP/2003/Vista x86/x64	√	√	√	√	√	√	√	√	√	√
Windows 2008 x86/x64	√	√	√	√	√	√	√	√	√	√
Windows CE 5.0	---	---	√	√	√	√	√	√	√	√
Windows CE 6.0	---	---	√	√	√	√	√	√	√	√
Windows XP Embedded	---	---	√	√	√	√	√	√	√	√
DOS	√	√	√	√	√	√	√	√	√	√
Linux 2.4/2.6	√	√	√	√	√	√	√	√	√	√
FreeBSD 4/5	---	---	√	√	√	√	√	√	√	√
QNX 4	√	√	---	---	---	---	---	---	---	---
QNX 6	√	√	√	√	√	√	√	√	√	√
SCO Open Server 5/6	√	√	√	√	√	√	√	√	√	√
UnixWare 7	√	√	√	√	√	√	√	√	√	√
Environmental Factors										
Dimensions (mm)	90 x 120	105 x 180	82 x 135	82 x 135	105 x 133	105 x 133	82 x 120	64.4 x 120	64.4 x 120	64.4 x 120
Operating Temperature	0 to 55°C	0 to 55°C	0 to 55°C, or -40 to 85°C	0 to 55°C, or -40 to 85°C	0 to 55°C, or -40 to 85°C	0 to 55°C, or -40 to 85°C	0 to 55°C, or -40 to 85°C	0 to 55°C, or -40 to 85°C	0 to 55°C, or -40 to 85°C	0 to 55°C, or -40 to 85°C
Operating Humidity	5 to 95% RH	5 to 95% RH	5 to 95% RH	5 to 95% RH	5 to 95% RH	5 to 95% RH	5 to 95% RH	5 to 95% RH	5 to 95% RH	5 to 95% RH
Storage Temperature	-20 to 85°C	-20 to 85°C	-20 to 85°C	-20 to 85°C	-20 to 85°C	-20 to 85°C	-20 to 85°C	-20 to 85°C	-20 to 85°C	-20 to 85°C
Regulatory Approvals										
FCC, Part 15 Class	A	A	B	B	B	B	B	B	B	B
EN55022 Class B	---	---	---	---	---	---	---	---	---	---
EN55022	---	---	---	---	√	√	√	√	√	√
EN55024	---	---	√	√	√	√	√	√	√	√
EN61000-3-2	---	---	√	√	√	√	√	√	√	√
EN61000-3-3	---	---	√	√	√	√	√	√	√	√
EN61000-6-2	---	---	√	√	---	---	---	---	---	---
EN61000-6-4	---	---	---	---	---	---	---	---	---	---
IEC 61000-4-2	√	√	√	√	√	√	√	√	√	√
IEC 61000-4-3	√	√	√	√	√	√	√	√	√	√
IEC 61000-4-4	√	√	√	√	√	√	√	√	√	√
IEC 61000-4-5	---	√	√	√	√	√	√	√	√	√
IEC 61000-4-6	---	√	√	√	√	√	√	√	√	√
IEC 61000-4-8	---	---	√	√	√	√	√	√	√	√
IEC 61000-4-11	---	---	---	---	---	---	---	---	---	---
IEC 61000-4-11 (DIPS)	---	√	√	√	√	√	√	√	√	√
ENV5204	√	√	---	---	---	---	---	---	---	---
Reliability										
Warranty	5 years (see www.moxa.com/warranty)									

Universal PCI Serial Boards

	CP-104JU CP-104JU-T	CP-134U CP-134U-T	CP-134U-I CP-134U-I-T	CP-112UL CP-112UL-T	CP-112UL-I CP-112UL-I-T	CP-102U CP-102U-T	CP-102UL CP-102UL-T	CP-132UL CP-132UL-T	CP-132UL-I CP-132UL-I-T	POS-104UL POS-104UL-T
Hardware										
Comm. Controller	MU860									
Bus	32-bit Universal PCI									
Connector	RJ45 x 4	DB44 female		DB25 female		DB9 male x 2	DB25 female			DB44 female
Serial Interface										
RS-232 Ports	4	---	---	---	---	2	2	---	---	4
RS-422 Ports	---	---	---	---	---	---	---	---	---	---
RS-422/485 Ports	---	4	4	---	---	---	---	2	2	---
RS-232/422/485 Ports	---	---	---	2	2	---	---	---	---	---
Communication Parameters	Data Bits: 5, 6, 7, 8; Stop Bits: 1, 1.5, 2; Parity: None, Even, Odd, Space, Mark									
Flow Control	RTS/CTS, XON/XOFF									
Baudrate	50 bps to 921.6 Kbps									
ESD Protection	15 KV	15 KV	15 KV	15 KV	15 KV	15 KV	15 KV	15 KV	15 KV	15 KV
Optical Isolation	---	---	2 KV	---	2 KV	---	---	---	2 KV	---
Driver Support										
Windows 9X/ME/NT	√	√	√	---	---	√	√	√	√	√
Windows 2000	√	√	√	√	√	√	√	√	√	√
Windows XP/2003/Vista x86/x64	√	√	√	√	√	√	√	√	√	√
Windows 2008 x86/x64	√	√	√	√	√	√	√	√	√	√
Windows CE 5.0	√	√	√	√	√	√	√	√	√	√
Windows CE 6.0	√	√	√	√	√	√	√	√	√	√
Windows XP Embedded	√	√	√	√	√	√	√	√	√	√
DOS	√	√	√	---	---	√	√	√	√	√
Linux 2.4/2.6	√	√	√	√	√	√	√	√	√	√
FreeBSD 4/5	√	√	√	---	---	√	√	√	√	√
QNX 4	---	---	---	---	---	---	---	---	---	---
QNX 6	√	√	√	---	---	√	√	√	√	√
SCO Open Server 5/6	√	√	√	√	√	√	√	√	√	√
UnixWare 7	√	√	√	√	√	√	√	√	√	√
Environmental Factors										
Dimensions (mm)	83 x 120	82.5 x 120	115 x 120	---	---	120 x 120	64.5 x 120	64.5 x 120	64.5 x 120	64.4 x 120
Operating Temperature	0 to 55°C, or -40 to 85°C	0 to 55°C, or -40 to 85°C	0 to 55°C, or -40 to 85°C	0 to 55°C, or -40 to 85°C	0 to 55°C, or -40 to 85°C	0 to 55°C, or -40 to 85°C	0 to 55°C	0 to 55°C, or -40 to 85°C	0 to 55°C, or -40 to 85°C	0 to 55°C, or -40 to 85°C
Operating Humidity	5 to 95% RH	5 to 95% RH	5 to 95% RH	5 to 95% RH	5 to 95% RH	5 to 95% RH	5 to 95% RH	5 to 95% RH	5 to 95% RH	5 to 95% RH
Storage Temperature	-20 to 85°C	-20 to 85°C	-20 to 85°C	-20 to 85°C	-20 to 85°C	-20 to 85°C	-20 to 85°C	-20 to 85°C	-20 to 85°C	-20 to 85°C
Regulatory Approvals										
FCC, Part 15 Class	B	B	B	B	B	B	B	B	B	B
EN55022 Class B	---	---	---	---	---	---	---	---	---	---
EN55022	√	√	√	√	√	√	√	√	√	√
EN55024	√	√	√	√	√	√	√	√	√	---
EN61000-3-2	√	√	√	√	√	√	√	√	√	√
EN61000-3-3	√	√	√	√	√	√	√	√	√	√
EN61000-6-2	---	---	---	---	---	---	---	---	---	√
EN61000-6-4	---	---	---	---	---	---	---	---	---	√
IEC 61000-4-2	√	√	√	√	√	√	√	√	√	√
IEC 61000-4-3	√	√	√	√	√	√	√	√	√	√
IEC 61000-4-4	√	√	√	√	√	√	√	√	√	√
IEC 61000-4-5	√	√	√	√	√	√	√	√	√	√
IEC 61000-4-6	√	√	√	√	√	√	√	√	√	√
IEC 61000-4-8	√	√	√	√	√	√	√	√	√	√
IEC 61000-4-11	---		---	---	---	---	---	---	---	---
IEC 61000-4-11 (DIPS)	√	√	√	√	√	√	√	√	√	√
ENV5204	---	---	---	---	---	---	---	---	---	---
Reliability										
Warranty	5 years (see www.moxa.com/warranty)									

Fiber Optic Serial Boards




	CP-102UF-M-ST	CP-102UF-M-ST-T	CP-102UF-S-ST	CP-102UF-S-ST-T
Hardware				
Bus	32-bit Universal PCI			
Optical Fiber Interface				
Mode	Multi-mode		Single-mode	
Fiber Connectors	ST type			
Cable Requirements	50/125, 62.5/125, or 100/140 µm		8.3/125, 8.75/125, 9/125 or 10/140 µm	
Transmission Distance	Max. 5 km		Max. 40 km	
Wavelength	820 nm		1310 nm	
Tx Output	-5 dBm			
Rx Sensitivity	-20 dBm		-24 dBm	
Point-to-Point Transmission	Half or full duplex			
Ring Transmission	Half duplex			
Serial Interface				
Number of Ports	2	2	2	2
Communication Parameters	Data Bits: 5, 6, 7, 8; Stop Bits: 1, 1.5, 2; Parity: None, Even, Odd, Space, Mark			
Flow Control	XON/XOFF			
Baudrate	50 bps to 921.6 Kbps			
Driver Support				
Windows 9X/ME/NT	---	---	---	---
Windows 2000	√	√	√	√
Windows XP/2003/Vista x86/x64	√	√	√	√
Windows 2008 x86/x64	√	√	√	√
Windows CE 5.0	√	√	√	√
Windows CE 6.0	√	√	√	√
Windows XP Embedded	√	√	√	√
DOS	√	√	√	√
Linux 2.4/2.6	√	√	√	√
FreeBSD 4/5	---	---	---	---
QNX 4	---	---	---	---
QNX 6	√	√	√	√
SCO Open Server 5/6	√	√	√	√
UnixWare 7	√	√	√	√
Environmental Factors				
Dimensions (mm)	64.4 x 120	64.4 x 120	64.4 x 120	64.4 x 120
Operating Temperature	0 to 55°C	-40 to 85°C	0 to 55°C	-40 to 85°C
Operating Humidity	5 to 95% RH	5 to 95% RH	5 to 95% RH	5 to 95% RH
Storage Temperature	-20 to 85°C	-20 to 85°C	-20 to 85°C	-20 to 85°C
Regulatory Approvals				
FCC, Part 15 Class	B	B	B	B
EN55022 Class B	√	√	√	√
EN55022	---	---	---	---
EN55024	√	√	√	√
EN61000-3-2	√	√	√	√
EN61000-3-3	√	√	√	√
EN61000-6-2	---	---	---	---
EN61000-6-4	---	---	---	---
IEC 61000-4-2	√	√	√	√
IEC 61000-4-3	√	√	√	√
IEC 61000-4-4	√	√	√	√
IEC 61000-4-5	√	√	√	√
IEC 61000-4-6	√	√	√	√
IEC 61000-4-8	√	√	√	√
IEC 61000-4-11	---	---	---	---
IEC 61000-4-11 (DIPS)	√	√	√	√
ENV5204	---	---	---	---
Reliability				
Warranty	5 years (see www.moxa.com/warranty)			

ISA Serial Boards






	C320Turbo	C218Turbo	C168H	C168HS	C104H	C104HS
Hardware						
Comm. Controller	16C550C or compatible					
Bus	16-bit ISA					
Connector	DB25 female	DB62 female			DB37 female	
Serial Interface						
RS-232 Ports	32	8	8	8	4	4
RS-422 Ports	---	---	---	---	---	---
RS-422/485 Ports	---	---	---	---	---	---
RS-232/422/485 Ports	---	---	---	---	---	---
Communication Parameters	Data Bits: 5, 6, 7, 8; Stop Bits: 1, 1.5, 2; Parity: None, Even, Odd, Space, Mark					
Flow Control	---	---	---	---	---	---
Baudrate	50 bps to 460.8 Kbps	50 bps to 921.6 Kbps				
ESD Protection	---	Optional	---	25 KV	---	25 KV
Optical Isolation	---	Optional	Optional	Optional	---	---
Driver Support						
Windows 9X/ME/NT	√	√	√	√	√	√
Windows 2000	√	√	√	√	√	√
Windows XP/2003/Vista x86/x64	√	√	√	√	√	√
Windows 2008 x86/x64	√	√	√	√	√	√
Windows CE 5.0	---	---	---	---	---	---
Windows CE 6.0	---	---	---	---	---	---
Windows XP Embedded	---	---	√	√	√	√
DOS	√	√	√	√	√	√
Linux 2.4/2.6	√	√	√	√	√	√
FreeBSD 4/5	---	---	√	√	√	√
QNX 4	√	√	√	√	√	√
QNX 6	√	√	√	√	√	√
SCO Open Server 5/6	√	√	√	√	√	√
UnixWare 7	√	√	√	√	√	√
Environmental Factors						
Dimensions (mm)	107 x 158	105 x 180	93 x 157	93 x 157	83 x 157	83 x 157
Operating Temperature	0 to 55°C	0 to 55°C	0 to 55°C	0 to 55°C	0 to 55°C	0 to 55°C
Operating Humidity	5 to 95% RH	5 to 95% RH	5 to 95% RH	5 to 95% RH	5 to 95% RH	5 to 95% RH
Storage Temperature	-20 to 85°C	-20 to 85°C	-20 to 85°C	-20 to 85°C	-20 to 85°C	-20 to 85°C
Regulatory Approvals						
FCC, Part 15 Class	A	A	A	A	A	A
EN55022 Class B	---	---	---	---	---	---
EN55022	---	---	√	√	√	√
EN55024	---	---	---	---	---	---
EN61000-3-2	---	---	---	---	---	---
EN61000-3-3	---	---	---	---	---	---
EN61000-6-2	---	---	---	---	---	---
EN61000-6-4	---	---	---	---	---	---
IEC 61000-4-2	√	√	√	√	√	√
IEC 61000-4-3	√	√	√	√	√	√
IEC 61000-4-4	√	√	√	√	√	√
IEC 61000-4-5	---	√	---	---	---	---
IEC 61000-4-6	---	√	---	---	---	---
IEC 61000-4-8	---	---	---	---	---	---
IEC 61000-4-11	---	---	---	---	---	---
IEC 61000-4-11 (DIPS)	---	√	---	---	---	---
ENV5204	√	√	√	√	√	√
Reliability						
Warranty	5 years (see www.moxa.com/warranty)					

ISA Serial Boards

	CI-134	CI-134I	CI-134IS	CI-132	CI-132I	CI-132IS
Hardware						
Comm. Controller	16C550C or compatible					
Bus	16-bit ISA					
Connector	DB37 female			DB9 male x 2		
Serial Interface						
RS-232 Ports	---	---	---	---	---	---
RS-422 Ports	---	---	---	---	---	---
RS-422/485 Ports	4	4	4	2	2	2
RS-232/422/485 Ports	---	---	---	---	---	---
Communication Parameters	Data Bits: 5, 6, 7, 8; Stop Bits: 1, 1.5, 2; Parity: None, Even, Odd, Space, Mark					
Flow Control	---	---	---	---	---	---
Baudrate	50 bps to 921.6 Kbps					
ESD Protection	---	---	25 KV	---	---	25 KV
Optical Isolation	---	2 KV	2 KV	---	2 KV	2 KV
Driver Support						
Windows 9X/ME/NT	√	√	√	√	√	√
Windows 2000	√	√	√	√	√	√
Windows XP/2003/Vista x86/x64	√	√	√	√	√	√
Windows 2008 x86/x64	√	√	√	√	√	√
Windows CE 5.0	---	---	---	---	---	---
Windows CE 6.0	---	---	---	---	---	---
Windows XP Embedded	√	√	√	√	√	√
DOS	√	√	√	√	√	√
Linux 2.4/2.6	√	√	√	√	√	√
FreeBSD 4/5	√	√	√	√	√	√
QNX 4	√	√	√	√	√	√
QNX 6	√	√	√	√	√	√
SCO Open Server 5/6	√	√	√	√	√	√
UnixWare 7	√	√	√	√	√	√
Environmental Factors						
Dimensions (mm)	85 x 160	110 x 180	110 x 180	75 x 157	105 x 157	105 x 157
Operating Temperature	0 to 55°C	0 to 55°C	0 to 55°C	0 to 55°C	0 to 55°C	0 to 55°C
Operating Humidity	5 to 95% RH	5 to 95% RH	5 to 95% RH	5 to 95% RH	5 to 95% RH	5 to 95% RH
Storage Temperature	-20 to 85°C	-20 to 85°C	-20 to 85°C	-20 to 85°C	-20 to 85°C	-20 to 85°C
Regulatory Approvals						
FCC, Part 15 Class	B	B	B	---	---	---
EN55022 Class B	---	---	---	---	---	---
EN55022	√	√	√	√	√	√
EN55024	---	---	---	---	---	---
EN61000-3-2	---	---	---	---	---	---
EN61000-3-3	---	---	---	---	---	---
EN61000-6-2	---	---	---	---	---	---
EN61000-6-4	---	---	---	---	---	---
IEC 61000-4-2	√	√	√	√	√	√
IEC 61000-4-3	√	√	√	√	√	√
IEC 61000-4-4	√	√	√	√	√	√
IEC 61000-4-5	---	---	---	---	---	---
IEC 61000-4-6	---	---	---	---	---	---
IEC 61000-4-8	---	---	---	---	---	---
IEC 61000-4-11	---	---	---	---	---	---
IEC 61000-4-11 (DIPS)	---	---	---	---	---	---
ENV5204	√	√	√	√	√	√
Reliability						
Warranty	5 years (see www.moxa.com/warranty)					

PC/104 Modules






	CA-108 CA-108-T	CA-114 CA-114-T	CA-134I CA-134I-T	CA-104 CA-104-T	CA-132 CA-132-T	CA-132I CA-132I-T
Hardware						
Comm. Controller	16C550C or compatible					
Bus	PC/104 bus					
Box Header Connector	40-pin	40-pin	40-pin	40-pin	20-pin	20-pin
Serial Interface						
RS-232 Ports	8	---	---	4	---	---
RS-422 Ports	---	---	---	---	---	---
RS-422/485 Ports	---	---	4	---	2	2
RS-232/422/485 Ports	---	4	---	---	---	---
Communication Parameters	Data Bits: 5, 6, 7, 8; Stop Bits: 1, 1.5, 2; Parity: None, Even, Odd, Space, Mark					
Flow Control	---	---	---	---	---	---
Baudrate	50 bps to 921.6 Kbps					
ESD Protection	15 KV	15 KV	15 KV	15 KV	15 KV	15 KV
Optical Isolation	---	---	2 KV	---	---	2 KV
Driver Support						
Windows 9X/ME/NT	√	√	√	√	√	√
Windows 2000	√	√	√	√	√	√
Windows XP/2003/Vista x86/x64	√	√	√	√	√	√
Windows 2008 x86/x64	---	---	---	---	---	---
Windows CE 5.0	√	√	√	√	√	√
Windows CE 6.0	√	√	√	√	√	√
Windows XP Embedded	√	√	√	√	√	√
DOS	√	√	√	√	√	√
Linux 2.4/2.6	√	√	√	√	√	√
FreeBSD 4/5	---	---	---	---	---	---
QNX 4	√	√	√	√	√	√
QNX 6	√	√	√	√	√	√
SCO Open Server 5/6	---	---	---	---	---	---
UnixWare 7	---	---	---	---	---	---
Environmental Factors						
Dimensions (mm)	90 x 96	90 x 96	90 x 96	90 x 96	90 x 96	90 x 96
Operating Temperature	0 to 55°C, or -40 to 85°C	0 to 55°C, or -40 to 85°C	0 to 55°C, or -40 to 85°C	0 to 55°C, or -40 to 85°C	0 to 55°C, or -40 to 85°C	0 to 55°C, or -40 to 85°C
Operating Humidity	5 to 95% RH	5 to 95% RH	5 to 95% RH	5 to 95% RH	5 to 95% RH	5 to 95% RH
Storage Temperature	-40 to 55°C	-40 to 55°C	-40 to 55°C	-40 to 55°C	-40 to 55°C	-40 to 55°C
Regulatory Approvals						
FCC, Part 15 Class	A	A	A	A	A	A
EN55022 Class B	---	---	---	---	---	---
EN55022	√	√	√	√	√	√
EN55024	√	√	√	√	√	√
EN61000-3-2	√	√	√	√	√	√
EN61000-3-3	√	√	√	√	√	√
EN61000-6-2	√	√	√	√	√	√
EN61000-6-4	√	√	√	√	√	√
IEC 61000-4-2	√	√	√	√	√	√
IEC 61000-4-3	√	√	√	√	√	√
IEC 61000-4-4	√	√	√	√	√	√
IEC 61000-4-5	√	√	√	√	√	√
IEC 61000-4-6	√	√	√	√	√	√
IEC 61000-4-8	√	√	√	√	√	√
IEC 61000-4-11	---	---	---	---	---	---
IEC 61000-4-11 (DIPS)	√	√	√	√	√	√
ENV5204	---	---	---	---	---	---
Reliability						
Warranty	5 years (see www.moxa.com/warranty)					

PC/104-Plus Modules



	CB-108 CB-108-T	CB-114 CB-114-T	CB-134I CB-134I-T
Hardware			
Comm. Controller	MU860 (16C550C compatible)		
Bus	PC/104-Plus bus		
Box Header Connector	40-pin	40-pin	40-pin
Serial Interface			
RS-232 Ports	8	---	---
RS-422 Ports	---	---	---
RS-422/485 Ports	---	---	4
RS-232/422/485 Ports	---	4	---
Communication Parameters	Data Bits: 5, 6, 7, 8; Stop Bits: 1, 1.5, 2; Parity: None, Even, Odd, Space, Mark		
Flow Control	---	---	---
Baudrate	50 bps to 921.6 Kbps		
ESD Protection	15 KV	15 KV	15 KV
Optical Isolation	---	---	2 KV
Driver Support			
Windows 9X/ME/NT	---	---	---
Windows 2000	√	√	√
Windows XP/2003/Vista x86/x64	√	√	√
Windows 2008 x86/x64	√	√	√
Windows CE 5.0	√	√	√
Windows CE 6.0	√	√	√
Windows XP Embedded	√	√	√
DOS	√	√	√
Linux 2.4/2.6	√	√	√
FreeBSD 4/5	---	---	---
QNX 4	---	---	---
QNX 6	√	√	√
SCO Open Server 5/6	---	---	---
UnixWare 7	---	---	---
Environmental Factors			
Dimensions (mm)	90 x 96	90 x 96	90 x 96
Operating Temperature	0 to 55°C, or -40 to 85°C	0 to 55°C, or -40 to 85°C	0 to 55°C, or -40 to 85°C
Operating Humidity	5 to 95% RH	5 to 95% RH	5 to 95% RH
Storage Temperature	-40 to 55°C	-40 to 55°C	-40 to 55°C
Regulatory Approvals			
FCC, Part 15 Class	A	A	A
EN55022 Class B	---	---	---
EN55022	√	√	√
EN55024	√	√	√
EN61000-3-2	√	√	√
EN61000-3-3	√	√	√
EN61000-6-2	√	√	√
EN61000-6-4	√	√	√
IEC 61000-4-2	√	√	√
IEC 61000-4-3	√	√	√
IEC 61000-4-4	√	√	√
IEC 61000-4-5	√	√	√
IEC 61000-4-6	√	√	√
IEC 61000-4-8	√	√	√
IEC 61000-4-11	---	---	---
IEC 61000-4-11 (DIPS)	√	√	√
ENV5204	---	---	---
Reliability			
Warranty	5 years (see www.moxa.com/warranty)		

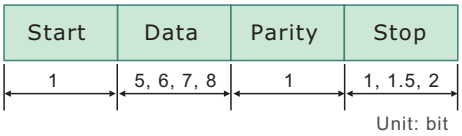
The Basics of RS-232/422/485

RS-232—the most common and easy-to-use communication interface

The RS-232 serial interface was developed for connecting a computer to common peripherals such as modems, overhead projectors, and the sensors and actuators used for industrial automation applications. Despite its limited 15 m transmission distance, RS-232 is low cost and easy-to-wire, making it the first choice for many applications. RS-232 establishes full-duplex (2-way) communication, with signals represented by voltage levels measured with respect to a system common ground (power or logic ground). The "idle" state (MARK) is negative with respect to the common ground, and the "active" state (SPACE) is positive with respect to the common ground.

RS-232 Data Format

Start bit: 1 bit
Data bits: 5, 6, 7, or 8 bits
Parity: None, Odd, Even, Space, Mark
Stop bits: 1, 1.5 (if data bits = 5), or 2 bits



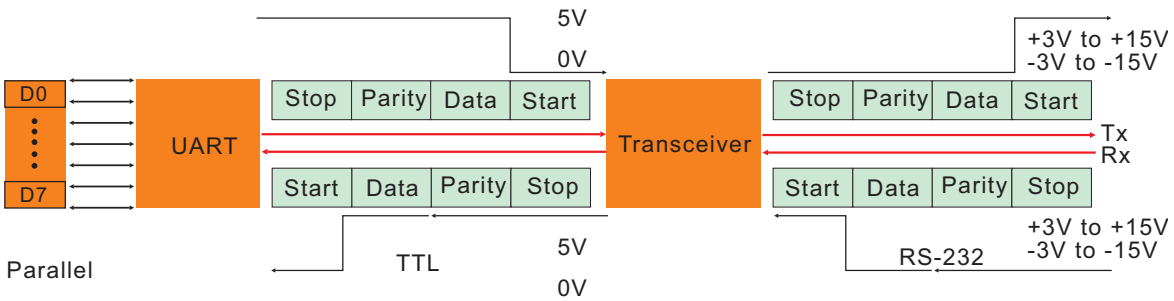
RS-232 Specs

Standard	Connection Type	Operation Mode	Drivers per Line	Receivers per Line	Max. Cable Length	Max. Data Rate
EIA RS-232	Point-to-point	Single-ended	1	1	50 ft (15 m)	921.6 Kbps

RS-232 Signal Definition

The general relationship between the UART, TTL signal, transceiver, and RS-232 signal is illustrated in the following figure. UART is short for "universal asynchronous receiver transmitter," and TTL stands for "transistor to transistor logic." The UART, which is located on the serial board and stands between the computer's CPU and the transceiver, transmits signals at 0 and 5 volts. The RS-232 transceiver converts the signal voltage to +3V to +15V, and -3V to -15V.

TxD	Transmit Data
RxD	Receive Data
RTS	Request to Send
CTS	Clear to Send
DTR	Data Terminal Ready
DSR	Data Set Ready
DCD	Data Carrier Detect
GND	Ground

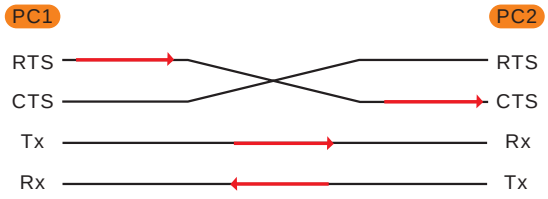


Flow Control

In RS-232 communications, one side of the connection sends a "flow control" signal to tell the other side to stop or start transmitting. Flow control signals are sent when the sender needs to take a break, such as when a data buffer is full.

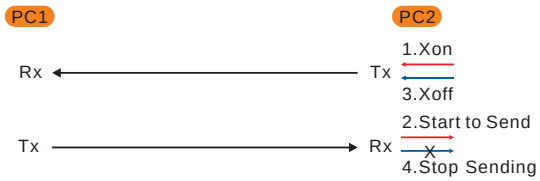
H/W Flow Control

Hardware flow control uses RS-232's RTS and CTS signals to indicate when data transmission should be paused or re-started. For example, as indicated in the figure, when PC1 is ready to receive, it raises the RTS signal to request data from PC2.



S/W Flow Control

Software flow control works by sending an XON/XOFF signal through the data channels. For example, as indicated in the following figure, PC2 sends an XON pattern when it is ready to receive, and then when its Rx buffer is almost full, it sends an XOFF pattern to request that PC1 stop transmitting.



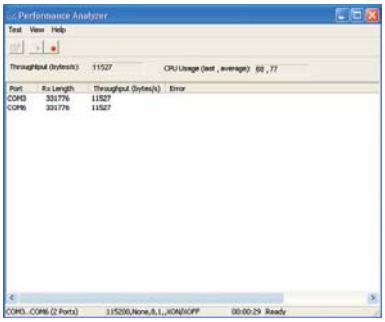
Use Moxa PComm Library to Make Serial Programming Easy

Moxa PComm Lite provides software developers with a complete library of intuitive function calls for developing serial comm applications under Windows NT, 95, 98, 2000, ME, XP, and 2003. PComm Lite requires fewer lines of code than Microsoft's more complex Win32 COMM API, allowing programmers to save time and reduce the number of bugs in their applications.

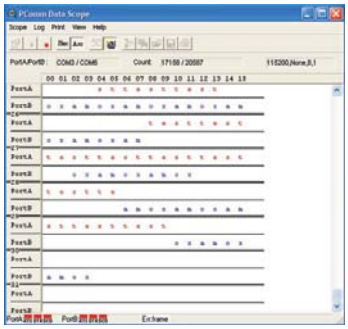
Features of Moxa PComm Library

- 50 easy-to-use API functions
- Superior troubleshooting utilities
- Supports multiple interfaces: VB, C/C++, Delphi
- Supports X/Y/ZModem, Kermit, and ASCII protocols
- Compatible with Win32 Comm API

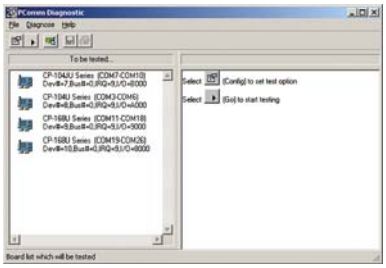
Performance Analyzer



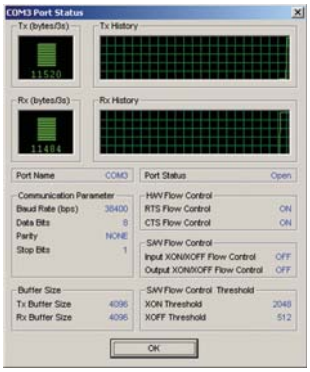
Data Scope

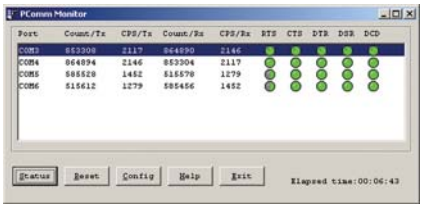


PComm Diagnostic



PComm Monitor





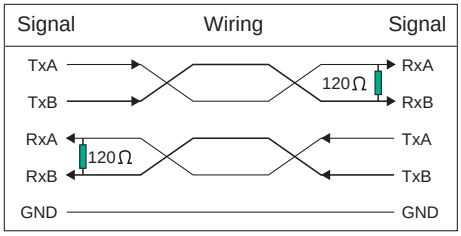
RS-422/485—tailor-made for industrial applications

Many of the devices used in today's industrial environments are designed for the RS-422 and RS-485 interfaces, both of which use "differential transmission" to "subtract out" external electronic and electromagnetic disturbances. For this reason, RS-422/485 can be used to transmit data up to 1.2 km. In addition to the need for long distance and multi-drop transmission, many industrial applications also require isolation, proper housing, heavy-duty wiring, a reliable power supply, and over-surge protection.

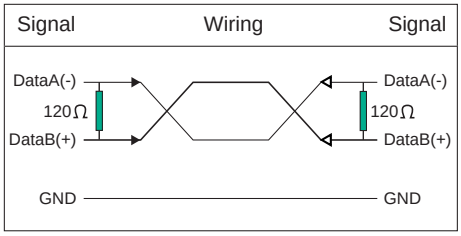
Differential Transmission

The RS-422 and RS-485 protocols use differential transmission to achieve high speed data transmission (up to 10 Mbps) over distances up to 4,000 feet (1.22 km). Differential transmission works by splitting each signal into two separate wires with opposite voltage states. The signals are subtracted at the receiving end, making this type of wiring configuration well-suited for noisy environments.

