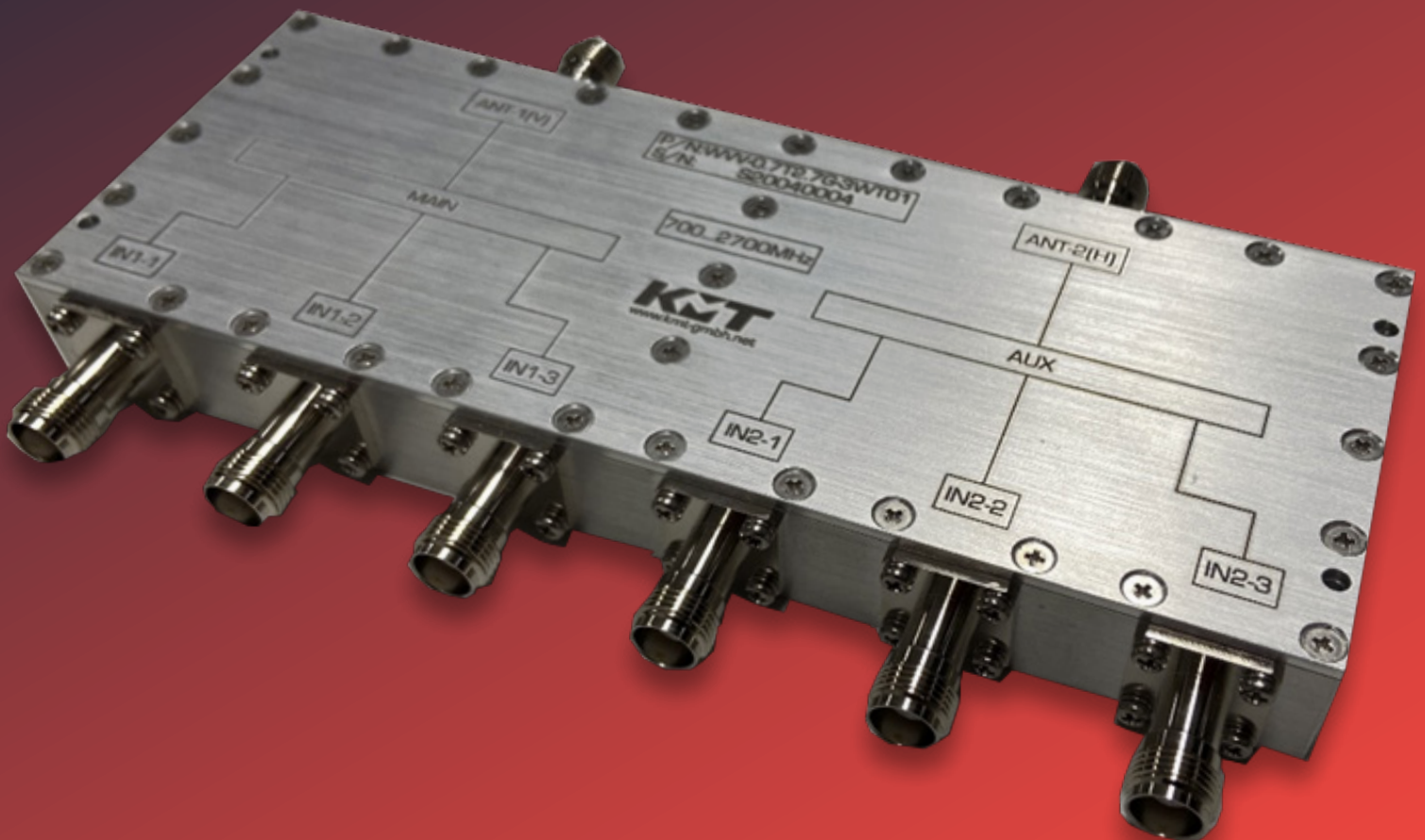


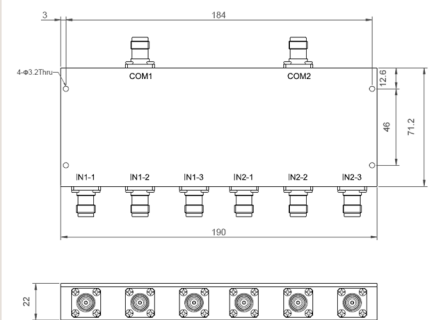
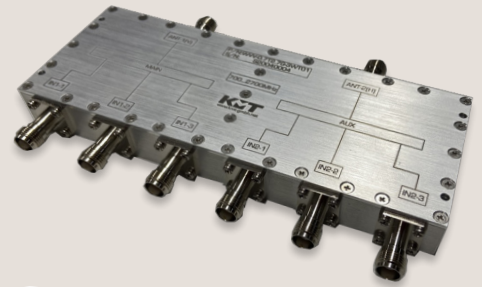
Technical data sheet

# Antenna Combiner



# Antenna Combiner

## Airbone 2x3-1-Way Power Combiner, 0.7 to 2.7GHz



The Airborne 2x3-1-WAY Power Combiner is a multipurpose antenna combiner to be installed on aircraft for in-flight-connectivity applications and legacy RF-applications in helicopters and fixed-wing aircraft.

