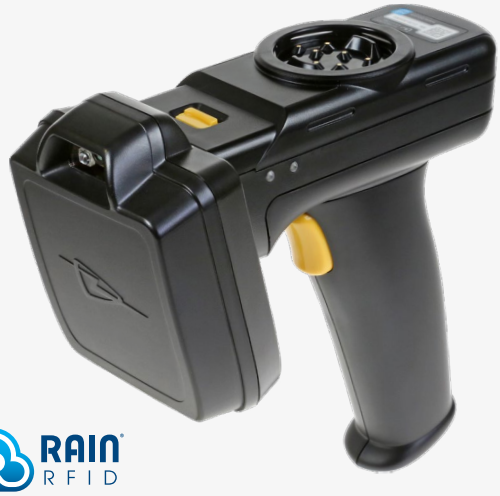
2128 *BLUETOOTH*® UHF RFID READER

HIGH PERFORMANCE RFID READING WITH THE CONVENIENCE OF EPOP-LOQ® CONNECTIVITY AND CHARGING



Integrated ePop-Loq® socket allows data and charge connections to a Smartphone or Hand-Held Terminal

Simultaneous charging of both the UHF reader and attached Hand-Held Terminal

Connect Devices Using ePop-Loq®

The 2128 UHF RFID Reader introduces the revolutionary TSL® ePop-Loq® connector. The patented ePop-Loq® system allows data and charge connections to be passed from the reader to an attached device, such as a smartphone or handheld terminal.

The unique ePop-Loq® system is designed to safely separate when the reader is subject to large impacts, such as when dropped.

The 2128 UHF RFID Reader has flat landing contact pads, allowing for quicker docking and greater durability.

Single Point Charge Solution

The 2128 Docking Station allows charging of both the 2128 UHF RFID Reader and a smartphone or handheld terminal attached via an ePop-Loq® mount. This unique design can accommodate a wide range of devices from many handheld and smartphone manufacturers. The 2128 Docking Station Kit is supplied separately and includes the docking station, power supply unit and a USB data cable.

Powerful and Comprehensive Software Development Tools

Applications developed for the 1128, 2128, 2128P 1153, 1166 or 2166 UHF RFID Readers can easily be configured to work with the 2128L, as all of these readers share TSL's unique 'ASCII 2 Protocol'. This sophisticated, parameterised set of commands carry out multiple actions locally within the reader.

This approach enables multiple tag operations to be executed using simple pre-configured ASCII 2 commands which not only speeds integration of the reader into applications but also makes application development easier.

Flexible *Bluetooth*® Connectivity

The 2128 supports both *Bluetooth*® Classic as well as *Bluetooth*® Low Energy (BLE). The reader can be operated in Serial Port Profile (SPP) or Human Interface Device mode (HID), as well as supporting iApp2 for Apple iOS devices. The reader also supports an automatic re-connect mode for both Android and Apple devices.

Ultra Secure Data Gathering Option

As the ePop-Loq® system provides a wired connection between the host device and RFID Reader, sensitive data can be given that extra level of security by avoiding the use of wireless data transfer. The 2128 supports batch data collection and is equipped with a Micro SD socket and a real time clock. Up to 500 million transponder EPCs can be stored on a 32GB Micro SD card (optional purchase). This provides the ability to collect and log data even if USB or *Bluetooth*® communication channels are not available. Docking the 2128 then enables this data to be synchronised with a PC.

Features:

High Performance *Bluetooth*® Multi-Modal Data Capture
UHF RFID and 2D barcode data capture in an single device.

Hardware Platform Independence
Operates with wide variety of *Bluetooth*® wireless technology enabled host devices from smartphones to tablets, laptops and desktop computers.

OS Independence
The reader is compatible with Android, iOS and Windows.

Integrated ePop-Loq® Socket
A smarter way of mounting devices to the UHF RFID reader.

Bluetooth LE Support
Lower power consumption and longer battery life.

Direct USB Connection
For increased security of data transfer via ePop-Loq® mounts.

Lightweight
Only 400g (14.1oz) including battery, trigger handle and 2D Imager.

