



RLE Technologies

SEAHAWK LDZ8



SeaHawk

ARCHITECT AND
ENGINEER SPECIFICATIONS

1. GENERAL SPECIFICATION

- 1.1 The contractor shall provide a RLE Technologies SeaHawk LDZ8 Zone Water Leak Detection System (hereinafter referred to as the "SeaHawk LDZ8 System") as described in subsequent sections of this specification to perform the functions of water leak detection, occupant notification, and event annunciation.
- 1.2 The contractor shall supply the complete SeaHawk LDZ8 System with components that shall include but not be limited to: a SeaHawk LDZ8 Zone Controller, SeaHawk Premium Water Leak Detection Cable, and optional installation accessories.
- 1.3 The SeaHawk LDZ8 System components listed above shall be manufactured by RLE Technologies, 208 Commerce Street, Fort Collins, CO 80524, U.S.A. Tel (970) 484-6510, Fax (970) 484-6650, URL: www.rletech.com
- 1.4 The manufacturer shall warrant the SeaHawk LDZ8 System against defects in materials and workmanship for a period of twelve (12) months from the date of shipment. This warranty shall be limited to parts and labor to repair or replace the system if it is found to be defective. To ensure warranty coverage, all installation and other instructions must be followed properly. All installation and setup work must be performed by qualified personnel who are knowledgeable of the equipment and aware of appropriate safety, wiring, and other applicable practices.
- 1.5 The contractor shall submit copies of all applicable drawings, specifications, datasheets and user guides.
- 1.6 All materials and equipment used for this project shall be new and unused.

2. CODES/STANDARDS COMPLIANCE

- 2.1 The SeaHawk LDZ8 System shall have the following listings and approvals for international standards specifying general safety requirements for electrical equipment intended for professional, industrial process, and educational use:
 - 2.1.1 FCC Part 15 Class B / Canadian I-CES-003
 - 2.1.2 UL508A / CUL508A
 - 2.1.3 CL2P/CMP per UL STD E162948 (SeaHawk Premium Water Leak Detection Cable)

3. SYSTEM DESCRIPTION

- 3.1 The SeaHawk LDZ8 System shall consist of the SeaHawk LDZ8 Zone Controller and eight (8) water leak detection zones, each with the requisite length of SeaHawk Premium Water Leak Detection Cable. For every zone, the LDZ8 Controller shall be capable of detecting the presence of water or other conductive liquids along the length of the Water Leak Detection Cable connected to it. When the SeaHawk Premium Water Leak Detection Cable contacts water or another conductive liquid, the SeaHawk LDZ8 Zone Controller shall generate audible and visual annunciation.

4. COMPONENT DESCRIPTION

- 4.1 SEAHAWK LDZ8 ZONE CONTROLLER
 - 4.1.1 The SeaHawk LDZ8 Zone Controller shall be constructed as a stand-alone unit suitable for surface mounting and shall be housed in a metal NEMA 1 enclosure.
 - 4.1.2 The overall size of the LDZ8 Controller shall be 12"W x 14"H x 4"D with weight equal to 12 lbs. (5.45kg)
 - 4.1.3 The LDZ8 Controller shall be suitable for universal voltage input and shall operate on 85-264VAC, 50/60 Hz, single-phase power supply.
 - 4.1.4 The SeaHawk LDZ8 Zone Controller shall be suitable for operating at ambient temperatures between 32°F and 122°F (0°C and 50°C), relative humidity between 5% and 95%, non-condensing and a maximum altitude of 10,000 feet. The LDZ8 Controller shall be suitable for storage at temperatures between -4°F and 158°F (-20°C and 70°C).

