

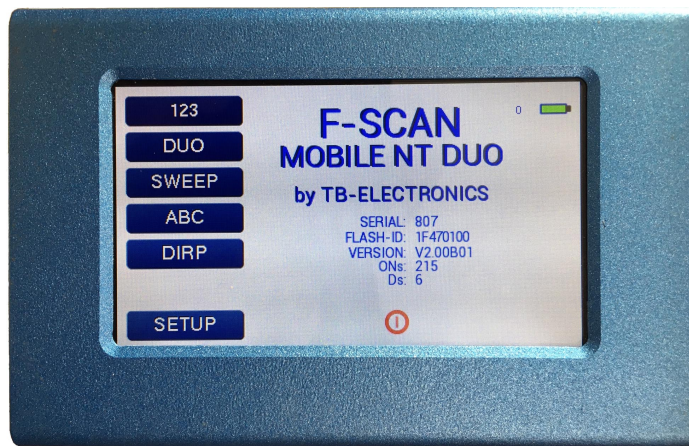
# Frequency Synthesizer F-SCAN MOBILE NT and F-SCAN MOBILE NT DUO

Firmware Version FSC V2.x

## INSTRUCTION MANUAL

This symbol identifies the equipment as type B

**Attention: CONSULT ACCOMPANYING DOCUMENTS**



Ordering information: F-SCAN MOBILE NT  
F-SCAN MOBILE NT DUO

Product id: FTB129  
Product id: FTB133

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## WARNING AND NOTES

**WARNING:** The F-SCAN MOBILE generates frequencies. The use of other accessories than those supplied with the unit – or described here – could cause malfunctions or become a hazard to the user. The warranty would be forfeit.

**ATTENTION:** The unit, all accessories, connectors and cables must be visually inspected for damage frequently. We recommend a yearly functional test by a professional.

**ATTENTION:** The device's integrated functions allow biological tests and applications described in the publications of Dr. H.R.CLARK. They are also suitable for applications commonly named after R.R.Rife. **The F-SCAN MOBILE is not a medical device. It is used under the sole responsibility of its operator WITHOUT LIABILITY TO THE MANUFACTURER.**

## Preface

One of our prime objectives as a Swiss company is the development and manufacturing of precise and reliable products based on many years of experience. Some of our products are well known and utilized internationally. As a small company we can react fast to changed customer requirements. May your use of the F-SCAN MOBILE be beneficial.

## Introduction

The FREQUENCY SYNTHESIZER F-SCAN MOBILE NT has been optimized for mobile and stationary use. The device is the result of our continuing effort to improve and modernize the F-SCAN product family.

The color touch screen, combined with the latest functional technology, offers a user friendly system with outstanding performance.

The device generates precise sine signals (permanent positive) and square signals (zero – symmetric or permanent positive) and sends them under software control to an output port.

A special feature is the integrated SMART-WAVE. If selected, it will modulate the assigned wave form with a high frequency.

Special accessories, like Flat Magnetic Coil Adapter, can be connected to the PowerPort without a separate amplifier.

As an option, the device is equipped with a second signal generator. This type of device has a DUO output instead of the PowerPort.

The intensity of the square signals delivered can, depending on the application, either be adjusted manually or automatically.

A TIMER can be assigned individually to each frequency or as a global function.

The settings for the special application modes WOBBLE, ENVELOP, and for the signal amplitudes, are also accessible.

The **DIRP**-function (**D**ual **I**ntegration **R**esonance **P**rocedure) can be used to scan automatically for resonance answers to frequencies send to a user. The procedure can be used in the complete frequency band of the device. Graphical edit functions support the analysis of the DIRP – results.

A Lithium Polymer battery supports the mobile operation of the device for 4 hours without an external power source.

A broad band application of frequencies (SWEEP) can be selected from an individual touch screen window.

The device provides a storage capability for up to 100 applications of up to 50 frequencies, complete with their names, and the complete results of DIRP runs. In addition, up to 460 user defined frequency sets (up to 30 values each) can be saved in the F-SCAN MOBILE NT memory. When used in DUO mode, 25 sets of two frequencies can be filled by the user with individually selected applications independent from single channel memory. Each of the 100 banks can be erased or reused.

DUO protocols can be memorized and recalled on ChipCard PLUS in their own section without interfering the standard single channel programs.

Single protocols can be selected to be copied from the standard ChipCard into the device so that not the entire memory need to be loaded.

CONTINUE: with the continue feature, you can queue as many of protocols as you like. Just place the CONT instruction at the end of a protocol and let the machine know which program has to follow.

PROTECT button to avoid accidental modification of protocols.

A powerful state of the art 32-bit micro-processor controls all functions.

Customized ChipCard-functions support the data transfer between our products F-SCAN MOBILE NT, F-SCAN3, F-SCAN4, F-SCAN COMPACT and the MinDevice.

We are convinced that the touch panel operation will be mastered by all users without problems.

## **Two generators – DUO MODE**

The most important benefit compared to other frequency devices is that the F-SCAN MOBILE NT DUO is equipped with a second generator which can be used to provide a different frequency on another wire of the application cable to the PP (=DUO) port. This means: two devices in one. Frequency Specific Microcurrents FSM applications can easily be generated. When using the device in standard mode, the second generator creates the same signal as the master generator. When using in DUO MODE, the second generator outputs the frequency from the even number of a running program as described in the chapter **DUO MODE**.

### **First steps**

The charge level of the Lithium-Ion battery of the F-SCAN MOBILE NT DUO must be checked first after the device and its accessories have been unpacked.

