

ZUMspot RPi Elite 3.5" LCD Kit User Guide

The ZUMspot RPi Elite 3.5" LCD kit has the capabilities of the ZUMspot all packaged in a clear case with a 3.5" LCD screen on top.



ZUMspot board specifications:

- High performance 32-bit ARM processor
- ZUMspot Board Fully Assembled And Tested
- Supports DMR, P-25, D-Star, System Fusion, NXDN and POCSAG
- Onboard LEDs to show status (Tx, Rx, PTT, Mode)
- Up to 10mW RF power
- SMA antenna connector, UHF antenna included
- Mounted on Raspberry Pi 3B+
- The firmware is pre-loaded and is easily upgraded via software

The ZUMspot RPi Elite 3.5" LCD Kit Package Includes:

- ZUMspot RPi UHF Board
- Raspberry Pi 3B+
- Custom case
- 3A power supply
- 3.5" LCD screen
- UHF Antenna
- Pre-Imaged 16 GB MicroSD Card with Pi-Star Software
- 1 Year Warranty
- Open source firmware (MMDVM)

Setup:

- Make sure the SD card is installed in the Raspberry Pi 3B+
- Install the antenna onto the RF connector



Powering up:

- Plug in the USB micro power cable to your ZUMspot Elite 3.5" LCD kit. Then plug the cable into the wall adapter and insert that into an AC outlet.
- If the ZUMspot Elite 3.5" LCD kit doesn't power up, then press the switch on the cable and it should power up now.



Ethernet:

- If you are going to use Ethernet, plug the cable into the RJ45 connector on the end of the case.



Setup Pi-Star:

Configure display type:

- In the “MMDVMHost Configuration” section
- Make sure “MMDVM display Type” is set to “Nextion”
- Make sure “Port” is set to “Modem”
- Make sure “Nextion Layout” is set to “ON7LDS L3”

Pi-Star Digital Voice - Configuration

Dashboard | Admin | Expert | Power | Update | Backup/Restore | Factory Reset

Pi-Star 3.4.17 / Dashboard: 20190119

192.168.1.34

Gateway Hardware Information

Hostname	Kernel	Platform	CPU Load	CPU Temp
pi-star	4.9.35-v7+	Pi 3 Model B (1GB) - Stadium	0.17 / 0.13 / 0.08	43.5°C / 110.3°F

Control Software

Setting	Value
Controller Software:	<input type="radio"/> DStarRepeater <input checked="" type="radio"/> MMDVMHost (DV-Mega Minimum Firmware 3.07 Required)
Controller Mode:	<input checked="" type="radio"/> Simplex Node <input type="radio"/> Duplex Repeater (or Half-Duplex on Hotspots)

Apply Changes

MMDVMHost Configuration

Setting	Value
DMR Mode:	<input type="radio"/> RF Hangtime: 20 Net Hangtime: 20
D-Star Mode:	<input checked="" type="radio"/> RF Hangtime: 20 Net Hangtime: 20
YSF Mode:	<input type="radio"/> RF Hangtime: 20 Net Hangtime: 20
P25 Mode:	<input type="radio"/> RF Hangtime: 20 Net Hangtime: 20
NXDN Mode:	<input type="radio"/> RF Hangtime: 20 Net Hangtime: 20
YSF2DMR:	<input type="radio"/>
YSF2NXDN:	<input type="radio"/>
YSF2P25:	<input type="radio"/>
DMR2YSF:	<input type="radio"/> Uses 7 prefix on DMRGateway
DMR2NXDN:	<input type="radio"/> Uses 7 prefix on DMRGateway
POCSAG:	<input type="radio"/> POCsAG Paging Features
MMDVM Display Type:	Nextion <input type="button" value="Apply Changes"/>
Port:	Modem
Nextion Layout:	ON7LDS L3

