



CS2190&CS2190-BT Cordless Laser Scanner

User Manual



Version: CS2190&CS2190-BT_UM_EN_V1.2.3

Notice

Make sure you carefully read the following information to ensure that your barcode scanner is able to perform at the level for which it is designed.

1. All software, including firmware, furnished to the user is on a licensed basis.
2. The right is reserved to make changes to any software or product to improve reliability, function, or design.
3. The material in this manual is subject to change without notice.
4. The manufacturer assumes no responsibility for any loss or claims by third parties which may arise from the use of this manual.
5. A standard kit contains: a handheld unit, a cradle, a USB cable, and a quick guide.
6. Do not throw or drop the scanner or otherwise subject it to strong impact, which can damage the scanner, interrupt program execution, corrupt memory contents, or otherwise interfere with proper operation.
7. Use a blunt object to operate the stroke keys. Use of a sharp pointed object can damage stroke keys and cause shorting of internal circuitry.
8. Never try to remove the battery from the scanner.
9. Sudden temperature changes can cause condensation to form on the scanner's case. Operating the scanner while condensation is present can interfere with proper operation. Take care to avoid conditions that cause the formation of condensation. If condensation does form, wait until it dries completely before using the scanner.
10. In order to obtain constantly good communication quality, when in multi-clusters working mode, the physical space between two cradles is required to be at least 2 meters. It is recommended to place the cradle on a higher location, generally more than 1 meter above the ground. If working outdoor, the higher location the better.

Safety precautions – Danger!

Be sure to read the following safety precautions carefully before trying to use the barcode scanner for the first time. Keep this manual in handy place for future reference.



Danger!

This symbol indicates information that, if ignored or applied incorrectly, creates the danger of death or serious personal injury.



Lithium-ion battery

- 1) Never allow the battery to become wet. Water can create the danger of battery heat emission, explosion, and fire.
- 2) Never use or leave the battery next to open flame, near a stove, or any other area exposed to high heat. Doing so creates the danger of battery heat emission, explosion, and fire.
- 3) Never use the battery with any device other than this unit. Doing so can create the danger of battery heat emission, explosion, and fire.
- 4) Note that the battery's positive (+) and negative (-) terminals must be oriented correctly when it is loaded into the Barcode Scanner. Connecting the battery with its terminals reversed creates the danger of battery fluid leakage, heat emission, explosion, and fire.
- 5) Never dispose of the battery by incinerating it or otherwise expose it to heat. Doing so creates the danger of battery heat emission, explosion, and fire.
- 6) Never allow the positive (+) and negative (-) terminals of the battery to become connected (shorted) by metal. Doing so creates the danger of battery heat emission, explosion, and fire.
- 7) Never transport or store the battery together with a necklace, hair pins or other metal objects. Doing so can short battery terminals, and create the danger of battery heat emission, explosion and fire. Be sure to place the battery in its case whenever transporting or storing it.
- 8) Never throw the battery or otherwise subject it to strong impact. Doing so creates the danger of battery heat emission, explosion, and fire.
- 9) Never pierce the battery with nails, hit it with a hammer, or step on it. Doing so can create the danger of battery heat emission, explosion, and fire.
- 10) Never try to take apart the battery in any way. Doing so creates the danger of battery heat emission, explosion, and fire.
- 11) Use only the specified charger to charge the battery. Use of other types of charger creates the danger of battery heat emission explosion, and fire.

Safety precautions – Warning!



Warning!

This symbol indicates information that, if ignored or applied incorrectly, can create the possibility of death or serious personal injury.

Disassembly and modification

Never try to disassemble or modify the unit in any way. High voltage inside creates the danger of electrical shock.

Interior parts and components

Never touch interior high-voltage parts or components. Doing so creates the danger of electrical shock.

Abnormal conditions

Should the unit become hot or start to emit smoke or a strange odor, immediately turn off the power and contact your original dealer. Continued use creates the danger of fire and electrical shock.

Foreign objects

Should any foreign matter ever get into the unit, immediately turn off the power and contact your original dealer. Continued use creates the danger of fire and electrical shock.

Dropping and damage

Should you drop the unit and damage it, immediately turn off the power and contact your original dealer. Continued use creates the danger of fire and electrical shock.

Laser beam

Never look directly into the laser beam. Doing so can cause serious eye damage.

Lithium-ion battery

- 1) Do not put a battery in microwave ovens or pressure cookers. Doing so may cause the battery to overheat, explode or burst into flames.
- 2) Do not use a battery that smells strange, is overheating, is a strange color, or is a strange shape. Doing so may cause the battery to overheat, explode or burst into flames.
- 3) If the amount of time period the battery can serve becomes considerably short, stop using it. It may indicate the possibility of a malfunction in the battery. Continued charging the battery creates the danger of heat emission, explosion, and fire.
- 4) Stop charging the battery after the recommended time even if it is not fully charged. Continuing to charge the battery may cause the battery to over heat, explode or burst into flames.
- 5) If the battery leaks fluid or emits a strange smell, remove it from near heat or flames. Burning may cause the battery to explode or burst into flames.
- 6) Should fluid from the battery accidentally get into your eyes, do not rub them. Immediately rinse your eyes with clean water such as tap water and then consult a physician immediately.

Cradle with RS-232 cable and adaptor

- 1) Power the cradle only with a power outlet whose voltage matches that marked on the adaptor specified in this manual.
- 2) Avoid conditions that can cause damage or breaks in the power cord. Do not place heavy objects on the power cord. Keep it away from sources of heat. Any of these conditions can damage the power cord, creating the danger of fire and electrical shock.
- 3) Never modify, sharply bend, twist, or pull on the power cord. Doing so creates the danger of fire and electrical shock.
- 4) Use only the AC/DC adaptor and charger specified in this manual. Use of other AC/DC adaptor models or chargers creates the danger of fire and electrical shock.
- 5) Should the power cord ever become severely damaged, contact your original dealer. Use of a damaged electrical cord creates the danger of fire and electrical shock.

Moisture

Keep the BasicUnit and the Barcode Scanner away from vases, planters, cups, glasses and other containers of liquid. Also keep it away from metal. Water and metal getting into the unit creates the danger of fire and electrical shock.

Safety precautions – Caution!



Caution!

This symbol indicates information that, if ignored or applied incorrectly, can create the possibility of personal injury or material damage.

Foreign objects

Take care to ensure that metal or combustible objects are not inserted into the openings of the unit. Such objects create the danger of fire and electrical shock.

Location

- 1) Do not locate the unit on a surface that is unstable or uneven. Doing so creates the danger of the unit falling, which can cause personal injury.
- 2) Do not locate the unit in an area subjected to large amounts of humidity or dust. Doing so creates the danger of fire and electrical shock.
- 3) Do not leave the unit for long periods in a car parked in indirect sunlight.

Heavy objects

Never place heavy objects on top of the unit. Doing so creates the risk of a loss of balance and the object falling, which can cause personal injury.

Exit window

- 1) Never apply strong pressure to the mirror or subject it to strong impact. Doing so can crack the mirror and create the danger of personal injury.
- 2) Should the mirror ever break, never touch the mirror broken. Doing so can cause personal injury.

Lithium-ion battery

- 1) Never leave the battery in an area exposed to direct sunlight, in a car parked in indirect sunlight, or anywhere very hot area. Doing so creates the danger of heat emission and fire, as well as deterioration of battery performance and shortening of its service life.
- 2) Do not use the battery in areas where static electricity is being generated. Doing so creates the danger of battery heat emission, explosion, and fire.
- 3) Temperature ranges for battery use, charging and storage are specified below. Temperatures outside these ranges create the danger of deterioration of battery performance and shortening of its service life as well as fluid leakage and heat generation.
 - 4) Operating Temperature: -20°C to 60 °C.
 - 5) Charging Temperature: 0 °C to 45 °C
 - 6) Storage Temperature: -20 °C to 45 °C
- 7) Should fluid from the battery accidentally get onto clothing or your skin, immediately rinse it off with clean tap water. Prolonged contact with battery fluid can cause skin irritation.
- 8) Keep the battery out of the reach of small children. Do not let small children remove the battery from the charger or the unit it is powering.

Cradle with RS-232 cable and adaptor

- 1) Keep the power cord away from stoves and other sources of extreme heat. Heat can melt the insulation of the power cord and create the danger of fire and electrical shock.
- 2) Never pull on the power cord when unplugging it. Doing so can damage the cord and create the danger of personal injury, fire and electrical shock. Always hold onto the plug when unplugging it from the wall outlet.
- 3) Never touch the plug while your hands are wet. Doing so can create the danger of electrical shock.
- 4) Be sure to unplug the power cord from the wall outlet before removing the Basic Unit. Failure to do so can result in damage to the power cord caused by pulling it, which creates the danger of fire and electrical shock.
- 5) Be sure to unplug the power cord from the wall outlet before cleaning the Basic Unit and charger.
- 6) Be sure to turn the power off and unplug the power cord after use.
- 7) Unplug the power cord from the wall outlet and clean the area around the plugs at least once a year. If dust collects on the AC/DC adaptor, humidity or moisture may cause a fault in the insulation, which may result in a fire.

