

# Manual for NISSEI DG-503 / DG503MAX Digital SWR Watt meter

December 16<sup>th</sup>, 2024

## Table of contents

<b>About Radioddity .....</b>	<b>3</b>
<b>1      Revision history of this document .....</b>	<b>4</b>
<b>2      Overview .....</b>	<b>5</b>
<b>3      What is in the box? .....</b>	<b>6</b>
3.1 <i>Bill of materials for NISSEI DG-503 / DG-503MAX .....</i>	<i>6</i>
<b>4      Backside for connectivity and MAX control .....</b>	<b>7</b>
<b>5      Frontside for easy operation.....</b>	<b>8</b>
<b>6      Prepare for operation .....</b>	<b>9</b>
6.1 <i>HF line.....</i>	<i>9</i>
6.2 <i>VHF/UHF line.....</i>	<i>10</i>
6.3 <i>Power.....</i>	<i>10</i>
<b>7      General specifications.....</b>	<b>11</b>
<b>8      Certification.....</b>	<b>12</b>
8.1 <i>CE certificate for NISSEI DG-503 and DG-503MAX.....</i>	<i>12</i>
<b>9      Where to find further information? .....</b>	<b>14</b>

## About Radioddity

### **"You, our friend and customer, are our focus"**

At Radioddity, our customers are important to us. As a customer, your time and money are important to you. When you buy radios online, you face a dilemma: buy from a reputable website at a high price, or try to save money by choosing a retailer that may not offer quality goods, service or advice. At Radioddity.com, you don't have to choose between low prices and a safe shopping experience. Whether you are a first-time shopper or an experienced radio amateur, we always do our utmost to ensure that you get the best possible value for money. Over the past few years, Radioddity has continuously strived to better meet the needs of wireless equipment buyers and has become a reliable partner. We do this by offering the highest quality products at an affordable price and by providing you with first-class support after purchase as well as out of warranty. Because as our customer, you deserve nothing less.

### **Our promise: To offer you the best shopping experience**

Strong partnerships enable us to offer you the latest technologies with an excellent price/performance ratio under the Radioddity brand name. Our experienced and responsive customer service team helps us to deliver on our promise to you and better meet your everyday needs. Whether it's offering you the latest and greatest DMR, HF and analog radios, accessories and related products, providing outstanding technical support or working with amateur radio industry leaders to develop helpful content to assist you with your purchase: Your concern is our concern. We want to provide you with quality radios at great prices. If you feel we are not delivering on this promise in any way, please let us know by e-mail:

[support@radioddity.com](mailto:support@radioddity.com)

### **Copyright© 2024 by Radioddity**

All rights reserved. This manual or any part of it may not be reproduced or used in any way without written permission from the publisher, except for brief quotations in critical reviews and for certain other non-commercial uses permitted by copyright law. For permission requests, please contact the publisher.

NISSEI, Windows™, Linux™ and OS X™ are trademarks of their respective owners. If a trademark assignment is missing, incorrect or erroneous, please contact us as soon as possible so that we can correct this immediately.

## 1 Revision history of this document

We are constantly trying to update our manuals according to changes or enhancements during production. If you miss any aspect in this document or believe that something has been described incorrectly or in a misleading way, please feel free to give us feedback at [support@radioddity.com](mailto:support@radioddity.com). We will try our best to make the next version of this document of even more added value for you.

Revision	Changes	released
V1.0	<ul style="list-style-type: none"><li>Initial document derived from the original NISSEI documentation</li></ul>	2024-12-16

## 2 Overview

The NISSEI DG503 SWR & Watt meter is highly accurate for measuring forward power, reflected power, and the VSWR ratio of analog radio transceivers. Besides those measurements the NISSEI DG-503MAX can also measure the aforementioned values of DMR (TDMA), AM and SSB of radio transceivers.

