

P50Ex **Programming manual**





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DISCLAIMER

This manual is provided by TC Connect AB without any kind of warranty.

Improvements and changes in this manual due to typographical errors, inaccuracies in current information, or improvements to programs and/or equipment may be made by TC Connect AB at any time and without notice. These changes will, however, be incorporated into new editions of this manual.

The manual refer to program version 1.56 of PC software.

This software version can be used to program radios with older firmware versions. However, not all function will then be supported.

Contact TC Connect or your distributor/dealer for further information.

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REVISION LIST

Date	Rev	Prepared	Description
2005-05-23	R1A	S-E Wahl	Major update from previous version,
			EN/LZT 123 912 R1.
			Change of document number.
2005-08-11	R1B	M.Lindahl	Reflected changes for program
			version 1.56 and winloader 1.6.0.0
2005-08-25	R1C	M.Lindahl	New frontpage plus minor cosmetic
			fixes.
2006-01-20	P1D	M.Lindahl	New phone number in the
			disclaimer.
			New version of winloader



GLOSSARY

ANI	=	Automatic Number Identification
CCIR	=	Comité Consutatif International des Radiocommunications
CTCSS	=	Continuous Tone Coded Squelch System
DTMF	=	Dual Tone Multi Frequency
GPS	=	Global Positioning System
MRS	=	Mobile Radio System
PABX	=	Private Automatic Branch Exchange
PSTN	=	Public Switched Telephone Network
PTT	=	Push To Talk
RX	=	Receive
ТХ	=	Transmit
WHC	=	Who Has Called
ZVEI	=	ZentralVerband Elektrotechnicsche Industrie
ÅR/C	=	Swedish haulage Company Radio Standard C, (Åkeriradio C)



CHAPTER 1

General about the P50EX

The P50EX is a portable radio for private radio networks, specially designed for users whose work involves closeness to inflammable and explosive goods. Examples of such places are oil rigs, refineries, containers which have recently held inflammable liquids, and premises where explosive gas has leaked and smoke-helmeted firemen must go in. Despite the extremely tough demands that public authorities make on a radio unit designed for "explosive" surroundings, the P50EX is capable of transmitting with an output power of up to 4 W. Thanks to its rugged design, the P50EX is very resistant to external influences such as cold, heat, damp and moisture, blows and shock.

Menu-guided and equipped with only four big buttons, the radio can be readily operated even if the user has to wear heavy protective gloves. The P50EX is primarily intended for direct radio communication between persons who take part in, for example, rescue work.

Calls are primary made with abbreviated numbers. As many as 100 such numbers can be coded - to individual radio units or to groups of units. Since the P50EX is equipped for tone signalling via the tone systems CCIR, ZVEI and CTCSS, it can be used in most types of radio networks, also in networks which make use of tone monitoring or carrier wave monitoring.

The P50EX can be programmed individually for each one of up to 100 channels in the frequency ranges 68-88, 146-174 or 403-470 MHz.

Technical Data

Dimensions:	67 x 167 x 32 mm (W x H x D)
Weight (with battery):	Approx. 580 g.
Batteries:	1000 mAh NiCd
Usage time, 5-5-90, 1W:	10 – 11 hours
Usage time, 5-5-90, 4W:	6 – 7 hours
Frequency range:	68 - 88, 146 - 174 or 403 - 470 MHz
Number of channels:	100
Number of abbreviated numbers:	100
Temperature range:	- 25 °C to +55 °C
Ingress protection:	According to IP54
Classification:	\mathbf{q} II 2 G DEMKO 04 ATEX 132278X EEx ib IIC T5, T_{amb} < 55°C / EEx ib IIC
	T6, T _{amb} < 40⁰C.



IMPORTANT TO KNOW ABOUT THIS PROGRAMMING MANUAL

Note that this P50EX programming manual is **not** intended for training in the design and function of private radio systems in general. In order to really benefit by the manual and make the best use of it when programming a radio unit, the reader must have a clear picture of how he wants the radio to work after the programming.

