



ROJ-E317

**Integrated UHF Transmit/Receive
Multicoupler System**

Safety Instructions, Installation and Technical Notices

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1 Legal Disclaimers

1.1 Warranty

Your Rojone product is warranted for a period of 12 months against defects in material and workmanship affecting normal use EFFECTIVE FROM DATE OF PURCHASE.

Kindly retain your purchase receipt as proof of purchase, which must be presented if making a claim under the terms of this warranty.

This warranty does not cover damage, fault, failure or malfunction due to external causes, including accident, abuse, misuse, problems with electrical power, servicing not authorised by Rojone, usage and/or storage and/or installation not in accordance with product instructions, failure to perform required preventative maintenance, normal wear and tear, act of God, fire, flood, war, act of violence or any similar occurrence or any attempt by any person other than Rojone personnel or any person authorised by Rojone to adjust, repair or support the product and problems caused by use of parts and components not supplied by Rojone.

The benefits under our warranty are in addition to other rights and remedies of the purchaser under a law in relation to our goods to which the warranty relates.

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

Subject to the above, under the warranty during the twelve (12) month period beginning on the date of purchase, Rojone will repair or replace products returned to Rojone's facility. Rojone will return the repaired or replaced products to the purchaser freight pre-paid. At Rojone's sole discretion, Rojone may pay the purchaser the cost of replacing the products or the cost of having the products repaired.

Rojone does not give any warranty that products purchased under a contract other than a consumer contract are fit for any particular purpose.

The Rojone warranty is given in place of all excludable warranties, conditions, terms, undertakings and obligations implied by statute, common law, trade usage, course of dealing or otherwise including warranties or conditions of merchantability, fitness for purpose, satisfactory quality and/or compliance with description, all of which are excluded to the fullest extent permitted by law.

1.2 LIMITATION OF LIABILITY, DISCLAIMERS AND PRIVACY ISSUES

ROJONE WARRANTS THAT IT HAS USED ITS BEST ENDEAVOURS TO MANUFACTURE A PRODUCT FOR THE PURPOSE FOR WHICH IT IS INTENDED USING ITS KNOWLEDGE, KNOW HOW, EXPERTISE AND SKILL.



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ROJONE RESERVES THE RIGHT TO MAKE DESIGN CHANGES TO ANY ROJONE PRODUCT WITHOUT ANY INCURRING ANY OBLIGATION TO MAKE THE SAME CHANGES TO PREVIOUSLY PURCHASED UNITS.

HOWEVER, ROJONE ACCEPTS NO RESPONSIBILITY WHATSOEVER FOR ANY ACTIONS ON THE PART OF THE PURCHASER OR USER WHICH MAY RENDER THE EQUIPMENT INOPERATIVE DUE TO ANY FAILURE ON THE PART OF THE PURCHASER OR USER.

FURTHER, ROJONE ACCEPTS NO RESPONSIBILITY FOR ANY CONSEQUENTIAL EFFECTS OR BREACHES RESULTING FROM THE PURCHASER OR USER'S FAILURE TO USE THE EQUIPMENT FOR THE PURPOSE FOR WHICH IT IS INTENDED INCLUDING ANY BREACHES OF THE COMMON LAW AND ANY AND ALL LEGISLATION DEALING WITH PRIVACY AND SURVEILLANCE OF PERSONS INCLUDING EMPLOYEES AS IN EXISTENCE OR AMENDED FROM TIME TO TIME.

IN ADDITION, ROJONE DISCLOSES THAT THE IMPROPER USE OF THE EQUIPMENT MAY CONTRAVENE PARTS OF THE LEGISLATION REFERRED TO IN THE PREVIOUS PARAGRAPH. ACCORDINGLY, ROJONE ACCEPTS ABSOLUTELY NO RESPONSIBILITY FOR USAGE WHICH MAY FALL OUTSIDE OF THE SCOPE OF THE PROPER INTENDED PURPOSE OF THE EQUIPMENT.