### Main features:

- Large LCD (3.5") backlight display for easy of reading
- Display of forward power (FWD)
- Display of reflected power (REF)
- Display of VSWR (SWR)
- Easy band selection between HF-line and VHF/UHF-line
- Power ON/OFF Switch
- Frequency range 1.6MHz - 60 MHz and 125 MHz - 525 Mhz
- Max power input 200 Watt (minimum 1W)
- Constant measurement of forward power (FWD), reflected power (REF), and VSWR ratio (SWR)
- Switch to activate MAX measurements of DMR (TDMA), AM, SSB (DG-503MAX only)

### 3 What is in the box?

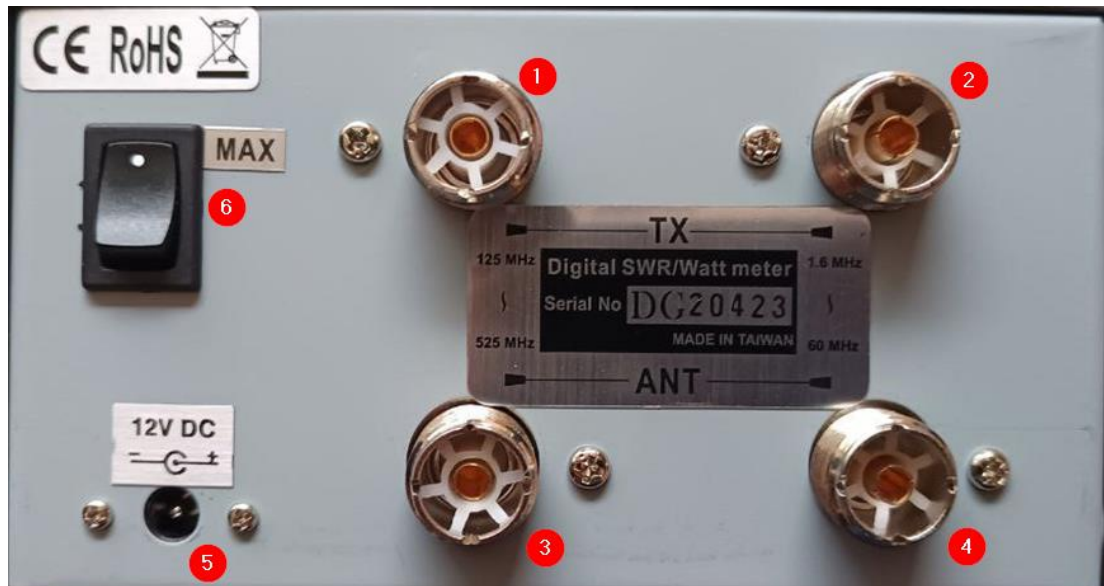
Thank you for choosing a NISSEI DG-503 or DG-503MAX. We recommend that you first check the delivery contents listed in the following tables and keep the packaging for later storage. If something is missing or damaged, please contact your dealer immediately.

#### 3.1 Bill of materials for NISSEI DG-503 / DG-503MAX

Item	Picture
NISSEI DG-503 / DG503MAX	
Cable PL-259 ↔ PL-259 Cable PL-259 ↔ SMA-f Cable PL-259 ↔ SMA-m Adapter N ↔ SO-239	
DC Power-cable	
Radioddity Manual for NISSEI DG-503 / DG-503MAX	

## 4 Backside for connectivity and MAX control

All external connections are on the backside of the DG-503 / DG-503MAX. Besides that, the switch to activate MAX-mode (6) is also located on the backside (DG-503MAX only).



No.	Description
1	SO-239 connect with VHF/UHF port of radio transceiver
2	SO-239 connect with HF port of radio transceiver
3	SO-239 connect with VHF/UHF antenna or dummy load
4	SO-239 connect with HF antenna or dummy load
5	5525 power-socket connect with 12V DC power supply (check polarity!)
6	Switch between normal and MAX mode (DG-503MAX only!)

## 5 Frontside for easy operation

All relevant values are displayed on the large screen. Power ON/Off the device by pressing the red power button (6). Using the switch (5) you can select which line to be used for measuring (HF or VHF/UHF).



No.	Description
1	Forward power, FWD (in Watt)
2	Reflected Power, REF (in Watt)
3	VSWR ratio, SWR (1: displayed value)
4	MAX-mode activated via switch on the backside (DG-503MAX only!)
5	Band selection switch for HF- or VHF/UHF-line
6	Power-switch

