

P/N: 87504-0404

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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 with any questions.



General description	
<p>The FLIR TG297 combines accurate temperature measurement with the ability to image up to 1030°C (1886°F). FLIR MSX enhancement improves image clarity by embossing visual scene details on full thermal images. The FLIR TG297 is ideal for high-temperature industrial uses such as measuring the heat of glass furnaces, kilns, and forges as well as manufacturing applications, allowing you to accurately target potential faults, troubleshoot repairs, and monitor processes. Record images to assure that machinery and systems are functioning safely and at peak efficiency.</p>	
<p>Key features:</p> <ul style="list-style-type: none"> • See beyond the limitations of single-spot IR thermometers with a 160 × 120 (19,200 pixel) true thermal imager. • FLIR patented MSX enhancement adds sharp visual detail to thermal images, making it easier to diagnose problems. • Measure a wide range of temperatures, from -25°C to 1030°C (-13°F to 1886°F). • Multipoint Laser pointer provides a circle to clearly show the area you are measuring. • Rugged and reliable with an IP54 enclosure that protects the camera from dirt, dust, and oil. 	
Imaging and optical data	
IR resolution	160 × 120 pixels
Digital image enhancement	Yes
Thermal sensitivity/NETD	< 70 mK
Field of view (FOV)	57° × 44°
Minimum focus distance	0.3 m (0.98 ft.)
Distance to spot ratio	30:1
Pseudo dual range	Range 1 < 400°C (< 752°F); Range 2 > 400°C (> 752°F)
Image frequency	8.7 Hz
Focus	Fixed
Detector data	
Focal plane array/spectral range	Uncooled microbolometer/7.5–14 μm
Detector pitch	12 μm
Image presentation	
Display resolution	320 × 240 pixels
Surface brightness (cd/m²)	400

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Image presentation	
Screen size	2.4 in. portrait
Viewing angle	80°
Color depth (bits)	24
Aspect ratio	4:3
Display technology	TFT
Cover glass material	Optical grade silicon
Image adjustment	Automatic
Image modes	<ul style="list-style-type: none"> MSX (Multi Spectral Dynamic Imaging) Visual with temperature reading
Gallery	Yes
Measurement	
Object temperature range	–25 to 1030°C (–13 to 1886°F)
Object temperature range and accuracy (ambient temp. 15 to 35°C (59 to 95°F))	–25 to 0°C (–13 to 32°F), acc. ±3°C (±7°F)
	0 to 50°C (32 to 122°F), acc. ±2.5°C (±5°F)
	50 to 100°C (122 to 212°F), acc. ±1.5°C (±3°F)
	100 to 500°C (212 to 932°F), acc. ±2.5%
	500 to 1030°C (932 to 1886°F), acc. ±3%
IR temperature resolution	0.1°C (0.2°F)
Repeatability of reading	±1% of reading or ±1°C (2°F), whichever is greater
Response time	150 ms
IR thermometer measurement	Continuous scanning
Minimum measurement distance	0.26 m (0.85 ft.)
Measurement analysis	
Spotmeter	Center spot on/off
Color palettes	<ul style="list-style-type: none"> Iron Rainbow Whitehot Blackhot Arctic Lava
Set-up	
Set-up commands	<ul style="list-style-type: none"> Local adaptation of units, language, date, and time formats Screen brightness (high, medium, low) Gallery, deletion of images
Emissivity correction	Yes: 4 pre-set levels with custom adjustment of 0.1–0.99
Languages	Czech, Danish, Dutch, English, Finnish, French, German, Greek, Hungarian, Italian, Japanese, Korean, Norwegian, Polish, Portuguese, Russian, simplified Chinese, Spanish, Swedish, traditional Chinese, Turkish
Service functions	
Camera software update	Use PC software FLIR Tools

