



## FEATURES

- Desktop remote controller for TETRA radio
- Gives one or more operators direct access to a TETRA radio through local wiring, private wire, ISDN, or microwave circuits
- Suitable for Private or Public Access TETRA networks
- Provides convenience and efficiency for operators on TETRA networks
- Extends radio access into poor coverage areas
- Gives out of area access into remote TETRA networks
- Layout/functions match the Motorola MTM 700/800 radio

## INTRODUCTION

The Model 390 is a versatile remote controller for the Motorola MTM700/800 TETRA radio.

This controller is suitable for use in public or private systems. The radio can be placed up to 600 metres away from the controller and up to 15 controllers can be connected to one radio.

Optionally the Zetron Model 232 Interface may be installed between the Model 390 and the TETRA radio enabling the TETRA radio to be controlled over leased line or ISDN.

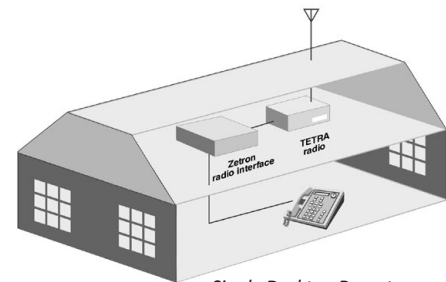
This enables the radio to be placed in the best radio coverage area whilst giving operator access from another location. This might include locations not receiving network coverage such as buildings, tunnels or basements, or out of area locations which are not served by the network. For example, users in areas outside the regional network can have dial up or leased line access without the expense of extending the network.

The Model 390 is also suited to radio operator dispatchers and office personnel who need access to a radio system without having a radio placed in the office environment.

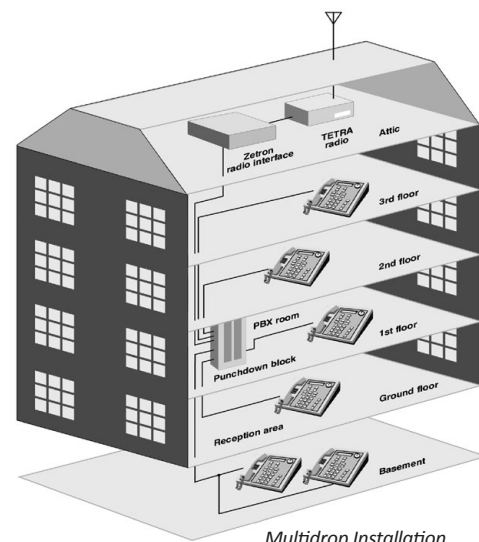
## APPLICATIONS

The Model 390 can provide operator access to a TETRA network when the operator is not receiving radio coverage or is out of the network area.

Placing the radio away from the office desk reduces potential EMC/EMI risk to office computers and other equipment. Additionally the Model 390 avoids the need for RF antenna cabling by typically making use of existing telephone wiring between controller and radio.



Single Desktop Remote



Multidrop Installation

Using the Model 390 multidrop capability, several Model 390s—for example along the length of a tunnel—can have access to a single TETRA radio. For the operator who is out of the network area or perhaps wants access to a network in another region, the Model 390 fitted with the Model 232 Interface gives true remote access over dial up telephone line, private wire or ISDN. Use of the dial up line or ISDN means connection costs are only incurred when the Model 390 is in use.

Organizations with remote offices in different cities or even countries can access a distant regional TETRA network and have the same functionality as a local radio. For public network operators this is a revenue opportunity, bringing in organizations which otherwise may not subscribe because their offices are out of the coverage area.

For private networks, the Model 390 extends the effective range of the network and allows personnel in one region to have direct access to a network in another region. This is valuable to organizations—such as utilities—with personnel in different regions.

Organizations such as emergency services can also get access to each other's regional networks including direct access to an isolated site when the network is in fallback mode.

For many office based personnel, the Model 390 with optional desk microphone, headset, footswitch and external speaker is a preferable presentation to having a fixed radio. It allows the radio to be sited for optimum coverage, while bringing the controller to the desk of the operator.

Where multiple operators need radio access, up to fifteen Model 390s can share a single TETRA radio. Supervisory control and intercom between Model 390s is also included.

## DESCRIPTION

The Model 390 is a robust telephone style controller with a large, easy-to-read LCD display and handset. Each unit has an individual rotary volume control, numeric keypad and function buttons. The function buttons match the radio making the operation simple and intuitive for any operator familiar with the MTM700/800. LED button indicators show which functions are activated and the presence of incoming messages in the stack.

The Model 390 supports the same languages as the radio, including English, German and French. Typical information displayed includes operating mode, current call information, alarm symbols, status and data information, speed call names and signal strength from the radio system.

