

# SYSTEM ARCHITECTURE



## LIBRARY COMPREHENSIVE SOLUTIONS

Powered by: EDGE TECH ENGINEERING



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# Electromagnetic Sensitizer/ Desensitizer Machine

## EM-DESK (Semi Auto)

EM-Desk (Model: ETE-EM2009A), is an essential equipment for librarians during circulation transaction to sensitized and desensitized (arm and dis-arm manually) the security electromagnetic strip during books' check-in and check-out processes. It enhances the security watch of books within the library premises in order to avoid theft.

Effective towards range of items includes – Bookcheck & Mediacheck Units and other Desensitizer & Re-sensitizer Units.



## Features

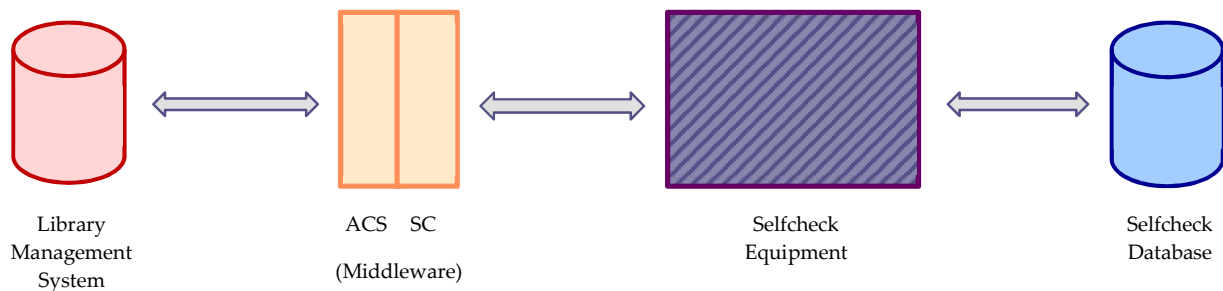
- Flexible operation
- Handheld to meet all operational requirement
- Perfect function & reliable function
- Perform book check-in and check-out – security book
- Electromagnetic that able to arm and dis-arm the EM strip of a book, and able to verify EM label's status
- Workable to 3M, Checkpoint, Dialog and etc

## Design and outlook

- Design in 'L' structure for easy operation
- Dimension :  
Outer 'L' Chasis= 23cm (H) x 28cm (L) x 37cm (W)  
Internal 'L' Chasis = 13cm (H) x 22.5cm (L) x 37cm (W)  
Electronic Dashboard Chasis = 6.5cm (H) x 37cm (W)
- Voltage: 50 – 60 Hz, 220V (+/- 10%)
- Activating power < 60W | De-activating power < 30W



# System Architecture



## Library Comprehensive Solutions | Powered by Edge Tech Engineering



**Edge Tech Engineering** provides the full range of library automation equipment solutions for our clients. We have included the total solution comprising the product range from Library Manage System – KOHA, Library Middleware, the EM package, and RFID package. This combination is interconnected as displayed in the illustrated system architecture above.

**Library Management System – KOHA** | KOHA Library System is the world’s first free and open source Integrated library system (ILS). Since the original implementation in year-1999, it has been used worldwide by public libraries, schools as well as special libraries. The functionality and features has been recognized and adopted by thousands. Its development is steered by a growing community of libraries adding to the scalability and many growing features and capability that suit to each library’s need.

**Library Middleware** | The innovation of ET SC Module is the one of the effort by Edge Tech Engineering as the middleware to communicate with LMS/ ILS via both SIP2 protocol or NCIP protocol. This module is a come-with the equipment without any extra charges, and it is bundle together with Staff Interaction System (Administration Staff Module) and Selfcheck User Interface (Client Module).

**Library EM packages** | The Library Electromagnetic (EM) Package is the comprehensive solution for general libraries. The EM package is consisting of the equipment of EM-Strips, EM Desk (ETE-EM2009A) with semi-auto or auto detection solution, EM Workstation (ETE-WS802EM) as well as the Selfcheck Kiosk running only in EM (ETE-SK360EM).

