

# ECC-50/100(E)

## Emergency Command Center



### Emergency Communications

#### General

Firelite's ECC-50/100 and ECC-50/100E are multipurpose emergency voice evacuation panels for fire applications, mass notification applications, or both. The Primary Operating Consoles (POCs) deliver 50 or 100 watts of audio power for distribution to up to eight speaker circuits (i.e. zones). The ECC-50/100(E) comes standard with a single speaker circuit and a built-in 25Vrms, 50 watt amplifier. A secondary 50 watt amplifier (ECC-50W-25/70V) can be added for single speaker circuit backup or to increase system capacity to two speaker circuits and an additional 50 watts of audio power. An optional ECC-CE6 module added to the ECC-50/100(E) will upgrade the system to a maximum of eight speaker circuit outputs. All speaker output circuits can be wired in either Style Y (Class B) or Style Z (Class A) configuration. The ECC-50/100(E) has fourteen field programmable messages (up to 60 seconds each), built-in field configurable pre- and post-announcement tone generators and a fully supervised Notification Appliance Circuit (NAC) with 2.0 amps of synchronized NAC power. The ECC-50/100(E) includes three built-in Form-C relay contacts, (AC power, trouble and MNS active) a NAC follower input for triggering the on board NAC circuit and 500mA special application power. A built-in power supply with switch mode technology delivers operational power to the panel and an onboard battery charger supports charging up to 26AH batteries (ECC cabinet holds up to 18AH batteries).

For fire protection applications, the ECC-50/100(E) is an adjunct (slave) to any UL listed FACP, providing reverse polarity or contact closure; can be used as a stand-alone unit for non-fire applications. For seamless integration between fire and mass notification, the ECC-50/100(E) can be directly activated via serial communication between the MS-9600(UD)LS or MS-9200UDLS. Activation of the ECC-50/100(E) via other FACP's uses the eight on board Command Input Circuits (CMDs). Two of the eight CMD circuits (CMD 1 & CMD 2) can be individually field programmed for activation by an FACP Notification Appliance Circuit reverse polarity and all eight can be activated by a contact closure. In addition, the ECC-50/100(E) can be activated from a building's Private Branch Exchange (PBX) with the integral night ring feature.

All ECC-50/100(E) programming is done by using a simple, built-in programming utility accessed from any laptop. For added flexibility, the ECC-50/100(E) supports both 25Vrms and 70.7Vrms speaker output operation. By adding a 70V transformer conversion module (ECC-XRM-70V) or an additional 70.7 volt secondary amplifier (ECC-50W-25/70V) the system supports 70.7 volt speaker devices.

The ECC-50/100(E) can expand in order to accommodate larger or more complex installations. To add more control and increase system capacity, any combination of up to eight external remote consoles (including the ECC-LOC, ECC-RPU, and ECC-RM) and up to eight distributed audio amplifiers (including the ECC-50DA(E), ECC-50BDA and ECC-125-DA(E)) can be connected on the external data bus and audio riser data bus to create a fully integrated command center. A fully loaded system supports up to 1100 watts of total audio power and up to 24 speaker circuit outputs.



#### TYPICAL APPLICATIONS

- Schools
- Theaters
- Auditoriums
- Dormitories
- Healthcare Facilities
- Military facilities
- Places of Worship
- Factories
- Restaurants
- Office Buildings

#### Features

- UL Listed to UL 2572 Communication (Control Units Mass Notification Systems) and UL 864 (emergency voice evacuation for fire)
- Modular design for system flexibility and easy expansion
- Removable terminal blocks for ease of servicing and module replacement
- 50 watts of 25V audio power (expandable to 100 watts) RMS
- 2 amp Notification Appliance Circuit (NAC) output, sync generator, or follower for System Sensor, Wheelock or Gen-tex protocols
- Optional 70.7VRMS conversion transformer available for the primary amplifier. (Note that speaker wiring continues to be supervised in standby, alarm and when background music is playing with this optional transformer installed)
- Eight Command Input Circuits to activate messages 1 to 8:
  - CMD1 and CMD2 are field selectable to be activated from 12 or 24 VDC Notification Appliance Circuits (reverse polarity) or contact closures
  - CMD3-CMD8 are activated by contact closures
- Speaker Circuits
  - Single Style Y (Class B) or Style Z (Class A) speaker Circuit

