

## P/N: 89401-0202

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### Document identity

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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.



<b>Imaging and optical data</b>	
IR resolution	160 × 120 pixels
Thermal sensitivity/NETD	< 70 mK
Field of view (FOV)	54° × 42°
Minimum focus distance	<ul style="list-style-type: none"> <li>Thermal: 0.1 m (0.32 ft)</li> <li>MSX: 0.3 m (0.98 ft)</li> </ul>
Spatial resolution (IFOV)	6.3 mrad/pixel
F-number	1.1
Image frequency	8.7 Hz
Focus	Focus free
Digital zoom	Yes, zoom pinch, 1–4× continuous
<b>Detector data</b>	
Detector type	Focal plane array, uncooled microbolometer
Spectral range	8–14 μm
Detector pitch	12 μm
<b>Image presentation</b>	
Display resolution	640 × 480 pixels
Screen size	3.5 in
Aspect ratio	4:3
Auto orientation	Yes
Touch screen	Yes, capacitive
Display technology	IPS
Image adjustment	<ul style="list-style-type: none"> <li>Automatic level and span</li> <li>Manual level and span</li> <li>1-Touch level and span</li> </ul>
Image modes	<ul style="list-style-type: none"> <li>Infrared image</li> <li>Visual image</li> <li>MSX</li> <li>Picture in picture (IR area on visual image)</li> </ul>
Gallery	Yes, incl. thumbnails and custom folder structure

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<b>Measurement</b>	
Object temperature range	-20 to 400°C (-4 to 752°F)
Accuracy at ambient temp. 10 to 35°C (50 to 95°F) and object temp. above 0°C (32°F)	<ul style="list-style-type: none"> <li>0 to 100°C (32 to 212°F): ±3°C (±5.5°F)</li> <li>100 to 400°C (212 to 752°F): ±3%</li> </ul>
<b>Measurement analysis</b>	
Measurement functions	<ul style="list-style-type: none"> <li>Spot</li> <li>Box with max./min.</li> </ul>
Measurements correction	<ul style="list-style-type: none"> <li>Emissivity; matt/semi-matt/semi-glossy + custom value</li> <li>Reflected apparent temperature               <ul style="list-style-type: none"> <li>Atmospheric compensation</li> </ul> </li> </ul>
Color palettes	<ul style="list-style-type: none"> <li>Iron</li> <li>Gray</li> <li>Rainbow</li> <li>Arctic</li> <li>Lava</li> <li>Rainbow HC</li> </ul>
<b>Set-up</b>	
Set-up commands	<ul style="list-style-type: none"> <li>Local adaptation of units, language, date and time formats</li> <li>Screen brightness (high, medium, low)</li> </ul>
Languages	Arabic, Czech, Danish, Dutch, English, Finnish, French, German, Greek, Hungarian, Italian, Japanese, Korean, Norwegian, Polish, Portuguese, Russian, simplified Chinese, Spanish, Swedish, traditional Chinese, Turkish
<b>Service functions</b>	
Camera software update	<ul style="list-style-type: none"> <li>Automatic over Wi-Fi</li> <li>USB via computer</li> </ul>
<b>Storage of images</b>	
Storage media	Built-in
Image storage capacity	> 5000 sets of images
Image file format	Standard JPEG, 14-bit measurement data included
<b>Image annotations</b>	
Text	Soft keyboard on touchscreen, auto-prompt for note when image is saved
<b>Video streaming</b>	
Non-radiometric video streaming	Yes; MSX, Thermal, Visual, Picture in Picture. USB Video Class colorized uncompressed with overlay 9 Hz.
<b>Digital camera</b>	
Resolution	5 MP
Focus	Fixed
Field of view	71.5° × 56° (84° diagonal)
Video lamp	Yes



