MEC-COM-M134

Mini PCI-e 4-port RS-232/422/485 serial board with power input

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User's Manual

Third Edition, February 2014

Mini PCI-e Serial Card

User's Manual

Table of Contents

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Introduction

Overview

MEC-COM-M134 is a serial communication card for embedded PC. The card follows the Mini PCI-e standard which is complaint with PCI Express x 1 classification and small form factor (30.00 x 50.95 mm). This board fits in any host computer that has Mini PCI-e card slots.

Features

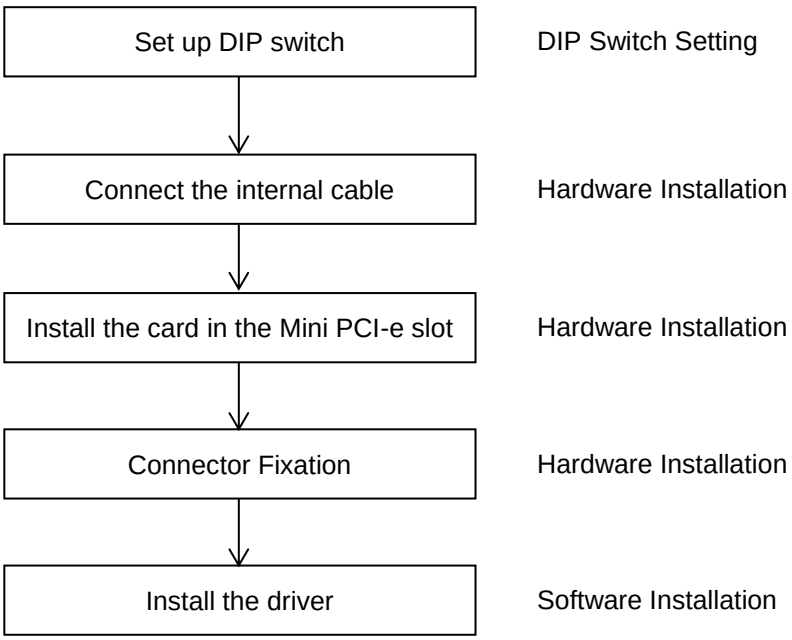
The PCI Express boards have the following outstanding features:

- Single-Lane (x1) PCI-Express with throughput up to 2.5Gbps
- Fully compliant with PCI-Express Base Specification Rev 1.1
- Top serial transmission performance up to 921.6 Kbps baud rate
- FIFO 128 Bytes, 15 KV ESD protections on board
- H/W, S/W automate flow control supported
- RS-232/422/485 mode selectable by DIP switches setting
- Each port supports 5V or 12V power output by jumper setting

Installation Flowchart

Installation Flowchart of MEC-COM-M134

The following flowchart provides a brief summary of the procedure you should follow to install the Mini PCI-e card:



Package Checklist

The following items are included in the Mini PCI Express board Package:

- Mini PCI-e Card x 1
- Bracket x 2
- 20Pin Internal Cable w/ two DB9 Male Connectors (30cm) x 2
- 4Pin Power Input Cable (30cm) x 1
- Quick Installation Guide (Printed) x 1
- Driver CD x 1

Note: *Notify your sales representative if any of the above items are missing or damaged.*

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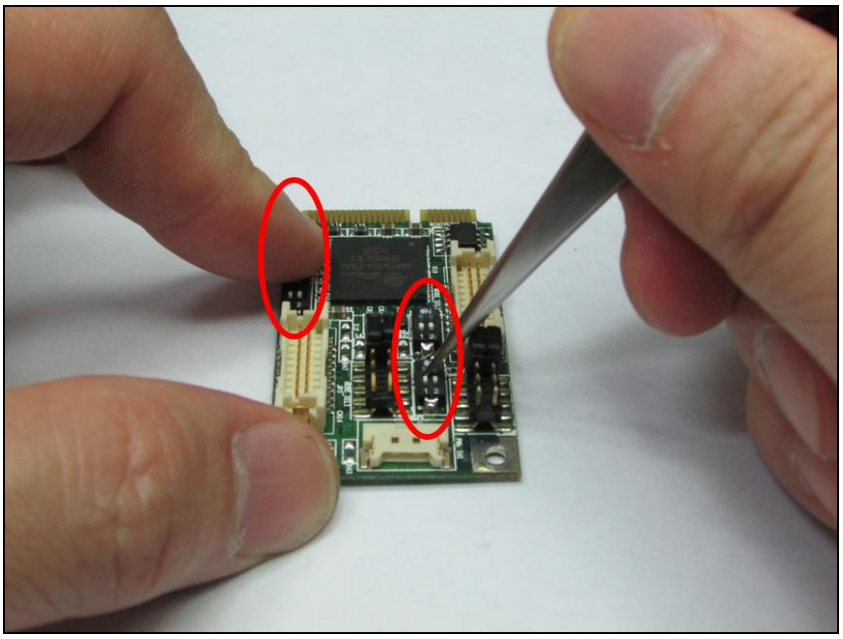
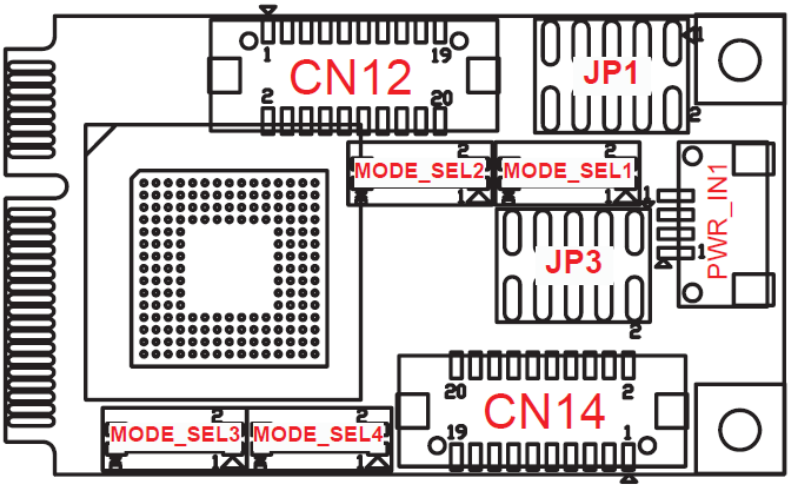
DIP Switch Setting

Set up the DIP switch



Make sure you set up the correct DIP switch before hardware installation

DIP Switch Define



Mode Select

RS232/422/485 Mode Select Switch (MODE_SEL3)