General Configuration

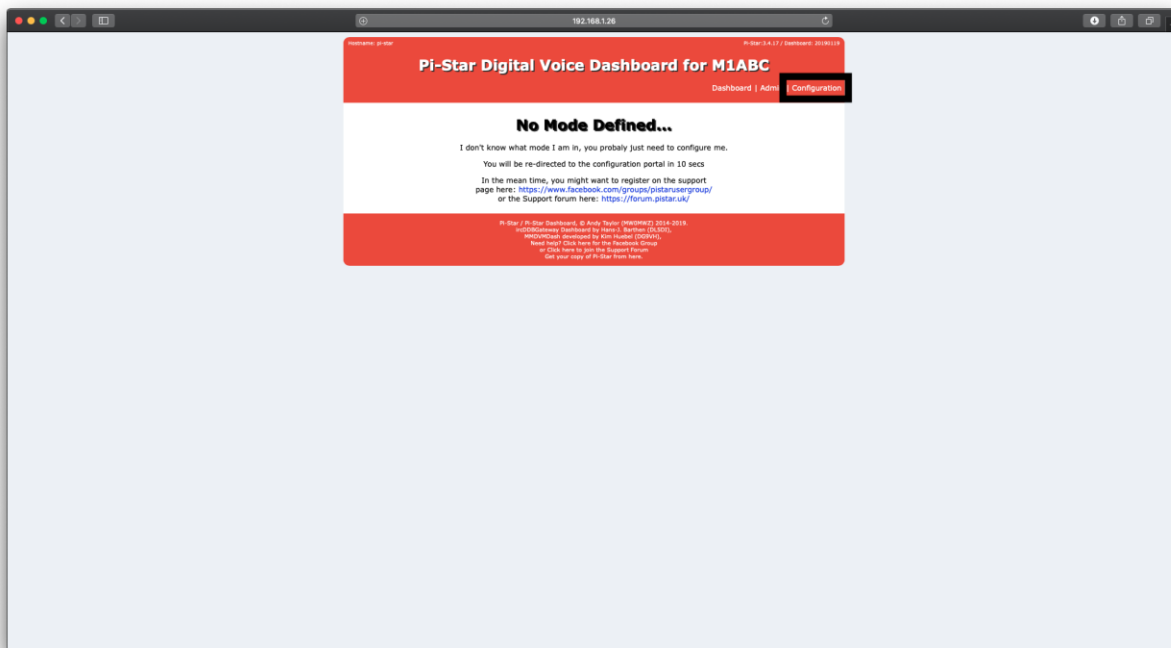
Setting	Value
Hostname:	pi-star Do not add suffixes such as .local
Node Callsign:	KI6ZUM
Radio Frequency:	434.600.000 MHz
Latitude:	50.00 degrees (positive value for North, negative for South)
Longitude:	-3.00 degrees (positive value for East, negative for West)
Town:	LOC4TOR
Country:	Country
URL:	http://www.mw0mwz.co.uk/pi-star/ <input type="radio"/> Auto <input checked="" type="radio"/> Manual
Radio/Modem Type:	ZumSpot - Raspberry Pi Hat (GPIO)
Node Type:	<input checked="" type="radio"/> Private <input type="radio"/> Public
System Time Zone:	America/Los_Angeles
Dashboard Language:	english_us

Ethernet:

- If you are using Ethernet, the IP address should automatically be retrieved by the DHCP system built into the PiStar software. No other configuration should be needed.

Wi-Fi:

- Power up the ZUMspot Elite 3.5" LCD kit.
- After 3 minutes, scan for Wi-Fi access points from your phone or laptop. One should appear with the name "**Pi-Star-Setup**"
- Connect to it. When asked for the Wi-Fi password type in: raspberry
- After 3 minutes, go to your web browser (Chrome, Firefox, etc.) and connect to the website:
<http://pi-star> (for Windows, Linux and Android devices)
<http://pi-star.local> (for OS X and iOS devices)
- You should see this page:



- Go to **Configuration**
 - You will be asked to put in the default username which is "**pi-star**" and the default password which is "**raspberry**"

- Select **“Configure WiFi**

Node Callsign:		M1ABC
Radio Frequency:		438.800.000 MHz
Latitude:		50.00 degrees (positive value for North, negative for South)
Longitude:		-3.00 degrees (positive value for East, negative for West)
Town:		Town, LOC4TOR
Country:		Country
URL:		http://www.mw0mwz.co.uk/pi-star/ <input type="radio"/> Auto <input checked="" type="radio"/> Manual
Radio/Modem Type:		--
Node Type:		<input checked="" type="radio"/> Private <input type="radio"/> Public
System Time Zone:		America/Los_Angeles
Dashboard Language:		english_us