For most programming elements, there are help texts "behind" the PC key F1, which explain the effect of available programming alternatives.

The last two chapters - 8 and 9 - illustrate how, in practice, to program a P50EX radio for a "basic" and an "advanced" radio system.



CHAPTER 2

System overview

Any programming of a P50EX radio should be based on a system overview of the radio network that the unit will be part of. Such an overview outlines, for example, the number of base stations, channel frequencies, call numbers, etc. Prior to programming, it is therefore recommended to design a system overview - see chapters 8 and 9.

The figure on next page is an example of such a system overview.

It tells us that our radio network has three base stations over which the radio communication takes place in duplex on the 160 MHz band. In the same area, there is another base station which belongs to a separate transport organisation with own trucks, etc. These vehicles communicate via their base station in simplex on 86.100 MHz. By setting up crossband traffic connections via our own base stations, we let our mobile units, too, communicate with these vehicles. Each of our three base stations can be connected for relay traffic, crossband traffic and tracking.

Our dispatch centre has two dispatcher positions. The transport organisation's traffic is controlled from a separate dispatcher position, connected to the same radio exchange.

Via the radio exchange, our mobile radios can communicate with ordinary telephones, in our own organisation (via a PABX) and in the public telephone network.

Our stock of mobile radios includes portable units as well as vehiclemounted ones. Each unit has its individual call number but is also assigned a group number. All radio units can be called up at the same time from the dispatch centre by means of a multi-call or general call.





APPENDIX 2:A

CHAPTER 3

Tone signalling calls

GENERAL

A P50EX call with tone signalling means that a sequence of short tone bursts with different frequencies is transmitted in rapid succession. The tones represent digits and letters that correspond to, for example, the call number of the receiving station and/or your own station.

The P50EX can work with the most types of tone signalling, the most well known ones being the two internationally standardized systems CCIR and ZVEI.

A special type of tone signalling is sub-audible signalling, also known as CTCSS.

CCIR AND ZVEI

CCIR and ZVEI specify frequencies for the digits 0 - 9 and the letters A, B, C, D and R according to the table below. R is used when two digits follow immediately after each other in a call number. The call number 66666, for example, is changed to 6R6R6, which increases transmission safety.

Each tone has duration of 100 ± 10 ms for CCIR and 70 ± 5 ms for ZVEI. Each tone sequence must be preceded by minimum 50 ms carrier wave. In many cases the first tone are prolonged to secure the scanning function. The prolonged tone are normally 700 ms.

Digit / Letter	Tone frequency CCIR	Tone frequency ZVEI
0	1981 Hz	2400 Hz
1	1124 Hz	1060 Hz
2	1197 Hz	1160 Hz
3	1275 Hz	1270 Hz
4	1358 Hz	1400 Hz
5	1446 Hz	1530 Hz
6	1540 Hz	1670 Hz
7	1640 Hz	1830 Hz
8	1747 Hz	2000 Hz
9	1860 Hz	2200 Hz
A	2400 Hz	2800 Hz
${\sf B}$ (Speech request and B-answer)	930 Hz	810 Hz
${\sf C}$ (Request for Data transmission)	2247 Hz	970 Hz
$D \ ({\tt Request for Status transmission})$	991 Hz	886 Hz
${\sf R}$ (Repeat tone and disconnection)	2110 Hz	2600 Hz



CTCSS

Subaudible signalling CTCSS is only used for open monitoring and in cases when several station groups must share a channel. In this type of signalling, the calling station transmits a tone with low and inaudible frequency, continuously from call setup to disconnection. The tone is detected by, for example, those stations that are members of the same working team as the transmitting station, and then keeps them open for reception of messages, e.g. an order issued to all members of the working team.

The following are the CTCSS standard frequencies.

