2.0 Panel Components

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Item No.	Description	Data Sheet Part Number	Data
2.1	Digital Amplifier	DAA2-5070	HON-PC-0(
2.2	Lamp Driver Modules	LDM-32, LDM-E32, LDM-CBL48	HON-PC-002
2.3	Digital Voice Command	XLS-DVC-EM, DVC-KD	HON-PC-003
2.4	Fire Alarm Power Supply	HPF24S8	HON-PC-004
2.5	Remote Annunciator	LCD-160	HON-PC-005

HON-PC-001

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DAA2

Digital Audio Amplifier

General

The DAA2 Series amplifiers are multi-featured amplifiers with digital audio functionality. Each DAA2 is capable of accessing and processing one of up to eight audio channels on the XLS-DVC audio loop, amplifying the signal, and distributing it via four Class B or two Class A outputs. A DAA2-50 or DAA2-75 series amplifier is capable of mounting an optional BDA Digital amplifier, which can be used to provide one-to-one amplifier backup, or to support two-channel operation, or increased output wattage to 100W (100W option applies to DAA2-50 series only, other rules apply).

The DAA2 has two wire digital audio ports to connect to wire DAL (digital audio loop) segments. Either or both ports may be converted to fiber using fiber option modules.

Up to 32 devices, such as DAA2 amplifiers, can be connected to the DAL on one XLS-DVC Digital Voice Command unit. DAA2 amplifiers may be mixed with DAX and DAA series amplifiers on the same DAL.

An optional Firefighter telephone riser on the DAA2 supports local and network FFT communications. A DAA2 also supports use of an RM-1 remote microphone.

DAA2 amplifiers can store backup alarm and trouble messages, and provide an adjustable background music input.

Features

- Listed to UL Standard 864, 9th edition.
- 50 W total output power at 25 V_{RMS} (all DAA2-5025 models) or 70 V_{RMS} (all DAA2-5070 models).
- 75 W total output power at 25 V_{RMS} (all DAA2-7525 models).
- Supports two Class A high-level audio outputs; or four Class B outputs.
- Optional BDA amplifers support alternative configurations.
  - Backup amplifier - supports one-to-one backup (all DAA2 models).
  - Primary amplifier - supports two-channel operation (all DAA2 models).
  - Primary amplifier - increase power up to 100W, one- or two-channel operation. (DAA2-50 series only, configuration rules apply.)
- Supports one-to-many amplifier backup applications using the same model DAA2.
- Firefighter telephone riser supports 7 active firefighter telephones. System Release 3.0 and higher supports optional configurations: direct connection for up to 7 firefighter telephones, or connection to multiple TC810T1000(CDN) modules.
- Remote microphone paging option with RM-1.
- Audio output activation via network control-by-event equations resident within the XLS-DVC.
- Two wire digital audio ports that can be converted to fiber using fiber option modules. Support Style 4 or 7 configurations.
- Auxiliary input for 1 V_{RMS}, to be used for background music input, an interface with a telephone paging source, or other compatible audio sources. Audio levels can be adjusted by end user. Optional supervision through programming.
- Isolated alarm bus input, to be used for backup activation of alarm messages when normal digital communication is lost.
- Programmable through ***VeriFire Tools***.
- Up to 106 seconds of backup digital message storage for use in the event of communication loss (from the ***VeriFire Tools*** message library, or created by the installer).
- Battery charger disable provides battery sharing option for up to four DAA2s.
- Disconnect of deeply-discharged battery (low battery disconnect).

Installation

The DAA2 arrives from the factory already installed on its chassis. The DAA2 mounts in one row of any EQ or CAB-4 Series cabinet: The CAB-4 row can be covered using a DP-1B dress panel, ordered separately.

One or two fiber option modules will plug directly onto a DAA2 for simple installation. A BDA backup amplifier mounts directly onto a DAA2.

Batteries for the DAA2 may be installed in any of the following configurations:

- In a CHS-BH1 optional battery chassis. The CHS-BH1 battery chassis will hold two 12.0 AH batteries, and mounts on the left side of the DAA2 chassis, so that the DAA2 and batteries are contained in a single cabinet tier.
- In the battery row (bottom) of the CAB-4 Series cabinet, or in the bottom row of an EQ Series cabinet.
- In a cabinet adjacent to the cabinet that holds the DAA2, with connections in conduit. External battery charging is supported.

Specifications

CPS-24 POWER SUPPLY BOARD

AC power (TB1): 120 VAC, 60 Hz input;
- DAA2-5025 - 4.68A max.
- DAA2-5070 - 4.69A max.
- DAA2-7525 - 4.68A max.

"E" versions, 220-240 VAC, 50/60 Hz input:
- DAA2-5025E - 2.68A max.
- DAA2-5070E - 2.68A max.

• DAA2-7525E - 2.68A max.

Recommended wiring: 12 to 14 AWG (1.6 mm O.D.) with 600 VAC insulation.

Secondary Power 5V and 24V AUX Outputs (TB2):
24 V AUX: Power-limited, 24V @ 0.5A, utilizes wire sizes 12-18 AWG (3.31 mm^2 - 2.08 mm^2.
5 V: Future Use.

Battery Connections: Supplied cable connections to batteries.

Battery Charger: Current-limited sealed lead acid battery charger which charges two 12 volt batteries in series, up to 200 AH.

	Charge 7AH to 26AH Batteries	Charge 26 AH to < 50 AH Batteries	Charge 50 AH to 200 AH Batteries
DAA2-5025 DAA2-5070	Yes	Yes	Yes
DAA2-7525	Yes	Yes	No
DAA2-5025 or DAA-5070 w/BDA in Group 2 of ***VeriFire Tools***.	No	No	No

Battery Charging Capabilities

DAA2 BOARDS

Digital Audio Ports, wire media, A and B (TB2, TB3): Maximum distance per segment is 1900 feet (579.12 m) on Belden 5320UJ (18AWG, TP) FPL cable: 18 AWG (0.821 mm^2) twisted-pair, unshielded, power-limited. For approved cable types, see wiring documentation, P/N 52916ADD: C *Approved Wire Cables for Digital Audio Loops*.

