PTI Integrated Systems
Multiplexer Sporadic Activity Troubleshooting
Technical Support Form

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Multiplexer Sporadic Activity Troubleshooting

Use these steps if you have doors reporting sporadically open and closed or if you have sporadic unit alarms on doors that are not being opened. Use this sheet only after completing the Basic Gate System Troubleshooting sheet. Follow the steps below in order. If you need assistance after you have tried these steps, please contact our technical support department by telephone at (480) 941-1513 or by email at support@ptiaccess.com.

1. Ask yourself the following questions:
    a. Is it one door, a bank of doors, a particular building, or just random doors reporting?
    b. Are the units rented or not?

2. Check the doors in question. Are they loose (possibly moving due to the wind or vibration of traffic)?

3. Contact your PTI Dealer/Installer to come check the site. Make arrangements to gain access to the doors in question while the installer is on-site.

4. Installer should check every multiplexer on the site as problems with one may affect others. The circuit boards, cases, and wiring should be checked for obvious damage (i.e. vandalism, burn marks from power surge/lightning, corrosion on the circuit board, water marks, insects, construction debris, etc).

5. Installer should check the Voltage across the common and channel pins in the multiplexer that correspond to the door in question. Note: All channels in the multiplexer should be checked as problems with one door or wiring may affect the entire board. All multiplexers on the site should be checked also as problems with one may cause problems in another.
    a. Voltage with door closed should be 0 VDC.
    b. Voltage with door open should be 4.95 – 5.0 VDC.
    c. Any other readings indicate a short in the door contact wiring, loose connection, or ground loop that needs to be investigated and fixed. This may involve rewiring or replacing a door switch.
    d. Remove the punch-terminal block and reverify incorrect readings at the pins to identify if the problem is just an improperly punched wire. If so, repunch the wire using a PTI Multiplexer punch-down tool (PTI Part # TMUX-PDTOOL). Do not use screwdrivers, knives, or other phone system punch-down tools as they will not seat the wire correctly.

6. If the problem is occurring in channels that are not used, tie down all unused channels to Common (Ground). See drawing on page 2. Using a PTI Punch-down tool, punch down a 24ga or 22ga insulated stranded wire through any unused door alarm channels and at least one common (ground) connection. Then connect a length of 24ga or 22ga wire from pin # 5 of the power and data terminal block to one of the four screws that mount the circuit board to the metal case. The Metal case of the multiplexer must also be mounted directly to a grounded metal building or tied to a ground rod or grounded metal structural element of the building such as a metal water pipe or ground rod in accordance with local code. If at all possible both ends of the shield/ground wire should be tied to ground.

7. PTI does not recommend turning off 'Unknown Doors' in the Falcon Base Unit, as this tends to mask the problem without actually fixing it.

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8. Verify that all wire used during installation of the system is correct to PTI specifications. 18 ga shielded wire should be used for power and communications. 24 ga telephone wire should be used for the door alarms. Verify that there are no breaks in the shield, skinned or bare wire, shorts or breaks in the wire, and that there are no splices in the wiring other than those required for the door alarm switches.

9. RF (Radio Frequency) Interference may also be a problem in very rare cases. All electronic equipment is susceptible to Radio Frequency (RF) interference. PTI manufactured equipment has protection built into it to keep it safe from most RF interference, however, extreme levels of this type of interference can cause communications problems. Radio antennas, military bases, airports, radar, power plants, certain types of lighting and communications equipment, are all examples RF generators that can cause these types of problems. Humidity, temperature, and cloud cover as well as broadcasting strength and proximity to the RF source can all make the problem worse. Generally, extreme levels of RF will cause the PTI system data communications to go on and off (data comm on / data comm off) or cause the system to report scattered false door activity during the times when the RF levels are at the highest. In these extreme cases, Braided Shielded telephone wire and/or RF filters on the door alarm wires may be required in addition to the recommended fixes above. Both of these products are available through PTI and can be installed by a PTI Certified Installer.

10. A Full Gate System Reset may be required. However, when removing all remote units from the system, completely remove the terminal block from the wire also, breaking the daisy chain (and therefore the potential antennae effect of wire). Then, as you add the remotes back on one at a time, make sure to rewire in only that remote and the one before it. This may help you isolate the antennae affect of having thousands of feet of wire over a whole site. Refer to the Full Gate System Reset document. Contact PTI Technical Support to obtain this.

11. Contact PTI Technical Support if the above steps do not fix the problem for further troubleshooting steps or to obtain an RMA # if you need to send back a damaged or faulty multiplexer.

With any troubleshooting, some adjustment of the configuration may be required. This will differ with every setup depending on the computer, operating system, software, wiring, internet connection, modem connection, site specific issues and/or any other variable introduced into the setup. This troubleshooting and configuration may involve a great deal of time and investigation. It may also include purchasing additional equipment and/or redoing part or all of the installation. In no circumstances will PTI Integrated Systems be responsible for any damages either incidental or consequential based on these recommendations. Please refer to our warranty for specific coverages and warranties.

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