

## P/N: T912184

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### Website

<http://www.flir.com>

### Customer support

<http://support.flir.com>

### Disclaimer

Specifications subject to change without further notice. Camera models and accessories subject to regional market considerations. License procedures may apply. Products described herein may be subject to US Export Regulations. Please refer to [exportquestions@flir.com](mailto:exportquestions@flir.com) with any questions.



### General description

The FLIR Si124 is a system for acoustic image measurements and signal analysis.

The FLIR Si124 uses 124 microphones to form a very precise acoustic image in the desired direction. This acoustic image is transposed in real-time on top of a digital camera picture, which allows the user to accurately see from which directions sound is arriving at the camera. Interesting sound sources can then be separated and saved for deeper analysis, using the FLIR Acoustic Camera Viewer cloud service.

The camera is a smart acoustic device for locating leaks in compressed-air systems. It is up to ten times faster than traditional models, and instantly shows the located leaks on the camera view combined with estimated leak size and annual cost.

Analysis and reporting can be done using:

- FLIR Acoustic Camera Viewer (cloud service)
- FLIR Thermal Studio (desktop software).

Even the human ear can sometimes hear an air leak in a quiet environment, but in a typical industrial environment it is generally impossible to hear even bigger leaks due to loud background noise. The FLIR Si124 can very effectively filter out the industrial noise, allowing the user to locate quiet sounds even in noisy environments.

### Features

- Cloud service: Upload the measurements to the FLIR Acoustic Camera Viewer for storage and analysis.
- Leak localization and detection including estimated leak size and annual cost.
- Quickly create reports in FLIR Acoustic Camera Viewer or FLIR Thermal Studio.
- Environment: For outdoor and indoor industrial use.

| Acoustic specifications   |                                                                                                                             |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Acoustic measurement      | 124 low-noise MEMS microphones, real-time sound visualization                                                               |
| Dynamic range, low limit  | < -15 dB (frequency-dependent)                                                                                              |
| Dynamic range, high limit | > 120 dB (frequency-dependent)                                                                                              |
| Bandwidth                 | 2 kHz to 65 kHz, adjustable range                                                                                           |
| MEMS Sampling Frequency   | 130 kHz                                                                                                                     |
| Distance                  | From 0.3 m (1.0 ft) up to 130 m (430 ft)                                                                                    |
| Severity assessment       | Automatic AI-based severity assessment including recommended actions in FLIR Acoustic Camera Viewer or FLIR Thermal Studio. |



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| Acoustic specifications         |                                                                                                                                                                                                                                                                                |
|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Leak localization and detection | Automatic leak recognition including estimated leak size and annual cost                                                                                                                                                                                                       |
| Leak rate                       | In typical industrial environment: <ul style="list-style-type: none"><li>• &gt;0,032 l/min @ 3 bar from 3 m (9.8 ft)</li><li>• &gt;0,05 l/min @ 3 bar from 10 m (32.8 ft)</li></ul> Absolute minimum detection in quiet environment: 0.016 l/min @ 1.2 bar from 0.3 m (1.0 ft) |
| User interface                  |                                                                                                                                                                                                                                                                                |
| Display                         | Size: 5 in. 800 × 480<br>Color: 24 bit RGB<br>Brightness: 1000 cd/m2 (adjustable)                                                                                                                                                                                              |
| Input device                    | Resistive touchscreen                                                                                                                                                                                                                                                          |
| Power On indicator              | LED (red)                                                                                                                                                                                                                                                                      |
| Video image resolution          | 800 × 480                                                                                                                                                                                                                                                                      |
| Camera FOV                      | 62° × 49°                                                                                                                                                                                                                                                                      |
| Video frame rate                | 25 fps                                                                                                                                                                                                                                                                         |
| Acoustic image frame rate       | 30 fps                                                                                                                                                                                                                                                                         |
| Zoom                            | 2x Digital zoom                                                                                                                                                                                                                                                                |
| Languages                       | Czech, Danish, Dutch, English, Estonian, Finnish, French, German, Greek, Hungarian, Italian, Indonesian, Japanese, Korean, Norwegian, Polish, Portuguese, Russian, Simplified Chinese, Spanish, Swedish, Thai, Traditional Chinese, Turkish, Vietnamese                        |
| Analysis and reporting          |                                                                                                                                                                                                                                                                                |
| Online                          | FLIR Acoustic Camera Viewer (cloud service)                                                                                                                                                                                                                                    |
| Offline                         | FLIR Thermal Studio (desktop software)                                                                                                                                                                                                                                         |
| Communication and data storage  |                                                                                                                                                                                                                                                                                |
| Data transfer                   | <ul style="list-style-type: none"><li>• Wi-Fi 2.4 GHz and 5 GHz IEEE 802.11.b/g/n/ac wireless LAN</li><li>• USB memory stick</li></ul>                                                                                                                                         |
| Camera software update          | <ul style="list-style-type: none"><li>• Automatic over Wi-Fi</li><li>• USB via computer</li></ul>                                                                                                                                                                              |
| Still images                    | Yes                                                                                                                                                                                                                                                                            |
| Video recording                 | Yes, up to 5 minutes.                                                                                                                                                                                                                                                          |
| Storage, internal               | 32 GB / 1000 snapshots (typical) SD card, non-removable                                                                                                                                                                                                                        |
| Storage, external               | 8 GB / 500 snapshots (typical) USB mass storage, provided with device                                                                                                                                                                                                          |