Digital Audio Ports, fiber media, fiber option modules: Digital audio loop connectors support single- and multi-mode fiber with the use of fiber option modules. Refer to the Fiber Option Module datasheet for fiber specifications.

Alarm Bus: Power-limited, supervised by source. Recommended wiring: 14-18 AWG twisted-pair. Requires 16VDC minimum @ 20mA across the terminals to activate. Nominal 24VDC.

Remote Microphone Interface: RMI power: +24VDC, power-limited @ 100mA. Supervised. Recommended wiring: 14-18 AWG twisted-pair, Max. 14 AWG. Nominal AC signal strength 2.5V_{RMS}, 3V_{RMS} Max. Maximum distance between remote microphone and DAA2: 100 ft (304.8 m).

FFT Riser: Power-limited output, supervised. Class A or Class B operation. Class B 2-wire connections require a 3.9k ohm 1/2 watt resistor (P/N R-3.9K). Max. wiring resistance (including individual telephone zone to is 50 ohms, 10,000 ft (3048 m) max AWG to last handset.

Auxiliary Input: Signal strength from input (such as background music or t max. Optional supervision through progr wiring: 14-18 AWG, twisted-pair. Auxilia within 25 ft. (7.6 m) of the DAA2, and wit

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Speaker circuits: Power-limited outp 5070 speaker circuit used with any C module is non-power limited. Speaker circuit 1 (TB10) can not be used.). Supervision determined by programming. DAA2-5025/70, Each circuit rated up to 50 watts*. DAA2-7525, each circuit rated up to 75 watts*. Recommended wiring: 12-18 AWG twisted-pair (shielded recommended). Class B or Class A: Class B requires 20k end-of-line resistors (included, P/N ELR-20K). Class A requires 10k end-of-line resistors (included, P/N R-10K) on the return.
*total wattage may vary per configuration.

Backup: High-level audio input: 25V_{RMS} (DAA2-5025 and DAA2-7525). 70 V_{RMS} (DAA2-5070). Recommended wiring: 14-18 AWG. Not supervised when inactive. Supervised by backup source when active. Must be in same room or enclosure.

Standards and Codes

The DAA2 Series Digital Audio Amplifiers comply with the following standards:

- NFPA 72 2007 National Fire Alarm Code
- Underwriter Laboratories Standard UL 864
- Underwriter Laboratories of Canada (ULC) ULC-S527-99 Standard of Control Units for Fire Alarm Systems.
- Part 15 Class A conducted and radiated emissions as required by the FCC.

Listings and Approvals

These listings and approvals apply to the basic DAA2 Series Digital Audio Amplifiers. In some cases, certain modules may not be listed by certain agencies, or listing may be in process. Consult factory for latest listing status.

- UL Listed: S470
- ULC Listed: S470

Product Line Information

50 WATT DAA2 AMPLIFIERS

Shipped mounted to the chassis.

DAA2-5025: 120 VAC Digital Audio Amplifier (50 W, 25 V_{RMS}).

DAA2-5070: 120 VAC Digital Audio Amplifier (50 W, 70 V_{RMS}).

DAA2-5025E: 220-240 VAC Digital Audio Amplifier (50 W, 25 V_{RMS}).

DAA2-5070E: 220-240 VAC Digital Audio Amplifier (50 W, 70 V_{RMS}).

75 WATT DAA2 AMPLIFIERS

Shipped mounted to the chassis.

DAA2-7525: 120 VAC Digital Audio Amplifier (75 W, 25 V_{RMS}).

DAA2-7525E: 220-240 VAC Digital Audio Amplifier (75 W, 25 V_{RMS}).

BDA BACKUP DIGITAL AMPLIFIERS

BDA-25V: Backup Digital Amplifier (25 V_{RMS}), switch settings for 75, 50, and 35 W operation. Provides a second audio channel when programmed as a primary amplifier.

BDA-70V: Backup Digital Amplifier (7(for 50 and 35 W operation. Provides a when programmed as a primary amplif

FIBER OPTION MODULES

DS-FM: Fiber option module for multi wire DAP (digital audio port) to a multi-

DS-SFM: Fiber option module for sing a wire DAP (digital audio port) to a sing

DS-RFM: Fiber option module for r exclusively for compatibility with multi-mode fiber XLS-DVC or DAA.

ACCESSORIES

CHS-BH1: Battery chassis: holds two 12.0 AH batteries. Mounts on the left side of the DAA2 chassis.

DP-1B: Dress panel: covers one tier of CAB-4 Series cabinet.sis.

ACT-25, ACT-70: Audio-coupling transformers. Used with AA-30 or DAA2-series amplifiers to drive thousands of amplifiers in large system applications.

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LDM

Lamp Driver Modules

LDM-32

0551 LDM.wmf

General

The **LDM Series** lamp driver modules, when combined with a custom graphic display, provide annunciation and control for Honeywell's intelligent fire alarm control panels. These modules use a serial communications interface, and may be located up to 6,000 feet from the panel.

Features

- ALARM/CIRCUIT ON and TROUBLE lamp/LED per-point option, or more dense alarm-only option (field selectable).
- Control switch option for remote control per point.
- Lamps/LEDs may be programmed to display status of indicating circuits or control relays as well as system status conditions.
- System trouble lamp/LED signal.
- On-line/power LED indicator.
- Alarm and trouble resound with flash of new conditions.
- Local sounder for both alarm/circuit-on and trouble conditions with silence/acknowledge switch connection.
- Serial EIA-485 interface for reduced installation costs.
- May be powered by 24 VDC from the panel or by remote power supplies.
- Efficient switch-power converter reduces power consumption.
- Microprocessor-controlled electronics, fully supervised.
- Plug-in terminal blocks for ease of installation and service.
- Trouble monitor option for remote power supplies.

Construction

Two basic models are available; the LDM-32 control module and the LDM-E32 expander module. Each may be selected to provide 32 alarm indications; or 16 alarm, 16 trouble, and 16 control points.

Applications

The LDM-32/LDM-E32 with a custom graphic array may be used to indicate point status and, in some versions, to control the state of output points.

In addition, the LDM-R32 module may be used to provide 32 dry-contact relays for electrical isolation when connecting the system to other equipment.

