uAvionix DEFENSE

MICRO IFF SOLUTIONS

COMBAT READY. SWaP OPTIMIZED.

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PHOTO CREDIT: TEXTRON SYSTEMS CORPORATION

UAVIONIX.COM/DEFENSE

DEVELOPED IN PARTNERSHIP WITH:

uAvionix DEFENSE

uAvionix delivers radically innovative avionics that ensure the safety, efficiency, and interoperability of everything that flies.

Our defense solutions extend that mission into the tactical battlespace—providing secure Mode 5 IFF, advanced airspace awareness, and SWaP-optimized systems that give operators the tools to identify, coordinate, and act with confidence in the most demanding environments.

PHOTO CREDIT: SURVICE ENGINEERING CO

LOW SWaP NO COMPROMISE

uAvionix leads the way in Mode 5 micro IFF with its AIMS-certified ZPX transponders and receivers, delivering secure identification in a compact form factor for uncrewed and crewed platforms. Building on the foundation of the world's smallest and most powerful micro IFF devices, our innovative solutions—including passive receivers and broadcast integration—extend situational awareness across the battlespace.

ZPX-A MODE S TRANSPONDER

MODE A,C,S ADS-B OUT

RT-2087/ZPX IFF TRANSPONDER

MODE 1,2,3/A,C,S,5L1,5L2 ADS-B OUT + ADS-B RECEIVER

RT-2087/ZPX-1 IFF COMBINED TRANSPONDER RECEIVER

MODE 1,2,3/A,C,S,5L1,5L2,5L2-B ADS-B IN/OUT + MODE 5L2 AND 5L2-B RECEIVER

PHOTO CREDIT: SURFACE ENGINEERING CO.

CROSS-DOMAIN AWARENESS

Optimized for ground, maritime and dismounted operations, uAvionix cross-domain solutions deliver secure, real-time situational awareness by passively receiving Mode 5 Level 2/2-Broadcast and ADS-B data. The vehicle-mounted ZPR and the portable SkyTak receiver natively output the AIMS 23-901 standard format. In addition, they interface directly with TAK via Cursor-on-Target (CoT) protocol using the available uAvionix ATAK plug-in, providing warfighters with actionable airspace data on wearable, IP67-rated kit. When combined with a programmable SAIFF (Secure Attritable IFF) Hub, a variety of sUAS platform PLI (Position Location Information) sensor protocols can be translated into Mode 5 and ADS-B messages for rebroadcast and uplink, extending the increased situational awareness to pilots and other users of the air-ground littoral domain.

ZPR PASSIVE MODE 5 RECEIVER

ADS-B AND MODE 5L2, 5L2-B RECEIVER

SKYTAK PORTABLE MODE 5/ADS-B RECEIVER

ADS-B AND MODE 5L2, 5L2-B RECEIVER

ZPX-A
MODE S TRANSPONDER

AIMS Certified

TSO C112e C166b C88b Derived

The ZPX-A is an ITAR-free, AIMS-certified micro transponder specifically designed to enable defense UAVs to operate seamlessly in civil airspace. Derived from the proven ping200X, the ZPX-A transponder integrates Modes A, C, S, and Extended Squitter (ES) ADS-B OUT, facilitating compliant airspace interoperability with minimal size, weight, and power (SWaP) footprint.

SPECIFICATION	VALUE
Input Voltage/Power	11-34V (3S-8S LiPo) 1.5W Continuous On/Alt. 4W Peak (8ms maximum)
Size	47 x 54 x 9 mm
Weight	50 grams
Operating Temp	-45° to 70° C

TRANSPONDER	
Modes A, C, S 1030 MHz Rx MTL (sensitivity)	-74 dBm ±3 dB
1090 MHz Tx Power	54 dBm (Nominal)

