



# PSI, F.Y.I.

*Engineering... Training... and YOU*

## FIRE ALARM REPORTING: DACT, IP COMMUNICATIONS & WIRELESS RADIO

### Headlines:

- **Supervising Stations**
- **NFPA72 Addresses Means of Communication**
- **Means of Communication: DACT**
- **Means of Communication: IP Communicator**
- **Means of Communication: Wireless Radio**

### Supervising Stations

Every site is a Local system - Protected Premises. If it dials out, it is also...

**Remote Station:** Monitoring station receives calls from the DACT installed on a fire alarm control panel and retransmits signals to the owner and first responders.

**Central Station:** Essentially a remote station with additional requirements. (i.e., contracts, runner service, maintenance, etc.) The additional requirements of a Central Station serve to verify the integrity of the system installation and response to fire alarm signals.

**Proprietary Station:** Private monitoring facility which monitors only buildings under it's own ownership. (i.e., Tampa Electric Company, Wal-Mart, etc.)

**Auxiliary Station,** dials directly to fire dispatch via coded signal (i.e., Morse Code).

### NFPA72 Addresses Means of Communication

As many of you may be aware, the state of Florida currently enforces the 2002ed. of NFPA72. This edition of NFPA72 continues to references many means of reporting that are currently considered obsolete such as, Active Multiplex Transmission and McCulloh Systems.

Although the State of Florida has yet to adopt the 2010ed. of NFPA72, it is important for us to

note that in this version, NFPA has eliminated reference to obsolete means of communication and expanded on the code requirements of newer technology.

It is not likely that the State of Florida will adopt the 2010ed of NFPA72 during the next adoption cycle, however, as we endeavor into some of these newer technologies, it is important for us to under-

stand where the standard is headed. With this understanding we can stand apart in the industry and better communicate with owners, end users, and fire inspectors.

The 2002ed. of NFPA72 does begin to address the technologies we are seeing more of today including, IP Communicators and Wireless Reporting.

### Upcoming Events!

- **NONE SCHEDULED AT THIS TIME**

## Means of Communication: DACT

The most common means of communication currently in use today is **Digital Alarm Communicator Systems (DACT)**

**Digital Alarm Communicator Systems** include the traditional copper telephone lines required by end-users to be terminated at the FACP for automatic dialing out and communicating status of signals to the supervising station.

The following is a brief outline of the requirements associated with the traditional Digital Alarm Communicator Systems:

- DACT must be connected to telephone network upstream of any private telephone systems.
- Telephone network must

be under the control of the fire alarm service subscriber.

- DACT must seize the line to prevent use of the telephone line until signal transmission is complete.
- DACT must be able to obtain a dial tone, dial the number of the receiver, obtain verification, transmit the signal and receive acknowledgment

*\* ALL WITHIN 90SECONDS.*

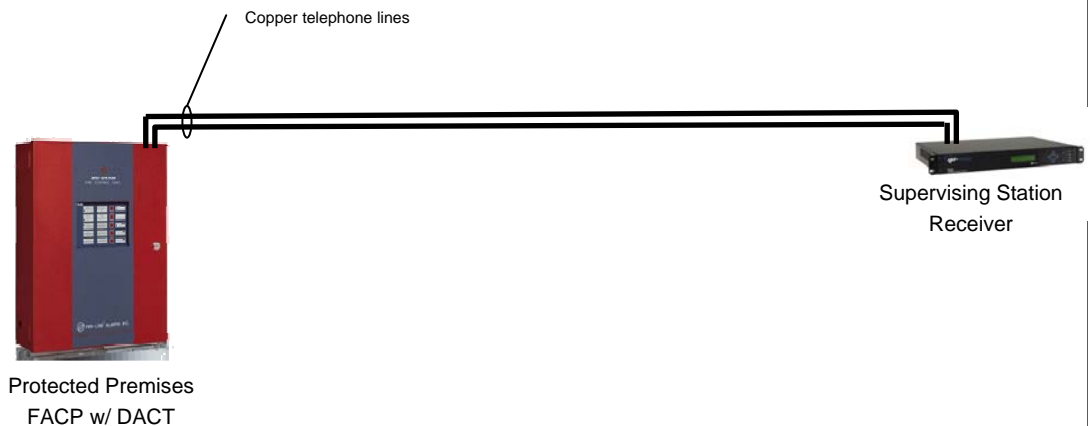
- Must be able to reset and retry 5–10 times before generating a failure trouble signal.
- Trouble signal must be indicated within 4minutes.
- One dedicated telephone line is required.

