



# SOLO, LSH & L1000

Proximity Tag Systems

FIELD TEST  
GUIDE

# Company Profile

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CENTURION SYSTEMS has been manufacturing automatic gate systems since 1987, and is committed to providing reliable, cost effective solutions in the field of access automation.

CENTURION strives to give service and backup second to none. Our engineers are available to give sales support, installation training, and answers to technical or installation problems.

The equipment is installed worldwide and is available through a network of distributors.

CENTURION is an ISO 9001 registered company, continually looking at updating its products in line with world trends to ensure that its products will provide customer satisfaction.

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# Introduction

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The SOLO, LSH and L1000 Proximity access control readers have built-in test firmware to allow an installer, or user, to field test the functional integrity of the various readers.

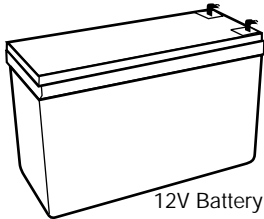
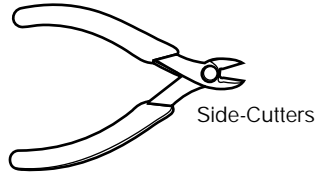
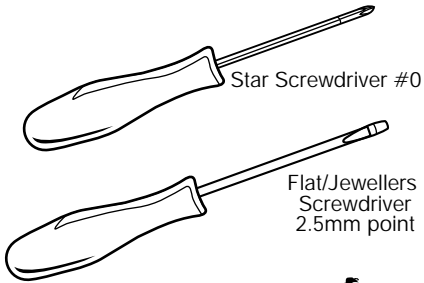


*NB: It is important to note that all tests must follow the prescribed sequence as further tests rely on the success of the previous test.*

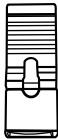
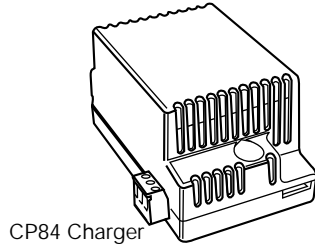


*NOTE: To ensure proper contact, screws must be tightened if measurements are taken on the screw tops.*

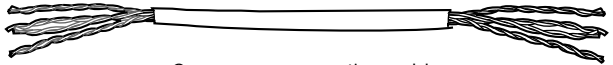
# Required Equipment



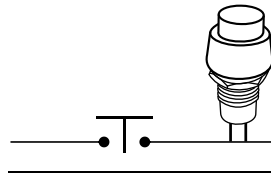
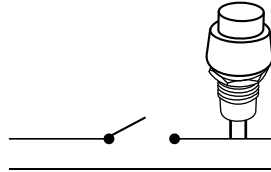
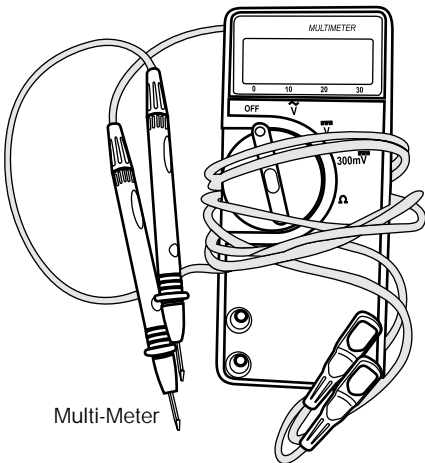
or



Spare jumper (test jumper)



Comms or connecting cable



# Activating/Enabling Field Test Mode

1. Ensure that the device under test is not powered.
2. Ensure that all connections are correct as per figure 1.
3. Ensure that the test jumper and where applicable the relay jumper are correctly placed as per figure 1.
4. Ensure that the DIP switches on the LSH are all set to the ON position as per figure 1.
5. Connect power supply to the device under test.

