# User manual

## Multimode IP radio for Ham Radio Amateurs



The Swiss army knife for Digital Voice

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| Date :    | 04-07-2023        |
|-----------|-------------------|
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### <u>General</u>

Dear DVMEGA-Cast user,

Congratulations with your new device.

In this manual we will show you how to register, configure, and use your DVMEGA Cast.

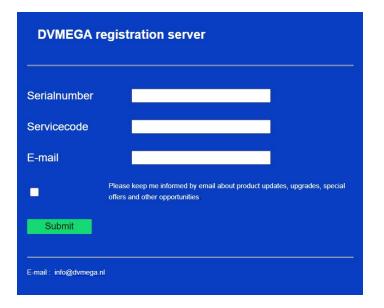
Read the user manual completely and carefully before use. The user manual is part of the product and contains important information for correct use.

Keep this user manual. The user manual must be available for uncertainties and passing the product.

### Device registration

Registration is required to get your latest firmware for your device. In the past the firmware was online as download, but with this system you can download updates with your Serialnumber and Servicecode.

Please open <u>https://dvmega.nl/registration</u> and fill in the fields.



Serialnumber and servicecode can be found at the rearpanel, and on the registration-card you received together with this unit. Once registered you will receive a confirmation via email.

### Introduction Digital Voice

Digital Voice is different to FM in that you need to first set up your radio with callsigns for yourself, other stations and reflectors, rooms or talkgroups.

If you are setting up your DVMEGA Cast for the first time then make sure you use your manual together with these notes. These notes are intended to be generic so there may be variations between different modes.

If you are new to Digital Voice i recommend to read the information on next websites and documents :

*D-Star reference manual :* http://www.tmrahamradio.org/D-STAR\_for\_Dummies\_v4.pdf

*Linking to reflectors :* http://www.mdarc.org/activities/repeaters/dstar/linking

*DMR reference manual :* http://www.dmrfordummies.com/

### ID registration

Beside a Callsign you need a Radio ID. A Radio ID is a unique number assigned to you (and your callsign) like a telephone number or IP address, your Radio ID identifies you as a unique radio user on the various digital networks around the world.

If you do not have a Radio ID follow next link to get one :

https://www.radioid.net/register#!

If you have questions about ID registration you can ask for support using next link :

https://www.radioid.net/support#!

### **Preparations**

### Front :



- A : Illuminated speaker.
- B: 2.4" Touch screen.
- C : Microphone connector
- D : Rotary encoder with push button.

### Back :



- A : External speaker / headphone connection, 3.5 mm jack.
- B: 12 V DC connector, 2.1 mm , central positive.
- C : Type plate with serial number and service code.
- D: RJ 45 LAN connection.
- E : USB port with WIFI dongle installed.
- F : Spare USB port.

### Connect the device

Wired LAN Connection.

Before you can use the WIFI option of the device you have to set the WIFI credentials using the wired LAN connection. You need a network router or switch to connect the device to the internet. Use a router or a switch with high-speed broadband) connection to the internet. Plug your LAN cable in connection D on the back of the device.

### Microphone.

To get the most out of your DVMEGA Cast a MH-48 compatible microphone is advised. A pin compatible microphone will also do. The microphone has to be connected to connection C at the front of the device.

### Apply power.

Power the device by a 12 V DC PSU (2.1 mm central positive) Take care to use a good and clean powersupply, some powersupplies can generate interference/noise. Make sure to use a PSU that can handle 1 or more Amps. Power supply has to be connected to connection B at the back of the device.

Now you will get a screen that shows it is connecting, and then the first screen appears.

### Important !

Before you can make a QSO or listen to other stations you have to configure the Radio and Host settings first. And a network connection must be established before the device will boot.

Radio and Host settings are explained in a later chapters.

# Get started

### Get started

Before you enter the world of Digital Voice you need some basic knowlegde and be aware of some rules.

First you need a Callsign or a radio ID. A Radio ID is a unique number assigned to you (and your callsign) like a telephone number or IP address, your Radio ID identifies you as a unique radio user on the various digital networks and repeaters around the world.

On every available network you can connect to reflectors, rooms or talkgroups. A talkgroup, reflector or room is simply a way of grouping many Radio ID's into a single digital contact. Or put another way, a talkgroup, reflector or room is a method of organizing radio traffic specific to the users that all want to hear the same thing and not be bothered by other radio traffic on a network that they are not interested in hearing. D-Star uses reflectors, DMR talkgroups and Fusion rooms.

The way to connect to a network or talk via reflectors, talkgroups or rooms is different for each mode. This will be explained in a later chapter.

It is very important to know that world wide repeaters and hotspots are connected to the same network as the DVMEGA Cast is connected to. This means that your conversation will be heard and transmitted by all connected repeaters. So it is possible that when you press the MIC you switch maybe a hunderd repeaters to TX with in total a couple of Kilowatts RF. A licence or registered callsign is realy needed.

