ZETRON®

Systems Teleconnect

FEATURES

- **Radio to telephone interconnect and system manager for PBX or public subscriber line connection**
- **Direct access to telephone from mobile radios**
- **Installs on simplex or duplex base stations and repeaters**
- **Compatible with simplex or duplex mobile or handportable radios**
- **Calls to and from mobile radio using selcall (5-tone, "select 5" - EEA, CCIR, ZVEI etc)**
- **Database of 99 or 300 users**
- **PC-programmable, direct/remotely with built-in modem**
- **User-definable access code**
- **Optional user-recordable voice prompts**
- **Optional dial click decoder for pulse telephone systems**
- **Optional digital voice delay for enhanced simplex operation**
- **Enhanced dial-out restrictions per user/ system**
- **Optional call details logging for up to 4000 records**
- **99 or 300 autodial telephone numbers**
- **Priority call system access option**
- **"Who has called?" information option**
- **Conversation timers**
- **EMC Approved, CE conformity**

INTRODUCTION

Telephone interconnects offer the most economical and reliable method of allowing a group of 2-way mobile radio users to place and receive telephone calls through the public telephone network or a private branch exchange (PBX). In business applications, office based personnel can speak directly to radio users such as security guards, warehouse staff and delivery drivers. Similarly, radio users can call their office, the emergency services or their customers. Calling privileges, conversation timers and system access are all under the control of the system operator, so capabilities can be tailored to individual requirements.

The Model 745 Systems Teleconnect is Zetron's most advanced single channel telephone interconnect, allowing radios fitted with 5-tone encode and decode to place and receive telephone calls.

The Systems Teleconnect is equipped with a wide range of standard features including direct 5-tone to telephone number translation, group calling, and reset sequence to close mobiles at the end of a call. The Model 745 has been designed with performance and reliability in mind to enable all manufacturer's types of 5-tone radios to be efficiently connected to the telephone network.

The Model 745 can control a repeater giving the system operator full control of all channel operations.

The Model 745 is available in a standard and an enhanced version. While both versions offer a full set of features and options; the Enhanced Version offers Priority Call, "Who Has Called", and Time of Day Access.

Calls from Mobile Radio

Mobile to telephone using DTMF or selcall (5-tone, "select 5" - CCIR, EEA, EIA, ZVEI, ZVEI2, DZVEI, PZVEI, ZVEI3). Up to 10 digits.

Calls to Mobile Radio

Telephone to mobile calling individual radios using selcall. (See "Calls from Mobile Radio").

Mobile to Mobile

Selcall repeater control for mobile to mobile calls when connected to a repeater (See "Calls from Mobile Radio").

PC Programming

Programming from PC connected locally to Model 745 or remotely using built in modem.

Rotary or DTMF Telephones

The Model 745 supports rotary, pulse or DTMF telephones using the optional dial click decoder.

Individual User Programming

Facilities and grade of service programmable to each individual mobile user - 99 (standard) or 300 (enhanced).

Optional Voice Prompts

Locally recordable voice prompts guide users through system features.

Call Restrictions

Mobile radio users may be restricted on which telephone numbers may be called, e.g. external PABX line or long distance calls.

Call Timers

Call time limits may be programmed to limit system use. Warning beeps are sent when call time limit is reached and if necessary, the call may be automatically disconnected.

Optional Call Details Logging

Logs all calls in Model 745 for subsequent retrieval by PC.

Advanced Simplex Operation

When installed on a simplex radio, rather than duplex base or repeater, advanced simplex provides optimum performance.

Optional Digital Voice Delay

When connected to simplex radio, the digital voice delay improves the VOX switching.

Autodial or Direct Format Operation

Mobiles may select autodial - using one of stored numbers 99 (Standard) or 300 (Enhanced) - or direct format operation giving direct translation of selcall digits into telephone format.

Unattended Autocall

If a telephone caller does not select an individual mobile, the Model 745 will automatically signal a predetermined radio or pager.

Group Call

Group call addresses are supported.

Time Break Recall

When Model 745 is connected to PABX, mobile has access to PABX functions through time break recall hook flash.

Disconnect Methods

The Model 745 will disconnect by the mobile sending a cleardown sequence or the telephone user entering a digit, or automatically based on detecting telephone hang up or inactivity timers.

Priority Call

Mobiles sending the assigned priority call sequence can instruct other users to clear down the call in progress and activate dial out to a programmed telephone number.

"Who Has Called?"

The number of the calling party may be sent to appear on the display of the called mobile.

Time of Day Access

Services available are programmable according to time of day.

Calls from Mobile Radio to Telephone

A mobile radio equipped with DTMF or selcall (5-tone, select 5) may place calls to the telephone system. The mobile user sends a string of up to 10 selcall digits which will have been programmed into the mobile, or may be entered by the mobile user. The Model 745 processes the string of digits, looking for an authorised user access code and the number to be called. These will be included within the string of digits. If the mobile user is authorised, the call will be processed. The call is processed as an autodial or direct format call - either dialling one of the programmed autodial numbers or directly translating the selcall digits into the telephone format. Normal call restrictions can be placed for limited call length and dialling restrictions.

Calls from Mobile to Mobile

When the Model 745 is installed on a repeater, a mobile radio equipped with selcall may call other mobiles, using the Model 745 as a repeater manager. Access is similar to "Mobile Radio to Telephone" calling. The Model 745 looks for an authorised user access code, and recognises the number to be called as another mobile radio on the system. The Model 745 then opens the repeater and selectively calls the other mobile radio. Mobile-to-Mobile calls support "who has called?", sending the number of the calling mobile to appear on the display of the called mobile.