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1 Specifications

1-1 Technical specifications

Handheld unit

	<i>CS2190 (433)</i>	<i>CS2190-BT</i>
Working Range	100 meters ¹ (open air)	30 meters ¹ (open air)
Radio Link	430.0~431.9 MHz , 433.3~434.7 MHz with adaptive frequency hopping	2.4-2.5GHz, Bluetooth 4.0, Class 2
Weight	222 g	
Dimensions	Length × Width × Depth: 90.2 mm × 70 mm × 180 mm	
Color	Gray	
Indicator	LED, beeper, vibration	
Operating Mode	Handheld	
Programming Method	Manual (reading special barcode)	
Firmware Upgrade	Using Flash Utility software, while a cradle unit is required.	
Input Voltage	5 ± 0.25 VDC	
Current	4 mA (standby), 150 mA (working)	
Battery	2600 mAh Lithium-ion battery	
Charge Time	6 hours	
Standby Time	7 days	
Operating Time	36 hours (1 scan per 5 second)	
Light Source	650 nm visible laser diode	
Decoding Rate	200 times per second	
Scanning Angle	±60°, ±65°, ±42° (skew, pitch, roll)	
Print Contrast	20% minimum reflection difference	
Minimum Resolution	3 mil	
Decoding Capability	UPC-A, UPC-E, UPC-E1, EAN-13, EAN-8, ISBN (Bookland EAN), ISSN, Code 39, Code 39 full ASCII, Code 32, Trioptic Code 39, Interleaved 2 of 5, Industrial 2 of 5, Matrix 2 of 5, Codabar (NW7), Code 128, UCC/EAN 128, ISBT 128, Code 93, Code 11 (USD-8), MSI/Plessey, UK/Plessey, China Post, China Finance, GS1 DataBar (formerly RSS) variants	
Decoding Depth	3 mil Code 39 (3 chars): 20 - 70 mm 0 5 mil Code 39 (3 chars): - 120 mm 0 - 10 mil Code 39 (3 chars): 280 mm 0 - 13 mil UPC-E (6 chars): 350 mm 25 - 20 mil Code 39 (3 chars): 480 mm 15 - 30 mil Code 39 (2 chars): 650 mm	
Temperature	Operating: 0° to 50°C (32° to 122°F); storage: -40° to 60°C (-40° to 140°F)	
Humidity	5% to 95% (non-condensing)	
Safety	Laser safety: EN60825-1, Class 1 EMC: EN55032, EN55024 Electrical Safety: EN60950-1 Sealing: IP51 Drop Resistance: Multiple 1.5 m (4.9 ft.) drops to concrete	

Note: ¹ Test condition: temperature at 27°C, sunny day, and visibility of 5 kilometers. Natural surroundings significantly affect the communication distance in practice. The distance drops quickly in the rainy, high-humidity, or heavy haze day; radio interference also shortens the communication distance.

Cradle

<i>Input Voltage</i>	5 ± 0.25 VDC
<i>Current</i>	60 mA (working), 500 mA (charging, maximum)
<i>Cable</i>	Straight 2.0 m (PS/2) / Straight 1.5 m (USB) / Straight 2.0 m (RS-232)
<i>Dimensions</i>	Length × Width × Depth: 118 mm × 89.5 mm × 74 mm
<i>Weight</i>	140 g
<i>Indicator</i>	LED
<i>Programming Method</i>	Manual (reading special barcode)
<i>Firmware Upgrade</i>	PC online using Flash Utility software.
<i>Temperature</i>	0° to 50°C (32° to 120°F), operating; -40° to 60°C (-40° to 140°F), storage
<i>Humidity</i>	5% to 95% (non-condensing)
<i>Drop Specifications</i>	Multiple 1.5 m (4.9 ft.) drops to concrete

1-2 Default setting for each barcode

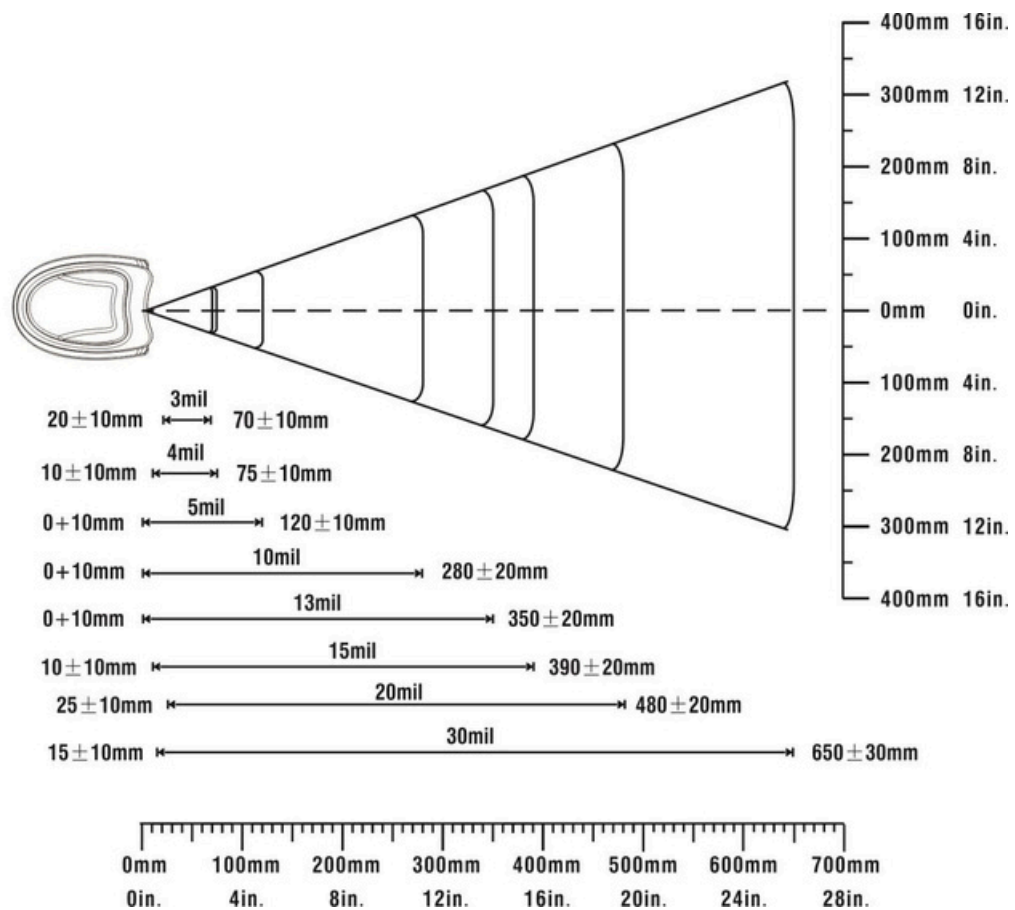
<i>Code type</i>	<i>Read enable</i>	<i>Checkdigit verification</i>	<i>Check digit transmission</i>	<i>Min. code length</i>	<i>Proprietary code ID</i>	<i>AIM code ID</i>
UPC-A	√	√	√	(12) ²	A	]Em
UPC-E	√	√	√	(8) ²	D	]Em
UPC-E1	-	√	√	(8) ²	D	]Em
EAN-13	√	√	√	(13) ²	A	]Em
EAN-8	√	√	√	(8) ²	C	]Em
ISBN/ISSN ¹	√	√	√	(13) ²	B	]Em
Code 39	√	-	-	1	M	]Am
Interleaved 2 of 5	√	-	-	6	I	]Im
Industrial 2 of 5	-	-	-	4	H	]Im
Matrix 2 of 5	√	-	-	6	X	]Im
Codabar	√	-	-	4	N	]Fm
Code 128	√	√	-	1	K	]Cm
UCC/EAN 128	√	√	-	1	K	]Cm
ISBT 128	√	√	-	1	K	]Cm
Code 93	√	√	-	1	L	]Gm
Code 11	-	√	-	4	V	-
MSI/Plessey	-	-	-	4	O	]Mm
UK/Plessey	√	√	-	1	U	]Mm
China Post	√	-	-	(11) ²	T	]Im
China Finance	√	-	-	(10) ²	Y	-
GS1 DataBar	√	-	-	(16) ²	R	]em
GS1 DataBar Truncated ³	√	-	-	(16) ²	R	]em
GS1 DataBar Limited	√	-	-	(16) ²	R	]em
GS1 DataBar Expanded	√	-	-	1	R	]em

Note: ¹The settings for ISBN/ISSN and EAN-13 must be the same.

² Fixed-length barcodes.

³The settings for GS1 DataBar Truncated and GS1 DataBar must be the same.

1-3 Decode zone



<i>Symbol density</i>	<i>Barcode type</i>	<i>Wide-narrow element ratio</i>	<i>Barcode content</i>	<i>Contrast</i>
3.0 mil	Code 39	2.5:1	123	80%
4.0 mil	Code 128	2.5:1	123456789	80%
5.0 mil	Code 39	2.5:1	123	80%
7.5 mil	Code 39	2.5:1	ABCDEF	80%
10 mil	Code 39	2.5:1	123	90%
13 mil	100% UPC	-	123456	90%
15 mil	Code 39	2.5:1	123	80%
20 mil	Code 39	2.2:1	123	80%
30 mil	Code 39	2.2:1	EF	80%