Installation

The LDM-32 and LDM-E32 modules mount on four standoffs inside the custom annunciator graphic box. Alternately, the modules may be installed in a CHS-4L chassis. The module size is approximately 4.4" (11.2cm) x 7.1" (18cm).

Communications between the LDM Series annunciators and the host FIre Alarm Control Panel are made through a two-wire EIA-485 multi-drop loop, and a two-wire regulated 24 VDC power loop. Up to 32 LDM systems may be connected to a single control panel.

All field-wiring terminations use removable, compression-type terminal blocks for ease of installation, wiring, and circuit testing.

Operation

LDM Series modules, when used with a custom graphic annunciator, provide the Honeywell's intelligent fire alarm control panels with up to 32 unique or redundant annunciators, each with a capacity of 64 points for a total capacity of **2048 points**.

Local or remote power supplies and serial communications allow the custom annunciators to be located anywhere on the protected premises.

Control of system operational controls, such as Signal Silence, System Reset, and local annunciation controls (such as Local Acknowledge), and Lamp Test may be accomplished through special key- or push-switches.

Agency Listings and Approvals

These listings and approvals apply to the modules specified in this document. In some cases, certain modules or applications may not be listed by certain approval agencies, or listing may be in process. Consult factory for latest listing status.

- **UL Listed:** S635
- **ULC Listed:** S635
- **MEA Listed:** 317-01-E, Vol. 4 (XLS-140-2); 232-06-E Vol. 2 (XLS3000)
- **CSFM:** 7165-1130:0256 (XLS3000); 7165-1130:0265 (XLS-140-2)
- **FM Approved** (XLS-140)
- **City of Chicago** approved**:** Class 1, Class 2
- **City of Denver** approved
- **FDNY** COA #6076, 6060#6085 (NFS2-640); 6065 (NFS2-3030)

Product Line Information

LDM-32: Lamp Driver Module with 32 alarm lamp-driver transistors (sink to power common on alarm). May be selected (dip switch) for 16 alarm/circuit on, 16 trouble, and 16 switch inputs if desired. Also includes system-trouble lamp driver and lamp-test/local-acknowledge switch input. Integral piezo sounder sounds for each new alarm or trouble and is silenced with the Local Acknowledge switch, or permanently disabled

with a dip switch selection. Flash of new alarms or troubles is selectable through dip switches. 16 switch inputs may be used for panel SILENCE, RESET, or remote relay control. Instructions are included.

LDM-E32: Lamp Driver Module with 32 alarm drivers; or 16 alarm, 16 trouble, and 16 switch inputs. One LDM-E32 is allowed per LDM-32 in alarm-only mode. Three LDM-E32 modules are allowed per LDM-32 in alarm/trouble. Includes ribbon cable to connect to LDM-32/LDM-E32.

LDM-R32: Lamp Driver Module which connects to any LDM-32 or LDM-E32 to convert transistor outputs to 32 Form-A dry contacts (1.0 A @ 30 VDC). Provides 32 output terminal screw connections and a single common terminal screw. Includes ribbon cables to connect to the LDM-32/LDM-E32.

Use for electrical isolation when interfac
equipment.

LDM-CBL24, LDM-CBL48: Ribbon ca
either a 24" (60.96cm) or 48" (121.96c
LDM-32/LDM-E32 and LEDs or lamps
panel. Includes all cables necessary f
LDM-E32. Cables have connector on c
and connect other end to graphic annu

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Architectural/Engineering S

For specifications on LDM Graphic Annunciator Lamp Driver Modules, contact Honeywell.

LDM-E32

LDM-CBL48
LDM-CBL24

LDM-R32

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XLS-DVC Series

Digital Voice Command

XLS-DVC-EM
Shown using CA-2 mounting option, SBB-C4, and XLS-ADDR-C4 door.

General

The XLS-DVC is the heart of an integrated, full-featured Audio Command Center. The XLS-DVC Digital Voice Command combines the capabilities of a powerful digital audio processor, an event-driven audio message generator, and a router. Designed for use with Digital Audio Loop (DAL) devices such as DAA2, DAX and DAA series digital amplifiers as well as the DS-DB, each XLS-DVC supports a dedicated audio network with up to eight channels of audio, five channels of firefighter telephone communications, and control and supervision for up to 32 DAL devices. The XLS-DVC has two wire digital audio ports to connect to wire DAL segments. Either or both ports may be converted to multi-mode fiber or single-mode fiber using fiber option modules. Larger audio systems incorporating hundreds of amplifiers can be created by networking additional XLS-DVC units via XLS-NET.

The XLS-DVC may be networked via XLS-NET with an XLS-NCA2, or with an XLS3000 (running in network monitor mode). A XLS-DVC can be connected directly with a single XLS140-2 or XLS3000 Fire Alarm Control Panel (FACP) to create a standalone integrated audio solution as well. Refer to the XLS-DVC manual for details.

When used as an Audio Command Center with Emergency Paging capability, the optional DVC-KD Keypad Display is required.

NOTE: *Unless otherwise noted, the term "XLS-DVC" refers to the XLS-DVC-EM.*

Features

- Programmable from NUP port using *VeriFire® Tools*.
- Up to 32 minutes of standard quality or 4 minutes of high quality digital audio storage of user-selected/created messages and tones. Supports twisted-pair wire media. Supports single- and multi-mode fiber-optic media when used with fiber option modules.
- 4-channel analog audio supported with optional DVC-AO
- Up to 1000 audio sequences.
- Message prioritization.
- Equations support flexible programming for distribution of messages.
- Electrically isolated digital audio ports for direct connection with up to 32 Digital Audio Loop (DAL) devices. Style 4 or 7 configurations supported.
- Optional DS-RFM, DS-FM, and DS-SFM fiber modules may be used to convert one or both Digital Audio Ports for operation with single-mode or multi-mode fiber.
- DCC (Display and Control Center) capabilities when used with optional DVC-KD.
- Firefighters' Telephone Communications to local FFT riser on XLS-DVC, 32 local DAL device FFT risers, and FFT communication to additional command stations via XLS-NET.
- Local paging microphone option.
- Remote microphone options.
- Optional Digital Voice Command Remote Paging Unit (DVC-RPU), or DVC-RPU mode.
- Broad All-Call functionality when used with DVC-KD (DVC-Keyboard Display): All Call, Page Active Evac Areas, Page Active Alert Areas, Page Inactive Areas.
- Auxiliary input for 12 V_{p-p} analog low-level audio sources. Includes user audio level adjustment feature.
- Auxiliary input accepts external audio sources such as telephone paging or background music. High impedance input accepts 600 ohm, line level, 1.0 VRMS, or 1.41 V_{p-p} low level audio. Selectable AGC, user control of audio level, and audio supervision are supported.
- Associated XLS-NCA2, or XLS3000 (programmed for network monitor mode) supports XLS-NET applications.
- Multiple audio command centers supported via XLS-NET.
- Distribution of one channel of standard-level paging audio on XLS-NET.
- Three standalone, non-network mode options:
  - XLS3000 (NUP to NUP) digital and analog.
  - XLS140-2 (NUP to NUP) analog audio only.
  - XLS140-2 with XLS-NCA2 (NUP to NUP to NUP) digital and analog.
- Push-to-talk relay, or logic argument.
- Isolated alarm bus input, to be used for backup activation of alarm messages in the event network communication is lost.