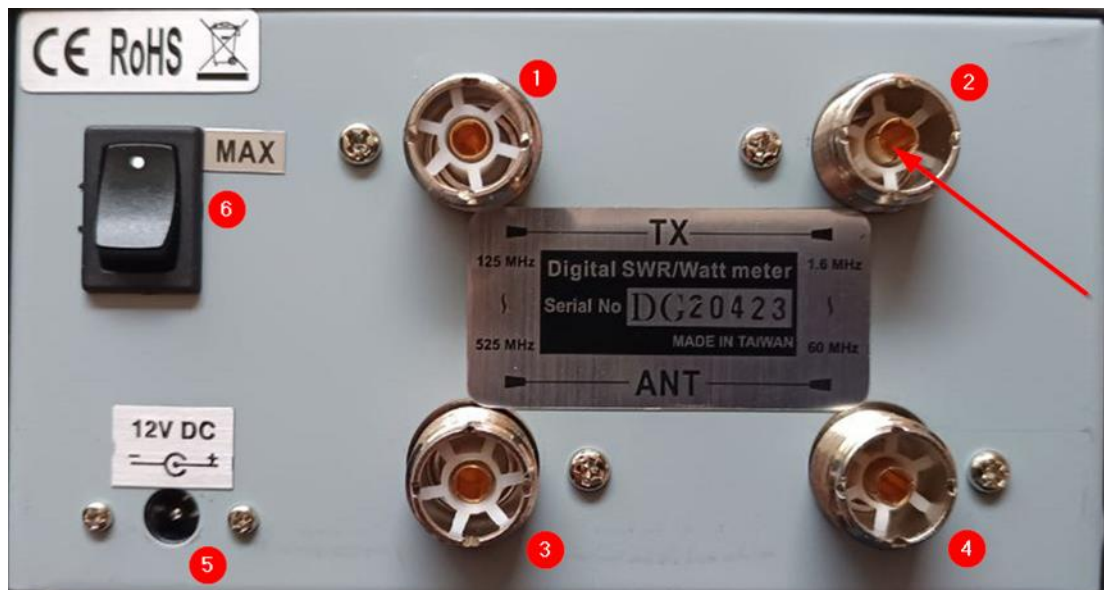


## 6 Prepare for operation

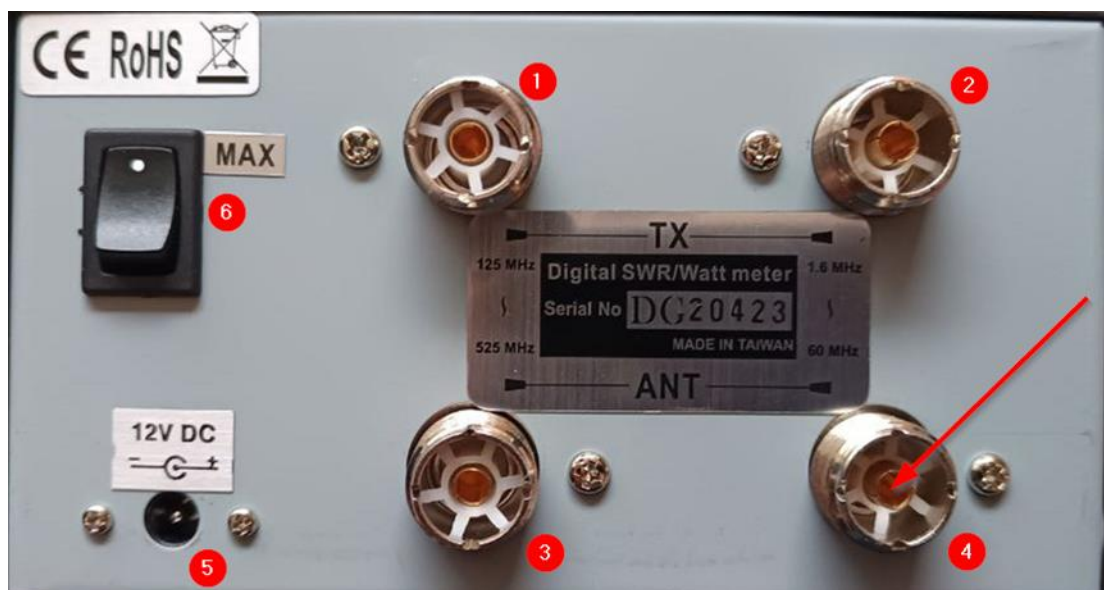
Before using the device, turn off the radio you plan to connect to the device. Using either standard cables or the supplied additional patch-cables.

### 6.1 HF line

Connect the antenna output of your HF radio to the upper right SO-239 socket (2) on the backside of the device.

