



# Arkonia Systems Limited

## ARK7831 Series 'JAVELIN' HF SWITCHING MATRIX



- ▲ *Fast solid state switching at <math>< 1\text{ms}</math>*
- ▲ *BITE on all RF paths*
- ▲ *Solid state or co-axial relay switching.*
- ▲ *Control via RS232/422, IEEE488 or Ethernet*
- ▲ *Switch MTBF in excess of 100M operations*

The **Javelin** HF Matrix System has been designed by Arkonia Systems to meet the increasingly complex tasks demanded by modern HF communications monitoring systems. Such systems could include broadband surveillance receivers where fast switching is required. The matrix is extremely flexible in its ability to be configured for a wide range of Inputs and Outputs and features a number of facilities of particular interest to designers of dynamic HF Systems.

**Javelin** is currently in use with various national SIGINT agencies worldwide.

# System Description

The **JAVELIN** HF Switching Matrix System provides the capability of connecting a multitude of HF antennas to a host of HF Monitoring/SIGINT receivers in the 1MHz to 30MHz frequency range. The system can be configured to handle up to 96 RF inputs and 256 RF outputs. All outputs have independent access to any input, irrespective of the number of outputs being connected to the same input (non-blocking).

The matrix system can be controlled in one of two basic configurations. In the first configuration a central Control Interface Unit (CIU) is provided to interface external control signals to the individual matrix and other units within the system and provide full dual redundancy of operation. In the second basic configuration the individual matrix operators can be connected to the Matrix Equipments directly and there is no central control unit. This configuration is normally only used in relatively small systems.

An Ethernet Interface Unit (EIU) connects with the system CIU to allow connection to a local area network (LAN), which enables high speed remote control from customer supplied workstations.

Local control of the system is possible via keypads and displays located on the Control Interface Units. All equipments are modular in design with the key modules replaceable from either the front or rear of the equipment. This greatly improves the maintainability and minimises system disruption in the event of a failure. Non-volatile memory is used in all processor controlled equipment to ensure that the equipments revert to previous settings following any power interruptions.

## BITE Provisions

The RF units incorporate amplifier current monitor circuitry to ensure that each of the RF amplifiers in the system is operating correctly. This current monitor status is available via the control interfaces, giving remote fault indication for the system. The system control unit also monitors the status of the power supply units and control signals to provide a high level of confidence in the system operation.

Fault indicators are provided for each of the matrix modules and processor assemblies and a fault log is maintained which is accessible both locally and via the remote control interface (LAN).

## Typical System Specification - Electrical

<b>Number of RF Inputs</b>	<b>96 max.</b>
<b>Number of RF Outputs</b>	256 max.
<b>Frequency Range</b>	1MHz to 30MHz
<b>Average Gain</b>	1dB+/-1dB max.
<b>Gain Variation</b>	+/-1dB max.
<b>Noise Figure</b>	8dB max.
<b>Impedance</b>	50ohm
<b>VSWR:</b>	
<b>Input</b>	1.5:1 maximum
<b>Output</b>	2.0:1 maximum
<b>2<sup>nd</sup> Order Output Intercept Point</b>	+72dBm minimum
<b>3<sup>rd</sup> Order Output Intercept Point</b>	+35dBm
<b>1dB Compression Point</b>	+19dBm nominal (input)
<b>Isolation:</b>	
<b>Input to Input</b>	65dB
<b>Input to Output</b>	70dB
<b>Output to Input</b>	60dB
<b>Output to Output</b>	35dB
<b>Switching Time</b>	10ms max.
<b>Switching Noise</b>	-110dBm (10KHz)
<b>Maximum CW Input Signal</b>	+40dBm
<b>Maximum Pulse Input Signal</b>	2kV @ 1.6mS risetime, 50mS duration.
<b>Power Supply Requirements</b>	220-240 Vac, 50Hz
<b>Control</b>	Local front panel keypad and display module
	Remote Ethernet LAN, TCP/IP Protocol

**FOR FURTHER TECHNICAL INFORMATION REQUEST PRODUCT SPECIFICATION**



**ARKONIA SYSTEMS LIMITED**  
**SIGNAL HOUSE**  
**35 WOOLMER WAY**  
**BORDON, HAMPSHIRE**  
**GU35 9QE, ENGLAND**  
**T: +44 (0) 1420 488 646**  
**F: +44 (0) 1420 477 845**  
**E: [commercial@arkonia.co.uk](mailto:commercial@arkonia.co.uk)**  
**WEB: [www.arkonia.co.uk](http://www.arkonia.co.uk)**

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