

Product: MAXsys Elite
 Subject: RS-485 Communications Network
 Date: 7/14/08

DESCRIPTION:

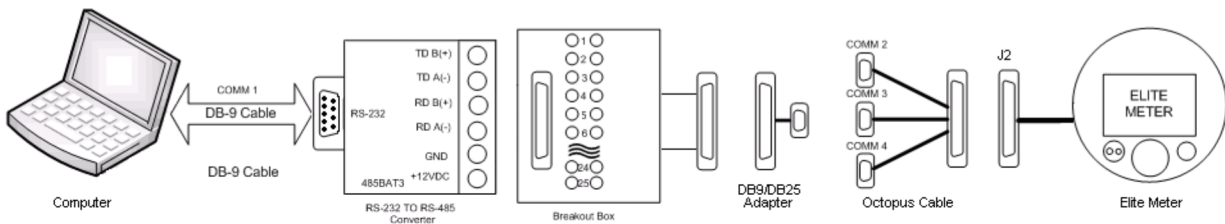
An RS485 Connection can be set up one of two ways on the MAXsys Elite: half duplex or full duplex. Half duplex uses two wires to transfer data with the computer while full duplex uses four wires.

HARDWARE CONFIGURATION:

Both the comm ports originate from the same connector on the meter so it is important to note the pins on the connector. There are a couple of ways to establish a full or half duplex connection to the meter, here are the most common ways.

- 1) Use of an octopus cable, a converter, an adapter, and a break out box
 - 2) Use of a converter and a break out box
 - 3) Use of a converter and an octopus cable
 - 4) Use of a converter
- 1) Use of an octopus cable, a converter, an adapter, and a break out box:

With this method of connection, the converter connects to a break out box using the four wires (for full duplex) or two wires (for half duplex). The break out box is then connected to a DB25/DB9 adapter which connects to one of the comm ports of the octopus cable. *NOTE: It is important to remember that the adapter connecting to the comm ports changes the pin layout when it changes the DB9 octopus cable to the DB25 connector that feeds the signals to the break out box.* By using the octopus cable, comm ports 3 and 4 have the same connections on the break out box. The diagram below depicts the first method of connection:



Converter to Break out box connection pins:

Full Duplex

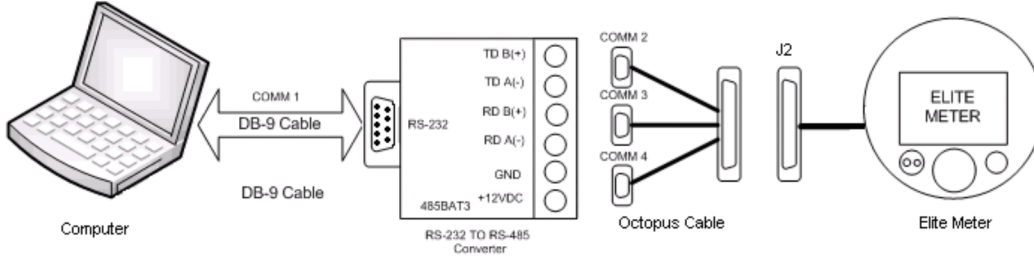
- TD+ --> 2 (IN+)
- TD- --> 4 (IN-)
- RD+ --> 5 (OUT+)
- RD- --> 3 (OUT-)

Half Duplex

- TD+, RD+ --> 5 (OUT+)
- TD-, RD- --> 3 (OUT-)

2) Use of a converter and an octopus cable

This method does not use the break out box for a connection. Instead, the four wires (for full duplex), or the two wires (for half duplex), from the RS232-RS485 converter connect directly to the octopus cable without the use of the break out box or the DB9/DB25 adapter. Because the octopus cable is used, comm ports 3 and 4 have the same pin connections. The diagram below illustrates this method of connection:



Converter to octopus cable connection pins:

Full Duplex

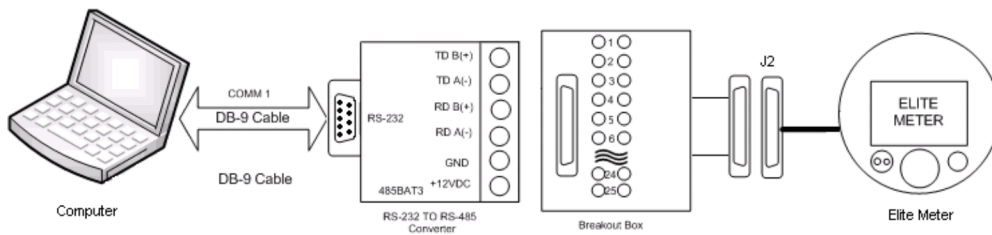
- TD+ --> 3 (IN+)
- TD- --> 7 (IN-)
- RD+ --> 8 (OUT+)
- RD- --> 2 (OUT-)

Half Duplex

- TD+, RD+ --> 8 (OUT+)
- TD-, RD- --> 2 (OUT-)

3) Use of a converter and a break out box.