PURCHASERS OF THE EQUIPMENT ARE CAUTIONED TO USE THE EQUIPMENT EXERCISING DILIGENCE AND CARE AT ALL TIMES. ROJONE ACCEPTS NO RESPONSIBILITY FOR ANY FAILURE OF THE PURCHASER OR USER'S DUTY OF CARE RESULTING FROM ANY IMPROPER OR UNAUTHORISED OR WRONGFUL USE OF THE EQUIPMENT.

ROJONE ACCEPTS NO RESPONSIBILITY FOR ANY DAMAGES (INCLUDING DIRECT OR CONSEQUENTIAL INJURY, LOSS OR DAMAGE, OR ANY PECUNIARY LOSS (EITHER IN CONTRACT OR IN TORT)) INCURRED THROUGH THE USE, OR THE INABILITY TO USE, OR THE IMPROPER USE OF ROJONE'S PRODUCTS AND THE PURCHASER'S RIGHTS ARE EXPRESSLY LIMITED TO THOSE SET OUT IN ROJONE'S TERMS AND CONDITIONS OF PURCHASE.



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2 Safety Information

2.1 Warnings and Cautions



A warning sign indicates a possible risk of serious injury or damage to property



A caution notice indicates a possible risk of damage to the equipment itself

2.2 Operation and Storage



Operating or storing the device outside the specified temperature range may damage the equipment. Consult the datasheet or the technical specifications in this document for the temperature limits of the equipment.



Do not open the lid of the product as this may void the warranty. Always operate the product with the lid closed. Electrical circuitry unprotected from water poses a safety risk.

2.3 Power Supply



Powering the equipment incorrectly or outside the specified operating voltages may damage the equipment. Consult the datasheet or the technical specifications in this document for the supply voltage range and limits of the equipment and the appropriate electrical connections.



Use a limited power source when operating the equipment to prevent the risk of fire in the event of a fault. Consult the datasheet or the technical specifications in this document for the supply voltage and current limits of the equipment.

2.4 Fan



Do not operate the equipment with the finger guard for the fan removed. If the finger guard becomes damaged then consult Rojone for replacement parts.



Do not put any body parts or objects between the fan blades as a serious injury may occur from the fan blades or a flying object.



Long hair, loose items of clothing such as ties and jewellery may become entangled with the fan and cause an injury. Do not wear any loose items of clothing or jewellery when operating the equipment and protect long hair with a hood.



Regularly inspect the fan blades to ensure they are undamaged and free of dust and rotate at the proper speed to provide sufficient airflow for cooling of the equipment.

2.5 Equipment Placement



The equipment is designed for indoor use only. Do not use equipment in environments where it may become exposed to water.



The equipment is designed for mounting in a 19 inch rack. Leave at least one rack unit (RU) space above and below the equipment for ventilation. In non-rack mounting applications, ensure there is at least 3 cm clearance on all sides when operating the equipment and that ventilation holes for the equipment and fan are not blocked.



If the equipment is used on a benchtop or other surface then ensure that the surface is level with no tilt and that the equipment will not slide or fall off the bench and cause an injury.

2.6 External Cabling Placement and Installation



If the insulation of any external cable is damaged and the conductors are exposed then the cable could potentially come in contact with other electrical equipment or hazards (such as lightning), which could then be further conducted to the equipment by the cable and lead to a safety risk. Regularly inspect any external cables and ensure the insulation is not damaged. Avoid placing any cables and installing them in ways where they may become damaged in normal use. Avoid using sharp bends or kinks in cables, placing cables near rotating parts, on sharp and abrasive surfaces, using cables where they may be subject to pressure between different objects such as doors and windows or in environments that contain corrosive fluids or gases, which may damage the protective insulation of a cable.

3 Product Description

The ROJ-E317 product is a high performance integrated UHF transmit/receive multi-coupler system in a single enclosure suitable for 19 inch rack mounting. The hybrid combining technology drastically reduces the size of an overall system compared to traditional cavity based and multi-section filter type systems while still maintaining high levels of performance. All loads for the combiners are included inside the equipment as well as a highly flexible, reliable and efficient DC-DC power supply.

