



Embedded Module UHF

M650



PRODUCT DESCRIPTION

The iDTRONIC RFID EMBEDDED UHF Module M650 is a high performance UHF RFID module based on the IMPINJ New Generation reader chips (E310/E510/E710). Featuring four SMA antenna ports that support RF sensitivity up to -85 dBm, the module's reliable RF performance and advanced anti-jamming design make it ideal for fixed RFID devices.

With an all-aluminum housing and excellent heat dissipation, this reader module can be perfectly embedded into fixed industrial machines, shelving systems and supply chain applications.

The M650 is equipped with UHF Technology EPC Class 1 Gen 2 (ISO 18000-63) and is globally applicable with a frequency band of 840 - 960 MHz. A power output of max. 33 dBm enables it to rapidly read between 350 and 1,000 tags per second (depending on the IC Chip).

iDTRONIC's hardware comes with a useful SDK for the development of controller, Linux or Windows based applications. In addition to the documentation, command protocols and source codes, the SDK includes a Windows-based demo application providing full functionality over all supported UHF RFID standards.

APPLICATIONS

- Industrial Automation
- Parking Automation
- Supply Chain

FEATURES

- Based on the latest generation Impinj chipsets E310/E510/E710
- EPC C1 GEN2 | ISO 18000-63
- 33 dBm RF power output
- High performance of anti collision recognition algorithm
- 4x SMA External Antenna Ports
- UART - TTL

CHIP OPTIONS

- UHF

TECHNICAL DATA

RADIO SPECIFICATIONS

Operating Frequency	840...960 MHz, Configurations for USA: 902...928 MHz (FCC), EU: 865...868 MHz (ETSI)
RF TX Power	+5...33 dBm, adjustable: steps of 1 dB
Reading Range	Up to 12 meters*
RF Impedance	50 Ω
Antenna	4 SMA female connectors for external antennas

ELECTRICAL SPECIFICATIONS

Power Supply	5 Vdc
Power Consumption	1600 mA @ +33 dBm TX Power 120 mA Standby 40 mA enabling Mode
Connectors	15 pin FPC socket
Communication Interface	UART TTL port
Baudrate	9600...921600 bit/s, 115200 bits/s factory default
GPIO	2 Inputs TTL Levels: Logic low: < 0.8 V, minimum 0V Logic high: > 2 V, maximum 3.3 V 2 Outputs TTL Levels: Logic low: maximum 0. 4 V Logic high: minimum 2.9V, maximum 3.3V IO: The maximum output current of the port is 5mA

MECHANICAL SPECIFICATIONS

Dimensions	74.8 × 48.5 × 8 mm
Weight	58 g
Material	Aluminium

ENVIRONMENTAL CONDITIONS

Operating Temperature	-25 °C ... +65 °C
Storage Temperature	-40 °C ... +85 °C
Humidity	up to 95 %, non-condensing

SDK INFORMATION

Supported OS	Windows, Linux, Android
Supported Languages	C, C#/.NET, Java
Demo Software	Windows

SUPPORTED STANDARD / TAGS

ISO Standard	ISO 18000-63 (EPC Class 1 Gen 2)
Tag Cache	≥ 1000 Tags @ 12 Bytes EPC size

**READING DISTANCE DEPENDS ON TAG, ANTENNA AND ENVIRONMENTAL CONDITIONS.*

AVAILABLE VERSIONS

	E310	E510	E710
UNIQUE SPECIFICATIONS			
Description	EMBEDDED UHF MODULE M650 TTL - 310	EMBEDDED UHF MODULE M650 - TTL - 510	EMBEDDED UHF MODULE M650 TTL - 710
RFID IC	IMPINJ E310	IMPINJ E510	IMPINJ E710
RF Sensitivity	-72 dBm	-78 dBm	-85 dBm
Reading Rate	≥ 350 tags/s	≥ 600 tags/s	≥ 1000 tags/s
Applications	Parking Automation / Production Line Integration / Mid-Range	Industrial Applications and Devices / Logistics and Asset Tracking	Demanding Retail and Inventory Applications / Long Range
ORDER CODES			
	OEM-UHF-M653-TTL	OEM-UHF-M655-TTL	OEM-UHF-M657-TTL