

RF Passive Matrices

Designed for safe radio communication in a classroom or office environment, the Drumgrange RF Passive Matrices allow radios to communicate in a clear RF environment without the need to transmit to air.

Two types are available: one to cover HF/VHF frequencies and another to cover VHF/UHF ranges. The RF output from the radios is attenuated with fixed attenuators, reducing the power into the matrix to less than 1 Watt.

The matrices are already in service with the MoD and radio manufacturers, both in teaching and test laboratory settings.



Key Features

- Wide frequency range: 1 MHz to 450 MHz (HF/VHF unit) and 10 MHz to 2.5 GHz (VHF/UHF unit)
- Low insertion loss (30 dB, nominal), the same between all pairs of radios.
- Allows 16 or 17 radios to communicate in a clear RF environment.
- Cascading matrices allows for a larger number of radios to communicate.
- Safe for indoor use with no transmission to air.
- No power requirements.

Applications

- **Radio Test Environment**
The units are already installed and used within a radio Test and Reference Centre for the MoD. The centre provides an infrastructure for testing a large number of radios, allowing them to be connected quickly in isolated nets, communicating safely without transmitting to air.
- **Classroom Environment**
The units are installed in a number of teaching establishments across the British

Army, including at the Royal School of Signals, to alleviate the need for more expensive and time-consuming outdoor training.

Students can quickly learn to initialise the radios, practice voice procedure calls, and perform more complex net management functions. When used indoors with radios requiring a GPS signal, Drumgrange can supply (and install) a GPS re-radiating system.



Technical Specifications

HF/VHF Matrix

Frequency Range	1 MHz to 450MHz (continuous)
Impedance	50 Ohm
Insertion Loss	30 dB (nominal) Radios across cascaded ports have a nominal insertion loss of 60 dB
Maximum Input Power	1 Watt (30 dBm) Fixed attenuators are recommended to reduce the output power of the radios to an acceptable level
Number of Ports	16
Auxiliary Ports	2 Auxiliary ports allow matrices to be cascaded, enabling more radios to communicate on the same net
Isolation	> 120 dB
Connectors	N-Type female on the rear of the unit
Weight	2.5 kg
Mounting	19" rack
Dimensions	483 x 200 x 88 mm (19" 2U high)
Power Requirements	None

VHF/UHF Matrix

Frequency Range	10 MHz to 2.5 GHz (continuous)
Impedance	50 Ohm
Insertion Loss	30 dB (nominal) Radios across cascaded ports have a nominal insertion loss of 60 dB
Maximum Input Power	1 Watt (30 dBm) Fixed attenuators are recommended to reduce the output power of the radios to an acceptable level
Number of Ports	17
Auxiliary Ports	Any of the 17 ports can be used to cascade Auxiliary ports allow matrices to be cascaded, enabling more radios to communicate on the same net
Isolation	> 120 dB
Connectors	N-Type female on the rear of the unit
Weight	18 kg
Mounting	19" rack
Dimensions	483 x 365 x 267 mm (19" 6U high)
Power Requirements	None