# FLIR C5 (incl. Wi-Fi)

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<b>Data communication interfaces</b>	
Wi-Fi	802.11 a/ac/b/g/n (2.4 and 5 GHz) (5 GHz only for indoor use in Japan and Canada)
USB	USB 2.0, Type-C connector
Bluetooth	PAN
<b>Radio</b>	
Wi-Fi	<ul style="list-style-type: none"> <li>Standard: 802.11 a/b/g/n (HT20)</li> <li>Frequency range:               <ul style="list-style-type: none"> <li>2401–2473 MHz</li> <li>5150–5250 MHz</li> </ul> </li> <li>Max. output power: 15 dBm</li> </ul>
Bluetooth + EDR	<ul style="list-style-type: none"> <li>Frequency range:               <ul style="list-style-type: none"> <li>2400–2484 MHz</li> </ul> </li> <li>Max. output power: 10 dBm</li> </ul>
<b>Power system</b>	
Battery type	Rechargeable Li ion battery (built-in)
Battery voltage	3.7 V
Battery capacity	1800 mAh
Battery operating time	4 hours
Battery charge life	>500 cycles
Charging system	USB-C (1 A)
Charging time	2 hours
Charging temperature	35°C (95°F)
External power operation	5 V, USB-C
Power management	Adjustable stand-by and automatic shut-down
<b>Environmental data</b>	
Operating temperature range	–10 to 50°C (14 to 122°F)
Storage temperature range	–40 to 70°C (–40 to 158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity 25°C to 40°C (77°F to 104°F) / 2 cycles
Relative humidity	95% relative humidity 25°C to 40°C (77°F to 104°F) non-condensing
EMC	<ul style="list-style-type: none"> <li>EN 301 487-1</li> <li>EN 301 489-17</li> <li>FCC 47 CFR Part 15 Class B</li> </ul>
Magnetic fields	EN 61000-4-8 level 5
Radio spectrum	<ul style="list-style-type: none"> <li>ETSI EN 300 328</li> <li>EN 301 489</li> <li>FCC Title 47 CFR Part 15</li> <li>RSS-247 Issue 2</li> </ul>
Battery regulations	<ul style="list-style-type: none"> <li>UL 1642</li> <li>EN 62133 ed 2</li> </ul>
Battery charging efficiency	<ul style="list-style-type: none"> <li>BC Title 20</li> <li>10 CFR Section 430.23 (aa)</li> </ul>
Encapsulation	Camera housing and lens: IP 54 (IEC 60529)
Shock	25 g (IEC 60068-2-27)



## FLIR C5 (incl. Wi-Fi)

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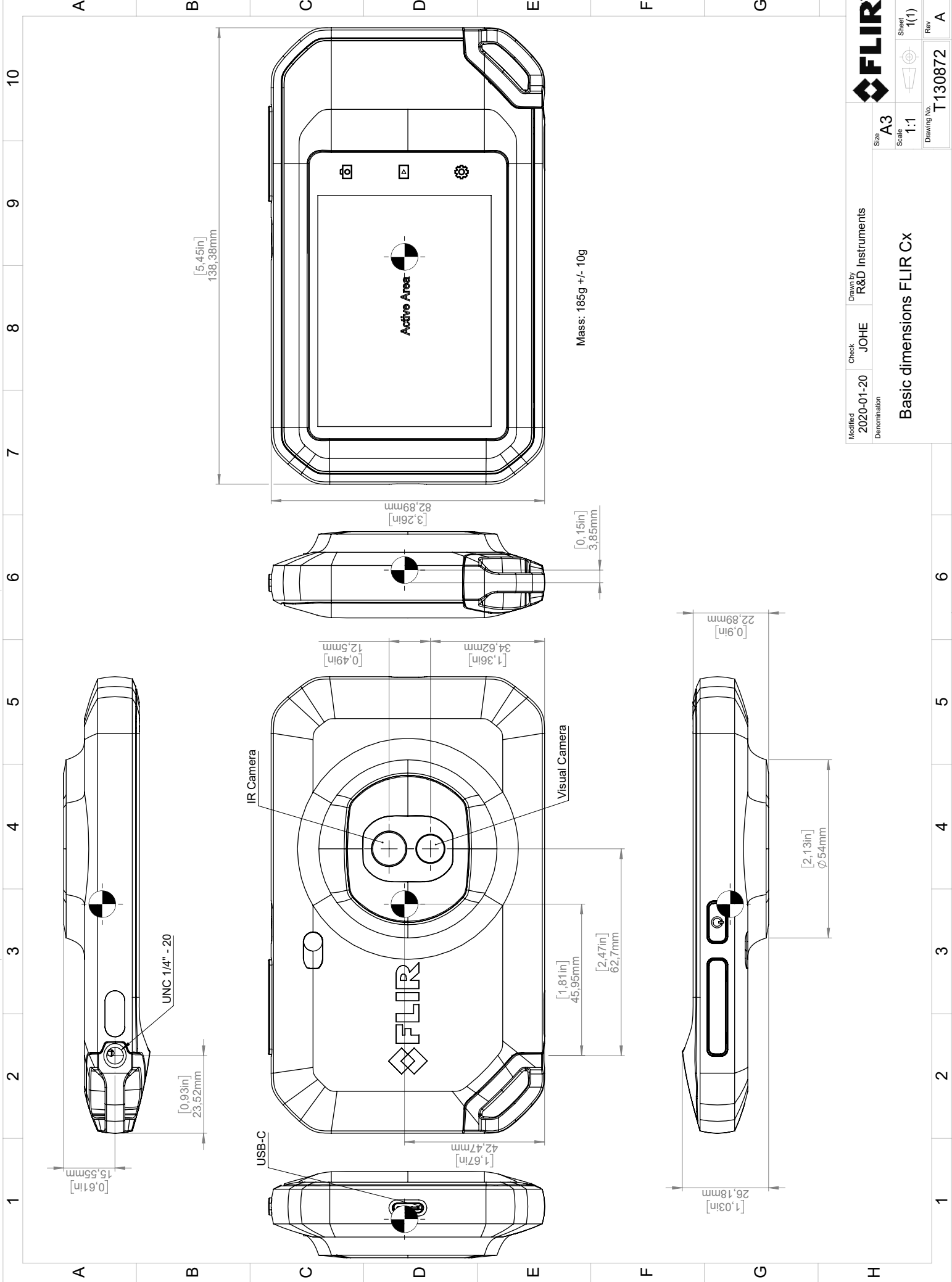
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<b>Environmental data</b>	
Vibration	2 g (IEC 60068-2-6)
Drop	Designed for 2 m (6.56 ft)
Safety	EN 62368-1
Environmental safety	<ul style="list-style-type: none"><li>• REACH Regulation EC 1907/2006</li><li>• RoHS2 Directive 2011/65/EC</li><li>• WEEE Directive 2012/19/EC</li><li>• Proposition 65</li></ul>
<b>Physical data</b>	
Weight (including battery)	0.19 kg (0.42 lb)
Size (L x W x H)	138 x 84 x 24 mm (5.4 x 3.3 x 0.94 in)
Battery weight	40 g (1.4 oz)
Tripod mounting	UNC ¼"-20
Housing material	<ul style="list-style-type: none"><li>• PC and ABS, partially covered with TPE</li><li>• Aluminum</li></ul>
Color	Black
<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>• C5</li><li>• Printed documentation</li><li>• Wrist strap lanyard</li><li>• USB cable</li><li>• Pouch</li></ul>
Packaging, weight	0.52 kg (1.14 lb)
Packaging, size	160 x 118 x 93 mm (6.3 x 4.6 x 3.7 in)
EAN-13	4743254004467
UPC-12	845188021832
Country of origin	Estonia

