

# RS232/RS422 Converter

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# 1. General Description

## 1.1. Overview of Units Uses

The RS232/RS422 converter is designed to support all types of RS232 and RS422 conversion needs. All defined pins are supported on the RS232 and RS422 sides of the interface. The only exceptions to this are the voltage pins. The voltage pins are not connected inside the unit.

The unit will support synchronous uses like HDLC and support a hardware handshake or software handshake. The unit supports asynchronous operations using hardware or software handshake. The pins, on both connectors, are connected to a jumper posts so they can be connected internally to any of the other pins. The jumper posts are setup so the RS232 and RS422 interfaces can be setup for either a DCE or DTE interface using shorting jumpers on the jumper posts.

## 1.2. Description of Each LED

### 1.2.1. RTS

The RTS LED is lit when the RS232 Data Set Ready signal is active if the RS232 interface is in the DCE mode. The RTS LED monitors the RS232 Data Terminal Ready signal when the RS232 interface is in the DTE mode.

The RTS LED is connected to JP1-5 and JP3-6 on the RS232 interface.

The RTS LED is connected to JP12-13, JP12-14 and JP14-15, JP14-16 on the RS422 interface.

### 1.2.2. DTR

The DTR LED is lit when the RS232 Ready To Send signal is active if the RS232 interface is in the DCE mode. The DTR LED monitors the RS232 Clear To Send signal when the RS232 interface is in the DTE mode.

The DTR LED is connected to JP1-3 and JP3-4 on the RS232 interface.

The DTR LED is connected to JP12-11, JP12-12 and JP14-7, JP14-8 on the RS422 interface.

### 1.2.3. TXD

The TXD LED is lit when the RS232 Transmit Data signal is active if the RS232 interface is in the DTE mode. The TXD LED monitors the RS232 Receive Data signal when the RS232 interface is in the DCE mode.

The TXD LED is connected to JP1-2 and JP3-1 on the RS232 interface.

The TXD LED is connected to JP12-1, JP12-2 and JP14-5, JP14-6 on the RS422 interface.

### 1.2.4. PWR

The unit has power applied and is operational if the PWR LED is lit.

### 1.2.5. CTS

The CTS LED is lit when the RS232 Receive Data clock is running if the RS232 interface is in the DTE mode. The CTS LED monitors the RS232 External Transmit Clock when the interface is in the DCE mode.

The CTS LED is connected to JP1-8 and JP3-7 on the RS232 interface.

The CTS LED is connected to JP12-19, JP12-20 and JP14-9, JP14-10 on the RS422 interface.

### 1.2.6. DSR

The DSR LED is lit when the RS232 RTS signal is active if the interface is in a DTE mode. The DSR LED monitors the RS232 CTS signal when the RS232 interface is in a DCE mode.

The DSR LED is connected to JP1-4 and JP3-3 on the RS232 interface.

The DSR LED is connected to JP12-7, JP12-8 and JP14-11, JP14-12 on the RS422 interface.

### 1.2.7. RXD

The RXD LED is lit when the RS232 Receive Data signal is active if the interface is in a DTE mode. The RXD LED monitors the RS232 Transmit Data signal when the RS232 interface is in a DCE mode.