## Recommended connection diagram

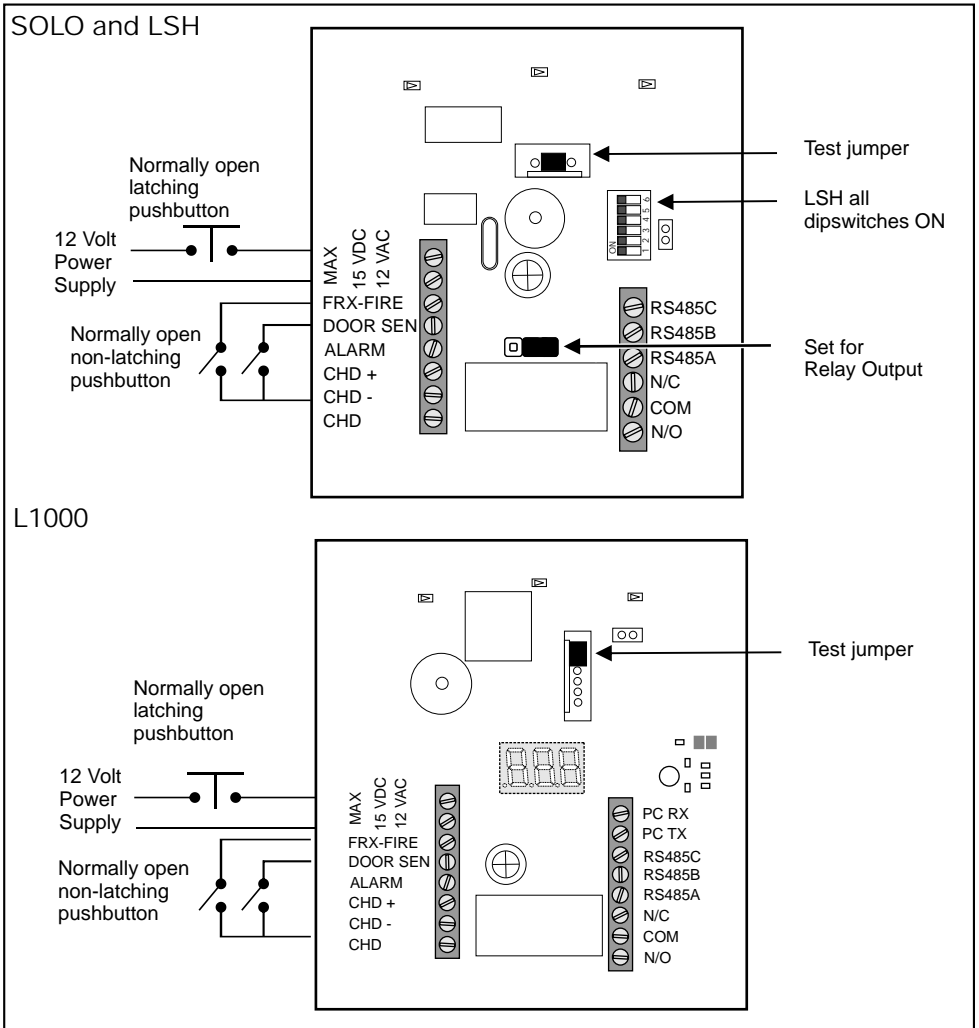


Figure 1 Connection Diagrams for the SOLO, Lattice SLAVE head and L1000 Controller

# Power Output Test CHD+

## Tests the input polarity circuit

1. Ensure proper contact with terminals during all measurements.
2. Connect power by closing the latching switch as shown in figure 1.
3. Measure and note the input voltage on the power supply pins as shown in figure 2.
4. Measure and note the voltage on the CHD- and CHD+ terminals as shown in figure 2.
5. The difference between the input voltage and the voltage measured on the CHD- and CHD+ terminals should be between 1.2 - 1.6 Volt.
6. If the voltage difference is not correct, return the unit to Centurion Systems, or a Centurion Systems authorized distributor.

