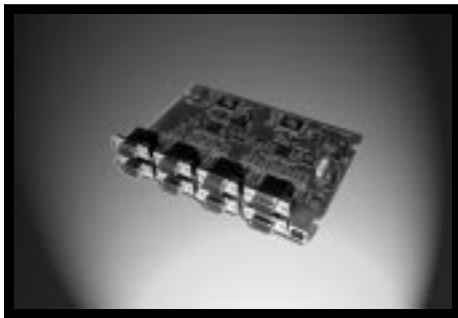


## USB Serial Adapters -- Embedded Models

**Upgrade to USB connectivity without replacing peripheral hardware or application software**

Technology advances and legacy-free motherboards are significantly impacting port expansion options. In some cases the USB port is the



*Quatech USB Embedded Serial Adapters are the industry's fastest and are ideal board-level solutions that can be easily integrated into kiosks and other custom enclosures.*

only choice, which can be a problem if your network relies on serial devices. Quatech has the solution.

### Industry-leading features include fastest speeds

Quatech's USB Serial Adapters are based on the idea that taking advantage of new technology should not necessitate abandoning legacy devices and the applications written for them. Features like industry-leading speed, plug-and-play and surge suppression make Quatech USB Serial Adapters the ideal solution for a wide variety of industries such as banking, retail and industrial automation where PCs have significantly shorter lifecycles than the peripherals used with them.

Quatech USB Serial Adapters enumerate themselves as standard COM ports that are compatible with all

standard RS-232 or RS-422/485 devices and the software created for them.

### Embedded USB Serial Adapters for custom enclosures

If you're looking to seamlessly connect multiple serial peripherals via a single USB port in a custom enclosure, try Quatech's Embedded USB Serial Adapters. These reliable units use the same technology as our standard products and enable manufacturers and integrators to easily incorporate multiple serial interface devices such as keypads, displays, card readers, and printers into custom enclosures that lack native serial support without changing software written for serial port communications.

Available with 4 or 8 independent ports, the small-footprint boards have built-in surge suppression at each serial port, necessary for maximum reliability and robustness. Mounting holes allow easy installation into cabinets and kiosks. For maximum flexibility, each port on 200/300 models can be configured as RS-422 or RS-485 in any combination, meaning a single adapter can be used to implement multiple full-duplex and half-duplex multi-drop networks.

*Complete, boxed (external) models are also available.*

### Features and Benefits

- Four or eight independent serial ports
- RS-232 or RS-422/485
- Embedded (board only) units
- Plug-and-play capability
- Devices enumerate themselves as standard COM ports
- Speeds up to 115.2 kbps
- Standard 16550 UARTs with 16-byte FIFOs to boost data rates
- Surge suppression package - standard
- Full modem control and hardware and software flow control
- Bus powered: no external power required
- Windows 98/Me/NT/2000/XP/Vista
- Five year warranty

# USB SERIAL ADAPTER SPECIFICATIONS

## Bus Interface

USB 1.1, USB 2.0 compatible

## Ordering Information

Model	Ports	Interface
QSU-100-EMB	4	RS-232 w/ cable
ESU-100-EMB	8	RS-232 w/ cable
QSU-200/300-EMB	4	RS-422/485 w/ cable

## OS Support

Windows 98/Me/NT/2000/XP/Vista  
SunRay Server (SSU/QSU-100)  
Linux

## Data Rate

115.2 (max)

## Serial Ports Provided

**QSU:4 ESU:8**

(For 200/300 models, each configurable as RS-422 or RS-485 for full or half duplex communication)

## USB Ports Required

**QSU:1 ESU:1**

## UARTs

16550 UARTs with 16-byte FIFOs (1 per port)

## Transceiver (RS-232)

SP211HB

## Transceiver (RS-422/485)

MAX491 or compatible

## RS-232 Output

**Voltage Swing:** ±5V (min), ±7V (typ)

## RS-232 Input

**Voltage Range:** -15V (min), ±15V (max)

**Input Threshold Low:** 0.8V (min), 1.2V (typ)

**Input Threshold High:** 2.4V (max), 1.7 (typ)

**Surge Suppression:** Surge suppression applied to each line that is capable of sustaining up to 40A peak, 8 x 20µs transient surges, a clamping voltage of 30V and a peak energy dissipation of 0.1 Joules. Surge suppression is not available with SSU-100-EMB.