### Supplies & accessories:

- T199871; Traceable Calibration for C5
- INST-EW-0120; Extended Warranty 1 Year for C5

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Scale 1:1			Rev A

November 13, 2020 Täby, Sweden

AQ320383

**CE Declaration of Conformity – EU Declaration of Conformity**

Product: FLIR C3-X and C5-series

Name and address of the manufacturer:

FLIR Systems AB

PO Box 7376

SE-187 15 Täby, Sweden

This declaration of conformity is issued under the sole responsibility of the manufacturer.

The object of the declaration: FLIR C3-X and C5 -series (Product Model Name FLIR-C8940).

The object of the declaration described above is in conformity with the relevant Union harmonisation legislation:

**Directives:**

Directive	2014/53/EU	Radio Equipment Directive (RED)
Directive:	2011/65/EU	RoHS and 2015/830/EU (Phtalates)

**Standards:**

EMC:	EN 55032:2015 v.2016-02	Electromagnetic compatibility multimedia eq
	EN 61000-4-8 v.2010-11	Power frequency magnetic field immunity test
	ETSI EN 301489-1 v2.2.3	ERM – EMC for radio equipment
	ETSI EN 301489-17 v3.2.0	ERM – EMC Wideband data
Radio:	ETSI EN 300 328 v2.2.2	Harmonized EN covering essential requirements of the R&TTE Directive
	ETSI EN 301 893 v.2.1.1	5GHz WLAN
SAR:	EN 50566:2017	Compliance with 30MHz to 6GHz
	EN 62209-2	Handheld and body-mounted devices
	IEEE 1528-2013	Wireless communication devices
Safety:	IEC/EN 62368-1:2014 (2 <sup>nd</sup> Ed) and Cor 1:2015	EN 62368-1:2014/AC:2015
	/A11:2017	Audio/video, information tech equipment
Restricted substances:	EN 50581:2012	Technical documentation

**FLIR Systems AB**

Quality Assurance

Lea Dabiri  
Quality Manager

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### Rechargeable Lithium Ion Battery

Series: LIC..., LIP..., LPP...