2 Get Started

2-1 Cable connector pin-outs descriptions for cradle

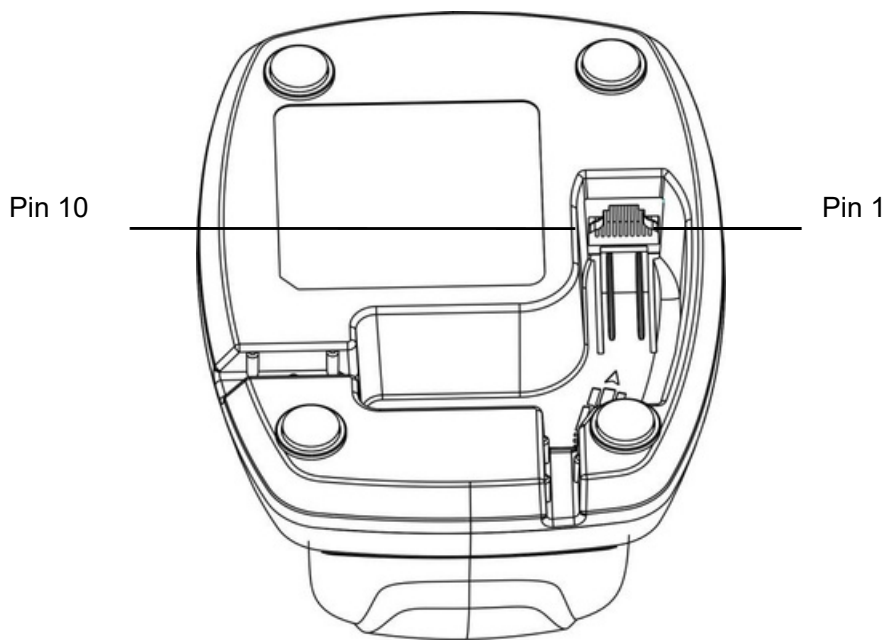


Figure 2-1 Cable connector interface pin-outs

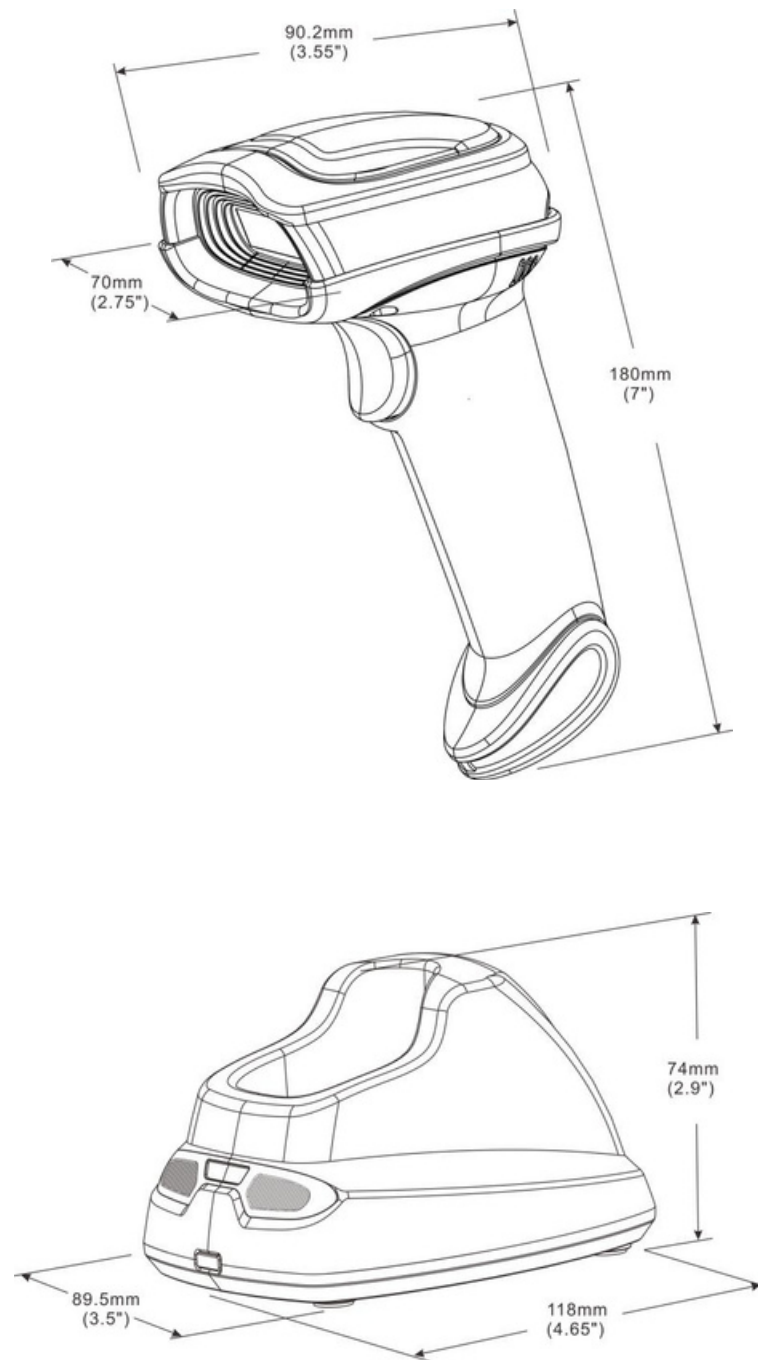
The pin-outs descriptions in Table 1 apply to the cable connector on the cradle and are for reference only.

Table 2-1 Cable connector pin-outs descriptions

Pin	RS232	Keyboard(PS/2)	USB
1	Power (+5V)	Power (+5V)	Power (+5V)
2	+3.3V (for interface auto selection purpose)	Ground (for interface auto selection purpose)	+3.3V (for interface auto selection purpose)
3	Ground	Ground	Ground
4	+3.3V (for interface auto selection purpose)	Reserved	Ground (for interface auto selection purpose)
5	TxD	KeyClock	Reserved
6	RxD	KeyData	Reserved
7	Reserved	TermClock	Reserved
8	Reserved	TermData	Reserved
9	CTS	Reserved	D-
10	RTS	Reserved	D+

Note: Voltage level of all RS232 Pin-outs (RxD, TxD, CTS and RTS) is 0V for logic low and 3.3V for logic high.

2-2 Dimensions



2-3 Parts of the scanner



Figure 2-2 Handheld unit

- ① Exit window
- ② Trigger (Press to trigger / Long press 3 seconds to turn on)
- ③ Beeper
- ④ On cradle indicator (Blue LED)
- ⑤ Successful decoding indicator (Green LED) / Communication fail indicator (Red LED) / Charging indicator (Red/ Green LED)



Figure 2-3 Cradle

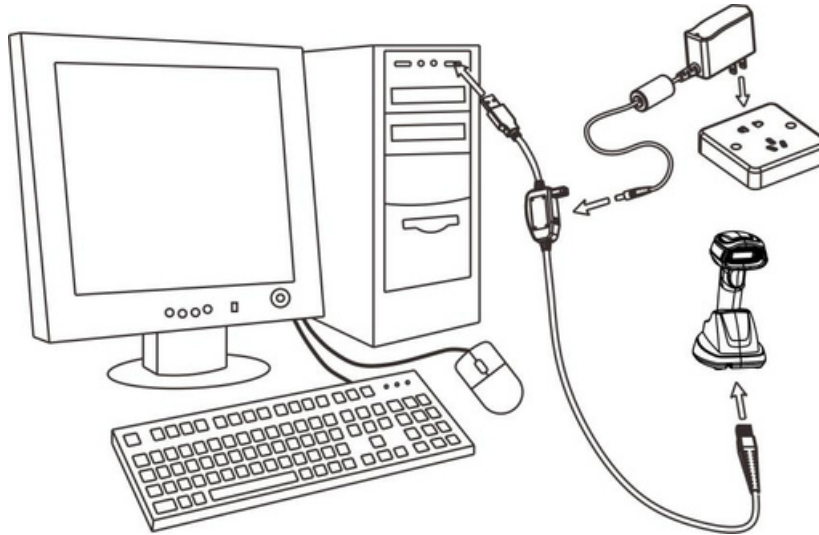
- ⑥ Power indicator (Blue LED)
- ⑦ Communication indicator (Green LED)
- ⑧ Key (Long press 10 seconds to restore factory default setting of cradle)

2-4 Charge battery

Please charge the battery before the first time of use. The charge indicator (Red LED) on the handheld unit is turned on when the charging is in process. When the charging process completes, the red LED is turned off.

Charging time: 6 hours for fully charged.

You can charge the battery via a USB port on the device or an optional 5V adapter. Note: The 5V adapter is an optional accessory.

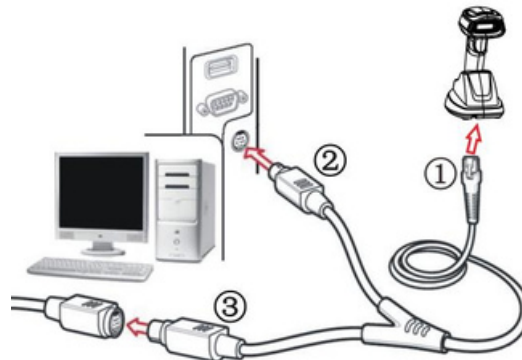


2-5 Installation of cable

Note: If any of the below operation is incorrect, turn off the power immediately and check the scanner for any improper connections. Go through all steps again.

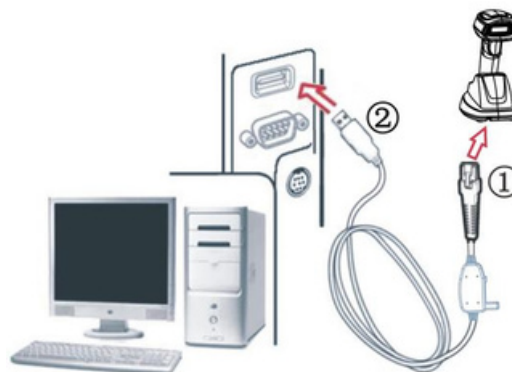
2-5-1 PS/2 keyboard cable

Plug one end of the PS/2 keyboard cable to the cradle, one end to PS/2 port on PC, and one end to the keyboard.



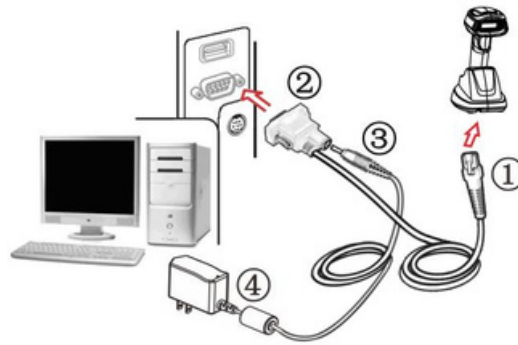
2-5-2 USB cable

1. Plug one end of the USB cable to the cradle. Plug the other end into the USB port of the computer. 2. Windows gives message on “new hardware found – USB HID input device found”, then driver will be installed on request.
3. After successfully installing the new hardware, message will be given: “hardware installed successfully and ready to use”.
4. If any problem encounters during the installation process, please unplug the USB cable from the computer and repeat step 1-3.



2-5-3 RS-232 cable

1. Connect the DB9 serial communication cable with the cradle and the COM port of the computer.
2. Plug the output of the AC/DC adaptor into the power terminal of on the cradle. Plug the AC/DC adaptor provided by the manufacturer into an electrical outlet.