***CHARGE YOUR F-SCAN MOBILE NT DUO BEFORE FIRST USE FOR AT LEAST 4 HOURS. CONNECT THE DEVICE AND THE POWER SUPPLY WITH THE USB CABLE AND PLUG THE POWER SUPPLY INTO AN AC-OUTLET. IF THE DEVICE IS POWERED ON DURING THE CHARGING PROCEDURE, LESS ENERGY FOR ENERGIZING THE BATTERY PACK IS AVAILABLE AND THE CHARGING PROCEDURE TAKES LONGER. THE LCD MAY SHOW APPEARING AND DISAPPEARING STRIPES DURING THE CHARGING AND THE DEVICE MAY WARM UP SLIGHTLY. THESE EFFECTS ARE NORMAL.***

***IF YOUR DEVICE IS EQUIPPED WITH WIRELESS CHARGING OPTION: Place the F-SCAN MOBILE NT DUO on the charging pod in the center so that you can see the indicator light on the pod changing from red to blue.***

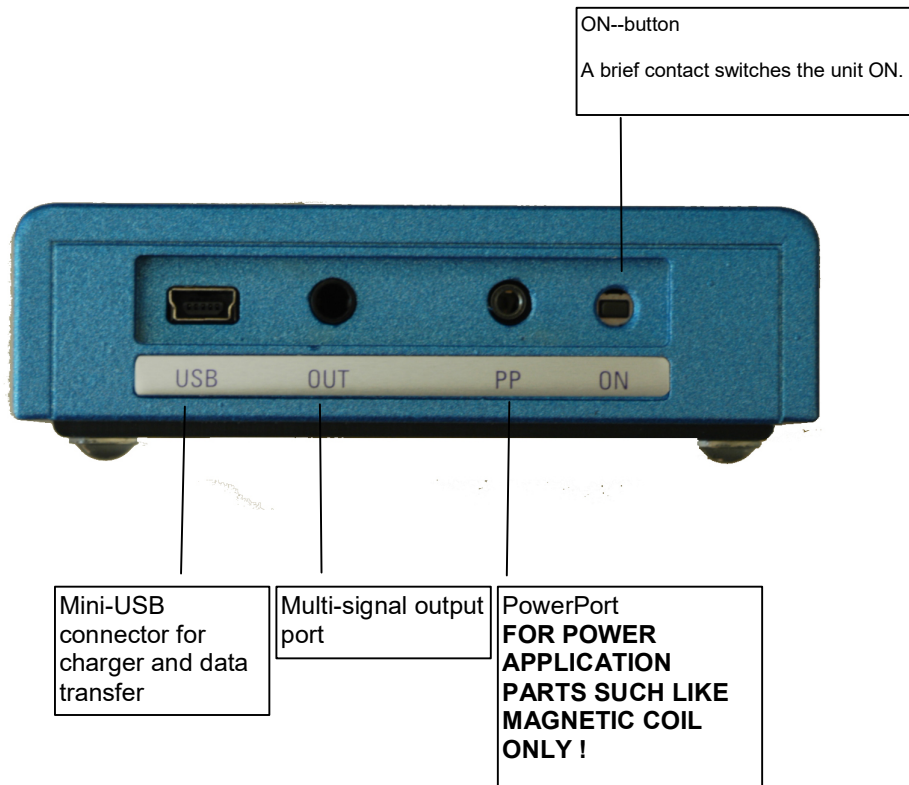
## The shipment from the factory includes:

The device FTB129

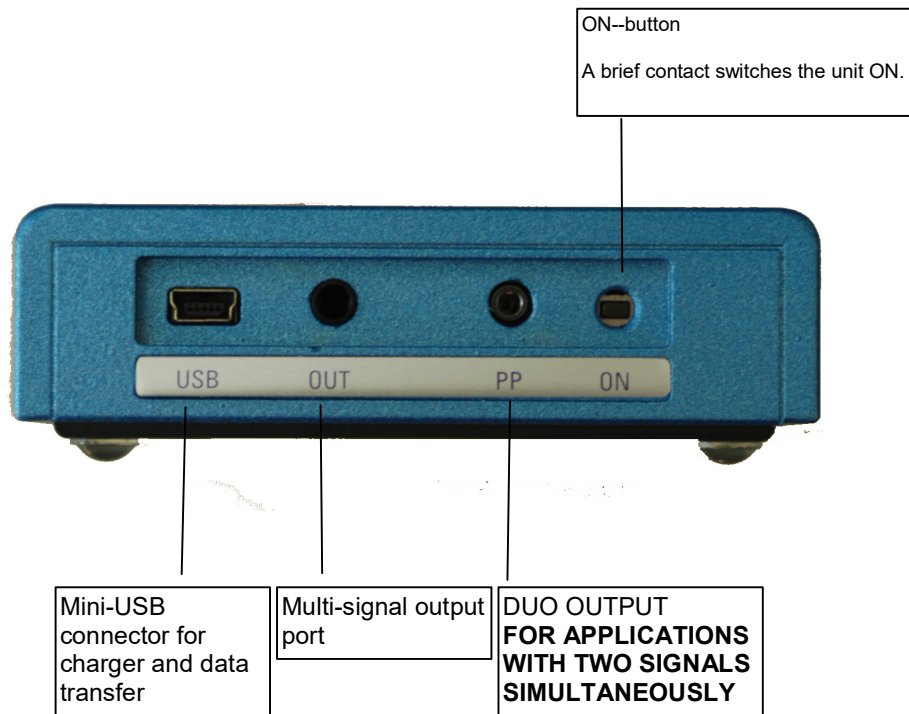


- F-SCAN MOBILE with instruction manual FTB128
- Wall charger FTB224 
- Stainless steel electrodes FTB202A 
- Application cable for electrodes FTB308 
- 2 sets of self-adhesive pad-electrodes FTB041 
- DIRP sensor FTB303 
- USB cable FTB223 
- Application cable for DUO FTB033 (only included to F-SCAN MOBILE NT DUO)

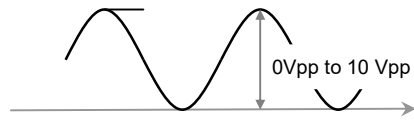
## Elements for operation for F-SCAN MOBILE NT (FTB129)



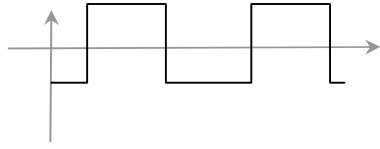
## Elements for operation for F-SCAN MOBILE NT DUO (FTB133)



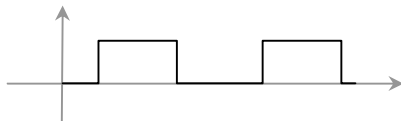
## Signal forms delivered to Multi-signal-output port



*SINE* (DC-OFFSET), for FTB133 (DUO) adjustable



*SQUARE*, 0-symmetrical,  
**Full Wave** 0Vpp to 24Vpp



*SQUARE*, permanent positive, **Half Wave**  
0Vpp to 12Vpp (DC-OFFSET)



*SMART*, permanent positive, **Half Wave**  
0Vpp to 12Vpp (DC-OFFSET), a high  
frequency covering the application frequency.

