2D Area Imager
User guide

for

slimQR Series
cubeQR Series

Revision history	
Rev. number	Date and record
Rev.1.0	2016/12/01 (1st release)

Please this manual thoroughly prior to ensure full use of the product's functionality and sore safety in a convenient location for quick reference even after reading.

SAFETY PRECAUTIONS
Meaning of symbols

⚠ WARNING	Alters you to those conditions which could cause serious bodily injury or death if the instructions are not followed correctly.
⚠ CAUTION	Alters you to those conditions which could cause minor bodily injury or substantial property damage if the instructions are not followed correctly.

Be sure to observe all these safety precautions.

⚠ WARNING

- ✓ Never disassemble or modify the device; doing so could result in an accident and such as fire or malfunction.
- ✓ Never put the device into a microwave oven or high pressure container.
- ✓ If smoke, abnormal odors or noises come from the device, immediately unplug the power from the device. Failure to do so could cause fire or electrical shock.
- ✓ Never use the device on the line voltage other than the specified level. Doing so could cause the device to break or burn.
- ✓ Do not scratch, modify, bend, twist, pull or heat the AC adapter cable. Do not place heavy material on the cable or allow the cable to get pressed under heavy material. Doing so could break cable, resulting in a fire.
- ✓ If the power cord of the AC adapter is damaged, stop using it and contact your nearest dealer. Failure to do so could result in a fire or electric shock.
- ✓ Do not plug in or unplug the power cord with wet hands.
- ✓ If the device shows signs of abnormality, immediately unplug the AC adapter or interface cable from the device.
- ✓ If foreign material or water gets into the device, immediately unplug the AC adapter or interface cable from the device. Failure to do so could result in a fire or electric shock.
- ✓ If you drop the device so as to damage its housing, immediately unplug the AC adapter or interface cable from the device. Failure to do so could result in a fire or electric shock.
- ✓ Use the recommended AC adapter only. Failure to do so could result in a fire.

For rechargeable battery, charger, and charging process
- ✓ Never use a rechargeable battery other than that specified in the device user guide. Never charge a dry cell battery or a recharge battery other than that specified in the device user guide. Doing so could cause heat generation, breakage, or fluid leakage.
- ✓ Do not touch directly charge terminals and battery with wet hands.

⚠ CAUTION

- ✓ Never put the device in places where there are exclusively high temperatures such as inside closed-up automobiles or in places exposed to direct sunlight. Doing so could affect the housing or parts, resulting in a fire.
- ✓ Avoid using the device in extremely humid or dusty areas or where there are drastic temperature changes. Moisture or dust will get into the device, resulting in malfunction, fire or electric shock.
- ✓ Never cover or wrap up the device or AC adapter in a cloth or blanket. Doing so could cause the device to heat up inside, deforming its housing, resulting in a fire. Always use the device and AC adapter in a well-ventilated area.
- ✓ Do not place the device anyplace where it may be subjected to oily smoke or steam, e.g., near a cooking range or humidifier. Doing so could cause result in a fire or electric shock.
- ✓ Keep the power cord away from any heating equipment. Failure to do so could melt the sheathing, result in a fire or electric shock.
- ✓ Do not insert or drop foreign materials such as metals or anything inflammable through the openings or vents into the device. Doing so could cause result in a fire or electric shock.
- ✓ For safety reason, unplug the AC adapter and disconnect interface cable when not using for long periods of time.

Regulations
The device complies with FCC Class B, CE Class B and RoHS.

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1. Due to continued product development this information may change without notice.
2. All brand, product and service, and trademark names are the property of their registered owners.

INDEX

1. Introductions

Thanks for using diBar brand 2D reader (Call as just reader from now on in this guide). This user guide shows you basic operation method of reader and configuration command barcode.

You can configure reader just read command barcode showed in this guide. Since configured values are stored in one-volatile memory in reader, all of them will not disappear even power of reader.

2. Contents of reader package

Please check your package. If you find missing or broken materials, please contact to your dealer.

- Reader with specified I/F cable   1pc

(*) If you purchase accessories, you can find them such AC adapter, Holder, Stand.

Please keep the package box to send back the reader for repairing to prevent damage during transportation.

3. Shapes and name of parts

Reading window

Good read LED

Hollow which indicates trigger position
Out your thumb here, then you can find trigger position easily.

Trigger key

Trigger key

Good read LED

Reading window
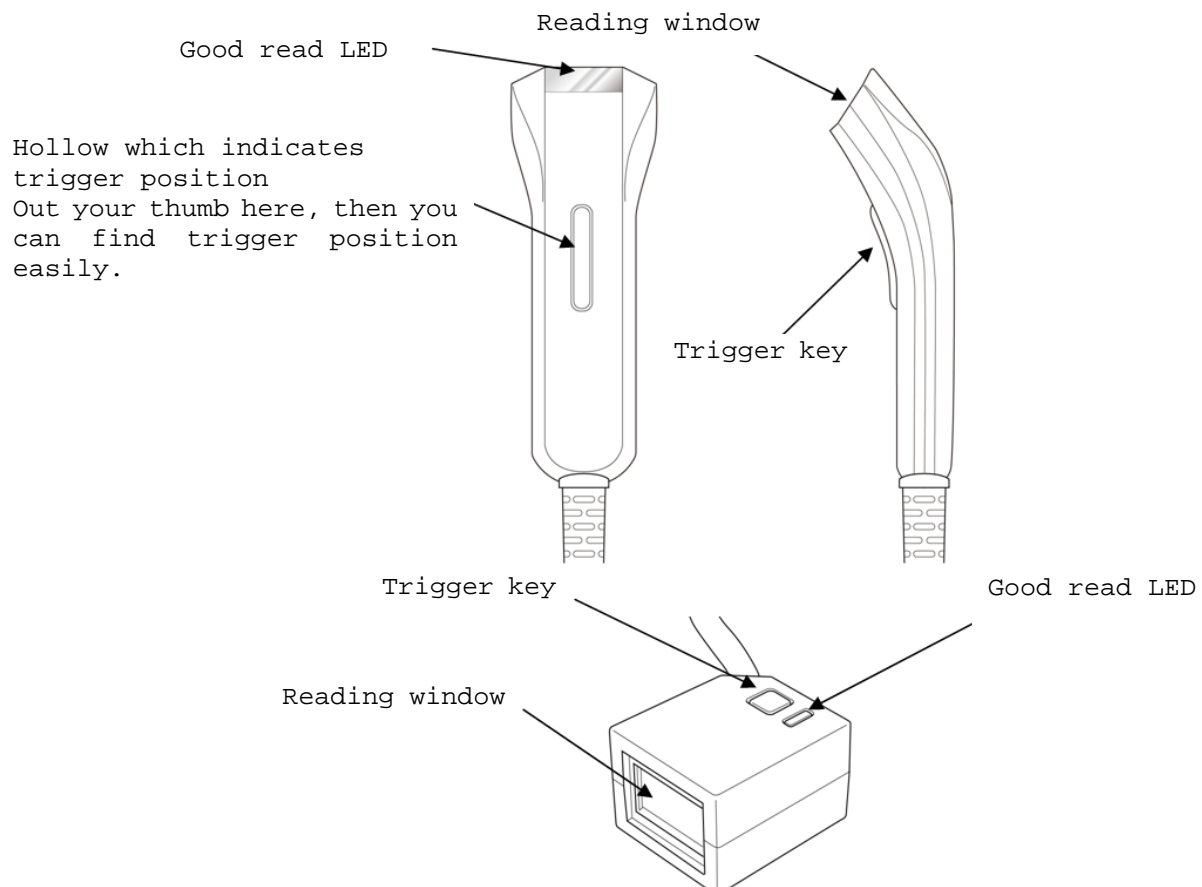
4. Connect reader to your PC

4.1. RS232C interface connection

Please refer to figure below and connect your reader to PC properly.
Note; please use only recommended AC adapter.
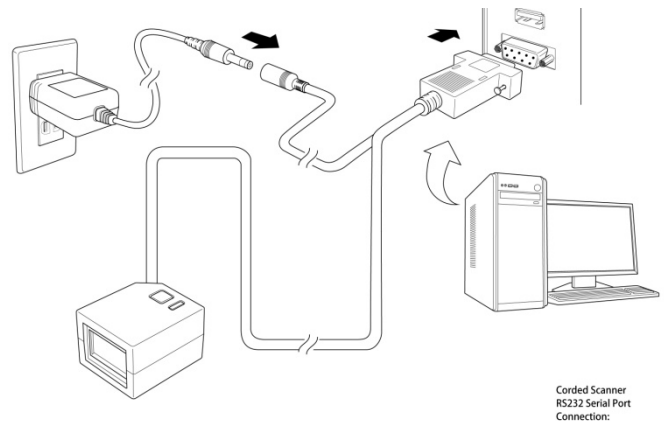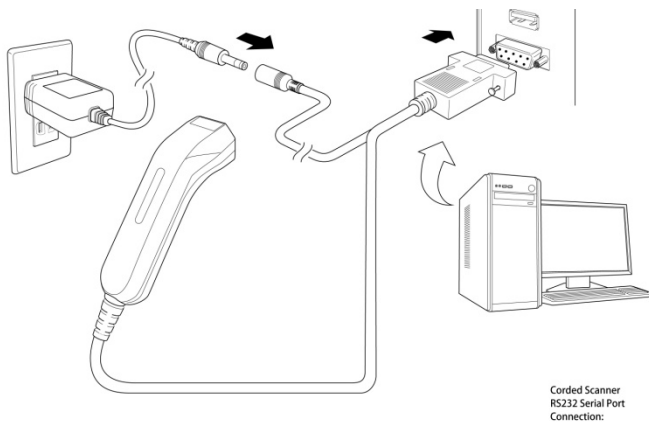
Corded Scanner
RS232 Serial Port
Connection:

Corded Scanner
RS232 Serial Port
Connection:

4.2. USB interface connection

Please refer to figure below and connect your reader to PC properly.

Corded Scanner USB
Connection:

Corded Scanner USB
Connection:
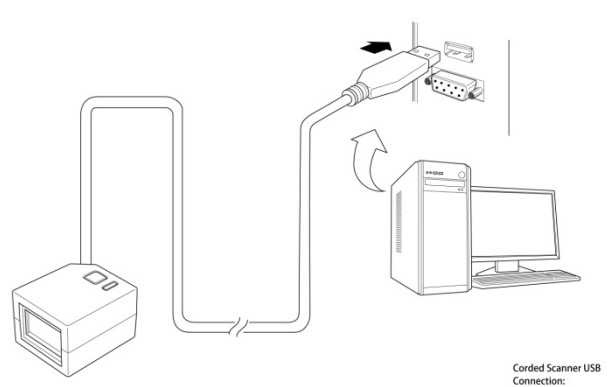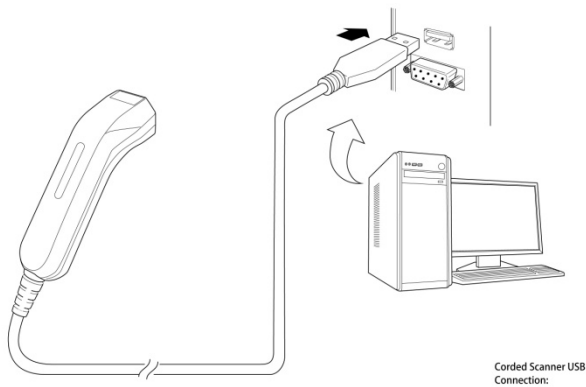
5. How to read a code

Reader adopts red LED aimer. In case of reading code, operator must put the red aimer on center of target code, see figures below. Since reader is able to read any direction of code, operator doesn't need to care about it.

1 次元コード   マトリクスコード

D.O.F

Symbol name	Near distance	Far distance	Depth of field
Code 39(0.127mm)	61mm	130mm	69mm
Code 39(0.508mm)	60mm	380mm	320mm
UPC100%(0.33mm)	55mm	280mm	225mm
PDF417(0.17mm)	60mm	125mm	65mm
Data Matrix(0.254mm)	60mm	130mm	70mm
QR コード (0.508mm)	50mm	230mm	180mm

The values showed in above table are just typical values which measured in conditions below, so please make sure they are not guaranteed values. The values are affected by various surrounding conditions such quality of code, lights and others. Please test it in your actual environment beforehand.

- ✓ The distance is from surface of reading window
- ✓ 535lux, 23ºC
- ✓ Photographic quality code

Angle of reading field and resolution

Direction	Angle	Resolution
Horizontal	+/-18.9˚	640 pixels pixels
Vertical	+/-14.4˚	180 pixels

6. Custom default and factory default

Setting of custom default

You can save your favorite parameter values as customer default and recall it any time as you want. Please refer to steps below.

1. Read [Start custom default setting] command barcode.

[Start custom default setting]

2. Configure your reader as you want use command barcodes showed in following pages in this guide. Some parameters need to read [Value] barcode, in case of it, you also need to read [Validate] barcode at last to settle the value.
3. Once you finish setting of all configurations, read [End custom default setting] command barcode below. If you want to reconfiguration, just try again from step 1.

[End custom default setting]
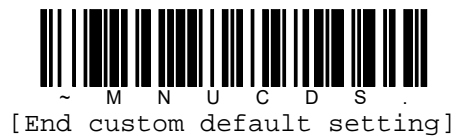
Reset to custom default or factory default

Read [Default] command barcode below, then reader will be initialized by custom default you set by previous procedure. If you haven't set custom default yet, reader will be initialized by factory default.

[Default]

Delete custom default

Read [Delete custom default] command barcode below, then reader will delete custom default values and use factory default values.

[Delete custom default]

7. Interface setting

Interface quick setting

RS232C interface

Read command barcode below. Reader will be initialized by RS232 interface with its default settings.

[RS232 interface]

Here are default parameters of RS232 interface.

Parameter	Setting value
Baud rate	115,200bps
Data format	8 data bits, None parity, 1 stop bit
Suffix	CR/LF
Trigger mode	Manual trigger

USB IBM SurePos interface

Read one of command barcode below. Reader will be initialized by USB IBM SurePos interface.

[USB IBM SurePos interface hand-held reader]

[USB IBM SurePos interface table-top reader]

If set this interface, the following parameters will be also initialized by specific value shown in table below.

Code	Suffix	Code	Suffix
EAN8	0C	Code 39	00 0A 0B
EAN13	16	Interleaved 25	00 0D 0B
UPCA	0D	Code 128	00 18 0B
UPCE	0A	Code 39	00 0A 0B

USB keyboard interface

Read one of command barcode below. Reader will be initialized by USB keyboard interface.

[USB keyboard interface <USA>]

[USB keyboard interface <MAC>]

USB HID-POS interface

Read command barcode below. Reader will be initialized by USB HID-POS interface.

```
~  P  A  P  1  3  1  .
```
[USB HID POS interface]

USB COM emulation interface (USB-COM)

Read command barcode below. Reader will be initialized by USB serial port emulation (USB-COM) interface. In this interface mode, you need to install its driver. The driver is able to download from our WEB site.

As for the MAC, since MAC will recognize reader as CDC class device, driver will be installed automatically.

```
~  T  E  R  M  I  D  1  3  0  .
```
[USB COM emulation interface]

You can select ACK/NAK handshake option below.

```
~  P  A  P  1  2  4  .
```
[ACK/NAK handshake enable]

```
~  P  A  P  1  2  5  .
```
[**ACK/NAK handshake disable**]

[Note]
There is no baud rate option for USB serial port emulation interface.

Keyboard option

Keyboard country layout

Read command barcode below to set appropriate keyboard layout for your country or language. As a general rule, the following characters are supported, but need special care for countries other than United states: @ | ¥ $ # { } [ ] = / ' < > ~

```
~  K  B  D  C  T  Y  0  .
```
[**United States**]

```
~  K  B  D  C  T  Y  3  5  .
```
[Albania]

```
~  K  B  D  C  T  Y  8  1  .
```
[Azeri(Cyrillic)]

```
~  K  B  D  C  T  Y  8  0  .
```
[Azeri(Latin)]

~ K B D C T Y 8 2 .
[Belarus]

~ K B D C T Y 1 .
[Belgium]

~ K B D C T Y 3 3 .
[Bosnia]

~ K B D C T Y 1 6 .
[Brazil]

~ K B D C T Y 5 9 .
[Brazil(MS)]

~ K B D C T Y 5 2 .
[Bulgaria(Cyrillic)]

~ K B D C T Y 5 3 .
[Bulgaria(Latin)]

~ K B D C T Y 5 4 .
[Canada(French legacy)]

~ K B D C T Y 1 8 .
[Canada(French)]

~ K B D C T Y 5 5 .
[Canada(Multilingual)]

~ K B D C T Y 3 2 .
[Croatia]

~ K B D C T Y 1 5 .
[Czech]

~ K B D C T Y 4 0 .
[Czech(Programmers)]

~ K B D C T Y 3 9 .
[Czech(QWERTY)]

|||||||||||||||||||||||||
~ K B D C T Y 3 8 .
[Czech(QWERTZ)]

|||||||||||||||||||||||||
~ K B D C T Y 8 .
[Denmark]

|||||||||||||||||||||||||
~ K B D C T Y 1 1 .
[Dutch(Netherland)]

|||||||||||||||||||||||||
~ K B D C T Y 4 1 .
[Estonia]

|||||||||||||||||||||||||
~ K B D C T Y 8 3 .
[Faroese]

|||||||||||||||||||||||||
~ K B D C T Y 2 .
[Finland]

|||||||||||||||||||||||||
~ K B D C T Y 3 .
[France]

|||||||||||||||||||||||||
~ K B D C T Y 8 4 .
[Gaelic]

|||||||||||||||||||||||||
~ K B D C T Y 4 .
[Germany]

|||||||||||||||||||||||||
~ K B D C T Y 1 7 .
[Greek]

|||||||||||||||||||||||||
~ K B D C T Y 6 4 .
[Greek(220 Latin)]

|||||||||||||||||||||||||
~ K B D C T Y 6 1 .
[Greek(220)]

|||||||||||||||||||||||||
~ K B D C T Y 6 5 .
[Greek(319 Latin)]

|||||||||||||||||||||||||
~ K B D C T Y 6 2 .
[Greek(319)]

```
~ K B D C T Y 6 3 .
[Greek(Latin)]
```

```
~ K B D C T Y 6 6 .
[Greek(MS)]
```

```
~ K B D C T Y 6 0 .
[Greek(Polytonic)]
```

```
~ K B D C T Y 1 2 .
[Hebrew]
```

```
~ K B D C T Y 5 0 .
[Hungarian(101 key)]
```

```
~ K B D C T Y 1 9 .
[Hungary]
```

```
~ K B D C T Y 7 5 .
[Iceland]
```

```
~ K B D C T Y 7 3 .
[Irish]
```

```
~ K B D C T Y 5 6 .
[Italian(142)]
```

```
~ K B D C T Y 5 .
[Italy]
```

```
~ K B D C T Y 2 8 .
[Japan ASCII]
```

```
~ K B D C T Y 7 8 .
[Kazakh]
```

```
~ K B D C T Y 7 9 .
[Kyrgyz(Cyrillic)]
```

```
~ K B D C T Y 1 4 .
[Latin America]
```

~ K B D C T Y 4 2 .
[Latvia]

~ K B D C T Y 4 3 .
[Latvia(QWERTY)]

~ K B D C T Y 4 4 .
[Lithuania]

~ K B D C T Y 4 5 .
[Lithuania(IBM)]

~ K B D C T Y 3 4 .
[Macedonia]

~ K B D C T Y 7 4 .
[Malta]

~ K B D C T Y 8 6 .
[Mongolian(Cyrillic)]

~ K B D C T Y 9 .
[Norway]

~ K B D C T Y 2 0 .
[Poland]

~ K B D C T Y 5 7 .
[Polish(214)]

~ K B D C T Y 5 8 .
[Polish(Programmers)]

~ K B D C T Y 1 3 .
[Portugal]

~ K B D C T Y 2 5 .
[Romania]

~ K B D C T Y 2 6 .
[Russia]

~ K B D C T Y 6 7 .
[Russian(MS)]

~ K B D C T Y 6 8 .
[Russian(Typewriter)]

~ K B D C T Y 2 1 .
[SCS]

~ K B D C T Y 3 7 .
[Serbia(Cyrillic)]

~ K B D C T Y 3 6 .
[Serbia(Latin)]

~ K B D C T Y 2 2 .
[Slovakia]

~ K B D C T Y 4 9 .
[Slovakia(QWERTY)]

~ K B D C T Y 4 8 .
[Slovakia(QWERTZ)]

~ K B D C T Y 3 1 .
[Slovenia]

~ K B D C T Y 1 0 .
[Spain]

~ K B D C T Y 5 1 .
[Spanish variation]

~ K B D C T Y 2 3 .
[Sweden]

~ K B D C T Y 2 9 .
[Switzerland(French)]

~ K B D C T Y 6 .
[Switzerland(German)]

~ K B D C T Y 8 5 .
[Tatar]

~ K B D C T Y 2 7 .
[Turkey F]

~ K B D C T Y 2 4 .
[Turkey Q]

~ K B D C T Y 7 6 .
[Ukrainian]

~ K B D C T Y 7 .
[United Kingdom]

~ K B D C T Y 8 7 .
[United States(Dvorak)]

~ K B D C T Y 8 8 .
[United States(Dvorak left)]

~ K B D C T Y 8 9 .
[United States(Dvorak right)]

~ K B D C T Y 3 0 .
[United States(International)]

~ K B D C T Y 7 7 .
[Uzbek(Cyrillic)]

Caps/Shift lock status

Read command barcode below to set appropriate Caps/Shift lock status for your PC.

~ K B D S T Y 0 .
[**Caps lock OFF**]

~ K B D S T Y 1 .
[Caps lock ON]

~ K B D S T Y 2 .
[Shift lock ON]

~ K B D S T Y 6 .
[Auto Caps lock]

Keyboard conversion

~ K B D C N V 0 .
[**Keyboard conversion OFF**]

~ K B D C N V 1 .
[Convert all characters to upper case]

~ K B D C N V 2 .
[Convert all characters to lower case]

Numeric keypad mode

Reader sends characters as if entered from a numeric keypad.

~ K B D N P S 1 .
[Numeric key pad mode ON]

~ K B D N P S 0 .
[**Numeric keypad mode OFF**]

RS232C option

Baud rate

~ 2 3 2 B A D 0 .
[300bps]

~ 2 3 2 B A D 1 .
[600bps]

~ 2 3 2 B A D 2 .
[1200bps]

~ 2 3 2 B A D 3 .
[2400bps]

~ 2 3 2 B A D 4 .
[4800bps]

~ 2 3 2 B A D 5 .
[9600bps]

~ 2 3 2 B A D 6 .
[19200bps]

~ 2 3 2 B A D 7 .
[38400bps]

~ 2 3 2 B A D 8 .
[57600bps]

~ 2 3 2 B A D 9 .
[**115200bps**]

Data format (Data bit/Stop bit/Parity)

```
~ 2 3 2 W R D 3 .
```
[7/1/Even]

```
~ 2 3 2 W R D 0 .
```
[7/1/None]

```
~ 2 3 2 W R D 6 .
```
[7/1/Odd]

```
~ 2 3 2 W R D 4 .
```
[7/2/Even]

```
~ 2 3 2 W R D 1 .
```
[7/2/None]

```
~ 2 3 2 W R D 7 .
```
[7/2/Odd]

```
~ 2 3 2 W R D 5 .
```
[8/1/Even]

```
~ 2 3 2 W R D 2 .
```
[**8/1/None**]

```
~ 2 3 2 W R D 8 .
```
[8/1/Odd]

```
~ 2 3 2 W R D 1 4 .
```
[8/1/Mark]

RTS/CTS flow control

[RTS/CTS flow control ON, Timeout OFF]

RTS/CTS flow control ON, Timeout OFF
Reader waits for activating RTS line by host without timeout.

2 ways RTS/CTS flow control ON
Reader activates RTS line during possible to receive data and host activates CTS line during possible to receive data.

[2 ways RTS/CTS flow control ON]

[RTS/CTS flow control ON, Timeout ON]

RTS/CTS フロ-制御 有り，タイムアウト 有り
Reader waits for activating RTS line by host with timeout. Please refer to next section [RTS/CTS timeout].

RTS/CTS flow control OFF
Reader won't use any RTS/CTS flow control.

[**RTS/CTS flow control OFF**]

RTS/CTS timeout

Read [RTS/CTS timeout] command barcode below then read timeout value from numeric barcode table on next page. Once you read timeout value you want set, read [Validate] command barcode in last. Available timeout range is 1~5100 and its unit is msec.

[RTS/CTS timeout]

Ex) In case of setting 100msec, read codes by sequence below.

[RTS/CTS timeout]→[1][0][0]→[Validate]

Numeric barcode table

||||||||||||||||||||||
~   K   0   K
0

||||||||||||||||||||||
~   K   1   K
1

||||||||||||||||||||||
~   K   2   K
2

||||||||||||||||||||||
~   K   3   K
3

||||||||||||||||||||||
~   K   4   K
4

||||||||||||||||||||||
~   K   5   K
5

||||||||||||||||||||||
~   K   6   K
6

||||||||||||||||||||||
~   K   7   K
7

||||||||||||||||||||||
~   K   8   K
8

||||||||||||||||||||||
~   K   9   K
9

||||||||||||||||||||||
~ M N U S A V .
[Validate]

||||||||||||||||||||||
~ M N U A B T .
[Abort]

XON/XOFF control

Reader controls data transmission by using XON character (DC1, 11hex) and XOFF character (DC3, 13hex). Reader stops data transmission if receive XOFF character from host and re-start data transmission by receiving XON character from host.

```
~ 2 3 2 X O N 1 .
```
[XON/XOFF control ON]

```
~ 2 3 2 X O N 0 .
```
[**XON/XOFF control OFF**]

ACK/NAK handshake

Reader waits for receiving ACK(06hex) or NAK(15hex) from host after transmitting data. Reader will be ready for next read phase if receive ACK. In case of receiving NAK, reader re-transmits data to host and waits for ACK/NAK again.

```
~ 2 3 2 A C K 1 .
```
[ACK/NAK handshake ON]

```
~ 2 3 2 A C K 0 .
```
[**ACK/NAK handshake OFF**]

8. Setting related to Indicator, Reading code, Data formats

Indicator

Power up buzzer

[Power up buzzer OFF]

[**Power up buzzer ON**]

BEEP on BEL character

Reader will beep every time a BEL character is received from host.

[**BEEP on BEL character OFF**]

[BEP on BEL character ON]

BEEP on trigger click

Reader will beep every time reader's trigger is pressed.

[**BEEP on trigger click None**]

[BEEP on trigger click ON]

Good read beep

Reader will beep if read a code successfully.

[Good read beep None]

[**Good read beep ON**]

Good read beep : Volume

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
~ B E P L V L 1 .
[Small]

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
~ B E P L V L 2 .
[Medium]

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
~ B E P L V L 3 .
[**Big**]

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
~ B E P L V L 0 .
[OFF]

Good read beep : Frequency

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
~ B E P F Q 1 1 6 0 0 .
[1600Hz, Low tone]

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
~ B E P F Q 1 2 7 0 0 .
[2700Hz, Medium tone 1]

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
~ B E P F Q 1 3 0 0 0 .
[3000Hz, Medium tone 2]

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
~ B E P F Q 1 4 2 0 0 .
[**4200Hz, High tone**]
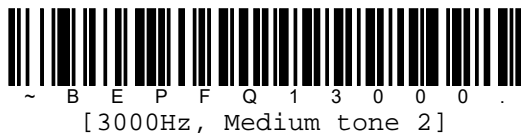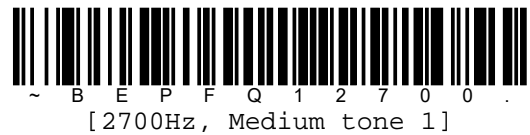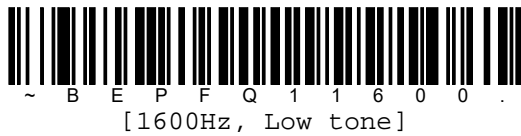
(*) if you want to setup other than above frequency, please ask your nearest dealer.

Good read beep : Duration

Good read LED will also turn on same period of time.