Firewall Configuration

Setting	Value
Dashboard Access:	<input checked="" type="radio"/> Private <input type="radio"/> Public
ircDDBGateway Remote:	<input checked="" type="radio"/> Private <input type="radio"/> Public
SSH Access:	<input checked="" type="radio"/> Private <input type="radio"/> Public
Auto AP:	<input checked="" type="radio"/> On <input type="radio"/> Off Note: Reboot Required if changed
uPNP:	<input checked="" type="radio"/> On <input type="radio"/> Off

Wireless Configuration

Refresh Reset WiFi Adapter **Configure WiFi**

Interface Information		Wireless Information and Statistics
Interface Name : wlan0 Interface Status : Interface is down IP Address : Subnet Mask : Mac Address : b8:27:eb:1b:b1:b9 Received Packets : Received Bytes : Transferred Packets : Transferred Bytes :	Connected To : AP Mac Address : Bitrate : Signal Level :	

Information provided by ifconfig and iwconfig

Remote Access Password

User Name	Password
pi-star	Password: <input type="password"/> Confirm Password: <input type="password"/> <input type="button" value="Set Password"/>

WARNING: This changes the password for this admin page AND the "pi-star" SSH account

Pi-Star web config, © Andy Taylor (MW0MWZ) 2014-2019.
Need help? Click here for the Support Group
Get your copy of Pi-Star from here.

- Click on “Scan for Networks (10 secs)”

pi-star.local

Node Callsign:

M1ABC

Radio Frequency:

438.800.000 MHz

Latitude:

50.00 degrees (positive value for North, negative for South)

Longitude:

-3.00 degrees (positive value for East, negative for West)

Town:

Town, LOC4TOR

Country:

URL:

http://www.mw0mwz.co.uk/pi-star/

☐ Auto
☒ Manual

Radio/Modem Type:

Node Type:

☒ Private
☐ Public

System Time Zone:

America/Los_Angeles

Dashboard Language:

english_us

Apply Changes

Setting

Value

Dashboard Access:

☒ Private
☐ Public

ircDDBGateway Remote:

☒ Private
☐ Public

SSH Access:

☒ Private
☐ Public

Auto AP:

☒ On
☐ Off

Note: Reboot Required if changed

uPNP:

☒ On
☐ Off

Apply Changes

WiFi Info

Scan for Networks (10 secs)

Add Network

Save (and connect)

User Name

Password

pi-star

Password:

Confirm Password:

Set Password

WARNING: This changes the password for this admin page AND the "pi-star" SSH account

Pi-Star web config, © Andy Taylor (MW0MWZ) 2014-2019.

Need help? Click here for the Support Group

Get your copy of Pi-Star from here.

- Select your Wi-Fi SSID and enter your password.
- Click on **“Save (and connect)”** to save the Wi-Fi configuration

The screenshot shows the pi-star.local web interface. The top section contains general settings for the node, including callsign, frequency, location, and system parameters. Below this is the Firewall Configuration section, which allows setting access for the dashboard, IRC gateway, SSH, and uPNP. The bottom section, titled 'Wireless Configuration', is highlighted in red and contains the Wi-Fi settings. In this section, a network named 'NETGEAR32' is selected from a list of found networks, and the 'Save (and connect)' button is highlighted with a red box.

General Settings:

Node Callsign:	M1ABC
Radio Frequency:	438.800.000 MHz
Latitude:	50.00 degrees (positive value for North, negative for South)
Longitude:	-3.00 degrees (positive value for East, negative for West)
Town:	Town, LOC4TOR
Country:	Country
URL:	http://www.mw0mwz.co.uk/pi-star/ <input type="radio"/> Auto <input checked="" type="radio"/> Manual
Radio/Modem Type:	--
Node Type:	<input checked="" type="radio"/> Private <input type="radio"/> Public
System Time Zone:	America/Los_Angeles
Dashboard Language:	english_us

Apply Changes

Firewall Configuration

Setting	Value
Dashboard Access:	<input checked="" type="radio"/> Private <input type="radio"/> Public
ircDDBGateway Remote:	<input checked="" type="radio"/> Private <input type="radio"/> Public
SSH Access:	<input checked="" type="radio"/> Private <input type="radio"/> Public
Auto AP:	<input checked="" type="radio"/> On <input type="radio"/> Off Note: Reboot Required if changed
uPNP:	<input checked="" type="radio"/> On <input type="radio"/> Off