A voice stream is going through the internet to reflectors, talkgroups and rooms where the stream is distributed to connected devices. To solve network latency, the connected devices have a buffer. The delay from your voice to the endpoint speaker can be up to 1 sec. A rule of good practice is to keep a space of 3 seconds between each over in a QSO. This space give the devices the time to empty the buffers. It is also important to leave space for people to sign in the going QSO or change from reflector, talkgroup or room. Otherwise it is impossible for a listener to interrupt the voice stream of a talker. This behaviour is inherent to the networks.

### Radio configuration

Press MENU

Press CALLS

Press on the ID text field

Enter your ID and press okay

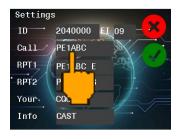
Press on Call text field

Enter your Call and press okay

Replace PE1ABC with your own call









RPT1, RPT2 etc will be filled in automaticaly with default value.

| Setting | s                 |
|---------|-------------------|
| ID      | 2040000 EI 09 - 🏹 |
| Call    | PE1ABC            |
| RPT1    | PE1ABC E          |
| BPT2    | PE1ABC G          |
| Your    | cacaca            |
| Info    | CAST              |
|         |                   |

You can change these fields individually if you like. The advise is to leave these fields by default values.

When all fields are filled in correctly then press okay.

Done !







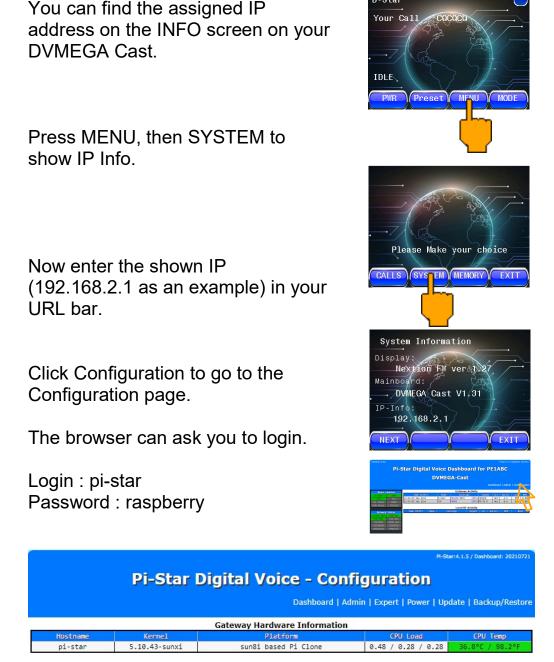
### Host configuration

The host configuration is easy accessible with a standard browser. Just enter "pi-star" in your URL bar.

the next screen will be shown.

It is possible that the hostname can not be resolved in your network. Then you have to go via the IP address.

| Holmaner plater                       |              |   |  |                           |        | 0.5ara.15 | - 140701-000 (100-000) |
|---------------------------------------|--------------|---|--|---------------------------|--------|-----------|------------------------|
| Pi-S                                  | tar Digita   | al Voice  | e Dashboa  | ard for                   | PE1    | АВС       |                        |
|                                       |              | DVM   | EGA-Cast   |                           |        |           |                        |
|                                       |              |   |  |                           |        |           | 1 Configuration        |
|                                       |              |   |  |                           | Cashoo |           | in congenition         |
| Rodec Enabled                         | 15ee (051)   | Note  | Gateway J  | Letivity<br>Teres         | Sec.   | Dar(s)    | 1465 188               |
| Y12 725                               |              |   | Local RF /   | rikery                    |        |           |                        |
| Drik Xhode POCSAS                     | Fine (0151)  | 7046  | Giliign  | Target Sec                | ber(s) | 003       | 1001                   |
| Acherik Status                        |              |   |  |                           |        |           |                        |
| 2-STAF BHI DWI BHI                    |              |   |  |                           |        |           |                        |
| YSF22HR AND& Net                      |              |   |  |                           |        |           |                        |
| 157203H 157273                        |              |   |  |                           |        |           |                        |
|                                       |              |   |  |                           |        |           |                        |
| Radio Terio                           |              |   |  |                           |        |           |                        |
| 1x 434.020800 1942<br>404.020800 1942 |              |   |  |                           |        |           |                        |
| EM DWREGA H01.31                      |              |   |  |                           |        |           |                        |
| D-Star Repeater                       |              |   |  |                           |        |           |                        |
| PEINEC E                              |              |   |  |                           |        |           |                        |
| PEIADC 6<br>Britter Notwork           |              |   |  |                           |        |           |                        |
| ears.apric2.set                       |              |   |  |                           |        |           |                        |
|                                       |              |   |  |                           |        |           |                        |
| 090 Reporter                          |              |   |  |                           |        |           |                        |
| 1000 66 1<br>1551 ctasbled            |              |   |  |                           |        |           |                        |
| T22 enobled                           |              |   |  |                           |        |           |                        |
| Dis Nation<br>No. 2041 Nation Lands   |              |   |  |                           |        |           |                        |
|                                       |              |   |  |                           |        |           |                        |
| FSF Network<br>Mi-CENTRAL             |              |   |  |                           |        |           |                        |
|                                       | Pr Star<br>V | / El-Star Dashboant<br>CODEStrongy Doch<br>HERD/NDash sizes<br>Need halp? Circl | . () Andy Taylor (Walthfat)<br>Sound by Asses A Genthal (<br>Assed by Kho Hasted (DOP<br>( have for the Facebook Gro | ) N14-2821.<br>ASKL<br>#3 |        |           |                        |



D-Star

The Configuration page is devided in configuration blocks per function. Each function is explained in a seperate paragraph.

