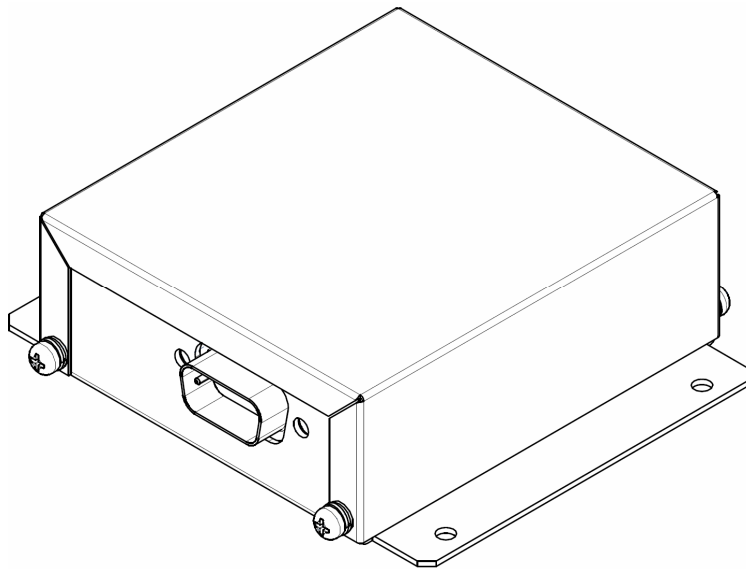


# Remote Compass



## Installation Manual



P/N: TLX-6551-DI-001\_PrB

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## 2 General description


### 2.1 General Information


TL electronic's remote compass module enables magnetic heading to be sensed in an area of the aircraft where magnetic interference is minimal. Positioning is critical, so the instructions in the installation guide should be closely adhered to. Following calibration, the remote compass will yield excellent results with accuracy within a couple of degrees.

### 2.2 Limited Warranty

This manual contains important information that may affect the safety of the pilot, passengers, aircraft, the operation of the system or time to install the system. You **MUST** read the manual prior to installing this system. Any deviation from these installation instructions is the sole responsibility of the installer and should be done in accordance with AC 43.13. Read the Warranty/Agreement. There is information in the Warranty/Agreement that may alter your decision to install this product. If you do not accept the terms of the Warranty/Agreement, do not install this product. This product may be returned for a refund. Contact TL elektronik Inc. for details.

 **WARNING:** If the installer does not have the skills, knowledge, tools, equipment or facility, to perform and determine whether the installation of this product is safe, reliable and accurate and to determine whether this product is operating properly after installation, **DO NOT INSTALL THIS PRODUCT**. If the owner/pilot and/ or installer are unwilling to take the responsibility for the installation and operation of this product, **DO NOT INSTALL THIS PRODUCT**. This product may be returned for a refund. Contact TL elektronik Inc. for details.

 **NOTE:** By installing this product, the aircraft owner/pilot and installer agrees to hold TL-elektronic Inc. in no way responsible for monetary compensation, including punitive damages for any incident, harm and/or damage associated with this product. If you do not agree to the above, **DO NOT INSTALL THIS PRODUCT**. This product may be returned for a refund. Contact TL elektronik Inc. for details.

 **NOTE:** TL-elektronic Inc. is not liable or responsible for a pilot's action or any situation that results in personal injury, property damage, missed commitments, lack of use of an aircraft or any expenses incurred due to: product failure, inaccuracy in data provided, format issues, software bugs or problems, upgrade or customization issues, misinterpretation of data, calibration problems, installation issues (leaks, incorrect wiring, obstructions, damage to aircraft or components, incorrect installation of any parts, wrong parts, parts that

don't fit, etc.) or any other issues related to the installation or operation of this product. All of the above are solely the pilot's and/or installer's responsibility. The pilot must understand the operation of this product before flying the aircraft. The pilot will not allow anyone to operate the aircraft that does not know the operation of this product.

 **WARNING:** Do not install a non-certified Remote Compass in a certified aircraft.

### 3 Technical Specifications

#### Physical characteristic

|        |         |        |
|--------|---------|--------|
| Width  | 90 mm   | 3,543" |
| Height | 28,5 mm | 1,122" |
| Depth  | 76 mm   | 2,992" |

#### General Specifications

|                             |                              |
|-----------------------------|------------------------------|
| Operating Temperature Range | - 30°C to +70°C              |
| Humidity                    | 95% non-condensing           |
| Altitude Range              | 9750 metres max (32000 feet) |
| Power Range                 | 10.0 to 32.0 Volts           |
| Power Consumption           | 0.02 Ampere @ 14VDC          |
| Vibration                   | 5 to 500 Hz                  |

