

High-Speed DF Antenna Band Switch

20 – 6000 MHz

Product Code: DF-A0157

VERSION: 1.4



PRODUCT DESCRIPTION:

The DF-A0157 is a high-speed, 4-band switch intended for direction finding applications. It accepts four frequency bands, each with five antenna elements, and outputs the elements of any one band to the corresponding five RF outputs. The switch is controlled via an RS-485 serial interface to allow remote control over a distance of up to 500m. All switching is solid state for rapid and unlimited switching cycles.

The DF-A0157 includes an internal noise source as well as an external input for chain calibration purposes. Either the internal noise source or the external calibration input may be selected to simultaneously inject a balanced signal in place of the antenna inputs and thereby correct errors caused by variations in the system's RF path.

PRODUCT FEATURES:

- DF switch
 - 4-band switch
 - External injection mode for chain calibration
 - Internal chain calibration noise source, selectable with either inline amplifier or with the amplifier bypassed.
 - Low noise amplifier on each channel with passive bypass capability
 - High-speed solid state switching
- Monitoring
 - Single-channel amplifier
 - Low noise pre-amplifier on input
 - DC-injection to power upper stages
- Advanced input stages:
 - ESD protection
- Advanced output stages:
 - Output amplifiers for long cables
 - Cable slope correction on amplifiers
 - ESD protection

APPLICATIONS:

- DF band switching and monitoring channel amplification for our range of DF antennas, particularly DF-A0062 and DF-A0095 (5-element DF interferometers)
- For outdoor applications, DF-A0157 should be ordered in conjunction with DF-A0057-03 (outdoor housing for DF switches)

SPECIFICATIONS:

Product codes:		
DF-A0157		4-band switch
Electrical – DF chain:		
Frequency range		20 – 6000 MHz
Frequency bands		Band A: 20 – 500 MHz; Band B: 100 – 1400 MHz; Band C: 500 – 3600 MHz; Band D: 2000 – 6000 MHz
Channels per band		5
Input VSWR		< 2.5:1
Gain	100 MHz	20 ± 2 dB
	3 GHz	24 ± 2 dB
	6 GHz	25 ± 2 dB
Noise figure		< 13 dB
OIP3 (typical)	100 MHz	28 dBm active, 32 dBm passive
	3 GHz	28 dBm active, 31 dBm passive
	6 GHz	26 dBm active, 31 dBm passive
Maximum input level		20 dBm CW, 30 dBm pulse, passive
Electrical – calibration chain:		
Gain		
Amplitude unbalance		< 2 dB
Phase unbalance		< 15°
Maximum input level		20 dBm passive
Internal noise source power output		66 ± 4 dB ENR
Electrical – monitoring:		
Frequency range		20 – 6000 MHz
Input VSWR		< 2.5 :1
Gain	100 MHz	20 ± 2 dB
	3 GHz	24 ± 2 dB
	6 GHz	25 ± 2 dB
Noise figure		< 13 dB
OIP3 (typical)	100 MHz	28 dBm active, 32 dBm passive
	3 GHz	28 dBm active, 31 dBm passive
	6 GHz	26 dBm active, 31 dBm passive
Maximum input level		20 dBm CW, 30 dBm pulse
DC power injection		+13.8 V DC, 150 mA (max.)
Power and control interface:		
Power supply		19 – 36V DC, 1.2A at 24V
Control interface		RS-485
Switching time		< 50µS
Time to receive control byte (RS-485, 115.2 kbps)		< 100µS
Total switching time		< 150µS
Mechanical:		
RF connectors	input	22 x SMA female
	output	6 x SMA female
Dimension		317 mm x 168 mm x 80 mm
Total mass		< 4 kg
Material		Aluminium
Environmental: designed to meet the following specifications		
Temperature range		-20 °C to 70 °C
Vibration		0.02g ² /Hz, 2 – 300 Hz
Shock		40 G for 10 ms
Thermal shock		-20 °C to 70 °C
Water ingress rating		IP54