



TOTALFLOW
Technical Bulletin 122
μ FLO (microFLO)
Local Communications Port Issue
Totalflow Technical Bulletin

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1. Purpose

To describe a potential failure of the microFLO 's serial communications port caused by static electricity.

2. Description

Surge suppression devices located on the local PCCU serial port can be damaged by a static discharge. The discharge can occur from a person or the PCCU cable itself. Static electricity can be generated by dragging the PCCU serial cable along the ground or by a person wearing hard sole shoes or boots.

3. Symptom

The Flow computer's serial port can be damaged by static electricity, The static discharge is typically caused by a person directly touching the PCCU connector or from connecting a PCCU cable without proper grounding. The discharge can damage one or more of the metal oxide varistors (MOV) that are located on the local serial port circuitry. These devices are designed to shunt current to ground when the incoming surge voltage surpasses 12 volts. These devices can actually permanently short to ground when the surge current and voltage exceed their rating. This shorting to ground can cause the serial port to stop communicating.

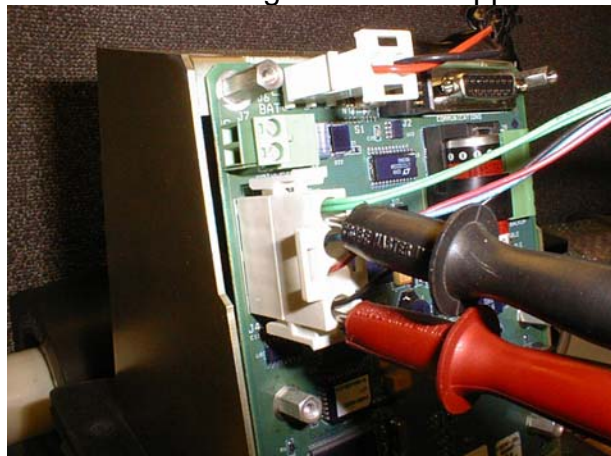
To avoid MOV failures, care should be taken when touching or connecting to the microFLO 's local port. Always ground yourself and the PCCU cable's military connector to the microFLO case or piping before touching the PCCU connector.

Test to Determine if Your Unit Has Stopped Local Communications Due to Damaged MOV's

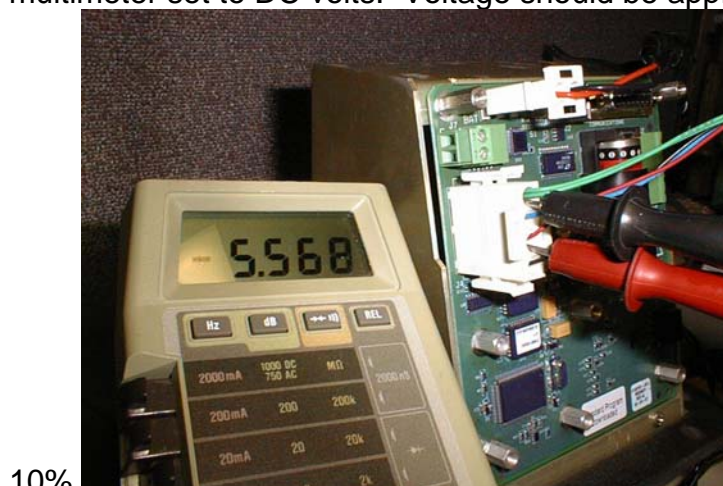
To determine if your microFLO has this problem first connect a PCCU cable to the suspect unit (this is required to activate the port and to see the voltages described in the next two steps).



Next, measure between pin 1 and 4 (green wires, pin 4 is ground) with a multimeter set to DC volts. Voltage should be approximately (-)5 vdc to (-) 15 vdc +/-10%



Next, measure between pin 2 and 4 (Red wires, pin 4 Green is ground) with a multimeter set to DC volts. Voltage should be approximately (-)5 vdc to (-) 15 vdc +/-

