



IECEX Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEX Scheme visit www.iecex.com

Certificate No.: IECEX ETL 17.0065X

Issue No: 1

Certificate history:

Issue No. 1 (2018-10-04)

Issue No. 0 (2018-08-13)

Status: **Current**

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Date of Issue: **2018-10-04**

Applicant: **Globalstar Inc.**
300 Holiday Square Blvd, Covington, LA, 70433
United States of America

Equipment: **SmartOne Solar**

Optional accessory:

Type of Protection: **intrinsic safe "ia"**

Marking:

Ex ia IIC T4 Ga

Ambient -40°C to +65°C

IECEX ETL 17.0065X

*Approved for issue on behalf of the IECEX
Certification Body:*

Kevin J. Wolf

Position:

Certification Officer

*Signature:
(for printed version)*

Date:

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the [Official IECEX Website](#).

Certificate issued by:

Intertek
3933 US Route 11 South
Cortland NY 13045-2995
United States of America



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Manufacturer: **Creation Technologies - Dallas**
1001 Klein Rd #100, Plano, TX 75074
United States of America

Additional Manufacturing location(s):

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

STANDARDS:

The apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

IEC 60079-0 : 2011 Explosive atmospheres - Part 0: General requirements
Edition:6.0
IEC 60079-11 : 2011 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:6.0

*This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.*

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

Test Report:

[US/ETL/ExTR17.0050/00](#) [US/ETL/ExTR17.0050/01](#)

Quality Assessment Report:

[US/ETL/QAR18.0006/00](#)



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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The SmartOne Solar is a solar powered satellite communication device intended for asset tracking applications. The device receives GPS signal and broadcasts its position and status using Globalstar simplex satellite communication network. The device also includes Bluetooth communication capabilities for local wireless communications and also features an external connector interface.

When used in the hazardous location it will be powered by 4 x VHT AA NI-MH 1.2V/1100mAh re-chargeable battery cells connected in 2S2P configuration. This also includes solar cells mounted on a PCB that are used to re-charge these battery cells under normal operation. This circuit along with the solar cell are fully potted and housed inside a plastic enclosure.

This product also has external connection for battery cell recharging, programming and communication. These connections are only intended to be used in the non-hazardous location. Um of this product will be 250V.

SPECIFIC CONDITIONS OF USE: YES as shown below:

Warning: Electrostatic hazard. Metal bracket measured max. capacitance 124.6pF.



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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

See Annex for Issue 1 for details.

Annex:

[103567003DAL-001 - Annex for COC IECEX ETL 17.0065X Issue 01.pdf](#)



Annex To IECEx Certificate of Conformity

Certificate No:	IECEx ETL 17.0065X, Issue 1	Issue No. 1
Annex No. 1		

Manufacturer's documents

Drawings associated with Issue 1 of this certificate:

Technical Documents			
Title:	Drawing No.:	Rev. Level:	Date:
*SMARTONE SP - POWER (WITH POTTING)	80706 Sheet 1 of 5	F	2018-09-18
*SMARTONE SP - CONTROL	80706 Sheet 2 of 5	F	2018-09-18
*SMARTONE SP - RADIO	80706 Sheet 3 of 5	F	2018-09-18
*SMARTONE SP - Connector	80706 Sheet 4 of 5	F	2018-09-18
*SMARTONE SP - Revisions	80706 Sheet 5 of 5	F	2018-09-18
*BOM - 80706RevF.PrfPcb	80763	G	2018-09-18
*PCB & LAYER STACKUP DETAILS (Total sheets = 4)	80706	F	2018-09-27
*SOLAR PANEL, GLOBALSTAR SMARTONE SP (Total sheets = 1)	79091	C	09/27/2018
*TOP HOUSING, IRIS (Total sheets = 4)	80854	J	10/01/2018
*BOTTOM HOUSING, IRIS, INSERTS (Total sheets = 4)	80855	K	10/01/2018
*BRACKET, METAL, IRIS-RUGGED-COVER-SHORT (Total sheets = 1)	81210	C	9/27/2018
*ASSY DRAWING, SMARTONE SOLAR (Total sheets = 7)	80952	G	10/01/2018
*SMARTONE SOLAR MARKING CONTENT (Total sheets = 1)	83938	H	9/26/2018
*SmartOne Solar User Manual	84128	1.0.0	--