Installation Options

The XLS-DVC provides flexible configurations based on one-row or two-row chassis options that mount into size "B", "C", or "D" XLS-CAB-4 Series cabinets.

The CA-2 supports an XLS-DVC, paging microphone, optional FFT telephone, and mounting location for an XLS-NCA2 or XLS3000-CPUD. The ADDR audio door series can be used when a CA-2 is mounted in the top two rows. The CA-1 supports an XLS-DVC and an optional microphone in a single row. For firefighters' telephone applications with a CA-1, the CFFT-1 can be mounted in the row below the CA-1.

NOTE: *For XLS140-2/XLS-DVC applications using DAL devices, an XLS-NCA2 is required to annunciate DAL device*

events.

Specifications

- **24 VDC power (TB1)**: 24 VDC, 1.0 A, non-resettable, power-limited by the source. Recommended wiring: 14 to 18 AWG (2.08 to 0.821 mm²) twisted-pair.
- **Digital audio ports, wire media, A and B (TB2, TB3)**: Maximum distance per segment is 1900 feet (579.12 m) on Belden 5320UJ (18 AWG, TP) FPL cable: 18 AWG (0.821 mm²) twisted-pair, foil-shielded, power-limited. Consult wiring documentation provided in document P/N 52916ADD:C *Addendum to XLS-DVC and DAA Manuals*.
- **Digital audio ports, single- and multi-mode fiber-optic media:** (See notes below)
  - **DS-FM and DS-SFM fiber option module (no direct DAA connection)**:
    - *6.5dB maximum attenuation* for multi-mode with 50/125 micrometer cable @ 1310 nm.
    - *10dB maximum attenuation* for multi-mode with 62.5/125 micrometer cable @ 1310 nm.
    - *30dB maximum attenuation* for single-mode with 9/125 micrometer cable @ 1310 nm.
  - **DS-SFM (single-mode fiber DAA connection):**
    - *17dB maximum attenuation* for single-mode with 9/125 micrometer cable at 1310 nm going **from** the DS-SFM **to** the fiber DAA.
    - *4dB maximum attenuation* for single-mode with 9/125 micrometer cable going **from** the fiber DAA **to** the DS-SFM.
    - *12dB minimum attenuation* going **from** the DS-SFM **to** the fiber DAA.
  - **DS-RFM (multi-mode fiber DAA connection):**
    - Attenuation going **from** the fiber DAA **to** the DS-RFM:
      - 2dB *maximum attenuation* for multi-mode with 50/125 micrometer cable @ 850 nm for the DS-RFM.
      - 4dB *maximum attenuation* for multi-mode with 62/5/125 micrometer cable @ 850 nm for the DS-RFM.
    - Attenuation going **from** the fiber DS-RFM **to** the fiber DAA:
      - 12dB *minimum* attenuation*, 16dB for both cable types.

  Notes:
  1. If the length of the fiber run results in an attenuation of less than 12dB, a suitable attenuator must be used.
  2. ST® Style connection required at DAA end of any fiber connection. LC style connectors are required for the DS-FM, DS-RFM, and DS-SFM.
- **Auxiliary input A (AUX A, TB4)**: Signal strength from low-level analog audio input: maximum 1.0 VRMS, or 1.41 V_{p-p}. Optional supervision is selectable through programming. Recommended wiring: 18 AWG (0.821 mm²) twisted-pair; max. 14 AWG (2.08 mm²). Auxiliary input must be in the same room as the XLS-DVC.
- **Auxiliary input B (AUX B, TB14)**: Signal strength from low-level analog audio input: 12 V_{p-p} nominal, 15 V_{p-p} maximum. Optional supervision is selected through programming. Recommended wiring: 14 to 18 AWG (2.08 to 0.821 mm²) twisted-pair.
- **Remote microphone interface (TB9)**: Recommended wiring: 14 to 18 AWG (2.08 to 0.821 mm²) twisted-pair. Power-limited. Maximum distance between remote microphone and XLS-DVC: 1000 feet (300 m).
- **Push-to-talk interface (TB10)**: mended wiring: 14 to 18 AWG (2.08 pair.
- **Alarm bus (TB12)**: Power-limite mended wiring: 14 to 18 AWG (2.08 pair.
- **FFT riser (TB13)**: Power-limited out Class B (Style Y) operation. Style require a 3.9K ohm, 1/2 watt resis mum wiring resistance (including in to last handset) permitted is 50 ohms, 10,000 feet (3048 m) maximum wiring distance at 12 AWG (3.31 mm²) to last handset.
- **Optional DVC-AO analog audio output circuits (TB5, TB6, TB7, and TB8)**: Supervised, power-limited outputs. Signal strength: +12 V_{p-p} nominal, +15 V_{p-p} maximum. Recommended wiring: 18 AWG (0.821 mm²) twisted-pair; max. 14 AWG (2.08 mm²). Maximum impedance: 66 ohms.

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Standards and Codes

The Digital Voice Command XLS-DVC-EM comply with the following standards:

- NFPA 72 2002 National Fire Alarm Code.
- Underwriters Laboratories Standard UL 864, 9th edition.
- Underwriters Laboratories of Canada (ULC) ULC-S527-99 Standard of Control Units for Fire Alarm Systems.

