

## Device Communication Losses / Missed Polls.

Device Communication Fails and a large number of missed polls can be seen from the 1040 Series Controllers when they are added into existing 1030 Series systems. This occurs when the RS-485 Transmit and Receive negatives have been crossed between Controllers. The problem could be undetected in existing 1030 Series systems until the 1040 Series equipment is added. Finding the problem requires a voltmeter on a low AC Voltage scale and measuring voltage at specific places.

Examples for Master to Slave wired correctly:

1. Master RS485 IN, measure between tx+ and tx- = should be 2.5 – 3.0 Volts AC
2. Master RS485 IN, measure between rx+ and rx- = should be 2.5 – 3.0 Volts AC
3. Slave RS485 IN, measure between tx+ and tx- = should be 2.5 – 3.0 Volts AC
4. Slave RS485 IN, measure between rx+ and rx- = should be 2.5 – 3.0 Volts AC

Examples for Slave to Slave with correctly connected RS-485 communications.

1. 1<sup>st</sup> Slave RS485 IN, measure between tx+ and tx- = should be 1.5 – 2.5 Volts AC
2. 1<sup>st</sup> Slave RS485 IN, measure between rx+ and rx- = should be 2.5 – 3.0 Volts AC
3. 1<sup>st</sup> Slave RS485 OUT, measure between tx+ and tx- = should be 1.5 – 2.5 Volts AC
4. 1<sup>st</sup> Slave RS485 OUT, measure between rx+ and rx- = should be 2.5 – 3.0 Volts AC
5. 2<sup>nd</sup> Slave RS485 IN, measure between tx+ and tx- = should be 1.5 – 2.5 Volts AC
6. 2<sup>nd</sup> Slave RS485 IN, measure between rx+ and rx- = should be 2.5 – 3.0 Volts AC
7. 2<sup>nd</sup> Slave RS485 OUT, measure between tx+ and tx- = should be 1.5 – 2.5 Volts AC
8. 2<sup>nd</sup> Slave RS485 OUT, measure between rx+ and rx- = should be 2.5 – 3.0 Volts AC

Examples for Slave to Slave with negatives crossed between Slave 1 and Slave 2.

1. 1<sup>st</sup> Slave RS485 IN, measure between tx+ and tx- = should be 1.5 – 2.5 Volts AC
  2. 1<sup>st</sup> Slave RS485 IN, measure between rx+ and rx- = should be 2.5 – 3.0 Volts AC
  3. 1<sup>st</sup> Slave RS485 OUT, measure between tx+ and tx- = would be less than 1 Volt AC
  4. 1<sup>st</sup> Slave RS485 OUT, measure between rx+ and rx- = would be 1.0 – 1.5 Volts AC
- Negatives are crossed here.
5. 2<sup>nd</sup> Slave RS485 IN, measure between tx+ and tx- = would be less than 1 Volts AC
  6. 2<sup>nd</sup> Slave RS485 IN, measure between rx+ and rx- = would be 1.0 to 1.5 Volts AC
  7. 2<sup>nd</sup> Slave RS485 OUT, measure between tx+ and tx- = should be 1.5 – 2.5 Volts AC
  8. 2<sup>nd</sup> Slave RS485 OUT, measure between rx+ and rx- = should be 2.5 – 3.0 Volts AC