

## 1. Card Reading Operation

The Mifare S50 card has 64 blocks, each of the blocks occupy 16 bytes. Block 0 is for the factory data and cannot be changed. The first 4 bytes are the UID. The remaining 63 blocks are the data area and the verification area. 4 blocks as a sector. The last block of each sector is for the verification area cannot be changed, such as block3, block7, etc. The remaining data areas can be set and defined as PID.

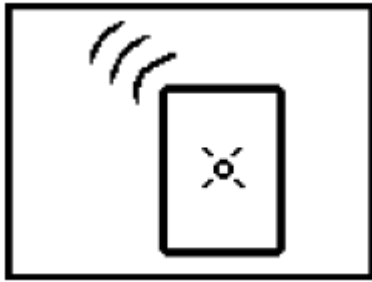
PLC program control interface-use M1901 ~ M1903, D2933 and R3831 ~ R3839 to communicate with PEPR.

Register Name	Function Description
M1901	Select card type to read =0, Read UID =1, Read PID
R3831	Card reading status =0, Card undetected =152H, Indicates that the UID card number is read (Valid value: R3832~R3833) =157H, Indicates that the PID card number is read. When the card leaves, the value automatically changes to 0, but R3832 ~ R3838 still maintains the card number.
R3832	Read card number $C_3C_2C_1C_0$
R3833	Read card number $C_7C_6C_5C_4$
R3834	Read card number $C_{11}C_{10}C_9C_8$
R3835	Read card number $C_{15}C_{14}C_{13}C_{12}$
R3836	Read card number $C_{19}C_{18}C_{17}C_{16}$
R3837	Read card number $C_{23}C_{22}C_{21}C_{20}$
R3838	Read card number $C_{27}C_{26}C_{25}C_{24}$
R3839	Read card number $C_{31}C_{30}C_{29}C_{28}$
D2933	$B_0B_1B_2B_3$ , $B_2B_3$ is the input Block number, $B_0B_1$ can be any value.
M1902	PLC setting. When=1, the PEPR will show the card number has passed the authentication.
M1903	PLC setting. When=1, the PEPR will show the card number has not passed the authentication.

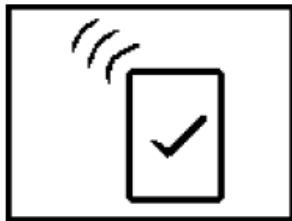
Note: The card number is  $C_{31}C_{30}C_{29}C_{28} \dots C_3C_2C_1C_0$ , the  $C_{31} \sim C_0$  and  $B_0 \sim B_3$  are in HEX.

Note: The range of  $B_2B_3$  is 00H~3FH.

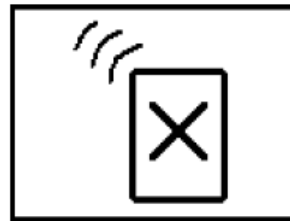
When PEPR reads the card, it will show the following screen.



When the Ladder program checks that R3831 is not 0, it can compare the pre-stored card number database of R3832 ~ R3839 content and control the results to M1902, M1903 and other related control points. The PEPR module will perform the following screen according to the status of M1902 and M1903 display.



M1902 =1.



M1903 =1.

## 2. Write Card Operation

The 32 code in the data area of the card block can be modified by the user through PLC. PLC program control interface-communicate with PEPR by using M1899 ~ M1900 and D2934 ~ D2943.

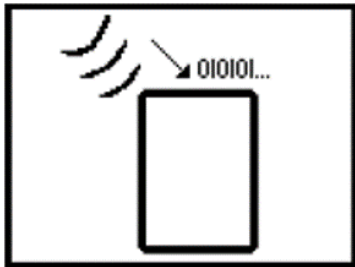
Register Name	Function Description
M1899	Write command =0, No write =1, Writing mode. M1899 will be cleared to 0 when the write operation is completed.
M1900	Card writing status =0, Failed =1, Success
D2934	$B_0B_1B_2B_3$ , $B_2B_3$ is the input Block number, $B_0B_1$ can be any value.
D2935	Write card number $C_3C_2C_1C_0$
D2936	Write card number $C_7C_6C_5C_4$
D2937	Write card number $C_{11}C_{10}C_9C_8$
D2938	Write card number $C_{15}C_{14}C_{13}C_{12}$
D2939	Write card number $C_{19}C_{18}C_{17}C_{16}$
D2940	Write card number $C_{23}C_{22}C_{21}C_{20}$
D2941	Write card number $C_{27}C_{26}C_{25}C_{24}$
D2942	Write card number $C_{31}C_{30}C_{29}C_{28}$
D2943	防止誤寫使用，進行寫入動作時候此值須為 1234H

**Note:** The range of  $B_2B_3$  is 00H~3FH, B0 and the last block of each sector cannot write.

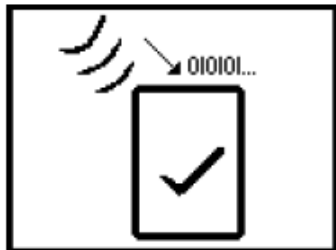
## 2.1 Write Card Example

Write a decimal of '1234567890' to block1, set D2934 to XX01H, then the user converts 1234567890 into a hexadecimal of 499602D2H and writes 02D2 and 4996 into D2935 and D2936 in 2 Words as a unit, sets M1899 to 1 to enter the card write mode, and M1900 indicates whether the card write operation was successful.

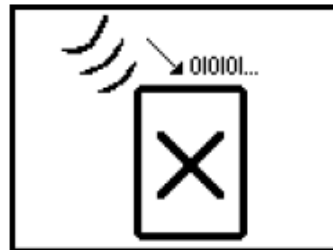
When the Ladder program fills up the card number into D2934 ~ D2943 and sets M1899 to 1, the PEPR will display the following screen after entering the card writing mode.



Place the card on the top of the PEPR. When PEPR detects the approach of the card, it starts to write the card number. When writing is completed, PEPR will clear M1899 and set the written result in M1900. The following screen will be displayed.



M1900 = 1.



M1900 = 0.

### 3. Operation Control of Reading Card to Unlock PEPR

PEP uses the password entering method to control the PEP operation and can also avoiding improper operations by irrelevant personnel as well. In addition to using the keyboard to enter the password, the PEPR also can use an RFID card to enter the password.

Register Name	Function Description
M1896	Password card input function =0, Disable =1, Enable
M1897	Password card detection status. Set by PLC. When =1, detected the correct password card.
M1898	Password type detected. Set by PLC. =0, USR =1, SYS

Action Description:

This feature works with the original password security protection mechanism.

Use a password card to replace keyboard input when the system requires a password.

- M1896 status as 0: PEPR only provides a password protection mechanism.
- M1896 status as 1: In addition to using the keyboard to enter a password to unlock, it can also use an RFID card to unlock.
- M1897: Password card detection status. When PLC judges that the card read by the card number provided by R3832 ~ R3839 is a password card, M1897 must be set to 1.
- M1898: The type of password card. When M1897 is set to 1, this bit state must be set together.  
=0, The reading card is the user password.  
=1, The reading card is the administrator password.

For the status control method of M1902 ~ M1903, please refer to the card reading operation in the first section.

Note: If only the password card is provided and the keyboard input password function is not provided, password protection must still be set but the password value must set to 0.