The header gives you some information about the PI-Star version, CPU load and CPU temperature.

On top you find some links. Not all links relate to the DVMEGA Cast. Only the related setting are described in this manual.

If you are an experienced user you can advice the detailed manual of PI-Star : https://amateurradionotes.com/images/1-Playing\_with\_Pi-Star.pdf

### You need to know !

Some settings must be exactly as indicated. Others can be set as desired. Settings with a red dot means exactly set as indicated. A green dot means set as desired. It is recommended to apply the settings after every block change.

### Control Software

|                      | Control Software |   |  |  |  |  |  |
|----------------------|------------------|---|--|--|--|--|--|
| Setting              |                  | Value   |  |  |  |  |  |
| Controller Software: |                  | ODStarRepeater 🖲 MMDVMHost (DV-Mega Minimum Firmware 3.07 Required) |  |  |  |  |  |
| Controller Mode:     |                  | ● Simplex Node ○ Duplex Repeater (or Half-Duplex on Hotspots)       |  |  |  |  |  |
|                      |                  | Apply Changes   |  |  |  |  |  |

### **MDVMHost Configuration**

|                     |              | MMDVMHost Config     | guration  |                    |    |  |
|---------------------|--------------|----------------------|-----------|--------------------|----|--|
| Setting             |              |                      | Va        | lue                |    |  |
| DMR Mode:           |              | RF Hangtime:         | 20        | Net Hangtime:      | 20 |  |
| D-Star Mode:        |              | RF Hangtime:         | 20        | Net Hangtime:      | 20 |  |
| YSF Mode:           |              | RF Hangtime:         | 20        | Net Hangtime:      | 20 |  |
| P25 Mode:           |              | RF Hangtime:         | 20        | Net Hangtime:      | 20 |  |
| NXDN Mode:          |              | RF Hangtime:         | 20        | Net Hangtime:      | 20 |  |
| YSF2DMR:            |              |                      |           |                    |    |  |
| YSF2NXDN:           |              |                      |           |                    |    |  |
| YSF2P25:            |              |                      |           |                    |    |  |
| DMR2YSF:            |              |                      | Uses 7 pr | efix on DMRGateway | 6  |  |
| DMR2NXDN:           |              |                      | Uses 7 pr | efix on DMRGateway |    |  |
| POCSAG:             |              |                      | POCSAG    | Paging Features    |    |  |
| MMDVM Display Type: | CAST         | ✓ Port: /dev/ttyAMA0 | ✓ Nextic  | on Layout: G4KLX   | ~  |  |
|                     | 2004 - C. C. | Apply Change         | es        |                    |    |  |

Modes can be enabled or disabled individiualy. If more than 1 mode is enabled the device will start to scan the enabled modes. When activity is detected, or via MIC PTT or network, scan stops and device will lock on this mode. When there is no activity via MIC PTT or network, after the hangtimers time delay, then the device restarts a scan. MMDVM Display Type has to be set to Cast.

### **General Configuration**

| Setting             |                 |                                     | Value       | a                          |  |
|---------------------|-----------------|-------------------------------------|-------------|----------------------------|--|
| Hostname:           | pi-star         | Do not add suffixe                  | s such as   | local                      |  |
| Node Callsign:      | PE1ABC          |                                     |             |                            |  |
| CCS7/DMR ID:        | 2040000         |                                     |             |                            |  |
| Radio Frequency:    | 434.020.000     | MHz                                 |             |                            |  |
| Latitude:           | 50.00           | degrees (positive                   | value for M | North, negative for South) |  |
| Longitude:          | -3.00           | degrees (positive                   | value for B | East, negative for West)   |  |
| Town:               | Town, L0C4T0R   | 6                                   |             |                            |  |
| Country:            | Country         |                                     |             |                            |  |
| URL:                | http://www.mw0n | nwz.co.uk/pi-star/                  |             | 🔿 Auto 💿 Manual            |  |
| Radio/Modem Type:   | DV-Mega Cast B  | DV-Mega Cast Base Radio (Main Unit) |             |                            |  |
| Node Type:          | Private O P     | ublic                               |             |                            |  |
| APRS Host Enable:   |                 |                                     |             |                            |  |
| APRS Host:          | euro.aprs2.net  | ~                                   |             |                            |  |
| System Time Zone:   | Europe/Amsterd  | am 🗸                                |             |                            |  |
| Dashboard Language: | english uk 🗸    | •                                   |             |                            |  |

*Node Callsign :* This is your own Callsign. Do not add any suffix like /P /M etc.

CCS7/DMR ID : This is your own DMR ID.

Radio Frequency : Radio Frequency is not used.

*Latitude / Longtitude :* This is your GPS possition. Attention ! When you enter invalid data format, you are not able to log into Brandmeister.

Town / Country : Your Town and Country.