## Communication Modes

Full-duplex, half-duplex using RTS, Half-duplex using DTR, Half-duplex automatic transmitter control.

## RS-422/485 Differential Driver Output (27Ω Load):

+1.5V (min), +5V (max)

**High Input:** +2V (min)

**Low Input:** +0.8V (max)

**Driver Rise/Fall Time:** 5ns (min), 15ns (typ), 25 ns (max)

**Driver Input to Output Delay:** 10ns (min), 30ns (typ), 60ns (max)

**Receiver Input to Output Delay:** 20ns (min), 90ns (typ), 150ns (max)

## Environment

**Operating:** 0° to 70°C

**Storage:** -50° to 80° C

**Humidity:** 10% to 90%

## Power Requirements

Bus-powered device, no external power supply required

**Suspend power:** < 500 µA

**Unconfigured power:** < 100 mA

**Configured power:** < 500 mA

## Size

**QSU:** 0.56"H x 6.90"W x 4.00"D

**ESU:** 1.31"H, 6.52"W x 4.80"D

## Connectors

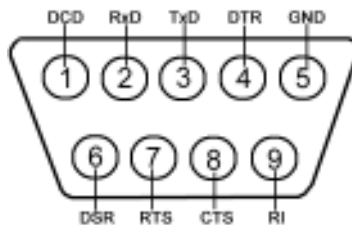
DB-9 male

## Certifications

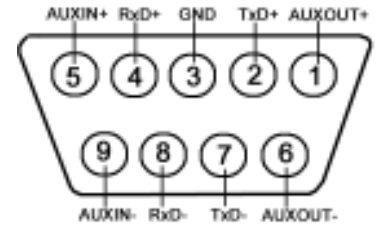
CE, FCC Class B

## Pinouts & Board Layouts

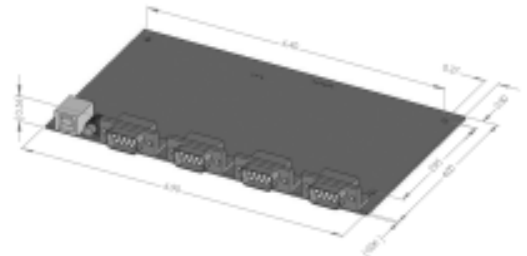
### DB9-M Pinout (RS-232 for Q/ESU-100-EMB)



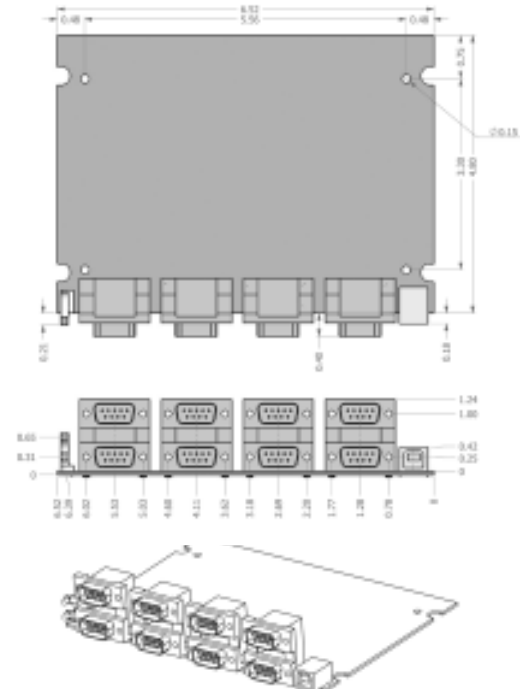
### DB9-F Pinout (RS-422/485 for Q/ESU-200/300-EMB)



### Board Layout for QSU Models



### Board Layout for ESU Models



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