Switching System

Keithley Instruments, Inc. announced its new Model S46 Microwave Switch System, the first system of this type that can be ordered in a wide variety of configurations for off-the-shelf delivery. Systems can be built with up to eight SPDT coaxial microwave relays and up to four multi-pole relays. Any of the multi-pole relays can be specified as either SP3T, SP4T, SP5T, or SP6T. These relays can be connected to create switching systems that are configured as multiplexers, matrices, independent relays or any combination that meets users' needs. For added versatility, coaxial relay connections are provided on the front panel and the physical position of each relay can be specified by the customer. Moreover, as test requirements change, relays can be easily changed or added to the system to create a new switch configuration. The resulting 19-inch rack package comes in a mounting height as low as 2U (3.5 inches).

The Model S46 also has exclusive maintenance features that ensure maximum up-time and high quality performance. These features include a controller that counts and stores the number of closures for every relay contact. Maintenance personnel can quickly recall this data to determine when relays are nearing the end of their mechanical life. This allows relay replacement during scheduled maintenance periods, thereby avoiding unplanned shutdowns and loss of production. Another feature is front panel LEDs that continuously indicate the active channels (closed contacts), which simplifies troubleshooting. In addition to storing contact closures, the Model S46 has additional memory available to store &quotS&quot parameters (reflection and transmission coefficients) for each signal path, or calibration constants for relay contacts. It can even store specific performance parameters, such as VSWR and insertion loss. These parameters can be viewed for trend analysis between scheduled maintenance shutdowns. Alternatively, stored parameters can be used for compensation to enhance accuracy during RF measurements.

The Model S46 is controlled over an IEEE-488 interface bus, so a minimal set of SCPI instructions are needed to operate the 32 control channels. This allows the test engineer to quickly get the system &quotUp and Running&quot. The simplified instruction set, along with the front panel LEDs, shorten start-up time and provide convenient debugging and operational monitoring tools. For application needs beyond the standard Model S46 options, Keithley will design and build customized systems with active and passive RF components as well as relays. These customized designs can incorporate physical layouts of the front and rear panels to meet customer specifications. Both standard and custom designs allow a user to purchase only the switch capacity and features needed. Coupled with a highly cost-effective controller, these modular designs provide the best price/performance value available.

Keithley builds Model S46 systems with the industry's best coaxial microwave relays, resulting in the lowest insertion loss, VSWR, and crosstalk performance up to 18 GHz for the standard options, or up to 40 GHz for customized designs. To further maximize signal integrity, Keithley offers low loss, semi-flexible RF cables as external connection accessories.

Typical product testing applications for the Model S46 include portable wireless telecommunications devices such as cellular phones, cordless phones, pagers, and mobile radios, cellular base stations, wireless computer peripheral devices broadband wireless communication transceivers RFICs and other RF components, wideband circuits, sub-systems, and instruments, high speed digital circuits. In addition, OEMs who are building high frequency test systems can eliminate much design work and shorten time to market by partnering with Keithley on a Model S46 as a sub-system.

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