3 Programming menu

When the scanner is scanning, ensure the scan line crosses every bar and space of the symbol.



RIGHT



WRONG

3-1 Example: Programming instruction

Note:

- 1) Only one parameter can be setup at each time.
- 2) During the process of programming, LED is lighting to indicate the programming correctness. LED will go off if any incorrect programming operation performed.
- 3) After each successful programming, LED will go off and the scanner will beep twice.
- 4) Throughout the programming bar code menus, the factory default settings are indicated with asterisks (*).

Two programming modes have been provided as bellows:

① Single-scan setting

Scan the appropriate **Single-scan setting** (e.g. **%0101D00%**) according to the user's demand.

Example: To set **Flow control** to be XON/XOFF.

Steps: Scan the following barcode.



② Multiple-scan setting

- 1) Scan the **SETUP** bar code on the parameter setting part.
- 2) Enter the option mode by scanning the **Option bar code**.
- 3) To the right of the option barcode, the necessary alphanumeric inputs are listed. See [12](#)
- 4) Scan the **END** bar code, listed on the lower right hand corner of each parameter setting part.

Example: To set **Flow control** to be XON/XOFF.

Steps: Scan the following barcodes in order.



3-2 CS2190 Wireless communication setting

3-2-1 Wireless communication setting for handheld unit

Handheld unit RF channel No.: The scanner offers 36 different radio frequency channels for the data transmission between handheld unit and cradle. The number of channel can be increased.

Radio power level for handheld unit: By selecting, you can change the radio frequency power level for handheld unit.

Low battery indicator: If it is enabled, when in standby mode, low battery indicator: the blue LED indicator flashes 4 times every 20 seconds.

When in working mode, low battery indicator: the buzzer beeps 4 times and the blue LED indicator flashes 4 times.



%SETUP SETUP

Option barcode	Options	Alpha. entry	Single-scan setting
Handheld unit RF channel No. 0701	02-36	02-36	
		06*	%0701D06% *
Radio power level for handheld unit 0703	10 dbm (maximum)	01*	%0703D01% *
	7 dbm	02	%0703D02%
	5 dbm	03	%0703D03%
	0 dbm	04	%0703D04%
	-5 dbm	05	%0703D05%
	-10 dbm	06	%0703D06%
	-15 dbm (minimum)	07	%0703D07%
Low battery indicator 0709	Disable	00	%0709D00%
	Enable	01*	%0709D01% *



%%%END END

3-2-2 Wireless communication setting for cradle

Radiopowerlevelforcradle: By selecting, you can change the radio frequency power level for cradle.



%SETUP SETUP

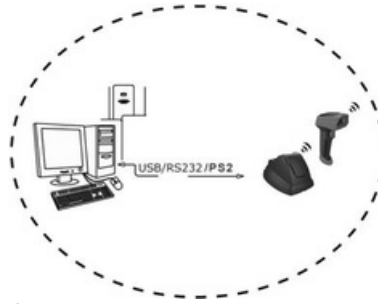
Option barcode	Options	Alpha. entry	Single-scan setting
Radio power level for cradle  0804	10 dbm (maximum)	01*	 %0804D01%*
	7 dbm	02	 %0804D02%
	5 dbm	03	 %0804D03%
	0 dbm	04	 %0804D04%
	-5 dbm	05	 %0804D05%
	-10 dbm	06	 %0804D06%
	-15 dbm (minimum)	07	 %0804D07%



%%END END

3-2-3 Example

Example1: One handheld unit and one cradle



The following takes channel No.5 for instance.

Step 1): Set Handheld unit RF channel No. of the handheld unit to 5.



%SETUP



0701



0



5



%%%END

or



%0701D05%

Step 2): Scan the following barcode to bind the handheld unit with the cradle.



%%BIND

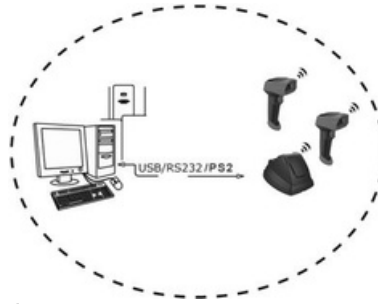
The handheld terminal scans the connection barcode at the bottom of the base, and the handheld terminal will attempt to connect to the base, at the same time, the handheld terminal will make a beep-beep-beep sound. If the connection is successful, the handheld terminal will make a beep sound, and the green LED on the handheld will blinks 1 time, the handheld terminal can be used directly. If the connection is unsuccessful, the handheld terminal will make a beep—beep sound, and the red LED on the handheld will blinks 2 times, and then turns off.

Test barcode:



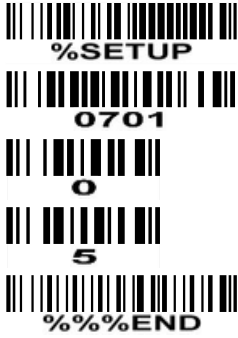
GOOD11

Example 2: Two handheld units and one cradle



The following takes channel No.5 for instance.

Step 1): Set Handheld unit RF channel No. of two handheld units to 5.



or



Step 2): Make the first handheld unit scan the following barcode to bind the handheld unit with the cradle.



The handheld terminal scans the connection barcode at the bottom of the base, and the handheld terminal will attempt to connect to the base, at the same time ,the handheld terminal will make a beep-beep-beep sound. If the connection is successful, the handheld terminal will make a beep sound, and the green LED on the handheld will blinks 1 time, the handheld terminal can be used directly. If the connection is unsuccessful, the handheld terminal will make a beep—beep sound, and the red LED on the handheld will blinks 2 times, and then turns off.

Step 3): Make the second handheld unit scan %%JOIN barcode to pair the second handheld unit with the cradle.

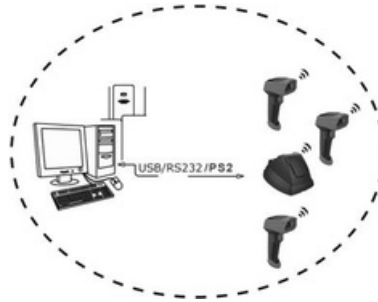


The handheld terminal scans the connection barcode at the bottom of the base, and the handheld terminal will attempt to connect to the base, at the same time ,the handheld terminal will make a beep-beep-beep sound. If the connection is successful, the handheld terminal will make a beep sound, and the green LED on the handheld will blinks 1 time, the handheld terminal can be used directly. If the connection is unsuccessful, the handheld terminal will make a beep—beep sound, and the red LED on the handheld will blinks 2 times, and then turns off.

Test barcode:

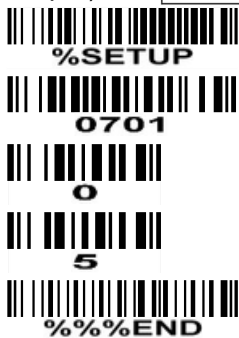


Example 3: Three handheld units and one cradle



The following takes channel No.5 for instance.

Step 1): Set Handheld unit RF channel No. of three handheld units to 5.



or



Step 2): Make the first handheld unit scan the following barcode to bind the handheld unit with the cradle.



The handheld terminal scans the connection barcode at the bottom of the base, and the handheld terminal will attempt to connect to the base, at the same time ,the handheld terminal will make a beep-beep-beep sound. If the connection is successful, the handheld terminal will make a beep sound, and the green LED on the handheld will blinks 1 time, the handheld terminal can be used directly. If the connection is unsuccessful, the handheld terminal will make a beep—beep sound, and the red LED on the handheld will blinks 2 times, and then turns off.

Step 3): Make the second handheld unit scan %%JOIN barcode to pair the second handheld unit with the cradle.



The handheld terminal scans the connection barcode at the bottom of the base, and the handheld terminal will attempt to connect to the base, at the same time ,the handheld terminal will make a beep-beep-beep sound. If the connection is successful, the handheld terminal will make a beep sound, and the green LED on the handheld will blinks 1 time, the handheld terminal can be used directly. If the connection is unsuccessful, the handheld terminal will make a beep—beep sound, and the red LED on the handheld will blinks 2 times, and then turns off.

Step 4): Make the third handheld unit scan %%JOIN barcode to pair the third handheld unit with the cradle.



The handheld terminal scans the connection barcode at the bottom of the base, and the handheld terminal will attempt to connect to the base, at the same time ,the handheld terminal will make a beep-beep-beep sound. If the connection is successful, the handheld terminal will make a beep sound, and the green LED on the handheld will blinks 1 time, the handheld terminal can be used directly. If the connection is unsuccessful, the handheld terminal will make a beep—beep sound, and the red LED on the handheld will blinks 2 times, and then turns off.

Test barcode:



3-3 CS2190-BT Wireless communication setting

3-3-1 Bluetooth mode

HID Keyboard - The scanner connects to the PC/host via Bluetooth and behaves like a keyboard.

SPP - The scanner connects to the PC/host via Bluetooth and behaves like there is a serial connection.

BLE - The scanner connects to the PC/host via Bluetooth and behaves like there is a serial connection.

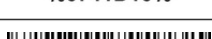
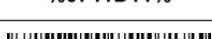
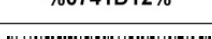
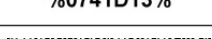
Cradle - The scanner connects to the cradle.

<i>Multiple-scan setting</i>			<i>Single-scan setting</i>
<i>Option barcode</i>	<i>Option</i>	<i>Alpha. entry</i>	
Bluetooth mode  0740	HID Keyboard	00	 %0740D00%
	SPP	01	 %0740D01%
	Cradle	02*	 %0740D02% *
	BLE	03	 %0740D03%
 %END%			

3-3-2 Bluetooth HID Keyboard

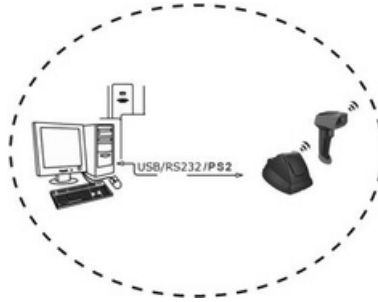
Keyboard layout: The scanner supports different national keyboard layouts.