*Note: An * is included before the title of documents that are new or revised.*

Details of change (for Issue 1):

Drawing description	Drawing number	Current Rev. Level	New Rev. Level	Changes
PCBA package	80706	D	G	Change log on last page of schematic contains all the changes and these are also included in the bullet list below.
Top level assy drawing	80952	C	G	Added magnet retaining screw, clarified notes, change potting and curing angles to ranges. (From F to G) – Added a view to show an optional adhesive step for magnet.
Top level BOM	80952	A	B	Added alternate potting material, added magnet holding screw
Solar panel	79091	B	C	Added holes to PCB
Top housing	80854	F	J	Modified tolerances, added protection film

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				to window, Added alternate (unspecified) color
Lower housing	80855	E	K	Modified tolerances, added embossed text, Added alternate (unspecified) color. Modified potting inlet geometry (from Rev. J to K)
Connector cap	80859	B	C	Added alternate (unspecified) color
Magnet holder	80860	C	E	Added undercut to hold magnet in
Header gasket	80856	C	D	Relaxed tolerance
Antenna foam	81165	B	D	Modified tolerances
Battery vent	80864	D	E	Changed material to be ROHS compliant
Mounting pad	81215	A	C	Changed material
Protection bkt	81210	A	C	Updated tolerances and minor feature dimensions
User manual	9100-0425-01	1.0.2	TBD	Removed from schedule drawing (changed to related document related to 84128)
Marking layout	83938	B	H	Removed bottom markings (molded in plastics), adjusted size of barcode, adjusted machine setup for better contrast From F to H: Updated the marking labels to show the manufacturer name and address.

Two new schedule drawings have been added:

Drawing description	Drawing number	Reason for addition
Qsil 214 potting material	N/A	To be tested as an alternate to the Wacker potting material
Condensed user manual	84128	This will be Rev. 1.0 and it replaces user manual as a schedule drawing

For the PCBA schematic (drawing number 80706) following updates have been made:

From Rev. Level D to E:

- Updated solder mask under U8 to improve manufacturing yield
- Updated solder mask of U14 and U5, adjust U14 pins 6 and 7
- Updated footprint for U2 for improved manufacturability, solder mask sliver too small
- Fixed all solder mask slivers less than 4mil
- Removed FID text and tooling pin hole designator (not required)
- Updated transmission line from STX3 to antenna, used co-planar waveguide calculation, increase ground plane connection, added guard ring vias.
- Changed label of 2V5 net to 3V0 to reflect actual voltage used now
- Do not populate resistors R10 and R11, causing communication conflicts
- Fixed description for R18, indicated 1% part but was actually 5%

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- Updated the board number to Rev. E, Assembly to Rev. E
- Added thermal relief to J4 and J1 connectors for manufacturability improvements
- Updated top layer polygon to not remove islands that are connected to nets below a certain size
- Adjust SCK trace on internal layer to not run parallel to other traces
- Replaced C26 and C28 with same capacitance and voltage but 0603 instead of 0402 – Availability

From Rev. Level E to F:

- Update board silkscreen to Rev. F
- Update STX3 matching components C45 to 1.1pF and L16 to 3.6nH, C46 remains DNP
- Update D24, D19, D1 footprints as per manufacturing review
- Updated the templates to reflect Hazardous Version
- Updated X2 and X4 footprints slightly as per manufacturing review

From Rev. Level F to G:

- Update D38 to Zener to protect input from sustained high input voltage (THIS IS AN ASSEMBLY UPDATE ONLY – BARE PCB IS UNCHANGED AT REV. F)

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