# Programming

## BT Scanner

## For BT310N / BT310D

## User's Manual

Restore Factory Default

BT Firmware version

**Ver. 1.3**

**Pairing Process:**

1. Press the trigger to activate the scanner.
2. Trigger Scanner about 6 seconds (one long beep and Blue LED fast flash) to disconnect the scanner from the paired device to be ready for pairing another device.
3. Reading the setting barcode

Of SPP or HID. **(HID is for Manufacture default)**

**CABLE Online Mode:**

The scanner provides another way to transmit data beside BT mode. Connecting Micro USB cable is to switch from BT mode to Cable online mode and also in battery charger.

**Memory Mode:**

1. **Memory Mode** setting: Switch BT mode to Memory Mode
2. **Data Upload** setting: Transmitting barcode data in Memory Mode
3. **Clear All Saved Data** setting: Erase all barcode data saved in Memory mode
4. **Data Upload & Clear All Data** setting: Transmitting barcode data in Memory Mode and Erase all barcode data saved in Memory mode
5. **Total Storage quantity**: Check the amount of memory storage
6. **To Bluetooth mode** setting: Switching from Memory mode to Bluetooth mode

For the first part of the codes (pages 3-8), it is enough **to read the code directly** to set the reader.

## BT Mode Selection

*Bluetooth Mode

SPP [1)]
(Serial Port Emulation)

***HID**

Unpair

[1)] **Warning!** In SPP mode, you must set a longer sleep time (60 Min, 2 Hours, Never Sleep), or alternatively you must set the host side to reconnect the connection after bar code reader returns from sleep mode.

## Memory Mode

Memory Mode (Data storage)

Data Upload

Clear All Saved Data

Data Upload & Clear All Data

Total Storage quantity

To Bluetooth mode

## Keyboard Language


USA


Germany


*Czech


Slovak


Portugal


Japan


Turkey F


ALT mode


French


Spain


Czech QWERTY


Italy


UK


Turkey Q

Hungary

Belgium FR

Brazil PT

Canada FR

Croatia

Slovenia

Denmark

Finland

Latin-America ES

Netherland

Norway

Poland

Serbia

Sweden

Swiss

## Beep Control:

Mute

*Beep On

*Normal

Up Low Case Swap (A<->a)

All Upper Case (a->A)

All Lower Case (A->a)

## Num Lock Set:

*Num Lock off (Nums transmit by keyboard)

Num Lock on (Nums transmit by keypad)

## IOS Screen Keyboard on/off:

## Set Sleep Mode

*1 Min

6 Min

12 Min

30 Min

60 Min

2 Hours

Never Sleep

## Change Auto Cable Mode

Auto Cable Mode OFF

Auto Cable Mode ON

## Keyboard Wedge function

**Num Lock**

**<OFF>**

ON

**Caps Lock**

**<Normal>**

Up Low Case Swap (A<->a)

All Upper Case (a->A)

All Lower Case (A->a)

## Beep Control Setting

$BUZZ#1

**<Beep On>**

$BUZZ#0

Mute

## Buzzer Tone

**Volume High (Default)**

**Volume Medium**

**Volume Low**

Start Configuration((+SETF))

For the following part of the codes (pages 7-36), you must first read the **Start Configuration** code in the page header, then the configuration code(s) and finally the **End Configuration** code in the page footer.

## Chap.1 System Information

Set All default((+RETF))

Do not change the settings in the previous chapters !

S/W Version((+SFUR))

### 2.1Message Terminator

None((+C9A))

CR+LF((+C9B))

<CR>((+C9C))

LF((+C9D))

TAB((+C9E))

### 2.2 Character Installation

The preamble and postamble character: You can put 10 ASCII at most in front of the barcode data. When the installation is "0" that means you don't need to add the first and last character. Please find the format as below:

| Preamble Character | Barcode | Postamble Character |
|---|---|---|

The process for adding the first and last character to the barcode:

1. Scan the barcode of "Start Configuration" and "The Preamble Character Installation".
2. Check the ASCII table to get the ASCII code of the first and last character.