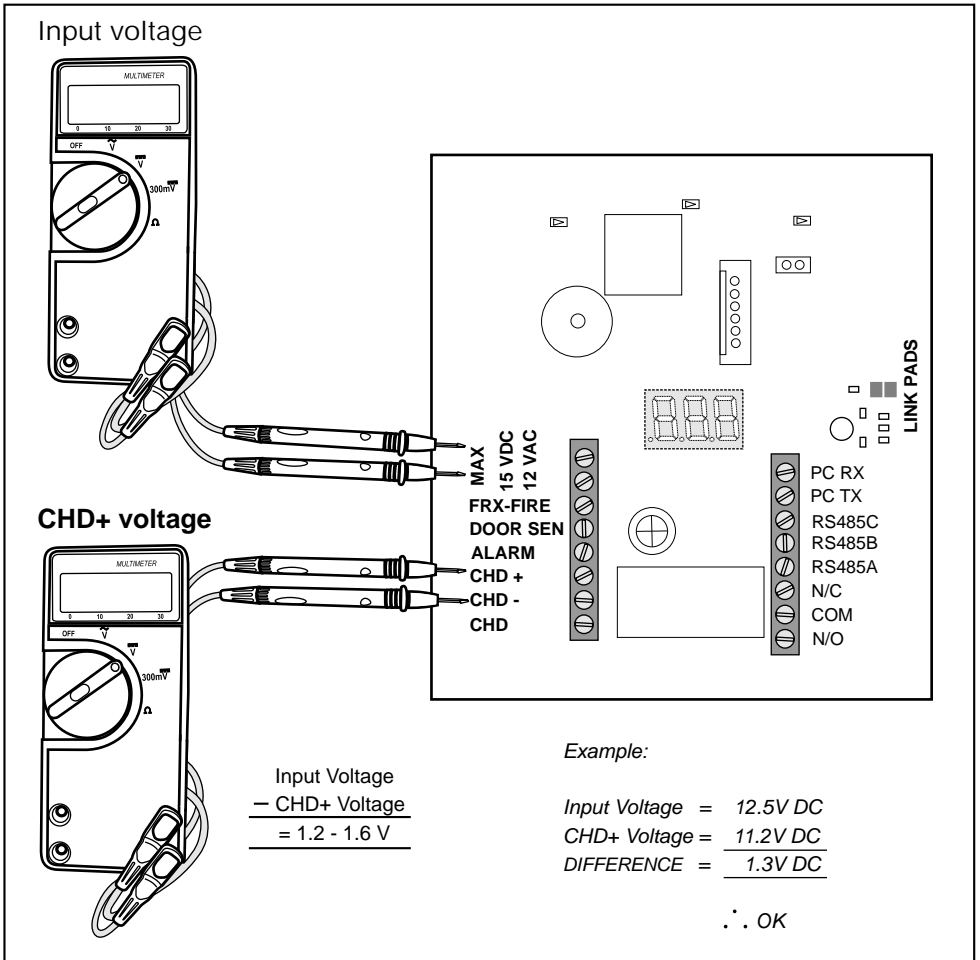


Figure 2 Input and CHD+ Voltage

# LED's and 7 Segment Indicators

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*Tests the LED's and LED drive circuitry*



NB: *Ensure previous tests have been successfully performed.*

## SOLO and LSH

1. Ensure that all 5 LED's are ON.
2. If correct move on to memory test.
3. If the TOP RED LED flashes once every second then the input voltage is too low.
4. If the TOP RED LED flashes 3 times every second then the input voltage is too high.
5. If the input voltage is 12 volt and the above errors occur, then the unit must be returned to Centurion Systems, or a Centurion Systems authorized distributor.

## L1000

*Tests the 3-Digit, 7-Segment display the LED's and their respective drive circuitry*

1. Ensure that the top 3 LED's are ON.
2. Ensure that each segment of the 3-digit 7-segment display is turned on sequentially.
3. If correct move on to memory test.
4. If the TOP RED LED flashes once every second then the input voltage is too low.
5. If the input voltage is 12 volt and the above error occurs, then the unit must be returned to Centurion Systems, or a Centurion Systems authorized distributor.

# Memory Test

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*Tests the internal memory of the SOLO and LSH readers*



NB: *Ensure previous tests have been successfully performed.*



Note: *Removing power during the memory test will corrupt the memory contents. To preserve the memory contents DO NOT REMOVE POWER during the memory test.*

## SOLO and LSH

1. Remove the test jumper refer to Figure 1.
2. All 5 LED's will begin to flash, this indicates that the memory is being tested. DO NOT REMOVE POWER.
3. Once the memory test is complete the BOTTOM GREEN and RED LED's will flash.
4. If the TOP ORANGE and RED LED's flash continuously the memory test has failed. The unit must be returned to Centurion Systems, or a Centurion Systems authorized distributor.