Inter-character delay: This delay is inserted after each data character transmitted. By selecting, the user can change the output speed of the scanner to match the speed of the host USB communication port.

Multiple-scan setting			Single-scan setting
Option barcode	Option	Alpha. entry	
Keyboard layout  0741	USA	00*	 %0741D00% *
	Turkish F	01	 %0741D01%
	Turkish Q	02	 %0741D02%
	French	03	 %0741D03%
	Italian	04	 %0741D04%
	Spanish	05	 %0741D05%
	Slovak	06	 %0741D06%
	Denmark	07	 %0741D07%
	Japanese	08	 %0741D08%
	German	09	 %0741D09%
	Belgian	10	 %0741D10%
	Russian	11	 %0741D11%
	Czech	12	 %0741D12%
	Thai	13	 %0741D13%
	Hungary	14	 %0741D14%
Inter-character delay  0745	00-99(1ms)	00-99	
		10*	 %0745D10% *
 %END%			

3-3-3 Example

The handheld terminal shall ensure that the connection of the base and PC is successful before communicating with the base.



Connect the base:

The handheld terminal scans the connection barcode at the bottom of the base, and the handheld terminal will attempt to connect to the base, at the same time, the handheld terminal will make a beep-beep-beep sound. If the connection is successful, the handheld terminal will make a beep-beep sound, and the green LED on the handheld will blink 2 times, the handheld terminal can be used directly. If the connection is unsuccessful, the handheld terminal will make a beep—beep— sound, and the red LED on the handheld will blink 2 times, and then turns off.



Disconnect:

The handheld terminal scan disconnects the bar code, and the handheld terminal can be disconnected from the base



3-3-4 Bluetooth name of handheld setting

Please change the Bluetooth name of handheld unit by scanning below barcode. The barcode type is Code128 or QR Code, the rules are as follows:



"**xxxx**" can be set as Bluetooth name, the length is 1-30 characters, support "0-9, a/A-z/Z" .

For example:

scan below setting barcode "**%BTN%1234Md**", the Bluetooth will be named as **1234Md**. If the Bluetooth name is successful changed, the beeper will have three beeps.



Bluetooth name display:

if you wish to display the Bluetooth name of handheld unit, please scan the barcode below.



Pop up/close down the keyboard setting:

In Bluetooth HID working mode, connect the Apple IOS system device, scan "**%%%OSK**", and the keyboard of the device can pop up/close down.



3-4 Batch data mode

Disable-Do not batch data. The handheld unit attempts to transmit every scanned barcode. If the transmission is failed, the barcode data is ignored.

Out-of-range batch— The handheld unit starts storing barcode data when it loses its connection to a remote device (for example, when a user holding the handheld unit walks out of range). Data transmission is triggered by reestablishing the connection with the cradle (for example, when a user holding the handheld unit walks back into range).

Standard batch 1 - The handheld unit starts storing barcode data after %%%EBM" (**Enter Batch Mode**) is scanned. Data transmission is triggered by scanning "%%SBD" (**Send Batch Data**).The stored data will be emptied automatically after successful sending.If you want to output the total number of barcodes scanned when in Standard batch Mode, scan"%%BDN".

Standard batch 2 - he handheld unit starts storing barcode data after %%%EBM" (Enter Batch Mode) is scanned. Data transmission is triggered by scanning "%%SBD" (Send Batch Data). The stored data will not be emptied automatically after successful sending.If you want to output the total number of barcodes scanned when in Standard batch Mode, scan"%%BDN".

When the storage space is full, the decoded buzzer will beep 4 times each time, and the stored barcode data needs to be cleared before storage can continue.

Number of storable barcodes = 16,384 bytes of memory / (number of characters in the barcode + 2).

 %SETUP SETUP			
Batch data mode  0705	Disable	00*	 %0705D00% *
	Out-of-range batch	01	 %0705D01%
	Standard batch 1	02	 %0705D02%
	Standard batch 2	03	 %0705D03%
 %%END END			

Send batch data

%%SBD

Total Records

%%BDN

Cleardata

%%CBD

3-5 Keyboard wedge interface for Cradle

Keyboard type: As a keyboard interface, the scanner supports most of the popular PCs and IBM terminals.

Keyboard layout: The scanner supports different national keyboard layouts.

Clock period: According to the PS/2 protocol, the clock is provided by the device, e.g. keyboard or scanner, with the period between 60 us to 100 us.

Delay-after-compound-key: In some rare occasions, machine with low speed PS/2 communication port would require a free time gap following the press/release of the compound key (Shift, Ctrl or Alt).

Numeric key:

Alphabetic key- the scanner will output code result as alphabetic key.

Numeric key- the scanner will output code result as pressing numeric keypad ('0', '1', '2', '3', '4', '5', '6', '7', '8', '9', '.', '+', '-', '/', '*' only).

Alt + keypad- the scanner will output code result as pressing Alt + numeric key (on keypad). Note that the Num Lock control key must be ON. This setting can be specially adapted for use with different national keyboard layout.

Power-on simulation: All of the PCs check the keyboard status during power-on self test. It simulates keyboard timing and passes keyboard present status to the PC during power-on.

Inter-character delay: This delay is inserted after each data character transmitted.

Inter-byte delay: This delay is inserted after each byte transmitted. Normally a character is comprised of three or above bytes.

Block trans. delay: It is a delay timer between barcode data output. This feature is used to transfer continually with shorter barcode data.

Caps Lock reversion: By setting enable, the status of Caps Lock key (i.e. being pressed ON or OFF) on the keyboard is simulated in a reversion status.

Caps Lock override: If this function is enabled, on AT or AT notebook hosts, the keyboard ignores the state of the Caps Lock key. Therefore, an 'A' in the bar code is sent as an 'A' no matter what the state of the keyboard's Caps Lock key.

A guide of setting while the scanned data is incorrectly displayed on the host

- ✚ If some characters are missed or some additional characters are incorrectly displayed on the host, set the Inter-byte delay (0208) to be "01" or greater value.
- ✚ If some capital character (e.g. "A") or compound-key-characters (e.g. ".shift+", "Ctrl+", "Alt+") are displayed incorrectly, set the Delay-after-compound-key to be "01" or greater value.
- ✚ If some digits are incorrectly displayed as some symbol characters (e.g. "1" and "2" are displayed incorrectly as "!" and "@"), set the Clock period (0203) to be greater value (e.g. 04, 05).



%SETUP SETUP

<i>Option bar code</i>	<i>Option</i>	<i>Alpha. entry</i>	<i>Single-scan setting</i>
Keyboard type  0201	IBM AT, PS/2	00*	 %0201D00% *
	Apple Mac compatibles	01	 %0201D01%
Keyboard layout  0202	USA	00*	 %0202D00% *
	Turkish F	01	 %0202D01%
	Turkish Q	02	 %0202D02%
	French	03	 %0202D03%
	Italian	04	 %0202D04%
	Spanish	05	 %0202D05%
	Slovak	06	 %0202D06%
	Denmark	07	 %0202D07%
	Japanese	08	 %0202D08%
	German	09	 %0202D09%
Clock period  0203	60 us	00	 %0203D00%
	70 us	01	 %0203D01%
	80 us	02*	 %0203D02% *
	90 us	03	 %0203D03%
	100 us	04	 %0203D04%
	200 us	05	 %0203D05%
Delay-after-compound-key  0204	0 ms	00*	 %0204D00% *
	10 ms	01	 %0204D01%



%SETUP SETUP

<i>Option bar code</i>	<i>Option</i>	<i>Alpha. entry</i>	<i>Single-scan setting</i>
	20 ms	02	 %0204D02%
	40 ms	03	 %0204D03%
	80 ms	04	 %0204D04%
Numeric key 0205	Alphabetic key	00*	 %0205D00% *
	Numeric keypad	01	 %0205D01%
	Alt+ keypad	02	 %0205D02%
Power-on simulation 0206	Disable	00*	 %0206D00% *
	Enable	01	 %0206D01%
Inter-character delay 0207	0 ms	00*	 %0207D00% *
	5 ms	01	 %0207D01%
	10 ms	02	 %0207D02%
	20 ms	03	 %0207D03%
	40 ms	04	 %0207D04%
	80 ms	05	 %0207D05%
Inter-byte delay 0208	1 ms	00*	 %0208D00% *
	2 ms	01	 %0208D01%
	4 ms	02	 %0208D02%
	8 ms	03	 %0208D03%
Caps Lock reversion 0209	Disable	00*	 %0209D00% *
	Enable	01	 %0209D01%



%SETUP SETUP

<i>Option bar code</i>	<i>Option</i>	<i>Alpha. entry</i>	<i>Single-scan setting</i>
Caps Lock override  0210	Disable	00*	 %0210D00% *
	Enable	01	 %0210D01%



%%END END

3-6 RS-232 interface for Cradle

Flow control:

None-The communication only uses TxD and RxD signals without any hardware or software handshaking protocol.

RTS/CTS-If the scanner wants to send the barcode data to host computer, it will issue the RTS signal first, wait for the CTS signal from the host computer, and then perform the normal data communication. If there is no replied CTS signal from the host computer after the timeout duration, the scanner will

By setting (Host idle: Low RTS) or (Host idle: High RTS), the scanner can be set to match the Serial Host RTS line.

Inter-character delay: Refer to Inter-character delay of [3-5 Keyboard wedge interface for Cradle](#).

Response delay: This delay is used for serial communication of the scanner when it waits for a handshaking acknowledgment from the host.