**PLEASE NOTE THAT THE DUO-OUTPUT (PP) DELIVERS SINE WAVE SIGNALS DC-OFFSET ONLY ON BOTH CHANNELS. THE AMPLITUDE CAN BE ADJUSTED SIMULTANEOUSLY FOR BOTH CHANNELS.**



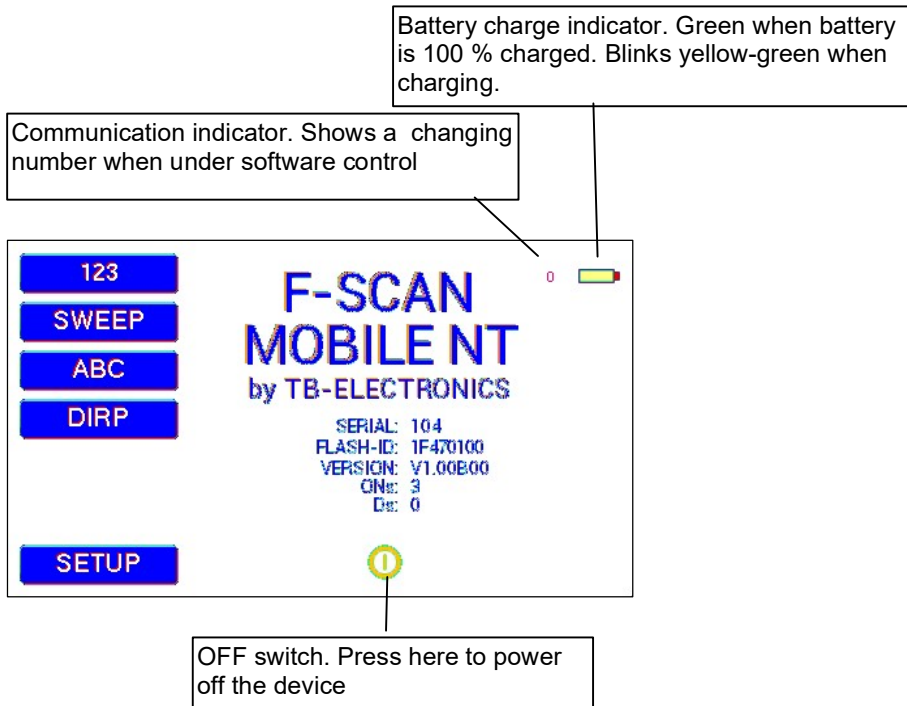
## Factory settings

Language on screen:	<b>English or German</b>
Application time per frequency:	<b>3:00 Minutes</b> (adjustable between 0:30 and 59:59)
Signal strength:	<b>80%</b> of maximum of 12Vpp (adjustable +/- in steps of 1%)
Signal form:	<b>AUTO</b> (Sine, Square Full Wave, Half Wave, SMART and OFF selectable). AUTO = Square Half Wave if lower than 65000 Hz, Sine above 65000 Hz.

Memory of "123" is empty.

Memory of "ABC" and/or "DUO" is empty and locked.

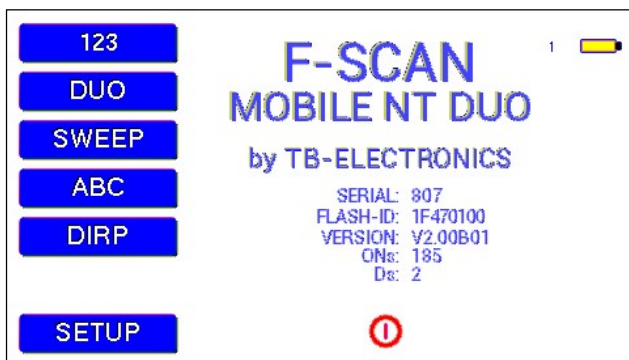
## MAIN menu



Touch the ON button briefly. The screen must show the following:

The information displayed means:

- SERIAL: Serial number of device
- ONS: Number of uses
- Ds: Number of DIRP procedures
- FLASH ID: identifies the type of internal memory.  
FFFFFFFF would indicate a memory defect. The device must then be checked by a professional.
- VERSION V1.00B00 Version of software active in the device.



Startup screen of the F-SCAN MOBILE NT DUO FTB133

The opening screen, as shown above, offers a menu of 5 options. One has to be selected with a touch to continue the setup of the F-SCAN MOBILE NT for operation.

If the button "ABC" is not shown on this menu, the function is either not activated or does not hold any entries.

### The menu "123"

The F-SCAN MOBILE NT offers 100 storage positions for programs of between 1 and 50 frequencies. The end of each program is a value of 0 Hertz (Hz).

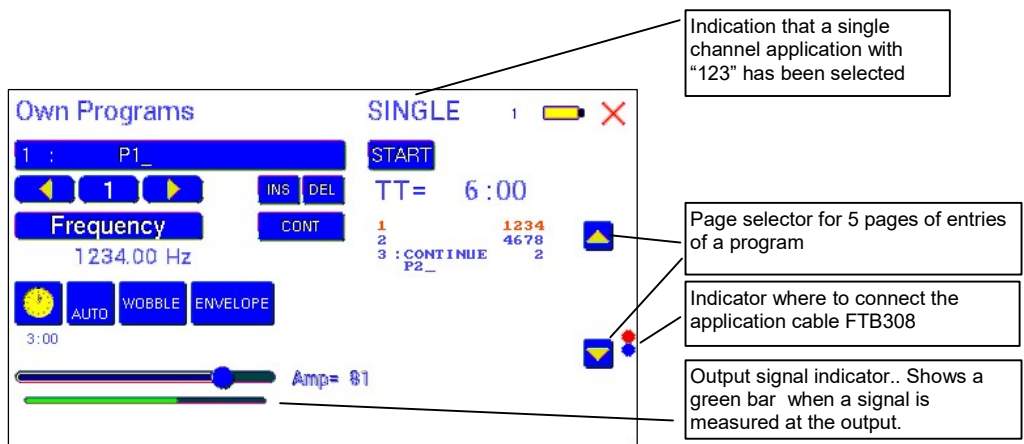
Each program can be named individually.