Dealer Programming

All of the Model 745 features can be accessed from a locally connected PC, or remotely via the internal modem. No special software is required for programming, with just a standard terminal emulation program required to access the internal programming.

Call Detail Logging

The Model 745 is capable of storing up to 4000 calls made through the system. These details can be accessed via the built-in modem and printed out for customer billing etc.

Calls from Telephone to Mobile Radio

A telephone user dials the Model 745 telephone number. The Model 745 answers the line and plays a recorded message or beep, asking the caller to enter the number of the mobile they wish to contact. The Model 745 then sends a selective call to alert the mobile user to the incoming call, and allows the mobile-to-telephone conversation to take place.
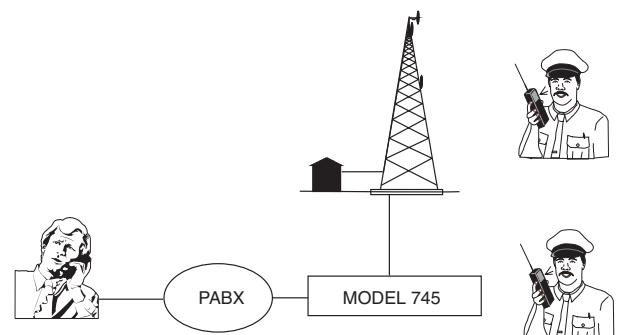
Priority Calls

Mobiles sending the pre-programmed priority call sequence can instruct other users to terminate any call in progress, gain immediate access to the system and dial out to a pre-programmed priority autodial function. Enhanced version only.

Voice Prompts

User-recordable voice prompts can be played out to the telephone and radio scheme prompting users through the system with greetings and instructions.

A large industrial site has a number of existing mobile radios used by process workers, maintenance personnel and security. The radios were supplied by different manufacturers and have a range of facilities - e.g. some have DTMF keypads, some have 5-tone signalling etc. The users want an integrated system, with a system controller and the addition of telephone interconnect for access to the site PABX. By installing the Model 745 on a duplex base station, the Model 745 allows the base to perform as a repeater - controlling system access and providing operability between all types of radio. Similarly the Model 745 enables calls between the radio users and office based personnel. Radios equipped with a "man-down" or emergency call feature get priority access to the safety office in a critical situation. The call detail logging keeps track of all system use for internal administration and inter-department accounting.

PHYSICAL SPECIFICATIONS

Power	10.5-16V DC,700mA or 9-12 VAC, 11 watts
Temperature	0 to 65 degrees Celsius
Size	470mm W x 181mm D x 44mm H, 470mm rackmount
Weight	6 pounds/2.7 kg

INTERCONNECT CAPACITY

User capacity	Standard = 99 Enhanced = 300
Function Table	Standard = 99 Enhanced = 300
User ID length	2 to 6 digits per user
Selcall codes	5-10 digits per user, all 16 tones, seperate ANI and reset codes
Access code speed	Five-tone = 10 to 30 digits/second (digit timing = 33 to 100 ms) DTMF = 1 to 14 digits/second

ACCOUNTING

Interconnect	Airtime record per user 99.59.59 maximum accumulate or pre-pay in HH-MM-SS format
Call detail option	Logs detailed call information including number dialled, time/date stamp, duration and user
Capacity	4000 records stored internally
Filtering	Toll only, all or none minimum time per user, errors on/off
Logging	All calls logged on local RS232 port

SIGNALLING SPECIFICATIONS

Frequency range	10 to 3500Hz
Frequency accuracy	0.1%
Frequency stability	0.005%
Distortion	2% nominal
CTCSS	50 tones, encode
DCS	104 codes
5-Tone	CCIR, EEA, EIA, ZVEI1, ZVEI2, DZVEI, PZVEI, ZVEI3

TELEPHONE INTERFACE SPECIFICATION

Line Input	3-wire connection to the PSTN
Connector	RJ11-C modular jack.
Adaptor Cable	J11 to BT 631A plug. 3 meter
Progress tones	Dial tone, ringing, double ring, busy.

END-TO-END

Ringer equivalence	3
Incoming call	Ring detection on 3-wire circuit. Programmable number of rings to answer.
Call answer	Off-hook, tip-ring current draw.
Call disconnect	Busy tone, 2nd dialtone, call limit timer, mobile activity timer, loss of loop current.

RADIO INTERFACE SPECIFICATIONS

PTT	FET pull to ground.
COR	Dual time constant noise detector or voltage change.
CTCSS/DCS Output	-40 to +6dBM. Hi/Lo Selector. 600 ohm output.
TX audio	-40 to +6dBM. Hi/Lo Selector. 1K ohm output.
RX audio	-40 to +10dBM. Hi/Lo Selector. 25K ohm input.
Channel busy input	Closure input from secondary receiver COR.

ADDITIONAL SPECIFICATIONS

Modem	Auto-detection and support 1200 baud. Bell 212. CCIT V.22 and CCIT V.22bis.
Indicators	Line 1, VOX, DTMF, Carrier, Decode, Transmit, Aux, Power.
Switch	Connect.
Station ID	Morse code, fixed 1200Hz frequency and programmable call sign (1-8 characters).
Equipment types	Tone-only pager, tone+voice pager, talkback pager, mobile.
Prompt tones	Progress tones, error tones and warning tones sent to phone or mobile.
Programming	Programmable via RS232 with local terminal, or remotely over phone lines using internal modem. Installation and user enable/disable via DTMF.
Data retention	Battery backed, typically 5 years with no power.
Real time clock	Battery backed, typically 5 years with no power.
Secondary protection:	On end-to-end telephone line.
Auxiliary output:	Open drain FET pull-down to ground.

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