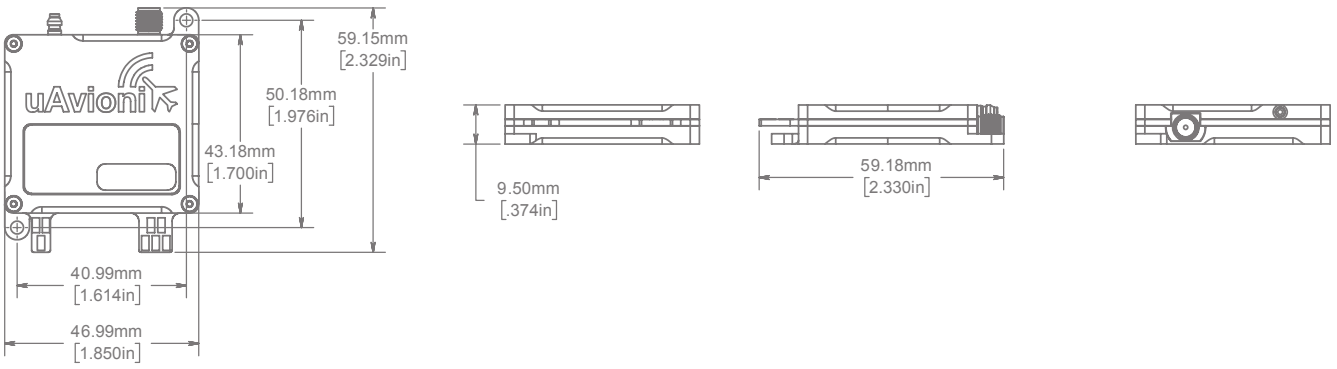
ALTIMETER	
Range Accuracy	-1000 to 35,000ft - per AS 8003 35,000 – 60,000ft, ±1%

CONTROL INTERFACE	
Baud Rate	1200 to 2 Mbps
Protocol	GDL90+

POSITION INTERFACE	
Baud Rate	115,200 bps
Protocol	uAvionix OEM Protocol

OPTIONS
1030/1090 MHz Transponder Antenna
uAvionix truFYX TSO-C145e Position Source
Similar unit available with TSO (vs. AIMS) certification, without X-bit control & Mode selection


uAvionix
TPX-A
MODE S TRANSPONDER
uAvionix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RT-2087/ZPX
MODE 5 TRANSPONDER

AIMS Mk XIIB Certified

TSO C112e C166b C88b Derived

The RT-2087/ZPX Micro IFF Mode 5 Transponder provides a comprehensive solution for Identification Friend or Foe (IFF) and Automatic Dependent Surveillance–Broadcast (ADS-B) requirements. Designed specifically for tactical UAVs, this system ensures high security, operational efficiency, and compliance with both battlefield and civilian airspace regulations. Support of both Mode 5 Levels 1 and 2 in a 68g (2.4oz) package makes it the ultimate tool for securely enhancing situational awareness and safety of unmanned systems where lowest possible SWaP is an overriding concern.

SPECIFICATION	VALUE
Input Voltage/Power	11-33VDC 3.5W Continuous (NORMAL) 4W Peak (8ms maximum)
Size	83 x 47 x 15 mm
Weight	68 grams
Operating Temp	-45° to 71° C

TRANSPONDER	
Modes 1, 2, 3/A, C, S 1030 MHz MTL (sensitivity)	-76 dBm ±2 dB
Mode 5 MTL (sensitivity)	-80 dBm
1090 MHz Tx Power	250 W (54 dBm)

ALTIMETER	
Range Accuracy	TSO-C88b compliant up to 35,000ft 35,000 to 60,000 ft, ±1%

ADS-B TRAFFIC INTERFACE	
Baud Rate	115,200 bps RS-232
Protocol	GDL90

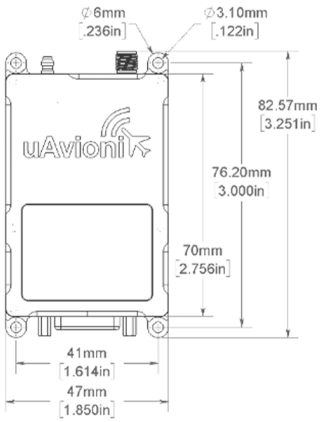
CONTROL INTERFACE	
Baud Rate	57,600 bps RS-485/-232
Protocol	GDL90+

POSITION INTERFACE	
Baud Rate	115,200 bps RS-232
Protocol	uAvionix OEM Protocol

KIV INTERFACE	
AIMS 04-900(A)	Option B (KIV-77 / KIV-79)