Apply Changes

Wireless Configuration

WiFi Info

Network 0

SSID : NETGEAR32

PSK : [REDACTED]

Networks found :

Connect	SSID	Channel	Signal	Security
<input type="button" value="Select"/>	ATTgTyj66a	2.4GHz Ch11	-29 dBm	WPA2-PSK (TKIP) with WPS
<input type="button" value="Select"/>	Humpty	2.4GHz Ch3	-45 dBm	WPA2-PSK (AES)
<input checked="" type="button" value="Select"/>	NETGEAR32	2.4GHz Ch11	-46 dBm	WPA2-PSK (TKIP) with WPS
<input type="button" value="Select"/>	ATTNnJCI22	2.4GHz Ch11	-67 dBm	WPA2-PSK (TKIP) with WPS
<input type="button" value="Select"/>	PIXEL	2.4GHz Ch1	-83 dBm	WPA2-PSK (AES)
<input type="button" value="Select"/>	PIXEL_GUEST	2.4GHz Ch1	-85 dBm	WPA2-PSK (AES)
<input type="button" value="Select"/>	WWwireless	2.4GHz Ch11	-87 dBm	WPA2-PSK (TKIP) with WPS
<input type="button" value="Select"/>	bbtest	2.4GHz Ch6	-88 dBm	WPA2-PSK (AES)
<input type="button" value="Select"/>	WGI	2.4GHz Ch6	-88 dBm	WPA2-PSK (TKIP) with WPS
<input type="button" value="Select"/>	DIRECT-B6-HP Officejet 5740	2.4GHz Ch6	-90 dBm	[WPA2-PSK-COMP] [WPS] [ESS] [P2P]
<input type="button" value="Select"/>	nnenc	2.4GHz Ch3	-90 dBm	None

Remote Access Password

- Reboot your ZUMspot Elite 3.5" LCD kit

Configuration:

- Change the Node Callsign to your own, set the **“Radio Frequency”** to match your radio and make sure the **“Radio/Modem Type”** is set to **“ZUMspot - Raspberry Pi Hat (GPIO)”**, set the **“System Time Zone”** to your time zone, and set the **“Dashboard Language”** to the language you prefer.

Pi-Star Digital Voice - Configuration

Dashboard | Admin | Expert | Power | Update | Backup/Restore | Factory Reset

Gateway Hardware Information

Hostname	Kernel	Platform	CPU Load	CPU Temp
pi-star	4.9.35-v7+	Pi 3 Model B (1GB) - Stadium	0.49 / 0.18 / 0.06	47.8°C / 118°F

Control Software

Setting	Value
Controller Software:	<input type="radio"/> DStarRepeater <input checked="" type="radio"/> MMDVMHost (DV-Mega Minimum Firmware 3.07 Required)
Controller Mode:	<input checked="" type="radio"/> Simplex Node <input type="radio"/> Duplex Repeater (or Half-Duplex on Hotspots)

Apply Changes

General Configuration

Setting	Value
Hostname:	pi-star Do not add suffixes such as .local
Node Callsign:	K16ZUM
Radio Frequency:	438.800.000 MHz
Latitude:	50.00 degrees (positive value for North, negative for South)
Longitude:	-3.00 degrees (positive value for East, negative for West)
Town:	Town, LOCATOR
Country:	Country
URL:	http://www.mw0mwz.co.uk/pi-star/ <input type="radio"/> Auto <input checked="" type="radio"/> Manual
Radio/Modem Type:	ZumSpot - Raspberry Pi Hat (GPIO)
Node Type:	<input checked="" type="radio"/> Private <input type="radio"/> Public
System Time Zone:	America/Los Angeles
Dashboard Language:	english_us

Apply Changes

Firewall Configuration

Setting	Value
Dashboard Access:	<input checked="" type="radio"/> Private <input type="radio"/> Public
ircDDBGateway Remote:	<input checked="" type="radio"/> Private <input type="radio"/> Public
SSH Access:	<input checked="" type="radio"/> Private <input type="radio"/> Public
Auto AP:	<input checked="" type="radio"/> On <input type="radio"/> Off Note: Reboot Required if changed
uPNP:	<input checked="" type="radio"/> On <input type="radio"/> Off