*\* ADDITIONAL COST TO CUSTOMER.*

- One backup means of communication is required. Typically this is a second telephone line but other means are acceptable. See NFPA 72, Ch. 8 for more detail.
- Both telephone lines must be tested every 24hours.

*\* PANEL MAY BE UNABLE TO COMMUNICATE FOR UP TO 24HOURS BEFORE ANYONE IS NOTIFIED.*

- DACT must be programmed to call a second receiver at the supervising station in the event the first receiver fails.
- If a DACT is programmed to call a specific telephone number that is forwarded to a supervising station receiver number, then the call forwarding feature must be tested every 4hours.



## Means of Communication: IP Communicator

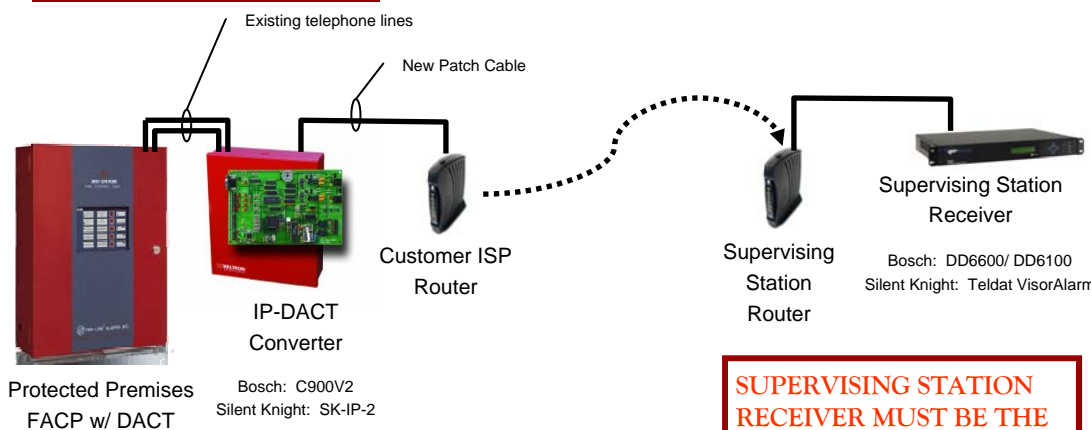
IP Communications is being adopted more and more frequently by end-users as they begin to abandon the copper phone lines coming into their buildings. Many new buildings are being constructed without any copper lines to begin with.

Code requirements addressing IP Communications can be found in the NFPA72 section regarding Other Transmission Technologies.

The following is a brief outline of the requirements associated with IP Communications:

- Supervising station must receive notice of communications failure within 5minutes.
  - \* IP COMMUNICATOR WILL DO THIS IS LESS THAN 90SEC.
- FACP must receive a trouble signal identifying communication.
  - \* IP COMMUNICATOR WILL GO INTO TROUBLE IN LESS THAN 1MIN.
- No redundant communications path is required.
  - \* IP COMMUNICATOR IS MONITORED FOR INTEGRITY EVERY 90SEC.
- Receivers at supervising station must be restored within 30minutes in the event of failure.
  - \* RECIEVERS CAN BE RESTORED WITH SMARTCARD WITHIN 30SEC.
- Receivers at supervising station must not support more than 3000 transmitters.
  - \* RECIEVERS ARE NOT CAPABLE OF RECEIVING MORE THAN 3000 UNITS.