1=67.0 Hz	11=97.4 Hz	21=136.5 Hz	31=92.8 Hz
2=71.9 Hz	12=100.0 Hz	22=141.3 Hz	32=203.5 Hz
3=74.4 Hz	13=103.5 Hz	23=146.2 Hz	33=210.7 Hz
4=77.0 Hz	14=107.2 Hz	24=151.4 Hz	34=218.1 Hz
5=79.7 Hz	15=110.9 Hz	25=156.7 Hz	35=225.7 Hz
6=82.5 Hz	16=114.8 Hz	26=162.2 Hz	36=233.6 Hz
7=85.4 Hz	17=118.8 Hz	27=167.9 Hz	37=241.8 Hz
8=88.5 Hz	18=123.0 Hz	28=173.8 Hz	38=250.3 Hz
9=91.5 Hz	19=127.3 Hz	29=179.9 Hz	
10=94.8 Hz	20=131.8 Hz	30=186.2 Hz	

CALL SIGNALLING IN PRACTICE

When CCIR, ZVEI and similar standardized tone signalling systems are put into practice, there will sometimes be considerable differences, due to specific demands that different network operators make on their private radio systems.

Examples of different such "local" system specifications are those for police, rescue service and medical care. These specifications are also used oftenly by haulage companies, municipalities and National Road Administrations.

This text will not discuss these specifications in detail, but only establish that, depending on the functional requirements on the call, they specify a different quantity of tones in the outgoing call sequences from a calling to a called-up station. Commonly used number of tones is 5, 7, 11 and 13 and the sequences are used as follows (see also figure below):

Note that the letters XYZUV and ABCDE only represent call numbers, and must not be confused with the tones ABCD and R in the above tables for CCIR and ZVEI.



- a 5-tone call is used to set up voice communication with no preceding handshaking routine. The 5 tones contain the call number of the called station (XYZUV).
- a 7-tone call is like a 5-tone call, with the addition of the tones F and R, used to set up the connection as relay traffic, crossband traffic or tracking over an intermediate base station. F is any tone digit 0-9 and R is R-digit as explained before.
- a 11-tone call is used when the transmitting station must also give its own call number (ABCDE) and when you want to use a separator tone T, S or D to specify type of connection for the call (voice, status or data).
- a 13-tone call is like an 11-tone call, with the addition of the tones F and R, used to set up the connection as relay traffic, crossband or tracking over an intermediate base station.



CHAPTER 4

Variables

Every P50EX station contains a large number of programmable storage areas, which are supplied with information during the programming process described in chapter 6.

A more adequate name of these storage areas would actually be variable buffers, where the word buffer refers to the storage area, and the word informat

Some of these storage areas - see below - deserve special attention, since they appear in many places in the programming instructions. There they are referred to as variables and designated by letters, as follows.

the word variable to its	Variable	I,	who normally	contains the sta	tion's individual call	1
information contents.	_"_	J,	_"_	-	"- group	1
			call			
	''	Κ,	_"_	_"_	_"_	2
	"	L,	_"_	_"_	_"_	3
lf you wish, you may	_"_	Μ,	Which can be numbers to be	used for tempo transmitted	rary storage of call	
and group call	_"_	V,	_''_	_"_	_"_	
numbers differently in	_"_	W,	Not used at pr	resent		
variables I – L.	_"_	Χ,	Which is used unit's call nun	l for temporary s	storage of a calling	





CHAPTER 5

Parameters

It is a good idea to compile all required data on paper, before you start programming your P50EX radio. Examples of "forms" for such compilation follow below.

The compilation comprises, however, more data/parameters than normally included in a specification. This will make it easier for you to make a similar specification for your specific station in the future.