Apply Changes

Wireless Configuration

Refresh Reset WiFi Adapter Configure WiFi

Interface Information	Wireless Information and Statistics
Interface Name : wlan0	Connected To :
Interface Status : Interface is down	AP Mac Address :
IP Address :	Bitrate :
Subnet Mask :	

- Click **“Apply Changes”** when you are done

Configuration (example to enable D-Star):

- Now you can turn on D-Star by selecting the “D-Star Mode” switch and clicking “Apply Changes”

192.168.1.34

Pi-Star:3.4.17 / Dashboard: 20190119

Pi-Star Digital Voice - Configuration

Dashboard | Admin | Expert | Power | Update | Backup/Restore | Factory Reset

Gateway Hardware Information

Hostname	Kernel	Platform	CPU Load	CPU Temp
pi-star	4.9.35-v7+	Pi 3 Model B (1GB) - Stadium	0.17 / 0.13 / 0.08	43.5°C / 110.3°F

Control Software

Setting	Value
Controller Software:	<input type="radio"/> DStarRepeater <input checked="" type="radio"/> MMDVMHost (DV-Mega Minimum Firmware 3.07 Required)
Controller Mode:	<input checked="" type="radio"/> Simplex Node <input type="radio"/> Duplex Repeater (or Half-Duplex on Hotspots)

Apply Changes

MMDVMHost Configuration

Setting	Value
DMR Mode:	<input type="checkbox"/> RF Hangtime: 20 Net Hangtime: 20
D-Star Mode:	<input checked="" type="checkbox"/> RF Hangtime: 20 Net Hangtime: 20
YSF Mode:	<input type="checkbox"/> RF Hangtime: 20 Net Hangtime: 20
P25 Mode:	<input type="checkbox"/> RF Hangtime: 20 Net Hangtime: 20
NXDN Mode:	<input type="checkbox"/> RF Hangtime: 20 Net Hangtime: 20
YSF2DMR:	<input type="checkbox"/>
YSF2NXDN:	<input type="checkbox"/>
YSF2P25:	<input type="checkbox"/>
DMR2YSF:	<input type="checkbox"/> Uses 7 prefix on DMRGateway
DMR2NXDN:	<input type="checkbox"/> Uses 7 prefix on DMRGateway
POCSAG:	<input type="checkbox"/> POCSAG Paging Features
MMDVM Display Type:	Nextion <input checked="" type="checkbox"/> Port: Modem <input checked="" type="checkbox"/> Nextion Layout: ON7LDS L3 <input checked="" type="checkbox"/>

Apply Changes

General Configuration

Setting	Value
Hostname:	pi-star Do not add suffixes such as .local
Node Callsign:	KI6ZUM
Radio Frequency:	434.600.000 MHz
Latitude:	50.00 degrees (positive value for North, negative for South)
Longitude:	-3.00 degrees (positive value for East, negative for West)
Town:	Town, LOC4TOR
Country:	Country
URL:	http://www.mw0mwz.co.uk/pi-star/ <input type="radio"/> Auto <input checked="" type="radio"/> Manual
Radio/Modem Type:	ZumSpot - Raspberry Pi Hat (GPIO) <input checked="" type="checkbox"/>
Node Type:	<input checked="" type="radio"/> Private <input type="radio"/> Public
System Time Zone:	America/Los_Angeles <input checked="" type="checkbox"/>
Dashboard Language:	english_us <input checked="" type="checkbox"/>

Finished:

Once you have completed the Pi-Star configuration you can start using the ZUMspot Elite 3.5" LCD kit to connect to DSTAR, DMR and other networks.



There is more information on configuring and using Pi-Star in this document.

https://amateurradionotes.com/images/1-Playing_with_Pi-Star.pdf

Support:

MMDVM groups.io group:

<https://groups.io/g/OpenDV>

Pi-Star support forum:

<https://forum.pistar.uk/>

Pi-Star Facebook support group:

<https://www.facebook.com/groups/pistar/>

Pi-Star Wiki:

<http://wiki.pistar.uk>

ZUM Radio Facebook group:

<https://www.facebook.com/groups/249802742395450/>