- Two Style Y (Class B) or Style Z (Class A) speaker circuits (with optional ECC-50W-25/70V Audio Amplifier installed)
- Eight Style Y (Class B) or Style Z (Class A) speaker circuits (with optional ECC-50W-25/70V and ECC-CE6 installed)
- 520Hz square wave tones available, which can be uploaded to the ECC-50/100 to meet NFPA Low Frequency requirements (Refer to the Device Compatibility Document 15384 for listed compatible speakers.)
- ECC-50/100(E) can be controlled by an FACP via the ANN/ACS (EIA-485) link. Compatible FACP's include the MS-9600(UD)LS and MS-9200UDLS
- Certified for seismic applications when used with the appropriate seismic mounting kit
- Integral supervised microphone
- Microphone time-out feature which reverts back to pre-recorded message if emergency page exceeds the programmed time
- 14 recorded messages
- Field-selectable message and custom message recording capability using the local microphone, a USB port, or an external audio input
- External Audio Input can be used for background music
- Up to 60 second message duration for all messages
- Integral tone generators field selectable for multiple tone types
- Powered by integral AC power supply or batteries during AC fail
- Programmable delay of immediate, 2 hours or 6 hours reporting of AC Loss
- Piezo sounder for local trouble
- 100 event history log
- Three Form-C relays:
  - AC Power Loss Relay - TB1
  - System Trouble Relay - TB2
  - MNS Active - TB3
- 500mA (0.5A) Special Application (auxiliary power) output for addressable modules when interfaced with compatible addressable FACP's and End-of-Line power supervision relays
- System Status LEDs (Refer to "Controls and Indicators" in product manual LS10001-000FL-E.)
- Integral Dress Panel
- Optional TR-CE semi-flush trim ring
- Any combination of up to eight (8) external remote consoles:
  - Optional ECC-RM Remote Microphone (includes cabinet) See DF-60760.
  - Optional ECC-RPU Remote Page Unit (includes cabinet) See DF-60761.
  - Optional ECC-LOC Local operator console (includes cabinet) See DF-60762.
- Any combination of up to eight (8) distributed audio amplifiers:
- Optional ECC-50DA(E) distributed amplifier, 50 watts. See DF-60763.
- Optional ECC-125DA(E) distributed amplifier, 125 watts. See DF-60763.
- Optional ECC-50BDA distributed amplifier with backup, 100 watts. See DF-60760.

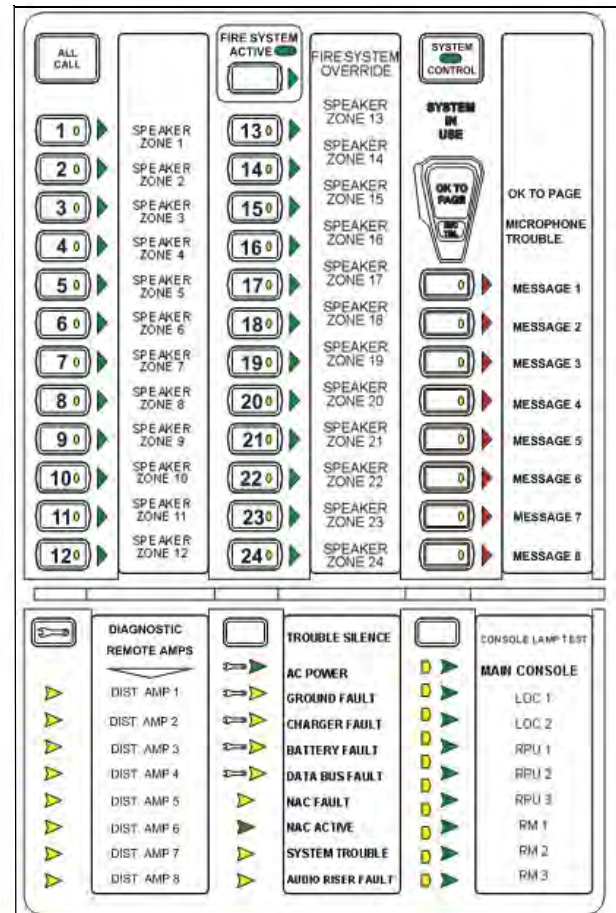
## Optional Internal Expansion Modules

**ECC-CE6:** Circuit Expander Module provides connections for up to six Style Z (Class A) or Style Y (Class B) speaker circuits. Circuits are configured through the web-based programming utility.