#### Communication

|         |          |
|---------|----------|
| CAN BUS | 250 kb/s |
|---------|----------|

#### Compass Function

|                    |   |
|--------------------|---|
| Field Range        | Total applied magnetic field $\pm 1$ gauss  |
| Heading Accuracy   | At level - 2 deg RMS                        |
|                    | $\pm 15^\circ$ tilt - 3 deg RMS             |
|                    | $\pm 60^\circ$ tilt - 4 deg RMS             |
| Heading Hysteresis | Output Data ( $1\sigma$ ) $\pm 0,3$ degress |

## 4 Installation Recommendations

### 4.1 Introduction

Careful planning and consideration are required to achieve the desired performance and reliability from the Remote Compass.

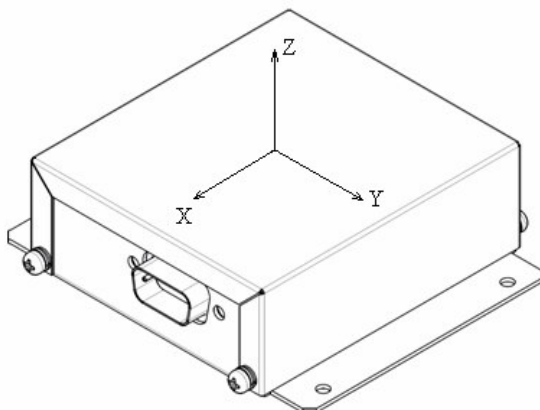
### 4.2 Location Consideration

Finding a good location for the Remote Compass module is critical to an accurate Integra heading display. Keep in mind that calibration can compensate for small static magnetic fields superimposed upon the earth's field; it cannot take into account dynamic effects like AC currents, non-constant DC currents and non-stationary ferrous material (e.g., an electric turn coordinator). Use the following suggestions to help you determine a good location for your Remote Compass.

- Keep the Remote Compass away from any magnetic field source (such as electronic equipment and current-carrying wires) and ferrous material. The Remote Compass needs to be mounted in a location as free from magnetic interference as possible. This means keeping the Remote Compass away from any ferrous bolts, nuts, and screws as well as from wires or devices carrying any significant current such as autopilot servos, strobe light wiring, or other electronics.
- Use a handheld compass to check the space surrounding your potential location to get a rough idea of its suitability. If the needle deviates significantly in a given area, choose another location in your aircraft for the Remote Compass.
- The Remote Compass can be mounted anywhere in the aircraft (away from magnetic interference). It does not need to be directly along the axis of the INTEGRA. It must be mounted in parallel with all aircraft axis. The Remote Compass can be mounted either a horizontal or vertical position but it is necessary to install the Remote Compass parallel to the aircraft axis.
- All mounting hardware needs to be made from non-ferrous material such as aluminum, plastic, or brass. Most stainless steel screws are magnetic and should not be used.

**NOTE:** It is necessary to install the Remote Compass in a horizontal position. We recommend using a water-level to install this hardware.

### 4.3 Mounting Position



| Axis | Position 1 | Position 2 | Position 3 |
|------|------------|------------|------------|
| X    | Front      | Front      | Up         |
| Y    | Left       | Down       | Right      |
| Z    | Up         | Left       | Front      |



## **4.4 Installation**

**⚡ WARNING:** Connect the cables into the connector.

The diagram below shows the outer dimensions of the Remote Compass. Use the dimensions to plan for the space required by the unit.

Take the following considerations into account when selecting a mounting location for the Remote Compass. Avoid placing the unit near heater vents or any source of extremely hot or cold air.

## **4.5 Recommended Wiring Practices**

For all electrical connections, use correct wiring techniques, taking care to properly insulate any exposed wire or cables. A short circuit between any of the wires may cause damage to the Remote Compass and/or your aircraft. Make all connections to your harness before connecting it into any of the components of the system. Do not make connections while the Remote Compass is turned on or power is applied to any point in the system. We recommend that all wire you use also meets 22 AWG Mil Standard MIL-W-22759/16. When using any pre-manufactured harness, verify that each pin has continuity with the expected wire on the wiring diagram. This test can be easily done with a multi-meter. When verifying harnesses. Use the wiring charts and diagrams in this guide. Use appropriate strain relief at all junctions between wires and connectors. We recommend that you secure all wires at regular intervals along wiring runs to accommodate vibration effects.

## **4.6 Harness Mating**

The following diagram on page 6-4 shows the connector on the Remote Compass. The connector is used for communication with the Integra.

