

XPIQ

Quad Intelligent Audio Transponder



Voice Control Systems

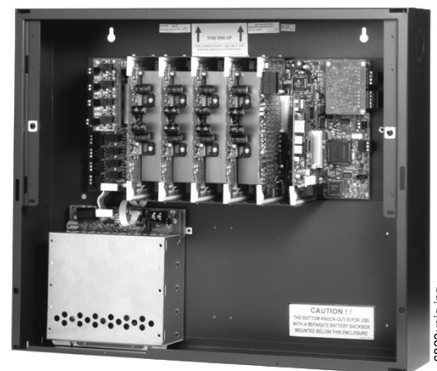
General

The **XPIQ Quad Intelligent Audio Transponder** is for distributed multichannel voice evacuation systems, playing up to four simultaneous messages. It is an integrated audio amplification and distribution subsystem controlled by an FACP (Fire Alarm Control Panel) via the SLC (Signaling Line Circuit). The XPIQ can direct up to four low-level audio signals from the risers to four audio amplifiers. The amplified audio signals are then directed to up to four integrated, continuously supervised speaker circuits. The XPIQ is compatible with all Onyx panels, with the exception of the NFS-320.

NOTE: The XPIQ can also be used with Legacy panels. Please refer to the XPIQ manual for more information.

XPIQ-MB Features

- Four Class B speaker circuits (Class A with **XPIQ-CA**).
- Accepts four audio riser channels from **XPIQ-AIB4** option board.
- Four amplifier slots.
- Continuously supervised amplifiers and speakers.
- All-call local page capability with optional **RM-1(SA)** remote microphone and **XPIQ-RMI**.
- Two independent user-configurable tone generators either for riser backup or as a main tone source.
- Supports routing of all-call page from single remote microphone to other **XPIQ-MBs** in the same cabinet.
- Background music input terminal block.
- Ten-position background music volume-control switch.
- Multiple variations of backup configurations:
 - 1 to 1 backup.
 - 2 to 1 backup.
 - 3 to 1 backup.
 - 2 to 2 backup.
 - 1 to 1 external backup (backup amplifier in another XPIQ).
 - 2 to 1 external backup (backup amplifier in another XPIQ).
 - 3 to 1 external backup (backup amplifier in another XPIQ).
 - 4 to 1 external backup (backup amplifier in another XPIQ).
- Supports backup amplifier sharing between two or more XPIQs within the same cabinet.
- Includes four Class B or two Class A notification appliance circuits or telephone circuits.
- Ring tone on firefighter telephone circuits.
- Supervised firefighter telephone riser input with in and out terminals.
- XPIQ-PS(E) power supply control/supervision that includes AC, battery, and charger monitoring.
- AC trouble delay option (none, 8-hour delay, 16-hour delay).
- Ground fault detection.
- Easy software upgrading and programming accomplished by downloading from PC via serial port.
- Nonvolatile memory for storing configuration data.
- Pluggable terminal blocks for field wiring.
- Accessory trouble input.



XPIQ (shown without cabinet cover)

Specifications

XPIQ-PS AND XPIQ-PSE POWER SUPPLIES

AC power:

- XPIQ-PS: 120 VAC, 50/60 Hz, 3.5 A.
- XPIQ-PSE: 240 VAC, 50/60 Hz, 1.75 A.

Batteries or battery-backed-up DC source (secondary source input TB2):

- Input voltage range: 20.4 to 28 VDC.
- Battery trouble voltage: less than or equal to 22 VDC.
- Maximum current @ 20.4 VDC at full load (four 25-watt amplifiers): 9.0 A.
- Protection (overcurrent, reverse-polarity): 15.0 A automotive minifuse.
- 24-volt lead-acid battery charger (TB2):
- Float charge (battery fully charged): 27.6 VDC.
- Maximum charging current: 1.4 A.
- Minimum capacity: 12 AH.
- Maximum capacity: 25 AH (48-hour charging period), 12 AH (24-hour charging period).

XPIQ-MB MOTHERBOARD

Speaker circuits TB1, TB2, TB3, TB4:

- Output: Power-limited.
- Operation: Class B (Style Y) circuits or Class A (Style Z) with XPIQ-CA converter module.
- Field-wiring supervision: continuous (On and Off state).
- Nominal ELR value for Style Y: 4.7 K ohms.
- Minimum allowed leakage resistance of a speaker circuit (Style Y without ELR or Style Z with wiring disconnected from XPIQ-CA): 45 K ohms.

FFT riser/NAC source input TB9:

- Maximum allowed FFT/NAC riser voltage: 30 VDC.

