Major BOS 4VD +
Major BOS 8VD

Manual

VoIP control panel

for up to 4/8 digital and/or

analogous radio terminals

DEVELOPMENT PRODUCTION SOFTWARE HARDWARE ELECTRONICS CONSULTING

FunkTronic

Radio Control Systems & more

Contents

1. Major BOS 4VD + Major BOS 8VD

Major BOS 4VD and **Major BOS 8VD** are **Voice-over-IP (VoIP) table-top control panels for up to 4 or 8 mobile radio terminals** (MRTs), respectively**.** With its TFT display, Major BOS 4VD/8VD is especially suited for the operation of digital (TETRA and/or DMR) radios (display of caller ID, group/ (channel selection, sending status ...).

Using the **FT638 – Digital radio box** as a remote station at the radio site, the **most important functions of digital MRTs** can be accessed. If desired, **analogous radio terminals** can be used with **FT636B** IP interface as the remote station (using PTT, SQL, AF in/out + channel select pins).

The typical features and accessories, known from our other Major BOS(V) devices can also be used with Major BOS 4VD/8VD, as there are: the **footswitch**, **headsets**, **magnetic fixation for handset**, metal holder for **sunk-in table mounting**, **power-over-ethernet (PoE)**...

As with all our VoIP devices, **configuration of the Major BOS 4VD/8VD** is done via an intuitive **graphical web interface**.

2. Order information

Article No.	Description
640140	Major BOS 4VD
640180	Major BOS 8VD
640148	Major BOS 4VD – Option **4 out of 8**
	Optional Accessory:
640011	Option PoE – Voltage suppy via ethernet
900011	Power supply unit, for Major BOS, 12V/1,0A
631112	Magnetic fixation for handset of Major BOS
904000	Metal holder for sunk-in table mounting
001530	Foot switch, incl. connection cable
001555	Headset without volume control, incl. 6-pin connection cable
001556	Headset with inline volume control, incl. 6-pin connection cable
001560	WL-DECT base
001561	Headset Air Talk XS-WL – for connection with WL-DECT

3. Control elements

3.1. Control elements Major BOS 4VD

1 – TFT display

2 – Radio selection buttons (***Menu/OK***)

3 – Volume display (LED band)

4 – Volume buttons **-** / **+** (***Menu*** ↑)

5 – Loudspeaker buttons and special buttons S (***Menü*** ↓)

6 – Function buttons F1 and F2 (***Go back*** ←)

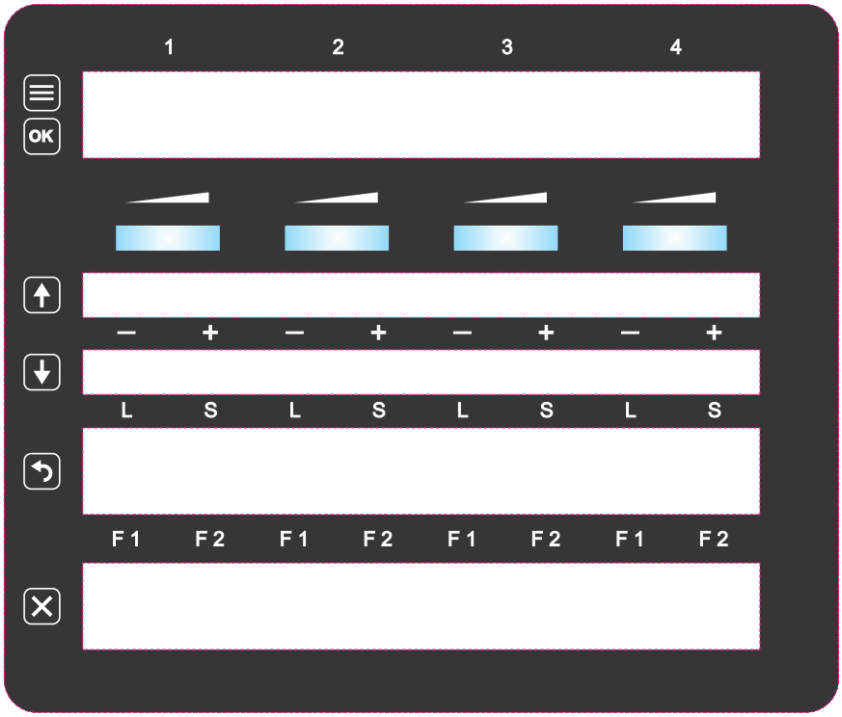
7 – PTT (***Menu Escape*** **X**)