**ECC-50W-25V:** 25V, 50 watt audio amplifier module. Adding a second speaker circuit increases the total ECC-50/100 power output to 100 watts or can also be used as a backup amplifier.

**ECC-50W-70V:** 70V, 50 watt audio amplifier module. Adding a second speaker circuit increases the total ECC-50/100 power output to 100 watts or can also be used as a backup amplifier.

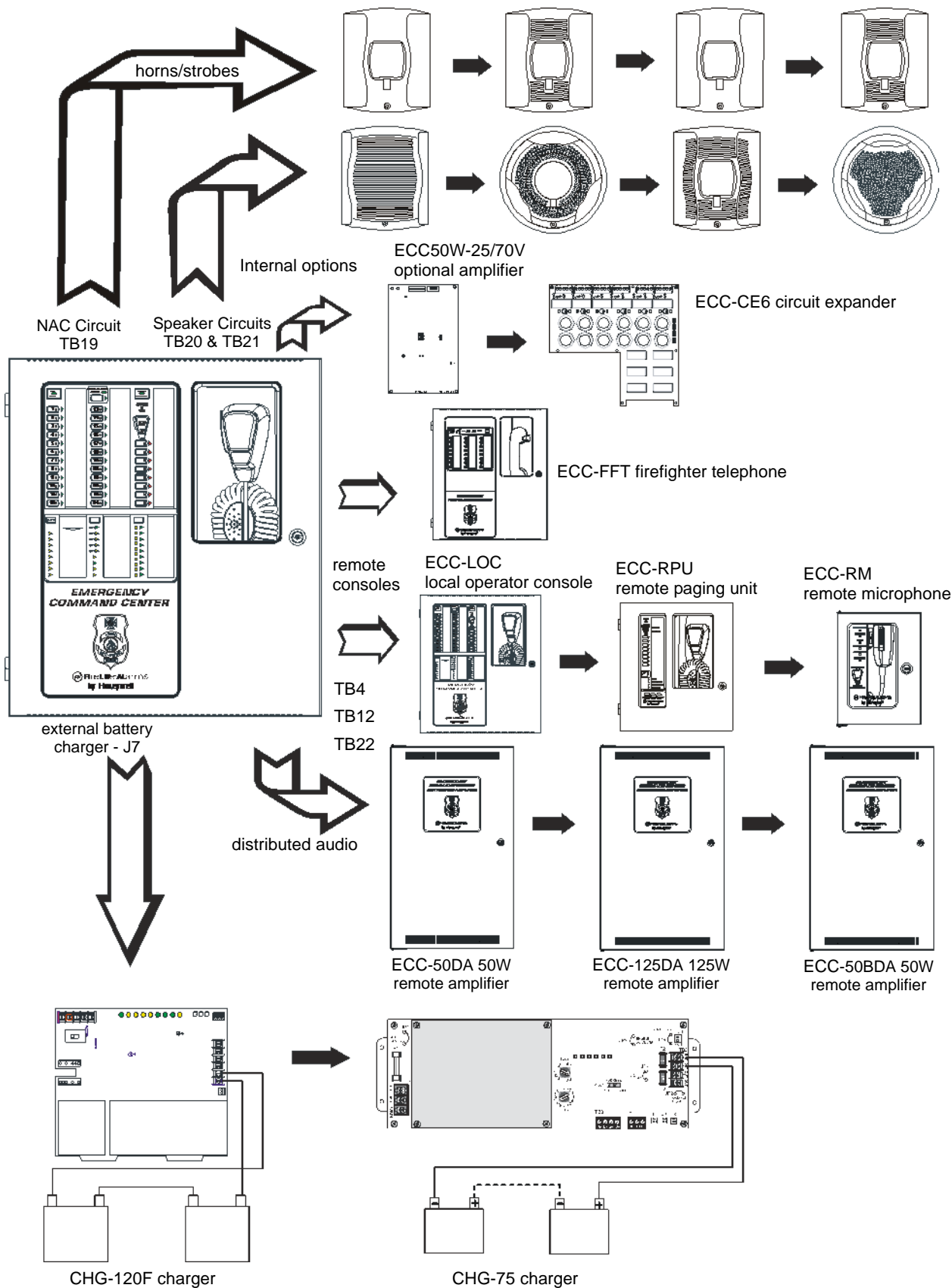
**ECC-XRM-70V:** 70V Transformer Conversion Module. Converts the ECC-50/100(E) primary amplifier to a 70V output. This transformer mounts directly to the ECC-50/100(E) main control board by two metal brackets.