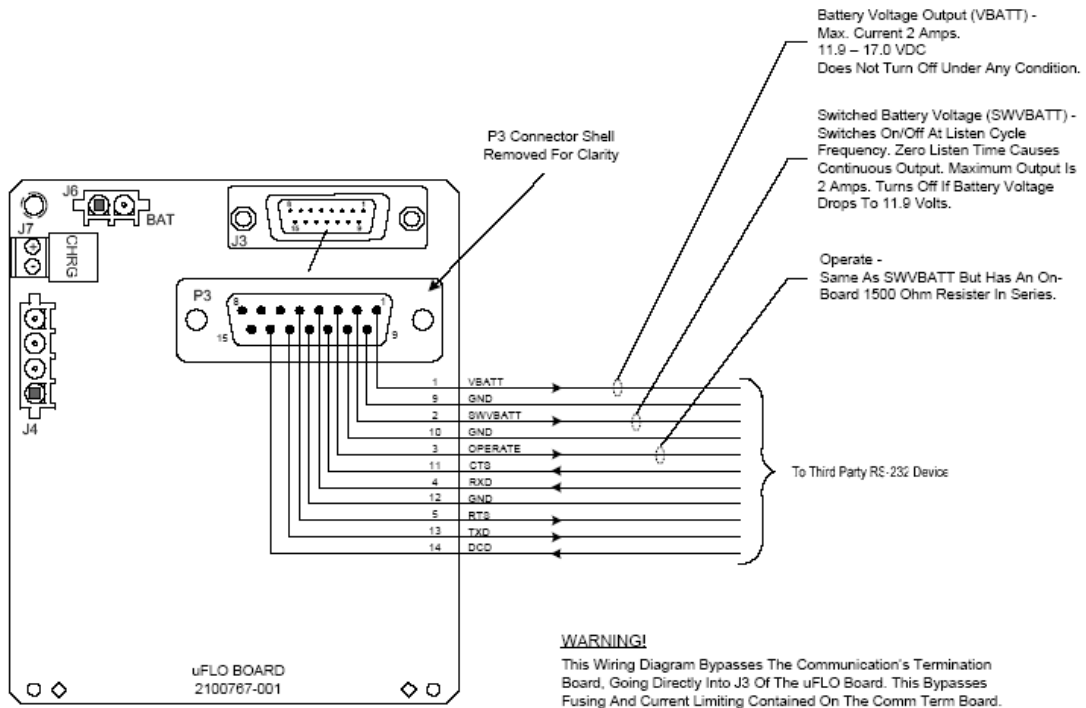


10%

If either voltage measures between (-)2 and 0 vdc then you have a shorted MOV and the board needs to be repaired and upgraded to the -003 revision level.

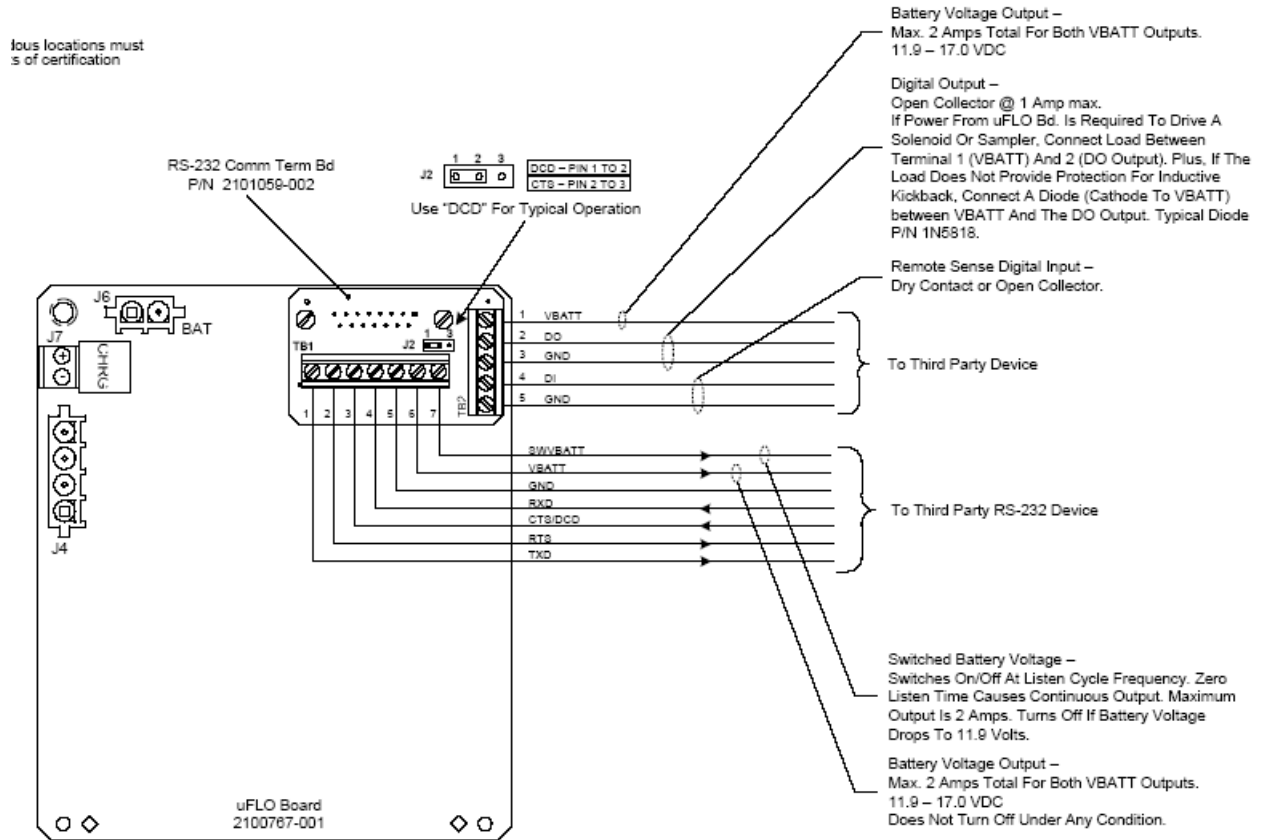
4. Workaround

Collection of historical data is possible using the remote serial port (see drawings below). A cable (supplied by customer) is required to connect a laptop to the 15 pin J3 connector or the RS-232 interface module. Once connected, use PCCU's remote communications option to collect historical data.



WARNING!
This Wiring Diagram Bypasses The Communication's Termination Board, Going Directly Into J3 Of The uFLO Board. This Bypasses Fusing And Current Limiting Contained On The Comm Term Board. Because Of This, Totalflow Uses Pre-Manufactured And Pre-Tested Cables For Our Standard Communication Equipment. If The End-User Makes Their Own Cable For Third Party Equipment, Extreme Caution Should Be Taken To Insure The Cable Is Built Correctly. If It Is Determined That Returned Units Were Damaged Due To Improper Wiring, The Warranty May Be Voided.

Generic RS-232 Wiring directly to 15 pin conector



RS-232 Remote Communications using termination board



Conclusion

ABB has enhanced the local serial port circuitry to make the port more resistant to damage from static electricity. Additional resistors have been added to the serial port circuitry. The addition of these resistors will be present in all electronic board with a 2100767-003 part number. The -001 and -002 boards do not have this enhancement.

To help ensure most efficient handling of any such situation, please refer to this bulletin (number 122) when asking for assistance from our technical staff.

The extended warranty as described by this bulletin #122 will expire on 12/31/2009.