DEFENCE & SECURITY PORTFOLIO

PRODUCTS AND SOLUTIONS

BHE BONN HUNGARY ELECTRONICS LTD.

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DEFENCE & SECURITY PORTFOLIO

PRODUCTS AND SOLUTIONS

EQUIPMENT BUILDING BLOCKS

DEFENCE SUBSYSTEM MODULES

DRONE DETECTOR AND DIRECTION FINDER

BHE

RADAR

HU AQAP 2110 AQAP 2210

SUITABLE SUPPLIER for NATO TENDERS

BUDAPEST BRAND BUDAPEST 2014

CERTIFIED AS 9100

CERTIFIED ISO 9001

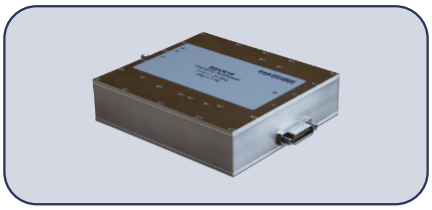
Facility Security Clearance since 2020

These certificates refer to BHE's quality management systems. All our products are manufactured according to ISO 9001. Other, sector-specific management systems are only used in case of the customer's explicit request.

EQUIPMENT BUILDING BLOCKS

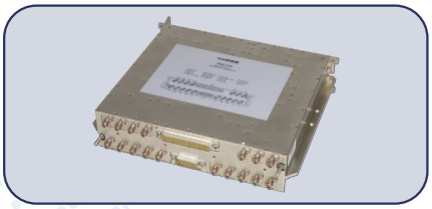
SYNTHESIZERS

- Wideband solutions up to 40GHz
- Ultra low phase noise
  -130 dBc/Hz @ 10 KHz @ 10GHz
- Spurious level under -100 dBc
- Fast switching under 100 ns
- Frequency resolution under 1 Hz
- Frequency stability better than +/-5 ppb
- Vibration reduction for better phase noise

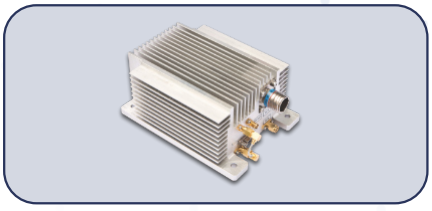

CONVERTERS

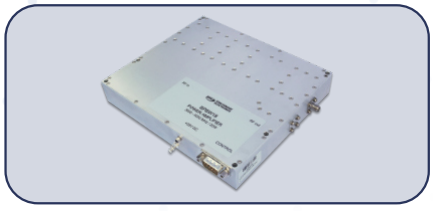
- Up/down converters, tracking down converters, block converters, TLTs, LNBs
- L, S, C, X, Ku, Ka and Q bands
- Housing upon request
  (indoor, outdoor, rugged etc.)
- LNB noise figure under 1 dB
- Mirror rejection better than 80 dB
- Phase noise
  -115 dBc/Hz @ 10 KHz @ 10GHz
- Gain tracking better than +/- 0.25 dB between channels
- Phase tracking better than +/- 5° between channels



POWER AMPLIFIERS

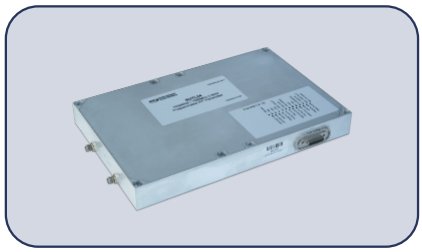
- Frequency range from VHF up to Ka-band
- Output power level from 5W up to 2kW
- PAE (power added efficiency) up to 70%
- Smart monitoring and control technology
- Smart protection technology
- DPD (Digital Predistortion) upon request
- UWB (Ultra-wideband) design upon request





DEFENCE SUBSYSTEM MODULES

IFF TRANSMITTER SERIES – BUTL



- IFF - Identification Friend or Foe
- Programmable, pulse-mode transmitters
- Up to 4 kW output power
- Very high, up to 3.5 W/cm^3 output power to unit dimensions ratio
- Currently with 600 W, 1000 W, 2500 W and 4000 W output power
- PPM, PAM, DPSK and MSK modulation

SDR-BASED MODULATOR/ TRANSMITTER SERIES – BUMT

- Software Defined Radio technology
- Airborne and satellite on-board applications
- BPSK, QPSK, OQPSK, SOQPSK, 8PSK, 16PSK, PCM/FM and True FM modulation
- UHF-band modulators
- L and S-band telemetry transmitters
- Programmable 5, 10, 15, 20 W transmitter output power

