DATAREMOTE
MOVING DATA OVER WIRELESS

MIX NETWORKS

Fire Alarm Communications Regulations Information

as it pertains to POTS in a BOX® (CDS-9010/9090)

The 2013 edition of NFPA 72 allows for multiple communications methods including Internet and a single, Cellular appliance to replace all existing fire panel wireline communications landlines. POTS in a BOX® (as a network carrier access device) can serve as the sole communications path for commercial and residential fire alarm systems. By providing a communications network interface and pathway, alarm signals initiated by and from the fire panel communications devices can be transmitted over several different telco provisioned pathways including MPLS, Internet, and the Digital Cellular Data Network to a designated monitoring station. Certain conditions apply including provisioning a minimum of 8 hours of standby or battery power to be used if local power is lost.

On average, MPLS, Internet and Cellular Network communications pathways offer transport to the end user at significantly less cost than dedicated landline communications.

True Drop-In Replacement:

The POTS in a BOX® solution provides for dial tone, in voice band signaling, FSK, modem tone or DTMF signals to be transmitted over both MPLS, Internet and the Cellular Data Networks. This solution is a true plug and play configuration where installation involves disconnecting the landline at the “demarc” and reconnecting the POTS in a BOX® network solution.

No change of communication initiating hardware is required. No dialer initiation device reprogramming is necessary. All other aspects of the current system architecture—from the master control unit through the central station monitoring activity—will not notice any difference in operation. This is due to keeping the Public Switched Network (PSTN) completion included within the communications architecture. Only the "last mile" of wireline access is being replaced with carrier provided MPLS, Internet or Cellular data access.

Sixty Minute Supervision:

For existing installations, landlines may be swapped for a POTS in a BOX® solution using the new sixty-minute supervision option mode recently approved by NFPA, Section 72. The new rule change allows for single Cellular only communication pathways with the requirement that such circuits must communicate a signal with status once every hour. When installed with multiple communications technologies, it is acceptable to supervise the cellular communication path just once daily. POTS in a BOX® facilitates that requirement.

Best Practices when Installing the POTS in a BOX® solution as the Sole Path for a Commercial Fire System:

- Ensure the best possible cellular reception during installation.
- Achieving maximum reception may require optional external antennas.
- Provide access to required standby power.
- Access MPLS, Internet pathways, as necessary for diversity.

In the event of any loss of Cellular communications lasting longer than sixty minutes local alarm panel must take the following actions (NFPA 72 213, 14.2.7.2):

- Local equipment must trigger an indication or provide notice of loss of supervisory communication connectivity.
- Immediately notify the central station of the disrupted connection, if possible.
- Central Station supervisory system must note failure to meet check-in parameter and take appropriate action up to and including notifying AHJ and customer.

Alarm Monitoring Station responsibilities upon receiving the notification (NFPA 72 2013, 26. 3.7.3):

- The monitoring station must dispatch a runner or maintenance person to arrive within two (2) hours to investigate loss of supervisory signal communications.
- Notify the AHJ if the disruption exceeds eight (8) hours.
- Notify the customer or AHJ when the service has been restored if the disruption exceeds eight (8) hours.

When using a single communication technology, the central station must annunciate a trouble indication within 60 minutes after loss of communication. This supervision view insures that the loss of communications will be recognized, acknowledged and acted upon. When using multiple communication technologies, the central station must annunciate a trouble within 6 hours after loss of communication. Communication initiating devices are tested and certified against standards by Underwriters Laboratories (UL). Standards come from multiple sources including the American National Standards Institute (ANSI) and from the National Fire Protection Association (NFPA).

We consider POTS in a BOX® to be telecommunication terminal equipment and network infrastructure equipment and not a communication initiating device. POTS in a BOX® is listed under the UL 60950-1 standard applicable to equipment designed for use as Telecommunication Terminal Equipment and Network Infrastructure Equipment. Also carries UL E335801 for electrical and EMC standards compliance normally associated with powering AV, information and Communications Technology Equipment.

The traditional Fire Alarm listings below do not apply as POTS in a BOX® is a Telephone Network Interface device provided for Network Access AND not specifically a fire alarm appliance or accessory.

- UL864 Fire Protective Signaling Systems
- UL985 Household Fire Protective Systems
- UL1610 Central Station Burglary Alarm Units (Grade AA)
- UL365 Police Station Connected Burglary (Grade AA)
- UL1076 Proprietary Burglar Alarm Units
- UL1023 Household Burglar Alarm Systems

It is the view of State Fire Marshalls that these are unnecessary given the architecture of the PSTN Network and the non-initiative nature of the portal. POTS in a BOX® is always wired on the Network side of the Standard Network Interface (SNI) or "demarc" point and/or on the network side of the FCC RJ-31 jack. As such, the local alarm and corresponding dialer or communications initiation device sees only an analog provisioned "dial tone" circuit with appropriate electrical signatures. POTS in a BOX® presents a traditional central office or land line based "dial tone" like signature. Local equipment will behave accordingly with no changes in operational modes.

Jurisdiction, Certification and Testing:

UL provides safety-related certification, validation, testing, inspection, auditing, advising and training services to a wide range of clients, including manufacturers, retailers, policymakers, regulators, service companies, and consumers. UL is often used by AHJ organizations as a standard. UL is one of several companies approved to perform safety testing by the Occupational Safety and Health Administration (OSHA), an agency of the US Government. OSHA maintains a list of approved testing laboratories, which are known as Nationally Recognized Testing Laboratories.

Conclusion:

POTS in a BOX® is a network gateway or portal to the PSTN. As such, the connection provides dial tone connection with the addition of network connectivity supervision. POTS in a BOX® provides dial tone and connectivity to the PSTN via several steps. But, in the end analysis, POTS in a BOX® is a Network Service with access via multiple protocols. The service is not a local alarm system, communicator, alarm initiation device or annunciator. POTS in a BOX® is a Network Transport system with included PSTN access as Network infrastructure and not alarm system equipment.