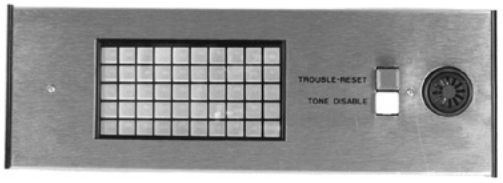
DUKANE™
Commercial Sound Technology

Supervisory Sound
14A707

9A1480A



9A1475

110-1437A

Overview

The Edwards Model 14A707 Supervisory Detection System monitors any standard sound system for opens, shorts, grounds, mechanical damage, and loss of power in any or all components while the equipment is in use or on standby. The equipment that can be monitored includes amplifiers, signal generators, external wiring, and speakers (including voice coils and cones).

A supervisory signal is sent through all parts of the system to be monitored, without disturbing normal operation. Any physical or electrical damage to the system interrupts the supervisory signal path. This interruption is detected and annunciated visually at the main equipment or at remote locations.

It is also possible to constantly monitor the output of an emergency tone generator, provide trouble indication in case of generator failure, and switch to a standby tone generator if required.

Standard Features

- All solid state
- Monitors amplifiers, preamplifiers, speaker cones, and speaker lines
- Remote indicators
- Built-in, fail-safe alarm

Component Description

The Edwards Model 9A1475 Trouble Indication and Control Panel provides an audible alarm to signify that part of the supervised sound system is malfunctioning. Two buttons are provided on the panel. One disables the trouble indication tone and activates a TROUBLE INDICATION DISABLED light. The other button extinguishes the fault annunciator after the fault in the sound system has been corrected.

The Edwards Model 9A1480A Trouble Indication and Control Panel with Fault Annunciators is used to provide audible and visible annunciation of any malfunctions within a supervised sound system at a remote location. Two buttons are provided on the panel. One disables the trouble indication tone and activates a TROUBLE INDICATION DISABLED light. The other button extinguishes the trouble lamps in the annunciator field after the fault in the sound system has been corrected. If another problem occurs after the trouble indication tone has been silenced, the tone is reactivated and must be manually silenced again.

The Edwards Model 5A451 Loudspeaker is used when speaker supervision is required. If the speaker is damaged electrically or physically, the return path for the supervisory signal is interrupted, thereby initiating the trouble indicator circuitry.

The Edwards 110-1437A Chassis has a 12-board capacity. The boards are plugged in from the front, and the connections are made to screw terminals on the back.

DATA SHEET 85100-0125
Not to be used for installation purposes. Issue 3

The Edwards Model 110-1286 PCB feeds a supervisory signal to a sound system. The absence of this signal causes the system to indicate a trouble condition.

The Edwards Model 110-1287A PCB detects the supervisory signal. When this signal is absent, a relay contact closure sounds an alarm and activates a remote annunciator, if provided. A visual indicator on the board also lights to indicate where the trouble in the sound system has occurred.

The Edwards Model 110-1288A PCB monitors the tone generator output. If the tone stops, a relay contact closure sounds a trouble indication tone and activates a remote annunciator, and a visual indicator on the board lights to indicate failure of the tone generator.

The Edwards Model 110-1289B PCB monitors both the power supplied to the supervisory detection system, and the system itself. If power to the supervisory system fails, a contact closure is provided. If one of the sound system components fails, another contact closure is made, and a trouble indication tone sounds at a remote location.

The Edwards Model 110-1493 PCB provides the emergency dual tone generator for the supervised sound system. The tone frequency is modulated in a sweeping frequency of 600Hz to 1,100Hz with a duration of 10 seconds on and 5 seconds off.

The Edwards Model 110-1494 PCB provides “end-of-line” supervision for speakers in the supervised sound system. The fault indicator is an LED that lights to indicate a failure when the voltage across the end-of-line resistance drops below 8 volts or rises above 15 volts. The 110-1494 also sends a trouble indication to the 9A1475 or 9A1480A Trouble Indication Panels.