OPTIONS
1030/1090 MHz Transponder Antenna
uAvionix truFYX TSO-C145e Position Source
NSM programming for crypto emulator
Crypto emulators (KIV-77 and KIV-79) for interrogators, test equipment, and development/test of transponders


uAvionix
RT-2087/ZPX
AIMS Mk XIIB
MODE S ES TRANSPONDER
Mode:
DO-260B:
DO-181E:
Voltage:
CAGE Code:
1, 2, 3/A, C, S, 5 L1/L2
Class A1S
Level 2p/1s, Class 1
11-33 Vdc
7MYA0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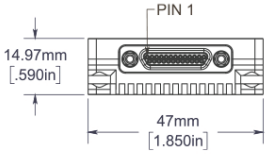
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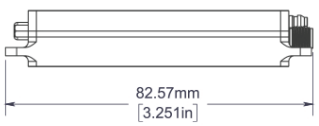
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RT-2087/ZPX-1
MODE 5 IFF COMBINED TRANSPONDER RECEIVER

AIMS Mk XIIB Certified

TSO C112e C166b C88b Derived

The RT-2087/ZPX-1 is a compact, low-SWaP Combat ID system meeting IFF transponder and ADS-B requirements for UAS in military and civilian airspace. Paired with a KIV-79 micro-crypto, even Group 2 and larger UAS gain NATO-standard IFF encryption. AIMS-certified, the ZPX-1 supports upgrades including Mode S Enhanced Surveillance, ADS-B In, and Mode 5 Level 2/2-B receive for Detect and Avoid—all while preserving a minimal SWaP footprint ideal for small uncrewed platforms.

SPECIFICATION	VALUE
Input Voltage/Power	11-33VDC 3.5W Continuous (STBY) 5.5W Continuous (NORMAL) 6W Peak (8ms maximum)
Size	83 x 47 x 21 mm
Weight	91 grams
Operating Temp	-45° to 71° C

TRANSPONDER	
SIF & Mode S MTL @ 1030 MHz MTL (sensitivity)	-76 dBm ±2 dB
Mode 5 MTL (sensitivity)	-80 dBm
1090 MHz Tx Power	250W (54 dBm)

RECEIVER SENSITIVITY	
ADS-B Rx MDL	-79 dBm ±2 dB
Mode 5 MDL L2/2-B Rx	-84 dBm

ALTIMETER	
Range	-1000 to 126,750 ft

CONTROL INTERFACE	
Baud Rate	57,600 bps RS-485/-232
Protocol	GDL90+

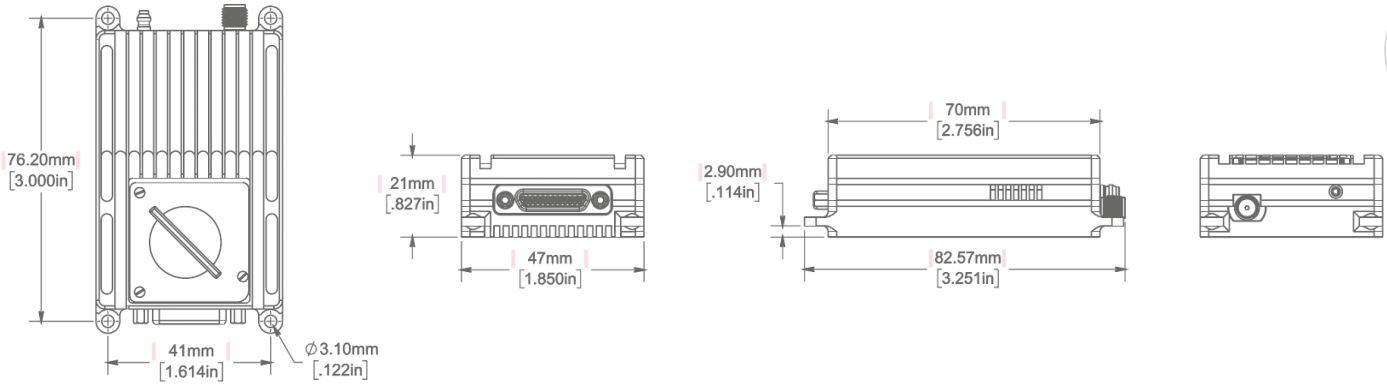
POSITION INTERFACE	
Baud Rate	115,200 bps RS-232
Protocol	uAvionix OEM Protocol