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## Test the L1000 reader's external memory and relevant control circuitry

### L1000

1. Remove the test jumper refer to figure 1.
2. The TOP ORANGE LED will turn OFF.
3. The 3-digit, 7-segment display will begin counting rapidly. DO NOT REMOVE POWER.
4. Once the memory test is complete only the TOP GREEN LED will flash.
5. If the 3-digit, 7-segment display shows (Error) and the TOP ORANGE and RED LED's flash continuously the memory has failed. The unit must be returned to Centurion Systems, or a Centurion Systems authorized distributor.

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## FRX Input Test

### Tests the FRX (free exit) input circuitry



NB: Ensure previous tests have been successfully performed.

1. Briefly press the normally-open switch connected to the FRX terminals as per figure 1, or momentarily short the FRX and CHD- terminals together.
2. The buzzer should sound.
3. If the buzzer does not sound return the unit to Centurion Systems, or a Centurion Systems authorized distributor.

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## Relay Output Test

### Tests the Relay contacts and relevant drive circuitry



NB: Ensure previous tests have been successfully performed.

1. Connect the multimeter to (COM and N/C) as indicated in figure 3.
2. Set the multimeter to Ohm ( $\Omega$ ).
3. The multimeter should read close to ZERO Ohm. ( $\pm 2$  Ohm)
4. Press the normally-open switch connected to the FRX terminal as per figure 1, or short the FRX and CHD- terminals together.
5. The multimeter should read an open circuit.
6. Release the switch, or remove the short between the FRX and CHD- terminals.
7. Connect the multimeter to (COM and N/O) as indicated in figure 4.
8. The multimeter should an read an open circuit.
9. Press the normally-open switch connected to the FRX terminal as per figure 1, or short the FRX and CHD- terminals together.
10. The multimeter should read close to ZERO Ohm ( $\Omega$ ). ( $\pm 2$  Ohm)
11. Release the switch, or remove the short between the FRX and CHD- terminals.
12. Should any of the above tests fail, return the unit to Centurion Systems, or a Centurion Systems authorized distributor.