RS-422 Wiring



RS-485 Wiring



RS-422 vs. RS-485

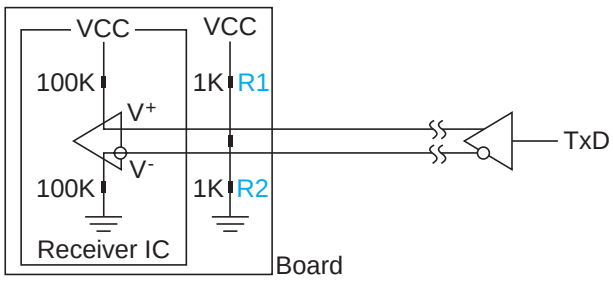
Standard	Connection Type	Operation Mode	Drivers per Line	Receivers per Line	Max. Cable Length	Max. Data Rate
EIA RS-422	Full-duplex, Point-to-point	Differential	1	10	4000 ft (1.22 km)	10 Mbps
EIA RS-485	Half-duplex, Multi-drop	Differential	32	31	4000 ft (1.22 km)	10 Mbps

Multi-drop Networks

RS-485 was designed for applications that require connecting multiple devices to a single data line. An RS-485 multi-drop network uses a balanced transmission system that can accept up to 32 devices on the same data line. This is achieved with tri-state drivers that are controlled by a programmable handshake line to ensure that only one device acts as a driver at any given time.

Termination

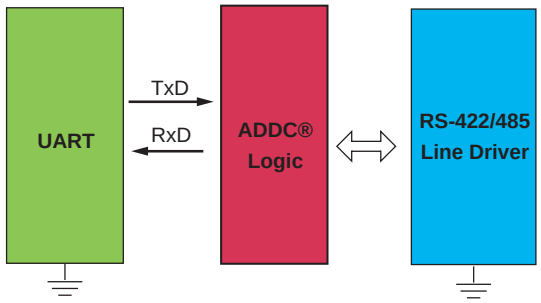
In order to prevent signal reflection, termination resistors are used to match the impedance of the receive and transmit nodes. The resistance needed to match the characteristic impedance is specified by the cable manufacturer. The most common value is 120 ohms.



ADDC® (Automatic Data Direction Control)

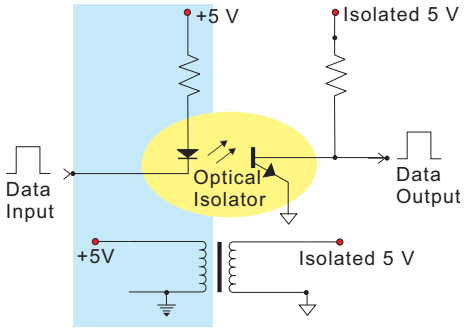
RS-485 uses differential data transmission over two wires to transmit data from one station to another, and allows multiple transmitters and receivers to be used on the same data line. RS-485 uses half-duplex transmission, which means that transmission and reception share the same data channels. For this reason, only one transmitter can be active at any given time.

Moxa's serial boards have a built-in circuitry to switch transmitters on and off automatically. We call this form of switching ADDC® (automatic data direction control). ADDC® is much easier to implement than the traditional "handshaking" method that uses the RTS signal.



Isolation Eliminates Ground Loops!

A common problem in many industrial applications is the disturbance caused by ground loop currents that flow through the ground line when ground voltages differ between connected devices. To overcome this problem, Moxa's industrial boards and full function converters use "optical isolation" to protect the boards against as much as 2000 volts.



Industrial Wiring Peripherals

Moxa provides an assortment of wiring peripherals that can be used to transform DB9 and DB25 connectors into terminal block connectors. The wiring peripherals shown below are DIN-Rail mountable.

TB-F9

TB-M9

TB-F25

TB-M25

RS-422/485 Board Checklist

Be sure to answer the following questions before ordering your RS-422/485 board from Moxa:

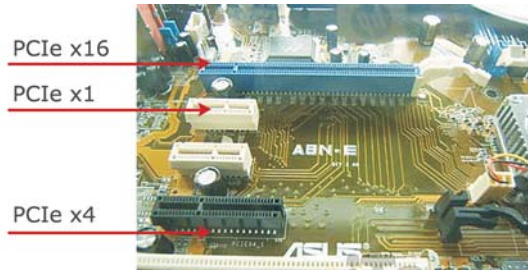
1. Does your system use RS-422, 2-wire RS-485, or 4-wire RS-485?
2. Does your application require "isolation protection" and/or "surge protection?"
3. What is the resistance of the termination resistors used by your application?
4. Is it easy to modify your application's resistor setup?
5. What range of baudrates does your application support?

Driver Support List

	Operating System																	
	DOS	Windows 3.x	Windows 9X	Windows NT	Windows 2000/XP/2003	Windows Vista/2008	Windows XP Embedded	Windows XP/2003/Vista/2008 x64	Windows CE 5.0	Windoows CE 6.0	Linux 2.4/2.6	SCO OpenServer 5	SCO OpenServer 6	UnixWare 7	FreeBSD 4	FreeBSD 5	QNX4	QNX6
C320Turbo/PCI	√	-	√	√	√	√	-	√	-	-	√	√	√	√	-	-	√	√
C320Turbo	√	√	√	√	√	√	-	√	-	-	√	√	√	√	-	-	√	√
C218Turbo/PCI	√	-	√	√	√	√	-	√	-	-	√	√	√	√	-	-	√	√
C218Turbo	√	√	√	√	√	√	-	√	-	-	√	√	√	√	-	-	√	√
CP-118EL	√	-	-	-	√	√	√	√	√	-	√	√	√	√	√	√	-	√
CP-168EL	√	-	-	-	√	√	√	√	√	-	√	√	√	√	√	√	-	√
CP-114EL	-	-	-	-	√	√	√	√	-	-	√	√	√	√	-	-	-	√
CP-114EL-I	-	-	-	-	√	√	√	√	-	-	√	√	√	√	-	-	-	√
CP-104EL	√	-	-	-	√	√	√	√	√	-	√	√	√	√	√	√	-	√
CP-102E	-	-	-	-	√	√	√	√	-	-	√	√	√	√	-	-	-	√
CP-102EL	-	-	-	-	√	√	√	√	-	-	√	√	√	√	-	-	-	√
CP-132EL	-	-	-	-	√	√	√	√	-	-	√	√	√	√	-	-	-	√
CP-132EL-I	-	-	-	-	√	√	√	√	-	-	√	√	√	√	-	-	-	√
CP-118U	√	-	√	√	√	√	√	√	√	√	√	√	√	√	√	√	-	√
CP-138U	√	-	√	√	√	√	√	√	√	√	√	√	√	√	√	√	-	√
CP-118U-I	√	-	√	√	√	√	√	√	√	√	√	√	√	√	√	√	-	√
CP-138U-I	√	-	√	√	√	√	√	√	√	√	√	√	√	√	√	√	-	√
CP-168U	√	-	√	√	√	√	√	√	√	√	√	√	√	√	√	√	-	√
CP-114UL	√	-	√	√	√	√	√	√	√	√	√	√	√	√	√	√	-	√
CP-114UL-I	-	-	-	-	√	√	√	√	√	√	√	√	√	√	-	-	-	-
CP-104UL	√	-	√	√	√	√	√	√	√	√	√	√	√	√	√	√	-	√
CP-104JU	√	-	√	√	√	√	√	√	√	√	√	√	√	√	√	√	-	√
POS-104UL	√	-	√	√	√	√	√	√	√	√	√	√	√	√	√	√	-	√
CP-134U	√	-	√	√	√	√	√	√	√	√	√	√	√	√	√	√	-	√
CP-134U-I	√	-	√	√	√	√	√	√	√	√	√	√	√	√	√	√	-	√
CP-112UL	-	-	-	-	√	√	√	√	√	√	√	√	√	√	-	-	-	√
CP-112UL-I	-	-	-	-	√	√	√	√	√	√	√	√	√	√	-	-	-	√
CP-132UL	√	-	√	√	√	√	√	√	√	√	√	√	√	√	√	√	-	√
CP-132UL-I	√	-	√	√	√	√	√	√	√	√	√	√	√	√	√	√	-	√
CP-102U	√	-	√	√	√	√	√	√	√	√	√	√	√	√	√	√	-	√
CP-102UL	√	-	√	√	√	√	√	√	√	√	√	√	√	√	√	√	-	√
CP-102UF	√	-	-	-	√	√	√	√	√	√	√	√	√	√	-	-	-	√
C168H Series	√	-	√	√	√	√	√	√	-	-	√	√	√	√	√	√	√	√
C104H Series	√	√	√	√	√	√	√	√	-	-	√	√	√	√	√	√	√	√
CI-134 Series	√	√	√	√	√	√	√	√	-	-	√	√	√	√	√	√	√	√
CI-132 Series	√	-	√	√	√	√	√	√	-	-	√	√	√	√	√	√	√	√
CA-108	√	-	√	√	√	√	√	√	√	√	√	-	-	-	-	-	√	√
CA-114	√	-	√	√	√	√	√	√	√	√	√	-	-	-	-	-	√	√
CA-134I	√	-	√	√	√	√	√	√	√	√	√	-	-	-	-	-	√	√
CA-104	√	-	√	√	√	√	√	√	√	√	√	-	-	-	-	-	√	√
CA-132/132I	√	-	√	√	√	√	√	√	√	√	√	-	-	-	-	-	√	√
CB-108	√	-	√	√	√	√	√	√	√	√	√	-	-	-	-	-	√	√
CB-114	√	-	√	√	√	√	√	√	√	√	√	-	-	-	-	-	√	√
CB-134I	√	-	√	√	√	√	√	√	√	√	√	-	-	-	-	-	√	√

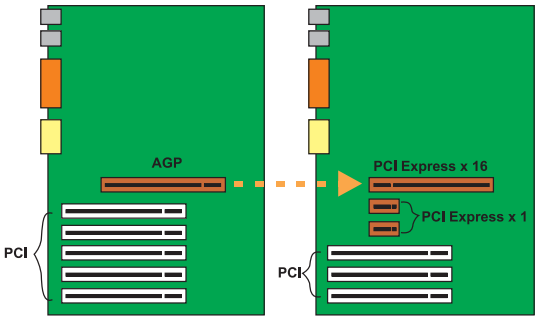
Introduction to PCI Express

The PCI Express serial interface is capable of transmitting data at the rate of 2.5 Gbps. This extremely high rate of data transmission is achieved by transmitting data bit-by-bit over "lanes" that consist of 2 pairs of wires (2 wires for transmitting and 2 wires for receiving). A single connection can achieve a burst mode transmission speed of 320 Mbps.



PCI Express to replace PCI, PCI-X, and AGP

The older PCI specification is based on a multi-drop parallel bus design. PCI Express, which will eventually replace PCI, PCI-X, and AGP, is a brand new I/O technology defined by the PCI-SIG. The PCI-SIG's stated goal is to create a unified standard that can handle a wide range of tasks.



Moxa's PCI Express Boards Fit Any PCI Express Slot

Multiple lanes are combined to create a PCI Express link, with the number of lanes used to label the connection by writing x1, x2, x4, x12, x16, or x32. Note that each lane uses 4 wires (e.g., a PCI Express x1 board uses 4 wires, and a PCI Express x16 board uses 64 wires). It should come as no surprise then that different sized connections use different sized slots. However, the beauty of the PCI Express design is that a PCI Express board can be installed in larger slots. This means that you can install Moxa's PCI Express x1 boards in any PCI Express slot.

Main Point: PCI Express x1 boards can be installed in x1, x2, x4, x12, x16, and x32 slots

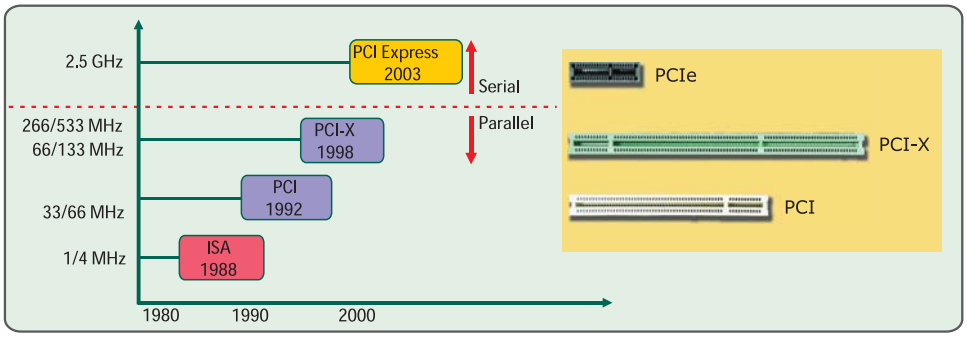
The difference between PCI and PCI Express

PCI Express is a serial interface that allows point-to-point connections between devices. This differs from the older PCI bus specification that uses a shared, parallel bus architecture.

Bus Trend

ISA → PCI → PCI-X → PCI Express (PCIe)

Bus Transmission Speeds

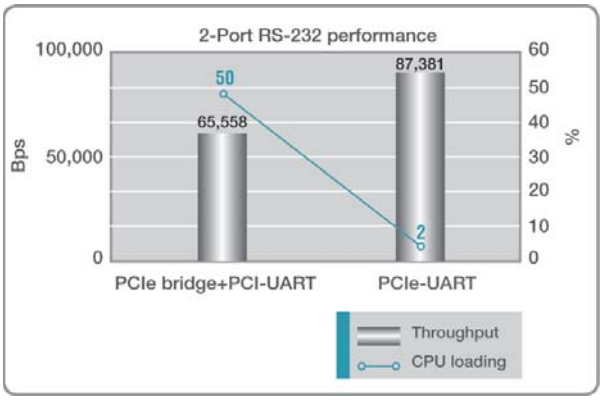


Another World First: Moxa Launches the "One-chip" PCI Express Board

For more than 20 years, Moxa has dedicated a large percentage of its R&D effort to the design of multiport serial boards, and this effort has paid off once again to the benefit of end-users around the world. Moxa's new "one-chip" PCI Express boards stand high above the crowd compared with other PCI Express boards on the market today. In fact, Moxa is the first manufacturer in the world to use an advanced one-chip PCIe-UART chip, which combines the PCIe bridge and UART on the same chip. The one-chip PCIe boards are designed for a longer MTBF and greater performance, and provide users with baudrates up to 921.6 Kbps and 15 KV ESD protection for greater reliability. Moreover, instead of requiring users to open up the computer to set DIP switches and jumpers manually, one-chip PCIe provides a convenient software solution for configuring the serial interface and termination resistors, giving users the benefit of easy maintenance.

One-chip Solution Optimizes CPU Performance

One-chip PCIe features a 33% higher throughput and decreases CPU loading by 48%, outperforming traditional boards that use separate chips for the PCIe bridge and UART.



DIP Switch-less and Jumper-less Design

With this PCIe-UART, you can configure the serial interface and termination resistor by software instead of using a DIP switch and jumper. The absence of a DIP switch and jumper also makes these one-chip PCIe boards more user-friendly and easier to maintain, since there is no need to open up the computer to adjust the settings manually. Furthermore, the one-chip design reduces manufacturing time and costs since fewer components are required.

Onboard LEDs for Easy Maintenance

Moxa's multiport serial boards have onboard LEDs to clearly indicate data transmit/receive status. This is very helpful for users, especially since troubleshooting can be done without opening up the computer.

Drivers Galore

Moxa's PCI Express boards support a wide range of drivers for desktop solutions (Windows 2000, XP/Vista x86/x64) and server solutions (Windows 2003/2008, with certification). Moreover, we also provide drivers for Linux, SCO Open Server 5/6, QNX 6, Windows XP Embedded, and UnixWare 7.

CASE STUDY

Ticket Vending Machine

Cost-effective COM port expansion

Ticket Vending Machines (TVM) have become a common installation in mass rapid transit systems around the world to provide passengers with a faster and more convenient way to purchase tickets. TVMs closely resemble Automated Teller Machines (ATM) as both use an embedded computer to control the user interface and transaction devices. Although they do not perform banking transactions, TVMs allow passengers to purchase tickets and add money to stored-value cards by cash, coins, credit/bank, and even Smart Cards.

Each of these transaction methods and TVM functions, such as printing tickets and receipts, requires a designated peripheral device that is connected to the embedded computer for processing. In order to accommodate all these peripheral devices in a single machine, TVMs are beginning to use smaller PCs that come with fewer expansion slots. The CP-114EL multiport serial board can connect up to 4 RS-232/422/485 peripheral devices via a single PCI Express expansion slot, offering a cost-effective and space-saving solution for mass transit agencies to provide passengers with more services and greater convenience.

Application Requirements

- COM port connections for multiple peripheral devices
- High product reliability and quality
- Small form factor due to tight space constraints
- Good technical support and product service
- Excellent transmission speed and efficiency

Why Moxa?

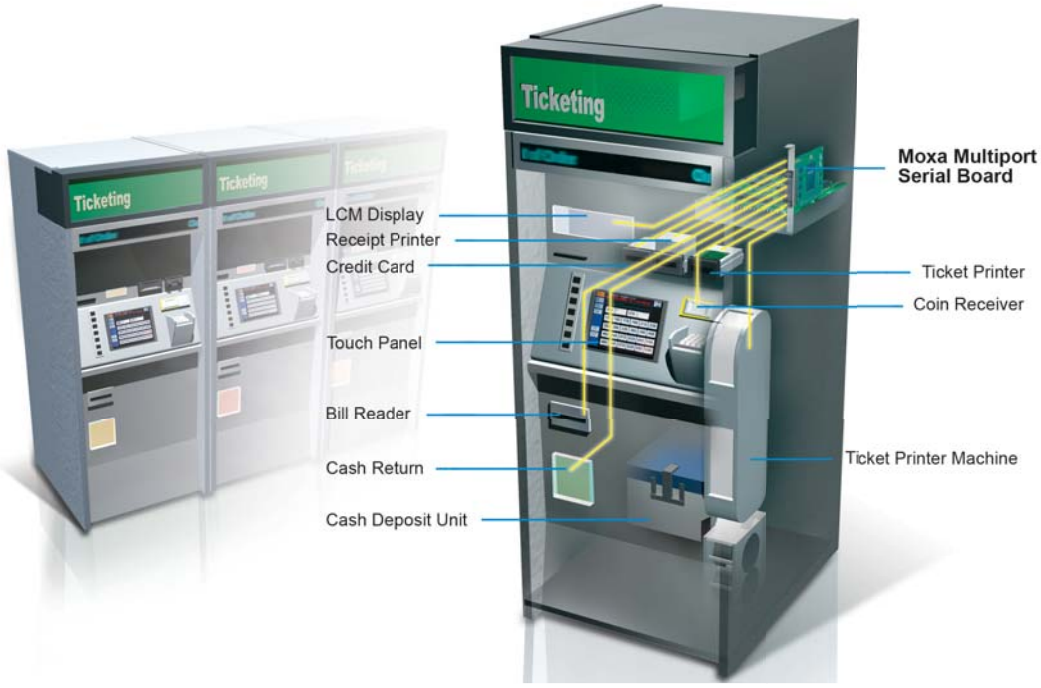
- Support for various operating systems to reduce the cost of future upgrades
- High MTBF and WHQL (Windows Hardware Qualification Laboratory) certified drivers
- Set RS-232, RS-422, RS-485 operation independently for each port
- Low profile model for small-sized computers
- On-board LED display for data transmission management
- All Moxa products are guaranteed to be of the highest quality and with a 5-year warranty
- Compatible with PCIe x1, x2, x4, x12, x16, and x32 connections
- 921.6 Kbps maximum baudrate for super fast data transmission
- 128-byte FIFO and on-chip H/W, S/W flow control

Key Product

CP-114EL

4-port RS-232/422/485 low profile PCI Express board

Diagram



CP-118EL

8-port RS-232/422/485 PCI Express serial board

- PCI Express x1 compliant
- 921.6 Kbps maximum baudrate for super fast data transmission
- 128-byte FIFO and on-chip H/W, S/W flow control
- Choose from a wide range of connection cables and boxes
- Low profile form factor fits small-sized PCs
- Drivers provided for Windows (2000, XP/2003/Vista/2008 x86/x64), Windows CE 5.0, Windows XP Embedded, DOS, Linux 2.4, Linux 2.6 (x86/x64), FreeBSD 4/5, QNX 6, SCO Open Server 5/6, UnixWare 7
- 15 KV ESD protection on the board

The certification logos shown here apply to some or all of the products in this section. For details, see "Regulatory Approvals" under "Specifications" below.

Overview

The CP-118EL is a smart, 8-port PCI Express board designed for POS and ATM applications. It is a top choice of industrial automation engineers and system integrators, and supports many different operating systems, including Windows, Linux, and even Unix. In addition, each of the board's 8 serial ports can be configured independently for RS-232, RS-422, or RS-485 (either 2-wire or 4-wire), and the ports supports a super fast 921.6 Kbps baudrate. The CP-118EL provides full modem control signals to ensure compatibility with a wide range of serial peripherals, and its PCI Express "x1" classification allows it to be installed in any PCI Express slot.

Smaller Form Factor

The CP-118EL is a low profile board that is compatible with any PCI Express slot. The board requires only a 3.3 VDC power supply, which means that the board fits any host computer, ranging from shoebox to standard-sized PCs.

Drivers Provided for Windows, Linux, and Unix

Moxa continues to support a wide variety of operating systems, and the CP-118EL board is no exception. Reliable Windows COM and Linux/Unix TTY drivers are provided for all Moxa boards, and other operating systems, such as WEPOS, are also supported for embedded integration.

Specifications

Hardware

Comm. Controller: MU860 (16C550C compatible)
Bus: PCI Express x1
Connector: VHDCI 68

Serial Interface

Number of Ports: 8
Serial Standards: RS-232/422/485
Max. No. of Boards per PC: 4

Serial Line Protection

ESD Protection: 15 KV on the board

Performance

Baudrate: 50 bps to 921.6 Kbps

Serial Communication Parameters

Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Space, Mark
Flow Control: RTS/CTS, XON/XOFF

Serial Signals

RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
RS-422: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-4w: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-2w: Data+(B), Data-(A), GND

Driver Support

Operating Systems: Windows (2000, XP/2003/Vista/2008 x86/x64), Windows CE 5.0, Windows XP Embedded, DOS, Linux 2.4, Linux 2.6 (x86/x64), FreeBSD 4/5, QNX 6, SCO Open Server 5/6, UnixWare 7

Physical Characteristics

Dimensions: 67.21 x 132 mm (2.65 x 5.20 in)

Environmental Limits

Operating Temperature: 0 to 55°C (32 to 131°F)
Operating Humidity: 5 to 95% RH
Storage Temperature: -20 to 85°C (-4 to 185°F)

Regulatory Approvals

FCC: Part 15 Class B
EMS: EN55024, EN61000-3-2, EN61000-3-3, EN61000-6-2, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, IEC 61000-4-11

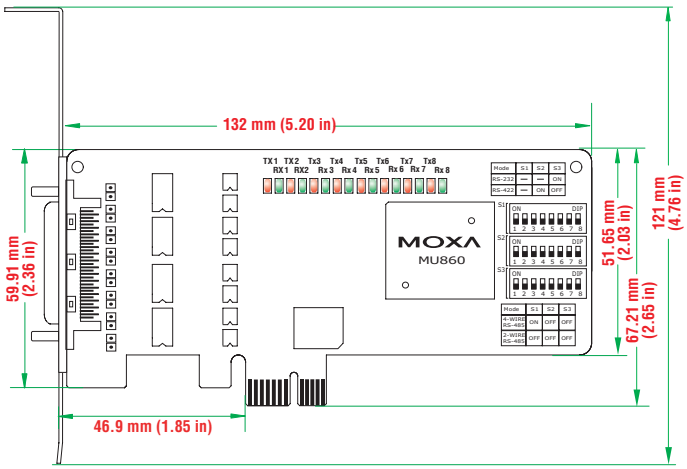
Power Requirements

Power Consumption: 860 mA @ 3.3 V

Warranty

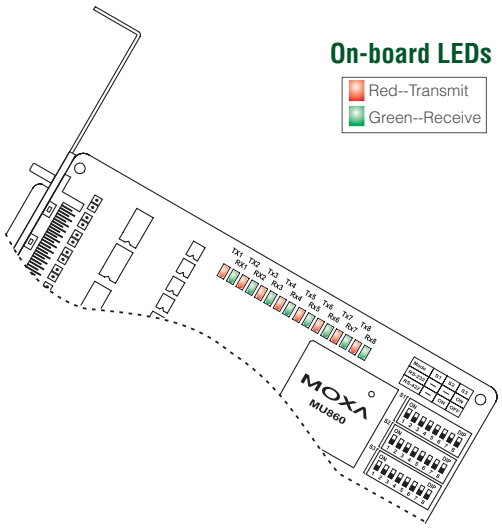
Warranty Period: 5 years
Details: See www.moxa.com/warranty

Dimensions



On-board LEDs

Red--Transmit
Green--Receive



Ordering Information

Available Models

CP-118EL: 8-port RS-232/422/485 low profile PCI Express x1 serial board

Package Checklist

- CP-118EL board
- Standard bracket and low profile bracket
- Document and Software CD
- Quick Installation Guide (printed)
- Warranty Card

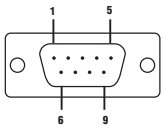
Connection Options (can be purchased separately)

OPT8-M9+
DB9 male x 8 (150 cm cable)

CBL-M68M9x8-100 (OPT8D+)
DB9 male x 8 (100 cm cable)

PIN	RS-232	RS-422/RS-485-4w	RS-485-2w
1	DCD	TxD-(A)	---
2	RxD	TxD+(B)	---
3	TxD	RxD+(B)	Data+(B)
4	DTR	RxD-(A)	Data-(A)
5	GND	GND	GND
6	DSR	---	---
7	RTS	---	---
8	CTS	---	---

DB9 male

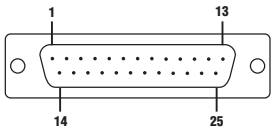


OPT8B+
DB25 male x 8 (150 cm cable)

CBL-M68M25x8-100 (OPT8C+)
DB25 male x 8, (100 cm cable)

PIN	RS-232	RS-422/RS-485-4w	RS-485-2w
2	TxD	RxD+(B)	Data+(B)
3	RxD	TxD+(B)	---
4	RTS	---	---
5	CTS	---	---
6	DSR	---	---
7	GND	GND	GND
8	DCD	TxD-(A)	---
20	DTR	RxD-(A)	Data-(A)

DB25 male

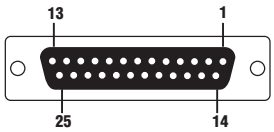


OPT8A+
DB25 female x 8 (150 cm cable)

OPT8S+
DB25 female x 8 (150 cm cable)
25 KV ESD Surge Protection

PIN	RS-232	RS-422/RS-485-4w	RS-485-2w
2	RxD	TxD+(B)	---
3	TxD	RxD+(B)	Data+(B)
4	CTS	---	---
5	RTS	---	---
6	DTR	RxD-(A)	Data-(A)
7	GND	GND	GND
8	DCD	TxD-(A)	---
20	DSR	---	---

DB25 female



CP-168EL

8-port RS-232 PCI Express serial board

- PCI Express x1 compliant
- 921.6 Kbps maximum baudrate for super fast data transmission
- 128-byte FIFO and on-chip H/W, S/W flow control
- Choose from a wide range of connection cables and boxes
- Low profile form factor fits small-sized PCs
- Drivers provided for Windows (2000, XP/2003/Vista/2008 x86/x64), Windows CE 5.0, Windows XP Embedded, DOS, Linux 2.4, Linux 2.6 (x86/x64) FreeBSD 4/5, QNX 6, SCO Open Server 5/6, UnixWare 7
- 15 KV ESD protection on the board

The certification logos shown here apply to some or all of the products in this section. For details, see "Regulatory Approvals" under "Specifications" below.

Overview

The CP-168EL is a smart, 8-port PCI Express board designed for POS and ATM applications. It is a top choice of industrial automation engineers and system integrators, and supports many different operating systems, including Windows, Linux, and even Unix. In addition, each of the board's 8 RS-232 serial ports supports a super fast 921.6 Kbps baudrate. The CP-168EL provides full modem control signals to ensure compatibility with a wide range of serial peripherals, and its PCI Express "x1" classification allows it to be installed in any PCI Express slot.

Smaller Form Factor

The CP-168EL is a low profile board that is compatible with any PCI Express slot. The board requires only a 3.3 VDC power supply, which means that the board fits any host computer, ranging from shoebox to standard-sized PCs.

Drivers Provided for Windows, Linux, and Unix

Moxa continues to support a wide variety of operating systems, and the CP-168EL board is no exception. Reliable Windows COM and Linux/Unix TTY drivers are provided for all Moxa boards, and other operating systems, such as WEPOS, are also supported for embedded integration.