Listings and Approvals

The listings and approvals below apply to the XLS-DVC-EM Digital Voice Command. 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**: S470.
- **ULC Listed**: S470.
- **FM Approved.**
- **CSFM**: 7165-1130:0256, 7165-1130:0265.
- **MEA**: 232-06-E Vol. 2 *(except fiber audio components)* (XLS3000); file 317-01-E Vol. 4 (XLS140).
- **FDNY:** COA#6099 (XLS140-2), COA#6100 (XLS3000).
- **City of Chicago** approved: High Rise, Class 1, Class 2.
- **City of Denver** approved.
- **PSB Corporation** approved *(Singapore)*.

Product Line Information

XLS-DVC-EM: Digital Voice Command, digital audio processor with message storage for up to 32 minutes of standard quality (4 minutes at high quality) digital audio. *Supports twisted-pair wire media. Options: DS Fiber modules, DVC-RPU.*

DVC-RPU: Digital Voice Command Remote Paging Unit. Includes the keypad/display. Supports twisted-pair wire media; use DS fiber modules for fiber media. (See 74-5170.)

DVC-KD: Keypad for local annunciation and controls; status LEDs and 24 user-programmable buttons.

DVC-AO: Optional DVC Analog Output board provides four analog output circuits for use with AA or XPIQ Series amplifiers. Four-channel operation supported.

CA-1: Chassis, occupies one tier of a XLS-CAB-4 Series enclosure. The left side accommodates one XLS-DVC and a DVC-KD *(optional)*; and the right side houses a CMIC-1 microphone and its well *(optional)*.

CMIC-1: Optional microphone and microphone well assembly used with the CA-1 chassis.

CFFT-1: The CFFT-1 Chassis for Firefighters' Telephone mounts in the row directly under a XLS-DVC that is mounted in a CA-1 single row chassis. The CFFT-1 includes one FFT handset. The DP-CFFT Dress Plate (separately ordered, required) has one open position for mounting an ACS annunciator or a BMP-1 Blank Module Plate.

CA-2: Chassis assembly, occupies two tiers of a XLS-CAB-4 Series enclosure. The left side accommodates one XLS-DVC mounted on a half-chassis and one XLS3000 or XLS-NCA-2 mounted on a half-chassis. The right side houses a microphone/handset well. The CA-2 assembly includes a microphone. DPA-2B dress plate is required *(below)*; the VP-2B Vent Plate is also required for top row configurations. XLS-ADDR Series doors with two-tier visibility are available for use with the CA-2 configuration: XLS-ADDR-B4, XLS-ADDR-C4, XLS-ADDR-D4 *(below)*.

DPA-2B: Dress plate required for CA-2 chassis assembly.

VP-2B: Vent plate required for cabinet configurations where the DPA-2B is used for the top two row position.

TELH-1: Firefighters' Telephone Handset for use with the XLS-DVC when mounted in the CA-2 chassis. Order separately.

XLS-ADDR-B4: Two-tier-sized door designed for use with a CA-2 chassis mounted in the top rows. XLS-ADDR Series doors are similar to XLS-CAB-4 Series "DR" doors, but a clear window space exposes the top two tiers of the XLS-CAB-4 enclosure. Use an SBB-B4 backbox with the XLS-ADDR-B4. *See 85-3002.*

XLS-ADDR-C4: Three-tier-sized door designed for use with a CA-2 chassis mounted in the top rows. XLS-ADDR Series doors are similar to XLS-CAB-4 Series "DR" doors, but a clear window space exposes the top two tiers of the XLS-CAB-4 enclosure. Use an SBB-C4 backbox with the XLS-ADDR-C4. *See 85-3002.*

XLS-ADDR-D4: Four-tier-sized door designed for use with a CA-2 chassis mounted in the top rows. XLS-ADDR Series doors are similar to XLS-CAB-4 Series "DR" doors, but a clear window space exposes the top two tiers of the XLS-CAB-4 enclosure. Use an SBB-D4 backbox with the XLS-ADDR-D4. *See 85-3002.*

DPA-1: Dress panel, can be used with the CA-1 chassis when configured with an XLS-DVC, DVC-KD, and CMIC-1.

DPA-1A4: Dress panel, used with the CA-1 chassis when the CMIC-1 is not used. Provides mounting options on right two bays for two ACS annunciators, or for blank plates.

ACT-4: Audio-coupling transformer. Used to electronically isolate DVC-AO analog risers.

ACT-25, ACT-70: Audio-coupling transformers for 25V and 70V high-level audio. Used to isolate and convert high-level audio to low-level, supporting applications with large numbers of analog amplifiers.

DAX-3525(E)/DAX-3570(E): 35W, 25 audio amplifiers with charging power su Class A output, shipped mounted on 25/70 backup amplifier, DS Fiber modu

DAX-5025(E)/DAX-5070(E): 50W, 25 audio amplifiers with power supply anc output, shipped mounted on chassi backup amplifier, DS Fiber modules.

DAA2-5025(E)/DAA2-5070(E): 50W, 2 audio amplifiers with charging power su Class A outputs, shipped mounted on chassis. RM-1 port, FFT port, Aux audio port. Supports optional BDA for backup amplifier or 2-channel operation, and DS Fiber modules.

DAA2-7525(E): 75W, 25VRMS. Digital audio amplifiers with power supply and 4 Class B or 2 Class A outputs, shipped mounted on chassis. RM-1 port, FFT port, Aux audio port. Supports optional BDA for backup amplifier or 2-channel operation, and DS Fiber modules.

DS-DB: Digital Series Distribution Board, provides bulk amplification capabilities to the XLS-DVC while retaining digital audio distribuition capabilities. Can be configured with up to four DS-AMPs, supplying high-level risers spread throughout an installation. *See 74-5139.*

DS-AMP/E: 125W, 25 VRMS, or 100W, 70VRMS. 70VRMS requires DS-XF70V step-up transformer. Digital Series Amplifier, part of the DS-DB system. *See 74-5141.*

DS-BDA: Digital Series Backup Digital Amplifier, 25 or 70VRMS, can be configured to act as a one-to-one backup for DS-AMP/E amplifiers. Can also be programmed to provide a second audio channel for a DS-AMP. *See 74-5141.*

BDA-25, BDA-70: Backup Digital Amplifier, 25 or 70.7VRMS, can be configured to act as a one-to-one backup for DAX and DAA2 series amplifiers. For DAA2 Series only, supports alternative second channel operation.

