

# DSSM1A

## Dynamic Signal Strength Meter

Firmware Revision 0.20

### User Guide

**DISCLAIMER:** The product described in this user guide is intended to be used as an indicator only. In the event it does not perform as expected, RHDC Services Ltd may not be held liable.

**ESD WARNING:** In order to obtain the highest RF performance, the DSSM1A's RF input has only limited protection and may be damaged by ESD discharge. Please take extra care when connecting to the RF input to avoid static discharge.

## 1 Scope

This document describes how to use the DSSM1A (Dynamic Signal Strength Meter model 1A).



**Figure 1. DSSM1A Dynamic Signal Strength Meter**

## 2 Important Notes

Please read the following important notes before using this product.

1. Observe ESD precautions when connecting to the RF input.
2. Do not apply more than 10dBm to the input
3. Use Alkaline batteries only such as Energizer E91 or an equivalent.

### 3 Introduction

The DSSM1A is a high dynamic range broadband signal detector capable of detecting RF signals, even if their duration is only a few microseconds.

If you work with modern RF devices then you may need a dynamic signal strength meter rather than a spectrum analyser or traditional signal meter in order to be able to easily tell different signals apart.

The key feature of the DSSM1A is its ability to detect short RF pulses coupled with its scrolling time-domain and triggered oscilloscope display.

The resulting instrument can discriminate between different signals, even when they occupy the same frequency band.

For example, the instrument can easily discriminate between common domestic Time Division Multiple Access (TDMA) systems such as GSM, Wi-Fi, DECT and Bluetooth etc.

### 4 Controls

The image below shows the four controls of the DSSM1A.

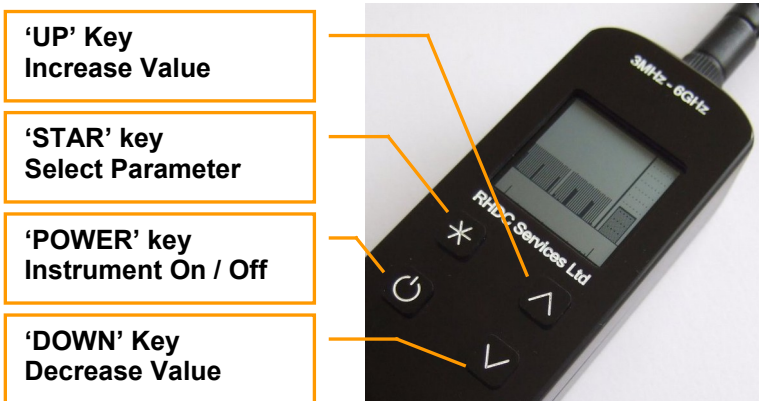


Figure 2. DSSM1A Controls.

## 5 Getting Started

1. Insert two AA Alkaline batteries.
2. Taking care to avoid ESD discharge, connect the supplied antenna.

Now press the power button and assuming the device is being used near to common domestic RF signals such as Wi-Fi, GSM, DECT, Bluetooth etc, RF activity should be observed on the scrolling (upper) section of the display, similar to the example shown below.

## 6 Instrument Display

The instrument display is split into three sections as shown below.

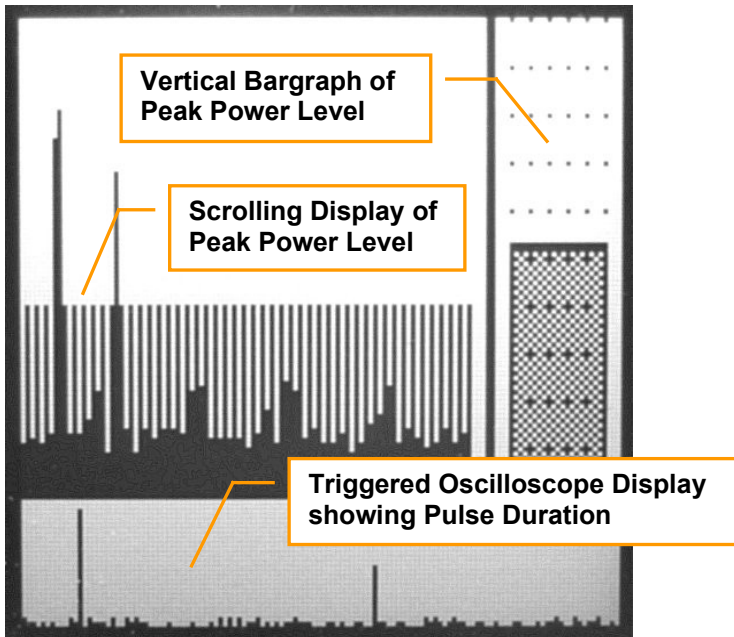


Figure 3. Example Display

### 6.1 Top right Display Section

This section displays the current signal level as a vertical bargraph with a scale of 5dB/div. The reported level is the peak level not the RMS level. This ensures that low duty-cycle transmissions are not missed.

### 6.2 Top Left Display Section

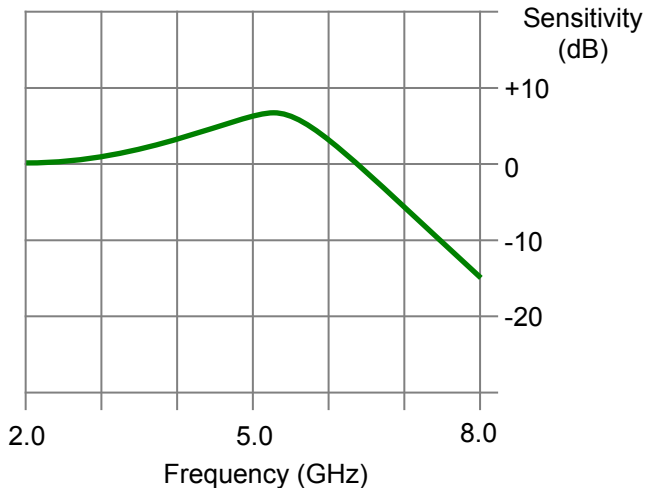
This section displays the historical peak signal level from the vertical bargraph as a scrolling chart, also with a scale of 5dB/div.

### 6.3 Bottom Display Section

This section behaves like a conventional triggered oscilloscope. It is designed to show the pulse duration in more detail than can be accommodated by the upper scrolling display.

## 7 Frequency Response

The image below shows the typical frequency response of the FFD1A.



**Figure 4. Typical Frequency Response**

## 8 Timebase

By pressing the up and down keys, the timebase of the scrolling or triggered display can be changed.

The triggered display can only be changed between a span of 10ms and 20ms. Whereas the scrolling display can be changed from x1 to x16.

## 9 Limitations

This instrument is only intended as an indicator. In order to make precise, calibrated measurements of a dynamic signal, more sophisticated instrumentation may be required. However, in many cases, the advantages of portability and low-cost make the DSSM1A the ideal choice for all but the most demanding of requirements.

## 10 Absolute Maximum Rating

Parameter	Min	Typ	Max	Units
Maximum Input Signal Level			10	dBm

## 11 Specifications

Unless Otherwise Stated: Battery = 2 x Energizer E91 AA Alkaline, No signal input, temperature = 20°C.

Parameter	Min	Typ	Max	Units
Frequency Range	3MHz		6GHz	
Amplitude Range	-55		-5	dBm
Absolute Accuracy 100MHz to 2GHz		3		dB
Measurement Rate		100		kHz
Battery Life		120		Hours

Note. Specifications are subject to change without notice.