End Configuration((+ENDF))

Start Configuration((+SETF))

3. Scan the barcode of ASCII in the Appendix.
4. Scan the "End Configuration".

G1/G2 character Insertion: You can put 10 ASCII at most in front of the barcode data. When the installation is "0" that means you don't need to add the first and last character.

5. Scan the barcode of the "Start Configuration" and "G1 Insert Character".
6. Check the ASCII table to get the ASCII code of the first and last character.
7. Scan the barcode of ASCII in the Appendix.
8. Scan the "End Configuration".
9. Repeat the same process to the G2 insertion.
10. Scan the "End Configuration".

The position of G1/G2 character insertion: To select a character insert to the barcode. You can't insert any character while the installation is "0"

1. Scan the barcode of the "Start Configuration" and "G1 character insertion position"
2. Check the ASCII table to get the corresponding ASCII code of the insertion position.
3. Scan the "End Configuration".
4. Repeat the same process to the G2 character insertion position.
5. Scan the "End Configuration".

Code Transmission: If your application needs to transmit the code (barcode type ID), you have to set "ON" for this feature and the format is ID + Barcode data.

**The Preamble Installation (Default:00)**

Appendix A((+E4A))

**The Postamble Installation (Default:00)**

Appendix A((+E5A))

End Configuration((+ENDF))

Start Configuration((+SETF))

**G1 Character Insertion (Default:00)**

Appendix A((+E6A))

**G2 Character Insertion (Default:00)**

Appendix A((+E7A))

**G1 Character Insertion Position(Default:00)**

Appendix A((+E8A))

**G2 Character Insertion Position(Default:00)**

Appendix A((+E9A))

**Code ID Transmission**

ON((+EAA))

**<OFF>**((+EAB))

**2.3 Other Installation**

Scanning Precision: You can set to scan once or twice and then transfer the bar code data. The twice will reduce the error reading.

Bar Reverse Output Installation: This feature can read the highlight barcode.

**Scanning Verify**

**<Single>**((+EDA))

Multi-verify(Max:2)
((+EDB))

End Configuration((+ENDF))

Start Configuration((+SETF))

## Chap.3 BAR-CODE INSTALLATION

### 3.1 UPC-A

**Reading**

OFF((+F1A))

<ON>((+F1B))

**Code ID (Default:F)**

<20H-7EH>((+F2A))

**UPC-A convert to EAN-13**

<OFF>((+F3A))

ON((+F3B))

**Transmit Check Character**

OFF((+F4A))

<ON>((+F4B))

**Truncate Leading Zero**

<OFF>((+F5A))

ON((+F5B))

**Truncate Leading Digit(Default:00)**

<00H-0DH>((+F6A))

**Truncate Last Digit(Default:00)**

<00H-0DH>((+F7A))

**Select Insertion(Default:00)**

<00H-02H>((+F9A))

End Configuration((+ENDF))

### 3.1 UPC-A

**Add-On 2/5**

**<None>**((+F8A))

2 digit((+F8B))

5 digit((+F8C))

2 or 5 digit((+F8D))

AUTO_Enable
((+F8E))

Start Configuration((+SETF))

### 3.2 UPC-E

**Reading**

OFF((+G1A))

**<ON>**((+G1B))

**Code ID (Default:G)**

<20H-7EH>((+G2A))

**UPC-E Convert to UPC-A**

**<OFF>**((+G3A))

ON((+G3B))

**Transmit Check Character**

OFF((+G4A))

**<ON>**((+G4B))

**Truncate Leading Zero**

**<OFF>**((+G7A))

ON((+G7B))

**Truncate Leading Digit(Default:00)**

<00H-08H>((+G5A))

**Truncate Last Digit(Default:00)**

<00H-08H>((+G6A))

**Select Insertion(Default:00)**

<00H-02H>((+G9A))

End Configuration((+ENDF))

### 3.2 UPC-E

**Add-On 2/5**

**<None>**((+G8A))

2digit((+G8B))