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|                                               |                                                                                                                                                                                                                                                                                                                                        |
|-----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Power supply</b>                           |                                                                                                                                                                                                                                                                                                                                        |
| Camera power input                            | Nominal input voltage 12 V<br>Max input: 15 V 2.5 A                                                                                                                                                                                                                                                                                    |
| Battery                                       | Li-Ion rechargeable battery pack (RRC 2040):<br>10.8 V, 3.35 Ah, 36.2 Wh<br><br>Usage: Up to 2.5 h (depends on ambient conditions)<br><br>Charge time: 2 h<br><br>Max output: 12.6 V, 4 A                                                                                                                                              |
| Battery charger                               | Input: 19-26 VDC, 2.8 A<br>Max output: 17.4 VDC, 4.8 A                                                                                                                                                                                                                                                                                 |
| Internal battery (only for camera backup use) | Li-Ion 6 Wh                                                                                                                                                                                                                                                                                                                            |
| <b>Environmental data</b>                     |                                                                                                                                                                                                                                                                                                                                        |
| Operating temperature range                   | −10 to 50°C (14 to 122°F)                                                                                                                                                                                                                                                                                                              |
| Storage temperature range                     | −20 to 70°C (−4 to 158°F)                                                                                                                                                                                                                                                                                                              |
| Relative humidity                             | Recommended 0 to 90%                                                                                                                                                                                                                                                                                                                   |
| EMC                                           | <ul style="list-style-type: none"> <li>FCC 47 CFR Part 15 Subpart B Class A</li> <li>EN 301 489-1 EMC for radio equipment</li> <li>EN 301 489-17</li> <li>ICES 003 Issue 7 Class A</li> </ul>                                                                                                                                          |
| Radio                                         | <ul style="list-style-type: none"> <li>EN 300 328 v2.1.1</li> <li>EN 300 893 v2.1.1</li> <li>FCC Part 15 C / E</li> <li>Raspberry Pi RPI3P-MODBP</li> <li>FCC ID: 2ABCB-RPI3BP</li> <li>ICED: 20953-RPI3P</li> </ul>                                                                                                                   |
| Protection class                              | IP51                                                                                                                                                                                                                                                                                                                                   |
| Declaration of conformity                     | See: <a href="https://support.flir.com/resources/DoC">https://support.flir.com/resources/DoC</a>                                                                                                                                                                                                                                       |
| <b>Physical data</b>                          |                                                                                                                                                                                                                                                                                                                                        |
| Camera size                                   | 315 × 170 × 160 mm (12.4 × 6.7 × 6.3 in)                                                                                                                                                                                                                                                                                               |
| Camera weight                                 | 0.98 kg (2.16 lb)                                                                                                                                                                                                                                                                                                                      |
| Battery size                                  | 85 × 59 × 22 mm (3.34 × 2.31 × 0.86 in)                                                                                                                                                                                                                                                                                                |
| Battery weight                                | 0.17 kg (0.37 lb)                                                                                                                                                                                                                                                                                                                      |
| Total weight (camera + battery)               | 1.23 kg (2.71 lb)                                                                                                                                                                                                                                                                                                                      |
| <b>Warranty and service</b>                   |                                                                                                                                                                                                                                                                                                                                        |
| Warranty                                      | <a href="http://www.flir.com/warranty/">http://www.flir.com/warranty/</a>                                                                                                                                                                                                                                                              |
| <b>Shipping information</b>                   |                                                                                                                                                                                                                                                                                                                                        |
| Packaging, type                               | Cardboard box                                                                                                                                                                                                                                                                                                                          |
| Packaging, contents                           | <ul style="list-style-type: none"> <li>Camera</li> <li>Battery (2 ea)</li> <li>Battery charger</li> <li>Camera hand strap</li> <li>Neck strap</li> <li>Hard transport case</li> <li>License card: FLIR Si-series Plugin for FLIR Thermal Studio, Perpetual license</li> <li>Printed documentation</li> <li>USB memory stick</li> </ul> |
| Packaging, weight                             | 6 kg (13 lb)                                                                                                                                                                                                                                                                                                                           |
| Packaging, size                               | 490 × 365 × 190 mm (19.3 × 14.4 × 7.5 in)                                                                                                                                                                                                                                                                                              |



