How to interconnect your two-way radios ...

to a new world of capability
"PatchMaster 200 increases the value of all your radios"

PatchMaster interconnects your mobile and portable two-way radios to the public switched telephone network. But it does more than that — it improves your entire radio system by making communications more effective. Its principal capabilities are:

**Mobile Phone Patch.** Mobile and portable users can place and receive telephone calls.

**Base Radio Extender.** The dispatcher and others at the base or control station can operate the radio through their office phones.

**Voice Mailbox.** Mobile and portable radio users, the dispatcher, and telephone callers can exchange voice messages.

**Dial-Access Paging.** Telephone callers can signal mobile and portable radios and pocket pagers.

**Dial-Up Remote.** Telephone callers can operate the base or control station radio.

**Remote Control / Alarm.** Users can remotely control equipment and receive radio pages in case of an alarm.

**Supports All Types of Radio Systems.** PatchMaster supports simplex, half, and full-duplex radio systems — conventional and trunked. With your choice of sampling, VOX, duplex, and repeater controller modes.

**Digital voice delay improves simplex and control station VOX operation by eliminating chopped words caused by keying delays. In simplex sampling mode, VOX enhancement slows the sample rate while the person on the phone talks. Full-duplex patches can be made by mobiles with duplex radios.** And PatchMaster can control a conventional duplex private repeater.

**Command With DTMF Or Coded Squelch.** Mobiles can activate all of PatchMaster's functions using conventional DTMF. But to save the cost of a fleet of DTMF mics (or keypads), some functions can also be activated by coded squelch. The mobile can either push DTMF keys, or "change channel" (actually change coded squelch) to activate various functions.

**High Performance Phone Patch.** You'll get the high level of performance you would expect in a top-notch patch, from audio quality to feature set.

For small systems, two groups of mobiles can each have their own codes, calling privileges, and coded squelch, and even have access to their own phone line. For larger systems, ANI with call logging is available.

The Autodialer provides quick access to telephone numbers stored in memory. Each number can be accessed by both mobile groups or can be restricted to just one.

Call activity is logged and downloadable through the computer port or modem for recordkeeping and supervision of the radio system.

The mobile doesn’t even need to hang up the patch. Automatic hangup can occur on busy, dial tone, or in many cases, immediately when the far-end party hangs up.
Operate the Base Radio from Convenient Locations. The Base Radio Extender frees the dispatcher from being tied to the radio. Ordinary office phones can become radio remotes.

The dispatcher can operate the radio by picking up an in-house office phone and punching up the “Radio” line. And the mobile can ring the office phones as well.

Voice Mail Improves Communications. Voice messaging between mobiles, telephone callers, and the base improves productivity by getting the message through when people aren’t at their radios. Several messages can be stored totalling 60 seconds or more.

PatchMaster delivers the messages. The office phones ring when there is mail for the dispatcher. A call light can be lit in the mobile, or PatchMaster will announce that mail is waiting when the mobile returns to service. Or, it will TD periodically telling the mobiles that there’s mail.

Beep-beep-beep-beep-beep-beep

“Thank you for calling. Please enter the number for your mobile.”

“The radio channel is busy. You can try again later, or you can leave a message…”

Signal Mobiles and Pocket Pagers. PatchMaster is a multi-format paging terminal available to callers, the dispatcher, and mobiles.

Users can signal ten units with easy single-digit reference. And for bigger systems, there’s a 1000-call two-tone and five-tone paging, and unlimited DTMF paging.

Remotely Control Equipment at the Base. An internal relay provides on/off or pulsed control. For more extensive control, the X-10 carrier-current system can be connected to PatchMaster’s computer port.

Alarm sensing devices with contact closures to ground can signal pagers with voice messages warning users of emergencies.

Control A Duplex Or Simplex Repeater. PatchMaster can add interconnect to your existing repeater. Or PatchMaster can control a simplex radio as a repeater, with repeat audio path, hang time, courtesy tone, timeout timer, and on/off code. And in simplex systems, its simplex repeater function can extend the range of mobiles.

Voice Prompts and Responses. Information is spoken in a synthesized voice — more friendly and meaningful than “beeps” and “boops”.

Your own voice recordings (in any language!) can also be made for special or personalized prompts, further tailoring the system and making it easy to use.

Let Mobiles Hear Themselves. Mobiles can verify that their radios are working properly and can confirm that they are within range using the DTMF Keypad Test and the Echo Test features.

Fully Programmable. PatchMaster is quickly and easily programmable with DTMF — on-site with a phone plugged into the back, and off-site over the air or over the telephone. Voice prompts and responses assist in reliable programming.