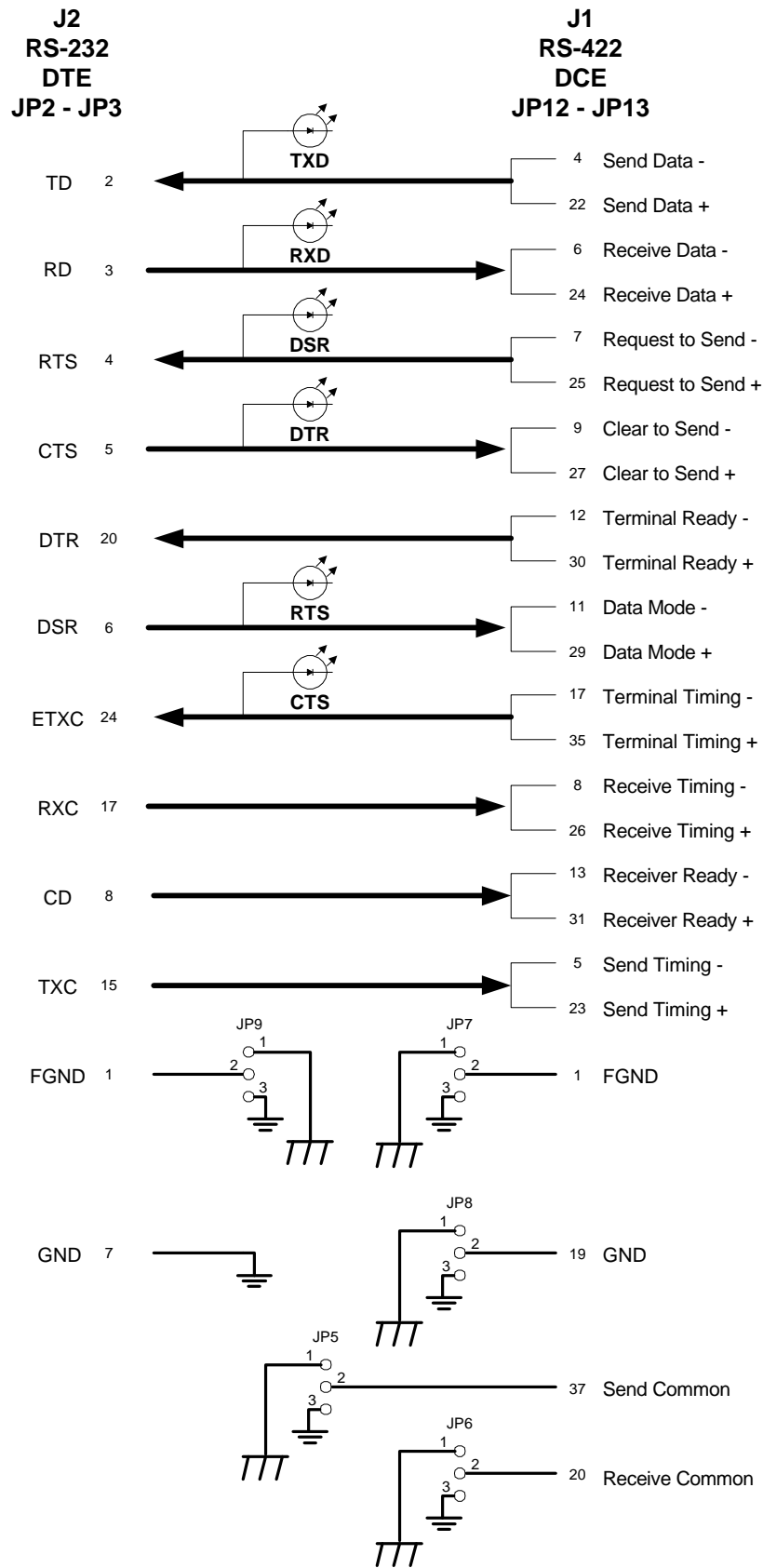
The RXD LED is connected to JP1-1 and JP3-2 on the RS232 interface.

The RXD LED is connected to JP12-5, JP12-6 and JP14-1, JP14-2 on the RS422 interface.

## 2. Tables for Jumper Configuration

### 2.1. Standard Jumper Settings

The unit has two sets of three jumpers used to jumper the RS232 and RS422 interface. Figure 1 and Figure 2 show two standard configurations setup by moving the shorting jumpers from one set of jumper pins to the other set of pins.



