

OroliA S.A.S. - A Company of the OroliA Group

## INSTALLATION MANUAL USER MANUAL



## REMOTE CONTROL PANELS RC100 / RC110 / RC150

P/N: S1820513-03 / S1820513-06 / S1820513-07

**Users are kindly requested to notify Orolia S.A.S of any discrepancy,  
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## 1. Introduction

The instructions in this manual provide the information necessary for installation and operation with the RC100, RC110, RC150 remote control panels.

## 2. KANNAD ELTs System Presentation

KANNAD ELTs system is composed of:

1. an ELT transmitter ([Refer to B. Compatibility list, page 14](#)) and its mounting bracket;
2. a remote control panel;
3. an optional outside buzzer;
4. a DIN-12 connector (P/N S1820514-03) or programming dongle (P/N S1820514-01);
5. an outside antenna.

The transmitter and bracket are installed in the aircraft near the tail.

The remote control panel is installed in the cockpit and connected to the ELT with a 3 or 4-wire bundle (not supplied) according to the type of ELT ([Refer to B. Compatibility list, page 14](#)).

An additional 2-wire bundle is required for RC110 remote control panel kit.

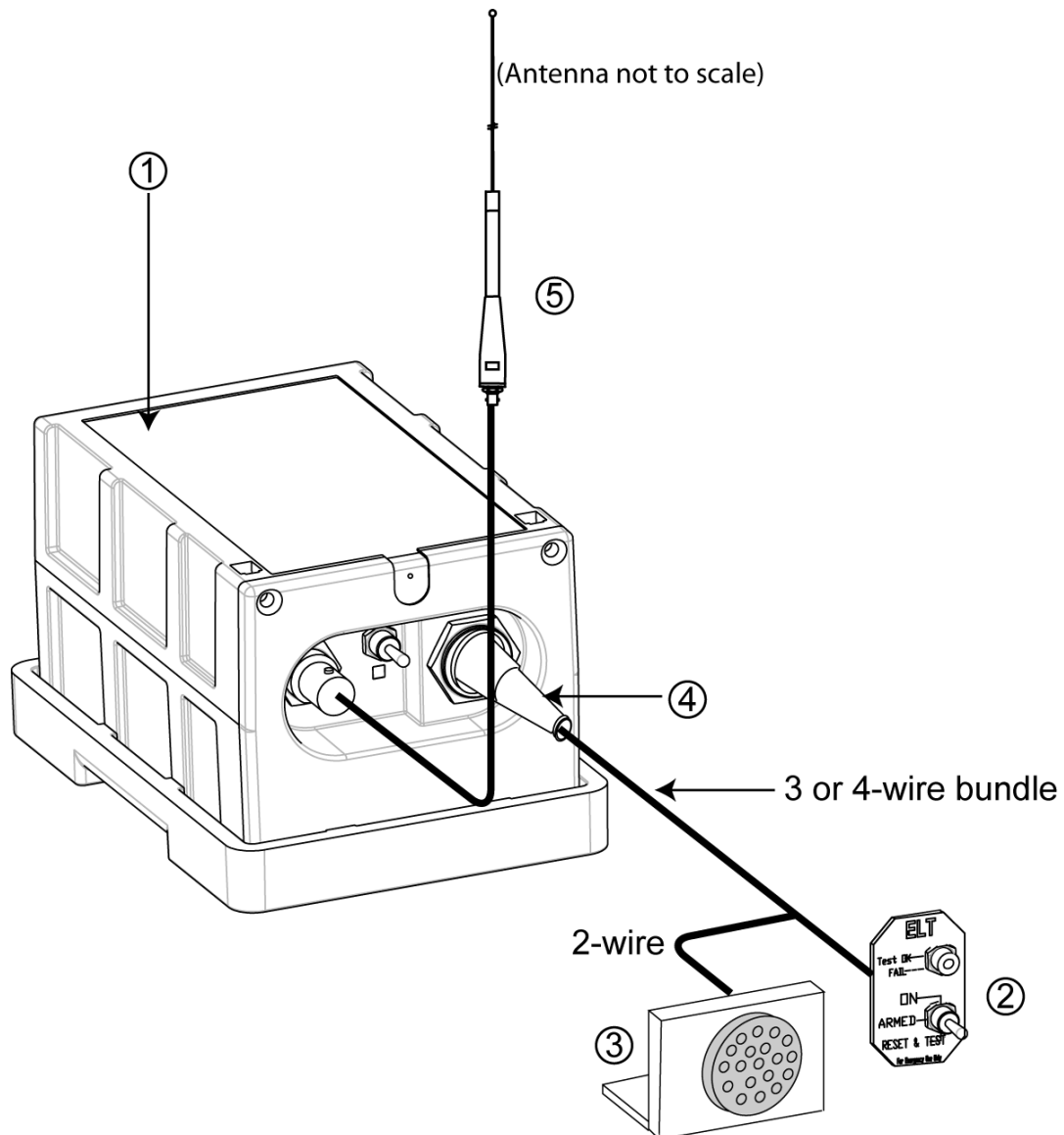
The optional buzzer can be installed either in the cockpit or in the landing gear well. The precise location shall be determined so that the buzzer can be heard with the aircraft engine(s) off.

The DIN-12 connector is used to connect the RCP bundle to the ELT, it may be replaced by a programming dongle fulfilling two functions:

- programming of ELT;
- connection of RCP bundle to ELT.

The outside antenna is mounted on the fuselage near the tail.

Figure 1: ELT system description



### 3. Description

#### A. General

The RC100 / 110 / 150 are ones of the smallest versions of remote control panels compatible with KANNAD ELTs. They are specially intended for general aviation or helicopters and can also be adapted for «cabin installations» or retrofits on board airliners thanks to their small dimensions.

The RC100 / 110 / 150 enable remote control of the primary functions of KANNAD ELTs (Manual activation, Reset and Test) as well as visual monitoring.

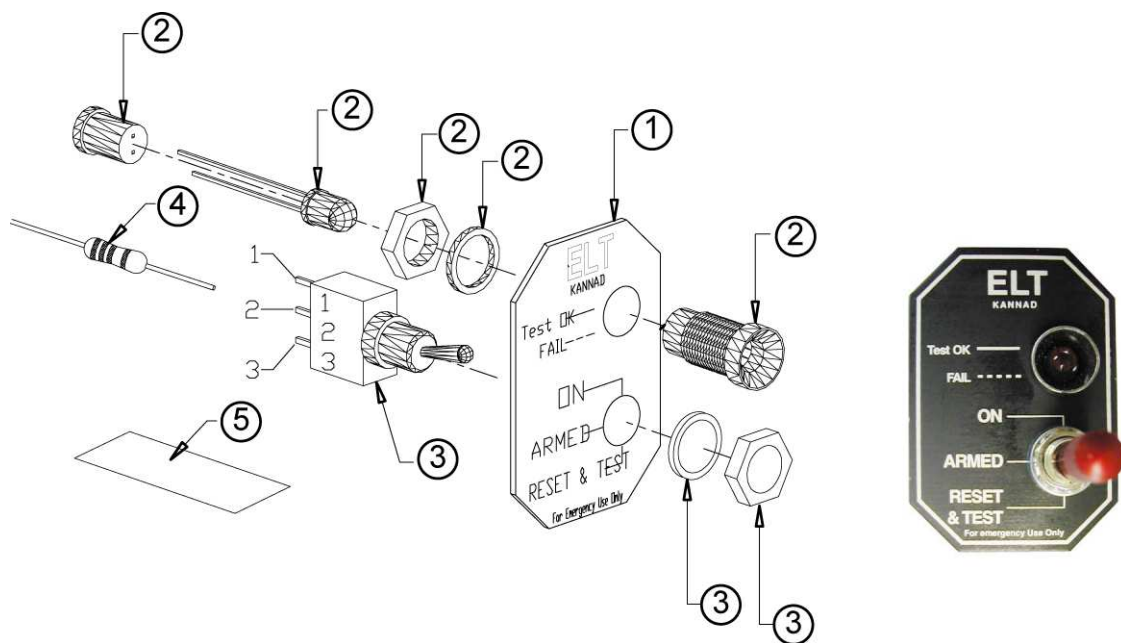
Note: RC110 is not compatible with KANNAD 406 COMPACT series (P/N S1840501-xx).