Individual No. 1	Individual No. 2	Group No. 1	Group No. 2

CALL NUMBERS

Company: Compiled by: Date:



Ch No. (channel number)	Tx Freq. (transmitter frequency)	Rx Freq. (receiver frequency)	Ch name (channel name, max. 10 characters)	Tx-Sub (frequency for Tx sub-audible signalling)	Rx-Sub (frequency for Rx sub-audible signalling)

CHANNELS

Company:	
compiled by:	
Pate:	



APPENDIX 5: B

 (abbreviated number)	Display (call text)	Number (call number)	Call (call type No. X)	Ch (channel No. X)	SL (scan list No. X)

ABBREVIATED NUMBERS

Company: Compiled by:



CHAPTER 6

Date:

APPENDIX 5: C



1.	Rotary switch, normally used for volume and channel change (T SW)
2.	ON/OFF key
3.	LED indication, red and green
4.	PTT key
5.	Corresponding to A-key in the PC-programming software
6.	Corresponding to B-key in the PC-programming software
7.	Side key (T 1)
8.	Side key (T 2)
9.	Locking mechanism for battery
10.	Antenna
11.	M-key
12.	S-key
13.	Alarm key (Al.)
14.	Display
15.	Corresponding to C-key in the PC-programming software
16.	Corresponding to D-key in the PC-programming software
17.	Loudspeaker
18.	Microphone
19.	Battery

See further in "Keyboard function" at chapter 6 for details

OTHER INFORMATION

UNIT KEYS AND OTHER INFORMATION (Radio unit (ID) : Copyright © 2006 TC Connect AB, TC-5208/EN P1D



Company:
Compiled by:
Date:

APPENDIX 5: C

CHAPTER 6

Programming

INSTALLATION

The PC1012 is a DOS program, but can be run in a DOS window under a Windows operating system together with extra parameter /WIN. The program can be executed directly from the program diskette/CD, but it is recommended to copy the files to harddisk.

Insert your program diskette/CD; in the PC and select *RUN* in the Windows start menu. Enter the name of the disc drive in use + INSTALL drive: (drive: is the drive letter of your harddisk.) For example, to install from your A: floppy drive to your C: harddisk; A:INSTALL C: and press *ENTER*.

The screen will display a meny that guide you for the rest of the installation process.

The program will now be installed in your PC. When the program has been installed, you will have the following subdirectories on your harddisk:

\P50EX \P50EX\FILES\ \P50EX\SYSTEM

To start the program select *RUN* in Window's start menu, Type the selected unit, library and program name. E.g. C:\P50EX\PC1012. The program's names are so then PC1012. This launch the program, with the default setting, using serial port "COM1" for programming the P50EX.

To be able to easily access the program, it's recommended to add a shortcut on the desktop or place it in the start menu.

Extra parameters can bee added to the start command:

/MONO	=	Monochrome display
/FILES	=	"path" set the default path to userfiles. If omitted the files is placed in "programpath"\FILES
/COM2	=	Load with communications port 2 (COM1 = default)
"userfile name"	=	Loads the file name given into the program at startup
/WIN	=	Starts Winloader at programming of the radio





Example PC1012 /WIN N.B. A space between PC1012 and the parameter. This starts Winloader at programming of the radio with communications port 1 as default.

Example PC1012 /COM2 /WIN N.B. A space between PC1012 and the parameter. This starts Winloader at programming of the radio with communications port 2 as default.



WINLOADER

If using Winloader it is recommended to run the PC1012 program in a Window and not in full screen DOS. Winloader is a module that manages to program the radio with the most types of Windows computers.

In order for Winloader to work the following requirements must be meet:

IBM-compatible PC

•

• Operating systems Windows 2000 or higher

The program is automatically started from the Coach-program at programming of the radio if the /WIN parameter are specified, i.e. PC1012 /WIN. The programming with Winloader doesn't differ much from the normal programming. See the section *unit programming*.

TC Winloader 2	.3A	×
File Settings		
Settings		
File:	-= Auto Coach Mode =-	
Radio type:	TR×1012	
Port:	OM1 💌 Load file Close file	
Status:		
	Reading unit ID	
- Options		
Program		
Read ID	Venty Main Program	
Erogram	Lancel Show Details	
	だ connect	
Cop	yright (C) 2005 TC Connect AB All rights reserved	



PROGRAMMING INTERFACES

In order to connect the P50EX to the computer special programming equipment from TC Connect is needed. This consist of a serial-cable (9-pole Female D-SUB in both ends), a programming box and a special cable between the programming box and the P50EX.