A number of parameters can be assigned to each frequency value:

- Run time (TIME)
- Signal form (Auto, Sine, Square Half Wave, Square Full Wave, SMART and OFF)
- WOBBLE (Output swings around the target frequency)
- Amplitude (Signal strength) for SINE and Square Wave signals

A touch on the button "123" opens this menu:

The background of the activated button turns green. Displayed are:



- The program number "1 :".
- The program name "P1" can be individually set with up to 20 characters.
- The position (entry) of the frequency within the program – between 1 and 50 – here "1". The left and right yellow arrows can be touched to change the entry number to other frequency values of the program.
- "DEL" to delete an entry from the program.
- "INS" to insert an entry to the program.
- The present frequency of "1234.00 Hz".
- The total runtime of the program of 6 minutes "TT = 6:00".
- The signal form selected "AUTO".
- The button "WOBBLE" remains inactive (its background is white).
- The button "ENVELOPE" remains inactive (its background is white).

## The CONTINUE feature

The F-SCAN MOBILE NT is equipped with a mighty software feature which makes it possible to have as many programs running automatically one after the other. If a user decides to have a program (or protocol) being continued by another program (or protocol), the CONT button must be used. This CONT button sets a code to the selected entry which contains the name and number of the program to follow. In the above image, in entry number #3 the text “CONTINUE” appears followed by the number of the program. In this example it is “2”. Just below the text “CONTINUE”, the name of the program to continue is indicated. In this case the program name to continue is P2. In our example, this means the program number #1 with name “P1” has the continue instruction in entry #3 which indicates that after the entire program P1 has elapsed, the program P2 follows automatically without further operation by the user. If the CONTINUE feature is not needed, the entry (in this example entry number #3) must be selected with the yellow arrow (right) and then the DEL button must be pressed to delete the entry.

The CONTINUE feature allows the user to queue as many programs as necessary for a specific application. Also endless loops can be achieved by setting CONT to the same program.

Important when using the “CONTINUE” feature with the CONT button:

- The entry number where CONT can be inserted can be at any entry for single channel programs. For DUO channel programs, the entry must be odd (1, 3, 5, 7, ...).
- The last entry number for single channel programs can be entry #50. So the maximum entries per program is 49 instead of 50 because at the end, the CONT code is being used. For DUO channel programs, the last entry for CONT is #49. So instead of 25 sets of frequencies for DUO channel protocols, there are only 24 sets of frequencies per program possible because the last odd entry number is #49.
- It is important to name programs for easy identification.
- After the CONT button has been pressed, a program selection menu opens and the user can select any of the 100 programs/protocols from the memory. The slider on the right side allows scrolling between the pages. After selection of a program, the entry is marked with “CONTINUE”. To exit the selection without modification, the red cross top right must be pressed.

## The menu “DUO“

The screenshot shows the 'Own Programs' menu with the following details:

- DUO Indicator:** A box at the top right indicates that a dual channel application with "DUO" has been selected.
- Application Cable Connection:** A box points to a red and black indicator where to connect the application cable FTB033.
- Page Selector:** A box points to a blue arrow icon used for navigating between 5 pages of entries.
- Output Signal Indicator:** A box points to a green bar that shows a signal is measured at the output.
- Conductivity Signal Indicator:** A box points to an orange bar that shows a current is measured at the output.

The menu content includes:

- Program name: DUO 91\_
- Buttons: START, TT= 3:00, INS, DEL, Frequency, CONT
- Frequencies: A= 10.00Hz, B= 40.00Hz
- Buttons: AUTO, WOBBLE, ENVELOPE
- Time: 3:00
- Slider: Amp= 81
- Slider: conductivity
- Program list:
 

1	10
2	40
3 : CONTINUE	92
	DUO 92_

In this example, a program with the name “DUO 91” of 2 frequencies is listed. Since it is a dual channel program, both frequencies (10 Hz in entry #1 and 40 Hz in entry #2) are output simultaneously through channels “A” and “B. Although 2 frequencies are in the list, the total time is 3 minutes as selected.

On the bottom of the screen, the “conductivity” bar is indicated. When the cable FTB033 is connected to the DUO output “PP”, an orange bar is indicating that a current flows (only when a signal is output and a current measured).

In this example is shown that the 3<sup>rd</sup> entry is occupied with the continue feature indicating that after this program/protocol has been elapsed, the program number #92 with the name “DUO P92” follows automatically.

## DUO MODE

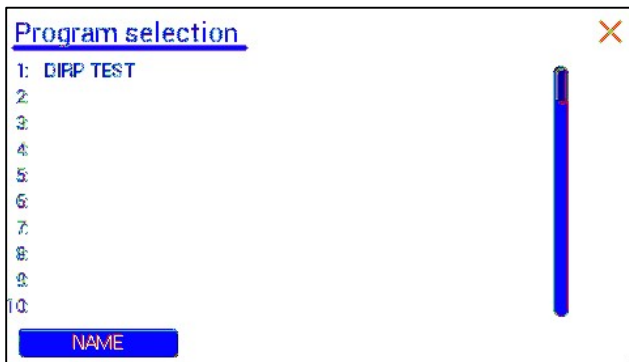
When a user decides that an application is started with START, the program follows the DUO MODE principle. This means, that the first frequency “A” of a program outputs the signal on the red wire of the cable FTB033. The second frequency indicated as “B” is output at the black wire of the application cable. The blue wire is the reference of both generators.