**B. Mechanical design**

The RC100 kit is composed of:

1. a self adhesive front plate (black with white markings);
2. a red led annunciator, led stand, led mounting, washer and nut;
3. a 3-position toggle switch with 2 locked positions and a momentary position plus its washer and nut;
4. a 7.5 Kohms resistor;
5. an identification label.

*Figure 2: RC100 Remote Control Panel Kit*



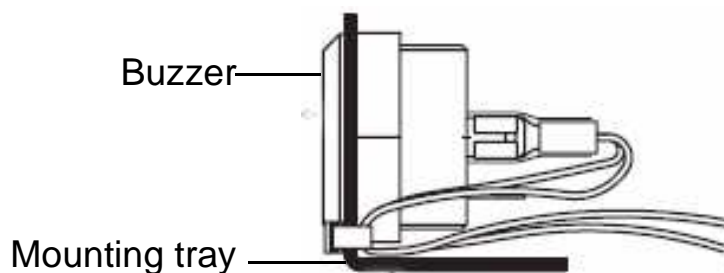
These components are delivered in a kit and must be assembled then directly mounted on the aircraft instrument panel.

The RC110 kit is composed of a RC100 kit and an Outside Buzzer kit.

The RC150 kit is a variant of the RC100 with a sturdier toggle switch.

The outside buzzer kit is composed of a buzzer and its mounting tray

*Figure 3: Outside buzzer kit*



## 4. RCP and buzzer installation

### A. Installation recommendations

The RCP shall be installed in the cockpit. The RCP shall be readily accessible from the pilot's normal seated position.

Connection of RC100 and RC150 requires a 3 or 4-wire bundle according to the ELT type. A pin-to-pin wiring has to be provided by the installer with AWG24 wires. Shielded cable is recommended.

Connection of RC110 requires a 3 or 4-wire bundle plus an additional 2-wire bundle (not supplied) for the outside buzzer.

The wires are soldered to the switch pins, a resistor and LED legs. This operation can be carried out before installation.

On the beacon side, the wires are soldered to a 12-pin plug that can be either a standard «DIN12 connector» (P/N S1820514-03) or a connector with an integrated serial memory module called «Programming Dongle» (P/N S1820514-01).

### B. RCP Installation procedure

1. Mount and install RCP:

- [Refer to \(1\) Mount RCP](#)

2. Connect RCP bundle to ELT according to type of ELT:

- For INTEGRA ELTs P/N S185X501-XX, [Refer to \(2\) Connection with COMPACT ELTs series and INTEGRA ELTs](#);
- For KANNAD 406 Compact series P/N S1840501-XX, [Refer to \(3\) Connection with ELT P/N S182X502-XX](#);
- For other KANNAD 406 ELTs P/N S182X502-XX, [Refer to \(3\) Connection with ELT P/N S182X502-XX](#).

(1) *Mount RCP*

([Refer to Figure 4: RCP mounting diagram](#))

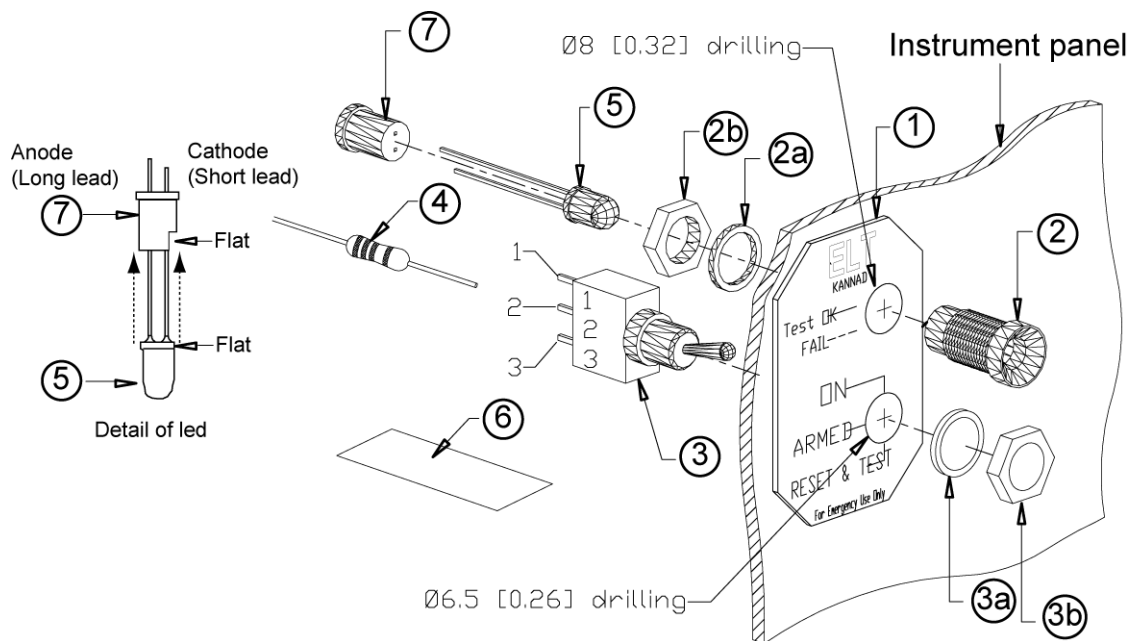
NOTE: Legs of LED, pins of switch and resistor must be protected by heat shrinkable sleeves.

- Place the front plate (1) on the instrument panel and use it as drilling mask or;
- Trace the centers of the two holes according to drilling mask supplied;
- Drill a hole  $\varnothing$  8 mm for the LED mounting (2) (top of the panel);
- Drill a hole  $\varnothing$ 6.5 mm (RC100 / 110) or  $\varnothing$ 12.5 mm (RC150) for the switch (3) (bottom of the panel);
- Tear off protection of front plate from self-adhesive film;



- Stick the front plate (1) onto the instrument panel;
- Install the LED mounting (2), with washer (2a) and nut (2b). Tighten nut;
- Solder the resistor (4) to pin 1 of Switch (3);
- Connect the anode (long leg) of LED (5) to pin 2 of switch (3);
- Connect wires to pin 2 of switch (3), the resistor (4) and the cathode (short leg) of LED (5);
- Stuck the «identification label» (6) on the cable bundle near the switch;
- Insert the LED into the LED stand (7) taking care the flat part of the LED be in front of the flat part of the LED stand;
- Insert LED (5) fitted with LED stand (7) inside the LED mounting (2);
- Install the switch (3) with washer (3a) and nut (3b), locked position upwards. Tighten nut.