Programming interface N3081



Programming charger N100103 (P500) (not longer in stock)





PROGRAMMING OF P50EX

The P50EX station that is to be programmed must be connected to a charger of the type N100103 alternatively the programming interface N3081 and an PC according to these sketches.

Programming P50EX with interface N3081



Programming P50EX with charger N100103





GENERAL ABOUT MENU HANDLING

The programming of P50EX radios is based on menus which are presented on the PC screen. From the main menu, you can access various submenus, and from them a large number of tabular menus, which need to be completed with the technical data that you want to program into your P50EX unit. To make the continued reading of this chapter easier, you may want to look at the menu appendix 10:A.

The program has two types of online help. A short description at the bottom line that automatically change when you move around in the program. In addition, for most of the individual menu items, there are hidden help texts which provide information in English about alternative selections, etc. Press the PC key F1 to display the help texts. (For the moment there is, however, no help text available under *Help* in the main menu below.)

To change between values in fields use the key SPACE or + to step forward between selectable choises and the key – to step backward.

In some fields where several functions are available these can be presented in a submenu which we can access by pressing the key *INS*.





A TYPICAL PROGRAMMING ROUND

The disposition of this chapter follows the programming of a P50EX radio step by step. Because of the large number of alternative parameters that may be set, we have, however, chosen not to describe the consequences of each and every alternative. Trying to cover all the alternatives would only have made the manual too voluminous and difficult to read. The values set in the different menus should only be seen as examples of values that may be used in an "ordinarily" programmed P50EX radio. For information about alternative parameters, you may always refer to the texts hidden under *F1*.



New configuration

Start by selecting the alternative *File Operation* in the main menu and confirm with *ENTER*. The submenu below will then be displayed, offering five alternative actions.

Let us forget about the first three (*Read config from disk*, *List all config on disk* and *Write config to disk*) for now. They refer to preprogrammed configurations that will be discussed later in this chapter under the heading *Storing and retrieving configurations*.



Instead we select the menu item *New configuration* and confirm our selection with *ENTER*. This will take us to the submenu below, where we enter the name of the configuration that we are about to create, in this case COMPANY.





TRX 1012 = P50EX. The P50EX always are equipped with 100 channels and in the most cases tone system. When we confirm the name of the new configuration, we come to a new menu (below), where we step down to a unit type with the same hardware data as our own. In this case an P50EX working on the frequency band 146 – 174 MHz with 25 kHz channel spacing and with tone system. The P50EX are so in this case named TRX1012.

Confirm with ENTER and return to the main menu by pressing ESC.

🗪 C:\P50_156\P	C1012.EXE	
V 1.56	TRX 1012 PC UTILITY PROGRAM Copyright (c) 2005 NIROS A/S	COMPANY
TRX 1012C	RADIO TYPE	
TRX 1012C/200 TRX 1012C/125 TRX 1012D TRX 1012D/200 TRX 1012D/125 TRX 1012B/125 TRX 1012B/125 TRX 1012B/125 TRX 1012C/200 TRX 1012C/125 TRX 1012C/125	146 - 174 MHz / 20 KHz. Standard 16 channels with to 146 - 174 MHz / 12.5 KHz. Standard 16 channels with 403 - 470 MHz / 25 KHz. Standard 16 channels with 403 - 470 MHz / 20 KHz. Standard 16 channels with to 403 - 470 MHz / 12.5 KHz. Standard 16 channels with 68 - 88 MHz / 20 KHz. Special 100 channels with ton 68 - 88 MHz / 20 KHz. Special 100 channels with ton 68 - 88 MHz / 25 KHz. Special 100 channels with ton 146 - 174 MHz / 25 KHz. Special 100 channels with to 146 - 174 MHz / 25 KHz. Special 100 channels with to 146 - 174 MHz / 26 KHz. Special 100 channels with to 146 - 174 MHz / 26 KHz. Special 100 channels with to 146 - 174 MHz / 26 KHz. Special 100 channels with to 146 - 174 MHz / 26 KHz. Special 100 channels with to	onesystem tonesystem onesystem tonesystem ssystem ssystem onesystem onesystem onesystem onesystem tonesystem tonesystem
Ret Select radio t	ype for current configuration PgUp PgD	On †↓ ESC =