*URL :* If the switch is on manual then the text in the textbox is send. When the switch is on auto your QRZ address is send.

**System Time Zone / Dashboard Language :** Set at your preference.

### **DMR Configuration**

| DMR Configuration     |  |  |  |  |  |
|-----------------------|--|--|--|--|--|
| Setting               |  | Value  |  |  |  |
| DMR Master:           |  | BM_2042_Netherlands  |  |  |  |
| Hotspot Security:     |  |  |  |  |  |
| BrandMeister Network: |  | Repeater Information   Edit Repeater (BrandMeister Selfcare) |  |  |  |
| DMR ESSID:            |  | 2040000 09 🗸   |  |  |  |
| DMR Colour Code:      |  | 1 •  |  |  |  |
| DMR EmbeddedLCOnly:   |  |  |  |  |  |
| DMR DumpTAData:       |  |  |  |  |  |
|                       |  | Apply Changes  |  |  |  |

DMR Master : Select the master that is closest to your location.

*Hotspot security* : This is optional and can differ per Master. For more info : <u>http://wiki.pistar.uk/Pi-Star Brandmeister Hotspot Security</u>

### **D-Star Configuration**

| Startup 🔿 Manual                 |
|----------------------------------|
|                                  |
|                                  |
| Connect ircDDB for call routing  |
| Note: Update Required if changed |
|                                  |

**Default Reflector :** Select the reflecor you like to be connected to at startup.

**APRS Host :** Select the APRS Host that is closest to your location.

ircDDBGateway Language : Set at your preference.

*Time Announcements :* Enable or disable time announcements.

### Yaesu System Fusion Configuration

| Setting              |            |                                  | /alue |  |  |
|----------------------|------------|----------------------------------|-------|--|--|
| YSF Startup Host:    | YSF96455 - | NL-CENTRAL - CentraalNL          | ~     |  |  |
| UPPERCASE Hostfiles: |            | Note: Update Required if changed |       |  |  |
| NiresX Passthrough:  |            |                                  |       |  |  |

**YSF Startup Host :** Select the YSF Host you like to be connected to at startup.

**APRS Host :** Select the APRS Host that is closest to your location.

### **Firewall Configuration**

| Firewall Configuration |                  |                                  |  |  |  |  |
|------------------------|------------------|----------------------------------|--|--|--|--|
| Setting Value          |                  |                                  |  |  |  |  |
| Dashboard Access:      | Private O Public | Private O Public                 |  |  |  |  |
| ircDDBGateway Remote:  | Private O Public | Private O Public                 |  |  |  |  |
| SSH Access:            | Private O Public | ●Private ○Public                 |  |  |  |  |
| Auto AP:               | On Off           | Note: Reboot Required if changed |  |  |  |  |
| uPNP :                 | On O Off         |                                  |  |  |  |  |
|                        |                  | Channel                          |  |  |  |  |

Apply Changes

### Remote Access Configuration

| Remote Access Password  |           |                   |              |  |  |  |  |
|---|-----------|-------------------|--------------|--|--|--|--|
| User Name Password  |           |                   |              |  |  |  |  |
| pi-star   | Password: | Confirm Password: | Set Password |  |  |  |  |
| WARNING: This changes the password for this admin page<br>AND the "pi-star" SSH account |           |                   |              |  |  |  |  |

### Wireless Configuration

The WIFI settings are only visible when a dongle is present.

### Click Configure WiFi

| Wire                                       | eless Configuration            |  |
|--|--------------------------------|--|
| Refresh Reset WiFi Adapter Configince WiFi |                                |  |
| Wireless In                                | formation and Statistics       |  |
| Interface Information                      | Wireless Information           |  |
| Interface Name : wlan0                     | Connected To :                 |  |
| Interface Status : Interface is down       | AP Mac Address :               |  |
| IP Address :                               |                                |  |
| Subnet Mask :                              | Bitrate :                      |  |
| Mac Address : 00:0f:00:64:87:e3            | Signal Level :                 |  |
| Interface Statistics                       |                                |  |
| Received Packets :                         |                                |  |
| Received Bytes :                           |                                |  |
| Transferred Packets :                      | WiFi Country : NL              |  |
| Transferred Bytes :                        |                                |  |
|  |                                |  |
|  |                                |  |
| Information prov                           | vided by ifconfig and iwconfig |  |
|  | nder by neoning and meoning    |  |

### Press Scan for Networks

| Wireless Configuration                                     |   |
|--|---|
| WiFi Info  | A |
| WiFi Regulatory Domain (Country Code) : NL 💌               |   |
| Scan for Networks (10 secs) Add Network Save (and connect) |   |
|  |   |

Select Network. Enter your SSID and Password of the WiFi network. Then click Save (and connect)

| WiFi Info                       |   |                                  |                   |                            |  |
|---------------------------------|---|----------------------------------|-------------------|----------------------------|--|
| WiFi Regula<br>Network 1(       | atory Domain (Country Code) : NL<br>Delete<br>SSID : DES<br>PSK : | <ul> <li>→</li> <li>→</li> </ul> |                   |                            |  |
|                                 |   |                                  |                   |                            |  |
| Scan for N                      | etworks (10 secs) Add Network                                     | Save (and connect)               |                   |                            |  |
| Scan for No                     |   | Save (and connect)               |                   |                            |  |
|                                 |   | Save (and connect) Channel       | Signal            | Security                   |  |
| etworks fo                      | und :   |                                  | Signal<br>-65 dBm | Security<br>WPA2-PSK (AES) |  |
| etworks fo                      | und :   | Channel                          |                   |                            |  |
| etworks fo<br>Connect<br>Select | und :<br>SS10<br>Globetrotter                                     | Channel<br>2.4GHz Ch11           | -65 dBm           | WPA2-PSK (AES)             |  |

Now you can unplug the LAN cable.