%SETUP SETUP

Option bar code	Option	Alpha. entry	Single-scan setting
Flow control 0301	None	00*	 %0301D00% *
	RTS/CTS (Host idle: Low RTS)	01	 %0301D01%
	RTS/CTS (Host idle: High RTS)	02	 %0301D02%
Inter-character delay 0302	0 ms	00*	 %0302D00% *
	5 ms	01	 %0302D01%
	10 ms	02	 %0302D02%
	20 ms	03	 %0302D03%
	40 ms	04	 %0302D04%
	80 ms	05	 %0302D05%
Response delay 0304	01-99 (100 ms)	01-99	
		00*	 %0304D00% *
Baud rate 0305	300	00	 %0305D00%
	600	01	 %0305D01%
	1200	02	 %0305D02%
	2400	03	 %0305D03%
	4800	04	 %0305D04%
	9600	05*	 %0305D05% *
	19200	06	 %0305D06%
	38400	07	 %0305D07%
	57600	08	 %0305D08%



%SETUP SETUP

<i>Option bar code</i>	<i>Option</i>	<i>Alpha. entry</i>	<i>Single-scan setting</i>
	115200	09	 %0305D09%
Parity 0306	None	00*	 %0306D00% *
	Odd	01	 %0306D01%
	Even	02	 %0306D02%
Data bit 0307	8 bits	00*	 %0307D00% *
	7 bits	01	 %0307D01%
Stop bit 0308	One bit	00*	 %0308D00% *
	Two bits	01	 %0308D01%



%%%END END

3-7 USB interface for Cradle

USB device type: When the cradle is connected to a PC with a USB cable, it will be identified as a HID keyboard.

HID keyboard– By setting, the scanner is used as a USB HID keyboard emulation device. The keyboard layout setting follows the setting of [keyboard layout](#) in the chapter of Keyboard wedge.

USB virtual COM– By setting, the scanner emulate a regular RS232-based COM port. If a Microsoft Windows PC is connected to the scanner, a driver is required to install on the connected PC. The driver will use the next available COM Port number. The driver and the installation guide can be found in the associated CD and on the manufacturer's website.

COM-Text is recommended to display the barcode data in text format. COM-Text emulates some kind of serial-key typing.

Note: when changing USB Device Types, the scanner automatically restarts.

HID for OPOS/JPOS- The scanner is connected to a POS terminal which may be necessary to install the OPOS/JPOS driver to be compatible with the manufacturer's scanner. The OPOS/JPOS driver is provided by the scanner manufacturer; please contact the scanner manufacturer for the instruction.

Keyboard layout: Refer to [Keyboard layout](#) of [3-5 Keyboard wedge interface for Cradle](#).

Host comm. port speed: By selecting, the user can change the output speed of the scanner to match the speed of the host's USB work with high communication speed. Generally, set 00 or 01 to work with high communication speed. If some output characters of barcode have been missed, the user may need to set 07 or 08 to slow the data transmission speed of the scanner.

Numeric key: Refer to [Numeric key](#) of [3-5 Keyboard wedge interface for Cradle](#).



%SETUP SETUP

<i>Option bar code</i>	<i>Option</i>	<i>Alpha. entry</i>	<i>Single-scan setting</i>
USB device type  0901	HID keyboard	00*	 %0901D00% *
	HID keyboard for Apple Mac	01	 %0901D01%
	USB virtual COM	02	 %0901D02%
	HID for OPOS/JPOS	04	 %0901D04%
Keyboard layout  0902	USA	00*	 %0902D00% *
	Turkish F	01	 %0902D01%
	Turkish Q	02	 %0902D02%
	French	03	 %0902D03%
	Italian	04	 %0902D04%
	Spanish	05	 %0902D05%
	Slovak	06	 %0902D06%
	Denmark	07	 %0902D07%
	Japanese	08	 %0902D08%
	German	09	 %0902D09%
	Belgian	10	 %0902D10%
	Russian	11	 %0902D11%
	Czech	12	 %0902D12%
	Thailand	13	 %0902D13%
	Hungary	14	 %0902D14%
Inter-character delay	5 ms	01*	 %0903D01% *



%SETUP SETUP

<i>Option bar code</i>	<i>Option</i>	<i>Alpha. entry</i>	<i>Single-scan setting</i>
 0903	10 ms	02	 %0903D02%
	20 ms	03	 %0903D03%
	40 ms	04	 %0903D04%
	60 ms	05	 %0903D05%
Numeric key  0904	Alphabetic key	00*	 %0904D00%*
	Numeric keypad	01	 %0904D01%
	Alt+ keypad	02	 %0904D02%



%%END END

3-8 Handheld scan & some global settings

Scanning mode:

Good-read off-The trigger button must be pressed once to activate scanning. The light source of scanner stops scanning when there is a successful reading or no code is decoded after the **Stand-by duration** elapsed.

Momentary-The trigger button acts as a switch. Press button to activate scanning and release the light source of scanner stops scanning when there is a successful reading or no code is decoded after the **Stand-by duration** elapsed.

Alternate-The trigger button acts as a toggle switch. Press button to activate or stop scanning.

Continue-The scanner always keeps scanning, and it does not matter when the trigger button is pressed or duration is elapsed.

Timeout off-The trigger button must be pressed once to activate scanning. The light source of scanner stops scanning when no code is successful decoded after **the Stand-by duration** elapsed.

Same barcode delay time: If a barcode has been scanned and output once successfully, the laser beam must be off or moved away from the barcode beyond delay time to active scanning the same barcode. When this feature is set to be "0xFF", then the delay time is indefinite.

Double confirm: If it is enabled, the scanner will require a several times of same-decoded-data to confirm a valid reading.

Global Max./Min. code length: These two lengths are defined as the valid range of decoded barcode data length. Make sure that the minimum length setting is no greater than the maximum length setting, or otherwise the labels of the symbol will not be readable. In particular, the same value can be set for both minimum and maximum reading length to force the fixed length barcode decoded.

Notes:

1. Please set the max./min. length for individual barcode in later sections, if special demand is requested.
2. The number of check digits is included in max./min. code length.
3. These two settings have no effect on the symbols with fixed-length, e.g. UPC-A, UPC-E, EAN-13, EAN-8 and China Post.

Global G1-G4 string selection: The scanner offer one or two string group for ALL symbols. By setting one or two digits to indicate which string group you want to apply. You may refer to the chapters of [3-32 G1-G4 & FN1 substitution string setting](#) and [3-33 G1-G4 string position & Code ID position](#).

Example: Group 1 → set 01 or 10. Group 2 and 4 → set 24 or 42.

All valid settings include 00, 01, 02, 03, 04, 10, 11, 12, 13, 14, 20, 21, 22, 23, 24, 30, 31, 32, 33, 34, 40, 41, 42, 43, 44.

Element amendment: If it is enabled, the scanner can read the barcode comprised with bars and spaces in different scale.

Printable character only: If it is enabled, the scanner will output the printable characters only, i.e. in ASCII from 20H to 7EH.

Decoder optimization: If it is enabled, the scanner will optimize the decoder with error correction. This function is not effective for all types of barcodes.



%SETUP SETUP

Option bar code	Option	Alpha. entry	Single-scan setting
Scan mode 0401	Good-read off	00	 %0401D00%
	Momentary	01*	 %0401D01% *
	Alternate	02	 %0401D02%
	continue	03	 %0401D03%
	Continue	04	 %0401D04%
	Timeout off	05	 %0401D05%
Standby duration 0402	01-99 (second)	01-99	
		04*	 %0402D04% *
Same barcode delay time 0403	00-FF ₁₆ (50 ms)	00-FF ¹⁶	
		00	 %0403H00%
		08*	 %0403H08%
Double confirm 0404	00-09 (00: none)	00-09	
		00*	 %0404D00% *
Global max. code length 0405	04-99	04-99	
		99*	 %0405D99% *
Global min. code length 0406	01-99	01-99	
		04*	 %0406D04% *
Global G1-G4 string selection 0407	00-44	00-44	
		00*	 %0407D00% *
Element amendment 0408	Disable	00	 %0408D00%
	Enable	01*	 %0408D01% *



%SETUP SETUP

<i>Option bar code</i>	<i>Option</i>	<i>Alpha. entry</i>	<i>Single-scan setting</i>
Character output restraint  0409	Disable	00*	 %0409D00% *
	Enable	01	 %0409D01%
Decoder optimization  0410	Disable	00	 %0410D00%
	Enable	01*	 %0410D01% *



%%END END

3-9 Indication for handheld unit

Power on alert: After power-on the scanner will generate an alert signal to indicate a successful self-test.

LED indication: After each successful reading, the LED above the scanner will light up to indicate a good barcode reading.

Beeper indication: After each successful reading, the scanner will beep to indicate a good barcode reading, and its beep tone duration is adjustable.

Beep tone duration: This parameter can be adjusted for a good reading upon favorite usage.

Volume of beeper: This parameter can be adjusted for different level of the volume of the beeper.

Vibration: After each successful reading, the vibrator will vibrate to indicate a good barcode reading.

Silent mode: After enable this mode, all scanner beeps will be turned off.

 %SETUP SETUP			
Option bar code	Option	Alpha. entry	Single-scan setting
Power on alert  0501	Disable	00*	 %0501D00%*
	Enable	01	 %0501D01%
LED indication  0502	Disable	00	 %0502D00%
	Enable	01*	 %0502D01%*
Beeper indication  0503	Disable	00	 %0503D00%
	Enable	01*	 %0503D01%*
Beep tone duration  0504	01-09 (10 ms)	01-09	
		05*	 %0504D05%*
Volume of beeper  0505	Low	00	 %0505D00%
	Middle	01	 %0505D01%
	High	02*	 %0505D02%*
Vibration indication  0507	Disable	00	 %0507D00%
	Enable	01*	 %0507D01%*
Silent mode  0509	Disable	00*	 %0509D00%*
	Enable	01	 %0509D01%
 %%END END			

3-10 UPC-A

Read:

Format

System character	Data digits (10 digits)	Check digit
------------------	-------------------------	-------------

Check digit verification: The check digit verification is optional.

Check digit trans.: By setting Enable, check digit will be transmitted.

Code ID setting: Code ID is a one-or-two-character string used to represent the symbol upon a succeeding reading. If you want application to transmit Code ID, you must set **Code ID transmission** to be enabled. Refer to [3-34String transmission](#).