5digit((+G8C))

2 or 5 digit((+G8D))

AUTO_Enable
((+G8E))

### 3.3 EAN-13

**Reading**

OFF((+H1A))

**<ON>**((+H1B))

**Code ID (Default: H)**

<20H-7EH>((+H2A))

**Transmit Check Character**

OFF((+H3A))

**<ON>**((+H3B))

**Truncate Leading Digit (Default:00)**

<00H-0DH>((+H4A))

**Truncate Last Digit (Default:00)**

<00H-0DH>((+H5A))

**Select Insertion (Default:00)**

<00H-02H>((+H8A))

### 3.3 EAN-13

**Add-On 2/5**

**<None>**((+H6A))

2 Digit((+H6B))

5 Digit((+H6C))

2or 5 Digit((+H6D))

AUTO_Enable
((+H6E))

**ISBN/ISSN Convert**

**<OFF>**((+H7A))

ON((+H7B))



### 3.4 EAN-8

**Reading**

OFF((+I1A))

<ON>((+I1B))

**Code ID (Default: I)**

<20H-7EH>((+I2A))

**Transmit Check Character**

OFF((+I3A))

<ON>((+I3B))

**Truncate Leading Digit (Default:00)**

<00H-08H>((+I4A))

**Truncate Last Digit (Default:00)**

<00H-08H>((+I5A))

**Select Insertion (Default:00)**

<00H-02H>((+I7A))

**Add-On 2/5**

**<None>**((+I6A))

2 digit((+I6B))

5 digit((+I6C))

2 or 5 digit((+I6D))

AUTO_Enable
((+I6E))



### 3.5 Code 39

**Reading**

OFF((+J1A))

**<ON>**((+J1B))

**Code ID (Default: J)**

(20H-7EH)((+J2A))

**Verification**

**<OFF>**((+J3A))

ON((+J3B))

**Transmit Check Character**

OFF((+J4A))

**<ON>**((+J4B))

**Min. Length (Default:01)**

<01H-50H>((+J6A))

**Max. Length (Default:50H)**

<01H-50H>((+J7A))



### 3.5 Code 39

**Format**

**<Standard Code39>** ((+J9A))

Full ASCII Code39
((+J9B))

Trioptic CODE39
((+J9C))

**Transfer Start / End Character**

**<OFF>**((+JDA))

ON((+JDB))

**Code 39 Concatenation**

**<OFF>**((+JFA))

ON((+JFB))

**Truncate Leading Digit(Default:00)**

<00H-32H>((+JAA))

**Truncate Last Digit(Default:00)**

<00H-32H>((+JBA))

**Select Insertion(Default:00)**

<00H-02H>((+JCA))



### 3.6 Codabar

**Reading**

OFF((+K2A))

<ON>((+K1B))

**Code ID (Default: K)**

<20H-7EH>((+K2A))

**Verification**

<OFF>((+K3A))

ON((+K3B))

**Transmit Check Character**

<OFF>((+K4A))

ON((+K4B))

**Truncate Leading Digit(Default:00)**

<00H-7EH)((+K6A))

**Truncate Last Digit(Default:00)**

<00H-7EH>((+K7A))

**Select Insertion (Default:00)**

<00H-02H>((+KCA))

Start Configuration((+SETF)) 

### 3.6 Codabar

**Start / End Character Type**

**<ABCD/ABCD>**((+K8A))

abcd/abcd((+K8B))

abcd/tn*e((+K8C))

**Transmit Start / End Character**

OFF((+K9A))

**<ON>**((+K9B))

**Min. Length (Default:06)**

<01H-50H>((+KAA))

**Max. Length (Default:50H)**

<01H-50H>((+KBA))

End Configuration((+ENDF)) 

Start Configuration((+SETF)) 

### 3.7 Code93

**Reading**

OFF((+L1A))

**<ON>**((+L1B))

**Code ID (Default: L)**

<20H-7EH>((+L2A))