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Storage of images	
Storage media	eMMC 4GB
Image storage capacity	50,000 images
Image file format	JPEG with spot temp in meta tag
Digital camera	
Resolution	2 MP (1600 × 1200 pixels)
Focus	Fixed
Field of view	71° × 56°, adapts to the IR lens
Flashlight	
Flashlight	Bright LED on/off
LED CCT	6500 K
LED CRI	70
Beam angle	±20°
Rated power	0.5 W
Light output (Lumens)	100
Laser pointer	
Laser pointer	Indicating the size of the measurement area
Laser	Class 1
Data communication interfaces	
Interfaces	USB 2.0, Bluetooth
USB	USB Type-C: data transfer/power
USB standard	USB 2.0 High Speed
Bluetooth	BLE
Power system	
Battery type	Rechargeable Li ion battery
Battery voltage	3.6 V
Battery operating time	<ul style="list-style-type: none"> • 5 hours of scanning (LCM medium brightness) • 4.5 hours with laser on (LCM medium brightness)
Battery charge life	30 days minimum
Charging system	Battery is charged inside the camera
Charging time	4 hours to 90%, 6 hours to 100%
Charging temperature	0 to 45°C (32 to 113°F)
Power management	Adjustable: off, 5 minutes, 15 minutes, 30 minutes
Environmental data	
Operating temperature range	–10 to 45°C (14 to 113°F)
Storage temperature range	–30 to 55°C (–22 to 131°F)
Humidity (operating and storage)	0–90% relative humidity (RH) (0 to 37°C (32 to 98.6°F)) 0–65% RH (37 to 45°C (98.6 to 113°F)) 0–45% RH (45 to 55°C (113 to 131°F))
EMC	<ul style="list-style-type: none"> • EN 61000-6-3 • EN 61000-6-2 • FCC 47 CFR Part 15 Class B



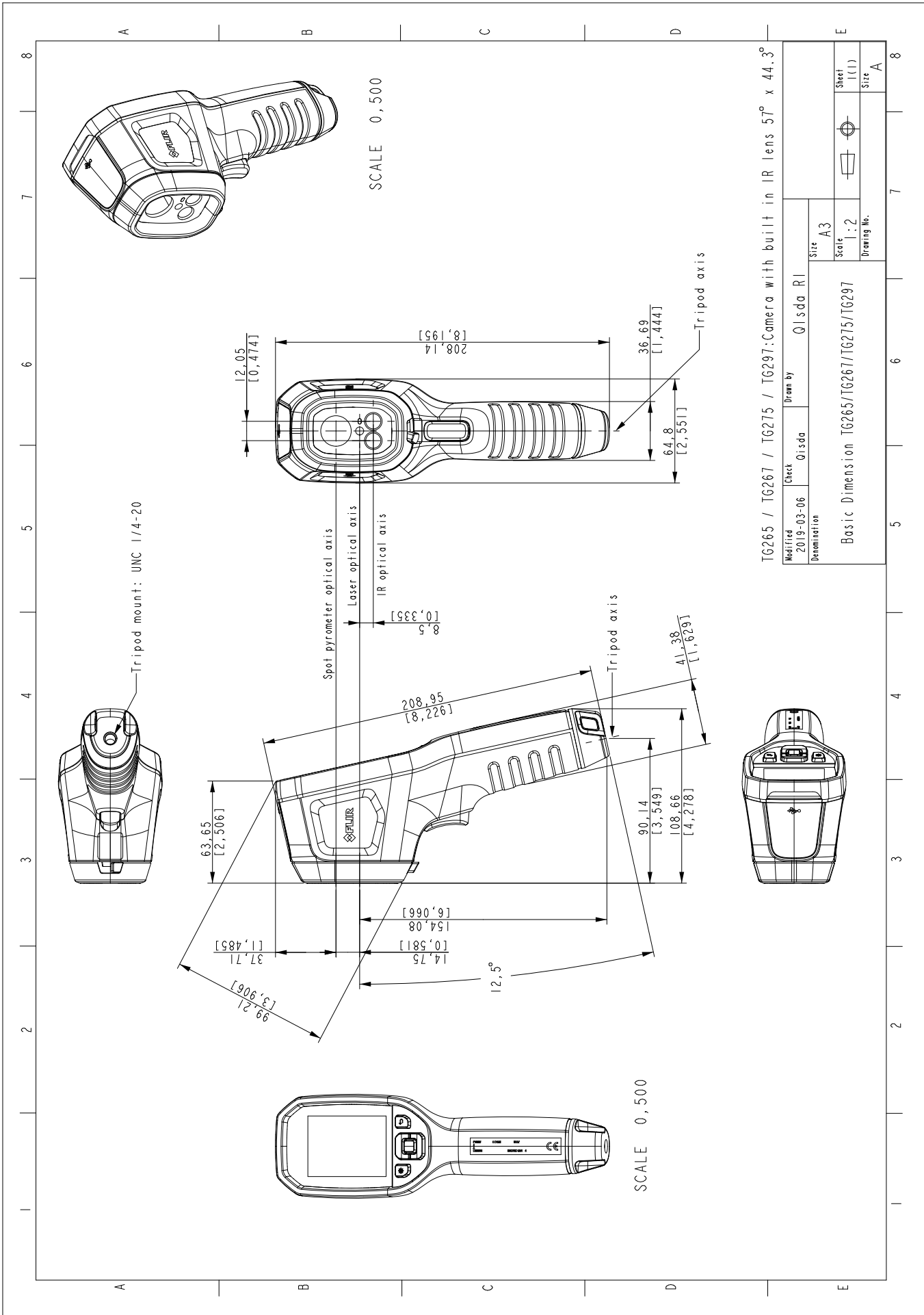
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Environmental data	
Magnetic fields	EN 61000-4-8 class 3
Radio spectrum	<ul style="list-style-type: none">• ETSI EN 300 328• FCC Part 15.249• RSS-247 Issue 2• EN 301 489-1:2011• EN 301 489-17:2009
Encapsulation	IP 54 (IEC60529)
Shock	25 g (IEC 60068-2-27)
Vibration	2 g (IEC 60068-2-6)
Drop	Designed for 2 m (6.56 ft.)
Safety	CE/CB/EN61010/UL
Environmental safety	<ul style="list-style-type: none">• REACH Regulation EC 1907/2006• RoHS2 Directive 2011/65/EC• WEEE Directive 2012/19/EC• JIS C 6802:2011 laser directive (ongoing)• IEC 60825-1 class I laser directive• FDA laser
Humidity requirement	<ul style="list-style-type: none">• IEC 60068-2-30 / 24h 95% Relative Humidity +25 - +70°C / 2 Cycles (Storage)• IEC 60068-2-30 / 24h 95% Relative Humidity +25 - +40°C / 2 Cycles (Operating)
Physical data	
Weight (including battery)	0.394 kg (13.9 oz.)
Size (L × W × H)	210 × 64 × 81 mm (8.3 × 2.5 × 3.2 in.)
Tripod mounting	UNC ¼"-20
Warranty and service	
Warranty	http://www.flir.com/warranty/
Shipping information	
Packaging, type	Cardboard box
Packaging, contents	<ul style="list-style-type: none">• TG297• Printed documentation• Wrist strap lanyard• USB cable• Pouch
Packaging, weight	0.942 kg (2.08 lb.)
Packaging, size	284 × 151 × 105 mm (11.2 × 5.95 × 4.12 in.)
EAN-13	7332558023853
UPC-12	845188019600
Country of origin	Taiwan



