

# Serial Connection Options

## : Serial Board Connection Box/Cable Usage Chart

Serial Board Model Name	Connection Boxes						Connection Cables																
	8-port						8-port						4-port				2-port						
	OPT8-M9	OPT8-RJ45	OPT8A/B/S	OPT8-M9+	OPT8A+/B+/S+	OPT8-RJ45+	CBL-1M68M25x8-100 (OPT8C+)	CBL-1M68M9x8-100 (OPT8D+)	CBL-1M62M25x8-100 (OPT8C)	CBL-1M62M9x8-100 (OPT8D)	CBL-1M78M25x8-100	CBL-1M78M9x8-100	CBL-1M44M9x4-50	CBL-1M44M9x4-50(POS)	CBL-1M44M25x4-50	CBL-1M37M9x4-30 (OPT4C)	CBL-1M37M9x4-30 (OPT4D)	CBL-F40M9x4-50	CBL-F40M25x4-50	CBL-1M25M9x2-50	CBL-F20M9x2-50	CBL-F20M25x2-50	
C218Turbo Series	✓	✓	✓	-	-	-	-	-	✓	✓	-	-	-	-	-	-	-	-	-	-	-	-	-
C104H Series	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	✓	✓	-	-	-	-	-	-
CP-114 Series	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	✓	✓	-	-	-	-	-	-
CI-134 Series	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	✓	✓	-	-	-	-	-	-
CP-118U	✓	✓	✓	-	-	-	-	-	✓	✓	-	-	-	-	-	-	-	-	-	-	-	-	-
CP-138U	✓	✓	✓	-	-	-	-	-	✓	✓	-	-	-	-	-	-	-	-	-	-	-	-	-
CP-168U	✓	✓	✓	-	-	-	-	-	✓	✓	-	-	-	-	-	-	-	-	-	-	-	-	-
C168H Series	✓	✓	✓	-	-	-	-	-	✓	✓	-	-	-	-	-	-	-	-	-	-	-	-	-
CP-104UL	-	-	-	-	-	-	-	-	-	-	-	-	✓	-	✓	-	-	-	-	-	-	-	-
CP-134U Series	-	-	-	-	-	-	-	-	-	-	-	-	✓	-	✓	-	-	-	-	-	-	-	-
CP-114UL	-	-	-	-	-	-	-	-	-	-	-	-	✓	-	✓	-	-	-	-	-	-	-	-
CP-114UL-I	-	-	-	-	-	-	-	-	-	-	-	-	✓	-	✓	-	-	-	-	-	-	-	-
CP-104EL-A	-	-	-	-	-	-	-	-	-	-	-	-	✓	-	✓	-	-	-	-	-	-	-	-
CP-114EL	-	-	-	-	-	-	-	-	-	-	-	-	✓	-	✓	-	-	-	-	-	-	-	-
CP-114EL-I	-	-	-	-	-	-	-	-	-	-	-	-	✓	-	✓	-	-	-	-	-	-	-	-
CP-112UL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	✓	-	-
CP-112UL-I	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	✓	-	-
CP-132UL Series	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	✓	-	-
CP-102UL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	✓	-	-
CP-102EL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	✓	-	-
CP-132EL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	✓	-	-
CP-132EL-I	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	✓	-	-
CP-118EL-A	-	-	-	✓	✓	✓	✓	✓	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CP-168EL-A	-	-	-	✓	✓	✓	✓	✓	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CP-118U-I	-	-	-	-	-	-	-	-	-	✓	✓	-	-	-	-	-	-	-	-	-	-	-	-
CP-138U-I	-	-	-	-	-	-	-	-	-	✓	✓	-	-	-	-	-	-	-	-	-	-	-	-
POS-104UL	-	-	-	-	-	-	-	-	-	-	-	-	-	✓	-	-	-	-	-	-	-	-	-
CA-108	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	✓	✓	-	-	-	-
CB-108	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	✓	✓	-	-	-	-
CA-114	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	✓	✓	-	-	-	-
CB-114	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	✓	✓	-	-	-	-
CA-134I	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	✓	✓	-	-	-	-
CB-134I	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	✓	✓	-	-	-	-
CA-104	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	✓	✓	-	-	-	-
CA-132	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	✓	✓	-
CA-132I	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	✓	✓	-

