



Figure 1. LoRaSCAN-HHR and HH scanners

1. Introduction

LoRa-SCAN-HH and HHR rugged handsets deliver reliable long-range wireless scanning for any 1D or 2D barcode, keeping operators connected over distances that standard Bluetooth or 2.4 GHz scanners cannot match. Operating across 869–870 MHz and 903–928 MHz, it is perfect for warehouses, factories, retail and events where every scan needs to reach your system first time.

Features

- A smart, streamlined design that delivers reliable performance across commercial and industrial premises.
- Leading CMOS technology.
- Resolution 752*480
- Depth of Field 30-600mm
- Scans 1D and 2D barcodes.
- Includes charging docking station.
- 2200mAh battery enables ≥ 16 hours* continuous working.
 - *16 hours @ 24 triggers per minute.
 - <6.5-hour charging time.
- RoHS, CE, UK-CE, FCC compliant
- Line of Sight (LoS) LoRa™ range 8km+. Indoor range up to 3km. Requires a LoRaSCAN-USB (Virtual com port) or LoRaSCAN-HID (Human Interface Device) receiving dongle.

Applications

LoRa-SCAN-HH delivers reliable long-range wireless scanning for any 1D or 2D barcode, keeping operators connected over distances that standard Bluetooth or 2.4 GHz scanners cannot match. Operating across 869–870 MHz and 903–928 MHz, it is perfect for warehouses, factories, retail and events where every scan needs to reach your system first time.

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2. Physical Dimensions



Figure 2. Product Dimensions

3. Physical Parameters

Physical Parameters	
Weight	HH handset 165g Total280g
Dimensions	HH Handset 165mm x 60mm x 25mm. Handset & Cradle 170mm x 140mm x 110mm HHR Handset 188mm x 72mm x 38mm. Handset & Cradle 185mm x 140mm x 100mm
Physical interface	USB 2.0 Type-B
USB Cable	Type-A to Type-B
Communication Options	LoRa™, Bluetooth, Wireless 2.4G.
Power Supply	DC 5V@100mA

4. Performance

Performance	
Scanner type	CMOS
Light Source	White LED Aiming; Green LED, wavelength coverage 525nm
CPU	ARM 32-bit
Optical Resolution	640×480 CMOS Global exposure
Resolution	1D:≥5mil,2D:≥8.7mil @PCS90%
Decoding speed	25CM/S
Depth of field	5mil:50~130mm,13mil:50~270mm
Scan mode	Trigger mode*, Auto sense mode
Scan angle	Roll:±360°,Pitch:±60°or greater, Yaw:±70°or greater)
Ambient light	Dark environment, Indoor natural light
Battery capacity	3.7V 2200mA 8.12Wh Li-ion
Battery Charging Time	7 hours
Continuous working time	≤16h
Symbologies	1D:Codabar,Code39,Code32,Interleaved 2 of 5(ITF25),Industrial 2 of 5,Matrix 2 of 5,Code93,Code11,Code128,Gs1-128,UPC-A,UPC-E,EAN/JAN-8,EAN/JAN-13,ISBN,ISSN,GS1 databar,GS1 databar limited,GS1 databar expanded 2D:PDF417,Micro PDF417,QR Code,Micro QR,Data Matrix,Aztec

5. Environmental Specifications.

Environmental	
Operating temperature	0°C to 50°C
Storage temperature	-10°C to 50°C
Humidity	20% to 85%(non-condensing)
Transport vibration Test	10H@125RPM

6. LoRaSCAN-USB/HID Receiving Dongle.

6.1 Connection Options.

Option 1 LoRaSCAN-USB virtual com port

Used on systems requiring a PC com port input.

Option 2 LoRaSCAN-HID Human interface Device + USB virtual com port

Used on systems that require a human interface device keyboard input.



Figure 3. LoRaSCAN-USB/HID

6.2 Pairing.

Follow the steps below to pair a USB dongle with a LoRaSCAN HH or HHR handset.

1. Unpack the device from the packaging.
2. Turn the device on by pressing the trigger, the scanner should beep. If no beep, charge the gun via the cradle using the cable provided and connecting to any 5 VDC source such as USB port (maximum 1amp).
3. To pair the scanner with the receiving USB dongle/gateway, scan the QR code on the USB dongle/gateway that reads "Group ID" and press the trigger, followed by the "OK" QR code, each time waiting to hear the confirmation beep (see note 1).



