

User and Programming Manual



PT2SCAN Wired

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Revision History

Date	Revision	Notes
26/01/2011	1.0	First Release
15/01/2013	1.1	Update screen shots of Software Configuration GUI
28/02/2014	1.2	Add FCC Statement and Product Label

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Notice

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Trademarks

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Safety information

Carefully read the general information regarding safety before using the device for the first time. An improper use of the device could damage the device or cause harm to both people and things.



Attention the product contains a Class 2 laser beam.

Use of controls, adjustments or performance of procedures other than those specified herein may result in hazardous laser light exposure.

Class 2 laser scanners use a low power, visible light diode. As with any very bright light source, such as the sun, the user should avoid staring directly into the light beam. Momentary exposure to a Class 2 laser is not known to be harmful."

CE certification

The device conforms to **European Directive 1999/5/EC**.



FCC Statement

This equipment has been tested and found to comply with the limits for Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

IC Statement:

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- (1) l'appareil ne doit pas produire de brouillage, et
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Note: Modifications to this product will void the user's authority to operate this equipment.

Disposal (RAEE)



The barred mobile container present on the product, the documentation or the packaging indicates the necessity, within the European Union, of a separate collection for expired electric and electronic products, including the batteries and the accumulators.

The user should, therefore, take the equipment at the end of its useful life separate waste collection of electronic and electrical waste, or return it to the dealer.

Do not dispose of these products in unsorted municipal refuse. Return the product to an authorized collection center to avoid damage to the environment or human health caused by uncontrolled disposal of waste and to promote the sustainable re cycling of materials

Improper disposal of the product by the user entails the application of administrative sanctions provided by law

RoHS

This device and all its components, subcomponents and consumables were produced in accordance with European directive 2002/95/EC also known as RoHS (Restrictions on the use of certain Hazardous Substances). This directive serves to reduce the polluting substances used in electronic devices.

Antistatic devices



Before working on the device it is necessary to apply the correct antistatic procedures to avoid possible damage by ESD (Electro Static Discharge) on the internal circuitry.

Label

The product label is showed below



Provisions used

The following provisions were used in this manual:



Registers:

Symbol/Text	Definition
RW	Read/write register
RO	Read only register
W	Written register meaning

Hexadecimal numbering:

the hexadecimal numbers are indicated with an H suffix example or in form 0x... : Example 2A3BH or 0x2A3B

Symbology used in the definitions table:

Symbol/Text	Description
I	Input
X	Output
I/O	Bi-Directional
—	Passive
Module specific	Depends on the module installed
NC	Not connected
Reserved	User reserved for Techsigno must remained disconnected
#	Signal active low
	Notified potential danger or possible malfunctioning
	Instructions that must be followed in order to guarantee the device functions correctly

Technical Assistance

If you have a technical question regarding the product's installation or detect a problem with the device's operation send an email to technical support at

[email: support@techsigno.com](mailto:support@techsigno.com).

Before returning any materials for any reason it is necessary to send an email to technical support at Techsigno at the above address which includes the following information:

- Model
- Serial number
- Detailed and complete description of the malfunction
- Your company's information
- The reference person within your company

In response to your mail you will receive an RMA number (Returned Material Authorization) which authorizes the material's return.

The device must be returned in a protective antistatic bag and adequately packaged to ensure that the product is well protected during transport.






Returning a device to Techsigno without adequate packaging will result in the nullification of the product warranty.

Getting Started

Checking the contents

In the package you found the following items

PT2SCAN Wired Device	
Key Card	
CD-ROM	

Introduction

PT2SCAN Wired of TechSigno is a combined RFID and Barcode Reader able to Read and Write all the HF RFID devices and / or Linear 1D Barcode

The readings taken from the PT2SCAN Wired are transferred to a host computer through an USB 2.0 connection. The USB connection supports 2 different types of functionalities:

➤ **USB Keyboard Emulation (HID Device)**

In this case the PT2SCAN Wired device acts as a Keyboard device and no device driver is needed.

➤ **USB Virtual COM or USB-COM**

In this case, if not already installed or supported by the Operating System, it is necessary to install a device driver.