- 4.1.5 The LDZ8 Controller shall be provided with a 15 foot (4.57m) long leader cable for each zone to facilitate remote mounting.
- 4.1.6 The LDZ8 Controller shall be capable of monitoring up to eight (8) independent zones, each with 1,000 feet (304.8 m) of SeaHawk Premium Water Leak Detection Cable. The LDZ8 Controller shall have a leak detection response time of less than 20 seconds.
- 4.1.7 The LDZ8 Controller shall include 1 Form C Leak Relay, 1 Form C Cable Fault Relay and 1 Form C Summary Alarm Relay with contacts rated at 1A at 24VDC, 0.5A resistive at 120VAC. The Leak Relay shall transfer when a leak is detected while the Cable Fault Relay shall transfer when a cable fault is detected. The Summary Alarm Relay shall transfer on both conditions. All relays shall be configurable via the RS-232 configuration port to be latched or non-latched and supervised or non-supervised.
- 4.1.8 The LDZ8 Controller shall continuously monitor each zone of SeaHawk Premium Water Leak Detection Cable connected to it for contact with water and/or other conductive liquids. If a conductive liquid comes in contact with the Water Leak Detection Cable, the LDZ8 Controller shall sound an audible alarm, illuminate the appropriate zone leak detected LED in red, activate the leak relay outputs, activate the summary alarm relay outputs and create an entry in the alarm log.
- 4.1.9 The SeaHawk LDZ8 Zone Controller shall continuously supervise the electrical integrity of the SeaHawk Premium Water Leak Detection Cable. In case of a cable break, the LDZ8 Controller shall sound an audible alarm, illuminate the appropriate zone cable fault LED in amber, activate the cable fault relay outputs, activate the summary alarm relay outputs and create an entry in the alarm log.
- 4.1.10 The SeaHawk LDZ8 Zone Controller shall be capable of Modbus communications via a RS-485 serial port. The LDZ8 Controller shall also include a RS-232 serial configuration port to interface with a PC allowing access to all functions and diagnostics within the system. Baud rates shall be user selectable. All configuration menus shall be password protected.
- 4.1.11 The SeaHawk LDZ8 Zone Controller shall have the following indicators, switches and/or buttons:
- A.) One green power (on/off) LED.
 - B.) Eight amber cable fault LEDs – one for each zone.
 - C.) Eight red leak detected LEDs – one set for each zone.
 - D.) One reset, one quiet and one test push buttons.
 - E.) One audible alarm with an 85 DBA sound output at 2 feet (0.6 m) which shall sound for cable fault and leak detected conditions and shall be silenced by the depression of the quiet push button, or via the RS-232 or the Modbus (RS-485) interface. The audible alarm shall be programmable to re-sound after a time period of 0 to 9,999 minutes.
- 4.1.12 The LDZ8 Controller shall provide the means to adjust the leak detection sensitivity settings per zone. A password shall be required to perform any such system calibration.
- 4.1.13 The LDZ8 Controller shall maintain a trend log listing the cable current level in each zone, every day for the last 128 days (recorded at 24 hour intervals). An alarm log shall also provide a record of the last 100 alarms. (First In, First Out)
- 4.1.14 The LDZ8 Controller shall use a real-time clock for time and date stamping of alarm and trend log entries. The date and time shall be set through the RS-232 serial port.
- 4.2 SEAHAWK PREMIUM WATER LEAK DETECTION CABLE
- 4.2.1 The SeaHawk Premium Water Leak Detection Cable shall detect the presence of water and other conductive liquids and shall be constructed of two sensing wires and two insulated wires with an abrasion resistant, non-conductive polymer core. The Water Leak Detection Cable shall be fast drying and highly flexible allowing for small bend radii. Braided mesh type cables and cables containing conductive polymers in their construction are not acceptable.
- 4.2.2 The SeaHawk Premium Water Leak Detection Cable shall be suitable for operating at ambient temperatures between 32°F and 167°F (0°C and 75°C), relative humidity between 5% and 95%, non-condensing and a maximum altitude of 10,000 feet. The Water Leak Detection Cable shall be suitable for storage at temperatures between -22°F and 185°F (-30°C and 85°C) and shall be plenum rated to CL2P per UL.