Customer info / Description

Back in the main menu we select the item *Customer info / Description*, and confirm the selection to display the menu below. Enter all the required data and write a short text describing your radio system. Having completed the input, we exit the menu by pressing *ESC*.

🗪 C:\P50_156\PC	1012.EXE	
V 1.56	TRX 1012 PC UTILITY PROGRAM Copyright (c) 2005 NIROS A/S	COMPANY
Company : Address : : Person :	CUSTOMER INFORMATION Order No: Phone Info SYSTEM DESCRIPTION	
a-Z,Del,"Ret", Enter company/cu	(TAB) ustomer name	→ +ti→ ESC →

Switch between the *Customer Information* and the *System Description* field with the *TAB*-key.



Channel definition

Via *Basic configuration* in the main menu, we now go to *Channel definition* in menu 3. Confirming this selection brings up the following submenu, where we must select a number of parameters for each one of the channels that the radio can work with. For each parameter, there is a help text under the key *F1* with further information about available options.

ex C:\P50_156\PC1012.EXE											
V 1.56 TRX 1012 PC UTILITY PROGRAM Copyright (c) 2005 NIROS A/S											
CHANNEL DEF Ch Reference : 25000 Mixed : NO											
No	Tx Freq	Rx Freq	Ch name	Tx-Sub	Rx-Sub	LS	PA	Mon	Ext	8	
00								YES	***		
01								YES	***		
02							-	YES	***		
03							-	YES	***		
04							1	YES	***		
05								YES	***		
06								YES	***		
07							-	YES	***		
08								YES	***		
09								YES	***		
10								YES	***		
11							-	YES	***		
Ent	11YES *** O-9,+,-,Del,Ret,(TAB)Home End PgUp PgDn +↑I→ ESC Enter transmit frequency										

Ch Reference	=	Channel spacing (10000, 12500, 20000, 25000)
Mixed	=	Mixed channel spacing (YES/NO) (Not used)
No	=	Channel number (00 – 99)
Tx Freq	=	Transmitter frequency (MHz)
Rx Freq	=	Receiver frequency (MHz)
Ch name	=	Channel name that is presented in the display, 8 digits
Tx-Sub	=	Frequency for sub-tone transmitter (Hz) Press <i>INS</i> to set non standard frequence (also requires activation in setup)
Rx-Sub	=	Frequency for sub-tone receiver (Hz) Press <i>INS</i> to set non standard frequence (also requires activation in setup)
LS	=	Open loudspeaker when channel is selected (ON/OFF/-)
PA	=	Transmitter PA level (L/M/H/-)
Mon	=	Open traffic allowed (YES/NO)
Ext	=	Extended channel functions (ENTER to access)

In the *TX Freq* and *RX Freq*-fields the + and - keys can be used to adjust the frequency up and down in steps determined by the selected channel spacing.

The *TAB* key brings you to the upper fields where you for example select the channel spacing.



If we step to the leftmost column, the channel number, we can copy all the data from a channel. Select the channel to be copied and press F3. Go to the channel to copy to and press F4 or press F5 or F6 several times to copy data from the selected channel to frequencies one or several channels spaces higher (F5) or lower (F6) than the selected channel.

Press DEL to erase all data from a channel.

