

# Microwave Multi-Function Assemblies

Frequency Range: DC to 50GHz

Elbit Systems EW & SIGINT - Elisra Ltd. is a recognized leader in sophisticated electronic systems and integrated Multi-Function Assemblies and Subassemblies for the defense and space markets (EW, radars & missiles).

Elisra has amassed over 45 years of proven experience in the design, development, and manufacture of state-of-the-art components and subassemblies for a wide variety of RF and microwave applications covering DC to 50GHz frequency range.

Among Elisra's many customized, integrated, multi-function assemblies and subassemblies are: IFM, DIFM, Frequency Discriminators, Up/Down Converters, RF Switch Matrix, COMINT Receivers, DF, RFFE, FEA, Frequency Direct Synthesizers, DTO and Super Heterodyne Receivers, Input Front-Ends and Receivers, Multi-Function Assemblies (MICs), and PIN Diode Control Devices.

The Elisra Advantage for Systems Suppliers

- Performance Optimization
- Cost-Performance Ratio
- Minimum Power Consumption, Weight and Volume

## Technologies

- Multi-layer RF circuits
- High reliability MIC and MMIC
- MCM
- Connectorized integration
- Si, GaAs, GaN, V/LDMOS components
- Thin-film & Thick-film
- Optoelectronics packaging
- RF and digital integration