**Verification**

OFF((+L3A))

**<ON>**((+L3B))

**Transmit Check Character**

**<OFF>**((+L4A))

ON((+L4B))

**Select Insertion (Default:00)**

<00H-02H>((+L9A))

**Truncate Leading Digit (Default:00)**

<00H-7EH>((+L7A))

**Truncate Last Digit (Default:00)**

<00H-7EH>((+L8A))

**Min. Length(Default:03)**

<01H-50H>((+L5A))

**Max. Length(Default:50H)**

<01H-50H>((+L6A))

End Configuration((+ENDF)) 

Start Configuration((+SETF)) 

### 3.8 Code 128

**Reading**

OFF((+M1A))

**<ON>**((+M1B))

**Code ID (Default: M)**

<20H-7EH>((+M2A))

**Verification**

OFF((+M3A))

**<ON>**((+M3B))

**Transmit Check Character**

**<OFF>**((+M4A))

ON((+M4B))

**Truncate Leading Digit(Default:00)**

<00H-7FH>((+M8A))

**Truncate Last Digit(Default:00)**

<00H-7FH>((+M9A))

**Select Insertion(Default:00)**

<00H-02H>((+MCA))

**Min. Length(Default:03)**

<01H-50H>((+MAA))

**Max. Length(Default:50H)**

<01H-50H>((+MBA))

End Configuration((+ENDF)) 

Start Configuration((+SETF)) 

**UCC/EAN128**

**<OFF>((+M6A))**

ON((+M6B))

**FNC1 Transmit**

<OFF>((+M7A))

**ON((+M7B))**

**FNC2 Concatenation**

**<OFF>((+M5A))**

ON((+M5B))

**Application ID transmit**

01 & Terminator ((+MDA))

OFF & Terminator ((+MDC))

**01** & Terminator **((+MDA))**

(01) & Terminator ((+MDB))

**Application ID Terminator**

<00H-7EH>((+MEA))

End Configuration((+ENDF)) 

Start Configuration((+SETF)) 

**IATA Code**

**<OFF>**((+V1A))

ON((+V1B))

**3.9 Interleaved 2 of 5**

**Reading**

OFF((+N1A))

**<ON>**((+N1B))

**Code ID (Default: N)**

<20H-7EH>((+N2A))

**Verification**

**<OFF>**((+N3A))

ON((+N3B))

**Transmit Check Character**

OFF((+N4A))

**<ON>**((+N4B))

**Truncate Leading Digit(Default:00)**

<00H-7EH>((+N5A))

**Truncate Last Digit(Default:00)**

<00H-7EH>((+N6A))

End Configuration((+ENDF)) 

Start Configuration((+SETF))

**Select Insertion(Default:00)**

<00H-02H>((+N9A))

**Min. Length(Default:06)**

<01H-50H>((+N7A))

**Max. Length(Default:50H)**

<01H-50H>((+N8A))

**3.10 Industrial 2 of 5**

**Reading**

**<OFF>**((+O1A))

ON((+O1B))

**Code ID (Default: O)**

<00H-7EH>((+O2A))

**Verification**

**<OFF>**((+O7A))

ON((+O7B))

**Transmit Check Character**

**<OFF>**((+O8A))

ON((+O8B))

**Truncate Leading Digit(Default:00)**

<00H-32H>((+O5A))

**Truncate Last Digit(Default:00)**

<00H-32H>((+O6A))

End Configuration((+ENDF))

Start Configuration((+SETF))

**Select Insertion (Default:00)**

<00H-02H>((+O9A))

**Min. Length (Default:06)**

<01H-50H>((+O3A))

**Max. Length(Default:50H)**

<01H-50H>((+O4A))

**3.11 Matrix 2 of 5**

**Reading**

**<OFF>**((+P1A))

ON((+P1B))

**Code ID (Default: P)**

<20H-7EH>((+P2A))

**Verification**

**<OFF>**((+P3A))

ON((+P3B))

**Transmit Check Character**

**<OFF>**((+P4A))

ON ((+P4B))