Specifications

Hardware

Comm. Controller: MU860 (16C550C compatible)
Bus: PCI Express x1
Connector: VHDCI 68

Serial Interface

Number of Ports: 8
Serial Standards: RS-232
Max. No. of Boards per PC: 4

Serial Line Protection

ESD Protection: 15 KV on the board

Performance

Baudrate: 50 bps to 921.6 Kbps

Serial Communication Parameters

Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Space, Mark
Flow Control: RTS/CTS, XON/XOFF

Serial Signals

RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND

Driver Support

Operating Sytems: Windows (2000, XP/2003/Vista/2008 x86/x64), Windows CE 5.0, Windows XP Embedded, DOS, Linux 2.4, Linux 2.6 (x86/x64), FreeBSD 4/5, QNX 6, SCO Open Server 5/6, UnixWare 7

Physical Characteristics

Dimensions: 67.21 x 102 mm (2.65 x 4.02 in)

Environmental Limits

Operating Temperature: 0 to 55°C (32 to 131°F)
Operating Humidity: 5 to 95% RH
Storage Temperature: -20 to 85°C (-4 to 185°F)

Regulatory Approvals

FCC: Part 15 Class B
EMS: EN55024, EN61000-3-2, EN61000-3-3, EN61000-6-2, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, IEC 61000-4-11

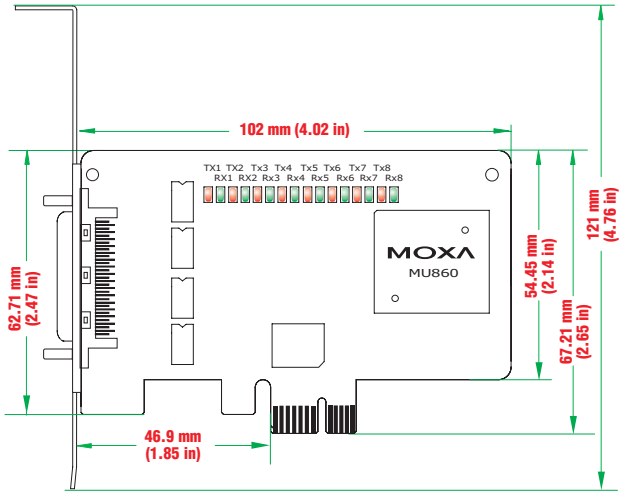
Power Requirements

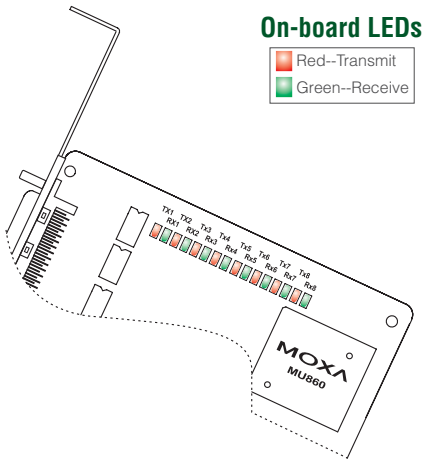
Power Consumption: 630 mA @ 3.3 V

Warranty

Warranty Period: 5 years
Details: See www.moxa.com/warranty

Dimensions





Ordering Information

Available Models

CP-168EL: 8-port RS-232 low profile PCI Express x1 serial board

Package Checklist

- CP-168EL board
- Standard bracket and low profile bracket
- Document and Software CD
- Quick Installation Guide (printed)
- Warranty Card

Connection Options (can be purchased separately)

OPT8-M9+

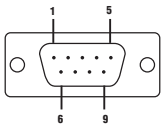
DB9 male x 8 (150 cm cable)

CBL-M68M9x8-100 (OPT8D+)

DB9 male x 8 (100 cm cable)

PIN	RS-232	PIN	RS-232
1	DCD	5	GND
2	RxD	6	DSR
3	TxD	7	RTS
4	DTR	8	CTS

DB9 male



OPT8B+

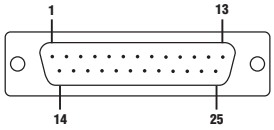
DB25 male x 8 (150 cm cable)

CBL-M68M25x8-100 (OPT8C+)

DB25 male x 8 (100 cm cable)

PIN	RS-232	PIN	RS-232
2	TxD	6	DSR
3	RxD	7	GND
4	RTS	8	DCD
5	CTS	20	DTR

DB25 male



OPT8A+

DB25 female x 8, 150 cm Cable

OPT8S+

DB25 female x 8 (150 cm cable)
25 KV ESD protection

PIN	RS-232	PIN	RS-232
2	RxD	6	DTR
3	TxD	7	GND
4	CTS	8	DCD
5	RTS	20	DSR

OPT8F+/Z+ (RS-422)

DB25 female x 8 (150 cm cable)
110 or 230 VAC power adaptor
(115.2 Kbps max. baudrate)

OPT8F+ with 500 V isolation

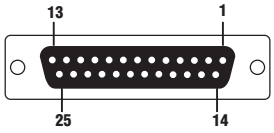
OPT8K+ (RS-422/485)

DB25 female x 8 (150 cm cable)
110 or 230 VAC power adaptor

OPT8K+ with 2 KV isolation

PIN	RS-422/RS-485-4w	RS-485-2w
2	RxD+(B)	Data+(B)
3	TxD+(B)	
7	GND	GND
14	RxD-(A)	Data-(A)
16	TxD-(A)	

DB25 female

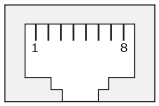


OPT8-RJ45+

8-pin RJ45 (30 cm cable)

PIN	RS-232	PIN	RS-232
1	DSR	5	RxD
2	RTS	6	DCD
3	GND	7	CTS
4	TxD	8	DTR

8-pin RJ45



CP-114EL/EL-I

4-port RS-232/422/485 PCI Express boards with optional 2 KV isolation

CP-114EL

CP-114EL-I

- PCI Express x1 compliant
- 921.6 Kbps maximum baudrate for super fast data transmission
- 128-byte FIFO and on-chip H/W, S/W flow control
- Low profile form factor fits small-sized PCs
- Drivers provided for Windows (2000, XP/2003/Vista/2008 x86/x64),Linux 2.4, Linux 2.6 (x86/x64), QNX 6, Windows XP Embedded, SCO OpenServer 5/6, UnixWare 7
- 15 KV ESD protection on the board

The certification logos shown here apply to some or all of the products in this section. For details, see "Regulatory Approvals" under "Specifications" below.

Overview

The CP-114EL and CP-114EL-I are smart, 4-port PCI Express boards designed for POS and ATM applications. The boards are a top choice of industrial automation engineers and system integrators, and support many different operating systems, including Windows and Linux. In addition, each of the boards' 4 RS-232/422/485 serial ports supports a super fast 921.6 Kbps baudrate. The CP-114EL and CP-114EL-I provide full modem control signals to ensure compatibility with a wide range of serial peripherals, and their PCI Express "x1" classification allows the boards to be installed in any PCI Express slot.

Smaller Form Factor

The CP-114EL and CP-114EL-I are low profile boards that are compatible with any PCI Express slot. The boards require only a 3.3 VDC power supply, which means that the boards fit any host computer, ranging from shoebox to standard-sized PCs.

Drivers Provided for Windows, Linux

Moxa continues to support a wide variety of operating systems, and the CP-114EL/EL-I boards are no exception. Reliable Windows COM and Linux TTY drivers are provided for all Moxa boards, and other operating systems, such as WEPOS, are also supported for embedded integration.

Specifications

Hardware

Comm. Controller: 16C550C compatible
Bus: PCI Express x1
Connector: DB44 female

Serial Interface

Number of Ports: 4
Serial Standards: RS-232/422/485
Max. No. of Boards per PC: 4

Serial Line Protection

ESD Protection: 15 KV on the board
Optical Isolation: 2 KV (CP-114EL-I only)

Performance

Baudrate: 50 bps to 921.6 Kbps

Serial Communication Parameters

Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Space, Mark
Flow Control: RTS/CTS, XON/XOFF

Serial Signals

RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
RS-422: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-4w: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-2w: Data+(B), Data-(A), GND

Driver Support

Operating Systems: Windows (2000, XP/2003/Vista/2008 x86/x64), Linux 2.4, Linux 2.6 (x86/x64), QNX 6, Windows XP Embedded, SCO OpenServer 5/6, UnixWare 7

Physical Characteristics

Dimensions:
CP-114EL: 67.21 x 103.58 mm (2.69 x 4.08 in)
CP-114EL-I: 67.21 x 136.93 mm (2.69 x 5.48 in)

Environmental Limits

Operating Temperature: 0 to 55°C (32 to 131°F)

Operating Humidity: 5 to 95% RH

Storage Temperature: -20 to 85°C (-4 to 185°F)

Regulatory Approvals

FCC: Part 15 Class B

EMS: EN55024, EN61000-3-2, EN61000-3-3, EN61000-6-2, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, IEC 61000-4-11

Power Requirements

Power Consumption:
CP-114EL: 835 mA @ 3.3 V
CP-114EL-I: 1170 mA @ 3.3 V

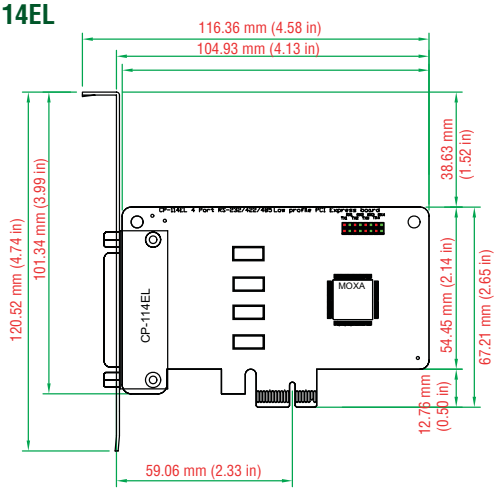
Warranty

Warranty Period: 5 years

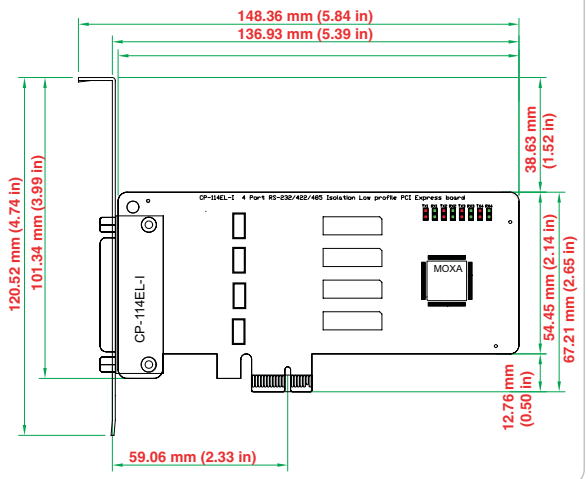
Details: See www.moxa.com/warranty

Dimensions

CP-114EL



CP-114EL-I



Ordering Information

Available Models

CP-114EL: 4-port RS-232/422/485 low profile PCI Express x1 serial board

CP-114EL-I: 4-port RS-232/422/485 low profile PCI Express x1 serial board with optical isolation

CP-114EL-DB9M: 4-port RS-232/422/485 low profile PCI Express x1 serial board (includes DB9 male cable)

CP-114EL-DB25M: 4-port RS-232/422/485 low profile PCI Express x1 serial board (includes DB25 male cable)

CP-114EL-I-DB9M: 4-port RS-232/422/485 low profile PCI Express x1 serial board with optical isolation (includes DB9 male cable)

CP-114EL-I-DB25M: 4-port RS-232/422/485 low profile PCI Express x1 serial board with optical isolation (includes DB25 male cable)

Package Checklist

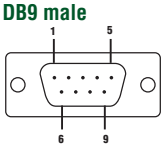
- CP-114EL or CP-114EL-I board
- Standard bracket and low profile bracket
- Document and Software CD
- Quick Installation Guide (printed)
- Warranty Card

Connection Options (can be purchased separately)

CBL-M44M9x4-50
DB44 male to DB9 male x 4 (50 cm cable)

PIN	RS-232	RS-422	RS-485-4w	RS-485-2w
1	DCD	TxD-(A)	TxD-(A)	---
2	RxD	TxD+(B)	TxD+(B)	---
3	TxD	RxD+(B)	RxD+(B)	Data+(B)
4	DTR	RxD-(A)	RxD-(A)	Data-(A)
5	GND	GND	GND	GND
6	DSR	---	---	---
7	RTS	---	---	---
8	CTS	---	---	---
9	---	---	---	---

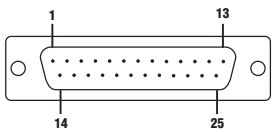
DB9 male



CBL-M44M25x4-50
DB44 male to DB25 male x 4 (50 cm cable)

PIN	RS-232	RS-422	RS-485-4w	RS-485-2w
2	TxD	RxD+(B)	RxD+(B)	Data+(B)
3	RxD	TxD+(B)	TxD+(B)	---
4	RTS	---	---	---
5	CTS	---	---	---
6	DSR	---	---	---
7	GND	GND	GND	GND
8	DCD	TxD-(A)	TxD-(A)	---
20	DTR	RxD-(A)	RxD-(A)	Data-(A)
22	---	---	---	---

DB25 male



CP-104EL

4-port RS-232 PCI Express serial board

- PCI Express x1 compliant
- 921.6 Kbps maximum baudrate for super fast data transmission
- 128-byte FIFO and on-chip H/W, S/W flow control
- Low profile form factor fits small-sized PCs
- Drivers provided for Windows (2000, XP/2003/Vista/2008 x86/x64), Windows CE 5.0, Windows XP Embedded, DOS, Linux 2.4, Linux 2.6 (x86/x64) FreeBSD 4/5, QNX 6, SCO Open Server 5/6, UnixWare 7
- Easy maintenance with on-board LEDs and management software
- 15 KV ESD protection on the board

The certification logos shown here apply to some or all of the products in this section. For details, see "Regulatory Approvals" under "Specifications" below.

Overview

The CP-104EL is a smart, 4-port PCI Express board designed for POS and ATM applications. It is a top choice of industrial automation engineers and system integrators, and supports many different operating systems, including Windows, Linux, and even Unix. In addition, each of the board's 4 RS-232 serial ports supports a super fast 921.6 Kbps baudrate. The CP-104EL provides full modem control signals to ensure compatibility with a wide range of serial peripherals, and its PCI Express "x1" classification allows it to be installed in any PCI Express slot.

Smaller Form Factor

The CP-104EL is a low profile board that is compatible with any PCI Express slot. The board requires only a 3.3 VDC power supply, which means that the board fits any host computer, ranging from shoebox to standard-sized PCs.

Top Serial Performance

Moxa's 20-plus years of experience in serial board design is now concentrated in a new high performance serial data transmission chip. The Turbo Serial Engine™ chip provides serial boards with a 128-byte FIFO, on-chip hardware and software flow control, and burst data mode. Thanks to the Turbo Serial Engine™, Moxa is able to offer the world's best performing smart serial boards.

Drivers Provided for Windows, Linux, and Unix

Moxa continues to support a wide variety of operating systems, and the CP-104EL board is no exception. Reliable Windows COM and Linux/Unix TTY drivers are provided for all Moxa boards, and other operating systems, such as WEPOS, are also supported for embedded integration.

Specifications

Hardware

Comm. Controller: MU860 (16C550C compatible)
Bus: PCI Express x1
Connector: DB44 female

Serial Interface

Number of Ports: 4
Serial Standards: RS-232
Max. No. of Boards per PC: 4

Serial Line Protection

ESD Protection: 15 KV on the board

Performance

Baudrate: 50 bps to 921.6 Kbps

Serial Communication Parameters

Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Space, Mark
Flow Control: RTS/CTS, XON/XOFF

Serial Signals

RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND

Driver Support

Operating Systems: Windows (2000, XP/2003/Vista/2008 x86/x64), Windows CE 5.0, Windows XP Embedded, DOS, Linux 2.4, Linux 2.6 (x86/x64), FreeBSD 4/5, QNX 6, SCO Open Server 5/6, UnixWare 7

Physical Characteristics

Dimensions: 67.21 x 100 mm (2.65 x 3.94 in)

Environmental Limits

Operating Temperature: 0 to 55°C (32 to 131°F)

Operating Humidity: 5 to 95% RH

Storage Temperature: -20 to 85°C (-4 to 185°F)

Regulatory Approvals

FCC: Part 15 Class B

EMS: EN55024, EN61000-3-2, EN61000-3-3, EN61000-6-2, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, IEC 61000-4-11

Power Requirements

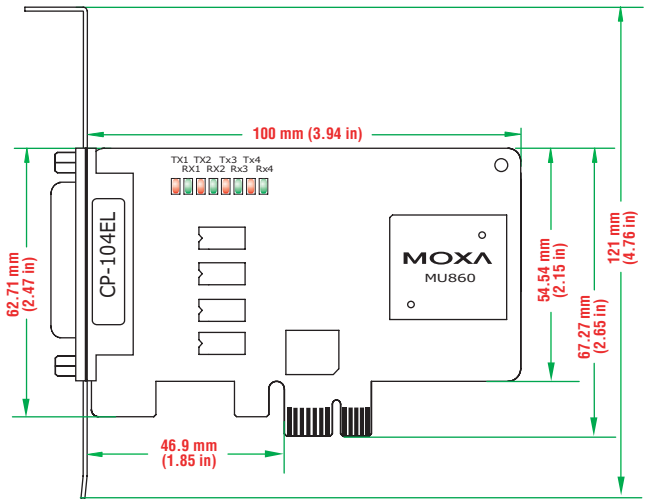
Power Consumption: 430 mA @ 3.3 V

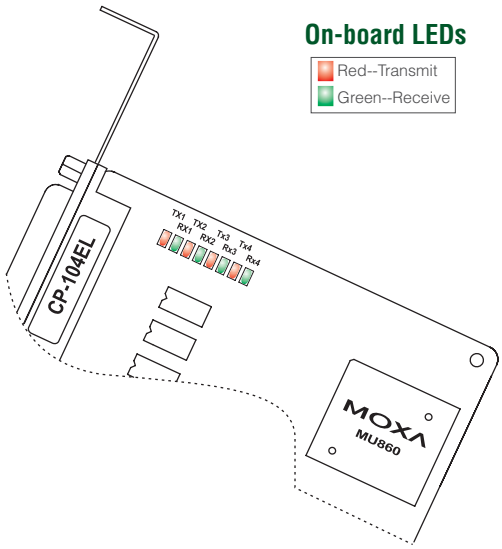
Warranty

Warranty Period: 5 years

Details: See www.moxa.com/warranty

Dimensions





Ordering Information

Available Models

CP-104EL-DB9M: 4-port RS-232 PCI low profile Express x1 serial board (includes DB9 male cable)

CP-104EL-DB25M: 4-port RS-232 low profile PCI Express x1 serial board (includes DB25 male cable)

Package Checklist

- CP-104EL board
- DB9-M or DB25-M connection cable
- Standard bracket and low profile bracket
- Document and Software CD
- Quick Installation Guide (printed)
- Warranty Card

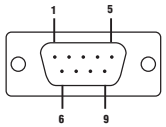
Connection Options (can be purchased separately)

CBL-M44M9x4-50

DB44 male to DB9 male x 4 (50 cm cable)

PIN	RS-232	PIN	RS-232
1	DCD	5	GND
2	RxD	6	DSR
3	TxD	7	RTS
4	DTR	8	CTS

DB9 male

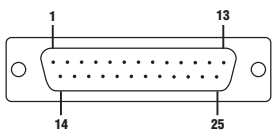


CBL-M44M25x4-50

DB44 male to DB25 male x 4 (50 cm cable)

PIN	RS-232	PIN	RS-232
2	TxD	6	DSR
3	RxD	7	GND
4	RTS	8	DCD
5	CTS	20	DTR

DB25 male



CP-102E/EL

2-port RS-232 PCI Express boards

- PCI Express x1 compliant
- 921.6 Kbps maximum baudrate for super fast data transmission
- 128-byte FIFO and on-chip H/W, S/W flow control
- Low profile form factor fits small-sized PCs Drivers provided for Windows (2000, XP/2003/Vista/2008 x86/x64), Linux 2.4, Linux 2.6 (x86/x64) QNX 6, Windows XP Embedded, SCO OpenServer 5/6, UnixWare 7
- 15 KV ESD protection on the board

The certification logos shown here apply to some or all of the products in this section. For details, see "Regulatory Approvals" under "Specifications" below.

Overview

The CP-102E and low profile CP-102EL are 2-port PCI Express boards designed for POS and ATM applications. Moxa's PCI Express boards are a top choice of industrial automation engineers and system integrators, particularly since the boards support many different operating systems, including Windows and Linux. The CP-102E/EL's 2 RS-232 serial ports support a super fast 921.6 Kbps baudrate, and provide full modem control signals to ensure compatibility with a wide range of serial peripherals. In addition, the boards' x1 classification allows them to be installed in any PCI Express slot.

Smaller Form Factor

The CP-102EL is a low profile board that is compatible with any PCI Express slot. The CP-102EL board only requires a 3.3 VDC power supply, which means that the board fits any host computer, ranging from shoebox to standard-sized PCs.

Drivers Provided for Windows and Linux

Moxa continues to support a wide variety of operating systems, and the CP-102E/EL boards are no exception. Reliable Windows COM and Linux TTY drivers are provided for all Moxa boards, and other operating systems, such as WEPOS, are also supported for embedded integration applications.

Specifications

Hardware

Comm. Controller: 16C550C compatible

Bus: PCI Express x1

Connector:
CP-102E: DB9 male
CP-102EL: DB25 female

Serial Interface

Number of Ports: 2

Serial Standards: RS-232

Max. No. of Boards per PC: 4

Serial Line Protection

ESD Protection: 15 KV on the board

Performance

Baudrate: 50 bps to 921.6 Kbps

Serial Communication Parameters

Data Bits: 5, 6, 7, 8

Stop Bits: 1, 1.5, 2

Parity: None, Even, Odd, Space, Mark

Flow Control: RTS/CTS, XON/XOFF

Serial Signals

RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND

Driver Support

Operating Systems: Windows (2000, XP/2003/Vista/2008 x86/x64), Linux 2.4, Linux 2.6 (x86/x64), QNX 6, Windows XP Embedded, SCO OpenServer 5/6, UnixWare 7

Physical Characteristics

Dimensions:
CP-102E: 85.04 x 100 mm (3.40 x 4.00 in)
CP-102EL: 67.21 x 101.97 mm (2.69 x 4.08 in)

Environmental Limits

Operating Temperature: 0 to 55°C (32 to 131°F)

Operating Humidity: 5 to 95% RH

Storage Temperature: -20 to 85°C (-4 to 185°F)

Regulatory Approvals

FCC: Part 15 Class B

EMS: EN55024, EN61000-3-2, EN61000-3-3, EN61000-6-2, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, IEC 61000-4-11

Power Requirements

Power Consumption:
CP-102E: 520 mA @ 3.3 V
CP-102EL: 552 mA @ 3.3 V

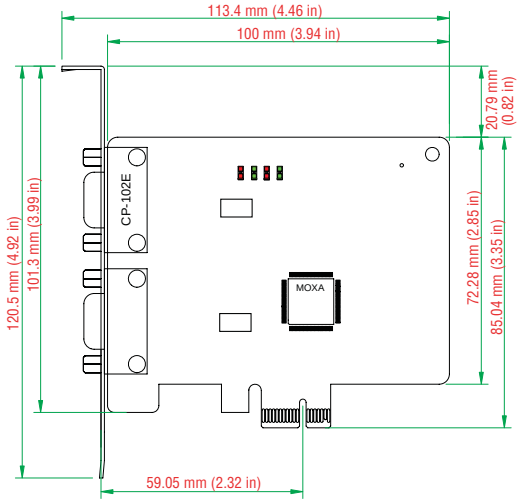
Warranty

Warranty Period: 5 years

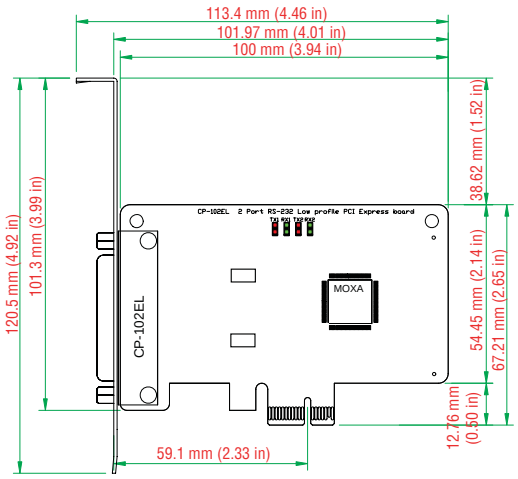
Details: See www.moxa.com/warranty

Dimensions

CP-102E



CP-102EL



Ordering Information

Available Models

CP-102E: 2-port RS-232 PCI Express x1 serial board

CP-102EL-DB9M: 2-port RS-232 low profile PCI Express serial board (includes DB9 male cable)

Package Checklist

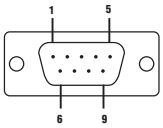
- CP-102E or CP-102EL board
- Low profile bracket (CP-102EL only)
- Document and Software CD
- Quick Installation Guide (printed)
- Warranty Card

Connection Options (CP-102EL only, can be purchased separately)

CBL-M25M9x2-50
DB25 male to DB9 male x 2 (50 cm cable)

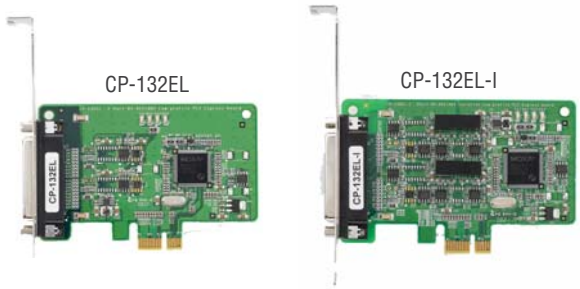
PIN	RS-232
1	DCD
2	RxD
3	TxD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS

DB9 male



CP-132EL/EL-I

2-port RS-422/485 PCI Express boards with optional 2 KV isolation



- PCI Express x1 compliant
- 921.6 Kbps maximum baudrate for super fast data transmission
- 128-byte FIFO and on-chip H/W, S/W flow control
- Low profile form factor fits small-sized PCs
- Drivers provided for Windows (2000, XP/2003/Vista/2008 x86/x64), Linux 2.4, Linux 2.6 (x86/x64), Windows XP Embedded, SCO OpenServer 5/6, UnixWare 7
- 15 KV ESD protection on the board

The certification logos shown here apply to some or all of the products in this section. For details, see "Regulatory Approvals" under "Specifications" below.

Overview

The CP-132EL and CP-132EL-I are 2-port PCI Express boards designed for industrial automation applications that require a long distance, multi-point, PC-based data acquisition solution.

RS-485 multidrop for up to 31 devices within 1.2 km

The CP-132EL/EL-I boards have 2 RS-422/485 serial ports, each of which can achieve data rates up to 921.6 Kbps. In RS-485 mode, the boards can connect up to 31 daisy-chained RS-485 devices within a range of 1.2 km. For long distance RS-485 communication, choose the CP-132EL-I model, which comes with 2 KV optical isolation protection to prevent equipment damage.

Drivers Provided for Windows and Linux

Moxa continues to support a wide variety of operating systems, and the CP-132EL/EL-I boards are no exception. Reliable Windows COM and Linux TTY drivers are provided for all Moxa boards, and other operating systems, such as WEPOS, are also supported for embedded integration.

Specifications

Hardware

Comm. Controller: 16C550C compatible
Bus: PCI Express x1
Connector: DB25 female

Serial Interface

Number of Ports: 2
Serial Standards: RS-422/485
Max. No. of Boards per PC: 4

Serial Line Protection

ESD Protection: 15 KV on the board
Optical Isolation: 2 KV (CP-132EL-I only)

Performance

Baudrate: 50 bps to 921.6 Kbps

Serial Communication Parameters

Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Space, Mark
Flow Control: XON/XOFF

Serial Signals

RS-422: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-4w: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-2w: Data+(B), Data-(A), GND

Driver support

Operating Systems: Windows (2000, XP/2003/Vista/2008 x86/x64), Linux 2.4, Linux 2.6 (x86/x64), QNX 6, Windows XP Embedded, SCO OpenServer 5/6, UnixWare 7

Physical Characteristics

Dimensions:
CP-132EL: 67.21 x 101.97 mm (2.65 x 4.08 in)
CP-132EL-I: 67.21 x 103.97 mm (2.65 x 4.16 in)

Environmental Limits

Operating Temperature: 0 to 55°C (32 to 131°F)
Operating Humidity: 5 to 95% RH
Storage Temperature: -20 to 85°C (-4 to 185°F)

Regulatory Approvals

FCC: Part 15 Class B
EMS: EN55024, EN61000-3-2, EN61000-3-3, EN61000-6-2, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, IEC 61000-4-11

Power Requirements

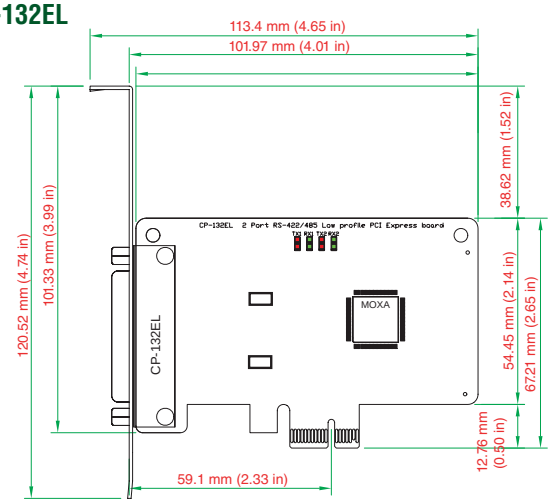
Power Consumption:
CP-132EL: 548 mA @ 3.3 V
CP-132EL-I: 636 mA @ 3.3 V

Warranty

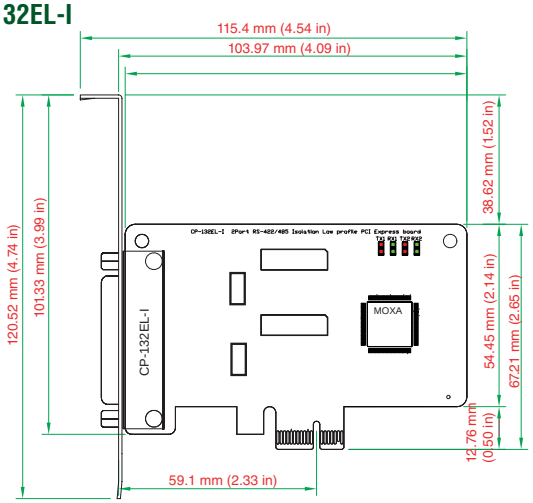
Warranty Period: 5 years
Details: See www.moxa.com/warranty

Dimensions

CP-132EL



CP-132EL-I



Ordering Information

Available Models

CP-132EL-DB9M: 2-port RS-422/485 low profile PCI Express x1 serial board (includes DB9 male cable)

CP-132EL-I-DB9M: 2-port RS-422/485 low profile PCI Express x1 serial board with optical isolation (includes DB9 male cable)

Package Checklist

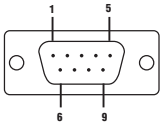
- CP-132EL or CP-132EL-I board
- Low profile bracket
- Document and Software CD
- Quick Installation Guide (printed)
- Warranty Card

Connection Options (can be purchased separately)

CBL-M25M9x2-50
DB25 male to DB9 male x 2 (50 cm cable)

PIN	RS-422/RS-485-4w	RS-485-2w
1	TxD-(A)	---
2	TxD+(B)	---
3	RxD+(B)	Data+(B)
4	RxD-(A)	Data-(A)
5	GND	GND
6	---	---
7	---	---
8	---	---

DB9 male

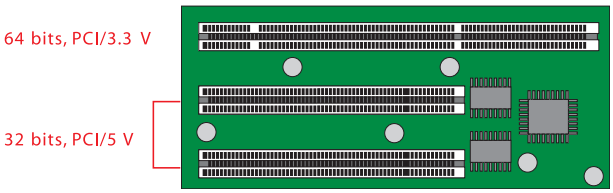


Introduction to Universal PCI

The universal PCI standard was created to give users greater versatility. Universal PCI boards can be used in either 3.3-volt or 5-volt PCI slots, which means that Moxa's universal PCI boards can be used in any PC that has a PCI slot. Choose from boards with 2, 4, or 8 independent serial ports (RS-232, RS-422, RS-485) for connecting data acquisition equipment and other serial devices to your PC.

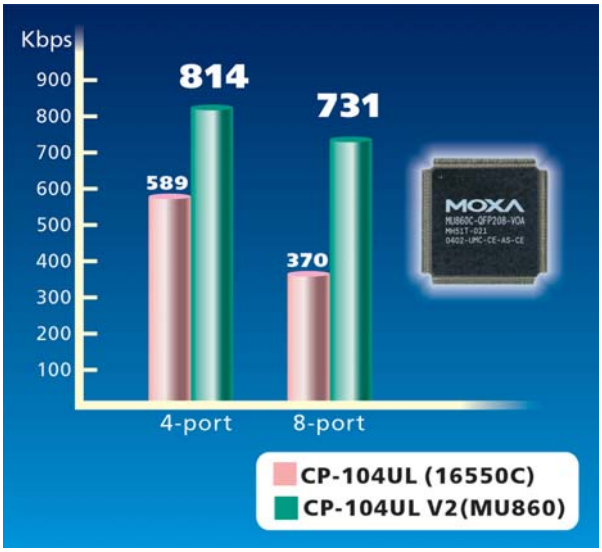
One of the drawbacks of the original PCI bus standard is that it only supports a 32-bit bus and 5V connector key. The need for increased bandwith, reduced power consumption, and high-speed transmission gave rise to a new 64-bit/3.3V PCI standard. Moxa's universal PCI boards have it all:

- Support for both 32-bit and 64-bit PCI buses
- Suport for both 3.3V and 5V connector keys



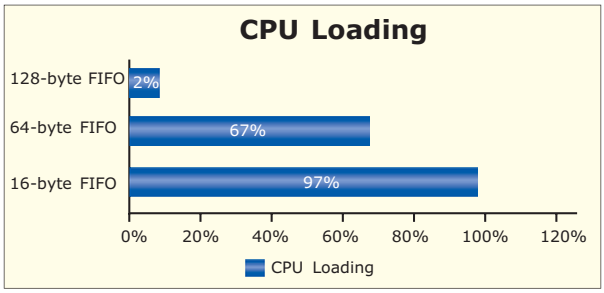
Increased FIFO Buffer for Better Performance

The larger FIFO buffer on Moxa's universal PCI boards takes a big load off your PC's CPU, resulting in better overall performance.