DB9 Male Connector-1	MODE_SEL3 DIP SWITCH (1、2)
RS-232	ON OFF
RS-422/485 FULL DUPLEX	ON ON
RS-485 HALF DUPLEX	OFF ON

RS232/422/485 Mode Select Switch (MODE_SEL1)

DB9 Male Connector-3	MODE_SEL1 DIP SWITCH (1、2)
RS-232	ON OFF
RS-422/485 FULL DUPLEX	ON ON
RS-485 HALF DUPLEX	OFF ON

RS232/422/485 Mode Select Switch (MODE_SEL4)

DB9 Male Connector-2	MODE_SEL4 DIP SWITCH (1、2)
RS-232	ON OFF
RS-422/485 FULL DUPLEX	ON ON
RS-485 HALF DUPLEX	OFF ON

RS232/422/485 Mode Select Switch (MODE_SEL2)

DB9 Male Connector-4	MODE_SEL2 DIP SWITCH (1、2)
RS-232	ON OFF
RS-422/485 FULL DUPLEX	ON ON
RS-485 HALF DUPLEX	OFF ON

	Make sure you set up the correct DIP switch before hardware installation
Note	connectors near the red line are connector 1 and connector 3

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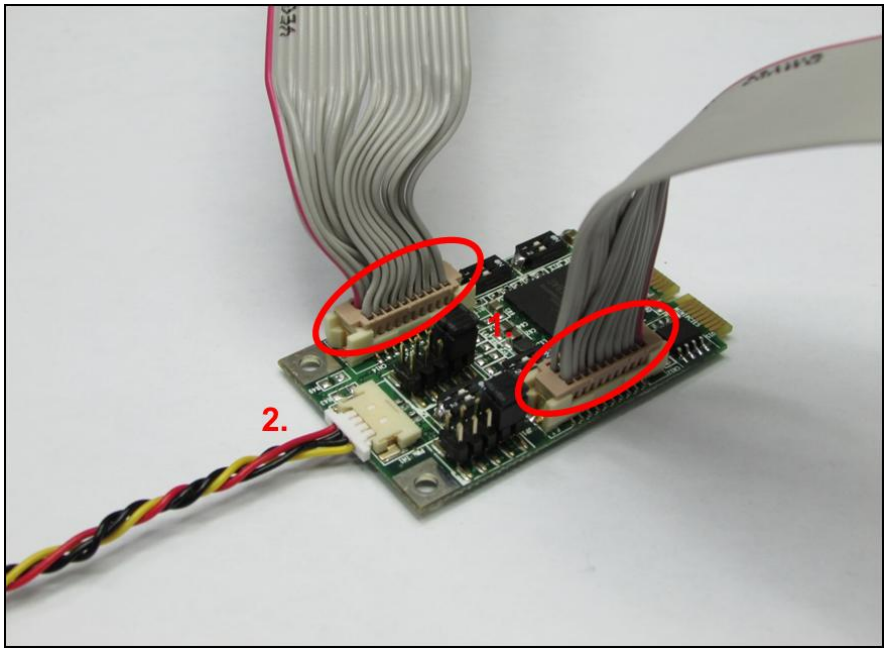
Hardware Installation

This chapter describes the PCI Express Series hardware installation procedure. Since the BIOS automatically assign the PCI Express board's IRQ number and I/O addresses, you must plug in the board before installing the driver.

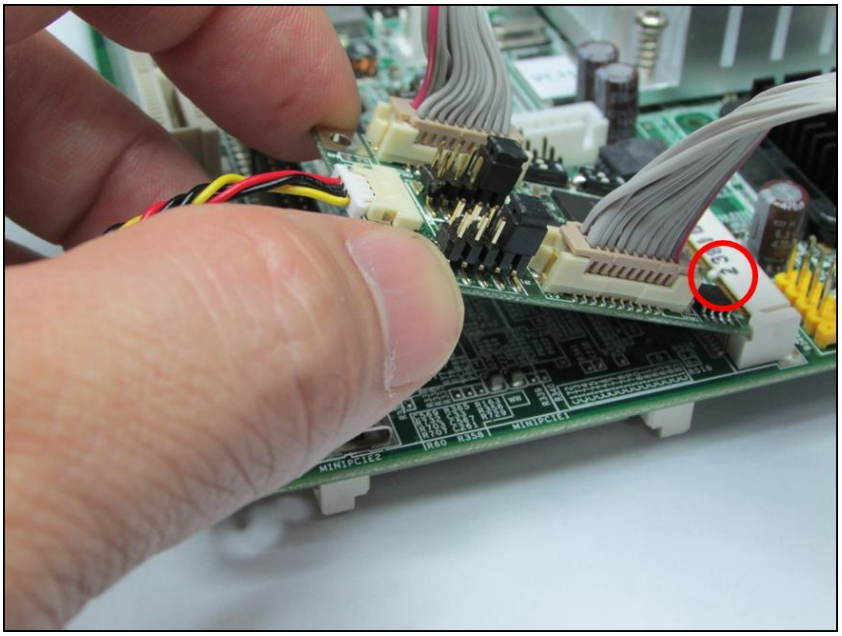
Step 1 Connect the internal cable to the card

1. Connect the internal cable to the card
2. Connect the power cable to the card



Note	The power cable will be needed if you wish to have the COM ports powered. (Please refer to the user manual appendix for the power select jumper setting)

Step 2 Install the card to the Mini PCI-e slot



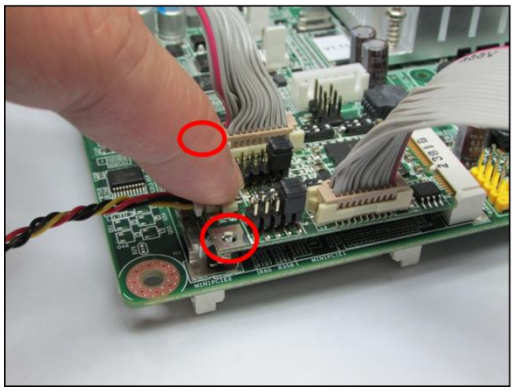
Make sure you install the card in the right position (fool-proof design)

Step 3 Fix the card on the motherboard (clip type or screw type)

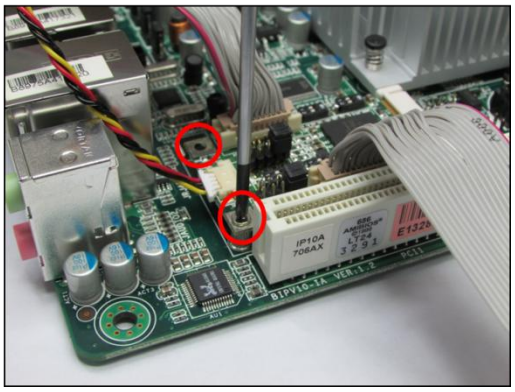
There are 2 options to fix the card. It depends on the design of the motherboard (clip or screw).