The 2x3-1 Antenna Combiner is available in configurations with TNC antenna connectors or SMA antenna connectors. The intent is to reduce the total number of antennas that needs to be installed at the airframe. Most common installation purpose is for example the installation of a 4G/5G mobile cell network device which requires 2ea. antennas for MISO or MIMO operation or installation of a WIFI (WLAN) networking device which requires 3ea. antennas for MIMO operation.

The 2x3-1 Antenna combiner was developed in with our valued cooperation partner KMT GmbH for utilization with the MLX100 CELL/WIFI/SATCOM Router. This is a perfect use-case to understand the need for an antenna combiner. The MLX100 incorporates 2ea. MIMO-capable cell-network radios which require 2ea. for each radio to enable MIMO-operation. Thus, these rotorcraft applications require 4ea. antennas to be installed. In addition, the MLX100 also operates a 2x2 high-power 2.4GHz WIFI radio to operate as wide-area MESH-networking node that requires 2ea. additional antennas to be installed on the airframe.

In sum, the application requires 6ea. legacy antennas for installation. This is hard to achieve in already mission equipped helicopters where even on the airframe belly is not enough space to install more than 2ea. antennas to have enough spatial separation to other RF-antennas without having influence (RF-interference) to other RF-equipment.

By installing our 2x-3-1 Antenna Combiner the total amount of antennas to be installed is reduced to only 2ea. installations for cockpit-, avionics-, cabinand mission systems connectivity. Typical applications are EFB- & mission system integration, emergency medical transport services (EMS/HEMS/telemedicine), passenger data- & telephony connectivity.

## The easy to install antenna problem resolver to enable wide-frequency-band operation by eliminating up to 5ea.

The device (LRU) is certifiable to be operated in-flight and on-ground in harsh rotorcraft and fixed-wing aircraft environments. It is a fully integrated airborne solution in a light-weight single box. The state-of-the-art design provides industry-leading RF-features with lowest-possible insertion loss and very high isolation values without power or cooling requirements.

## Features

- Safes up to 4ea. Antennas for installations
- Very high RF isolation
- Frequency range: 0.7 to 2.7 GHz
- Impedance (nominal): 50 Ω
- Insertion loss: 5 dB typical
- Isolation: >20 dB typical
- Admitted Power: 10 W continuous
- 3ea. Antenna Inputs (from aircraft equipment)
- 2ea. Antenna jacks (to the airframe antennas)
- RTCA DO-160G compliant
- Certifiable rugged design
- Customizations and application adaptations available on request



## Technical data

### Product number:

A063-09-04.001      Antenna combiner, 2x3-1ch, LTE/GSM; TNC female; 0.70-2.70GHz

### Electrical:

Frequency	700 to 2.700 MHz
Impedance (nominal)	50 Ω
Insertion loss	5 dB typical
Isolation	>20 dB typical
Admitted Power	10 W continuous

### Physical Properties:

Material	Aluminum alloy
Body color & surface	Aluminum, natural Surface coating, chromatic coating, REACH-conformal (clear chemical film per MIL_C5541, Class 3)
Weight	1.367 lbs (0.620 kgs)
Dimensions	7.51 x 2.83 x 0.83 IN (19.1 x 7.20 x 2.10 cm)
Operating temperature	-40°C to + 70°C
Storage temperature	-55°C to +85°C
Input connections	Inputs (to communication device): 6ea, TNC straight jack, female Outputs (to antennas): 2ea, TNC straight jack, female

### Environmental Qualification:

Temperature Test	RTCA DO-160G, Section4, Cat. B1	Operational: -40°C to + 70°C Storage: -55°C to +85°C
Temperature Variation	RTCA DO-160G: Section5, Cat. B	-55°C to + 70°C Change rate ±5°C/min
Altitude	RTCA DO-160G: Section4, Cat. D2	50,000 ft
Humidity	RTCA DO-160G: Section6, Cat. C	85±4% to 95±4% rel. humidity, 55°±2°C to 30°±2°C, 6cycles, total 144h duration
Shock	RTCA DO-160G: Section7, Cat. B	Operational: 6g / 11msec., Crash safety: 20g / 11msec, 6 shocks per Axis (X/Y/Z//+D/-D)
Vibration	RTCA DO-160G: Section8, Cat. U2 Test curve F&F1	Random vibration: Frequency 10-2,000Hz; Spectral density (PSD) 4.76g rms, dwell time: 3h

RTCA DO-160G qualification code: [B1B1XD2XX]BCB[U2]XXXXXXXXXXXXXXXXXAC

### team2technologies

team2applications is a supplier of electronics & system solutions for aerospace and transport applications. The product range covers solutions in the field of connectivity & in-flight entertainment, data communication, data interfaces, onboard computing and IoT edge computing, airborne antenna designs, control-head, as well as heat control systems in various applications. team2 acquired major IPR from a predecessor company with operations in aerospace and transport markets since 1992.

team2 is cooperation partner of EASA Subpart 21J design organizations with EASA Subpart 21G manufacturing and EASA/ FAA Subpart 145 maintenance capabilities for the complete product range.

#### team2applications GmbH

Bernauerstr. 13b · 94356 Kirchroth · Germany  
Phone+49 9428 59490-00 · info@team2tech.de