Two simultaneous 50 W transmit signals (Tx1, Tx2) can be applied to the equipment and combined for transmission onto a single external antenna (consult Rojone for suitable antennas). The same antenna can be used to receive signals at different frequencies to the transmitted signals with the equipment coupling out four copies of the received signal (Rx1, Rx2, Rx3, Rx4).

This combined transmit/receive setup allows for easy integration with a wide range of communication systems and applications such as multichannel voice and data transmission systems, base stations and repeaters.

As most applications are unique, the ROJ-E317 product can be configured to your specific requirement by selecting the most appropriate Tx and Rx frequency range and output connector combination (SMA, BNC, MCX, TNC, N type). Please talk to us about your individual needs.



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4 Product and External Antenna Placement/Mounting

The way the product is mounted depends on the environment it may be used in.



Use correctly sized mounting screws if attaching to a structure. Refer to the mechanical diagrams in the datasheet for the correct screw size.



Avoid placing any external antenna near lightning rods. Recommendations for proper lightning protection (such as lightning rods, arrestors etc) are unique to most installations and should be made by qualified personnel.



Ensure that any antenna or cables used are placed so that they do not interfere with the operation of any safety equipment. Regularly inspect the antenna and cables for damage so that they do not pose a safety risk. Follow the instructions for external cabling placement in the 'Safety Information' section to ensure that cables will not be damaged and pose a safety risk.



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5 Product Care/Protection



Do not drop sharp or heavy objects on to the equipment. If the equipment becomes damaged, consult Rojone for replacement parts. Electrical circuitry unprotected from water poses a safety risk.



Use clean soap and water when cleaning the enclosure. Do not use abrasive elements or chemical compounds.



The radio frequency (RF) connectors can be cleaned using compressed air. If no compressed air is available, use a small amount of isopropyl alcohol on a foam swab or lint free cleaning cloth to clean the RF connectors. Use the alcohol in a well ventilated area and allow time for evaporation of fumes before reenergising the product.



Always wear protective eyewear when using compressed air.

6 Operating Instructions

1. Inspect the equipment, connectors and fan for any sign of damage and build up of dirt. Clean the connectors and fan if necessary. Do not use the equipment if the equipment, connectors or fan are damaged.
2. Ensure that any external cables used are free from damage and are connected to the correct locations. Ensure that the connectors are tightened to the torque levels specified for the connectors.



Do not overtighten the RF connectors as this may damage the RF connectors.

3. Terminate any unused Tx and Rx ports with 5 W 50 ohm terminations. (Rojone recommends the use of ROJ-LD111-01W).
4. Set the power supply to the correct operating voltage.
5. Turn on the equipment.
6. If the power LED and fan do not turn on then turn off the equipment and check for incorrect connections or improper supply voltage. In the event of any fault, contact Rojone and do not use the equipment.
7. Monitor the performance of the system when in use and ensure that it operates correctly.
8. Turn off the equipment when not in use.

7 Technical Specifications

7.1 Tx

Specification	Rating
Number of Channels	2
Connection Type	N-F with 12 to 15 lb-in (1.30 to 1.70 N-m) mating torque
Frequency	465 – 467 MHz
VSWR	< 1.35:1
Maximum Input Power	50 W (per channel)
Insertion Loss	6 dB typ
Isolation between Tx & Tx	> 60 dB
Isolation between Tx & Rx	> 80 dB

7.2 Rx

Specification	Rating
Number of Output Channels	4
Connection Type	N-F with 12 to 15 lb-in (1.30 to 1.70 N-m) mating torque
Frequency	455 – 457 MHz
VSWR	< 1.35:1
Maximum Input Power	+23 dBm
RF Gain	2 +/- 1 dB
Isolation between Rx & Rx	> 30 dB
Isolation between Rx & Tx	> 80 dB

7.3 Overall System

Specification	Rating
Impedance	50 Ω
Antenna Connection Type	N-F with 12 to 15 lb-in (1.30 to 1.70 N-m) mating torque
Supply Voltage	18 to 28 Vdc
Operating Current	< 125 mA
Temperature Range	0 to +50 °C
Size	132.56 x 482.6 x 432 mm