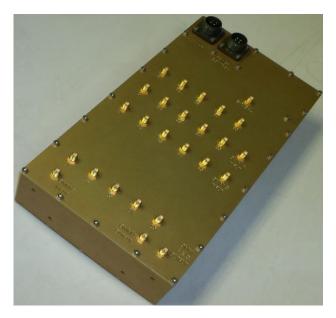


## High-Speed DF Antenna Commutating Switch

1 – 3600 MHz

Product Code: DF-A0052

VERSION: 1.5



## **PRODUCT DESCRIPTION:**

The DF-A0052 is a high-speed, 3-band, 5- to 3-channel commutating switch intended for switched elements direction finding applications. The switch accepts three frequency bands, each with 5 antenna elements, and routes any 3 elements of a selected band of 5 elements to any of the 3 outputs. The switch is designed to be mounted internally within the weatherproof cavity of the DF-A0029, DF-A0031 and DF-A0037 direction finding antennas.

The switch comprises 5 parallel channels, each equipped with input power limiters, ESD protection, low noise amplifier and band switch. A "calibration band" can also be selected, providing a balanced 5-way split of an internally generated or externally supplied calibration signal, for chain and receiver calibration. Each channel features a low-noise amplifier, within the calibration chain, to help overcome switch and cable loss. The switch accepts a very wide input voltage range and is controlled via hardwired logic lines or an EIA-485 (RS-485) interface. All switching is solid state for rapid commutation and unlimited switching cycles.

## PRODUCT FEATURES:

- 3-band, 5- to 3-channel commutating switch
- Low noise amplifier on each channel
- Wideband internal noise source for chain calibration
- External injection mode for chain calibration
- High-speed solid state switching
- Limiter and ESD protection on each input in order to allow operation in adverse EM environments

## APPLICATIONS:

• DF band switching for Alaris' range of DF antennas, particularly, the DF-A0029, DF-A0031 and DF-A0037

| Electrical: DF cha           | ain        |                                  |
|------------------------------|------------|----------------------------------|
| Frequency range              |            | 1 – 3600 MHz                     |
| Frequency bands              |            | Band A: 1 – 500 MHz              |
|                              |            | Band B: 100 – 2000 MHz           |
|                              |            | Band C: 500 – 3600 MHz           |
| Input VSWR                   |            | < 2.5:1                          |
| Gain (typical)               | 100 MHz    | 10 ± 0.5 dB                      |
|                              | 1000 MHz   | 13 ± 1 dB                        |
|                              | 3000 MHz   | 15 ± 2 dB                        |
| Noise figure                 | i          | < 10 dB                          |
| OIP3 (typical)               | < 1000 MHz | 30 dBm                           |
| - \ JF/                      | >1000 MHz  | 27 dBm                           |
| Maximum input level          |            | 30 dBm CW,                       |
|                              |            | 45 dBm at 1% duty factor in 1µs  |
|                              |            | pulse                            |
| Input connectors             |            | SMA female                       |
| Output connectors            |            | SMA female                       |
|                              |            |                                  |
| Electrical: CAL c            | hain       | •                                |
| Amplitude imbalance          |            | < 3 dB                           |
| Phase imbalance              |            | < 25°                            |
| Gain (typical)               | 100 MHz    | -10 ± 2 dB                       |
|                              | 1000 MHz   | -8 ± 2 dB                        |
|                              | 3000 MHz   | -10 ± 3 dB                       |
| Max input level              |            | 20 dBm                           |
| Internal noise source output |            | +35 to +60 dB ENR                |
| level                        |            |                                  |
| Input connector              |            | SMA female                       |
|                              |            |                                  |
| Power and control            | ol:        |                                  |
| Power supply                 |            | 19 – 36 V DC, 1 A                |
| Control interface            |            | EIA-485 (RS-485), hardwired      |
|                              |            | lines                            |
| Total switching time         |            | < 150 µS                         |
| Time to receive control byte |            | < 100 µS                         |
| (RS-485, 115.2 kbps)         |            |                                  |
| Total switching time         |            | < 150 μS                         |
| External strobe latency      |            | < 5 μS                           |
|                              |            |                                  |
| Mechanical:                  |            |                                  |
| Dimensions                   |            | 317 mm x 168 mm x 80 mm          |
| Total mass                   |            | < 4 kg                           |
| External material            |            | Aluminium                        |
| <b></b>                      |            |                                  |
|                              |            | eet the following specifications |
| Temperature range            |            | -20 °C to +70 °C                 |
| Vibration                    |            | 0.02 g²/Hz, 2 – 300 Hz           |
| Shock                        |            | 40 G for 10 ms                   |
| Thermal shock                |            | -20 °C to +70 °C                 |
| Water ingress rating         |            | IP54                             |

N.B: The actual product will have seven connectors less than the image represented in this brochure.