*Figure 4: RCP mounting diagram*



(2) Connection with COMPACT ELTs series and INTEGRA ELTs

Refer to Figure 5: Wiring of 3 or 4-wire bundle between RCP and COMPACT or INTEGRA ELT

COMPACT ELTs series (P/N S1840501-XX) and INTEGRA ELTs (P/N S185X501-XX) require a 3-wire bundle. A 4-wire bundle is required when connected to an outside buzzer (INTEGRA ELTs only)

Solder the DIN12 connector or Programming Dongle on the other side of the bundle (pins A, G, J):

- Make a strap between pin 3 of switch (3) and resistor (4);
- Connect the wire from cathode (short leg) of LED to pin J of DIN12 connector;
- Connect the wire from resistor to pin A of DIN12 connector;
- Connect the wire from pin 2 of switch to pin G of DIN12 connector.

Perform an RCP test (Refer to D. RCP operational tests, page 12).

Connection with RC110

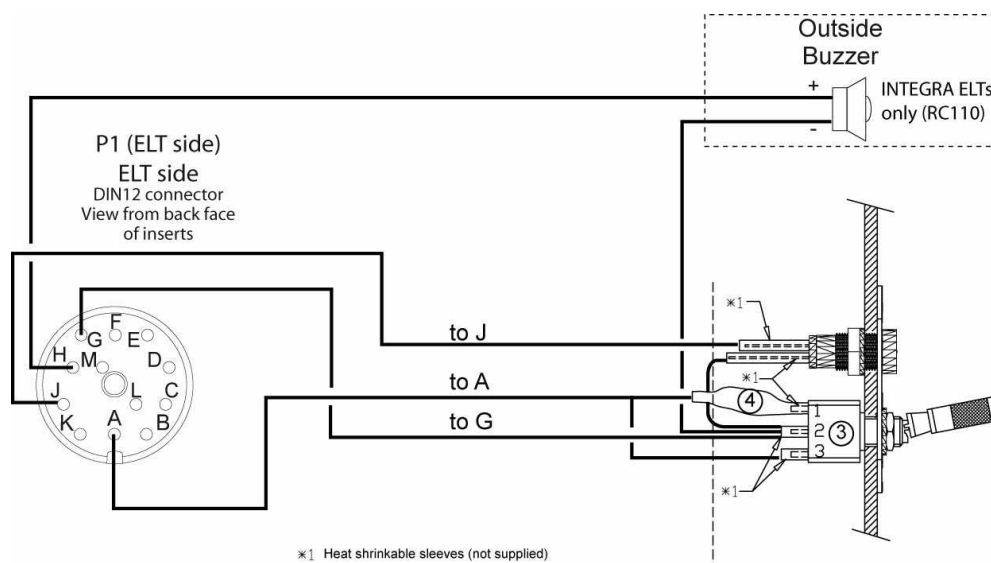
Note: Only for INTEGRA ELTs, RC110 cannot be connected to COMPACT ELTs series.

In addition to the connection described above:

- Connect a wire from - (minus) of outside buzzer to pin 2 of switch;
- Connect a wire from + (plus) of outside buzzer to pin H of DIN12 connector.

Install the buzzer (Refer to C. Buzzer installation, page 8)

Figure 5: Wiring of 3 or 4-wire bundle between RCP and COMPACT or INTEGRA ELT



(3) *Connection with ELT P/N S182X502-XX*

Refer to [Figure 6: Wiring of 4 or 5-wire bundle between RCP and ELT](#).

KANNAD 406 ELTs P/N S182X502-XX requires a 4-wire bundle when connected to RC100 or RC150. An additional wire is required when connected to RC110 for outside buzzer connection.

Connection with RC100 or RC150

Solder the DIN12 connector or Programming Dongle on the other side of the bundle (pins A, G, J, K):

- Connect the wire from cathode (short leg) of LED to pin J of DIN12 connector;
- Connect the wire from resistor to pin A of DIN12 connector;
- Connect the wire from pin 2 of switch to pin G of DIN12 connector;
- Connect the wire from pin 3 of switch to pin K of DIN 12connector;
- Connect the anode (long leg) of LED to pin 2 of switch.

Perform an RCP test ([Refer to D. RCP operational tests, page 12](#)).

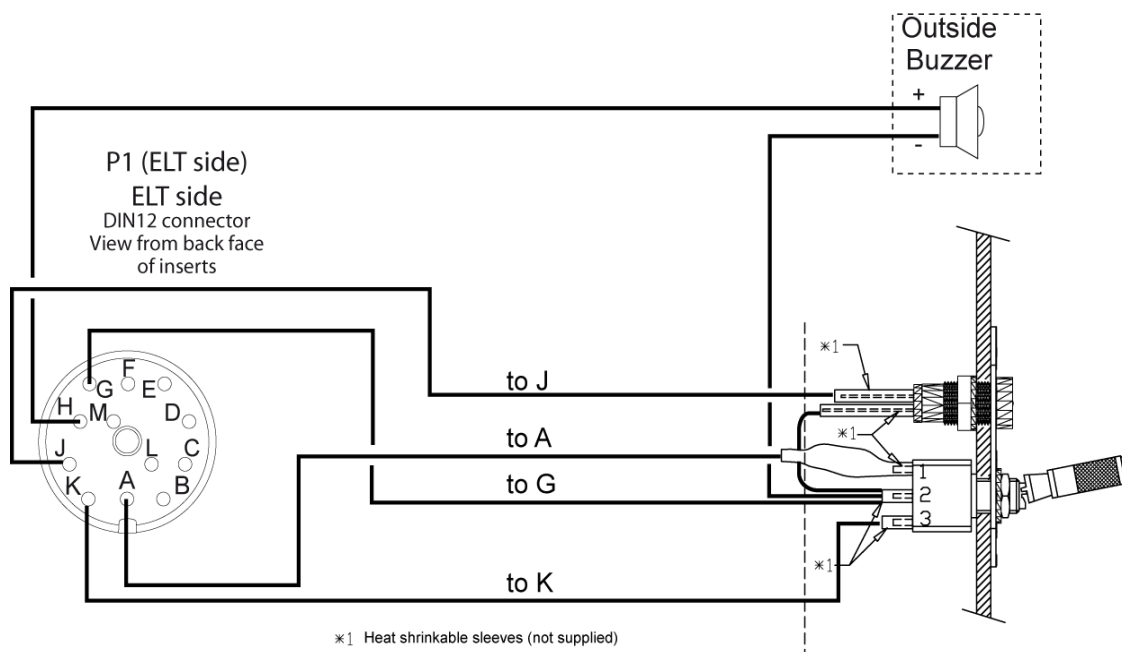
Connection with RC110

In addition to the connection described above:

- Connect a wire from - (minus) of outside buzzer to pin 2 of switch;
- Connect a wire from + (plus) of outside buzzer to pin H of DIN12 connector.