Testing Environment

CPU: AMD-K6-500
Main Board: GA-5AX
Memory: 128 MB
OS: Win2K
Products: CP-104UL (16550C), CP-104UL V2 (MU860)
Ports: 16 ports (4 boards)
Flow Control: Hardware Flow Control
Test Procedure: Performance Analyzer for burn-in test



Forward and Backward Compatibility

Compatible with all major operating systems

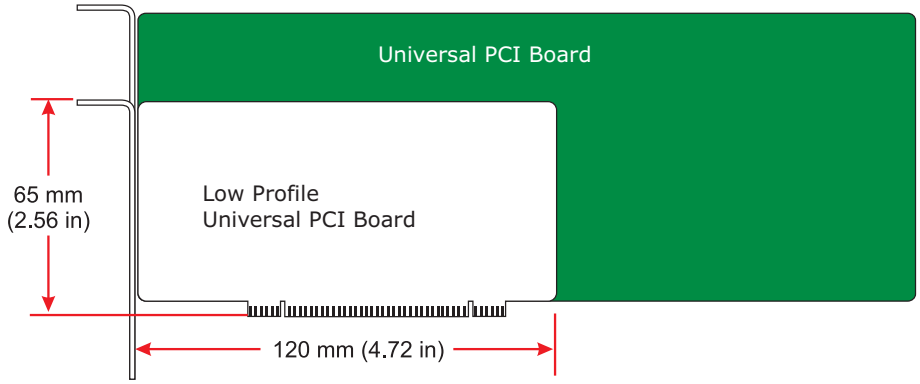
DOS — Win 95 — Win 98 — Win ME — Win NT

Win 2K — Win XP — Win XP Embedded — Win 2003 — Win 64-bit — WEPOS — Win Vista — Win 2008

Linux 2.4 — Linux 2.6 — Linux 64-bit

SCO Open Server 5 — SCO Unixware 7 — SCO Open Server 6

MD1 low profile boards fit most systems



Moxa's universal PCI boards are compatible with Moxa's PCI Boards

CP-168U = C168H/PCI
CP-134U Series = CP-114 Series
CP-104UL = C104H/PCI
CP-132UL Series = CP-132 Series

Universal PCI Board Quick Selection Guide

Interface	Ports	Product	Universal PCI	15 KV ESD Protection	2 KV Optical Isolation	Low Profile	Serial Port Power
RS-232	2	CP-102U	√	√	---	---	---
		CP-102UL	√	√	---	√	---
	4	CP-104UL	√	√	---	√	---
		CP-104JU	√	√	---	---	---
		POS-104UL	√	√	---	√	√
	8	CP-168U	√	√	---	---	---
RS-422/485	2	CP-132UL-I	√	√	√	√	---
		CP-132UL	√	√	---	√	---
	4	CP-134U	√	√	---	---	---
		CP-134U-I	√	√	√	---	---
	8	CP-138U	√	√	---	---	---
		CP-138U-I	√	√	√	---	---
RS-232/422/485	2	CP-112UL	√	√	---	√	---
		CP-112UL-I	√	√	√	√	---
	4	CP-114UL	√	√	---	√	---
		CP-114UL-I	√	√	√	√	---
	8	CP-118U	√	√	---	---	---
		CP-118U-I	√	√	√	---	---
Serial-over-Fiber	2	CP-102UF	√	√	---	---	---

Wide Temperature Models of Moxa's Universal PCI Boards Fit for Harsh Industrial Applications

Industrial applications are often associated with harsh, demanding environments, and of all the features that distinguish industrial products from commercial-grade products, the "Wide Temperature" feature is considered the most important. Facilities or key devices may be located at remote sites where there is no protection from severe weather conditions. For devices that are not designed to tolerate harsh conditions, this often presents significant limitations in how they can be used for the application.

Moxa offers wide temperature Universal PCI models that can operate reliably between -40 and 85˚C. Wide temperature models present a much more reliable and affordable alternative to using regular industrial-grade devices. They are an ideal solution for any application that involves harsh industrial environments, such as power substation automation, intelligent transportation systems, environmental monitoring, manufacturing automation, and other similar systems.

- Outdoor applications, such as deserts or mountains, where it is difficult or costly to build a climate-controlled shelter for sensitive electronic equipment
- Indoor applications, such as in factories or laboratories, where equipment must be placed near machines that generate extreme heat or cold
- Mobile or mixed applications in harsh environments, such as in the military, where machines must operate reliably in low and high temperatures

Moxa's wide temperature Universal PCI boards support an operating temperature range from -40 to 85°C, which is one more reason why Moxa is a leading provider of multiport serial boards.

Wide Temperature Universal PCI Board Quick Selection Guide

Interface	Ports	Product
RS-232	2	CP-102U-T
		CP-102UL-T
	4	CP-104UL-T
		CP-104JU-T
		POS-104UL-T*
	8	CP-168U-T
RS-422/485	2	CP-132UL-T
		CP-132UL-I-T
	4	CP-134U-T
		CP-134U-I-T
	8	CP-138U-T
		CP-138U-I-T
RS-232/422/485	2	CP-112UL-T
		CP-112UL-I-T
	4	CP-114UL-T
		CP-114UL-I-T
	8	CP-118U-T
		CP-118U-I-T
Serial-over-Fiber	2	CP-102UF-T

* Supports power over serial

CASE STUDY

Automated Teller Machine

Reliable and easy integration of peripheral devices

An ATM (Automated Teller Machine) is a computerized telecommunications device that allows customers to conduct financial transactions in a public space without the need for a human clerk or bank teller. Most modern ATMs require customers to insert a credit card sized card, which identifies the customer with a unique card number and additional security information. By using an ATM, customers can access their bank accounts in order to make cash withdrawals, transfer money to other accounts, and check their account balances.

ATMs use an embedded PC that connects to multiple serial peripherals, such as card readers, keypads, touch screens, receipt printers, and cash dispensers. The PC connects to these serial devices through a multiport serial board, and some embedded PCs even require low profile boards due to the limited space available inside a typical ATM.

One of Moxa's customers is an ATM vendor whose business is growing by leaps and bounds due to the booming ATM market in Asia and other parts of the world. To maintain its competitive edge, the vendor turned to Moxa because of the high quality of Moxa's multiport serial boards, and Moxa's proven ability to deliver products on time and with high product reliability.

Forward and Backward Compatibility

- High product reliability and quality
- Small size due to space limitations
- Versatile operating system support
- Good technical support and product service
- Instant troubleshooting

Why Moxa?

- Cost-effective COM port expansion solutions
- Support for a variety of operating systems to reduce the cost of future upgrades
- High MTBF and WHQL (Windows Hardware Qualification Laboratory) certified drivers
- Low profile model suitable for small sized computer
- On-board LED display for monitoring data transmission
- All Moxa products are guaranteed to be of the highest quality and come with a 5-year warranty
- Compatible with 3.3/5 V PCI and PCI-X
- Baudrate up to 921.6 Kbps for super fast data transmission
- 128-byte FIFO and on-chip H/W, S/W flow control

Key Products

CP-104UL: 4-port RS-232 low profile Universal PCI board CP-168U: 8-port RS-232 Universal PCI board

Diagram

C320Turbo Series

8 to 32-port intelligent RS-232 Universal PCI and ISA serial boards

- Supports 128 high-performance serial ports per system
- Dramatically decreases host CPU loading
- Modular design makes port expansion easy
- Monitor transmission status with LEDs on the module and two 7-segment displays
- Drivers provided for a broad selection of operating systems
- 460.8 Kbps maximum baudrate

The certification logos shown here apply to some or all of the products in this section. For details, see "Regulatory Approvals" under "Specifications" below.

Overview

The intelligent C320Turbo serial boards are expandable and flexible COM/TTY solutions for RS-232 applications that require connecting up to 128 serial devices to one computer. The C320Turbo's on-board CPU and large dual-port memory take the load off host systems whose performance and scalability are critical for large-scale systems.

Drivers Provided for a Broad Selection of Operating Systems

In addition to providing COM port drivers for all major operating systems, Moxa also supports the following dedicated operating systems for customers' special needs.

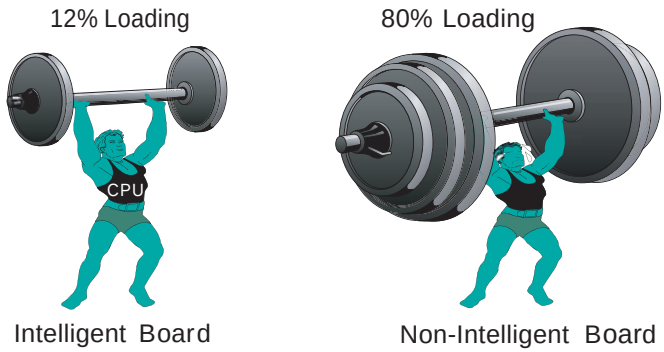
DOS
Windows
Windows (x64)
SCO UnixWare 7
SCO OpenServer 5/6
SCO UNIX SVR 4.2
QNX 4.2x
Linux 2.4/2.6
Linux (x64)

Dramatically Decreases Host Computer's CPU Loading

The C320Turbo boards have a state-of-the-art onboard CPU that dramatically reduces the host computer's loading **by up to 68%*** for applications that use 32 ports per board.

*Testing Environment

- Pentium 4, 1.8 GB CPU, 128 MB RAM
- Windows 2000 Professional
- Moxa PComm Pro Performance Analyzer
- 115.2 Kbps, full duplex, 24-hour burn-in



Specifications

Hardware

Comm. Controller: 16C550C or compatible x 8

Bus:
C320Turbo/PCI: 32-bit Universal PCI
C320Turbo: 16-bit ISA

Connector: DB25 female
Processor: TMS320BC52-40 RISC CPU
Memory: 512 KB

Serial Interface

Number of Ports: 32 per control board (max.)

Serial Standards: RS-232 (RS-422 available with desktop option)

Max. No. of Boards per PC: 4

Performance

Baudrate: 50 bps to 460.8 Kbps

Serial Communication Parameters

Data Bits: 5, 6, 7, 8

Stop Bits: 1, 1.5, 2

Parity: None, Even, Odd, Space, Mark

IRQ:
C32010T/PCI: Assigned by BIOS
C32010T: 2 (9), 3, 4, 5, 7, 10 (default), 11, 12, 15

Serial Signals

RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND

RS-422: TxD+/-, RxD+/-, RTS+/-, CTS+/-, GND

Driver Support

Operating Systems: Windows (2000, XP/2003/Vista/2008 x86/x64, 9X/ME/NT), DOS, Linux 2.4, Linux 2.6 (x86/x64), SCO Open Server 5/6, UnixWare 7, QNX 4/6

Physical Characteristics

Dimensions:
C32010T/PCI: 90 x 120 mm (3.54 x 4.72 in)
C32010T: 107 x 158 mm (4.21 x 6.22 in)

Environmental Limits

Operating Temperature: 0 to 55°C (32 to 131°F)

Operating Humidity: 5 to 95% RH

Storage Temperature: -20 to 85°C (-4 to 185°F)

Regulatory Approvals

FCC: Part 15 Class A

EMS: EN61000-4-2, EN61000-4-3, EN61000-4-4, ENV5204

Power Requirements

Power Consumption:
C32010T/PCI: 500 mA max. @ +5 V
C32010T: 840 mA max. @ +5 V

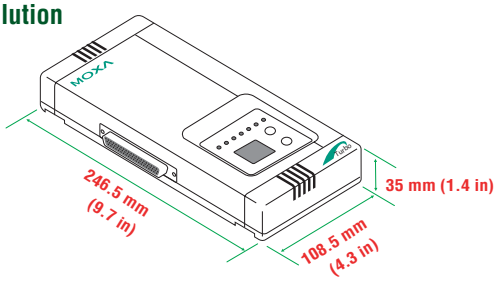
Warranty

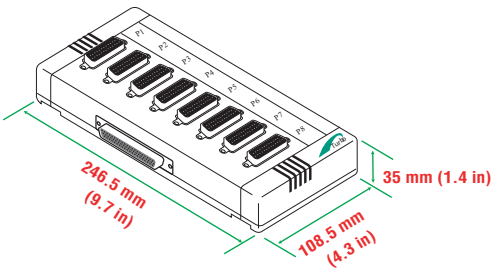
Warranty Period: 5 years

Details: See www.moxa.com/warranty

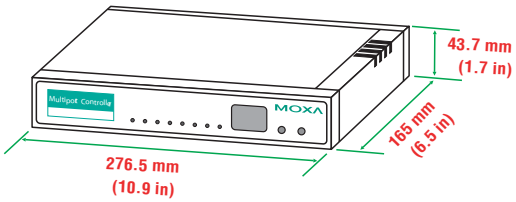
Dimensions

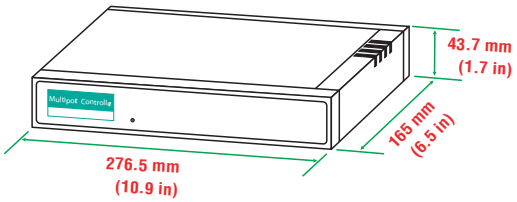
Desktop Solution





Rackmount Solution





	C32010T/ PCI	C32010T	C32030T	C32045T	C32047T	C32061T
Dimensions (mm)	120 x 90 x 15	158 x 107 x 15	247 x 108 x 35	247 x 108 x 35	247 x 108 x 35	247 x 108 x 35
Weight (g)	90	120	425	500	485	488
Power Requirements	0.5A (+5V)	0.84A (+5V)	0.59A (+5V)	0.28A (+5V) 0.095A (+12V) 0.06A (-12V)	0.28A (+5V) 0.095A (+12V) 0.06A (-12V)	0.485A (+5V)

	C32065T	C32071T	C32080T	C32081T	C32082T	C32083T
Dimensions (mm)	247 x 108 x 35	247 x 108 x 35	277 x 165 x 44	277 x 165 x 44	277 x 165 x 44	277 x 165 x 44
Weight (g)	525	525	1020	1120	920	1000
Power Requirements	1.32A (+5V)	0.28A (+5V) 0.095A (+12V) 0.06A (-12V)	0.88A (+5V) 0.095A (+12V) 0.06A (-12V)	1.22A (+5V) 0.19A (+12V) 0.12A (-12V)	0.34A (+5V) 0.095A (+12V) 0.06A (-12V)	0.67A (+5V) 0.19A (+12V) 0.12A (-12V)

Ordering Information

Package Checklist

- C320Turbo/PCI or C320Turbo board
- 2-meter DB25-M to DB25-F connection cable
- Long-range extension kit (optional)
- Document and Software CD
- Quick Installation Guide (printed)
- Warranty Card

Available Models

Control Boards (must choose one)

C32010T/PCI: Universal PCI board
C32010T: ISA board

External Modules

Rackmount Option

Basic Modules (must choose one)
C32080T: 8 RS-232 ports, 10-pin RJ45 connectors
C32081T: 16-port, RS-232, 10-pin RJ45

Expansion Modules (optional)
C32082T: 8 RS-232 ports, 10-pin RJ45 connectors
C32083T: 16 RS-232 ports, 10-pin RJ45 connectors

Long-range Extension Kit (optional)

C32050T: Includes the following items

- 2 meter DB25-M to DB25-F 10-wire cable (generally used for set-up)
- 90-240 VAC switching power adaptor (0-30°C operating temperature)

NOTE: Build your own DB25-M to DB25-F 10-wire cable for connecting up to 100 meters.

Desktop Option

- CPU module
- One or more UART modules (32 ports maximum per board)

Rackmount Option

- Basic module
- Zero or more expansion modules (32 ports maximum per board)

Connection Cable (required)

C32020T: 2 meter DB25-M to DB25-F cable with 25 pins for short-range usage

Desktop Option

CPU Module (required)
C32030T: Connects directly to one UART module

8-port UART Modules (choose at least one)
C32045T: RS-232, DB25-F connectors
C32047T: RS-232, DB25-M connectors
C32071T: RS-232, DB25-F connectors (25 KV ESD surge protection)
C32061T: RS-422, DB25-F connectors
C32065T: RS-422, DB25-F connectors (2 KV optical isolation)

Ordering Examples

Rackmount Ordering Examples

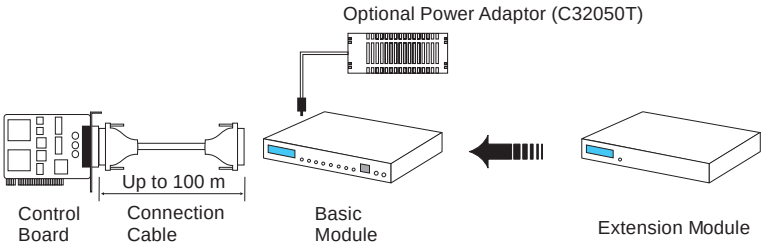
16 RS-232 ports

Control Board: C32010T/PCI
Connection Cable: C32020T
Basic Module: C32081T

32 RS-232 ports

Control Board: C32010T/PCI
Connection Cable: C32020T
Basic Module: C32081T x 1
Expansion Module: C32083T x 1

Rackmount Setup Diagram



Desktop Ordering Examples

8 RS-232 ports

Control Board: C32010T/PCI
Connection Cable: C32020T
CPU Module: C32030T
UART Module: C32045T x 1

8 RS-232 ports + 16 RS-422 ports

Control Board: C32010T/PCI
Connection Cable: C32020T
CPU Module: C32030T
UART Module: C32045T x 1 + C32061T x 2

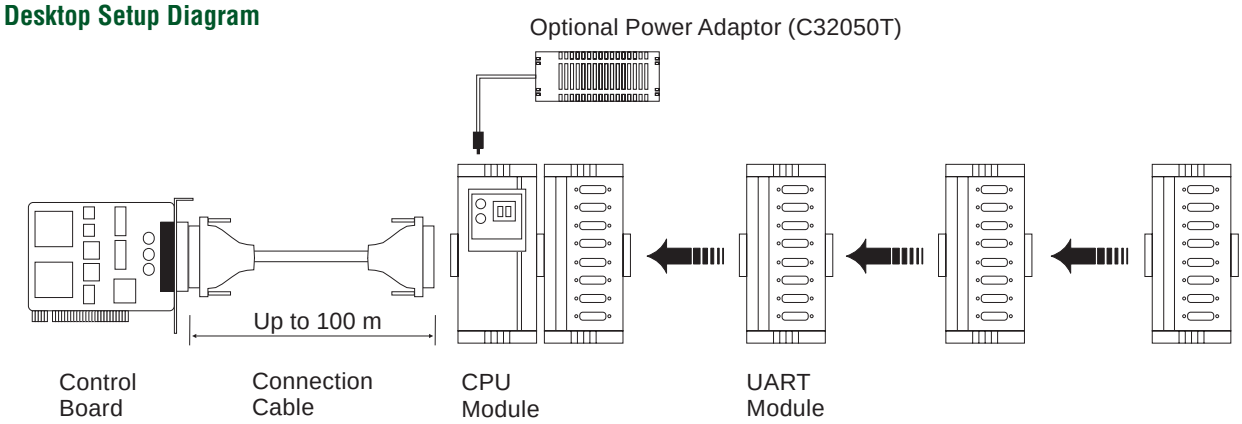
16 RS-232 ports

Control Board: C32010T/PCI
Connection Cable: C32020T
CPU Module: C32030T
UART Module: C32045T x 2 or C32047T x 2

32 RS-232 ports

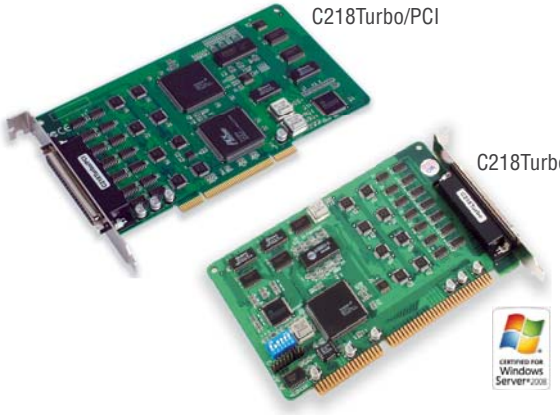
Control Board: C32010T/PCI
Connection Cable: C32020T
CPU Module: C32030T
UART Module: C32045T x 4 or C32047T x 4

Desktop Setup Diagram



C218Turbo Series

8-port RS-232 intelligent Universal PCI and ISA serial boards



- Effectively reduces CPU loading
- Drivers provided for a variety of operating systems (Windows, Linux, and Unix)
- Choose from a wide range of connection cables and boxes
- 921.6 Kbps maximum baudrate for super fast data transmission
- Provides up to 512 KB of embedded memory
- High data throughput for great performance

The certification logos shown here apply to some or all of the products in this section. For details, see "Regulatory Approvals" under "Specifications" below.

Overview

The 8-port C218Turbo RS-232 universal PCI and ISA boards come with an ASIC, RISC processor, and large I/O buffer to provide a sustained high throughput on all 8 ports simultaneously. Drivers are available for Windows, Linux, and Unix, making the boards suitable for a wide range of applications. Models are available for PCI, PCI-X, and ISA buses to provide reliable, high performance solutions for multiport serial communications.

Specifications

Hardware

Comm. Controller: 16C550C or compatible x 8

Bus:
C218Turbo/PCI: 32-bit Universal PCI
C218Turbo: 16-bit ISA

Connector: DB62 female

Processor: TMS320BC203-57 RISC CPU

Memory: 512 KB

Serial Interface

Number of Ports: 8

Serial Standards: RS-232 (RS-422/485 with optional accessory)

Max. No. of Boards per PC: 4

Serial Line Protection

ESD Protection: 25 KV per port with connection box Opt8S (must be purchased separately)

Optical Isolation: 500 V with connection box Opt8F (must be purchased separately)

Performance

Baudrate: 50 bps to 921.6 Kbps

Serial Communication Parameters

Data Bits: 5, 6, 7, 8

Stop Bits: 1, 1.5, 2

Parity: None, Even, Odd, Space, Mark

Serial Signals

RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND

Driver Support

Operating Systems: Windows (2000, XP/2003/Vista/2008 x86/x64, 9X/ME/NT), DOS, Linux 2.4, Linux 2.6 (x86/x64), SCO Open Server 5/6, UnixWare 7, QNX 4/6

Physical Characteristics

Dimensions: 105 x 180 mm (4.13 x 7.09 in)

Environmental Limits

Operating Temperature: 0 to 55°C (32 to 131°F)

Operating Humidity: 5 to 95% RH

Storage Temperature: -20 to 85°C (-4 to 185°F)

Regulatory Approvals

FCC: Part 15 Class A

EMS: EN55024, EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-11 (DIPS)

Power Requirements

Power Consumption:
C218Turbo/PCI: 530 mA max. @ +5 V, 110 mA max. @ +12 V, 35 mA max. @ -12 V
C218Turbo: 400 mA max. @ +5 V, 100 mA max. @ +12 V, 60 mA max. @ -12 V

Warranty

Warranty Period: 5 years

Details: See www.moxa.com/warranty

Ordering Information

Available Models

C218Turbo/PCI: 8-port RS-232 intelligent Universal PCI serial board
C218Turbo: 8-port RS-232 intelligent ISA serial board

Package Checklist

- C218Turbo/PCI or C218Turbo board
- Document and Software CD
- Quick Installation Guide (printed)
- Warranty Card

Connection Options (can be purchased separately)

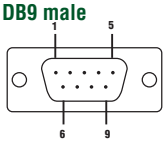
OPT8-M9
DB9 male x 8 (150 cm cable)

CBL-M62M9x8-100 (OPT8D)
DB9 male x 8 (100 cm cable)

PIN	RS-232
1	DCD
2	RxD
3	TxD
4	DTR

PIN	RS-232
5	GND
6	DSR
7	RTS
8	CTS

DB9 male



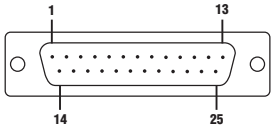
OPT8B
DB25 male x 8 (150 cm cable)

CBL-M62M25x8-100 (OPT8C)
DB25 male x 8 (100 cm cable)

PIN	RS-232
2	TxD
3	RxD
4	RTS
5	CTS

PIN	RS-232
6	DSR
7	GND
8	DCD
20	DTR

DB25 male



OPT8A
DB25 female x 8 (150 cm cable)

OPT8S
DB25 female x 8 (150 cm cable)
25 KV ESD Surge Protection

OPT8F/Z (RS-422)
DB25 female x 8 (150 cm cable)
110 or 230 VAC power adaptor
(115.2 Kbps max. baudrate)

OPT8F with 500 V isolation

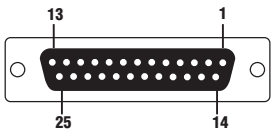
OPT8K (RS-422/485)
DB25 female x 8 (150 cm cable)
110 or 230 VAC power adaptor

PIN	RS-232
2	RxD
3	TxD
4	CTS
5	RTS

PIN	RS-232
6	DTR
7	GND
8	DCD
20	DSR

PIN	RS-422/RS-485-4w	RS-485-2w
2	RxD+(B)	Data+(B)
3	TxD+(B)	---
7	GND	GND
14	RxD-(A)	Data-(A)
16	TxD-(A)	---

DB25 female

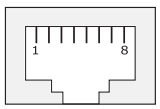


OPT8-RJ45
8-pin RJ45 x 8 (30 cm cable)

PIN	RS-232
1	DSR
2	RTS
3	GND
4	TxD

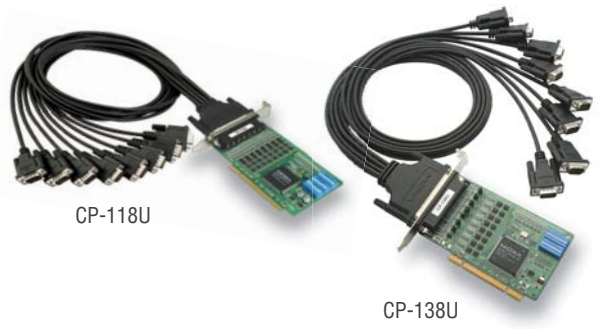
PIN	RS-232
5	RxD
6	DCD
7	CTS
8	DTR

8-pin RJ45



CP-118U/138U

8-port RS-232/422/485 Universal PCI serial board



- Over 700 Kbps data throughput for top performance
- 921.6 Kbps maximum baudrate for super fast data transmission
- 128-byte FIFO and on-chip H/W, S/W flow control
- Compatible with 3.3/5V PCI and PCI-X
- Drivers provided for Windows (2000, XP/2003/Vista/2008 x86/x64, 9X/ME/NT), Windows CE 5.0/6.0, Windows XP Embedded, DOS, Linux 2.4, Linux 2.6 (x86/x64), FreeBSD 4/5, QNX 6, SCO Open Server 5/6, UnixWare 7
- Easy maintenance with on-board LED display, and management software
- 15 KV ESD protection on the board
- Wide temperature model available for -40 to 85°C environments

The certification logos shown here apply to some or all of the products in this section. For details, see "Regulatory Approvals" under "Specifications" below.

Overview

The CP-118U and CP-138U are smart, 8-port Universal PCI serial boards designed for POS and ATM applications and for use by industrial automation system manufacturers and system integrators. Both boards are compatible with all major operating systems. In addition, the CP-118U's 8 RS-232/422/485 ports and the CP-138U's 8 RS-422/485 ports support data rates up to 921.6 Kbps, and provide full modem control signals to ensure compatibility with a wide range of serial peripherals. The CP-118U and CP-138U support both 3.3V and 5V PCI buses, making them suitable for installation in most PC servers.

Drivers Provided for Windows, Linux, and Unix

One of Moxa's highest priorities is to provide drivers for all mainstream operating systems. Reliable, well-tested Windows COM and Linux/Unix TTY drivers are available for use with the CP-118U and CP-138U serial boards. Other operating systems, such as Windows XP embedded and WEPOS, are also supported to accommodate embedded integration applications.

Specifications

Hardware

Comm. Controller: MU860 (16C550C compatible)
Bus: 32-bit Universal PCI
Connector: DB62 female

Serial Interface

Number of Ports: 8
Serial Standards:
CP-118U: RS-232/422/485
CP-138U: RS-422/485
Max. No. of Boards per PC: 4

Serial Line Protection

ESD Protection: 15 KV on the board

Performance

Baudrate: 50 bps to 921.6 Kbps

Serial Communication Parameters

Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Space, Mark
Flow Control: RTS/CTS, XON/XOFF
I/O Address: Assigned by BIOS
IRQ: Assigned by BIOS

Serial Signals

RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
RS-422: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-4w: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-2w: Data+(B), Data-(A), GND

Driver Support

Operating Systems: Windows (2000, XP/2003/Vista/2008 x86/x64, 9X/ME/NT), Windows CE 5.0/6.0, Windows XP Embedded, DOS, Linux 2.4, Linux 2.6 (x86/x64), FreeBSD 4/5, QNX 6, SCO Open Server 5/6, UnixWare 7

Physical Characteristics

Dimensions: 82 x 135 mm (3.22 x 5.31 in)

Environmental Limits

Operating Temperature:
Standard Models: 0 to 55°C (32 to 131°F)
Wide Temp. Models: -40 to 85°C (-40 to 185°F)
Operating Humidity: 5 to 95% RH
Storage Temperature: -20 to 85°C (-4 to 185°F)

Regulatory Approvals

FCC: Part 15 Class B
EMS: EN55024, EN61000-3-2, EN61000-3-3, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, IEC 61000-4-11 (DIPS)

Power Requirements

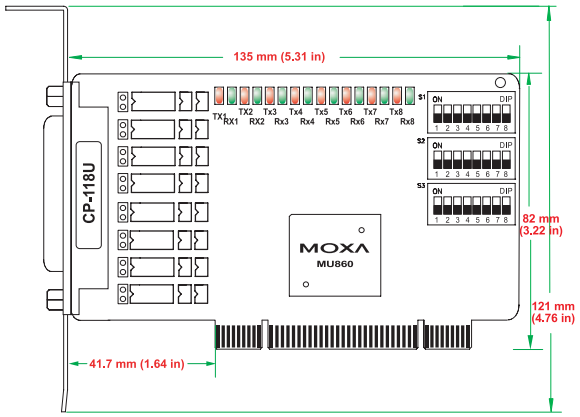
Power Consumption:
CP-118U: 240 mA @ +5 V (RS-232), 300 mA @ +5 V (RS-422)
CP-138U: 135 mA @ +5V (RS-422)

Warranty

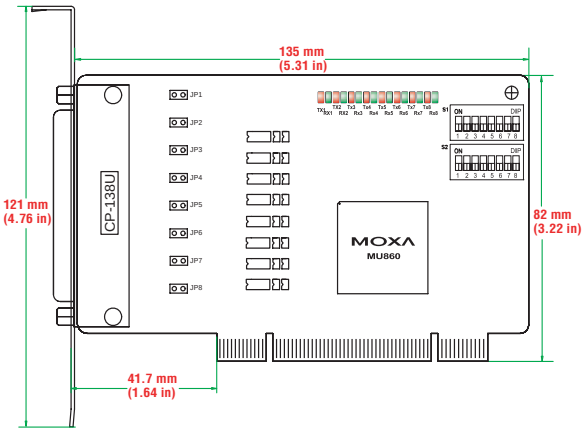
Warranty Period: 5 years
Details: See www.moxa.com/warranty

Dimensions

CP-118U



CP-138U



Ordering Information

Available Models

CP-118U: 8-port RS-232/422/485 Universal PCI serial board, 0 to 55°C operating temperature

CP-138U: 8-port RS-422/485 Universal PCI serial board, 0 to 55°C operating temperature

CP-118U-T: 8-port RS-232/422/485 Universal PCI serial board, -40 to 85°C operating temperature

CP-138U-T: 8-port RS-422/485 Universal PCI serial board, -40 to 85°C operating temperature

Package Checklist

- CP-118U or CP-138U board
- Document and Software CD
- Quick Installation Guide (printed)
- Warranty Card

Connection Options (can be purchased separately)

OPT8-M9

DB9 male x 8 (150 cm cable)

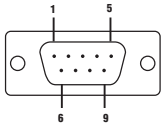
CBL-M62M9x8-100 (OPT8D)

DB9 male x 8 (100 cm cable)

PIN	RS-232
1	DCD
2	RxD
3	TxD
4	DTR

PIN	RS-232
5	GND
6	DSR
7	RTS
8	CTS

DB9 male



OPT8B

DB25 male x 8 (150 cm cable)

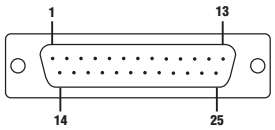
CBL-M62M25x8-100 (OPT8C)

DB25 male x 8 (100 cm cable)

PIN	RS-232
2	TxD
3	RxD
4	RTS
5	CTS

PIN	RS-232
6	DSR
7	GND
8	DCD
20	DTR

DB25 male



OPT8A

DB25 female x 8 (150 cm cable)

OPT8S

DB25 female x 8 (150 cm cable)
25 KV ESD Surge Protection

OPT8F/Z (RS-422)

DB25 female x 8 (150 cm cable)
110 or 230 VAC power adaptor
(115.2 Kbps max. baudrate)

OPT8F with 500 V isolation

OPT8K (RS-422/485)

DB25 female x 8 (150 cm cable)
110 or 230 VAC power adaptor

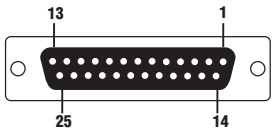
PIN	RS-232
2	RxD
3	TxD
4	CTS
5	RTS

PIN	RS-232
6	DTR
7	GND
8	DCD
20	DSR

PIN	RS-422
2	RxD+(B)
3	TxD+(B)
7	GND
14	RxD-(A)
16	TxD-(A)

PIN	RS-422/RS-485-4w	RS-485-2w
2	RxD+(B)	Data+(B)
3	TxD+(B)	
7	GND	GND
14	RxD-(A)	Data-(A)
16	TxD-(A)	

DB25 female



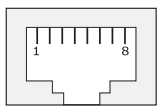
OPT8-RJ45

8-pin RJ45 x 8 (30 cm cable)

PIN	RS-232
1	DSR
2	RTS
3	GND
4	TxD

PIN	RS-232
5	RxD
6	DCD
7	CTS
8	DTR

8-pin RJ45



CP-118U-I/138U-I

8-port RS-232/422/485 Universal PCI serial boards with 2 KV isolation

CP-118U-I

CP-138U-I

- Over 700 Kbps data throughput for top performance
- 921.6 Kbps maximum baudrate for super fast data transmission
- 128-byte FIFO and on-chip H/W, S/W flow control
- Compatible with 3.3/5V PCI and PCI-X
- Drivers provided for Windows (2000, XP/2003/Vista/2008 x86/x64, 9X/ME/NT), Windows CE 5.0/6.0, Windows XP Embedded, DOS, Linux 2.4, Linux 2.6 (x86/x64), FreeBSD 4/5, QNX 6, SCO Open Server 5/6, UnixWare 7
- Easy maintenance with on-board LED display, and management software
- 15 KV ESD protection and 2 KV optical isolation on the board
- Wide temperature model available for -40 to 85°C environment

The certification logos shown here apply to some or all of the products in this section. For details, see "Regulatory Approvals" under "Specifications" below.

