ANALOG, ADDRESSABLE FIRE ALARM
AND VOICE ALARM SYSTEMS

AUTOCALL® TFX-500M/800M
AUTOCALL® TFX-500MV/800MV

Features

- Conventional and Analog, Addressable Fire Detection
- 198 Analog, Addressable Initiating and Output Devices Plus 1600 Discrete Inputs or Outputs (TFX-500M/MV)
- 990 Analog, Addressable Initiating and Output Devices Plus 1100 Discrete Inputs or Outputs (TFX-500M/MV)
- TFX-500M/MV may be Expanded to TFX-800M/MV On-Site
- 80 Character LCD Display; 40 User Defined Message Characters
- Power-Limited, All Circuits
- Integral LED Zonal or Group Annunciator
- Degradation Mode in TFX-800M/MV Operates Evacuation Signs if CPU Failure Occurs Before or During an Alarm
- Smoke Detector Condition Monitoring with Automatic Environmental Compensation
- Individual Smoke Detector Sensitivity Selectable from the Operator Interface
- Historical Event Log for View or Print
- Fully Site Programmable
- Solo Test and Alarm Verification Per Group or Point
- Automatic Time Control Functions with Holiday Exceptions
- Six Access Levels with Unique 0911 Fire Department Access
- Automatic and Manual Detector Sensitivity Adjustment
- Alarm Resound by Zone or Device
- Modular, Expandable
- Integral Voice Alarm and Two-Way Firefighters Telephone Option
- Networking Capability to the Graphical User Interface From any TFX Panel

General Information

The AUTOCALL TFX family of self-contained controls for fire alarm and detection, consists of the AUTOCALL TFX-500M, TFX-800M, TFX-500MV, and the TFX-800MV. The AUTOCALL TFX-500M/MV features two (2) analog, addressable signaling line circuits that provide 99 points each (up to 198 initiating and output devices). The AUTOCALL TFX-800M/MV adds an expansion motherboard and up to five (5) 2-loop expander boards. This allows a maximum capacity of 10 signaling line circuits, with 99 points per circuit, for a total of 990 points. Line Fault Isolation Circuitry is integral to the Signaling Line Circuits on the Main Processor Board (MP-500), and the Loop Expansion Boards (IIB-800).

The AUTOCALL TFX family of fire alarm systems reduces complexity by using a common power supply, main control board (processor), enclosures, and software. Therefore, the TFX-500M can be expanded to an -800M on site.

AUTOCALL TFX controls are designed to be used with conventional or analog, addressable fire detection devices, in any combination. The controls are engineered to meet the needs of any mid to large size building or complex.

The AUTOCALL TFX-500M and TFX-800M provide an optional voice alarm capability and two-way firefighters telephone communications.

The AUTOCALL TFX-800M/MV features a unique multiprocessor design with degrade mode operation. In the event that an alarm occurs during a CPU failure, visual and audible evacuation signals will be activated through the intelligence of the addressable loop expansion modules.

AUTOCALL TFX panels provide flexible operator displays including a backlit LCD and field configurable LED annunciators. The LED annunciators provide quick identification of fire, trouble, and supervisory events by zone, group, or device, while the LCD provides user defined text to describe the type of event and its precise location.

Listings & Approvals

- UL 864 Listed, File S2561
  - Local
  - Local with Releasing Device Service
  - Auxiliary
  - Remote Station (Protected Premises Unit) Proprietary Protected Premises Unit
  - Central Station (Protected Premises Unit) Fire Alarm Control Unit
  - Proprietary Receiving Unit
  - Central Station Receiving Unit
- CSFM No:
  - 785-1493:147 (TFX-500M/800M)
  - 7300-1493:152 (TFX series accessories)
  - 710-1493:167 (TFX-500MV/800MV)

- MEA No. 415-92-E Vol. VI
- FM ID No. OX2A8.AY

UL LISTED

Factory Mutual System Approved

II-227/0902
Page 1 of 6
Description

The AUTOCALL TFX-500M/MV and TFX-800M/MV are modular by design. One or more annunciation modules may be configured into the system for status indication of points, zones, type of alarm, or other user selected functions. Switch modules may be configured for control of HVAC fans, dampers, door holders, notification appliance circuits, or other control points as required. Enclosures are available in four different sizes to accommodate all system configurations.

Up to 1600 discrete contact inputs and voltage outputs in any combination, may be configured into the TFX system. These are typically used for audio evacuation and HVAC control switches, and annunciation LEDs at the main (or a remote) control panel.

