User manual BD-850

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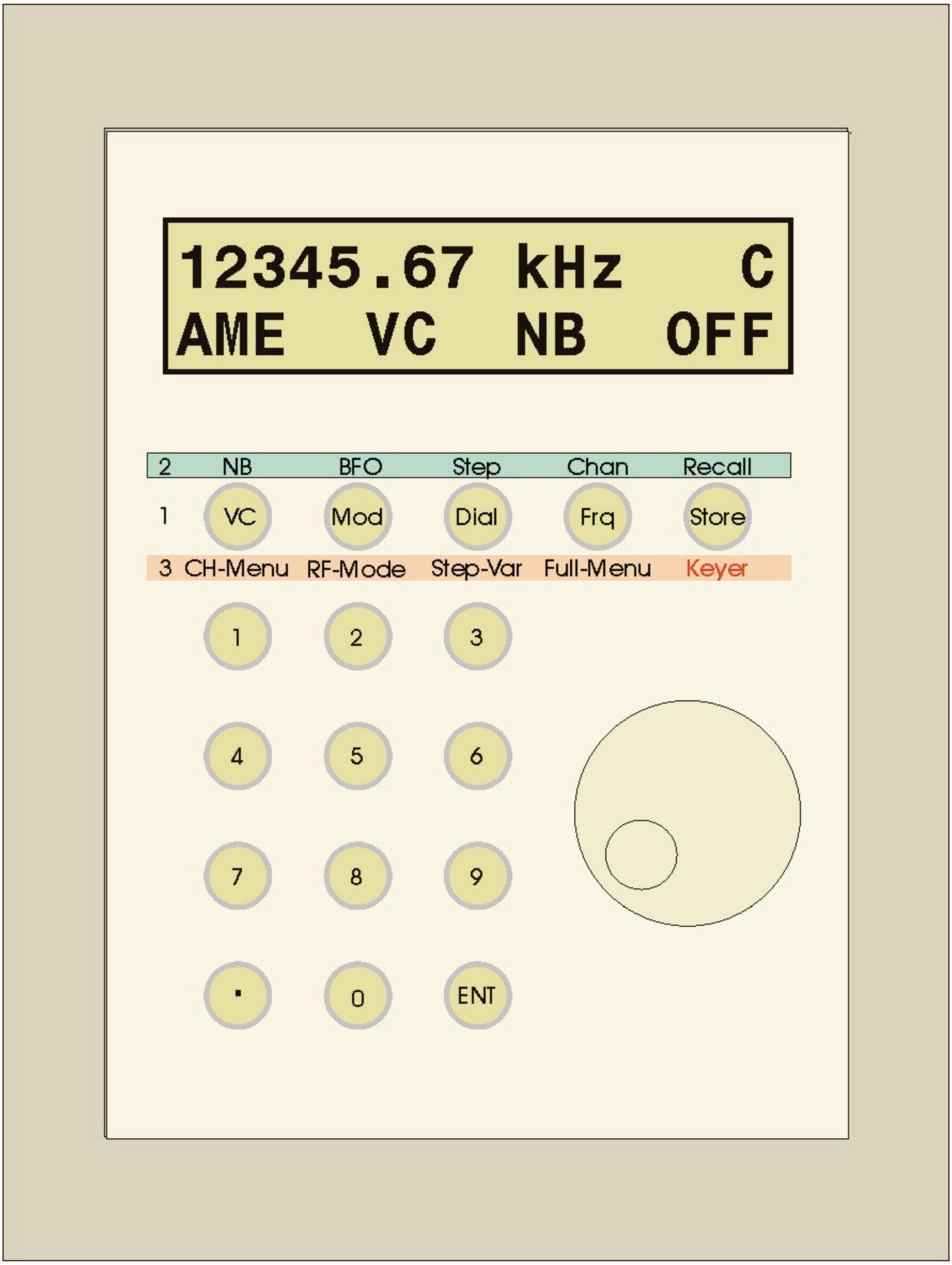
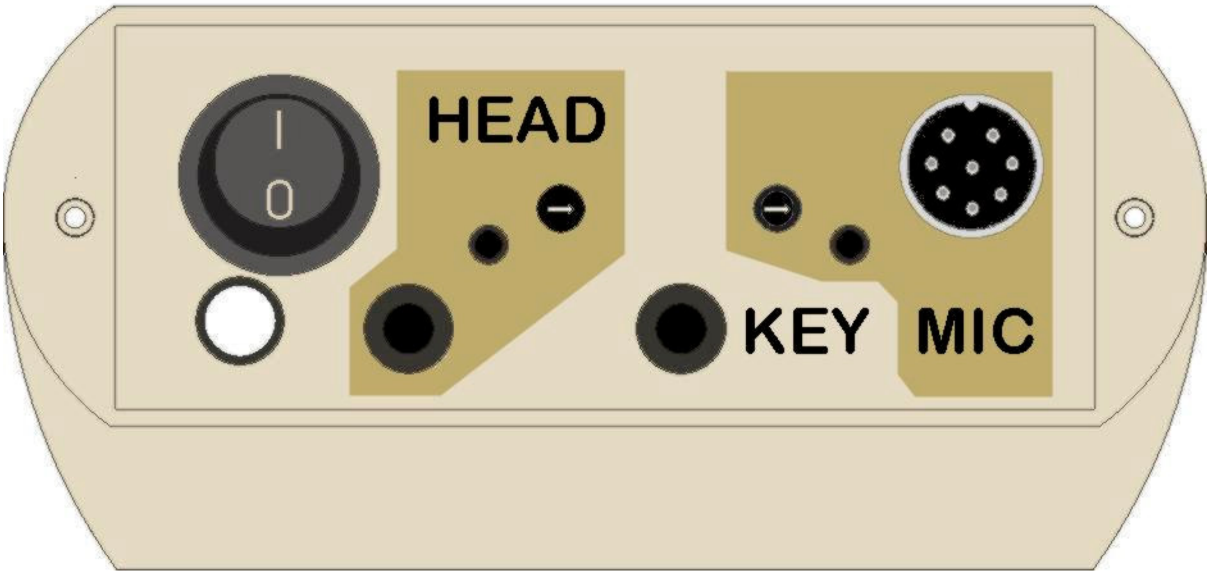
Operating Elements

