



3138 **BLUETOOTH**[®] RUGGED RAIN RFID READER

HIGH PERFORMANCE, LONG RANGE UHF RFID READING WITH EPOP-LOQ[®] CONNECTIVITY



Latest Hardware Advances

TSL's very popular 2128/2128P series has been updated with new, performance-boosting internal hardware together with the market's most advanced security features. The inclusion of a 'Power Handle' increases battery capacity, which combined with more efficient hardware provides longer running times than ever before. A Hot Swap accessory allows continuous, 24/7 operation of the handheld reader.

Using the latest generation of Impinj silicon, read rates have been boosted to up to 1200 tags per second. On reader de-duplication for 1 million transponders prevents overwhelming the connected host with information.

Multiple tag operations per tag are possible during an inventory scan - read multiple areas of each tag, or write to or even lock the tag.

Support has been added for HID and other sensor transponders (temperature, strain, humidity, acceleration) and a demo app is provided.

Designed to read and write to EPC Class 1 Gen 2 (ISO18000-6C) tags, the 3138 can also be configured with class leading high performance 2D data scanning to bring unparalleled data collection capabilities to any host it is connected to.

Single Point Charge Solution

The 3138 Docking Station allows charging of both the 3138 RAIN RFID Reader and a smartphone or handheld terminal attached via an ePop-Loq[®] mount (see page 3). The unique design can accommodate a wide range of devices from many handheld and smartphone manufacturers. The 3138 Reader boasts a faster ePop-Loq mode than previous TSL readers to accommodate higher tag throughput.

Platform Independence

Use existing *Bluetooth*[®] wireless technology enabled¹ host devices including Enterprise Handhelds, Consumer Phones, Touchscreen MP3 players, Tablets and PC's – the 3138 will bring high performance RFID and 2D scanning to all these devices running a wide range of Operating Systems.

In addition to Bluetooth classic, Bluetooth Smart / LE provides a modern, secure link to even more devices.

Extensive software support is available for a wide range of platforms including code samples, demonstration applications and source code.

Batch Mode

Transponder EPC readings can optionally be stored on the embedded 32GB Micro SD card, meaning that the 3138 RAIN RFID Reader can be used independently of a host device. The 3138 can store up to 5000 million* transponder EPCs - date and time stamped by the on-board Real Time Clock.

Backwards compatible

The new 3138 Rugged *Bluetooth*[®] RAIN RFID Reader uses TSL's latest ASCII protocol for faster and easier application development. This sophisticated parameterised protocol provides the developer a powerful set of commands that carry out multiple actions locally within the reader. This approach enables multiple tag operations to be executed using simple pre-configured commands which speeds up integration of the reader into applications.

Features:

Up to 6x faster tag read rate

Gathers RFID data at a blistering pace - up to 1200 tags per second

Multiple RF Profiles

- high sensitivity
- maximum read rate
- dynamic switching between modes

ETSI Upper Band Option

Bulk encoding feature

Advanced Security

Powered by HID OmniKey™

Bluetooth[®] improvements

Around a 2x speed boost for Bluetooth Classic in iOS
BLE forward compatible (no need for MFI app approval, Out of band battery status and device information)

Hardware and OS Independence

Operates with Android, iOS, Linux, Mac and Windows.

Batch Mode Operation

Real time clock for extended batch data collection independent of host connection. Store millions of tags and barcodes with date and time stamping



Physical and Environmental Characteristics

Dimensions:	158 x 98 x 170 mm (LxWxH).
Weight:	550g (including Power Handle)
User input:	Trigger button.
User feedback:	Speaker, vibration motor, LED - user configurable.
Power:	Rechargeable 25.4Wh, 7.3V Lithium Polymer battery pack
Minimum operating time ¹ :	Light use ² : 20 hrs Moderate use ³ : 11 hrs (preliminary estimates) Heavy use ⁴ : 6.5 hrs
Input rating:	USB-C with Power Delivery (40W with ePop-Loq, 20W reader only)
Enclosure materials:	Polycarbonate.

Performance Characteristics

RFID engine:	TSL custom module with embedded Impinj E710.
Communication protocols:	TSL ASCII 3 parameterised command set.
Security features:	HID OmniKey™ Security Chip
Memory:	Embedded 32GB ⁵ storage memory - store up to 500 million date and time stamped EPCs
Compatible host devices (Bluetooth®):	Any Bluetooth® Host ⁶ supporting the Serial Port Profile (SPP) or Human Interface Device (HID) profile (Android, iOS, Linux, Mac, Windows). Comparison of Bluetooth® modes for TSL UHF Readers.
Compatible host devices (USB):	Any USB host with USB CDC support (Windows, Linux, Mac, Android).