Figure 4. USB Dongle label

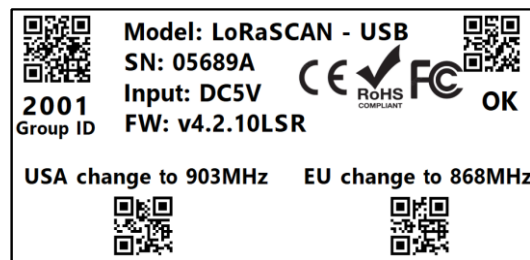


Figure 5. LoRaSCAN-USB label



Figure 6. Scanning "Group ID"

And that's it, you are ready to go! If you have any questions, please visit our website or contact support.

Please note

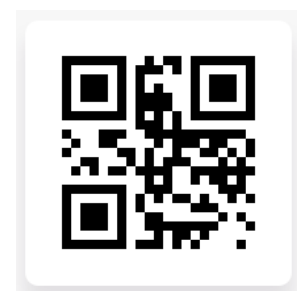
1. The USB dongle/gateway does not need to be powered. If you are struggling to read one of the QR codes, it could be that you are picking up both. In this case try blocking the other QR code when scanning.
2. Any serial software can be used to read the barcode data being transmitted, using the serial settings 19200 / 8 / N / 1, set to ASCII text.
3. All devices are by default set for operation within Europe using the 869.85MHz license free frequency band. To change to other frequency bands such as 903.00MHz for use in North America please scan the below QR codes, followed by the "OK" barcode. The USB dongle will also need to be changed to USA frequency. See section 7.2
4. If USB label (Figure 5) doesn't scan, please use the QR codes below.



European Frequency 869.85MHz



North America Frequency 903MHz



OK

7.3 USB dongle USA Selection.

Steps for changing USB/HID dongle from default European 868MHz to USA 903MHz.

1. Download the LPRS program “easyRadio Companion” available for free from <https://lprs.co.uk/knowledge-centre/development-tools/easyradio-evaluation-software.html>
2. Install this Microsoft Windows program.
3. Once installed open the program and click on the LoRa image.
4. Connect the USB dongle to the PC and click the red “Open Port” button. This button will go green if the USB dongle has been detected.
5. From the top tabs, select “**Module info**” and click “**Discover Module**”. USB details will eventually be displayed. An internet connection will be required to receive the USB details.
6. Now select the “**Basic Settings**” tab and in **RF Settings** section, in the **Band Plan** drop down box select **b1 903MHz (ER_CMD#b1)** and press **Send Command**. Then select the Communications tab to the left of the screen.
7. Using the handheld scanner scan a random product barcode and this will appear in the communications window, or if using the HID version, the barcode data will appear in notepad, and the communications window.

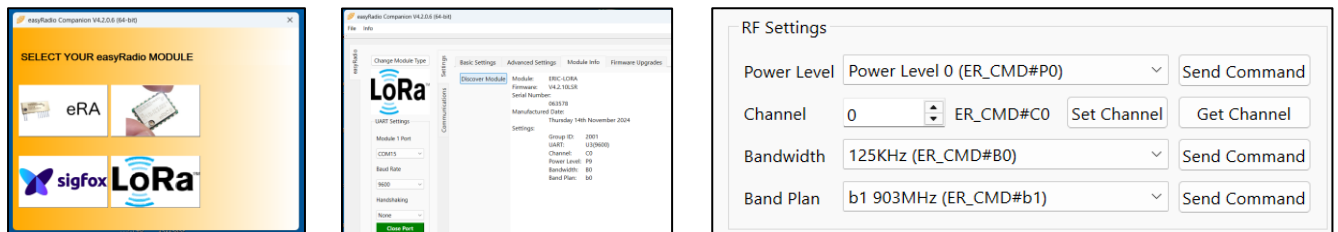


Figure 7. easyRadio Companion screen shots

8.0 USB location and features.



Figure 8. 2.4GHz Dongle

9. Barcode Scanning Configuration.

This section describes how to configure the functions of the HH and HHR scanner handsets for normal operation.