Insertion group selection: Refer to **Global insertion group selection** of [3-8 Hand-held scan & some global settings](#).

Supplement digits: The Supplement digits barcode is the supplemental 2 or 5 characters.

Format

System character	Data digits (10 digits)	Check digit	Supplement digits 2 or 5
------------------	-------------------------	-------------	--------------------------

Truncation/Expansion:

Truncate leading zeros- The leading “0” digits of UPC-A data characters can be truncated when the feature is enabled.

Expand to EAN13- It extends to 13-digits with a “0” leading digit when the feature is enabled.

Truncate system character- The system character of UPC-A data can be truncated when the feature is enabled.

Add country code- The country code (“0” for USA) can be added when the feature is enabled.

 %SETUP SETUP			
Option bar code	Option	Alpha. entry	Single-scan setting
Read  1101	Disable	00	 %1101D00%
	Enable	01*	 %1101D01% *
Check digit verification  1102	Disable	00	 %1102D00%
	Enable	01*	 %1102D01% *
Check digit trans.  1103	Disable	00	 %1103D00%
	Enable	01*	 %1103D01% *
Code ID setting  1104	00-FF ₁₆ (ASCII)	00-FF ¹⁶	
		<A>*	 %1104H41% *
Insert group selection  1105	00-44	00-44	
		00*	 %1105D00% *
	None	00*	 %1106D00% *



%SETUP SETUP

<i>Optionbar code</i>	<i>Option</i>	<i>Alpha. entry</i>	<i>Single-scan setting</i>
Supplement digits  1106	2 digits	01	 %1106D01%
	5 digits	02	 %1106D02%
	2 or 5 digits	03	 %1106D03%
Truncation/Expansion  1107	None	00*	 %1107D00%*
	Truncate leading zeros	01	 %1107D01%
	Expand to EAN-13	02	 %1107D02%
	Truncate system character	03	 %1107D03%
	Add country code	04	 %1107D04%



%%END END

3-11 UPC-E

Read:

Format

System character "0"	Data digits (6 digits)	Check digits
----------------------	------------------------	--------------

Check digit verification: The check digit verification is optional and made as the sum of the numerical value of the data digits.

Check digit trans.: By setting Enable, check digit will be transmitted.

Code ID setting: Refer to [Code ID setting](#) of [3-10 UPC-A](#).

Insertion group selection: Refer to [Insertion group selection](#) of [3-10 UPC-A](#).

Supplement digits:

Format

System character "0"	Data digits (6 digits)	Check digit	Supplement digits 2 or 5
----------------------	------------------------	-------------	--------------------------

Truncation/Expansion:

Truncate leading zeros- Refer to [Truncation/Expansion](#) of [3-10 UPC-A](#).

Expand to EAN-13- It extends to 13-digits with "0" digits when the feature is set to be enabled.

Example: Barcode "0123654",

Output: "0012360000057".

Expand to UPC-A- It extends to 12-digits when the feature is set to be enabled.

Truncate system character- The system character "0" of UPC-E data can be truncated when the feature is enabled.

Add country code- The country code ("0" for USA) can be added when the feature is enabled.



%SETUP SETUP

Option bar code	Option	Alpha. entry	Single-scan setting
Read 1201	Disable	00	 %1201D00%
	Enable	01*	 %1201D01% *
Check digit verification 1202	Disable	00	 %1202D00%
	Enable	01*	 %1202D01% *
Check digit trans. 1203	Disable	00	 %1203D00%
	Enable	01*	 %1203D01% *
Code ID setting 1204	00-FF ₁₆ (ASCII)	00-FF ¹⁶	
		<D>*	 %1204H44% *
Insert group selection 1205	00-44	00-44	
		00*	 %1205D00% *



%SETUP SETUP

<i>Option bar code</i>	<i>Option</i>	<i>Alpha. entry</i>	<i>Single-scan setting</i>
Supplement digits  1206	None	00*	 %1206D00% *
	2 digits	01	 %1206D01%
	5 digits	02	 %1206D02%
	2 or 5 digits	03	 %1206D03%
Truncation/Expansion  1207	None	00*	 %1207D00% *
	Truncate leading zeros	01	 %1207D01%
	Expand to EAN-13	02	 %1207D02%
	Expand to UPC-A	03	 %1207D03%
	Truncate system character	04	 %1207D04%
	Add country code	05	 %1207D05%



%%END END

3-12 UPC-E1

Read:

Format

System character "1"	Data digits (6 digits)	Check digits
----------------------	------------------------	--------------

Check digit verification: The check digit is optional and made as the sum of the numerical value of the data digits.

Check digit trans.: By setting Enable, check digit will be transmitted.

Code ID setting: Refer to Code ID setting of [3-10 UPC-A](#).

Insertion group selection: Refer to Insertion group selection of [3-10 UPC-A](#).

Supplement digits:

Format

System character "1"	Data digits (6 digits)	Check digit	Supplement digits 2 or 5
----------------------	------------------------	-------------	--------------------------

Truncation/Expansion:

Expand to EAN-13- It extends to 13-digits with "0" digits when the feature is set to be enabled.

Expand to UPC-A- It extends to 12-digits when the feature is set to be enabled.

Truncate system character- The system character "1" of UPC-E1 data can be truncated when the feature is enabled.

Add country code- The country code ("0" for USA) can be added when the feature is enabled.



%SETUP SETUP

Option bar code	Option	Alpha. entry	Single-scan setting
Read 3401	Disable	00*	 %3401D00% *
	Enable	01	 %3401D01%
Check digit verification 3402	Disable	00	 %3402D00%
	Enable	01*	 %3402D01% *
Check digit trans. 3403	Disable	00	 %3403D00%
	Enable	01*	 %3403D01% *
Code ID setting 3404	00-FF ₁₆ (ASCII)	00-FF ¹⁶	
		<D>*	 %3404H44% *
Insert group selection 3405	00-44	00-44	
		00*	 %3405D00% *
Supplement digits	None	00*	 %3406D00% *



%SETUP SETUP

<i>Option bar code</i>	<i>Option</i>	<i>Alpha. entry</i>	<i>Single-scan setting</i>
 3406	2 digits	01	 %3406D01%
	5 digits	02	 %3406D02%
	2 or 5 digits	03	 %3406D03%
Truncation/Expansion  3407	None	00*	 %3407D00% *
	Expand to EAN-13	02	 %3407D02%
	Expand to UPC-A	03	 %3407D03%
	Truncate system character	04	 %3407D04%
	Add country code	05	 %3407D05%



%%%END END

3-13 EAN-13 (ISBN/ISSN)

Read:

Format

Data digits (12 digits)	Check digit
-------------------------	-------------

Check digit verification: The check digit is optional and made as the sum of the numerical value of the data digits.

Check digit transmission: By setting Enable, check digit will be transmitted.

EAN-13 code ID setting: Refer to Code ID setting of [3-10 UPC-A](#).

Insertion group selection: Refer to Insertion group selection of [3-10 UPC-A](#).

Supplement digits:

Format

Data digits (12 digits)	Check digit	Supplement digits 2 or 5
-------------------------	-------------	--------------------------

ISBN/ISSN conversion: The ISBN (International Standard Book Number, or Bookland EAN) and ISSN (International Standard Serial Number) are two kinds of barcode for books and magazines. The ISBN is 10 digits with leading “978” and the ISSN is 8 digits with leading “977” of the EAN-13 symbol.

Example:

Barcode “9780194315104”, Output: “019431510X”.

Barcode “9771005180004”, Output: “10051805”.

ISBN/ISSN code ID setting: Refer to Code ID setting of [3-10 UPC-A](#).



%SETUP SETUP

Option bar code	Option	Alpha. entry	Single-scan setting
Read 1301	Disable	00	
	Enable	01*	*
Check digit verification 1302	Disable	00	
	Enable	01*	*
Check digit transmission 1303	Disable	00	
	Enable	01*	*
EAN-13 code ID setting 1304	00-FF ₁₆ (ASCII)	00-FF ₁₆	
		<A>*	*
Insert group selection 1305	00-44	00-44	
		00*	*



%SETUP SETUP

<i>Option bar code</i>	<i>Option</i>	<i>Alpha. entry</i>	<i>Single-scan setting</i>
Supplement digits  1306	None	00*	 %1306D00%*
	2 digits	01	 %1306D01%
	5 digits	02	 %1306D02%
	2 or 5 digits	03	 %1306D03%
ISBN/ISSN conversion  1307	Disable	00*	 %1307D00%*
	Enable	01	 %1307D01%
ISBN/ISSN code ID setting  1309	00-FF ₁₆ (ASCII)	00-FF ¹⁶	
		*	 %1309H42%*



%%END END

3-14 EAN-8

Read:

Format

Data digits (7 digits)	Check digit
------------------------	-------------

Check digit verification: The check digit is optional and made as the sum of the numerical value of the data digits.

Check digit trans.: By setting Enable, check digit will be transmitted.

Code ID setting: Refer to Code ID setting of [3-10 UPC-A](#).

Insertion group selection: Refer to Insertion group selection of [3-10 UPC-A](#).

Supplement digits:

Format

Data digits (7 digits)	Check digit	Supplement digits 2 or 5
------------------------	-------------	--------------------------

Truncation/Expansion: Refer to Truncation/Expansion of [3-10 UPC-A](#).



%SETUP SETUP

Option bar code	Option	Alpha. entry	Single-scan setting
Read 1401	Disable	00	 %1401D00%
	Enable	01*	 %1401D01%*
Check digit verification 1402	Disable	00	 %1402D00%
	Enable	01*	 %1402D01%*
Check digit trans. 1403	Disable	00	 %1403D00%
	Enable	01*	 %1403D01%*
Code ID setting 1404	00-FF ₁₆ (ASCII)	00-FF ¹⁶	
		<C>*	 %1404H43%*
Insert group selection 1405	00-44	00-44	
		00*	 %1405D00%*
Supplement digits	None	00*	 %1406D00%*



%SETUP SETUP

<i>Option bar code</i>	<i>Option</i>	<i>Alpha. entry</i>	<i>Single-scan setting</i>
 1406	2 digits	01	 %1406D01%
	5 digits	02	 %1406D02%
	2 or 5 digits	03	 %1406D03%
Truncation/Expansion  1407	None	00*	 %1407D00% *
	Truncate leading zero	01	 %1407D01%
	Expand to EAN-13	02	 %1407D02%



%%END END

3-15 Code 39 (Code 32, Trioptic Code 39)

Read:

Format

Start character (*)	Data digits (variable)	Check digit (optional)	End character (*)
---------------------	------------------------	------------------------	-------------------

Check digit verification: The check digit is optional and made as the sum module 43 of the numerical value of the data digits.