Environmental

Operating temp.:	-10°C to 50°C (14°F to 122°F).
Charging temp.:	5°C to 40°C (41°F to 104°F).
Storage temp.:	Less than 1 month at -20°C to +45°C (-4°F to 113°F). Less than 6 months at -20°C to +35°C (-4°F to 95°F).
Humidity:	5% to 85% non-condensing.
Drop spec:	Multiple drops to concrete: 4 ft./1.2 m ambient, 3ft / 0.9m across the operating temperature range.
Tumble:	1000 0.5 metre tumbles at room temperature (2000 cycles).
Electrostatic Discharge (ESD):	± 15kVdc air discharge; ± 8kVdc contact discharge.
MIL-STD 810F:	Meets and exceeds applicable MIL-STD 810F for drop, tumble and sealing.

RFID Performance

Standards supported:	EPC Class 1 Gen 2 v2
Nominal read range ⁷ :	Up to 9 m (29.5 ft).
Nominal write range ⁷ :	Up to 4 m (13.1 ft).
Field:	150-degree forward facing (approx.)

Antenna:	Right Hand Circularly Polarised with optional 2D scanner.
Frequency Range:	EU: 865-868MHz, 916-919MHz US: 902-928MHz
Maximum Output Power:	Up to 30 dBm (region dependent) + 4.0 dBiC Antenna.

Barcode Scanning

Optional 2D barcode engine:	Optional TSL custom 2D Barcode Scan Engine module.																								
Sensor resolution:	1280 x 960 pixels, rolling shutter																								
Field of view:	Horizontal: 44.5°, vertical: 33.5°																								
Focal distance:	From front of engine: 15.24 cm (6 in.)																								
Aiming LED:	Green LED																								
Illumination:	1 warm white LED																								
Symbologies supported:	1D: All major codes 2D: PDF417, MicroPDF417, Composite, RSS, TLC-39, Datamatrix, QR code, Micro QR code, Aztec, MaxiCode Postal Codes: US PostNet, US Planet, UK Postal, Australian Postal, Japan Postal, Dutch Postal (KIX).																								
Ranges ⁸ :	<table border="1"> <thead> <tr> <th>Barcode</th> <th>Near</th> <th>Far</th> </tr> </thead> <tbody> <tr> <td>5 mil Code 39</td> <td>6.1 cm</td> <td>24.1 cm</td> </tr> <tr> <td>5 mil Code 128</td> <td>7.1 cm</td> <td>22.9 cm</td> </tr> <tr> <td>6.67 mil PDF 417</td> <td>6.1 cm</td> <td>20.3 cm</td> </tr> <tr> <td>10 mil DataMatrix</td> <td>7.4 cm</td> <td>21.6 cm</td> </tr> <tr> <td>100% UPCA</td> <td>4.6 cm</td> <td>49.5 cm</td> </tr> <tr> <td>15 mil QR</td> <td>3.0 cm</td> <td>29.2 cm</td> </tr> <tr> <td>20 mil QR</td> <td>3.0 cm</td> <td>35.6 cm</td> </tr> </tbody> </table>	Barcode	Near	Far	5 mil Code 39	6.1 cm	24.1 cm	5 mil Code 128	7.1 cm	22.9 cm	6.67 mil PDF 417	6.1 cm	20.3 cm	10 mil DataMatrix	7.4 cm	21.6 cm	100% UPCA	4.6 cm	49.5 cm	15 mil QR	3.0 cm	29.2 cm	20 mil QR	3.0 cm	35.6 cm
Barcode	Near	Far																							
5 mil Code 39	6.1 cm	24.1 cm																							
5 mil Code 128	7.1 cm	22.9 cm																							
6.67 mil PDF 417	6.1 cm	20.3 cm																							
10 mil DataMatrix	7.4 cm	21.6 cm																							
100% UPCA	4.6 cm	49.5 cm																							
15 mil QR	3.0 cm	29.2 cm																							
20 mil QR	3.0 cm	35.6 cm																							

Communication

Bluetooth®:	Bluetooth® v4.2 compliant (v5.1 compatible)
Bluetooth GATT Services:	<ul style="list-style-type: none"> Device Information Service Battery Service HID over GATT Serial over GATT (TSL)
Bluetooth frequency range:	2.4 - 2.4835 GHz.
Bluetooth profiles:	SPP Profile, HID Profile, Apple iAP2, Bluetooth Low Energy.
Bluetooth range ⁹ :	Up to 100m.
Bluetooth pairing:	Simple Secure Pairing, NFC OOB Pairing.
Physical host device connection	Direct connection via ePop-Loq® cases (separate purchase).

¹ Minimum operating time figures are based on new units that have been stored, charged and operated within the stated Environmental Specifications. Units stored over 3 months must be recharged every 3 months. Number of transponders in the environment affects minimum operating time.