**Truncate Leading Digit(Default:00)**

<00H-50H>((+P5A))

**Truncate Last Digit(Default:00)**

<00H-50H>((+P6A))

End Configuration((+ENDF))

Start Configuration((+SETF))

**Select Insertion(Default:00)**

<00H-02H>((+P9A))

**Min. Length(Default:06)**

<01H-50H>((+P7A))

**Max. Length(Default:50H)**

<01H-50H>((+P8A))

**3.12 China Post Code**

**Reading**

**<OFF>**((+Q1A))

ON((+Q1B))

**Code ID (Default: Q)**

<20H-7EH>((+Q2A))

**Verification**

**<OFF>**((+Q3A))

ON((+Q3B))

**Transmit Check Character**

**<OFF>**((+Q4A))

ON((+Q4B))

**Truncate Leading Digit(Default:00)**

<00H-50H>((+Q5A))

**Truncate Last Digit(Default:00)**

<00H-50H>((+Q6A))

End Configuration((+ENDF))

Start Configuration((+SETF))

**Select Insertion(Default:00)**

<(00H-02H>((+Q9A))

**Min. Length(Default:06)**

<01H-50H>((+Q7A))

**Max. Length(Default:50H)**

<01H-50H>((+Q8A))

**3.13 MSI / Plessey**

**Reading**

**<OFF>**((+R1A))

ON((+R1B))

**Code ID (Default: R)**

<20H-7EH>((+R2A))

**Verification**

**<OFF>**((+R3A))

MOD 11/10((+R3D))

MOD 10((+R3B))

MOD 10/10((+R3C))

**Transmit Check Character**

OFF((+R4A))

**<ON>**((+R4B))

End Configuration((+ENDF))

Start Configuration((+SETF))

**Truncate Leading Digit (Default:00)**

<00H-3CH>((+R5A))

**Truncate Last Digit (Default:00)**

<00H-3CH>((+R6A))

**Select Insertion (Default:00)**

<00H-02H>((+R9A))

End Configuration((+ENDF))

### 3.13 MSI / Plessey

**Min. Length (Default:06)**

<01H-50H>((+R7A))

**Max. Length (Default:50H)**

<01H-50H>((+R8A))

Start Configuration((+SETF))

### 3.14 CODE32

**Reading**

**<OFF>**((+S1A))

ON((+S1B))

**Code ID (Default: S)**

<20H-7FH>((+S2A))

**Verification**

**<OFF>**((+S3A))

ON((+S3B))

**Transmit Check Character**

**<OFF>**((+S4A))

ON((+S4B))

**Truncate Leading Digit( Default:00)**

<00H-0AH>((+S5A))

**Truncate Last Digit(Default:00)**

<00H-0AH>((+S6A))

**Select Insertion (Default:00)**

<00-02H>((+S7A))

**Transmit "A"**

**<OFF>**((+S8A))

ON((+S8B))

End Configuration((+ENDF))

Start Configuration((+SETF))

### 3.15 Code 11

**Reading**

**<OFF>**((+T1A))

ON((+T1B))

**Code ID (Default: T )**

<20H-7EH>((+T2A))

**Verification**

**<OFF>**((+T3A))

ON((+T3B))

**Transmit Check Character**

**<OFF>**((+T4A))

ON ((+T4B))

**Truncate Leading Digit (Default:00)**

<00H-50H>((+T5A))

**Truncate Last Digit (Default:00)**

<00H-50H>((+T6A))

**Select Insertion(Default:00)**

<00H-02H>((+T9A))

**Min. Length (Default:06)**

<01H-50H>((+T7A))

**Max. Length (Default:50H)**

<01H-50H>((+T8A))

End Configuration((+ENDF))

Start Configuration((+SETF))

### 3.16 GS1 Code (Option)

**GS1-14**

**Reading**

OFF ((+U1B))

**<ON> ((+U1A))**

**Code ID (Default: U )**

<20H-7EH>((+UUA))

**Application ID transmit**

OFF ((+UAA))