The Service Unit BD-850 is constructed as keyboard housing. In the upper part there is mounted a two-line LCD-display illuminated from the backside with 16 characters per line. Below are 5 buttons in horizontal order, as well as a keyboard with 12 keys and a dial button with finger mould which drives an encoder.



Top view BD-850



View Rear side BD-850

Connection and Installation

The connection of the operation element BD-850 is effectuated via the mounted cable with help of the 32-pole plug to the jack REMOTE of XK-852 or equivalent devices.

The operation element is supplied from the R&S Transceiver.

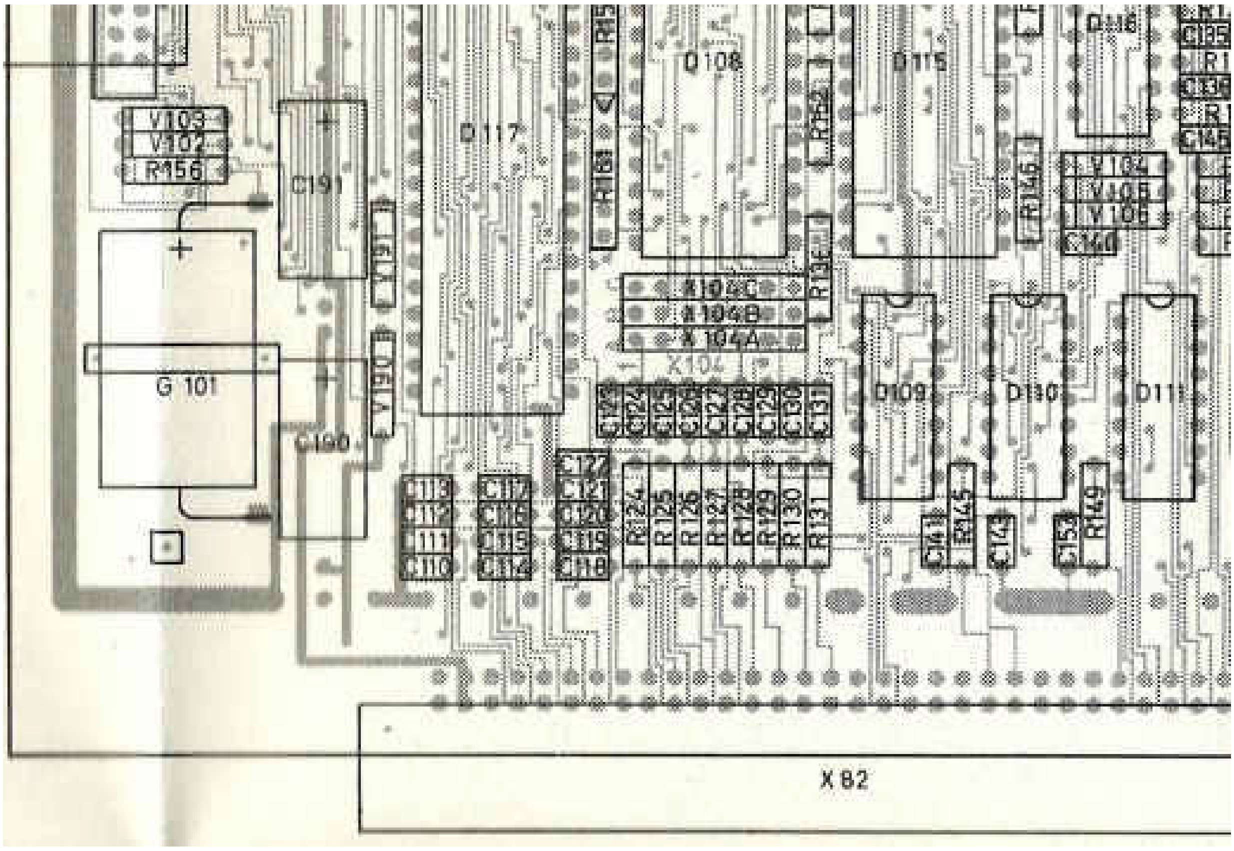
The power supply of the base unit has to be switched on, to make possible that the power supply button on the backside is effective on. The button OPERATION MODE on the front panel off the transceiver has to be OFF to activate the BD.852.