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
~ B E P D U R 5 0 .
[50msec]

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
~ B E P D U R 1 0 0 .
[**100msec**]

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
~ B E P D U R 5 0 0 .
[500msec]

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
~ B E P D U R 1 0 0 0 .
[1000msec]

Good read beep : Number of beeps

Read [Number of beeps] command barcode below then read number value from numeric barcode table below. Once you read number value you want set, read [Validate] command barcode in last. Available number of beeps range is 1~9 and default is 1.

```
~  B  E  P  R  P  T  .
```
[Number of beeps]

Numeric barcode table

```
~    K    0    K
```
0

```
~    K    1    K
```
1

```
~    K    2    K
```
2

```
~    K    3    K
```
3

```
~    K    4    K
```
4

```
~    K    5    K
```
5

```
~    K    6    K
```
6

```
~    K    7    K
```
7

```
~    K    8    K
```
8

```
~    K    9    K
```
9

```
~  M  N  U  S  A  V  .
```
[Validate]

```
~  M  N  U  A  B  T  .
```
[Abort]
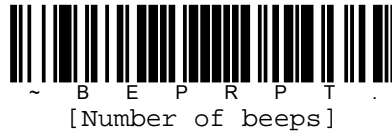
Good read delay

You can set minimum delay time to start next read phase. You can also set your favorite delay time by using [Custom good read delay] on next section.

```
~ D L Y G R D 0 .
```
[**None**]

```
~ D L Y G R D 5 0 0 .
```
[500msec]

```
~ D L Y G R D 1 0 0 0 .
```
[1000msec]

```
~ D L Y G R D 1 5 0 0 .
```
[1500msec]

Custom good read delay

Read [Custom good read delay] command barcode below then read delay time from numeric barcode table on next page. Once you read delay time you want set, read [Validate] command barcode in last. Available delay range is 1~30000 and its unit is msec.

```
~ D L Y G R D .
```
[Custom good read delay]

Ex) In case of setting 10msec, read codes by sequence below.

[Custom good read delay]→[1][0]→[Validate]

Numeric barcode table

||| | ||| || ||| |||| |||
~ K 0 K
0

||| | ||| |||| |||| || ||
~ K 1 K
1

||| | ||| |||| ||| || ||
~ K 2 K
2

||| | ||| ||| |||| ||| |
~ K 3 K
3

||| | ||| ||| ||| |||| ||
~ K 4 K
4

||| | ||| ||| |||| ||| |
~ K 5 K
5

||| | ||| ||| ||| |||| |||
~ K 6 K
6

||| | ||| ||| ||| || ||
~ K 7 K
7

||| | ||| ||| ||| ||| |||
~ K 8 K
8

||| | ||| ||| ||| ||| |||
~ K 9 K
9

|| ||| ||| |||| ||| || ||| | ||
~ M N U S A V .
[Validate]

|| | ||| || |||| | ||| ||| |||| ||
~ M N U A B T .
[Abort]

Error beep : Frequency

~ B E P F Q 2 2 5 0 .

[250Hz, Low tone]

~ B E P F Q 2 3 2 5 0 .

[3250Hz, Medium tone]

~ B E P F Q 2 4 2 0 0 .

[4200Hz, High tone]

Number of error beep

Read [Number of error beep] command barcode below then read number value from numeric barcode table in next page. Once you read number value you want set, read [Validate] command barcode in last. Available number of beeps range is 1~9 and default is 1.

Error LED will also turn on same number of times.

~ B E P E R R .

[Number of error beep]

Ex) In case of setting 9 number of error beep, read codes by sequence below.

[Number of error beep]→[9]→[Validate]

Good read LED

~ B E P L E D 1 .

[Good read LED ON]

~ B E P L E D 0 .

[Good read LED OFF]

Numeric barcode table

||| | ||| | ||| || ||| | |||
~ K 0 K
0

||| | ||| | ||| | ||| || |||
~ K 1 K
1

||| | ||| | ||| | ||| |||| |||
~ K 2 K
2

||| | ||| | ||| || ||| ||| |||
~ K 3 K
3

||| | ||| | ||| | ||| |||| |||
~ K 4 K
4

||| | ||| | ||| ||| ||| || |||
~ K 5 K
5

||| | ||| | ||| | ||| |||| |||
~ K 6 K
6

||| | ||| | ||| ||| ||| || |||
~ K 7 K
7

||| | ||| | ||| | ||| |||| |||
~ K 8 K
8

||| | ||| | ||| | ||| |||| |||
~ K 9 K
9

||| | ||| | ||| ||| ||| || ||| | |
~ M N U S A V .
[Validate]

||| | ||| | ||| ||| ||| | ||| ||| |||
~ M N U A B T .
[Abort]

Manual trigger mode

In manual mode, reader read code until code is read, or until trigger is released.

```
~ P A P H H F .
```
[Manual trigger]

LED illumination(Manual trigger mode)

You can choose one of illumination brightness for manual trigger mode by reading command barcode below.

```
~ P W R N O L 1 5 .
```
[Low]

```
~ P W R N O L 5 0 .
```
[Medium]

```
~ P W R N O L 1 5 0 .
```
[**High**]

[Note]
The LED illumination is like a flash on a camera. The lower ambient light in the room, the brighter illumination need to be so the reader can "see" the codes.

Serial trigger mode

You can activate reader either by pressing trigger or using serial command below. In serial mode, reader read code until code is read or until deactivate command is received. Reader is also able to turn off by user specific read timeout.

```
        Read start  :      SYN T CR
        Read end    :      SYN U CR

        (*) SYN=16hex, T=54hex, U=55hex, CR=0Dhex
```

Read timeout

Read [Read timeout] command barcode below then read timeout value from numeric barcode table on next page. Once you read timeout value you want set, read [Validate] command barcode in last. Available delay range is 1~30000 and its unit is msec. Default is 30000msec.
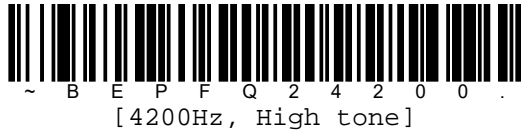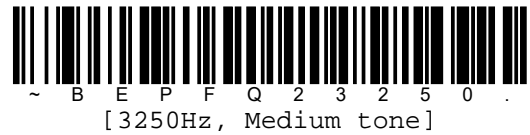
```
~ T R G S T O .
```
[Read timeout]

Ex) In case of setting 1sec, read codes by sequence below.

[Read timeout]→[1][0][0][0]→[Validate]

Numeric barcode table

|||| | ||| | || ||| | || ||| |
~   K   0   K
0

||| | ||| | || ||| || || |||
~   K   1   K
1

|||| | ||| ||| || ||| || |
~   K   2   K
2

||| | ||| |||| || || ||| |
~   K   3   K
3

|||| | ||| ||| || | || ||| |
~   K   4   K
4

||| | ||| |||| ||| || ||| |
~   K   5   K
5

|||| | ||| ||| ||| || ||| |
~   K   6   K
6

||| | ||| |||| ||| | || ||| |
~   K   7   K
7

|||| | ||| || ||| || ||| |
~   K   8   K
8

||| | ||| || ||| | || ||| |
~   K   9   K
9

||| | ||| | ||| ||| || ||| | || |
~ M N U S A V .
[Validate]

||| | ||| || ||| ||| | || ||| ||| |
~ M N U A B T .
[Abort]

Presentation mode

Presentation mode uses ambient light to detect codes. The LED dims a code is presented to reader, then the LED brighten to read the code. If light level in the room is not high enough, presentation mode mat not work properly.

Read command barcode below to enter presentation mode.

|||||| ||| ||||| ||| | |||| ||| |||| |||| ||||
~ P A P P S T .
[Presentation mode]

LED illumination(Presentation mode)

Read one of command barcode below to set LED illumination for the reader when it is in an idle state in presentation mode.

||||| || | ||| ||||| | ||| ||| || ||||| ||||
~ P W R I D L 7 .
[Low]

||| ||||| ||| | || ||||| | ||| ||| ||| ||||
~ P W R I D L 1 5 .
[Medium]

||||| || ||| || | ||| ||| | ||||| ||| ||||
~ P W R I D L 5 0 .
[**High**]

[Note]
If you use one of lower idle illumination settings, and there is not enough ambient light, reader may have difficulty detecting when a code is presented to it. If reader has difficulty "waking up" to read codes, you may need to set the idle illumination to be brighter setting. This setting does not apply to Poor quality PDF codes or mobile phone read mode.

Presentation sensitivity

Presentation sensitivity is a numeric range value that increase or decrease reader's reaction time to code presentation. Read [Presentation sensitivity] command barcode below then read sensitivity value from numeric barcode table on next page. Once you read sensitivity value you want set, read [Validate] command barcode in last. Available sensitivity range is 0~20. 0 is the most sensitive and 20 is the least sensitivity. Default is 1.

|||| ||| ||||| ||| | |||| ||| |||| || |||||
~ T R G P M S .
[Presentation sensitivity]

Numeric barcode table

```
~   K   0   K
```
0

```
~   K   1   K
```
1

```
~   K   2   K
```
2

```
~   K   3   K
```
3

```
~   K   4   K
```
4

```
~   K   5   K
```
5

```
~   K   6   K
```
6

```
~   K   7   K
```
7

```
~   K   8   K
```
8

```
~   K   9   K
```
9

```
~  M  N  U  S  A  V  .
```
[Validate]

```
~  M  N  U  A  B  T  .
```
[Abort]
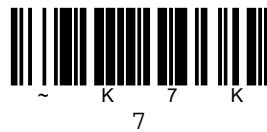
Presentation centering

Use presentation centering to narrow the reader's field of view when it is in the stand to make sure the reader reads only those codes intended by user. For instance, if multiple codes are placed closely together, presentation centering will insure that only the desired codes are read.

[Note]
To adjust centering when the reader is handheld, see [Centering(Handheld mode)] section.

If a code is not toughed by a predefined window, it will not be decoded or output by reader. If presentation centering is turned on, the reader only reads codes that pass through the centering window you specify by [Presentation centering top], [Presentation centering bottom], [Presentation centering left], [Presentation centering right].

In the example below, the white box is the centering window. The centering window has been set to 20% left, 30% right, 8% top, 25% bottom. Since Barcode 1 passes through the centering window, it will be read. Barcode 2 does not pass through the centering window, so it will not be read.
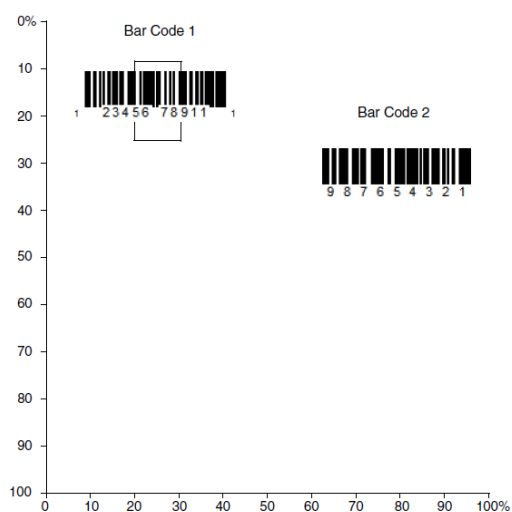
[Note]
A code needs only to be toughed by the centering window in order to be read. It does not need to pass completely through the centering window.

Default is Top=40%, Bottom=60%, Left=40%, right=60%.

[Presentation centering ON]

[Presentation centering OFF]

[Presentation centering top]

[Presentation centering bottom]

[Presentation centering left]

[Presentation centering right]

Numeric barcode table

||||| ||| ||| ||| |||
~   K   0   K
0

||||| ||| ||| ||| |||
~   K   1   K
1

||||| ||| ||| ||| |||
~   K   2   K
2

||||| ||| ||| ||| |||
~   K   3   K
3

||||| ||| ||| ||| |||
~   K   4   K
4

||||| ||| ||| ||| |||
~   K   5   K
5

||||| ||| ||| ||| |||
~   K   6   K
6

||||| ||| ||| ||| |||
~   K   7   K
7

||||| ||| ||| ||| |||
~   K   8   K
8

||||| ||| ||| ||| |||
~   K   9   K
9

||||| ||| ||| ||| |||
~ M N U S A V .
[Validate]

||||| ||| ||| ||| |||
~ M N U A B T .
[Abort]

Reading code

Poor quality 1D codes

This setting improves reader's ability to read damaged or badly printed linear codes. If this setting is ON, poor quality linear code reading is improved, but the reader's snappiness is decreased, making it less aggressive when reading good quality codes. This setting does not affect 2D code reading.

~ D E C L D I 1 .
[Poor quality 1D codes ON]

~ D E C L D I 0 .
[**Poor quality 1D codes OFF**]

Poor quality PDF codes

This setting improves reader's ability to read damaged or badly printed PDF codes by combining information from multiple images. If this setting is ON, poor quality PDF code reading is improved, but the reader's snappiness is decreased, making it less aggressive when reading good quality codes. This setting does not affect 1D code reading.

~ P D F X P R 1 .
[Poor quality PDF codes ON]

~ P D F X P R 0 .
[**Poor quality PDF codes OFF**]

Mobile phone read mode

When this mode is selected, your reader is optimized to read codes from mobile phone or other LED display. However, the speed of reading printed codes may be slightly lower when this mode is ON.

~ P A P H H C .
[Mobile phone – Handheld reading]

~ P A P P S C .
[Mobile phone – Presentation reading]

[Note]
To turn off this mode, read [Manual trigger] or [Serial trigger] command barcode.

Hands free timeout

If the reader's trigger is pulled when using a hands free mode(In other word, presentation mode), reader changes to manual mode. You can set the time the reader should remain in manual trigger mode by setting hands free timeout. Once the timeout value is reached, the reader reverts to the original hands fee mode.

Read [Hands free timeout] command barcode below then read timeout value from numeric barcode table below. Once you read timeout value you want set, read [Validate] command barcode in last. Available timeout range is 0~300000 and its unit is msec. Default is 5000msec.

‖‖‖ ‖‖‖ ‖‖‖ ‖‖‖ ‖‖‖
~ T R G P T O .
[Hands free timeout]

Numeric barcode table

‖‖‖ ‖‖‖ ‖‖‖
~ K 0 K
0

‖‖‖ ‖‖‖ ‖‖‖
~ K 1 K
1

‖‖‖ ‖‖‖ ‖‖‖
~ K 2 K
2

‖‖‖ ‖‖‖ ‖‖‖
~ K 3 K
3

‖‖‖ ‖‖‖ ‖‖‖
~ K 4 K
4

‖‖‖ ‖‖‖ ‖‖‖
~ K 5 K
5

‖‖‖ ‖‖‖ ‖‖‖
~ K 6 K
6

‖‖‖ ‖‖‖ ‖‖‖
~ K 7 K
7

‖‖‖ ‖‖‖ ‖‖‖
~ K 8 K
8

‖‖‖ ‖‖‖ ‖‖‖
~ K 9 K
9

‖‖‖ ‖‖‖ ‖‖‖
~ M N U S A V .
[Validate]

‖‖‖ ‖‖‖ ‖‖‖
~ M N U A B T .
[Abort]

Reread delay

This sets the time period before reader can read the same code a second time. Setting reread delay protects against accidental rereads of the same code. Longer delays are effective in minimizing accidental rereads. Use shorter delays in applications where repetitive code scanning required. Reread delay only works when in a presentation mode.

~ D L Y R R D 5 0 0 .
[500msec]

~ D L Y R R D 7 5 0 .
[**750msec**]

~ D L Y R R D 1 0 0 0 .
[1000msec]

~ D L Y R R D 2 0 0 0 .
[2000msec]

User-specified reread delay

Read [User-specified reread delay] command barcode below then read delay value from numeric barcode table on next page. Once you read delay value you want set, read [Validate] command barcode in last. Available delay range is 0~30000 and its unit is msec. Default is 750msec.

~ D L Y G R D .
[User-specified reread delay]

2D reread delay

Sometimes 2D codes can take longer to read than other codes. If you want to set a separate reread delay for 2D codes, read one of command barcodes below.

~ D L Y 2 R R 0 .
[**None**]

~ D L Y 2 R R 1 0 0 0 .
[1000msec]

~ D L Y 2 R R 2 0 0 0 .
[2000msec]

~ D L Y 2 R R 3 0 0 0 .
[3000msec]

~ D L Y 2 R R 4 0 0 0 .
[4000msec]

Numeric barcode table

~ K 0 K
0

~ K 1 K
1

~ K 2 K
2

~ K 3 K
3

~ K 4 K
4

~ K 5 K
5

~ K 6 K
6

~ K 7 K
7

~ K 8 K
8

~ K 9 K
9

~ M N U S A V .
[Validate]

~ M N U A B T .
[Abort]
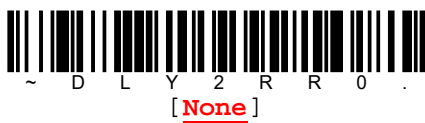
Character activation mode

You may use a character sent from host to trigger the reader to begin reading. When the activation character is received, reader continues reading until either character activation timeout, the deactivation character is received, or code is transmitted.

```
~ H S T C E N 0 .
```
[**Character activation mode OFF**]

```
~ H S T C E N 1 .
```
[Character activation mode ON]

Activation character/Deactivation character

Read [Activation character] or [Deactivation character] command barcode below then read ASCII code from HEX barcode table on next page. Once you read ASCII code you want set, read [Validate] command barcode in last.

```
~ H S T A C H .
```
[Activation character]

```
~ H S T D C H .
```
[Deactivation character]

Ex) In case of setting @(40hex) as activation character, read codes by sequence below.

[Activation character]→[4][0]→[Validate]

End character activation after good read

After a code is successfully detected and read from the reader, the illumination can be programmed either to remain on and reading, or to turn off.

```
~ H S T C G D 0 .
```
[**Illumination remains after good read**]

```
~ H S T C G D 1 .
```
[Illumination turns off after good read]

Character activation timeout

Read [Character activation timeout] command barcode below then read timeout value from HEX barcode table on next page. Once you read timeout value you want set, read [Validate] command barcode in last. Available timeout range is 0~300000 and its unit is msec. Default is 30000msec.

```
~ H S T C D T .
```
[Character activation timeout]

HEX barcode table

~ K 0 K
0

~ K 1 K
1

~ K 2 K
2

~ K 3 K
3

~ K 4 K
4

~ K 5 K
5

~ K 6 K
6

~ K 7 K
7

~ K 8 K
8

~ K 9 K
9

~ K A K
A

~ K B K
B

~ K C K
C

~ K D K
D

~ K E K
E

~ K F K
F

~ M N U S A V .
[Validate]

~ M N U A B T .
[Abort]
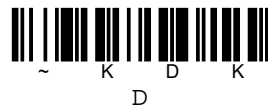
Character deactivation mode

If you have sent a character from host to trigger the reader to begin reading, you can also send a deactivation character to stop reading. If you want to use deactivation character, read [Character deactivation mode ON] command barcode below.

~ H S T D E N 0 .
[Character deactivation mode OFF]

~ H S T D E N 1 .
[Character deactivation mode ON]

Illumination Lights

If you want to use illumination light while reading a code, read [Illumination lights ON] command barcode below.

~ S C N L E D 1 .
[Illumination lights ON]

~ S C N L E D 0 .
[Illumination light OFF]

Aimer delay

The aimer delay allows a delay time for the operator to aim reader before the picture is taken. Use these command barcode to set the time between when trigger is pulled and when the picture is taken. During the delay time, the aiming light will appear, but the illumination lights won't turn on until the delay time is over.

~ S C N D L Y 2 0 0 .
[200msec]

~ S C N D L Y 4 0 0 .
[400msec]

~ S C N D L Y 0 .
[None]

User specified aimer delay

Read [User specified aimer delay] command barcode below then read delay value from numeric barcode table on next page. Once you read delay value you want set, read [Validate] command barcode in last. Available delay range is 0~4000 and its unit is msec. Default is 0msec.

~ D L Y G R D .
[User specified aimer delay]

Numeric barcode table

‖‖ ‖ ‖‖‖‖ ‖‖ ‖‖‖ ‖
~   K   0   K
0

‖‖‖ ‖ ‖‖‖‖‖ ‖‖ ‖‖‖ ‖
~   K   1   K
1

‖‖‖ ‖ ‖‖‖‖ ‖‖‖ ‖‖ ‖
~   K   2   K
2

‖‖‖ ‖ ‖‖‖ ‖‖‖‖ ‖‖ ‖
~   K   3   K
3

‖‖‖ ‖ ‖‖‖‖ ‖‖ ‖‖‖ ‖
~   K   4   K
4

‖‖‖ ‖ ‖‖‖ ‖‖‖‖ ‖‖ ‖
~   K   5   K
5

‖‖‖ ‖ ‖‖‖ ‖‖‖ ‖‖‖ ‖
~   K   6   K
6

‖‖‖ ‖ ‖‖‖ ‖‖‖‖ ‖‖ ‖
~   K   7   K
7

‖‖‖ ‖ ‖‖‖ ‖‖‖ ‖‖‖ ‖
~   K   8   K
8

‖‖‖ ‖ ‖‖‖ ‖‖‖ ‖‖‖ ‖
~   K   9   K
9

‖‖‖ ‖ ‖‖‖‖ ‖‖‖ ‖‖‖ ‖‖ ‖
~   M   N   U   S   A   V   .
[Validate]

‖‖‖ ‖ ‖‖‖‖ ‖‖‖ ‖‖ ‖‖‖ ‖‖ ‖
~   M   N   U   A   B   T   .
[Abort]
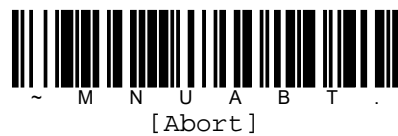
Aimer mode

This feature allows you to turn the aimer ON and OFF.

‖‖‖‖‖‖‖‖‖‖‖‖‖‖
~ S C N L E D 1 .
[Aimer OFF]

‖‖‖‖‖‖‖‖‖‖‖‖‖‖
~ S C N L E D 0 .
[**Aimer ON**]

No read message

If you want to transmit no read message [NR] to the host, read [No read message ON] command barcode below.

‖‖‖‖‖‖‖‖‖‖‖‖‖‖
~ S H W N R D 1 .
[No read message ON]

‖‖‖‖‖‖‖‖‖‖‖‖‖‖
~ S H W N R D 0 .
[**No read message OFF**]

Negative code reading

‖‖‖‖‖‖‖‖‖‖‖‖‖‖
~ V I D R E V 1 .
[Negative code reading ON]

‖‖‖‖‖‖‖‖‖‖‖‖‖‖
~ V I D R E V 2 .
[Negative+Normal code reading ON]

‖‖‖‖‖‖‖‖‖‖‖‖‖‖
~ V I D R E V 0 .
[**Negative code reading OFF**]

Centering(Handheld mode)

Use centering to narrow the reader's field of view to make sure that when the reader is handheld, it reads only those codes intended y the user. For instance, if multiple codes are placed closely together, centering will insure that only the desired codes are read.

If a code is not touched by a predefined window, it will not be decoded or output by the reader. If centering is turned on by reading [Centering ON], the reader only reads codes that pass through the centering window you specify using the [centering top] and [centering bottom] command barcodes.

In the example below, the white box is the centering window. The centering window has been set to 8% top and 25% bottom. Since BarCode1 passes through the centering window, it will be read. BarCode2 does not pass through the centering window, so it will not be read.

A code needs only to be touched by the centering window in order to be read. It does not need to pass completely through the centering window.
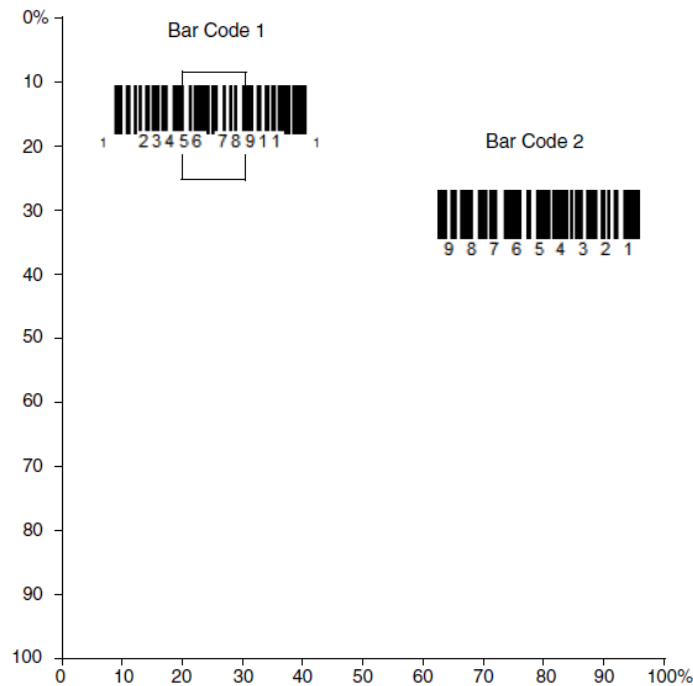
Read [Centering top] or [Centering bottom] command barcode below then read value from numeric barcode table on next page. Once you read value you want set, read [Validate] command barcode in last. Default is top=40%, bottom60%.

~ D E C W I N 1 .
[Centering ON]

~ D E C W I N 0 .
[**Centering OFF**]

~ D E C T O P .
[Centering top]

~ D E C B O T .
[Centering bottom]

Numeric barcode table

```
~    K    0    K
```
0

```
~    K    1    K
```
1

```
~    K    2    K
```
2

```
~    K    3    K
```
3

```
~    K    4    K
```
4

```
~    K    5    K
```
5

```
~    K    6    K
```
6

```
~    K    7    K
```
7

```
~    K    8    K
```
8

```
~    K    9    K
```
9

```
~  M  N  U  S  A  V  .
```
[Validate]

```
~  M  N  U  A  B  T  .
```
[Abort]
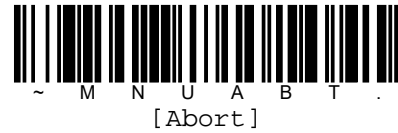
Working orientation

Some codes are direction sensitive. For example, KIX codes and OCR can misread when read sideways or upside down. Use the working orientation settings if your direction sensitive codes will not usually be presented upright to the reader.

Upright:

Upside Down:

Vertical, Top to Bottom:
(Rotate CW 90°)

Vertical, Bottom to Top:
(Rotate CCW 90°)

~ R O T S T N 0 .
[**Upright**]

~ R O T S T N 1 .
[Vertical, bottom to top]

~ R O T S T N 2 .
[Upside down]

~ R O T S T N 3 .
[Vertical, top to bottom]
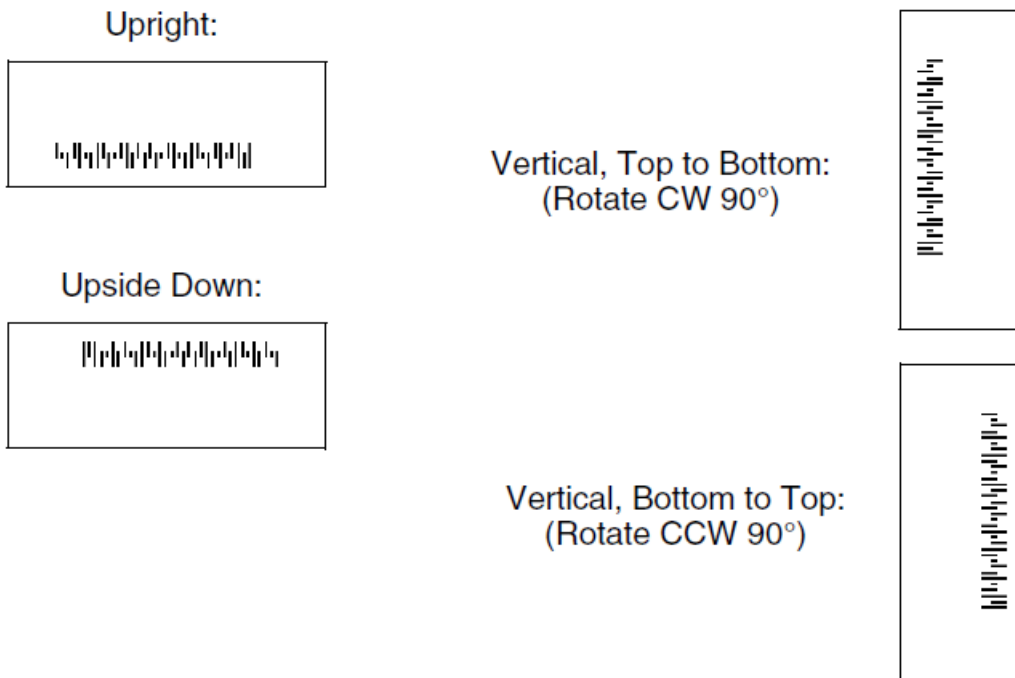
Data formats

Prefix/Suffix overview

Prefix and suffix are data characters that can be sent before and after read data. You can specify if they should be sent with all symbologies, or only with specific symbologies. The following shows basic data format structure.