At any time, using the Setup Utility provided, it's possible to switch from one mode to the other.

The RFID operating frequency is 13.56MHz / HF and the device is able to read and write the TAGs in the standard

- ISO14443A/B Mifare
- ISO15693 I-Code



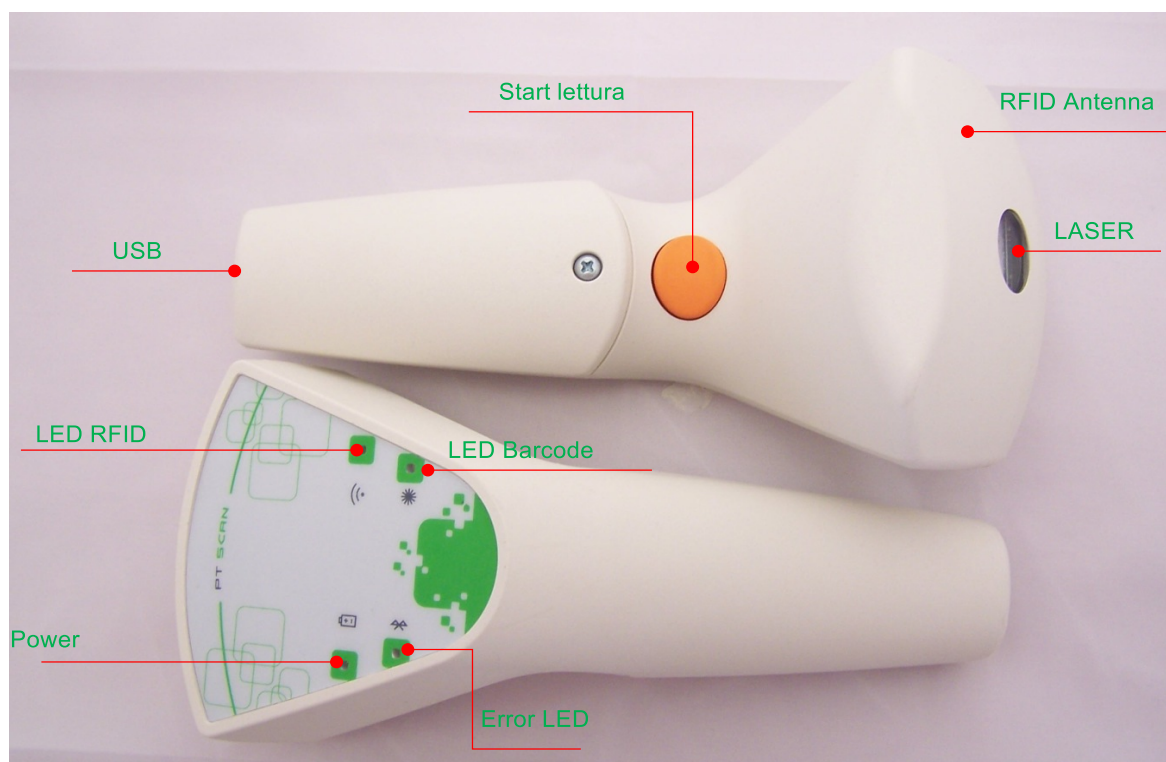
The RFID Operating frequency 125KHz or 134KHz / LF are not supported

Description

The PT2Scan Wired is an handheld device of weights and dimensions designed to be easy and quick to use, also with the work gloves, without the need of special operations. The operator is guided in the operativity through the information provided through four LEDs a beeper and a vibration motor.