After a power cycle the DVMEGA Cast will connect via WiFi.

| Wirel                                     | less Configuration                     |
|---|--|
| Refresh Reset WiFi Adapter Configure WiFi | · · · · · · · · · · · · · · · · · · ·  |
| Wireless Info                             | ormation and Statistics                |
| Interface Information                     | Wireless Information                   |
| Interface Name : wlan0                    | Connected To : DES                     |
| Interface Status : Interface is up        | AP Mac Address : 94:a7:b7:33:ef:73     |
| IP Address : 192.168.2.10                 |  |
| Subnet Mask : 255.255.255.0               | Bitrate : 135.0 MBit/s                 |
| Mac Address : 00:0f:00:64:87:e3           | Signal Level : -59 dBm                 |
| Interface Statistics                      | Transmit Power : 20 dBm                |
| Received Packets : 651                    | Link Quality : 73 %                    |
| Received Bytes : 172706 (168.6 KiB)       | Channel Info : 2.4GHz Ch11 (2.462 GHz) |
| Transferred Packets : 796                 | WiFi Country : NL                      |
| Transferred Bytes : 709759 (693.1 KiB)    |  |
|   |  |
| Information prov                          | ided by ifconfig and iwconfig          |

System settings, led brightness

Press SYSTEM,

And Roger beep.

Press MENU

Press 1X NEXT

Tick Roger beep checkbox to enable or disable Roger beep.

Press << or >> to adjust Volume and Tone of Roger beep.

Press SAVE to store setting or EXIT to leave Roger beep setting unmodified.









Roger-beep

<<

<<

### System settings, boost MIC level

Press MENU

Press SYSTEM,

Press 2X NEXT

Set the desired levels. And Press SAVE.

Press EXIT to return to MAIN screen





### System settings, enable modes

Press MENU

Press SYSTEM

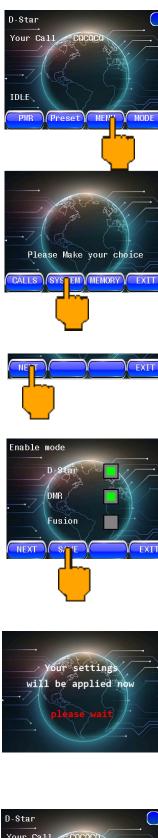
Press 3X NEXT.

Enable or disable the desired Mode.

And press SAVE.

The following message appears.

MAIN screen will be shown when the settings are applied.







### System settings, Hotspot control

Important ! This function only works when a radio Hotspot module is installed.

Press MENU

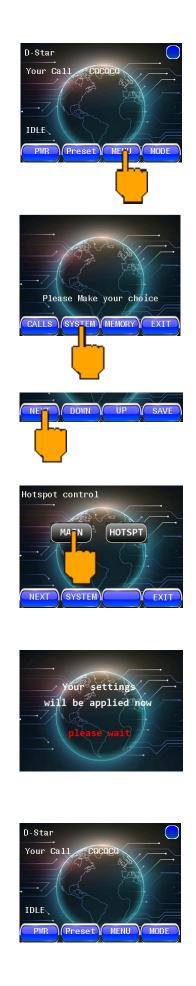
Press SYSTEM

Press 4X NEXT.

Select MAIN or Hotspot.

The following message appears. And the device will restart.

MAIN screen will be shown when the settings are applied.



### System settings, AMBE Server

Important ! This function only works when a DVMEGA DVstick-30 is installed.

Press MENU

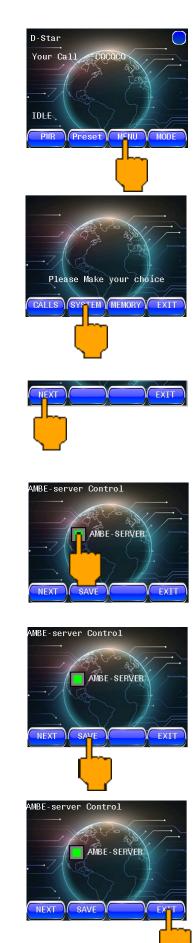
Press SYSTEM

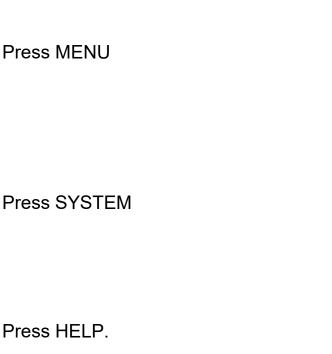
Press 5X NEXT.

