



## Product Specification



**NIR-S-RT1**

**Version 1.0**  
**2021/6/30**

<b>Revision History</b>			
<b>Revision</b>	<b>Date</b>	<b>Section</b>	<b>Description</b>
1.0	2021/06/30	All	Initial version

## Contents

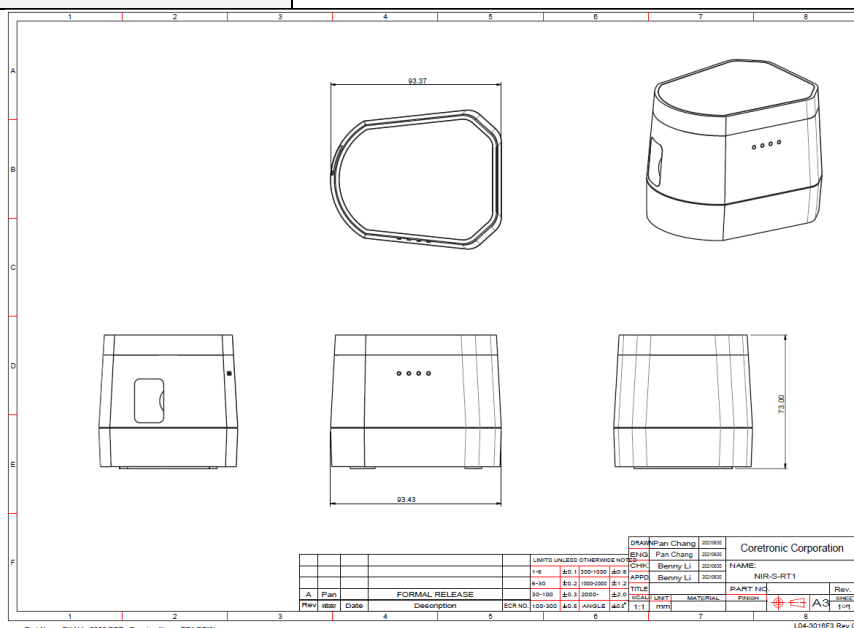
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### A. Product Highlights

- ◆ Wavelength Range: 900 to 1700nm
- ◆ Signal-to-Noise Ratio (SNR): 5,000:1 in 1 second scan
- ◆ Optical Resolution: Typ. 10nm, Max. 12nm
- ◆ Wavelength Accuracy: Typ. ±1 nm (verified with SRM2036), Max. ±2 nm
- ◆ Detector: 1mm InGaAs (Uncooled)
- ◆ Slit Size: 1.8mm \* 0.025mm
- ◆ Scan Capability: Linear / Hadamard / Slew Scan
- ◆ Illumination Module: Diffuse reflective with two integrated tungsten filament lamps
- ◆ Scan Window: Protect and seal with sapphire glass
- ◆ Cuvette Holder on Top Cover: support 1mm standard glass cuvette
- ◆ Sampling method: diffuse reflective and transfective
- ◆ White reference material: NIR-RM-1 included
- ◆ Communication Interface: Micro USB / Bluetooth Low Energy (BLE)
- ◆ Sensor: Humidity and temperature sensor
- ◆ Power: Micro USB / Li-ion battery (1000mAh@3.7V)
- ◆ Dimensions: 93mm \* 76mm \* 73.5mm
- ◆ Weight: < 222 g
- ◆ Operating Temperature: 0 ~ 40 °C, RH Max. 85%

### B. Mechanical Specifications

1. Dimensions (WxLxH)	93mm * 76mm * 73.5mm <b>Please contact ISC for CAD file.</b>
2. Weight	< 222 g
3. Waterproof	Protect and seal with sapphire glass*
4. Cuvette holder	Support 1mm standard glass cuvette, 12.5mmx3.5mmx45mm
5. Package	White box



### C. Electrical Specifications

1. System Controller	TI TM4C1297NCZAD TIVA Microcontroller
2. DLP Controller	TI DLPC150
3. PMIC	TI DLPA2005 Power Management
4. SDRAM	256Mbit
5. Flash Memory	32Mbit Serial Flash
6. Humidity & Temperature Sensor	TI HDC1010
7. 24bit ADC	TI ADS1255
8. Interface	Micro USB / BLE
9. Switch	Slide switch for power on/off
10. Battery Charger	TI BQ24250 (Up to 1A charge current)
11. LED Indication	<ul style="list-style-type: none"> <li>● Green LED: Power</li> <li>● Blue LED: BLE</li> <li>● Yellow LED: Scan</li> <li>● Red LED: Battery</li> </ul>
12. BLE	TI CC2564MODN & on-board antenna
13. Battery	1000mAh@3.7V

### D. Software Specifications

1. Embedded OS	RTOS
2. GUI OS Support	Windows 7, 8, 10
3. APP	iOS & Android
4. Scan Capability	Linear / Hadamard / Slew Scan
5. Device UUID	Each module has an unique device ID for identification

### E. Optical Specifications

1. Micro Mirror Array	TI DLP2010NIRAFQJ 0.2 WVGA Near-Infrared DMD
2. InGaAs PIN Photo Diode	HAMAMATSU G12180-010A
3. Wavelength Range	900 to 1700nm
4. Wavelength Accuracy	Typ. $\pm 1$ nm (verified with SRM2036), Max. $\pm 2$ nm
5. Thermal Stability	-0.05nm/C
6. Optical Resolution	Typ. 10nm, Max. 12nm
7. Signal-to-Noise Ratio (SNR)	5,000:1 in 1 second scan
8. Slit Size	1.8mm * 0.025mm
9. Light Source	ILT Lens End Lamp (ILT-1088-1) 0.7W* 2

**F. Power Specifications**

1. Power Supply	DC 5V@500mA (Micro USB)
2. Power Consumption	<ul style="list-style-type: none"><li>● Standby: Typ. &lt; 0.5 W</li><li>● Scan (Lamp OFF): Typ. &lt; 1 W</li><li>● Scan (Lamp ON): Typ. &lt; 2.5 W</li></ul>

**G. Accessories**

- ◆ USB Standard-A to Micro-B cable (1000mm)
- ◆ White reference material (NIR-RM-1)

\*Please contact ISC for more information.