



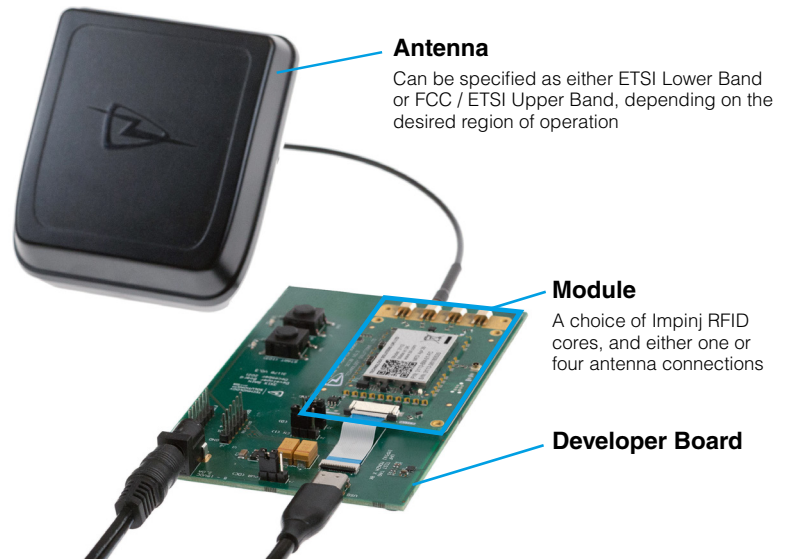
TSL UHF RFID Modules - Ordering Information

1 Initial Order - Developer Kit

Initially, a Developer Kit should be purchased as a single, one-off purchase. Thereafter, the required number of RFID modules can be purchased separately.

The Developer Kit provides connectors for Power, USB, High-Speed Serial and GPIO pins, plus push buttons to start/stop commands stored in the memory banks.

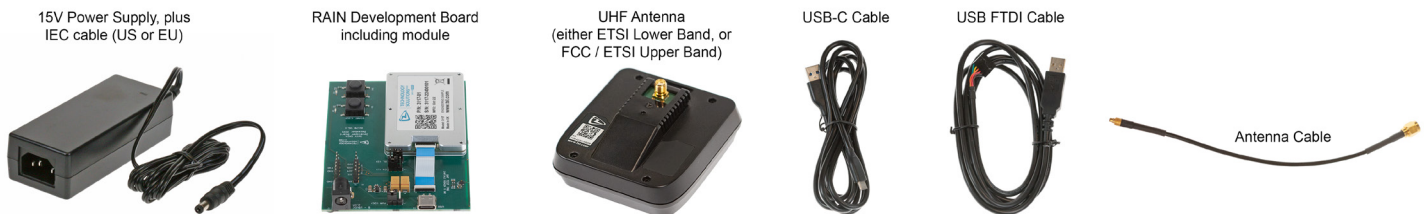
The Developer Kit can be set up in minutes, and the only additional equipment required is a Windows 10/11 PC and some UHF RFID tags.



Developer Kit SKUs

	3113 (Impinj E310, 1 antenna connection)	3115 (Impinj E510, 1 antenna connection)	3117 (Impinj E710, 1 antenna connection)	3417 (Impinj E710, 4 antenna ports)	3419 (Impinj E910, 4 antenna ports)
ETSI Lower Band UHF Antenna and EU IEC cable	COMING SOON!	COMING SOON!	3117-DEV-KIT-ETSI-01	3417-DEV-KIT-ETSI-01	3419-DEV-KIT-ETSI-01
FCC / ETSI Upper Band UHF Antenna and US IEC cable	COMING SOON!	COMING SOON!	3117-DEV-KIT-FCC-01	3417-DEV-KIT-FCC-01	3419-DEV-KIT-FCC-01

Developer Kit contents



How to Get Started

1. Order a [development kit](#)
2. Register on www.tsl.com
3. Download the [Software Development Kit](#) which includes:
 - STORM Protocol reference manual
 - Developer Kit User Guide
 - STORM Protocol Explorer Windows UWP application
 - Sample code



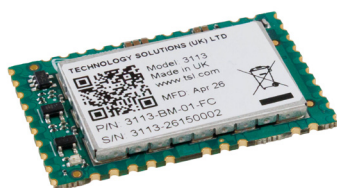
4. Install the STORM Protocol Explorer application and open it
5. Choose the desired configuration
6. Click 'Go' to read (or write to) RFID tags
7. Refer to the [Storm Protocol guide](#) for detailed information on commands and responses

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2 Further Orders - Purchase Modules Separately

After initial setup and testing using a developer kit (see page 1), modules can be purchased in volume.

Choice of Form Factor:



Board-Mount

- Smaller, lighter
- Castellated board-edge connections (requires soldering)



Enclosed

- Aluminium shielding
- 18-Way, 0.5mm Pitch FPC connector
- MMCX antenna connector(s)

Choice of Impinj RFID Core:



E310

- Entry-level, low-cost chip for short-range applications
- Ideal for wearable devices/dongles, phones, PDAs, tablets, smart appliances, printers/encoders and short-range desktop readers



E510

- Mid-range chip with a balance of price and performance
- For handheld readers, industrial automation, Point-Of-Sale devices, Kiosks, Validators



E710

- High-performance chip built for complex inventory and asset tracking
- For high performance handheld readers and fixed readers, portal/overhead readers, lockers, robotics, smart shelves, and Point-Of-Sale devices



E910

- Impinj's premium, flagship chip with the highest receive sensitivity
- For demanding enterprise environments like portal readers, cabinets for bulk reading/encoding, high-speed conveyor belts

