

### Introduction

The LP-2010 is a modular design trainer and it's also the best introduction for learning RFID (Radio Frequency Identification). User can use this trainer to realize the technique of RFID and develop various program by its high flexible combination applications no matter in software or hardware.

Nowadays, LP-2010 is focusing on RFID HF (High Frequency 13.56MHz) ISO 14443A and ISO 15693 standard. In the future, it will support other vendors' chips and can be used for learning UHF (Ultra High Frequency) as well.



### Standard Accessories

|  |    |
|--|----|
| Main Unit .....                                    | x1 |
| LP-2010-TRF7960 .....                              | x1 |
| RFID Induction board .....                         | x1 |
| RFID Tag (ISO 14443A) .....                        | x1 |
| RFID Tag (ISO 15693) .....                         | x1 |
| CD .....   | x1 |
| (Demo program, s/w and user's manual are included) |    |
| Power Cable .....                                  | x1 |
| USB Cable or RS-232 cable .....                    | x1 |

### Features

1. Provide 10 modules for establishing users' RFID basic and satisfy their originality and applications.
2. Use the standard controller chip TI TRF 7960, meets ISO 14443A & ISO 15693.
3. Built-in RTC (Real Time Clock).
4. Provide data storing function with loop design to expand the life time of the memory.
5. Support VC, VB, Assembly ... with simple but practical example programs.
6. All the example programs are close to real applications.
7. Designed as open system, user can realize all the programs clearly.

### Test Content

1. Use the simple example programs to control the peripheral devices, included the LCD, relay (Relay-1 & Relay-2), electromagnet (Solenoid), LED (LED-1 to LED-4), reed switch (Sensor-1), glass breaking (Sensor-2), external data entry (Input Port IP-1 to IP-4), status input (SW-1 & SW-2) and data set (DIP Switch-S1).
2. Read the data of ISO 14443A RFID tag and show the UID code on LCD.
3. Read the data of ISO 15693 RFID tag and show the UID code on LCD. Upload the data of ISO 15693 RFID tag to PC in ASCII code format via USB (or RS-232) and show the ID on Super Terminal.
4. Execute ISO 14443A RFID tag reading. Verify the UID with the first I2C memory data and see if they are the same. The result will show on the LED.
5. Control the RTC, real time clock, included year, month, date, hour, minute and second.
6. Read, write and erase for the single user data area of the ISO 15693 RFID tag.
7. Induct several ISO 15693 tags and send UID to PC on Super Terminal via USB.
8. Read, write and erase function example for the internal area of ISO 14443A Mifare Card.
9. Create the record of entry. LP-2010 will store the ID code and entry time within the second I2C memory. The user can also read and delete the record via Super Terminal on the PC.
10. Integrate above experiments and create simple access control system that including workers database, entry time, locked control, glass breaking detect and alarm system.

### Specification

|                              |                           |
|------------------------------|---------------------------|
| Communication                | USB、RS-232                |
| Operating Voltage Input Port | 5~24V DC (MAX)            |
| Operating Voltage RELAY 1,2  | 1A/125V AC, 2A/30V DC     |
| Power                        | 100V AC~240V AC           |
| Frequency Range              | 50/60 Hz                  |
| Dimension                    | 32cm x 22.6cm x 3.0/8.5cm |