## **4.7 Power Requirements**

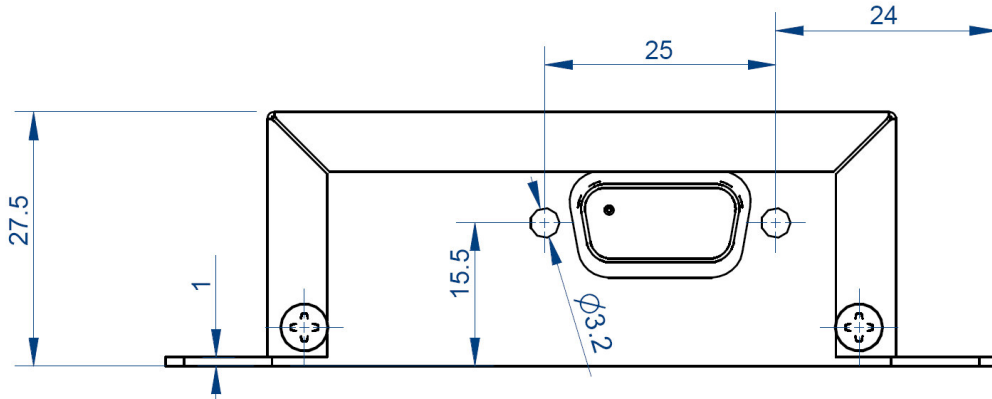
22 AWG wire is normally sufficient for the power supply and grounding, but we recommend that you consult a wire sizing chart and determine the size required for the wire routing in your particular aircraft. Ensure that the power supply include a circuit breaker

## **4.8 Wiring Overview**

The Remote Compass power requirement is as low as 1 amps in a 12/24 volt system. And therefore you can use a 1-amp circuit breaker. See the technical specification chart for details.