8 – Handset with PTT on inner side

9 – Loudspeaker

10 – Gooseneck microphone

Keypad label - Major BOS 4VD



3.2. Control elements Major BOS 8VD

1 – TFT display

2 – Radio selection buttons (***Menu/OK***)

3 – Volume buttons: VOL+ / ***Menu+***

4 **–** Volume display (LED band)

5 – Volume buttons: VOL- / ***Menu-***

6 – Loudspeaker buttons: on/off / **← (*Go back*)**

7 – Function F2 (programmable)

8 – Function F1 (programmable)

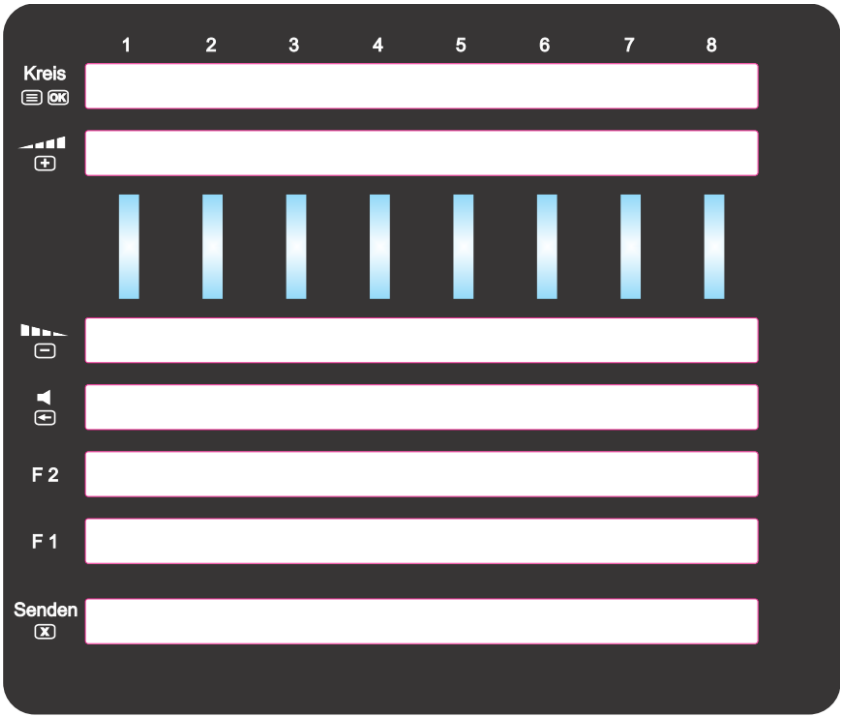
9 – PTT (***X/Escape***)

10 – Loudspeaker

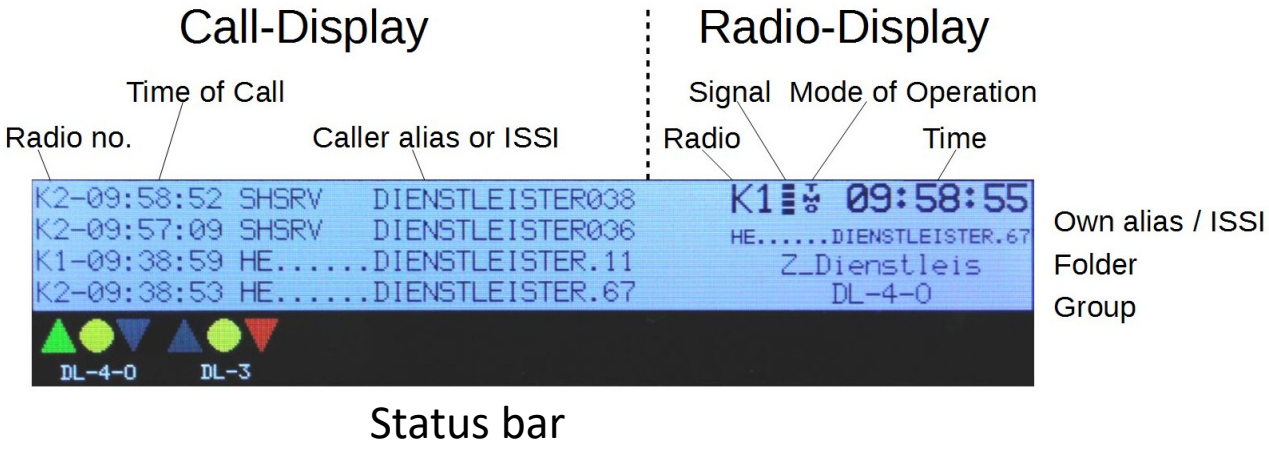
11 – Handset with PTT on inner side

12 – Gooseneck microphone

Keypad label - Major BOS 8VD



3.3. Display (standard operation)



Call-Display (shows 4 most recent calls)