It is possible to use the red and black wire only to receive a mixed signal of A and B. But the reference on the blue wire is necessary to measure the conductivity.

In DUO MODE, the maximum of 50 frequencies per program is divided by 2 because always two frequencies run simultaneously. The conductivity is measured for both output signals. The conductivity indication is slow and it may take some seconds until the bar is showing a value.

### How to select a program from the menu “123” or “DUO”

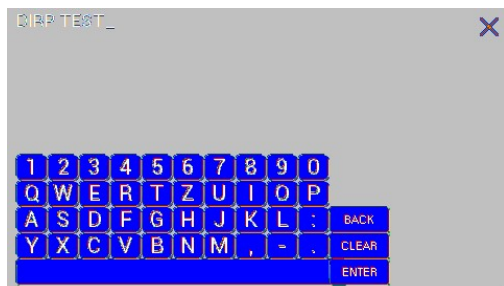
A touch on “PROGRAM”, or on the name line underneath, opens the submenu to select a program from memory, to edit a program name, or to add or delete a program.



10 names stored in the memory block of 100 positions are displayed. The actual selected program number and name are indicated in blue color. Unselected programs if any are displayed in grey.

Missing positions can be reached with the vertical scroll bar on the right. A touch on the bar displays blocks of adjacent 10 lines of program names.

A touch on the button “NAME” allows to modify the name of the selected program.



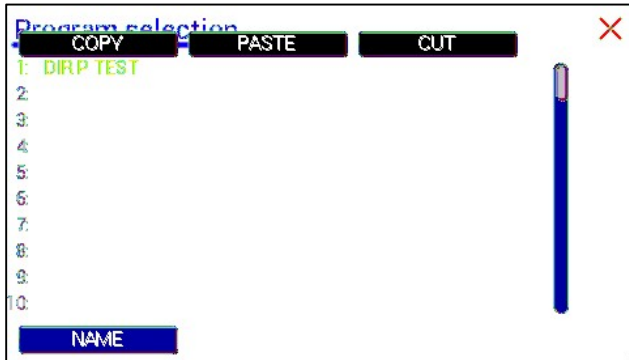
The program name can be entered in capital letters and numbers.

- CLEAR deletes the entire entry.
- BACK erases the current entry and moves the cursor one position back.
- ENTER stores the current entry. If a line in the blue field is touched, its background turns green and name and present position appear in the edit line.

✗ A touch on the red cross in the upper right corner closes this menu.

## How to copy, paste and cut a program

After selecting a program, it is possible to copy it and paste it to another memory position.




Touch the program position to be copied for 2 seconds until the **COPY PASTE CUT** bar is indicated. Then press the intended option. For example press "COPY". After this, touch the memory position where the program shall be copied to.

Then touch the same position again and remain for 2 seconds until the **COPY PASTE CUT** bar appears. Now touch "PASTE" and the original program is copied into the new memory position.

Use "CUT" for erasing a memory position

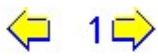
(=program/protocol).

Use  to leave the procedure without any further action.

*IMPORTANT: please be aware that the 100 memory areas of "123" and "DUO" are different. It is not possible to copy from one area to another.*

## How to input a frequency value

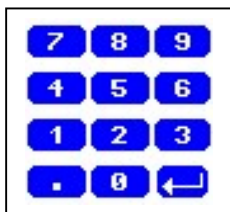
The menus "123" or "DUO" must be used to open the program where an additional, or a changed, frequency value should be entered. A frequency value can only be input if the button "PROTECT" in the SETUP menu is inactive. If PROTECT is active, the frequencies are indicated but it is not possible to modify the value of an entry.




The yellow arrows in the menu "123" and "DUO" are used to select the position (1 to 50) for the new frequency value to be inserted in the opened program.

Next, the present frequency value has to be touched

A numerical key block opens and the new value can be entered.



A touch on the ENTER-key  saves the input

## The properties of frequencies

Runtime



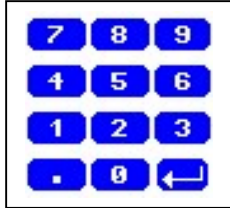
The factory setting of the runtime per frequency is 3:00 minutes. It can be changed after a touch on the above icon and the input of the minutes and seconds to be applied.

A touch on the ENTER-key "E" saves the input.

Wave form



The signal form delivered to the “OUTPUT PORT“ can be switched from AUTO to SINE, SQUARE HALF WAVE (DC-OFFSET), SQUARE FULL WAVE, SMART or OFF with successive touches on this icon. The setting AUTO delivers SQUARE HALF WAVE (DC-OFFSET) signals with frequency values below 65000 Hz and SINE signals with values above 65000 Hz. Please note that the DUO outputs on connector PP deliver sine waves.



### WOBBLE

If WOBBLE is activated the software asks for a value to be used to swing the signal above and below the target frequency. A value of 0 deactivates the feature. The background color of the button changes to green when activated.

Amplitude

If the signal form SQUARE or SINE is selected, the signal amplitude to be used can be adjusted with touches on the horizontal slider. The maximum value is 100, the minimum value 0. The amplitude value is global and valid for all programs of the “123” or “DUO” section.

### How to start, pause, or stop a program

Touch the button **START** to start a program.

Touch the button **PAUSE** to initiate a pause of a running program.

Touch the button **STOP** end the program. .

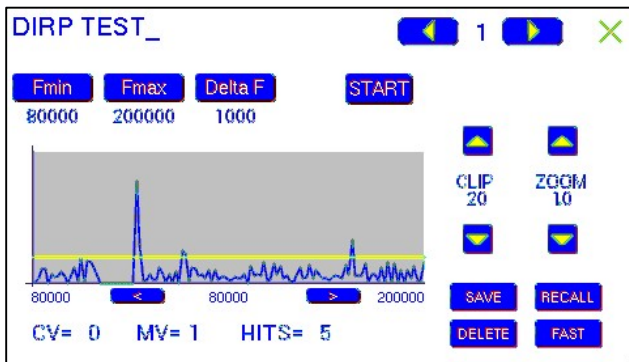
**Important: Whenever a frequency is selected, the signal is simultaneously sent to the output and the PowerPort.**

Envelope

If ENVELOPE is activated, and the signal form is SQUARE or SINE wave on single channel output “OUT”, the amplitude will oscillate slowly between 0 and the value assigned to the frequency. The background color of the icon changes to green when activated

## The menu DIRP

A touch on the button **DIRP** from the main menu opens the screen for the automatic resonance analysis “DIRP”.