Overview

The CP-118U-I and CP-138U-I are, 8-port serial boards designed for long distance, multi-point, PC-based data acquisition applications. Industrial automation system integrators will be eager to use these boards for many of their industrial automation projects.

On-chip ADDC® for precision RS-485 communication

RS-485 communication requires precise timing control to enable and disable the line driver, and the Moxa Turbo Serial Engine™ chip that powers the CP-118U-I and CP-138U-I boards come with on-chip ADDC® (automatic data direction control) to make RS-485 as easy to use as RS-232.

RS-485 multidrop for up to 31 devices within 1.2 km

The CP-118U-I's 8 RS-232/422/485 ports and the CP-138U-I's 8 RS-422/485 ports can achieve data rates up to 921.6 Kbps, and in RS-485 mode, one serial port can connect up to 31 daisy-chained RS-485 devices within a range of 1.2 km. In addition, the 2 KV optical isolation protection on the CP-118U-I and CP-138U-I boards helps prevent equipment damage for long distance RS-485 communication.

Top Serial Performance

Moxa's 20-plus years of experience in serial board design is now concentrated in a new high performance serial data transmission chip. The Turbo Serial Engine™ chip provides serial boards with a 128-byte FIFO, on-chip hardware and software flow control, and burst data mode. Thanks to the Turbo Serial Engine™, Moxa is able to offer the world's best performing smart serial boards.

Drivers Provided for Windows, Linux, and Unix

Moxa continues to support a wide variety of operating systems, and the CP-118U-I and CP-138U-I boards are no exception. Reliable Windows COM and Linux/Unix TTY drivers are provided for most Moxa boards, and other operating systems, such as WEPOS, are also supported for embedded integration.

Specifications

Hardware

Comm. Controller: MU860 (16C550C compatible)
Bus: 32-bit Universal PCI
Connector: DB78 female

Serial Interface

Number of Ports: 8
Serial Standards:
CP-118U-I: RS-232/422/485
CP-138U-I: RS-422/485
Max. No. of Boards per PC: 4

Serial Line Protection

ESD Protection: 15 KV on the board
Optical Isolation: 2 KV

Performance

Baudrate: 50 bps to 921.6 Kbps

Serial Communication Parameters

Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Space, Mark
Flow Control: RTS/CTS, XON/XOFF
I/O Address: Assigned by BIOS
IRQ: Assigned by BIOS

Serial Signals

RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND

RS-422: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND

RS-485-4w: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND

RS-485-2w: Data+(B), Data-(A), GND

Driver Support

Operating Systems: Windows (2000, XP/2003/Vista/2008 x86/x64, 9X/ME/NT), Windows CE 5.0/6.0, Windows XP Embedded, DOS, Linux 2.4, Linux 2.6 (x86/x64), FreeBSD 4/5, QNX 6, SCO Open Server 5/6, UnixWare 7

Physical Characteristics

Dimensions: 105 x 133 mm (4.13 x 5.23 in)

Environmental Limits

Operating Temperature:
Standard Models: 0 to 55°C (32 to 131°F)
Wide Temp. Models: -40 to 85°C (-40 to 185°F)

Operating Humidity: 5 to 95% RH

Storage Temperature: -20 to 85°C (-4 to 185°F)

Regulatory Approvals

FCC: Part 15 Class B

EMS: EN55022, EN55024, EN61000-3-2, EN61000-3-3, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, IEC 61000-4-11 (DIPS)

Power Requirements

Power Consumption:
CP-118U-I: 860 mA @ +5 V
CP-138U-I: 330 mA @ +5V

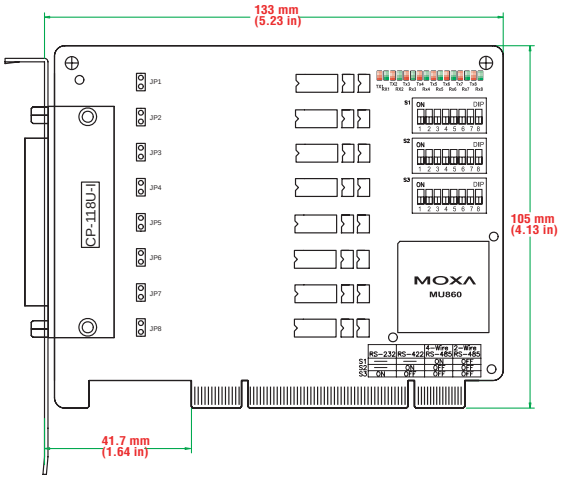
Warranty

Warranty Period: 5 years

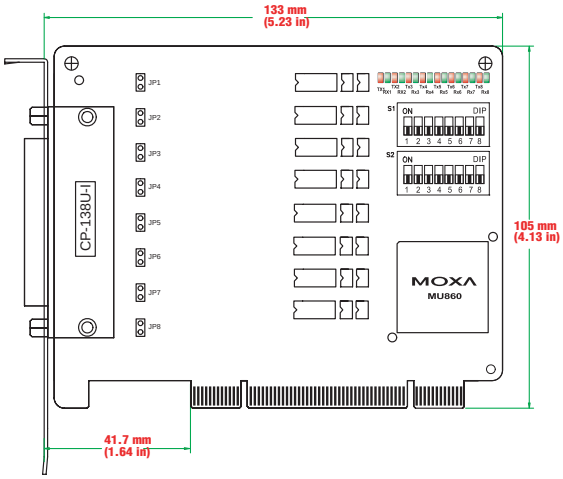
Details: See www.moxa.com/warranty

Dimensions

CP-118U-I



CP-138U-I



Ordering Information

Available Models

CP-118U-I: 8-port RS-232/422/485 Universal PCI serial board with optical isolation, 0 to 55°C operating temperature

CP-138U: 8-port RS-422/485 Universal PCI serial board with optical isolation, 0 to 55°C operating temperature

CP-118U-I-T: 8-port RS-232/422/485 Universal PCI serial board with optical isolation, -40 to 85°C operating temperature

CP-138U-T: 8-port RS-422/485 Universal PCI serial board with optical isolation, -40 to 85°C operating temperature

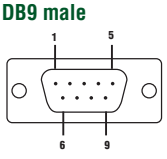
Package Checklist

- CP-118U-I or CP-138U-I board
- Document and Software CD
- Quick Installation Guide (printed)
- Warranty Card

Connection Options (can be purchased separately)

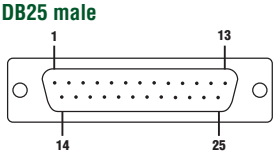
CBL-M78M9x8-100

DB9 male



CBL-M78M25x8-100

DB25 male



CP-168U

8-port RS-232 Universal PCI serial board

- Over 700 Kbps data throughput for top performance
- 921.6 Kbps maximum baudrate for super fast data transmission
- 128-byte FIFO and on-chip H/W, S/W flow control
- Choose from a wide range of connection cables and boxes
- Compatible with 3.3/5V PCI and PCI-X
- Drivers provided for Windows (2000, XP/2003/Vista/2008 x86/x64, 9X/ME/NT), Windows CE 5.0/6.0, Windows XP Embedded, DOS, Linux 2.4, Linux 2.6 (x86/x64), FreeBSD 4/5, QNX 6, SCO Open Server 5/6, UnixWare 7
- 15 KV ESD protection on the board
- Wide temperature model available for -40 to 85°C environment

The certification logos shown here apply to some or all of the products in this section. For details, see "Regulatory Approvals" under "Specifications" below.

Overview

The CP-168U is a smart, 8-port universal PCI board designed for POS and ATM applications. It is a top choice of industrial automation engineers and system integrators, and supports many different operating systems, including Windows, Linux, and even Unix. In addition, each of the board's 8 RS-232 serial ports supports a super fast 921.6 Kbps baudrate. The CP-168U provides full modem control signals to ensure compatibility with a wide range of serial peripherals, and works with both 3.3V and 5V PCI buses, allowing the board to be installed in virtually any available PC server.

Specifications

Hardware

Comm. Controller: MU860 (16C550C compatible)

Bus: 32-bit Universal PCI

Connector: DB62 female

Serial Interface

Number of Ports: 8

Serial Standards: RS-232

Max. No. of Boards per PC: 4

Serial Line Protection

ESD Protection: 15 KV on the board

Optical Isolation: 500 V with connection box Opt8F (must be purchased separately)

Performance

Baudrate: 50 bps to 921.6 Kbps

Serial Communication Parameters

Data Bits: 5, 6, 7, 8

Stop Bits: 1, 1.5, 2

Parity: None, Even, Odd, Space, Mark

Flow Control: RTS/CTS, XON/XOFF

I/O Address: Assigned by BIOS

IRQ: Assigned by BIOS

Serial Signals

RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND

Driver Support

Operating Systems: Windows (2000, XP/2003/Vista/2008 x86/x64, 9X/ME/NT), Windows CE 5.0/6.0, Windows XP Embedded, DOS, Linux 2.4, Linux 2.6 (x86/x64), FreeBSD 4/5, QNX 6, SCO Open Server 5/6, UnixWare 7

Physical Characteristics

Dimensions: 82 x 120 mm (3.22 x 4.72 in)

Environmental Limits

Operating Temperature:
Standard Models: 0 to 55°C (32 to 131°F)
Wide Temp. Models: -40 to 85°C (-40 to 185°F)

Operating Humidity: 5 to 95% RH

Storage Temperature: -20 to 85°C (-4 to 185°F)

Regulatory Approvals

FCC: Part 15 Class B

EMS: EN55022, EN55024, EN61000-3-2, EN61000-3-3, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, IEC 61000-4-11 (DIPS)

Power Requirements

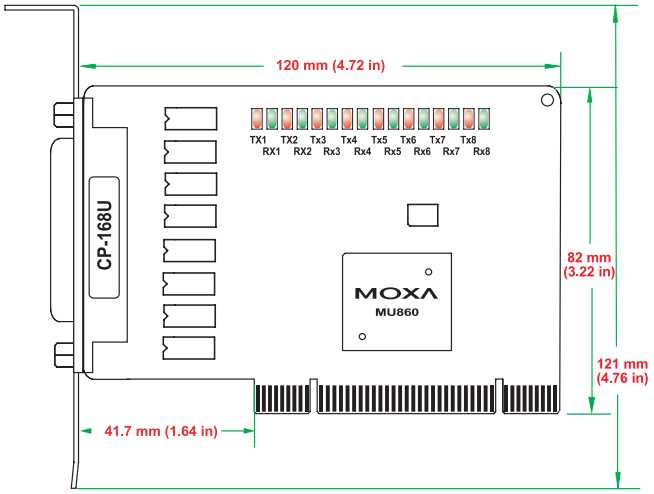
Power Consumption: 180 mA @ +5 V

Warranty

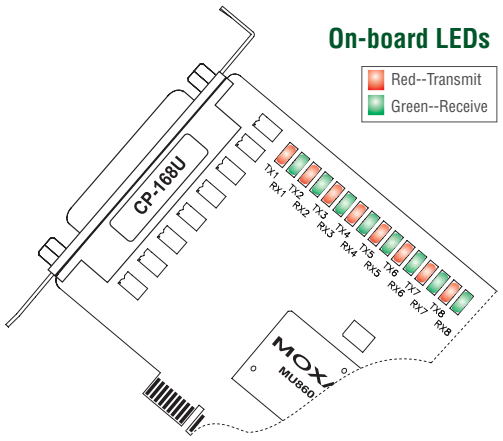
Warranty Period: 5 years

Details: See www.moxa.com/warranty

Dimensions



On-board LEDs



Ordering Information

Available Models

CP-168U: 8-port RS-232 Universal PCI serial board, 0 to 55°C operating temperature

CP-168U-T: 8-port RS-232 Universal PCI serial board, -40 to 85°C operating temperature

Package Checklist

- CP-168U board
- Document and Software CD
- Quick Installation Guide (printed)
- Warranty Card

Connection Options (can be purchased separately)

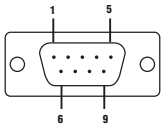
OPT8-M9
DB9 male x 8 (150 cm cable)

CBL-M62M9x8-100 (OPT8D)
DB9 male x 8 (100 cm cable)

PIN	RS-232
1	DCD
2	RxD
3	TxD
4	DTR

PIN	RS-232
5	GND
6	DSR
7	RTS
8	CTS

DB9 male



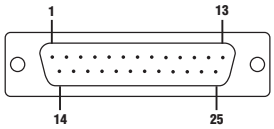
OPT8B
DB25 male x 8 (150 cm cable)

CBL-M62M25x8-100 (OPT8C)
DB25 male x 8 (100 cm cable)

PIN	RS-232
2	TxD
3	RxD
4	RTS
5	CTS

PIN	RS-232
6	DSR
7	GND
8	DCD
20	DTR

DB25 male



OPT8A
DB25 female x 8 (150 cm cable)

OPT8S
DB25 female x 8 (150 cm cable)
25 KV ESD Surge Protection

OPT8F/Z (RS-422)
DB25 female x 8 (150 cm cable)
110 or 230 VAC power adaptor
(115.2 Kbps max. baudrate)

OPT8F with 500 V isolation

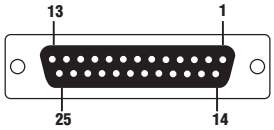
OPT8K(RS-422/485)
DB25 female x 8 (150 cm cable)
110 or 230 VAC power adaptor

PIN	RS-232
2	RxD
3	TxD
4	CTS
5	RTS

PIN	RS-232
6	DTR
7	GND
8	DCD
20	DSR

PIN	RS-422/RS-485-4w	RS-485-2w
2	RxD+(B)	Data+(B)
3	TxD+(B)	
7	GND	GND
14	RxD-(A)	Data-(A)
16	TxD-(A)	

DB25 female

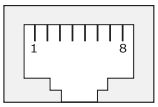


OPT8-RJ45
8-pin RJ45 x 8 (30 cm cable)

PIN	RS-232
1	DSR
2	RTS
3	GND
4	TxD

PIN	RS-232
5	RxD
6	DCD
7	CTS
8	DTR

8-pin RJ45



CP-114UL/UL-I

4-port RS-232/422/485 Universal PCI serial board with optional 2 KV isolation

- Over 700 Kbps data throughput for top performance
- 128-byte FIFO and on-chip H/W, S/W flow control
- Universal PCI compatible with 3.3/5 V PCI and PCI-X
- Serial communication speed up to 921.6 Kbps
- Drivers provided for Windows (2000, XP/2003/Vista/2008 x86/x64, 9X/ME/NT), Windows CE 5.0/6.0, Windows XP Embedded, DOS, Linux 2.4, Linux 2.6 (x86/x64), FreeBSD 4/5, QNX 6, SCO Open Server 5/6, UnixWare 7
- Easy maintenance with on-board LED display
- On-board 15 KV ESD and 2 KV optical isolation protection
- Wide temperature model available for -40 to 85°C environment

The certification logos shown here apply to some or all of the products in this section. For details, see "Regulatory Approvals" under "Specifications" below.

Overview

Moxa's CP-114UL/UL-I series of multiport serial boards are designed to be used by industrial automation system integrators for long distance, multi-point, PC-based data acquisition applications. On-chip Automatic Data Direction Control for precision RS-485 communication requires precise timing control to enable and disable the line driver. The Moxa Turbo Serial Engine™ chip that powers the CP-114UL/UL-I boards come with on-chip ADDC®, which makes RS-485 as easy to use as RS-232. In RS-485 mode, the serial port can connect up to 31 daisy-chained RS-485 devices within a range of 1.2 km. For long distance RS-485 communication, 2 KV optical isolation protections are available to prevent equipment damage.

Support for Major Windows and Linux/Unix OS drivers

Moxa continues to support a wide variety of operating systems, and the CP-114UL/UL-I boards are no exception. Reliable Windows COM and Linux/Unix TTY drivers are provided for all Moxa boards, and other operating systems, such as WEPOS, are also supported for embedded integration.

Specifications

Hardware

Comm. Controller: MU860 (16C550C compatible)
Bus: 32-bit Universal PCI
Connector: DB44 female

Serial Interface

Number of Ports: 4
Serial Standards: RS-232/422/485
Max. Number of Boards per PC: 4
ESD Protection: 15 KV on the board
Optical Isolation: 2 KV (CP-114UL-I only)

Performance

Baudrate: 50 bps to 921.6 Kbps

Serial Communication Parameters

Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Space, Mark
Flow Control: RTS/CTS, XON/XOFF
I/O Address: Assigned by BIOS
IRQ: Assigned by BIOS

Serial Signals

RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
RS-422: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-4w: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-2w: Data+(B), Data-(A), GND

Driver Support

Operating Systems: Windows (2000, XP/2003/Vista/2008 x86/x64, 9X/ME/NT), Windows CE 5.0/6.0, Windows XP Embedded, DOS, Linux 2.4, Linux 2.6 (x86/x64), FreeBSD 4/5, QNX 6, SCO Open Server 5/6, UnixWare 7

Physical Characteristics

Dimensions: 64.4 x 120 mm (2.53 x 4.72 in)

Environmental Limits

Operating Temperature:
Standard Models: 0 to 55°C (32 to 131°F)
Wide Temp. Models: -40 to 85°C (-40 to 185°F)
Operating Humidity: 5 to 95% RH
Storage Temperature: -20 to 85°C (-4 to 185°F)

Regulatory Approvals

FCC: Part 15 Class B

EMS: EN55022, EN55024, EN61000-3-2, EN61000-3-3, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, IEC 61000-4-11 (DIPS)

Power Requirements

Power Consumption:
CP-114UL: 320 mA @ +5 V (for RS-232)

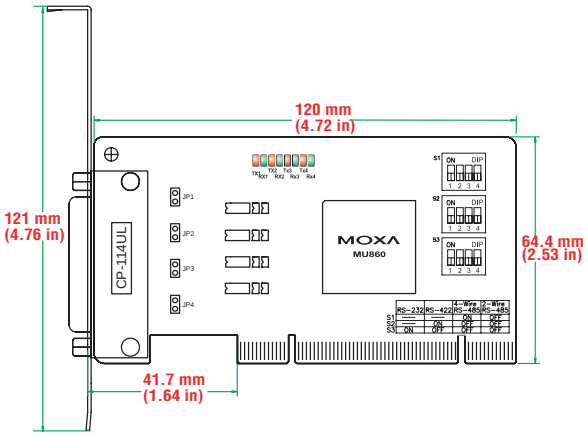
Warranty

Warranty Period: 5 years

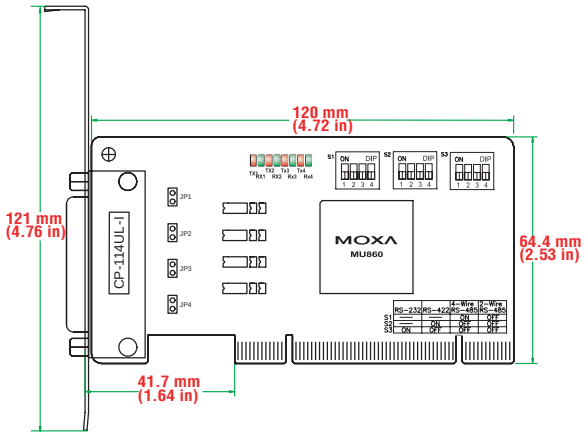
Details: See www.moxa.com/warranty

Dimensions

CP-114UL



CP-114UL-I



Ordering Information

Available Models

CP-114UL: 4-port RS-232/422/485 low profile Universal PCI board, 0 to 55°C operating temperature

CP-114UL-DB9: 4-port RS-232/422/485 low profile Universal PCI serial board, 0 to 55°C operating temperature (includes DB9 male cable)

CP-114UL-DB25: 4-port RS-232/422/485 low profile Universal PCI serial board, 0 to 55°C operating temperature (includes DB25 male cable)

CP-114UL-I: 4-port RS-232/422/485 low profile Universal PCI serial board with optical isolation, 0 to 55°C operating temperature

CP-114UL-I-DB9: 4-port RS-232/422/485 low profile Universal PCI serial board with optical isolation, 0 to 55°C operating temperature (includes DB9 male cable)

CP-114UL-I-DB25: 4-port RS-232/422/485 low profile Universal PCI serial board with optical isolation, 0 to 55°C operating temperature (includes DB25 male cable)

CP-114UL-T: 4-port RS-232/422/485 low profile Universal PCI serial board, -40 to 85°C operating temperature

CP-114UL-I-T: 4-port RS-232/422/485 low profile Universal PCI serial board with optical isolation, -40 to 85°C operating temperature

Package Checklist

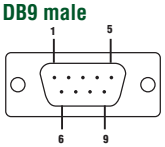
- CP-114UL or CP-114UL-I board
- Document and Software CD
- Quick Installation Guide (printed)
- Warranty Card

Connection Options (can be purchased separately)

CBL-M44M9x4-50
DB44 male to DB9 male x 4
(50 cm cable)

PIN	RS-232	RS-422	RS-485-4w	RS-485-2w
1	DCD	TxD-(A)	TxD-(A)	---
2	RxD	TxD+(B)	TxD+(B)	---
3	TxD	RxD+(B)	RxD+(B)	Data+(B)
4	DTR	RxD-(A)	RxD-(A)	Data-(A)
5	GND	GND	GND	GND
6	DSR	---	---	---
7	RTS	---	---	---
8	CTS	---	---	---
9	---	---	---	---

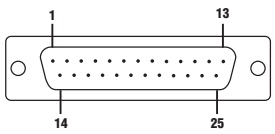
DB9 male



CBL-M44M25x4-50
DB44 male to DB25 male x 4
(50 cm cable)

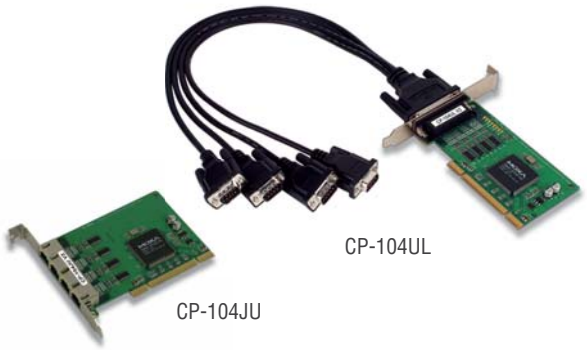
PIN	RS-232	RS-422	RS-485-4w	RS-485-2w
2	TxD	RxD+(B)	RxD+(B)	Data+(B)
3	RxD	TxD+(B)	TxD+(B)	---
4	RTS	---	---	---
5	CTS	---	---	---
6	DSR	---	---	---
7	GND	GND	GND	GND
8	DCD	TxD-(A)	TxD-(A)	---
20	DTR	RxD-(A)	RxD-(A)	Data-(A)
22	---	---	---	---

DB25 male



CP-104UL/JU

4-port RS-232 smart Universal PCI serial boards



- Over 800 Kbps data throughput for top performance
- 921.6 Kbps maximum baudrate for super fast data transmission
- 128-byte FIFO and on-chip H/W, S/W flow control
- Compatible with 3.3/5V PCI and PCI-X
- Drivers provided for Windows (2000, XP/2003/Vista/2008 x86/x64, 9X/ME/NT), Windows CE 5.0/6.0, Windows XP Embedded, DOS, Linux 2.4, Linux 2.6 (x86/x64), FreeBSD 4/5, QNX 6, SCO Open Server 5/6, UnixWare 7
- 15 KV ESD protection on the board
- Wide temperature model available for -40 to 85°C environments

The certification logos shown here apply to some or all of the products in this section. For details, see "Regulatory Approvals" under "Specifications" below.

Overview

The CP-104UL and CP-104JU 4-port universal PCI boards are designed for POS and ATM applications. They are a top choice of industrial automation engineers and system integrators, and support many different operating systems, including Windows, Linux, and even Unix. In addition, each of the boards' RS-232 serial ports supports a super fast 921.6 Kbps baudrate. The CP-104UL and CP-104JU provide full modem control signals to ensure compatibility with a wide range of serial peripherals, and they work with both 3.3V and 5V PCI buses, allowing the boards to be installed in virtually any available PC server.

Specifications

Hardware

Comm. Controller: MU860 (16C550C compatible)
Bus: 32-bit Universal PCI
Connectors:
CP-104UL: DB44 female
CP-104JU: RJ45 x 4

Serial Interface

Number of Ports: 4
Serial Standards: RS-232
Max. No. of Boards per PC: 4

Serial Line Protection

ESD Protection: 15 KV on the board

Performance

Baudrate: 50 bps to 921.6 Kbps

Serial Communication Parameters

Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Space, Mark
Flow Control: RTS/CTS, XON/XOFF
I/O Address: Assigned by BIOS
IRQ: Assigned by BIOS

Serial Signals

RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND

Driver Support

Operating Systems: Windows (2000, XP/2003/Vista/2008 x86/x64, 9X/ME/NT), Windows CE 5.0/6.0, Windows XP Embedded, DOS, Linux 2.4, Linux 2.6 (x86/x64), FreeBSD 4/5, QNX 6, SCO Open Server 5/6, UnixWare 7

Physical Characteristics

Dimensions:
CP-104UL: 64.4 x 120 mm (2.53 x 4.72 in)
CP-104JU: 83 x 120 mm (3.27 x 4.72 in)

Environmental Limits

Operating Temperature:
Standard Models: 0 to 55°C (32 to 131°F)
Wide Temp. Models: -40 to 85°C (-40 to 185°F)
Operating Humidity: 5 to 95% RH
Storage Temperature: -20 to 85°C (-4 to 185°F)

Regulatory Approvals

FCC: Part 15 Class B
EMS: EN55022, EN55024, EN61000-3-2, EN61000-3-3, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, IEC 61000-4-11 (DIPS)

Power Requirements

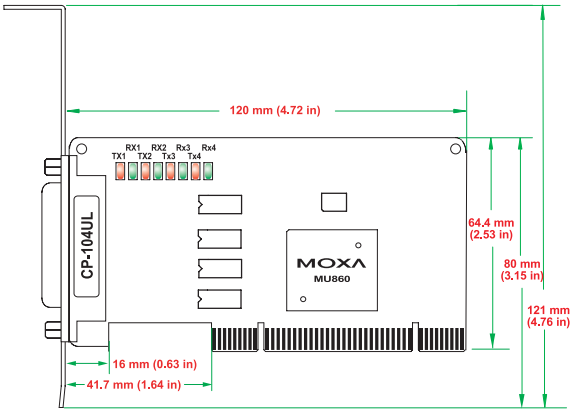
Power Consumption:
CP-104UL: 120 mA @ +5 V
CP-104JU: 135 mA @ +5 V

Warranty

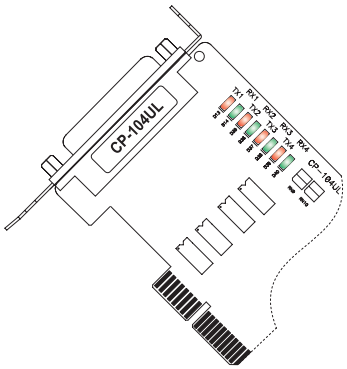
Warranty Period: 5 years
Details: See www.moxa.com/warranty

Dimensions

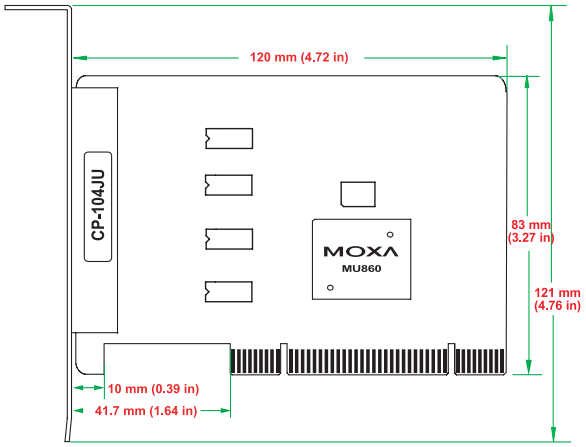
CP-104UL

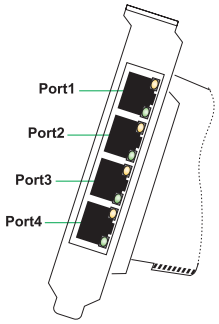


On-board LEDs



CP-104JU





Ordering Information

Available Models

CP-104UL-DB9: 4-port RS-232 low profile Universal PCI serial board, 0 to 55°C operating temperature (includes DB9 male cable)

CP-104UL-DB25: 4-port RS-232 low profile Universal PCI serial board, 0 to 55°C operating temperature (includes DB25 male cable)

CP-104JU: 4-port RS-232 Universal PCI serial board with RJ45 ports on the board, 0 to 55°C operating temperature

CP-104UL-T: 4-port RS-232 low profile Universal PCI serial board, -40 to 85°C operating temperature

CP-104JU-T: 4-port RS-232 Universal PCI serial board with RJ45 ports on the board, -40 to 85°C operating temperature

Package Checklist

- CP-104UL or CP-104JU board
- Low profile bracket (CP-104UL only)
- DB9-M or DB25-M cable included (CP-104UL only)
- Document and Software CD
- Quick Installation Guide (printed)
- Warranty Card

Connection Options (can be purchased separately)

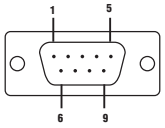
CBL-M44M9x4-50
DB44 male to DB9 male x 4 (50 cm cable)

CBL-RJ45M9-150
8-pin RJ45 to DB9 male (150 cm cable)

PIN	RS-232
1	DCD
2	RxD
3	TxD
4	DTR

PIN	RS-232
5	GND
6	DSR
7	RTS
8	CTS

DB9 male



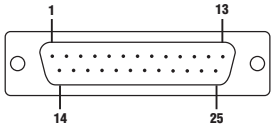
CBL-M44M25x4-50
DB44 male to DB25 male x 4 (50 cm cable)

CBL-RJ45M25-150
8-pin RJ45 to DB25 male (150-cm cable)

PIN	RS-232
2	TxD
3	RxD
4	RTS
5	CTS

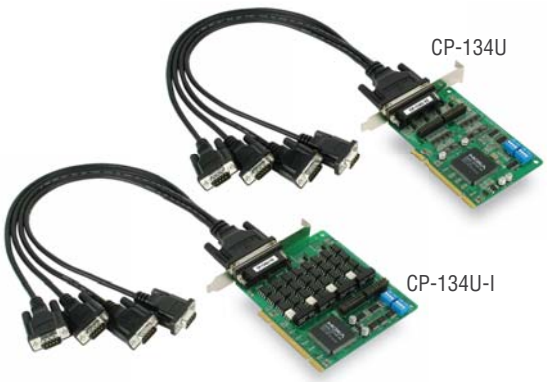
PIN	RS-232
6	DSR
7	GND
8	DCD
20	DTR

DB25 male



CP-134U/U-I

4-port RS-422/485 Universal PCI serial boards with optional 2 KV isolation



- Over 700 Kbps data throughput for top performance
- 921.6 Kbps maximum baudrate for super fast data transmission
- ADDC® provides automatic data direction control for RS-485 signals
- 128-byte FIFO and on-chip H/W, S/W flow control
- Compatible with 3.3/5V PCI and PCI-X
- Drivers provided for Windows (2000, XP/2003/Vista/2008 x86/x64, 9X/ME/NT), Windows CE 5.0/6.0, Windows XP Embedded, DOS, Linux 2.4, Linux 2.6 (x86/x64), FreeBSD 4/5, QNX 6, SCO OpenServer 5/6, UnixWare 7
- 15 KV ESD protection on the board
- Added bonus! Ports 1 and 2 support RS-232 and RS-422/485
- Wide temperature model available for -40 to 85°C environments

The certification logos shown here apply to some or all of the products in this section. For details, see "Regulatory Approvals" under "Specifications" below.