High Performance Barcode Scanning
Integrated 2D imaging engine provides class leading barcode scan performance via its unique patent pending fast pulse illumination which delivers outstanding motion tolerance and class leading 1D and 2D data capture.

Made for iPod iPhone iPad

Bluetooth®

2128 SPECIFICATIONS

Physical and Environmental Characteristics

Dimensions:	16.0 cm x 7.7 cm x 17.5cm (LxWxH).
Weight:	365 g / 12.8 oz (including non-imager antenna, battery & trigger handle). 400 g / 14.1 oz (including imager antenna, battery & trigger handle).
User input:	Trigger button.
User feedback:	Speaker, vibration motor, LED.
Power:	Removable, rechargeable 3.7V, 2400mAh, 8.9Wh Lithium Polymer pack. (Optional Power Handle with 6700 mAh Lithium Polymer pack available).
Minimum operating time:	Light use*: 11 hrs Moderate use**: 7 hrs Heavy use***: 4 hrs *Light Use: Continuous RFID inventories for 20s of every 120s **Moderate Use: Continuous RFID inventories for 10s of every 30s ***Heavy Use: Continuous RFID inventories for 59s of every 60s
Enclosure materials:	Polycarbonate.

Performance Characteristics

RFID engine:	TSL® custom module with embedded Impinj R2000.
Communication protocols:	TSL® ASCII 2.0 parameterised command set and Impinj binary protocol.
Memory:	Optional Micro SD card (maximum 32GB capacity supported). Up to 500 million date and time stamped EPCs can be stored on a 32GB Micro SD card (separate purchase from alternative supplier).
Compatible Host devices (*Bluetooth*®):	Any *Bluetooth*® Host[1] supporting the Serial Port Profile (SPP) or Human Interface Device (HID) profile (Android, iOS, Linux, Mac, Windows). See *Bluetooth*® Mode Comparison.
Compatible Host devices (USB):	Any USB host with FTDI VCP driver support (Windows, Linux, Mac, Android).

Environmental

Operating Temp.:	-10°C to 40°C (14°F to 104°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:	500 0.5 metre tumbles at room temperature (1,000 cycles).
Environmental Sealing:	IP54.
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.
Nominal read range[2]:	Up to 6 m (19.6 ft).
Nominal write range[2]:	Up to 3 m (9.8 ft).
Field:	150-degree forward facing.
Antenna:	Detachable, Right Hand Circularly Polarized with optional 2D scanner.
Frequency Range:	EU: 865-868 MHz; US: 902-928 MHz.
Maximum Output Power:	Up to 30 dBm (region dependant) + 3.0 dBiC Antenna.

Barcode Scanning

Optional 2D Barcode Engine:	Optional TSL® custom 2D Barcode Scan Engine module.
Sensor Resolution:	752 x 480 pixels.
Field of View:	Horizontal: 40°, Vertical: 25°.
Focal Distance:	8 in (203 mm).
Aiming LED (V LD):	655nm Laser.
Illumination:	2x 625nm LEDs.
Min. Print Contrast:	Minimum 25%.
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[3]:	Type / Near / Far 5 mil Code 39 / 2.1 in./5.3 cm / 7.5 in./19.1 cm 100% UPC/EAN / 1.6 in./4.1 cm / 15.5 in./39.4 cm 6.7 mil PDF417 / 3.4 in./8.6 cm / 7.1 in./18.0 cm

Communication

Bluetooth®:	*Bluetooth*® Version 4.2.
Bluetooth® Frequency Range:	2.4 - 2.4835 GHz.
Bluetooth® Profiles:	SPP Profile, HID Profile, Apple iAP2, *Bluetooth*® Low Energy.
Bluetooth® Range:	Up to 100m.
Bluetooth® Pairing:	Simple Secure Pairing, NFC OOB Pairing.
Direct USB	USB connection to handheld terminal via ePop-Loq® cases (separate purchase).