**THE IP-COMMUNICATOR MUST BE THE SAME MANUFACTURER AS THAT OF THE DACT.**



**SUPERVISING STATION RECEIVER MUST BE THE SAME MANUFACTURER AS THAT OF THE IP-DACT**

**IP-COMMUNICATORS ARE NOT LISTED FOR VOICE OVER IP.**

**IT DEPT INFO.:**

- UDP PROTOCOL
- 10/100MPS
- 512BIT AES ENCRYPTION

**BATTERY BACKUP FOR ROUTER MAY BE REQUIRED AT AHJ'S DISCRETION.**

**TO TRANSLATE CONTACT ID SIGNALS TO IP COMMUNICATIONS ON A FIKE SYSTEM THE FOLLOWING IS NEEDED:**

- BOSCH C900V2

**TO TRANSLATE CONTACT ID SIGNALS TO IP COMMUNICATIONS ON A SILENT KNIGHT SYSTEM THE FOLLOWING IS NEEDED:**

- SK-IP-2

**BOSCH OFFERS A SYSTEM WITH FULL IP COMMUNICATION DIRECT FROM ANY OF THE FOLLOWING NEW SYSTEMS:**

- BOSCH FPD-7024
- BOSCH FPA-1000-UL
- BOSCH GV3

## Today's

### References:

- NFPA 72, 2007ed. Ch. 8.6.3.2
- NFPA72, 2007ed. Ch. 8.6.3.5
- [www.silentknight.com](http://www.silentknight.com)
- [www.boschsecurity.us](http://www.boschsecurity.us)
- [www.aes-intellinet.com](http://www.aes-intellinet.com)

**CAC (OUR SUPERVISING STATION) IS CURRENTLY SET UP WITH AN AES NETWORK THAT EXTENDS...**

- SOUTH TO THE KEYS
- NORTH TO WEST PALM BEACH
- WEST TO EDGE OF EVERGLADES

**ADDITIONAL EQUIPMENT IS REQUIRED TO EXTEND BACKBONE INTO REMOTE AREAS WHERE NETWORK DOES NOT CURRENTLY EXIST.**

## Means of Communication: Wireless Radio

Radio Alarm Systems include the recently embraced one-way radio networking communications. (i.e., AES)

This AES technology is widely in use in South Florida. The network is developed by the supervising station., providing an extensive wireless radio network.

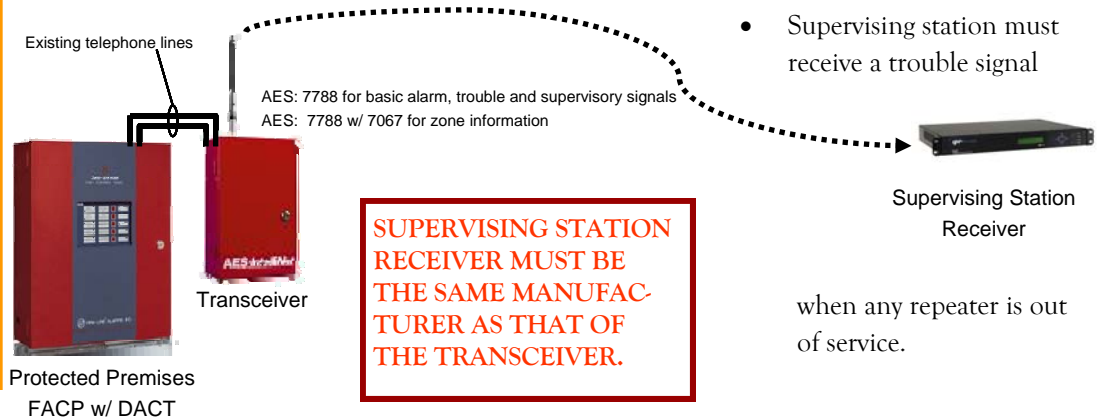
Although AES has a presence in Central Florida, the infrastructure of the radio network is currently developed around individual contractors. Because of this, each network is individual and limited in size.

AES is currently working on attempting to restructure the wireless network in the Central Florida area to provide greater opportunities in this market.

The following is a brief outline of the requirements associated with One-Way Radio Alarm Systems:

- Signals from transceiver must be received and supervised by at least two independent repeaters or receivers.
- 90% probability that signals will be received within 90seconds.

- 99.99% probability that signals will be received within 450seconds.
- Cable between FACP and remotely located transceiver must be in conduit.
- Personnel must be dispatched to arrive within 12hours to initiate maintenance after detection of power failure. (CAC is responsible for maintaining their own AES network).
- Each transceiver must transmit information indicating the quality of it's signals.
- Supervising station must receive a trouble signal



when any repeater is out of service.

Protective Systems, Inc. places a high value on individual education. We are dedicated to providing ongoing training for our managers, designers, and technicians who are expected to maintain a minimum NICET II certification is fire alarm and/or fire special hazards.

As codes, applications and enforcements are continually changing, Protective Systems, Inc. feels it is important to highlight specific topics to provide clarification and encourage discussion.

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