



# TECHNICAL NOTE TNDA14

## **Title: PAXTM / PAXCK Modbus Comms Cease**

### **Product(s): PAXTM / PAXCK with PAXCDC40 / PAXCDC4C**

**Problem Description:** Modbus communications with the PAXTM/PAXCK initiates but then freezes. The PAX meter will appear to be online, then communication time-outs begin to occur. The problem was initially discovered by a customer attempting to read the timer value from a PAXTM by a PLC. A second instance was discovered when a customer was using a Red Lion G303 HMI to send recipe data to a PAXTM. The G303 displayed “NOT READY” when the recipe was downloaded. The “NOT READY” is a sign that communications were established, then lost.

**Cause of the Problem:** From the factory all the polling bits in the PAXCDC4X cards are set to 1, which enables all registers in the PAX to be polled by the PAXCDC4X Modbus card (See the PAXCDC4X Modbus card data sheet for more information on polling bits). Some of these registers may be for the Real Time Clock card (PAXRTCXX) as well as any of the Setpoint cards (PAXCDSXX) which may or may not be installed in the PAX meter. When the PAXCDC4X tries to access data stored in one of these registers where there is no data, communications cease. There are a couple of reasons why no data may exist in one or more of these registers. One is if there is no RTC or Setpoint card installed in the PAX meter. Another, is that any of the setpoint values (including the SP-n OFF values) are set to an unrecognized number, such as 0 (including t-StOP).

Unfortunately, simply turning off the polling bits for these registers will not solve the problem. The status of the polling bits is maintained in the event of a power loss, but on power up all registers are polled once regardless of the status of the polling flags. This is to ensure fresh data is supplied to the PAXCDC40 card at each power up. Because of this, the problem will be seen at each power up.

**Corrective Action:** Install the PAXRTC and one of the PAXCDS cards in the meter and be sure to program values other than 0 in the corresponding registers. See the data sheet for these cards for programming details. The next revision of firmware will incorporate a fix to this problem so it will not be necessary to install the PAXRTC card or any of the PAXCDS cards if not being used. Contact Tech Support at (717) 767-6511 for further questions or to check on the status of the firmware revision which includes the fix to this problem.