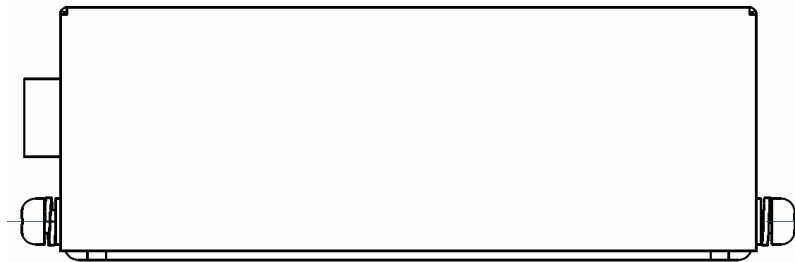
## 5 Mechanical Drawing

### 5.1 Front View

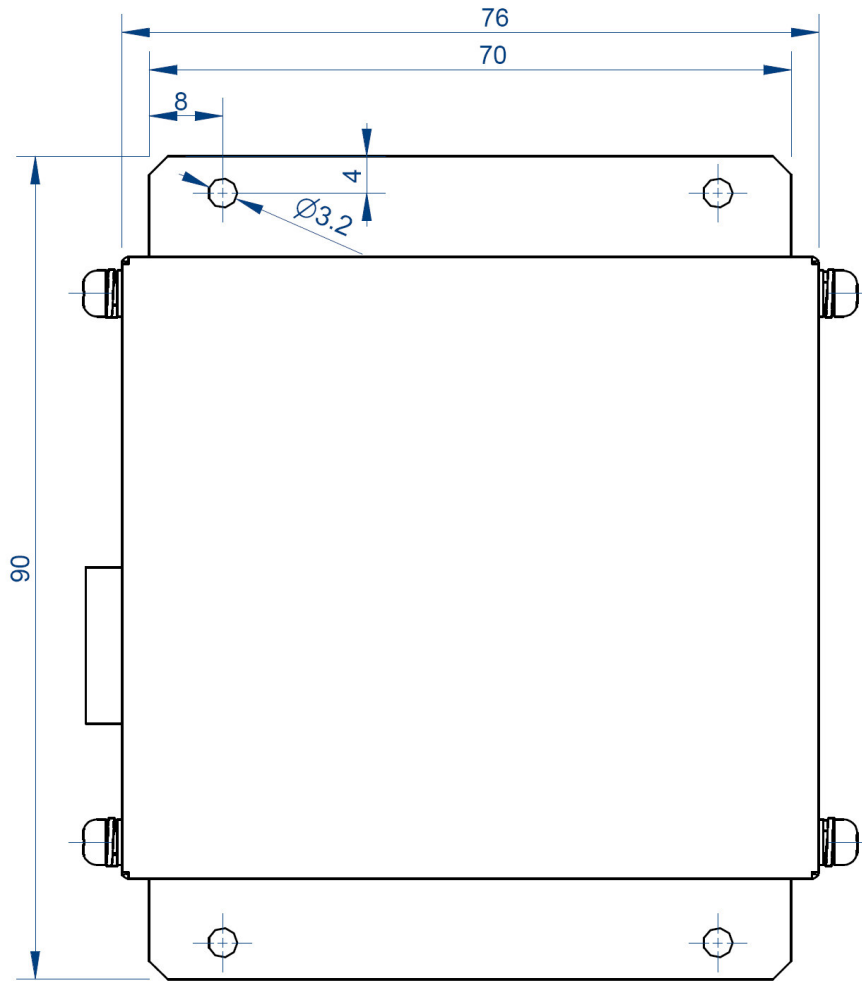


**NOTE:** All measurements are in millimeters

### 5.2 Side View



### 5.3 Top View

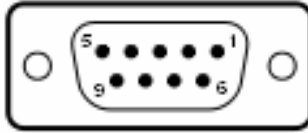


**NOTE:** All measurements are in millimeters

## 6 Electrical Drawing

### 6.1 PIN FUNCTION list

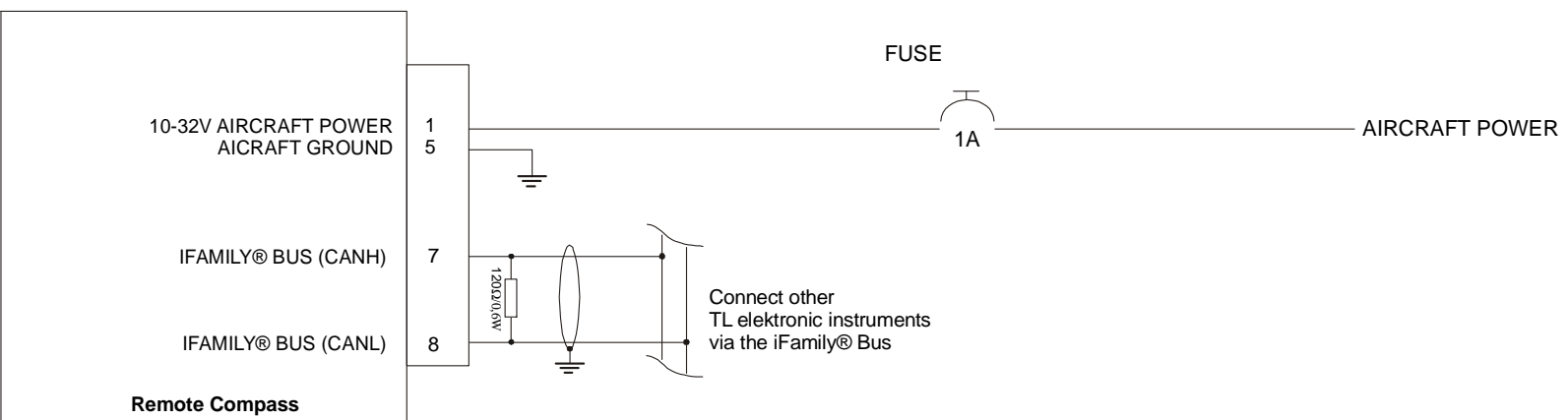
**Complementary accessory** – type: D-SUB9 – Female (connector to Remote Compass)



**Main Connector** – type: D-SUB9 – Male (connector on Remote Compass)

| Pin | Pin Name            | I/O    |
|-----|---------------------|--------|
| 1   | Aircraft Power      | In     |
| 2   | N/A                 | --     |
| 3   | N/A                 | --     |
| 4   | Do not connect!     | --     |
| 5   | Aircraft Ground     | --     |
| 6   | Do not connect!     | --     |
| 7   | iFamily® Bus (CANH) | In/Out |
| 8   | iFamily® Bus (CANL) | In/Out |
| 9   | Do not connect!     | --     |

### 6.1.1 Power Supply and Accessories Interconnection for CAN Bus



## 7 Conclusion

### **INSTRUCTIONS FOR RETURN**

If none of the above sections have helped resolve an ongoing issue with your Remote Compass, please call TL electronic at +420 495 48 23 93 to discuss the issue with Technical Support.

In case the issue cannot be resolved, we will provide you with an RMA number to use when shipping the Remote Compass to us. If your unit is still under warranty, the repairs will be performed and the Remote Compass will be returned promptly. If your warranty has expired, the TL electronic representative will make arrangements with you and make you fully aware of the costs before proceeding with the repair.

While TL electronic makes every effort to save and restore your unit's settings and calibrations, we cannot guarantee that this will happen. Please note that after you receive your unit back from TL electronic with a factory calibration, the heading display on the Remote Compass may be inaccurate once re-installed in your aircraft.