The function of the analogue elements microphone and headphone resp. loudspeaker do not depend on the two regulators VOLUME and SQUELCH on the front side of the transceiver .
The display of the operation part in the basic device (GB 853) is showing the frequency resp. the other information like always.

It is a pity that there are existing different types of CPU (Steuereinheit) with different layouts of the buttons an jumpers.
See the following two types.

! ATTENTION! Please use ONLY STEREO phone plugs!
Mono plug are causing a short circuit of output!

Type 1



The version with CPU of the basic device as in the scheme

9600 Baud

For this effect you have to put the button S10 on the internal CPU on to S10.1 to S10.3 on CLOSED and S10.4 on OPEN.

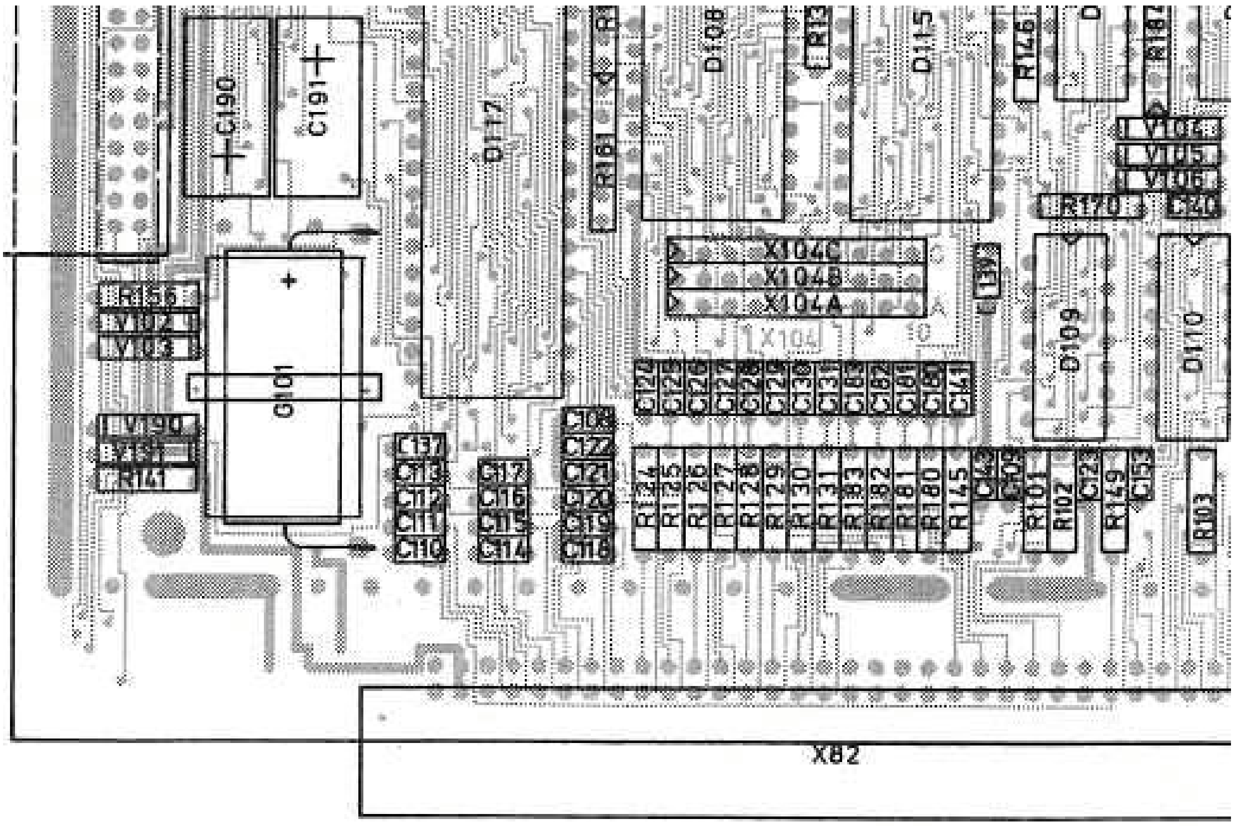
Address 0

Fore this you have to put the switcher S11 on the internal CPU on S11.1 to S11.8 on OPEN.

Interface

For this you have to plug the jumpers On the internal CPU on X104.1 , X104.2 and X104.7 on AB, i.e. closer to the bus connector. Every other bridges X104.3 to X104.6 on BC have to be plugged farer from the bus connector!

Type 2



The version of the basic device with CPU like you can see in the scheme

has to be put as follows :

9600 Baud

For this you have to put the switcher S10 on the internal CPU on S10.2 up to S10.4 on CLOSED and S10.1 on OPEN.

Address 0

To do this you have to put the switcher S11 on the internal CPU on S11.1 to S11.8 on OPEN .

Interface

For this you have to plug the jumpers on the internal CPU onto X104.1 , X104.2 , X104.7 , X104.9 and X104.10 on AB, i.e. closer to the bus connector. That means every other bridges X104.3 to X104.6 and X104.8 on BC have to be plugged in farer away from the bus connector!

Operating Functions

While operating the user will be lead via a dialog on the display. There are different ways to initialise a function.

Direct function by the Dial

In the normal state is the most important function of the frequency change with the knob available, which can be selected in steps as well as fixed and variable steps.
For a faster change can be selected step width from 10Hz step width to 1 MHz . Since, for many applications, these pitches are not optimal, for example, in an operation in which a channel raster is used, it is possible to choose a variable step size between 10Hz and 100kHz in 10Hz increments..