## Control and Indicators

### PUSH BUTTON CONTROLS

- All Call
- MNS Control
- System Control
- Speaker Select 1-24
- Message Select 1-14
- Diagnostic Select
- Trouble Silence
- Console Lamp Test



**ECC-50/100(E) Emergency Command Center (Possible Configurations)**

## LED Status Indicators (visible with door closed)

Fire System Active (green)	LOC/RPU/RM 1-8 Active (green)
MNS Control (green)	Main Console Fault (yellow)
System Control (green)	AC Power (green)
System in Use (green)	Ground Fault (yellow)
Speaker Zone 1-24 Active (green)	Charger Fault (yellow)
Speaker Zone 1-24 Fault (yellow)	Battery Fault (yellow)
OK to Page (green)	Data Bus Fault (yellow)
Microphone Trouble (yellow)	NAC Fault (yellow)
Message 1-8 Active (red)	NAC Active (green)
Message 1-8 Fault (yellow)	System Trouble (yellow)
Remote Amplifier 1-8 Fault (yellow)	Audio Riser Fault (yellow)
LOC/RPU/RM 1-8 Fault (yellow)	

## LED Indicators (visible with door and dress panel open)

- Speaker Volume Control Fault (yellow).
- Option Card Fault (yellow).
- Amplifier Over Current Fault (yellow).

## Product Line Information

**ECC-50/100:** (Primary Operating Console) 50 Watt, 25VRMS single speaker zone emergency voice evacuation system, integral microphone, built in tone generator and 14 recordable messages.

**ECC-50/100E:** Export version (Primary Operating Console) 50 Watt, 25VRMS single speaker zone emergency voice evacuation system, integral microphone, built in tone generator and 14 recordable messages. (240 VAC, 50Hz).

**ECC-CE6:** Speaker Circuit/Zone Expander Module.

**ECC-50W-25V:** 25V, 50 watt audio amplifier module. Adding a second speaker circuit increases the total ECC-50/100 power output to 100 watts or can also be used as a backup amplifier.

**ECC-50W-70V:** 70V, 50 watt audio amplifier module. Adding a second speaker circuit increases the total ECC-50/100 power output to 100 watts or can also be used as a backup amplifier.

**ECC-XRM-70V:** 70V Transformer Conversion Module. Converts the ECC-50/100(E) primary amplifier to a 70V output. This transformer mounts directly to the ECC-50/100(E) main control board by two metal brackets.

**ECC-LOC:** Local Operator Console (Complete user interface), *Please refer to the data sheet DF-60762 for more information.*

**ECC-RPU:** Remote Page Unit Hand held microphone, 14 message buttons. *Please refer to the data sheet DF-60761 for more information.*

**ECC-RM:** Remote Microphone only. *Please refer to the data sheet DF-60760 for more information.*

**ECC-50DA:** Distributed (Remote) Audio Amplifier, 50 watts. *Please refer to the data sheet DF-60763 for more information.*

**ECC-50DAE:** Export version. Distributed (Remote) Audio Amplifier, 50 watts. (240 VAC, 50Hz). *Please refer to the data sheet DF-60763 for more information.*

**ECC-125DA:** Distributed (Remote) Audio Amplifier, 125 watts. *Please refer to the data sheet DF-60763 for more information.*

**ECC-125DAE:** Export version. Distributed (Remote) Audio Amplifier, 125 watts. (240 VAC, 50Hz). *Please refer to the data sheet DF-60763 for more information.*

**ECC-50BDA:** Distributed (Remote) Audio Amplifier with back up, 50 watts/100 watts at 25Vrms or 70Vrms. *Please refer to the data sheet DF-60763 for more information.*

**ECC-50WBU:** Expander card for ECC-50BDA remote amplifier for 100 watt primary / 50 watt back up operation. *Please refer to the data sheet DF-60763 for more information.*

