W28 Ring Scanner
Product Specification

HYCO
IoT Innovator

www.hycoiot.com

Disclaimer

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Please read through the manual carefully before using the product and operate it according to the manual. It is advised that you should keep this manual for future reference.

Do not disassemble the device or remove the seal label from the device. Otherwise, Shanghai Hyco Genyong Technology Co., Ltd. does not assume responsibility for the warranty or replacement.

All pictures in this manual are for reference only and actual product may differ. Regarding to the product modification and update, Shanghai Hyco Genyong Technology Co., Ltd. reserves the right to make changes to any software or product to improve reliability, function, or design at any time without notice. Besides, the information contained herein is subject to change without prior notice.

Please visit www.hycoiot.com or check the latest version of the specification sheet for the latest product information

Version Information

Version	Date	Remark
V1.0	2019.12.21	Initial release
V1.1	2020.01.02	Revise pictures and specification inform
V2.0	2020.7.20	Revise description

Menu

Overview

In addition to extract price information at the checkout counter in supermarkets, the purpose of scanning barcodes/2D codes/RFID in the express delivery, logistics, supply chain, food and drug tracing management, intelligent manufacturing and other fields is for responsibility division, which is intended to function as an electronic signature in each shift.

Even though the traditional hand-held scanning machine and PDA meet the demand of responsibility division in data collecting, monitoring and tracing, they occupy one hand of the user during the whole scanning process, which negatively affects the operational efficiency. Thus, how to satisfy the need of full-scan tracing without disturbing efficiency has always been a common goal for all scientific and technological workers, as well as clients and customers.

After 10 years of independent R&D, HYCO Technology has achieved the goal of handiness, comfort, and world leading Bluetooth connecting distance and reliability.

Users could wear HYCO ring scanner on any finger on either hand (index finger is suggested). With a light touch on both sides of the scanner, they can complete fast scanning by aligning the crosshair cursor with the codes. Within a second, the data acquired will be sent to all kinds of devices and systems via Bluetooth.
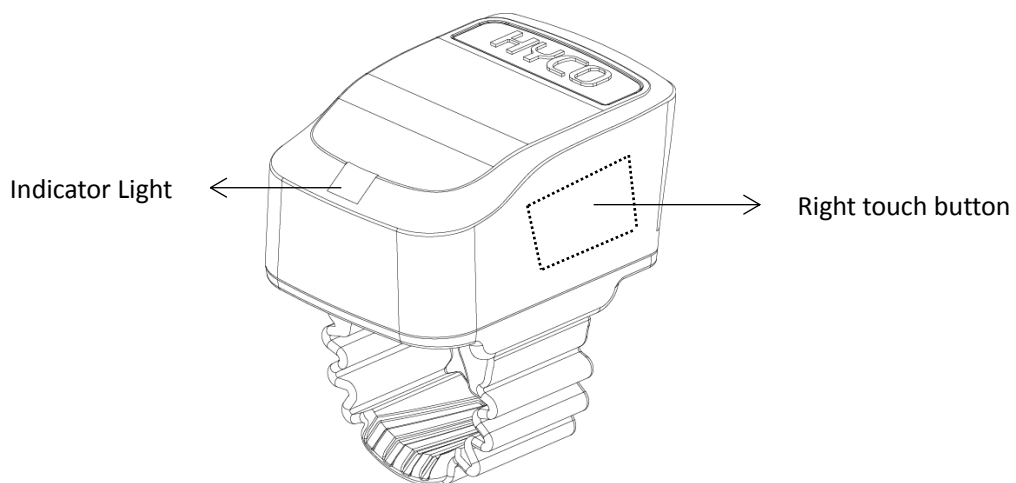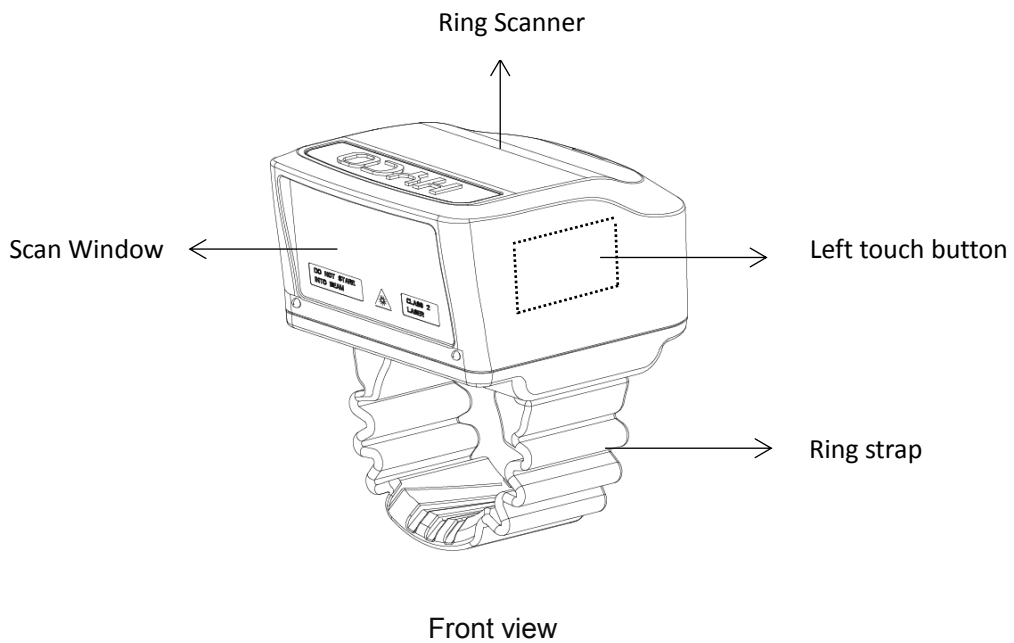
Product Features