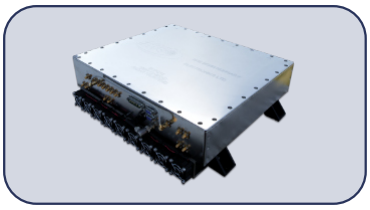
RADAR ANTENNA TESTER – BURS

- For measuring phased array radar antennas In L and S-band
- 4-channel VNA (Vector Network Analyzer) structure
- SDR (Software Defined Radio) principle, LabView-based M&C Software
- Application in radar environments with CW or pulsed RF signals
- High speed data acquisition and signal processing performed in FPGA
- Communication, parameter adjustment and housekeeping by microcontrollers

RADAR TARGET SIMULATOR – BUNL

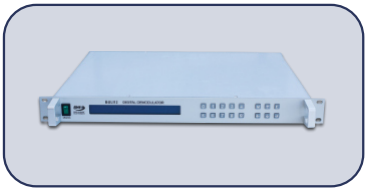
- Programmable delay relating to 10 – 110 km range
- Distance resolution: 5.5 m approx.; Accuracy: < 1%
- Programmable attenuation 60 – 90 dB
- Digital signal processing
- Generation of fake radar targets
- Simulation of target movement

SAR FRONT-END - BUPQ



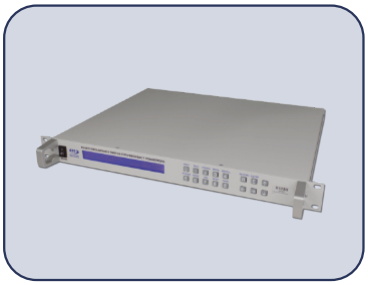
- L, X, Ku and Ka-band
- Up to 100 W
- Multiple phase matched Rx/Tx channels
- Internal phase calibration network
- Pulsed and FMCW operation

DIGITAL DEMODULATOR - BULI



- Demodulation of SOQPSK-TG signals
- No external bit synchronizer needed
- Synchronization time: < 50 FEC frames @ BER = 1E-5
- Channel decoder: Convolutional – Rate ½ Viterbi
- FEC decoder: Reed-Solomon (255, 223)

REDUNDANCY SWITCH - BUSR

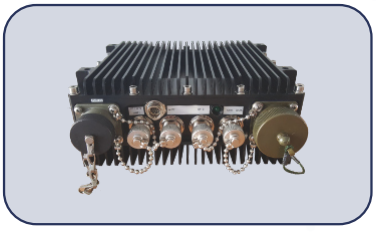


- Up to 18 GHz, 40GHz version upon request
- Suitable for 1:1 and 2:1 redundant systems
- Automatic switchover in case of converter failure
- Controls the connected converters
- Keypad and LCD for local control
- TCP/IP and RS-422 remote control
- Low insertion loss

X-BAND 4-CHANNEL DOWNCONVERTER - BURX

- Adjustable MSTC and AGC attenuators
- Adjustable amplitude and phase for each channel
- Low spurious level
- Very low harmonic level at IF2 output
- Snap-on BMA connectors for RF
- Wedge lock and ejector for easier mounting
- Mechanical size: 232 x 190 x 61 mm

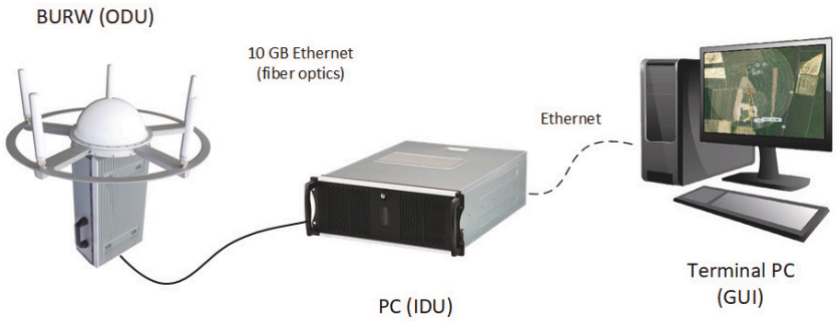
CUSTOM-MADE SOLUTIONS



- Further functional units (switch matrix, delay line etc.)
- Frequency range from HF, VHF/UHF
- Ruggedized housing options (MIL-STD 810H)
- Solutions for extreme temperature conditions

DRONE DETECTOR AND DIRECTION FINDER

The BXDD series UAV RF detector and direction finder is a state-of-the-art Software Defined Radio (SDR) based solution for both detecting and direction measuring the RF signal of the UAV and the controller. It uses the latest technology with 5 coherent 80MHz analogue bandwidth RF chains, providing the best performance in resolution, sensitivity and speed.