**Library RFID packages** | The Library Radio Frequency Identification (RFID) Package is to cater the libraries that running in RFID mode/ libraries that has implemented RFID. The RFID package is consisting of the equipment of UHF RFID Tag (Impinj M4), UHF RFID Handheld Stock Take Reader (ETE-RF33ST), RFID Workstation (ETE-WS802RF), and Selfcheck Kiosk RF (ETE-SK360RF).

# Library Selfcheck Kiosk

ETE-SK360EM

ETE-SK360RF



## SELF-CHECK KIOSK

The Selfcheck Kiosk comes with 2 model series: EM-series and RFID-series, is a self-service machine where user can interact with the ILS for circulation activities. Our Selfcheck Kiosk is ready and come with the Selfcheck User Interface, Staff Interaction System (Administration Staff Module) and the middleware where user can borrow, return and renew books and collection to the library by themselves in an easy and friendly user interface. With the integrated technology comprising of EM and RFID on different model, the Selfcheck Kiosk helps libraries to ease the circulation workload and at the same time to improve the productivity and customer services. In every transaction, the Selfcheck Kiosk will snap the patron's image automatically for security and accuracy purposes. Every transaction will be stored in the database and providing accuracy and conveniences information to make sure the books and collections are checked out and return correctly. The kiosk will continue to operate and retain every circulation transaction even when system offline\*, and will be automatically upload to the ILS when system goes online. The entire activity of the kiosk will be recorded and store into the database for reports & statistics purposes. These records can be generated according to desired hour, day, month or year.

\* The ILS must have offline circulation capabilities.



**Selfcheck Kiosk EM-series** – Selfcheck Kiosk EM-series comes with EM Desk and barcode scanner is suitable for general libraries. User to perform circulation process through the Selfcheck User Interface with the ILS via the middleware after scanning the accession number and magnetised/demagnetised books and collections with the built-in EM Desk.

**Selfcheck Kiosk RFID-series** – Selfcheck Kiosk RFID-series comes with EM Desk and RFID reader is suitable for libraries that operating in RFID-mode. The RFID reader is pre-set for UHF RFID tags. Every circulation process are performed by reading to the RFID tags that is placed on the book via the RFID reader (need not barcode scanning) through the Selfcheck User Interface with the ILS via the middleware and magnetised/demagnetised books and collections with the built-in EM-Desk: Magnetised the books (Check-in) and demagnetised the books (Check-out).

## Design and outlook

- Dimension measurement: 1700mm (H) x 520mm (W) x 590mm (D)
- Kiosk enclosure: 2.0mm mild steel epoxy powder coat finish (anti-rust)
- Structure type: Floor standing with mobilize-able wheel
- Appearance: Glossy design with customizable design

*Note: Edge Tech will design the Appearance of the kiosk according to the desirable/ requirements of the client*

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# Library Selfcheck Kiosk

ETE-SK360EM  
ETE-SK360RF

## General Specification:

Items/ Description	ETE-SK360EM	ETE-SK360RF	Remark
Staff Interaction System (Administration Staff Module)	○	○	* Come-with hardware
Selfcheck Kiosk User Interface	○	○	* Come-with hardware
Selfcheck Middleware (SIP2 Module)	○	○	* Come-with hardware
EM Desk	○	○	Compatible to 3M security-strips and other universal EM strips
UHF RFID Reader		○	860Mhz – 920MHz
Patron Card Reader	○	○	** 1D barcode scanner
Thermal Receipt Printer	○	○	
Touch-screen Monitor	○	○	21.5". Multitouch LCD. 1920 x 1080
CPU Specification	○	○	Intel® i3-5005U, 4 GB DDR3L SDRAM, HDD 1 TB, DVD-Writer, Gigabit Ethernet, Wireless LAN, Bluetooth 4.0 + LE, 5 USB Ports, Windows 10 Home
Built-in Camera	○	○	
Accession No. Scanner	○		** 1D barcode scanner