- Extremely small & light: weighs only 20g with tireless long-time wearing experience
- Rugged quality: IP66; waterproof; crush resistance up to 3m
- Comfort wearing: substitutable ring straps made of sweat-proof materials to satisfy various sized fingers.
- Ultra-low power consumption: world leading low power consuming technology, over 8hrs battery life guaranteed.
- 2D code scanning: HYCO's original ultra-low power consuming 2D scanner. Supports recognitions of barcodes/2D codes on labels, craft paper, metal surfaces and screens.
- Stabilized Bluetooth communication: fast and stable Bluetooth data transmission; 50m communication distance in free space.
- Multiple protocols and communication ports: supports Bluetooth/USB/RS232 connection with any electronic devices such as smart watches, phones, laptops, PCs, POSs, IPCs, PLCs, etc.

Product advantage

- Hands-free and efficient
- Omnidirectional scanning
- Reducing the labor intensity

- Ultra-low power consumption and green
- Light, flexible, ease of use
- Reinforce brand identity with customers
- Recognize codes on multiple materials
- Rich accessories

Product demonstration

Ring Scanner

Scan Window

Left touch button

Ring strap

Front view

Indicator Light

Right touch button

Back view

How to wear

The wearing method of this product is shown in the picture 1 below. The product can be worn on the third joint of the index finger of the left or right hands to adapt to the tightness of the ring strap. If it feels too tight or too loose, you can replace the silicone ring strap with an appropriate size. (You can check the related content of "Replace the Ring strap" in this sheet)

Touch the left or right touch button area with your thumb. The scanner emits light for barcode recognition. When the indicator light flashes green and the scanner vibrates, it means the scanning is successful.

It can also be worn on other fingers, just tap the corresponding scanning area on the left and right sides.
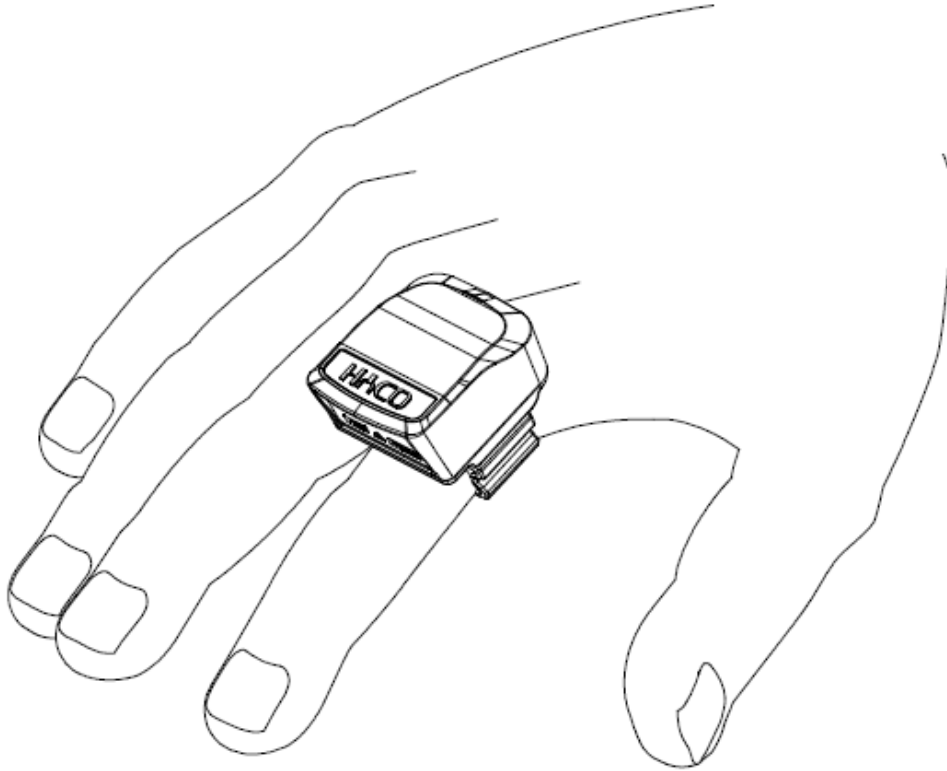
Figure 1

How to charge

Connect the charging cradle to the power source, and place the Scanner into the charging cradle as shown in Figure 2 (the scanning lens of the Scanner is upward), and then charging starts.

The charging status indicator turns red to indicate that it is charging, and green to indicate that the battery is fully charged, and charging is complete.

Note: Please make sure that the ring strap is pushed to the bottom of the scanner slot