- **Radio no.:** Number of the radio that received the call
- **Time of Call:** Time the call was started
- **Caller ISSI:** ISSI/alias of the caller (for DMR: caller's group, too)

Radio-Display (informations about currently chosen radio)

- **Radio:** Number of the radio whose informations are displayed
  (if the choice of several radios is possible: radio with lowest number is displayed)
- **Signal:** Radio Signal Strength
- **Mode of Operation:** TMO/DMO/GW/REP
- **Time:** Current time (as received from TETRA time server)
  for DMR: defintion of time server by FT638 will be implemented soon
- **Own ISSI:** ISSI/ID of the connected radio (or alias if applicable)
- **Folder name** of the currently activated group
- Name of the currently activated **group/channel**

Status Bar (Informations for up to 8 available radios)

- **Radio selection status** ●
- **PTT / Permission to speak** ▲
- **SQL / Other party has permission to speak** ▼
- **Display of group name**

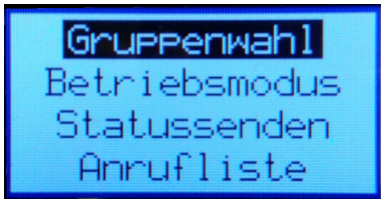
3.4. Menu control

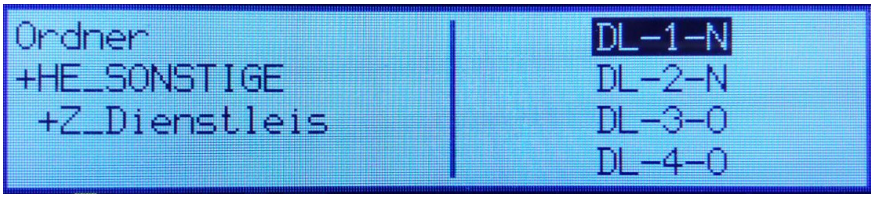
The TETRA/DMR functions can be used via a self-explaining menu by pressing the **menu/[OK]** button, i.e. the radio selection button, for at least one second.

Menu navigation is performed via the **[+]** / **[-]** or **[↑]** / **[↓]** buttons, respectively, and entering of submenus as well as the choice of options is confirmed with **[OK]**. To go back to the previous menu (or to the parent folder in group selection), use button **[←]**. Button **[X]** can be used to quit the menu and return to the standard display at all times.

Items of the main menu are **group/channel selection**, **mode of operation**, **send status** and a list of **recent calls** of the chosen radio. Menu item **service** contains informations about the Major and the connected radio (SW version, serial no., IP address, connected devices, ...) and a possibility to initiate a **new readout of talkgroups**. The menu **preferences** allows to set the display brightness, the number of calls that are displayed in standard view and to adjust the vertical display placement. Due to inherent differences of TETRA and DMR not all menu items are present, depending on the radio system and usage parameters.

Main menu (top) und group selection (bottom)
(Multi-Language support is available,
please ask if your language is already implemented)





3.5. Major BOS 4VD with option *4 out of 8*

If a Major BOS 4VD is equipped with option **4 out of 8**, 8 VoIP connections can be defined via the web interface – just like for Major BOS 8VD. The user can freely choose 4 of these radios to accomodate the needs of different operation requirements. This is done via the additional menu item **radio selection**. For situations with several workstations, each of the Majors can be assigned a different set of radios to operate on, of course.