DS-RFM, DS-FM, DS-SFM: Fiber conversion modules for *XLS-DVC*, DS-DB distribution board, and DAX and DAA2 Series amplifiers. *See 74-5078.*

DAA Series Digital Audio Amplifiers: Legacy DAA Series amplifiers are compatible with XLS-DVC systems running SR4.0. For DAA-50 series amplifiers, see 74-4032. For DAA-7525 Series, see 85-3121.

SEISKIT-CAB: Seismic kit for CAB-4 series cabinets. Includes battery bracket for two 26AH Power Sonic batteries and TELH-1 telephone handset strap. See document 53829.

SEISKIT-DAA: Seismic kit for DAA, DAA2 and DAX series amplifiers, required when using CHS-BH1 chassis. Includes battery bracket for two 12AH Power Sonic batteries. See document 53851.

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ISO 9001 CERTIFIED ENGINEERING & MANUFACTURING QUALITY SYSTEMS

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HON-PC-004

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• HPF24S6 • HPF24S6E • HPF24S6C
• HPF24S8 • HPF24S8E • HPF24S8C

Fire Alarm Power Supply

Description

The HPF24S6 and HPF24S8 are compact, cost-effective, 6-amp or 8-amp remote power supplies with a battery charger built in. They may be connected to any 12- or 24-volt Fire Alarm Control Panel (FACP) or may stand alone. Primary applications include Notification Appliance (bell) Circuit (NAC) expansion (to support ADA requirements and NAC synchronization) or auxiliary power to support 24-volt system accessories. The supply provides regulated and filtered 24 VDC power to four Notification Appliance Circuits configured as either four Class B (Style Y) or Class A (Style A, with ZNAC-4 option module). Alternately, the four outputs may be configured as all non-resettable or all resettable or two non-resettable and two resettable. They also contains a battery charger capable of charging up to 18 Amp Hour batteries.

Benefits

- Extends and supports power for additional fire alarm devices.
- Instantaneous switchover to standby battery (if equipped) when AC fails, maintaining power to all attached devices without intervention.
- Strobe signal "passes through" allowing syncing of large systems.
- LED lights for quick and easy diagnosis, troubleshooting, and status indication.
- Two outputs can be used for constant power devices such as door holders (power drops upon alarm).
- Works with almost any UL 864 fire alarm.

Specifications

- Primary (AC) Power
  - – HPF24S6, HPF24S6C: 120 VAC 60 Hz, 3.2 A maximum
  - – HPF24S8, HPF24S8C: 120 VAC 60 Hz, 3.2 A maximum
  - – HPF24S6E: 220/240 VAC, 50 Hz, 1.6 A maximum
  - – HPF24S8E: 220/240 VAC, 50 Hz, 1.6 A maximum

    Wire size: minimum 14 AWG (2.0 mm²) with 600V insulation.
- Control Input Circuit
  - – Trigger Input Voltage: 9.0 to 32 VDC.
  - – Trigger Current: 2.0 mA (16 - 32 V).

    (per input) 1.0 mA (9 - 16 V).
- Trouble Contact Rating
  - – 5.0 A at 24 VDC.
- Auxiliary Power Output
  - – Specific Application Power - 500 mA maximum.
- Output Circuits
  - – +24 VDC filtered, regulated.
  - – 3.0 A maximum for any one circuit.
  - – 4.0 A maximum total continuous current for all outputs (Stand-alone mode) for the HPF24S6 and 6A for the HPF24S8.
  - – 6A oer 8A (depending on model) maximum total short-term current for all outputs (NAC Expander mode).
- Secondary Power (Battery) Charging Circuit
  - – Supports lead-acid batteries only.
  - – Float Charge Voltage: 27.6VDC.
  - – Maximum Charge Current: 1.5 A.
  - – Maximum Battery Capacity: 18 AH.
- UL Listed NAC Synchronization using System Sensor, Wheelock or Gentex (Commander Series) appliances.
- Cascade up to 10 power supplies (four with Gentex) with strobe timing maintained.
- Operates as a sync follower or a sync generator (default).
- Contains two, fully-isolated input/control circuits (triggered from FACP Notification Appliance Circuit [NAC expander mode] or jumpered permanently on [standalone mode]).
- Configured to internally house addressable SLC control module for alarm activation.
- Four Class B (Style Y) or four Class A (Style Z) (with ZNAC-4 Module) Notification Appliance Circuits.
- 6.0A or 8A (depending on model) full load output (3.0 A maximum per circuit) in NAC expander mode (UL 864).
- 4.0A or 6.0Acontinuous output in stand-alone mode (UL 1481).
- In stand-alone mode, output power circuits may be configured as resettable (reset line from FACP required) or nonresettable or a mix of two and two.
- Fully regulated and filtered power output (optimal for powering four-wire smoke detectors, annunciators and other system peripherals requiring regulated/filtered power).
- Power-limiting technology meets UL power-limiting requirements.
- Form-C normally-closed trouble relay.
- Fully supervised power supply, battery and Notification Appliance Circuits.
- Selectable earth fault detection.
- AC trouble report selectable for immediate or 8 hour delay.
- Works with virtually any UL 864 fire alarm control which utilizes an industry-standard reverse-polarity notification circuit (including unfiltered and unregulated bell power).
- Requires input trigger voltage of 9.0 - 32 VDC.

- Self-contained in compact, lockable cabinet (15" [38.1 cm] H x 14.5" [36.8 cm] W x 2.75" [7.0 cm] D).
- Includes integral battery charger capable of charging up to 18 AH batteries. Cabinet capable of housing 7.0 AH batteries.
- Battery charger may be disabled via dip switch for applications requiring larger batteries.
- Fixed, clamp-type terminal blocks accommodate up to 12 AWG (3.1 mm²) wire.