Engineers' Specification

The Edwards Model 14A707 Supervisory Detection System shall consist of:

9A1475 Trouble Indication and Control Panels

9A1480A Remote Trouble Indication and Control Panels with Fault Annunciators

5A451 Speakers

110-1437A Chassis

Each 110-1437A Chassis shall house:

110-1286 Signal Generator PCBs

110-1287A Narrow Band Trouble Detection PCBs

110-1288A Wide Band Trouble Detection PCBs

110-1289B Trouble Indication PCBs

110-1493 Emergency Tone Generator PCBs

110-1494 End-of-Line Sense PCBs

The loudspeakers shall be Edwards Model 5A451. The loudspeaker shall be an 8-inch (20.3 cm), seamless cone type. The ceramic magnet shall weigh at least 4.8 ounces (134 g). The frequency range shall be from 30Hz to 15,000Hz. The normal wattage rating shall be 10 watts with a program rating of 16 watts. The voice coil shall be 3/4 inch (1.9 cm) in diameter with 8 ohms impedance. The overall diameter of the loudspeakers shall be 8-3/16 inches (20.8 cm), the depth shall be 2-7/8 inches (7.3 cm), and the weight shall be 1 pound, 5 ounces (588 g). All external parts shall be cadmium plated, and shall conform to EIA standards.

The 110-1437A Chassis shall measure 19 inches (48.3 cm) by 3-1/2 inches (8.9 cm) by 9-1/4 inches (23.5 cm). It shall weigh 6 pounds, 12 ounces (3 kg). It shall have a capacity of 12 boards, and terminations shall be through screw terminals.

The 110-1286 Signal Generator PCB shall operate with a supply voltage between 24Vdc and 30Vdc, and shall draw between 15mA and 35mA respectively. The output shall vary no more than 0.2dB over this range. The output voltage shall be 5Vac (rms) maximum. The load impedance shall be more than 600 ohms, and the output impedance shall be 70 ohms.

The 110-1287A Narrow Band Trouble Detection PCB shall operate on 24Vdc @ 75mA. The input shall be internally clamped to 0.7 volts. The output indicator shall be an LED. The remote control relay shall be Type C contacts (maximum voltage 250Vac @ 0.5A into a resistive load). The reset voltage shall be +4Vdc.

The 110-1288A Wide Band Trouble Detection PCB shall operate on 24Vdc @ 75mA. The input shall be 20mV and shall be internally clamped to 0.7 volts. The remote control relay shall be Type C contacts (maximum voltage 250Vac @ 0.5A into a resistive load). The reset voltage shall be +4Vdc.

The 110-1289B Trouble Indication PCB shall operate on 24Vdc @ 75mA standby. The output of the system power supply shall be constantly monitored.

The 110-1493 Emergency Tone Generator is a dual board, emergency tone generator. It shall operate on 24Vdc, 75mA. The output voltage shall be 5 volts with an output impedance of 1K ohm. The frequency of the tone shall be modulated in a sweeping frequency of 600Hz to 1,100Hz with a duration of 10 seconds on and 5 seconds off.

The 110-1494 End-of-Line Sense Board shall operate on 24Vdc, 75mA. It shall be of solid-state construction. The fault indicator shall be an LED. The board shall read voltages between 8 volts and 15 volts, as provided with an end-of-line resistance of 11K ohms. Anything above or below these readings shall cause the LED to indicate a failure. The remote control relay shall be Type C contacts (maximum voltage 250Vac @ 0.5A into a resistive load).

The 9A1475 Trouble Indication and Control Panel shall measure 19 inches (48.3 cm) by 1-3/4 inches (4.4 cm) by 3-1/2 inches (8.9 cm), and shall weigh 4 pounds (1.8 kg). It shall operate on 24Vdc @ 150mA.