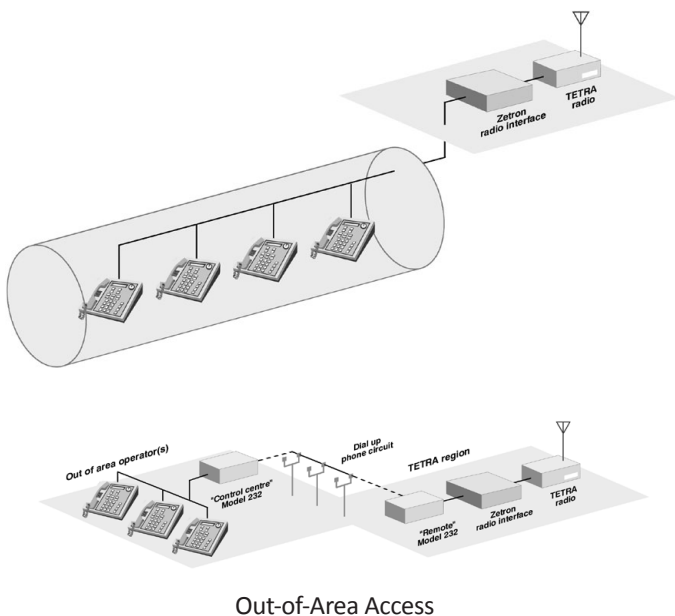
The handset includes a push-to-talk press bar and a built-in speaker and microphone allows hands-free operation. Hands-free intercom between all controllers is possible in a multiple controller system. Mute operation enables the operator to take incoming calls and hand-off to other positions.

An automatic gain control (AGC) regulates the transmit and receive audio. All radio progress tones received at the radio are passed to the Model 390 for ease of operation and operator confidence. Duplex operation is available.

The system consists of a compact radio interface, located at the radio, and one or more desktop controllers. Several controllers can be connected to the radio interface, each up to a distance of 600m from the radio interface.

For true remote applications a pair of Model 232 units are used between the controller and the Zetron radio interface supporting dial up telephone, private wire or ISDN connection. Several controllers can share access to a single controlling Model 232. See separate Model 232 brochure for other operation details.

Each Model 390 can be individually customized to meet specific requirements. A range of external accessories can be added including an external desk microphone, headset, footswitch, external amplified speaker and tape recorder.



## FEATURES

For a full description of the radio, its features and operation, refer to the radio user's guide.

*The four line LCD gives you the familiar look and feel of the TETRA radio.*

*Desktop presentation with handset provides telephone style operation.*

*Up to 15 parallel controllers share one radio. Multiple dispatchers have access to the radio system improving efficiency without the additional purchase or airtime rental cost of multiple radios.*

*Handset for semi-private conversations. Speaker and microphone for easy use.*

*Connections for recorder, extra amplified speaker, headset, desk microphone and footswitch.*

*Output contact can be triggered on incoming calls.*

*Remote Controller up to 600m from radio, or remoted, ISDN or private wire with a Model 232 Interface. Enables radio to be located for best reception, while putting controller near operator. Extends radio access to locations out of radio coverage. Provides inter-region working into remote TETRA networks.*

*Each Model 390 has its own individual volume setting.*

*Functions: access to front panel functions using clearly labeled keys.*

*Intercom: talk directly to other Model 390s without using the radio. Radio audio still sent to controller even when intercom is in use.*

*Mute: disables all receive audio for operator quiet working. Automatic adjacent controller mute to eliminate audio feedback.*

*Secure Mode: prevents all other Model 390s from monitoring the conversation, transmitting, and/or changing radio settings. Provides user confidentiality.*

*Optional on-line or off-line programming. On-line saves cost of programming software, off-line avoids system down time during programming.*

*Supervisor take-over and output switch enables supervisor to clear calls at other controllers and to switch the control output contact at each controller. Supports emergency applications, including disabling other controllers or activating an alarm.*



## MODEL 390 FUNCTIONS

The Model 390 presents the standard radio front panel control functions found on the MTM700/800, as well as a number of additional operator functions valuable in a radio dispatching environment.