In the next picture are shown the main parts of the PT2SCAN Wired Device

- The active reading area of RFID devices is placed on the front of PT2Scan Wired and coincides with the Barcode area



Status Indicator

The user is informed on the state of PT2Scan through the following devices:

- 4 LED whose function is shown in the following table
- An buzzer that can be enabled or disabled and is configurable to define the lenght and type of sound
- A vibration device that can be enabled / disabled and is configurable to define the lenght of the vibrating action

LED Indicator	Status	Definition
Power	Green	Device correctly powered but non active.
	Red	Start push button pressed. The device is activated and ready to read the BarCode and/or RFID Tags.
Error	Blue	Device Error
BarCode	Green	If flashing indicate that the device is waiting to read an BarCode If it is on indicate that the barcode has been correctly read
RFID	Green	If flashing indicate that the device is waiting to read an RFID Tag If it is on indicate that the RFID TAG has been correctly read

Main characteristics

RFID Operating frequency	13.56MHz
IP Grade protection	IP40
BarCode Reader	Laser 1D
Connections	USB 2.0
Communication	HID Keyboard Emulation Virtual COM
Power Supply	USB 5V 250mA
Material	PC ABS
Color	White off RAL 9002
Temperature	
Working:	0°C to 55 °C
Storage:	-10°C to +60°C

Connections

The PT2Scan Wired to operate must be connected to a USB 2.0 (or 1.1) of a personal computer.

Configuration

The default configuration of the PT2SCAN Wired is

- USB Virtual COM

In this configuration the end user, using the software utility provided, can change the setup of the PT2SCAN Wired. In order to do that operation it is necessary to follow the following steps

- Install the device driver
- Use the PT2SCAN Wired configuration Software GUI



It is possible required the configuration in factory of the PT2SCAN Wired device. For more information on this service contact your sales representative or sent and email at the Techsigno technical support



If the PT2SCAN Wired is factory setted to work as USB HID device the installation of the device driver is not necessary as the necessary resources are already presents on the operating system.



If the PT2SCAN Wired is configured to work an an USB-HID device is not possible to change the configuration unless to

- Install the device driver
- Follow the procedure indicate later on this manual

Install the device driver

On the CD ROM you will find the Windows device driver folder. The necessary steps to install the drivers are:

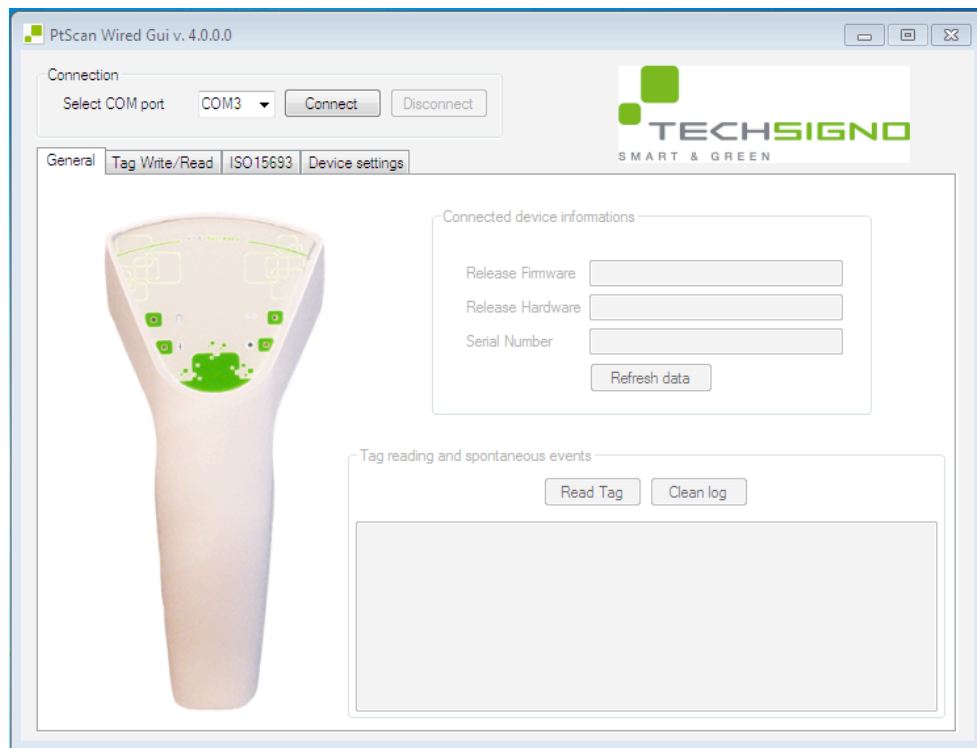
- Copy the file "ts_cd.inf" on an temporary folder.
- Connect the PT2SCAN Wired to an USB port.
- When the install procedure ask to indicate the position of device driver chose the temporary folder where you have copy the "ts_cd.inf" file.
- Ignore the Windows warning on the authenticity of device drive
- Wait for end of the procedure

PT2Scan Wired Configuration GUI

The PT2SCAN Wired GUI is the setup and test utility.