² Light Use: Continuous RFID inventories for 20s of every 120s

³ Moderate Use: Continuous RFID inventories for 10s of every 30s

⁴ Heavy Use: Continuous RFID inventories for 59s of every 60s

⁵ Up to 256GB microSD card storage supported. 32GB fitted as standard

⁶ Compatible Bluetooth® stack required in the Host device

⁷ Tag Read/Write performance is dependent on tag type, items tagged, number of tags in the field and other radio and environmental factors

⁸ Artificial lighting can affect scanning performance

⁹ Open field

Peripherals and Accessories

External interface:	USB-C connector or custom 8-Way Power-Pin connector (for use with docking cradle)
Power supply management	Separate purchase (see accessories PN)
Other accessories available:	Adapter mounts for a variety of smartphones and handheld terminals.

Regulatory

Regions	EU (CE), USA (FCC), Canada (see page 4 for details)
FCC ID	Pending
IC	Pending
EMC	EN 55032: 2015+A11:2020, Class A EN 6100-3-2: 2014, Class A EN IEC 61000-3-2: 2019+A1:2021, Class A EN 61000-3-3: 2013+A1:2019+A2:2021 EN 55035: 2017+A11:2020 EN 301 489-1 V2.2.3 (2019-11) EN 301 489-3 V2.3.2 (2023-01) EN 301 489-17 V3.2.4 (2020-09) 47 CFR FCC Part 15, Subpart B, Class A ANSI C63.4-2014 ANSI C63.4a-2017 ICES-003: 2020 Issue 7, Class A ICES-Gen: 2018 Issue 1 +A1:2021 ANSI C63.4-2014 amended as per ANSI C63.4a-2017
RF	EN 302 208 V3.3.1 (2020-08) 47 CFR FCC Part 15, Subpart C (Section 15.247) ANSI C63.10-2013 Canada RSS-247 Issue 3, August 2023 Canada RSS-Gen Issue 5, Amendment 2, February 2021 ANSI C63.10-2013
RF Exposure	EN 50566:2017 EN 62209-2:2010/A1:2019 IEC 62209-2:2010/AMD1:2019 EN 50663:2017 EN 62479:2010 EN 50364:2018 EN 62369-1:2009 IEEE Std 1528:2013 KDB 865664 D01 v01r04 KDB 865664 D02 v01r02 KDB 447498 D01 v06 ISED RSS-102 Issue 5:2015/AMD1:2021 IEC/IEEE 62209-1528:2020
Electrical Safety	IEC 62368-1:2018 UL 62368-1:2019 CSA C22.2 No. 62368-1:19
Environmental	2011/65/EU (RoHS 2) Restriction of the use of certain Hazardous Substances in electrical and electronic equipment 2015/863 (RoHS 3) Amendment to Annex II of 2011/65/EU

Warranty

The TSL 3138 reader is warranted against manufacturing defects for a period of one year (12 months) from date of shipment, provided the product remains unmodified and is operated under normal and proper conditions.

Full warranty information can be downloaded from the TSL website at www.tsl.com/warranty.

Terms

"Made for iPod," "Made for iPhone," and "Made for iPad" mean that an electronic accessory has been designed to connect specifically to iPod, iPhone, or iPad, respectively, and has been certified by the developer to meet Apple performance standards. Apple is not responsible for the operation of this device or its compliance with safety and regulatory standards. Please note that the use of this accessory with iPod, iPhone, or iPad may affect wireless performance.

iPad, iPhone, iPod and iPod touch are trademarks of Apple Inc., registered in the U.S. and other countries.

The *Bluetooth*® word mark and logos are registered trademarks owned by *Bluetooth SIG, Inc.* and any use of such marks by Technology Solutions UK Ltd is under license. Other trademarks and trade names are those of their respective owners.

