

Overview

The RCN-RFSW-4-8-ETH switches allow connecting up to 4 receiving antennas to up to 8 radio receivers or similar equipments. They are built using pre-built modules, with minimum guaranteed performance: 1:8 power splitters connected on each input and absorptive electronic 1:4 switches. As the used switches are absorptive, the connectivity is total, the number of properly terminated outputs simultaneously connected to a given input has no influence on the parameters. Even more, unused outputs can be completely disconnected from inputs for best performance.

Optionally, the inputs can be equipped with lighting protectors based on gas discharge tubes, with a sparkover voltage of 90V. Mechanically, the solution is robust and insures very good radio frequency performance. The metal case can be installed in a 19" rack and has a height of 2U.

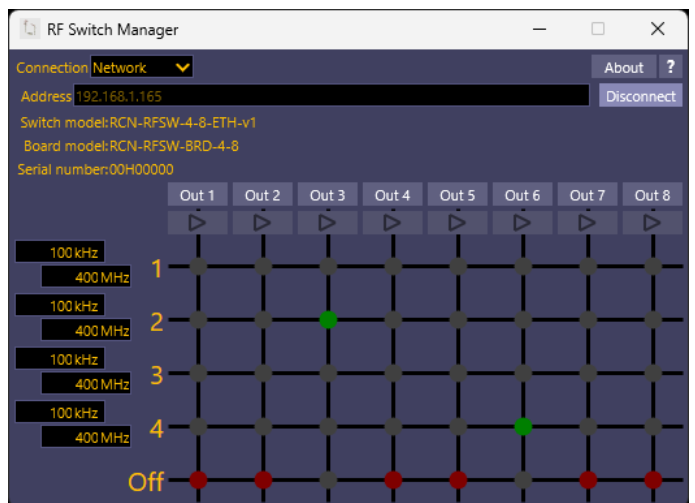
The switching matrix control can be done using the touchscreen or through the Ethernet connection, using the provided application. Theoretically there is no limit for the simultaneous TCP/IP connections.

Although the overall switching structure is quite complex, the maximum dissipated power by the switch and the control modules is low, with a top value of 24W if output amplifiers are also included. In order to minimise the electrical noises on the outputs as much as possible the device has a double hybrid power supply – linear power transformer and rectifying bridge followed by a linear LDO regulator for the RF section and a DC/DC converter with supplementary EMI filtering on its input for the control panel. Also, the control signals are passed through two sets of Schmitt triggers, one on the control dispatch board and the other in the 1:4 switching modules.

The frequency ranges for the 4 inputs can be customized based on the negotiated minimum requirements.

The delivered switches come with complete technical documentation: block diagram of the RF signal distribution and switching structure, interconnections between the switching matrix and the control modules, TCP/IP communication protocol, measured radio frequency performance.

Typical radio frequency performance is detailed for the RCN-RFSW-4-8-ETH-v1 model.



RCN-RFSW-4-8-ETH-v1

The RCN-RFSW-4-8-ETH-v1 switch has 4 inputs for the 0.1-400MHz frequency range. The inputs are grouped in sets of two – inputs 1 and 2 and inputs 3 and 4. The isolation between inputs in the same group is lower.

The inputs are protected with gas discharge tubes with a sparkover voltage of 90V.

The outputs have 14dB amplifiers that can be bypassed.

The following insertion loss and isolation combined plots have been obtained by combining measurements done for all the manufactured units. Each plot shows the insertion loss for selected input, the isolation for input in the same group and the isolation for input in another group. The first plot is with the output amplifier bypassed and the second one is with it enabled.