### Note:

- |    |   |
|----|---|
| *  | <ul style="list-style-type: none"><li>- Software is free of charge and it is bundle with the hardware kiosk.</li><li>- Software will be installed at the server and server is not included. Client has to prepare the server.</li></ul>             |
| ** | <ul style="list-style-type: none"><li>- The patron card reader can be changed to 2D barcode scanner or MiFare card reader with extra charges.</li><li>- The accession no scanner can be changed to 2D barcode scanner with extra charges.</li></ul> |

## Selfcheck Kiosk EM-Series (ETE-SK360EM)

Selfcheck Kiosk EM-series comes with EM Desk and barcode scanner is suitable for general libraries. The patrons are able to perform circulation by themselves through the Selfcheck Kiosk User Interface with the ILS via the middleware after scanning the accession number and magnetised/ demagnetised books and collections with the built-in EM Desk.

### Features & Function

1. Able to perform Circulation transaction of borrows, returns and renews through the Selfcheck User Interface. The middleware (SIP2 Module) communicate with ILS to update the information to the database. Librarian able to manage the kiosk through the Staff Interaction System (Administration Staff Module).
2. Magnetise and demagnetise the EM strips for books and collections:
  - a. Magnetise the EM Strips – Check-in process
  - b. Demagnetise the EM Strips – Check-out process
3. Scan book's and collection's accession no with barcode scanner (1D or 2D)\*\*.
4. Capture image of patron during every transaction.
5. Scan patron's card using common equipment.
6. Patron will be able to print the transaction receipt and also able to email the transaction receipt for record.
7. Librarian is able to generate reports & statistics from the Staff Interaction System (Administration Staff Module).
8. Every activity within the selfcheck kiosk can be managed from the Staff Interaction System (Administration Staff Module).

### Specification

Items/ Description	ETE-SK360EM	Remark
Staff Interaction System (Administration Staff Module)	○	* Come-with hardware
Selfcheck Middleware (SIP2 Module)	○	* Come-with hardware
Selfcheck User Interface	○	* Come-with hardware
<b>EM Desk</b>	○	Compatible to 3M security-strips and other universal EM strips
UHF RFID Reader		
Patron Card Reader	○	** 1D barcode scanner
Thermal Receipt Printer	○	
Touch-screen Monitor	○	21.5". Multitouch LCD. 1920 x 1080
CPU Specification	○	Intel® i3-5005U, 4 GB DDR3L SDRAM, HDD 1 TB, DVD-Writer, Gigabit Ethernet, Wireless LAN, Bluetooth 4.0 + LE, 5 USB Ports, Windows 10 Home
Built-in Camera	○	
Accession No. Scanner	○	** 1D barcode scanner

Note:

- \* - Software is free of charge and it is bundle with the hardware kiosk.
- Software will be installed at the server and server is not included. Client has to prepare the server.
- \*\* - The patron card reader can be changed to 2D barcode scanner or MiFare card reader with extra charges.
- The accession no scanner can be changed to 2D barcode scanner with extra charges.

## Selfcheck Kiosk RF-Series (ETE-SK360RF)

Selfcheck Kiosk RFID-series comes with EM Desk RFID reader is suitable for libraries that operating in RFID-mode. The RFID reader is pre-set for UHF RFID tags. Every circulation process are perform by just reading the RFID tags of the book that is placed on the EM Desk. The integrated software will communicate with the ILS for the circulation process and magnetised/ demagnetised the books upon the circulation transaction: Magnetised the books (Check-in) and demagnetised the books (Check-out).