MODE 5 LEVEL 2/2B AND ADS-B IN TRAFFIC	
Baud Rate	115,200 bps RS-232
Protocol	GDL90+ / DoD AIMS 23-901

KIV INTERFACE	
AIMS 04-900(A)	Option B (KIV-77 / KIV-79)

OPTIONS
1030/1090 MHz Transponder Antenna
10/100 Ethernet Adapter
uAvionix truFYX SIL 3 Position Source
NSM programming for crypto emulator


RT-2087/ZPX-1
AIMS MK-XIIB
uAvionix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ZPR
MODE 5 L2/2-B AND ADS-B RECEIVER

AIMS Mk XIIB Pending

TSO C112e C166b C88b Derived

The uAvionix ZPR integrates a military Mode 5 Level 2/2-B IFF receiver with a civil, dual frequency [1090 MHz & 978 MHz (UAT)] ADS-B receiver to deliver comprehensive situational awareness for military and civil airspace operations. With its robust design, low SWaP (Size, Weight, and Power), and secure cryptographic capabilities, the ZPR is the optimal choice when coping with diverse mission scenarios where message traffic can originate from ground, sea, and airborne platforms.

SPECIFICATION	VALUE
Input Voltage/Power	8-32VDC 1W Continuous
Size	83 x 47 x 15 mm
Weight	50 grams
Operating Temp	-45° to 71° C

RECEIVER SENSITIVITY	
ADS-B Rx MDL	-79 dBm ±2 dB
Mode 5 MDL L2/2-B Rx	-84 dBm

ALTIMETER	
Range	-1000 to 126,750 ft

HOST INTERFACE	
Baud Rate	57,600 bps RS-232
Protocol	uAvionix OEM Protocol

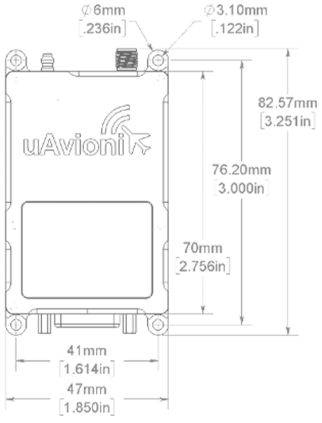
POSITION INTERFACE	
Baud Rate	115,200 bps RS-232
Protocol	uAvionix OEM Protocol

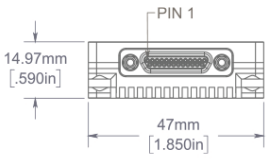
TRAFFIC INTERFACE	
Baud Rate	115,200 bps RS-232
Protocol	GDL90+ / DoD AIMS 23-901

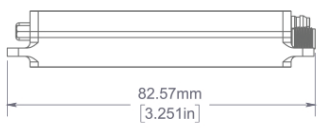
KIV INTERFACE	
AIMS 04-900(A)	Option B (KIV-77 / KIV-79)
Crypto Emulator	Internal

OPTIONS
uAvionix truFYX SIL 3 Position Source
NSM programming for crypto emulator

uAvionix DEFENSE







SKYTAK
MODE 5 L2/2-B AND ADS-B RECEIVER

SkyTAK is a compact, ruggedized airspace surveillance solution designed for tactical edge operations. As a portable, passive receiver supporting ADS-B and Mode 5 Level 2/2-B, SkyTAK delivers real-time situational awareness directly to ATAK-enabled devices. Whether dismounted, vehicle-mounted, or supporting UAV missions, SkyTAK provides unmatched airspace visibility, enhances fratricide prevention, and improves decision-making in dynamic environments.

SPECIFICATION	VALUE
Input Voltage/Power	8-32VDC 1W Continuous
Size	152 x 76 x 49 mm
Weight	500 grams
Operating Temp	-45° to 71° C