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## 1 Identification of the product and of the company undertaking

### Product details

Trade name	Rechargeable lithium ion battery
Electrochemical system:	Lithium ion
Anode (negative):	Carbon (proprietary)
Cathode (positive):	Metal oxide (proprietary)

This MSDS applies to the following cell types or batteries assembled from these types.

The values listed for energy and voltage are given for reference only; they are not contractual assurances of product attributes and may differ from values given in specifications, data sheets or other documents or on the products.

Type	Energy per cell	Nominal voltage per cell
LIC 14500 PD	3.0 Wh	3.7 V
LIC 18650-15 LC	5.6 Wh	3.6 V
LIC 18650-20 RC	7.2 Wh	3.6 V
LIC 18650-22 AL *)	7.9 Wh	3.6 V
LIC 18650-22 BT	8.1 Wh	3.6 V
LIC 18650-22 FC	8.0 Wh	3.6 V
LIC 18650-22 PC	7.8 Wh	3.7 V
LIC 18650-22 S3B *)	8.0 Wh	3.6 V
LIC 18650-25 FKD	9.3 Wh	3.7 V
LIC 18650-26 FC	9.6 Wh	3.7 V
LIC 18650-26 HC	9.4 Wh	3.7 V
LIC 18650-26 JC	9.5 Wh	3.63 V
LIC 18650-26SKE	9.5 Wh	3.65 V
LIC 18650-29 EC	10.4 Wh	3.7 V
LIC 18650-29 FC	10.7 Wh	3.7 V
LIC 18650-30 BC	11.2 Wh	3.7 V
LIC 18650-32MH1B	11.8 Wh	3.7 V
LIC 18650-FTC1H	3.5 Wh	3.2 V
LIC 18650-M26B	9.4 Wh	3.6 V
LIC 18650-M26SB	9.4 Wh	3.6 V

\*) These cells contain SVHC substances > 0.1 % (see section 3)

continued on next page

Type	Energy per cell	Nominal voltage per cell
LIC 18650-M29B	10.5 Wh	3.67 V
LIC 18650-VTC4H	7.6 Wh	3.6 V
LIC 18650-VTC5AH	9.4 Wh	3.6 V
LIC 26650-30 H	9.6 Wh	3.2 V
LIP 103450 AC	8.4 Wh	3.7 V
LIP 103450 SC	7.5 Wh	3.7 V
LIP 103450-CAT	7.3 Wh	3.7 V
LIP 383450 AJL *)	2.8 Wh	3.7 V
LIP 423048 AJL *)	2.6 Wh	3.7 V
LIP 423450 AJL *)	3.2 Wh	3.7 V
LIP 463048 FD	2.7 Wh	3.7 V
LIP 523450 AJL *)	4.1 Wh	3.7 V
LIP 553450 WC	4.2 Wh	3.7 V
LIP 663450 MC	4.9 Wh	3.7 V
LPP 383450 PL *)	2.6 Wh	3.7 V
LPP 402025 CE *)	0.5 Wh	3.7 V
LPP 402934 E *)	1.1 Wh	3.7 V
LPP 422339 PL *)	1.3 Wh	3.7 V
LPP 423566 BE *)	4.2 Wh	3.7 V
LPP 442834 PVL *)	1.5 Wh	3.7 V
LPP 443441 S *)	2.4 Wh	3.7 V
LPP 454261 8TH	5.9 Wh	3.7 V
LPP 463149 S *)	2.6 Wh	3.7 V
LPP 486588 H	13.0 Wh	3.7 V
LPP 503562 S *)	4.5 Wh	3.7 V
LPP 503759 8HH	5.2 Wh	3.7 V
LPP 503759 DL *)	4.6 Wh	3.7 V
LPP 523450 S *)	3.7 Wh	3.7 V
LPP 553048 PL *)	3.0 Wh	3.7 V
LPP 553436 S *)	2.9 Wh	3.7 V
LPP 683566 BE *)	6.7 Wh	3.7 V
LPP 702035 PVL *)	1.6 Wh	3.7 V
LPP 702035 S *)	1.6 Wh	3.7 V
LPP 751930 PL *)	1.5 Wh	3.7 V

\*) These cells contain SVHC substances > 0.1 % (see section 3)



### Supplier details

Address: VARTA Storage GmbH  
Nürnbergger Straße 65  
D-86720 Nördlingen  
Germany

Emergency Phone Number: +49 7961 921 110 (VAC)

### Legal remark (EU)

These batteries are no "substances" or "mixtures" according to Regulation (EC) No 1907/2006 EC. Instead they have to be regarded as "articles", no substances are intended to be released during handling. Therefore there is no obligation to supply a safety data sheet according to Regulation (EC) 1907/2006, Article 31.

