
RF AND DC HIGH CURRENT 2 WAY WILKINSON SPLITTER

SWS SERIES

Overview

High current DC/RF Wilkinson splitter particularly developed for cellular repeaters and radio-base wireless applications where is required to divide, with constant RF impedance, a DC power, RF power and FSK surveillance carrier present on a coaxial cable such as a radiating cable or remote tower cable supply.

As an example, the radiofrequency field covering of a two entrances railway tunnel is provided with the use of two radiating (one for each tunnel) cables and some line amplifiers. At the entrance of the two tunnels the radiofrequency, coming from an antenna and one or more band selective amplifiers, is injected in parallel with DC current and FSK carrier.

Before to enter the two tunnels a SWS splitter is put in series to the cable and the two output cable enter the tunnels. The SWS splitter carries RF power (up to 2 GHz), DC power (up to 15 A) and FSK carrier (132 kHz)

Electrical characteristics

The most important characteristics that distinguish this type of extractor are:

Max. working DC voltage	120 Vdc
Max. DC pass current	15 A
Max. DC voltage drop	50 mV
Single unit MTBF	ab. 1.00.000 hours

Pass-through DC current

The product range includes the following models as a function of the passing DC current and pass connector type.

Model	Pass Conn.	Pass Current
SWS-NNN	N	5 A
SWS-444	4,1/9,5	10 A
SWS-777	7/16	15 A

RF and FSK carrier characteristics

RF Impedance	50 ohm
RF Frequency range	400 - 2000 MHz
RF Input power	< 50 W (47 dBm)
RF Splitting	-3 dB
RF Insertion loss	< 0,3 dB
RF Flatness	< 0,3 dB
RF Return loss	< -20 dB
FSK Frequency	132 kHz
FSK level	< 3 V Rms

Accessories

A wide range of accessories is available to equal the splitter to the more complex applications and specifications.

The ones foreseen in normal production are the following.

Inside board mounting bracket

Wall mounting plate

Four ways adaptor and mounting plate

DC Blocking on outputs

DC blocking dummy load

Mechanical characteristics

The foreseen mechanical construction are of two types: an inside metal box type (no IP protection) and a stand alone with wall mounting plate type (IP67 protection). The overall dimensions are the following.

Model	Width	Height	Depth
Stand-alone (IP67)	200mm	60mm	260mm
Inside (IP44)	145mm	45mm	250mm

Ambient compatibility

The splitter are submitted to typical or production tests to warrant the ambient compatibility. The fundamental tests are the following (* identifies typical tests).

*Vibrations	5 m.s ⁻² - 0,032mm
*Storage temperature	from -40 to 70 °C
*Working temperature	from -20 to 65 °C
1,2/50 µs pulse withstand	0,5 kVp
Insulation resistance	100 MΩ at 250 Vcc
CE mark ref. standards	EN50081-2/50082-2

Product range

Model	RF Frequency range 1=0,4-1GHz 2=0,6-1GHz 3=0,8-2GHz	Inside mounting bracket	Wall mounting plate	SA=Stand Alone / IM=Inside protected	Four ways adaptor	1-2 Ports DC Blocking	DC Dummy load
SWS-NNN	1/2/3	M1	M2	SA/IM	M3	D1/D2	R1
SWS-444	1/2/3	M1	M2	SA/IM	M3	D1/D2	R1
SWS-777	1/2/3	M1	M2	SA/IM	M3	D1/D2	R1

Mechanical dimensions

SWS-777-1-M2-IM (7/16 - Triple Port) Top view