**ECC-CE4:** Distributed Audio Speaker Circuit/Zone expander module.

**ECC-FFT:** Fire Fighter Telephone System. *Please refer to the data sheet DF-60765 for more information.*

**ECC-RTZM:** Remote Telephone Zone Module. *Allows for secure access to the ECC via cell phone or remote telephone means; not UL listed. Please refer to the data sheet DF-60785 for more information.*

**SEISKIT-COMMENC:** Seismic kit for the ECC-50/100. Includes battery bracket for two 12 AH or 18 AH batteries.

**FPJ-F:** Remote Phone Jack.

**FHS-F:** Fire Fighters Remote Handset.

**FHSC-RF:** Fire Fighters Handset Cabinet Recessed.

**FHSC-SF:** Fire Fighters Handset Cabinet Surface Mount

**MMF-301:** Addressable Mini-Monitor Module.

**I300:** SLC Line Isolation Module.

**TR-CE:** Optional Trim Ring.

**THUMBLTCH:** Optional Thumb Latch. (Non UL-Listed).

**CHG-75:** 25 to 75 ampere-hours (AH) External Battery Charger.

**CHG-120F:** 25-120 ampere-hours (AH) External Battery Charger.

**ECC-MICROPHONE:** Replacement Microphone only.

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

**BAT-12120:** Battery, 12 volt, 12.0 AH (Two required).

**BAT-12180:** Battery, 12 volt, 18.0 AH (Two required).

## Wiring Requirements

See product manual, part number LS10001-000FL-E for detailed wiring requirements.

## Total System Capacity: (ECC-50/100(E) only)

- Total Built-in Audio Power: 50 Watts.
- Total Expandable Audio Power: 100 Watts.
- Total Built-in Speaker Circuits: 2.
- Total Expandable Speaker Circuits: 8.
- Audio Message Max Time Duration: 60 seconds.
- External Audio Input: 1.

## Total System Capacity: (Fully Loaded System)

- Total Distributed Audio Power: 1100 Watts.
- Total Speaker Circuits Per System: 24.
- Total Remote Consoles Supported: 8.
- Total Distributed Audio Amplifiers Supported: 8.

## Electrical Specifications

### PRIMARY (AC) POWER (TB15)

ECC-50/100: 120 VAC, 60 Hz, 3.5 amps.

ECC-50/100E: 240 VAC, 50 Hz, 2.0 amps.

Wire size: minimum #14 AWG (2.00mm<sup>2</sup>) with 600 V insulation.

### SECONDARY POWER (BATTERY) CHARGING CIRCUIT (J7)

- Supports lead-acid batteries only.
- Float charge voltage at 27.3V
- Maximum charge current: 1.0 Amp
- Maximum battery charge capability: 2.8 Amps, 26AH (ECC cabinet holds max. 18AH battery).
- Minimum Battery size: 12 Amp Hour.

### AC LOSS RELAY CONTACT RATING (TB3)

- 2.0 amps @ 30 VDC (resistive), 0.5 amps @ 30 VAC (resistive).

### FORM C - TROUBLE RELAY CONTACT RATING (TB2)

- 2.0 amps @ 30 VDC (resistive), 0.5 amp @ 30 VAC (resistive).

### MNS ACTIVE RELAY CONTACT RATING (TB1)

- 2.0 amps @ 30 VDC (resistive), 0.5 amps @ 30 VAC (resistive).

### NOTIFICATION APPLIANCE CIRCUIT (NAC) OUTPUT RATING (TB19)

- One (1) Style Y (Class B) or Style Z (Class A) circuit.
- Power-limited circuitry, (Class 2) supervised.
- Nominal operating voltage: 24 VDC.
- Maximum signaling current for special application power: 2.0A.
- Maximum signaling current for regulated power: 200mA.
- Maximum wiring impedance: 1Ω.
- Current limit: fuse-less, electronic, power-limited.
- End-Of-Line Resistor: 4.7 KΩ, ½ watt, (P/N 71252) required for Style Y (Class B) operation.

Refer to the Device Compatibility Document 15384 for listed compatible devices.

### NAC FOLLOWER OUTPUT REMOTE SYNC (TB18)

- Connections for FACP NAC synchronization trigger signal.
- Output terminals: pass-through to other system components.
- Trigger input voltage: 9 to 32 VDC, 24 VDC rated.
- Input current draw in Alarm condition: 10 mA at rated voltage.