New and existing, conventional 2- or 4-wire smoke detector circuits may be completely supervised by the AUTOCALL TFX-500M/MV or TFX-800M/MV. Conventional circuits are interfaced by using an IXA-500DMA Addressable Detector Monitor Module or an MDM521 Multi Detector Monitor Module, placed anywhere along an analog, addressable communications loop.

The AUTOCALL TFX offers a UL Listed alarm verification feature for use with a 900 or 550 series analog addressable detector, or any connected, conventional detector circuit (IXA-500DMA or MDM521).

Up to seven (7) remote operator control panels may be connected to a TFX-500M/MV or TFX-800M/MV panel. These remote panels may be configured to duplicate the LED and LCD displays, control switch functions, voice alarm microphone, and firefighters telephone.

When used with 900 or 550 series analog smoke sensors, the AUTOCALL TFX panels provide continuous detector sensitivity monitoring, and automatically compensate for environmental influences. Alarm and pre-alarm threshold smoke levels may be defined per device and may be automatically or manually switched between multiple sensitivities based on the time-of-day, day-of-week, or date.

Our exclusive CONSYS software configuration tool for site specific user programming easily guides the trained installer through a menu prompted decision process.

The AUTOCALL TFX system logs all alarm, trouble, and supervisory events into electronic memory with the time and date of occurrence. These events may

AUTOCALL TFX-800MV Operator Interface
be displayed on the LCD or printed.

Coincidence alarm grouping (cross-zoning) relates multiple device actuations before confirmation of an "alarm" occurs. The user may select the number of successive device actuations (2, 3, or 4) required to trigger an output response.

The user may assign different coded patterns to audible and visual signal circuits. These patterns are typically used to differentiate between "alert" and "evacuate" conditions. They may also be used as auxiliary signals, such as tornado warnings.

**Audio Alarm and Evacuation**

The AUTOCALL TFX-500MV and TFX-800MV provide single, dual, and three channel voice (audio) alarm and evacuation systems. Tones, recorded voice messages, and live voice instructions may be broadcast automatically and manually to selected zones, for controlled evacuation purposes. Auxiliary tones may also be broadcast to signal emergencies such as tornado warnings.

Typically, the messages are broadcast to the areas immediately surrounding the detected fire emergency, e.g.: the floor of incidence, the floor above, and the floor below. The message usually begins with a brief alert tone, followed by recorded voice evacuation instructions. In two or three channel systems, different messages are simultaneously broadcast to areas away from the detected fire emergency.

Other options include redundant (backup) audio amplifiers, which automatically switch over in the event of primary amplifier failure; distributed amplifiers for large systems; and multiple fire command stations for control of the system from multiple locations.

**Network Communications Feature**

Any AUTOCALL TFX fire alarm control panel may be connected to the TFXnet network. Each panel maintains full standalone capability while also operating as part of the larger system. No master or host controller is required. True peer-to-peer event exchange permits the sending and receiving of event information via the network, to distribute and coordinate system wide control.

The network supports a variety of communication media and wiring topologies. This means that the TFXnet Network may be applied to existing site layouts and wiring schemes, as well as those employed at new installations. Refer to the AUTOCALL TFXnet Network datasheet 228, for more information.

**Commissioning and Service Features**

The following AUTOCALL TFX system features facilitate commissioning and service:

- **Solo test:** allows testing of all initiating devices (detectors, pull stations, etc.) and notification appliances (horns, strobes, etc.) by one technician.
- **Commissioning mode:** allows the system to provide quicker response to fault conditions introduced to test supervision. This reduces service time and system life cycle costs.

- **Addresses in the base:** The 900 and 550 series analog detector heads may be removed, serviced, and replaced without reprogramming the system, or dealing with rotary or DIP addressing switches. The possibility of duplicate addressing is virtually eliminated. Optional relay and sounder bases are also available.

- **Service from the floor:** The 600, 900, 350, and 550 series detectors may be serviced from the floor. Almost any testing or maintenance function, including removal and installation of the detector head, may be performed without a ladder. The address of the 900 and 550 series analog detectors may be seen from the floor.

- **Detailed diagnostics:** are displayed on the LCD during alarm, supervisory, and trouble events to reduce troubleshooting and response time.

- **Test reminder:** indicates when the system is due for scheduled maintenance and testing.