1. Clip type: make sure you press down the card and let the clips fix the card
2. Screw type: make sure you tighten up the screws to fix the card

Clip type

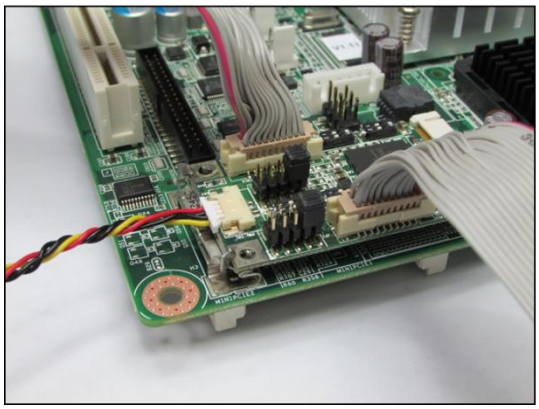


Screw type

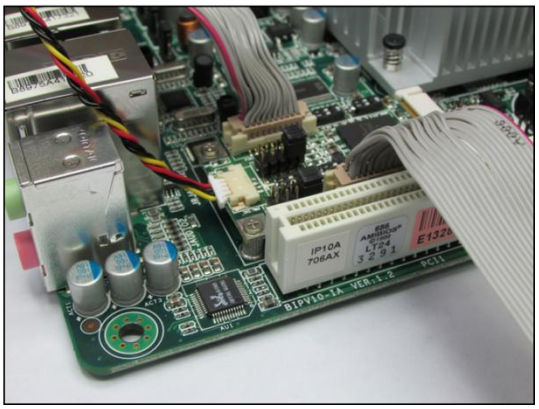


Step 4 Card installation completed

Clip type

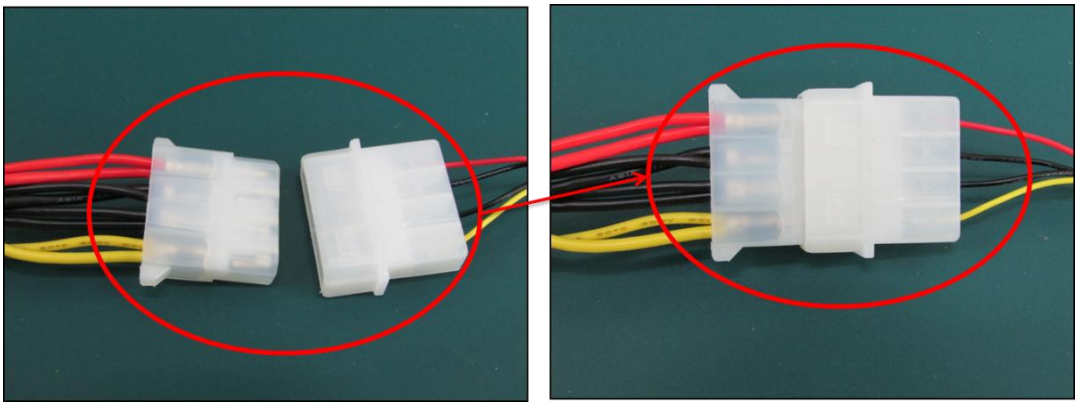


Screw type



Step 5 Connect the power cable to the 4PIN power connector

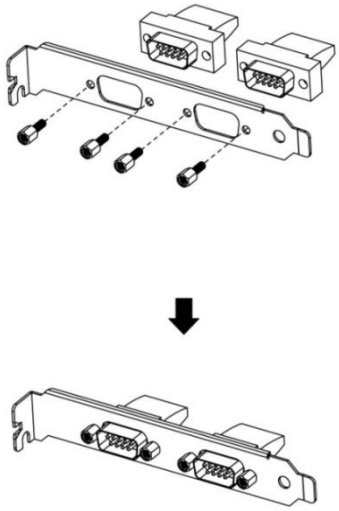
Connect the power cable to the big 4PIN power connector from the power supply