FFT/NAC circuits TB5, TB6, TB7, TB8:

- Output: power-limited.
- Operation: 4 Class B (Style Y) circuits or 2 Class A (Style Z).
- Nominal ELR value for Style Y: 47 K ohms.

- Maximum voltage drop @ 2 A on NAC output: 0.5 VDC.
- NAC output current: 2.0 A.
- Nominal FFT handset DC resistance: 1.2 K ohms.
- Minimum allowed leakage resistance of an FFT/NAC zone (Style Y without ELR or Style Z with return wiring disconnected): 150 K ohms.

Background music input TB11:

- Input voltage level: 1 Vp (peak voltage).
- Input impedance: 75 K ohms.

XPIQ-SLI SIGNALING LINE INTERFACE

- All screw terminal blocks accept wire up to 12 AWG (3.31 mm²).
- Compatible with CLIP and FlashScan® protocols.
- Average SLC current: 1.0 mA.
- SLC isolation: 500 VDC, limited by transient protection components to 40 VDC.
- Contact rating, local Alarm relay TB11: 2.0 A @ 32 VDC (resistive).
- Maximum length of local SLC loop wiring: 2,000 ft. (600 m).
- Maximum number of detectors/modules on the local SLC loop output: 64.
- Maximum resistance of the local SLC (from any device to the FACP): 50 ohms.

XPIQ-AIB4/AIB1 AUDIO INPUT BOARD (4 CHANNEL/1 CHANNEL)

- All screw terminal blocks accept wire up to 12 AWG (3.31 mm²).
- Nominal input voltage: 3.5 Vp (peak voltage).

XPIQ-AA25 AUDIO AMPLIFIER, 25 W

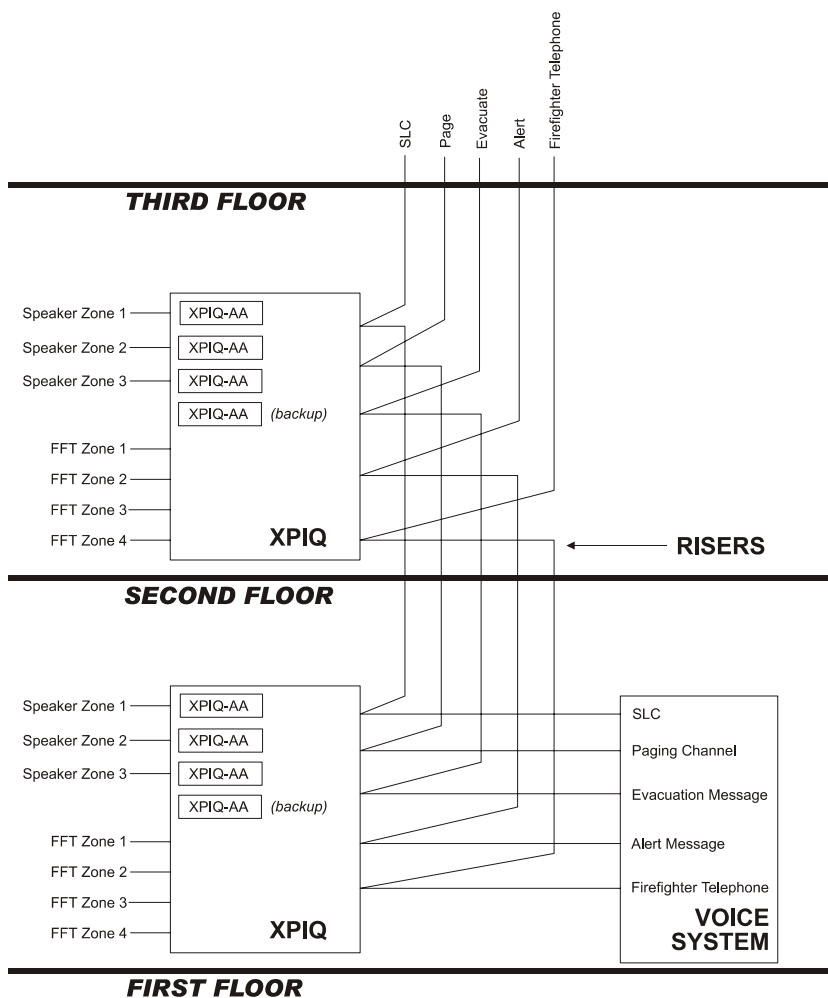
- Built-in short-circuit and thermal-shutdown protection.
- Nominal (sinusoidal) output voltage: 25 VRMS.
- Nominal (sinusoidal) output power: 25 W.
- Nominal (sinusoidal) output current: 1.0 A.