**Figure 1. - Default Standard Setup**

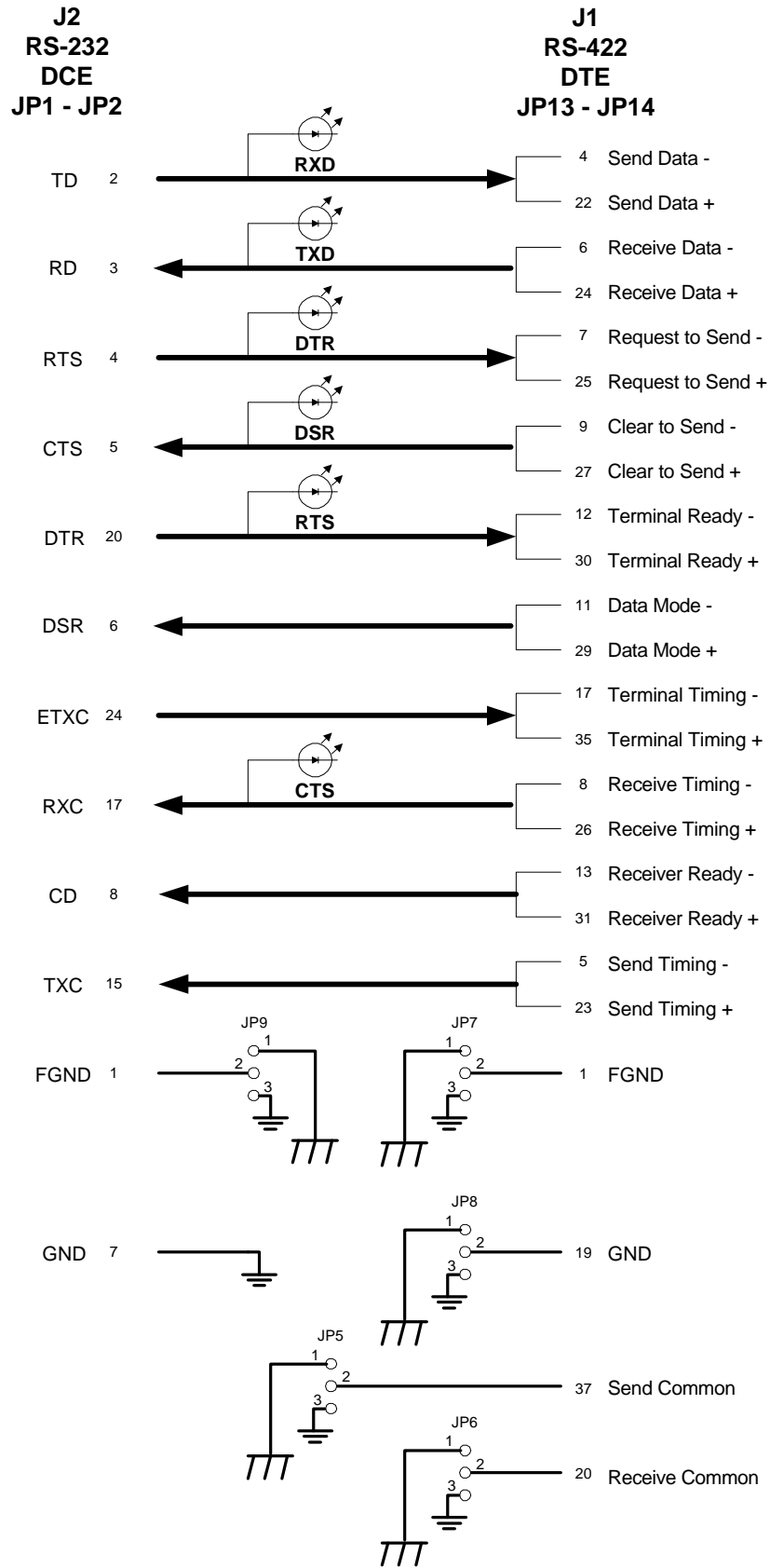


Figure 2. - Optional Standard Setup

## 2.2. RS232 Jumpers

### 2.2.1. RS232 Interface Signal Pins

Table 1 is a description of the connector J2 for the RS232 interface. The table describes the purpose of each pin and lists the jumper blocks associated with the connector. The center column labeled “Jumper Pin” lists the jumper pins attached to the connector pins. The columns “DTE” and “DCE” list the jumper pins to jumper between for DTE and DCE operation of the interface. Example: For DTE operation JP3-1 is shorted to JP2-1.

**Table 1. – J2 RS232 Connector and Jumpers**

Pin #	DTE	Jumper Pin	DCE	Description
1		JP9-2		Ground
2	JP3-1	JP2-1	JP1-1	Transmit Data
3	JP3-2	JP2-2	JP1-2	Receive Data
4	JP3-3	JP2-3	JP1-3	Request To Send (RTS)
5	JP3-4	JP2-4	JP1-4	Clear To Send (CTS)
6	JP3-6	JP2-6	JP1-6	Data Set Ready (DSR)
7		N/A		Ground (Signal)
8	JP3-9	JP2-9	JP3-9	Carrier Detect (CD)
9		N/A		Voltage +
10		N/A		Voltage -
11				
12		JP4-3		Secondary Signal Indicator
13		N/A		Secondary Clear To Send (CTS)
14		JP4-12		Secondary Transmit Data
15	JP3-10	JP2-10	JP3-10	Transmit Clock
16		JP4-11		Secondary Receive Data
17	JP3-8	JP2-8	JP3-8	Receive Clock
18		JP4-10		
19		JP4-9		Secondary Ready To Send (RTS)
20	JP3-5	JP2-5	JP3-5	Data Terminal Ready (DTR)
21		JP4-8		Signal Quality
22		JP4-6		Ring Indicator
23		JP4-4		Data Rate
24	JP3-7	JP2-7	JP3-7	External Clock
25		JP4-2		

## 2.2.2. RS232 Interface Grounding Options

Table 2 describes the grounding options for various connector pins on the RS422 interface.