Connector Fixation

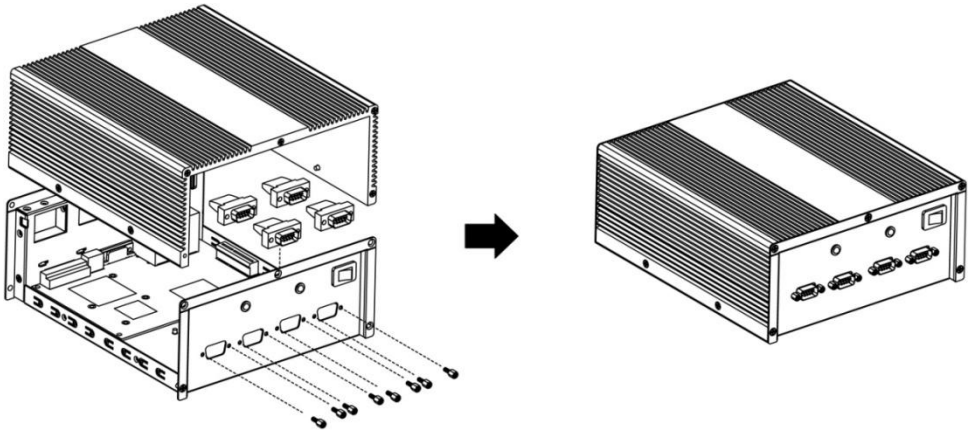
1. Standard PCI/PCIe Bracket

PCI / PCIe IO Bracket

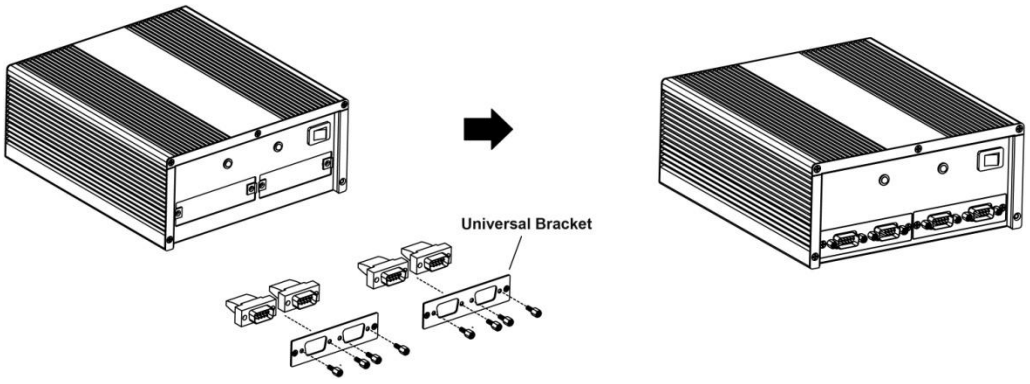


2. Customized Front / Rear Plate

Front / Rear I/O Plate



Universal Bracket



4

Software Installation

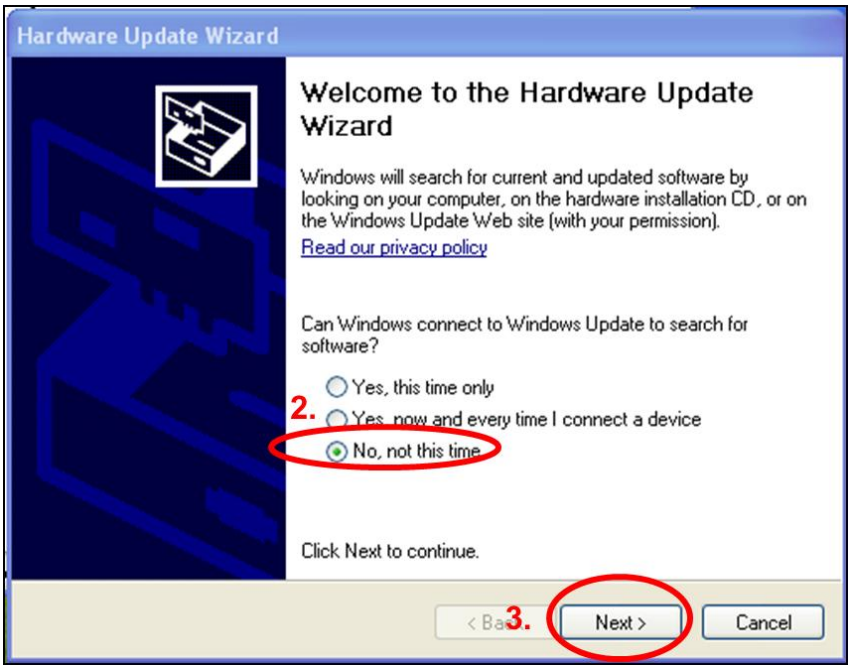
This chapter gives installation, configuration, and update/removal procedures for the driver for Win 2003, Win XP, Win Vista, and Win 7.

Step 1	**Turn on PC and start Windows**

Note	XP OS as example

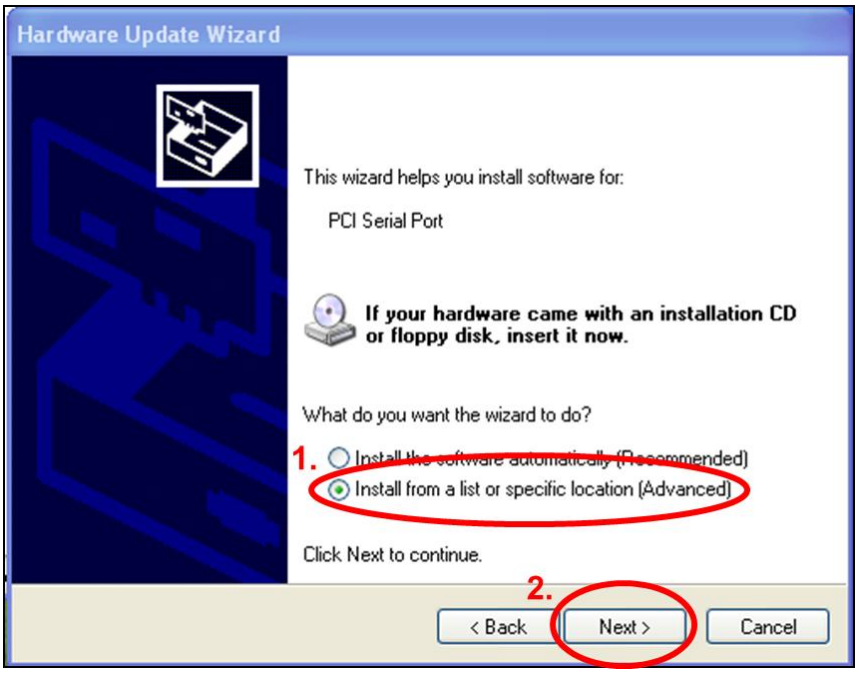
Step 2 Windows automatically detects the new device

1. If the card is installed properly, system would detect the new device and the hardware wizard would start automatically.
2. Select “No, not this time”
3. Click “Next”



