RBH Technical Bulletin

2 Automatic Road, Suite 108
Brampton, Ontario
Canada L6S 6K8

Number: 53 *NRC-2000*

The NRC2000 uses an IRC2000 board to provide most of the functionality of the RC2 board to the Axiom system. The NRC2000 firmware version 3 is based on RC firmware version 34, and includes all updates and bug fixes associated with that version.

Due to the lack of internal power supply and fewer I/O lines the NRC2000 does not provide the following functionality:

1) Reader Tamper – the reader tamper inputs can be used to monitor AC failure and low battery. Reader "A" tamper is used for AC voltage detection and should be shorted to ground to avoid "AC FAIL" message, if the power supply modifications are not done. Reader "B" tamper is used for battery voltage detection and should be left open to avoid the "BATTERY FAIL" message, if the power supply modifications are not done.
2) Cabinet Tamper – always reports normal.
3) Fuse monitoring – due to lack of power supply – always normal
4) Dual RS485 redundant communications – has only a single channel so must be wired differently!

To prevent possible communication problems on the DNet, capacitor C10 is removed when the board is used with the Axiom system.

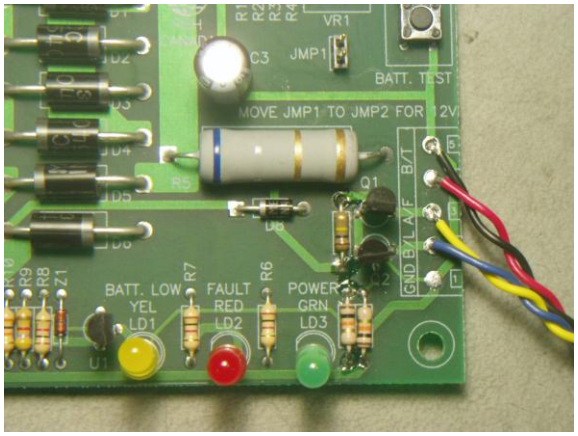
If AC Fail and Low Battery messages are ***not* required, then it is ***not*** necessary to modify the power supply or the NRC2000/IRC2000 board.**

AC Failure & Low Battery Modifications

PS1224 Modification

In order to provide monitoring of AC voltage, battery condition and battery test the following components should be soldered onto the board:

Qty	Location	Description
2	R12, R13	10K ¼ WATT RESISTOR
1	R14	1MEG ¼ WATT RESISTOR
2	Q1, Q2	2N4401 NPN TRANSISTOR
1	B/L -2	22 GAGE 12 INCH BLUE HOOK-UP WIRE
1	A/F - 3	22 GAGE 12 INCH YELLOW HOOK-UP WIRE
1	B/T - 4	22 GAGE 12 INCH RED HOOK-UP WIRE
1	B/T - 5	22 GAGE 12 INCH BLACK HOOK-UP WIRE



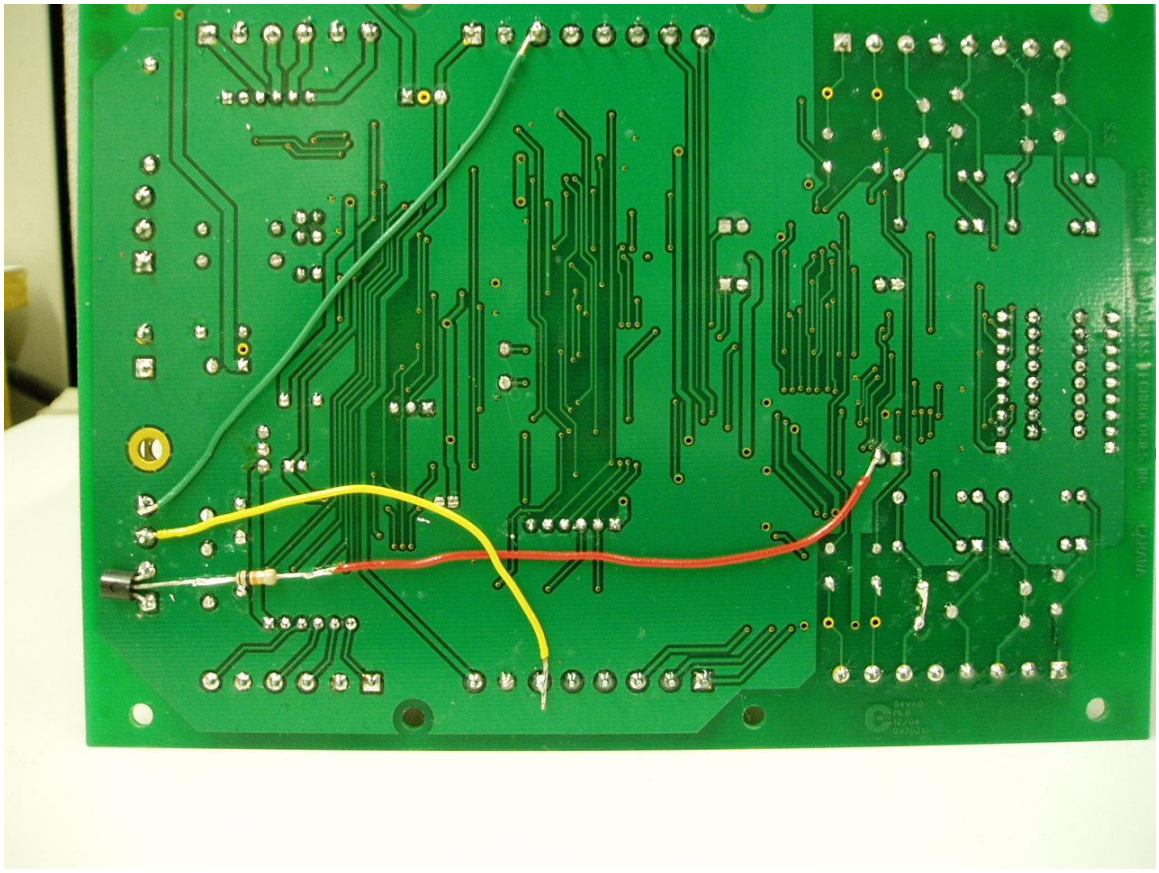
Note the orientation of the transistors.