9.1 Manual Scan Mode Operation.

Procedure

Follow the steps below to operate the scanner in Manual Scan Mode:

1. **Activate the scanner:** Press and hold the trigger button. A red aiming light will appear, indicating that the scanner is ready.
2. **Align the barcode:** Position the centre of the aiming light over the barcode. Move the scanner slowly and adjust the scanning distance to locate the optimal reading position.
3. **Complete the scan:** When a prompt sound is heard and the aiming light turns off, the barcode has been successfully scanned. The scanner will automatically transmit the decoded data to the connected host device.

Note

For identical types of barcodes, the scanner achieves the highest recognition accuracy at an optimal scanning distance. Adjust the distance for best results.

9.2 Wireless Settings and options.



Long Range LoRa Mode*



Wireless 2.4G mode

9.3 Handset Version

Use the scanner to read the version barcode. The current firmware version will then appear on the PC. To retrieve the version number, ensure the handset is either in 2.4 GHz mode, connected directly to the base via cable (HH version only), or placed in its corresponding cradle. APP:FM-2.12,20230204+. Version readback is not available when operating in LoRa mode.



Handset Firmware Version

9.4 Handset Sound Settings



High*



Low



Disable.

9.5 Custom Prefix & Suffix Settings

Adding carriage return, line feed or both to the end of a barcode message (Suffix)



Add Carriage Return (CR)*



Add Line Feed (LF)



And CR + LF



None

9.6 User custom prefix for LoRaSCAN-HH/HHR using QR codes.

To add a custom prefix, scan “Enter Set-up mode” followed by “Set Prefix” then scan each character you require, finishing with “ExitSet”. Maximum 10 characters can be used for a prefix or suffix. See Appendix – Character List for Prefix & Suffix full list of characters.



%%EnterSet

Enter Set-up mode



%%SpecCode9A

Set Prefix

or



%%SpecCode9B

Sets Suffix

An example of adding the prefix **05B005-** is shown below.



%%30

0



%%35

5



%%42

B



%%30

0



%%30

0



%%35

5



%%5F

-

Finally, scan ExitSet to finish.



%%ExitSet

10. Power Supply

5V 1A USB lead with USB Type-A connector.

11. Antennas

LoRa 868MHz, 915MHz Flexible PCB and 2.4GHz wire antenna inside the handheld unit.

12. Accessories List

Accessories	
Charging cable	USB-A to USB Type-B, connect the scanner to a host charging device.
Power Cradle	Output: DC5V 1A, Input: AC100~240V 50~60Hz

13. Product Order Code

Name	Description	Order Code
LoRaSCAN-HH	White 868/915MHz LoRa Barcode Scanner (standard)	LoRaSCAN-HH
LoRaSCAN-HHR	Red 868/915MHz LoRa Barcode Scanner (Rugged)	LoRaSCAN-HHR
LoRaSCAN-USB	868/915MHz LoRa USB dongle, com port only dongle	LoRaSCAN-USB
LoRaSCAN-HID	868/915MHz LoRa Human Interface Device + com port dongle	LoRaSCAN-HID

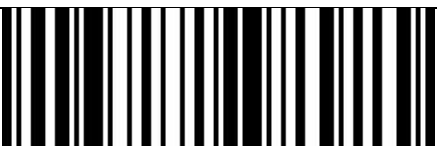
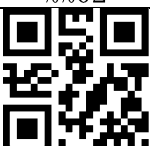
Please contact the sales office for availability.