### General remark

This information is provided as a service to our customers. The details presented are in accordance with our present knowledge and experiences. They are no contractual assurances of product attributes.

## 2 Hazards identification

The battery is sealed hermetically. Thus, the ingredients have no hazard potential, except the battery is violated or dismantled.

If in case of mistreatment the ingredients are released, a spontaneously flammable gas mixture may be released under certain circumstances (measures according to sections 4 to 6).

Attention: If batteries are treated wrong the danger of burns or bursts occurs. Batteries must not be heated above 100 °C or incinerated. The battery contents must not get in contact with water. If the negative electrode gets in contact with water or humidity hydrogen gas is formed, which may inflame spontaneously.

## 3 Composition/information on ingredients

### Ingredients

Content	CAS no.	EC no.	Material	Hazard Categories	Hazard Statements
20 – 50 %	proprietary	proprietary	Metal oxide (proprietary)	Skin Sens. 1, Acute Tox. 2, Resp. Sens. 1, Carc. 1B, STOT RE 1, Aquatic Chronic 3	H317, H330, H334, H350, H372, H412
10 – 30 %	proprietary	proprietary	Carbon (proprietary)		
10 – 20 %	proprietary	proprietary	Electrolyte (proprietary)	Flam. Liq. 2, Skin Corr. 1B, Eye Dam. 1, Skin Sens. 1, Muta. 2, Carc. 2, Aquatic Chronic 2	H225, H312, H314, H317, H341, H351, H411

continued on next page

Content	CAS no.	EC no.	Material	Hazard Categories	Hazard Statements
2 – 10 %	7429-90-5	231-072-3	Aluminum foil		
2 – 10 %	7440-50-8	231-159-6	Copper foil		
< 5 %	proprietary	proprietary	Binder		
Remainder	proprietary	proprietary	Inert materials		

For full text of hazard statements see section 16.

During charge process a lithium carbon intercalation phase is formed, which is highly flammable and corrosive, but not released under the circumstances of normal usage.

#### Heavy Metals and RoHS relevant Substances

Content	CAS no.	EC no.	Material
< 1 mg/kg	7440-43-9	231-152-8	Cadmium
< 10 mg/kg	7439-92-1	231-100-4	Lead
< 1 mg/kg	7439-97-6	231-106-7	Mercury (none intentionally introduced, see section 12)
< 5 mg/kg	18540-29-9	606-053-1	Hexavalent Chromium (Cr6+)
< 5 mg/kg	various	various	PBB
< 5 mg/kg	various	various	PBDE

#### SVHC substances according to REACH (Article 33)

Content	CAS no.	EC no.	Material
> 0.1 %	1120-71-4	214-317-9	1,3-Propanesultone (only for cells marked with *) in section 1)

For information to allow safe use: see section 7.

## 4 First-aid measures

#### Measures at accidental release

After inhalation:	Fresh air. Seek for medical assistance.
After skin contact:	Remove solid particles immediately. Flush affected areas with plenty of water (at least 15 min). Remove contaminated cloth immediately. Seek for medical assistance.
After eye contact:	Flush the eye gently with plenty of water (at least 15 min). Seek for medical assistance.
After ingestion of battery components:	Drink plenty of water. Avoid vomiting. Seek for medical assistance. No trials for neutralization.

### 5 Fire-fighting measures

Suitable extinguishing media:	Metal fire extinction powder, rock salt or dry sand shall be used. In case only water is available, it can be used in large amounts.
Extinguishing media with limited suitability:	Carbon dioxide (CO <sub>2</sub> ) is not suitable. Water in small quantities may have adverse effects.
Special protection equipment during fire-fighting:	Contamination cloth including breathing apparatus.
Special hazard:	Cells may explode and release metal parts. At contact of electrolyte with water traces of hydrofluoric acid may be formed. In this case avoid contact and take care for good ventilation. At contact of charged anode material with water extremely flammable hydrogen gas is generated.
Attention:	Do not let used extinguishing media penetrate into surface water or ground water. If necessary, thicken water or foam with suitable solids. Dispose of properly.

### 6 Accidental release measures

Person related measures:	Wear personal protective equipment adapted to the situation (protection gloves, face protection, breathing protection).
Environment protection measures:	In the event of battery rupture, prevent skin contact and collect all released material in a plastic lined container. Bind released ingredients with powder (rock salt, sand). Dispose of according to the local law and rules. Avoid leached substances to penetrate into the earth, canalization or water.
Treatment for cleaning:	If battery casing is dismantled, small amounts of electrolyte may leak. Package the battery tightly including ingredients together with lime, sand or rock salt. Then clean with water.