★ *In order to avoid triggering the light when taking out the Scanner from the charging cradle and directing the eyes to cause injury. Therefore, it is set that after the Scanner is charged, it needs to touch three times in a row to emit light normally.*
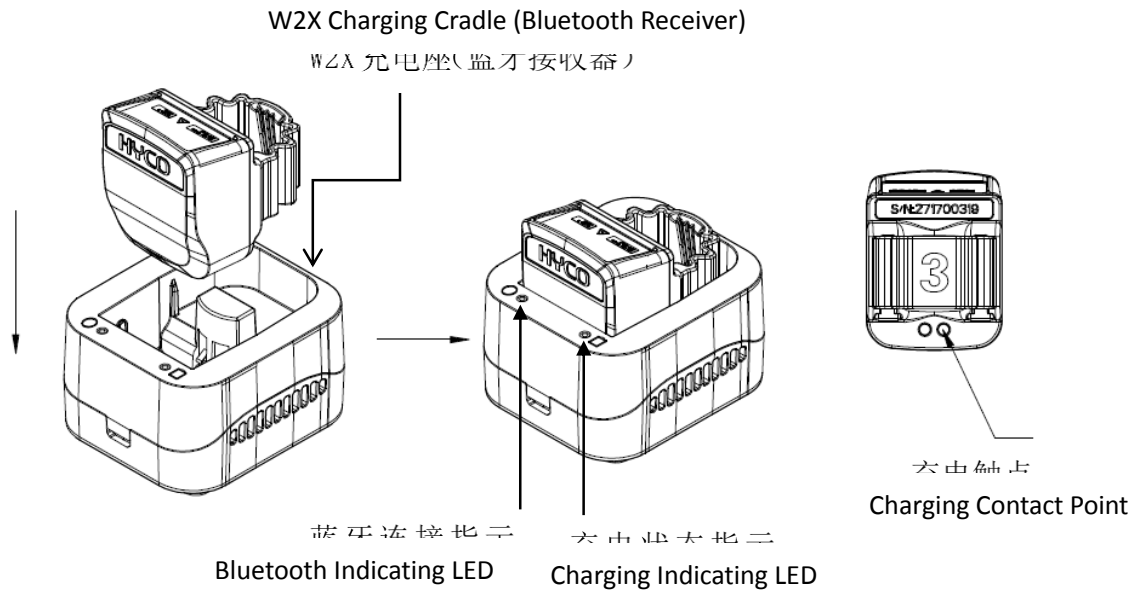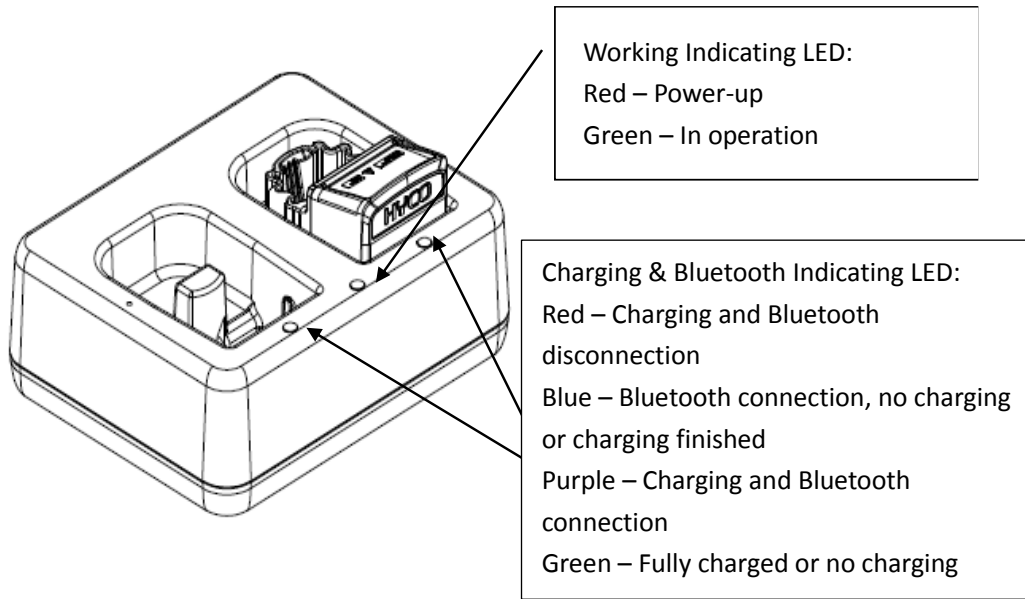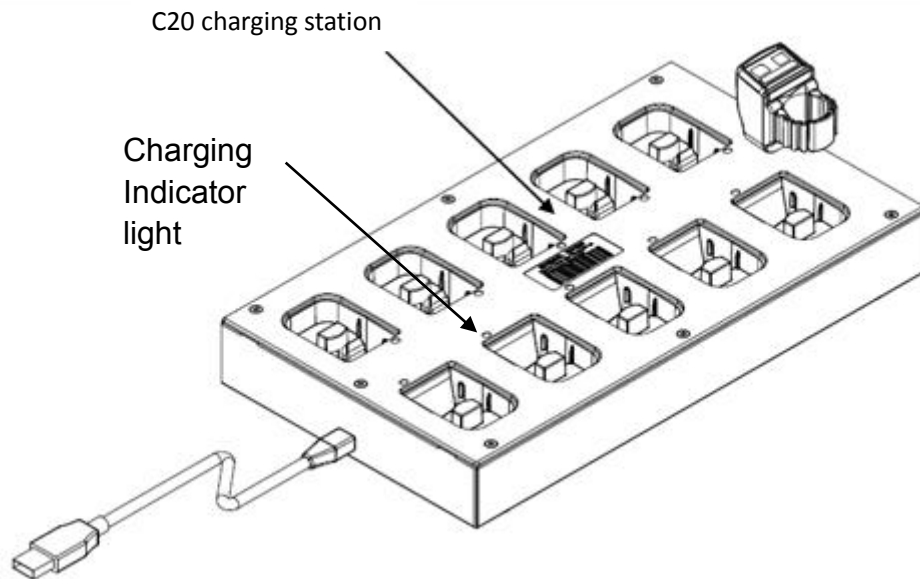
Charge via W2X/SC100 cradle

W2X Charging Cradle (Bluetooth Receiver)
W2X 充电座（蓝牙接收器）

Bluetooth Indicating LED
蓝牙连接指示

Charging Indicating LED
充电状态指示

Charging Contact Point
充电触点

Figure 2

Working Indicating LED:
Red – Power-up
Green – In operation

Charging & Bluetooth Indicating LED:
Red – Charging and Bluetooth disconnection
Blue – Bluetooth connection, no charging or charging finished
Purple – Charging and Bluetooth connection
Green – Fully charged or no charging

Charging thorugh C20 Charging Station

C20 charging station

Charging Indicator light

Picture 3

Download C20 specification sheet through：http://www.hycoiot.com/C20.spec

Replacing the ring strap

This product is equipped with 1 silicone ring strap, and 5 different kinds of spare silicone ring straps to adapt to different finger sizes.