Key functions in general

In general for the keys you have the following functions:

If you press a key, different functions are started amongst them three timers. The first timer, duration time is only used to prevent key bounce . The second timer, duration 1sec, is made for recognition of the second function, i.e. a function for recognising the second version, i.e. a function, for which a key has to be kept pressed for at least 1 sec. The third timer, duration time 3sec, is made for recognising the third function. That means a function key was pressed at least 3 seconds. If the key is released, the software of the BD-850 recognises with help of the expired timers, how long the key had been pressed.

After pressing a key, a number appears on the display in the first line, on the very right side, that indicates the function level. So, if the key is being released, while the 1 is standing at this place, the first function will be activated, having the 2 the second function and having the 3 the third function.

To the key function applies, that after activation, i.e. after again releasing the key, a timer is being started, that finishes the function after starting the timer and that closes the function. If you turn the button while the timer is running, the timer will be started again. This allows a normal and exact choice of the function. You may finish that waiting time by the use of the ENTER-key.

		Direct function	**after 1 sec**	**after 3 sec.**
Function key 1		**Voice Compressor**	**Noise Blanker**	**Channel Menu**
Function key 2		**Modulation**	**BFO**	**RF Mode**
Function key 3		**Dial Mode**	**Step**	**Step Var**
Function key 4		**Frequency by Key**	**Channel**	**Full Menu**
Function key 5		**Recall Channel**	**Store Channel**	**(Keyer Menu)**

The ENT-key has got a special function, if this key is being pressed for more than 3 sec. and can be released afterwards, and when the RF-mode is TxL, TxM or TxH, the transmitter is switched on and stays on as long as one of the numerical key will be pressed. During this time there will be shown a correspondent message on the display.

The transmitter will be only permanently switched on, if the VSWR is low enough and the antenna matched !