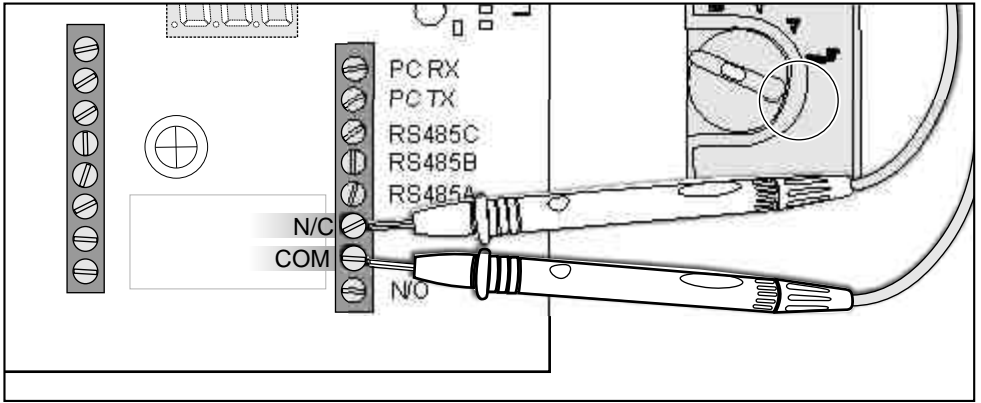


Figure 3 Multimeter connected to N/C & COM

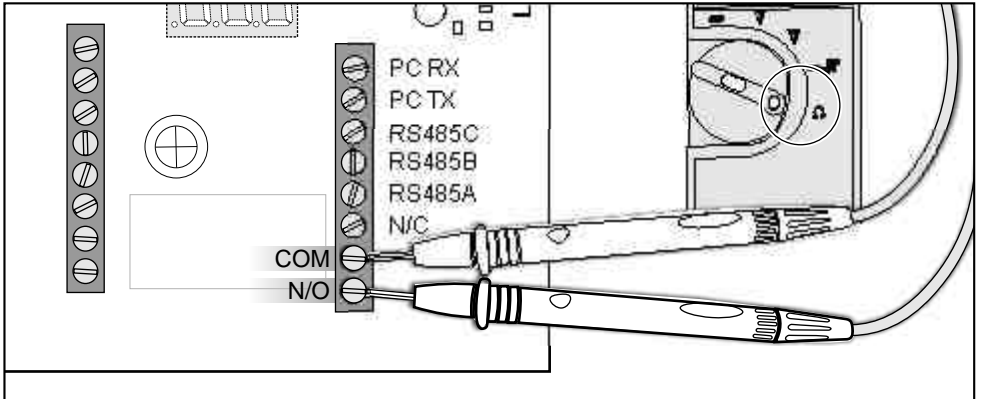


Figure 4 Multimeter connected to COM & N/O

## CHD Output Test

Test the CHD output drive circuitry

**⚠** NB: Ensure previous tests have been successfully performed.

1. For the SOLO or LSH units move the jumper as indicated in figure 5.
2. Connect the multimeter to CHD- and CHD as indicated in figure 6.
3. Set the multimeter to Ohm ( $\Omega$ ).
4. The multimeter should read an open circuit.
5. Press the normally-open switch connected to the FRX terminal as per figure 1, or short the FRX and CHD- terminals together.

# CHD Output Test

6. The multimeter should read close to ZERO Ohm (+/- 15 Ohm $\Omega$ ).
7. Release the switch, or remove the short between the FRX and CHD- terminals.
8. The multimeter should read an open circuit.
9. Should any of the above tests fail return the unit to Centurion Systems, or a Centurion Systems authorized distributor.