You can contact HYCO Technology Customer Service Center to purchase additional ring straps as a spare.
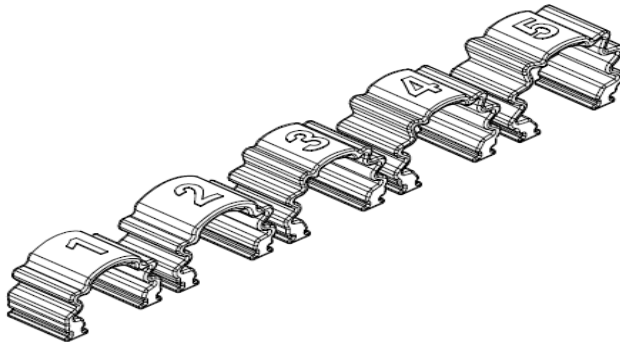
Figure 4

How to replace the ring strap

You can complete the replacement as shown in Figure 5.
When installing the ring strap, be sure to push the silicone ring strap to the end of the slot to avoid affecting the normal charging of the product.
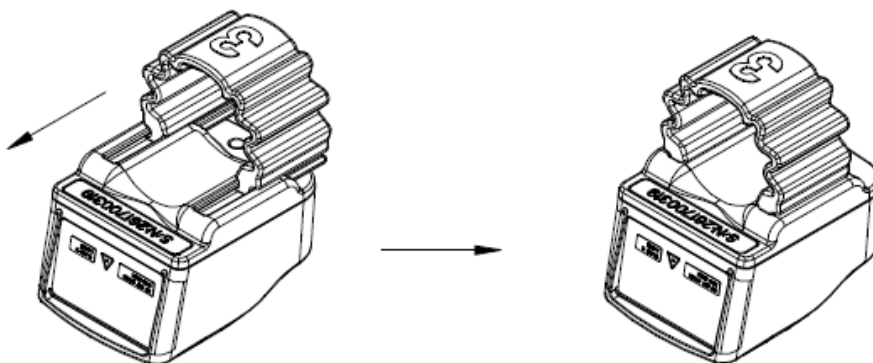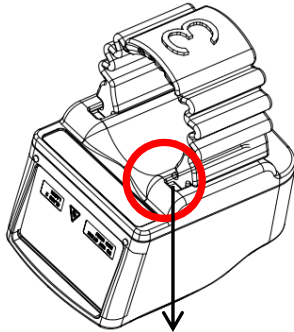
Figure 5

ring strap haven't push to the end of the slot and affects charging

Figure 6

Specifications

Physical characteristics	
Dimension	38.6mm*29.0mm*22.1mm （ring strap not include）
Weight	20g（ring strap not include）
Material	Shell of scanner： PC+ ABS
	Ring strap ：Silicone Rubber
Use environment	
Ambient light	Indoor (artificial light): less than 4,842 lx
	Outdoor (daylight): less than 86,111 lx
Working Temp.	-20℃ to 50℃ (-4℉ to 122℉)
Storage Temp.	-40℃ to 70℃ (-40℉ to 158℉)
humidity	0 to 95% relative humidity, non-condensing

Parameter	
fill-in light	White LED
Aim	"+" pattern 650nm laser diode
Scan speed	60 frames/sec
Scan angle	Horizontal angle 32.5°, vertical angle 21.4°
Image Sensor	CMOS sensor, 1280*800 pixels
Scan mode	Matrix image scanning
Motion tolerance	At the best focal length, 13mil UPC with a movement speed of ≤400cm/s (157in/s) can be identified
HYCO print contrast	20% HYCO reflection difference
Decode	barcode：Code39、Code128、Code93、Code 11、UPC/EAN、ITF25、GS1 DataBar、IATA25、CODEBAR
	2D codes：PDF417、MicroPDF417、Aztec Code, Data Matrix, QR Code, Micro QR Code, MaxiCode, Han Xin Code
Indicator	RGB LED indicator, vibration
Wireless	Ring Scanner : BT4.2 BLE
	W2X,SC100 charing cradle: USB 2.0，With USB DONGLE function, it can be used as a Bluetooth adapter on the PC side; Optional cradle charger with RS-232 or Ethernet interface.
How to wear	It is recommended to wear it on the left and right index fingers
Button method	Capacitive touch on the left and right sides

|	
Ingress protection	IP66
Anti-drop/roll-off performance	Within the applicable temperature range, it can withstand 12 drops from a height of 3 meters to the concrete floor; According to IEC 60068-2-32 standard, it can withstand more than 1,000 rolls (0.5 meters)
Antistatic ability	±30 KV air static electricity, ±25 KV contact static electricity
Battery	3.7V, 200mAh lithium polymer battery
Work time	8 hours temperature 25℃ full charged, vibration turned on, scanning depth of field at the best focus, periodic light recognition test, scanning once every 10 seconds, 0.5 seconds each time, can scan 6000+ times.
Standards	
Laser safety	Comply with IEC60825-/EN60825-1 standard
Electrical Safety	UL 60950、EN/IEC 60950
Environmental protection	Comply with RoHS
Electromagnetic/radio frequency interference	FCC Part 15 Class B，EN 55024/CISPR 22，AS 3548，VCCI