TSL RFID Apps



RFID Explorer
www.tsl.com/apps/rfid-explorer



RFID Tag Finder
www.tsl.com/apps/rfid-tag-finder



RFID Web Wedge
www.tsl.com/apps/rfid-web-wedge



RFID Scan Scan Write
www.tsl.com/apps/rfid-scan-scan-write



TSL Reader Configuration
www.tsl.com/apps/tsl-reader-configuration

3138 PART NUMBERS

Countries*			Part Numbers (USB-C Power Handle)**	Operating Frequency
Albania Andorra Austria Belgium Bhutan Bosnia & Herzegovina Bulgaria Croatia Cyprus Czech Republic Denmark Estonia Falkland Islands Finland France French Guiana	Georgia (Licence Required) Germany Greece Greenland Guernsey Guadeloupe Hungary Iceland Ireland Italy Jersey Latvia Liechtenstein Lithuania Luxembourg Macedonia	Malta Martinique Monaco Montenegro Netherlands Norway Poland Portugal Romania Slovakia Slovenia Spain Sweden Switzerland United Kingdom (UK)	With 2D barcode imager: 3138-ES1-EU No barcode imager: 3138-EX1-EU	ETSI Lower Band 865 – 868 MHz 4 Channels
United States of America (USA) Guam Guatemala Northern Mariana Islands	Canada Ecuador Puerto Rico		With 2D barcode imager: 3138-AS1-US No barcode imager: 3138-AX1-US	902 – 928 MHz 50 Channels
Australia			3138-AS1-AU 3138-AX1-AU	(Approval pending) • Operating frequency: 918 – 926 MHz (TBC) • 12 Channels (TBC)
New Zealand			3138-AS1-NZ 3138-AX1-NZ	(Approval pending) • Operating frequency: 918 – 926 MHz (TBC) • 12 Channels (TBC)

*If you are interested in purchasing for a country/region that is not listed above, please contact enquiries@tsl.com for assistance.

**If you anticipate purchasing 3138 Readers with 8-way Power Pins, please contact enquiries@tsl.com for more information.

Accessories Part Numbers

31x8 Power Handle (USB-C)	31PH-01
31x8 Power Handle (8-way Power Pins)	31PH-02
31x8 Power Handle Hot-Swap Accessory	31-HS-01
3138 Docking Cradle Kit	3138-CRD-01-KIT
USB-C 20W PSU with Power Delivery	USBC-PSU-KIT20
USB-C 45W PSU with Power Delivery	USBC-PSU-KIT45



Charge the 3138 Reader and host device (via ePop-Loq® mounts)



USB-C connector option



8-Way Power Pin connector option, for use with Docking Cradle



3138 Docking Cradle Kit

DEVICE MOUNTS

Physically connect Enterprise Hand-Held Terminals to your UHF RFID Reader using ePop-Loq® mounts. These custom made mounts can provide direct USB charge and data connections (when available) between the Reader and host device. To enquire about ePop-Loq mounts for devices not listed below, please contact enquiries@tsl.com.



Device Mount

Part Numbers

ePop-Loq Mount for Datalogic Memor 10/11	2108-A-EPL-CASE
ePop-Loq Mount for Datalogic Memor 30/35	2108-A-EPL-CASE
ePop-Loq Mount for Honeywell CT40/CT45	2103-A-EPL-CASE-V2
ePop-Loq Mount for Honeywell CT50/CT60	1192-A-EPL-CASE
ePop-Loq Mount for Honeywell D75e	1190-A-EPL-CASE
ePop-Loq Mount for Honeywell EDA50	1195-C-EPL-CASE
ePop-Loq Mount for Honeywell EDA51	1217-C-EPL-CASE
ePop-Loq Mount for Janam XT30/XT40	ATC-XT-01 (order through Janam Technologies)
ePop-Loq Mount for Xiaomi Mi A2	2106-A-EPL-CASE
ePop-Loq Mount for Zebra TC20/TC25	2101-A-EPL-CASE
ePop-Loq Mount for Zebra TC51/52/56/57	1199-A-EPL-CASE

ABOUT TSL



Technology Solutions UK Ltd (TSL®), part of HID, is a leading manufacturer of high performance mobile RFID readers used to identify and track products, assets, data or personnel.

For over two decades, TSL has delivered innovative data capture solutions to Fortune 500 companies around the world using a global network of distributors and system integrators. Specialist in-house teams design all aspects of the finished products and software ecosystems, including electronics, firmware, application development tools, RF design and injection mould tooling.

TSL is an ISO 9001:2015 certified company.



ISO 9001: 2015

CONTACT

Address:	Technology Solutions (UK) Ltd, Suite A, Loughborough Technology Centre, Epinal Way, Loughborough, Leicestershire, LE11 3GE, United Kingdom.
Telephone:	+44 1509 238248
Fax:	+44 1509 214144
Email:	enquiries@tsl.com
Website:	www.tsl.com

ABOUT HID



HID powers the trusted identities of the world's people, places and things. We make it possible for people to transact safely, work productively and travel freely. Our trusted identity solutions give **people** convenient access to physical and digital **places** and connect **things** that can be identified, verified and tracked digitally. Millions of people around the world use HID products and services to navigate their everyday lives, and billions of things are connected through HID technology. We work with governments, educational institutions, hospitals, financial institutions, industrial businesses and some of the most innovative companies on the planet. Headquartered in Austin, Texas, HID has over 4,000 employees worldwide and operates international offices that support more than 100 countries. HID is an ASSA ABLOY Group brand.

For more information, visit www.hidglobal.com.

Technology Solutions (UK) Ltd reserves the right to change its products, specifications and services at any time without notice.