

Model 48-MAX Interconnected Repeater Panel

Spec Sheet

FEATURES

- Shared radiotelephone interconnect with up to 750 user identities (ANI)
- Operation with wide range of simplex or duplex mobile or hand-portable radios
- Encodes and decodes 50 CTCSS, 104 DCS
- 2-tone, 5-tone (PZVEI, EIA, CCIR, EEA), DTMF selective calling
- Intersystem roaming capability for wide area coverage (wild ANI)
- Interconnect Gateway for switchless, intersite dispatch
- Owner-recordable voice prompts
- Enhanced toll restriction
- PC-programmable with built-in modem
- Billing records for up to 4000 calls
- 99 autodial telephone numbers
- Conversation timers with "hog" penalties for both interconnect and dispatch calls
- EMC Approval, CE conformity



INTRODUCTION

The Model 48-MAX Interconnected Repeater Panel is the latest, most powerful shared customer interconnect available from Zetron. It is designed for service providers who need the best in performance and reliability in order to compete most effectively when providing mobile communication services.

The 48-MAX comes with owner-recordable voice-prompts, enhanced toll restriction, a telephone line expander, and intersystem roaming for wide-area coverage. These and other features ensure continued profitability and competitiveness for providers of radiotelephone interconnect service.

In addition to service providers, the M48-MAX is also ideal for private, user-owned systems that need a high degree of versatility and numerous convenience features.

SUPERIOR FEATURE SET

Scheduled Telco Access

With scheduled telco access, the 48-MAX may be programmed such that telephone calls (both incoming and outgoing) occur during certain hours of the day only. The system owner also defines which ANI codes, if any, are allowed to access the telephone line during those periods. The owner may thus charge more for radio users who desire to use the telephone line during the restricted hours.

Scheduled telco access is a good way to preserve more airtime for dispatch (radio-to-radio) traffic. Telephone calls tend to be long, while dispatch calls are shorter in duration. Limiting telephone access during peak hours is a good method of freeing up more dispatch activity—a priority for many service providers.

Enhanced Toll Restriction

The 48-MAX is equipped to restrict telephone calls on both modern and older telephone systems. It takes into account the latest dialing procedures that have evolved within telephone networks worldwide.

Toll restrictions can be applied on a per-user basis. Some users can be restricted to local calls, some users can be provided with full access, and some users can be restricted to dialing pre-set autodial numbers only.

The toll-restrict methods are very versatile. They take into account the latest dialing conventions such as 1-888 calls, 10-digit local calls, long-distance codes (10+ATT, 10-321, etc.) and PBX procedures. For a full description of the toll restrict capability of the 48-MAX contact Zetron.

Interconnect Hog Penalty

Some radio users have learned that when their conversation time runs out they can "hog" an interconnect by hanging up and then quickly dialing another telephone number, before another radio user has a chance to react.

The interconnect hog penalty prevents the same radio user from placing back-to-back calls for a programmable period of time (0 to 250 seconds). This prevents someone with a speed-dial microphone or control head from beating other users in entering an access code and taking over the system for endless minutes at a time.

Radio Call Forwarding

Radio call forwarding is a feature that comes in handy on many systems.

If a call to a field unit (mobile radio, hand-portable radio) is not answered after a programmable number of rings, the call can automatically be forwarded to a different field unit, including a pager. One of the most convenient applications is allowing a mobile-radio user to receive a call on a lightweight tone or tone-voice pager when away from the vehicle.

When a call is forwarded, the transaction is recorded in the billing database so that the owner may charge extra for the feature if desired.

Other Features

Call-Alert Beeps: notifies radio-to-radio talkers that a telephone party is attempting to place a call to a radio. The radio users may then elect to terminate their call so the phone party can get through.

99 Autodials: for ease of dialing by the radio users, the owner may create up to ten blocks of autodials. A user is assigned to a block, and an autodial is initiated by * plus a single digit. If desired, radio users may be limited to autodials only, with no manual dialing privileges.

PBX Support: a hookflash signal may be initiated from a radio to manipulate PBX functions. This can give access to many PBX functions such as conference calls or call forwarding.

Cross-Tone, Cross-Code, and Tone-Code Encoding: radio users may call radios that operate on other tones/codes. The “crossed” tones/codes may be programmed into the database, or may be initiated with selective calling.

Two End-to-End Telephone Inputs: the second telephone input can be used in many ways by the creative system designer. For instance, it provides an easy method of separating users into different levels of telephone access privileges. It also allows one line to be a “priority override” line for emergency calling.