International certification	CE，FCC

★ *The technical specifications of this product are subject to change without notice.*

Indicator light

Indicator status	Description
Red, green and blue	Switch on
Short flashing green light	Successful scan
Double flashing red light every 5 seconds	Low power
The green light is on for 1 second	Bluetooth successful connect
The blue light is on for 1 second	Bluetooth disconnect
Short flashing yellow light	Function setting success
The blue light keeps flashing and vibrates	Bluetooth disconnection prompt is turned on, and current Bluetooth is disconnected

Vibration reminder

Vibration reminder function default turns on, this function can be turn on/off through scan below function code.
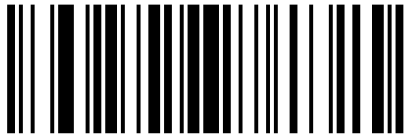
Turn on vibration reminder
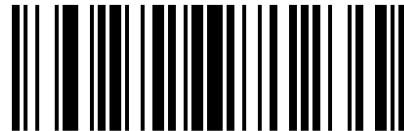
Turn off vibration reminder

Remind type	Description
Turn on the vibration function (default)	After turning on this function, if the barcode is correctly identified, it will vibrate. The vibration time is 70 milliseconds.
Turn off vibration	Successfully scan the barcode without vibration
1 short vibration	The barcode is correctly recognized and the prompt is sent successfully
Continuous vibration 3 times	The Bluetooth is disconnected, and the barcode information is not sent successfully

Scan angle

When scanning the bar code, the light-emitting surface should be perpendicular to the paper surface as a reference, within the range of the pitch deflection angle ±65°, and the tilt deflection angle ±50°, the scan line completely crosses the barcode area, and there is enough white space on the left and right sides.。
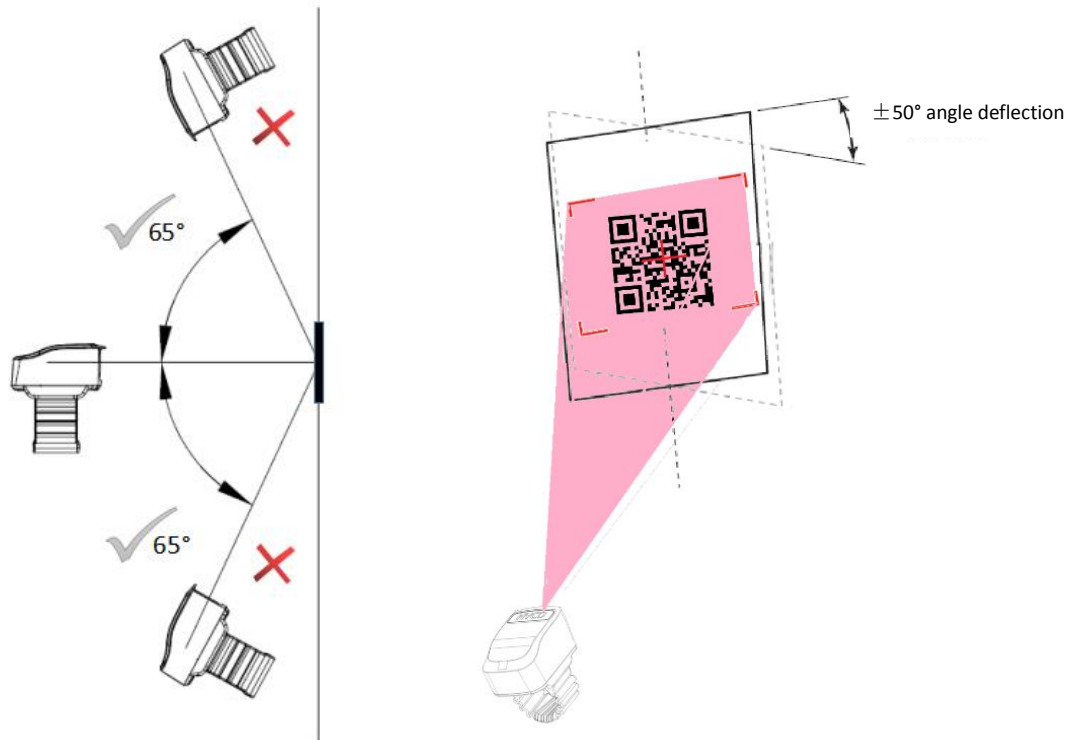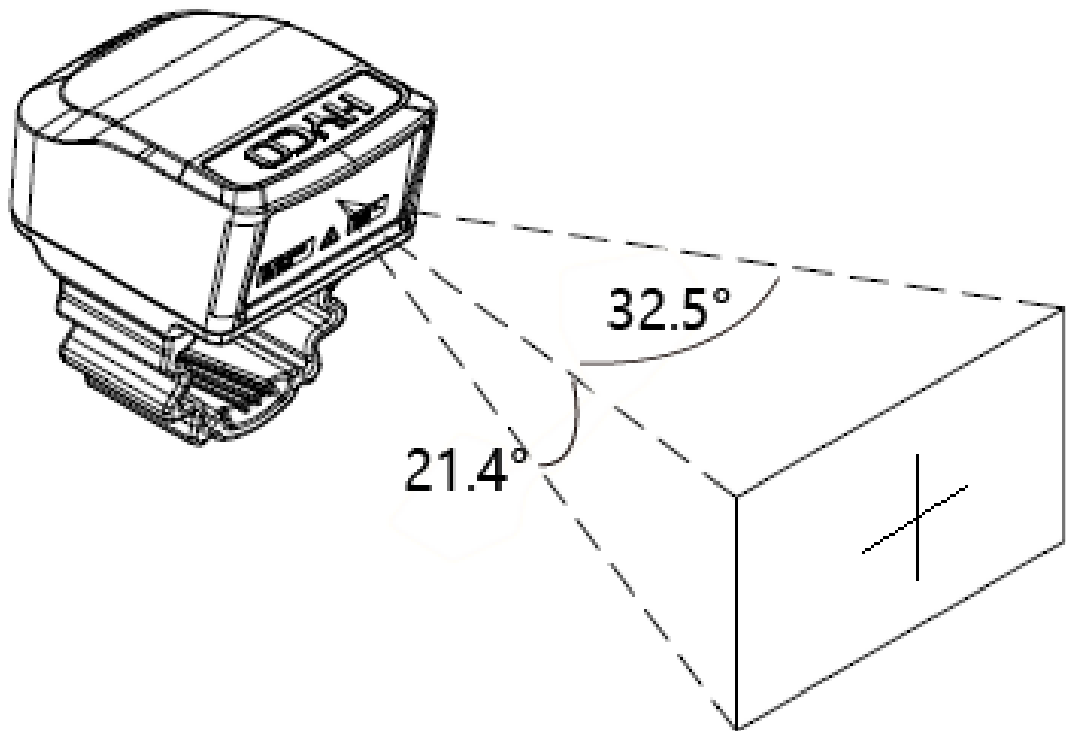
Figure 6