The utility works on Windows XP, Windows VISTA, Windows 7 Operating System.



After started the utility on the main page you will find the TAB indicating the availables USB COM ports of your computer.

- Chose the USB COM where you have connect the PT2SCAN Wired and press Connects

After the connection the configurable parameters are downloaded from the PT2SCAN Wired and are showed

Main Page

On the Main Page the following information are reported:

- The Hardware Release of the device
- The Firmware Release
- The device Serial Number



The Hardware Release and the Serial Number are factory programmed and cannot be modified. The Firmware Release is automatically changed in case of Firmware update of the device.

The other sections are:

General	MainPage
Tag Write/Read	Page where is possible to read the RFID tag and write on it
ISO15693	To Write and Read multiple block of memory
Device Settings	Where configure the device

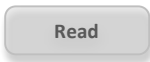

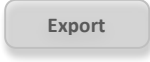
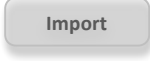


To connect successfully the PT2SCAN Wired it is necessary that it be configured as USB Virtual COM mode.

Device Settings




This section is dedicated at the configuration of the PT2SCAN Wired device and is divided in functional areas where is possible to chose the different possibilities of works of the PT2SCAN Wired

Configuration Parameters

	To Read the configuration from the PT2SCAN Wired. The parameters are shown on this page
	To Write the configuration to the PT2SCAN Wired
	To Export on a file the configuration.
	To Import from a file the configuration. The paramters imported are shown on this page

Device functional options

In this area is possible to chose differents mode of operation for the PT2SCAN Wired

Spontaneous Mode	If enabled at the pression of the Push Button, the reading of Tags and BarCode comes every second. The identification of the Tags type is made automatically.
Slave Mode	<p>If enabled the action of reading is made under the control of the customer application.</p> <p> In this case the type of Tags must be defined from the application</p> <p> This mode is non compatible with Keyboard emulation Mode</p> <p> In this mode the start of reading is controlled from the application (is not necessary to press the push button)</p>
Filtered Mode	If enabled and only if the device is in Spontaneous Mode an filter on the data read is applied. In this mode the multiple read of the same code is non possible. To read again the same BarCode or Tag it is necessary to press again the Push Button
Read Time Out	This is the timeout for reading action. If the time is expired and nothing is read it is necessary to start with a new pression of the Push Button
Pointing Mode	If enabled an pointer (laser) is generated before start with reading. This is usefull to identify correctly the Barcode to be read

Keyboard Emulation

The PT2SCAN Wired can work in keyboard emulation by selecting the flag in this area . It is also possible to define how the data are formatted before sent them.

The possibility of format of the data is:

Format

Option	Description
None	No format are applied to the data read from RFID Tag or
Exadecimal	The data read from RFID Tag or Barcode is transformed in HEX format
Decimal	The data read from RFID Tag or Barcode is transformed in DECIMAL format

Inversion

Option	Description		
None	No inversion are applied to the data read from RFID Tag	Read from Tag	0x12
		Sent to	0x12
byte	An inversion of least significative bit to the most significative bit (8 bit shift right) is applied to the data read from Tag.	Read from Tag	0x12
		Sent to	0x48
nible	An inversion of least significative bit to the most significative bit (4 bit shift right) of every nible is applied to the data read from Tag.	Read from Tag	0x12
		Sent to	0x84



This inversion is applied only at the data read form the RFID Tag.

