



2173 **BLUETOOTH**[®] LF, HF & NFC RFID READER

A MULTI-BAND, MULTI-ISO, PLATFORM-INDEPENDENT RFID READER



Made for
iPhone | iPad | iPod

Integrate RFID Into Your Solution!

The 2173 reader enables a compatible *Bluetooth*[®] host to read and write a wide variety of HF and LF RFID transponders as well as capture 1D and 2D barcodes (imager version only). These can be 'typed' into any application on the host device using the *Bluetooth*[®] HID keyboard mode. Alternatively, the reader can be commanded from an app on the host device. As the 2173 uses the existing TSL[®] ASCII 2 Protocol, developers can take advantage of the comprehensive, free SDKs provided by TSL[®] to develop in Xamarin, Java, Objective C or .NET.

Dual RFID Frequencies

The combined LF and HF RFID reader provides the ability to read and write to a wide variety of transponders at 125/134.2 kHz (LF) and 13.56 MHz (HF) including ISO 15693, the complete Mifare family of ISO14443 (A&B) and the NFC standard ISO18092 ECMA-340.

Comprehensive Compatibility

Supported Manufacturer specific transponders include [HID](#), [Elatec](#), [NXP](#), [EM Microelectronic](#), [Atmel](#), [Calypso](#) and [TI \(Texas Instruments\)](#).

Features:

Multi-Band RFID Reading and Writing

Combined LF RFID, HF RFID and NFC reading and writing in an incredibly compact and lightweight device.

Multi-ISO RFID

Supports multiple ISO industry standards including ISO15693, ISO14443(A/B) and ISO18092 ECMA-340 (NFC).

Batch Data Collection

Removable high capacity Micro SD data card and real time clock for extended batch data collection with time stamp independent of the host connection.

OS Independence

The reader is compatible with Android, iOS and Windows.

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.

Physical and Environmental Characteristics

Dimensions (LxWxH):	10.2 cm x 5.5 cm x 5.6 cm.
Weight (inc battery):	157 g / 5.5 oz.
User input:	Two Trigger buttons.
User feedback:	Speaker, vibration motor, three LEDs.
Power:	Removable, rechargeable 3.7 volt Lithium Polymer 1200 mAh battery pack, 4.5 watt hrs.
Minimum operating time ¹ :	Light use ² : 10 hrs Moderate use ³ : 6.5 hrs Heavy use ⁴ : 3 hrs
Enclosure materials:	Polycarbonate.

Performance Characteristics

Communication protocols:	TSL® ASCII 2.0 parameterised command set.
Memory:	Supports up to 32 GB Micro SD/SDHC card.
Compatible Host devices (Bluetooth®):	Any Bluetooth® Host ⁵ 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 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 to +60°C (-4°F to 140°F). Less than 3 months at -20°C to +45°C (-4°F to 113°F). Less than 1 year at -20°C to +30°C (-4°F to 86°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.
Construction:	RoHS compliant.

RFID Performance

Frequency Range:	125/134.2 kHz (LF) / 13.56 MHz (HF).
Read Distance ⁶ :	LF and HF: Up to 100 mm / 4" (dependent on transponder type).
RF Transmission Speed:	HF Air: up to 848 kbit/s.

Standards supported:	ISO14443A, ISO14443B, ISO18092 ECMA-340 (NFC), ISO15693 plus many 125 kHz, 134.2 kHz standards.
Supported Transponders ³ 13.56 MHz :	ISO 14443A: LEGIC Advant ⁴ , NTAG2xx, MIFARE Classic, MIFARE Classic EV1 ⁵ , MIFARE DESFire EV1, MIFARE DESFire EV2 ⁶ , MIFARE DESFire EV3 ⁶ , MIFARE DESFire Light ¹ , MIFARE Mini, MIFARE Plus S, MIFARE Plus X, MIFARE Smart MX ⁷ , MIFARE Ultralight, MIFARE Ultralight C, MIFARE Ultralight EV1 ⁵ , SLE44R35 ⁷ , SLE66Rxx (my-d move) ⁷ , Topaz ISO 14443B: Calypso ⁷ , Calypso Innovatron protocol ⁷ , CEPAS ⁷ , CTS, Pico Pass ⁸ , SRI4K, SRI512, SRIX4K, SRT512 ISO 15693: EM4x33 ⁷ , EM4x35 ⁷ , ICODE SLI, LEGIC Advant ⁴ , M24LR16/64, MB89R118/119, PicoPass ⁸ , SRF55Vxx (my-d vicinity) ⁷ , Tag-it ISO 18092 / ECMA-340: NFC Forum Tag 1-5, Sony FeliCa ⁹ LEAF Identity: LEAF ¹⁰
Supported Transponders ³ 125 kHz:	AWID, Cardax ¹² , CASI-RUSCO, Deister ¹² , EM4050, EM4100, EM4102, EM4150, EM4200 ¹³ , EM4305, EM4450, EM4550, HITAG 1 ¹⁴ , HITAG 2 ¹⁴ , HITAG S ¹⁴ , ICT ¹ , IDTECK, ISONAS, Keri, Miro, Nedap ¹² , Pyramid, Q5, T5557, T5567, T5577, TITAN (EM4050), UltraProx, UNIQUE, ZODIAC
PI options only - Additional Supported Transponders ³ :	G-Prox ¹² , HID 1326 Prox II, HID 1336 DuoProx II, HID 1346 ProxKey III, HID 1386 ISO Prox II, HID 1391 Micro Prox, HID Prox, Indala, ioProx, Nexwatch, HID MIFARE Classic SE, HID MIFARE DESFire SE, HID SEOS, HID iCLASS Legacy/SR/SE