“DIRP” stands for: **D**ual **I**ntegration **R**esonance **P**rocedure

“DIRP” registers resonances to frequencies applied in steps of “DELTA F” within the limits between a lower value “Fmin” and an upper value “Fmax”.

SINE signals will be automatically assigned for the analysis.

The analysis is based on two readings:

1. MV = **M**easured **V**alue of a resonance
2. CV = **C**onductivity **V**alue


The Conductivity Value is a personal constant of the individual analyzed. It should read between 5% and 25% as a base for useful results of the analysis. The Measured Values are shown as a yellow line in the graph.


After completing a “DIRP” run, the algorithm calculates the level of a horizontal line (violet) in the graph, called the **C**lipping **L**evel = CL. It separates as close as possible the 10 highest resonance peaks (HITS) of the graph from the rest. If required, the CL line can be moved up or down manually.


Please note that the results of a DIRP session are in a temporary memory. If the results shall be used, the button SAVE must be pressed to assign to the adjusted memory slot and the corresponding frequencies are then saved in the program of the “123” section. Previously memorized frequency values are overwritten. SAVE does not affect the “DUO” memory section.

<b>Fmin</b>	touch to set “Fmin“
<b>Fmax</b>	touch to set “Fmax“
<b>Delta F</b>	touch to set “DELTA F“
<b>RECALL</b>	touch to recall the results from the temporary memory
<b>SAVE</b>	touch to save the DIRP data set back to the active program position. All data changed versus the recalled set overwrites the old data and also overwrites the name of the application with the name “DIRP”. This can be easily edited in the “123” program section.

All details of the recalled analysis, including the settings for “Fmin”, “Fmax”, “DELTA F” and the Clipping Level “CL” (the horizontal line), will be displayed in the graph. This line sits in the graph where

 touch to move the horizontal line upward, thereby reducing the number of HITS (MVs) to deal with.

 touch to move the horizontal line downward, thereby increasing the number of HITS (MVs) to deal with.

 touch to zoom the graph in steps vertically from 0.0 to 2.0 to improve the reading. The Clipping level will be recalculated to match the moves. Default setting of zoom is 1.0.



**DELETE**

Clear screen.

**FAST**

Change between fast and slow (standard) mode. Fast gives a short overview while standard is more precise in for some situations.

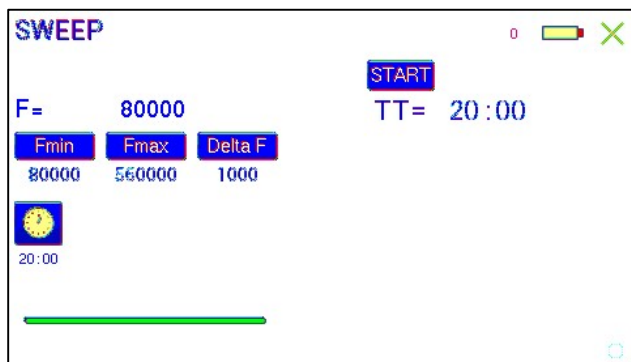
### How to prepare for a DIRP and run it

To perform a DIRP analysis in the frequency range between 80000 Hz and 560000 Hz, enter Fmin=80000, Fmax=560000 and Delta F=1000.

1. Attach the DIRP sensor following the instructions shipped with it and connect it to the device into OUT.
2. Plug the red wire of the sensor cable into the hand held electrode and hold this electrode in the left hand.
3. Touch the button **START** to begin the analysis.
4. Wait until the graph line reaches Fmax and completes the procedure. Touch the button **STOP** to end the analysis at any point. During a DIRP procedure, the reaction time of a touch may take up to 1 second.
5. Touch the button **SAVE** to store the complete DIRP results in the active program position. This will overwrite any data previously stored in that position.

### The menu SWEEP

A touch on the button "SWEEP" opens the screen to start the broad band frequency swing.



SWEEP can be used to swing for a period limited by the timer through a broad band of frequencies between a lower limit "Fmin" and an upper limit "Fmax" in steps of DELTA F. The timer can be set between 00:01 and 59:99 minutes:seconds after a touch on the button.

The signal form is "AUTO", which means "SQUARE DC-OFFSET" through 65000 Hz and "SINE" above that value.

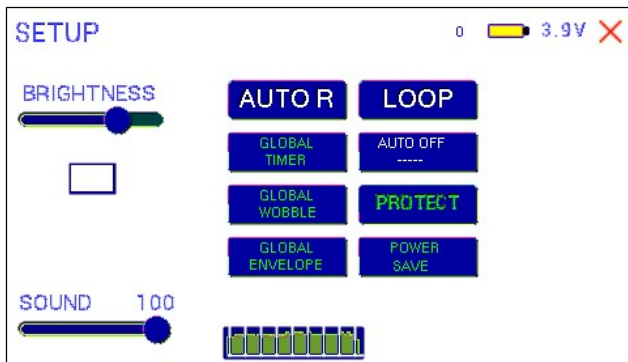
Touch the button **START** to start the procedure. The output moves from "Fmin" up to "Fmax",

turns around to move back to "Fmin", and so on, until the specified time is up

A touch on **STOP** stops the procedure at any point.

## The menu SETUP

A touch on the button "SETUP" opens a menu for global settings:



**BRIGHTNESS** Use the slider to set the brightness of the backlight of the LCD. Please note that the backlight uses a high amount of the battery energy. To save battery charge, use the POWER SAVE option.



Touch to switch between languages used in the menus.