### Features & Function

1. Able to perform Circulation transaction of borrows, returns and renews through the Selfcheck User Interface. The middleware (SIP2 Module) communicate with ILS to update the information to the database. Librarian able to manage the kiosk through the Staff Interaction System (Administration Staff Module).
2. Magnetise and demagnetise the EM strips for books and collections: Magnetise the EM Strips – Check-in process ; Demagnetise the EM Strips – Check-out process
3. Scan book’s and collections’ accession no using RFID Reader. Circulation by reading the RFID tag wirelessly.
4. Capture image of patron during every transaction.
5. Scan patron’s card using common equipment.
6. Patron will be able to print the transaction receipt and also able to email the transaction receipt for record.
7. Librarian is able to generate reports & statistics from the Staff Interaction System (Administration Staff Module).
8. Every activity within the selfcheck kiosk can be managed from the Staff Interaction System (Administration Staff Module).

### Specification

Items/ Description	ETE-SK360RF	Remark
Staff Interaction System (Administration Staff Module)	○	* Come-with hardware
Selfcheck Middleware (SIP2 Module)	○	* Come-with hardware
Selfcheck User Interface	○	* Come-with hardware
EM Desk	○	Compatible to 3M security-strips and other universal EM strips
<b>UHF RFID Reader</b>	○	Read Accession No. 820MHz-960MHz
Patron Card Reader	○	** 1D barcode scanner
Thermal Receipt Printer	○	
Touch-screen Monitor	○	21.5". Multitouch LCD. 1920 x 1080
CPU Specification	○	Intel® i3-5005U, 4 GB DDR3L SDRAM, HDD 1 TB, DVD-Writer, Gigabit Ethernet, Wireless LAN, Bluetooth 4.0 + LE, 5 USB Ports, Windows 10 Home
Built-in Camera	○	

#### Note:

- \* - Software is free of charge and it is bundle with the hardware kiosk.
- Software will be installed at the server and server is not included. Client has to prepare the server.
- \*\* - The patron card reader can be changed to 2D barcode scanner or MiFare card reader with extra charges.

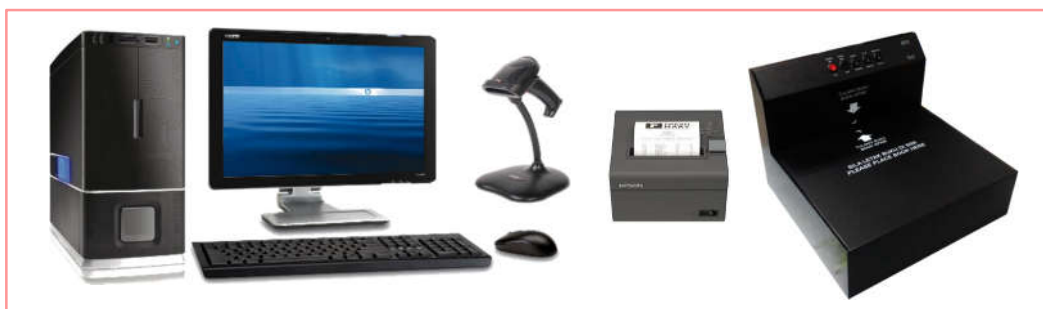


# Library Workstation

ETE-WS802EM  
ETE-WS802RF

## Library Workstation

Library workstation is one of the essential equipment for every library's operation. With innovation and ergonomic design from Edge Tech Engineering, the workstation is now ready with both EM and RFID features into a single station for various operations. Library Workstation can be arranged or located at the counter according to one-self orientation habit. It is able to improve the workflow efficiency and increase effectiveness of the daily library operations. There are 2 models of workstation available, which is EM-series, and EM-RFID series.



**EM Workstation** – EM Workstation series (Model No: ETE-WS802EM) comes with total workstation solution comprising CPU, Monitor, Thermal Receipt Printer, EM Desk and Barcode Scanner. The workstation enables librarians to operate circulation operation where patron check-in and check-out books and collection within the library. For every circulation transaction, librarian can magnetise and demagnetise the EM Strips by using EM Desk automatically via the integrated of software (Workstation User Interface, Middleware and the Staff Interaction System).