Install the buzzer ([Refer to C. Buzzer installation, page 8](#))

*Figure 6: Wiring of 4 or 5-wire bundle between RCP and ELT*



### C. Buzzer installation

Note: Only for RC110.

- Drill 3 x Ø 3mm holes according to drilling mask supplied;
- Fix the mounting tray with 3 M3 screws and nuts or with 3 rivets;
- Install the buzzer and tighten nut (maximum torque on plastic nut: 6 Nm);
- Crimp the Fast-On terminals on the wires;
- Wrap the Fast-On terminals with heat shrinkable sleeve (25 mm);
- Connect the buzzer (check polarity) according to wiring diagram;
- Tighten the wires to the mounting tray with the cable tie.

Perform an RCP test ([Refer to D. RCP operational tests, page 12](#)).

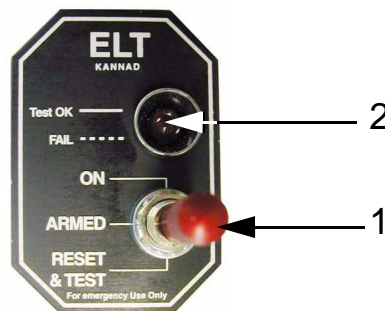
## 5. Working mode

### A. Controls

The following elements are to be found on the RC100 / 110 / 150 remote control panels:

1. a 3-position switch (ON, ARMED, RESET & TEST);
2. a red visual indicator.

Figure 7: RCP controls



The visual indicator gives an indication on the working mode of the beacon:

- After the self-test:
  - one long flash indicates that the system is operational and that no error were found;
  - a series of short flash indicates the test has failed.
- In operation mode:
  - periodic flashes during 121.5 / 243 transmissions;
  - long flash during 406 transmission.

## B. Working mode information

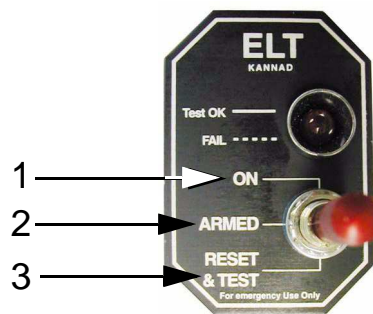
The RC100 / 110 / 150 remote control panels enable remote control and remote monitoring of the KANNAD ELTs **provided that the ELT switch is in armed position.**

### (1) Remote control

Remote control is done through a 3-position switch:

1. ON (transmission) enables manual activation of the ELT;
2. ARMED (stand by mode to enable automatic activation by the shock sensor of ELT) is an idle position. Unless there is an emergency, the switch must stay in this position.
3. RESET & TEST is used either to stop the ELT transmission if activated or to perform a self-test.

Figure 8: 3-position switch



As required by regulations, the OFF mode is not available on the remote control panel (RTCA DO 204 § 2.2.6.c, EUROCAE ED 62 § 2.5.1.1) but directly on the ELT itself by switching it in OFF position.

**Important notice: TEST/RESET (downwards) is a momentary position.**

Refer to operation manuals of the ELTs for precise information on these modes.

### (2) Monitoring

Monitoring is done through a visual indicator operating in the same way than those of the ELT:

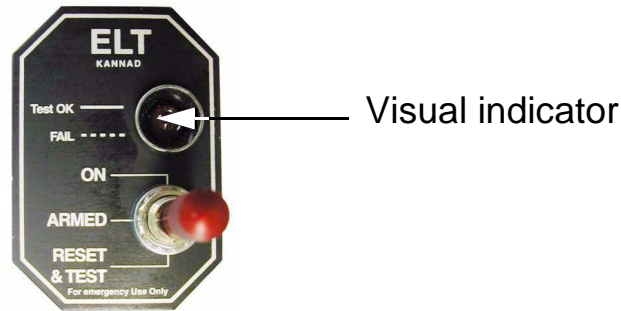
#### Transmission:

- 1 short flash every 0.5 or 0.7 seconds during ELT transmission on 121.5 and 243 MHz;
- 1 long flash during ELT transmission on 406 MHz.

#### Self-test:

(Refer to C. RESET & TEST, page 11).

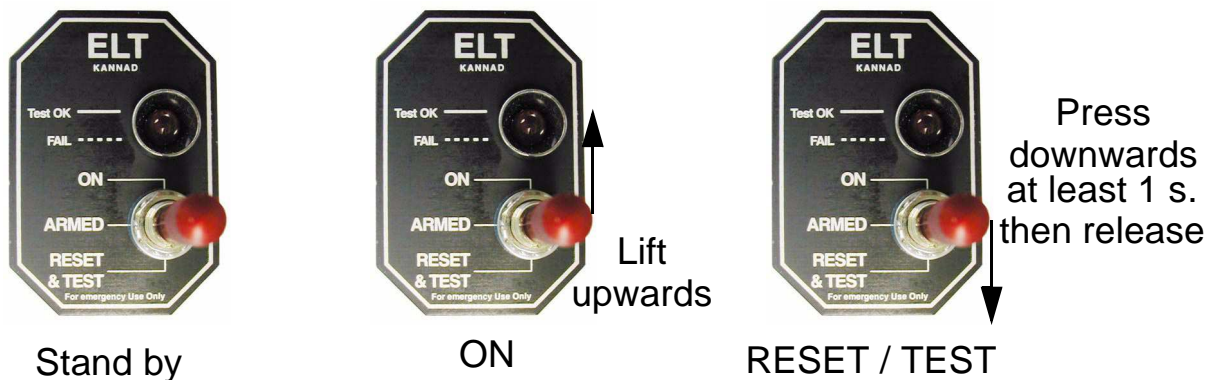
Figure 9: Monitoring



Refer to operation manual of the ELT for precise information on these modes.

## 6. Operation

Figure 10: Operating modes



### A. Stand by mode

The stand by mode is the ARMED position (idle position). The switch is in the middle position.

This mode is used to enable automatic activation by the shock sensor of the ELT **provided that the ELT switch is in armed position**. Unless there is an emergency, the switch must stay in this position.

### B. ON mode

This mode is used to activate manually the ELT. When this mode is selected, the ELT transmission is activated.

- Press the switch upwards.  
A self test is first performed ([Refer to C. RESET & TEST, page 11](#)).
- After the self-test (max. duration 15 seconds), the ELT starts to transmit:
  - The visual indicator is flashing in the same way than those of the ELT;
  - The buzzer of the ELT (and outside buzzer if connected) is activated.

### **C. RESET & TEST**

This mode is used either to perform a self-test or to stop the ELT transmission if activated.

#### **(1) Self test**

**IMPORTANT: Do not perform self-test without the antenna connected.**

**Self-test must be performed regularly by a pilot or maintenance personnel from the Remote Control Panel but should not be done more often than specified in ELT user manual.**

**However, each self-test consumes energy from the battery. Should self-tests be carried out more often than the maximum allowed, the battery life-time of the ELT might be shorter than specified.**

Press the switch downwards for at least 1 second then release it (the switch comes back in ARMED position):

The visual indicator is flashing as follows:

- one short flash at the beginning of the self-test sequence

After a few seconds, the test result is displayed with the visual indicator as follows:

- one long flash indicates the system is operational and that no error conditions were found;
- a series of short flashes indicates the test has failed:  
Refer to the ELT manual.

#### **(2) RESET**

This mode is used to stop the ELT when activated.