TG265 / TG267 / TG275 / TG297: Camera with built in IR lens 57° x 44,3°

Modified	Check	Drawn by	Size	
2019-03-06	Q1sda	RI	A3	
Denomination			Scale	Sheet
Basic Dimension TG265/TG267/TG275/TG297			1:2	1(1)
			Drawing No.	Size
				A



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August 7, 2019 Täby, Sweden

AQ320366

CE Declaration of Conformity – EU Declaration of Conformity

Product: FLIR TG267, TG275, TG297

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 TG267, TG275, TG297.

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

Directives:

Directive	2014/30/EU	Electromagnetic Compatibility
Directive	2014/53/EU	Radio Equipment Directive (RED)
Directive	2011/65/EU	RoHS and 2015/830/EU

Standards:

EMC:	EN 61326-1:2013 Draft EN 301489-1 v2.2.0:2017-03 Draft EN 301489-17 v3.2.0:2017-03	EMC control and laboratory use – General reqs EMC for radio equipment – Common tech reqs ERM – EMC for radio eq – Wideband HIPERLAN
Laser:	EN 60825-1	Safety of laser products
Radio:	EN 300 328 v2.1.1	Harmonized EN covering essential requirements of the R&TTE Directive
Safety:	UL 60950-1, 3 rd Ed	Information technology equipment

FLIR Systems AB

Quality Assurance

Lea Dabiri
Quality Manager

Material Safety Data Sheet

产品安全技术说明书

Section 1 Chemical Product and Company Identification

一、产品名称及企业标识

Product information: 产品信息

Battery Model: S18650-3000-1S1P

电池型号: S18650-3000-1S1P

Voltage: 3.6 V

电压: 3.6 V

Battery Capacity: 3000 mAh

电池容量: 3000 mAh

Manufacturer: Shenzhen Tuosi Innovation Technology Co.,Ltd

生产厂家: 深圳市拓思创新科技有限公司

Address: 2,3,4 floor, Bldgs, A4, Tongfuyu Industry Park 6 Fuping Rd., Pingdong, Pingdi St., Longgang, Shenzhen 518000, P. R. China.