**SOUND** Use the slider to set the volume of the sound.

**AUTO R** A touch on the button switches this function ON or OFF. When switched OFF, the amplitude of SQUARE wave signals will be for all frequencies of a program as assigned in the "123" or "ABC" menus.  
When switched ON, the microcontroller calculates the signal strength of SQUARE waves on the base of each frequency value following a physiological algorithm. The results override the original amplitude settings.

**GLOBAL TIMER** A touch on the button switches GLOBAL TIMER ON or OFF. When switched OFF, the timer settings in the "123" menu may be set individually for each frequency.  
When switched ON, the timer settings in the "123" menu is for all 50 frequencies of the program the same. The global timer becomes active, when the timer setting in the "123" menu is modified.

**GLOBAL WOBBLE** ON or OFF. If enabled the wobble settings will be incurred for all frequencies of a program.

**LOOP** ON or OFF. If enabled a program which has been started from „123“ or „ABC“ will loop forever. The only way to stop it is with STOP button.

**AUTO OFF** If the text "OFF" is visible inside this button, the AUTO POWER OFF function is disabled. When touching the button, the number of minutes after which the device switches off automatically, will increase in one minute steps. The automatic power off function will be restarted if the device is operated or a program is running or the device is under software control. The remaining time is being displayed in seconds on the screen.

**POWER SAVE** If enabled, the backlight of the screen will be set to minimum after approx. 1 minute. Any touch on the display will recover the selected backlight immediately and restarts the power save timer.

**PROTECT** Button to avoid accidental modification of frequencies in protocols.

## BATTERY - history



The graph at the bottom of the screen displays the charge and discharge cycles of the battery during the last 8 hours of power on time of the device. The graph is updated every 5 minutes during operation. GREEN vertical lines indicate normal battery power. The right edge of the graph shows the last update. YELLOW vertical lines indicate that the battery need a charge. RED vertical lines indicate that the battery is almost completely discharged and ready to shut down the device.

The distance between 2 WHITE vertical lines represents 1 hour.

A fully charged battery supports operation for about 4 hours. Up to 8 hours of operation can be achieved, if the fully charged device stays connected with the charger via the USB connector or USB port of a computer and the POWER SAVE option is activated.

The F-SCAN MOBILE NT does not function without the battery. If the battery fails, it must be replaced at the factory. Its end of life is reached, when the unit runs about 2 hours only after a 7 hour charge.

The graph cannot be erased by the user.

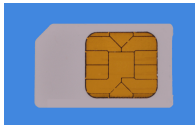
## CHIPCARD option

An option to increase independence and flexibility, using two types of ChipCards to transfer data between members of the F-SCAN family, was designed into the F-SCAN MOBILE.

Program data consisting of frequency values only can be shared between F-SCAN MOBILE NT, F-SCAN3, F-SCAN4, F-SCAN COMPACT and the MinDevice using the ChipCard.

The use of the ChipCard PLUS allows the transfer of frequency values and DIRP data sets to and from F-SCAN3, F-SCAN4 and F-SCAN MOBILE NT.

## ChipCard for data exchange



Insert the ChipCard as shown into the slot on the upper side of the device. The contacts must be visible.

The menu ChipCard opens and offers 4 choices:

- Save programs for COMPACT on ChipCard
- Load programs for COMPACT from ChipCard
- Save actual program for MinDevice on ChipCard
- Load single protocol

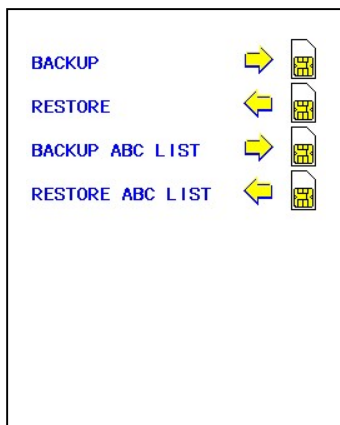
- "SAVE COMPACT" to save all of the 100 program positions, which hold frequencies, on the ChipCard for use in an F-SCAN COMPACT.
- "LOAD COMPACT" to overwrite the 100 program positions of the F-SCAN MOBILE with the data from an F-SCAN COMPACT. DIRP- data sets previously stored in program positions in the F-SCAN MOBILE will be lost.
- Touch "MinDevice" to store the frequency values of the program position presently selected, in the F-SCAN MOBILE on the ChipCard for use in a MinDevice.
- Touch "Load single protocol" to load just a single program into the device memory. If selected, a menu opens with the list of all programs which are stored on the ChipCard. Press on the desired program and this program will be stored in the device in the first empty memory location. If the entire memory is used, the memory number 1 will be used.

Removal of the ChipCard from the slot resets the F-SCAN MOBILE NT to the menu before the ChipCard was inserted.

Important: when loading or saving from or to the ChipCard, the memory area of either "123" or "DUO" will be affected. This means, if you want to load or save programs from/into the device from the "123" memory area, you must select "123" prior to insertion of the ChipCard. If you want to load or save programs from/into the "DUO" memory area, you must select "DUO" prior to insertion of the ChipCard. This is valid for standard ChipCards as well as for ChipCard PLUS.

### Use of the ChipCard PLUS

The following menu opens when a ChipCard PLUS is inserted into the slot:



- Touch "BACKUP" to store the content of the memory with the 100 program positions on the ChipCard PLUS.
- Touch "RESTORE" to overwrite the 100 program positions of the F-SCAN MOBILE with the data from the ChipCard PLUS.
- Touch BACKUP ABC LIST to store the ABC list on the ChipCard PLUS.
- Touch RESTORE ABC LIST to copy the ABC list from ChipCard into the device. An already installed ABC list will be overwritten.

## Integration of programs from other sources

A touch on the button “ABC” opens the menu to reach and operate frequency programs generated outside the F-SCAN MOBILE NT. Up to 460 sets, of up to 30 frequencies each, can be transferred to the “ABC” memory block using either the software F-SCANT3, or a common terminal program.