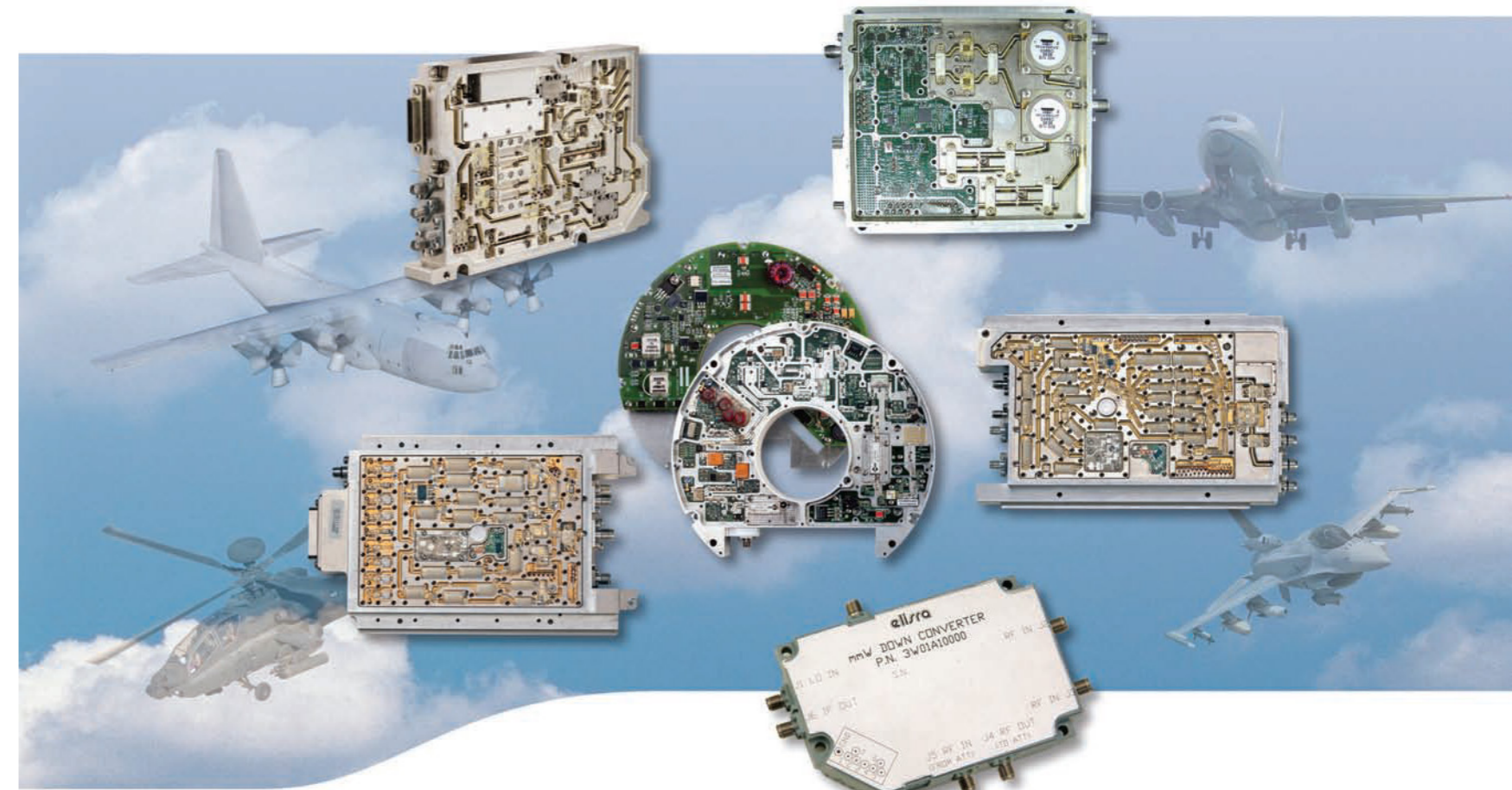


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## Super Heterodyne Receiver (SHR)



### Electrical Specifications

RF Input Frequency Range: 0.5 - 18 GHz  
 Triple Down-Conversion  
 Dynamic Range @ Input: -70 to 0 dBm  
 Noise Figure: 17 dB Typ  
 Phase Tracking (Pairs):  $\pm 4^\circ$   
 Switching Speed: 250 nSec  
 Spurious: 45 dBc

### IF Output Frequency Range -

Wide Band 1: 2-6 GHz  
 Wide Band 2: 50 - 630 MHz (AUX)

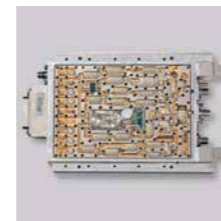
### Variable Bandwidth -

BW1: 500 MHz  
 BW2: 140 MHz  
 BW3: 40 MHz  
 BW4: 4 MHz

**Applications:** EW Receiver

**Technologies:** MIC, Hermetically Sealed

## Wide Band IFM Receiver



### Electrical Specifications

Instantaneous Frequency Coverage: 0.5-18GHz  
 Channelized Receiver Architecture for Interference Protection and High Sensitivity  
 Pulse Width Range: from 100nS to CW  
 High Sensitivity (Front-End Dependent)  
 Wide Instantaneous Dynamic Range

(Front-End Dependent)

Video and IF Outputs to Digital Receiver  
 Local Internal Oscillators, Synthesized with External Reference CK  
 High Stability over Temperature Range (No Calibration Required)  
 Small Size: 3U Cut-Out: 16x10x2 cm

**Applications:** EW Systems

**Technologies:** RF Multilayer including Micro Strip, MMIC & SMT

## Up Converter



### Electrical Specifications

Frequency: 0.1-18 GHz  
 Contains DCAs to Set the Gain Modulation of Signal (Phase, Amplitude, and Pulse Modulation)  
 Very Fast Settling Time: 100nS  
 Suppression of Unwanted Signals to prevent them from Reaching the Transmitter

Low Overall Noise Floor

Small Size: 3U Cut-Out: 16x10x2 cm

**Applications:** EW Systems

**Technologies:** RF Multilayer including Micro Strip, MMIC & SMT

## S-Band Transponder



### Electrical Specifications

S-Band Full Duplex  
 High Selectivity  
 Wide Dynamic Range, AGC (Up Converter & Down Converter)  
 Built-In Test (BIT)  
 Off-the-Shelf Components (Special Design: Filters, Power Amplifiers.)

**Applications:** EW Systems, Missiles

**Technologies:** SMT

## Dual Input Front-End Receiver



### Electrical Specifications

Wide Band Coverage: 18 to 40 GHz  
 Down-Converted: 2 to 16.5 GHz  
 High-Input Dynamic Range  
 High Power Protection  
 Internal MMW Bit Generators  
 Supports Two Receiving Antennas

**Applications:** EW Systems

**Technologies:** MMIC & SMT

## 2-6 / 6-18 GHz T/R Module



### Electrical Specifications

5-Bit 360° Digitally-Controlled Phase Shifter  
 5-Bit 31 dB Digitally-Controlled Attenuator  
 High-Power MMIC Amplifiers (Typical: 4 Watts)  
 Low Noise MMIC Amplifiers  
 High-Power Protector Switch/Limiter  
 T/R Switches and Circulators

Designated Digital Control Circuit

**Applications:** EW Systems, Radar

**Technologies:** MMIC & SMT