Prefix

Option	Description
None	No one prefix is inserted in the data Read
Tab	The "Tab" prefix is inserted in the data read before sent to PC
Space	The "Space" prefix is inserted in the data read before sent to PC

Terminator

Option	Description
None	No suffix is added to the data read
Carriage Return	The "CR" suffix is addes to the data read
Down arrow	The "Down Arrow" suffix is added to the data read.



The Prefix and Suffix is applied either at the data read from Barcode and RFID

Device Input

It is possible to enable or disable the input device selecting from RFID ISO15693, RFID ISO14443, Barcode. All the selection can be selected, but in this case the following rule in the read action is applied:

- After the pressing of the Start Push Button the first valid read, either from Barcode or RFID, is sent to the PC. To read another data it is necessary to press again the Start Push Button

The following selection are available

ISO14443A	On the RFID Interface the ISO14443A standard is enabled and decoded.
ISO15693	On the RFID Interface the ISO15693A standard is enabled and decoded
BarCode	The Barcode Interface is enabled. The default linear code enables is Code39. It is possible modify the default and add other standars using the Barcode programming table.

Programmed mode

If this flag is setted the PT2SCAN Wired read the block of memory indicated.

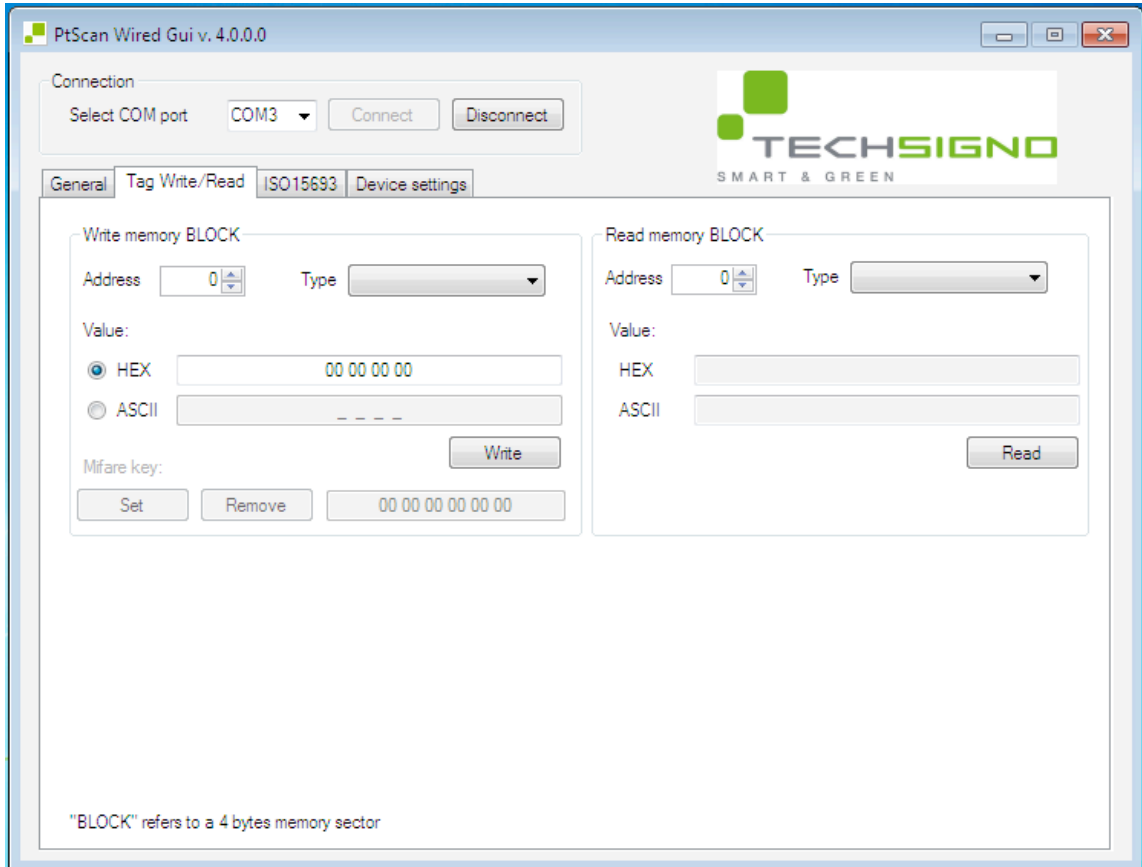
Mifare Key

In case of MifareTags with protection key setted is possible to set the Key that the PT2SCAN Wired will use to read the Mifare Tags. The key has a lenght of 12byte and must be compeld defined.