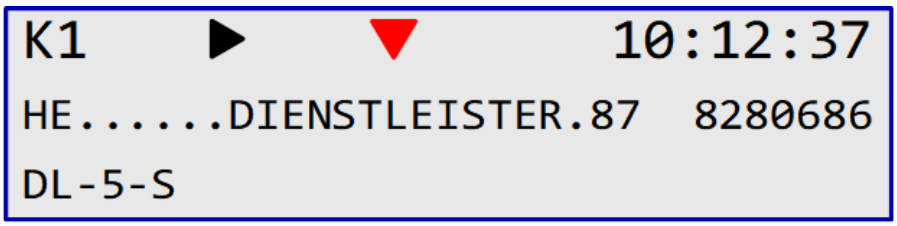
3.6. Internal voice recorder

In order to further accomodate the common needs of a dispatcher workstation, we added an **internal voice recorder** functionality as a new feature of our control panels Major BOS 4VD and Major BOS 8VD. If the voice recorder is available and activated, all outgoing and incoming conversations are recorded. Depending on conversation activity, approx. the last half an hour is available to be replayed.

The user can **activate the replay function** via the Major's menu. If available, the function is located below the **group selection** item. Activation directly results in replaying the most recent conversation. Navigating through all recorded calls is possible in a convenient way using the **+/- buttons**. Using long press of +/- you can move forward/backward through the conversation in continuously. To allow precise orientation the time of the call is always displayed, as well as the caller's alias, ID and the activated talk group (depending on which information is available in the respective setup). Using the **menu/OK button** the replay can be paused and re-continued.

This option is a selling feature. In order to use it, the connected **FT638 digital radio box** needs to be equipped with **option FULL**.

Voice recorder display item



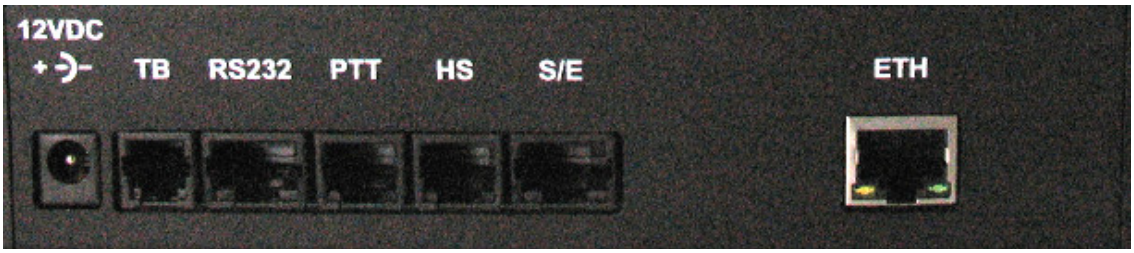
4. Connectivity

The VoIP control panel Major BOS 4VD/8VD enables the connection of up to 4 or 8 radios via ethernet, respectively. Using the **FT638 Digital radio box** MRTs of Sepura (SRG3900) and/or Motorola (MTM800 FuG (ET) / MTM5X00 series) can be connected, as well as DMR radios (Motorola MOTOTRBO, Kenwood DMR/NEXEDGE, Hytera DMR). One FT638 enables the connection of two MRTs via ethernet.