The scannable field of view of this product is a rectangular divergent area, with a horizontal field angle of 32.5 ° and a vertical field angle of 21.4 °.

Scan Distance (this is previous to Scan Angle in the content)

Barcode type/content	Barcode density	Near（cm）	Far（cm）

Code128A 123ABC	5mil	6	18.5
	10mil	7.5	33.5
	UPCA 100%	5.5	28.5
	20mil	12	50
	40mil	21	81
	50mil	29	98
QR Code 63234604655469 8	10mil	3.5	13.5
	14mil	3	18
	20mil	3	25
Data Matrix 63234604655469 8	10mil	4	8.5
	14mil	4	12
	20mil	4	20

Note:

1. The average reflection difference (MRD) of the barcode is more than 80%;

2. The close distance of low density (unspecified) depends on the width of the barcode and the scanning angle;

3. Test environment temperature (25°C), pitch=10°, deflection=0°, tilt=0°, ambient light intensity: 3000lx～5000lx;

4. The measurement distance is from the scanner window to the bar code surface

Update scanner firmware

This product supports two ways to update the firmware:

1. Use Android mobile devices (such as mobile phones, tablets, etc.) to update product firmware.

- Install the "HYCO" APK on the android device;

- Open the APK and select the "software upgrade" function;

- Follow the prompts to transfer the scanner firmware. When the scanner indicator flashes, it means that the upgrade firmware is being transferred;

- After the firmware transfer is completed, the scanner automatically installs the firmware and completes the restart. The red, green and blue indicator lights flash to indicate that the firmware has been successfully updated.
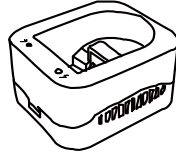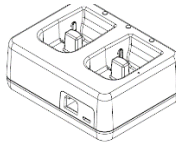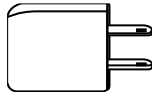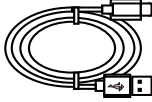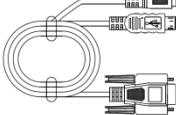
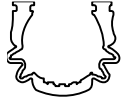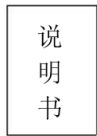2. Use C20 charging cabinet to update product firmware.

- Use the MICRO USB cable to connect the C20 charging cabinet to the host computer;

- Copy the ".hyc" file of the ring firmware program to the root directory of the C20 charging cabinet. When the host displays that it can be removed safely, disconnect the cable;

- Use the scanner that needs to update the firmware, scan the "Disconnect Bluetooth connection" barcode on the front of the C20 charging cabinet, the scanner will disconnect the Bluetooth connection with the original W2X charger or mobile terminal, and establish a connection with the C20 charging cabinet, scan When the gun indicator light flashes, it means the upgrade firmware is being transferred;

- After a few minutes, the LED indicator flashes yellow, indicating that the firmware has been successfully updated.

The software can be downloaded from the official website of Hycoiot:

www.hycoiot.com. Or contact Hao Chuang Technology Customer Support Center.

Packing detail

Product		Qty	Remark
	Ring Scanner	1 unit	Ring scanner
	W2X charging cradle	pick one of two	W2X charging stand: can be paired with scanning gun one to one SC100 charging stand: can be paired with two scanning guns at the same time ● *The default setting is USB HID mode, RS-232, Ethernet modes are optional*
	SC100 charging cradle		
	USB(5V) adapter	pick one of two	USB charging adapter
	DC-IN(5V) adapter		DC adapter *Optional accessories, used as RS232 serial port connection*
	USB cable	pick one of two	Connects cradle to computer or adapter *Optional accessories, used as USB HID mode connection*
	RS232-USB cable		Connects cradle to computer *Optional accessories, used as RS232 serial port connection*

	Ring Strap	10 个	5 different size
合格证	Certificate of conformity	1	Certificate of conformity for the product
说明书	User manual	1	Product using guide

If there is any non-compliance, please contact HYCO Technology Customer Support Center or call the customer service hotline 4006-305-758.