**Remote Functions**

The AUTOCALL TFX features an RS-485 Remote Bus for connection to various remote operation and display panels that provide all of the functions available at the main panel, including LED annunciator, LCD display, and control switches.

Other remote bus functions include remote printers (up to 16) to print a log of system events, and discrete inputs and outputs for annunciation and controls. Remote bus functions may be up to 4000 feet (1219.2 meters) away from the main panel.

**System Components**

The AUTOCALL TFX-500M/MV and TFX-800M/MV system components are identical except for the TFX-800M/MV Expansion Motherboard and Loop Expansion Board. Each panel consists of a backbox(es), door assembly(ies), rear mounted system electronics, and front mounted system electronics.

**Backboxes**

The TFX-500M and TFX-800M control panels use the same family of backboxes in various sizes. Backboxes may be ordered separately to allow for electrical "rough-in" during construction. Rear mounted system electronics are mounted on removable rails and installed in the backbox.

Since the TFX systems are modular,
backboxes are furnished in 3-, 5-, 7-, and 10-module sizes. The size is selected to accommodate specific system requirements, including multiple power supplies, input and output modules, and batteries.

**Door Assemblies**

Door assemblies, finished in red, are available in various sizes to match the backboxes. 3-, 5-, and 7-module sizes are also available in gray finish. There are two styles to choose from: Basic and Architectural.

**Basic Style** doors have a simple metal frame that houses the front mounted system electronics. Operator buttons and functions are accessible without opening the door. The standard AUTOCALL lock is provided for access to rear mounted system electronics. A clear acrylic door is optional, for protection of the operator controls.

**Architectural Style** doors have a styled door frame and a clear, separately hinged acrylic door. A dual keyed lock has an operator's key which opens the acrylic door for access to the front mounted system electronics, and a service key which opens the door frame for access to rear mounted system electronics. The architectural style door provides a true “dead front” feature, allowing access to operator controls, and limiting access to rear mounted system electronics.

**Rear Mounted System Electronics**

The RPS-424 and DCPM, AUTOCALL’s solid state electronic power supplies, provide filtered regulated DC power to the AUTOCALL TFX series fire alarm systems. The RPS-424 converts 120VAC primary power to 24VDC, 5VDC, and 15VDC. The DCPM converts 24VDC power from the RPS-424 to the supply voltages necessary for the TFX family. The power supply monitor modules (models 500PSM and PSM) monitor the RPS-424 and provide visual trouble indicators of faults.

The Multipurpose Interface Module (MPIM) serves as the communications interface between the main processor and various system peripherals not on the addressable loops (i.e. front door displays, switches, zonal LEDs, printers, auxiliary relays, etc.) Each MPIM is user defined for the specific functions of the peripherals to be interfaced. The MPIM and associated peripherals may be used locally or remotely, up to 4000 ft. (1219 m) (RS-485 Remote Bus).

The Expansion Motherboard (IAM-800) and Loop Expansion Board (IIB-800) are used only with AUTOCALL TFX-800M/MV panels and provide the expansion flexibility for 198-990 points (2-10 loops). Up to five (5) IIB-800 loop expansion boards (2 loops each) may plug into the IAM-800 motherboard. Alarm notification appliance circuits on each loop operate independently if the main processor fails for a degraded system operation.

The IIB-800 loop expansion board enables two (2) analog, addressable signaling line circuits. The IIB-800 processes signals received from all devices on each circuit. Each IIB-800 is interfaced via the IAM-800 to the TFX panel main processor.

**Front Mounted System Electronics**

The Fire Control Module (FCM-500) provides common alarm, trouble, and supervisory annunciation LEDs, as well as control switches for SILENCE, RESET, DRILL, and LAMP TEST. Labels for each control switch may be field customized in any language, or to meet other site requirements.

The Operator Display Module (ODM-500) has an 80-character backlit LCD to display detailed alarm and trouble messages. An operator’s keypad allows the user to acknowledge events, make inquiries, and view the system’s status. The real time clock and date settings are set and changed from the keypad as well. All functions are password protected.

Functions available at the ODM-500 include:
- Per point annunciation of alarm and trouble events
- View and acknowledge events which have not restored to normal
- Force outputs on
- View smoke detector analog values in % obscuration per foot, and perform sensitivity checks, per NFPA 72 requirements
- View event history log
- Isolate zones and points
- Enable solo test mode
- Enable commissioning mode
- Print status and maintenance reports
- Change smoke detector sensitivity

**16- and 80-Indicator Modules**

These modules have field configurable LEDs for annunciation by zone, group, device type, or point. Since LEDs are bicolored (red and yellow), each LED may be configured to annunciate alarm and trouble. Label space is provided with each LED for custom identification.