Standards and Codes

- NFPA 72 National Fire Alarm Code.
- UL 864 Standard for Control Units for Fire Alarm Systems (NAC expander mode).
- UL 1481 Power Supplies for Fire Alarm Systems (standalone mode).
- FM Approved
- CSFM Approved
- HPF24S6Cand HPF24S8C approved
  – CAN/ULC-S527-99

Listings

Listings and approvals below apply to the HPF24S6 and HPF24S8. 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:** S6677
- **CAN/ULC Listed:** S6677
- **CSFM:** 7315-1637:102
- **FM Approved**

Ordering Information

HPF24S6: Remote charger 6A pow
Includes main printed circuit board, t
sure, and installation instructions.

HPF24S8: Remote charger 8A pow
Includes main printed circuit board, t
sure, and installation instructions.

HPF24S6E: Export version, 220/240 V

HPF24S8E: Export version, 220/240 V

HPF24S6C: Canadian version

HPF24S8C: Canadian version

FCPS-24S6RB: Replacement mother board.

ZNAC-4: Class A (Style Z) NAC option module

A77-716B: 12/24 VDC end-of-line relay for monitoring 4-wire smoke detector power.

BAT-1270: Battery, 12 volt, 7.0 AH (two required).

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HON-PC-005

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LCD-160

Liquid Crystal Display

General

The LCD-160 is a 640-character Liquid Crystal Display (LCD) annunciator and remote control for the XLS3000 Fire Alarm Control Panel (FACP). The LCD-160 will mimic the top portion (160 characters) of the XLS3000's 640-character display. This provides the event and preprogrammed custom messages as displayed on the main panel. The full screen contains soft key functions, and can display other panel information.

LCD-160 Features

- 640-character Liquid Crystal Display with backlit control.
- On-board input, output, and status indicators to support diagnostics.
- Software upgrades and foreign-languages character sets via serial port from a panel or other device using the Remote Data Port (RDP) interface. Upgrades do not require the replacement of any programmable devices.
- Rubberized keypad.
- Input for XLS-AKS-1B key switch.
- Fits in two ACS annunciator module locations.
- Display and Control Center (DCC) participation/indication.

RDP Interface

Any communication between the control panel and any RDP device, such as the LCD-160, occurs over an RDP interface.

- RDP interface communication is supervised by the FACP and the LCD-160.
- RDP bus can drive up to 32 RDP devices. The FACP must be at one end of the bus; the last RDP device on the circuit must have an enabled end-of-line resistor.
- Each LCD-160 on the bus requires a non-resettable 24 VDC power connection. The power circuit is inherently supervised and a loss of power registers as a communication failure at the control panel.
- The LCD-160 can be powered by a regulated remote power supply listed for fire-protective signaling use. If the 24 VDC power comes from a non-power-limited source, it must remain separate from the power-limited RDP bus.

Specifications

Input supply voltage (TB2): Regulated, filtered 24 VDC via non-resettable power supply interface listed for fire-protective signaling use. Sources can be: panels with integrated power supplies, main power supplies (AMPS-24, etc.), auxiliary power supplies (APS-6R, etc.); or a compatible accessories output. If RDP devices are to be powered by separate power supplies, a common reference connection must be established.

Data communications port (TB1): Power-limited RDP interface.

Current draw: ***Standby current:*** 0.300 A with backlight on, 0.075 A with backlight off. ***Alarm current:*** 0.325 A with backlight on, all LEDs active.

RDP BUS WIRING SPECIFICATIONS

Wiring distance: 4000 feet (1219.2 m) at 18 AWG (0.78 mm²) between the panel and the last device on the RDP bus (subject to system's power restrictions).

Wiring size: 18 to 12 AWG (0.78 to 3.1 mm²) twisted-pair cable, with characteristic impedance of 120 ohms ± 20%.

Wire resistance: Limit total wire resistance to 100 ohms on the RDP bus, and 10 ohms on the RDP device power circuit. Unloaded resistance between RDP connectors must be greater than 1K ohm. A remote power supply is required if total power wiring resistance exceeds 10 ohms.

NOTES: 1) DO NOT RUN CABLE *adjacent to, or in the same conduit as: 120 VAC service; "noisy" electrical circuits that are powering mechanical bells or horns; audio circuits above 25 Vrms; motor control circuits; SCR power circuits; or non-power-limited circuits. 2) Refer to LCD-160 Manual, document no. 51850, if RDP devices are to be mounted in* ***SEPARATE CABINETS*** *or powered by* ***REMOTE POWER SUPPLIES****.*

TEMPERATURE/HUMIDITY RANGE:

This system meets NFPA requirements for operation at 0 – 49ºC/32 – 120ºF and at a relative humidity 93% ± 2% RH (noncondensing) at 32ºC ± 2ºC (90ºF ± 3ºF). 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 – 27ºC/60 – 80ºF.

LCD-160 Interface and Indicators

The liquid crystal display is 40 characters wide and 16 lines deep, and displays all programming screens and other information. The keypad is functional only when an entry is requested by the system. Enter or change fields and issue commands on the display by using the two types of keys on the keypad: fixed function and soft keys.

Fixed function keys are the ten keys labeled on the front of the LCD-160, operating at all times on all screens unless otherwise noted. With both an active command center and DCC enabled at the panel, Acknowledge, Signal Silence, System Reset, and Drill require permission before they can be processed.

Acknowledge: Press to respond to any event or trouble signal. If enabled, silences the LCD-160 piezo sounder. Sends an acknowledge message to the panel.

Signal Silence: Press to send a system silence command to the panel, with the particular silencing action information stored at the FACP. Verification screen appears on networked displays.

System Reset: Press to send a system reset command to the panel, with the particular reset action information stored at the FACP. Verification screen appears on networked displays.

Drill: Press (hold for two seconds) to activate all silenceable fire output circuits.

Lamp Test: Press to test the LED indicators and the piezo, or display firmware version numbers.

Fire Alarm: Scroll/display a list of associated events.

Security: Scroll/display a list of assoc

Supervisory: Scroll/display a list of as

Trouble: Scroll/display a list of associa

Other Event: Scroll between prealarm

For complete information on key funct
ferent panels, refer to the ***LCD-160 M***
als.

Soft keys are the six keys to the righ
Use them to select commands that appear on the display for each different screen. Refer to the screens in the ***LCD-160 Manual*** for descriptions of the applicable soft keys.