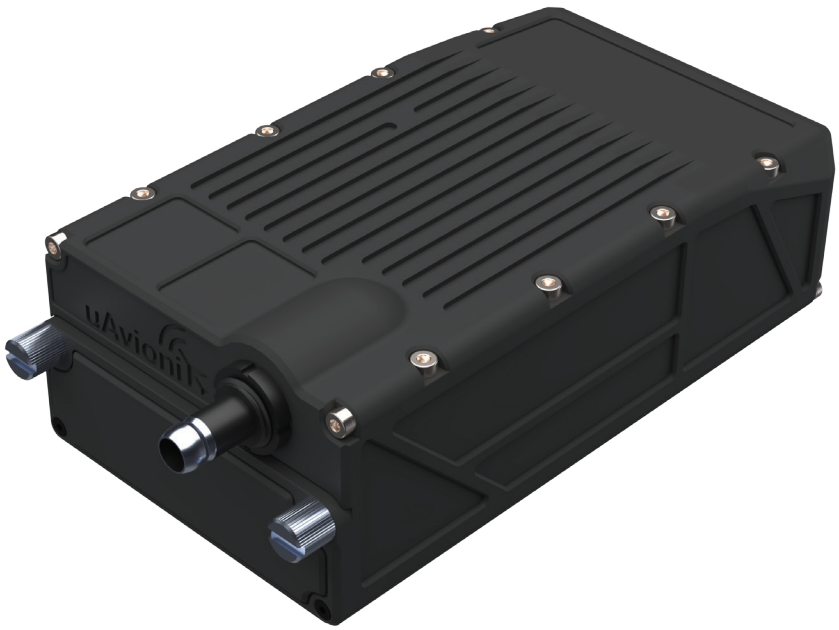
RECEIVER SENSITIVITY	
ADS-B 1090 Rx MDL	-79 dBm ±2 dB
Mode 5 MDL L2/2-B Rx	-84 dBm
ADS-B 978 Rx	-81 dBm ±2 dB

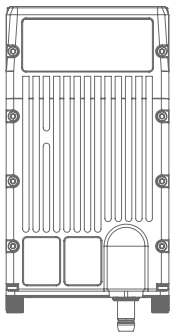
CONTROL INTERFACE	
Mighty Mouse 807 NW	8070-1675-00ZNU6-6SY
Digital Interface	USB 2.0 Dual Serial Port
COM 1 – AIMS 23-901	115,200 bps, Traffic
COM 2 – uAvionix UCP	57,600 bps, Control

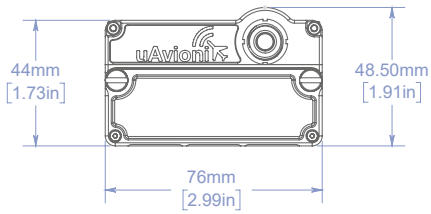
ANTENNA OPTIONS	
Integrated	25 nm range
External TNC Antenna	150 nm range

KIV INTERFACE	
AIMS 04-900(A)	KIV-79

CONDITION	METHOD	LEVEL
MIL-STD-810H		
Altitude	500.6	Procedures II & III
High Temperature	501.7	Procedures I & II (Hot Dry)
Low Temperature	502.7	Procedures I & II (Cold-C2)
Rain & Salt Atmosphere	506.6, 509.7	Procedure III (Rain)
Humidity	507.6	Procedures I & II
Sand & Dust	510.7	Procedures I & II
Vibration	514.8	Procedure I, Category 12
Shock & Crash Safety	516.8	Procedures I & VIII



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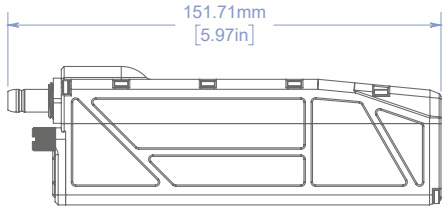
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MICRO IFF ACCESSORIES

Mode 5 Crypto Emulators, backplanes, adapters, and antennas provide users of the uAvionix ZP(X/R) family of Micro IFF Mode 5 transponders and receivers with the capability to perform ground and airborne Mode 5 functional testing and verification when crypto keys are unavailable or simply not desired. Using an emulator avoids the burden of dealing with COMSEC security protocols, which often streamlines testing and field operations.

The ZPK line of emulators supports all essential AIMS 04-900(A) Option B functional interface requirements for Mode 5 Interrogator, Transponder, Combined Interrogator-Transponder (CIT), and Combined Transponder Receiver (CTR) applications. Additionally, use of an emulator makes for a convenient path to AIMS 1102 and 1202 unclassified platform testing, enabling dry-runs of test plans in which operational KIVs and keys aren't readily available.