**40x2 Indicator Modules** have 80 indicating LEDs in red and yellow “pairs” for alarm and trouble annunciation by point, zone, or group. A single label space is provided for each pair of LEDs, for custom identification. LEDs are removable; colors may be selected for specific system requirements.

**16 and 40 Status Control Modules** have field configurable switches for control of dampers, fans, zone or point disconnects, and other functions. Switches are the membrane type. A field configurable LED next to each switch may be assigned to indicate the status of any configurable control point. (The LED need not be controlled directly by the adjacent switch.) LEDs are removable.

---

**Tyco Safety Products**

II-227/0902
Page 4 of 6
Remote Operator Control Panel

Remote Operator Control Panels provide system operating controls at a remote location. The unit is suitable for mounting in lobbies, vestibules or anywhere space is a premium. Three configurations are available, each housed in a small, attractive unit, finished with a black faceplate and either red or gray trim. All remote operator control panels contain a fire control module and one of the following: an operator display module (ODM), a 16-indicator module, or a blank module. Socketed LEDs are also available. Each configuration may be mounted indoors, either semiflush or surface-mounted.

DirectTone Voice Options

Amplifier Modules provide two (2) 25VRMS or 70VRMS supervised audio out-put circuits to drive fire alarm speakers. The total power output of each amplifier is 150 watts when used with power supply P/N 5290-027.

If necessary, the amplifiers may be wired so that one amplifier may back up from 1 to 5 main amplifiers. During battery standby, amplifiers may be shut down automatically to conserve power, until needed for tone or voice communication.

Power Supplies are used with the amplifier modules. P/N 5290-027 provides 8 amps of power at 24VDC.

Signal Generator Modules contain tone/voice generated modules. Plug-in slots are provided for one fire tone, one backup fire tone, and two auxiliary tone generators. The fire tone generator is continuously supervised for tone output. If the main tone generator fails, the system is capable of switching over to an optional backup tone generator. The signal generator module also incorporates voice communication inputs for the microphone and digitized message module.

Universal Tone Module plugs into the signal generator module and provide a variety of alarm signaling tones:
- TM1 WAIL (conventional siren, 560-1055 Hz, 11 cycles/min.)
- TM2 YELP (rapid siren, 560-1055 Hz, 3.3 cycles/sec.)
- TM3 HI-LOW (alternating high and low, 561-760 Hz, 50 cycles/min.)
- TM5 YEOW (descending high to low, repeated, 545-1296 Hz, 36 cycles/min.)
- TM6 HORN (steady, 470 Hz, continuous)
- TM7 BEEP (slow intermittent horn, 470 Hz, 50 cycles/min.)
- TM8 STUTTER (rapid intermittent horn, 470 Hz, 5 cycles/sec.)
- TM9 SLOW WHOOPI (slowly ascending low to high, repeated, 424-1163 Hz, 15 cycles/min.)
- TM11 TEMPORAL SLOW WHOOP (NFPA fire alarm whoop, 424-774 Hz, 15 cycles/min.)
- TM13 EVAC (amplitude modulated siren, 479 Hz, 4.3 cycles/sec.)
- TM14 AIR HORN (steady horn, 400-800 Hz, continuous)
- TM15 CHIME (single Strike Chime, musical tone, 49 cycles/min.)
- TM16 PHASER (rapid siren, 600-1200 Hz, 15 cycles/sec.)
- TM17 ALTERNATE HI-LOW (alternating hi-low, 363 Hz, 518Hz, 60 cycles/min.)
- TM18 WARBLE (extremely rapid siren, 560-1055 Hz, 6.3 cycles/sec.)

Digitized Message Modules provide a digitally recorded custom voice message up to 40 seconds long. The message may be configured to play immediately upon receipt of an alarm, or after a brief alert tone. The message may be configured to repeat a preset number of times, or to repeat continuously.

Channel Select Modules (CSM-500) provide three (3) speaker circuits, Style Y or Z, rated at 36 watts each. Circuits may be field configured for 25 or 70 volt operation. This module includes the logic circuitry for channel and priority selection for up to three (3) audio channels. Each channel is separately switched into one, two, or all three speaker circuits. Usually located remotely from the TFX panel, it is connected to the addressable loop, and requires the following per speaker circuit:
- One OXA-501SDA plug-in module for single channel systems, OR
- One OXA-501SDA plug-in module plus one (1) OXA-503RM plug-in module for 2-channel systems, OR
- One OXA-501SDA plug-in module plus two (2) OXA-503RM plug-in modules for 3-channel systems.