If the ELT is activated, the visual indicator of RCP is flashing in the same way than the one of the ELT:

- Press the switch downwards for at least 1 second then release it (the switch comes back in ARMED position):
- The visual indicator is OFF.

**Important notice: On ELTs P/N S182X502-XX, if a RESET is performed from RCP with the ELT manually activated (ON position on the front panel of the ELT), the ELT transmission will stop for max. 50 seconds then start again.**

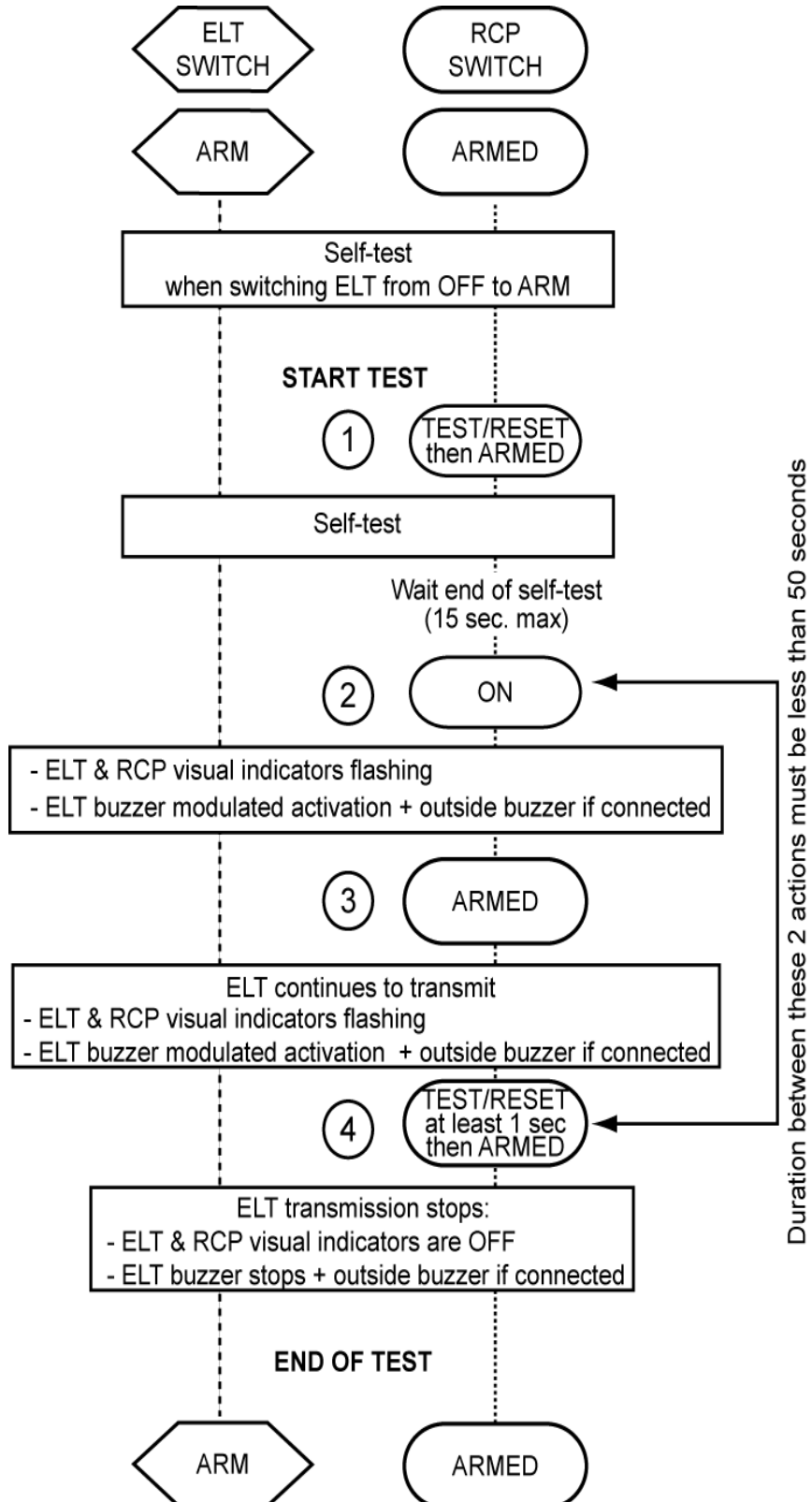
**In this case, on the RCP:**

- The led is off for max. 50 seconds then flash again.

**D. RCP operational tests**

Check correct operation of RCP visual indicator by switching ELT and RCP as described in the following sequential procedure, [Figure 11: RCP visual indicator operation](#) (with ELT switch in the «ARM» position).

*Figure 11: RCP visual indicator operation*





## 7. Technical characteristics and compatibility

### A. Technical characteristics

#### (1) Environmental characteristics

Dimensions:

- Kit RC100 / 110 / 150: 44 x 30 x 35 mm (1.73 x 1.18 x 1.38 in.).  
For Kit RC100 / 110, [Refer to A. RC100 / 110 Outline dimensions and drilling mask, page 15.](#)  
For Kit RC150, [Refer to B. RC150 Outline dimensions and drilling mask, page 16.](#)
- Outside buzzer: 56 x 46 x 44 mm (2.2 x 1.81 x 1.73 in.).  
[Refer to C. Outside buzzer, Outline dimensions, page 17.](#)

Weight:

- Kit RC100 / RC150: 13 g. (0.028lbs).
- Kit RC110: 20 g. (0.044 lbs).
- Outside buzzer: 40 g. (0.088 lbs).

Operating temperatures: -20°C to +55°C.

Storage temperatures: -55°C to +85°C.

#### (2) Electrical characteristics

3-position switch

- Type: ON / OFF / MOM.
- Contact type: Gold plate compatible with low current.

Visual indicator (Led)

- Type: bipolar.
- Color: red.
- Consumption: 20 mA@20 mcd (typical).

#### (3) Outside buzzer

- Type: piezzo electrical.
- Operating voltage: 5 to 35 V.
- Frequency: 3500 Hz  $\pm$  15%.
- Pulse rate: approx. 1 Hz.
- Operating current: 1.4 to 12.2 mA.
- Sound pressure: 86 db @ 1meter.