Voice Prompts: The owner of a 48-MAX can create up to nine voice messages. The messages are meaningful greetings and instructions that play to both radio and telephone callers. The voice prompts are recorded in the owner’s voice and may be changed at any time from a Touch-Tone telephone or DTMF radio.

Interconnect Gateway: Link multiple sites together for dispatch. No central switch or networking equipment is necessary! A user simply keys up on the right CTCSS subaudible tone (or CTCSS + DTMF). The 48-MAX automatically dials up the distant 48-MAX, and the user may dispatch through the distant site and converse with users there. The user doesn’t have to enter any digits or user number. The conversation proceeds as a normal dispatch conversation, with the 48-MAX at the distant site generating the proper CTCSS tone (which may be different than the originating user’s). Interconnect Gateway is ideal for linking nonoverlapping, conventional tower sites and helps retain customers from moving to trunked SMR or cellular alternatives.

ENHANCED AUDIO PERFORMANCE

True Squelch-tail Elimination

Zetron repeater panels have true squelch-tail elimination, using CTCSS reverse phase-burst and two-way DCS turn-off codes.

A squelch-tail is the noise burst heard when a radio user releases the push-to-talk button. The noise is raw, unfiltered audio straight off the radio channel, possibly including voices of co-channel transmissions. The length of a squelch tail is directly related to how quickly the tone panel reacts to the absence of a radio’s PTT signal.

With the 48-MAX, squelch tails are not a factor. The 48-MAX detects and acts upon the radio’s CTCSS reverse phase burst or DCS turn-off code as soon as the PTT button is released.

Inferior tone panels that compensate for poor decoding sensitivity by relying only upon “CTCSS/DCS hold delays,” are unable to eliminate squelch tails. When a radio is unkeyed, the noisy squelch tail is heard for the duration of the hold delay, which can be up to 3 seconds in length.

ToneLock Decoding Sensitivity

ToneLock is Zetron’s exclusive method of decoding CTCSS tones and DCS codes from the radio channel.

The range of a repeater system is directly related to the decoding sensitivity of the tone panel. The 48-MAX will reliably decode a CTCSS tone even when the signal fades to as low as 3 dB SINAD. The bottom line is that radio users will be able to stray farther from the repeater, will enjoy better coverage in obstructed areas, and will not suffer from “talkdown” (where the frequency makeup of a loud voice masks the subaudible tone).

MODEL 48-MAX INTERCONNECTED REPEATER PANEL

Standard Features

- 99 DTMF user identities (ANI)
- 50 CTCSS, 104 DCS
- 1200/2400 baud modem
- 2-tone, 5-tone (PZVEI, EIA, CCIR, EEA), DTMF selective calling
- Scheduled telco access
- 750 DTMF ANI codes
- Wild ANI support
- User-recordable voice prompts
- Billing records for up to 4000 calls

Options

- Dial-click decoder board for pulse telephone systems
- 600-ohm balanced audio option (factory install)
- Relays for PTT and aux out

Interconnect Features

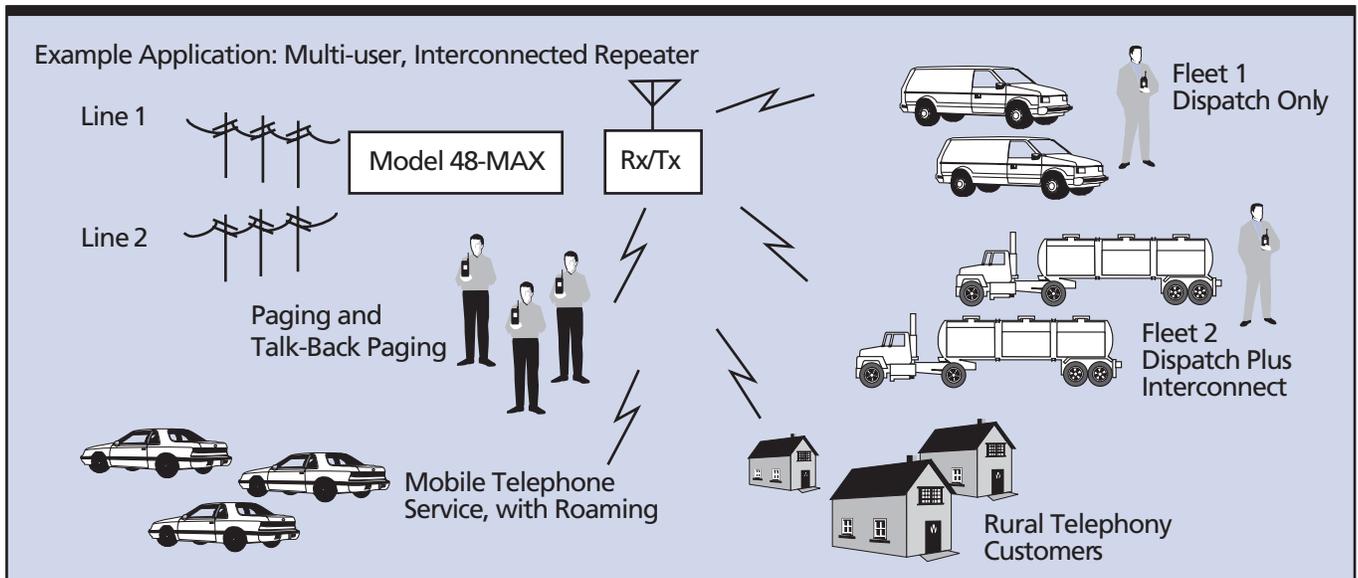
- Two end-to-end telephone inputs with automatic line selection for connection to public subscriber lines or PABX extensions
- One local telephone input for testing and for connection to a DID converter
- Radio-to-telephone access based on DTMF ANI only, or combined DTMF ANI plus CTCSS/DCS
- Billing records per ANI
- Accumulated and pre-pay airtime
- Radio call forwarding
- Interconnect timer and "hog" penalty
- 99 autodials
- Call-alert beeps
- Enhanced toll restriction
- Four different ringout sounds