- 4.2.3 The diameter of the SeaHawk Premium Water Leak Detection Cable shall not exceed 0.25" (6.35 mm). The Water Leak Detection Cable shall have a sheer strength greater than 180 lbs. (81.65kg), a cut through resistance greater than 40 lbs. (18.14kg) with a 0.005" blade and an abrasion resistance greater than 60 cycles per UL 719.
- 4.2.4 To interconnect sections of the SeaHawk Premium Water Leak Detection Cable, the contractor shall use RLE Technologies SeaHawk Non-Sensing Cable. The SeaHawk Premium Water Leak Detection Cable and SeaHawk Non-Sensing Cable shall be available in standard lengths of 10, 25, 50 and 100 feet (3.05, 7.62, 15.24 and 30.48 meters, respectively) with pre-tested and pre-installed mating end connectors.
- 4.2.5 Water Leak Detection Cable Installation
- A.) The SeaHawk Premium Water Leak Detection Cable shall be installed after all piping, air conditioning, raised flooring, and other mechanical work has been completed. The cable path shall remain clear of water, oil, solder, flux, dirt or other materials that may contaminate the Water Leak Detection Cable.
- B.) The Water Leak Detection Cable shall be secured to the floor using the manufacturer's recommended method of affixing J-Clips at approximately 3 foot (0.9m) intervals along the cable length. The self-adhesive J-Clips shall be available for purchase from RLE Technologies as an installation accessory in quantities of 10, 15 or 50 pieces.
- C.) The SeaHawk Premium Water Leak Detection Cable shall be installed beneath the raised floor, around the perimeter of all rooms at a maximum distance of 3 feet (0.9 m) from the outside wall. In addition, the Water Leak Detection Cable shall be laid in a serpentine pattern on 4 - 8 foot (1.2 – 2.4 m) minimum centers to protect interior areas and detect water from sources within the room such as air conditioning units, floor drains, and chillers. The Water Leak Detection Cable shall be installed under the center of floor tiles to facilitate access to, and visual location of leaks.
- D.) The SeaHawk Premium Water Leak Detection Cable shall be routed at a minimum distance of 6 feet (1.8m) beyond the perimeter of all air conditioning units. When installed around the perimeter of air conditioning units, J-Clips shall be placed every 18 inches (0.50m).

4.3 INSTALLATION ACCESSORIES

- 4.3.1 SeaHawk Non-Sensing Cable shall be available for purchase from RLE Technologies for use as a bridge between sections of SeaHawk Water Leak Detection Cable where water leak detection is not needed and to extend the control panel's leader cable to an area where water leak detection is needed. The SeaHawk Non-Sensing Cable shall be plenum rated to CL3P per UL and be suitable for operating at ambient temperatures between 32°F and 167°F (0°C and 75°C), relative humidity between 5% and 95%, non-condensing and a maximum altitude of 10,000 feet. The SeaHawk Non-Sensing Cable shall be suitable for storage at temperatures between -22°F and 185°F (-30°C and 85°C) and have a sheer strength greater than 180 lbs. (81.65kg), a cut through resistance greater than 40 lbs. (18.14kg) with a 0.005" (0.127mm) blade and an abrasion resistance greater than 60 cycles per UL 719.
- 4.3.2 J-Clips shall be the manufacturer's recommended cable installation method to secure the SeaHawk Premium Water Leak Detection Cable and SeaHawk Non-Sensing Cable to the floor. The self-adhesive J-Clips shall be available for purchase from RLE Technologies as an installation accessory in quantities of 10, 15 or 50 pieces.

5. SYSTEM COMMISSIONING AND MAINTENANCE

- 5.1 Upon completion of the system installation, the installer shall perform the following tests in the presence of the owner and shall provide the owner with a copy of the results:
- 5.1.1 Leak Detection Test for Each Zone
- A.) A clean wet cloth or paper towel shall be placed anywhere along cable length and the following observations shall be made:
- i.) *The appropriate zone leak detected LED shall illuminate red, the audible alarm shall sound and the leak and summary alarm relay shall activate.*
- ii.) *The leak shall be registered in the alarm log and shall be visible via the RS-232 and/or the Modbus (RS-485) ports.*
- iii.) *The System shall then be silenced and reset, and the test repeated for each zone.*

- B.) Following the last zone test, the System shall be silenced, reset and restored to normal operation.
- 5.1.2 Cable Supervision Test for Each Zone
- A.) The end-of-line terminator shall be removed from the end of the cable length and the following observations shall be made:
- i.) *The zone cable fault LED shall illuminate amber, the audible alarm shall sound and the cable fault and summary alarm relay shall activate.*
 - ii.) *The trouble shall be registered in the alarm log and shall be visible via the RS-232 and/or the Modbus (RS-485) ports.*
 - iii.) *The System shall then be silenced and reset, and the test repeated for each zone.*
- B.) Following the last zone test, the System shall then be silenced, reset and restored to normal operation.
- 5.2 The RLE Technologies Leak Detection System shall be maintained as recommended in the RLE Technologies' SeaHawk LDZ8 User Guide.