

VHF / UHF BAND SWITCHING MULTICOUPLER

Model: SMC-1L

GENERAL:

All RF Multicouplers manufactured by Data Acquisition Pty limited are designated as 'Switching Multicouplers'. The 'Switching' identification simply means that each RF Output can be individually turned ON or OFF as required by the User. This offers two main advantages:-

- The Unit's Power dissipation is always minimized (critical for some temperature sensitive environments).
- The inclusion of a control system enables other features (e.g. Sensitivity control) to be added.

The SMC-1L is a VHF / UHF Band Communications Front End Switching Multicoupler, designed mainly for Military and other Professional applications.

The Unit can be supplied to meet any Customer bandwidth requirement between 30 and about 600 MHz.

The Multicoupler is manufactured as a standard 1U Rack Mounting Chassis, and has a maximum capacity of One Input (Antenna), to 12 Outputs (Receivers), when the output connectors are either BNC or TNC.

Smaller Output Connectors (e.g. SMC) can provide larger capacity (please consult the Factory).

Input connectors can be N or TNC or BNC.

This Unit can also be supplied with reduced Receiver capacity to meet Customer requirements.

ELECTRICAL SPECIFICATIONS

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| Configuration: | 1 Antenna to 12 Receivers (maximum). |
| Operation: | Remotely controlled (refer to 'Control' section). |
| Frequency Response: | Customer Specified. (refer to Note 1). Bandwidth Filtering to Customer specification is available. |
| Gain: | Nominal 3db at a specified reference Frequency. |
| Flatness: | +2db to -1db about the above reference Frequency. |
| Linearity (Third Order) | IM3 < -35dbc @ -5dbm input level. (Measured @ ref Freq). |
| NF: | < 8db (High Sensitivity). |
| Pre Amplifier: | Internally mounted Pre Amplifier Module. |
| Sensitivity Control: | Switch-able Attenuator, 15db. (refer to Note 2). |
| Max Input (linear operation): | 0dbm for High Sensitivity. +15dbm for Low Sensitivity. |
| Max Input (no damage): | +20dbm for High Sensitivity. +35dbm for Low Sensitivity. |
| On / Off Isolation: | >50db @ 30 MHz. |
| Output to Output Isolation: | >40db worst case. |
| Crosstalk: | >50db worst case. |
| Input Impedance: (input): | 50 Ohms (Nominal). |
| Input VSWR: | < 1.4 : 1 |
| Output Impedance (all outputs): | 50 Ohms (Nominal). |
| Output VSWR: | < 1.2 : 1 |

POWER SUPPLY

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| Input Voltage: | 90 to 264 VAC Auto-sensing. |
| Input Frequency: | 47 to 63 Hz. |

MECHANICAL

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| Width: | 19 Inch Rack Mounting. |
| Height: | 1RU (1.75 inches, 44 mm). |
| Depth: | 260 mm overall (Includes rear connectors). |
| Weight: | 2 KG. |
| RF Connector (input): | N or TNC or BNC (Female). Customer option (no cost). |
| RF Connectors (outputs): | TNC or BNC (Female). Customer option (no cost) |
| Power Connector: | IEC. |
| Ethernet Connector (Network Control): | RJ45. |
| USB Auxiliary Control Connector: | USB Unpowered Type A. Front Panel Mounted. |

CONTROL SYSTEM:

Three basic control options are available (one or more can be provided) (Refer to Note 3):

- Network control via a LAN.
- Front Panel control via USB
- iPad or iPhone control via WiFi

Network control connects the Multicoupler to a PC, and provides control from a GUI (point and click). This type of control is only recommended if the Unit is going to be subject to regular control. PC control software is provided.

As Multicouplers are mostly a 'set and forget' system, either USB or WiFi control will usually be more appropriate.

The Unit includes a Front Panel mounted USB connector (unpowered A) to which a Laptop computer can be connected to provide control for set up and occasional use. Control software is provided with the Unit.

The Unit can be WiFi enabled to enable control from an iPhone or iPad. An application is provided with the Unit.

GENERAL NOTES

1. Frequency Response: The frequency response can be designed to meet individual Customer specifications by the inclusion of a high performance Pre Selector (Bandpass) LC filter.

Bandpass characteristics can be achieved either by a true Bandpass design, or are often more easily realized by the use of a high pass (HP) section to limit response below the lower nominated frequency limit, combined with a separate low pass (LP) section to limit response above the upper nominated frequency limit.

The Pre-Selector Filter is optional, and is provided to meet Customer specification only where required, and is at additional cost. The use of a Pre Selector Filter in most cases for VHF / UHF is highly recommended.

Accordingly, this Filter must be fully specified prior to manufacture.

A typical response plot of a UHF Pre Selector Filter is shown below. This Filter is realized by cascading a 5th order Elliptic High Pass design, with a 7th order Low Pass Elliptic design.

In this instance, the low side rejection was not critical, hence a 5th order Filter was deemed adequate.