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| Shipping information |               |
|----------------------|---------------|
| EAN-13               | 7332558029688 |
| UPC-12               | 845188026752  |
| Country of origin    | Finland       |

### Supplies & accessories:

- T912185; Battery RRC 2040
- T912186; Battery charger incl. power supply

# Safety Data Sheet

## RRC Batteries

### Revision status

| Revision | Valid from | Changes                                            | Author |
|----------|------------|----------------------------------------------------|--------|
| A        | 25Apr2017  | First released version                             | DF     |
| B        | 27jun2017  | Change emergency phone numbers                     | DF     |
| C        | 24oct2018  | Template updated                                   | HB     |
| D        | 01jan2019  | Regulation updated                                 | TN     |
| E        | 01oct2019  | Added new products                                 | TN     |
| F        | 07oct2019  | Updated template & Hazardous components            | TN     |
| G        | 04feb2020  | New products, hazardous components and regulations | TN     |
| H        | 29jan2021  | Updated product list                               | TN     |

# Declaration of Conformance (DoC)

## UN38.3 Test Summary

Dok-Typ: Formblatt

Dok-Nr.: FO\_Q\_068

Rev.: B



### 1. Product information / Battery physical Description

Model name: RRC2040  
Product classification: Li-Ion rechargeable battery pack  
Nominal voltage: 10.8V  
Rated capacity: 3350mAh  
Capacity: 36.2Wh  
Weight of product: 170g

### 2. Manufacturer information

RRC power solutions GmbH  
Technologiepark 1  
D-66424 Homburg  
Germany  
Telephone +49 6841 9809-0  
[sales@rrc-ps.de](mailto:sales@rrc-ps.de)  
[www.rrc-ps.de](http://www.rrc-ps.de)

### 3. Conformance information

The product in section 1 complies with

**UN Manual of Tests and Criteria, Part III, Subsection 38.3: 2009, 6th Revision.**

### 4. UN38.3 Test Summary

|                                                               |                                                                                                                                                                                                                                                                                                     |                                   |
|---------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|
| <b>UN38.3 Test Lab:</b>                                       | AnTeK Certification Inc.<br>7F., No. 351, Yangguang St., Neihu District,<br>Taipei City, Taiwan<br><a href="mailto:atc@atclab.com.tw">atc@atclab.com.tw</a><br>Phone number: 02-87523779<br>E-Mail: atc@atclab.com.tw<br>Website: <a href="http://www.atclab.com.tw/">http://www.atclab.com.tw/</a> |                                   |
| <b>Test Report No:</b>                                        | TW2003011-001                                                                                                                                                                                                                                                                                       |                                   |
| <b>Date:</b>                                                  | <b>2020-may-25</b>                                                                                                                                                                                                                                                                                  |                                   |
| <b>UN38.3 Tests <u>Performed and Successfully passed:</u></b> | <b>T1.</b> Altitude simulation                                                                                                                                                                                                                                                                      | <b>T5.</b> External short circuit |
|                                                               | <b>T2.</b> Thermal Test                                                                                                                                                                                                                                                                             | <b>T6.</b> Impact                 |
|                                                               | <b>T3.</b> Vibration                                                                                                                                                                                                                                                                                | <b>T7.</b> Overcharge             |
|                                                               | <b>T4.</b> Shock                                                                                                                                                                                                                                                                                    | <b>T8.</b> Forced Discharge       |
| <b>Edition of UN Manual of Tests and Criteria used:</b>       | ST/SG/AC.10/11/Rev.6/Amend.1                                                                                                                                                                                                                                                                        |                                   |