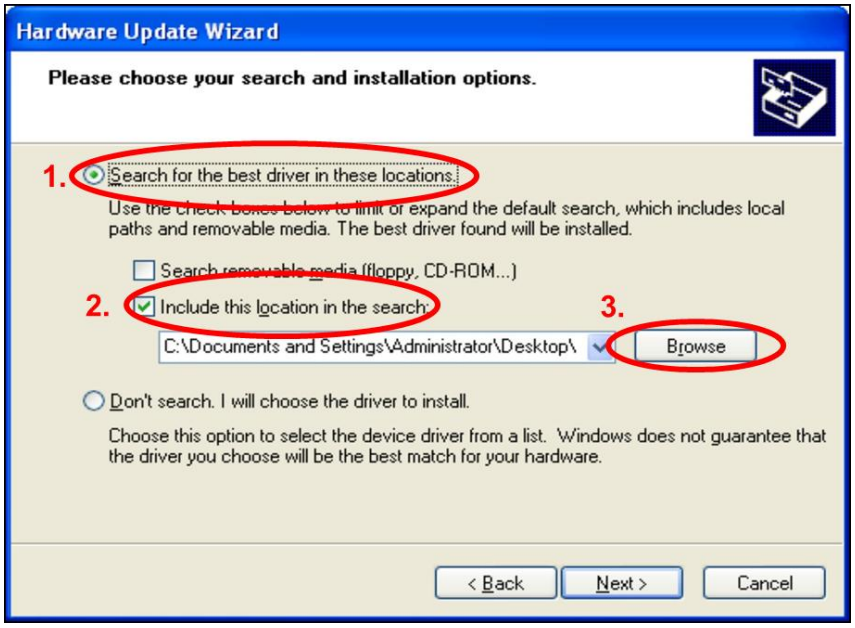
Step 3 Insert CD

1. Select “Install from a list or specific location (Advanced)”
2. Click “Next”



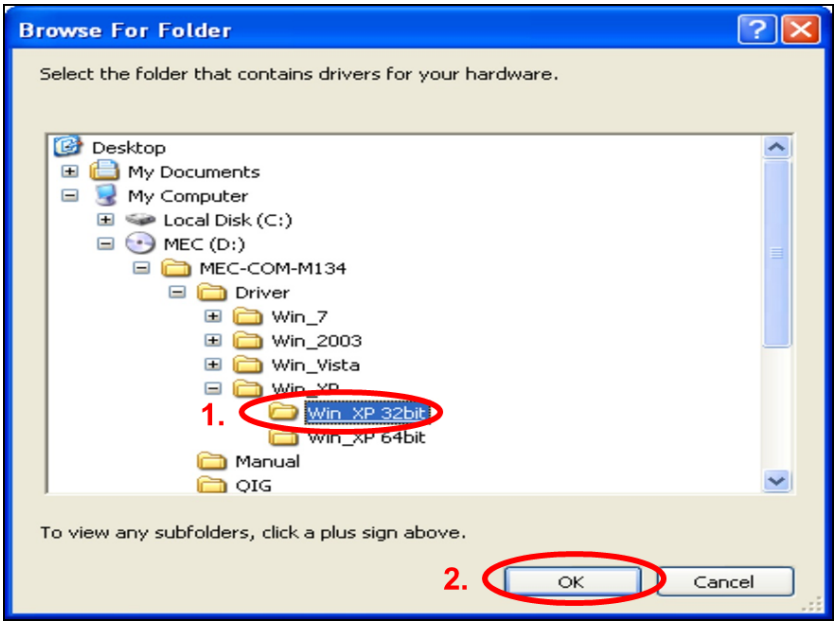
Step 4 Choose installation options

1. Select “Search for the best driver in these locations.”
2. Select “Include this location in the search:”
3. Click “Browse”



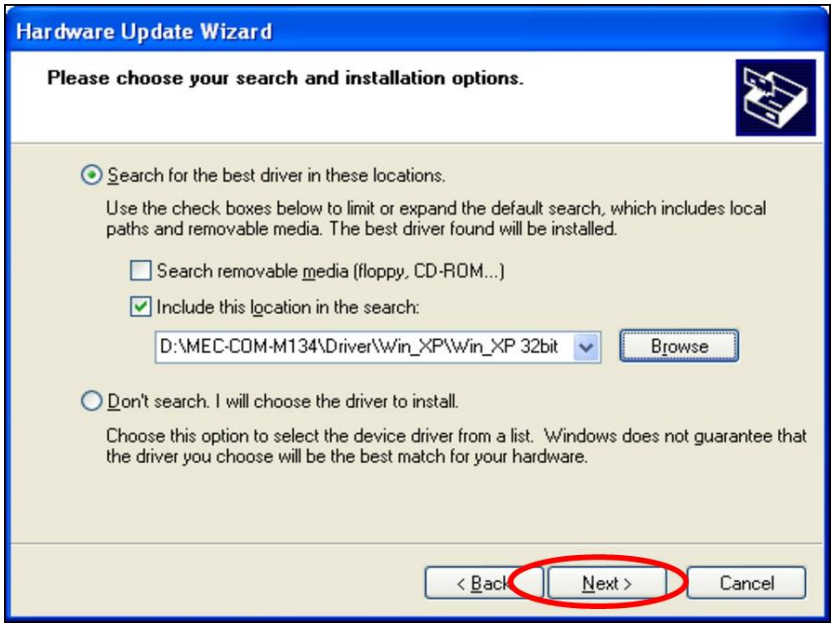
Step 5 Browse for folder (Ex.: XP 32bit)

1. Select the driver by route: *My Computer -> CD or DVD drive -> MEC-COM-M134 -> Driver -> Win_XP -> Win_XP 32bit*
2. Click “OK”



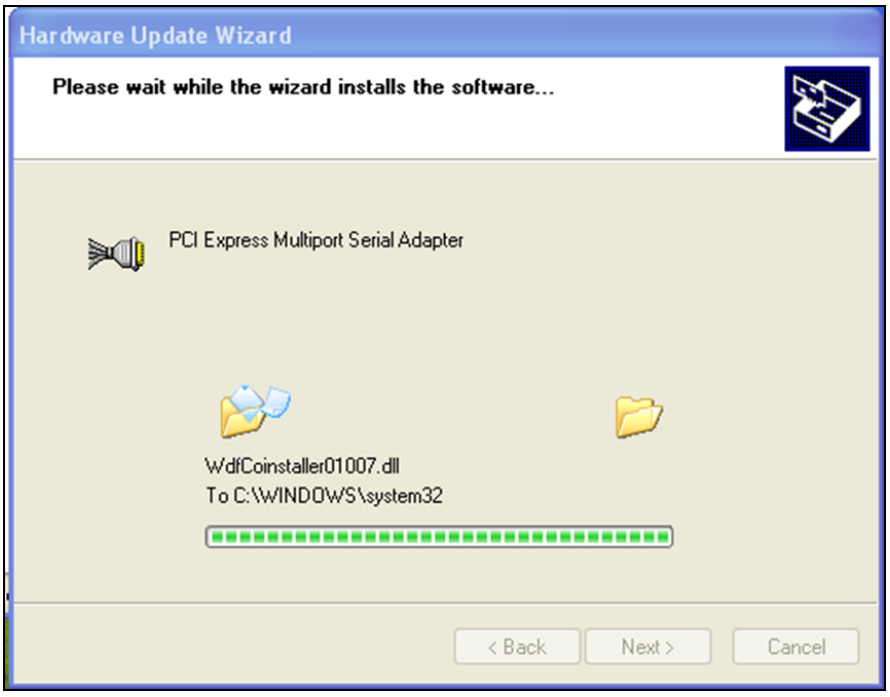
Step 6 Confirm driver folder

Click “Next”