NRC2000/IRC2000 Board Modification

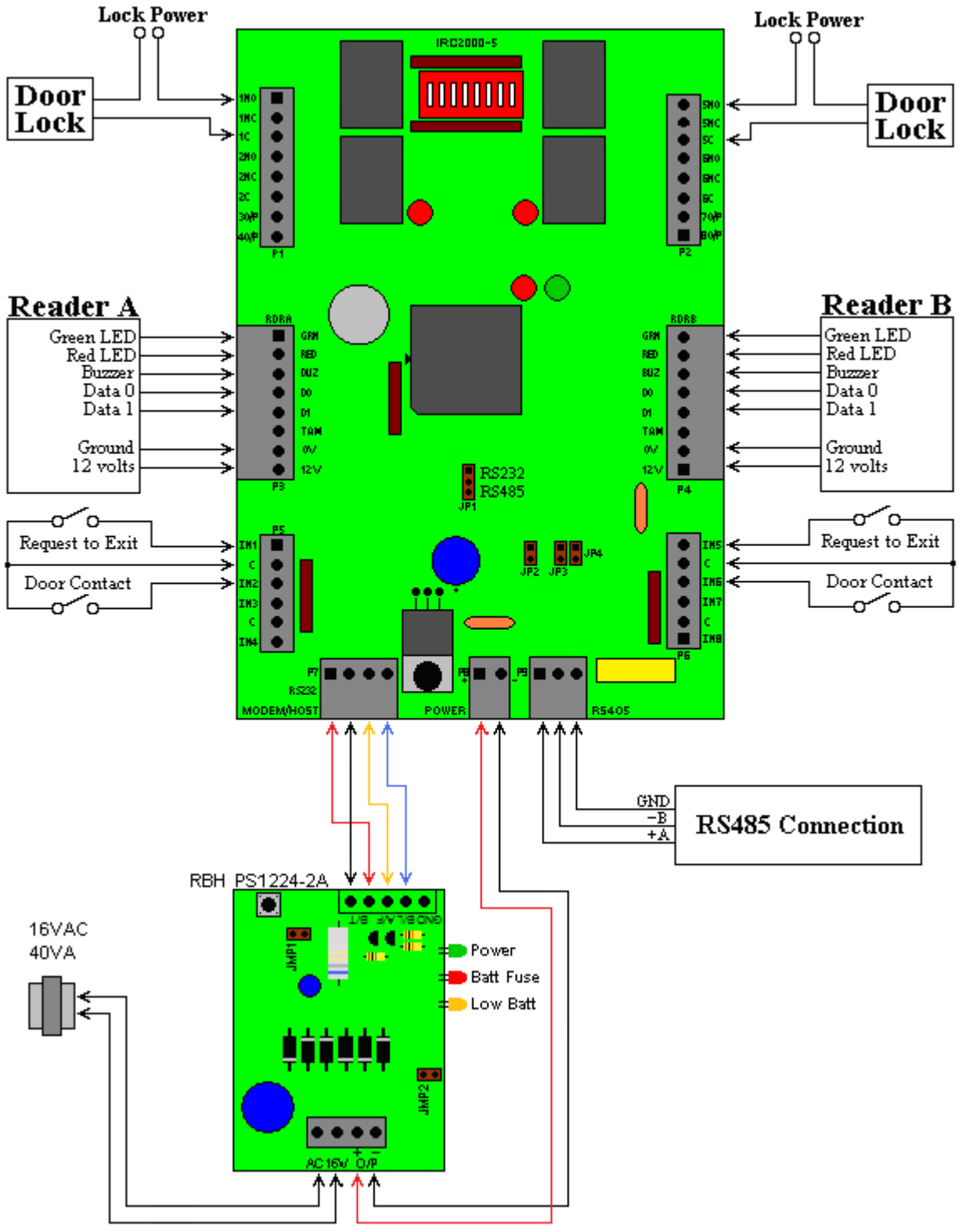
Since the Axiom system's D-NET is RS485 the RS232 circuit is not needed on the IRC2000 controller board and can be used to connect to the power supply.

The following modifications disconnect the RS232 and re-connect for power supply monitoring.

1) Remove R33, R34 if U12 is installed.
2) Cut off pin TAM on reader “A” and “B” ports so that the reader cannot interfere.
3) Connect pin TAM on reader “A” to pin RX on P7.
4) Connect pin TAM on reader “B” to pin TX on P7.
5) Connect a 2N4401 TRANSISTOR flat side down between DCD and 0V.
6) Connect a 10K resistor to the base of the transistor (middle pin) to the anode of LED1.



IRC2000 Wiring Diagram



Wiring

To connect NRC2000s to an NC100 simply connect all NRC2000s in parallel (on the RS485 connection connect all A's together & all B's together) and jumper channel 1 & channel 2 together on the NC100 (A to A, & B to B).

It is not recommended to mix RC2s and IOC16s with NRC2000s because of the loop wiring of the RC2s and IOC16s.