**01 ((+UAB))**

(01) ((+UAC))

**Symbol ID transmit**

**OFF((+UDA))**

ON ((+UDB))

**Transmit Check Character**

OFF((+UGA))

**<ON> ((+UGB))**

**GS1-14 To UPC/EAN**

**<OFF>** ((+U4B))

ON ((+U4A))

End Configuration((+ENDF))

**GS1- Limited**

**Reading**

<OFF> ((+U2B))

**<ON >((+U2A))**

**Code ID (Default: V )**

<20H-7EH>((+UVA))

**Application ID transmit**

OFF((+UBA))

**01 ((+UBB))**

(01) ((+UBC))

**Symbol ID transmit**

**OFF((+UEA))**

ON ((+UEB))

**Transmit Check Character**

OFF((+UHA))

**<ON >((+UHB))**

Start Configuration((+SETF))

**GS1- Expanded Reading**

OFF ((+U3B))

**<ON >((+U3A))**

**Code ID (Default: W)**

<20H-7EH>((+UWA))

**Application ID transmit**

01 & Terminator ((+MDD))

OFF& Terminator ((+MDC))

(01) ((+MDB))

**01 ((+MDA))**

**FNC1 Transmit**

<OFF>((+M7A))

**ON((+M7B))**

**Application ID Terminator(Default:00)**

<01H-7EH>((+MEA))

**Symbol ID transmit**

**<OFF>((+UFA))**

ON ((+UFB))

End Configuration((+ENDF))


0


1


2


3


4


5


6


7


8


9


A


B


C


D


E


F


Y


N

| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|
| 0 | NUL | DLE | SP | 0 | @ | P | ` | p |
| 1 | SOH | DC1 | ! | 1 | A | Q | a | q |
| 2 | STX | DC2 | “ | 2 | B | R | b | r |
| 3 | ETX | DC3 | # | 3 | C | S | c | s |
| 4 | EOT | DC4 | $ | 4 | D | T | d | t |
| 5 | ENQ | NAK | % | 5 | E | U | e | u |
| 6 | ACK | SYN | & | 6 | F | V | f | v |
| 7 | BEL | ETB | ‘ | 7 | G | W | g | w |
| 8 | BS | CAN | ( | 8 | H | X | h | x |
| 9 | HT | EM | ) | 9 | I | Y | i | y |
| A | LF | SUB | * | : | J | Z | j | z |
| B | VT | ESC | + | ; | K | [ | k | { |
| C | FF | FS | , | < | L | ¥ | l | \| |
| D | CR | GS | – | = | M | ] | m | } |
| E | SO | RS | . | > | N | ^ | n | ~ |
| F | SI | US | / | ? | O | _ | o | DEL |

## ASCII Table (Under Function Off)

*Function OFF

| | 0 | 1 |
|---|---|---|
| 0 | NUL | DLE |
| 1 | SOH | DC1 |
| 2 | STX | DC2 |
| 3 | ETX | DC3 |
| 4 | EOT | DC4 |
| 5 | ENQ | NAK |
| 6 | ACK | SYN |
| 7 | BEL | ETB |
| 8 | BS | CAN |
| 9 | HT | EM |
| A | LF | SUB |
| B | VT | ESC |
| C | FF | FS |
| D | CR | GS |
| E | SO | RS |
| F | SI | US |

## Function key Table (Under Function on)

Function ON

| | 0 | 1 |
|---|---|---|
| 0 | NULL | CTRL |
| 1 | UP | F1 |
| 2 | DOWN | F2 |
| 3 | LEFT | F3 |
| 4 | RIGHT | F4 |
| 5 | PAGE UP | F5 |
| 6 | PAGE DOWN | F6 |
| 7 | | F7 |
| 8 | BS | F8 |
| 9 | TAB | F9 |
| A | | F10 |
| B | HOME | ESC |
| C | END | F11 |
| D | ENTER | F12 |
| E | INSERT | ALT |
| F | DELETE | SHIFT |