Prefix (Default None)	Read data	Suffix (Default None)

You can set 200 characters maximum to both prefix and suffix.

Quick setting(Suffix Enter)

Read command barcode below to set suffix to Enter for all symbologies.

```
~ V S U F C R .
```
[Suffix Enter for all symbologies]

(*) In case of RS232C/USB COM emulation interface, reader will send CR(0Dhex) to the host instead of Enter key.

Setting of prefix and suffix

Read [Add prefix] or [Add suffix], then read value correspond to specific symbologies from HEX barcode table on next page. You can refer to [Appendix A. Symbologies table] to find the value. Next, read string you want to set by ASCII code and [Validate] barcode in last.

```
~ P R E B K 2 .
```
[Add prefix]

```
~ P R E C L 2 .
```
[Clear one prefix]

```
~ P R E C A 2 .
```
[Clear all prefixes]

```
~ S U F B K 2 .
```
[Add suffix]

```
~ S U F C L 2 .
```
[Clear one suffix]

```
~ S U F C A 2 .
```
[Clear all suffix]

Ex1)Set prefix "ABC" to all symbologies(99hex).

[Add prefix]→[9][9][4][1][4][2][4][3]→[Validate]

Ex2)Set standard code ID to all symbologies(99hex).

[Add prefix]→[9][9][5][C][8][0]→[Validate]

Ex3)Clear all suffix of code 39(62hex).

[Clear all suffix]→[6][2]

HEX barcode table

~ K 0 K
0

~ K 1 K
1

~ K 2 K
2

~ K 3 K
3

~ K 4 K
4

~ K 5 K
5

~ K 6 K
6

~ K 7 K
7

~ K 8 K
8

~ K 9 K
9

~ K A K
A

~ K B K
B

~ K C K
C

~ K D K
D

~ K E K
E

~ K F K
F

~ M N U S A V .
[Validate]

~ M N U A B T .
[Abort]

Function code transmission

When this setting is ON and function codes are contained within the read data, reader transmit the function code to host. Charts of these function codes are provided in [Appendix B. ASCII code conversion table].

|||||||||
~ R M V F N C 0 .
[**Function code transmission ON**]

|||||||||
~ R M V F N C 1 .
[Function code transmission OFF]

Intercharacter delay

Read [Intercharacter delay] command barcode below then read delay value from HEX barcode table on next page. Once you read delay value you want set, read [Validate] command barcode in last. Available delay range is 0~1000(=0~5000msec) and its unit is in 5msec.

|||||||||
~ D L Y C H R .
[Intercharacter delay]

Prefix	Scanned Data	Suffix

1 2 3 4 5
Intercharacter Delay
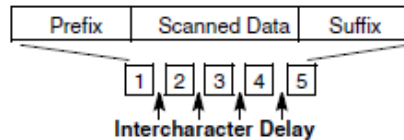
Ex)In case of setting 4sec(4000msec).

[Intercharacter delay]→[8][0][0]→[Validate]

[Note]
Intercharacter delay does not affect in USB COM emulation interface. If you want to set no delay, simply set Zero.

User specified intercharacter delay

This delay is only placed after transmission of a specified character of read data. Read [specified character delay] command barcode below then read delay value from HEX barcode table on next page. Once you read delay value you want set, read [Validate] command barcode in last. Available delay range is 0~1000(=0~5000msec) and its unit is in 5msec.

|||||||||
~ D L Y C R X .
[Specified character delay]

Read [Specified character] command barcode below then read ASCII code from HEX barcode table on next page. Once you read ASCII code you want set, read [Validate] command barcode in last.

|||||||||
~ D L Y _ X X .
[Specified character]

HEX barcode table

‖‖‖ ‖ ‖‖‖ ‖‖‖ ‖‖ ‖‖‖ ‖‖‖
~   K   0   K
0

‖‖‖ ‖ ‖‖‖ ‖‖‖ ‖‖ ‖‖‖ ‖‖‖
~   K   1   K
1

‖‖‖ ‖ ‖‖‖ ‖‖‖ ‖‖ ‖‖‖ ‖‖‖
~   K   2   K
2

‖‖‖ ‖ ‖‖‖ ‖‖‖ ‖‖‖ ‖‖ ‖‖‖
~   K   3   K
3

‖‖‖ ‖ ‖‖‖ ‖‖‖ ‖‖ ‖‖‖ ‖‖‖
~   K   4   K
4

‖‖‖ ‖ ‖‖‖ ‖‖‖ ‖‖‖ ‖‖ ‖‖‖
~   K   5   K
5

‖‖‖ ‖ ‖‖‖ ‖‖‖ ‖‖ ‖‖ ‖‖‖
~   K   6   K
6

‖‖‖ ‖ ‖‖‖ ‖‖‖ ‖‖‖ ‖‖ ‖‖‖
~   K   7   K
7

‖‖‖ ‖ ‖‖‖ ‖‖‖ ‖‖ ‖‖‖ ‖‖‖
~   K   8   K
8

‖‖‖ ‖ ‖‖‖ ‖‖‖ ‖‖‖ ‖‖‖ ‖‖
~   K   9   K
9

‖‖‖ ‖ ‖‖‖ ‖‖‖ ‖‖ ‖‖‖ ‖‖‖
~   K   A   K
A

‖‖‖ ‖ ‖‖‖ ‖‖‖ ‖‖ ‖‖ ‖‖‖
~   K   B   K
B

‖‖‖ ‖ ‖‖‖ ‖ ‖‖‖ ‖‖ ‖‖‖
~   K   C   K
C

‖‖‖ ‖ ‖‖‖ ‖‖ ‖ ‖‖‖ ‖‖‖
~   K   D   K
D

‖‖‖ ‖ ‖‖‖ ‖‖‖ ‖‖ ‖‖‖ ‖‖
~   K   E   K
E

‖‖‖ ‖ ‖‖‖ ‖‖‖ ‖‖‖ ‖‖ ‖‖
~   K   F   K
F

‖‖‖ ‖ ‖‖‖‖‖ ‖‖ ‖‖‖ ‖ ‖‖‖ ‖ ‖
~   M   N   U   S   A   V   .
[Validate]

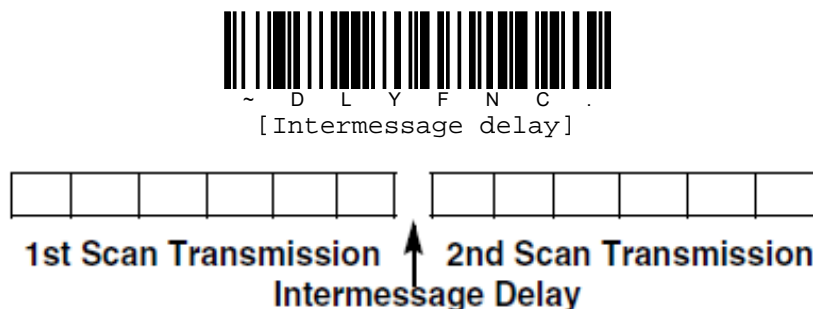‖‖‖ ‖ ‖‖‖‖ ‖‖‖ ‖‖ ‖‖ ‖‖‖ ‖‖‖ ‖‖
~   M   N   U   A   B   T   .
[Abort]

Interfunction delay

This delay is placed between the transmission of each control character in the massage string. Read [Interfunction delay] command barcode below then read delay value from Numeric barcode table on next page. Once you read delay value you want set, read [Validate] command barcode in last. Available delay range is 0~1000(=0~5000msec) and its unit is in 5msec.

~ D L Y F N C .
[Interfunction delay]

Prefix	Scanned Data	Suffix

STX	1	HT	2	3	4	5	CR	LF

Interfunction Delays
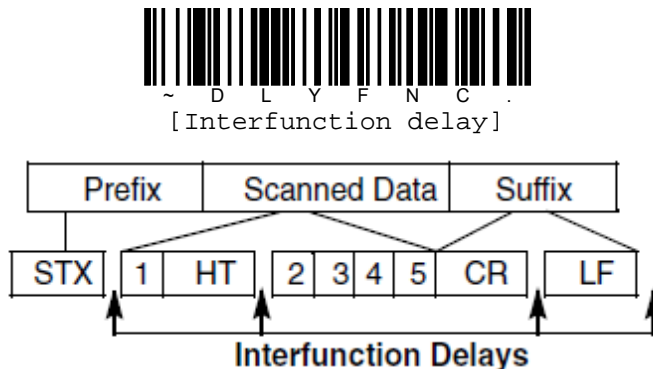
Intermessage delay

This delay is placed between each read data transmission. Read [Intermessage delay] command barcode below then read delay value from Numeric barcode table on next page. Once you read delay value you want set, read [Validate] command barcode in last. Available delay range is 0~1000(=0~5000msec) and its unit is in 5msec.

~ D L Y F N C .
[Intermessage delay]

1st Scan Transmission **2nd Scan Transmission**
Intermessage Delay

Numeric barcode table

||||| |||| ||| ||||| ||
~   K   0   K
0

||| ||||| |||| ||||| |||
~   K   1   K
1

||| |||| ||||| |||| |||
~   K   2   K
2

|| ||||| |||| |||| |||
~   K   3   K
3

||| |||| ||||| |||| |||
~   K   4   K
4

||| | ||||| |||| |||| |||
~   K   5   K
5

||| ||||| |||| ||| |||
~   K   6   K
6

||| | ||||| |||| ||| |||
~   K   7   K
7

||| ||||| |||| ||||| |||
~   K   8   K
8

||| | ||||| |||| |||| |||
~   K   9   K
9

||| ||||| ||||| |||| || |
~ M N U S A V .
[Validate]

||| ||||| ||||| |||| ||| |||
~ M N U A B T .
[Abort]

Data formatting

You may use the data format editor to change the reader's output. For example, you can use the data format editor to insert characters at certain points in code data as it is read. The selections in the following pages are used only if you wish to alter the output. Default data format setting is None.

Normally, when you scan a code, it is output automatically. However, when you create a format, you must use a "Send" command within the format program to output data.

Multiple formats may be programmed into the reader. They are stacked in the order in which they are entered. However, the following list presents the order in which formats applied.

1. Specific terminal ID, Actual code ID, Actual length
2. Specific terminal ID, Actual code ID, Universal length
3. Specific terminal ID, Universal code ID, Actual length
4. Specific terminal ID, Universal code ID, Universal length
5. Universal terminal ID, Actual code ID, Actual length
6. Universal terminal ID, Actual code ID, Universal length
7. Universal terminal ID, Universal code ID, Actual length
8. Universal terminal ID, Universal code ID, Universal length

The maximum size of a data format configuration is 2000 bytes, which includes header information.
If a code is read that fails the first data format, the next data format, if there is one, will be used on the code data. If there is no other data format, the raw data is output. If you have changed data format setting, and wish to clear all formats and return to the factory defaults, scan the [Default data format] command barcode below.

[Default data format]

Terminal ID table

Terminal	Model	Terminal ID
USB	PC keyboard(HID)	124
	MAC keyboard	125
	PC keyboard(Japanese)	134
	USB COM emulation	130
	HID POS	131
	USB SurePOS Handheld	128
	USB SurePOS Tabletop	129
Serial	RS232 TTL	000
	RS232 True	000
	RS485(IBM-HHBCR 1+2, 46xx)	051
Keyboard	PS2 compatible	003
	AT compatible	002

Add a data format

Please follow steps below.

1. Read [Enter data format] command barcode.
2. Select Primary/Alternate format.
   Determine if this will be your primary data format, or one of 3 alternate formats. This allows you to save a total of 4 different data formats. To program your primary format, read [0] using HEX barcode table. If you are programming an alternate format, read [1], [2] or [3], depending on which alternate format you are programming.
3. Terminal type
   Refer to terminal ID table on previous page and locate the terminal ID number for your PC. Read three numeric number barcodes from HEX barcode table to program the reader for your terminal ID. For example, read [0][0][3] for an AT wedge.
4. Code ID
   In the [Appendix A. Symbologies table], find the symbology to which you want to apply the data format. Locate the HEX value for that symbology and read the 2 digit HEX value from HEX barcode table.
   If you want to create a data format for all symbologies, with the exception of some specific symbologies, refer to [B8] command.
   [Note] 99 indicates all symbologies.
5. Specify what length(Up to 9999 characters) of data will be acceptable to this symbology. Read the four digit data length from HEX barcode table. For example, 50 characters is entered as [0][0][5][0].
   [Note] 9999 indicates all symbologies.
6. Editor command
   Refer to [Data format editor command]. Read the symbols that represent the command you want to enter.
7. Read [Save] to save your data format, or [Discard] to exit without saving your changes.

Clear one data format

This deletes one data format for one symbology. If you are clearing the primary format, read [0] from HEX barcode table. If you are clearing an alternate format, read [1], [2], or [3], depending on the format you are clearing. Read terminal type and code ID and code length for the specific data format that you want to delete. All other formats remain unaffected.

Clear all data formats

This cleans all data formats.

~ D F M B K 3 .
[Enter data format]

~ D F M C L 3 .
[Clear one data format]

~ D F M C A 3 .
[Clear all data format]

~ M N U S A V .
[Save]

~ M N U A B T .
[Discard]

Data format editor commands

When working with data format editor, a virtual cursor is moved along your input data string. The following commands are used to both move this cursor to different positions and to select, replace, and insert data into the final output.

Send command

F1xx	**Send all characters** Include in the output message all of the characters from the input message, starting from current cursor position, followed by an insert character. SYNTAX=F1xx where xx stands for the insert character's HEX value for its ASCII code. Refer to [Appendix B. ASCII code conversion table].
F2nnxx	**Send a number of characters** Include in the output message a number of characters followed by an insert character. Start from the current cursor position and continue for nn characters or though the last character in the input message, followed by character xx. SNTAX=F2nnxx where nn stand for the numeric value (00-99) for the number of characters, and xx stands for the insert character's HEX value for its ASCII code. Refer to [Appendix B. ASCII code conversion table].

Ex) Code data = "123456890". If you want to send it as first 5 digits followed by CR(0dhex) and the rest data followed by CR(0Dhex), command will be below.

    Command   :   F2100DF10D

Transmission results
12345<CR>
67890<CR>

  F2=Command, 10=10digits, 0D=CR, F1=Command, 0D=

F3ssxx	**Send all characters up to a particular character** Include in the output message all characters from the input message, starting with the character at the current cursor position and continuing to, but not including, the search character ss, followed by an insert character. The cursor is moved forward to the ss character. SYNTAX=F3xxxx where ss stands for the search character's HEX value for its ASCII code, and xx stands for the insert character's HEX value for its ASCII code. Refer to [Appendix B. ASCII code conversion table].

Ex) Code data = "123456890". In case of sending data from first digit to until finding a character [4] followed by CR(0Dhex), command will be below.

    Command   :   F3340D

Transmission results
123<CR>

  F3=Command, 34=[4], 0D=CR

B9nnnns…s	**Send all characters up to a string** Include in the output message all characters from the input message, starting with the character at the current cursor position and continuing to, but not including, the search string s…s. The cursor is moved forward to the beginning of the s…s string. SYNTAX=B9nnnns…s where nnnn stands for the length of the string, and s…s stands for the string to be matched. The string is made up of HEX values for the characters in the string. Refer to [Appendix B. ASCII code conversion table].

Ex) Code data = "123456890". In case of sending data from first digit to until finding a string [45], command will be below.

    Command   :   B900023435

Transmission results
123<CR>

  B9=Command, 0002=2digit, 3435=[45]

HEX barcode table

‖‖‖ ‖ ‖‖‖ ‖‖‖ ‖‖‖ ‖ ‖‖‖
~   K   0   K
0

‖‖ ‖ ‖‖‖ ‖‖‖ ‖‖ ‖‖‖‖ ‖‖
~   K   1   K
1

‖‖ ‖ ‖‖‖ ‖‖‖ ‖‖ ‖‖‖ ‖‖
~   K   2   K
2

‖‖ ‖ ‖‖‖ ‖‖ ‖‖‖ ‖‖ ‖‖
~   K   3   K
3

‖‖ ‖ ‖‖‖ ‖‖‖ ‖‖ ‖ ‖‖
~   K   4   K
4

‖‖ ‖ ‖‖‖ ‖‖‖ ‖‖ ‖‖ ‖‖‖
~   K   5   K
5

‖‖ ‖ ‖‖‖ ‖‖ ‖‖‖ ‖‖ ‖
~   K   6   K
6

‖‖ ‖ ‖‖‖ ‖‖ ‖‖‖ ‖‖ ‖‖
~   K   7   K
7

‖‖ ‖ ‖‖‖ ‖‖ ‖‖ ‖‖ ‖
~   K   8   K
8

‖‖ ‖ ‖‖‖ ‖‖‖ ‖‖ ‖‖‖ ‖
~   K   9   K
9

‖ ‖ ‖‖‖ ‖‖ ‖ ‖‖ ‖‖
~   K   A   K
A

‖‖ ‖ ‖‖‖ ‖‖ ‖ ‖‖ ‖‖‖
~   K   B   K
B

‖‖ ‖ ‖‖ ‖ ‖‖ ‖‖ ‖
~   K   C   K
C

‖‖ ‖ ‖‖‖ ‖‖‖ ‖ ‖‖ ‖‖‖
~   K   D   K
D

‖‖ ‖ ‖‖ ‖ ‖‖ ‖‖ ‖‖
~   K   E   K
E

‖‖ ‖ ‖‖‖ ‖ ‖‖ ‖‖ ‖‖‖
~   K   F   K
F

‖‖ ‖ ‖‖‖ ‖‖ ‖‖ ‖‖ ‖ ‖
~   M   N   U   S   A   V   .
[Validate]

‖‖ ‖ ‖‖‖ ‖‖ ‖‖ ‖‖ ‖‖ ‖‖‖
~   M   N   U   A   B   T   .
[Abort]

E9nn	**Send all but the last characters** Include in the input message all but the last nn characters, starting from the current cursor position. The cursor is moved forward to one position past the last input message character included. SYNTAX=E9nn where nn stands for the numeric value (00-99) for the number of characters that will not be sent at the end of the message.
F4xxnn	**Insert a character multiple times** Send xx character nn times in the output message, leaving the cursor in the current position. SYNTAX=F4xxnn where xx stands for the insert character's HEX value for its ASCII code, and nn is the numeric value (00-99) for the number of times it should be sent. Refer to [Appendix B. ASCII code conversion table].

Ex) Code data = "123456890". In case of sending all data except for the last 2 digits data followed by CR(0Dhex), command will be below.

    Command   :   E902F40902

Transmission results
12345678<TAB><TAB>

    E9=Command, 02=2digits, F4=Command, 09=TAB, 02=2times

BAnnnns…s	**Insert a string** Send s…s string of nnnn length in the output message, leaving the cursor in the current position. SYNTAX=BAnnnns…s where nnnn stands for the length of the string, and s…s stands for the string. The string is made up of HEX values for the characters in the string. Refer to [Appendix B. ASCII code conversion table].

Ex) Code data = "123456890". In case of sending data from first digit to until finding a string [45] followed by **, command will be below.

    Command   :   B900023435BA00022A2A

Transmittion results
123**

    B9=Command, 0002=2digit, 3435=45, BA=Command, 2A2A=[**]

B3	**Insert symbology name** Insert the name of the symbology in the output message, without moving the cursor. Refer to [Appendix A. Symbologies table].
B4	**Insert code length** Insert code length in the output message, without moving the cursor. The length is expressed as a number string and does not include leading zeros.

Ex) Code data = Code 128 "123456890". In case of sending symbology name and code length before data followed by CR(0Dhex), command will be below.

    Command   :   B3B4F10D

Transmission result.
Code128101234567890<CR>

    B3=Command, B4=Command, F1=Command, 0D=<CR>

HEX barcode table

‖‖‖ ‖ ‖‖‖‖ ‖‖ ‖‖‖ ‖‖ ‖‖‖ ‖‖
~ K 0 K
0

‖‖ ‖ ‖‖‖‖ ‖‖‖ ‖‖ ‖‖‖ ‖‖
~ K 1 K
1

‖‖ ‖ ‖‖‖‖ ‖‖‖ ‖‖ ‖‖‖ ‖‖
~ K 2 K
2

‖‖ ‖ ‖‖‖‖ ‖‖‖ ‖‖ ‖‖‖ ‖‖
~ K 3 K
3

‖‖ ‖ ‖‖‖‖ ‖‖‖ ‖‖ ‖‖‖ ‖‖
~ K 4 K
4

‖‖ ‖ ‖‖‖‖ ‖‖‖ ‖‖ ‖‖‖ ‖‖
~ K 5 K
5

‖‖ ‖ ‖‖‖‖ ‖‖‖ ‖‖ ‖‖‖ ‖‖
~ K 6 K
6

‖‖ ‖ ‖‖‖‖ ‖‖‖ ‖‖ ‖‖‖ ‖‖
~ K 7 K
7

‖‖ ‖ ‖‖‖‖ ‖‖‖ ‖‖ ‖‖‖ ‖‖
~ K 8 K
8

‖‖ ‖ ‖‖‖‖ ‖‖‖ ‖‖ ‖‖‖ ‖‖
~ K 9 K
9

‖‖ ‖ ‖‖‖‖ ‖‖‖ ‖‖ ‖‖‖ ‖‖
~ K A K
A

‖‖ ‖ ‖‖‖‖ ‖‖‖ ‖‖ ‖‖‖ ‖‖
~ K B K
B

‖‖ ‖ ‖‖‖‖ ‖‖‖ ‖‖ ‖‖‖ ‖‖
~ K C K
C

‖‖ ‖ ‖‖‖‖ ‖‖‖ ‖‖ ‖‖‖ ‖‖
~ K D K
D

‖‖ ‖ ‖‖‖‖ ‖‖‖ ‖‖ ‖‖‖ ‖‖
~ K E K
E

‖‖ ‖ ‖‖‖‖ ‖‖‖ ‖‖ ‖‖‖ ‖‖
~ K F K
F

‖‖ ‖‖ ‖‖‖‖ ‖‖‖ ‖‖ ‖‖‖ ‖‖
~ M N U S A V .
[Validate]

‖‖ ‖‖ ‖‖‖‖ ‖‖‖ ‖‖ ‖‖‖ ‖‖
~ M N U A B T .
[Abort]

B5xxssnn	**Insert key strokes** Insert a key stroke or combination of key strokes. Key strokes are dependent on your keyboard. Any key can be inserted, including arrows and functions. SYNTAX=B5xxssnn where xx is the number of keys pressed (without key modifier), ss is the key modifier from table below, and nn is the key number from [Appendix C. Key number table].

Key modifier table	
None	00
Left Shift	01
Right Shift	02
Left Alt	04
Right Alt	08
Left Ctrl	10
Right Ctrl	20

Ex) In case of sending [A] of 104AT keyboard(USA, Caps Lock Status=OFF)

   Command   :   B501021F

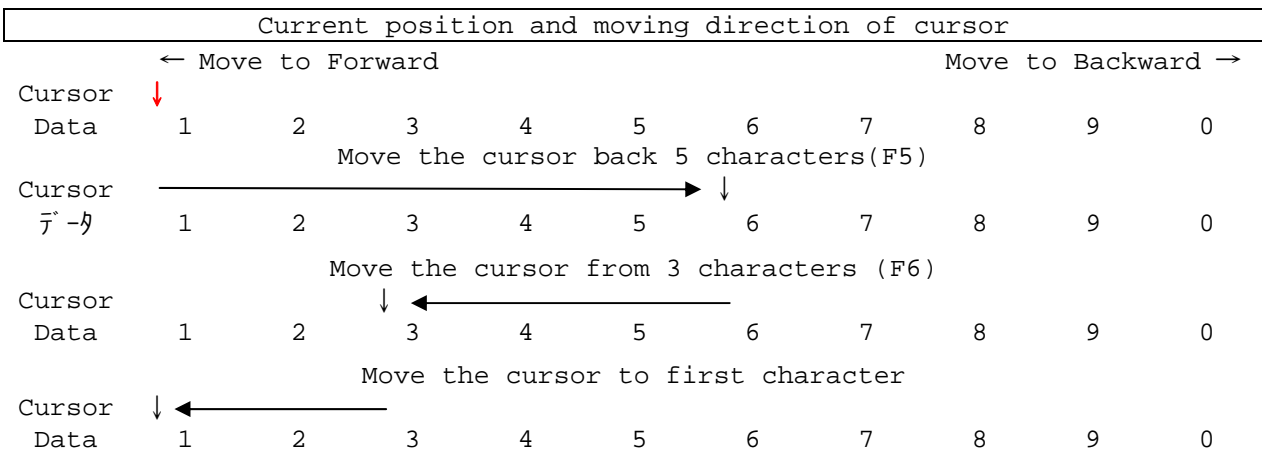   B5=Command, 01=1digit, 02=Right Shift, 1F=[a] (Right Shift+a=[A])

Move commands

F5nn	**Move the cursor forward a number of characters** Move the cursor ahead nn characters from current cursor position. SYNTAX=F5nn where nn is the number value (00-99) for the number of characters the cursor should be moved ahead.
F6nn	**Move the cursor back ward a number of characters** Move the cursor back nn characters from current position. SYNTAX=F6nn where nn is the numeric value (00-99) for the number of characters the cursor should be moved back.
F7	**Move the cursor to the beginning** Move the cursor to the first character in the input message. SYNTAX=F7.
EA	**Move the cursor to the end** Move the cursor to the last character in the input message. SYNTAX=EA.

Ex) Code data = "123456890". Move the cursor forward 3 characters, then send all code data from the current cursor position followed by CR(0Dhex).