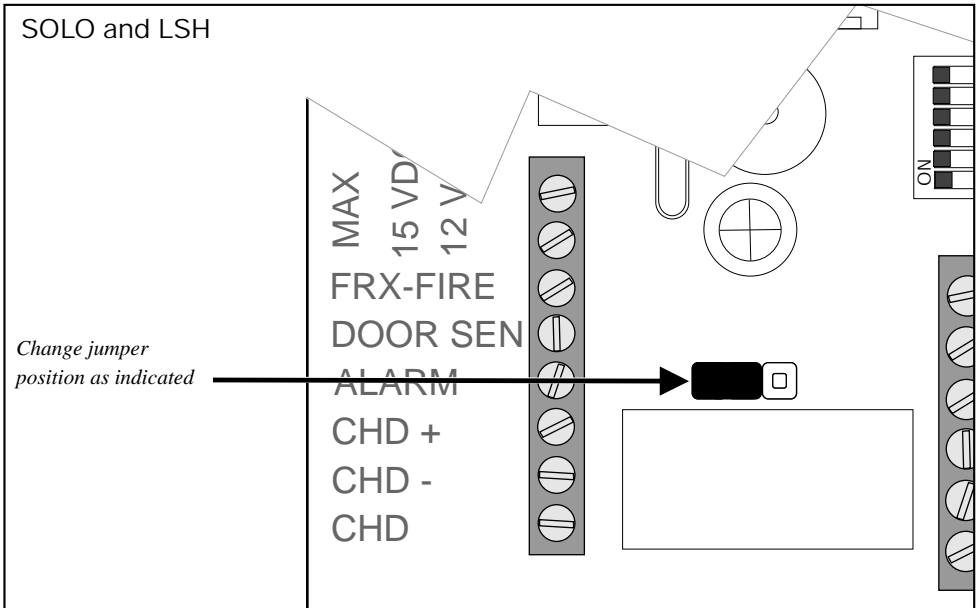


Figure 5 Solo and LSH jumper setting to test CHD Output

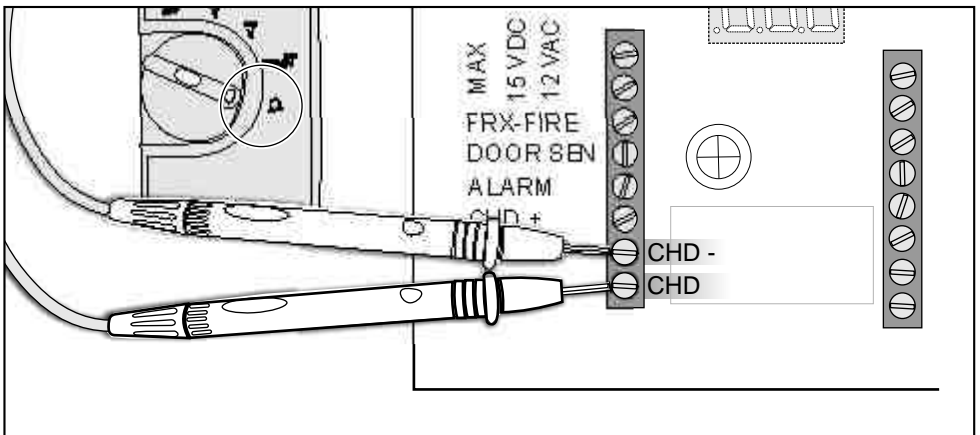


Figure 6 Multimeter connected to CHD- & CHD

# Door Sense Test

## Tests the DOOR SEN input circuitry

**!** NB: Ensure previous tests have been successfully performed.

1. Briefly press the normally-open switch connected to the DOOR SEN terminal as per figure 1, or momentarily short the DOOR SEN and CHD- terminals together.
2. The buzzer should sound.
3. If the buzzer does not sound return the unit to Centurion Systems, or a Centurion Systems authorized distributor.

# Alarm Output Test

## Tests the Alarm Output drive circuitry

**!** NB: Ensure previous tests have been successfully performed.

1. Connect the multimeter to ALARM AND CHD- as indicated in figure 7.
2. Set the multimeter to Ohm ( $\Omega$ ).
3. The multimeter should read an open circuit.
4. Press the normally-open switch connected to the DOOR SEN terminal as per figure 1, or momentarily short the DOOR SEN and CHD- terminals together.
5. The multimeter should read close to ZERO Ohm ( $\pm 15 \text{ Ohm} \Omega$ ).
6. Release the switch, or remove the short between the DOOR SEN and CHD- terminals.
7. The multimeter should read an open circuit.
8. Should any of the above tests fail, return the unit to Centurion Systems, or a Centurion Systems authorized distributor.

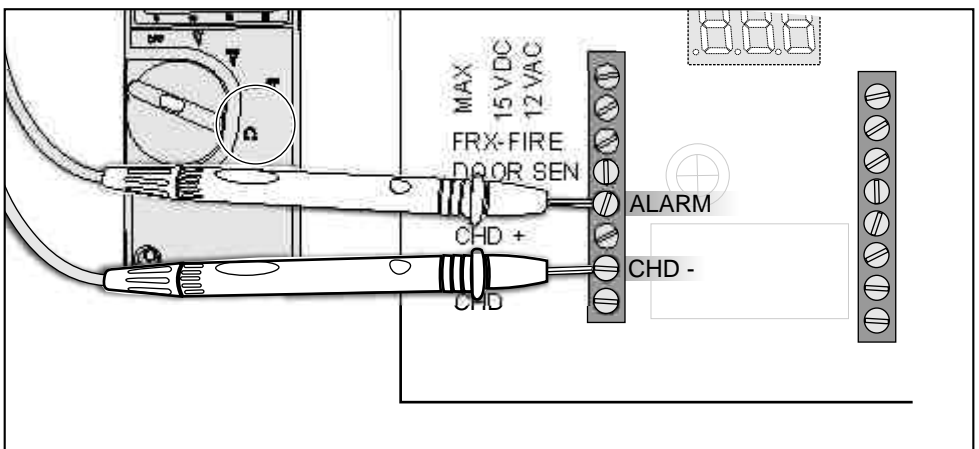


Figure 7 Multimeter connected to ALARM & CHD-

# Tag Interface Test

## Tests the Tag interface drive circuitry

**!** NB: Ensure previous tests have been successfully performed.

With the aid of figure 8 and figure 9 establish if the readers are configured for masonry/wood, wall/brick mounting or steel mounting and then perform the relevant test.