**UHF RFID Workstation** – This versatile unit, UHF RFID Workstation (Model No: ETE-WS802RF) operate as a comprehensive station by combining the technology of EM and UHF RFID. The workstation is able to perform circulation transaction: check-in and check-out for books and collection in an effective method (RF method, without scanning using barcode scanner). In addition, it is also operate as the RFID tagging station, where librarian can perform barcode-to-RFID conversion towards UHF RFID tags. This workstation has been dedicated to build in handling the possible RF frequency interference so each item can be processed precisely in a quick and safe method during every single tagging process. For every circulation transaction, librarian can magnetise and demagnetise the EM Strips by using EM Desk automatically via the integrated of software (Workstation User Interface, Middleware and the Staff Interaction System).



# Library Workstation

ETE-WS802EM

ETE-WS802RF

## General Specification:

Items/ Description	ETE-WS802EM	ETE-WS802RF	Remark
Staff Interaction System (Administration Staff Module)	○	○	* Come-with hardware
Selfcheck Middleware (SIP2 Module)	○	○	* Come-with hardware
Workstation User Interface	○	○	* Come-with hardware
EM Desk	○	○	Compatible to 3M security-strips and other universal EM strips
UHF RFID Reader		○	820MHz-960MHz
Patron Card Reader	○	○	** 1D barcode scanner
Thermal Receipt Printer	○	○	
CPU Specification	○	○	Intel® i3-5005U, 4 GB DDR3L SDRAM, HDD 1 TB, DVD-Writer, Gigabit Ethernet, Wireless LAN, Bluetooth 4.0 + LE, 5 USB Ports, Windows 10 Home
Accession No. Scanner	○		** 1D barcode scanner

### Note:

- |    |   |
|----|---|
| *  | <ul style="list-style-type: none"><li>- Software is free of charge and it is bundle with the hardware kiosk.</li><li>- Software will be installed at the server and server is not included. Client has to prepare the server.</li></ul>             |
| ** | <ul style="list-style-type: none"><li>- The patron card reader can be changed to 2D barcode scanner or MiFare card reader with extra charges.</li><li>- The accession no scanner can be changed to 2D barcode scanner with extra charges.</li></ul> |

## EM Workstation (ETE-WS802EM)

EM Workstation series (Model No: ETE-WS802EM) comes with total workstation solution comprising CPU, Monitor, Thermal Receipt Printer, EM Desk and Barcode Scanner. The workstation enables librarians to operate circulation operation where patron check-in and check-out books and collection within the library. For every circulation transaction, librarian can magnetise and demagnetise the EM Strips by using EM Desk.

### Features & Function

1. Able to perform Circulation transaction of borrows, returns and renews through the Selfcheck User Interface. The middleware (SIP2 Module) communicate with ILS to update the information to the database. Librarian able to manage the kiosk through the Staff Interaction System (Administration Staff Module).
2. Magnetise and demagnetise the EM strips for books and collections:
  - a. Magnetise the EM Strips – Check-in process
  - b. Demagnetise the EM Strips – Check-out process
3. Scan book’s and collections’ accession no with barcode scanner (1D or 2D)\*\*.
4. Scan patron’s card using common equipment.
5. Patron will be able to print the transaction receipt and also able to email the transaction receipt for record.
6. Librarian is able to generate reports and statistics from the Staff Interaction System (Administration Staff Module).
7. Every activity for the Hardware items can be managed from the Staff Interaction System (Administration Staff Module).