地址: 广东省深圳市龙岗区坪地街道富坪中路六号同富裕工业园 A4 栋 2,3,4,层

Telephone: 0755-84072583

电话: 0755-84072583

FAX: 0755-84071386

E-mail: 1720114179@qq.com

Section 2 Composition/Information on Ingredients

二、成分/组成

Chemical Composition 化学成分	CAS NO.	EC#	Weight (%) 重量
LiNi _x Co _y Mn _z O ₂ 镍钴锰酸锂	--	--	30-37
Graphite 石墨	7782-42-5	231-955-3	15-20
Garbon black 导电炭黑	1333-86-4	215-609-9	0-1

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Polyvinylidene fluoride resin 聚偏氟乙烯树脂	24937-79-9	607-458-6	0-1
Phosphate(1-),hexafluoro-,lithium 六氟磷酸锂	21324-40-3	244-334-7	12-16
Polypropylene 聚丙烯	9003-07-0	618-352-4	6-10
Aluminium 铝	7429-90-5	231-072-3	2-5
Copper 铜	7440-50-8	231-159-6	5-10
Iron 铁	7439-89-6	231-096-4	10-15

Section 3 Hazards Identification

三、危险性描述

The lithium ion batteries are not hazardous when used according to the Instructions of manufacturer under normal conditions. In case of abuse, there's a risk of explode, rupture, fire, heat, leakage of internal components, which could cause casualty loss. Abuses include but not limited to the following cases: charge for a long time, short circuit, put into fire, whack with hard object, puncture with acute object, crush, break.

正常情况下，按照生产商提供的说明使用是无危险的，在滥用的情况下可能会导致内部物质泄漏、发热、起火、外壳开裂等情况发生造成人员伤害和财产损失。滥用情况包括但不限于以下情况：长时间充电、短路、放入火中、硬物敲击、尖锐物体刺穿、挤压、弯曲折断等。

Section 4 First-aid Measures

四、急救方法

The lithium ion batteries are not hazardous with eye and skin contact under normal circumstance. In case of fire or rupture, the leakage of internal hazardous substance and formation of hazardous substance would occur, take the following measures if contact with it:

正常使用情况下，接触眼睛、皮肤不会造成危害。如果电池着火或者开裂，会导致内部有害物质和生成有害物质，如有接触。采取以下措施：

After eye contact

Check for and remove any contact lenses. Immediately flush with plenty of clean water for at least 15 minutes, seek medical assistance;

眼睛接触后，立刻用大量流动清水冲洗至少 15 分钟，及时就医；

After skin contact

Immediately flush with plenty of clean water for at least 15 minutes, seek medical

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assistance if severe;

皮肤接触后，立刻用大量流动清水冲洗至少 15 分钟，如果情况严重及时就医；

After inhalation

If inhaled, remove to fresh air immediately, seek medical assistance, and ventilate the contaminated area;

吸入后，立刻转移到有新鲜空气的地方，就医并对污染区域通风；

After swallowing

Do not induce vomiting. Get medical attention.

不要立即催吐，寻求医生帮助。

Section 5 Fire Fighting Measures

五、 消防措施

Extinguish with plenty of water, dry powder extinguishers, sands, earth. Combustion products and decomposed products by contact of water or air with internal substance include: carbon monoxide, carbon dioxide, hydrogen fluoride, phosphorus fluoride.

可用大量水、干粉灭火器、沙子、土等灭火，燃烧产物和内部物质和空气水接触生成：CO、CO₂、HF、氟氧化磷等等

Section 6 Accidental Release Measures

六、 泄露应急处理方法

When leakage of batteries happens, liquid could be absorbed with sands, earth or other inert substance, and the contaminated area should be ventilated meantime.

电池内部物质泄露，用沙子、土等惰性物质吸收并及时通风

Section 7 Handling and Storage

七、 操作和存储

Precautions for safe handling:

Consumption of food and beverage should be avoided in work areas.

Wash hands with soap and water before eating, drinking.

安全操作注意事项：

工作场所应避免食用食品和饮料。吃东西、喝东西前要用肥皂和清水洗手。

Batteries may explode or cause burns, if disassembled, crushed or exposed to fire or high temperatures. Do not short or install with incorrect polarity.

电池可能会爆炸或引起烧伤，如果拆卸，压碎或暴露在火或高温。不要短接或正负极接反。

Store in a cool, dry, well-ventilated place.