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Menu 
- Help
- Settings
- Programming
- Autodial Numbers
- Callers' Contacts Log
- Lookup/Download Selections
- Test Mode
- For technical assistance:
  Select menu number. (In your
  - Male: N8032M, N-8032 M
  - 406-329-8333

Simple menus with on-line help make it easy to program PatchMaster without referring to the manual. PatchMaster can also be programmed via DTMF with voice response.

And if you have a computer with a serial port, you can use PatchMaster’s simple programming menus. Programmed selections can be viewed and printed out for hard-copy documentation.
Specifications ( * indicates Option required)

Receiver
Carrier Detection: Internal dual timeconstant squelch derived from discriminator; external logic signal (high or low level); receiver VOX.

Coded Squelch Detection: Two internal 38-tone CTCSS decoders* or external logic signals.

Audio Input: Discriminator or de-emphasized audio. Squelched or unsquelched. 100K input impedance. Adjustable 25mV - 5V p-p (10mV - 2V rms). High/low range-select switch.

Channel Busy: Receiver carrier detection or external logic signal.

Transmitter
PTT: Open-drain power MOSFET (500 mA) or relay contacts.

Audio Output: Low (600Ω) or high (10K) source impedance. 0 - 5V p-p (0 - 2V rms). High/low range-select switch.

Telephone Lines (2)
FCC Part 68 registered.

Type: Central office lines or PBX extensions (loop start); RJ-11C.

Line-In-Use Detection Threshold: 18V

Call Progress Detection: busy, dial tone, loop current interruption.

Local Telephone Set
Compatibility: Ordinary telephone set, or key set system with spare central office line input (loop start).


Ring Voltage: 90V rms, 30-60 Hz.

Talk Battery: 24V.

Programming
LVDS: Local telephone set, phone line, over the air.

Computer: Serial port — 300 - 4800 baud; internal 1200 baud modem.

Paging
Two-tone Sequential: 1000-cell; Motorola, GE & Reach tones, timing.

Five-tone Sequential: 10,000-cell; EIA, ZVEJ, CCIR.

CTCSS: 38 EIA tones*.

DTMF: Unlimited call; 0-9, *, #, A-D.

Generic Audible Ringout: 3 selections.

Memories: 10 (random format/address).

Indicators
Power, Phone, Transmit, Receive, DTMF, Mail, Local.

Controls
Connect / Disconnect (C/D) button.

Connectors
Transceiver: 8 pin DIN (matting connector supplied, cables available).

Phone Line: RJ-11C.

Remote Telephone Set: RJ-11C.


Power: coaxial DC power connector (cable supplied).

Adjustments
Receiver: Squelch, Rx Level.

Transmitter: Tx Level, CTCSS Level.

Telephone: Hybrid Resistance, Hybrid Capacitance, Level.

Telephone and Receiver VOX: Self-adjusting, adaptive.

Lightning Protection
Telephone Lines: 3-terminal gas-discharge tubes.

Power: Transistors.

Signal Inputs / Outputs: MOVs.

Power Requirements
+12 Volts DC (10 - 16V) @ 500 mA (1A when ringing local telephone).

Size
7.5”W x 17.5”H x 10.5”D (desktop).

Operating Temperature Range
-20 to +65 degrees C.

Versions
PatchMaster 200 is available in two versions to accommodate your cost and performance needs. Either version can be “optioned-up” as desired.

PM-200: The fully featured unit less options below.

PM-200SL: Offers all the features of PM-200 except it accesses a single telephone line, the local telephone set has a 12V talk battery and can’t be rung, and it does not have a voice synthesizer.

Options
PCM Digital Voice Delay/Storage
(Select no more than one PCM option)

PCM1 (Voice Delay): 0 - 500 ms delay. Recommended in VOX mode.

PCM2 (Voice Delay and Prompts): Voice delay + 8 seconds of recording time (64 seconds in extended mode) for recordable (in addition to synthesized) voice prompts and responses.

PCM3 (Voice Delay, Prompts and Mailbox): Voice delay + 32 seconds of recording time (64 seconds in extended mode) for prompts and voice mail, and for simplex repeater.

Note: Recording time is further expandable to two minutes (four minutes in extended mode) with two 4 megabit static RAMs (not supplied).

CTCSS Encode/Decode (1 or 2)
Programmable 38 EIA tones. Encode requires one dedicated to encoding. Either or both available for decode.

Internal 1200 Baud Modem
Allows remote access to computer port for programming and telephone calling. Accessible from Line 1 and/or Line 2.

ANI and Call Logging
300-user automatic number identification validation. Clock/calendar memory for storage of telephone call information. Real-time output to serial printer or downloadable from computer port or modem.

All options are easy plug-in modules.

Specifications subject to change without notice.