## 8-port RS-232 Connection Boxes





	OPT8-M9	OPT8-RJ45	OPT8A/S	OPT8B
Accessories Image				
Pin Assignment				
Board-side Connector	DB62 male x 1			
Device-side Connector	DB9 male x 8	8-pin RJ45 x 8	DB25 female x 8	DB25 male x 8
LEDs	TxD, RxD indicators for each device-side port	-	TxD, RxD indicators for each device-side port	-
Baudrate	-	-	50 bps to 921.6 Kbps	-
Dimensions	90 x 111 x 27.5 mm (3.5 x 4.3 x 1 in)	152.8 x 32.8 x 32 mm (6 x 1.29 x 1.25 in)	247 x 108 x 35 mm (9.7 x 4.3 x 1.4 in)	-
Protection	-	-	25 KV ESD, 2 KV EFT surge protection (OPT8S only)	-
Connection Cable	DB62 male to DB62 female 150 cm connection cable for connecting to the serial board	-	DB62 male to DB62 male 150 cm connection cable for connecting to the serial board	-
Related Products	See page A-2 for details			

	OPT8-M9+	OPT8-RJ45+	OPT8A+/S+	OPT8B+
Accessories Image				
Pin Assignment				
Board-side Connector	VHDCI 68 x 1			
Device-side Connector	DB9 male x 8	8-pin RJ45 x 8	DB25 female x 8	DB25 male x 8
LEDs	TxD, RxD indicators for each device-side port	-	TxD, RxD indicators for each device-side port	-
Baudrate	-	-	50 bps to 921.6 Kbps	-
Dimensions	90 x 111 x 27.5 mm (3.5 x 4.3 x 1 in)	152.8 x 32.8 x 32 mm (6 x 1.29 x 1.25 in)	247 x 108 x 35 mm (9.7 x 4.3 x 1.4 in)	-
Protection	-	-	25 KV ESD, 2 KV EFT surge protection (Opt8S only)	-
Connection Cable	DB68 male to DB62 female 150 cm connection cable for connecting to the serial board	-	DB68 male to DB62 male 150 cm connection cable for the connecting to the serial board	-
Related Products	See page A-2 for details			




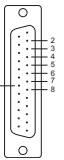
## 8-port RS-232 connection Cables

	CBL-M62M25x8-100 (OPT8C)	CBL-M62M9x8-100 (OPT8D)	CBL-M68M25x8-100 (OPT8C+)	CBL-M68M9x8-100 (OPT8D+)	CBL-M78M25x8-100	CBL-M78M9x8-100
Accessories Image						
Pin Assignment						
Board-side Connector	DB62 male x 1		VHDCI 68 x 1		DB78 male x 1	
Device-side Connector	DB25 male x 8	DB9 male x 8	DB25 male x 8	DB9 male x 8	DB25 male x 8	DB9 male x 8
Cable Length	100 cm					
Related Products	See page A-2 for details					









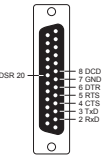

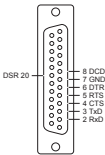
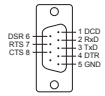
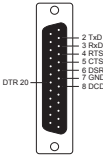
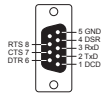
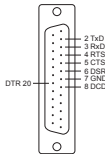
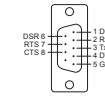
## : 2-port Connection Cables