¹On request ²More information on request ³Unless otherwise agreed, the product is delivered with a standard firmware version that might be older than the latest firmware developed. This firmware version can be changed using the ELATEC AppBlaster tool. Please note that the information given in this document regarding the transponder technologies supported by the product is based on the latest firmware version. ⁴UID only ⁵r/w enhanced security features on request ⁶Supported as part of the EV1 downward compatibility ⁷r/w in direct chip command mode ⁸UID only, r/w on request ⁹UID + r/w public area ¹⁰AV2 only, requires one free SAM slot for MIFARE SAM AV2 card ¹¹125 kHz technology requires a Russian local test and import license from the ministry of Trade and Industry (MINPROMTORC). ¹²Hash value only ¹³Only emulation of 4100, 4102 ¹⁴Without encryption ¹⁵Requires one free SAM slot for HID iCLASS SE processor. ¹⁶The module has one SAM slot only and cannot support LEAF and the PI option at the same time.

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 ⁷ :	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

<i>Bluetooth</i> ®:	<i>Bluetooth</i> ® Version 4.2.
<i>Bluetooth</i> ® Frequency Range:	2.4 - 2.4835 GHz.
<i>Bluetooth</i> ® Profiles:	SPP Profile, HID Profile, Apple iAP2, <i>Bluetooth</i> ® Low Energy.
<i>Bluetooth</i> ® Range ⁸ :	Up to 100m.
<i>Bluetooth</i> ® Pairing:	Simple Secure Pairing, NFC OOB Pairing.

Peripherals and Accessories

External interface:	MicroUSB connector 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.
Optional accessories:	2136 4-Slot Desktop Battery Charger. 2112 Docking Cradle (Coming Soon).

Regulatory

Regions	EU (CE), USA (FCC)
FCC ID	S6J2173
EMC	EN 55032:2015 +AC:2016 EN 55024:2010 +A1:2015 EN 301 489-1 V2.1.1 47 CFR Part 15B 15.107, 15.109
RF	EN 300 328 V2.1.1 EN 300 330 V2.1.1 EN 301 489-3 V2.1.1 EN 301 489-17 V3.1.1 47 CFR Part 15C 15.209, 15.215, 15.225, 15.247
RF Exposure	EN 62311:2008 EN 50364:2010 EN 62479:2010 47 CFR 2.1093
Electrical Safety	IEC 62368-1:2014 CB EN 62368-1:2014 +A11:2017 UL 62368-1:2014
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 2173 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.

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: Single HF or LF Transponder Scan every 120s. Idle Time: 120s

³ Moderate Use: Single HF or LF Transponder Scan every 20s. Idle Time: 20s

⁴ Heavy Use: Single HF or LF Transponder Scan every 2s. Idle Time: 2s

⁵ Compatible *Bluetooth*® stack required in the Host device

⁶ Tag Read/Write performance is dependent on tag type, items tagged, number of tags in the field and other radio and environmental factors

⁷ Artificial lighting can affect scanning performance

⁸ Open field

2173 PART NUMBERS

Variants	Part Number
2173 Wearable Bluetooth® LF/HF RFID Reader, no Imager	2173-BT-LF-HF-A1
2173 Wearable Bluetooth® LF/HF RFID Reader with 2D Imager	2173-BT-LF-HF-IMG
2173 Wearable Bluetooth® LF/HF RFID Reader with 2D Imager - Fuelling Automation	2173-BT-LF-HF-IMG-FA
2173 Wearable Bluetooth® LF/HF RFID Reader, PI Card (HID Prox and iCLASS) Reading, no Imager	2173-BT-LF-HF-A1-PI
2173 Wearable Bluetooth® LF/HF RFID Reader, PI Card (HID Prox and iCLASS) Reading, 2D Imager	2173-BT-LF-HF-IMG-PI
2173 Wearable Bluetooth® Barcode Scanner with 2D Imager, USB	2173-BT-IMG

Accessories	Part Number
4-Slot Battery Charger, including PSU	2136-01-4WMS-CHG
Spare Battery, Rechargeable Lithium Polymer – for 2173 HF/LF Reader	2173-00-BA-1000

ABOUT

ABOUT TSL®



TECHNOLOGY
SOLUTIONS^{UK LTD}

part of **HID**

Technology Solutions UK Ltd (TSL®), part of HID Global, 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

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ABOUT HID GLOBAL



HID Global 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 Global has over 4,000 employees worldwide and operates international offices that support more than 100 countries. HID Global is an ASSA ABLOY Group brand.

For more information, visit www.hidglobal.com.