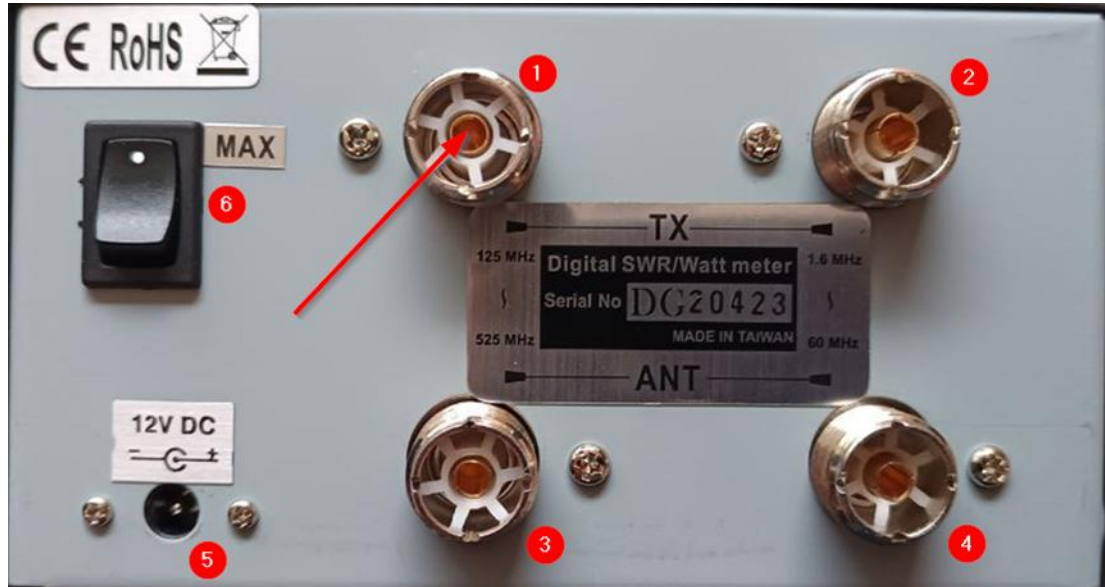


Connect the HF antenna to the lower right SO-239 socket (4) on the backside of the device.

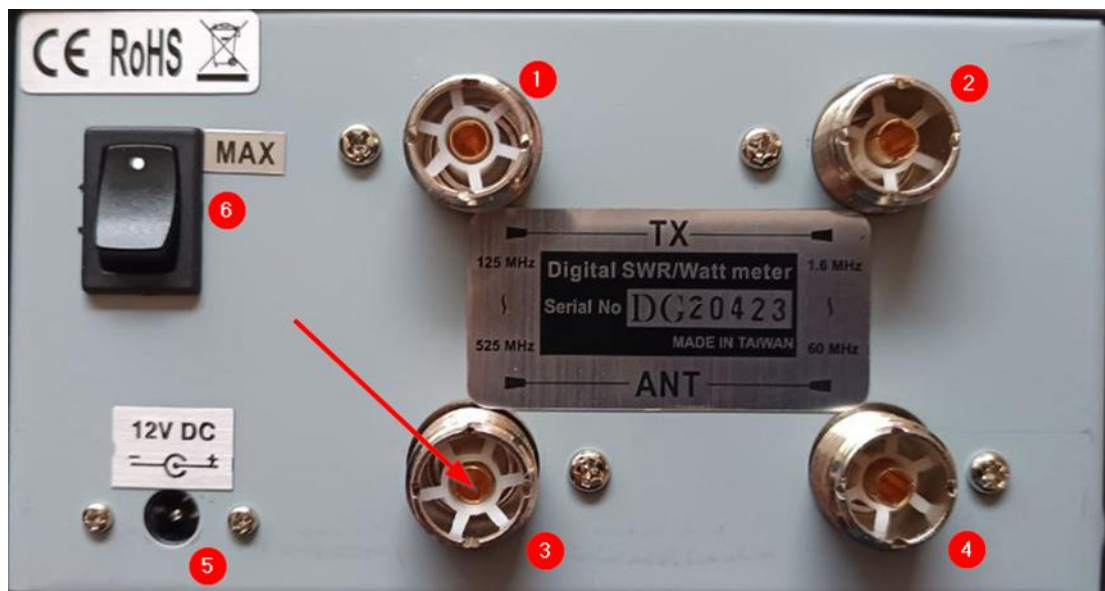


## 6.2 VHF/UHF line

Connect the antenna output of your VHF/UHF radio to the upper left SO-239 socket (1) on the backside of the device.