   Command   :   F503F10D   Transmission results.
                                     4567890<CR>

   F5=Command, 03=3digits, F1=Command, 0D=CR

Explanation of the direction of cursor moving

Current position and moving direction of cursor

```
        ← Move to Forward                         Move to Backward →
Cursor   ↓
 Data    1    2    3    4    5    6    7    8    9    0
              Move the cursor back 5 characters(F5)
Cursor   ──────────────────────────►  ↓
 データ    1    2    3    4    5    6    7    8    9    0
              Move the cursor from 3 characters (F6)
Cursor                  ↓ ◄───────────
 Data    1    2    3    4    5    6    7    8    9    0
              Move the cursor to first character
Cursor   ↓ ◄───────────
 Data    1    2    3    4    5    6    7    8    9    0
```

HEX barcode table

‖‖‖ ‖ ‖‖‖ ‖‖ ‖‖ ‖ ‖‖ ‖‖ ‖‖‖ ‖‖
~   K   0   K
0

‖‖ ‖ ‖‖‖ ‖‖‖ ‖‖ ‖‖ ‖‖‖ ‖‖ ‖‖
~   K   1   K
1

‖‖‖ ‖ ‖‖‖ ‖‖ ‖‖‖ ‖‖ ‖‖‖ ‖‖ ‖
~   K   2   K
2

‖‖ ‖ ‖‖‖ ‖‖‖ ‖‖ ‖‖ ‖‖‖ ‖‖ ‖‖
~   K   3   K
3

‖‖‖ ‖ ‖‖‖ ‖‖‖ ‖‖ ‖‖ ‖ ‖‖ ‖
~   K   4   K
4

‖‖ ‖ ‖‖‖ ‖‖‖ ‖‖ ‖‖ ‖‖‖ ‖‖ ‖‖
~   K   5   K
5

‖‖‖ ‖ ‖‖‖ ‖‖ ‖‖ ‖ ‖‖ ‖ ‖‖‖
~   K   6   K
6

‖‖ ‖ ‖‖‖ ‖‖‖ ‖‖ ‖‖ ‖‖‖ ‖ ‖‖‖
~   K   7   K
7

‖‖‖ ‖ ‖‖‖ ‖‖‖ ‖‖ ‖‖ ‖ ‖‖ ‖‖‖
~   K   8   K
8

‖‖ ‖ ‖‖‖ ‖‖‖ ‖‖ ‖‖ ‖‖‖ ‖‖ ‖
~   K   9   K
9

‖‖‖ ‖ ‖‖‖ ‖‖ ‖‖‖ ‖‖ ‖‖ ‖ ‖‖
~   K   A   K
A

‖‖ ‖ ‖‖‖ ‖‖ ‖‖ ‖‖‖ ‖‖ ‖‖ ‖‖‖
~   K   B   K
B

‖‖ ‖ ‖‖‖ ‖‖ ‖ ‖‖ ‖‖ ‖‖‖ ‖‖
~   K   C   K
C

‖‖‖ ‖ ‖‖‖ ‖‖‖ ‖ ‖‖ ‖‖‖ ‖‖ ‖‖
~   K   D   K
D

‖‖‖ ‖ ‖‖‖ ‖‖ ‖ ‖‖‖ ‖‖ ‖‖‖
~   K   E   K
E

‖‖ ‖ ‖‖‖ ‖ ‖‖ ‖‖ ‖‖ ‖‖‖ ‖‖
~   K   F   K
F

‖‖ ‖‖ ‖‖‖ ‖‖ ‖‖ ‖ ‖‖‖ ‖ ‖ ‖‖
~ M N U S A V .
[Validate]

‖‖ ‖‖ ‖‖‖ ‖‖ ‖‖ ‖‖‖ ‖‖ ‖‖‖ ‖‖ ‖
~ M N U A B T .
[Abort]

Search commands

F8xx	**Search forward for a character** Search the input message forward for xx character from the current cursor position, leaving the cursor pointing to the xx character. SYNTAX=F8xx where xx stands for the search character's HEX value for its ASCII code. Refer to [Appendix B. ASCII code conversion table].
F9xx	**Search backward for a character** Search the input message backward for xx character from the current cursor position, leaving cursor pointing to the xx character. SYNTAX=F9xx where xx stands for the search character's HEX value for its ASCII code. Refer to [Appendix B. ASCII code conversion table].

Ex) Code data = "123456890". Search forward for the character [4] and send all the data that follows, including the [4].

    Command   :   F834F10D

Transmission results
4567890<CR>

   F8=Command, 34=[4], F1=Command, 0D=CR

B0nnnns…s	**Search forward for a string** Search forward for s string from the current cursor position, leaving cursor pointing to s string. SYNTAX=B0nnnns…s where nnnn is the string length 8up to 9999), and s…s consists of the ASCII HEX value of each character in the match string.
B1nnnns…s	**Search backward for a string** Search backward for s string from the current cursor position, leaving cursor pointing to s string. SYNTAX=B1nnnns…s where nnnn is the string length 8up to 9999), and s…s consists of the ASCII HEX value of each character in the match string.

Ex) Code data = "123456890". Search forward for the string [45] and send all the data that follows, including the [45].

    Command   :   B000023435F10D

Transmittion results
4567890<CR>

   B0=Command, 0002=2digits, 3435=[45], F1=Command, 0D=CR

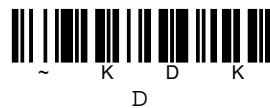|	
E6xx	**Search forward for a non-matching character** Search the input message forward for the first non-xx character from the current cursor position, leaving the cursor pointing to the non-xx character. SYNTAX=E6xx where xx stands for the search character's HEX value for its ASCII code.
E7xx	**Search backward for a non-matching character** Search the input message backward for the first non-xx character from the current cursor position, leaving the cursor pointing to the non-xx character. SYNTAX=E7xx where xx stands for the search character's HEX value for its ASCII code.

例) Code data = "0000012345". Search backward for the character [0] and send all the data that follows, not including the [0].

    Command   :   E630F10D

Transmission results
12345<CR>

   F6=Command, 30=[0], F1=Command, 0D=CR

HEX barcode table

||| | ||| | |||| ||| | ||| ||| | |||
~   K   0   K
0

||| | |||| ||| |||| ||| |||| ||| |||
~   K   1   K
1

||| | ||| |||| ||| |||| ||| |||| ||| |||
~   K   2   K
2

||| | |||| ||| |||| ||| ||| ||| ||
~   K   3   K
3

||| | |||| ||| ||| ||| ||| ||| |
~   K   4   K
4

||| | |||| ||| |||| ||| ||| || |||
~   K   5   K
5

||| | |||| ||| ||| || |||| ||
~   K   6   K
6

||| | |||| ||| |||| ||| ||| || |||
~   K   7   K
7

||| | |||| ||| ||| || ||| ||| |||
~   K   8   K
8

||| | |||| ||| ||| ||| ||| |||| |
~   K   9   K
9

||| | |||| || ||| ||| ||| ||| |
~   K   A   K
A

||| | |||| ||| | ||| ||| ||| |||
~   K   B   K
B

||| | |||| ||| | ||| ||| ||| |||
~   K   C   K
C

||| | |||| ||| | ||| ||| ||| |||
~   K   D   K
D

||| | |||| ||| ||| ||| ||| |||
~   K   E   K
E

||| | |||| ||| | ||| ||| ||| |||
~   K   F   K
F

||| | ||||| ||| | ||| ||| | ||| | ||| |
~ M N U S A V .
[Validate]

||| | |||| ||| ||| ||| ||| |||| ||| | |||
~ M N U A B T .
[Abort]

Miscellaneous commands

FBnnxx..zz	**Suppress characters** Suppress all occurrences of up to 15 different characters, starting at the current cursor position, as the cursor is advanced by other commands. When the FC command is encountered, the suppress function is terminated. The cursor is not moved by the FB command. SYNTAX=FBnnxx..zz where nn is a count of the number of suppressed characters in the list, and xx..zz is the list of characters to be suppressed.
FC	**Stop suppressing characters** Disable suppress filter and clear all suppressed characters. SYNTAX=FC.

Ex) Code data = "123@456@890". In case of suppressing [@].

    Command   :   FB0140F10D   <u>Transmission results</u>
                                          1234567890<CR>

    FB=Command, 01=1Character, 40=[@], F1=Command, 0D=CR

E4nnxx1xx2yy1yy2…zz1zz2	**Replace characters** Replaces up to 15 characters in the output message, without moving the cursor. Replacement continues until the E5 command is encountered. SYNTAX= E4nnxx1xx2yy1yy2…zz1zz2 where nn is the total count of the number of characters in the list (character to be replaced plus replacement characters); xx1 defines character to be replaced and xx2 defines replacement characters, counting through zz1 and zz2. If the code data has characters that the host application does not want included, you can use the E4 command to replace those characters with something else.
E5	Stop replacing characters Terminates character replacement. SYNTAX=E5.

Ex) Code data = "123@456@890". In case of replacing [0] by [@].

    Command   :   E4023040F10D   <u>Transmission results</u>
                                          1@2@3@4<CR>

    E4=Command, 02=2characters, 30=[0], 40=[@], F1=Command, 0D=CR

FExx	**Compare characters** Compare the character in the current cursor position to the character xx. If characters are equal, move the cursor forward one position. SYNTAX=FExx where xx stands for the comparison character's HEX value for its ASCII code.
B2nnnns…s	**Compare string** Compare the string in the input message to the string s…s. If the strings are equal, move the cursor forward past the end of the string. SYNTAX= B2nnnns…s where nnnn is the string length (up to 9999), and s…s consists of the ASCII HEX value of each character in the matching list.

Ex) In case of comparing the string [Test] at the current cursor position.

    Command   :   B2000454657374

    B2=Command, 0004=4digits, 54657374=[Test]

HEX barcode table

|‖‖| | |‖‖‖|‖| |‖ ‖|‖ ‖‖| ‖‖|
~   K   0   K
0

‖‖| | |‖‖|‖‖|‖| ‖‖‖ ‖‖‖| ‖‖
~   K   1   K
1

‖‖| | |‖‖|‖‖| |‖‖‖‖| |‖ ‖‖|
~   K   2   K
2

‖‖| | |‖‖|‖‖|‖| ‖‖ ‖|‖ ‖‖|
~   K   3   K
3

‖‖| | |‖‖|‖‖|‖ |‖‖‖| | ‖‖|
~   K   4   K
4

‖‖| | |‖‖|‖‖|‖ ‖‖ |‖ ‖|‖‖|
~   K   5   K
5

‖‖| | |‖‖|‖‖|‖ ‖‖ ‖| |‖‖|
~   K   6   K
6

‖‖| | |‖‖|‖‖|‖ ‖| ‖| ‖|‖‖|
~   K   7   K
7

‖‖| | |‖‖|‖‖|‖ ‖‖|‖‖ | ‖‖|
~   K   8   K
8

‖‖| | |‖‖|‖‖|‖ ‖| ‖‖|‖ ‖‖|
~   K   9   K
9

‖‖| | |‖‖|‖‖|‖ ‖‖| |‖ ‖‖|
~   K   A   K
A

‖‖| | |‖‖|‖‖‖| |‖ ‖|‖ ‖‖|
~   K   B   K
B

‖‖| | |‖‖|‖‖| |‖ |‖‖ ‖|‖‖|
~   K   C   K
C

‖‖| | |‖‖|‖‖‖| |‖ ‖|‖ ‖‖|
~   K   D   K
D

‖‖| | |‖‖|‖‖|‖ |‖‖ |‖ ‖‖|
~   K   E   K
E

‖‖| | |‖‖|‖‖| |‖ |‖‖ ‖‖|‖‖|
~   K   F   K
F

‖‖| ‖ |‖‖|‖‖‖| |‖‖ ‖‖| | ‖|
~ M N U S A V .
[Validate]

‖‖| ‖ |‖‖|‖‖|‖ ‖|‖ ‖‖ |‖ ‖‖|
~ M N U A B T .
[Abort]

EC	**Check for a number** Check to make sure there is an ASCII number at the current position. The format is aborted if the character is not numeric.
ED	**Check for non-numeric character** Check to make sure there is non-numeric ASCII character at the current cursor position. The format is aborted if the character is numeric.

Ex) Send all code data followed by CR(0Dhex), If the first character is numeric character.

    Command   :   ECF10D

    EC=Command, F1=Command, 0D=CR

Transmission results
Code data1 : 123ABCD
123ABCD<CR>
Code data2 : ABCD123
The first character is not number, so the format aborts. If there is no data formats, then the raw data [ABCD123] will be sent.

EFnnnn	**Insert delay** Insert a delay of up to 49995msec, starting from the current cursor position. SYNTAX=EFnnnn where nnnn stands for the delay in 5msec increments, up to 9999. This command can only be used with keyboard emulation.
B8	**Discard data** Discard types of data. SYNTAX=B8.

例) Discard the data, if the first character matches to [A].

    Command   :   FE41B8

    FE=Command, 41=[A], B8=Command

[Note]
● The B8 command must be entered after all other commands.
● The data format must be set as [Required] in order for the B8 command to work.

HEX barcode table

|||||||||||||||
~   K   0   K
0

|||||||||||||||
~   K   1   K
1

|||||||||||||||
~   K   2   K
2

|||||||||||||||
~   K   3   K
3

|||||||||||||||
~   K   4   K
4

|||||||||||||||
~   K   5   K
5

|||||||||||||||
~   K   6   K
6

|||||||||||||||
~   K   7   K
7

|||||||||||||||
~   K   8   K
8

|||||||||||||||
~   K   9   K
9

|||||||||||||||
~   K   A   K
A

|||||||||||||||
~   K   B   K
B

|||||||||||||||
~   K   C   K
C

|||||||||||||||
~   K   D   K
D

|||||||||||||||
~   K   E   K
E

|||||||||||||||
~   K   F   K
F

|||||||||||||||
~ M N U S A V .
[Validate]

|||||||||||||||
~ M N U A B T .
[Abort]

Data formatter

When Data formatter is turned OFF, the code data is output to the host as read, including prefixes and suffixes.

```
~ D F M _ E N 0 .
```
[Data formatter OFF]

```
~ D F M _ E N 1 .
```
[**Data formatter ON, Not required, Keep Prefix/Suffix**]

```
~ D F M _ E N 2 .
```
[Data formatter ON, Required, Keep Prefix/Suffix]

```
~ D F M _ E N 3 .
```
[Data formatter ON, Not required, Drop Prefix/Suffix]

```
~ D F M _ E N 4 .
```
[Data formatter ON, Required, Drop Prefix/Suffix]
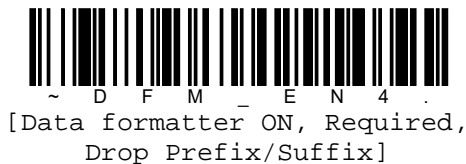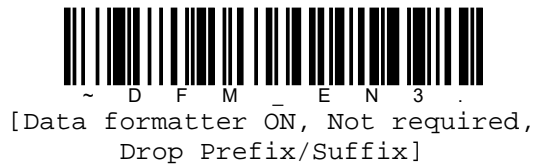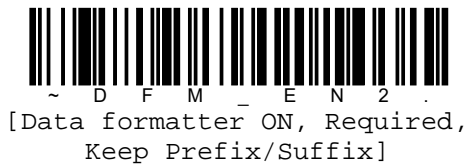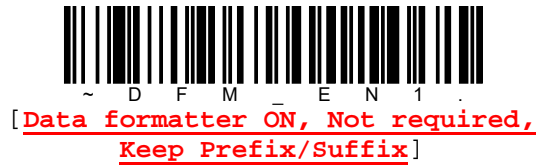
Primary/Alternate data formats

You can save up to four data formats, and switch between these formats. Your primary data format is saved under 0. Your other three formats are saved under 1, 2 and 3. To set your device to use one of these formats, read one of command barcodes below.

```
~ R M V F N C 0 .
```
[Primary data format]

```
~ R M V F N C 1 .
```
[Data format 1]

```
~ R M V F N C 0 .
```
[Data format 2]

```
~ R M V F N C 1 .
```
[Data format 3]

9. Setting of symbologies

All symbologies

If you want to decode all the symbologies supported by the reader, read [All symbologies ON] command barcode below. If on the other hand, you want to decode only a particular symbology, read [All symbologies OFF] command barcode, then setup each symbology you want to decode.

||||||| ||||| ||||| ||||| ||||| |||||
~ A L L E N A 1 .
[All symbologies ON]

||||||| ||||| ||||| ||||| ||||| |||||
~ A L L E N A 0 .
[All symbologies OFF]

Codabar

‖‖‖‖‖‖‖‖‖‖‖‖‖‖
~ C B R D F T .
[Default all Codabar settings]

‖‖‖‖‖‖‖‖‖‖‖‖‖‖
~ C B R E N A 1 .
[**Codabar ON**]

‖‖‖‖‖‖‖‖‖‖‖‖‖‖
~ C B R E N A 0 .
[Codabar OFF]

‖‖‖‖‖‖‖‖‖‖‖‖‖‖
~ C B R S S X 1 .
[Start/Stop character transmission ON]

‖‖‖‖‖‖‖‖‖‖‖‖‖‖
~ C B R S S X 0 .
[**Start/Stop character transmission OFF**]

‖‖‖‖‖‖‖‖‖‖‖‖‖‖
~ C B R C K 2 0 .
[**No check character**]

‖‖‖‖‖‖‖‖‖‖‖‖‖‖
~ C B R C K 2 1 .
[Validate modulo 16, but don't transmit]

‖‖‖‖‖‖‖‖‖‖‖‖‖‖
~ C B R C K 2 2 .
[Validate modulo 16 and transmit]

‖‖‖‖‖‖‖‖‖‖‖‖‖‖
~ C B R C C T 1 .
[Concatenation ON]

‖‖‖‖‖‖‖‖‖‖‖‖‖‖
~ C B R C C T 0 .
[**Concatenation OFF**]

‖‖‖‖‖‖‖‖‖‖‖‖‖‖
~ C B R C C T 2 .
[Concatenation Require]

‖‖‖‖‖‖‖‖‖‖‖‖‖‖
~ C B R M I N .
[Minimum message length]

‖‖‖‖‖‖‖‖‖‖‖‖‖‖
~ C B R M A X .
[Maximum message length]

Concatenation

Codabar supports symbol concatenation. When you enable concatenation, the reader looks for a codabar symbol having a [D] start character, adjacent to a symbol having a [D] stop character. In this case the two messages are concatenated into to one with the [D] characters omitted. If you set [Require], reader can only read concatenate-able codabar.

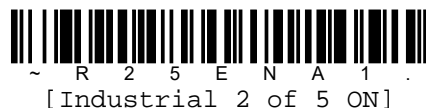‖‖‖‖‖‖‖‖‖‖‖‖‖‖   ‖‖‖‖‖‖‖‖‖‖‖‖‖‖
A 1 2 3 4 D   D 5 6 7 8 A

Minimum/Maximum message length

Read command barcodes to change message length and then set massage length by [Numeric barcode table] on next page.
Allowable message length is 2~60. Minimum default = 4, maximum default = 60.

Numeric barcode table

‖‖‖ | ‖‖‖ ‖‖‖ ‖‖ ‖‖‖ ‖ ‖‖
~ K 0 K
0

‖‖‖ | ‖‖‖ ‖‖‖ ‖‖ ‖‖‖ ‖ ‖‖
~ K 1 K
1

‖‖‖ | ‖‖‖ ‖‖‖ ‖‖ ‖‖ ‖ ‖‖‖
~ K 2 K
2

‖‖‖ | ‖‖‖ ‖‖‖ ‖‖ ‖‖‖ ‖ ‖‖
~ K 3 K
3

‖‖‖ | ‖‖‖ ‖‖‖ ‖‖ ‖‖ ‖ ‖‖‖
~ K 4 K
4

‖‖‖ | ‖‖‖ ‖‖‖ ‖‖ ‖‖ ‖‖ ‖‖
~ K 5 K
5

‖‖‖ | ‖‖‖ ‖‖‖ ‖‖ ‖‖ ‖‖‖ ‖
~ K 6 K
6

‖‖‖ | ‖‖‖ ‖‖‖ ‖‖ ‖‖ ‖‖ ‖‖
~ K 7 K
7

‖‖‖ | ‖‖‖ ‖‖‖ ‖‖ ‖‖‖‖ ‖‖
~ K 8 K
8

‖‖‖ | ‖‖‖ ‖‖‖ ‖‖ ‖‖ ‖‖‖ ‖
~ K 9 K
9

‖‖‖ | ‖‖‖ ‖‖‖‖ ‖ ‖ ‖‖ ‖‖ ‖‖‖ ‖ ‖‖
~ M N U S A V .
[Validate]

‖‖‖ | ‖‖‖ ‖‖ ‖‖‖‖ ‖ ‖ ‖‖ ‖‖ ‖‖‖ ‖ ‖‖
~ M N U A B T .
[Abort]

Code 39

‖‖|‖|‖‖‖‖‖‖|‖‖|‖
~ C 3 9 D F T .
[Default all code 39 settings]

‖‖|‖‖|‖|‖‖‖|‖‖|‖
~ C 3 9 E N A 1 .
[**Code 39 ON**]

‖‖|‖‖|‖|‖‖|‖‖‖|‖
~ C 3 9 E N A 0 .
[Code 39 OFF]

‖‖|‖‖|‖|‖‖‖|‖‖|‖
~ C 3 9 A S C 1 .
[Full ASCII ON]

‖‖|‖‖|‖|‖‖|‖‖‖|‖
~ C 3 9 A S C 0 .
[**Full ASCII OFF**]

‖‖|‖‖|‖|‖‖‖|‖‖|‖
~ C 3 9 S S X 1 .
[Start/Stop character transmission ON]

‖‖|‖‖|‖|‖‖|‖‖‖|‖
~ C 3 9 S S X 0 .
[**Start/Stop character transmission OFF**]

‖‖|‖‖|‖|‖‖‖|‖‖|‖
~ C 3 9 C K 2 0 .
[**No check character**]

‖‖|‖‖|‖|‖‖|‖‖‖|‖
~ C 3 9 C K 2 1 .
[Validate, but don't transmit]

‖‖|‖‖|‖|‖‖‖|‖‖|‖
~ C 3 9 C K 2 2 .
[Validate and don't transmit]

‖‖|‖‖|‖|‖‖|‖‖‖|‖
~ C 3 9 A P P 1 .
[Append ON]

‖‖|‖‖|‖|‖‖‖|‖‖|‖
~ C 3 9 A P P 0 .
[**Append OFF**]

‖‖|‖‖|‖|‖‖|‖‖‖|‖
~ C 3 9 B 3 2 1 .
[Code 32 PARAF ON]

‖‖|‖‖|‖|‖‖‖|‖‖|‖
~ C 3 9 B 3 2 0 .
[**Code 32 PARAF OFF**]

‖‖|‖‖|‖|‖‖|‖‖‖|‖
~ C 3 9 M I N .
[Minimum message length]

‖‖|‖‖|‖|‖‖‖|‖‖|‖
~ C 3 9 M A X .
[Maximum message length]

Minimum/Maximum message length

Read command barcodes to change message length and then set massage length by [Numeric barcode table] on next page.
Allowable message length is 0~48. Minimum default = 0, maximum default = 48.

Numeric barcode table

~ K 0 K
0

~ K 1 K
1

~ K 2 K
2

~ K 3 K
3

~ K 4 K
4

~ K 5 K
5

~ K 6 K
6

~ K 7 K
7

~ K 8 K
8

~ K 9 K
9

~ M N U S A V .
[Validate]

~ M N U A B T .
[Abort]

Interleaved 2 of 5

~ I 2 5 D F T .
[Default all interleaved 2 of 5 settings]

~ I 2 5 E N A 1 .
[**Interleaved 2 of 5 ON**]

~ I 2 5 E N A 0 .
[Interleaved 2 of 5 OFF]

~ I 2 5 C K 2 0 .
[**No check digit**]

~ I 2 5 C K 2 1 .
[Validate, but don't transmit]

~ I 2 5 C K 2 2 .
[Validate and transmit]

~ I 2 5 M I N .
[Minimum message length]

~ I 2 5 M A X .
[Maximum message length]

Minimum/Maximum message length

Read command barcodes to change message length and then set massage length by [Numeric barcode table] on next page.
Allowable message length is 2~80. Minimum default = 4, maximum default = 80.

Numeric barcode table

‖‖‖ ‖ ‖‖‖ ‖‖‖ ‖‖ ‖‖ ‖‖‖
~ K 0 K
0

‖‖‖ ‖ ‖‖‖ ‖‖‖ ‖‖ ‖‖‖ ‖‖‖
~ K 1 K
1

‖‖‖ ‖ ‖‖‖ ‖‖‖ ‖‖‖ ‖‖ ‖‖‖
~ K 2 K
2

‖‖‖ ‖ ‖‖‖ ‖‖‖ ‖‖ ‖‖‖ ‖‖
~ K 3 K
3

‖‖‖ ‖ ‖‖‖ ‖‖‖ ‖‖‖ ‖‖ ‖‖‖
~ K 4 K
4

‖‖‖ ‖ ‖‖‖ ‖‖‖ ‖‖ ‖‖ ‖‖‖
~ K 5 K
5

‖‖‖ ‖ ‖‖‖ ‖‖‖ ‖‖ ‖‖ ‖‖‖
~ K 6 K
6

‖‖‖ ‖ ‖‖‖ ‖‖‖ ‖‖ ‖‖ ‖‖‖
~ K 7 K
7

‖‖‖ ‖ ‖‖‖ ‖‖‖ ‖‖ ‖‖ ‖‖‖
~ K 8 K
8

‖‖‖ ‖ ‖‖‖ ‖‖‖ ‖‖ ‖‖‖ ‖
~ K 9 K
9

‖‖‖ ‖ ‖‖‖ ‖‖ ‖‖‖‖‖ ‖‖ ‖‖‖ ‖‖ ‖ ‖‖‖
~ M N U S A V .
[Validate]

‖‖‖ ‖ ‖‖‖ ‖‖ ‖‖‖‖‖ ‖ ‖‖ ‖‖ ‖‖‖ ‖‖ ‖‖‖
~ M N U A B T .
[Abort]

NEC 2 of 5

‖‖‖ ‖ ‖‖‖ ‖‖‖ ‖ ‖ ‖‖ ‖ ‖‖
~ N 2 5 D F T .
[Default all NEC 2 of 5 settings]

‖‖ ‖ ‖‖ ‖‖‖ ‖ ‖ ‖ ‖‖ ‖ ‖‖
~ N 2 5 E N A 1 .
[**NEC 2 of 5 ON**]

‖‖ ‖ ‖‖ ‖‖ ‖ ‖ ‖ ‖ ‖‖ ‖‖
~ N 2 5 E N A 0 .
[NEC 2 of 5 OFF]

‖‖ ‖ ‖‖ ‖‖ ‖ ‖ ‖ ‖ ‖‖ ‖‖
~ N 2 5 C K 2 0 .
[**No check digit**]

‖‖ ‖ ‖‖ ‖‖ ‖ ‖ ‖ ‖ ‖‖ ‖‖
~ N 2 5 C K 2 1 .
[Validate, but don't transmit]

‖‖ ‖ ‖‖ ‖‖ ‖ ‖ ‖ ‖ ‖‖ ‖‖
~ N 2 5 C K 2 2 .
[Validate and transmit]

‖‖ ‖ ‖‖ ‖‖ ‖ ‖ ‖ ‖ ‖‖ ‖‖
~ N 2 5 M I N .
[Minimum message length]

‖‖ ‖ ‖‖ ‖‖ ‖ ‖ ‖ ‖ ‖‖ ‖‖
~ N 2 5 M A X .
[Maximum message length]

Minimum/Maximum message length

Read command barcodes to change message length and then set massage length by [Numeric barcode table] on next page.
Allowable message length is 2~80. Minimum default = 4, maximum default = 80.

Numeric barcode table

~ K 0 K
0

~ K 1 K
1

~ K 2 K
2

~ K 3 K
3

~ K 4 K
4

~ K 5 K
5

~ K 6 K
6

~ K 7 K
7

~ K 8 K
8

~ K 9 K
9

~ M N U S A V .
[Validate]

~ M N U A B T .
[Abort]

Code 93

‖‖‖ ‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
~ C 9 3 D F T .
[Default all code 93 settings]

‖‖‖ ‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
~ C 9 3 E N A 1 .
[**Code 93 ON**]

‖‖‖ ‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
~ C 9 3 E N A 0 .
[Code 93 OFF]

‖‖‖ ‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
~ C 9 3 A P P 1 .
[Append ON]

‖‖‖ ‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
~ C 9 3 A P P 0 .
[**Append OFF**]

‖‖‖ ‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
~ C 9 3 M I N .
[Minimum message length]

‖‖‖ ‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
~ C 9 3 M A X .
[Maximum message length]

Minimum/Maximum message length

Read command barcodes to change message length and then set massage length by [Numeric barcode table] on next page.
Allowable message length is 0~80. Minimum default = 0, maximum default = 80.

Industrial 2 of 5

‖‖‖ ‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
~ R 2 5 D F T .
[Default all industrial 2 of 5 settings]

‖‖‖ ‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
~ R 2 5 E N A 1 .
[Industrial 2 of 5 ON]

‖‖‖ ‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
~ R 2 5 E N A 0 .
[**Industrial 2 of 5 OFF**]

‖‖‖ ‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
~ R 2 5 M I N .
[Minimum message length]

‖‖‖ ‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
~ R 2 5 M A X .
[Maximum message length]

Minimum/Maximum message length

Read command barcodes to change message length and then set massage length by [Numeric barcode table] on next page.
Allowable message length is 1~48. Minimum default = 4, maximum default = 48.