**B. Compatibility list**

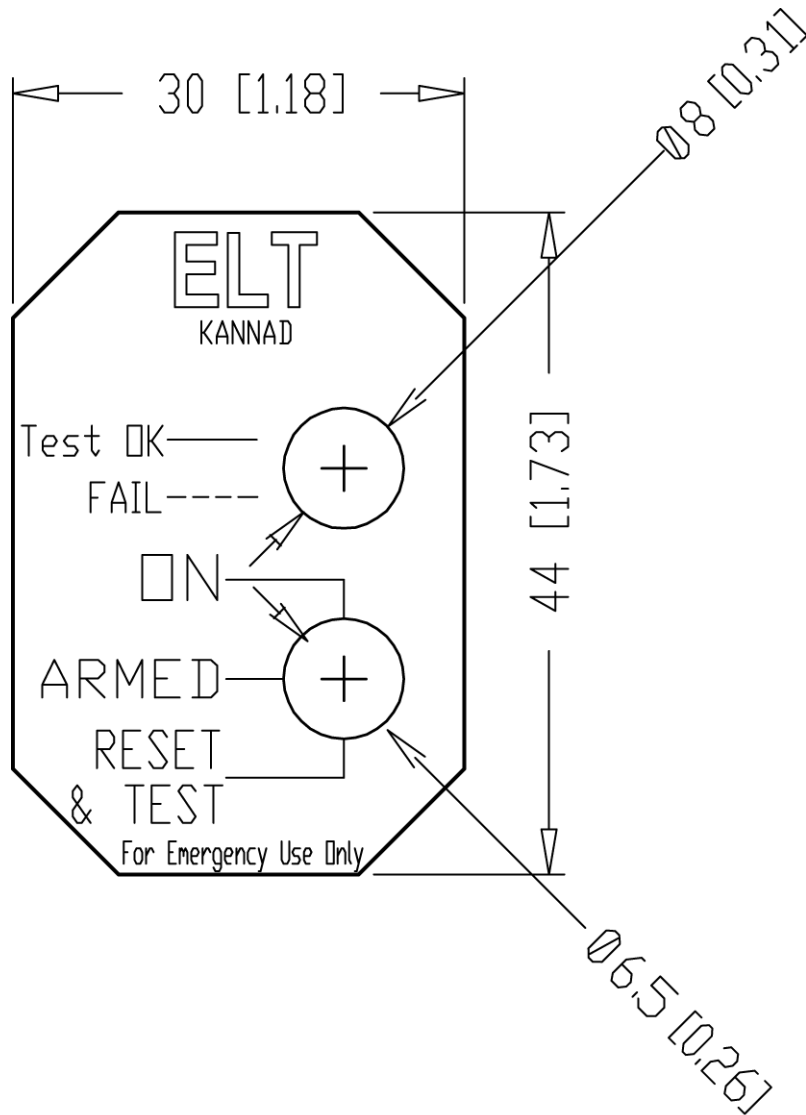
	RC100	RC110	RC150	Wires
S1820502-02 KANNAD 406 AP	YES	YES <sup>(1)</sup>	YES	4 <sup>(1)</sup>
S1820502-04 KANNAD 406 AP-H	YES	YES <sup>(1)</sup>	YES	4 <sup>(1)</sup>
S1821502-02 KANNAD 406 AF	YES	YES <sup>(1)</sup>	YES	4 <sup>(1)</sup>
S1821502-06 KANNAD 406 AF (6D)	YES	YES <sup>(1)</sup>	YES	4 <sup>(1)</sup>
S1822502-02 KANNAD 406 AF-H	YES	YES <sup>(1)</sup>	YES	4 <sup>(1)</sup>
S1824502-02 KANNAD 121 AF	YES	YES <sup>(1)</sup>	YES	4 <sup>(1)</sup>
S1826502-02 KANNAD 121 AF-H	YES	YES <sup>(1)</sup>	YES	4 <sup>(1)</sup>
S1840501-01 KANNAD 406 AF-COMPACT	YES	NO	YES	3
S1840501-04 KANNAD 406 AF-COMPACT ER	YES	NO	YES	3
S1850501-01 AP INTEGRA (ER)	YES	YES <sup>(2)</sup>	YES	3 <sup>(2)</sup>
S1850501-02 AP INTEGRA	YES	YES <sup>(2)</sup>	YES	3 <sup>(2)</sup>
S1851501-01 AF INTEGRA (ER)	YES	YES <sup>(2)</sup>	YES	3 <sup>(2)</sup>
S1851501-02 AF INTEGRA	YES	YES <sup>(2)</sup>	YES	3 <sup>(2)</sup>
S1852501-01 AF-H INTEGRA (ER)	YES	YES <sup>(2)</sup>	YES	3 <sup>(2)</sup>
S1852501-02 AF-H INTEGRA	YES	YES <sup>(2)</sup>	YES	3 <sup>(2)</sup>
S1854501-01 AP-H INTEGRA (ER)	YES	YES <sup>(2)</sup>	YES	3 <sup>(2)</sup>
S1854501-02 AP-H INTEGRA	YES	YES <sup>(2)</sup>	YES	3 <sup>(2)</sup>