Battery Safety Guide

● There should be no debris, combustibles, or chemicals in the charging area of the device. Be extremely careful when charging the device in a non-commercial environment.

● Please follow the battery usage, storage and charging specifications in the user guide.

● Improper use of batteries may cause fire, explosion or other hazards.

● When charging the battery of a mobile device, the temperature of the battery and charger must be between 0ºC and +40ºC (+32ºF to +104ºF).

● Do not use incompatible batteries and chargers. Using incompatible batteries or chargers may cause fire, explosion, leakage or other hazards. If you have any questions about the compatibility of the battery or charger, please contact Hao Chuang Technology Customer Support Center.

● If the device uses a USB port for charging, you should only connect the device to products that bear the USB-IF logo or have completed the USB-IF compliance program.

● Do not disassemble or open, squeeze, bend or twist, puncture or tear.

- The heavy impact caused by any device using the battery falling on a hard surface may cause the battery to overheat.

- Do not short-circuit the battery, or use metal or other conductive objects to touch the battery terminals.

- Do not modify or transform the battery, insert foreign objects into the battery, immerse the battery in or contact with water or other liquids, or expose the battery to open flames, explosion sources, or other sources of danger.

- Do not place or store the equipment in or near areas that may be very hot, such as parked vehicles, radiators or other heat sources. Do not put the battery in a microwave oven or dryer.

- Children must use batteries under adult supervision.

- Please promptly dispose of used rechargeable batteries in accordance with local regulations.

- Do not throw the battery into fire.

- If the battery leaks, never let the liquid get on the skin or eyes. If it has been stained, rinse the contact area with plenty of water and seek medical attention

- If you suspect that the device or battery is damaged, please contact the supplier to arrange a test.

Appendix

Function setting barcode

Common Setting

【Equipment inform】

Scan below barcode to get device inform when successful connect to terminals

【Restore factory setting】

Scan below barcode to restore factory setting, The device will disconnect from the cradle, and the identifiable code system and Bluetooth name will be restored to the default factory settings.
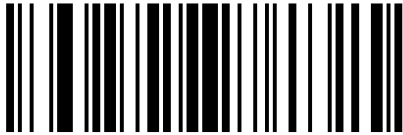

【Restart】

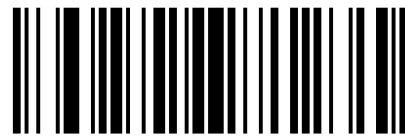Scan below barcode to restart device

【Turn on/off vibration】

Scan below barcode to turn on/off vibration

Turn on vibration

Turn off vibration

Add Enter/Tab

After scan "Add Enter" barcode, it can automatically move to next line in the text field after each scanning. If user wants to close the function, scan "Delete Enter" barcode.
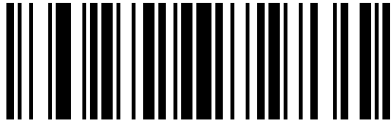

Add Enter

Delete Enter

After scan "Add the tab" barcode, it can automatically move to next line in excel after each scanning. If user wants to close the function, scan "Delete the tab" barcode.
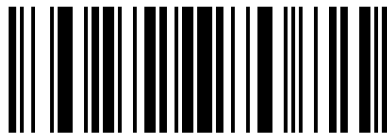
Add the Tab

Delete the Tab

Trigger mode setting

【Automatic interval scanning】

After scan "Automatic interval scanning" bar code, ring could automatically scan every 0.5 ~ 3 seconds without touching　(2 seconds by default)

【Triggered continuous scanning】

Scan the barcode "Triggered continuous scanning", ring could keep scanning when user keeps touching the ring.

【Manual Trigger Mode】

"Manual Trigger Mode" is set by default, user needs to touch ring once to

scan once. User can switch to this model by scan below barcode.

Turn on/off identifiable symbology

Scanning the corresponding barcode can turn on/off the identification of different types of barcodes, and turn off unnecessary symbologies, which can reduce the error rate of barcodes and increase the scanning speed to a certain extent.

【Turn on/off EAN13】

Turn on EAN13

Turn off EAN13

【Turn on/off **CODE39**】

Turn on CODE39

Turn on CODE39

Decode digits setting

Limit the number of digits for identifying barcodes, and barcodes below the HYCO set digits/higher than the maximum set digits will not be recognized. The default length is 2 to 50 digits, the HYCO can be 1 digit, and the maximum can be 99 digits.

Notes: when setting the digits of Code128 barcode, the maximum digits that can be set shall not be less than 7 digits, and the HYCO digits shall not be greater than 7 digits.

Setting method:

● Scan [Length Setting], select the maximum/HYCO digits of the code system to be set to set the bar code;

● Scan the corresponding number in [Digital Barcode] to set the maximum/HYCO digits. (Scan tens and ones digits in order of 9 or more digits);

● Scan [Confirm], confirm/cancel the length setting;

● Scan [Restore factory setting] barcode switch back to default setting

Sample ：Set Code39 code HYCO recognition 3 digits maximum recognition 20 digits

①

HYCO CODE39

②

digit 3

③

confirm

HYCO setting complete

①

maximum CODE39

②

Digit 2

③

digit 0

④

confirm

Setting completed
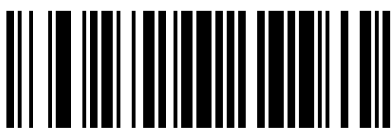
【digit setting function code】