Notification Options

It is possible to chose which notification has to applied at the read action. It is possible to chose either Buzzer or Vibrating.

Tag Write/Read



in this page it is possible to test the various functions of the device. It is necessary that the PT2SCAN Wires is programmed in USB Virtual COM Mode.



If the PT2SCAN is programmed in Keyboard emulation Mode this page is not available

The two distinguished areas present on this page allow to read and write the block memory of the selected Tag. For the write operation it is necessary to select the format of the data to be written, selecting from ASCII or HEX. The size of the block is automatically taken in base of the type of Tag ISO15693 or ISO14443.

In the write section it is also possible to set the password to protect the memory in the Mifare Classic Tags.



In case of using the password to protect the memory it is mandatory do not remove the Tag from the RFID Antenna until the setting operation is completed in order to do not damage the Tag permanently.



If the password is setted, to be able to read the memory it is necessary to set the same password for the PT2SCAN Wired in the Setup Page



In the lower windows of this section you can see the result of the reading action, where is showed the UID of the Tag or the contents of the Barcode

Appendix A

Use of the KEY CARD

The PT2SCAN Wired it is a device the can work in 2 different modes:

- USB Keyboard Emulation
- USB Virtual Com

In every moment, using the Software Configuration GUI, it is possible to choose the diffrent mode of operation.



If the device is setted in the USB Keyboard Emulation Mode the Software configuration GUI doesn't work. To run the Software Configuration GUI is necessary to set the PT2SCAN in the USB Virtual COM Mode. The KEY CARD is necessary in this case.



If the PT2SCAN is configured in USB Keyboard Emulation Mode follow the following steps

- Disconnect the PT2SCAN Wired from the USB Port of your PC
- Put the KEY CARD in front of the RFID Antenna
- Connect the PT2SCAN Wired at the USB Port of your PC



Take care that the KEY CARD stay in front of the RFID Antenna during this operation



Now you are momentarily in USB Virtual COM mode and you can execute the Software configuration GUI to check, change the setup of the PT2SCAN Wired.



The use of the KEY CARD reset the flag of "Enable Keyboard Emulation" but not the other parameters on the Keyboard emulation Area, so if need to work in Keyboard Emulation remember to Set again the Flag and save the configuration.

Trouble shutting

Problem	Probable Cause	Possible Solution
The PT2SCAN doesn't work and the LEDs are off	PT2SCAN not properly connected to an USB Port	Check that the cable is properly connected to un USB port.
	The connection Cable is damaged or USB port not working	Check the cable and that the USB Port is working properly
The PT2SCAN is properly connected (Led Green On) but the pression on the Start Push Button as no effect.	The PT2SCAN is setted in SLAVE Mode and not in SPONTANEOUS Mode	Check the configuration
Read action done but no data sent to PC in Keyborad Emulation Mode	PT2SCAN Configured as USB Virtual COM Mode	Check the setup
	The connection Cable is damaged	Check the cable and that the USB Port is working properly
The PT2SCAN do not read the ISO15693 Tags.	The PT2SCAN has the RFID input disabled. The PT2SCAN Wired Is configured to read ISO14443 Tags.	Check the configuration and verify the the ISO15963 is setted
	The Tag is damaged	Change the Tag
	The Distance between Tag and Antenna is to High	Toward or away the Tag from the PT2SCAN
The PT2SCAN do not read the ISO14443 Tags.	The PT2SCAN has the RFID input disabled. The PT2SCAN Wired Is configured to read ISO15693 Tags.	Check the configuration and verify the the ISO15963 is setted
	The Mifare Password is setted	Check the password
	The Tag is damaged	Change the Tag
	The Distance between Tag and Antenna is to High	Toward or away the Tag from the PT2SCAN