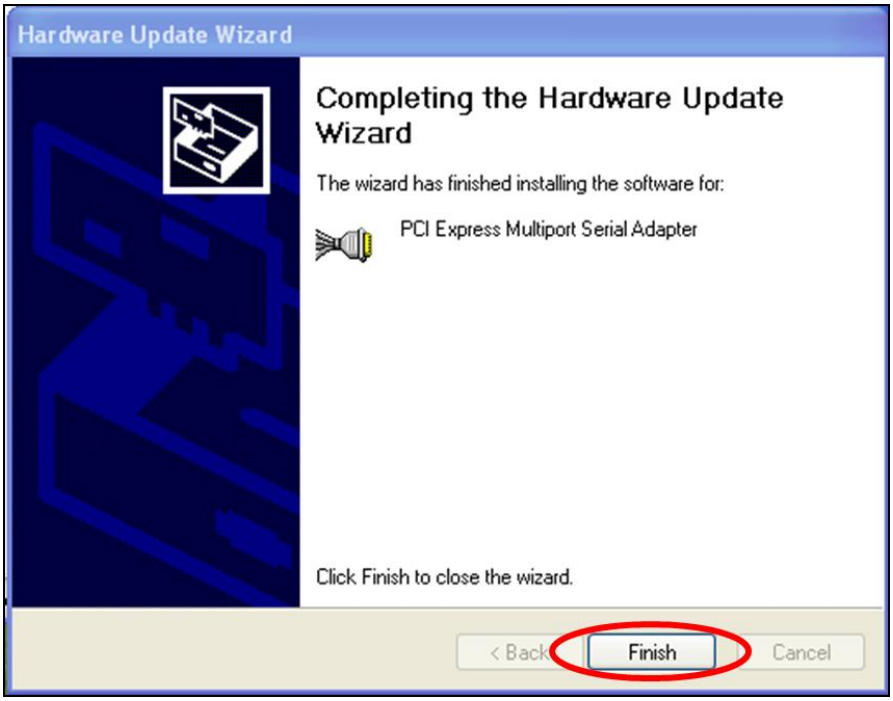
Make sure you select the correct driver.

Step 7 Installation in progress



Step 8 Driver installation completed

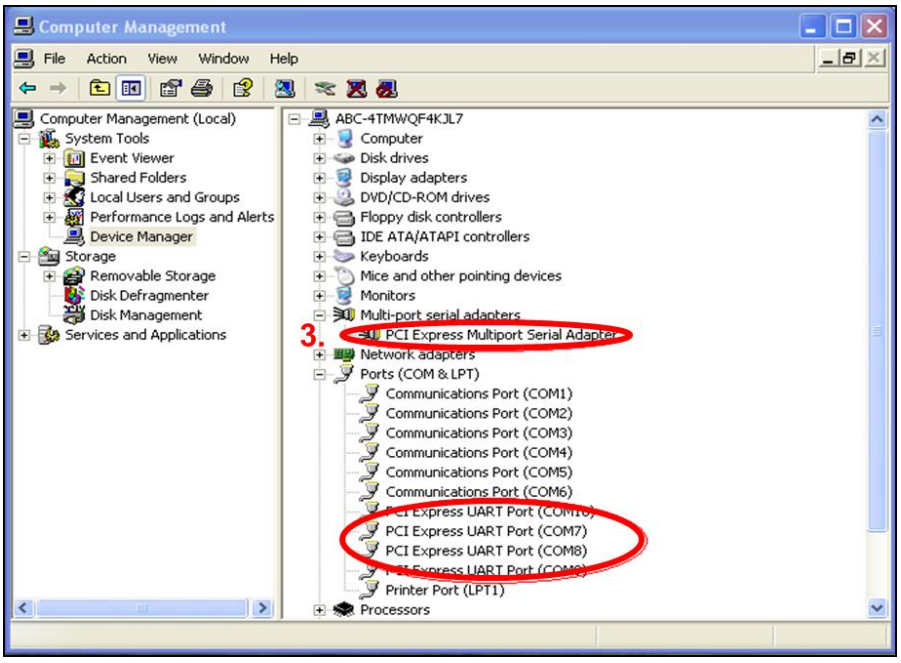
Driver installation is completed, click “Finish”



Step 9 Confirm if driver is installed

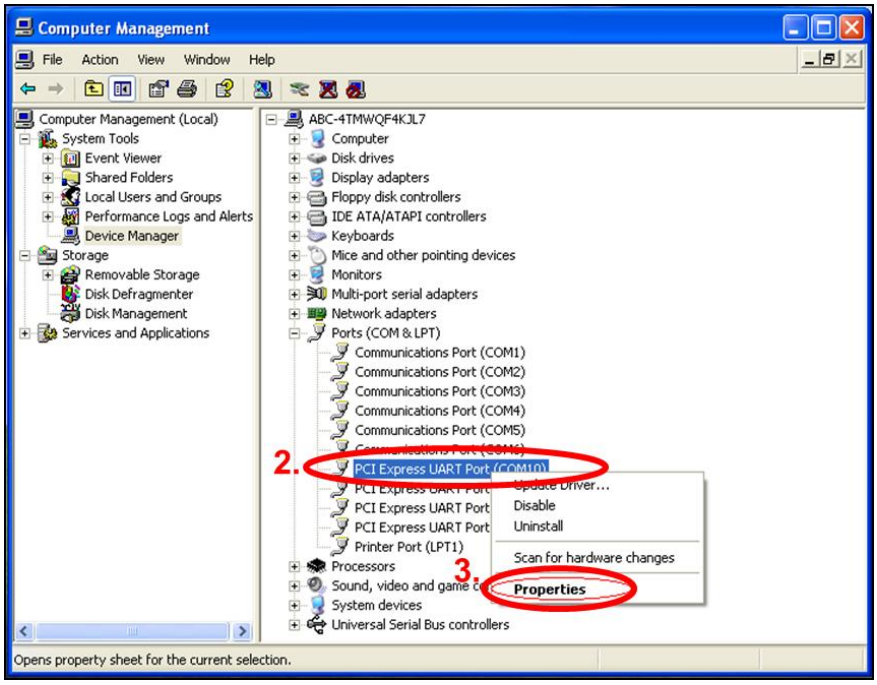
1. Start “Computer Management” program
2. Go to the route:

   My Computer → Manage → Device Manager → Multi-port serial adapters
3. You would find driver name: PCI Express Multiport Serial Adapter
4. Device is ready to be used



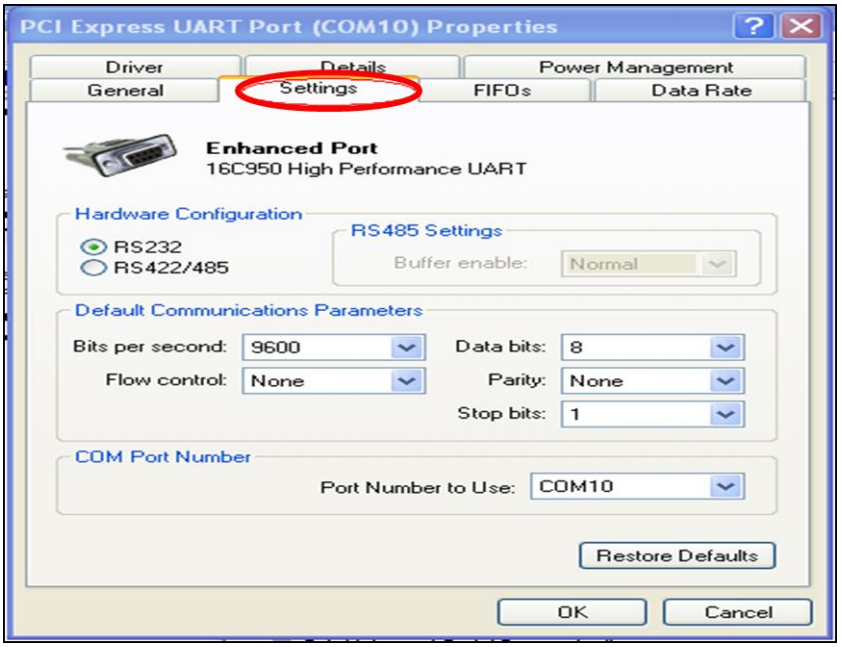
Step 10 Set up the COM ports

1. Set up the COM ports for your requirement (RS232 or RS422/485)
2. Select the COM port and right click
3. Select “Properties”



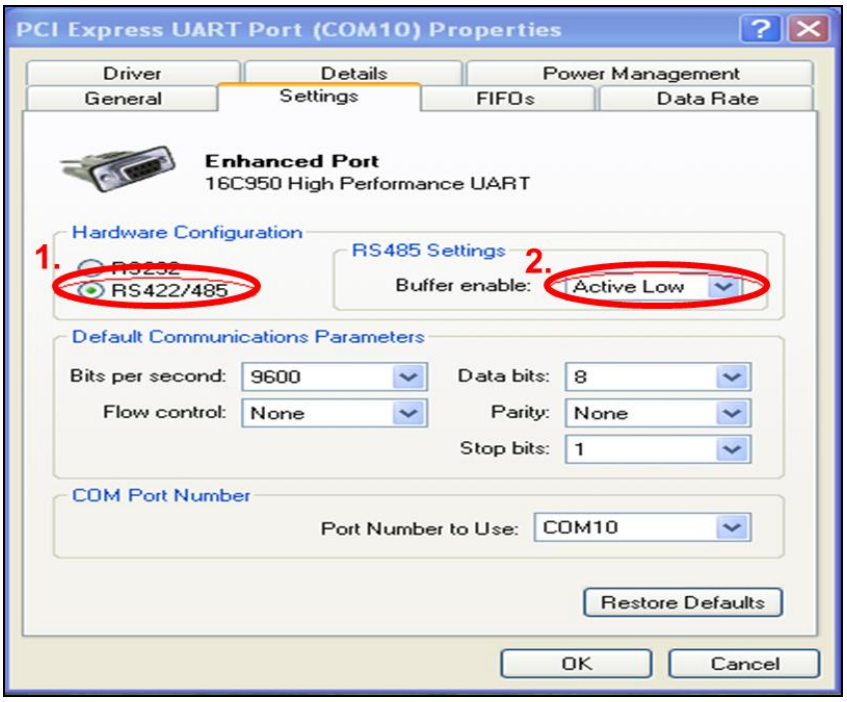
Step 11 COM ports properties settings

1. Properties settings window would pop out
2. Select the “Settings” page



Step 12 Select COM ports hardware configuration

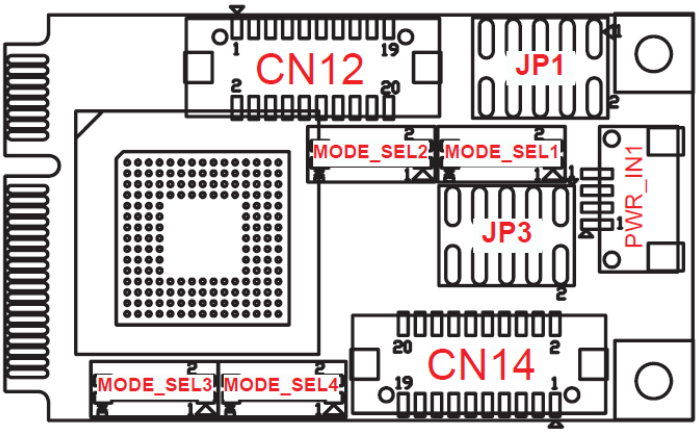
1. Select the hardware configuration for your COM port (either RS232 or RS422/485)
2. Select Buffer enable to “Active Low”



Note	Default setting of the COM port is RS232

Appendix

❑ Pin Assignments



Board Side Pin Assignments

Wire to Board Connector (CN14)

Pin	Description	Pin	Description
1	DCD_1	2	DCD_2
3	DSR_1	4	DSR_2
5	RXD_1	6	RXD_2
7	RTS_1	8	RTS_2
9	TXD_1	10	TXD_2
11	CTS_1	12	CTS_2
13	DTR_1	14	DTR_2
15	RI_1	16	RI_2
17	N/C	18	N/C
19	GND	20	GND

Wire to Board Connector (CN12)

Pin	Description	Pin	Description
1	DCD_3	2	DCD_4
3	DSR_3	4	DSR_4
5	RXD_3	6	RXD_4
7	RTS_3	8	RTS_4
9	TXD_3	10	TXD_4
11	CTS_3	12	CTS_4
13	DTR_3	14	DTR_4
15	RI_3	16	RI_4
17	N/C	18	N/C
19	GND	20	GND

DB9 Male Connector-1/2 With Power Select (JP3)