### 7 Handling and storage

Guideline for safe handling:	<ul style="list-style-type: none"><li>• Always follow the warning information on the batteries and in the manuals of devices. Only use the recommended battery types.</li><li>• Keep batteries away from children. Keep small cells and batteries which are considered swallowable out of the reach of children.</li><li>• For devices to be used by children, the battery casing should be protected against unauthorized access.</li><li>• Unpacked batteries shall not lie about in bulk.</li><li>• In case of battery change always replace all batteries by new ones of identical type and brand.</li><li>• Do not swallow batteries. Swallowing may lead to burns, perforation of soft tissue, and death. Severe burns can occur within 2 h of ingestion. In case of ingestion of a cell or battery, seek medical assistance promptly.</li><li>• Do not throw batteries into water.</li><li>• Do not throw batteries into fire.</li><li>• Avoid deep discharge.</li><li>• Do not short-circuit batteries.</li><li>• Use recommended charging time and current.</li><li>• Do not open or disassemble batteries.</li></ul>
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Supply to private end users:	<p>In case the products are supplied to private end users packed with equipment or contained in equipment it is strongly recommended to follow UL product and instruction manual requirements. The product is required to be marked with a graphical symbol that alerts the user to refer to the instruction manual.</p> <p>The instruction manual itself is required to contain</p> <ul style="list-style-type: none"><li>• a warning marking with text to alert the user of the potential chemical burn hazard associated with coin/button battery ingestion,</li><li>• an instruction as to the presence of a coin/button cell battery,</li><li>• possible effects of battery ingestion,</li><li>• an instruction to keep batteries away from children,</li><li>• an advice to seek immediate medical attention if it suspected that batteries have either been swallowed or placed inside any part of the body.</li></ul> <p>Further advice for parents: <a href="http://buttonbatterysafety.com">http://buttonbatterysafety.com</a> <a href="http://www.productsafety.gov.au/news/the-battery-controlled-button-battery-safety">http://www.productsafety.gov.au/news/the-battery-controlled-button-battery-safety</a></p>
Environmental conditions:	<p>-20 °C to 20 °C for storage -20 °C to 60 °C for short exposition (e.g. transport)</p> <p>Avoid large temperature changes. Do not store close to heating devices. Avoid direct sunlight. At higher temperature the electrical performance may be reduced. Storage of unpacked batteries can cause short circuit and heat generation.</p>
Storage category according to TRGS 510:	<p>It is recommended to consider the <i>“Technical Rule for Hazardous Substances TRGS 510 - Storage of hazardous substances in nonstationary containers”</i> and to handle lithium ion batteries do according to storage category 11 (<i>“combustible solids”</i>).</p>
Storage of large amounts:	<p>Follow the recommendations of the German Insurance Association (GDV - <i>“Gesamtverband der Deutschen Versicherungswirtschaft e.V.”</i>) concerning lithium batteries: <a href="https://vds.de/fileadmin/vds_publicationen/vds.3103en_web.pdf">https://vds.de/fileadmin/vds_publicationen/vds.3103en_web.pdf</a></p> <p>In case of storage of large amounts (used storage volume &gt; 7 m<sup>3</sup> and/or more than 6 pallets) batteries shall be stored in fire-resistant or separated rooms or areas (e.g. warehouse or container for hazardous materials). Mixed storage with other products is not allowed. The storage area shall be monitored by an automatic fire detection system, connected to a permanently manned place. A fire-extinguishing system shall reflect the extinguishing agents mentioned in section 5.</p>

## 8 Exposure controls/personal protection

Under normal conditions (during charge and discharge) release of ingredients does not occur.

## 9 Physical and chemical properties

Not applicable if closed.

## 10 Stability and reactivity

Dangerous reactions: When heated above 100 °C the risk of rupture occurs.

## 11 Toxicological information

Under normal conditions (during charge and discharge) release of ingredients does not occur. In case of accidental release see information in sections 2 to 4 and 6.

Swallowing of a battery can be harmful. Call the local Poison Control Centre for advice and follow-up. See section 4.

## 12 Ecological information

VARTA LIC/LIP/LPP series lithium ion batteries do not contain heavy metals as defined by the European directives 2006/66/EC Article 21; they comply with the chemical composition requirements of this Directive.

Mercury has not been "*intentionally introduced (as distinguished from mercury that may be incidentally present in other materials)*" in the sense of the U.S.A. "*Mercury-Containing and Rechargeable Battery Management Act*" (May 13 1996).