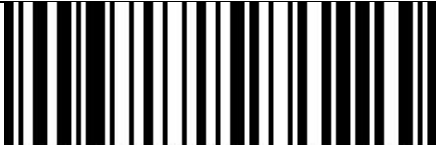
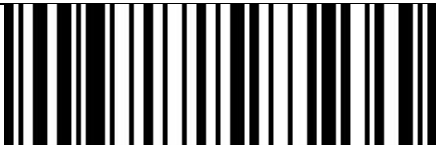
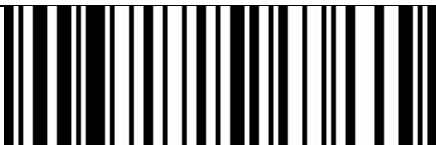
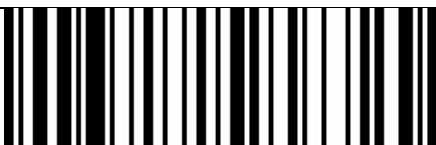
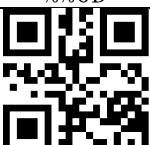
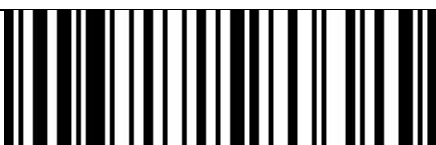
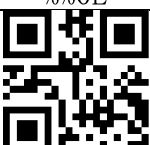
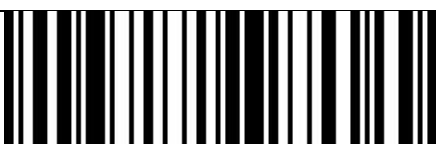
13. Regulatory Approvals

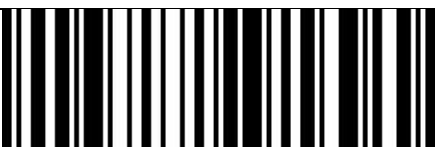
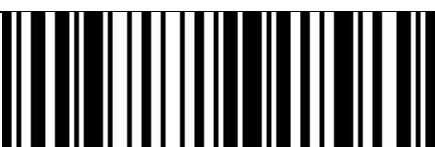
eRIC-LoRa is approved in accordance with CE/EU/RED and FCC regulatory approvals for devices using the Industrial, Scientific and Medical (ISM) license free radio spectrum

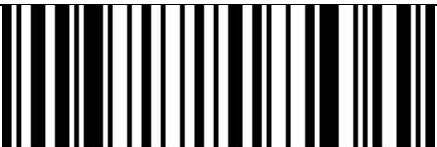
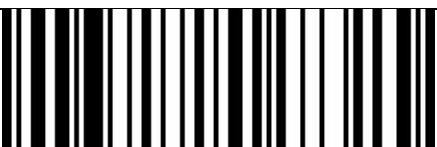
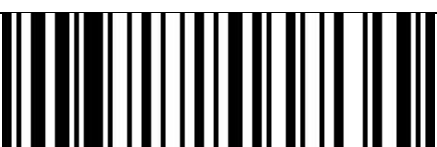
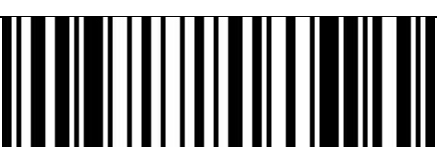
<http://www.lprs.co.uk/knowledge-centre/regulatory-approvals.html>

Reference: Appendix – Character List for Prefix & Suffix.

Serial number	character	1D Setup Code	2D Setup Code
1	SOH	 %%01	 %%01
2	^B	 %%02	 %%02
3	^C	 %%03	 %%03
4	EOT	 %%04	 %%04
5	ENQ	 %%05	 %%05
6	ACK	 %%06	 %%06
7	BEL	 %%07	 %%07
8	Back Space	 %%08	 %%08

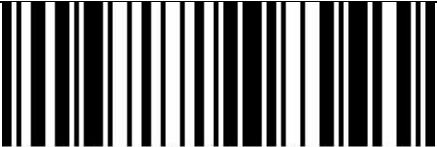
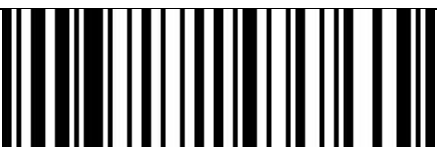
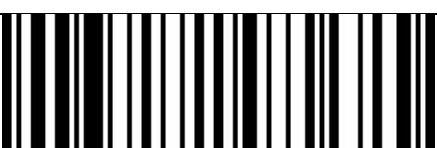
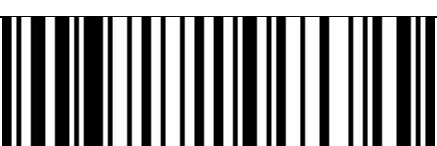
9	Tab	 %%09	 %%09
10	LF	 %%0A	 %%0A
11	VT	 %%0B	 %%0B
12	FF	 %%0C	 %%0C
13	CR	 %%0D	 %%0D
14	F1	 %%0E	 %%0E
15	F2	 %%0F	 %%0F
16	F3	 %%10	 %%10
17	F4	 %%11	 %%11