### SPECIAL APPLICATION POWER (AUX. POWER) (TB17)

- 500 mA @ 24 VDC.
- Used for powering addressable modules and associated End-of-Line power supervision relays.

Power-limited circuitry. Refer to the Device Compatibility Document 15384 for a list of compatible devices.

### SPEAKER VOLUME CONTROL OVERRIDE (TB23)

- Style Y (Class B) or Style Z (Class A) circuit.
- Special application power.
- Power-limited circuitry, supervised.
- Nominal operating voltage: 24 VDC.
- Maximum signaling current: 0.25 amps.
- Current limit: fuse-less, electronic, power-limited.

- End-Of-Line Resistor: 4.7 KΩ, ½ watt, (P/N 71252) required for Style Y (Class B) operation.

## Speaker Circuits

- Primary Speaker Circuit (TB20)
- Secondary Speaker Circuit (TB21) (with optional amplifier only).
  - Circuit can be wired Style Y (Class B) or Style Z (Class A).
  - Power-limited circuitry.
  - Normal Operating Voltage: 25 VRMS @ 2 amps max and maximum Load Impedance of 12.5Ω (70.7 VRMS @ 700 mA max. with maximum load Impedance of 100Ω operation possible by plugging optional ECC-XRM-70V conversion transformer into J12 of the main control board).
  - Output Power: 50 watts (10 watts when background music is employed).
  - Frequency Range: 400Hz - 4,000Hz.
  - Maximum total capacitance for each speaker circuit: 250 μF.
  - End-of-Line Resistor required for Style Y circuit: 15 KΩ, 1 watt (P/N: ELR-15K).

## Command Input Circuits (alarm polarities shown)

CMD1 - TB4 Terminals 3(+) & 4(-) are input terminals and Terminals 1(-) and 2(+) are output terminals which provide feed through of the NAC circuits to NAC devices down stream.

CMD2 - TB5 Terminals 3(+) & 4(-) are input terminals and Terminals 1(-) and 2(+) are output terminals which provide feed through of the NAC circuits to NAC devices downstream.

CMD3 - TB6 Terminals 1(+) & 2(-) are input terminals for contact closure only.

CMD4 - TB6 Terminals 3(+) & 4(-) are input terminals for contact closure only.

CMD5 - TB7 Terminals 1(+) & 2(-) are input terminals for contact closure only.

CMD6 - TB7 Terminals 3(+) & 4(-) are input terminals for contact closure only.

CMD7 - TB8 Terminals 1(+) & 2(-) are input terminals for contact closure only.

CMD8 - TB8 Terminals 3(+) & 4(-) are input terminals for contact closure only.

- Power-limited and supervised circuitry.
- Normal Operating Voltage Range: 10.5 VDC - 29 VDC; (Maximum Voltage: 29 VDC).
- NAC Reverse Polarity Current (requires End-of-Line Resistor from NAC): 1.6 mA maximum.
- Contact Closure Operation Current (requires 4.7KΩ, ½ watt End-of-Line Resistor P/N 27072): 6.6 mA maximum.
- Maximum Wiring Impedance CMD1 - CMD8 (Contact Closure Operation): 200Ω.

**NOTE:** When the system is programmed for Mass Notification, CMD1 and CMD2 will be programmed for Reverse Polarity only. See manual P/N LS10001-000FL-E for more details.

### MAXIMUM INPUT IMPEDANCE:

- CMD1 & CMD2 (Reverse Polarity Operation): 20KΩ.
- CMD1 - CMD8 (Contact Closure Operation): 4.75KΩ.

### NIGHT RING INPUT - TB16, TERMINALS 1 (+) & 2 (-)

- Contact closure input.
- Isolated, non-supervised.
- Operation current: 3.8 mA, maximum.

- Maximum wiring impedance: 30K $\Omega$ .
- Minimum isolation withstand voltage: 1500 VRMS.

#### **EXTERNAL OPERATOR INTERFACE POWER OUTPUT (TB24)**

- Non-resettable power for external operator interface components.
- Power-limited circuitry, non-supervised.
- Nominal operating voltage: 24 VDC.
- Maximum output current: 0.80 amps.
- Current limit: fuse-less, electronic, power-limited circuit.