ATTENTION ! The keyer menu is an option of the software. When this option is installed you have chosen the correct jumper setting in the BD-850, it can be connected to a two-paddle-key in a so called squeeze-key use.

Direct key function

That means there is per key one

First function	–	key pressed shorter than one second - , one
Second function	–	key pressed shorter than three seconds and longer than one second longer than one second
Third function	–	key pressed for more than three seconds -.

Function Key 1

If the function key 1 is being pressed for at least 30ms and afterwards released, while in the very first line of the display on the very right side you can find the 1 , the voice compresor / VC is switched on or off. The dial is then active for 1 second. Any movement of the dial will restart that time.
If the function key 1 is being pressed for at least 1 s and afterwards released, while in the very first line of the display on the very right side you can find the 2 , the noise blanker / NB is switched on or off. The dial is then active for 1 second. Any movement of the dial will restart that time.
If the function key 1 is being pressed for at least 3 s and afterwards released, while in the very first line of the display on the very right side you can find the 3 , the channel menu is chosen. The dial is then active for 1 second. Any movement of the dial will restart that time.

In the channel menu you may chose read and write setup, which has the same function as store and recall from function key 5. Further on you may write TX/RX which stores the actual setting to a channel memory for all full duplex and half duplex modes. You may write RX which stores the actual frequency as receiving frequency setting to a channel memory for half duplex mode.
!! Attention, this does NOT work in CW modulation !!

Function Key 2

If the function key 2 is being pressed for at least 30ms and afterwards released, while in the very first line of the display on the very right side you can find the 1 , the modulation mode is selected . The dial is then active for 1 second. Any movement of the dial restart that time.
If the function key 2 is being pressed for at least 1 s and afterwards released, while in the very first line of the display on the very right side you can find the 2 , the BFO frequency is selectable. The dial is then active for 1 second. Any movement of the dial will restart that time.
If the function key 2 is being pressed for at least 3 s and afterwards released, while in the very first line of the display on the very right side you can find the 3 , the RF mode is chosen. The dial is then active for 1 second. Any movement of the dial will restart that time.

Function Key 3

If the function key 3 is being pressed for at least 30ms and afterwards released, while in the very first line of the display on the very right side you can find the 1 , the dial mode is selected . The dial is then active for 1 second. Any movement of the dial restart that time.
If the function key 3 is being pressed for at least 1 s and afterwards released, while in the very first line of the display on the very right side you can find the 2 , the step width is selectable. The dial is then active for 1 second. Any movement of the dial will restart that time.
If the function key 3 is being pressed for at least 3 s and afterwards released, while in the very first line of the display on the very right side you can find the 3 , the variable step size is chosen. The dial is then active for 1 second. Any movement of the dial will restart that time.

Function Key 4

If the function key 4 is being pressed for at least 30ms and afterwards released, while in the very first line of the display on the very right side you can find the 1 , the keyed frequency is selected . The dial is then active for 1 second. Any movement of the dial restart that time.
If the function key 4 is being pressed for at least 1 s and afterwards released, while in the very first line of the display on the very right side you can find the 2 , the channel is selectable. The dial is then active for 1 second. Any movement of the dial will restart that time.
If the function key 4 is being pressed for at least 3 s and afterwards released, while in the very first line of the display on the very right side you can find the 3 , the full menu is chosen. The dial is then active for 1 second. Any movement of the dial will restart that time.

Function Key 5

If the function key 5 is being pressed for at least 30ms and afterwards released, while in the very first line of the display on the very right side you can find the 1 , the parameters from the transceiver are recalled .
If the function key 5 is being pressed for at least 1 s and afterwards released, while in the very first line of the display on the very right side you can find the 2 , the parameters are stored to the transceiver.
If the function key 5 is being pressed for at least 3 s and afterwards released, while in the very first line of the display on the very right side you can find the 3 , the keyer menu is chosen. The dial is then active for 1 second. Any movement of the dial will restart that time.

Full menu

In the full menu almost all parameters may be modified.

Adresse	address (not useful, only with multiple controlled units)
BFO	
Frequenz	frequency
Line	line level
FSK STOP	(see R&S manual)
Sendeart	RF mode
Extern	(see R&S manual)
Kanal	channel
Noiseblk	noise blanker
B.-Modus	
Voice-Comp.	voice compressor
HF	
FSK-Pol.	(see R&S manual)

The upper line of the display shows the name of the parameter and in the lower line the value is shown.
The range of the values is defined by the limits of the R&S transmitter.