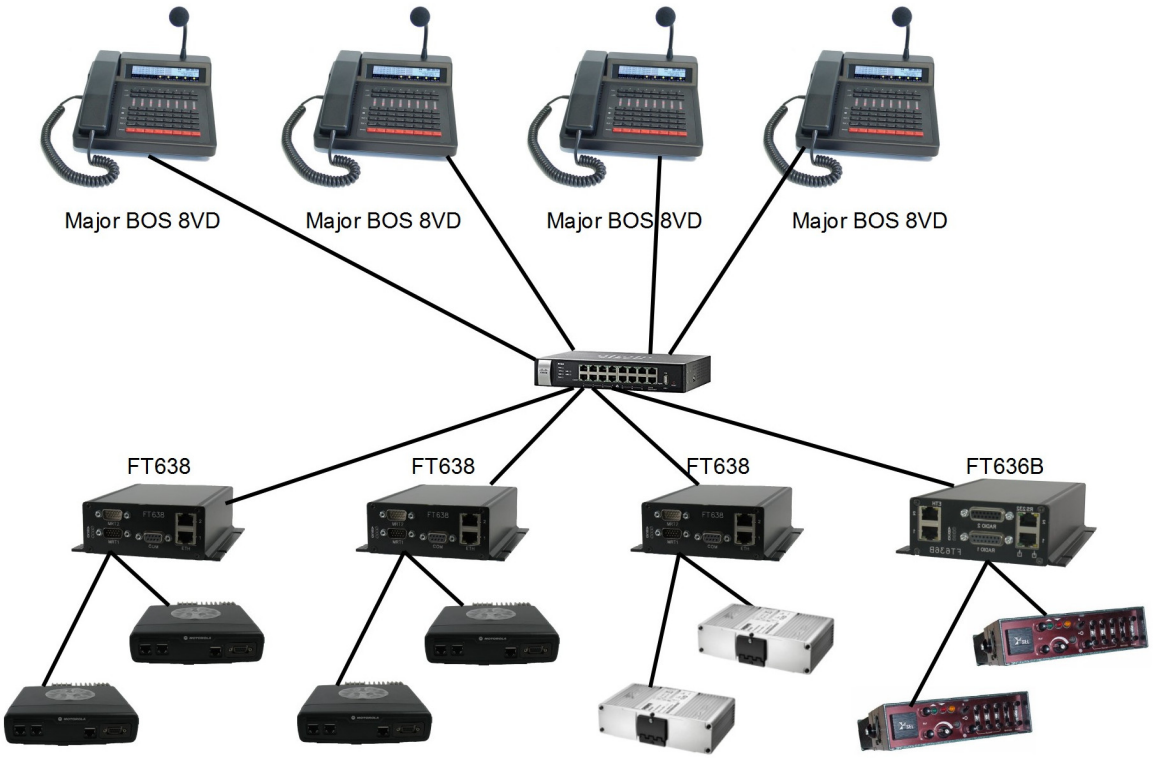
For the connection of analogous radios the IP interface FT636B is used (2 radios per interface). If desired, one of the 8 radio circuits can be used to just communicate between different Major BOS 4VD/8VD (intercom).

The connection of the standard accessories of Major BOS devices is also possible with Major BOS 4VD/8VD (see 2.Order information).

Rear View of Major BOS 4VD/8VD



Example Setup for 4 work stations (each with full access to 8 MRTs)



5. Pin layout

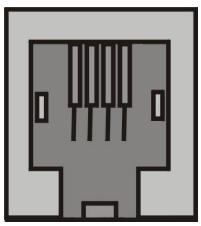
Power supply

+12V DC, max. 1,5 A

Socket TB

Connection of voice recorder

1...4

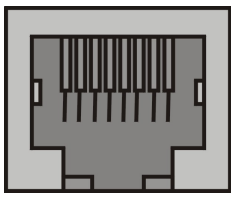


1	GND
2	Control pin for recorder
3	AF out A
4	AF out B

Socket RS232

3-pin RS232 interface + programmable I/Os + external loudspeaker (LS2)

1.....8

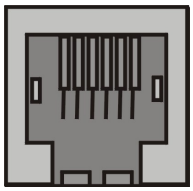


1	TXD (output)
2	RXD (input)
3	GND
4	I/O 1
5	I/O 2
6	I/O 3
7	AF out (LS2+)
8	AF out GND (LS2-)

Socket PTT

Connection of ext. PTT (e.g. foot switch) or headset adapter (not necessary for standard headset)

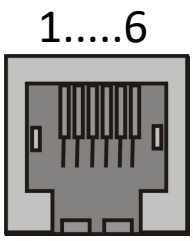
1.....6



1	PTT HS2 in
2	+BATT out (headset adapter)
3	HS on (headset adapter control pin)
4	Optocoupler in (Anode +)
5	Optocoupler in (Cathode -)
6	GND (PTT HS2)

Socket HS

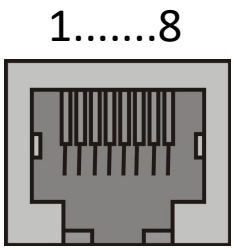
Connection of headset (or headset adapter)



1	PTT HS1 in
2	AF in HS (mic +)
3	AF out HS (earphone +)
4	GND AF out (earphone -)
5	GND AF in (mic -)
6	GND (PTT HS1)

Socket S/E

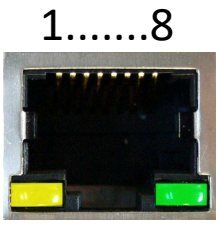
8-wire socket for connection of analogous device



1	NF in A
2	NF in B
3	SQL in S/E (with Pullup)
4	GND
5	+BATT out (**Do not connect to radio!**)
6	PTT S/E (in/out)
7	NF out A
8	NF out B

Socket ETH

Connection to ethernet, **optionally available with power-over-ethernet (PoE)**



1	TX +
2	TX -
3	RX +
6	RX -

6. Configuration via web interface

The configuration of the Major BOS 4VD/8VD is done via its graphical web interface. The ex-factory configurations of the most important network settings are:

User name:	**mbosv**
Password:	**radio**

Local IP address:	192.168.16.181
Target IP addr. radio1:	192.168.16.191
Subnet mask:	255.255.255.0
Port audio/AF:	10000, UDP protocol
Port data:	10001, TCP protocol
Port web server:	80, TCP protocol
Port LS/update:	9999, TCP protocol

Please be aware that all devices, that need to be connected, have to be in the same subnet!