Numeric barcode table

~ K 0 K
0

~ K 1 K
1

~ K 2 K
2

~ K 3 K
3

~ K 4 K
4

~ K 5 K
5

~ K 6 K
6

~ K 7 K
7

~ K 8 K
8

~ K 9 K
9

~ M N U S A V .
[Validate]

~ M N U A B T .
[Abort]

IATA 2 of 5

‖‖ ‖ ‖‖ ‖‖ ‖ ‖
~ A 2 5 D F T .
[Default all IATA 2 of 5 settings]

‖‖ ‖ ‖‖ ‖‖ ‖ ‖
~ A 2 5 E N A 1 .
[IATA 2 of 5 ON]

‖‖ ‖ ‖‖ ‖‖ ‖ ‖
~ A 2 5 E N A 0 .
[**IATA 2 of 5 OFF**]

‖‖ ‖ ‖‖ ‖‖ ‖ ‖
~ A 2 5 M I N .
[Minimum message length]

‖‖ ‖ ‖‖ ‖‖ ‖ ‖
~ A 2 5 M A X .
[Maximum message length]

Minimum/Maximum message length

Read command barcodes to change message length and then set massage length by [Numeric barcode table] on next page.
Allowable message length is 1~48. Minimum default = 4, maximum default = 48.

Matrix 2 of 5

‖‖ ‖ ‖‖ ‖‖ ‖ ‖
~ X 2 5 D F T .
[Default all Matrix 2 of 5 settings]

‖‖ ‖ ‖‖ ‖‖ ‖ ‖
~ X 2 5 E N A 1 .
[Matrix 2 of 5 ON]

‖‖ ‖ ‖‖ ‖‖ ‖ ‖
~ X 2 5 E N A 0 .
[**Matrix 2 of 5 OFF**]

‖‖ ‖ ‖‖ ‖‖ ‖ ‖
~ X 2 5 M I N .
[Minimum message length]

‖‖ ‖ ‖‖ ‖‖ ‖ ‖
~ X 2 5 M A X .
[Maximum message length]

Minimum/Maximum message length

Read command barcodes to change message length and then set massage length by [Numeric barcode table] on next page.
Allowable message length is 1~80. Minimum default = 4, maximum default = 80.

Numeric barcode table

~ K 0 K
0

~ K 1 K
1

~ K 2 K
2

~ K 3 K
3

~ K 4 K
4

~ K 5 K
5

~ K 6 K
6

~ K 7 K
7

~ K 8 K
8

~ K 9 K
9

~ M N U S A V .
[Validate]

~ M N U A B T .
[Abort]

Code 128

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
~ 1 2 8 D F T .
[Default all Code 128 settings]

‖‖‖‖‖‖‖‖‖‖‖‖‖
~ 1 2 8 E N A 1 .
[**Code 128 ON**]

‖‖‖‖‖‖‖‖‖‖‖‖‖
~ 1 2 8 E N A 0 .
[Code 128 OFF]

‖‖‖‖‖‖‖‖‖‖‖‖‖
~ C 9 3 A P P 1 .
[Append ON]

‖‖‖‖‖‖‖‖‖‖‖‖‖
~ C 9 3 A P P 0 .
[**Append OFF**]

‖‖‖‖‖‖‖‖‖‖‖‖‖
~ 1 2 8 M I N .
[Minimum message length]

‖‖‖‖‖‖‖‖‖‖‖‖‖
~ 1 2 8 M A X .
[Maximum message length]

Minimum/Maximum message length

Read command barcodes to change message length and then set massage length by [Numeric barcode table] on next page.
Allowable message length is 0~80. Minimum default = 0, maximum default = 80.

GS1-128

‖‖‖‖‖‖‖‖‖‖‖‖‖
~ G S 1 D F T .
[Default all GS1-128 settings]

‖‖‖‖‖‖‖‖‖‖‖‖‖
~ G S 1 E N A 1 .
[**GS1-128 ON**]

‖‖‖‖‖‖‖‖‖‖‖‖‖
~ G S 1 E N A 0 .
[GS1-128 OFF]

‖‖‖‖‖‖‖‖‖‖‖‖‖
~ G S 1 M I N .
[Minimum message length]

‖‖‖‖‖‖‖‖‖‖‖‖‖
~ G S 1 M A X .
[Maximum message length]

Minimum/Maximum message length

Read command barcodes to change message length and then set massage length by [Numeric barcode table] on next page.
Allowable message length is 1~80. Minimum default = 1, maximum default = 80.

Numeric barcode table

~ K 0 K
0

~ K 1 K
1

~ K 2 K
2

~ K 3 K
3

~ K 4 K
4

~ K 5 K
5

~ K 6 K
6

~ K 7 K
7

~ K 8 K
8

~ K 9 K
9

~ M N U S A V .
[Validate]

~ M N U A B T .
[Abort]

UPC-A

||||||||||||||||||||||||||||||||
~ U P A D F T .
[Default all UPC-A settings]

||||||||||||||||||||||||||||||||
~ U P B E N A 1 .
[**UPC-A ON**]

||||||||||||||||||||||||||||||||
~ U P B E N A 0 .
[UPC-A OFF]

||||||||||||||||||||||||||||||||
~ U P A E N A 0 .
[UPC-A to EAN-13 conversion ON]

||||||||||||||||||||||||||||||||
~ U P A E N A 1 .
[**UPC-A to EAN-13 conversion OFF**]

||||||||||||||||||||||||||||||||
~ U P A C K X 1 .
[**Check digit transmission ON**]

||||||||||||||||||||||||||||||||
~ U P A C K X 0 .
[Check digit transmission OFF]

||||||||||||||||||||||||||||||||
~ U P A N S X 1 .
[**Number system transmission ON**]

||||||||||||||||||||||||||||||||
~ U P A N S X 0 .
[Number system transmission OFF]

||||||||||||||||||||||||||||||||
~ U P A A D 2 1 .
[Addenda 2 digits ON]

||||||||||||||||||||||||||||||||
~ U P A A D 2 0 .
[**Addenda 2 digits OFF**]

||||||||||||||||||||||||||||||||
~ U P A A D 5 1 .
[Addenda 5 digits ON]

||||||||||||||||||||||||||||||||
~ U P A A D 5 0 .
[**Addenda 5 digits OFF**]

||||||||||||||||||||||||||||||||
~ U P A A R Q 1 .
[Addenda required]

||||||||||||||||||||||||||||||||
~ U P A A R Q 0 .
[**Addenda not required**]

||||||||||||||||||||||||||||||||
~ U P A A D S 1 .
[**Addenda separator(Space) ON**]

||||||||||||||||||||||||||||||||
~ U P A A D S 0 .
[Addenda separator OFF]

UPC-E

‖‖‖ ‖‖‖‖‖‖ ‖‖‖ ‖‖‖‖ ‖‖‖‖‖ ‖‖ ‖‖‖
~ U P E D F T .
[Default all UPC-E settings]

‖‖‖ ‖ ‖‖‖‖‖‖ ‖‖‖ ‖‖‖ ‖‖‖‖ ‖‖‖‖
~ U P E E N 0 1 .
[**UPC-E0 ON**]

‖‖‖ ‖ ‖‖‖‖‖ ‖‖‖ ‖ ‖‖ ‖‖‖‖‖ ‖‖‖
~ U P E E N 0 0 .
[UPC-E0 OFF]

‖‖‖ ‖ ‖‖‖‖‖ ‖‖‖ ‖‖ ‖‖‖ ‖‖‖‖ ‖‖‖
~ U P E E N 1 1 .
[**UPC-E1 ON**]

‖‖‖ ‖ ‖‖‖‖‖ ‖‖‖ ‖ ‖ ‖‖‖‖ ‖‖‖ ‖‖‖
~ U P E E N 1 0 .
[UPC-E1 OFF]

‖‖‖ ‖ ‖‖‖‖‖ ‖‖‖ ‖ ‖ ‖‖‖ ‖‖‖‖ ‖‖‖
~ U P E E X P 1 .
[UPC-E to UPC-A 12 digits conversion ON]

‖‖‖ ‖ ‖‖‖‖‖ ‖‖‖ ‖ ‖‖‖‖‖ ‖‖ ‖ ‖‖‖
~ U P E E X P 0 .
[**UPC-E to UPC-A 12 digits conversion OFF**]

‖‖‖ ‖ ‖‖‖‖‖ ‖‖ ‖ ‖‖‖ ‖‖‖‖ ‖ ‖‖‖
~ U P E C K X 1 .
[**Check digit transmission ON**]

‖‖‖ ‖ ‖‖‖‖‖ ‖‖ ‖ ‖ ‖ ‖‖‖ ‖‖‖‖ ‖‖‖
~ U P E C K X 0 .
[Check digit transmission OFF]

‖‖‖ ‖ ‖‖‖‖‖ ‖‖ ‖ ‖ ‖ ‖‖ ‖‖‖‖‖ ‖‖‖
~ U P E N S X 1 .
[**Leading zero transmission ON**]

‖‖‖ ‖ ‖‖‖‖‖ ‖‖ ‖ ‖‖ ‖‖‖‖ ‖‖‖ ‖‖‖
~ U P E N S X 0 .
[Leading zero transmission OFF]

‖‖‖ ‖ ‖‖‖‖‖ ‖‖ ‖ ‖ ‖ ‖‖‖‖ ‖‖ ‖ ‖‖‖
~ U P E A D 2 1 .
[Addenda 2 ON]

‖‖‖ ‖ ‖‖‖‖‖ ‖ ‖ ‖‖‖ ‖‖ ‖‖‖ ‖ ‖‖‖
~ U P E A D 2 0 .
[**Addenda 2 OFF**]

‖‖‖ ‖ ‖‖‖‖‖ ‖ ‖ ‖‖ ‖‖‖ ‖‖‖‖ ‖‖‖
~ U P E A D 5 1 .
[Addenda 5 ON]

‖‖‖ ‖ ‖‖‖‖‖ ‖ ‖ ‖‖‖ ‖ ‖ ‖‖‖ ‖ ‖‖‖
~ U P E A D 5 0 .
[**Addenda 5 OFF**]

‖‖‖ ‖ ‖‖‖‖‖ ‖ ‖ ‖‖‖ ‖ ‖‖ ‖‖‖ ‖‖‖
~ U P E A D Q 1 .
[Addenda required]

‖‖‖ ‖ ‖‖‖‖‖ ‖ ‖ ‖‖‖ ‖‖ ‖‖‖ ‖ ‖‖‖
~ U P E A D Q 0 .
[**Addenda not required**]

‖‖‖ ‖ ‖‖‖‖‖ ‖ ‖ ‖‖‖ ‖ ‖‖ ‖‖‖‖ ‖‖‖
~ U P E A D S 1 .
[**Addenda separator(space) ON**]

‖‖‖ ‖ ‖‖‖‖‖ ‖ ‖ ‖ ‖‖‖ ‖‖‖ ‖ ‖‖‖
~ U P E A D S 0 .
[Addenda separator OFF]

EAN-13

‖‖|‖‖|‖‖‖‖‖|‖‖|‖‖‖
~ E 1 3 D F T .
[Default all EAN-13 settings]

‖|‖‖|‖‖‖|‖|‖‖‖|‖‖|
~ E 1 3 E N A 0 .
[EAN-13 OFF]

‖|‖|‖‖‖|‖|‖‖‖‖|‖|‖
~ E 1 3 C K X 0 .
[Check digit transmission OFF]

‖|‖‖|‖‖|‖‖|‖|‖‖‖‖|
~ E 1 3 I S B 1 .
[**ISBN translate ON**]

‖|‖|‖‖|‖‖|‖‖|‖‖‖|‖|
~ E 1 3 A D 2 0 .
[**Addenda 2 OFF**]

‖|‖|‖‖‖|‖|‖‖‖|‖‖‖|
~ E 1 3 A D 5 0 .
[**Addenda 5 OFF**]

‖|‖|‖‖|‖‖|‖|‖‖‖|‖|
~ E 1 3 A R Q 0 .
[**Addenda not required**]

‖|‖|‖‖|‖‖‖|‖‖|‖‖‖|
~ E 1 3 A D S 0 .
[Addenda separator OFF]

‖|‖|‖‖‖|‖‖‖|‖‖|‖‖‖
~ E 1 3 E N A 1 .
[**EAN-13 ON**]

‖|‖‖|‖‖‖|‖‖‖|‖|‖‖|
~ E 1 3 C K X 1 .
[**Check digit transmission ON**]

‖|‖|‖‖|‖‖‖|‖‖|‖‖‖|
~ E 1 3 I S B 0 .
[ISBN translate OFF]

‖|‖‖|‖‖|‖‖|‖|‖‖‖‖|
~ E 1 3 A D 2 1 .
[Addenda 2 ON]

‖|‖|‖‖‖|‖‖|‖‖|‖‖‖|
~ E 1 3 A D 5 1 .
[Addenda 5 ON]

‖|‖|‖‖|‖‖|‖|‖‖‖‖|‖
~ E 1 3 A R Q 1 .
[Addenda required]

‖|‖|‖‖|‖‖‖|‖‖‖|‖‖|
~ E 1 3 A D S 1 .
[**Addenda separator(space) ON**]

EAN-8

‖‖‖ ‖‖‖‖‖‖‖
~ E A 8 D F T .
[Default all EAN-8 settings]

‖‖‖ ‖‖‖‖‖‖‖
~ E A 8 E N A 1 .
[**EAN-8 ON**]

‖‖‖ ‖‖‖‖‖‖‖
~ E A 8 E N A 0 .
[EAN-8 OFF]

‖‖‖ ‖‖‖‖‖‖‖
~ E A 8 C K X 1 .
[**Check digit transmission ON**]

‖‖‖ ‖‖‖‖‖‖‖
~ E A 8 C K X 0 .
[Check digit transmission OFF]

‖‖‖ ‖‖‖‖‖‖‖
~ E A 8 A D 2 1 .
[Addenda 2 ON]

‖‖‖ ‖‖‖‖‖‖‖
~ E A 8 A D 2 0 .
[**Addenda 2 OFF**]

‖‖‖ ‖‖‖‖‖‖‖
~ E A 8 A D 5 1 .
[Addenda 5 ON]

‖‖‖ ‖‖‖‖‖‖‖
~ E A 8 A D 5 0 .
[**Addenda 5 OFF**]

‖‖‖ ‖‖‖‖‖‖‖
~ E A 8 A R Q 1 .
[Addenda required]

‖‖‖ ‖‖‖‖‖‖‖
~ E A 8 A R Q 0 .
[**Addenda not required**]

‖‖‖ ‖‖‖‖‖‖‖
~ E A 8 A D S 1 .
[**Addenda separator(space) ON**]

‖‖‖ ‖‖‖‖‖‖‖
~ E A 8 A D S 0 .
[Addenda separator OFF]

MSI

‖‖|‖‖‖‖|‖‖‖‖|‖‖‖‖|‖‖‖
~ M S I D F T .
[Default all MSI settings]

‖|‖‖‖‖|‖‖‖‖|‖‖‖‖|‖‖‖
~ M S I E N A 1 .
[MSI ON]

‖‖|‖‖‖‖|‖‖‖‖|‖‖‖‖|‖‖
~ M S I E N A 0 .
[**MSI OFF**]

‖‖|‖‖‖‖|‖‖‖‖|‖‖‖‖|‖‖
~ M S I C H K 0 .
[**Validate type 10 check digit,
but don't transmit**]

‖|‖‖‖‖|‖‖‖‖|‖‖‖‖|‖‖‖
~ M S I C H K 1 .
[Validate type 10 check digit and transmit]

‖|‖‖‖‖|‖‖‖‖|‖‖‖‖|‖‖
~ M S I C H K 2 .
[Validate two type 10 check digits,
but don't transmit]

‖|‖‖‖‖|‖‖‖‖|‖‖‖‖|‖‖‖
~ M S I C H K 3 .
[Validate two type 10 check digits
and transmit]

‖|‖‖‖‖|‖‖‖‖|‖‖‖‖|‖‖
~ M S I C H K 4 .
[Validate two type 11/10 check digits,
but don't transmit]

‖|‖‖‖‖|‖‖‖‖|‖‖‖‖|‖‖‖
~ M S I C H K 5 .
[Validate two type 11/10 check digits
and transmit]

‖|‖‖‖‖|‖‖‖‖|‖‖‖‖|‖‖
~ M S I C H K 6 .
[No check digit]

‖|‖‖‖‖|‖‖‖‖|‖‖‖‖|‖‖‖
~ M S I M I N .
[Minimum message length]

‖|‖‖‖‖|‖‖‖‖|‖‖‖‖|‖‖
~ M S I M A X .
[Maximum message length]

Minimum/Maximum message length

Read command barcodes to change message length and then set massage length by [Numeric barcode table] on next page.
Allowable message length is 4~48. Minimum default = 4, maximum default = 48.
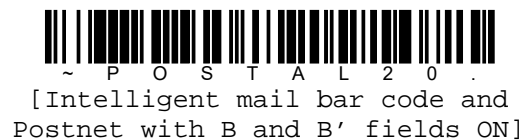
Numeric barcode table

~ K 0 K
0

~ K 1 K
1

~ K 2 K
2

~ K 3 K
3

~ K 4 K
4

~ K 5 K
5

~ K 6 K
6

~ K 7 K
7

~ K 8 K
8

~ K 9 K
9

~ M N U S A V .
[Validate]

~ M N U A B T .
[Abort]

GS1 Databar Omnidirectional

```
~ R S S D F T .
```
[Default all GS1 Databar Omnidirectional settings]

```
~ R S S E N A 1 .
```
[**GS1 Databar Omnidirectional ON**]

```
~ R S S E N A 0 .
```
[GS1 Databar Omnidirectional OFF]

GS1 Databar Limited

```
~ R S L D F T .
```
[Default all GS1 Databar Limited settings]

```
~ R S L E N A 1 .
```
[**GS1 Databar Limited ON**]

```
~ R S L E N A 0 .
```
[GS1 Databar Limited OFF]

GS1 Databar Expanded

```
~ R S E D F T .
```
[Default all GS1 Databar Expanded settings]

```
~ R S E E N A 1 .
```
[**GS1 Databar Expanded ON**]

```
~ R S E E N A 0 .
```
[GS1 Databar Expanded OFF]

```
~ R S E M I N .
```
[Minimum message length]

```
~ R S E M A X .
```
[Maximum message length]

Minimum/Maximum message length

Read command barcodes to change message length and then set massage length by [Numeric barcode table] on next page.
Allowable message length is 4~74. Minimum default = 4, maximum default = 74.

Numeric barcode table

~ K 0 K
0

~ K 1 K
1

~ K 2 K
2

~ K 3 K
3

~ K 4 K
4

~ K 5 K
5

~ K 6 K
6

~ K 7 K
7

~ K 8 K
8

~ K 9 K
9

~ M N U S A V .
[Validate]

~ M N U A B T .
[Abort]

Codablock A

‖‖‖ barcode ‖‖‖
~ C B A D F T .
[Default all Codablock A settings]

‖‖‖ barcode ‖‖‖
~ C B A E N A 1 .
[Codablock A ON]

‖‖‖ barcode ‖‖‖
~ C B A E N A 0 .
[**Codablock A OFF**]

‖‖‖ barcode ‖‖‖
~ C B A M I N .
[Minimum message length]

‖‖‖ barcode ‖‖‖
~ C B A M A X .
[Maximum message length]

Minimum/Maximum message length

Read command barcodes to change message length and then set massage length by [Numeric barcode table] on next page.
Allowable message length is 1~600. Minimum default = 1, maximum default = 600.

Codablock F

‖‖‖ barcode ‖‖‖
~ C B F D F T .
[Default all Codablock F settings]

‖‖‖ barcode ‖‖‖
~ C B F E N A 1 .
[Codablock F ON]

‖‖‖ barcode ‖‖‖
~ C B F E N A 0 .
[**Codablock F OFF**]

‖‖‖ barcode ‖‖‖
~ C B F M I N .
[Minimum message length]

‖‖‖ barcode ‖‖‖
~ C B F M A X .
[Maximum message length]

Minimum/Maximum message length

Read command barcodes to change message length and then set massage length by [Numeric barcode table] on next page.
Allowable message length is 1~2048. Minimum default = 1, maximum default = 2048.

Numeric barcode table

~ K 0 K
0

~ K 1 K
1

~ K 2 K
2

~ K 3 K
3

~ K 4 K
4

~ K 5 K
5

~ K 6 K
6

~ K 7 K
7

~ K 8 K
8

~ K 9 K
9

~ M N U S A V .
[Validate]

~ M N U A B T .
[Abort]

PDF417

[Default all PDF417 settings]

[**PDF417 ON**]

[PDF417 OFF]

[Minimum message length]

[Maximum message length]

Minimum/Maximum message length

Read command barcodes to change message length and then set massage length by [Numeric barcode table] on next page.
Allowable message length is 1~2750. Minimum default = 1, maximum default = 2750.

MacroPDF417

[**MacroPDF417 ON**]

[MacroPDF417 OFF]

MicroPDF417

[Default all MicroPDF417 settings]

[MicroPDF417 ON]

[**MicroPDF417 OFF**]

[Minimum message length]

[Maximum message length]

Minimum/Maximum message length

Read command barcodes to change message length and then set massage length by [Numeric barcode table] on next page.
Allowable message length is 1~366. Minimum default = 1, maximum default = 366.

Numeric barcode table

~ K 0 K
0

~ K 1 K
1

~ K 2 K
2

~ K 3 K
3

~ K 4 K
4

~ K 5 K
5

~ K 6 K
6

~ K 7 K
7

~ K 8 K
8

~ K 9 K
9

~ M N U S A V .
[Validate]

~ M N U A B T .
[Abort]

GS1 Composite

[GS1 Composite ON]
`~ C O M E N A 1 .`

[**GS1 Composite OFF**]
`~ C O M E N A 0 .`

[UPC/EAN version ON]
`~ C O M U P C 1 .`

[**UPC/EAN version OFF**]
`~ C O M U P C 0 .`

[Minimum message length]
`~ C O M M I N .`

[Maximum message length]
`~ C O M M A X .`

Minimum/Maximum message length

Read command barcodes to change message length and then set massage length by [Numeric barcode table] on next page.
Allowable message length is 1~2435. Minimum default = 1, maximum default = 2435.

GS1 emulation
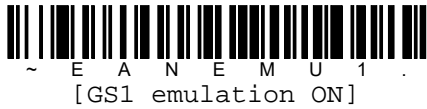
[GS1 emulation ON]
`~ E A N E M U 1 .`

All retail codes (U.P.C., UPC-E, EAN-8, EAN-13) are expanded out to 16 digits. If the AIM ID is enabled, the value will be the GS1 Databar AIM ID,]em. Refer to [Appendix A. Symbologies table].

[GS1 code expansion OFF]
`~ E A N E M U 3 .`

All EAN-8 codes are converted to EAN-13 format.

[**GS1 emulation OFF**]
`~ E A N E M U 0 .`

All retail codes (U.P.C., UPC-E, EAN-8, EAN-13) are expanded out to 16 digits. If the AIM ID is enabled, the value will be the GS1-128 AIM ID,]C1. Refer to [Appendix A. Symbologies table].

[GS1 Databar emulation ON]
`~ E A N E M U 2 .`

Retail code expansion is disabled, and UPC-E expansion is controlled by the UPC-E0 expand setting. If the AIM ID is enabled, the value will be the GS1-128 AIM ID,]C1. Refer to [Appendix A. Symbologies table].

[EAN-8 to EAN-13 conversion ON]
`~ E A N E M U 4 .`

All above GS1 emulations are not applied.

Numeric barcode table

~ K 0 K
0

~ K 1 K
1

~ K 2 K
2

~ K 3 K
3

~ K 4 K
4

~ K 5 K
5

~ K 6 K
6

~ K 7 K
7

~ K 8 K
8

~ K 9 K
9

~ M N U S A V .
[Validate]

~ M N U A B T .
[Abort]

TLC39

This code is a composite code since it has a Code 39 linear component and a MicroPDF417 stacked component. All readers are capable of reading Code 39 linear component. The MicroPDF417 component can only be decoded if [TCL39 ON] is selected. The linear component may be decoded as Code 39 even if [TCL39 OFF] is selected.
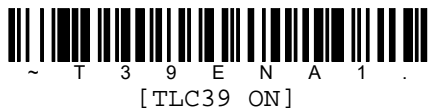
```
~ T 3 9 E N A 1 .
```
[TLC39 ON]

```
~ T 3 9 E N A 0 .
```
[**TLC39 OFF**]

QR code

```
~ Q R C D F T .
```
[Default all QR code settings]

```
~ Q R C E N A 0 .
```
[QR code OFF]

```
~ Q R C E N A 1 .
```
[**QR code ON**]

```
~ Q R C A P P 0 .
```
[Append OFF]

```
~ Q R C A P P 1 .
```
[**Append ON**]

```
~ Q R C M I N .
```
[Minimum message length]

```
~ Q R C M A X .
```
[Maximum message length]

Minimum/Maximum message length

Read command barcodes to change message length and then set massage length by [Numeric barcode table] on next page.
Allowable message length is 1~7089. Minimum default = 1, maximum default = 7089.

Numeric barcode table

‖‖| | ‖|‖ ‖| ‖|‖ ‖|‖|
~ K 0 K
0

‖‖ | |‖‖ ‖|‖ ‖|‖ ‖|‖|‖
~ K 1 K
1

‖‖ | ‖|‖ ‖|‖ ‖||‖ ‖|‖
~ K 2 K
2

‖‖ | ‖|‖ ‖|‖‖ ‖|| ‖| ‖‖
~ K 3 K
3

‖‖ | ‖|‖ ‖|‖‖ ‖|| ‖ |‖‖
~ K 4 K
4

‖‖ | ‖|‖ ‖|‖|‖ ‖|| ‖| ‖‖
~ K 5 K
5

‖‖ | ‖|‖ ‖|‖| ‖|‖ ‖|| ‖|
~ K 6 K
6

‖‖ | ‖|‖ ‖||‖|‖ ‖|| ‖ ‖‖
~ K 7 K
7

‖‖ | ‖|‖ ‖|‖|‖ ‖|‖ ‖| ‖|
~ K 8 K
8

‖‖ | ‖|‖ ‖|‖ ‖|‖ ‖|‖|‖ ‖|
~ K 9 K
9

‖‖| | ‖|‖‖ ‖| ‖|‖‖‖ ‖| ‖ ‖|‖ ‖| ‖ |‖‖
~ M N U S A V .
[Validate]

‖‖| | ‖|‖‖ ‖| ‖‖|‖‖| ‖| ‖ ‖|‖ ‖|‖ ‖|‖ ‖||
~ M N U A B T .
[Abort]

Data Matrix

‖‖‖‖‖‖‖‖‖‖‖‖
~ I D M D F T .
[Default all Data Matrix settings]

‖‖‖‖‖‖‖‖‖‖‖‖
~ I D M E N A 1 .
[**Data Matrix ON**]

‖‖‖‖‖‖‖‖‖‖‖‖
~ I D M E N A 0 .
[Data Matrix OFF]

‖‖‖‖‖‖‖‖‖‖‖‖
~ I D M A P P 1 .
[**Append ON**]

‖‖‖‖‖‖‖‖‖‖‖‖
~ I D M A P P 0 .
[Append OFF]

‖‖‖‖‖‖‖‖‖‖‖‖
~ I D M M I N .
[Minimum message length]

‖‖‖‖‖‖‖‖‖‖‖‖
~ I D M M A X .
[Maximum message length]

Minimum/Maximum message length

Read command barcodes to change message length and then set massage length by [Numeric barcode table] on next page.
Allowable message length is 1~3116. Minimum default = 1, maximum default = 3116.

MaxiCode

‖‖‖‖‖‖‖‖‖‖‖‖
~ M A X D F T .
[Default all MaxiCode settings]

‖‖‖‖‖‖‖‖‖‖‖‖
~ M A X E N A 1 .
[**MaxiCode ON**]

‖‖‖‖‖‖‖‖‖‖‖‖
~ M A X E N A 0 .
[MaxiCode OFF]

‖‖‖‖‖‖‖‖‖‖‖‖
~ M A X M I N .
[Minimum message length]

‖‖‖‖‖‖‖‖‖‖‖‖
~ M A X M A X .
[Maximum message length]

Minimum/Maximum message length

Read command barcodes to change message length and then set massage length by [Numeric barcode table] on next page.
Allowable message length is 1~150. Minimum default = 1, maximum default = 150.