XPIQ-AA2270 AUDIO AMPLIFIER, 22 W

- Built-in short-circuit and thermal-shutdown protection.
- Nominal (sinusoidal) output voltage: 70.7 VRMS.
- Nominal (sinusoidal) output power: 22 W.
- Nominal (sinusoidal) output current: 310 mA.

XPIQ-RMI REMOTE MICROPHONE INTERFACE

- All screw terminal blocks accept wire up to 12 AWG (3.31 mm²).
- Supply output voltage for RM-1(SA) TB2-1 (+24V), TB2-2 (common): 19 – 28 VDC.
- Nominal audio level: 2.5 VRMS.



Four-Channel XPIQ Distributed Audio Block Diagram

COMBINED CHARACTERISTICS

- **AMG, XPIQ-AIB4(1), and XPIQ-AA25:** frequency response 350 Hz to 6 kHz.
- **AMG, AA-30, ACT-2, XPIQ-AIB4(1), and XPIQ-AA25:** frequency response 450 Hz to 3.8 kHz (UL); 400 Hz to 4 kHz (ULC).
- **RM-1(SA), XPIQ-AIB4(1), and XPIQ-AA25:** frequency response 350 Hz to 7 kHz.
- **RM-1(SA), XPIQ-RMI, and XPIQ-AA25:** frequency response 350 Hz to 10 kHz.
- **Background music input (TB10) and XPIQ-AA25:** frequency response 250 Hz to 12 kHz.

CABINET SPECIFICATIONS

The XPIQ mounts in any standard CAB-4 Series cabinet. Refer to CAB-4 (DN-6857) Series data sheet for specifications.

LED Indicators

LEDs located on XPIQ-MB motherboard:

- **System Trouble;** yellow LED turns on for system-related trouble.
- **AC Fail;** yellow LED turns on when AC is lost (all other non-essential LEDs will turn off to conserve batteries).
- **Battery Trouble;** yellow LED turns on for low or no battery voltage.
- **Charger Trouble;** yellow LED turns on for charger failure.
- **FFT/NAC Riser Trouble;** yellow LED turns on for FFT riser loss.
- **Telephone Trouble (Circuits 1 – 4);** yellow LED for each circuit turns on for wiring trouble.
- **Speaker Trouble (Circuits 1 – 4);** yellow LED for each circuit turns on for wiring trouble.
- **Speaker Zone On (Circuits 1 – 4);** one green LED for each circuit turns on when active.
- **Earth Fault;** yellow LED turns on for ground fault condition.

LEDs located on XPIQ-PS power supply:

- **On Line;** green LED turns on to indicate that AC power is applied.
- **Boost On;** green LED turns on during battery tests and when amplifiers are used during AC failure.

LEDs located on XPIQ-SLI signaling line interface board:

- **On Line;** green LED turns on to indicate SLC communication presence.
- **Trouble/Test;** yellow LED turns on steady for SLC communication trouble.
- **7-Segment;** displays the range of addresses programmed on the XPIQ-MB.

LEDs located on XPIQ-AA25 audio amplifier:

- **Trouble;** yellow LED indicates: Short (overcurrent) (on steady); Gain Test Failed (blinking).
- **Status;** green LED indicates if amplifier is Primary (on steady) or Backup (blinking).

LEDs located on XPIQ-AIB1/4 audio input board:

- **Channel 1 through 4 Trouble;** one yellow LED for each channel turns on for channel signal loss trouble.
- **Channel 1 through 4 On;** one green LED for each channel turns on to indicate channel condition: channel is Ready (on steady) or Active (blinking).

Controls and Switches

Controls and switches located on XPIQ-MB mother-board:

- **SW1 Earth Fault Detection;** enables or disables the detection of a ground fault.

- **SW2 Phone Circuits 1 & 2 Wiring Selection;** select 2W for two-wire Class B (Style Y) or 4W for four-wire Class A (Style Z) circuit wiring.
- **SW3 Phone Circuits 3 & 4 Wiring Selection;** select 2W for two-wire Class B (Style Y) or 4W for four-wire Class A (Style Z) circuit wiring.
- **SW4 Music Source Volume Control.**
- **Jumpers JP1 & JP2;** used to enable or disable software upgrade for the XPIQ-MB.

Controls and switches located on XPIQ-SLI signaling line interface board:

- **SW1 Rotary Switch;** used to set ones digit of starting address on the SLC.
- **SW3 Rotary Switch;** used to set tens/hundreds digit of starting address on the SLC.
- **SW2 Push-Button Switch;** used to verify addresses on the XPIQ.
- **Jumpers JP1 & JP2;** used to enable or disable downloading programming to the XPIQ-SLI.

Architectural/Engineering Specifications

Specifications of these and all Notifier products are available from Notifier.