Connect the VHF/UHF antenna to the lower left SO-239 socket (3) on the backside of the device.



## 6.3 Power

Using the supplied 5525 DC power cable connect the DC socket to a 12V DC power supply.

**Notes:** Black is negative (-), black/white is positive (+)

## 7 General specifications

<b>MODEL</b>	<b>DG-503</b>	<b>DG-503MAX</b>
Frequency Range	1.6-60 MHz / 125-525 MHz	
Measurement (Analog mode)	CW, FM, FDMA	
Measurement (MAX mode)	Not available	DMR (TDMA), AM, SSB
Calibration point	28 / 145 / 435 MHz	
Power Range	0-200W	
Accuracy	(+/- 5%)	
Minimum Power for SWR	1W	
Input/Output Connector	SO-239	
Weight (Net)	750 g	
Insertion Loss	Less than 0.1 dB	
Testing Function	Forward/Reflected Power & VSWR ratio	
Input/Output Impedance	50 $\Omega$	
Dimension (W/H/D) mm	140 mm x 84 mm x 122 mm	

## 8 Certification

The NISSEI DG-503 and DG-503MAX can both be sold in the European Community as they are conformant to the European regulations. This is attested by the following certificate.

### 8.1 CE certificate for NISSEI DG-503 and DG-503MAX

CERTIFICATE | СЕРТИФИКАТ | CERTIFICAT | ZERTIFIKAT | CERTIFICATO | شهادة | 証明書 | 인증서입니다

#### VERIFICATION OF CONFORMITY

Certificate No.: B-E2210A3557  
Client ID: CA3591

**Beide**  
Compliance Laboratory

**Holder**.....: Taiwan Nissei Sokki Co.,Ltd  
**Address**.....: No.2,Lane 21,Cheng Kong Road,Panchiao District,new Taipei City,Taiwan.  
**Manufacturer**.....: Same As Holder  
**Product**.....: Digital SWR Watt meter  
**Model No**.....: DG-503, DG-503MAX, DG-103, DG-103MAX  
**Technical Data**....: DC12V  
**Verification to**.....: European Directive(s):EMC Directive 2014/30/EU  
EN 61326-1:2013

The test results apply only to the particular sample tested and to the specific tests carried out. Technical Report and documentation are at the Holder's disposal.

This certificate applies specifically to the sample investigated in our test reference number only. The CE markings as shown below can be affixed on the product after preparation of necessary technical documentation. Other relevant Directives have to be observed.

**Date of issue:** 2022-10-24  
**Expiry date:** 2025-10-23



*Andy*

Certification Manager



**Beide (Shenzhen) Product Service Limited**

Address: 6F, Bldg E, Hourui 3rd Ind Zone, Xixiang, Bao'an Dist, Shenzhen, China  
E-mail: admin@szbeide.com Phone: +86 0755 27454498 www.szbeide.com



**VERIFICATION OF CONFORMITY**

Certificate No.: B-R2210A3558  
 Client ID: CA9995

**Beide**  
 Compliance Laboratory

**Holder**.....: Taiwan Nissei Sokki Co., Ltd

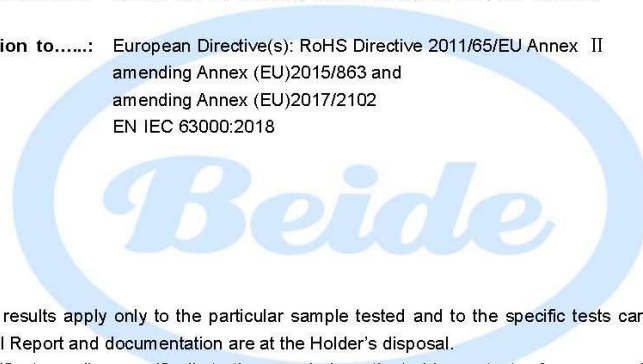
**Address**.....: No.2, Lane 21, Cheng Kong Road, Panchiao District, new Taipei City, Taiwan.