#### **EXTERNAL DATA BUS (EIA-485) (TB12)**

- Data connections for external operator interface components.
- Redundant transceiver circuitry for Class A operability.
- Power-limited circuitry, supervised.
- Maximum wiring impedance: 13.2 $\Omega$

#### **FACP DATA BUS (EIA-485) (TB13)**

- Dedicated connection to FACP serial bus.
- Output terminals: pass-through to other system components.
- Isolated, supervised.
- Minimum isolation withstand voltage: 1500 VRMS.
- Maximum wiring impedance: 40 $\Omega$  (ANN-BUS), 26 $\Omega$  (ACS-BUS).
- External Audio Riser (TB22).
- Style Y (Class B) or Style Z (Class A) audio connections to external operator interface components.
- Power-limited circuitry, supervised.
- Audio signal level: 3.85 V, maximum.
- Frequency range: 400 Hz - 4 KHz RMS.
- Frequency range (ECC-50/125DA): 800Hz - 2KHz RMS.

#### **ELECTRICAL SPECIFICATIONS DISPLAY BOARD**

##### **EXTERNAL AUDIO INPUT (TB5)**

- Input Impedance: 8.5K $\Omega$  nominal @ 1KHz
- Input Voltage: 700 mV rms maximum
- Input Current: 0.1 mA maximum @ 700 mV

**NOTE:** *Some laptops/personal computers only provide an audio output for headphones. It may be necessary to adjust the headphone output level for proper recording of voice messages.*

#### **ECC-CE6 Circuit Expander Module Specifications**

- Power-limited circuitry.
- Up to six (6) circuits on the ECC-CE6 can be wired as Style Y (Class B) or Style Z (Class A).
- Normal Operating Voltage for Speaker Circuits: 25 VRMS @ 2.0 amps max. (Maximum Load Impedance of 12.5 $\Omega$ ).
- 70.0 VRMS @ 700 mA max. with maximum Load Impedance of 100 $\Omega$  operation possible for the primary circuit by plugging in an optional ECC-XRM-70V conversion transformer into J12 of the main control board. The same operation is possible for the optional 50W amplifier by selecting the ECC-50W-70V model.
- Speaker circuit wiring is supervised during standby, background music, and alarm.

- Output Power: 50 watts total; Frequency Range: 400Hz - 4,000Hz.
- Maximum total capacitance: 250  $\mu$ F. (Note that the total capacitance for the speaker outputs must not exceed the maximum of 250  $\mu$ F).
- End-of-Line Resistor required for Style Y (Class B) speaker circuit: 15 K $\Omega$ , 1 watt (P/N: ELR-15K) TB13 on the main control board: ACS/ANN (EIA-485) electrically isolated link to FACP provides programmed speaker control.

#### **Cabinet Specifications**

- Backbox: 19.0"(48.26 cm) high x 16.65"(42.29 cm) wide x 5.20"(13.23 cm) deep.
- Door: 19.26" (48.92 cm) high x 16.82"(42.73 cm) wide x 0.12"(0.30 cm) deep.
- Trim Ring (TR-CE): 22.00" (55.88 cm) high x 19.65" (49.91 cm) wide.

#### **Shipping Specifications**

Base Unit Weight: 27.85 lbs (12.63 kg).

#### **Temperature and Humidity ranges**

This system meets NFPA requirements for operation at 0-49 $^{\circ}$  C/32-120 $^{\circ}$  F and at a relative humidity 93%  $\pm$  2% RH (non-condensing) at 32 $^{\circ}$ C  $\pm$  2 $^{\circ}$ C (90 $^{\circ}$ F  $\pm$  3 $^{\circ}$ 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 $^{\circ}$  C/60-80 $^{\circ}$  F.

#### **Agency Listings and Approvals**

The listings and approvals below apply to the basic ECC-50/100(E) control panel. 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/ULC Listed S2424.
- Compliant with UFC 4-021-01.
- CSFM: 7300-0075:0226.
- NYC Fire Dept. Certificate of Approval: #6152.
- FM Approved.

#### **Standards and Codes**

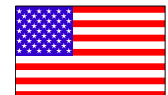
The ECC-50/100(E) complies with the following UL Standards, NFPA 72, International Building Codes, and California Building Codes.

- UL 864.
- UL 2572.
- IBC 2012, IBC 2009, IBC 2006, IBC 2003, IBC 2000 (Seismic).
- CBC 2007 (Seismic)

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