Ordering Information

XPIQ-MB: Motherboard; *required for each XPIQ installation.* Mounts in a standard CAB-3/-4 Series cabinet. 5.3 lbs / 2.4 kg

XPIQ-PS: Power supply; *required for each XPIQ installation.* 120 VAC. Mounts in same cabinet as the XPIQ-MB. 2.6 lbs / 1.18 kg

XPIQ-PSE: Power supply; 240 VAC version of XPIQ-PS. 2.6 lbs / 1.18 kg

XPIQ-SLI: Signaling line interface board; *required for each XPIQ installation.* data communication interface between the XPIQ-MB and the SLC of an FACP. The XPIQ-SLI uses the standard rotary, decimal addressing switch. The number of addresses utilized by the XPIQ-SLI depends on the number of channels, speaker zones, telephone zones, and other options selected during configuration by the installer. A seven-segment display is used to indicate the address range used. The XPIQ-SLI can be wired in Style 4, 6, or 7. Mounts onto the XPIQ-MB. 0.3 lb / 0.14 kg

XPIQ-AIB4: Audio interface board; optional four-channel audio input board that receives and processes up to four low-level audio signals for the XPIQ system. *XPIQ-AIB4 or XPIQ-AIB1 required when there is an external low-level audio riser signal input.* It is *not* required for non-voice system operation, in which the XPIQ motherboard generates tones. Mounts onto the XPIQ-MB. 0.4 lb / 0.18 kg

XPIQ-AIB1: Audio interface board; same as the XPIQ-AIB4 but receives and processes one low-level audio signal. 0.3 lb / 0.14 kg

XPIQ-AA25: Audio amplifier; 25 watts of power at 25 VRMS. One fully supervised and power-limited speaker circuit on the mother-board for each audio amplifier. Up to four XPIQ-AA25s may be mounted on an XPIQ-MB. 1 lb / 0.45 kg *Pictured at right.*

XPIQ-AA2270: Audio amplifier; 22 watts of power at 70.7 VRMS. One fully supervised and power-limited speaker circuit on the motherboard for each audio amplifier. Up to four XPIQ-AA2270s may be mounted on an XPIQ-MB. Compatible with Rev. H and higher of the XPIQ-MB and Rev. C and higher of the XPIQ-CA. 1.5 lbs / 0.68 kg.

XPIQ-CA: Class A converter; converts all speaker circuits (up to 4 XPIQ-AA25) from Class B (Style Y) to Class A (Style Z). One XPIQ-CA per XPIQ-MB. 0.2 lb / 0.09 kg

XPIQ-RMI: Remote microphone interface; optional interface board with a connection for the RM-1 or RM-1SA. 0.1 lb / 0.05 kg

RM-1/RM-1SA: Remote microphone. See *RM-1 data sheet DN-6728* for specifications and ordering information.

PK-XPIQ: Programming software for the XPIQ transponder. Includes Windows® 95/98/2000 compatible CD-ROM and programming cable.

CHS-PS: Power supply mounting kit; optional kit used to mount the XPIQ-PS(E) in a location other than the bottom of the CAB-3/-4 Series cabinet (e.g., the second row).

CHS-BH: Battery mounting kit; optional kit used to mount the XPIQ batteries in a location other than the bottom of the CAB-3/-4 Series cabinet (e.g., the second row).

CAB-4 Series Cabinets: XPIQ can mount in any of the CAB-4 Series cabinets. See *CAB-4 (DN-6857) Series data sheets* for ordering information and specifications.

DP-1: Blank dress plate; covers unused cabinet tiers.

VP-1: Vent plate, covers open space on top of CAB-4 Series cabinets.

BAT Series: Batteries; XPIQ-PS battery charging circuit range is 12 to 26 AH. See *BAT Series data sheet DN-6933* for ordering information and specifications.

Temperature and Humidity Ranges

This system meets NFPA requirements for operation at 0 – 49°C/32 – 120°F and at a relative humidity 93% ± 2% RH (noncondensing) at 32°C ± 2°C (90°F ± 3°F). However, the useful life of the system's standby batteries and the electronic components may be adversely affected by extreme temperature ranges and humidity. Therefore, it is recommended that this system and its peripherals be installed in an environment with a normal room temperature of 15 – 27°C/60 – 80°F.

Agency Listings and Approvals

The listings and approvals below apply to the basic XPIQ. In some cases, certain modules may not be listed by certain approval agencies, or listing may be in process. Consult factory for latest listing status.

- **UL listed:** S635
- **ULC:** S635
- **FM approved**
- **CSFM:** 6911-0028:211
- **MEA:** 317-01-E; 345-02-2; 447-00-E

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For more information, contact Notifier. Phone: (203) 484-7161, FAX: (203) 484-7118.
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