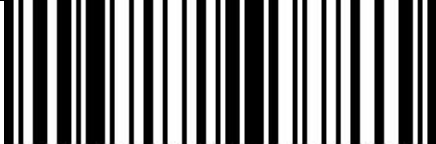
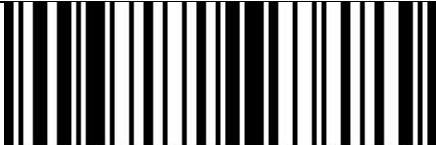
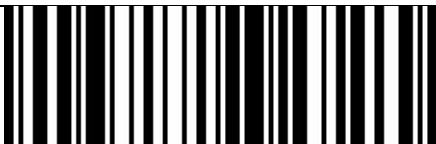
18	F5	 %%12	 %%12
19	F6	 %%13	 %%13
20	F7	 %%14	 %%14
21	F8	 %%15	 %%15
22	F9	 %%16	 %%16
23	F10	 %%17	 %%17
24	F11	 %%18	 %%18
25	F12	 %%19	 %%19
26	SUB	 %%1A	 %%1A

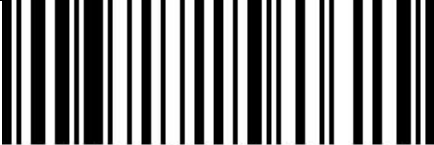
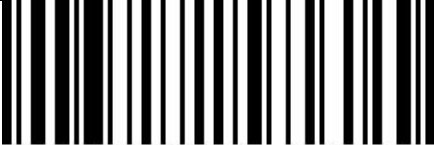
27	Esc	 %%1B	 %%1B
28	Right Arrow	 %%1C	 %%1C
29	Left Arrow	 %%1D	 %%1D
30	Up Arrow	 %%1E	 %%1E
31	Down Arrow	 %%1F	 %%1F
32	空格	 %%20	 %%20
33	!	 %%21	 %%21
34	"	 %%22	 %%22
35	#	 %%23	 %%23

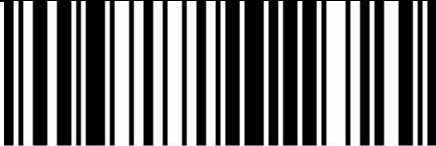
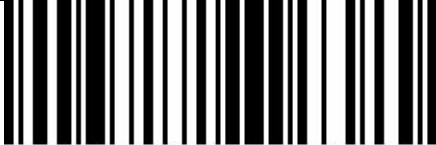
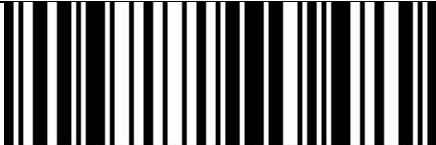
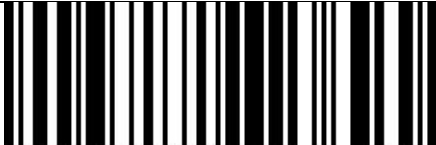
36	\$	 %%24	 %%24
37	%	 %%25	 %%25
38	&	 %%26	 %%26
39	'	 %%27	 %%27
40	(	 %%28	 %%28
41	)	 %%29	 %%29
42	*	 %%2A	 %%2A
43	+	 %%2B	 %%2B
44	,	 %%2C	 %%2C

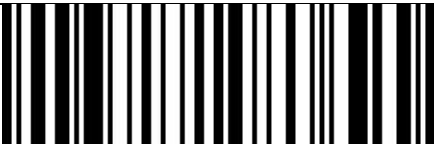
45	-	 %%2D	 %%2D
46	.	 %%2E	 %%2E
47	/	 %%2F	 %%2F
48	0	 %%30	 %%30
49	1	 %%31	 %%31
50	2	 %%32	 %%32
51	3	 %%33	 %%33
52	4	 %%34	 %%34
53	5	 %%35	 %%35