If, for a certain channel, we step to the rightmost column - *Ext* - and confirm with *ENTER*, we will come to yet another submenu (see below), where we can set further channel parameters. Having set all the parameters, we return to menu 3 by pressing *ESC*. When you are in this page you can step between the different channels with *Page Up/Page Down*.

ex C:\P50_156\PC1012.EXE	
V 1.56 TRX 1012 PC UTILITY PROGRAM Copyright (c) 2005 NIROS A/S	COMPANY
CHANNEL DEF CHANNEL DEF CHANNEL DEF (Ext) No 00 Tx Freq Rx Freq	
TX block : NO TX encoder: 00 Decoder ctl : Tone Sys ctl:	OFF
Scan on : NU Carr scan : NU Carr scan all: NU Manuel scan : Scan list: 00 20 KHz : NO ANI : NO	NU.
Select transmit blocking on channel Home End PgUp PgDn ←	ti→ ESC =

Tx Blk	=	Transmitter blocking (YES/NO)
TX encoder	=	Select standard tone transmitter encoder (00-15)
Decoder ctl	=	Active tone receivers for this channel (Press 0, 1, 2, 3 to select)
Tone Sys ctl	=	Tone system type (DEF, CCIR, ZVEI, ZVEI-S, OFF)
Scan on	=	Scanning on/off when the channel is selected (YES/NO)
Carr scan	=	Enables open traffic on selected channel when <i>LS</i> on if scanning set to <i>YES</i> (YES/NO)
Carr scan all	=	Enables carrier scan on all channels in attached scanning list (YES/NO). <i>Carr scan</i> must also bet set to <i>YES</i>
Manual scan	=	Enable manual scanning selection (YES/NO) A <i>menu</i> or <i>keyboard function</i> must also be assigned the function " <i>Scanning</i> ", see chapter 7.
Scan list	=	Select scan list number to attach to channel (00-15)
20 kHz	=	Select 20 kHz reference (YES/NO)
ANI	=	Transmit ANI every time PTT is activated (YES/NO) <i>PTT</i> key must also be assigned a " <i>Call</i> "





Each channel will use approx. 100 ms. For example, if extended first tone in a tone system is 700 ms, do not mark more than 6 channels + "display channel"

CH Scan list definition

Via Basic configuration in the main menu, we now go to CH scanlist definition in menu 3 and confirm with ENTER to display the menu below, where we define which channels to include in each one of 16 available scan lists. Horisontally the 16 scanning lists are presented. Vertically are all defined channels. One with a X states that a channel are included in the respective scan list. Press *INS* to include all channels in a list. Press *DEL* to delete all channels from the list. Press *SPACE* to include/delete a specific channel from the list.

	.56	TR Cop	X 10 yrig	12 ht	PC (c)	UTI 20	LIT 105	Y P NIR	ROG OS	R.AM A/S						Ģ	COMP	PANY
					SCA		IST.											
			0	1	2	3	-4	5	6	7	8	9	10	11	12	13	14	15
00																		
01			-			•				•				•				
02			-											•		•	•	•
03														•			•	
04														•		•		•
05			-			•										•	•	•
06			-		•				•					•		•	•	•
07														•			•	
08																•	•	•
09						•				•				•			•	•
10			-											•				•
II.				1				1				1						
12										•	-							
13						•				•						- -		
14			-	-				-					- -		•			



Menu function

In menu 3, we now select the item *Menu function*, confirm and come to the menu below, where we specify the functions that are to be included in the different *Quick Call Groups* and be presented in the unit display window when the user scrolls with the arrow keys. The name of the call group is entered in the menu item *Special functions, Function message edit*, see below in this chapter. The help text under *F1* contains detailed information about how to set the menu texts.