The Regulation on Mercury Content Limitation for Batteries promulgated on 1997-12-31 by the China authorities including the State Administration of Light Industry and the State Environmental Protection Administration defines "*low mercury*" as "*mercury content by weight in battery as less than 0.025 %*", and "*mercury free*" as "*mercury content by weight in battery as less than 0.0001 %*". And therefore: VARTA LIC/LIP/LPP series lithium ion batteries belong to the category of mercury-free battery (mercury content lower than 0.0001 %).

## 13 Disposal considerations

In order to avoid short circuit and heating, used VARTA LIC/LIP/LPP series lithium ion batteries should never be stored or transported in bulk. Proper measures against short circuit are:

- Storage of batteries in original packaging
- Coverage of the terminals
- Embedding in dry sand

### European Union

In the European Union, manufacturing, handling and disposal of batteries is regulated on the basis of the DIRECTIVE 2006/66/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 6 September 2006 on batteries and accumulators and waste batteries and accumulators and repealing Directive 91/157/EEC. Customers find detailed information on disposal in their specific countries using the web site of the European Portable Batteries Association ([www.epbaeurope.net/legislation\\_national.html](http://www.epbaeurope.net/legislation_national.html)).

Importers and users outside EU should consider the local law and rules.

### USA

VARTA LIC/LIP/LPP series lithium ion batteries are classified by the federal government as non-hazardous waste and are safe for disposal in the normal municipal waste stream. These batteries, however, do contain recyclable materials and are accepted for recycling by Call2Recycle, Inc. Please go to their website at [www.call2recycle.org](http://www.call2recycle.org) for additional information.

## 14 Transport information

VARTA LIC/LIP/LPP series lithium ion batteries are considered to be UN 3480 Lithium Ion Batteries, and are tested according to 38.3 of the "*UN Manual of Tests and Criteria*" for compliance with the requirements of special provisions ADR 188, IMDG 188, as well as the requirements of DOT / 49 CFR § 173.185, and the requirements of IATA DGR packing instruction 965. Test results as well as other relevant information required for transportation are given in dedicated "*Supplier's Test Summary*".

Please note that for some products state of charge and VARTA packaging are not designed for air transport in bulk; this does not affect air transport of batteries packed with equipment or contained in equipment.

Transportations of cells or batteries packed with equipment or contained in equipment have to follow the appropriate regulations for UN 3481.

During the transportation of large amounts of batteries by ship, trailer or railway, do not store them in places of high temperature and do not allow them to be exposed to condensation. During the transportation do not allow the packaging to be damaged,

as a damage of the packaging may cause fire. In the event packaging is damaged, special procedures must be used including inspection and repackaging if necessary and handle with care.

Code of practice for packaging and shipment of secondary batteries given in IEC 62133: The packaging shall be adequate to avoid mechanical damage during transport, handling and stacking. The materials and pack design shall be chosen so as to prevent the development of unintentional electrical conduction, corrosion of the terminals and ingress of moisture.

Compilations of transport requirements for Lithium batteries can be found in:

<https://www.lithium-batterie-service.de/en/>

<https://www.iata.org/whatwedo/cargo/dgr/Documents/lithium-battery-shipping-guidelines.pdf>

Each cell or battery is manufactured under a quality management program according to IATA DGR clause 3.9.2.6, ADR clause 2.2.9.1.7 e), and IMDG code clause 2.9.4.5.

## 15 Regulatory information

### Marking consideration

European Union: According to "DIRECTIVE 2006/66/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 6 September 2006 on batteries and accumulators and waste batteries and accumulators and repealing Directive 91/157/EEC" the batteries have to be marked with the crossed wheel bin symbol. According to Commission Regulation (EU) No 1103/2010 portable secondary (rechargeable) batteries and accumulators shall be marked with a capacity marking, except those which are incorporated or designed to be incorporated in appliances before being provided to end-users, and not intended to be removed.

Rechargeable Lithium ion batteries, which contain electronic modules (e.g. PCM) and which are subjected to the EMC directives 2004/108/EC or 2014/35/EU (as they are end-user replaceable devices), must undergo a EU conformity assessment and must wear the CE marking.

According to Dangerous Goods Regulations (see section 14) battery packs have to be marked with the Watt-hour rating.

### Water hazard class

The regulations of the German Federal Water Management Act (WHG) are not applicable as VARTA LIC/LIP/LPP series lithium ion batteries are articles and not substances, thus there is no risk of water pollution, except the batteries are violated or dismantled.