Dispatch (Tone Panel) Features

- 50 CTCSS, 104 DCS
- Billing records per tone/code
- Accumulated and pre-pay airtime
- Airtime timers and "hog" penalty
- ToneLock decoding sensitivity
- Squelch-tail elimination
- Cross-tone encoding
- Privacy mode prevents barge-ins

General Features

- RS-232 port
- Built-in modem (1200/2400 baud)
- Simplified PC programming menus
- Limited DTMF programming
- XMODEM support
- Operates with simplex or duplex radios
- One auxiliary input and output relay



SPECIFICATIONS

PHYSICAL

Power: 13.8VDC nominal, 10.5-16 VDC
Current: 75mA typical, 150mA max. @ 16V
Temperature: 0 to +60 degrees C
Size: 7.25"W x 10.5"D x 2.25"H
Weight: 2 lb

RADIO INTERFACE

Audio Output: 20mV to 2V P-P (mic level audio),
1K ohm
Audio Input: 100mV to 4V p-p, 50K ohm.
Channel Busy Input
(COR): Low - 0-.7VDC, <100 ohms. to ground
High - 3.5 to 12 VDC, >10K ohms to
ground
PTT Output
(Push-to-Talk): Relay to ground, 300 mA max, normally
open or closed

Radio Modem Specifications

Data Rate
Signaling: 1200 Baud
Minimum shift keying

Signal Integrity

Required Signal
Strength: 95% success at 12dB SINAD

RS-232 INTERFACE

Baud Rate: 4800
Parity: None
Bits: 8
Stop Bits: 1

I/O SPECIFICATIONS

External Inputs

Contact Closure
Inputs: Model 18: 8 inputs
Model 18+: 16 inputs
Lo<.8 volts
Hi>2 volts
Protected to + 48 VDC

Analog Inputs: Model 18+: 4 inputs
0 to 5 VDC analog sensor with 8-bit
A/D input. 20mV/bit, 256 levels.
Protected to + 48VDC

External Outputs

Open Collector
Outputs: Model 18: 8 outputs
Model 18+: 16 outputs, can switch up to
Vcc +1V @ 100mA

Analog Outputs: Model 18+: 4 outputs 0 to 5VDC,
8-bit D/A, 20mV/bit, 256 levels



ZETRON AMERICAS

PO Box 97004, Redmond, WA USA 98073-9704

(P) +1 425 820 6363

(F) +1 425 820 7031

(E) zetron@zetron.com

ZETRON EMEA

27-29 Campbell Court, Bramley, Hampshire RG26 5EG, United Kingdom

(P) +44 1256 880663

(F) +44 1256 880491

(E) uk@zetron.com

ZETRON AUSTRALASIA

PO Box 3045, Stafford Mail Centre, Stafford QLD 4053, Australia

(P) +61 7 3856 4888

(F) +61 7 3356 6877

(E) au@zetron.com

©Zetron, Inc. All rights reserved. Zetron® and Zetron
and Design® are registered trademarks of Zetron, Inc.
All other trademarks are properties of their respective
owners.

See Zetron price list for option pricing. Specifications
subject to change without notice.

www.zetron.com