

Interfacing the Series 3300 IP Call Taking System to Other Telephone Systems

One of the most commonly asked questions about the Series 3300 E9-1-1 System is “Can it be interfaced with our existing phone system?” The answer in most cases is “Yes.” There are typically four different types of business phone systems in use today. In many cases the types of phone systems are generally dependent on the size of the organization and the age of the system itself. The first three typical types are an Electronic Key Telephone System (EKTS), a PBX, and a Central Office-based system such as Centrex. The Centrex system acts like a PBX but it is housed at the telephone company office. As Internet Protocol has grown however, many government entities are now using (or are migrating to) IP PBX’s for their administrative telephone switches. This application note describes how to interface the Series 3300 to all four communication system types.

OVERVIEW

PBX, IP-PBX’s, Centrex (a telephone company central office-based PBX) and Electronic Key Telephone Systems (EKTS) are used in Emergency Communications centers for several reasons including cost savings and ease of administration. The primary benefit is that they provide a telephone platform that is common across the various departments in the government entity. These departments might be administration, emergency management centers, or other city/county government agencies. In the event the 9-1-1 center operators also need access to the lines associated with this other system or they need to regularly communicate with them, links between the Zetron E9-1-1 call-taking system and the agency’s administrative system are required. For some 9-1-1 equipment manufacturers, interfacing to these diverse systems with all the associated connected equipment such as logging recorders and telephone

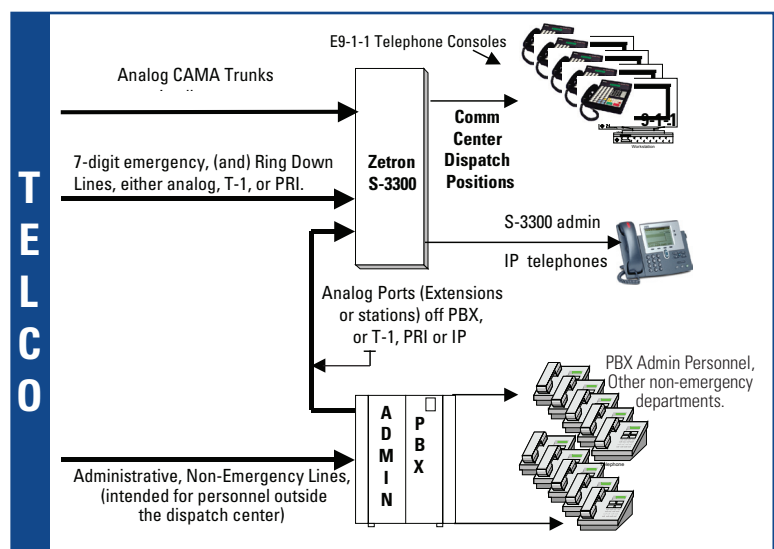
radio headset interfaces can be difficult. Zetron makes it easy. The Zetron Series 3300 E9-1-1 Telephone System, being primarily designed with the needs of communications centers in mind, has provisions for connection to such devices.

Also, because the Series 3300 was designed to meet the changing environment that IP and Voice over IP have created, future methods of IP communication such as text messaging and video delivery will be supported as they are developed and standardized.

Interfacing the Series 3300 to the existing PBX/EKTS gives the desired economy for the administrative side while providing the desired flexibility and reliability for the emergency communications side.

INTERFACING DESCRIPTION

The term “PBX” is used generically in the following document. The most logical method of interfacing the Series 3300 to a PBX is to split the lines and trunks from the Telco Central Office (CO) between the PBX and the Series 3300’s (see diagram). The logical break point between the lines is to run administrative non-



emergency lines to the PBX and to run the "emergency" lines directly to the Series 3300. Besides 9-1-1 trunks, there can also be 7-digit lines that are expressly used for emergency purposes only (alarm lines, operator assisted emergency lines, etc) that should also go directly to the Series 3300. Emergency lines are seldom, if ever, transferred to an administrative extension on the PBX, as you would not want to use emergency line resources on non-emergency administrative calls. The 9-1-1 circuits will come in from the Telco as individual analog CAMA trunks. All other telephone lines could be delivered to the 3300 as individual analog lines (terminated on a S3300 FXO-Gateway device), or by digital service such as T-1, or ISDN Primary Rate Interface (PRI).

- For communication between the agency EKTS and the dispatch positions on the Series 3300, analog stations on the EKTS must be assigned to the S-3300. Those analog extensions can be delivered as individual analog stations and terminated on the S3300 FXO-Gateway. Note that in most cases, adding the required analog station/extension lines will require the addition of one or more analog terminal adapters to the EKTS. These adapters are generally used for devices such as fax machines and lobby phones.
- For PBX and Centrex there are several options. The first approach to be discussed is similar to the one used with Electronic Key Telephone Systems. That would be to assign analog station ports on the PBX or Centrex group, and connect them to an FXO Gateway on the Zetron IP-PBX. Note that in some cases, adding the required analog station/extension lines will require the addition of one or more analog station cards to the PBX. Also note that in some cases PBX vendors do not pass calling line identification (CLID) information to analog station ports, so subsequently no CLID on the calls will be delivered to the Emergency Call-Takers. A second approach is to connect to the PBX digitally. Many brands of PBX have "station" or "line-side" T-1 capability. This T-1 can be connected directly to the S3300 without going through the FXO gateway. Or preferably, connecting the two systems using ISDN PRI provides for enhanced functionality. All these connections allow personnel on the Admin PBX to transfer calls (or make calls) to dispatch personnel on the S3300. If you want every dispatch position to have their own unique extension number off the Admin PBX then you would need just as many PBX port connections to the S3300. Having this ability to interface systems could eliminate the need for a

24-hour administrative attendant by providing the ability to route urgent after-hours administrative calls directly to the Comm Center dispatch positions. This also allows the Comm center dispatchers to receive and place calls via the PBX to both outside lines and internal extensions.

- For an IP PBX, there are also several options. The Series 3300 can be connected via previously mentioned T-1 or PRI interface (preferred due to the amount of functionality provided), or through an IP connection.

With these arrangements any PBX-originated call answered by the S3300 call takers can be transferred back into the PBX system using specific DTMF sequences programmable on the Series 3300 buttons. Please note that 9-1-1 emergency calls that are delivered directly to the Series 3300 system from the telephone company cannot be transferred into the PBX system using the above mentioned techniques. In the rare event that it is necessary to transfer or conference a 9-1-1 call to an extension that resides on the PBX, the use of the Series 3300 "Add-On" feature would be required. The call taker would dial the PBX extension and depress the "Add-On" button which effectively creates a conference between the 9-1-1 caller, the PBX party and the call taker. The call taker can place that conference on hold in order to perform other work but still be capable of re-entering the conference, or, the call taker can release from the call (transfer). Once the conference is completed the lines will be released automatically.

Notes:

1. It should be noted that the Series 3300 Telephone Consoles are not able to duplicate all of the functions of the PBX manufacturer's proprietary digital telephone sets. Users should realize that the Series 3300 is capable of performing only those PBX functions that can be accomplished using an analog telephone set (via hook-flash and/or DTMF sequences). The Series 3300's PBX capability usually includes conference and transfer via the PBX. The Series 3300 is also capable of receiving and displaying Caller ID information if the PBX passes this information through.
2. Reprogramming of the existing PBX, EKS or Centrex phone system is usually required if the system is not already interfaced to an existing E9-1-1 telephone system, and that interface is to be reused.

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