Code39 setting code

Minimum CODE39

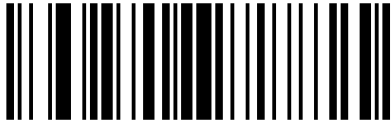Maximum CODE39

Code128 digit setting code
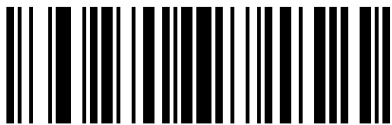

Minimum CODE128

Maximum CODE128
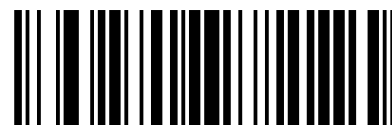
Digital barcode barcode

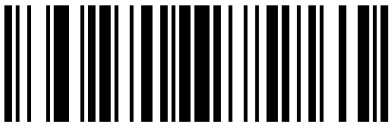Digital barcode 0

Digital barcode 1

Digital barcode 2
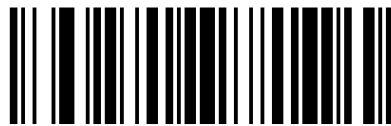
Digital barcode 3
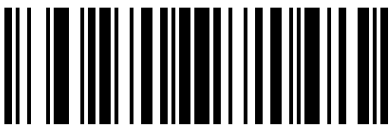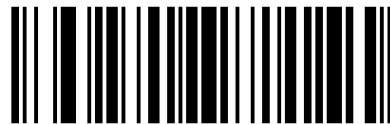
Digital barcode 4

Digital barcode 5

Digital barcode 6

Digital barcode 7
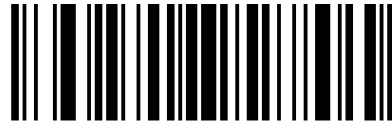

Digital barcode 8

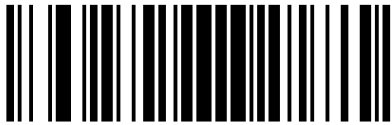Digital barcode 9

Confirm/cancel setting barcode

Confirm length setting

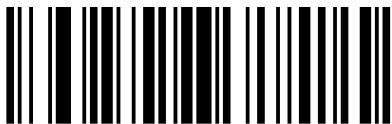Abolish length setting

Preamble barcode output setting

Turn on EAN13 Preamble barcode output

Turn off EAN13 Preamble barcode output

supplemental barcode output setting

Turn on EAN13/EAN8 supplemental output

Turn off EAN13/EAN8 supplemental output
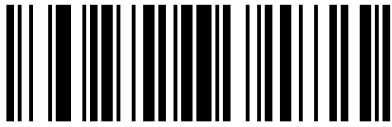
Automatic EAN13/EAN8 supplemental output

FULL ASCII Setting

Turn on CODE39FULL ASCII
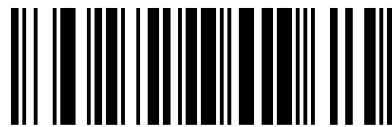
Turn off CODE39FULL ASCII

Bluetooth disconnect alarm setting barcode

Turn on the Bluetooth disconnection alarm, which can continuously remind the operator when the Bluetooth connection has been disconnected, which is convenient for timely processing.
Scan the barcode of [Turn on Bluetooth disconnect alarm] to turn on the alarm function;
Scan the barcode of [Turn off Bluetooth disconnect alarm] to turn off the alarm function;

Turn on Bluetooth disconnect alarm

Turn off Bluetooth disconnect alarm

After turning on the Bluetooth disconnection alarm, when the Bluetooth is disconnected, the blue light of the ring flashes + vibrating prompt, which will continue this state; there are two ways to turn on or turn off the function: ① Use the communication command, ②Scan the barcode for the specified setting. After the Bluetooth connection is successful, it prompts to terminate.

Automatic Scan setting

Scanning [interval scan time-increase] bar code, you can increase the light-off time after successful scanning [each time increase by 0.5 seconds, the longest does not exceed 2.5 seconds]

Scanning [interval scan time-decrease] bar code, can reduce the light-off time after scanning is successful [decrease by 0.5 seconds each time, the shortest is not less than 0.5 seconds]

Note: This time is available when the scan mode is automatic gap scan mode.

interval scan time-increase

interval scan time-decrease

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Any changes or modifications not expressly approved by the party responsible for compliance
could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception,
which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-- Reorient or relocate the receiving antenna.

-- Increase the separation between the equipment and receiver.

-- Connect the equipment into an outlet on a circuit different
from that to which the receiver is connected.

-- Consult the dealer or an experienced radio/TV technician for help.

The device has been evaluated to meet general RF exposure statement.

The device can be used in portable exposure condition without restriction

Manufacturer's Name: Shanghai Hyco Genyong Technology Co., Ltd.
Sample Description: Room 105, 1/F, Building B, No.999 of Huaxu Road, Qingpu District, Shanghai, China.
Trade Mark: HYCO
Model number: W28
Operating Temperature: -10° C to 40° C

This device was tested for typical body-worn operations. To comply with RF exposure requirements, a minimum separation distance of 5cm must be maintained between the user's body and the handset, including the antenna. Third-party belt-clips, holsters, and similar accessories used by this device should not contain any metallic components. Body-worn accessories that do not meet these requirements may not comply with RF exposure requirements and should be avoided. Use only the supplied or an approved antenna.

This device in compliance with the essential requirements and other relevant provisions of Directive 2014/53/EU. All essential radio test suites have been carried out.

1. CAUTION : RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS

2. The device complies with RF specifications when the device used at 5cm from your body

This product can be used across EU member states

CE NB RF specification:

Function	Operation Frequency	Max RF Outputpower (dBm)	Limit (dBm)
BT	2402-2480MHz	5.81	20

This product can be used across EU member states

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