DB9 Male Connector-1	JP3	DB9 Male Connector-2	JP3
Pin 9 = +5V	Short 1-3	Pin 9 = +5V	Short 2-4
Pin 9 = +12V	Short 3-5 or 5-7	Pin 9 = +12V	Short 4-6 or 6-8
Pin 9 = RI	Short 7-9（Default）	Pin 9 = RI	Short 8-10（Default）

DB9 Male Connector-3/4 With Power Select (JP1)

DB9 Male Connector-3	JP1	DB9 Male Connector-4	JP1
Pin 9 = +5V	Short 1-3	Pin 9 = +5V	Short 2-4
Pin 9 = +12V	Short 3-5 or 5-7	Pin 9 = +12V	Short 4-6 or 6-8
Pin 9 = RI	Short 7-9（Default）	Pin 9 = RI	Short 8-10（Default）

Power Input Connector (PWR_IN1)

Pin	Description
1	+5V
2	GND
3	GND
4	+12V

RS232/422/485 Mode Select Switch (MODE_SEL3)

DB9 Male Connector-1	MODE_SEL3
	DIP SWITCH (1、2)
RS-232	ON OFF
RS-422/485 FULL DUPLEX	ON ON
RS-485 HALF DUPLEX	OFF ON

RS232/422/485 Mode Select Switch (MODE_SEL4)

DB9 Male Connector-2	MODE_SEL4
	DIP SWITCH (1、2)
RS-232	ON OFF
RS-422/485 FULL DUPLEX	ON ON
RS-485 HALF DUPLEX	OFF ON

RS232/422/485 Mode Select Switch (MODE_SEL1)

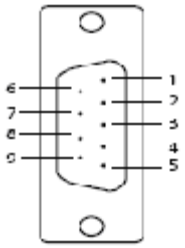
DB9 Male Connector-3	MODE_SEL1
	DIP SWITCH (1、2)
RS-232	ON OFF
RS-422/485 FULL DUPLEX	ON ON
RS-485 HALF DUPLEX	OFF ON

RS232/422/485 Mode Select Switch (MODE_SEL2)

DB9 Male Connector-4	MODE_SEL2
	DIP SWITCH (1、2)
RS-232	ON OFF
RS-422/485 FULL DUPLEX	ON ON
RS-485 HALF DUPLEX	OFF ON

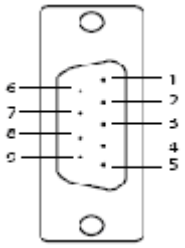
Device Side Pin Assignments

RS232/422/485 Port DB9 Male Connector-1



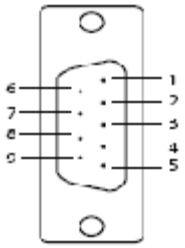
Pin	RS232 Description	RS-422/485 FULL DUPLEX Description	RS-485 HALF DUPLEX Description
1	DCD_1	TX_1-	DATA_1-
2	RxD_1	TX_1+	DATA_1+
3	TxD_1	RX_1+	
4	DTR_1	RX_1-	
5	GND		
6	DSR_1		
7	RTS_1		
8	CTS_1		
9	RI_1		

RS232/422/485 Port DB9 Male Connector-2



Pin	RS232 Description	RS-422/485 FULL DUPLEX Description	RS-485 HALF DUPLEX Description
1	DCD_2	TX_2-	DATA_2-
2	RxD_2	TX_2+	DATA_2+
3	TxD_2	RX_2+	
4	DTR_2	RX_2-	
5	GND		
6	DSR_2		
7	RTS_2		
8	CTS_2		
9	RI_2		

RS232/422/485 Port DB9 Male Connector-3



Pin	RS232 Description	RS-422/485 FULL DUPLEX Description	RS-485 HALF DUPLEX Description
1	DCD_3	TX_3-	DATA_3-
2	RxD_3	TX_3+	DATA_3+
3	TxD_3	RX_3+	
4	DTR_3	RX_3-	
5	GND		
6	DSR_3		
7	RTS_3		
8	CTS_3		
9	RI_3		

RS232/422/485 Port DB9 Male Connector-4

Pin	RS232 Description	RS-422/485 FULL DUPLEX Description	RS-485 HALF DUPLEX Description
1	DCD_4	TX_4-	DATA_4-
2	RxD_4	TX_4+	DATA_4+
3	TxD_4	RX_4+	
4	DTR_4	RX_4-	
5	GND		
6	DSR_4		
7	RTS_4		
8	CTS_4		
9	RI_4		

❑ Technical Reference

MEC-COM-M134 Specifications

General	
PCI-Express Revision	PCI-Express Base Specification Rev 1.1
PCI-Express Electromechanical Revision	PCI-Express Mini Card Electromechanical Rev. 1.1
Hardware	
Controllers	OXPCIe954 (16C550C compatible)
Bus	Single-Lane (x1) PCI-Express with throughput up to 2.5Gbps
Interface (Connector)	
RS-232 / 422 / 485	4 (DB9 male)
Serial Line Protection	
ESD Protection	15 KV on board
Serial Port Power	
Voltage Select	5V or 12V
Performance	
Baud Rate	Asynchronous baud rates up to 921.6 Kbps
Serial Communication Parameters	
Data Bits	5, 6, 7, 8
Stop Bits	1, 1.5, 2
Parity	No Parity bit Odd Parity bit Even Parity bit Parity bit forced to 1 Parity bit forced to 0
Flow Control	RTS/CTS, XON/XOFF
Serial Signals	
RS-232	TXD, RXD, RTS, CTS, DTR, DSR, DCD, GND
Parallel Signals	
SPP / EPP / ECP	STROBE, DATA0~DATA7, ACK, BUSY, PE, SEL, AUTOF, ERROR, INIT, SELIN, GND
Driver Support	
Operating Systems	Win 2003, Win XP, Win Vista, Win 7
Power Requirement	
Power Consumption	665mA@3.3V
Dimensions	
Width x Length (mm)	30.00 x 50.95
Environmental Limits	
Operating Temperature	-20°C ~ 70°C
Storage Temperature	-20°C ~ 85°C
Humidity	5% ~ 95%
Regulatory Approvals	
EMC	CE, FCC
EMI	EN 55022, EN61000-3-2, EN61000-3-3, FCC Part 15 Subpart B Class B
EMS	En 55024, 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

Reliability	
MTBF	1,631,268 hr
Warranty	3 years

MEC-COM-M134 Dimensions