Check digit transmission: By setting Enable, check digit will be transmitted.

Max./Min. code length: Each symbol has own max./min. code length. If both setting of max./min. code length are "00"s, the setting of global max./min. code length is effective. The length is defined as to the actual barcode data length to be sent. Label with length exceeds these limits will be rejected. Make sure that the minimum length setting is no greater than the maximum length setting, or otherwise all the labels of the symbol will not be readable. In particular, you can see the same value for both minimum and maximum reading length to force the fixed length barcode decoded.

Code ID setting: Refer to [Code ID setting](#) of [3-10 UPC-A](#).

Insertion group selection: Refer to [Insertion group selection](#) of [3-10 UPC-A](#).

Start/End transmission: The start and end characters of Code 39 are "*"s. You can transmit all data digits including two "*"s.

"*" as data character: By setting Enable, "*" can be recognized as data character.

Convert Code 39 to Code 32: Code 32 is a variant of Code 39 used by the Italian pharmaceutical industry. Note that Code 39 must be enabled in order for this parameter to function.

Format of Code 32

"A" (optional)	Data digits (8 digits)	Check digit
----------------	------------------------	-------------

Code 32 Prefix "A" transmission: By setting Enable, the prefix character "A" can be added to all Code 32 barcodes.

Trioptic Code 39 read: Trioptic Code 39 is a variant of Code 39 used in the marking of magnetic tapes and computer cartridges. Trioptic Code 39 symbols always contain six characters.

Format

Start character (\$)	Data digits (6 digits)	End character (\$)
----------------------	------------------------	--------------------

Trioptic Code 39 Start/End transmission: The start and end characters of Trioptic Code 39 are "\$"s. You can transmit all data digits including two "\$"s.



%SETUP SETUP

Option bar code	Option	Alpha. entry	Single-scan setting
Read 1501	Disable	00	 %1501D00%
	Enable	01*	 %1501D01% *
Check digit verification 1502	Disable	00*	 %1502D00% *
	Enable	01	 %1502D01%
Check digit transmission 1503	Disable	00*	 %1503D00% *
	Enable	01	 %1503D01%
Max. code length 1504	00-99	00-99	
		00*	 %1504D00% *
Min. code length 1505	00-99	00-99	
		01*	 %1505D01% *
Code ID setting 1506	00-FF ₁₆ (ASCII)	00-FF ¹⁶	
		<M>*	 %1506H4D% *
Insert group selection 1507	00-44	00-44	
		00*	 %1507D00% *
Format 1508	Standard	00*	 %1508D00% *
	Full ASCII	01	 %1508D01%
Start/End transmission 1509	Disable	00*	 %1509D00% *
	Enable	01	 %1509D01%
“*” as data character 1510	Disable	00*	 %1510D00% *
	Enable	01	 %1510D01%



%SETUP SETUP

<i>Option bar code</i>	<i>Option</i>	<i>Alpha. entry</i>	<i>Single-scan setting</i>
Convert Code 39 to Code 32  1511	Disable	00*	 %1511D00% *
	Enable	01	 %1511D01%
Code 32 Prefix "A" transmission  1512	Disable	00*	 %1512D00% *
	Enable	01	 %1512D01%
Trioptic Code 39 read  1513	Disable	00	 %1513D00%
	Enable	01*	 %1513D01% *
Trioptic Code 39 Start/End transmission  1514	Disable	00*	 %1514D00% *
	Enable	01	 %1514D01%



%%END END

Note 1: If Trioptic Code 39 is set Enable, Code 39 is forced Enable.
 Note 2: If Code 39 is set Disable, Trioptic Code 39 is forced Disable.

3-16 Interleaved 2 of 5

Read:

Format

Data digits (Variable)	Check digit (optional)
------------------------	------------------------

Check digit verification: The check digit is made as the sum module 10 of the numerical values of all data digits. There are two optional check digit algorithms: the specified Uniform Symbol Specification (USS) and the Optical Product Code Council (OPCC).

Check digit transmission: By setting Enable, check digit will be transmitted.

Max./Min. code length: Refer to Max./Min. code length of [3-15 Code 39](#).

Code ID setting: Refer to Code ID setting of [3-10 UPC-A](#).

Insertion group selection: Refer to Insertion group selection of [3-10 UPC-A](#).



%SETUP SETUP

<i>Option bar code</i>	<i>Option</i>	<i>Alpha. entry</i>	<i>Single-scan setting</i>
Read 1601	Disable	00	 %1601D00%
	Enable	01*	 %1601D01% *
Check digit verification 1602	Disable	00*	 %1602D00% *
	USS	01	 %1602D01%
	OPCC	02	 %1602D02%
Check digit transmission 1603	Disable	00*	 %1603D00% *
	Enable	01	 %1603D01%
Max. code length 1604	00-99	00-99	
		99	 %1604D99%
		00*	 %1604D00% *
Min. code length 1605	00-99	00-99	
		06*	 %1605D06% *
Code ID setting 1606	00-FF ₁₆ (ASCII)	00-FF ¹⁶	
		< >*	 %1606H49% *
Insert group selection 1607	00-44	00-44	
		00*	 %1607D00% *



%%END END

3-17 Industrial 2 of 5

Read:

Format

Data digits (variable)

Max./Min. code length: Refer to Max./Min. code length of **3-15 Code 39**.

Code ID setting: Refer to Code ID setting of **3-10 UPC-A**.

Insertion group selection: Refer to Insertion group selection of **3-10 UPC-A**.

%SETUP SETUP			
Option bar code	Option	Alpha. entry	Single-scan setting
Read 1701	Disable	00*	%1701D00% *
	Enable	01	%1701D01%
Max. code length 1702	00-99	00-99	
		99	%1702D99%
		00*	%1702D00% *
Min. code length 1703	00-99	00-99	
		00*	%1703D00% *
Code ID setting 1704	00-FF ₁₆ (ASCII)	00-FF ¹⁶	
		<H>*	%1704H48% *
Insert group selection 1705	00-44	00-44	
		00*	%1705D00% *
%%END END			

3-18 Matrix 2 of 5

Read:

Format

Data digits (variable)	Check digit (optional)
------------------------	------------------------

Check digit verification: The check digit is made as the sum module 10 of the numerical values of all data digits.

Check digit transmission: By setting Enable, check digit will be transmitted.

Max./Min. code length: Refer to Max./Min. code length of [3-15 Code 39](#).

Code ID setting: Refer to Code ID setting of [3-10 UPC-A](#).

Insertion group selection: Refer to Insertion group selection of [3-10 UPC-A](#).



%SETUP SETUP

Option bar code	Option	Alpha. entry	Single-scan setting
Read 1801	Disable	00	 %1801D00%
	Enable	01*	 %1801D01% *
Check digit verification 1802	Disable	00*	 %1802D00% *
	Enable	01	 %1802D01%
Check digit transmission 1803	Disable	00*	 %1803D00% *
	Enable	01	 %1803D01%
Max. code length 1804	00-99	00-99	
		99	 %1804D99%
		00*	 %1804D00% *
Min. code length 1805	00-99	00-99	
		06*	 %1805D06% *
Code ID setting 1806	00-FF ₁₆ (ASCII)	00-FF ¹⁶	
		<X>*	 %1806H58% *
Insert group selection 1807	00-44	00-44	
		00*	 %1807D00% *



%%END END

3-19 Codabar

Read:

Format

Start character	Data digits (variable)	Check digit (optional)	End character
-----------------	------------------------	------------------------	---------------

Check digit verification: The check digit is made as the sum module 16 of the numerical values of all data digits.

Check digit transmission: By setting Enable, check digit will be transmitted.

Max./Min. code length: Refer to Max./Min. code length of [3-15 Code 39](#).

Code ID setting: Refer to Code ID setting of [3-10 UPC-A](#).

Insertion group selection: Refer to Insertion group selection of [3-10 UPC-A](#).

Start/End type: Codabar has four pairs of Start/End pattern; you may select one pair to match your application.

Start/End transmission: Refer to Start/End transmission of [3-15 Code 39](#).



%SETUP SETUP

Option bar code	Option	Alpha. entry	Single-scan setting
Read 1901	Disable	00	 %1901D00%
	Enable	01*	 %1901D01% *
Check digit verification 1902	Disable	00*	 %1902D00% *
	Enable	01	 %1902D01%
Check digit transmission 1903	Disable	00*	 %1903D00% *
	Enable	01	 %1903D01%
Max. code length 1904	00-99	00-99	
		99	 %1904D99%
		00*	 %1904D00% *
Min. code length 1905	00-99	00-99	
		04	 %1905D04%
		00*	 %1905D00% *
	00-FF ₁₆ (ASCII)	00-FF ₁₆	



%SETUP SETUP

<i>Option bar code</i>	<i>Option</i>	<i>Alpha. entry</i>	<i>Single-scan setting</i>
Code ID setting  1906		<N>*	 %1906H4E% *
Insert group selection  1907	00-44	00-44	
		00*	 %1907D00% *
Start/End type  1908	ABCD/ABCD	00*	 %1908D00% *
	abcd/abcd	01	 %1908D01%
	ABCD/TN*E	02	 %1908D02%
	abcd/tn*e	03	 %1908D03%
Start/End transmission  1909	Disable	00*	 %1909D00% *
	Enable	01	 %1909D01%



%%END END