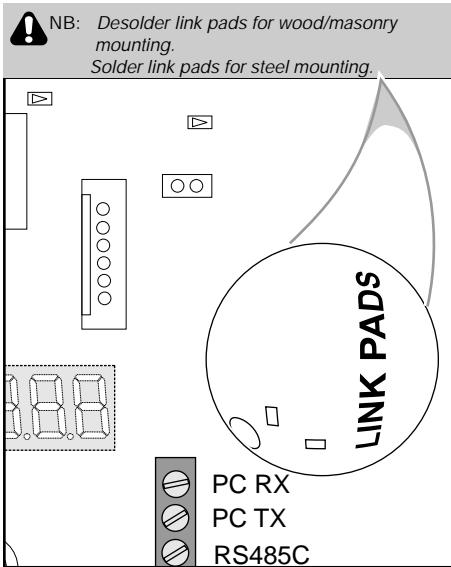


Figure 8 Layout of Lattice L1000 Controller

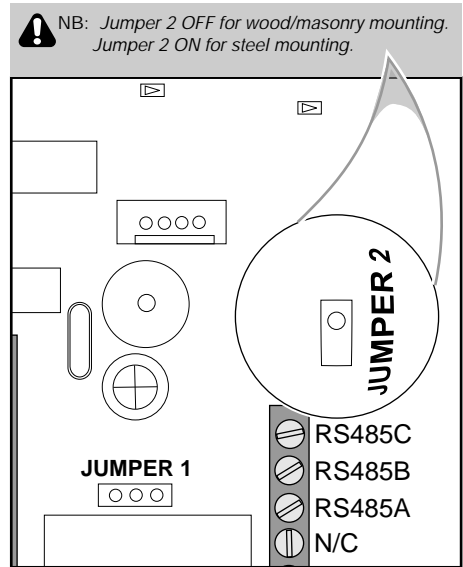


Figure 9 Layout of Lattice SLAVE head + SOLO

## Wood/masonry mounting refer to figure 8 or figure 9

1. Present a known working SOLO-, LSH- or L1000-compatible proximity tag to the device under test.
2. The buzzer should sound.
3. If the buzzer does not sound, return the unit to Centurion Systems, or a Centurion Systems authorized distributor.
4. Disconnect the device under test from the power supply.
5. SOLO tests complete.

## Steel mounting refer to figure 8 or figure 9

1. Fit the slide-on lid on to the device under test.
2. Rest the device under test on a steel surface.
3. Present a known working SOLO-, LSH- or L1000-compatible proximity tag to the device under test.
4. The buzzer should sound.

- 
5. If the buzzer does not sound, return the unit to Centurion Systems, or a Centurion Systems authorized distributor.
  6. Disconnect the device under test from the power supply.
  7. SOLO tests complete.

## Communication Interface

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*Disconnect the unit under test from the power supply power.*

### LSH Test

Address dip switches, RS485 terminating resistor and RS485

1. Connect the unit under test as per figure 10.
2. Connect power to the device under test.
3. Ensure all 5 LED's turn ON.
4. Remove and replace the test jumper, refer to figure 10.
5. Wait for the buzzer to sound.
6. All 5 LED's should turn OFF.



NOTE: *The time taken between steps 7 and 9 that follow should not exceed 10 seconds.*

7. Remove the test jumper, refer to figure 10.
8. The buzzer should sound.
9. Starting with DIP-Switch 6 (top down) push each of the DIP-Switches to OFF within 5 seconds of each other.
10. The buzzer should sound with each DIP-Switch press.
11. After the last DIP-switch is pushed to OFF, turn the unit over.
12. The TOP GREEN and BOTTOM GREEN LED's should remain ON.
13. Should any of the above tests fail, return the unit to Centurion Systems, or a Centurion Systems authorized distributor.
14. LSH tests complete.

### L1000 Test

RS485 termination resistor, RS485 communications and take-up head communications test

1. Connect the unit under test as per figure 11.
2. Connect power to the device under test.
3. Ensure all 3 LED's turn ON.
4. Remove and replace the test jumper, refer to figure 11.
5. Wait for the 3-digit, 7-segment display to show "brg". (Bridge end of line terminals).



NOTE: *The time taken between steps 6 and 8 that follow should not exceed 10 seconds.*

6. Remove the test jumper.
7. The buzzer should sound and the 3-digit, 7-segment display should show "EOr". (End of line . . resistor).
8. Remove the end of line jumper, refer to figure 11.
9. The buzzer should sound and the 3-digit, 7-segment display should show "ScS". (Success).
10. Should any of the above tests fail, return the unit to Centurion Systems, or a Centurion Systems authorized distributor.
11. L1000 tests complete.