Numeric barcode table

~ K 0 K
0

~ K 1 K
1

~ K 2 K
2

~ K 3 K
3

~ K 4 K
4

~ K 5 K
5

~ K 6 K
6

~ K 7 K
7

~ K 8 K
8

~ K 9 K
9

~ M N U S A V .
[Validate]

~ M N U A B T .
[Abort]

Aztec code

```
~ A Z T D F T .
```
[Default all Aztec code setting]

```
~ A Z T E N A 1 .
```
[Aztec code ON]

```
~ A Z T E N A 0 .
```
[**Aztec code OFF**]

```
~ A Z T A P P 1 .
```
[**Append ON**]

```
~ A Z T A P P 0 .
```
[Append OFF]

```
~ A Z T M I N .
```
[Minimum message length]

```
~ A Z T M A X .
```
[Maximum message length]

Minimum/Maximum message length

Read command barcodes to change message length and then set massage length by [Numeric barcode table] on next page.
Allowable message length is 1~3832. Minimum default = 1, maximum default = 3832.

MaxiCode

```
~ M A X D F T .
```
[Default all MaxiCode settings]

```
~ M A X E N A 1 .
```
[MaxiCode ON]

```
~ M A X E N A 0 .
```
[**MaxiCode OFF**]

```
~ M A X M I N .
```
[Minimum message length]

```
~ M A X M A X .
```
[Maximum message length]

Minimum/Maximum message length

Read command barcodes to change message length and then set massage length by [Numeric barcode table] on next page.
Allowable message length is 1~150. Minimum default = 1, maximum default = 150.

Numeric barcode table

‖‖ ‖ ‖‖‖ ‖‖ ‖‖‖ ‖‖‖ ‖‖‖ ‖‖
~   K   0   K
0

‖‖ ‖ ‖‖‖ ‖‖‖ ‖‖‖ ‖‖ ‖‖‖‖ ‖‖
~   K   1   K
1

‖‖ ‖ ‖‖‖ ‖‖‖ ‖‖‖ ‖‖‖ ‖‖ ‖‖
~   K   2   K
2

‖‖ ‖ ‖‖‖ ‖‖‖ ‖‖ ‖‖‖ ‖‖‖ ‖‖
~   K   3   K
3

‖‖ ‖ ‖‖‖ ‖‖‖ ‖‖‖ ‖‖‖ ‖ ‖‖
~   K   4   K
4

‖‖ ‖ ‖‖‖ ‖‖‖ ‖‖ ‖‖‖ ‖‖ ‖‖
~   K   5   K
5

‖‖ ‖ ‖‖‖ ‖‖‖ ‖‖‖ ‖‖ ‖ ‖‖
~   K   6   K
6

‖‖ ‖ ‖‖‖ ‖‖‖ ‖‖‖ ‖‖ ‖ ‖‖
~   K   7   K
7

‖‖ ‖ ‖‖‖ ‖‖‖ ‖‖‖ ‖‖‖ ‖ ‖‖
~   K   8   K
8

‖‖ ‖ ‖‖‖ ‖‖‖ ‖‖‖ ‖‖‖ ‖ ‖‖
~   K   9   K
9

‖‖ ‖ ‖‖‖ ‖‖ ‖‖‖‖ ‖‖ ‖‖‖ ‖‖‖ ‖‖‖ ‖ ‖‖
~ M N U S A V .
[Validate]

‖‖ ‖ ‖‖‖ ‖‖ ‖‖‖‖ ‖‖ ‖‖‖ ‖‖ ‖‖‖ ‖‖‖ ‖‖
~ M N U A B T .
[Abort]

2D postal codes

Single 2D postal codes

~ P O S T A L 0 .
[**2D postal codes OFF**]

~ P O S T A L 1 .
[Australian post ON]

~ P O S T A L 7 .
[British post ON]

~ P O S T A L 3 0 .
[Canadian post ON]

~ P O S T A L 1 0 .
[Intelligent mail bar code ON]

~ P O S T A L 3 .
[Japanese post ON]

~ P O S T A L 4 .
[KIX post ON]

~ P O S T A L 5 .
[Planet code ON]

~ P O S T A L 9 .
[Postal-4i ON]

~ P O S T A L 6 .
[Postnet ON]

~ P O S T A L 1 1 .
[Postnet with B and B' field ON]

~ P O S T A L 2 .
[InfoMail ON]

Combination 2D postal codes

~ P O S T A L 8 .
[InfoMail and British post ON]

~ P O S T A L 2 0 .
[Intelligent mail bar code and
Postnet with B and B' fields ON]

~ P O S T A L 1 4 .
[Postnet and Postal-4i ON]

~ P O S T A L 1 6 .
[Postnet and Intelligent mail bar code ON]

‖‖|‖‖‖‖|‖‖|‖‖|‖‖|‖‖‖‖‖‖|‖‖‖|‖
~ P O S T A L 1 7 .
[Postal-4i and Intelligent mail bar code ON]

‖‖|‖|‖‖|‖‖‖|‖‖|‖‖‖|‖‖|‖‖|‖‖
~ P O S T A L 1 2 .
[Planet code and Postnet ON]

‖‖|‖‖‖‖|‖‖‖|‖‖|‖‖‖|‖‖‖|‖‖|‖‖
~ P O S T A L 1 3 .
[Planet code and Postal-4i ON]

‖‖|‖‖‖‖|‖‖‖|‖‖|‖‖‖|‖‖‖|‖‖|‖‖
~ P O S T A L 2 1 .
[Planet code, Postnet and Postal-4i ON]

‖‖|‖‖‖‖|‖‖‖|‖‖|‖‖‖‖‖‖|‖|‖|‖‖
~ P O S T A L 2 3 .
[Planet code, Postal-4i and
Intelligent mail bar code ON]

‖‖|‖‖‖‖|‖‖‖|‖‖|‖‖‖|‖‖‖|‖|‖|‖‖
~ P O S T A L 2 5 .
[Planet code, Postal-4i and
Postnet with B and B' field ON]

‖‖|‖‖‖‖|‖‖‖|‖‖|‖‖‖|‖‖‖|‖|‖|‖‖
~ P O S T A L 2 7 .
[Postal-4i, Intelligent mail bar code and
Postnet with B and B' field ON]

‖‖|‖‖‖‖|‖‖‖|‖‖|‖‖‖|‖‖‖|‖‖|‖‖
~ P O S T A L 2 9 .
[Planet code, Postal-4i,
Intelligent mail bar code,
Postnet with B and B' field ON]

‖‖|‖‖‖‖|‖‖‖|‖‖|‖‖‖|‖‖‖‖‖|‖|‖‖
~ P O S T A L 1 9 .
[Postal-4i and
Postnet with B and B' fields ON]

‖‖|‖‖‖‖|‖‖‖|‖‖|‖‖‖|‖‖‖‖|‖|‖‖
~ P O S T A L 1 8 .
[Planet code and
Postnet with B and B' fields ON]

‖‖|‖‖‖‖|‖‖‖|‖‖|‖‖‖‖‖‖|‖‖|‖|‖‖
~ P O S T A L 1 5 .
[Planet code and
Intelligent mail bar code ON]

‖‖|‖‖‖‖|‖‖‖|‖‖|‖‖‖|‖‖‖‖|‖‖|‖‖
~ P O S T A L 2 2 .
[Planet code, Postnet and
Intelligent mail bar code ON]

‖‖|‖‖‖‖|‖‖‖|‖‖|‖‖‖|‖‖|‖|‖‖|‖‖
~ P O S T A L 2 4 .
[Postnet, Postal-4i and
Intelligent mail bar code ON]

‖‖|‖‖‖‖|‖‖‖|‖‖|‖‖‖|‖‖|‖|‖|‖‖
~ P O S T A L 2 6 .
[Planet code, Intelligent mail bar code and
Postnet with B and B' field ON]

‖‖|‖‖‖‖|‖‖‖|‖‖|‖‖‖|‖‖‖‖‖|‖|‖‖
~ P O S T A L 2 8 .
[Planet code, Postal-4i,
Intelligent mail bar code and Postnet ON]

Planet code check digit

~ P L N C K X 1 .
[Transmit check digit]

~ P L N C K X 0 .
[**Don't transmit check digit**]

Postnet check digit

~ N E T C K X 1 .
[Transmit check digit]

~ N E T C K X 0 .
[**Don't transmit check digit**]

Australian post interpretation

This option controls what interpretation is applied to customer fields in Australian 4-State symbols.

~ A U S I N T 0 .
[**Bar output**]

Bar output lists the bar pattern in "0123" format.

Numeric N table causes that field to be interpreted as numeric data using the N table.

~ A U S I N T 1 .
[Numeric N table]

~ A U S I N T 2 .
[Alphanumeric C table]
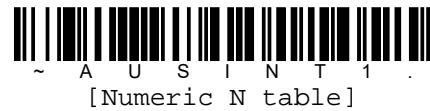
Alphanumeric C table causes that field to be interpreted as alphanumeric data using the C table.

Combination C and N table causes that field to be interpreted using the C and N table.

~ A U S I N T 3 .
[Combination C and N table]

Linear postal codes

China post(Hong Kong 2 of 5)

~ C P C D F T .
[Default all China post setting]

~ C P C E N A 1 .
[China post ON]

~ C P C E N A 0 .
[**China post OFF**]

~ C P C M I N .
[Minimum message length]

~ C P C M A X .
[Maximum message length]

Minimum/Maximum message length
Read command barcodes to change message length and then set massage length by [Numeric barcode table].
Allowable message length is 2~80. Minimum default = 4, maximum default = 80.

Korea post

||| ||||| || ||| || ||| |||||| ||| |||
~ K P C D F T .
[Default all Korea post setting]

||| | ||||| || |||| || |||||| ||| ||| |
~ K P C E N A 1 .
[Korea post ON]

||| | |||| ||||| || ||| ||| ||| ||||| |||
~ K P C E N A 0 .
[**Korea post OFF**]

||| | |||| ||||| | ||| ||| || ||| |||| |
~ K P C C H K 1 .
[Transmit check digit]

|| | |||| ||||| ||| || || ||| ||| |||
~ K P C C H K 0 .
[**Don't transmit check digit**]

|| | |||| ||||| | ||| || || ||| |||| |
~ K P C M I N .
[Minimum message length]

||| | |||| || ||| || || |||| ||| ||
~ K P C M A X .
[Maximum message length]

Minimum/Maximum message length
Read command barcodes to change message length and then set massage length by [Numeric barcode table].
Allowable message length is 2~80. Minimum default = 4, maximum default = 80.

10. Imaging command

The reader is like a digital camera in the way it captures, manipulates, and transfers images. The following commands allow you to alter the way the reader performs these functions.

Single-use basis

Imaging commands with their modifiers send instructions to the reader on a single-use basis, and take effect for a single image capture. Once that capture is complete, the reader reverts to its imaging default settings. If you want to permanently change a setting, you must use the serial default commands.

Command syntax

Multiple modifiers and commands can be issued within one sequence. It additional modifiers are to be applied to the same command, just add the modifiers to that command. For example, to add 2 modifiers to the image snap command, such as setting the imaging style to 1P and the wait for trigger to 1T, you would enter IMGSNP1P1T.

[Note]
After processing an image capture command (IMGSNP), you must follow it with an IMGSHP command if you want to see it on your terminal.

To add a command to a sequence, each new command is separated with a semicolon. For example, to add the image ship command to the above sequence, you would enter IMGSNP1P1T;IMGSHP.

```
    Image snap command      IMGSNP
    Image ship command      IMGSHP
    (*) The modifiers for each of these commands follow the command description.
```

[Note]
The images included with each command description are examples only. The results you achieve may be different from those included in this guide. The quality of the output you receive will vary depending on lighting, quality of the initial image/object being captured, and distance of the reader from image/object. To achieve a high quality image, it is recommended that you position your reader 102mm ~ 152mm away from the image/object you are capturing.

Step 1 Take a picture using Image snap command - IMGSNP

An image is taken whenever the trigger button is pressed, or when the image snap command [IMGSNP] is processed.

The image snap command has may different modifiers that can be used to change the look of the image in memory. Any number of modifiers may be appended to the IMGSNP command. For example, you can use the following command to snap an image, increase the gain, and have the beeper sound once the snap is complete : IMGSNP2G1B.

IMGSNP modifier
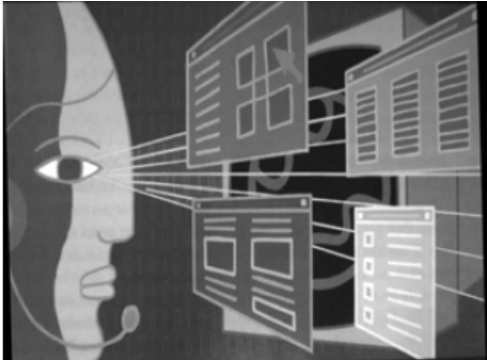
P	Imaging style	
This sets the image snap style.		
0P	**Decoding style**	
	This processing allows a few frames to be taken until the exposure parameters are met. The last frame is then available for further use.	
1P	**Photo style(Default)**	
	This mimics a simple digital camera, and results in a visually optimized image.	
2P	**Manual style**	
	This is an advanced style that should only be used by experienced user. It allows you the most freedom to set up the reader, and has no auto-exposure.	

B	Beeper
This sets the beeper sound after an image is snapped.	
0B	No beep(Default)
1B	Sound a beep after snapping.

T	Wait for a trigger
Waits for a trigger button push before taking the image. This is only available when using Photo style(1P).	
0T	Takes image immediately(Default)
1T	Wait s for a trigger button push, then takes the image

L	LED state
Determines if the LEDs should be on or off, and when. Ambient illumination (0L) is preferred for taking pictures of color documents, such as ID cards, especially when the reader is in a stand. LED illumination (1L) is preferred when the reader is handheld. LED state is not available when using decoding style (0P).	
0L	LEDs off(Default)
1L	LEDs on

E	Exposure
Exposure is used in manual style (2P), and allows you to set the exposure time. This is similar to setting a shutter speed on a camera. The exposure time determines how long the reader takes to record an image. On a bright day, exposure times can be very short because plenty of light is available to help record an image. At night time, exposure time can be increase dramatically due to the near absence of light. Units are 127 microseconds. Default = 7874.	
nE	Exposure setting range is 1~7874.

Example of exposure at 7874E with fluorescent lighting	Example of exposure at 100E with fluorescent lighting
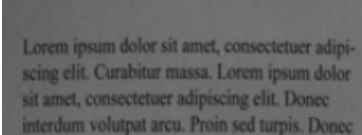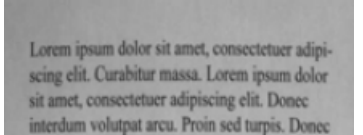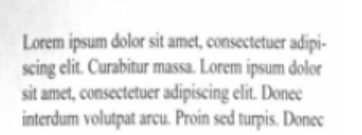
G	Gain
Gain is used in manual style (2P) only. Like a volume control, the gain modifier boosts the signal and multiples the pixel value. As you increase the gain, the noise in an image is also amplified.	
nG	40G Medium gain 64G Heavy gain(Default) 96G Maximum gain

Example of gain at 40G	Example of gain at 64G	Example of gain at 96G

W	Target white value

Sets the target for the median grayscale value in the captured image. For capturing close-up images of high contrast documents, a lower setting, such as 75, is recommended. Higher setting result in longer exposure times and brighter images, but if the setting is too high, the image may be overexposed. Target white value is only available when using photo style (1P). Default = 90.

nW	Setting range is 0 ~ 255.

Example of white value at 40G	Example of white value at 64G	Example of white value at 96G

D	Delata for acceptance

This sets the allowable range for the white value setting. Delta is only available when using photo style (1P). Default = 25.

nD	Setting range is 0 ~ 255.

U	Update tries

This sets the maximum number of frames the reader should take to reach the [Delta for acceptance]. Update tries is only available when using photo style (1P). Default = 6.

nU	Setting rage is 0 ~ 10.

%	Target set point percentage

Sets the target point for the light and dark values in the captured image. A setting of 75% of pixels are at or below the target white value, and 25% of the pixels are above the target white value. Altering this setting from the default is not recommended under normal circumstances. To alter grayscale values, [Target white value] should be used. Default = 50.

n%	Setting rage is 1 ~ 99.

Example of target set point percentage at 97%	Example of target set point percentage at 50%	Example of target set point percentage at 40%
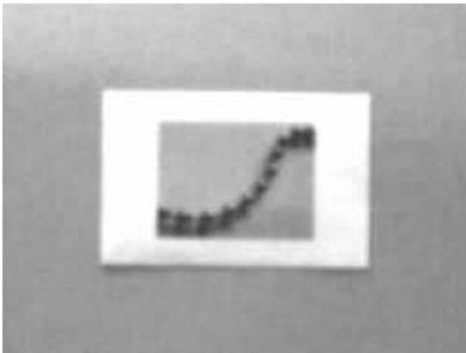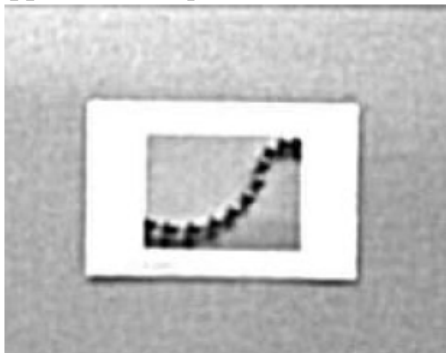
Step 2 Ship a picture using Image ship command – IMGSHP

An image is taken whenever the trigger is pressed, or when the image snap command [IMGSNP] is processed. The last image is always stored in memory. You can "ship" the image by using the IMGSHP command.

The image ship commands have many different modifiers that can be used to change the look of the image output. Modifiers affect the image that is transmitted, but do not affect the image in memory. Any number of modifiers may be appended to the IMGSHP command. For example, you can use the following command to snap and ship a bitmap image with gamma correction and document image filtering : IMGSNP;IMGSHP8F75K26U.

IMGSHP modifier

A	Infinity filter
Enhances pictures taken from very long distances (greater than 10 feet or 3m). The infinity filter should not be used with IMGSNP modifiers.	
0A	Infinity filter off (Default)
1A	Infinity filter on

Example of infinity filter off (0A) from approximately 12 feet (3.66m) away	Example of infinity filter on (1A) from approximately 12 feet (3.66m) away

C	Compensation
Flattens the image to account for variations in illumination across the image.	
0C	Compensation disabled (Default)
1C	Compensation enabled

Example of compensation off (0C)	Example of compensation on (1C)

D	Pixel depth
Indicates the number of bits per pixel in the transmitted image (KIM or BMP format only).	
8D	8 bits per pixel, grayscale image (Default)
1D	1 bit per pixel, black and white image
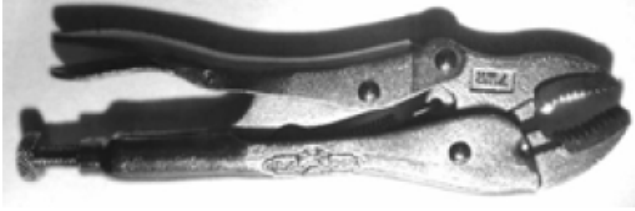
E	Edge sharpen

An edge sharpen filter cleans up the edges of an image, making it look cleaner and sharper. While edge sharpening does make the image look cleaner, it also removes some fine detail from the original image. The strength of the edge sharpen filter can be entered from 1 to 24. Entering a 23E gives the sharpest edges, but also increase noise in the image.

0E	Don't sharpen image (Default)
nE	Setting rage is 1 ~24.

Example of edge sharpen at 0E	Example of edge sharpen at 24E

F	File format

Indicates the desired format for the image.

0F	KIM format
1F	TIFF binary
2F	TIFF binary group 4, compressed
3F	TIFF grayscale
4F	Uncompressed binary (upper left to lower right, 1 pixel/bit, 0 padded end of line)
5F	Uncompressed grayscale (upper left to lower right, bitmap format)
6F	JPEG image (Default)
8F	BMP format (lower right to upper left, uncompressed)
15F	BMP uncompressed raw image

H	Histogram stretch

Increase the contrast of the transmitted image. Not available with some image formats.

0H	No stretch (Default)
1H	Histogram stretch

Example of histogram stretch at 0H	Example of histogram stretch at 1H

I	Invert image
	Invert image is used to rotate the image around the X or Y axis.
1ix	Invert around the X axis (flips picture upside down)
1iy	Invert around the Y axis (flips picture left to right)

Example of image not inverted	Example of image with invert image set to 1ix	Example of image with invert image set to 1iy

IF	Noise reduction
	Used to reduce the salt and pepper noise in an image.
0if	No salt and pepper noise reduction (Default)
1if	Salt and pepper noise reduction

Example of noise reduction off (0if)	Example of noise reduction on (1if)

IR	Image rotate
Used to rotate the image.	
0ir	Image as snapped (right side up) (Default)
1ir	Rotate image 90 degrees to the right
2ir	Rotate image 180 degrees (upside down)
3ir	Rotate image 90 degrees to the left

Example of image rotate set to 0ir

Example of image rotate set to 2ir

Example of image rotate set to 1ir

Example of image rotate set to 3ir
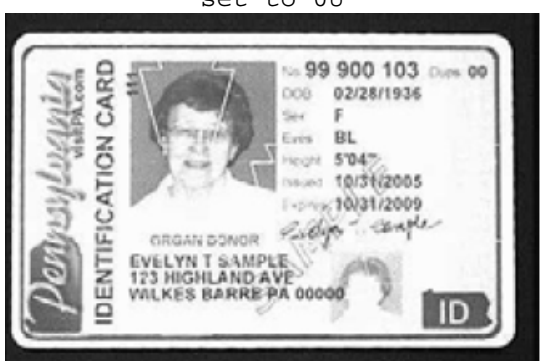
J	JPEG image quality
Sets the desired quality when the JPEG image format is selected. Higher numbers result in higher quality, but file size become larger. Smaller numbers result in greater amounts of lossy compression, faster transmission times, lower quality, but smaller file size. Default = 50.	
nJ	Setting rage is = 0 ~ 100. 0 is worst quality and smallest file size, 100 is best quality and largest file size.

K	Gamma correction
Gamma measures the brightness of midtone values produced by the image. You can brighten or darken an image using gamma correction. A higher gamma correction yields an overall brighter image. The lower the setting the darker the image. The optimal setting for text images is 5K. Default = 0 (Gamma correction off).	
nK	Setting rage is 0 ~ 1000.

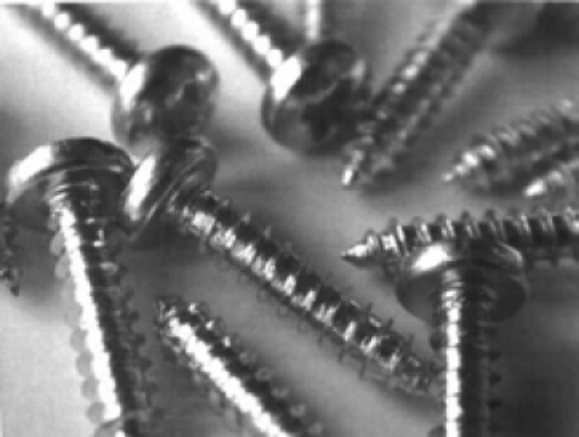| Example of gamma correction set to 0K	Example of gamma correction set to 50K	Example of gamma correction set to 255K

L,R,T,B,M	Image cropping
Ships a window of the image by specifying the left, right, top and bottom pixel coordinates. Device columns are numbered 0 through 1279, and device rows are numbered 0 through 959.	
nL	The left edge of the shipped image corresponds to column n of the image in memory. Setting rage is 0 ~ 843. Default = 0.
nR	The right edge of the shipped image corresponds to column n-1 of the image in memory. Setting rage is 0 ~ 843. Default = all columns.
nT	The top edge of the shipped image corresponds to row n of the image in memory. Setting rage is 0 ~ 639. Default = 0.
nB	The bottom edge of the shipped image corresponds to row n-1 of the image in memory. Setting rage is 0 ~ 639. Default = all rows.

Uncropped image	Example of image crop set to 300R	Example of image crop set to 300L

Example of image crop set to 200B	Example of image crop set to 300T

	Alternately specify the number of pixels to cut from the outside margin of the image, thus only the center pixels are transmitted.
nM	Margin : cut n columns from the left, n+1 columns from the right, n rows from the top, and n+1 rows from the bottom of the image. Ship the remaining center pixels. Setting range is 0 ~ 238. Default = 0 or full image.

Example of image crop
set to 238M

P	Protocol
	Used for shipping an image. Protocol covers two features of the image data being sent to the host. It addresses the protocol used to send the data (Hmodem, which is an Xmodem 1K variant that has additional header information), and the format of the image data that is sent.
0P	None (raw data)
2P	None (Default for USB)
3P	Hmodem compressed (Default for RS232)
4P	Hmodem

S	Pixel ship
	Pixel ship sizes an image in proportion to its original size. It decimates the image by shipping only certain, regularly spaced pixels. For example, 4S would transmit every fourth pixel from every fourth line. The smaller number of pixels shipped, the smaller the image, however, after a certain point the image becomes unusable.
1S	Ship every pixel (Default)
2S	Ship every 2nd pixel, both horizontally and vertically
3S	Ship every 2rd pixel, both horizontally and vertically

Example of pixel ship set to 1S

Example of pixel ship set to 2S

Example of pixel ship set to 3S

U	Document image filter
	Allow you to input parameters to sharpen the edges and smooth the area between the edges of text in an image. This filter should be used with gamma correction, with the reader in a stand, and the image captured using the command : IMGSNP1P0L168W90%32D This filter typically provides better JPEG compression than the standard E- Edge sharpen command. This filter also works well when shipping pure black and white images (1 bit per pixel). The optimal setting is 26U. Default = 0.
nS	Apply document image filter using grayscale threshold n. Use lower numbers when the image contrast is lower. 1U will have a similar effect to setting 22E (Edge sharpen). Setting rage is 0 ~ 255.

Example of document image filter set to 0U

Example of document image filter set to 26U

V	Blur image
Smooth transitions by averaging the pixels next to the hard edges of defined lines and areas in an image.	
0V	Don't blur (Default)
1V	Blur

Example of blur image off (0V)	Example of blur image on (1V)

W	Histogram ship
A histogram gives a quick picture of the tonal range of an image, or key type. A low-key image has detail concentrated in the midtones. This modifier ships the histogram for an image.	
0W	Don't ship histogram (Default)
1W	Ship histogram

Image used for histogram	Histogram of image at left

11. Serial commands

The serial commands can be used in place of the programming command barcodes. Both the serial commands and the command barcodes will program the reader. For complete descriptions and examples of each serial command, refer to the corresponding command barcode in this guide.

The reader must be set an RS232 interface or USB COM emulation interface to use serial commands.

The following conventions are used for menu and query command descriptions:

[option]   An option part of a command
{data}   Alternatives in a command

Menu command syntax

Menu commands have the following syntax (Spaces gave been used for clarity only):

Prefix Tag SubTag {Data}[, SubTag{Data}][; Tag SubTag {Data}][…] Storage

Field	Description
Prefix	Three ASCII characters below. <table><tr><td>SYN</td><td>M</td><td>CR</td></tr><tr><td>16hex</td><td>4Dhex</td><td>1Dhex</td></tr></table>
Tag	A 3 character case-insensitive field that indentifies the desired menu command group. For example, all RS232 configuration settings are indentified with a Tag of 232 below. <table><tr><td>2</td><td>3</td><td>2</td></tr><tr><td>32hex</td><td>33hex</td><td>32hex</td></tr></table>
SubTag	A 3 character case-insensitive field that indentifies the desired menu command within the Tag group. For example, the SubTag for RS232 baud rate is BAD below. <table><tr><td>B</td><td>A</td><td>D</td></tr><tr><td>42hex</td><td>41hex</td><td>44hex</td></tr></table>
Data	The new value for a menu setting, identified by the Tag and SubTag.
Storage	A single character that specifies the storage table to which the command is applied. An exclamation point (!) performs the command's operation on the reader's volatile menu configuration table. A period (.) performs the command's operation on the reader's non-volatile menu configuration table. Use the non-volatile table only for semi-permanent changes you want saved through a power cycle.

Query commands

Several special characters can be used to query the reader about its setting.