Check box to switch AMBE server on.

Press SAVE to store AMBE server settings.

Press EXIT to return to MAIN screen.





D-Star

IDLE

Your Call

COCOCI

Please Make your choice

acquiring info

NEXT H

MOD

Preset

Scan QR code if you want to consult the user manual.

System settings, Help

The standard Host system is extended with DVMEGA Cast specific functions.

Press Install to take advantage of the latest options.

Press EXIT to return to MAIN screen.



### Press PRESET

Press EDIT to add or modify preset entry.

- Each menu entry can be up to 17 char in total.
- There must be at least 1 space between connect command and description.
- For D-Star the connect command must be fixed 8 char.
   For example. CQCQCQ must have 2 trailing spaces.
- Each mode has his own Preset list.

Press SAVE to store Preset list.

Select an item by pressing the label.

Press EXIT to return to MAIN screen.









| D-Star preset    |      |
|------------------|------|
| DCS007BL NETHERL | Edit |
| XLX008DL NETH S  | Edit |
|                  | Edit |
|                  | Edit |
| CQCQCQ TALK      | Edit |
| SAVE RESET       |      |
|                  |      |

### **Operating instructions**

**Volume :** Volume can be adjusted with rotary encoder D at the front of the device.

**Mute :** You can mute the audio by a short press on rotary encode D at the front of the device.

**Set curent volume as default :** Give a long press on the rotary encoder D at the front panel. The text MUTE will be shown in the display. Keep rotary encoder pressed until MUTE disappear. The current set volume is now stored and set as default.

**Change Mode :** Change mode is only possible when device is idle. The mode button is greyed out when device is not idle. Top left on the screen the curent set mode is shown.

**Scanning :** When more than 1 mode is enabled in the MMDVMHost Configuration the device will scan all enabled modes, when idle.

Device is idle when MODE button is white.

If you press PTT the mode shown on the top left of the display will be the active mode. Device is now no longer idle and MODE button is greyed out.

If the device is in scan mode the first stream coming from the network will lock the device in the relevant mode.

**Power off :** Press the PWR button to switch off the device.

**Power on :** Press rotary encode D at front of the device to power on the device.

| Speaker LED : | Blue  | - | Waiting for RX / TX |
|---------------|-------|---|---------------------|
| -             | Red   | - | TX                  |
|               | Green | - | RX                  |

### <u>D-Star linking</u>

In D-Star the Your Call field is used to send the link and unlink commands. The Your Call field must contain the link command when linking and should contain CQCQCQ during a QSO. Linking is only possible when radio is idle.

### Example : link to REF001C

Press the CQCQCQ text field.

Enter the link command for REF001C. Remember the total characters of the link command must be 8. The L must be on the last (8th) possition. Then press okay.

You are now ready to send the link command. Press PTT to send the link command to the relfector.

The voice server will anounce the linked status.

Before you can talk on the linked reflector you have to set Your Call to CQCQCQ. Press the text REF001CL. \*

Enter CQCQCQ . Remember the total characters must be 8. Add 2 spaces. CQCQCQ [space] [ space]

Then press okay.

Now you are fully linked and ready to talk on REF001C.













### <u>DMR linking</u>

DMR linking is different from D-Star. The DMR talkgroup you want to talk to is embedded in the voice stream.

### Example : Group call to TG235

Press the Talkgroup text field.

Then enter the desired Talkgroup and press okay.

Now press PTT once and you are linked to TG235.

You are ready to talk.

### Example : Private call to ID 2041234

A private call is a 1 to 1 conversation in private to the entered ID.

Press Private Call check box.

Private call will be enabled. The check box is green when checked.

Then press the Talkgroup text field.











Then enter the desired ID you want to talk to and press okay.

Now you can talk to ID 2041234 via a Private Call.

Note : Operator with ID 2041234 has to be available and connected to the Network.

To go back to the Group Call function you can simply uncheck the Private Call check box. You are set to the last used talkgroup. Press PTT to get connected before you are ready to talk.









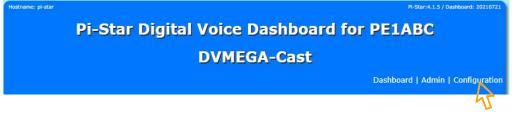
DMR linking

### Fusion linking

Fusion linking is different from D-Star and DMR. You can choose a different room via the dashboard.

Enter the Dashboard as described under Host Configuration.

Click Configuration.



Scroll down to the Yaesu System Fusion Configuration.

With the drop down box YSF Startup Host you can select another room.

Click Apply Changes when ready, you will be automaticaly connected to selected room.

| Value                              |
|------------------------------------|
| YSF96455 - NL-CENTRAL - CentraalNL |
| Note: Update Required if changed   |
|                                    |
|                                    |

### Create / Edit Memory list

You can create a list with up to 25 prefered reflectors, talkgroup or rooms. The list is created via the dashboard and can later be used directly via the display on the radio.