- **ADDITIONAL FUNCTIONS\***
  - RADIO RESET
  - ADJACENT CONTROLLER MUTE
  - LINE CONTINUITY CHECK
  - REMOTE RELAY OUTPUT
- STATUS INDICATORS
- LED indicators show the status of function buttons. Additionally, indicators show:
  - LOUDSPEAKER OPEN
  - REGISTERED
  - SCAN
  - IN USE
  - SIGNAL STRENGTH

## FUNCTION BUTTONS

|  |                      |  |                       |
|--|----------------------|--|-----------------------|
|  | SPEED CALL SELECTORS |  | PRIVATE CALL          |
|  |                      |  | EXTERNAL ALARM ON/OFF |
|  | RANGE                |  | GROUP CALL            |
|  | TELEPHONE CALL       |  | DIRECT MODE           |
|  | EMERGENCY ALARM      |  | SENDING STATUS        |
|  | CALL CLEAR           |  | TRANSMIT              |
|  | SELECT               |  | MUTE                  |
|  | SECURE MODE          |  | INTERCOM              |

*\*Supported functions are based on radio type and configuration*

## SPECIFICATIONS

### GENERAL

|                 |   |
|-----------------|---|
| Radio types:    | Motorola MTM700/800 mobile radios used on TETRA systems   |
| Operation:      | As 700 full front panel   |
| Max Model 390s: | 15 in parallel  |
| Max distance:   | Approx. 600m from radio interface   |
| Indicators:     | LCD shows full radio status messages and menus. LEDs for TX, Service, Data message received, Intercom, Mute, and Secure mode.   |
| LCD:            | icons for "in-use", Continuity check and External alarm selected  |
| Controls:       | TX key, Clear key, Edit key, shortform dial keys, Data key, Status key, External alarm key, Emergency key, Hookswitch, Phone, Group and Private keys, Range key and Direct Mode key, volume knob, Intercom, Mute and Secure mode keys. Radio reset is available through a combination of keys |
| Progress tones: | Passes all radio progress tones (see radio user guide for details)  |
| Language:       | English, German and French  |

### M390 TO RADIO INTERFACE CONNECTION

|                   |   |
|-------------------|---|
| Connection scheme | Any (T, star, multi-drop etc)   |
| Wire type:        | Telephone grade, 24 gauge (0.6mm diameter) or larger, twisted pairs or equivalent |
| Number of wires:  | 6 (3 pairs)   |
| Connectors:       | 6 conductor telco modular (RJ-11)   |

### AUDIO INTERFACE

|                     |   |
|---------------------|---|
| Standard audio:     | Front panel microphone and interface speaker or handset with hook switch front panel speaker mute and PTT switch. Duplex operation available  |
| Desk mic interface: | Screw terminals for connection of an external dynamic desk microphone   |
| External amplified: | Screw terminals for connection of speaker interface an external amplified speaker (nominal 600 ohm output)  |
| Recorder interface: | Screw terminals for connection of external recording device—single ended audio (nominal 600 ohm, 0 dBm output) and a control line to activate the recorder when audio is present (FET pull to ground) |
| Headset interfaces: | Allow connection of a 4 or 6 (optional) wire headset in place of the handset  |
| Footswitch PTT:     | Screw terminals are provided to control connect a footswitch for PTT control of the front panel microphone or a desk microphone, and a headset  |
| Automatic gain:     | Present on both transmit and control receive audio  |

### GENERAL M390 SPECIFICATIONS

|                                  |  |
|----------------------------------|--|
| Power:                           | 12 to 16 VDC at 600 mA, or 12 VAC 1A, 50/60 Hz from external power supply  |
| Mounting:                        | Desk or wall mount   |
| Temperature                      | 0° to +60° Celsius   |
| Size:                            | 11.2 x 21.1 x 24.15cm<br>4.5 x 8.5 x 9.5 in. (h x w x d)   |
| <b>MODEL 390 RADIO INTERFACE</b> |  |
| Mounting:                        | Co-located with the radio  |
| Connections:                     | Connects to the radio through the radio DB25 connector on the bottom of the radio. This provides all signals and power to the unit (Zetron part # 709-7585). |
| Connection to:                   | 6-conductor RJ-11  |
| Model 390 remotes                |  |
| Programming connector:           | A keyed 6-conductor RJ-11 for connection to Zetron programming cable and PC  |
| Indicators:                      | Power/Status, radio and remote communication indicators as well as a setup mode enabled indicator  |
| Switches:                        | Setup mode initiate push switch  |
| Temperature:                     | 0° to +60° Celsius   |
| Size:                            | 3.4 x 22 x 17.8cm, 1.5 x 8.5 x 7 in. (h x w x d)   |
| Weight:                          | Approx. 950g (2.09lb)  |

### MODEL 232 REMOTE INTERFACE

|                      |   |
|----------------------|---|
| Choice of Bearer:    | ISDN, microwave, 2-wire and 4-wire leased lines   |
| Modem Port:          | RS-232 compatible DTE interface, male DB9 connector.<br>For connection to an external modem capable of 28.8Kbps or better                               |
| Desktop Remote Port: | 6-wire interface compatible with the Zetron models Z370, 380, 390 and DDC100 remotes.<br>Connected to either the remote(s) or the radio interface panel |
| Power Connector:     | Accepts power from either a 12-volt AC wall transformer or an external 13.8 volt DC unregulated supply  |



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