# Connection Diagram

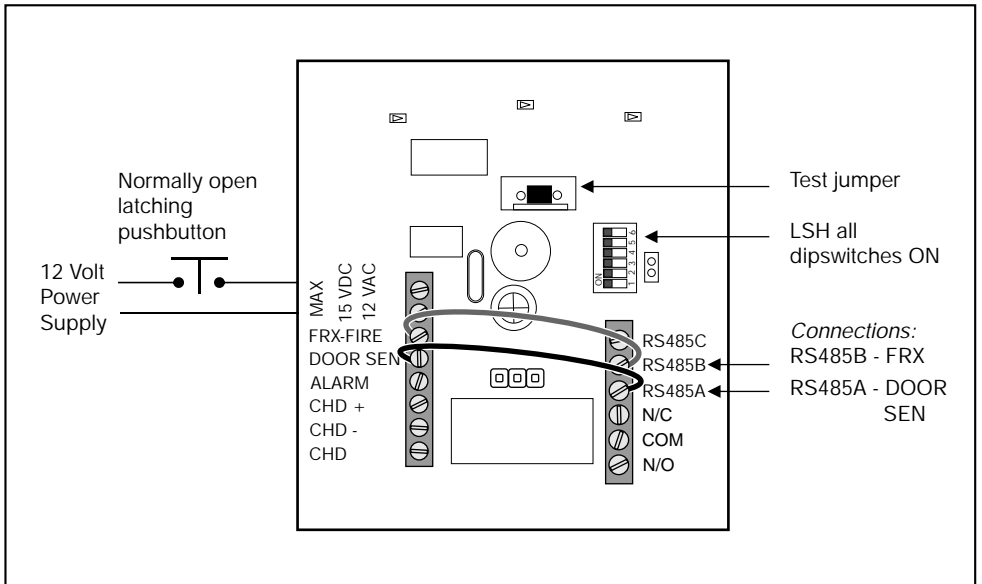


Figure 10 Lattice SLAVE head Connection Diagram

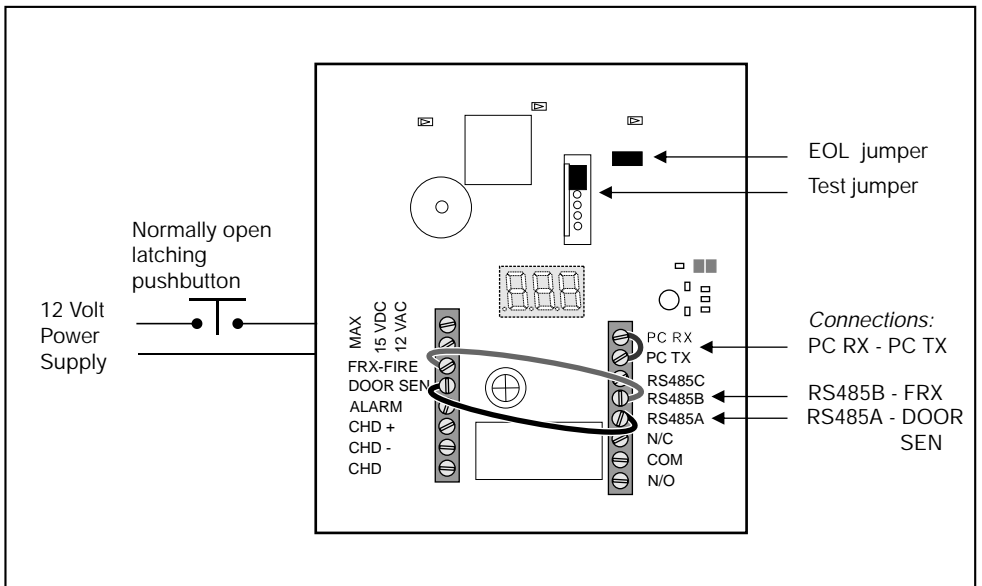


Figure 11 Lattice L1000 Controller Connection Diagram









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