**Manufacturer**.....: Same As Holder

**Product**.....: Digital SWR Watt meter

**Model No**.....: RS-50, RS-70, DG-503, DG-503MAX, DG-103, DG-103MAX

**Verification to**.....: European Directive(s): RoHS Directive 2011/65/EU Annex II amending Annex (EU)2015/863 and amending Annex (EU)2017/2102 EN IEC 63000:2018



The test results apply only to the particular sample tested and to the specific tests carried out. Technical Report and documentation are at the Holder's disposal.  
 This certificate applies specifically to the sample investigated in our test reference number only. The CE markings as shown below can be affixed on the product after preparation of necessary technical documentation. Other relevant Directives have to be observed.  
**Date of issue:** 2022-10-25  
**Expiry date:** 2025-10-24



Certification Manager



**Beide (Shenzhen) Product Service Limited**

Address: 6F, Bldg E, Hourui 3rd Ind Zone, Xixiang, Bao'an Dist, Shenzhen, China  
 E-mail: admin@szbeide.com Phone: +86 0755 27454498 www.szbeide.com

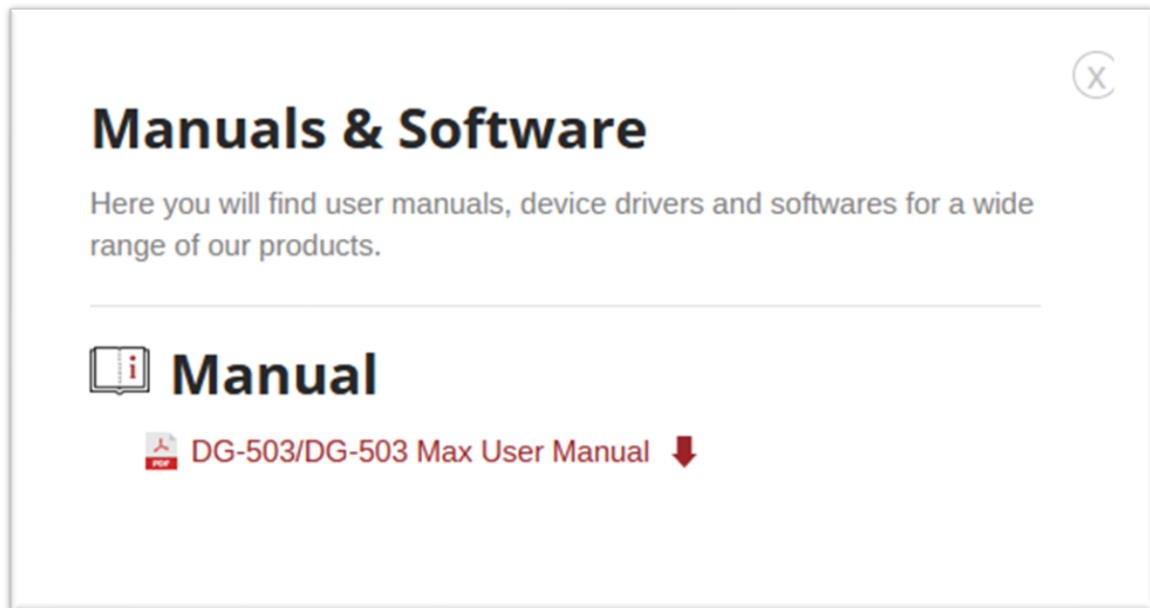


## 9 Where to find further information?

Please note that you can find all user manuals in the support section of the official Radioddity website by following these steps:

<https://www.radioddity.com/> → Support → Radioddity → DG-503/DG-503MAX

For the DG-503/DG-503MAX, the resulting support page looks something like this:



As soon as a new file is available, it will be published in our support area.

If you do find any bug in the radio's firmware, our manual or if you are missing a feature, you would have expected, write an email to [support@radioddity.com](mailto:support@radioddity.com).



Thank You for Shopping at Radioddity!

FIND TUTORIALS, SUPPORT AND MORE AT:



<https://www.radioddity.com/>



<https://www.facebook.com/radioddity>



<https://www.youtube.com/c/Radioddityradio>

We would like to thank all Radioddity customers for their constructive feedback.

If you find an error in this documentation, or if you miss a function that you would have expected, or even if a detail has not been described to the expected extent, please feel free to write a message to [support@radioddity.com](mailto:support@radioddity.com).