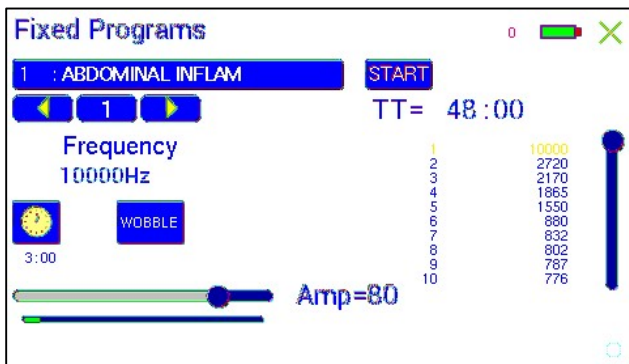
As a factory setting the “ABC” function is locked. A release code can be acquired by email from the factory or from an F-SCAN sales point. Please note that “ABC” lists are single channel programs only.

The frequency programs must be written with a text editor in the following format:

```
(PROGRAMM 1)10,100,1000,10000,
(PROGRAMM 2)20,30,40,50,60,100,
;
```

The program name (maximum of 20 characters – letters of the alphabet only – or so called standard ASCII) must be set in parenthesis. It is followed by 1 to 30 frequency values, separated by comma. Every line must end with a “NEW LINE” = carriage-return-line-feed code. The semicolon “;” indicates the end of the complete set of frequencies.

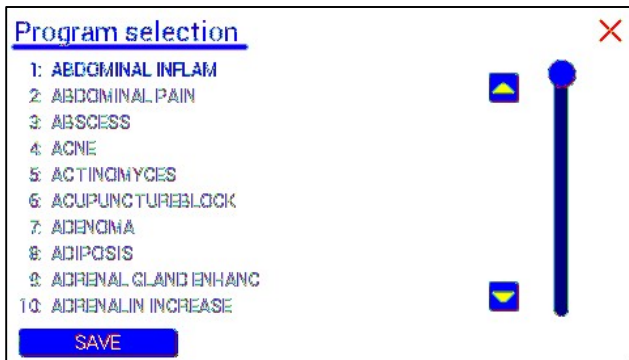
As soon as the list of frequency programs is generated and transferred to the F-SCAN MOBILE, it can be accessed on the unlocked menu “ABC”.



be adjusted using the AMP-slider.

A touch on the button opens the menu “ABC”. The example chosen for this manual shows the program number, the program name and its first frequency. The timer is set for 03:00 minutes, the total time shows 48:00 minutes for a program total of 7 frequencies.

Fewer properties than in the menu “123” can be assigned to individual frequency values here. A change of the timer will be valid for all frequencies stored in the memory block of 460 programs. The amplitude of square signals can



A touch on name section opens the screen with 10 program lines. A touch on any line opens the program for use. Missing positions can be reached with touches on the up and down arrows of the scroll bar moving always a full page.

Touch the button **START** to start a program.

Touch the button **PAUSE** to initiate a pause of a running program.

Touch the button **STOP** end the program.

Any program can be copied from the “ABC” memory block of 460 programs to the “123” memory block of 100 programs with a touch on the button “SAVE”. The routine requests the input of the position number to copy to. Once saved in the “123” routine the program name can be edited and all property assignments to frequencies offered there are applicable.

The altered program can thus be transferred to other F-SCAN models with the help of the ChipCard.

✗ A touch on the red cross in the upper right corner, closes the “ABC” feature.

## Technical data

Case	Plastic
Dimensions	138 mm x 90 mm x 27 mm
Color touch screen	95 mm x 453 mm; 480 x 272 pixel
Min. frequency selectable	0.01Hz
Frequency stability	30 ppm
Memory	100 open positions for up to 50 frequency values including individual properties assigned to each value.
Flash-memory for a list	max. 460 entries of up to 30 frequencies each
Power supply	USB-plug-in type battery charger:100–240 VAC, 50–60 Hz, Output: 5VDC, 300mA (minimum)
Multisignal-output port	Sine signal, permanent positive, adjustable (DC-OFFSET), Amplitude preset to 10Vpp Square signal, 0-symmetric (Full wave), Amplitude 0 to 24Vpp. Square signal, permanent positive (DC-OFFSET), Amplitude 0 to 12Vpp.
Frequency range	Sine 1Hz to 3 MHz, Square guaranteed to 100 kHz. <b>See list below for typical dependency of amplitude on the frequency value.</b>

Frequency [Hz]	Square 50%	Square 80%	Square 100%	Sine
0.1	3.7Vpp	7.7Vpp	14.2Vpp	14.2Vpp
1	3.7Vpp	7.7Vpp	14.2Vpp	14.2Vpp
10	3.7Vpp	7.7Vpp	14.2Vpp	12.8Vpp
100	3.7Vpp	7.7Vpp	14.2Vpp	12.6Vpp
1000	3.6Vpp	7.4Vpp	14.2Vpp	12.6Vpp
10000	3.6Vpp	7.4Vpp	14.0Vpp	12.6Vpp
100000	3.6Vpp	7.3Vpp	13.4Vpp	12.2Vpp
1000000	3.6Vpp	7.3Vpp	12.2Vpp	10Vpp
2000000	not defined			6.5Vpp
3000000	not defined			4.0Vpp

**Changes to improve or simplify the product will be made without prior notice**

## Declaration of Conformity / Konformitätserklärung

Hiermit erklären wir:/Herewith we declare:

TB-ELECTRONICS GmbH  
Poststrasse 4  
CH-9443 Widnau

dass das folgende Produkt mit der Bezeichnung/that the following product with the marking

*F-SCAN MOBILE NT* Frequency Synthesizer

in alleiniger Verantwortung auf dass sich diese Erklärung bezieht mit der folgenden Norm übereinstimmt:  
declare under our sole responsibility to which this declaration relates is in conformity with the following standard:

EMC: 89/336, 92/31, 93/68  
Harmonisierte Standards: EN 61326-1  
Ratings, characteristics 5VDC, 300mA



Widnau, 18- 12 - 2018

\_\_\_\_\_  
rechtsverbindliche Unterschrift/ legally binding Signature