6.1. Restoring the default IP address

If the IP address of the Major BOS 4VD/8VD is not known for some reason, the device can be started in **default IP mode**. For this, during power-on, you have to simultaneously press the red PTT button for radio 1 and the PTT button on the inner side of the handset, while the handset is situated on its rest (hook-on). After that, the web interface of the Major BOS 4VD/8VD can again be accessed via its default IP address 192.168.16.181. Now, you have to change it to the desired IP address of your choice.

7. Technical data

Dimensions (w/o gooseneck mic)	245 x 220 x 90 mm (W x D x H)
Weight	ca. 1500 g
Supply voltage	+12V DC / -15% +25%
Current consumption	ca. 200-500 mA

Input level (S/E)

Factory setting	775 mV (= 0 dB) / 600 Ohm
Adjustment range	-99 dB bis +26 dB / 200 Ohm
Input impedance	600 Ohm

Output level (S/E)

Factory setting	500 mV (= - 3,8 dB) / 200 Ohm
Adjustment range	-99 dB bis +26 dB
Output impedance	ca. 200 Ohm

Output level for earphone (headset) (RX-Out)

Factory setting	0 dB (an 200 Ohm)
Adjustment range	-99 dB bis +26 dB
Output impedance	ca. 150 Ohm

Input level for microphone (headset) (TX-In, electret)

Factory setting	0 dB
Adjustment range	-99 dB bis +26 dB
Input impedance	ca. 700 Ohm

8. General safety instructions

Please read the manual carefully before installation and setup of your device.

The relevant regulations must be complied to when working with 230V line voltage, two-wire-lines, four-wire-lines and ISDN-lines. It is also very important to comply to the regulations and safety instructions of working with radio installations.

Please comply to the following safety rules:

- All components may only be mounted and maintained when power is off.
- The modules may only be activated if they are built in a housing and are scoop-proof.
- Devices which are operated with external voltage – especially mains voltage – may only be opened when they have been disconnected from the voltage source or mains.
- All connection cables of the electronic devices must be checked for damage regularly and must be exchanged if damaged.
- Absolutely comply to the regular inspections required by law according to VDE 0701 und 0702 for line-operated devices.
- Tools must not be used near or directly at concealed or visible power lines and conductor paths and also not at and in devices using external voltage – especially mains voltage – as long as the power supply voltage has not been turned off and all capacitors have been discharged. Electrolytic capacitors can be still charged for a long time after turning off.
- When using components, modules, devices or circuits and equipment the threshold values of voltage, current and power consumption specified in the technical data must absolutely be complied to. Exceeding these threshold values (even if only briefly) can lead to significant damage.
- The devices, components or circuits described in this manual are only adapted for the specified usage. If you are not sure about the purpose of the product, please ask your specialized distributor.
- The installation and setup have to be carried out by professional personnel.

9. Returning of old equipment

According to German law concerning electronic devices, old devices cannot be disposed off as regular waste. Our devices are classified for commercial use only. According to § 11 of our general terms of payment and delivery, as of August 2015, the purchasers or users are obliged to return old equipment by us free of cost. FunkTronic GmbH will dispose of this old equipment at its own expense according to regulations.

Please send old equipment for disposal to:

FunkTronic GmbH
Breitwiesenstr. 4
36381 Schlüchtern
GERMANY

>>> Important: Freight forward deliveries cannot be accepted by us!

Subject to change, errors excepted!

10. Release notes

15.11.17 - first version (for Major BOS 8VD)

23.07.18 - enhanced manual for Major BOS 4VD and Major BOS 8VD

06.11.20 - correction of pin layout "socket RS232", minor changes

24.09.21 - addition of voice recorder functionality

29.04.22 - including of the newly implemented DMR connectivity