储存于阴凉、干燥、通风良好的地方。

Keep away from heat, avoiding the long time of sunlight.

远离热量，避免长时间的阳光照射。

Section 8 Exposure Controls/Personal Protection

八、 暴露控制/个人防护

There is no need for protect under normal condition. In engineering asspect, ventilation equipment should be installed. Gas mask, blinkers, gloves enduring chemical erosion and exposure suit are required when dealing with fire and leakage.

在正常情况下不需要保护。在工程中应安装通风设备。在处理火灾和泄漏时，需要防毒面具、百叶窗、手套、耐化学腐蚀和暴露服。

Section 9 Physical and Chemical Properties

九、 理化性质

Batteries are not single chemical material, there are no specific physical and chemical properties such as melting point and boiling point.

电池不是单一的化学品，不具备特定的理化性质。

Section 10 Stability and Reactivity

十、 稳定性和反应性

Conditions to Avoid:Flames, sparks, and other sources of ignition, incompatible materials.

避免条件:火焰、火花等火源、不相容材料。

Incompatibilities materials: Oxidizing agents, acid, base.

不相容材料:氧化剂、酸、碱。

Hazardous decomposition products:Carbon monoxide, carbon dioxide, lithium oxide fumes.

有害分解产品:一氧化碳、二氧化碳、氧化锂烟雾。

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Section 11 Toxicological Information

十一、毒理学资料

Acute Toxicity 急性毒性

CAS No.	LC50/LD50
7782-42-5	No data available
1333-86-4	No data available
24937-79-9	No data available
21324-40-3	No data available
9003-07-0	No data available
7429-90-5	No data available
7440-50-8	No data available
7439-89-6	No data available

Section 12 Ecological Information

十二、生态学资料

There is no influence to ecology and environment when used properly

正常使用电池不会对生态环境造成影响

Section 13 Disposal Considerations

十三、处理注意事项

Recommendation: Consult state, local or national regulations to ensure proper disposal.

建议:参考国家、地方或国家法规,以确保适当的处置。

Disposal must be made according to official regulations.

处置必须按照官方规定进行。

Section 14 Transport Information

十四、运输信息

Exceeds the standard of Table 965-II, so it belongs to dangerous goods. According to the Packing Instruction 965 section IB of IATA DGR 59th Editon for transportation, Cargon aircraft only.

超过表 965-II 的标准,属于危险品。根据国际航空运输协会 DGR 59 号 Editon 的包装说明书第 965 节,只适用于货运飞机。

According to the special provision 188 of IMDG(38-16) or the special provision 188 of <<Recommendations On The Transport Of Dangerous Goods-Model Regulations>>(20th).

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The goods are not subject to other provision of this code.

根据《国际危规公约》(38-16)第 188 条或《关于危险品模型运输的建议》第 188 条(第 20 条)。货物不受本准则其他规定的约束。

Separate batteries to prevent short-circuiting. And they should be packed in strong package during transport. Lithium cell or battery should incorporate a safety venting device or be designed to prevent a violent rupture under normal transport conditions. Keep away from high temperature and open flames. Lithium ion cells and batteries must be offered for transport at a state of charge(SoC) not exceeding 30% of their rated capacity.

分开电池以防止短路。而且在运输过程中, 它们应该用结实的包装来包装。锂电池或电池应该装有安全排气装置, 或设计成在正常运输条件下防止剧烈断裂。远离高温和明火。锂离子电池和电池必须以不超过其额定容量 30%的状态进行运输。

Transport Fashion:By air, by sea, by railway, by road.

运输方式:空运、海运、铁路、陆路。

Section 15 Regulatory Information

十五、法规信息

Safety, health and environmental regulations/legislation specific for the substance or mixture

特定于物质或混合物的安全、健康和环境法规

CAS No.	TSCA	IECSC	DSL/NDSL	EINECS/ELINCS/NLP
7782-42-5	Listed	Listed	Listed DSL	Listed
1333-86-4	Listed	Listed	Listed DSL	Listed
24937-79-9	Listed	Listed	Listed DSL	Listed
21324-40-3	Listed	Listed	Listed DSL	Listed
9003-07-0	Listed	Listed	Listed DSL	Listed
7429-90-5	Listed	Listed	Listed DSL	Listed
7440-50-8	Listed	Listed	Listed DSL	Listed
7439-89-6	Listed	Listed	Listed DSL	Listed

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Section 16 Other Information

十六、 其他信息

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

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End of report