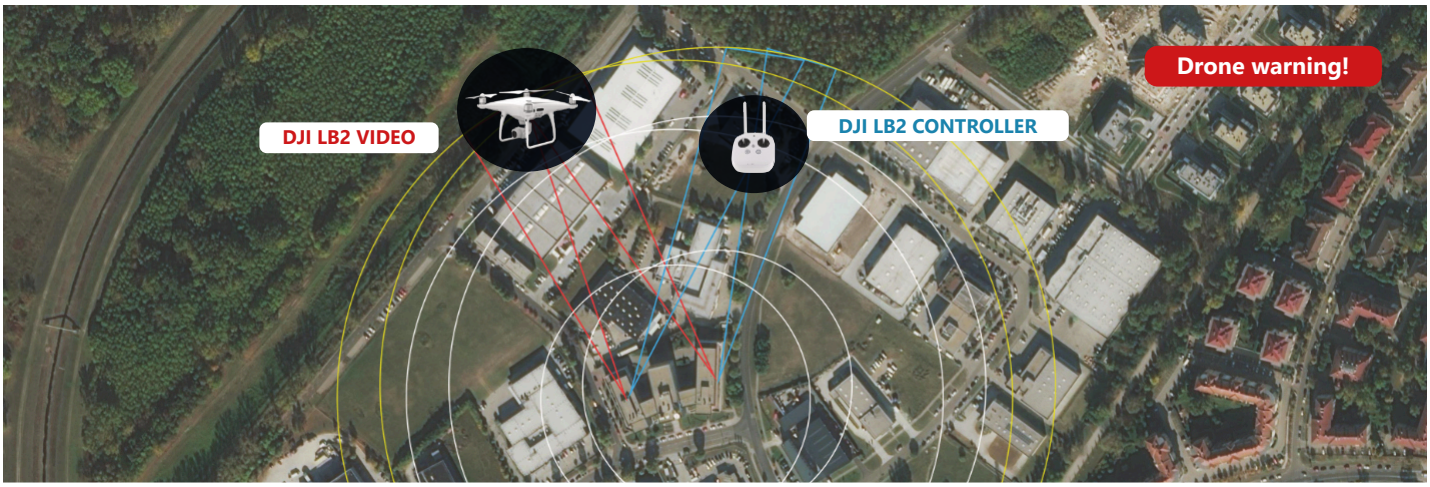
SYSTEM COMPONENTS

- IP67 outdoor unit (ODU), collects and preprocesses RF data, forwards them to the main processing unit on 10GB fiber optic Ethernet interface
- GNU/Linux based main processor unit (indoor unit, IDU), performs detection, classification and direction finding
- System output information is represented on a map display. Output data contain pure system status and alarm information, only very low data speed is required, therefore the sensor output can be easily centralized.

While developing the BXDD platform, all customer needs (e.g. airport protection, border guard, prison, critical infra-structure protection, mass event protection) have been considered according to the following:

- Fully automated system design
- User friendly graphical user interface with detection and direction results
- The drone library contains the main drone, controller and other relevant signal sources
- No special knowledge required from the operating personnel (e.g. UAV knowledge, RF knowledge, etc.)
- Capability of detecting multiple target on multiple frequency band – there is no blind frequency / area in case of a UAV is detected
- Target display on map
- Providing location information on both the UAV and controller if two or more sensors detect the signal
- Multiple sensor output can be collected for central operations
- Integration to large scale alarming / protecting systems
- Detection range up to 5 km

- The outdoor unit is equipped with protective devices for safety
- Large immunity to out-of-band nearfield RF emissions (mobile base stations)
- System scalability according to the field requirements
- No Internet access needed for external database



RADAR

- Scanning (360°), sweeping and tracking modes
- X-band pulse doppler radar
- Low radiated power (10W)
- Northbound and control interface
- Target classification
- 3D position detection

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