[1] Compatible *Bluetooth*® stack required in the Host device
[2] Tag Read/Write performance is dependent on tag type, items tagged, number of tags in the field and other radio and environmental factors
[3] Artificial lighting can affect scanning performance

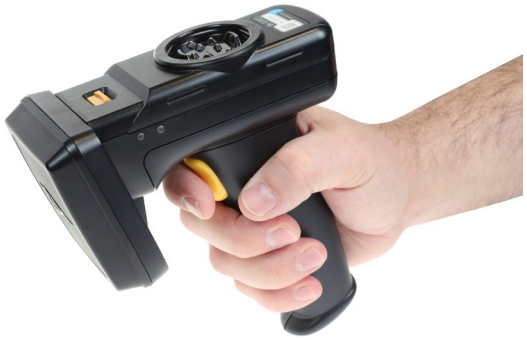
2128 SPECIFICATIONS

Peripherals and Accessories

External interface:	Custom connector - requires 2128 Docking Station for battery charging, and USB connectivity.
USB operating modes:	Tethered for real time data capture in conjunction with SmartWedge software. Download of stored scan data.
Desktop charger:	TSL® 2128 Docking Station (separate purchase).
Power Handle	Alternative trigger handle gives approximately 3X the original battery capacity.
Other Accessories:	New ePop-Loq® cases can be ordered by special request (volume dependent, lead times apply).

Regulatory

Regions	EU (CE), USA (FCC), Canada, Australia, New Zealand and more (see page 4 for details)
FCC ID	S6J2128
IC	8948A-2128
EMC	EN 55032:2012 +AC:2013 EN 55024:2010 EN 301 489-1 V2.1.1
RF	EN 302 208 V3.1.1 EN 300 328 V2.1.1 EN 301 489-17 V3.1.1 47 CFR Part 15C 15.247 RSS-247 Issue 2
RF Exposure	EN 50566:2013 EN 62209-1:2016 EN 62209-2:2010 EN 62479:2010 47 CFR Part 2.1093 RSS-102 Issue 5
Electrical Safety	IEC 62368-1:2014 CB EN 62368-1:2014 +A11:2017 UL 62368-1:2014 CAN/CSA C22.2 No. 62368-1-14
Laser Safety (Imager Variants Only)	IEC 60825-1:2014, EN 60825-1:2014 IEC 62471:2006, EN 62471:2008 21 CFR 1040.10
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® 2128 reader is warranted against defects in workmanship and materials 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.

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.

MOUNTS

Connect Enterprise Hand-Held Terminals using ePop-Loq® mounts:

Zebra TC20 / TC25

Zebra TC70 / TC75

Zebra TC51 / TC56

Datalogic Memor 1

Datalogic Memor 10

Honeywell D75e

Honeywell CT50 / CT60

Honeywell EDA50

Honeywell CT40

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

2128 PART NUMBERS

Countries	Part Numbers	Operating Frequency
Albania, Andorra, Austria, Belgium, Bhutan, Bosnia & Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Falkland Islands, Finland, France, French Guiana, Georgia, 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: 2128-ES0 No barcode imager: 2128-EX0	865 – 868 MHz 4 Channels
United States of America (USA), Guam, Guatemala, Northern Mariana Islands, Canada, Ecuador, Puerto Rico	With 2D barcode imager: 2128-AS0 No barcode imager: 2128-AX0	902 – 928 MHz 50 Channels
Australia	2128-AS0-AU 2128-AX0-AU	920 – 926 MHz 12 Channels
Bangladesh	2128-AS0-BD 2128-AX0-BD	925 – 927 MHz 4 Channels
Colombia	2128-AS0-CO 2128-AX0-CO	915 – 928 MHz 24 Channels
India	2128-ES0-IN 2128-EX0-IN	865 – 867 MHz 4 Channels
New Zealand	2128-AS0-NZ 2128-AX0-NZ	921.5 – 928 MHz 11 Channels
Singapore (Licence Free)	2128-AS0-SG 2128-AX0-SG	920 – 925 MHz 10 Channels, Power Limited: 500mW ERP
Singapore (Licence Required)	2128-AS0-SGA 2128-AX0-SGA	920 – 925 MHz 10 Channels

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

Accessories	Part Numbers
2128 Docking Station, Power Supply and Mini USB Cable	2128-CRD-03-KIT
4-Slot Battery Charger Kit	2136-01-4WMS-CHG
Spare Battery for 1128/2128 UHF Reader	1128-00-BA-2000
Power Handle for 2128, 2128P UHF RFID Readers	2102-PH-Y