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STATUS LED INDICATORS

Power *(green)* illuminates when AC power is within normal operating limits.

Fire Alarm *(red)* illuminates when at least one fire alarm event exists. It will flash if any of these events are unacknowledged.

Pre-Alarm *(red)* illuminates when at least one pre-alarm event exists. It will flash if any of these events are unacknowledged.

Security *(blue)* illuminates when at least one security event exists. It will flash if any of these events are unacknowledged.

Supervisory *(yellow)* illuminates when at least one supervisory event exists. It will flash if any of these events are unacknowledged.

System Trouble *(yellow)* illuminates when at least one trouble event exists. It will flash if any of these events are unacknowledged.

Other Event *(yellow)* (future release).

Signals Silenced ***(yellow)*** illuminates if notification appliances have been silenced. It flashes if some, but not all, of the NACs have been silenced.

Point Disabled ***(yellow)*** illuminates when at least one device has been disabled. It will flash until all disabled points have been acknowledged.

Controls Active ***(green)*** illuminates when the LCD-160 assumes control of the node as a primary display.

DIAGNOSTIC LED INDICATORS

Status, LED11 ***(green)***, blinks when the LCD-160 is on. Visible to the installer/troubleshooter only.

Receive, LED12 ***(green)***, blinks when data is received from the panel. Visible to the installer/troubleshooter only.

Transmit, LED13 ***(green)***, blinks when data is transmitted to the panel. Visible to the installer/troubleshooter only.

Microfail, LED14 ***(yellow)***, illuminates if the microcontroller fails. Visible to the installer/troubleshooter only.

Event Handling and the Display and Control Center

UL and ULC require that when multiple command and control centers are installed, only one operator at any location can be in control at any given time for functions such as acknowledge, silence, and reset. This is called the Display and Control Center (DCC). DCC operation provides a mechanism to pass network control to alternate network contr allows for a "request for control" fr panel, which will be accepted or rej DCC. A 15-second time-out allowanc matic passing of control in the event th the original DCC. If the XLS3000 pa LCD-160 has been programmed to remote displays with Local Control O ticipate.

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RDP Bus Wire Runs

Agency Listings and Approvals

These listings and approvals apply to the LCD-160. In some cases, certain modules or applications may not be listed by certain approval agencies, or listing may be in process. Consult factory for latest listing status.

- **UL:** S635
- **ULC:** CS100
- **City of Denver**
- **City of Chicago**
- **MEA:** 232-06-E, Vol. 2
- **CSFM:** 7165-1130:256,7170-1130:255

Product Line Information

LCD-160: 640-character Liquid Crystal Display annunciator.

BACKBOXES

The following backboxes can be surface- or semi-flush-mounted to provide an enclosure for remote mounting. Use with 1/2" (1.27 cm) conduit in the provided knockouts.

XLS-ABS-2D (black) and XLS-ABS-2DR (red): surface- or semi-flush enclosure for remote mounting. Mounts an LCD-160 directly to the enclosure's hinged dress plate. The XLS-ABS-2D and XLS-ABS-2DR do NOT support the installation of the XLS-AKS-1B key-switch or XLS-APJ-1B phone jack. Not for use in Canadian applications. Optional trim ring **TR-ABS2D** for semi-flush mounting. ***Dimensions, box:*** 12.0" (30.480 cm) H x 12.0" (30.480 cm) W x 3.797" (9.644 cm) D (NOTE: The black XLS-ABS-2D is slightly deeper). ***Dimensions, door:*** 12.0" (30.480 cm) H x 12.0" (30.480 cm) W x 1.250" (3.175 cm) D.

XLS-ABS-4D (black) and XLS-ABS-4DR (red): surface- or semi-flush enclosure for remote mounting. Mounts an LCD-

Sample Screen: Point Event Display

160 and two annunciators directly to the enclosure's hinged dress plate. The XLS-ABS-4D and XLS-ABS-4DR do NOT support the installation of the XLS-AKS-1B key-switch or XLS-APJ-1B phone jack. ***Dimensions, box:*** 11.97" (30.40 cm) H x 19.87" (50.47 cm) W x 3.5" (8.89 cm) D. ***Dimensions, door:*** 11.97" (30.40 cm) H x 19.87" (50.47 cm) W x 1.250" (3.175 cm) D.

XLS-ABF-2B: black flush enclosure for remote mounting. Mounts an LCD-160 directly to the enclosure's dress plate. Not for use in Canadian applications. Includes a painted black metal trim plate [11" (27.94 cm) high x 10.625" (26.99 cm) wide] and adhesive-backed annunciator label. 9.938" (25.24 cm) high x 9.188" (23.34 cm) wide x 3.75" (9.525 cm) deep.

XLS-ABF-4B: black flush enclosure for remote mounting of one LCD-160 and two annunciator modules directly to the enclosure's dress plate. Knockouts are provided for use with 1/2" (1.27 cm) conduit. Includes a painted black metal trim plate [11" (27.94 cm) high x 19.375" (49.21 cm) wide] and an annunciator label. 9.938" (25.24 cm) high x 17.75" (45.09 cm) wide x 2.5" (6.35 cm) deep.

XLS-CAB-4: are surface- or semi-flush-mounted, in sizes to accommodate one to four rows of equipment plus batteries (up to two 25 AH batteries). Four sizes are available. Doors are ordered separately, and feature reversible hinges to mount doors on the left or right side. Doors also open a full 180°. Key-locks are included. For dimensions a
see data sheets for ***XLS-CAB-4 Series***

ACCESSORIES

DP-DISP: Dress Panel Display for c
LCD-160. LCD-160 mounts directly to
hinge-mounts to the top tier of a CAB-4

ADP-4B: Annunciator Dress Panel-4
mounting of an LCD-160. LCD-160
dress panel, which hinge-mounts to th
backbox.

TR-ABS2D: (black) optional trim ring for semi-flush mounting XLS-ABS-2D(R).

VP-2B (black) and VP-2: Vented Dress Panel for use with the ADP-4B dress panel installed in the top tier of a CAB-4 Series cabinet. It covers the gap between the dress panel and top of the cabinet.

XLS-AKS-1B (black): Annunciator Key Switch provides access security for the control switches on the LCD-160. Key-switch kit includes key, hardware, and an annunciator label.

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