Note: (1) 6 wires are required for RC110

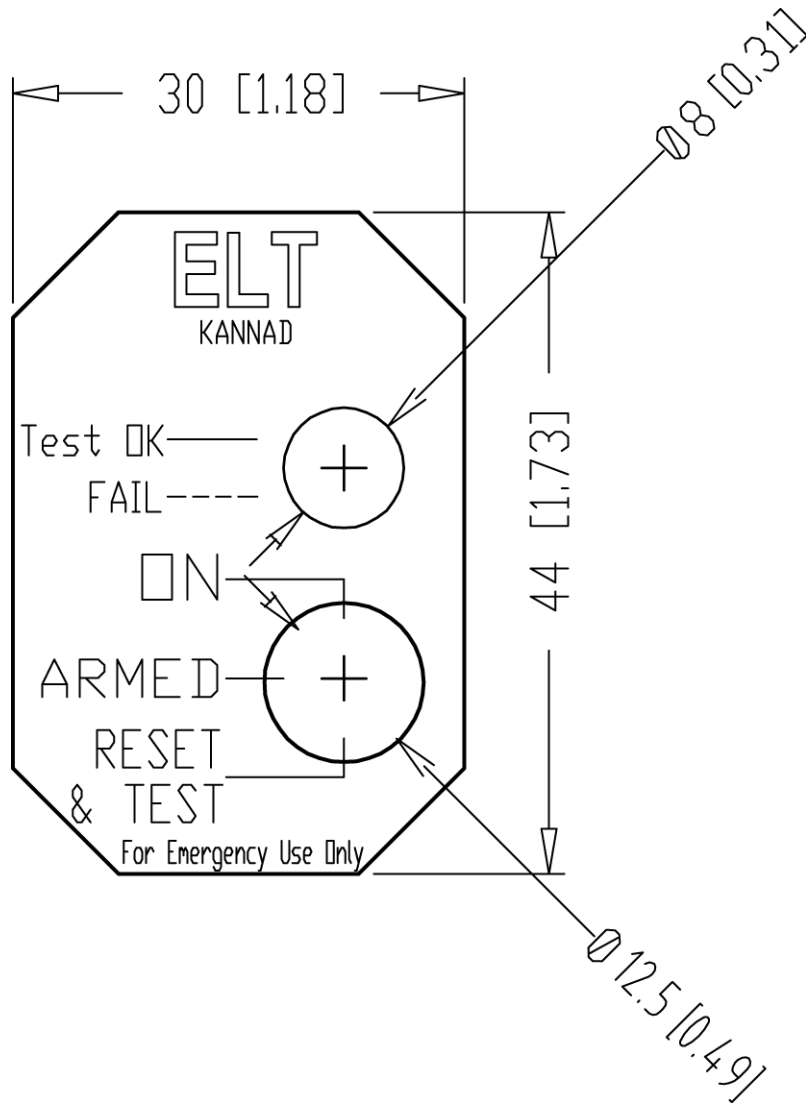
(2) 5 wires are required for RC110

### 8. Schematics and diagrams

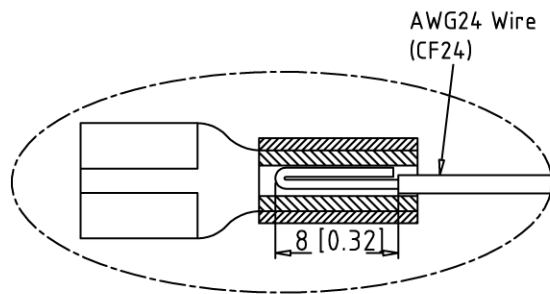
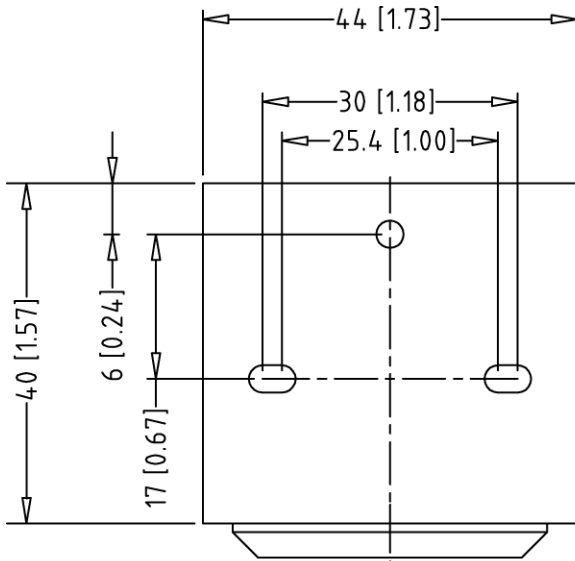
#### A. RC100 / 110 Outline dimensions and drilling mask



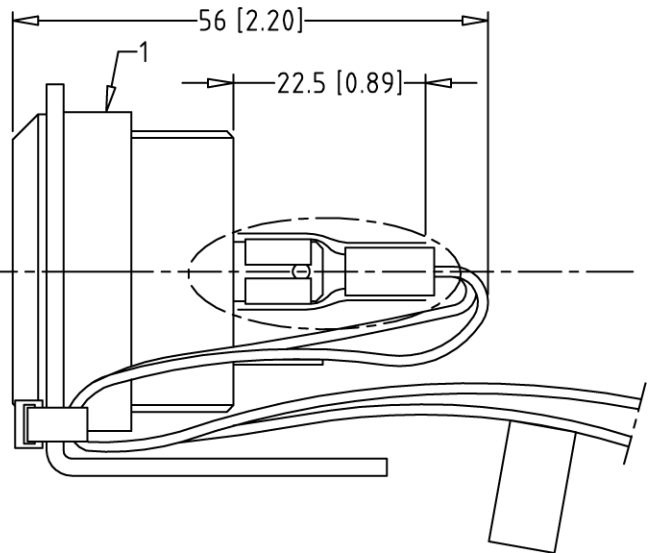
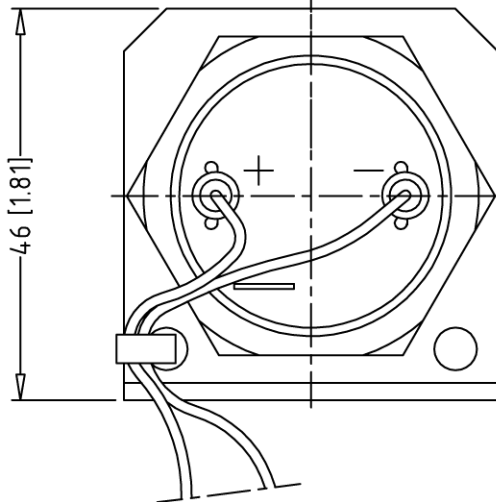
**B. RC150 Outline dimensions and drilling mask**



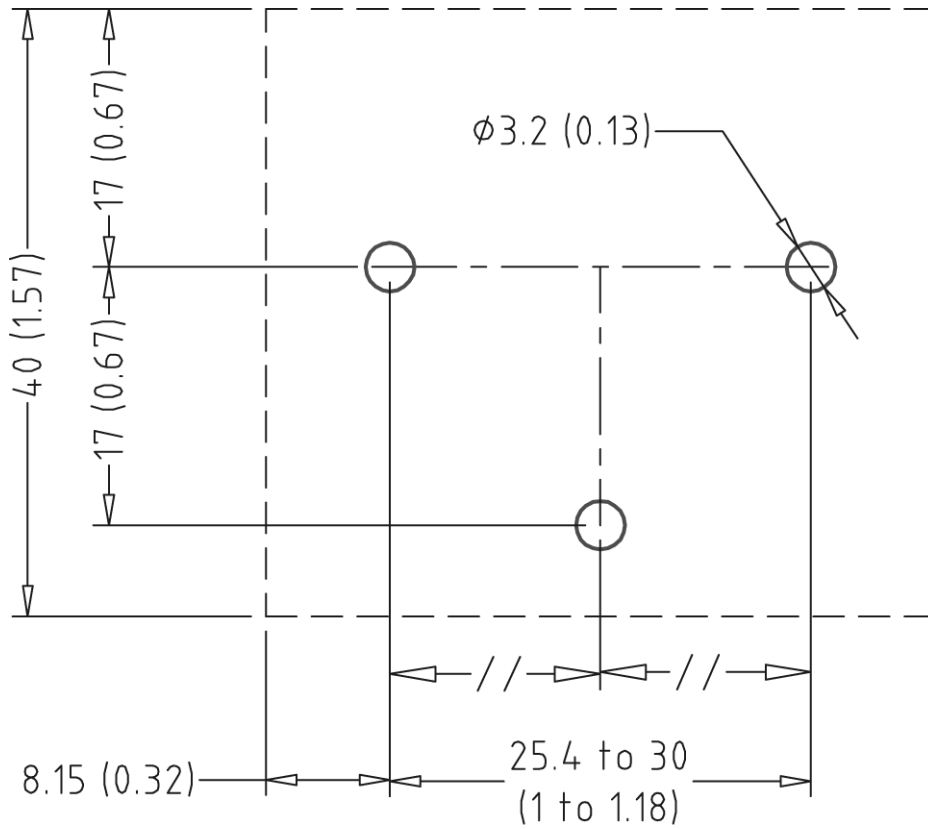
**C. Outside buzzer, Outline dimensions**