^(5Ehex)	What is the default value for the setting(s).
?(3Fhex)	What it the reader's current value for the setting(s).
*(2Ahex)	What is the range of possible values for the setting(s)(*)
(*)The reader's response use a dash [-] (2Dhex) to indicate a continuous range of values. A pipe (|) separates items in a list of non-continuous values.	

Tag field usage
When a query is used in place of a Tag field, the query applies to the entire set of commands available for the particular storage table indicated by the Storage field of the command. In this case, the SubTag and Data field should not be used because they are ignored by the reader.

SubTag field usage
When a query is used for in place of a SubTag field, the query applies only to the subset of commands available that match the Tag field. In this case, the Data field should not be used because it is ignored by the reader.

Data field usage

When a query is used in place of the Data field, the query applies only to the specific command indentified by the Tag and SubTag fields.

Concatenation of multiple commands

Multiple commands can be issued within one Prefix/Storage sequence. Only the Tag, SubTag and Data fields must be repeated for each command in the sequence. If additional commands are to be applied to the same Tag, then the new command sequence is separated with comma (,) and only the SubTag and Dat fields of the additional command are issued. If the additional command requires a different Tag field, the command is separated from previous commands by a semicolon (;).

Responses

The reader response to serial command with one of three Reponses listed below.

ACK(06hex)	Indicates a good command which has been processed.
ENQ(05hex)	Indicates an invalid Tag or SubTag command.
NAK(15hex)	Indicates the command was good, but the Data field entry was out of the allowable range for this Tag and SubTag combination, e.g., an entry for a minimum message length of 100 when the field will only accept 2 characters.

When responding, the reader echoes back the command sequence with the status character inserted directly before each of the punctuation marks (the period, exclamation point, comma, or semicolon) in the command.

Examples of query commands

In the following examples, bracketed notation <> depicts a non-displayable response. (Ex. <ACK> = 06hex)

Ex-1)What is the range of possible values for Codabar coding enable?

Command	<SYN>M<CR>cbrena*.
Response	CBRENA0-1<ACK>.
This response indicates that the default setting for Codabar coding enable (CBRENA) has a range of values from 0 to 1 (off and on).	

Ex-2)What is the default value for Codabar coding enable?

Command	<SYN>M<CR>cbrena^.
Response	CBRENA1<ACK>.
This response indicates that the default setting for Codabar coding enable (CBRENA) is 1, or on.	

Ex-3What is the reader's current setting for Codabar coding enable?

Command	<SYN>M<CR>cbrena?.
Response	CBRENA1<ACK>.
This response indicates that the reader's Codabar coding enable (CBRENA) it set to 1, or on.	

Ex-4)What are the reader's settings for all Codabar selections?

Command	<SYN>M<CR>cbr?.	
Response	CBRENA1<ACK>.	Codabar coding enable 1, or on
	SSX0<ACK>.	Start/Stop 0, or don't transmit
	CK20<ACK>.	Check digit 0, or off
	CCT0<ACK>.	Concatenation0 or off
	MIN4<ACK>.	Minimum message length 4
	MAX60<ACK>.	Maximum message length 60
	DFT<ACK>.	Default has no value

Menu commands

Selection	Setting * Indicates default	Serial commands # Indicates a numeric entry
Reader default settings		
Custom defaults	Set custom defaults	MNUCDF
	Save custom defaults	MNUCDS
	Activate custom defaults (or factory default)	DEFALT
Programming the interface		
Plug and play codes	Keyboard wedge : IBM PC AT compatibles with suffix CR	PAP_AT
	Keyboard wedge : Laptop direct connect with suffix CR	PAPLTD
	RS232C serial port	PAP232
	USB IBM SurePos handheld	PAPSPH
	USB IBM SurePos table top	PAPSPT
	USB keyboard(USA)	PAP124
	USB keyboard(MAC)	PAP125
	USB keyboard(Japanese)	TRMUSB134
	HID POS	PAP131
	USB COM emulation	TERMID130
	ACK/NAK mode on	USBACK1
	ACK/NAK mode off	USBACK0
	Verifone Ruby Terminal	PAPRBY
	Gilbarco Terminal	PAPGLB
	Honeywell Bioptic Aux Port	PAPBIO
	Datalogic Magellan Bioptic Aux Port	PAPMAG
	NCR Bioptic Aux Port	PAPNCR
	Wincor Nixdorf Terminal	PAPWNX
	Wincor Nixdorf Beetle	PAPBTL
	Wincor Nixdorf RS232 Mode A	PAPWMA
Program keyboard country	*USA	KBDCTY0
	Albania	KBDCTY35
	Azeri(Cyrillic)	KBDCTY81
	Azeri(Latin)	KBDCTY80
	Belarus	KBDCTY82
	Belgium	KBDCTY1
	Bosnia	KBDCTY33
	Brazil	KBDCTY16
	Brazil(MS)	KBDCTY59
	Bulgaria(Cyrillic)	KBDCTY52
	Bulgaria(Latin)	KBDCTY53
	Canada(French legacy)	KBDCTY54
	Canada(French)	KBDCTY18
	Canada(Multilingual)	KBDCTY55
	Croatia	KBDCTY32
	Czech	KBDCTY15
	Czech(Programmers)	KBDCTY40
	Czech(QWERTY)	KBDCTY39
	Czech(QWERTZ)	KBDCTY38
	Denmark	KBDCTY8
	Dutch(Netherlands)	KBDCTY11
	Estonia	KBDCTY41
	Faeroese	KBDCTY83
	Finland	KBDCTY2
	France	KBDCTY3
	Gaelic	KBDCTY84
	Germany	KBDCTY4
	Greek	KBDCTY17
	Greek(220 Latin)	KBDCTY64
	Greek(220)	KBDCTY61
	Greek(319 Latin)	KBDCTY65
	Greek(319)	KBDCTY62
	Greek(Latin)	KBDCTY63
	Greek(MS)	KBDCTY66
	Greek(Polytonic)	KBDCTY60
	Hebrew	KBDCTY12
	Hungarian(101 key)	KBDCTY50
	Hungary	KBDCTY19
	Iceland	KBDCTY75
	Irish	KBDCTY73

Selection	Setting * Indicates default	Serial commands # Indicates a numeric entry
Program keyboard country	Italian(142)	KBDCTY56
	Italy	KBDCTY5
	Japan(ASCII)	KBDCTY28
	Kazakh	KBDCTY78
	Kyrgyz(Cyrillic)	KBDCTY79
	Latin America	KBDCTY14
	Latvia	KBDCTY42
	Latvia(QWERTY)	KBDCTY43
	Lithuania	KBDCTY44
	Lithuania(IBM)	KBDCTY45
	Macedonia	KBDCTY34
	Malta	KBDCTY74
	Mongolian(Cyrillic)	KBDCTY86
	Norway	KBDCTY9
	Poland	KBDCTY20
	Poland(214)	KBDCTY57
	Poland(Programmers)	KBDCTY58
	Portugal	KBDCTY13
	Romania	KBDCTY25
	Russia	KBDCTY26
	Russia(MS)	KBDCTY67
	Russia(Typewriter)	KBDCTY68
	SCS	KBDCTY21
	Serbia(Cyrillic)	KBDCTY37
	Serbia(Latin)	KBDCTY36
	Slovakia	KBDCTY22
	Slovakia(QWERTY)	KBDCTY49
	Slovakia(QWERTZ)	KBDCTY48
	Slovenia	KBDCTY31
	Spain	KBDCTY10
	Spanish Variation	KBDCTY51
	Sweden	KBDCTY23
	Switzerland(French)	KBDCTY29
	Switzerland(German)	KBDCTY6
	Tatar	KBDCTY85
	Turkey F	KBDCTY27
	Turkey Q	KBDCTY24
	Ukrainian	KBDCTY76
	United Kingdom	KBDCTY7
	United Stated(Dvorak right)	KBDCTY89
	United Stated(Dvorak left)	KBDCTY88
	United Stated(Dvorak)	KBDCTY87
	United Stated(International)	KBDCTY30
	Uzbek(Cyrillic)	KBDCTY77
Keyboard conversion	*Keyboard conversion off	KBDCNV0
	Convert all characters to upper case	KBDCNV1
	Convert all characters to lower case	KBDCNV2
Keyboard style	*Regular(All off)	KBDSTY0
	Caps Lock on	KBDSTY1
	Shift Lock on	KBDSTY2
	Automatic Caps Lock	KBDSTY6
	Emulate external keyboard	KBDSTY5
Control character output	*Control character output off	KBDNPE0
	Control character output on	KBDNPE1
Keyboard modifier	*Control+X off	KBDCAS0
	DOS mode Control+X on	KBDCAS1
	Windows mode Control+X on	KBDCAS2
	Windows mode Prefix/Suffix off	KBDCAS3
	*Turbo mode off	KBDTMD0
	Turbo mode on	KBDTMD1
	*Numeric keypad off	KBDNPS0
	Numeric keypad on	KBDNPS1
	*Auto direct connect off	KBDADC0
	Auto direct connect on	KBDADC1

Selection	Setting * Indicates default	Serial commands # Indicates a numeric entry
Baud rate	300bps	232BAD0
	600bps	232BAD1
	1200bps	232BAD2
	2400bps	232BAD3
	4800bps	232BAD4
	9600bps	232BAD5
	19200bps	232BAD6
	38400bps	232BAD7
	57600bps	232BAD8
	*115200bps	232BAD9
Databits, Stop bit, Parity	7 Data,1 Stop, Even	232WRD3
	7 Data,1 Stop, None	232WRD0
	7 Data,1 Stop, Odd	232WRD6
	7 Data,2 Stop, Even	232WRD4
	7 Data,2 Stop, None	232WRD1
	7 Data,2 Stop, Odd	232WRD7
	8 Data,1 Stop, Even	232WRD5
	*8 Data,1 Stop, None	232WRD2
	8 Data,1 Stop, Odd	232WRD8
	8 Data,1 Stop, Mark	
RS232 receiver timeout	Range 0 ~ 300 seconds	232LPT###
RS232 handshaking	*RTS/CTS off	232CTS0
	Flow control, No timeout	232CTS1
	Two-direction flow control	232CTS2
	Flow control with timeout	232CTS3
	RS232 timeout	232DEL####
	*XON/XOFF off	232XON0
	XON/XOFF on	232XON1
	*ACK/NAK off	232ACK0
	ACK/NAK on	232ACK1
RS232 stop mode	RS232 stop mode on	232SDY
Bioptic packet mode	*Packet mode off	232PKT0
	Packet mode on	232PKT2
Bioptic ACK/NAK mode	*ACK/NAK mode of	232NAK0
	ACK/NAK mode on	232NAK1
Bioptic ACK/NAK timeout	ACK/NAK timeout *5100	232DLK#####
Input/Output selection		
Power up beep	Off	BEPPWR0
	*On	BEPPWR1
Beep on BEL character	on	BELBEP1
	*Off	BELBEP0
Trigger click beep	On	BEPTRG1
	*Off	BEPTRG0
Good read beep	Off	BEPBEP0
	*On	BEPBEP1
Good read beep volume	None	BEPLVL0
	Small	BEPLVL1
	Medium	BEPLVL2
	*Big	BEPLVL3
Good read beep frequency	1600Hz(Low)<Min 400Hz>	BEPFQ11600
	*2700Hz(Medium)	BEPFQ12700
	4200Hz(High)	BEPFQ14200
Error beep frequency	*250Hz(Low) <Min 200Hz>	BEPFQ2250
	3250Hz(Medium)	BEPFQ23250
	4200Hz(High)	BEPFQ24200
Good read beep duration	*Normal	BEPBIP0
	Short	BEPBIP1
Good read LED	Off	BEPLED0
	*On	BEPLED1
Number of error beep	Range 1 ~ 9 (*1)	BEPERR#
Number of good read beep	Range 1 ~ 9 (*1)	BEPRPT#
Good read delay	*None(0msec)	DLYGRD0
	500msec	DLYGRD500
	1000msec	DLYGRD1000
	1500msec	DLYGRD1500
	Range 0 ~ 30000msec	DLYGRD####

Selection	Setting * Indicates default	Serial commands # Indicates a numeric entry
Manual trigger mode	Manual trigger - normal	PAPHHF
LED illumination (Manual trigger mode)	Low	PWRNOL15
	Medium	PWRNOL50
	*High	PWRNOL150
Read timeout (Serial trigger mode)	Range 0 ~ 300000msec(*30000msec)	TRGSTO####
Presentation mode	Presentation mode	PAPPST
Idle illumination	Low	PWRIDL7
	Medium	PWRIDL15
	*High	PWRIDL50
Presentation sensitivity	Range 0 ~ 20(*1)	TRGPMS##
Presentation centering	On	PDCWIN1
	*Off	PDCWIN0
	Top	PDCTOP
	Bottom	PDCBOT
	Left	PDCLFT
	Right	PDCRGT
Poor quality 1D codes	On	DECLDI1
	*Off	DECLDI0
Poor quality 2D codes	On	PDFXPR1
	*Off	PDFXPR0
Code gate	*Off	AOSCGD0
	On	AOSCGD1
Mobile phone read mode	Handheld scanning	PAPHHC
	Presentation scanning	PAPPSC
Image snap and ship	Image snap and ship	TRGMOD6
Hands free timeout	Range 0 ~ 300000msec	TRGPTO######
Reread delay(1D)	Range 0 ~ 30000msec(*750msec)	DLYRRD#####
Reread delay (2D)	Range 0 ~ 30000msec (*0msec<None>)	DLY2RR#####
Activation character mode	*Off	HSTCEN0
	On	HSTCEN1
Activation character	*12<DC2>	HSTACH##
Activation character timeout	Range 1 ~ 300000msec(*30000msec)	HSTCDT######
End character activation after good read	*Do not end	HSTDEN0
	End	HSTDEN1
Deactivation character	*14<DC4>	HSDHC##
Illumination lights	*On	HSTLED1
	Off	HSTLED0
Aimer delay	Range 0 ~ 4000msec(*0msec<None>)	SCNDLY####
Aimer mode	Off	SCNAIM0
	*On(Interlaced)	SCNAIM2
Centering window	On	DECWIN1
	*Off	DECWIN0
	Top(*40%)	DECTOP###
	Bottom(*60%)	DECBOT###
No read	On	SHWNRD1
	*Off	SHWNRD0
Video reverse	Video reverse only	VIDREV1
	Video reverse and standard codes	VIDREV2
	*Video reverse off	VIDREV0
Working orientation	*Upright	ROTATN0
	Vertical, bottom to top(Rotate CCW 90°)	ROTATN1
	Upside down	ROTATN2
	Vertical, top to bottom(Rotate CW 90°)	ROTATN3
Prefix/Suffix selections		
Add CR suffix to all symbologies		VSUFCR
Prefix	Add prefix	PREBK2##
	Clear one prefix	PRECL2
	Clear all prefix	PRECA2
Suffix	Add suffix	SUFBK2##
	Clear one suffix	SUFCL2
	Clear all suffix	SUFCA2
Function code transmit	*On	RMVFNC0
	Off	RMVFNC1
Intercharacter delay	Range 0 ~ 1000(unit 5msec)	DLYCRX###

Selection	Setting * Indicates default	Serial commands # Indicates a numeric entry
Interfunction delay	Range 0 ~ 1000(unit 5msec)	DLYFNC###
Intermessage delay	Range 0 ~ 1000(unit 5msec)	DLYMSG###
Data formatter selections		
Data format editor	*None	DFMDF3
	Enter data format	DFMBK3##
	Clear one data format	DFMCL3
	Clear all data format	DFMCA3
Data formatter	Off	DFM_EN0
	On, not required, keep prefix/suffix	DFM_EN1
	On, required, keep prefix.sufix	DFM_EN2
	On, not required drop prefix/suffix	DFM_EN3
	On, required, drop prefix/suffix	DFM_EN4
Primary/Alternate data formats	Primary data format	ALTFNM0
	Data format 1	ALTFNM1
	Data format 2	ALTFNM2
	Data format 3	ALTFNM3
Symbologies		
All symbologies	All symbologies off	ALLENA0
	All symbologies on	ALLENA1
Codabar	Default all Codabar settings	CBRDFT
	Off	CBRENA0
	*On	CBREAN1
	*Start/Stop char transmit off	CBRSSX0
	Start/Stop char transmit on	CBRSSX1
	*No check character	CBRCK20
	Validate modulo 16, but don't transmit	CBRCK21
	Validate modulo 16 and transmit	CBRCK22
	*Concatenation off	CBRCCT0
	Concatenation on	CBTCCT1
	Concatenation required	CBRCCT2
	Minimum message length range 2 ~ 60(*4)	CBRMIN##
	Maximum message length range 2 ~ 60(*60)	CBRMAX##
Code 39	Default all Code 39 settings	C39DFT
	Off	C39ENA0
	*On	C39ENA1
	*Start/Stop char transmit off	C39SSX0
	Start/Stop char transmit on	C39SSX1
	*No check character	C39CK20
	Validate, but don't transmit	C39CK21
	Validate and transmit	C39CK22
	Minimum message length range 0 ~ 48(*0)	C39MIN##
	Maximum message length range 0 ~ 48(*48)	C39MAX##
	*Append off	C39APP0
	Append on	C39APP1
	*PARAF off	C39B320
	PARAF on	C39B321
	*Full ASCII off	C39ASC0
	Full ASCII on	C39ASC1
	Code page	C39DCP
Interleaved 2 of 5	Default all Interleaved 2 of 5 settings	I25DFT
	Off	I25ENA0
	*On	I25ENA1
	*No check character	I25CK20
	Validate, but don't transmit	I25CK21
	Validate and transmit	I25CK22
	Minimum message length range 2 ~ 80(*4)	I25MIN##
	Maximum message length range 2 ~ 80(*80)	I25MAX##
NEC 2 of 5	Default all NEC 2 of 5 settings	N25DFT
	*No check character	N25ENA0
	Validate, but don't transmit	N25ENA1
	Validate and transmit	N25CK20
	Minimum message length range 2 ~ 80(*4)	N25CK21
	Maximum message length range 2 ~ 80(*80)	N25CK22
	最小桁数 設定範囲 2~80(*4)	N25MIN##
	最大桁数 設定範囲 2~80(*80)	N25MAX##

Selection	Setting * Indicates default	Serial commands # Indicates a numeric entry
Code 93	Default all Code 93 settings	C93DFT
	*Off	C93ENA0
	On	C93ENA1
	Minimum message length range 0 ~ 80(*0)	C93MIN##
	Maximum message length range 0 ~ 80(*80)	C93MAX##
	*Append off	C93APP0
	Append on	C93APP1
	Code page	C93DCP
Industrial 2 of 5	Default all Industrial 2 of 5 settings	R25DFT
	*Off	R25ENA0
	On	R25ENA1
	Minimum message length range 1 ~ 48(*4)	R25MIN##
	Maximum message length range 1 ~ 48(*48)	R25MAX##
IATA 2 of 5	Default all IATA 2 of 5 settings	A25DFT
	*Off	A25ENA0
	On	A25ENA1
	Minimum message length range 1 ~ 48(*4)	A25MIN##
	Maximum message length range 1 ~ 48(*48)	A25MAX##
Matrix 2 of 5	Default all Matrix 2 of 5 settings	X25DFT
	*Off	X25ENA0
	On	X25ENA1
	Minimum message length range 1 ~ 80(*4)	X25MIN##
	Maximum message length range 1 ~ 80(*80)	X25MAX##
Code 11	Default all Code 11 settings	C11DFT
	*Off	C11ENA0
	On	C11ENA1
	1 check digit	C11CK20
	*2 check digit	C11CK21
	Minimum message length range 1 ~ 80(*4)	C11MIN##
	Maximum message length range 1 ~ 80(*80)	C11MAX##
Code 128	Default all Code 128 settings	128DFT
	*Off	128ENA0
	On	128ENA1
	*ISBT concatenation off	ISBENA0
	ISBT concatenation on	ISBENA1
	Minimum message length range 0~80(*0)	128MIN##
	Maximum message length range 0~80(*80)	128MAX##
	*Append off	128APP0
	Append on	128APP1
	Code page(*2)	128DCP##
GS1-128	Default all GS1-128 settings	GS1DFT
	*Off	GS1ENA0
	On	GS1ENA1
	Minimum message length range 0 ~ 80(*0)	GS1MIN##
	Maximum message length range 0 ~ 80(*80)	GS1MAX##
UPC-A	Default all UPC-A settings	UPADFT
	Off	UPBENA0
	*On	UPBENA1
	Check digit off	UPACKX0
	*Check digit on	UPACKX1
	Number system transmit off	UPANSX0
	*Number system transmit on	UPANSX1
	*Addenda 2 off	UPAAD20
	Addenda 2 on	UPAAD21
	*Addenda 5 off	UPAAD50
	Addenda 5 on	UPAAD51
	*Addenda not required	UPAARQ0
	Addenda required	UPAARQ1
	Addenda separator off	UPAADS0
	*Addenda separator on	UPAADS1
	*UPC-A/EAN-13 extended coupon code off	CPNENA0
	UPC-A/EAN-13 extended coupon code on	CPNENA1
	UPC-A/EAN-13 extended coupon code required	CPNENA2
	Coupon GS1 Databar output off	CPNGS10
	Coupon GS1 Databar output on	CPNGS11

Selection	Setting * Indicates default	Serial commands # Indicates a numeric entry
UPC-E	Default all UPC-E settings	UPEDFT
	Off	UPEENA0
	*On	UPEENA1
	*Expand off	UPEEXP0
	Expand on	UPEEXP1
	*Addenda not required	UPEARQ0
	Addenda required	UPEARQ1
	Addenda separator off	UPEADS0
	*Addenda separator on	UPEADS1
	Check digit off	UPECKX0
	*Check digit on	UPECKX1
	Leading zero transmit off	UPENSX0
	Leading zero transmit on	UPENSX1
	*Addenda 2 off	UPEAD20
	Addenda 2 on	UPEAD21
	*Addenda 5 off	UPEAD50
	Addenda 5 on	UPEAD51
	*UPC-E1 off	UPEEN10
	UPC-E1 on	UPEEN11
EAN-13	Default all EAN-13 settings	E13DFT
	Off	E13ENA0
	*On	E13ENA1
	UPC-A to EAN-13 conversion off	UPAENA0
	UPC-A to EAN-13 conversion off	UPAENA1
	Check digit off	E13CKX0
	*Check digit on	E13CKX1
	*Addenda 2 off	E13AD20
	Addenda 2 on	E13AD21
	*Addenda 5 off	E13AD50
	Addenda 5 on	E13AD51
	*Addenda not required	E13ARQ0
	Addenda required	E13ARQ1
	Addenda separator off	E13ADS0
	*Addenda separator on	E13ADS1
	*ISBN conversion off	E13ISB0
	ISBN conversion on	E13ISB1
EAN-8	Default all EAN-8 settings	EA8DFT
	Off	EA8ENA0
	*On	EA8ENA1
	Check digit off	EA8CKX0
	*Check digit on	EA8CKX1
	*Addenda 2 off	EA8AD20
	Addenda 2 on	EA8AD21
	*Addenda 5 off	EA8AD50
	Addenda 5 on	EA8AD51
	*Addenda not required	EA8ARQ0
	Addenda required	EA8ARQ1
	Addenda separator off	EA8ADS0
	*Addenda separator on	EA8ADS1
MSI	Default all MSI settings	MSIDFT
	*Off	MSIENA0
	On	MSIENA1
	*Check digit, validate type 10, but don't transmit	MSICHK0
	Check digit, validate type 10 and transmit	MSICHK1
	Check digit, validate 2 type 10, but don't transmit	MSICHK2
	Check digit, validate 2 type 10 and transmit	MSICHK3
	Check digit, validate type 11, but don't transmit	MSICHK4
	Check digit, validate type 11 and transmit	MSICHK5
	Check digit off	MSICHK6
	Minimum message length range 4 ~ 48(*4)	MSIMIN##
	Maximum message length range 4 ~ 48(*48)	MSIMAX##

Selection	Setting * Indicates default	Serial commands # Indicates a numeric entry
GS1 Databar Omnidirectional	Default all GS1 Databar Ominidirectional settings	RSSDFT
	Off	RSSENA0
	*On	RSSENA1
GS1 Databar Limited	Default all GS1 Databar Limited settings	RSLDFT
	Off	RSLENA0
	*On	RSLENA1
GS1 Expanded	Default all GS1 Databar Expanded settings	RSEDFT
	Off	RSEENA0
	*On	RSEENA1
	Minimum message length range 4 ~ 74(*4)	RSEMIN##
	Maximum message length range 4 ~ 74(*74)	RSEMAX##
Trioptic Code	*off	TRIENA0
	On	TRIENA1
Codablock A	Default all Codablock A settings	CBADFT
	*Off	CBAENA0
	On	CBAENA1
	Minimum message length range 1 ~ 600(*1)	CBAMIN##
	Maximum message length range 1 ~ 600(*600)	CBAMAX##
Codablock F	Default all Codablock F settings	CBFDFT
	*Off	CBFENA0
	On	CBFENA1
	Minimum message length range 1 ~ 2048(*1)	CBFMIN##
	Maximum message length range 1 ~ 2048(*2048)	CBFMAX##
PDF417	Default all PDF417 settings	PDFDFT
	Off	PDFENA0
	*On	PDFENA1
	Minimum message length range 1 ~ 2750(*1)	PDFMIN##
	Maximum message length range 1 ~ 2750(*2750)	PDFMAX##
MacroPDF417	off	PDFMAC0
	*On	PDFMAC1
MicroPDF417	Default all PDF417 settings	MPDDFT
	*Off	MPDENA0
	On	MPDENA1
	Minimum message length range 1 ~ 366(*1)	MPDMIN##
	Maximum message length range 1 ~ 366(*366)	MPDMAX##
GS1 Composite	*Off	COMENA0
	On	COMENA1
	*UPC/EAN version off	COMUPC0
	UPC/EAN version on	COMUPC1
	Minimum message length range 1 ~ 2435(*1)	COMMIN##
	Maximum message length range 1 ~ 2435(*2435)	COMMAX##
GS1 emulation	GS1-128 emulation	EANEMU1
	GS1 Databar emulation	EANEMU2
	GS1 code expansion off	EANEMU3
	EAN-8 to EAN-13 conversion	EANEMU4
	GS1 emulation off	EANEMU0
TCIF Linked Code 39	*Off	T39ENA0
	On	T39ENA1
QR コード	Default all QR code settings	QRCDFT
	Off	QRCENA0
	*On	QRCENA1
	Minimum message length range 1 ~ 7089(*1)	QRCMIN##
	Maximum message length range 1 ~ 7089(*7089)	QRCMAX##
	Append off	QRCAPP0
	*Append on	QRCAPP1
	Code page(*3)	QRCDCP##
Data Matrix	Default all Data Matrix settings	IDMDFT
	Off	IDMENA0
	*On	IDMENA1
	Minimum message length range 1 ~ 3116(*1)	IDMMIN##
	Minimum message length range 1 ~ 3116(*3116)	IDMMAX##
	Append off	IDMAPP0
	*Append on	IDMAPP1
	Code page(*51)	IDMDCP##