**Table 2. – Ground Jumpers for RS232 Interface**

Jumper	Pin #	Description
JP9	1	Frame Ground (Connected to the frame of the Unit)
JP9	2	J2 – 1 (Pin 1 of the RS232 Connector)
JP9	3	Signal Ground (Connected to the 5V Ground in the Unit)

## 2.3. RS422 JumpersRS422 Interface Signal Pins

Table 3 is a description of the connector J1 for the RS422 interface. The table describes the purpose of each pin and lists the jumper blocks associated with the connector. The center column labeled “Jumper Pin” lists the jumper pins attached to the connector pins. The columns “DTE” and “DCE” list the jumper pins to jumper between for DTE and DCE operation of the interface. Example: For DTE operation JP12-2 is shorted to JP13-2.

**Table 3. – J1 RS422 Connector and Jumpers**

Pin #	DCE	Jumper Pin	DTE	Description
1		JP7-2		Ground
2		JP10-13		Signaling Rate
3		JP10-12		
4	JP12-2	JP13-2	JP14-2	Transmit Data – (TD-)
5	JP12-4	JP13-4	JP14-4	Transmit Clock – (TXC-)
6	JP12-6	JP13-6	JP14-6	Receive Data – (RD-)
7	JP12-8	JP13-8	JP14-8	Ready To Send – (RTS-)
8	JP12-10	JP13-10	JP14-10	Receive Clock – (RXC-)
9	JP12-12	JP13-12	JP14-12	Clear To Send – (CTS-)
10		JP10-9		Local Loopback
11	JP12-14	JP13-14	JP14-14	Data Set Ready – (DSR-)
12	JP12-16	JP13-16	JP14-16	Data Terminal Ready – (DTR-)
13	JP12-18	JP13-18	JP14-18	R? Ready – (RR-)
14		JP10-7		Remote Loopback

<b>Pin #</b>	<b>DCE</b>	<b>Jumper Pin</b>	<b>DTE</b>	<b>Description</b>
15		JP10-5		Incoming Call
16		JP10-3		Select Frequency
17	JP12-20	JP13-20	JP14-20	External Transmit Clock – (ETXC-)
18		JP10-1		Test Mode
19		JP8-2		Ground
20		JP6-2		Receive Common
21		JP10-12		
22	JP12-1	JP13-1	JP14-1	Transmit Data + (TD+)
23	JP12-3	JP13-3	JP14-3	Transmit Clock + (TXC+)
24	JP12-5	JP13-5	JP14-5	Receive Data + (RD+)
25	JP12-7	JP13-7	JP14-7	Ready To Send + (RTS+)
26	JP12-9	JP13-9	JP14-9	Receive Clock + (RXC+)
27	JP12-11	JP13-11	JP14-11	Clear To Send + (CTS+)
28		JP10-10		In Service
29	JP12-13	JP13-13	JP14-13	Data Set Ready + (DSR+)
30	JP12-15	JP13-15	JP14-15	Data Terminal Ready + (DTR+)
31	JP12-17	JP13-17	JP14-17	R? Ready + (RR+)
32		JP10-8		Select Standby
33		JP10-6		Signal Quality
34		JP10-4		New Signal
35	JP12-19	JP13-19	JP14-19	External Transmit Clock + (ETXC+)
36		JP10-2		Standby
37		JP5-2		Send Common

### 2.3.1. RS422 Interface Grounding Options

Table 4 describes the grounding options for various connector pins on the RS422 interface.

**Table 4. – Grounding Jumpers for RS422 Interface**

<b>Jumper</b>	<b>Pin #</b>	<b>Connector</b>	<b>Description</b>
JP5	1		Frame Ground
JP5	2	J1 – 37	RS422 Send Common
JP5	3		Signal Ground
JP6	1		Frame Ground
JP6	2	J1 – 20	RS422 Receive Common
JP6	3		Signal Ground
JP7	1		Frame Ground
JP7	2	J1 – 1	Ground pin
JP7	3		Signal Ground
JP8	1		Not Used
JP8	2		Not Used
JP8	3		Not Used
JP11	1		Frame Ground
JP11	2		Signal Ground

### 2.4. Power Connector

The power supplied can be from single phase or two phase source. The single phase should be applied so Pin A is the line voltage and Pin B as a neutral and C is an Earth Ground. The two phase source should use Pin A and B and Pin C is an Earth Ground. The supply requires that the AC voltage between Pins A and B is between 100 – 240 VAC.

**Table 5. – J3 AC Power Connector**

<b>Pin #</b>	<b>Voltage</b>	<b>Frequency</b>	<b>Description</b>
A	240 – 100VAC	60/50 Hz	Line
B	240 – 100VAC	60/50 Hz	Line
C	0V	NA	Earth Ground (tied to case of converter)

### 3. Drawings and Mounting Information

This section contains a drawing of the box and a pattern for mounting holes of the box.