Overview

The CP-134U and CP-134U-I 4-port universal PCI boards are designed for industrial automation applications that require a long distance, multi-point, PC-based data acquisition solution.

On-chip Automatic Data Direction Control for precision RS-485 communication

RS-485 communication requires precise timing control to enable and disable the line driver. The Moxa Turbo Serial Engine™ chip that powers the CP-134U board comes with on-chip ADDC®, which makes RS-485 as easy to use as RS-232.

RS-485 multidrop for up to 31 devices within 1.2 km

The CP-134U universal PCI board has 4 RS-422/485 serial ports, each of which can achieve data rates up to 921.6 Kbps. In RS-485 mode, the board can connect up to 31 daisy-chained RS-485 devices within a range of 1.2 km. For long distance RS-485 communication, choose the CP-134U-I, which comes with 2 KV optical isolation protection to prevent equipment damage.

Drivers Provided for Windows, Linux, and Unix

Moxa continues to support a wide variety of operating systems, and the CP-134U and CP-134U-I boards are no exception. Reliable Windows COM and Linux/Unix TTY drivers are provided for all Moxa boards, and other operating systems, such as WEPOS, are also supported for embedded integration.

Specifications

Hardware

Comm. Controller: MU860 (16C550C compatible)
Bus: 32-bit Universal PCI
Connector: DB44 female

Serial Interface

Number of Ports: 4
Serial Standards: 2 x RS-232/422/485, 2 x RS-422/485
Max. No. of Boards per PC: 4

Serial Line Protection

ESD Protection: 15 KV on the board
Optical Isolation: 2 KV (CP-134U-I configured for RS-422/485 only)

Performance

Baudrate: 50 bps to 921.6 Kbps

Serial Communication Parameters

Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Space, Mark
Flow Control: RTS/CTS, XON/XOFF
I/O Address: Assigned by BIOS
IRQ: Assigned by BIOS

Serial Signals

RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
RS-422: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-4w: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-2w: Data+(B), Data-(A), GND

Driver Support

Operating Systems: Windows (2000, XP/2003/Vista/2008 x86/x64, 9X/ME/NT), Windows CE 5.0/6.0, Windows XP Embedded, DOS, Linux 2.4, Linux 2.6 (x86/x64), FreeBSD 4/5, QNX 6, SCO OpenServer 5/6, UnixWare 7

Physical Characteristics

Dimensions:
CP-134U: 82.5 x 120 mm (3.24 x 4.72 in)
CP-134U-I: 115 x 120 mm (4.52 x 4.72 in)

Environmental Limits

Operating Temperature:
Standard Models: 0 to 55°C (32 to 131°F)
Wide Temp. Models: -40 to 85°C (-40 to 185°F)

Operating Humidity: 5 to 95% RH
Storage Temperature: -20 to 85°C (-4 to 185°F)

Regulatory Approvals

FCC: Part 15 Class B
EMS: EN55022, EN55024, EN61000-3-2, EN61000-3-3, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, IEC 61000-4-11 (DIPS)

Power Requirements

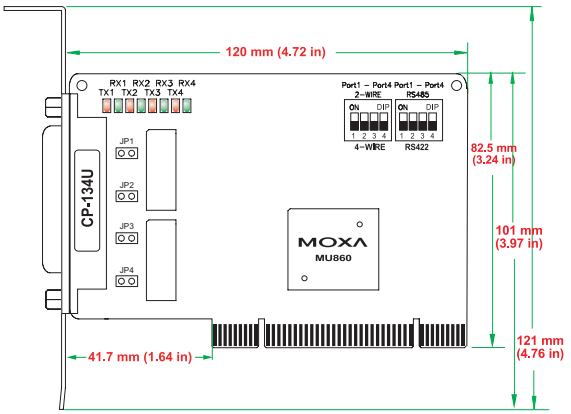
Power Consumption:
CP-134U: 180 mA @ +5 V
CP-134U-I: 850 mA @ +5 V

Warranty

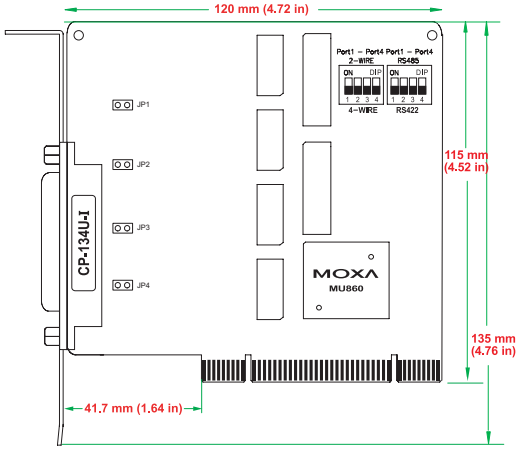
Warranty Period: 5 years
Details: See www.moxa.com/warranty

Dimensions

CP-134U



CP-134U-I



Ordering Information

Available Models

CP-134U: 4-port RS-422/485 Universal PCI serial board, 0 to 55°C operating temperature
CP-134U-DB9M: 4-port RS-422/485 Universal PCI serial board, 0 to 55°C operating temperature (includes DB9 male cable)
CP-134U-DB25M: 4-port RS-422/485 Universal PCI serial board, 0 to 55°C operating temperature (includes DB25 male cable)
CP-134U-I: 4-port RS-422/485 Universal PCI serial board with optical isolation, 0 to 55°C operating temperature
CP-134U-I-DB9M: 4-port RS-422/485 Universal PCI serial board with optical isolation, 0 to 55°C operating temperature (includes DB9 male cable)
CP-134U-I-DB25M: 4-port RS-422/485 Universal PCI serial board with optical isolation, 0 to 55°C operating temperature (includes DB25 male cable)
CP-134U-T: 4-port RS-422/485 Universal PCI serial board, -40 to 85°C operating temperature
CP-134U-I-T: 4-port RS-422/485 Universal PCI serial board with optical isolation, -40 to 85°C operating temperature

Package Checklist

- CP-134U or CP-134U-I board
- DB9 or DB25 cable included
- Document and Software CD
- Quick Installation Guide (printed)
- Warranty Card

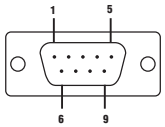
Connection Options (can be purchased separately)

CBL-M44M9x4-50

DB44 male to DB9 male x 4 (50 cm cable)

PIN	RS-232	RS-422	RS-485-4w	RS-485-2w
1	DCD	TxD-(A)	TxD-(A)	---
2	RxD	TxD+(B)	TxD+(B)	---
3	TxD	RxD+(B)	RxD+(B)	Data+(B)
4	DTR	RxD-(A)	RxD-(A)	Data-(A)
5	GND	GND	GND	GND
6	DSR	---	---	---
7	RTS	---	---	---
8	CTS	---	---	---
9	---	---	---	---

DB9 male

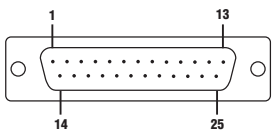


CBL-M44M25x4-50

DB44 male to DB25 male x 4 (50 cm cable)

PIN	RS-232	RS-422	RS-485-4w	RS-485-2w
2	TxD	RxD+(B)	RxD+(B)	Data+(B)
3	RxD	TxD+(B)	TxD+(B)	---
4	RTS	---	---	---
5	CTS	---	---	---
6	DSR	---	---	---
7	GND	GND	GND	GND
8	DCD	TxD-(A)	TxD-(A)	---
20	DTR	RxD-(A)	RxD-(A)	Data-(A)
22	---	---	---	---

DB25 male



CP-112UL/UL-I Series

2-port RS-232/422/485 Universal PCI serial boards with optional 2 KV isolation

CP-112UL-I

CP-112UL

- Over 700 Kbps data throughput for top performance
- 128-byte FIFO and on-chip H/W, S/W flow control
- Universal PCI compatible with 3.3/5 V PCI and PCI-X
- Serial communication speed up to 921.6 Kbps
- Drivers provided for Windows (2000, XP/2003/Vista/2008 x86/x64), Windows CE 5.0/6.0, Windows XP Embedded, Linux 2.4, Linux 2.6 (x86/x64), SCO OpenServer 5/6, UnixWare 7
- Easy maintenance with on-board LED display
- On-board 15 KV ESD and 2 KV optical isolation protection
- Wide temperature model available for -40 to 85°C environments

The certification logos shown here apply to some or all of the products in this section. For details, see "Regulatory Approvals" under "Specifications" below.

Overview

Moxa's CP-112UL/UL-I series of multiport serial boards are designed to be used by industrial automation system integrators for long distance, multi-point, PC-based data acquisition applications. On-chip Automatic Data Direction Control for precision RS-485 communication requires precise timing control for enabling and disabling the line driver. The Moxa Turbo Serial Engine™ chip that powers the CP-112UL/UL-I boards comes with on-chip ADDC®, which makes RS-485 as easy to use as RS-232. The boards come with 2 RS-422/485 serial ports, each of which can achieve data rates up to 921.6 Kbps. In RS-485 mode, the serial port can connect up to 31 daisy-chained RS-485 devices within a range of 1.2 km. For long distance RS-485 communication, 2 KV optical isolation protection is available to prevent equipment damage.

Support for Major Windows and Linux/Unix OS drivers

Moxa continues to support a wide variety of operating systems, and the CP-112UL/UL-I boards are no exception. Reliable Windows COM and Linux/Unix TTY drivers are provided for all Moxa boards, and other operating systems, such as WEPOS, are also supported for embedded integration.

Specifications

Hardware

Comm. Controller: MU860 (16C550C compatible)
Bus: 32-bit Universal PCI
Connector: DB25 female

Serial Interface

Number of Ports: 2
Serial Standards: RS-232/422/485
Max. Number of Boards per PC: 4
ESD Protection: 15 KV on the board
Optical Isolation: 2 KV (CP-112UL-I only)

Performance

Baudrate: 50 bps to 921.6 Kbps

Serial Communication Parameters

Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Space, Mark
Flow Control: RTS/CTS, XON/XOFF
I/O Address: Assigned by BIOS
IRQ: Assigned by BIOS

Serial Signals

RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
RS-422: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-4w: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-2w: Data+(B), Data-(A), GND

Driver Support

Operating Systems: Windows (2000, XP/2003/Vista/2008 x86/x64), Windows CE 5.0/6.0, Windows XP Embedded, Linux 2.4, Linux 2.6 (x86/x64), SCO OpenServer 5/6, UnixWare 7

Environmental Limits

Operating Temperature:
Standard Models: 0 to 55°C (32 to 131°F)
Wide Temp. Models: -40 to 85°C (-40 to 185°F)
Operating Humidity: 5 to 95% RH
Storage Temperature: -20 to 85°C (-4 to 185°F)

Regulatory Approvals

FCC: Part 15 Class B
EMS: EN55022, EN55024, EN61000-3-2, EN61000-3-3, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, IEC 61000-4-11 (DIPS)

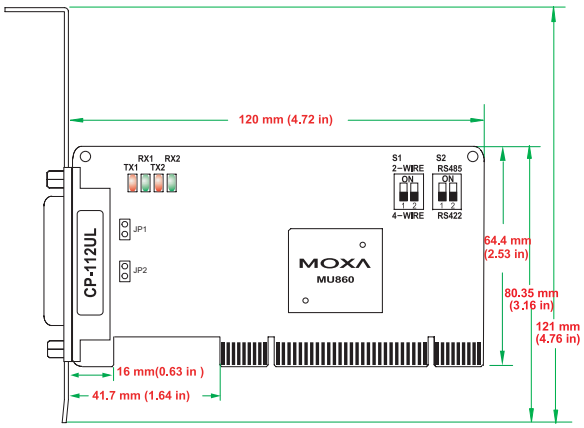
Warranty

Warranty Period: 5 years

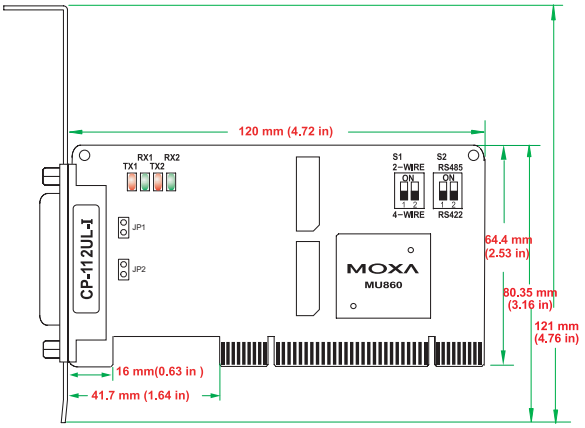
Details: See www.moxa.com/warranty

Dimensions

CP-112UL



CP-112UL-I



Ordering Information

Available Models

CP-112UL-DB9: 2-port RS-232/422/485 low profile Universal PCI board, 0 to 55°C operating temperature (includes DB9 male cable)

CP-112UL-I-DB9: 2-port RS-232/422/485 low profile Universal PCI board with optical isolation, 0 to 55°C operating temperature (includes DB9 male cable)

CP-112UL-T: 2-port RS-232/422/485 low profile Universal PCI board, -40 to 85°C operating temperature

CP-112UL-I-T: 2-port RS-232/422/485 low profile Universal PCI board with optical isolation, -40 to 85°C operating temperature

Package Checklist

- CP-112UL or CP-112UL-I board
- Low profile bracket
- Document and Software CD
- Quick Installation Guide (printed)
- Warranty Card

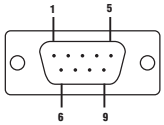
Connection Options (can be purchased separately)

CBL-M25M9x2-50

DB25 male to DB9 male x 2 (50 cm cable)

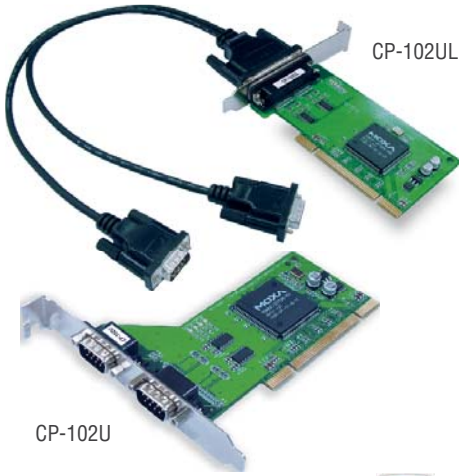
PIN	RS-232	RS-422	RS-485-4W	RS-485-2W
1	DCD	Txd-(A)	Txd-(A)	---
2	RxD	Txd+(B)	Txd+(B)	---
3	TxD	RxD+(B)	RxD+(B)	Data+(B)
4	DTR	RxD-(A)	RxD-(A)	Data+(A)
5	GND	GND	GND	GND
6	DSR	---	---	---
7	RTS	---	---	---
8	CTS	---	---	---
9	---	---	---	---

DB9 male



CP-102U/UL

2-port RS-232 Universal PCI serial boards



- Over 800 Kbps data throughput for top performance
- 921.6 Kbps maximum baudrate for super fast data transmission
- 128-byte FIFO and on-chip H/W, S/W flow control
- Compatible with 3.3/5V PCI and PCI-X
- Drivers provided for Windows (2000, XP/2003/Vista/2008 x86/x64, 9X/ME/NT), Windows CE 5.0/6.0, Windows XP Embedded, DOS, Linux 2.4, Linux 2.6 (x86/x64), FreeBSD 4/5, QNX 6, SCO Open Server 5/6, UnixWare 7
- 15 KV ESD protection on the board
- The CP-102UL's MD1 low profile form factor fits small-sized PCs
- Wide temperature model available for -40 to 85°C environments

The certification logos shown here apply to some or all of the products in this section. For details, see "Regulatory Approvals" under "Specifications" below.

Overview

The CP-102U and CP-102UL are 2-port Universal PCI boards designed for POS and ATM applications. They are a top choice of industrial automation engineers and system integrators, and support many different operating systems, including Windows, Linux, and even Unix. In addition, each of the boards' RS-232 serial ports supports a super fast 921.6 Kbps baudrate. The CP-102U and CP-102UL provide full modem control signals to ensure compatibility with a wide range of serial peripherals, and they work with both 3.3V and 5V PCI buses, allowing the boards to be installed in virtually any available PC server.

Designed for Standard and Small-sized PCs

The CP-102UL is a low profile board that only requires a 5 VDC power supply. It is compatible with both a 3.3V and 5V PCI bus, which means that the CP-102UL fits any host computer, ranging from shoebox to standard-sized PCs.

Top Serial Performance

Moxa's 20-plus years of experience in serial board design is now concentrated in a new high performance serial data transmission chip. The Turbo Serial Engine™ chip provides serial boards with a 128-byte FIFO, on-chip hardware and software flow control, and burst data mode. Thanks to the Turbo Serial Engine™, Moxa is able to offer the world's best performing smart serial boards.

Drivers Provided for Windows, Linux, and Unix

Moxa continues to support a wide variety of operating systems, and the CP-102U/UL boards are no exception. Reliable Windows COM and Linux/Unix TTY drivers are provided for all Moxa boards, and other operating systems, such as WEPOS, are also supported for embedded integration.

Specifications

Hardware

Comm. Controller: MU860 (16C550C compatible)
Bus: 32-bit Universal PCI
Connector:
CP-102U: DB9 male x 2
CP-102UL: DB25 female

Serial Interface

Number of Ports: 2 (only one IRQ required)
Serial Standards: RS-232
Max. No. of Boards per PC: 4

Serial Line Protection

ESD Protection: 15 KV on the board

Performance

Baudrate: 50 bps to 921.6 Kbps

Serial Communication Parameters

Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Space, Mark
Flow Control: RTS/CTS, XON/XOFF
I/O Address: Assigned by BIOS
IRQ: Assigned by BIOS

Serial Signals

RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND

Driver Support

Operating Systems: Windows (2000, XP/2003/Vista/2008 x86/x64, 9X/ME/NT), Windows CE 5.0/6.0, Windows XP Embedded, DOS, Linux 2.4, Linux 2.6 (x86/x64), FreeBSD 4/5, QNX 6, SCO Open Server 5/6, UnixWare 7

Physical Characteristics

Dimensions:
CP-102U: 120 x 120 mm (3.15 x 4.72 in)
CP-102UL: 64.5 x 120 mm (2.53 x 4.72 in)

Environmental Limits

Operating Temperature:
Standard Models: 0 to 55°C (32 to 131°F)
Wide Temp. Models: -40 to 85°C (-40 to 185°F)

Operating Humidity: 5 to 95% RH
Storage Temperature: -20 to 85°C (-4 to 185°F)

Regulatory Approvals

FCC: Part 15 Class B
EMS: EN55022, EN55024, EN61000-3-2, EN61000-3-3, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, IEC 61000-4-11 (DIPS)

Power Requirements

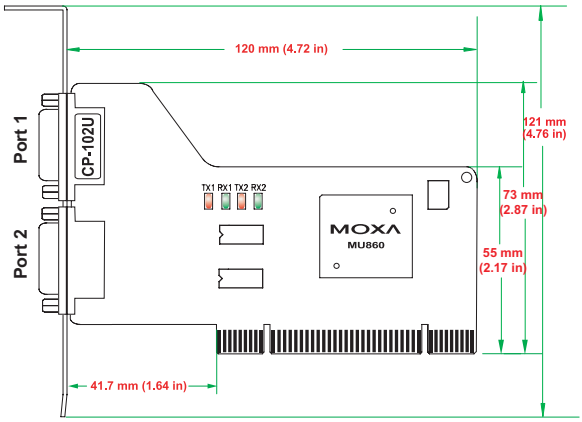
Power Consumption: 93 mA @ +5 V

Warranty

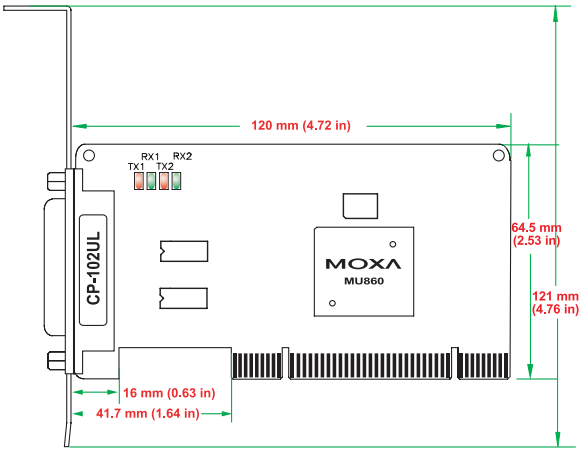
Warranty Period: 5 years
Details: See www.moxa.com/warranty

Dimensions

CP-102U



CP-102UL



Ordering Information

Available Models

CP-102U: 2-port RS-232 Universal PCI serial board, 0 to 55°C operating temperature

CP-102UL-DB9M: 2-port RS-232 low profile Universal PCI serial board, 0 to 55°C operating temperature (includes DB9 male cable)

CP-102U-T: 2-port RS-232 Universal PCI serial board, -40 to 85°C operating temperature

CP-102UL-T: 2-port RS-232 low profile Universal PCI serial board, -40 to 85°C operating temperature

Package Checklist

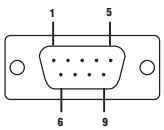
- CP-102U or CP-102UL board
- Document and Software CD
- Low profile bracket (CP-102UL only)
- Quick Installation Guide (printed)
- Warranty Card

Connection Options (can be purchased separately)

CBL-M25M9x2-50
DB25 male to DB9 male x 2 (50 cm cable)

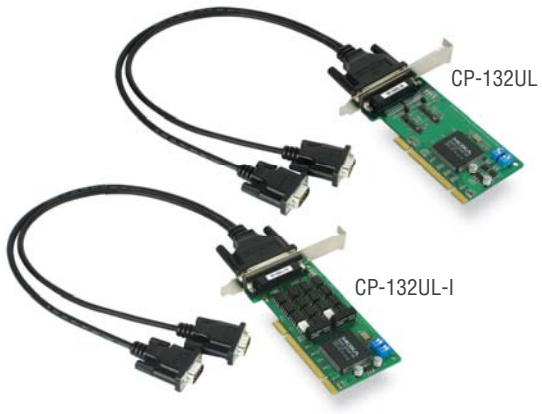
PIN	RS-232
1	DCD
2	RxD
3	TxD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS

DB9 male



CP-132UL/UL-I

2-port RS-422/485 Universal PCI serial boards with optional 2 KV isolation



- Over 800 Kbps data throughput for top performance
- 921.6 Kbps maximum baudrate for super fast data transmission
- ADDC® provides automatic data direction control for RS-485 signals
- Transmit data up to 1.2 km with RS-422/485
- 128-byte FIFO and on-chip H/W, S/W flow control
- Compatible with 3.3/5V PCI and PCI-X
- Drivers provided for Windows (2000, XP/2003/Vista/2008 x86/x64, 9X/ME/NT), Windows CE 5.0/6.0, Windows XP Embedded, DOS, Linux 2.4, Linux 2.6 (x86/x64), FreeBSD 4/5, QNX 6, SCO Open Server 5/6, UnixWare 7
- 15 KV ESD protection on the board
- MD1 low profile form factor fits small-sized PCs
- Wide temperature model available for -40 to 85°C environments

The certification logos shown here apply to some or all of the products in this section. For details, see "Regulatory Approvals" under "Specifications" below.

Overview

The CP-132UL and CP-132UL-I are 2-port Universal PCI boards designed for industrial automation applications that require a long distance, multi-point, PC-based data acquisition solution.

On-chip Automatic Data Direction Control for precision RS-485 communication

RS-485 communication requires precise timing control to enable and disable the line driver. The Moxa Turbo Serial Engine™ chip that powers the CP-132UL/UL-I boards comes with on-chip ADDC®, which makes RS-485 as easy to use as RS-232.

RS-485 multidrop for up to 31 devices within 1.2 km

The CP-132UL/UL-I Universal PCI boards have 2 RS-422/485 serial ports, each of which can achieve data rates up to 921.6 Kbps. In RS-485 mode, the boards can connect up to 31 daisy-chained RS-485 devices within a range of 1.2 km. For long distance RS-485 communication, choose the CP-132UL-I model, which comes with 2 KV optical isolation protection to prevent equipment damage.

Top Serial Performance

Moxa's 20-plus years of experience in serial board design is now concentrated in a new high performance serial data transmission chip. The Turbo Serial Engine™ chip provides serial boards with a 128-byte FIFO, on-chip hardware and software flow control, and burst data mode. Thanks to the Turbo Serial Engine™, Moxa is able to offer the world's best performing smart serial boards.

Drivers Provided for Windows, Linux, and Unix

Moxa continues to support a wide variety of operating systems, and the CP-132UL/UL-I boards are no exception. Reliable Windows COM and Linux/Unix TTY drivers are provided for all Moxa boards, and other operating systems, such as WEPOS, are also supported for embedded integration.

Specifications

Hardware

Comm. Controller: MU860 (16C550C compatible)
Bus: 32-bit Universal PCI
Connector: DB25 female

Serial Interface

Number of Ports: 2
Serial Standards: RS-422/485
Max. No. of Boards per PC: 4

Serial Line Protection

ESD Protection: 15 KV on the board
Optical Isolation: 2 KV (CP-132UL-I only)

Performance

Baudrate: 50 bps to 921.6 Kbps

Serial Communication Parameters

Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Space, Mark
Flow Control: RTS/CTS, XON/XOFF
I/O Address: Assigned by BIOS
IRQ: Assigned by BIOS

Serial Signals

RS-422: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND

RS-485-4w: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND

RS-485-2w: Data+(B), Data-(A), GND

Driver Support

Operating Systems: Windows (2000, XP/2003/Vista/2008 x86/x64, 9X/ME/NT), Windows CE 5.0/6.0, Windows XP Embedded, DOS, Linux 2.4, Linux 2.6 (x86/x64), FreeBSD 4/5, QNX 6, SCO Open Server 5/6, UnixWare 7

Physical Characteristics

Dimensions: 64.5 x 120 mm (2.53 x 4.72 in)

Environmental Limits

Operating Temperature:
Standard Models: 0 to 55°C (32 to 131°F)
Wide Temp. Models: -40 to 85°C (-40 to 185°F)

Operating Humidity: 5 to 95% RH

Storage Temperature: -20 to 85°C (-4 to 185°F)

Regulatory Approvals

FCC: Part 15 Class B

EMS: EN55022, EN55024, EN61000-3-2, EN61000-3-3, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, IEC 61000-4-11 (DIPS)

Power Requirements

Power Consumption:
CP-132UL: 120 mA @ +5 V
CP-132UL-I: 490 mA @ +5 V

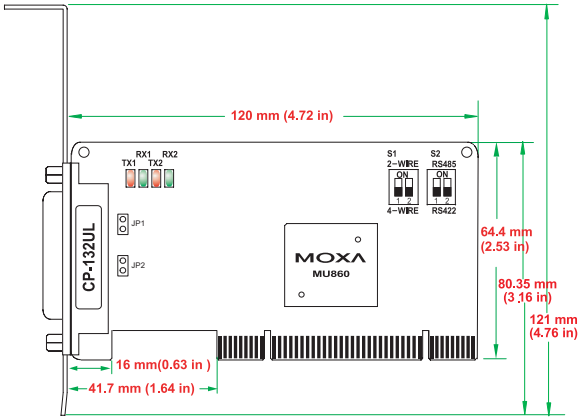
Warranty

Warranty Period: 5 years

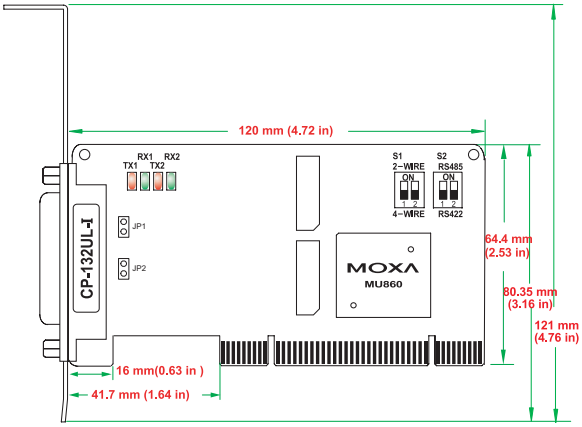
Details: See www.moxa.com/warranty

Dimensions

CP-132UL



CP-132UL-I



Ordering Information

Available Models

CP-132UL-DB9M: 2-port RS-422/485 low profile Universal PCI serial board, 0 to 55°C operating temperature (includes DB9 male cable)

CP-132UL-I-DB9M: 2-port RS-422/485 low profile Universal PCI serial board with optical isolation, 0 to 55°C operating temperature (includes DB9 male cable)

CP-132UL-T: 2-port RS-422/485 low profile Universal PCI serial board, -40°C to 85 operating temperature

CP-132UL-I-T: 2-port RS-422/485 low profile Universal PCI serial board with optical isolation, -40°C to 85 operating temperature

Package Checklist

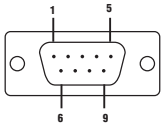
- CP-132UL or CP-132UL-I board
- Low profile bracket
- Document and Software CD
- Quick Installation Guide (printed)
- Warranty Card

Connection Options (can be purchased separately)

CBL-M25M9x2-50
DB25 male to DB9 male x 2 (50 cm cable)

PIN	RS-422	RS-485-4w	RS-485-2w
1	TxD-(A)	TxD-(A)	---
2	TxD+(B)	TxD+(B)	---
3	RxD+(B)	RxD+(B)	Data+(B)
4	RxD-(A)	RxD-(A)	Data-(A)
5	GND	GND	GND
6	---	---	---
7	---	---	---
8	---	---	---
9	---	---	---

DB9 male



POS-104UL

4-port RS-232 Universal PCI board with power over serial

- Over 800 Kbps data throughput, for top performance
- Power options for each port: 5V (output), 12V (output), RI (input)
- Serial port power from bus or power supply
- 921.6 Kbps maximum baudrate for super fast data transmission
- 128-byte FIFO and on-chip H/W, S/W flow control
- Compatible with 3.3/5V PCI and PCI-X
- Low profile board, suitable for compact-sized PCs
- Drivers provided for Windows (2000, XP/2003/Vista/2008 x86/x64, 9X/ME/NT), Windows XP Embedded, Windows CE 5.0/6.0, DOS, Linux 2.4, Linux 2.6 (x86/x64), FreeBSD 4/5, QNX 6, SCO OpenServer 5/6, UnixWare 7
- 15 KV ESD protection on the board
- Wide temperature model available for -40 to 85°C environments

The certification logos shown here apply to some or all of the products in this section. For details, see "Regulatory Approvals" under "Specifications" below.