Selection	Setting * Indicates default	Serial commands # Indicates a numeric entry
MaxiCode	Default all Data Matrix settings	MAXDFT
	Off	MAXENA0
	*On	MAXENA1
	Minimum message length range 1 ~ 150(*1)	MAXMIN##
	Maximum message length range 1 ~ 150(*150)	MAXMAX##
Aztec Code	Default all Aztec code settings	AZTDFT
	Off	AZTENA0
	*On	AZTENA1
	Minimum message length range 1 ~ 3832(*1)	AZTMIN##
	Maximum message length range 1 ~ 3832(*3832)	AZTMAX##
	Append off	AZTAPP0
	*Append on	AZTAPP1
	Code page(*51)	AZTDCP##
Chinese Sensible Code	Default all Chinese sensible code settings	HX_DFT
	*Off	HX_ENA0
	On	HX_ENA1
	Minimum message length range 1 ~ 7833(*1)	HX_MIN##
	Maximum message length range 1 ~ 7833(*7833)	HX_MAX##
2D Postal codes		
2D postal codes	*Off	POSTAL0
Single 2D postal codes	Australian post on	POSTAL1
	British post on	POSTAL7
	Canadian post on	POSTAL30
	Intelligent mail barcode on	POSTAL10
	Japanese post on	POSTAL3
	KIX post on	POSTAL4
	Planet code on	POSTAL5
	Postal-4i on	POSTAL9
	Postnet on	POSTAL6
	Postnet with B&B' Fields on	POSTAL11
	InfoMail on	POSTAL2
Combination 2D postal codes	InfoMail&British post on	POSTAL8
	Intelligent mail barcode &Postnet with B&B' Fields on	POSTAL20
	Postnet&Postal-4i on	POSTAL14
	Postnet&Intelligent mail barcode on	POSTAL16
	Postal-4i&Intelligent mail barcode on	POSTAL17
	Postal-4i&Postnet with B&B' Fields on	POSTAL19
	Planet&Postnet on	POSTAL12
	Planet&Postnet with B&B' Fields on	POSTAL18
	Planet&Postal-4i on	POSTAL13
	Planet&Intelligent mail barcode on	POSTAL15
	Planet,Postnet,Postal-4i on	POSTAL21
	Planet,Postnet,Intelligent mail barcode on	POSTAL22
	Planet,Postal-4i,Intelligent mail barcode on	POSTAL23
	Postnet,Postal-4i,Intelligent mail barcode on	POSTAL24
	Planet,Intelligent mail barcode, Postnet with B&B' Fields on	POSTAL25
	Planet,Postal-4i,Postnet with B&B' Fields on	POSTAL26
	Postal-4i,Intelligent mail barcode, Postnet with B&B' Fields on	POSTAL27
	Planet,Postal-4i,Intelligent mail barcode on	POSTAL28
	Planet,Postal-4i,Intelligent mail barcode, Postnet with B&B' Fields on	POSTAL29
Planet check digit	*Transmit off	PLNCKX0
	Transmit on	PLNCKX1
Postnet check digit	*Transmit off	NETCKX0
	Transmit on	NETCKX1
Australian post interpretation	Bar output	AUSINT0
	Numeric N table	AUSINT1
	Alpha numeric C table	AUSINT2
	Combination N&C table	AUSINT3

Selection	Setting * Indicates default	Serial commands # Indicates a numeric entry
1D postal codes		
China post(Hong Kong 2 of 5)	Default all China post settings	CPCDFT
	*Off	CPCENA0
	On	CPCENA1
	Minimum message length range 2 ~ 80(*4)	CPCMIN##
	Maximum message length range 2 ~ 80(*80)	CPCMAX##
Korea post	Default all Korea post settings	KPCDFT
	*Off	KPCENA0
	On	KPCENA1
	Minimum message length range 2 ~ 80(*4)	KPCMIN##
	Maximum message length range 2 ~ 80(*80)	KPCMAX##
	*Check digit transmit off	KPCCHK0
	Check digit transmit on	KPCCHK1
Image default commands		
Image snap	Default all Imaging commands	IMGDFT
	Imaging style – Decoding	SNPSTY0
	Imaging style – Photo	SNPSTY1
	Imaging style – Manual	SNPSTY2
	*Beep off	SNPBEP0
	Beep on	SNPBEP1
	*Wait for trigger off	SNPTRG0
	Wait for trigger on	SNPTRG1
	*LED illumination off	SNPLED0
	LED illumination on	SNPLED1
	Exposure time 1 ~ 7874msec	SNPEXP##
	*Gain : None	SNPGAN1
	Gain : Medium	SNPGAN2
	Gain : Heavy	SNPGAN4
	Gain : Maximum	SNPGAN8
	Target white value 0 ~ 255(*125)	SNPWHT###
	Delta for acceptance 0 ~ 255(*25)	SNPDEL###
	Update tried 0 ~ 10(*6)	SNPTRY##
	Target set point percentage 1 ~ 99(*50)	SNPPCT##
Image ship	*Infinity filter off	IMGINF0
	Infinity filter on	IMGINF1
	*Compensation off	IMGCOR0
	Compensation on	IMGCOR1
	*Pixel depth 8bits/pixel (Grayscale)	IMGBPP8
	Pixel depth 1bit/pixel (B&W)	IMGBPP1
	Sharpen edge off	IMGEDG0
	Sharpen edge filter 0 ~ 23	IMGEDG##
	*File format : JPEG	IMGFMT6
	File format : KIM	IMGFMT0
	File format : TIFF binary	IMGFMT1
	File format : TIFF binary, compressed	IMGFMT2
	File format : TIFF grayscale	IMGFMT3
	File format : Uncompressed binary	IMGFMT4
	File format : Uncompressed grayscale	IMGFMT5
	File format : BMP	IMGFMT8
	*Histogram stretch off	IMGHIS0
	Histogram stretch on	IMGHIS1
	*Noise reduction off	IMGFSP0
	Noise reduction on	IMGFSP1
	Invert image around X axis	IMGNVX1
	Invert image around Y axis	IMGNVY1
	*Rotate image none	IMGROT0
	Rotate image 90° right	IMGROT1
	Rotate image 180° right	IMGROT2
	Rotate image 90° left	IMGROT3
	JPEG image quality 0 ~ 100(*50)	IMGJQF###
	*Gamma correction off	IMGGAM0
	Gamma correction on 0 ~ 1000(*0)	IMGGAM####
	Image crop : left 0 ~ 639(*0)	IMGWNL###
	Image crop : right 0 ~ 639(*639)	IMGWNR###
	Image crop : top 0 ~ 479(*0)	IMGWNT###

Selection	Setting * Indicates default	Serial commands # Indicates a numeric entry
Image ship	Image crop : Bottom 0 ~ 479(*479)	IMGWNB###
	Image crop : Margin 0 ~ 238(*0)	IMGMAR###
	Protocol : None(Raw)	IMGXFR0
	Protocol : None(*Default for USB)	IMGXFR2
	Protocol : Hmodem compressed(*Default for RS232)	IMGXFR3
	Protocol : Hmodem	IMGXFR4
	*Ship every pixel	IMGSUB1
	Ship every 2nd pixel	IMGSUB2
	Ship every 3rd pixel	IMGSUB3
	*Document image filter off	IMGUSG0
	Document image filter 0 ~ 255(*0)	IMGUSH###
	*Don't ship histogram	IMGHST0
	Ship histogram	IMGHST1
Image size compatibility	Force VGA resolution	IMGVGA1
	Native resolution	IMGVGA0
Utilities		
Add code ID prefix to all symbologies (Temporary)		PRECA2,BK2995C80!
Show decoder revision		REV_DR
Show scan driver revision		REV_SD
Show software revision		REVINF
Show data format		DFMBK3?
Test menu	On	TSTMNU1
	*Off	TSTMNU0
Application plug-ins (Apps)	*Decoding Apps on	PLGDCE1
	Decoding Apps off	PLGDCE0
	*Formatting Apps on	PLGFOE1
	Formatting Apps off	PLGFOE0
	List Apps	PLGINF
Resetting the factory defaults	Remove custom defaults	DEFOVR
	Activate defaults	DEFALT

12. Utilities

Here shows several utility commands which is supported to maintain the reader.

To add a test code ID prefix to all symbologies

This selection allows you to turn on transmission of a code ID before decoded symbology for the single character code that indentifies each symbology. This action first clears all current prefixes, then programs a code ID prefix for all symbologies. This is temporary setting that will be removed when the unit is power cycled.

```
~ P R E C A 2 , B K 2 9 9 5 C 8 0 !
```

Show decoder revision

Read the command barcode below to output decoder revision.

```
~ R E V _ D R .
```

Show scan driver revision

Read the command barcode below to output scan driver revision. The scan driver controls image capture.

```
~ R E V _ S D .
```

ｿﾌﾄｳｪｱﾘﾋﾞｼﾞｮﾝ取得

下記のｺｰﾄﾞ をｽｷｬﾝすると、ﾘｰﾀﾞ は、ｿﾌﾄｳｪｱﾘﾋﾞｼﾞｮﾝを出力します。ｿﾌﾄｳｪｱﾘﾋﾞｼﾞｮﾝには、2 次元ｺｰﾄﾞ ﾘｰﾀﾞ ｴﾝｼﾞ ﾝのｼﾘｱﾙ番号などｴﾝｼﾞ ﾝに関する情報が含まれます。

```
~ R E V I N F .
```

Show data format

Read the command barcode below to output data format settings.

```
~ D F M B K 3 ? .
```

Test menu

When you read [Test menu on] command barcode, then read a command barcode in this guide, the reader displays the content of a command barcode. The programming function will still occur, but in addition, the content of that command barcode is output to the PC.

[Note]
This feature should not be used during normal reader operation.

~ T S T M N U 1 .	~ T S T M N U 0 .
[Test menu ON]	[**Test menu OFF**]

Reset to default

If you want to reset the reader by factory default, read [Delete custom default] command barcode first, then read [Reset to default] command barcode.

~ D E F O V R .	~ D E F A L T .
[Delete custom default]	[Reset to default]

TotalFreedom

TotalFreedom is an open system architecture that makes it possible for you create applications that reside on your reader. Decoding apps and Data formatting apps can be created using TotalFreedom. For further information about TotalFreedom, search [TotalFreedom] by Internet.

Application Plug-Ins(Apps)

Any apps that you are using can be turned off or on by reading the following command barcodes. Apps are stored in groups : Decoding and Formatting. You can enable and disable these groups of apps by reading ON or OFF command barcode below. You can also read [List Apps] command barcode to output a list of all your apps.

~ P L G D C E 1 .
[**Decoding apps ON**]

~ P L G D C E 0 .
[Decoding apps OFF]

~ P L G F O E 1 .
[**Formatting apps ON**]

~ P L G F O E 0 .
[Formatting apps OFF]

~ T S T M N U 1 .
[List apps]

13. Trouble shootings

Can't power on

- Check interface cable connection.
- Check AC adapter connection.
- Check PC power.

## Can't read codes or difficult to read codes

- Check quality of codes you are trying to read. Poor quality codes will cause miss-reading or No read.
- Check if target symbol is enabled.
- Do you enable check digit even the target code doesn't have check digit?
- Check if settings of minimum and maximum message length meet to the target codes.
- Clean up reading window.

PC can't receive read data

- Check interface cable connection.
- Check reader's interface setting.

Others

- If reader's reading window doesn't clean enough, it cause No read or takes time to read codes. Please clean up reader's reading window using soft cloths with alcohol periodically.
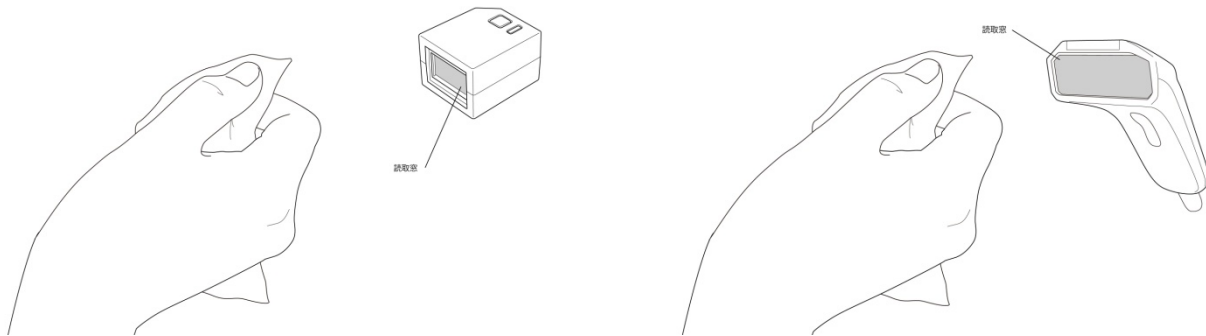
If the symptoms don't fixed yet, please contact to your dealer.

Appendix A. Symbologies table

A.1. 1D code symbols and special codes

Symbologies	AIM Code ID		Standard ID	
	ID	Modifier(m)	ID	Hex
All symbologies				99
Codabar	]Fm	0-1	a	61
Code 11	]H3		h	68
Code 128	]Cm	0,1,2,4	j	6A
Code 32 Pharmaceutical(PARAF)	]X0		<	3C
Code 39(supports Full ASCII mode)	]Am	0,1,3,4,5,7	b	62
TLC39(TCIF Liked Code 39)	]L2		T	54
Code 93(93i)	]Gm	0-9、A-Z,a-m	i	69
EAN/JAN	]Em	0,1,3,4	d	64
EAN-13(including Bookland EAN)	]E0		d	64
EAN-13 with Add-on	]E3		d	64
EAN-13 with Extended coupon code [`]	]E3		d	64
EAN-8	]E4		D	44
EAN-8 with Add-on	]E3		D	44
GS1				
GS1 Databar	]em	0	y	79
GS1 Databar Limited	]em		{	7B
GS1 Databar Expanded	]em		}	7D
GS1-128	]C1		I	49
2 of 5				
China Post(Hong Kong 2 of 5)	]X0		Q	51
Interleaved 2 of 5	]Im	0,1,3	e	65
Matrix 2 of 5	]X0		m	6D
NEC 2 of 5	]X0		Y	59
Straight 2 of 5 IATA	]Rm	0,1,3	f	66
Industrial 2 of 5	]S0		f	66
MSI	]Mm		g	67
Telepen	]Bm		t	74
UPC		0、1,2,3,8,9、A,B,C		
UPC-A	]E0		c	63
UPC-A with Add-on	]E3		c	63
UPC-A with Extended coupon code	]E3		c	63
UPC-E	]E0		E	45
UPC-E with Add-on	]E3		E	45
UPC-E1	]X0		E	45
Special codes				
Standard code ID				5C80
AIM code ID				5C81
Backslush				5C5C
Batch mode quantity			5	35

A.2. 2D code symbols

Symbologies	AIM Code ID		Standard ID	
	ID	Modifier(m)	ID	Hex
All symblogies				99
Aztec code	]zm	0-9,A-C	z	7A
Chinese Sensible code	]X0		H	48
Codablock A	]O6	0,1,4,5,6	V	56
Codablock F	]Om	0,1,4,5,6	q	71
Code 49	]Tm	0,1,2,4	l	6C
Data Matrix	]dm	0-6	w	77
GS1	]em	0-3	y	79
GS1 Composite	]em	0-3	y	79
GS1 Databar omnidirectional	]em		y	79
MaxiCode	]Um	0-3	x	78
PDF417	]Lm	0-2	r	72
MicroPDF417	]Lm	0-5	R	52
QR code	]Qm	0-6	s	73
Micro QR code	]Qm		s	73

A.3. Postal code symbols

Symbologies	AIM Code ID		Standard ID	
	ID	Modifier(m)	ID	Hex
All symbologies				99
Australian Post	]X0		A	41
British Post	]X0		B	42
Canadian Post	]X0		C	43
China Post	]X0		Q	51
InfoMail	]X0		,	2C
Intelligent Mail Bar Code	]X0		M	4D
Japanese Post	]X0		J	4A
KIX Post	]X0		K	4B
Korea Post	]X0		?	3F
Planet Code	]X0		L	4C
Postal-4i	]X0		N	4E
Postnet	]X0		P	50

Appendix B. ASCII code conversion table

(*)The behavior of CTRL-X mode will be depends on OS and/or application software.

Control characters(Function codes)					
Dec	Hex	Char	CTRL+X mode ON(KBDCAS0)	CTRL+X mode ON(KBDCAS1)	
				CTRL+X	Function
0	00	NUL	Reserved	CTRL+@	
1	01	SOH	Numeric keypad's Enter	CTRL+A	Select all
2	02	STX	Caps Lock	CTRL+B	Bold
3	03	ETX	ALT Make	CTRL+C	Copy
4	04	EOT	ALTBreak	CTRL+D	Bookmark
5	05	ENQ	CTRL Make	CTRL+E	Center
6	06	ACK	CTRL Break	CTRL+F	Find
7	07	BEL	Enter/Return	CTRL+G	
8	08	BS	(Apple Make)	CTRL+H	HIstroy
9	09	HT	Tab	CTRL+I	Italic
10	0A	VF	(Apple Break)	CTRL+J	Justify
11	0B	VT	Tab	CTRL+K	Hyperlink
12	0C	FF	Delete	CTRL+L	List, Left align
13	0D	CR	Enter/Return	CTRL+M	
14	0E	SO	Insert	CTRL+N	New
15	0F	SI	ESC	CTRL+O	Open
16	10	DLE	F11	CTRL+P	Print
17	11	DC1	Home	CTRL+Q	Quit
18	12	DC2	PrtScn	CTRL+R	
19	13	DC3	Backspace	CTRL+S	Save
20	14	DC4	Back Tab	CTRL+T	
21	15	NAK	F12	CTRL+U	
22	16	SYN	F1	F1	Paste
23	17	ETB	F2	CTRL+W	
24	18	CAN	F3	CTRL+X	
25	19	EM	F4	CTRL+Y	
26	1A	SUB	F5	CTRL+Z	
27	1B	ESC	F6	CTRL+[	
28	1C	FS	F7	CTRL+¥	
29	1D	GS	F8	CTRL+]	
30	1E	RS	F9	CTRL+^	
31	1F	US	F10	CTRL+-	
127	7F		Numeric keypad's Enter		

Dec	Hex	Char	Dec	Hex	Char	Dec	Hex	Char
				Printable characters				
32	20	Space	64	40	@	96	60	`
33	21	!	65	41	A	97	61	a
34	22	"	66	42	B	98	62	b
35	23	#	67	43	C	99	63	c
36	24	$	68	44	D	100	64	d
37	25	%	69	45	E	101	65	e
38	26	&	70	46	F	102	66	f
39	27	`	71	47	G	103	67	g
40	28	(	72	48	H	104	68	h
41	29	)	73	49	I	105	69	i
42	2A	*	74	4A	J	106	6A	j
43	2B	+	75	4B	K	107	6B	k
44	2C	,	76	4C	L	108	6C	l
45	2D	-	77	4D	M	109	6D	m
46	2E	.	78	4E	N	110	6E	n
47	2F	/	79	4F	O	111	6F	o
48	30	0	80	50	P	112	70	p
49	31	1	81	51	Q	113	71	q
50	32	2	82	52	R	114	72	r
51	33	3	83	53	S	115	73	s
52	34	4	84	54	T	116	74	t
53	35	5	85	55	U	117	75	u
54	36	6	86	56	V	118	76	v
55	37	7	87	57	W	119	77	w
56	38	8	88	58	X	120	78	x
57	39	9	89	59	Y	121	79	y
58	3A	:	90	5A	Z	122	7A	z
59	3B	;	91	5B	[	123	7B	{
60	3C	<	92	5C	¥	124	7C		
61	3D	=	93	5D	]	125	7D	}
62	3E	>	94	5E	^	126	7E	~
63	3F	?	95	5F	_	127	7F	

Appendix C. Key number table

6E		70 71 72 73	74 75 76 77	78 79 7A 7B		7C 7D 7E			

104 キーボード（米国）

105 キーボード（欧州）

Appendix D. RS232 interface connector

Here shows Pin assignments of RS232 interface connector.

D-Sub 9 pin female	
No	Signal
1	External TRG(Indigo)
2	TxD(White)
3	RxD(Green)
5	GND(Black/Shield)
7	CTS(Yellow)
8	RTS(Orange)
9	VCC(Red)
DC Jack	
No	Signal
1	VCC(+5V)
2	GND

(*1) The cubeQR only supports Pin.1 External TRG signal.

Appendix E. The dimensions and mounting screws of cubeQR

Here shows the dimensions and notes of mounting screws of cubeQR.
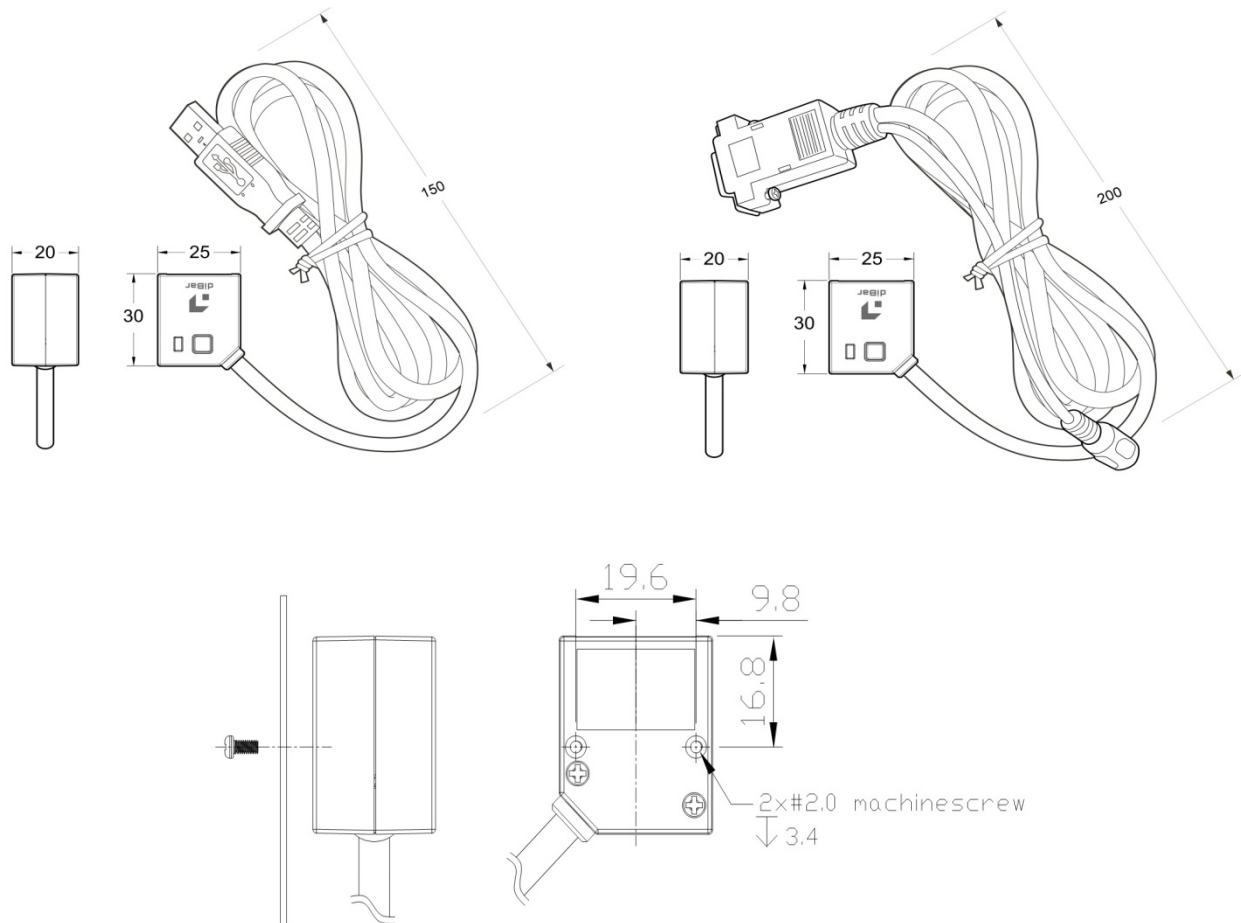
Unit mm

【Notes for mounting screws】
1. Please use 2.0 screw and the drill down depth no over 3mm.
2. The length of screw should depend on the thickness of the drilled board.
   Example:
   (*)Board thickness 1mm, then please use 2.0x4 screw.
   (*)Board thickness 0.5mm then the screw should be 2.0x3.

Appendix F. Configuration software

The reader is designed based on 2D area imager engine from Honeywell. Thanks to it, the reader is able to fully configure through configuration software named [EzConfig].

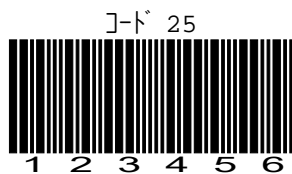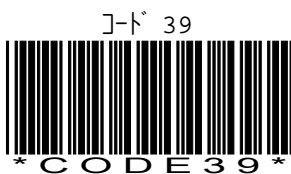To get [EzConfig], please search its name by internet.

EzConfig will recognize the reader as [N3600 Series] like below.
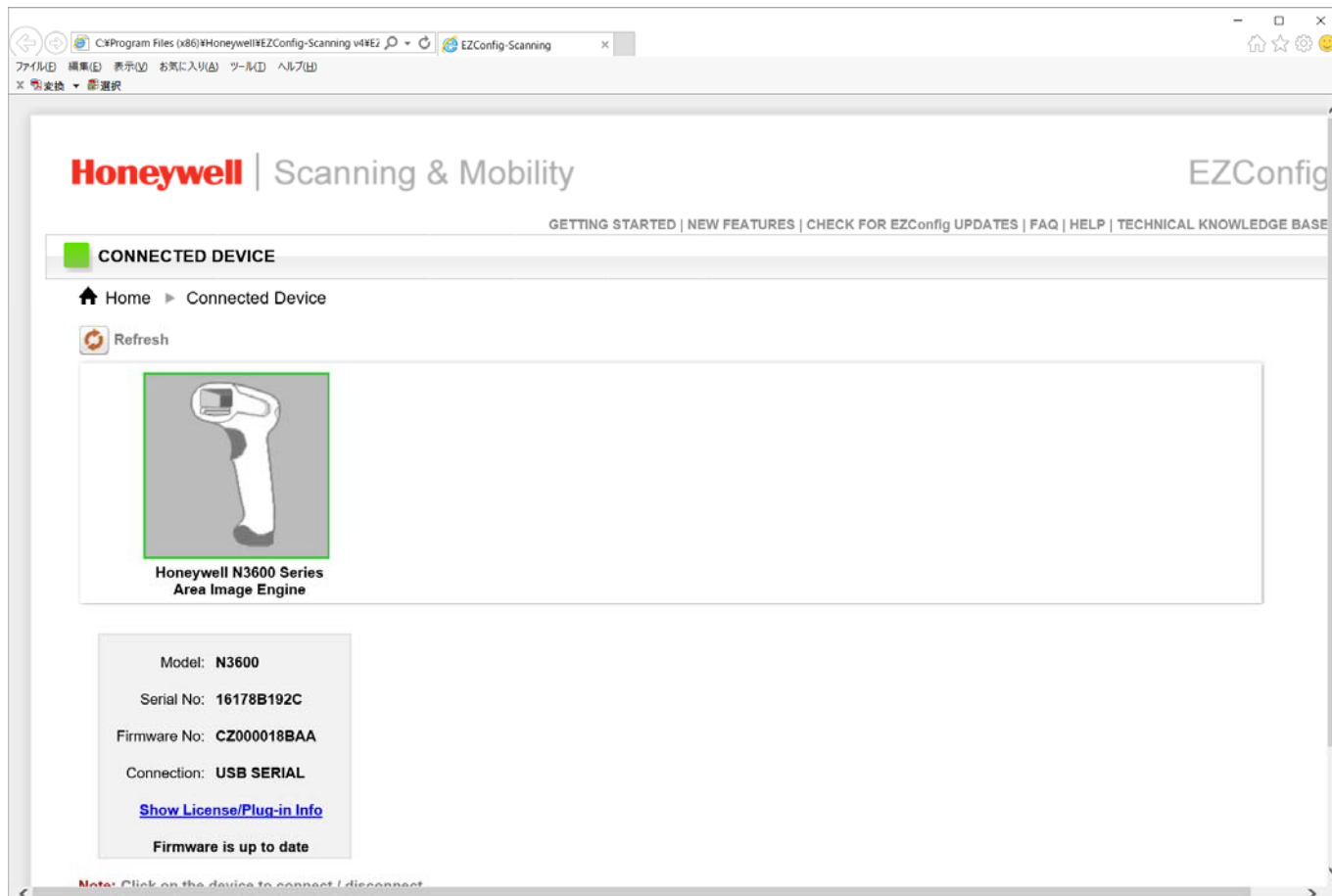
[Note]
The detail operation method of EzConfig, please refer to its help files.

Appendix G. Sample codes

UPC-A

0 1234567890 5

インターリーブド 25

1234567890

コード 128

Code 128

EAN/JAN-13

9 780330 290951

コード 39

CODE39

コーダバー(NW7)

A13579B

コード 93

123456-9$

コード 25

123456

PDF417

MicroPDF417

QR コード

データマトリクス

日本郵便コード(カスタマバーコード)