Remark: clip for wire size from 0.3 to 1.5mm<sup>2</sup>

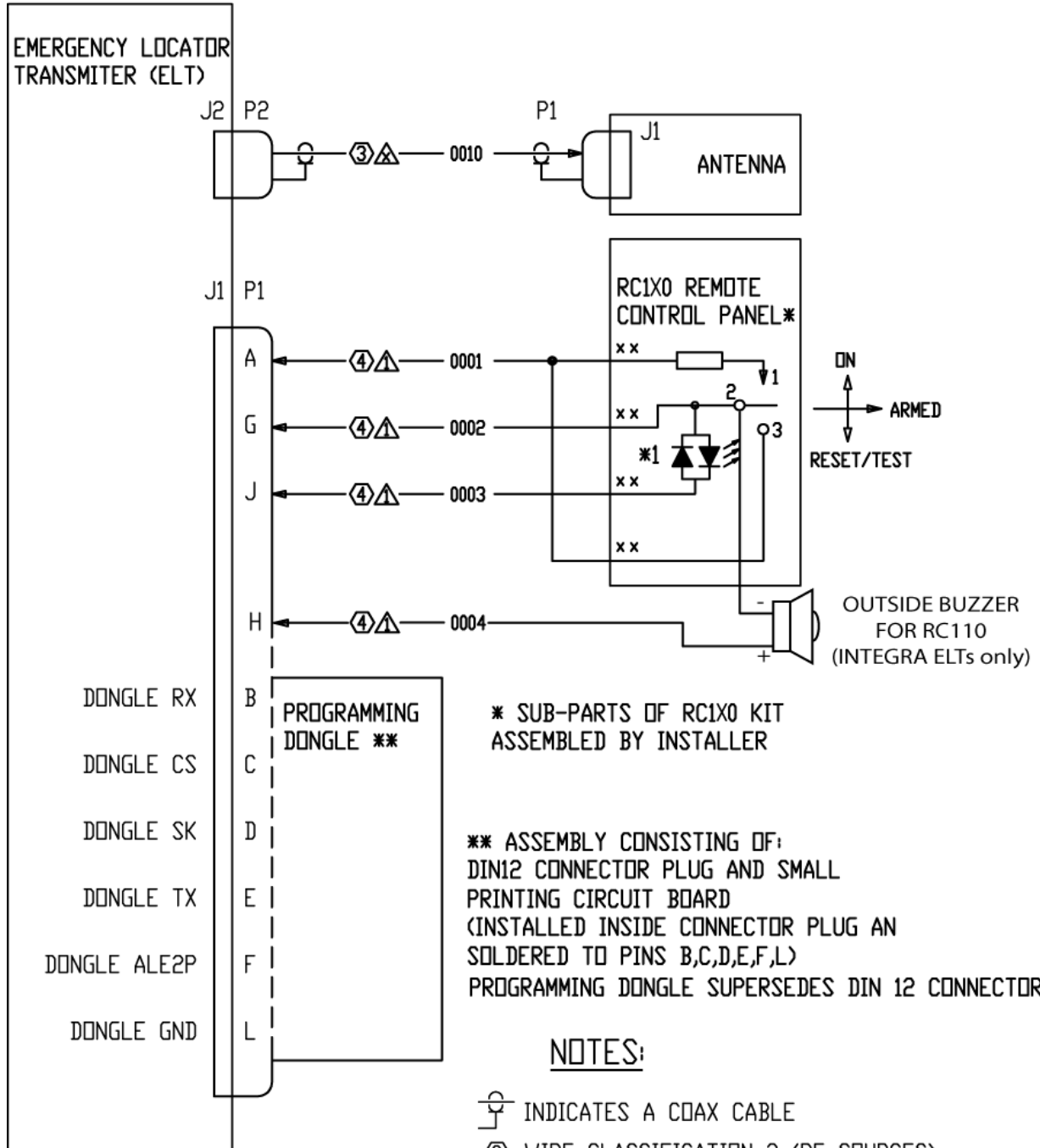


**D. Outside buzzer drilling mask**



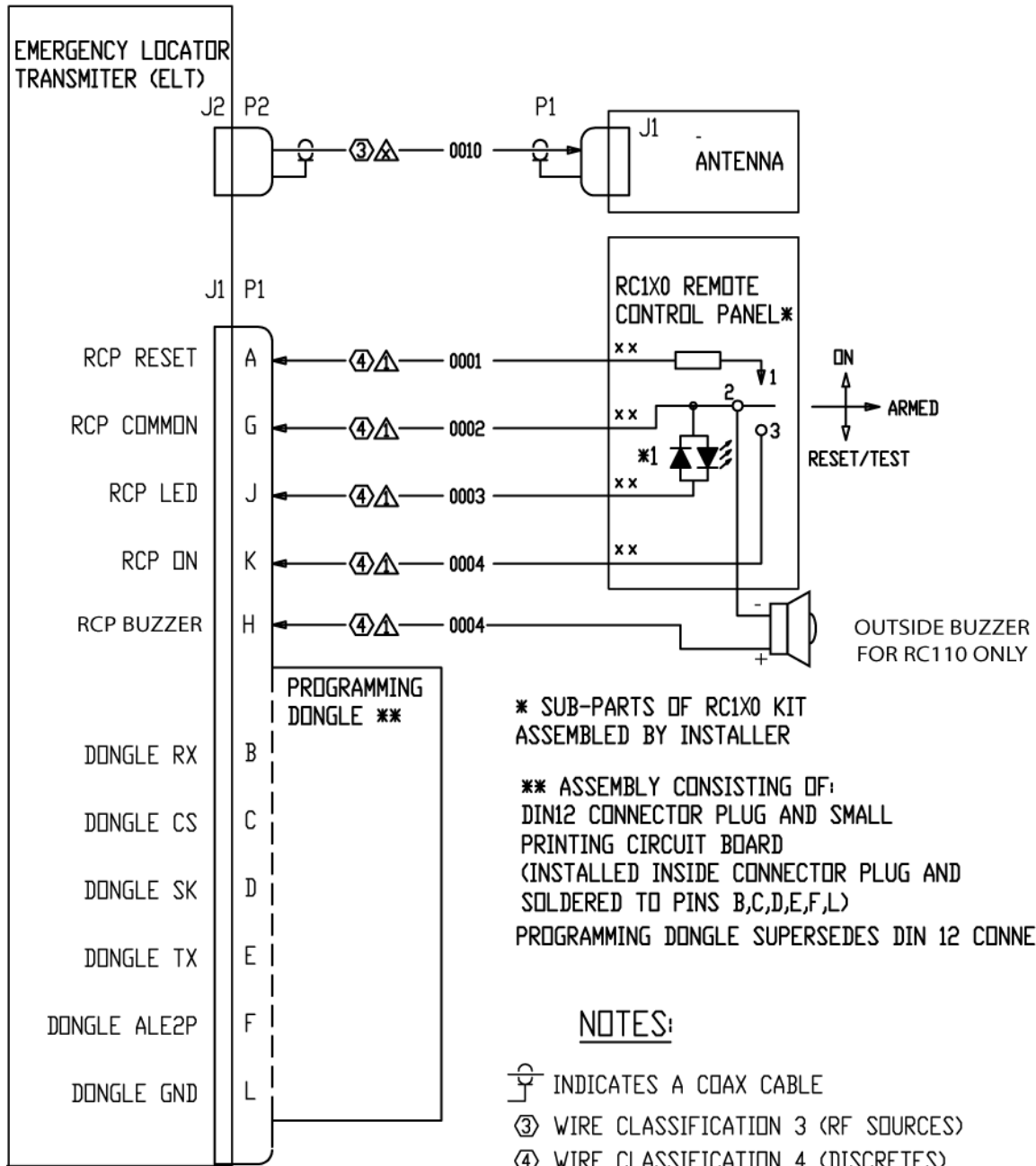
**E. RC100 / 110 / 150 Wiring with ELTs S1840501-XX and S185X501-XX**

**CAUTION: Wiring only used for COMPACT ELTs S1840501-XX and INTEGRA ELTs S185X501-XX**



**F. RC100 / 110 / 150 Wiring with ELT S182X502-XX**

**CAUTION:** Wiring only used for KANNAD ELTS S182X502-XX





**NOTE**

**NOTE**



# kannad aviation

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