### Specification

Items/ Description	ETE-WS802EM	Remark
Staff Interaction System (Administration Staff Module)	○	* Come-with hardware
Selfcheck Middleware (SIP2 Module)	○	* Come-with hardware
Workstation User Interface	○	* Come-with hardware
<b>EM Desk</b>	○	<b>Compatible to 3M security-strips and other universal EM strips</b>
UHF RFID Reader	○	
Patron Card Reader	○	** 1D barcode scanner
Thermal Receipt Printer	○	
CPU Specification	○	Intel® i3-5005U, 4 GB DDR3L SDRAM, HDD 1 TB, DVD-Writer, Gigabit Ethernet, Wireless LAN, Bluetooth 4.0 + LE, 5 USB Ports, Windows 10 Home
Accession No. Scanner	○	** 1D barcode scanner

#### Note:

- \* - Software is free of charge and it is bundle with the hardware kiosk.
- Software will be installed at the server and server is not included. Client has to prepare the server.
- \*\* - The patron card reader can be changed to 2D barcode scanner or MiFare card reader with extra charges.
- The accession no scanner can be changed to 2D barcode scanner with extra charges.

## UHF RFID Workstation (ETE-WS802RF)

This versatile unit, UHF RFID Workstation (Model No: ETE-WS802RF) operate as a comprehensive station by combining the technology of EM and UHF RFID. The workstation is able to perform circulation transaction: check-in and check-out for books and collection in an effective method. In addition, it is also operate as the RFID tagging station, where librarian can perform barcode-to-RFID conversion towards UHF RFID tags. This workstation has been dedicated to build in handling the possible RF frequency interference so each item can be processed precisely in a quick and safe method during every single tagging process.

### Features & Function

1. Able to perform Circulation transaction of borrows, returns and renews through the Selfcheck User Interface. The middleware (SIP2 Module) communicate with ILS to update the information to the database. Librarian able to manage the kiosk through the Staff Interaction System (Administration Staff Module).
2. Circulation by reading the RFID tag wirelessly.
3. RFID Tagging station – enable librarian to perform barcode-to-RFID conversion towards UHF RFID tags.
4. Magnetise and demagnetise the EM strips for books and collections:
  - a. Magnetise the EM Strips – Check-in process
  - b. Demagnetise the EM Strips – Check-out process
5. Scan book’s and collections’ accession no with barcode scanner (1D or 2D)\*\*.
6. Scan patron’s card using common equipment.
7. Patron will be able to print the transaction receipt and also able to email the transaction receipt for record.
8. Librarian is able to generate reports and statistics from the Staff Interaction System (Administration Staff Module).
9. Every activity for the Hardware items can be managed from the Staff Interaction System (Administration Staff Module).

*Note: The user can also purchase the RFID EM Desk only, and re-use the existing desktop computer by installing the software provided*

### Specification

Items/ Description	ETE-WS802RF	Remark
Staff Interaction System (Administration Staff Module)	○	* Come-with hardware
Selfcheck Middleware (SIP2 Module)	○	* Come-with hardware
Workstation User Interface	○	* Come-with hardware
<b>EM Desk</b>	○	Compatible to 3M security-strips and other universal EM strips
<b>UHF RFID Reader</b>	○	820MHz – 960MHz
Patron Card Reader	○	** 1D barcode scanner
Thermal Receipt Printer	○	
CPU Specification	○	Intel® i3-5005U, 4 GB DDR3L SDRAM, HDD 1 TB, DVD-Writer, Gigabit Ethernet, Wireless LAN, Bluetooth 4.0 + LE, 5 USB Ports, Windows 10 Home

#### Note:

- \* - Software is free of charge and it is bundle with the hardware kiosk.
- Software will be installed at the server and server is not included. Client has to prepare the server.
- \*\* - The patron card reader can be changed to 2D barcode scanner or MiFare card reader with extra charges.
- The accession no scanner can be changed to 2D barcode scanner with extra charges.

## UHF RFID Tag (IMPINJ M4 H47)

With the Monza® 4 tag chips, Impinj builds upon the field-proven Monza chip family – well regarded in the industry as the most reliable, consistent, flexible, and fully UHF Gen 2-compliant tag chips available. The Monza 4 family provides a variety of models to suit diverse applications, including unique RFID privacy, tag orientation insensitivity, competitive and consistent read/write performance, and memory options optimized for use in manufacturing and supply chain industries.