The 9A1480A Trouble Indication and Control Panel with 50 Annunciators shall measure 13 inches (33 cm) by 4-1/2 inches (11.4 cm) by 2-1/2 inches (6.4 cm). It shall weigh 2 pounds, 8 ounces (1.1 kg). It shall operate on 24Vdc @ 150mA standby. The lamp current shall be 40mA each. The terminations shall be via screw terminals and spade terminals.

Specifications

5A451 Loudspeaker	
Magnet Weight	4.8 oz. (134 g)
Frequency Response	80Hz to 12,000Hz
Normal Wattage	10W
Program Rating	16W
Impedance	8 Ohms
Voice Coil Diameter	3/4" (1.9 cm)
Size	8-3/16" (20.8 cm) by 2-7/8" (7.3 cm)
110-1437A Chassis	
Size	19" (48.3 cm) by 3-1/2" (8.9 cm) by 9-1/4" (23.5 cm)
Weight	6 lb., 12 oz. (3 kg)
Terminations	Screw terminals
Board Capacity	12 boards
110-1286 Signal Generator PCB	
Power Required	24Vdc @ 15mA to 30Vdc @ 35mA
Output Impedance	70 Ohms
Output Voltage	5Vac (rms) maximum
Output Stability	0.2dB change with 6V power supply voltage change
Load Impedance	More than 600
110-1287A Trouble Detection PCB	
Power Required	24Vdc @ 75mA
Input	6mV minimum
Clamping	Internal to 0.7V
Fault Indicator	LED, 10 year life
Remote Control Relay	Type C contacts—relay type (maximum 250Vac @ 0.5A into a resistive load)
Reset Voltage	+4Vdc to +5vdc (generated by the 110-1289A PCB and switched through the 9A1475's red trouble reset switch)
110-1288A Trouble Detection PCB	
Power Required	24Vdc @ 75mA
Input	20mV minimum
Clamping	Internal to 0.7V
Fault Indicator	LED, 10 year life
Remote Control Relay	Type C contacts—relay type (maximum 250Vac @ 0.5A into a resistive load)
Reset Voltage	+4Vdc to +5vdc (generated by the 110-1289A PCB and switched through the 9A1475's red trouble reset switch)
110-1289B Trouble Indication PCB	
Power Required	24Vdc @ 75mA standby
Power Failure	B type contacts (maximum 28V@3WDC, 0.22V, 3VA [AC] resistive)
110-1493 Emergency Tone Generator	
Power Required	24Vdc, 75mA
Output Voltage	5V
Output Impedance	1k Ohm
Frequency	Modulated, 600Hz to 1,100Hz
110-1494 End-of-line Sense Card	
Power Required	24Vdc, 75mA
Fault Indicator	LED
Remote Control Relay	Type C contacts—relay type (maximum 250Vac @ 0.5A into a resistive load)
9A1475 Trouble Indication And Control Panel	
Power Required	24Vdc @ 150mA
Terminations	Screw terminals
Size	19" (48.3 cm) by 1-3/4" (4.4 cm) by 3-1/2" (8.9 cm)
Weight	4 lb. (1.8 kg)
9A1480A Trouble Indication And Control Panel W/ Fault Annunciators	
Power Required	24Vdc @ 150mA and 40mA for each annunciator lamp used
Terminations	Screw terminals and spade terminals
Size	13" (33 cm) by 4-1/2" (11.4 cm) by 2-1/2" (6.4 cm)
Weight	2 lb., 8 oz. (1.1 kg)
Lamp Current	40mA each

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Ordering Information

Model	Description
9A1475	Trouble Indication and Control Panels
9A1480A	Remote Trouble Indication and Control Panels with Fault Annunciators
5A451	Speakers
110-1437A	Chassis
110-1286	Signal Generator PCBs
110-1287A	Narrow Band Trouble Detection PCBs
110-1288A	Wide Band Trouble Detection PCBs
110-1289B	Trouble Indication PCBs
110-1493	Emergency Tone Generator PCBs
110-1494	End-of-Line Sense PCBs