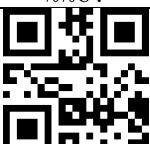
54	6	 %%36	 %%36
55	7	 %%37	 %%37
56	8	 %%38	 %%38
57	9	 %%39	 %%39
58	:	 %%3A	 %%3A
59	;	 %%3B	 %%3B
60	<	 %%3C	 %%3C
61	=	 %%3D	 %%3D
62	>	 %%3E	 %%3E

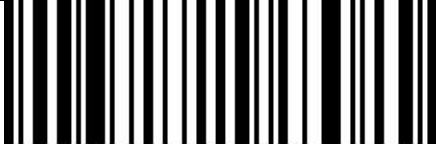
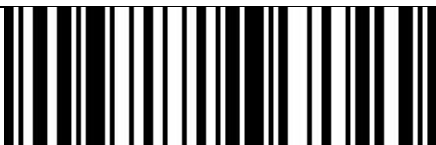
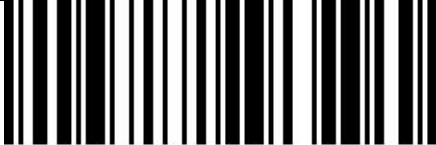
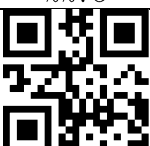
63	?	 %%3F	 %%3F
64	@	 %%40	 %%40
65	A	 %%41	 %%41
66	B	 %%42	 %%42
67	C	 %%43	 %%43
68	D	 %%44	 %%44
69	E	 %%45	 %%45
70	F	 %%46	 %%46
71	G	 %%47	 %%47

72	H	 %%48	 %%48
73	I	 %%49	 %%49
74	J	 %%4A	 %%4A
75	K	 %%4B	 %%4B
76	L	 %%4C	 %%4C
77	M	 %%4D	 %%4D
78	N	 %%4E	 %%4E
79	O	 %%4F	 %%4F
80	P	 %%50	 %%50

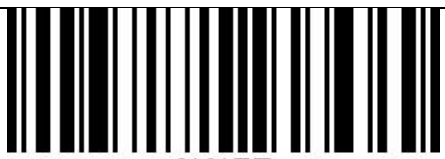
81	Q	 %%51	 %%51
82	R	 %%52	 %%52
83	S	 %%53	 %%53
84	T	 %%54	 %%54
85	U	 %%55	 %%55
86	V	 %%56	 %%56
87	W	 %%57	 %%57
88	X	 %%58	 %%58
89	Y	 %%59	 %%59

90	Z	 %%5A	 %%5A
91	[	 %%5B	 %%5B
92	\	 %%5C	 %%5C
93	]	 %%5D	 %%5D
94	^	 %%5E	 %%5E
95	-	 %%5F	 %%5F
96	`	 %%60	 %%60
97	a	 %%61	 %%61
98	b	 %%62	 %%62

99	c	 %%63	 %%63
100	d	 %%64	 %%64
101	e	 %%65	 %%65
102	f	 %%66	 %%66
103	g	 %%67	 %%67
104	h	 %%68	 %%68
105	i	 %%69	 %%69
106	j	 %%6A	 %%6A
107	k	 %%6B	 %%6B

108	l	 %%6C	 %%6C
109	m	 %%6D	 %%6D
110	n	 %%6E	 %%6E
111	o	 %%6F	 %%6F
112	p	 %%70	 %%70
113	q	 %%71	 %%71
114	r	 %%72	 %%72
115	s	 %%73	 %%73
116	t	 %%74	 %%74

117	u	 %%75	 %%75
118	v	 %%76	 %%76
119	w	 %%77	 %%77
120	x	 %%78	 %%78
121	y	 %%79	 %%79
122	z	 %%7A	 %%7A
123	{	 %%7B	 %%7B
124		 %%7C	 %%7C
125	}	 %%7D	 %%7D

126	~	 %%7E	 %%7E
127	DEL	 %%7F	 %%7F

14. Document History

Issue	Date	Revision
1.0	December 2025	Preliminary User Manual

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Changes to this Document

This data sheet has been updated to reflect changes throughout the range of LPRS modules. Specific changes are recorded in the documentation history above.

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