Regional Information

The module SKUs listed below are **global** and support all regions. You just need to add a suitable antenna for your region (either an ETSI Lower Band antenna, or an FCC / ETSI Upper Band antenna)

	3113 (Impinj E310, 1 antenna connection)	3115 (Impinj E510, 1 antenna connection)	3117 (Impinj E710, 1 antenna connection)	3417 (Impinj E710, 4 antenna connections)	3419 (Impinj E910, 4 antenna connections)
Board-Mount			3117-BM-01	3417-BM-01	-
Enclosed			3117-01	3417-01	3419-01



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Comparison of modules:

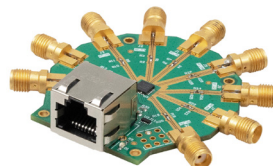
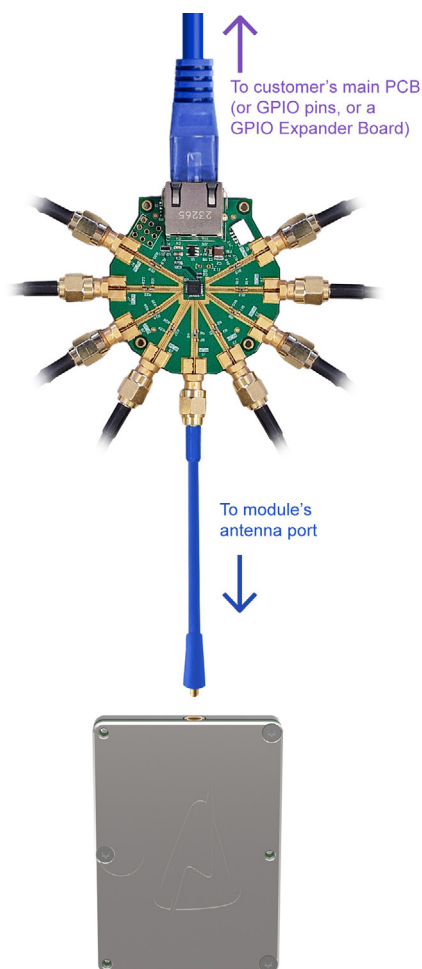
	Essential	High Performance						Ultra
								
SKU	3113-BM-01	3115-01	3117-01	3117-BM-01	3417-01	3417-BM-01	3419-01	SKU
Chipset	E310	E510	E710	E710	E710	E710	E910	Chipset
Antenna Connections	x1	x1 (MMCX)	x1 (MMCX)	x1	x4 (MMCX)	x4	x4 (MMCX)	Antenna Connections
Sensitivity (maximum)	-75 dBm	-83 dBm	-88 dBm	-88 dBm	-88 dBm	-88 dBm	-92 dBm	Sensitivity (maximum)
Read Rate (maximum)	250 tags/s	700 tags/s	1200 tags/s	1200 tags/s	1200 tags/s	1200 tags/s	1200 tags/s	Read Rate (maximum)
Output Power (maximum)	28 dB (0.63 W)	30 dB (1 W)	32 dB (1.58 W)	32 dB (1.58 W)	32 dB (1.58 W)	32 dB (1.58 W)	32 dB (1.58 W)	Output Power (maximum)
Form Factor	Board Mount	Enclosed	Enclosed	Board Mount	Enclosed	Board Mount	Enclosed	Form Factor
Dimensions	40 x 25 x 3.2 mm	60 x 42 x 6.7 mm	60 x 42 x 6.7 mm	60 x 42 x 4.3 mm	68 x 42 x 6.7 mm	68 x 42 x 4.3 mm	68 x 42 x 6.7 mm	Dimensions
Power Supply	3.6 V	5-15 V	5-15 V	5-15 V	5-15 V	5-15 V	5-15 V	Power Supply
Applications	• Wearables, dongles • Phones, PDAs, Tablets • Smart appliances • Printers, Encoders • Short-Range Desktop Readers	• Handheld readers • Industrial Automation • Point-of-sale devices • Kiosks, Validators	• High performance handheld readers • Lockers • Smart shelves • Mid/Long range readers with integrated antenna		• General-purpose multi-port industrial readers • Portal readers with or without integrated antennas • Robotics • Overhead readers		• High end multiport readers for complex use cases. • Portal readers • Cabinets for bulk reading / encoding	Applications



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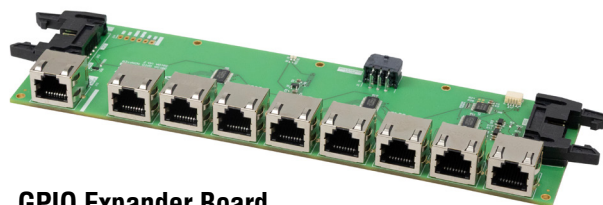
3 Multiple Antennas

TSL provide comprehensive support for adding additional antennas to a module. Extend coverage, or define zones with different RF settings for each zone.



8-port UHF Multiplexer

The Multiplexer allows up to 8 logical antennas to be connected to each RFID module antenna port.



GPIO Expander Board

Use in combination with the 8-port UHF Multiplexer to map out logical antennas to physical environments. Each ethernet port can be connected to one Multiplexer.

Part Numbers

MUX-01	8 Port UHF Multiplexer for TSL Modules
GPIO-01	GPIO Expander for TSL Modules

Daisy-chaining

Daisy-chaining Multiplexers and combining with a GPIO Expander Board can allow up to 64 logical antennas per antenna port (which means up to 256 Logical Antennas can be connected to a four-port module!).