### **Click Configuration**

| Hostname: pi-star | PI-Star: 4.1.5 / Deshboard: 20210721<br>Pi-Star Digital Voice Dashboard for PE1ABC   |
|-------------------|--|
|                   | DVMEGA-Cast  |
|                   | Dashboard   Admin   Configuration  |
| Click E           | xpert  |
|                   | PF-Star A.1.5 / Dathboard: 20210721<br>Pi-Star Digital Voice - Configuration   |
|                   | Dashboard   Admin   Expert   Power   Update   Backup/Restore   |
| Click M           | lemory list  |
|                   | PF-Star4.1.5 / Dashbard:20210721<br>Pi-Star Digital Voice - Expert Editors   |
|                   | Dashboard   Admin   Update   Upgrade   Backup/Restore   Configuration   Firmware   Membry list<br>starRepeater   ircDDBGateway   TimeServer   MMDVMHost   DMR GW   YSF GW   P25 GW   NXDN GW   DAPKeT GW<br>t: DMR GW   PiStar-Remote   WiFi   BM API   DAPNET API   System Cron   RSSI Dat <b>Tools</b> : CSS Tool   SSH Access |

Select the prefered Reflector, Talkgroup or Room. Then enter a label at your own preference in the List name box. Then press the Add button.

With the Action buttons you can edit the saved items.

|                      |                         | Pi-Star:4.1.5 / Dashboard:20210721 |
|----------------------|-------------------------|------------------------------------|
| PI-Star D            | igital Voice - Edit M   |                                    |
|                      |                         | Dashboard   Admin   Configuration  |
|                      | Add item to memory list |                                    |
| D-Star               | DMR                     | Fusion                             |
| Reflector DCS000 🗸 🖌 | Talkgroup               | Room 00-0AU-YSF001                 |
| List name            | List name               | List name                          |
| Add D-Star reflector | Add DMR Talkgroup       | Add Fusion room                    |

### Stored memory list (3/25)

| Mode | Refl / TG / Room | Listname    | Action         |
|------|------------------|-------------|----------------|
| DST  | DCS007 T         | DCS7 Tech   | Down Up Delete |
| DMR  | 204              | Netherlands | Down Up Delete |
| YSF  | FCS00290         | USA         | Down Up Delete |

### <u>Use Memory list</u>

Press MENU.

Then press MEMORY

Now you can select your favorite channel.

If the radio is in idle mode, then the current mode will be changed to the mode of the selected item. If the radio is not idle then the selected item will be loaded in the mode settings of the selected item mode.

For D-Star, press PTT once to connect to reflector and then press CQ to load CQCQCQ.

For DMR, press PTT once to connect to talkgroup.

For Fusion, the Room is connected automatically.



### MIC buttons

### General

| Down (1)<br>Up (2) | Volume down<br>Volume up |
|--------------------|--------------------------|
| P1 (4)             | Toggle Mode              |
| D                  | Mute / Unmute            |

### **D-Star**

| А | Preset CQCQCQ |
|---|---------------|
| ~ |               |

- C Preset U
- B Set Edit Mode link command

### Edit Mode link command D-Star

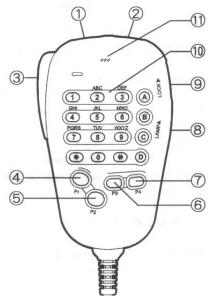
| 0 - 9 | Numeric input                      |
|-------|------------------------------------|
| А     | XRF -> REF -> DSC -> XRF -> etc.   |
| В     | AL -> BL -> CL -> ZL -> AL -> etc. |
| *     | Backspace                          |
| #     | Enter (Okay)                       |

### DMR

| А | Priv call / Grp call |
|---|----------------------|
| В | Edit TG or ID        |

### Edit Mode TG or ID DMR

- \* Backspace
- # Enter (Okay)



### **Update instructions**

Download updatefiles at : https://www.dvmega.nl/update

IMPORTANT ! Read the release note carefully before starting the update. DVMEGA Cast must be power ON at any time while doing updates.

### **DVMEGA Cast Display update**

Click Configuration. Pi-Star Digital Voice Dashboard for PE1ABC **DVMEGA-Cast** Dashboard | Admin | Configuration Click on Expert. **Pi-Star Digital Voice - Configuration** Dashboard | Admin | Expert | Power | Update | Backup/Restore Click on Firmware. i-Star:4.1.5 / Dashboard:20210721 **Pi-Star Digital Voice - Expert Editors** Dashboard | Admin | Update | Upgrade | Backup/Restore | Configuration | Firm vare | Memory list Quick Edit: DStarRepeater | ircDDBGateway | TimeServer | MMDVMHost | DMR GW | YSF GW | P25 GW | NXDI 5 V | DAPNET GW Full Edit: DMR GW | PiStar-Remote | WiFi | BM API | DAPNET API | System Cron | RSSI Dat Tools: CSS 1.00 | SSH Access Click on Select File. Pi-Star Digital Voice - Upgrade Firmware **DVMEGA-Cast Mainboard** Select Firmware-file to upload to the DVMEGA-Cast unit DO NOT UNZIP THE FILE, UPLOAD AS IS Bestand kiezen Geen bestand gekozen Upload Firmware DVMEGA-Cast Display Select Firmware-file to upload to the DVMEGA-Cast Display DO NOT UNZIP THE FILE, UPLOAD AS IS Bestand kiezen Geen bestand gekozen Upload Firmware

You receive the update files in .zip format. Do not extract the received zip files. A browser window will open. Go to the location you have saved the received files.