MEMORY SECTION	DESCRIPTION
User	128 bits
TID (not changeable)	Serial Number—48 bits
	Extended TID Header—16 bits
	Company/Model Number—32 bits
EPC	496 bits
Passwords	Kill/Access—64 bits



## Technical Specification

### Physical

1.	Material: Clear PET
2.	Size: 47mm x 47mm
3.	Thickness: 0.20mm
4.	Antenna: Etched Aluminium; 44mm x 44mm; Model H47
5.	Packing: 1,000 pcs/ roll; ID 76mm, OD < 300mm
6.	Gross Weight: 1 kg/ roll
7.	Protocol: EPCglobal UHF Class 1 Gen 2 (ISO 18000-6C)
8.	Shelf Life: 2 years

### Radio Frequency

1.	Frequency: 860 ~ 960 Mhz
2.	Chip: Impinj Monza 4E
3.	Memory: 128 bit User
4.	Read Distance: 6m (3D)
5.	Write Endurance: 1000,000 cycles
6.	Data Retention: 50 years
7.	Ture3D Antenna: Omni directional antenna design without blind spots

### Environment

1.	Operating Conditions: -40 ~ 60 Degree Celsius; 5 ~ 95% RH; No condensation
2.	Storage Conditions: -20 ~ 45 Degree Celsius; 5 ~ 95% RH; No condensation
3.	ESD: +/- 2000V peak

## Features & Function

- **True3D™ antenna technology**—patented, dual-differential antenna ports enable compact Omni-directional tags, improving item-level read reliability.
- **Private/Public** data profiles—two different memory maps that enable tag owners to control exposure of data.
- **Short-range** option to prevent unauthorized access.
- Inlay compatibility between all Monza 4 tag chips.
- Available memory options to support large user-memory applications.
- BlockPermalock Gen2 command adds flexibility in memory usage.
- FastID™ mode enables 2x to 3x faster EPC+TID inventory for authentication and other TID-based applications.
- TagFocus™ mode suppresses previously read tags to enable capture of more tags.
- 96 bit Serialized TID with 48-bit Serial Number.
- Superior read sensitivity of -19.5 dBm (single port operation) or -22 dBm (with True3D) with a single dipole tag.
- High performances write sensitivity of -16.7 dBm, with a single dipole tag, for unparalleled commissioning and bulk encoding reliability.
- Memory writes speed of 3.4 ms for 32-bit writes enables 1200 tags/minute programming.
- Extended temperature range (-40 oC to +85 oC) for performance under hard conditions.
- Impinj’s field-rewritable NVM (optimized for RFID) provides 100,000-cycle/50-year retention reliability.
- EPCglobal and ISO 18000-63 compliant, Gen2V2 compliant.

MEMORY BANK NUMBER	MEMORY BANK NAME	MEMORY BANK BIT ADDRESS	BIT NUMBER															
			15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
11 <sub>2</sub>	User (NVM)	70 <sub>h</sub> -7F <sub>h</sub>	User[15:0]															
		80 <sub>h</sub> -8F <sub>h</sub>	User[31:16]															
		...	...															
		10 <sub>h</sub> -1F <sub>h</sub>	User[111:96]															
10 <sub>2</sub>	TID (ROM)	00 <sub>h</sub> -0F <sub>h</sub>	User[127:112]															
		50 <sub>h</sub> -5F <sub>h</sub>	TID_Serial[15:0]															
		40 <sub>h</sub> -4F <sub>h</sub>	TID_Serial[31:16]															
		30 <sub>h</sub> -3F <sub>h</sub>	TID_Serial[47:32]															
		20 <sub>h</sub> -2F <sub>h</sub>	Extended TID Header															
		10 <sub>h</sub> -1F <sub>h</sub>	Manufacturer ID								Model Number							
00 <sub>h</sub> -0F <sub>h</sub>	1	1	1	0	0	0	1	0	Manufacturer ID									

