Inovonics 900 MHz *Frequency Agile*™ wireless products offer the best supervision in the industry. Please read this note to take advantage of the advanced features offered by Inovonics and to provide true security for your customers!

What is supervision?

Supervision is the capability of a system to automatically check the radio "link" between transmitters and the receiver to insure that transmitters are still electronically functional[1]. Every Inovonics transmitter contains an electrical timer and should be programmed to "wake up" and transmit a "state of health" or "check-in" signal at least once every 5 minutes.

The receiver also has a timer and, if properly programmed, an accurate memory of all transmitters that it has programmed. If after a prescribed period of time--called the "supervision window or "maximum inactive time"--the receiver has not heard a check-in signal from each transmitter in its system, it will provide warning to the enduser that a transmitter is "inactive". **This means something may be wrong with the transmitter.** This supervisory window is typically programmable.

Why supervise pendants?

More than any other wireless security product, **portable pendants should be fully-supervised**. Because they are portable, pendants are subject to much more use and abuse than fixed transmitters.

Pendants are routinely handled, dropped, and exposed to temperature extremes, moisture and similar conditions that can damage the electronics. Using the self-testing capabilities provided by Inovonics is easy for the dealer, and provides true security for the enduser. By contrast, **unsupervised pendants can electrically fail without any warning to the enduser**.

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[1] Supervision provides valuable protection against electrical failure of the pendant, the most common mode of failure. However, **supervision does not replace manual testing**, which should be conducted on a regular basis. It is conceivable that a pendant could transmit supervisory messages, but not an alarm message because of mechanical failure of the switch. Only manual testing will safeguard against this possible failure mode. Additionally, the range of the pendants should be regularly tested to make sure that transmission from all intended areas of coverage (parking lots, back rooms, etc.) still successfully reach the receiver.

How can pendants that are taken offsite be supervised without causing unnecessary calls to the central monitoring station?

Inovonics provides several ways to supervise pendants and NOT cause excessive calls to the central station.

⚠ Turning supervision off or ignoring fault outputs presents liability risks to dealers and protection risks to users.

Below are four suggestions describing how to maintain pendant supervision without creating unneeded service calls. These methods can be used in various combinations to satisfy the requirements of any application.

1. **Extend the supervision window:**

   Inovonics receivers and panels are very flexible. The supervision window can be programmed in minutes or hours. If only pendants are being used with the Inovonics receiver, the supervision window can be programmed for 24, 48, 72 or even 96 hours to allow adequate time for the pendant to return to the site before being declared inactive.

   As a general rule, supervision windows should be kept as short as possible, but longer window intervals are always preferable to having unsupervised pendants.

2. **Use follower output mode for inactive transmitters:**

   A transmitter will be declared inactive if the supervision window expires and the receiver has not received at least one check-in signal from the transmitter. However, with the fault output programmed to be in follower mode for inactive conditions, the fault will clear itself as soon as the the transmitter comes back onsite and checks in.

   For example, if a transmitter goes off site, the fault LED (light) will illuminate and the fault output will trip after the supervision period elapses. When the pendant returns, the fault light will automatically extinguish itself and the output will return to its normal state as soon as the receiver hears a check-in message from the transmitter, usually in 10 minutes or less.

3. **Connect the fault output to a zone on the panel**

   The fault output can sometimes be connected to a zone on a conventional security panel, and the zone programmed as a "system trouble" or similar designation. Depending upon the capabilities of the panel and the desires of the customer, this zone could provide local annunication at the keypad, send the information to the central station, or some combination thereof.

   If monitored locally, the enduser would check the receiver display to determine details of the trouble condition (i.e., low battery or inactive) and which specific pendants are affected.

4. Dedicate a receiver output to report "inactive" transmitters:

The FA416 and FA464 receiver families provide considerable flexibility in programming receiver outputs. Fault types can be re-assigned to alarm outputs, permitting monitoring for specific problems.

Consider a simple panic system with approximately 10 pendants in use with an FA416D receiver. The pendants could be programmed sequentially, and all could be assigned to activate Output 1 if put into alarm. In this example, Outputs 2 and 3 remain unused and saved for future expansion2. Output 4 could then be dedicated for global low battery faults.

Since pendant transmitters have no tamper fault, this means that the global Fault output would trip only for inactive conditions. In this example, Output 4 will be activated when the receiver hears a low battery report from a transmitter and the global fault output (fifth output) will activate on inactive only.

If desired, Output 4 could be connected to a monitored panel zone, which would initiate a service call for battery replacements. The global fault output can be monitored locally: the fault LED can either be viewed on the receiver, or a 12-volt LED can be driven off the fault output to warn users of inactive conditions.

- **Output 1 - Alarm**
- **Output 2 - unused**
- **Output 3 - unused**
- **Output 4 - Low battery faults**
- **Global Fault Output - Inactive faults**

Application example--local supervision of a personal protection system:

Linda arrives at work, carrying her uniquely identified pendant issued by the employer. On her way to her work area, she walks by the display of the Inovonics receiver (or a simple LED display wired from the fault output). If no lights are illuminated (the normal condition), Linda knows that her transmitter has sent check-in messages to the receiver.

If, however, the fault light is illuminated on the receiver, she simply presses the review button to see if her pendant number is listed. If her transmitter number is displayed, she observes what type of fault it is! Remedial action can be taken by designated security personnel.

[For greater consistency, the security administrator, a supervisor or specific employees can be designated to regularly check the display or indicator LEDs and to investigate faults, as well as to conduct and document system tests.]

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2 If other transmitters will be used or added in the future, and it is desired to distinguish tamper conditions from inactive, then Output 3 can be programmed as Global Tamper, Output 4 as Global Low Battery, and then Output 5 becomes Global Inactive only.

How do dealers provide the best possible personal security system?

1-Use *Inovonics* receivers and transmitters.

2-Supervise all transmitters.

3-Provide customers with comprehensive training.

4-Conduct thorough and regular system tests.

Inovonics Technical Service

2100 Central Avenue / Boulder, CO 80301

(800) 782-2709

FAX (303) 939-8977