Select the Display update file and confirm. You will be returned to the update screen. Check that the correct file is selected (red marked)

Click Upload Firmware in the Display section now.

| Pi-Star:4.1.5 / Dashboard:20210721   |
|--|
| Pi-Star Digital Voice - Upgrade Firmware   |
| DVMEGA-Cast Mainboard  |
| Select Firmware-file to upload to the DVMEGA-Cast unit<br>DO NOT UNZIP THE FILE, UPLOAD AS IS    |
| Bestand kiezen Geen bestand gekozen  |
| Upload Firmware  |
|  |
| DVMEGA-Cast Display  |
| Select Firmware-file to upload to the DVMEGA-Cast Display<br>DO NOT UNZIP THE FILE, UPLOAD AS IS |
| Bestand kiezen PE1MSZCast127.zip   |
| Upload Firmware  |
| 5  |
| Then click Run Upgrade.  |
| Pi-Star Digital Voice - Confirm the Upgrade  |
| Please click the button to update the Display.   |
| Run Upgrade  |
|  |
| As soon as the update finises, the display restarts  |
|  |
| Notice that the display is going into update mode. You see the update progress on the display.   |
| Follow the instructions in the web brouwser.   |

|              | PI-Star:4.1.5 / Dashboa   | and:20210721 |
|--------------|---|--------------|
| Pi           | -Star Digital Voice - Update is Ready   |              |
|              | Your update has been done   |              |
| Your unit ha | <pre>***UPDATE HAS BEEN PROCESSED*** been updated, and will reboot now. We will revert to the dashboard in 50 seconds.</pre>  |              |
|              | Pi-Star / Pi-Star Dashboard, ⊕ Andy Taylor (MW0MWZ) 2014-2021.<br>ircDDBGateway Dashboard by Hans-J. Barthen (DL5D1),<br>MMDVMDash developed by Kim Huebel (DG9VH),<br>Need help? Citck here for the Support Group<br>Get your copy of Pi-Star from here. |              |

The system will restart, within 50 sec the Dashboard is back.

### **DVMEGA Cast Mainboard update**

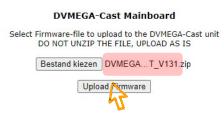


You receive the update files in .zip format. Do not extract the received zip files.

A browser window will open. Go to the location you have saved the received files.

Select the Mainboard update file and confirm. You will be returned to the update screen. Check that the file is selected (red marked)

### Pi-Star Digital Voice - Upgrade Firmware



Click Upload Firmware in the Mainboard section now.

Then press rotary encode D on front of the device and keep pressed while you click Run Upgrade.

Release the rotary encoder D at front of device when LED in the speaker goes dark or wait at least 20 sec.

| PI-Star:4.1.5 / Deshboard:20210721   |
|--|
| Pi-Star Digital Voice - Confirm the Upgrade  |
| Please keep the volumeknob pushed in, and click the 'Run Upgrade' to update the Mainboard.<br>Run Upgrade<br>Please keep the volumekt b pressed for 15 sec.<br>Once the light in the speaker dims, you can release it<br>As soon as the update finishes, the unit restarts |
| Pi-Star / Pi-Star Dashboard, ⊕ Andy Taylor (MW0MWZ) 2014-2021.<br>ircDD8Gateway Dashboard by Hans-J. Barthen (DLSDI),<br>MMDVMDash developed by Kim Huebel (DG9VH),<br>Need Hal? Click here for the Support Group<br>Get your copy of Pi-Star from here.                   |

Wait until update is ready.



The system will restart, within 50 sec the Dashboard is back.

Power cycle the DVMEGA Cast now.

### **Specifications**

- Cabled (RJ45) or Wifi to internet connected.
- No RF connection or repeater needed!
- Webinterface based configuration option.
- 2.4" touch screen for setup and control.
- Support Yaesu MH-48 with keypad for control.
- Rotary encoder for volume and multi-functionality.
- Embedded high-end CPU on dedicated mainboard.
- Support D-Star, DMR, and C4FM mode.
- Integrated Original DVSI AMBE3000.
- Easy to use web-based upgrade utility.
- Support a DVMEGA-pi radio for Hotspot functionallity.
- Supports an internal DVStick30 for AMBE-server.
- low powerconsumption 12VDC (2.1 mm Barrel Connector).
- Colorfull speaker indicator for status.
- 3.5mm external speaker connection.
- High performance 3 watt speaker
- Extra USB-connections available for future use.
- Solid full-metal powder coated housing
- Lifetime free Software updates.

### Maintenance and Cleaning

- Clean only with a dry, soft cloth.
- Do not use cleaning agents and chemicals.
- Store cool and dry.
- Store the product a dry and dust-protected ambience when not in use.
- Keep and use the original packaging for transport.

Made in the Netherlands.

Website : www.dvmega.nl E-mail info@dvmega.nl