This method is similar to the first method except it does not use the octopus cable or the DB9/25 adapter. Instead, the J2 cable from the meter is connected directly to the break out box. Because an octopus cable is not used, the pins for comm ports 3 and 4 are different. The diagram below illustrates this method of connection:



Converter to Break out box connection pins:

Full Duplex

- TD+ --> 25 (IN+)
- TD- --> 9 (IN-)
- RD+ --> 11 (OUT+)
- RD- --> 10 (OUT-)

COM 3

- Half Duplex**
- TD+, RD+ --> 11 (OUT+)
- TD-, RD- --> 10 (OUT-)

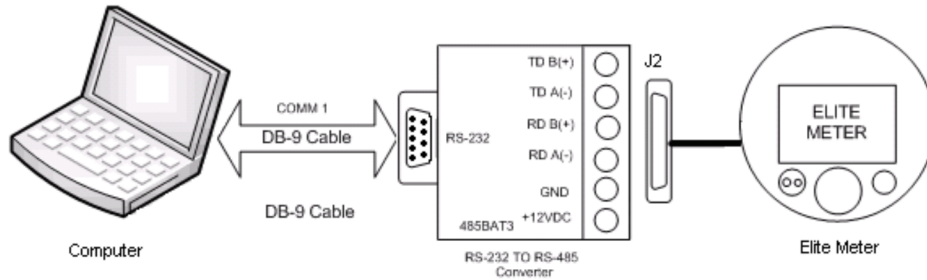
- Full Duplex**
- TD+ --> 16 (IN+)
- TD- --> 13 (IN-)
- RD+ --> 19 (OUT+)
- RD- --> 14 (OUT-)

COM 4

- Half Duplex**
- TD+, RD+ --> 19 (OUT+)
- TD-, RD- --> 14 (OUT-)

4) Use of a converter

This method just connects the converter wires (2 for half duplex, 4 for full duplex) directly to the J2 cable coming off of the meter. Because an octopus cable is not used, the pins for comm ports 3 and 4 are different. The diagram below illustrates this method of connection:



Converter to J2 Cable connection pins:

| COM 3 | | COM 4 | |
|-------------------|------------------------|-------------------|------------------------|
| Full Duplex | Half Duplex | Full Duplex | Half Duplex |
| TD+ --> 25 (IN+) | TD+, RD+ --> 11 (OUT+) | TD+ --> 16 (IN+) | TD+, RD+ --> 19 (OUT+) |
| TD- --> 9 (IN-) | TD-, RD- --> 10 (OUT-) | TD- --> 13 (IN-) | TD-, RD- --> 14 (OUT-) |
| RD+ --> 11 (OUT+) | | RD+ --> 19 (OUT+) | |
| RD- --> 10 (OUT-) | | RD- --> 14 (OUT-) | |

METER CONFIGURATION:

On the meter side, the user needs to set up the meter for a 485 communication and pick which port is the desired port of communication.

TableEdit32 is the best tool to do this. Read and View Table 75 for com port 4, and Table 73 for com port 3. In the option for 'Mode', select 'RS-485 External Rs-232 Communications' for half duplex and 'Rs-485 4-Wire External Rs-232 Communications' for full duplex. The 'Baud' option can also be manipulated to change the com port baud rate to the desired speed.

MAXCOM can only be used to switch from full duplex or half duplex or RS232 because it has to be first set to some sort of comm port in TableEdit32 before it can be used. Once the port is configured to either RS485 full or half duplex, or some RS232 connection, MAXCOM can switch between these com port configurations.



CONNECTING TO THE METER:

To connect to the meter, set the correct port on both the computer in use and the meter. Make sure the baud rates agree between the meter and the software package being used to read the meter. After this is done, use a software package to connect to the meter and read some tables. Both TableEdit32 and MAXCOM are excellent tools to connect to the meter and read desired tables.