Overview

The POS-104UL is a smart, 4-port Universal PCI serial board designed for POS and ATM applications and for use by industrial automation system manufacturers and system integrators. The POS-104UL is compatible with all major operating systems. In addition, each of the board's 4 RS-232 serial ports supports data rates up to 921.6 Kbps, and provides full modem control signals to ensure compatibility with a wide range of serial peripherals. The POS-104UL supplies 5 or 12 volts of power from each serial port, and works with both 3.3V and 5V PCI buses, making it suitable for installation in most PC servers.

Specifications

Hardware

Comm. Controller: MU860 (16C550C compatible)
Bus: 32-bit Universal PCI
Connector: DB44 female

Serial Interface

Number of Ports: 4
Serial Standards: RS-232
Max. No. of Boards per PC: 4

Serial Line Protection

ESD Protection: 15 KV on the board

Performance

Baudrate: 50 bps to 921.6 Kbps

Serial Communication Parameters

Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Space, Mark
Flow Control: RTS/CTS, XON/XOFF
I/O Address: Assigned by BIOS
IRQ: Assigned by BIOS

Serial Signals

RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND, RI (optional)

Driver Support

Operating Systems: Windows (2000, XP/2003/Vista/2008 x86/x64, 9X/ME/NT), Windows XP Embedded, Windows CE 5.0/6.0, DOS, Linux 2.4, Linux 2.6 (x86/x64), FreeBSD 4/5, QNX 6, SCO OpenServer 5/6, UnixWare 7

Physical Characteristics

Dimensions: 64.4 x 120 mm (2.53 x 4.72 in)

Environmental Limits

Operating Temperature:
Standard Models: 0 to 55°C (32 to 131°F)
Wide Temp. Models: -40 to 85°C (-40 to 185°F)
Operating Humidity: 5 to 95% RH
Storage Temperature: -20 to 85°C (-4 to 185°F)

Regulatory Approvals

FCC: Part 15 Class B
EMS: EN55022, EN61000-6-2, EN61000-6-4, EN61000-3-2, EN61000-3-3, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, IEC 61000-4-11 (DIPS)

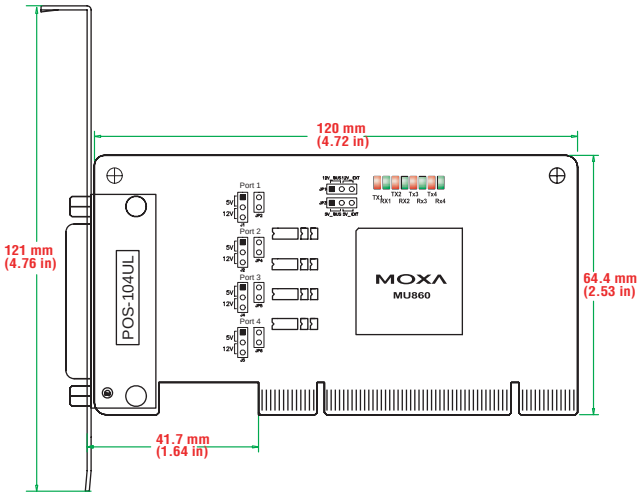
Power Requirements

Power Consumption: 145 mA @ +5 V
Power Output (per port): 1 A @ 5 V, 1 A @ 12 V

Warranty

Warranty Period: 5 years
Details: See www.moxa.com/warranty

Dimensions



Ordering Information

Available Models

POS-104UL-DB9: 4-port RS-232 low profile Universal PCI board with serial port power, 0 to 55°C operating temperature (DB9 male cable included)

POS-104UL-T: 4-port RS-232 low profile Universal PCI board with serial port power, -40 to 85°C operating temperature

Package Checklist

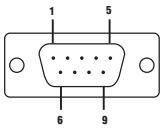
- POS-104UL board
- Low profile bracket
- DB9 male cable (POS-104UL-DB9 only)
- Document and Software CD
- Quick Installation Guide (printed)
- Warranty Card

Connection Options (can be purchased separately)

CBL-M44M9x4-50 (POS)

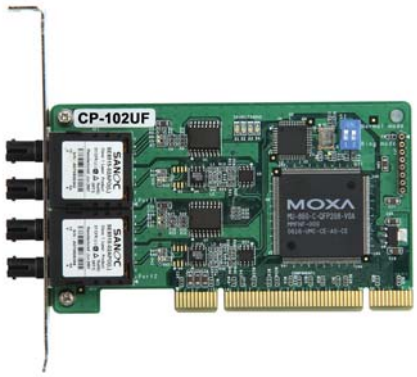
PIN	RS-232
1	DCD
2	RxD
3	TxD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	5V/12V/RI

DB9 male



CP-102UF Series

2-port Universal PCI serial over fiber boards



- Extend serial transmission distance up to:
  - 40 km with single-mode (CP-102UF-S-ST)
  - 5 km with multi-mode (CP-102UF-M-ST)
- Supports "Ring" and "Point-to-Point" transmission modes
- 921.6 Kbps maximum baudrate for super fast data transmission
- 128-byte FIFO and on-chip H/W, S/W flow control
- Compatible with 3.3/5V PCI and PCI-X
- Drivers provided for Windows (2000, XP/2003/Vista/2008 x86/x64), Windows XP Embedded, Windows CE 5.0/6.0, DOS, Linux 2.4, Linux 2.6 (x86/x64), QNX 6, SCO OpenServer 5/6, UnixWare 7
- Easy maintenance with on-board LED display and management software
- Immune from signal interference
- Guards against electronic degradation and chemical corrosion
- Wide temperature model available for -40 to 85°C environments

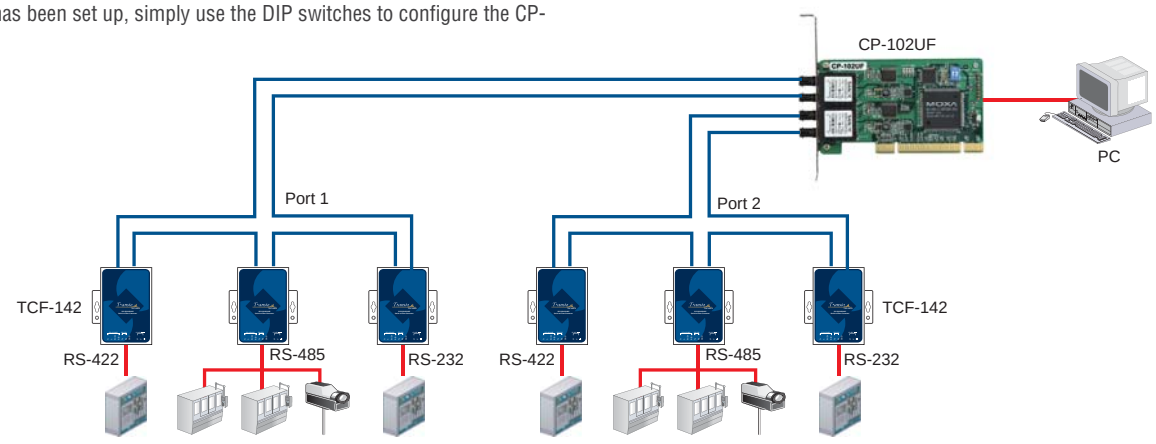
The certification logos shown here apply to some or all of the products in this section. For details, see "Regulatory Approvals" under "Specifications" below.

Overview

The CP-102UF Universal PCI boards are designed for industrial automation applications that require a long distance, multi-point, PC-based data acquisition solution. The boards are compatible with all popular operating systems, and each of the 2 serial ports support data rates up to 921.6 Kbps. In addition, the CP-102UF boards work with both 3.3V and 5V PCI buses, allowing them to be installed in virtually any available PC server. With a maximum data transmission distance of 40 km (with the single-mode model), the CP-102UF cards beat the 15 meter maximum for RS-232, and even the 1.2 km maximum for RS-422/485. For many industrial applications, an even bigger benefit is that optical fiber isolates the data from dangerous increases in ground potential, ground loops, and electrical EMI/RFI electromagnetic radiation.

Ring Operation

With the CP-102UF board, your PC can be included as one node of a fiber ring formed using Moxa's own TCF-142 serial-to-fiber converter. Since each TCF-142 has two fiber ports and one serial port, PCs that are part of the ring will be able to communicate with all serial devices connected to the ring. Note that the Tx port of the CP-102UF connects to a neighboring converter's Rx port to form the ring. Once the ring has been set up, simply use the DIP switches to configure the CP-102UF to "Ring mode." When one node transmits a signal, the signal travels around the ring until it returns back to the transmitting unit, which then blocks the signals. With the CP-102UF, you can set up fiber rings that are up to 100 km in total length.



Specifications

Hardware

Bus: 32-bit Universal PCI

Number of Ports: 2

Max. Number of Boards per PC: 4

Optical Fiber Interface

Mode:
CP-102UF-M: Multi-mode
CP-102UF-S: Single-mode

Fiber Connectors: ST type

Cable Requirements:
CP-102UF-M: 50/125, 62.5/125, or 100/140 µm
CP-102UF-S: 8.3/125, 8.75/125, 9/125 or 10/140 µm

Transmission Distance:
CP-102UF-M: Up to 5 km with multi-mode fiber
CP-102UF-S: Up to 40 km with single-mode fiber

Wavelength:
CP-102UF-M: 820 nm
CP-102UF-S: 1310 nm

Tx Output: -5 dBm

Rx Sensitivity:
CP-102UF-M: -20 dBm
CP-102UF-S: -24 dBm

Point-to-Point Transmission: Half or full duplex

Ring Transmission: Half duplex

Performance

Baudrate: 50 bps to 921.6 Kbps

Serial Communication Parameters

Data Bits: 5, 6, 7, 8

Stop Bits: 1, 1.5, 2

Parity: None, Even, Odd, Space, Mark

Flow Control: XON/XOFF

I/O Address: Assigned by BIOS

IRQ: Assigned by BIOS

Driver Support

Operating Systems: Windows (2000, XP/2003/Vista/2008 x86/x64), Windows XP Embedded, Windows CE 5.0/6.0, DOS, Linux 2.4, Linux 2.6 (x86/x64), QNX 6, SCO OpenServer 5/6, UnixWare 7

Environmental Limits

Operating Temperature:
Standard Models: 0 to 55°C (32 to 131°F)
Wide Temp. Models: -40 to 85°C (-40 to 185°F)

Operating Humidity: 5 to 95% RH

Storage Temperature: -20 to 85°C (-4 to 185°F)

Regulatory Approvals

FCC: Part 15 Class B

EMS: EN55022 Class B, EN55024, EN61000-3-2, EN61000-3-3, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, IEC 61000-4-11 (DIPS)

Power Requirements

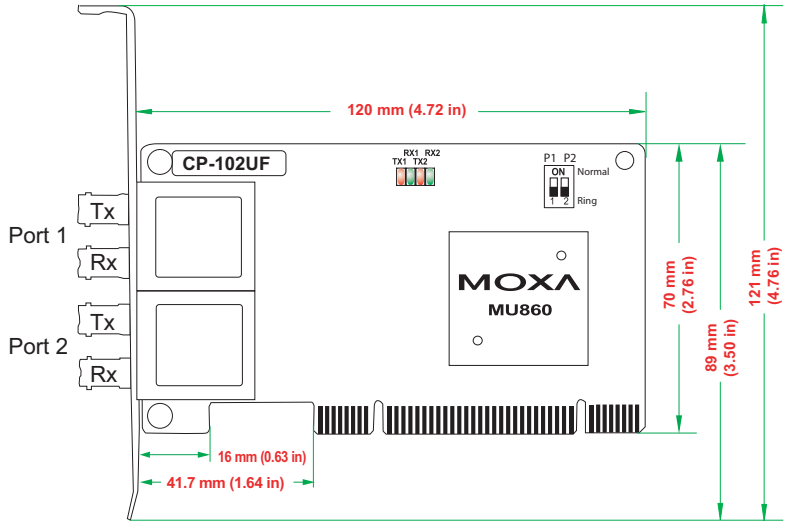
Power Consumption:
CP-102UF-M: 429 mA @ +5V
CP-102UF-S: 424 mA @ +5V

Warranty

Warranty Period: 5 years

Details: See www.moxa.com/warranty

Dimensions



Ordering Information

Available Models

CP-102UF-M-ST: 2-port Universal PCI serial over fiber board with multi-mode fiber for 5 km transmission (ST connector), 0 to 55°C operating temperature

CP-102UF-S-ST: 2-port Universal PCI serial over fiber board with single-mode fiber for 40 km transmission (ST connector), 0 to 55°C operating temperature

CP-102UF-M-ST-T: 2-port Universal PCI serial over fiber board with multi-mode fiber for 5 km transmission (ST connector), -40 to 85°C operating temperature

CP-102UF-S-ST-T: 2-port Universal PCI serial over fiber board with single-mode fiber for 40 km transmission (ST connector), -40 to 85°C operating temperature

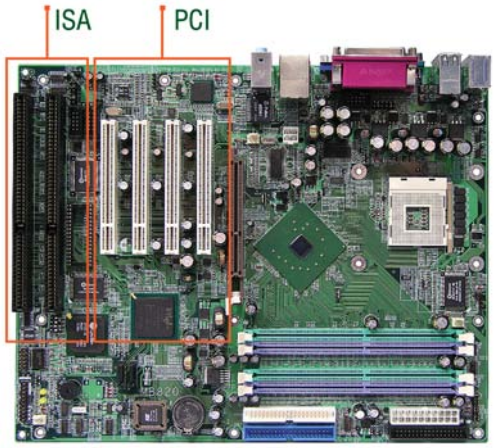
Package Checklist

- CP-102UF-M-ST or CP-102UF-S-ST board
- Document and Software CD
- Quick Installation Guide (printed)
- Warranty Card

Introduction to ISA

ISA, which stands for Industry Standard Architecture, is one of the original standards for PC serial boards. The original interface was developed in the early 1980s to run at an 8 Mhz speed. ISA cards were required to transmit data between the motherboard and peripheral devices in 16-bit chunks.

Since ISA boards run much more slowly than PCI boards, people buying new serial boards or designing new systems will undoubtedly choose PCI. However, many systems in use today still have ISA slots, and a wide range of ISA peripherals, such as LAN cards and sound cards, are still available on the market.



Features of Moxa's ISA Boards

Moxa's ISA boards are smart, multiport serial I/O solutions that are used for connecting terminals, modems, printers, data acquisition equipment, and other serial devices to a PC. Both 4-port and 8-port ISA boards are available. One of the most attractive features of Moxa's ISA boards are the device drivers, which are fine-tuned to make full use of the 16-byte Tx/Rx FIFO and on-chip H/W flow control. The boards can transfer data without data loss even at speeds as high as 921.6 Kbps. Moxa's ISA boards offer a reliable and high performance solution for multiport communication applications.

Moxa's ISA boards are equipped with a custom-designed ASIC chip that combines several chips into one and results in a board that's half the size of other ISA boards. The entire family of Moxa ISA boards supports a 16-bit architecture, and a full range of I/O addresses and IRQs are available. In addition, due to the on-board EEPROM that is used for storing configuration data, the boards do not need jumpers or DIP switches. The ports on Moxa's ISA boards run independent of each other, making the boards compatible with most existing multiport boards.

Moxa's ISA Boards are Ideal for POS and Hospitality Applications

Moxa's ISA boards are used by many of the world's top companies as part of POS (Point-Of-Sale) or POS-related systems. Moxa's products are highly successful and continue to be selected in large numbers by providers of POS systems.

A prime example is Delta Airlines, which uses more than 10,000 of Moxa's C168H ISA boards as part of its flight schedule display system. In addition, IBM uses thousands of Moxa's C168H ISA boards as part of their advanced MMS (Multi-Media Station) e-commerce technology that provides information about a location as well as other sales services.

Typical POS system applications are PC-based POS cash registers, PC-based kiosk machines, PC-based lottery machines, PC-based ticket vending machines, as well as any other self-service machine connection. Since POS machines are placed at many different locations, POS system providers demand a highly reliable solution to avoid maintenance problems. Furthermore, since a large number of multiport boards are usually needed for POS projects, POS system providers are also very concerned about cost. This means that reliability and competitive price are the two key factors that POS customers consider. Moxa's ISA boards are specially designed for these POS applications, and meet customers' many needs and concerns.

Drivers are provided for use with operating systems such as Windows NT, 2000, XP, and 2003. The boards are low cost, but provide high performance, and outrank similar products from all other major multiport serial product manufactures.

C168H/HS

8-port RS-232 ISA serial boards

- Compact ISA boards with 8 RS-232 ports
- 921.6 Kbps maximum baudrate for super fast data transmission
- 16-byte FIFO and on-chip H/W flow control
- Choose from a wide range of connection cables and boxes
- Drivers provided for Windows (2000/XP/2003/Vista/2008, 9X/ME/NT), Windows XP Embedded, DOS, Linux 2.4, Linux 2.6 (x86/x64), QNX 4/6, FreeBSD 4/5, SCO OpenServer 5/6, UnixWare 7
- Easy configuration without switches or jumpers

The certification logos shown here apply to some or all of the products in this section. For details, see "Regulatory Approvals" under "Specifications" below.

Overview

The 8-port C168H/HS ISA boards offer users a basic, high performance multiport serial communication solution for connecting terminals, modems, printers, data acquisition equipment, and other serial devices to a PC. The boards are a top choice of industrial automation engineers and system integrators, and support many different operating systems, including Windows, Linux, and even Unix. In addition, each of the boards' 8 RS-232 ports support a super fast 921.6 Kbps baudrate.

Specifications

Hardware

Comm. Controller: 16C550C or compatible x 8
Bus: 16-bit ISA
Connector: DB62 female

Serial Interface

Serial Standards: RS-232
Number of Ports: 8
Max. No. of Boards per PC: 4

Serial Line Protection

ESD Protection: 25 KV on the board (C168HS only)
Optical Isolation: 500 V with connector Opt8F (must be purchased separately)

Performance

Baudrate: 50 bps to 921.6 Kbps

Serial Communication Parameters

Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Space, Mark
I/O Address: 0x0000-0xFFFF (default = 0x180)
IRQ: 2 (9), 3, 4, 5, 7, 10 (default), 11, 12, 15

Serial Signals

RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND

Driver Support

Operating Systems: Windows (2000/XP/2003/Vista/2008, 9X/ME/NT), Windows XP Embedded, DOS, Linux 2.4, Linux 2.6 (x86/x64), QNX 4/6, FreeBSD 4/5, SCO OpenServer 5/6, UnixWare 7

Physical Characteristics

Dimensions: 93 x 157 mm (3.66 x 6.18 in)

Environmental Limits

Operating Temperature: 0 to 55°C (32 to 131°F)
Operating Humidity: 5 to 95% RH
Storage Temperature: -20 to 85°C (-4 to 185°F)

Regulatory Approvals

FCC: Part 15 Class A
EMS: EN55022, EN61000-4-2, EN61000-4-3, EN61000-4-4, ENV50204

Power Requirements

Power Consumption: 170 mA max. @ +5 V, 100 mA max. @ +12 V, 60 mA max. @ -12 V

Warranty

Warranty Period: 5 years
Details: See www.moxa.com/warranty

Ordering Information

Available Models

C168H: 8-port RS-232 ISA serial board
C168HS: 8-port RS-232 ISA serial board with surge protection

Connection Options (can be purchased separately)

Choose from a wide selection of cables and boxes: See page 10-41 for details

Package Checklist

- C168H or C168HS board
- Document and Software CD
- Quick Installation Guide (printed)
- Warranty Card

C104H/HS

4-port RS-232 ISA serial boards

- Economical, compact ISA boards with 4 RS-232 ports
- 921.6 Kbps maximum baudrate for super fast data transmission
- 16-byte FIFO and on-chip H/W, S/W flow control
- Drivers provided for Windows (2000/XP/2003/Vista/2008, 9X/ME/NT, 3.x), Windows XP Embedded, DOS, Linux 2.4, Linux 2.6 (x86/x64), QNX 4/6, FreeBSD 4/5, SCO OpenServer 5/6, UnixWare 7
- Easy configuration without switches or jumpers

The certification logos shown here apply to some or all of the products in this section. For details, see "Regulatory Approvals" under "Specifications" below.

Overview

The 4-port C104H/HS ISA boards offer users an economical, high performance multiport serial communication solution for connecting terminals, modems, printers, data acquisition equipment, and other serial devices to a PC. The boards are a top choice of industrial automation engineers and system integrators, and support many different operating systems, including Windows, Linux, and even Unix. In addition, each of the boards' 4 RS-232 ports supports a super fast 921.6 Kbps baudrate.

Specifications

Hardware

Comm. Controller: 16C550C or compatible x 4
Bus: 16-bit ISA
Connector: DB37 female

Serial Interface

Serial Standards: RS-232
Number of Ports: 4
Max. No. of Boards per PC: 4

Serial Line Protection

ESD Protection: 25 KV on the board (C104HS only)

Performance

Baudrate: 50 bps to 921.6 Kbps

Serial Communication Parameters

Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Space, Mark
I/O Address: 0x0000-0xFFFF (default = 0x180)
IRQ: 2 (9), 3, 4, 5, 7, 10 (default), 11, 12, 15

Serial Signals

RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND

Driver Support

Operating Systems: Windows (2000/XP/2003/Vista/2008, 9X/ME/NT, 3.x), Windows XP Embedded, DOS, Linux 2.4, Linux 2.6 (x86/x64), QNX 4/6, FreeBSD 4/5, SCO OpenServer 5/6, UnixWare 7

Physical Characteristics

Dimensions: 83 x 157 mm (3.27 x 6.18 in)

Environmental Limits

Operating Temperature: 0 to 55°C (32 to 131°F)
Operating Humidity: 5 to 95% RH
Storage Temperature: -20 to 85°C (-4 to 185°F)

Regulatory Approvals

FCC: Part 15 Class A
EMS: EN55022, EN61000-4-2, EN61000-4-3, EN61000-4-4, ENV50204

Power Requirements

Power Consumption: 100 mA max. @ +5 V, 100 mA max. @ +12 V, 60 mA max. @ -12 V

Warranty

Warranty Period: 5 years
Details: See www.moxa.com/warranty

Ordering Information

Available Models

C104H: 4-port RS-232 ISA serial board
C104H-DB9M: 4-port RS-232 ISA serial board (includes DB9 male cable)
C104H-DB25M: 4-port RS-232 ISA serial board (includes DB25 male cable)
C104HS: 4-port RS-232 ISA serial board with surge protection
C104HS-DB9M: 4-port RS-232 ISA serial board with surge protection (includes DB9 male cable)
C104HS-DB25M: 4-port RS-232 ISA serial board with surge protection (includes DB25 male cable)

Connection Options (one cable is included with each board)

CBL-M37M9x4-30: DB37 male to DB9 male x 4 connection cable, 30 cm
CBL-M37M25x4-30: DB37 male to DB25 male x 4 connection cable, 30 cm

Package Checklist

- C104H or C104HS board
- DB9 male or DB25 male connection cable
- Document and Software CD
- Quick Installation Guide (printed)
- Warranty Card

CI-134 Series

4-port RS-422/485 ISA serial boards

- Economical ISA boards with 4 RS-422/485 ports
- RS-485 data direction control with ADDC® or by RTS
- 921.6 Kbps maximum baudrate for super fast data transmission
- 16-byte FIFO and on-chip hardware flow control
- Surge protection and optical isolation available
- Built-in termination resistors

The certification logos shown here apply to some or all of the products in this section. For details, see "Regulatory Approvals" under "Specifications" below.

Overview

The CI-134 series ISA boards come with 4 independent RS-422/485 serial ports for connecting data acquisition equipment and other serial devices to a PC. Connect your devices over longer distances—up to 1.2 km (4000 ft)—and ensure greater reliability in industrial environments with on-board surge protection and optical isolation (available with some models). Enjoy greater versatility by using point-to-point full duplex connections, or set up a half duplex RS-485 multi-drop network.

Specifications

Hardware

Comm. Controller: 16C550C or compatible x 4
Bus: 16-bit ISA
Connector: DB37 female

Serial Interface

Serial Standards: RS-422/485
Number of Ports: 4
Max. No. of Boards per PC: 4

Serial Line Protection

ESD Protection: 25 KV on the board (CI-134IS only)
Optical Isolation: 2 KV (CI-134I/IS only)

Performance

Baudrate: 50 bps to 921.6 Kbps

Serial Communication Parameters

Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Space, Mark
I/O Address: 0x0000-0xFFFF (default = 0x180)
IRQ: 2 (9), 3, 4, 5, 7, 10 (default), 11, 12, 15

Serial Signals

RS-422: TxD+(B), TxD-(A), RxD+(B), RxD-(A), RTS+(B), RTS-(A), CTS+(B), CTS-(A), GND
RS-485-4w: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-2w: Data+(B), Data-(A), GND

Driver Support

Operating Systems: Windows (2000/XP/2003/Vista/2008, 9X/ME/NT, 3.x), Windows XP Embedded, DOS, Linux 2.4, Linux 2.6 (x86/x64), SCO Open Server 5/6, UnixWare 7, QNX 4/6, FreeBSD 4/5

Physical Characteristics

Dimensions:
CI-134: 85 x 160 mm (3.35 x 6.30 in)
CI-134I/IS: 110 x 180 mm (4.33 x 7.09 in)

Environmental Limits

Operating Temperature: 0 to 55°C (32 to 131°F)
Operating Humidity: 5 to 95% RH
Storage Temperature: -20 to 85°C (-4 to 185°F)

Regulatory Approvals

FCC: Part 15 Class B
EMS: EN55022, EN61000-4-2, EN61000-4-3, EN61000-4-4, ENV50204

Power Requirements

Power Consumption:
CI-134: 450 mA max. @ +5 V
CI-134I: 610 mA max. @ +5 V
CI-134IS: 620 mA max. @ +5 V

Warranty

Warranty Period: 5 years
Details: See www.moxa.com/warranty

Ordering Information

Available Models

CI-134-DB9M: 4-port RS-422/485 ISA serial board (includes DB9 male cable)
CI-134I-DB9M: 4-port RS-422/485 ISA serial board with optical isolation (includes DB9 male cable)
CI-134IS-DB9M: 4-port RS-422/485 ISA serial board with optical isolation and surge protection (includes DB9 male cable)

Connection Options (one cable is included with each board)

CBL-M37M9x4-30: DB37 male to DB9 male x 4 connection cable, 30 cm
CBL-M37M25x4-30: DB37 male to DB25 male x 4 connection cable, 30 cm

Package Checklist

- CI-134 series board
- DB9 male or DB25 male connection cable
- Document and Software CD
- Quick Installation Guide (printed)
- Warranty Card

CI-132 Series

2-port RS-422/485 ISA serial boards

- Economical RS-422/485 ISA boards with 2 DB9 male connectors on the board for easy wiring
- RS-485 data direction control with ADDC® or by RTS
- 921.6 Kbps maximum baudrate for super fast data transmission
- 16-byte FIFO and on-chip hardware flow control
- Surge protection and optical isolation available
- Built-in termination resistors

The certification logos shown here apply to some or all of the products in this section. For details, see "Regulatory Approvals" under "Specifications" below.

Overview

The CI-132 series ISA boards come with 2 independent RS-422/485 serial ports for connecting data acquisition equipment and other serial devices to a PC. Connect your devices over longer distances—up to 1.2 km (4000 ft)—and ensure greater reliability in industrial environments with on-board surge protection and optical isolation (available with some models). Enjoy greater versatility by using point-to-point full duplex connections, or set up a half duplex RS-485 multi-drop network.

Specifications

Hardware

Comm. Controller: 16C550C or compatible x 2
Bus: 16-bit ISA
Connector: DB9 male x 2

Serial Interface

Serial: RS-422/485
Number of Ports: 2
Max. No. of Boards per PC: 4

Serial Line Protection

ESD Protection: 25 KV on the board (CI-132IS only)
Optical Isolation: 2 KV (CI-132I/IS only)

Performance

Baudrate: 50 bps to 921.6 Kbps
Built-in Termination Resistor: 120 ohm (enabled by jumper for RS-485-2w)

Serial Communication Parameters

Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Space, Mark
I/O Address: 0x0000-0xFFFF (default = 0x180)
IRQ: 2 (9), 3, 4, 5, 7, 10 (default), 11, 12, 15

Serial Signals

RS-422: TxD+(B), TxD-(A), RxD+(B), RxD-(A), RTS+(B), RTS-(A), CTS+(B), CTS-(A), GND
RS-485-2w: Data+(B), Data-(A), GND
RS-485 Data Control: ADDC® (automatic data direction control), or by RTS

Driver Support

Operating Systems: Windows (2000/XP/2003/Vista/2008, 9X/ME/NT), Windows XP Embedded, DOS, Linux 2.4, Linux 2.6 (x86/x64), QNX 4/6, FreeBSD 4/5, SCO OpenServer 5/6, UnixWare 7

Physical Characteristics

Dimensions:
CI-132: 75 x 157 mm (2.95 x 6.18 in)
CI-132I/IS: 105 x 157 mm (4.13 x 6.18 in)

Environmental Limits

Operating Temperature: 0 to 55°C (32 to 131°F)
Operating Humidity: 5 to 95% RH
Storage Temperature: -20 to 85°C (-4 to 185°F)

Regulatory Approvals

FCC: Part 15 Class B
EMS: EN55022, EN61000-4-2, EN61000-4-3, EN61000-4-4, ENV50204

Power Requirements

Power Consumption:
CI-132: 240 mA max. @ +5 V
CI-132I/IS: 620 mA max. @ +5 V

Warranty

Warranty Period: 5 years
Details: See www.moxa.com/warranty

Ordering Information

Available Models

CI-132: 2-port RS-422/485 ISA serial board
CI-132I: 2-port RS-422/485 ISA serial board with optical isolation
CI-132IS: 2-port RS-422/485 ISA serial board with optical isolation and surge protection

Package Checklist

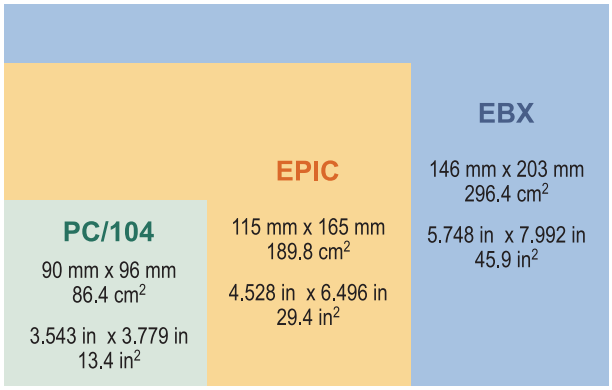
- CI-132 series board
- Document and Software CD
- Quick Installation Guide (printed)
- Warranty Card

Introduction to PC/104 and PC/104-*Plus*

Using the PC and PC/AT architectures for both desktop and non-desktop applications is now well established, but using these architectures for embedded microcomputer applications was slow to take hold. The reason is that PC and PC/AT motherboards, as well as the accompanying expansion cards, are too large to be used with embedded applications.