38.3.3 (f): n/a

38.3.3 (g): n/a

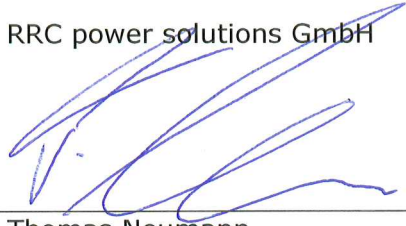
Ort und Datum der Ausstellung  
[Place and date of issue]

Homburg, 28.July 2020

Unterzeichnet für und im Namen von:  
[Signed for and on behalf of:]

RRC power solutions GmbH

Name [Name]  
Funktion [Function]

  
Thomas Neumann  
Regulatory Affairs Manager



Pony Testing International Group

报告编号 Report ID: MNIXE58T03464749 Page 1 of 2

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## 锂电池或锂电池组 UN38.3 试验概要

### Lithium Cell or Battery UN38.3 Test Summary

#### 单位信息 Company information

|                       |            |                                                                                                                                                                           |
|-----------------------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 委托单位 Applicant:       |            | 湖南华慧新能源股份有限公司 Hunan Huahui New Energy Co.,Ltd                                                                                                                             |
| 生 产 商<br>Manufacturer | 名称 Name    | 湖南华慧新能源股份有限公司 Hunan Huahui New Energy Co.,Ltd                                                                                                                             |
|                       | 地址 Address | 湖南省益阳市金秀路桐子坝巷 7 号<br>No.7, Tongziba Lane, Jinxiu Road, Yiyang, Hunan                                                                                                      |
|                       | 电话 Tel.    | 0769-81601938                                                                                                                                                             |
|                       | 邮箱 E-mail  | cqq@huahuienergy.com                                                                                                                                                      |
|                       | 网址 Website | www.huahuienergy.com                                                                                                                                                      |
| 测试单位<br>Test Lab.     | 名称 Name    | 谱尼测试集团深圳有限公司 Pony Testing Group Shenzhen Co., Ltd.                                                                                                                        |
|                       | 地址 Address | 深圳市宝安区福海街道和平社区骏丰中城智造创新园 A2 栋一层<br>1/F., Building A2, Junfeng Zhongcheng Zhizao Innovation Park, Heping Community, Fuhai Road, Bao'an District, Shenzhen, Guangdong, China |
|                       | 电话 Tel.    | 86-755-26050909                                                                                                                                                           |
|                       | 邮箱 E-mail  | cst@ponytest.com                                                                                                                                                          |
|                       | 网址 Website | www.ponytest.com                                                                                                                                                          |



#### 样品信息 Sample information:

|                                   |                              |                               |                             |
|-----------------------------------|------------------------------|-------------------------------|-----------------------------|
| 样品名称<br>Sample name               | 锂离子电池<br>Lithium ion battery | 样品型号<br>Sample model          | HTC1865                     |
| 原始测试型号<br>Original tested type    | /                            | 产品参数<br>Sample parameter      | 2.4V 1300mAh                |
| 样品质量 Sample mass                  | 38.2g                        | 额定瓦时 Watt-hour rating         | 3.12Wh                      |
| 电池或电池组类型<br>cell or battery type  | 锂离子电池芯<br>Lithium ion cell   | 物理形状<br>Physical description: | 黄色圆柱形<br>Yellow Cylindrical |
| 原报告编号<br>Original test report No. | MDIVQM0U25132721             | 测试报告日期<br>Date of test report | 2016-09-23                  |



微信扫一扫，使用小程序 小程序扫一扫，在线验证  
No.: MNIXE58T03464749  
Code: tsA220



北京实验室: (010)83055000 上海实验室: (021)64851999 青岛实验室: (0532)88706866 天津实验室: (022)27360730 苏州实验室: (0512)62997900 长春实验室: (0431)85150908 大连实验室: (0411)87336618 哈尔滨实验室: (0451)58627755 郑州实验室: (0371)69350670 新疆实验室: (0991)6684186 石家庄实验室: (0311)85376660 西安实验室: (029)89608785 呼和浩特实验室: (0471)3450025 杭州实验室: (0571)87219096 宁波实验室: (0574)87736499 武汉实验室: (027)83997127 合肥实验室: (0551)63843474 广州实验室: (020)89224310 厦门实验室: (0592)5568048 成都实验室: (028)87702708