	CBL-F20M9x2-50	CBL-F20M25x2-50																																																																																
Accessories Image																																																																																		
Pin Assignment	 <table border="1"> <thead> <tr> <th>PIN</th> <th>RS-422</th> <th>RS-485-4w</th> <th>RS-485-2w</th> </tr> </thead> <tbody> <tr><td>2</td><td>RxD+(B)</td><td>RxD+(B)</td><td>Data+(B)</td></tr> <tr><td>3</td><td>TxD+(B)</td><td>TxD+(B)</td><td>-</td></tr> <tr><td>4</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>5</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>6</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>7</td><td>GND</td><td>GND</td><td>GND</td></tr> <tr><td>8</td><td>TxD-(A)</td><td>TxD-(A)</td><td>-</td></tr> <tr><td>20</td><td>RxD-(A)</td><td>RxD-(A)</td><td>Data-(A)</td></tr> <tr><td>22</td><td>-</td><td>-</td><td>-</td></tr> </tbody> </table>	PIN	RS-422	RS-485-4w	RS-485-2w	2	RxD+(B)	RxD+(B)	Data+(B)	3	TxD+(B)	TxD+(B)	-	4	-	-	-	5	-	-	-	6	-	-	-	7	GND	GND	GND	8	TxD-(A)	TxD-(A)	-	20	RxD-(A)	RxD-(A)	Data-(A)	22	-	-	-	 <table border="1"> <thead> <tr> <th>PIN</th> <th>RS-422</th> <th>RS-485-4w</th> <th>RS-485-2w</th> </tr> </thead> <tbody> <tr><td>1</td><td>TxD-(A)</td><td>TxD-(A)</td><td>-</td></tr> <tr><td>2</td><td>TxD+(B)</td><td>TxD+(B)</td><td>-</td></tr> <tr><td>3</td><td>RxD+(B)</td><td>RxD+(B)</td><td>Data+(B)</td></tr> <tr><td>4</td><td>RxD-(A)</td><td>RxD-(A)</td><td>Data-(A)</td></tr> <tr><td>5</td><td>GND</td><td>GND</td><td>GND</td></tr> <tr><td>6</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>7</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>8</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>9</td><td>-</td><td>-</td><td>-</td></tr> </tbody> </table>	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	-	-	-
PIN	RS-422	RS-485-4w	RS-485-2w																																																																															
2	RxD+(B)	RxD+(B)	Data+(B)																																																																															
3	TxD+(B)	TxD+(B)	-																																																																															
4	-	-	-																																																																															
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8	TxD-(A)	TxD-(A)	-																																																																															
20	RxD-(A)	RxD-(A)	Data-(A)																																																																															
22	-	-	-																																																																															
PIN	RS-422	RS-485-4w	RS-485-2w																																																																															
1	TxD-(A)	TxD-(A)	-																																																																															
2	TxD+(B)	TxD+(B)	-																																																																															
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8	-	-	-																																																																															
9	-	-	-																																																																															
Description	20-pin box header to 2-port DB9 male cable	20-pin box header to 2-port DB25 male cable																																																																																
Cable Length	20 cm																																																																																	
Related Products	See page A-2 for details																																																																																	

## : 4-port Connection Cables

	CBL-F40M9x4-50	CBL-F40M25x4-50																																																																																																				
Accessories Image																																																																																																						
Pin Assignment	 <table border="1"> <thead> <tr> <th>PIN</th> <th>RS-232</th> <th>RS-422</th> <th>RS-485-4w</th> <th>RS-485-2w</th> </tr> </thead> <tbody> <tr><td>1</td><td>DCD</td><td>TxD-(A)</td><td>TxD-(A)</td><td>-</td></tr> <tr><td>2</td><td>RxD</td><td>TxD+(B)</td><td>TxD+(B)</td><td>-</td></tr> <tr><td>3</td><td>TxD</td><td>RxD+(B)</td><td>RxD+(B)</td><td>Data+(B)</td></tr> <tr><td>4</td><td>DTR</td><td>RxD-(A)</td><td>RxD-(A)</td><td>Data-(A)</td></tr> <tr><td>5</td><td>GND</td><td>GND</td><td>GND</td><td>GND</td></tr> <tr><td>6</td><td>DSR</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>7</td><td>RTS</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>8</td><td>CTS</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>9</td><td>-</td><td>-</td><td>-</td><td>-</td></tr> </tbody> </table>	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	-	-	-	-	 <table border="1"> <thead> <tr> <th>PIN</th> <th>RS-232</th> <th>RS-422</th> <th>RS-485-4w</th> <th>RS-485-2w</th> </tr> </thead> <tbody> <tr><td>2</td><td>TxD</td><td>RxD+(B)</td><td>RxD+(B)</td><td>Data+(B)</td></tr> <tr><td>3</td><td>RxD</td><td>TxD+(B)</td><td>TxD+(B)</td><td>-</td></tr> <tr><td>4</td><td>RTS</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>5</td><td>CTS</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>6</td><td>DSR</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>7</td><td>GND</td><td>GND</td><td>GND</td><td>GND</td></tr> <tr><td>8</td><td>DCD</td><td>TxD-(A)</td><td>TxD-(A)</td><td>-</td></tr> <tr><td>20</td><td>DTR</td><td>RxD-(A)</td><td>RxD-(A)</td><td>Data-(A)</td></tr> <tr><td>22</td><td>-</td><td>-</td><td>-</td><td>-</td></tr> </tbody> </table>	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	-	-	-	-
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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	-	-	-	-																																																																																																		
Description	40-pin box header to 4-port DB9 male cable	40-pin box header to 4-port DB25 male cable																																																																																																				
Cable Length	50 cm																																																																																																					
Related Products	See page A-2 for details																																																																																																					