This is where PC/104 comes in. The PC/104 architecture differs from the P996 standard in the following ways:

- Reduced form factor: 90 x 96 mm (3.543 x 3.779 in)
- Self-stacking bus that eliminates the need for backplanes or card cages
- Reduced bus drive power required for most signals (up to 4 mA), allowing fewer components and lower power consumption (typically just 1-2 watts per module)

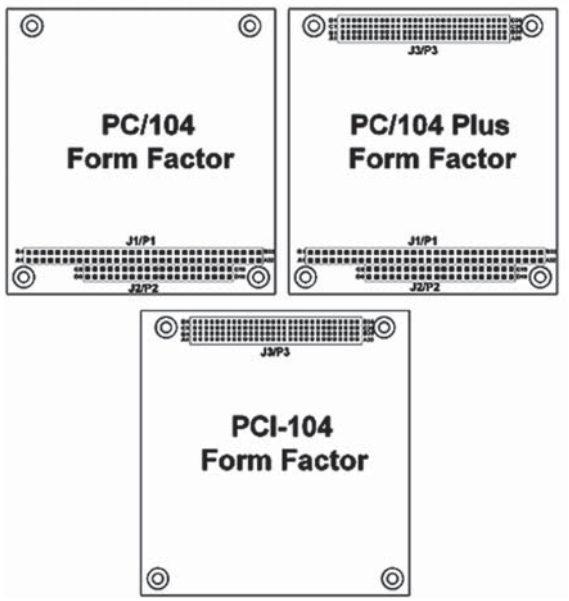


The three major form factors for embedded single-board computers.

Differences between PC/104, PC/104-Plus, and PCI-104

The ISA bus architecture has been a popular choice for embedded applications for a long time, and the publication of the PC/104 standard in 1992 made the ISA bus architecture available in a small, rugged form factor. Since that time, PC/104 has become an industry standard. As technological requirements advanced, a need arose for a higher bus throughput performance. This was especially true for graphics devices and other high-speed I/O devices such as networks. The PC/104 Consortium met this challenge by incorporating a PCI bus into the PC/104 form factor. This new standard has become known as PC/104-Plus. The architecture provides a link for versatile legacy hardware, and meets the high-speed requirements for both present and future hardware.

(This content is based on information from the PC/104 Org website.)



PC/104:

The PC/104 standard specifies the mechanical and electrical specifications for a compact version of the ISA (PC and PC/AT) bus, but optimized for the unique requirements of embedded systems applications. The specification referred to here as "PC/104" is based on the 104 signal contacts on the two bus connectors (64 pins on P1, plus 40 pins on P2).

PC/104-*Plus*:

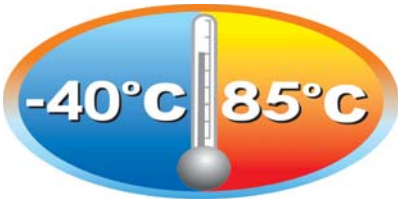
To accommodate the gradual replacement of ISA bus devices with PCI devices, the PC/104-Plus standard was approved by the PC/104 Consortium. The PC/104-Plus connector supports both ISA and PCI buses to accommodate PCI devices in small form factor embedded computers.

PCI-104:

To accommodate the gradual replacement of ISA bus devices with PCI devices, the PCI-104 standard was approved by the PC/104 Consortium. PCI-104 is a PCI-only architecture that accommodates the advances of PCI devices in a small rugged form factor.

Features of Moxa's PC/104 and PC-104-*Plus* Modules

Wide temperature for industrial applications



Industrial PCs were designed to work reliably in harsh industrial environments, and of all the features that distinguish industrial products from their commercial-grade cousins, the "wide temperature" feature is considered the most important.

Most industrial PCs now support a temperature range of -40 to 85°C. For this reason, Moxa's PC/104 and PC/104-Plus modules also support an operating temperature range of -40 to 85°C, making Moxa a leading provider of hardware for embedded systems.

Support for Windows CE 5.0 and Windows XP Embedded

Moxa's PC/104 and PC/104-Plus modules support a variety of operating systems that are used for industrial applications, including Windows CE 5.0 and Windows XP Embedded.

PC/104 Stack is Designed for Added Ruggedness

The PC/104 embedded computer standard is defined by the PC/104 Consortium, which has specified both the form factor and characteristics of the computer bus. The standard was created specifically to meet the special conditions encountered by many embedded computing applications, which require reliable data transfer in harsh, industrial-type environments.

The PC/104 stack design is one of the most recognizable differences between the PC/104 standard and PCI standard, which is the most common standard used by PCs. Not requiring a backplane, and allowing the PC/104 boards to be stacked one on top of the other solves two major problems: several PC/104 expansion cards can be added easily to the same embedded motherboard, and the resulting structure is more stable, making it suitable for rugged environments. Stacking is achieved by using the mounting-holes in the corners of each module.

PC/104 is Designed for Embedded Applications

The PC/104 standard was developed for embedded applications, which require a smaller, more robust board. Since the main difference with standard expansion boards is size, designers can use existing software resources to reduce the time to market of their embedded applications.

Applications

- KIOSKs
- Vending Machines
- Instruments
- Military Equipment
- Testing Equipment
- ATMs
- POS Devices
- Industrial Control Systems

Moxa's PC/104 Module Solution

Moxa's PC/104 serial modules meet the embedded PC standard, and work with PC/104 CPU boards that accept the PC/104 expansion interface. Moxa's PC/104 modules come with 2 to 8 serial ports, built-in 15 KV ESD protection, optional 2 KV optical isolation protection, and optional DB9 or DB25 connection cables to satisfy a variety of connection requirements.

Serial Interfae	No. of Ports	Moxa's PC/104 Models	Moxa's PC/104-Plus Models
RS-232	4	CA-104	---
	8	CA-108	CB-108
RS-422/485	2	CA-132/132I	---
	4	CA-134I	CB-134I
RS-232/422/485	4	CA-114	CB-114

CA-108 Series

8-port RS-232 PC/104 modules

- 921.6 Kbps maximum baudrate for super fast data transmission
- On-chip H/W and S/W flow control
- Built-in 15 KV ESD protection
- IRQ and I/O settings are jumper and DIP switch selectable
- Onboard Tx and Rx LED indicators for each port
- Windows CE 5.0/6.0 and Windows XP embedded operating systems supported
- Wide temperature model available for -40 to 85°C environments

The certification logos shown here apply to some or all of the products in this section. For details, see "Regulatory Approvals" under "Specifications" below.

Overview

The CA-108 PC/104 modules are reliable, high performance, multiport serial communication solutions that have 8 RS-232 ports, and can be used with PC/104 CPU boards that accept the PC/104 expansion interface. Optional DB9 and DB25 connection cables are available for connecting to serial devices, and the CA-108s' versatile driver support makes the modules suitable for a wide range of applications.

Specifications

Hardware

Comm. Controller: 16C550C or compatible x 8
Bus: PC/104 bus
Connector: 40-pin box header
DIP Switches: I/O base address, interrupt vector

Serial Interface

Number of Ports: 8
Serial Standards: RS-232
Max. No. of Boards per PC: 4

Serial Line Protection

ESD Protection: 15 KV on the board

Performance

Baudrate: 50 bps to 921.6 Kbps

Serial Communication Parameters

Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Space, Mark
IRQ: 3, 4, 5, 6, 7, 9, 10, 11, 12, 15 (shared for all ports)
FIFO: 64 bytes

Serial Signals

RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND

Driver Support

Operating Systems: Windows (2000/XP/2003/Vista), Windows 9X/ME/NT, Windows CE 5.0/6.0, Windows XP Embedded, DOS, Linux 2.4, Linux 2.6 (x86/x64), QNX 4/6

Physical Characteristics

Dimensions: 90 x 96 mm (3.54 x 3.78 in)

Environmental Limits

Operating Temperature:
Standard Models: 0 to 55°C (32 to 131°F)
Wide Temp. Models: -40 to 85°C (-40 to 185°F)
Operating Humidity: 5 to 95% RH
Storage Temperature: -40 to 55°C (-40 to 131°F)

Regulatory Approvals

FCC: Part 15 Class A
EMS: EN55022, EN55024, EN61000-3-2, EN61000-3-3, IEC 61000-6-2, IEC 61000-6-4, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, IEC 61000-4-11 (DIPS)

Warranty

Warranty Period: 5 years
Details: See www.moxa.com/warranty

Ordering Information

Available Models

CA-108: 8-port RS-232 PC/104 module, 0 to 55°C operating temperature
CA-108-T: 8-port RS-232 PC/104 module, -40 to 85°C operating temperature

Connection Options (can be purchased separately)

CBL-F40M9x4-50: 40-pin box header to DB9 male x 4 connection cable, 50 cm
CBL-F40M25x4-50: 40-pin box header to DB25 male x 4 connection cable, 50 cm

Package Checklist

- CA-108 or CA-108-T module
- Document and Software CD
- Quick Installation Guide (printed)
- Warranty Card

CA-114 Series

4-port RS-232/422/485 PC/104 modules

- 921.6 Kbps maximum baudrate for super fast data transmission
- On-chip H/W and S/W flow control
- Built-in 15 KV ESD protection
- IRQ settings, I/O settings, and serial interface are jumper and DIP switch selectable
- Onboard Tx and Rx LED indicators for each port
- Windows CE 5.0/6.0 and Windows XP embedded operating systems supported
- Wide temperature model available for -40 to 85°C environments

The certification logos shown here apply to some or all of the products in this section. For details, see "Regulatory Approvals" under "Specifications" below.

Overview

The CA-114 PC/104 modules are reliable, high performance, multiport serial communication solutions that have 4 RS-232/422/485 ports, and can be used with PC/104 CPU boards that accept the PC/104 expansion interface. Optional DB9 and DB25 connection cables are available for connecting to serial devices, and the CA-114s' versatile driver support makes the modules suitable for a wide range of applications.

Specifications

Hardware

Comm. Controller: 16C550C or compatible x 4
Bus: PC/104 bus
Connector: 40-pin box header
DIP Switches: I/O base address, interrupt vector, serial interface

Serial Interface

Number of Ports: 4
Serial Standards: RS-232/422/485
Max. No. of Boards per PC: 4

Serial Line Protection

ESD Protection: 15 KV on the board

Performance

Baudrate: 50 bps to 921.6 Kbps

Serial Communication Parameters

Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Space, Mark
IRQ: 3, 4, 5, 6, 7, 9, 10, 11, 12, 15 (shared for all ports)
FIFO: 64 bytes

Serial Signals

RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
RS-422: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-4w: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-2w: Data+(B), Data-(A), GND

Driver Support

Operating Systems: Windows (2000/XP/2003/Vista), Windows 9X/ME/NT, Windows CE 5.0/6.0, Windows XP Embedded, DOS, Linux 2.4, Linux 2.6 (x86/x64), QNX 4/6

Physical Characteristics

Dimensions: 90 x 96 mm (3.54 x 3.78 in)

Environmental Limits

Operating Temperature:
Standard Models: 0 to 55°C (32 to 131°F)
Wide Temp. Models: -40 to 85°C (-40 to 185°F)
Operating Humidity: 5 to 95% RH
Storage Temperature: -40 to 55°C (-40 to 131°F)

Regulatory Approvals

FCC: Part 15 Class A
EMS: EN55022, EN55024, EN61000-3-2, EN61000-3-3, IEC 61000-6-2, IEC 61000-6-4, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, IEC 61000-4-11 (DIPS)

Warranty

Warranty Period: 5 years
Details: See www.moxa.com/warranty

Ordering Information

Available Models

CA-114: 4-port RS-232/422/485 PC/104 module, 0 to 55°C operating temperature
CA-114-T: 4-port RS-232/422/485 PC/104 module, -40 to 85°C operating temperature

Connection Options (can be purchased separately)

CBL-F40M9x4-50: 40-pin box header to DB9 male x 4 connection cable, 50 cm
CBL-F40M25x4-50: 40-pin box header to DB25 male x 4 connection cable, 50 cm

Package Checklist

- CA-114 or CA-114-T module
- Document and Software CD
- Quick Installation Guide (printed)
- Warranty Card

CA-134I Series

4-port RS-422/485 PC/104 modules with 2 KV isolation

The certification logos shown here apply to some or all of the products in this section. For details, see "Regulatory Approvals" under "Specifications" below.

- 921.6 Kbps maximum baudrate for super fast data transmission
- On-chip H/W and S/W flow control
- Built-in 15 KV ESD protection
- IRQ settings, I/O settings, and serial interface are jumper and DIP switch selectable
- Onboard Tx and Rx LED indicators for each port
- Windows CE 5.0/6.0 and Windows XP embedded operating systems supported
- Wide temperature model available for -40 to 85°C environments

Overview

The CA-134I PC/104 modules are reliable, high performance, multiport serial communication solutions that have 4 RS-422/485 ports, and can be used with PC/104 CPU boards that accept the PC/104 expansion interface. Optional DB9 and DB25 connection cables are available for connecting to serial devices, and the CA-134Is' versatile driver support makes the modules suitable for a wide range of applications.

Specifications

Hardware

Comm. Controller: 16C550C or compatible x 4
Bus: PC/104 bus
Connector: 40-pin box header
DIP Switches: I/O base address, interrupt vector, serial interface

Serial Interface

Number of Ports: 4
Serial Standards: RS-422/485
Max. No. of Boards per PC: 4

Serial Line Protection

ESD Protection: 15 KV on the board
Optical Isolation Protection: 2 KV

Performance

Baudrate: 50 bps to 921.6 Kbps

Serial Communication Parameters

Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Space, Mark
IRQ: 3, 4, 5, 6, 7, 9, 10, 11, 12, 15 (shared for all ports)
FIFO: 64 bytes

Serial Signals

RS-422: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-4w: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-2w: Data+(B), Data-(A), GND

Driver Support

Operating Systems: Windows (2000/XP/2003/Vista), Windows 9X/ME/NT, Windows CE 5.0/6.0, Windows XP Embedded, DOS, Linux 2.4, Linux 2.6 (x86/x64), QNX 4/6

Physical Characteristics

Dimensions: 90 x 96 mm (3.54 x 3.78 in)

Environmental Limits

Operating Temperature:
Standard Models: 0 to 55°C (32 to 131°F)
Wide Temp. Models: -40 to 85°C (-40 to 185°F)
Operating Humidity: 5 to 95% RH
Storage Temperature: -40 to 55°C (-40 to 131°F)

Regulatory Approvals

FCC: Part 15 Class A
EMS: EN55022, EN55024, EN61000-3-2, EN61000-3-3, IEC 61000-6-2, IEC 61000-6-4, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, IEC 61000-4-11 (DIPS)

Warranty

Warranty Period: 5 years
Details: See www.moxa.com/warranty

Ordering Information

Available Models

CA-134I: 4-port RS-422/485 PC/104 module with optical isolation, 0 to 55°C operating temperature
CA-134I-T: 4-port RS-422/485 PC/104 module with optical isolation, -40 to 85°C operating temperature

Connection Options (can be purchased separately)

CBL-F40M9x4-50: 40-pin box header to DB9 male x 4 connection cable, 50 cm
CBL-F40M25x4-50: 40-pin box header to DB25 male x 4 connection cable, 50 cm

Package Checklist

- CA-134I or CA-134I-T module
- Document and Software CD
- Quick Installation Guide (printed)
- Warranty Card

CA-104 Series

4-port RS-232 PC/104 modules

- 921.6 Kbps maximum baudrate for super fast data transmission
- On-chip software flow control
- Built-in 15 KV ESD protection
- IRQ and I/O settings are jumper and DIP switch selectable
- Onboard Tx and Rx LED indicators for each port
- Windows CE 5.0/6.0 and Windows XP embedded operating systems supported
- Wide temperature model available for -40 to 85°C environments

The certification logos shown here apply to some or all of the products in this section. For details, see "Regulatory Approvals" under "Specifications" below.

Overview

The CA-104 PC/104 modules are reliable, high performance, multiport serial communication solutions that have 4 RS-232 ports, and can be used with PC/104 CPU boards that accept the PC/104 expansion interface. Optional DB9 and DB25 connection cables are available for connecting to serial devices, and the CA-104s' versatile driver support makes the modules suitable for a wide range of applications.

Specifications

Hardware

Comm. Controller: 16C550C or compatible x 4
Bus: PC/104 bus
Connector: 40-pin box header
DIP Switches: I/O base address, interrupt vector

Serial Interface

Number of Ports: 4
Serial Standards: RS-232
Max. No. of Boards per PC: 4

Serial Line Protection

ESD Protection: 15 KV on the board

Performance

Baudrate: 50 bps to 921.6 Kbps

Serial Communication Parameters

Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Space, Mark
IRQ: 3, 4, 5, 6, 7, 9, 10, 11, 12, 15 (shared for all ports)
FIFO: 64 bytes

Serial Signals

RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND

Driver Support

Operating Systems: Windows (2000/XP/2003/Vista), Windows 9X/ME/NT, Windows CE 5.0/6.0, Windows XP Embedded, DOS, Linux 2.4, Linux 2.6 (x86/x64), QNX 4/6

Physical Characteristics

Dimensions: 90 x 96 mm (3.54 x 3.78 in)

Environmental Limits

Operating Temperature:
Standard Models: 0 to 55°C (32 to 131°F)
Wide Temp. Models: -40 to 85°C (-40 to 185°F)
Operating Humidity: 5 to 95% RH
Storage Temperature: -40 to 55°C (-40 to 131°F)

Regulatory Approvals

FCC: Part 15 Class A
EMS: EN55022, EN55024, EN61000-3-2, EN61000-3-3, IEC 61000-6-2, IEC 61000-6-4, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, IEC 61000-4-11 (DIPS)

Power Requirements

Power Consumption: 210 mA @ +5 V

Warranty

Warranty Period: 5 years
Details: See www.moxa.com/warranty

Ordering Information

Available Models

CA-104: 4-port RS-232 PC/104 module, 0 to 55°C operating temperature
CA-104-T: 4-port RS-232 PC/104 module, -40 to 85°C operating temperature

Connection Options (can be purchased separately)

CBL-F40M9x4-50: 40-pin box header to male DB9 x 4 connection cable, 50 cm
CBL-F40M25x4-50: 40-pin box header to DB25 male x 4 connection cable, 50 cm

Package Checklist

- CA-104 or CA-104-T module
- Document and Software CD
- Quick Installation Guide (printed)
- Warranty Card

CA-132/132I Series

2-port RS-422/485 PC/104 modules with optional 2 KV isolation

- 921.6 Kbps maximum baudrate for super fast data transmission
- On-chip software flow control
- Built-in 15 KV ESD protection
- IRQ, I/O, and serial interface jumper and DIP switch selectable
- Onboard Tx and Rx LED indicators for each port
- Supports RS-485 ADDC® (Automatic Data Direction Control)
- Windows CE 5.0/6.0 and Windows XP embedded operating systems supported
- Wide temperature models available for -40 to 85°C environments

The certification logos shown here apply to some or all of the products in this section. For details, see "Regulatory Approvals" under "Specifications" below.

Overview

The CA-132/132I PC/104 modules are reliable, high performance, multiport serial communication solutions that have 2 RS-422/485 ports, and can be used with PC/104 CPU boards that accept the PC/104 expansion interface. Optional DB9 and DB25 connection cables are available for connecting to serial devices, and the CA-132/132Is' versatile driver support makes the modules suitable for a wide range of applications.

Specifications

Hardware

Comm. Controller: 16C550C or compatible x 2
Bus: PC/104 bus
Connectors: 20-pin box header
LED Indicators: Built-in TX, RX LEDs for each port
DIP Switches: I/O base address, interrupt vector

Serial Interface

Number of Ports: 2
Serial Standards: RS-422/485
Max. No. of Boards per PC: 4

Serial Line Protection

ESD Protection: 15 KV on the board
Optical Isolation: 2 KV (CA-132I only)

Performance

Baudrate: 50 bps to 921.6 Kbps

Serial Communication Parameters

Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Space, Mark
IRQ: 3, 4, 5, 6, 7, 9, 10, 11, 12, 15 (shared for all ports)
FIFO: 64 bytes

Serial Signals

RS-422: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-4w: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-2w: Data+(B), Data-(A), GND

Driver Support

Operating Systems: Windows (2000/XP/2003/Vista, 9X/ME/NT), Windows CE 5.0/6.0, Windows XP Embedded, DOS, Linux 2.4, Linux 2.6 (x86/x64), QNX 4/6

Physical Characteristics

Dimensions: 90 x 96 mm (3.54 x 3.78 in)

Environmental Limits

Operating Temperature:
Standard Models: 0 to 55°C (32 to 131°F)
Wide Temp. Models: -40 to 85°C (-40 to 185°F)
Operating Humidity: 5 to 95% RH
Storage Temperature: -40 to 55°C (-40 to 131°F)

Regulatory Approvals

FCC: Part 15 Class A
EMS: EN55022, EN55024, EN61000-3-2, EN61000-3-3, IEC 61000-6-2, IEC 61000-6-4, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, IEC 61000-4-11 (DIPS)

Power Requirements

Power Consumption:
CA-132: 155 mA @ +5 V
CA-132I: 190 mA @ +5 V

Warranty

Warranty Period: 5 years
Details: See www.moxa.com/warranty

Ordering Information

Available Models

CA-132: 2-port RS-422/485 PC/104 module, 0 to 55°C operating temperature
CA-132I: 2-port RS-422/485 PC/104 module with optical isolation protection, 0 to 55°C operating temperature
CA-132-T: 2-port RS-422/485 PC/104 module, -40 to 85°C operating temperature
CA-132I-T: 2-port RS-422/485 PC/104 module with optical isolation protection, -40 to 85°C operating temperature

Connection Options (can be purchased separately)

CBL-F20M9x2-50: 20-pin box header to DB9 male x 2 connection cable, 50 cm
CBL-F20M25x2-50: 20-pin box header to DB25 male x 2 connection cable, 50 cm

Package Checklist

- CA-132 or CA-132I module
- Document and Software CD
- Quick Installation Guide (printed)
- Warranty Card

CB-108 Series

8-port RS-232 PC/104-Plus modules

- 921.6 Kbps maximum baudrate for super fast data transmission
- On-chip H/W and S/W flow control
- Built-in 15 KV ESD protection
- Onboard Tx and Rx LED indicators for each port
- Windows CE 5.0/6.0 and Windows XP embedded operating systems supported
- Wide temperature model available for -40 to 85°C environments

The certification logos shown here apply to some or all of the products in this section. For details, see "Regulatory Approvals" under "Specifications" below.

Overview

The CB-108 PC/104-Plus modules come with 8 RS-232 ports, and can be used with PC/104-Plus CPU boards that accept the PC/104-Plus expansion interface. Optional DB9 and DB25 connection cables are available for connecting to serial devices, and the CB-108s' versatile driver support makes the modules suitable for a wide range of applications. The CB-108 modules can be used on the PC/104-Plus (PCI) bus, and provide a reliable, high performance solution for multiport serial communication.

Specifications

Hardware

Comm. Controller: MU860 (16C550C compatible)
Bus: PC/104-Plus bus
Connector: 40-pin box header

Serial Interface

Number of Ports: 8
Serial Standards: RS-232
Max. No. of Boards per PC: 4

Serial Line Protection

ESD Protection: 15 KV on the board

Performance

Baudrate: 50 bps to 921.6 Kbps

Serial Communication Parameters

Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Space, Mark
I/O Address: Assigned by BIOS
IRQ: Assigned by BIOS
FIFO: 128 bytes

Serial Signals

RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND

Driver Support

Operating Systems: Windows (2000, XP/2003/Vista/2008 x86/x64), Windows CE 5.0/6.0, Windows XP Embedded, DOS, Linux 2.4, Linux 2.6 (x86/x64), QNX 6

Physical Characteristics

Dimensions: 90 x 96 mm (3.54 x 3.78 in)

Environmental Limits

Operating Temperature:
Standard Models: 0 to 55°C (32 to 131°F)
Wide Temp. Models: -40 to 85°C (-40 to 185°F)
Operating Humidity: 5 to 95% RH
Storage Temperature: -40 to 55°C (-40 to 131°F)

Regulatory Approvals

FCC: Part 15 Class A
EMS: EN55022, EN55024, EN61000-3-2, EN61000-3-3, IEC 61000-6-2, IEC 61000-6-4, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, IEC 61000-4-11 (DIPS)

Warranty

Warranty Period: 5 years
Details: See www.moxa.com/warranty

Ordering Information

Available Models

CB-108: 8-port RS-232 PC/104-Plus module, 0 to 55°C operating temperature
CB-108-T: 8-port RS-232 PC/104-Plus module, -40 to 85°C operating temperature

Connection Options (can be purchased separately)

CBL-F40M9x4-50: 40-pin box header to DB9 male x 4 connection cable, 50 cm
CBL-F40M25x4-50: 40-pin box header to DB25 male x 4 connection cable, 50 cm

Package Checklist

- CB-108 or CB-108-T module
- Document and Software CD
- Quick Installation Guide (printed)
- Warranty Card

CB-114 Series

4-port RS-232/422/485 PC/104-Plus modules

- 921.6 Kbps maximum baudrate for super fast data transmission
- On-chip H/W and S/W flow control
- Built-in 15 KV ESD protection
- Serial interface is DIP switch selectable
- Onboard Tx and Rx LED indicators for each port
- Windows CE 5.0/6.0 and Windows XP embedded operating systems supported
- Wide temperature model available for -40 to 85°C environments

The certification logos shown here apply to some or all of the products in this section. For details, see "Regulatory Approvals" under "Specifications" below.

Overview

The CB-114 PC/104-Plus modules come with 4 RS-232/422/485 ports, and can be used with PC/104-Plus CPU boards that accept the PC/104-Plus expansion interface. Optional DB9 and DB25 connection cables are available for connecting to serial devices, and the CB-114s' versatile driver support makes the modules suitable for a wide range of applications. The CB-114 modules can be used on the PC/104-Plus (PCI) bus, and provide a reliable, high performance solution for multiport serial communication.

Specifications

Hardware

Comm. Controller: MU860 (16C550C compatible)
Bus: PC/104-Plus bus
Connector: 40-pin box header
DIP Switches: Serial interface

Serial Interface

Number of Ports: 4
Serial Standards: RS-232/422/485
Max. No. of Boards per PC: 4

Serial Line Protection

ESD Protection: 15 KV on the board

Performance

Baudrate: 50 bps to 921.6 Kbps

Serial Communication Parameters

Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Space, Mark
I/O Address: Assigned by BIOS
IRQ: Assigned by BIOS
FIFO: 128 bytes

Serial Signals

RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
RS-422: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-4w: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-2w: Data+(B), Data-(A), GND

Driver Support

Operating Systems: Windows (2000, XP/2003/Vista/2008 x86/x64), Windows CE 5.0/6.0, Windows XP Embedded, DOS, Linux 2.4, Linux 2.6 (x86/x64), QNX 6

Physical Characteristics

Dimensions: 90 x 96 mm (3.54 x 3.78 in)

Environmental Limits

Operating Temperature:
Standard Models: 0 to 55°C (32 to 131°F)
Wide Temp. Models: -40 to 85°C (-40 to 185°F)
Operating Humidity: 5 to 95% RH
Storage Temperature: -40 to 55°C (-40 to 131°F)

Regulatory Approvals

FCC: Part 15 Class A
EMS: EN55022, EN55024, EN61000-3-2, EN61000-3-3, IEC 61000-6-2, IEC 61000-6-4, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, IEC 61000-4-11 (DIPS)

Warranty

Warranty Period: 5 years
Details: See www.moxa.com/warranty

Ordering Information

Available Models

CB-114: 4-port RS-232/422/485 PC/104 module, 0 to 55°C operating temperature
CB-114-T: 4-port RS-232/422/485 PC/104 module, -40 to 85°C operating temperature

Connection Options (can be purchased separately)

CBL-F40M9x4-50: 40-pin box header to DB9 male x 4 connection cable, 50 cm
CBL-F40M25x4-50: 40-pin box header to DB25 male x 4 connection cable, 50 cm

Package Checklist

- CB-114 or CB-114-T module
- Document and Software CD
- Quick Installation Guide (printed)
- Warranty Card

CB-134I Series

4-port RS-422/485 PC/104-Plus modules with 2 KV isolation

- 921.6 Kbps maximum baudrate for super fast data transmission
- On-chip H/W and S/W flow control
- Built-in 15 KV ESD protection
- Serial interface is DIP switch selectable
- Onboard Tx and Rx LED indicators for each port
- Windows CE 5.0/6.0 and Windows XP embedded operating systems supported
- Wide temperature model available for -40 to 85°C environments

The certification logos shown here apply to some or all of the products in this section. For details, see "Regulatory Approvals" under "Specifications" below.

Overview

The CB-134I PC/104-Plus modules come with 4 RS-422/485 ports, and can be used with PC/104-Plus CPU boards that accept the PC/104-Plus expansion interface. Optional DB9 and DB25 connection cables are available for connecting to serial devices, and the CB-134Is' versatile driver support makes the modules suitable for a wide range of applications. The CB-134I modules can be used on the PC/104-Plus (PCI) bus, and provide a reliable, high performance solution for multiport serial communication.

Specifications

Hardware

Comm. Controller: MU860 (16C550C compatible)
Bus: PC/104-Plus bus
Connector: 40-pin box header
DIP Switches: Serial interface

Serial Interface

Number of Ports: 4
Serial Standards: RS-422/485
Max. No. of Boards per PC: 4

Serial Line Protection

ESD Protection: 15 KV on the board
Optical Isolation: 2 KV

Performance

Baudrate: 50 bps to 921.6 Kbps

Serial Communication Parameters

Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Space, Mark
I/O Address: Assigned by BIOS
IRQ: Assigned by BIOS
FIFO: 128 bytes

Serial Signals

RS-422: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-4w: TxD+(B), TxD-(A), RxD+(B), RxD-(A), GND
RS-485-2w: Data+(B), Data-(A), GND

Driver Support

Operating Systems: Windows (2000, XP/2003/Vista/2008 x86/x64), Windows CE 5.0/6.0, Windows XP Embedded, DOS, Linux 2.4, Linux 2.6 (x86/x64), QNX 6

Physical Characteristics

Dimensions: 90 x 96 mm (3.54 x 3.78 in)

Environmental Limits

Operating Temperature:
Standard Models: 0 to 55°C (32 to 131°F)
Wide Temp. Models: -40 to 85°C (-40 to 185°F)
Operating Humidity: 5 to 95% RH
Storage Temperature: -40 to 55°C (-40 to 131°F)

Regulatory Approvals

FCC: Part 15 Class A
EMS: EN55022, EN55024, EN61000-3-2, EN61000-3-3, IEC 61000-6-2, IEC 61000-6-4, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, IEC 61000-4-11 (DIPS)

Warranty

Warranty Period: 5 years
Details: See www.moxa.com/warranty

Ordering Information

Available Models

CB-134I: 4-port RS-422/485 PC/104-Plus module with optical isolation protection, 0 to 55°C operating temperature
CB-134I-T: 4-port RS-422/485 PC/104-Plus module with optical isolation protection, -40 to 85°C operating temperature

Connection Options (can be purchased separately)

CBL-F40M9x4-50: 40-pin box header to DB9 male x 4 connection cable, 50 cm
CBL-F40M25x4-50: 40-pin box header to DB25 male x 4 connection cable, 50 cm

Package Checklist

- CB-134I or CB-134I-T module
- Document and Software CD
- Quick Installation Guide (printed)
- Warranty Card