MEMORY BANK NUMBER	MEMORY BANK NAME	MEMORY BANK BIT ADDRESS	BIT NUMBER															
			15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
01 <sub>2</sub>	EPC (NVM)	200 <sub>h</sub> -20F <sub>h</sub>	EPC[15:0]															
		1F0 <sub>h</sub> -1FF <sub>h</sub>	EPC[31:16]															
		1E0 <sub>h</sub> -1EF <sub>h</sub>	EPC[47:32]															
		1D0 <sub>h</sub> -1DF <sub>h</sub>	EPC[63:48]															
		...	...															
		40 <sub>h</sub> -4F <sub>h</sub>	EPC[463:448]															
		30 <sub>h</sub> -3F <sub>h</sub>	EPC[479:464]															
		20 <sub>h</sub> -2F <sub>h</sub>	EPC[495:480]															
		10 <sub>h</sub> -1F <sub>h</sub>	Protocol-Control Bits (PC)															
		00 <sub>h</sub> -0F <sub>h</sub>	CRC-16															
00 <sub>2</sub>	RESERVED (NVM)	30 <sub>h</sub> -3F <sub>h</sub>	Access Password[15:0]															
		20 <sub>h</sub> -2F <sub>h</sub>	Access Password[31:16]															
		10 <sub>h</sub> -1F <sub>h</sub>	Kill Password[15:0]															
		00 <sub>h</sub> -0F <sub>h</sub>	Kill Password[31:16]															

# UHF RFID Handheld Stock-Take Reader

## UHF RFID Handheld Stock-Take Reader (ETE-RF33ST)

The UHF RFID Handheld Stock-Take Reader (Model No: ETE-RF33ST) offers a high efficiency RFID reader engine for high RF sensitivity and able to achieve greater accuracy, higher throughput while providing a longer reading range to the tags. It is an industrial rugged model offering handheld and 'gun-style' reader mainly for intensive tasks for libraries in its stock-take/ inventory checking on books and collections.

### Features & Function

1. Compiled with UHF reader module, the maximum read distance of up to 2m, within the effective range of up to 200 electronic tags per second.
2. Equipped with high-performance barcode scan engine, you can easily read all kinds of 1D and 2D barcode.
3. With the comfort, convenience and professional handle able to enhance the efficiency of work.
4. Ergonomically designed. Industrial IP64 rated and 1.5 m anti-drop. Stable and reliable quality.
5. Support a variety of wireless communications protocol such as GPRS, WIFI and Bluetooth.
6. Supported Operating System of Windows CE and Android.



### Technical Specification

<b>Operating System:</b>	Windows CE 6.0 or Android 4.0
<b>Processor:</b>	Samsung Cortex-A8 1Ghz
<b>Monitor:</b>	3.5 inch touch screen colour monitor
<b>Memory:</b>	RAM 512MB   ROM 4GB
<b>Dimension:</b>	192mm x 73.8mm x 30mm
<b>Battery:</b>	3.8V 4500mAh
<b>Operation Time:</b>	5 to 12 hours
<b>Charging Time:</b>	Less than 4 hours
<b>Communication Method:</b>	Wi-Fi 802.11b/g, Bluetooth Class 2.1 + EDR, GSM: 900, 1800MHz, WCDMA: 900, 2100MHz
<b>Camera:</b>	5 Megapixel
<b>RFID:</b>	840Mhz – 960Mhz, UHF RFID EPCglobal C1G2, ISO 18000-6B and ISO 18000-6C protocol, up to 5m.
<b>Working Temperature:</b>	- 10 °C ~ 50 °C
<b>Storage Temperature</b>	-20 °C ~ 70 °C
<b>Humidity</b>	5% RH ~ 95% RH (non-condensing)
<b>IP Rating:</b>	IP64