## : 8-pin RJ45 to DB9/DB25 Connection Cables

	CBL-RJ45F25-150	CBL-RJ45F9-150	CBL-RJ45M25-150	CBL-RJ45M9-150	CBL-RJ45SF25-150	CBL-RJ45SF9-150	CBL-RJ45SM25-150	CBL-RJ45SM9-150
Accessories Image								
Pin Assignment								
Cable Type	-	-	-	-	Shielded			
Board-side Connector	8-pin RJ45 x 1							
Device-side Connector	DB25 female x 1	DB9 female x 1	DB25 male x 1	DB9 male x 1	DB25 female x 1	DB9 female x 1	DB25 male x 1	DB9 male x 1
Cable Length	150 cm							
Related Products	CP-104JU, OPT8-RJ45, NPort® 5210, NPort® 5600, NPort® 6600, CN2510/2600, NPort® W2004, UC-7410/7420							

## : 10-pin RJ45 to DB9/DB25 Connection Cables

	CN20030	CN20040	CN20060	CN20070
Accessories Image				
Pin Assignment				
Board-side Connector	10-pin RJ45 x 1			
Device-side Connector	DB25 female x 1	DB25 male x 1	DB9 male x 1	DB9 female x 1
Cable Length	150 cm			
Related Products	C320Turbo Series, CP-204J, CI-104J, A52, A53, A60			

## : Wiring Kits

	TB-M9	TB-F9	TB-M25	TB-F25	ADP-RJ458P-DB9M	ADP-RJ458P-DB9F
Accessories Image						
Type	DB9 male DIN-Rail wiring terminal	DB9 female DIN-Rail wiring terminal	DM25 male DIN-Rail wiring terminal	DB25 female DIN-Rail wiring terminal	RJ45-to-DB9 adaptor (male)	RJ45-to-DB9 adaptor (female)
Connector	DB9 male	DB9 female	DB25 male	DB25 female	-	-
Rating	300 V, 20 A (IEC250V 10A)				-	-
Operating Temperature	-40 to 105°C (-40 to 221°F)				-	-
Suitable Wiring	24-12 AWG (IEC 0.5-2.5 mm <sup>2</sup> )				-	-
Dimensions	77.5 x 45 x 51 mm (3.05 x 1.77 x 2.01 in)		77.5 x 90 x 51 mm (3.05 x 3.54 x 2.01 in)		-	-

## : TK-485 Tuning Kit

### *Pull high/low resistance tuner with termination resistor*



The TK-485, which has both a termination resistor and tuning resistor, is a great tool for engineers who build networks of daisy-chained 2-wire RS-485 devices. You no longer need to open up your RS-485 devices to add a termination resistor, and then add another resistor to tune the pull high/low resistance. Instead, simply connect the TK-485 to your RS-485 network, activate the termination resistor, and then tune the pull high/low resistor on the TK-485 until the RS-485 signal is transmitted intact.

#### Serial Protection

**Isolation:** 2 KV isolation protection

**ESD Protection:** ±4 KV protection from ESD due to contact discharge

#### Power Requirements

##### Power Input:

- 12 to 48 VDC input through power jack
- ±12 to ±48 VDC input through terminal block, with polarity protection

#### Resistance Options

**Pull High:** 600 Ω, 1 KΩ, 2 KΩ, 4.7 KΩ, 10 KΩ

**Pull Low:** 600 Ω, 1 KΩ, 2 KΩ, 4.7 KΩ, 10 KΩ

**Terminator:** 120 Ω

#### Connectors

**Signal Inputs:** D+, D-, GND

**Signal Outputs:** D+, D-, GND

#### Environmental Limits

**Operating Temperature:** 0 to 55°C

**Operating Humidity:** 95% RH max., non-condensing

**Storage Temperature:** -20 to 70°C