Master Communications Modules (MCM-500) provide a microphone with a push-to-talk switch for broadcasting live instructions to selected zones. A master telephone for two-way firefighters telephone communications is provided as an option. When provided, the master telephone occupies the same module slot on the door assembly as the microphone. Using switches on the Status Control Modules, the operator may select speaker circuits for broadcast of live voice instructions, connect to incoming calls on the firefighters telephone circuit, and connect any firefighters telephone directly to any speaker circuit, allowing broadcast of live voice instructions from the firefighters telephone system.

Microphone Modules (P/N 5200-524) provide a microphone with a push-to-talk switch for broadcasting live instructions to selected zones.

Multi Detector Monitor Module

The Multi Detector Monitor Module (MM521) connects zones of conventional 24VDC detectors and interfaces them to the AUTOCALL TFX series fire alarm systems. The MM521 provides eight Class B (Style B) zones.

The MM521 fully monitors each initiating circuit of conventional 24VDC detectors and signals the control panel upon alarm, open circuit fault, or power supply fault. Each zone reports as a single address to the AUTOCALL TFX series control panel.

The module is compatible with 2-wire or 4-wire, UL Listed, low-voltage, conventional, point-type detectors or normally open contact initiating devices. Up to 30 detectors may be connected to each initiating circuit, depending upon the specific detector used.
**Digital Alarm Communicator Transmitter**

Digital Alarm Communicator Transmitter (SK5128) provides 4 reporting channels and dual phone line monitor with line seizure. The SK5128 is field configurable to transmit in one of eight different formats and is used with SRA-550 supplemental relay assembly.

**Specifications**

AUTOCALL TFX-500M/MV and TFX-800MV/MV are intended for use within a building interior, free from exposure to moisture, condensation and excessive dust.

<table>
<thead>
<tr>
<th>Temperature Range:</th>
<th>32°F (0°C) to 122°F (49°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relative Humidity:</td>
<td>85% (noncondensing)</td>
</tr>
</tbody>
</table>

**Analog, Addressable Signaling Lines**

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Addressable Points per Loop:</td>
<td>99</td>
</tr>
<tr>
<td>Maximum Loops per System:</td>
<td>(2) for the AUTOCALL TFX-500M/MV, (10) for the AUTOCALL TFX-800MV/MV</td>
</tr>
<tr>
<td>Voltage:</td>
<td>26VDC, 300mA</td>
</tr>
<tr>
<td>Supervisory Current:</td>
<td>20mA per loop (plus load)</td>
</tr>
<tr>
<td>Alarm Current:</td>
<td>24mA per loop (plus load)</td>
</tr>
<tr>
<td>Resistance:</td>
<td>Maximum 75 Ohms per loop</td>
</tr>
<tr>
<td>Capacitance:</td>
<td>Maximum 0.5 microfarad per loop</td>
</tr>
<tr>
<td>Inductance:</td>
<td>Maximum 1.5 millihenrys (total) per loop</td>
</tr>
<tr>
<td>Maximum Continuous Distance:</td>
<td>6500 feet (1981.2m) per loop</td>
</tr>
</tbody>
</table>

**Compatible Devices:**

- IXA-RMS series addressable manual stations
- 900 and 550 series smoke, duct, and heat detectors
- IXA, OXA, 506SDA, CAA-500LI addressable field modules
- CSM-500, IXM-500, and OXM-501 motherboards for addressable plug-in modules
- IXA, OXA, 505SDA addressable plug-in modules
- 505SDA/RM and 506SDA/RM agent releasing kits
- GARA-1 and GARI-1 agent releasing stations
- Remote operator control panels
- LX-300 printer
- VT520 video terminal
- SIM serial interface module

*Complies with Style 7 when a line isolator (CAA-500LI) is connected adjacent to and via conduit, to the input and output of each addressable device. Maximum number of CAA-500LI modules per addressable loop is 12.

**Ordering Information**

Contact factory for specific configurations.

Tyco and AUTOCALL are trademarks of Tyco International Services AG or its affiliates in the US and/or other countries.

©2002 TEPG-US (a Tyco Company). All rights reserved.

http://www.simplexgrinnell.com