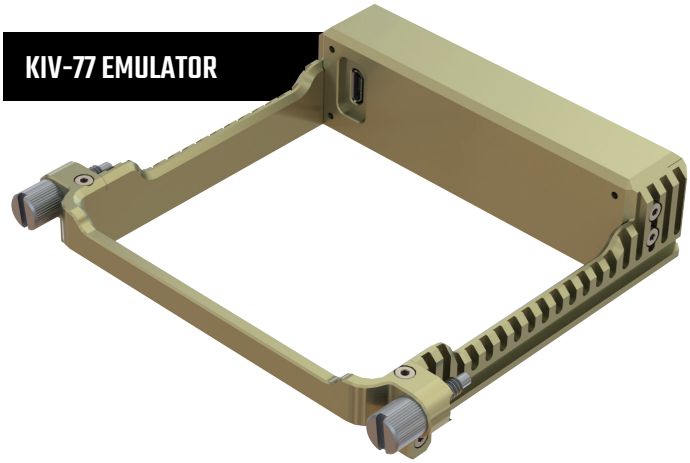
The ZPK emulators are designed for autonomous operation. Since it's paired with a transponder that controls and powers it, no external computer or power is required. Once the internal key-fill sequence is initiated after Time-of-Day (TOD) is input, the emulator is ready for operation.

In practice, ZPK emulators can be used with Mode 5 Interrogators in unclassified UAS combat or target training. This is easily accomplished by first substituting in each Interrogator a ZPK for the operational KIV normally used, then equipping target platforms with uAvionix ZPX Mode 5 transponders paired with a ZPK emulator.

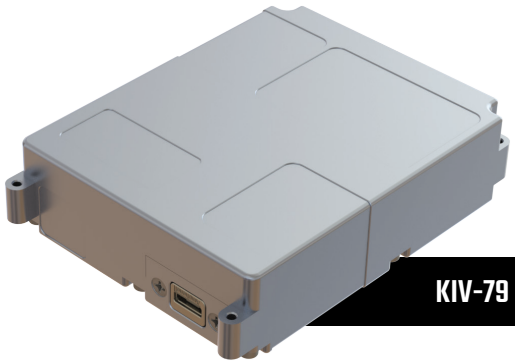
Backplane and antenna accessories are available off-the-shelf to support the myriad installation possibilities encountered when equipping UAS. These include backplanes for securely coupling the ZP(X/R) with its paired KIV or ZPK, and antennas offering a choice of patterns and gains. Custom wire harnesses to support unique UAS platform installations may be sourced through uAvionix.

KIV-77 BACKPLANE

KIV-77 EMULATOR

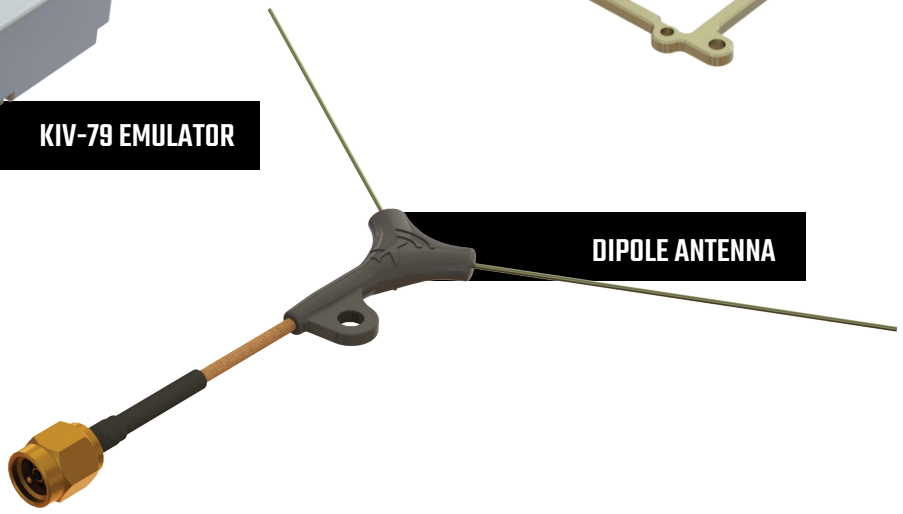


KIV-79 BACKPLANE



KIV-79 EMULATOR

DIPOLE ANTENNA



NOTES

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NOTES

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