## 16 Other information

Note: Date of issue of the transport regulations: ADR 2019, RID 2019, IATA DGR 2019 (60th edition), IMDG 2016, DOT / 49 CFR 2019.

Latest covered modification of the European Battery Directive 2006/66/EC: Directive (EU) 2018/849.

RoHS: See special Declaration

[https://www.varta-storage.com/wp-content/uploads/General-Declarations-RoHS\\_Declaration\\_VS.pdf](https://www.varta-storage.com/wp-content/uploads/General-Declarations-RoHS_Declaration_VS.pdf)

REACH: See special Declaration

[https://www.varta-storage.com/wp-content/uploads/General-Declarations-REACH\\_Declaration\\_VS.pdf](https://www.varta-storage.com/wp-content/uploads/General-Declarations-REACH_Declaration_VS.pdf)

Issued by: VARTA Microbattery GmbH

Quality / Environmental Management

Contact: <https://www.varta-storage.com/contact-storage/?lang=en>

Updates: Current SDS can be downloaded from VARTA's web page

<https://products.varta-microbattery.com/en/news-downloads/document-search.html>

(select Document Type "MATERIAL SAFETY DATA SHEET").

**Test summary no.** 2019-08-30-01

**Information about the manufacturer**

**Name** PT. VARTA Microbattery (Indonesia)  
**Address** Batamindo Industrial Park  
 Jalan Gaharu Lot 23, Jalan Angsana Lot 307-310  
 Mukakuning Batam, Kepulauan Riau 29433, Indonesia

**Object of the declaration**

**Type of battery** Rechargeable lithium ion battery  
**Article** 1/LPP 683566 BE PCM WC – SOC 30%  
**Material no.** 725988 #  
**VKB no.** 56432 201 017  
**IEC Designation** 1ICP7/35/66  
**Voltage** 3.7V  
**Watt-hour rating** 7.0Wh  
**Mass (approx.)** 40g

The object of the declaration described above is in conformity with the requirements of the following document:

Documents No.	Title	Edition / Date of issue
ST/SG/AC.10/11/Rev.6	Recommendations on the Transport of Dangerous Goods, UN Manual of Tests and Criteria, Part III, subsection 38.3	2015

**Test Report**

**Document ref no.** JT70208  
**Document date** 2017-04-03

**List of Tests conducted and results**

Test Item	Test Result	Test Item	Test Result
T1. Altitude Simulation	Pass	T5. External Short-circuit	Pass
T2. Thermal Test	Pass	T6. Impact	Pass *
T3. Vibration	Pass	T7. Overcharge	Pass
T4. Shock	Pass	T8. Forced Discharge	Pass *

\* Reference to report of LPP 683566 BE cell

# Material No. 725988 is SOC 30% of Material No. 723947, equivalent to Material No. 718880 of test samples

**Test laboratory**

The tests were performed by the following test laboratory

<b>Name</b>	PT. VARTA Microbattery (Indonesia)
<b>Address</b>	Application Test Lab Batamindo Industrial Park Jalan Angsana Lot 310 Mukakuning Batam Kepulauan Riau 29433 Indonesia
<b>Phone</b>	+62 770611099
<b>E-mail</b>	<a href="mailto:info@varta-microbattery.com">info@varta-microbattery.com</a>
<b>Website</b>	<a href="http://www.varta-microbattery.com">www.varta-microbattery.com</a>

VARTA Microbattery Pte Ltd  
 300 Tampines Avenue 5  
 #05-01 Tampines Junction  
 Singapore 529653

Phone : (65) 6260 5801  
 Fax : (65) 6260 5812  
[info@varta-microbattery.com](mailto:info@varta-microbattery.com)  
[www.varta-microbattery.com](http://www.varta-microbattery.com)  
 RCB (Certificate of Incorporation) No. 197201703K

Page no.: 1 of 2

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**Additional information**

In original VARTA packaging the products comply with the following special provisions of international transport regulations:

- IATA DGR: Packing Instruction 965 Section IB (max. 30 % state of charge)  
(Transportations of cells or batteries packed with equipment or contained in equipment  
have to follow Packing Instructions 966 or 967 Section II.)
- ADR/RID/ADN/IMDG Code: Special Provision 188
- DOT / 49 CFR: §173.185 (c)

The products have been manufactured under a quality management programme according to IATA DGR clause 3.9.2.6.1 (e), ADR clause 2.2.9.1.7 (e) and IMDG code clause 2.9.4.5.

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Singapore, 30 August 2019  
(place and date of issue)



(company stamp)



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(signature)  
(Low Chee Leong)  
Manager  
Technical Support