C:\PSU_156\PC1012	.EXE		د اللاه
	Copyright (c)	2005 NIROS A/S	COMPANY
	- MARK		
MENUL 1		MENU 2 -	MENUL 4
MENO I	MENU 2	MENU 3	
No. Func	No Fund	No Func	No Fund
No Func	No Func	No Fund	NO FUNC
No Fund	No Fund	No Fund	No Fund
NO FUNC	NO FUNC	NO FUNC	NO FUNC
NO FUNC	NO FUNC	NO FUNC	NO FUNC
NO FUNC	NO FUNC	NO FUNC	NO FUNC
NO FUNC	NO FUNC	NO FUNC	NO FUNC
NO FUNC	NO FUNC	NO FUNC	NO FUNC
NO FUNC	NO FUNC	NO FUNC	NO FUNC
No Func	No Func	NO FUNC	NO FUNC
Mar Brann Balance			
NO TUNECTON			
+ - Rot Tes			++1+ ESC
Salact function in m	onu (* - monu sta	at point)	

Press +/- to toggle through the available functions or press *INS* to get an list of all the functions. If you would like to see the whole list, push CTRL + S simultaneosly before *INS* is pressed. The alternative functions, which are presented in the sub menu that are shown when the *INS*-button is pressed, are further explained in chapter 7.

The asterisk * indentifies the menu entry point. You relocate the * position by moving cursor to your menu start point and press *ENTER*.

If you want the menu to scroll endesly through the menu items, you have to enclose the functions with the command *LOOP*.

Example:

- 1 LOOP
- 2 *Channel
 - Volume
- 3 Volume4 PA Level

Volume selection PA selection

Channel selection (* menu entry point)

5 LOOP Loop to 2

When you scroll through the functions forward/backwards the choises will be stepped through endlessly.

1	*Channel	Channel selection (* menu entry point)
2	Volume	Volume selection
3	PA Level	PA selection
4	LOOP	Loop to 1
14/1-		

When you scroll through the functions forward the choises will be stepped through endlessly. Backward the menu will stop at channel.



Keyboard function

Next in menu 3 we go to *Keyboard function*, confirm and come to the following menu, where we define the function of each key on the radio unit. Press +/- to toggle through the available functions or press *INS* to get a list of all the functions. If you would like to see the whole list, push *CTRL* + *S* simultaneosly before *INS* is pressed. The alternative functions, which are presented in the sub menu that are shown when the INS-button is pressed, are further explained in chapter 7.

Confirm the selection with ENTER and return to menu 3 by pressing ESC.

ex C:\P50_156\PC1	D12.EXE			<u>_D×</u>
V 1.56	COMPANY			
		KEYBOARD DEF		
On/Off On/Off	No Func	No Func	(Ptt) TX ON	
(S) No Func	No: Funcio	No! Fund	(T 2) No Func	
(A1.) No Func	Invert A-D	keys : No	(T SW) No Func	(ETon) No Func
No function				
+,-,Del,Ins Choose function f	or key (A)			→ +†↓→, ESC →

On	=	On/Off-key
Μ	=	M-key
S	=	S-key
AI.	=	Alarm-key 🔺
Ptt	=	Transmission button at the radio
T 1	=	Key on the side of the station (with one dot)
Т 2	=	Key on the side of the station (with two dots)
TSW	=	Rotary switch
Eton	=	Key 1 on the speaker microphone
Invert A-D keys	=	Invert up- and down counting on \blacktriangle and \blacktriangledown -keys
x	=	▲-key or the keyboard A-key on a TRX1012
x	=	▼-key or the keyboard B-key on a TRX1012
x	=	•key or the keyboard CH-key on a TRX1012
x	=	← -key (same key for a TRX1012)



Tone system definition

We now select *Tone system definition* in menu 3, which brings out menu 6, where we start by selecting *Clear tone system*, and confirm with *ENTER* and *Y* (YES) if we want to delete all previously set parameters before we select and set our own.

If we now select *General parameters* and confirm the selection, the menu below will be displayed. It presents preset tone lengths (default).

🔤 C:\P50_156\PC1012.EXE									
V 1.56	TRX 1012 PC UTILITY PROGRAM Copyright (c) 2005 NIRUS A/S								
	GENERAL TONE PARAMETERS								
Long tone	: 000700 m	IS Max	first tone :	001500 mS					
TX preamble	े: े000150 m	is TX į	oostamble :	000000 mS					
Max TX resp	: 001500 m	S Def	min time :	000800 mS					
	CCIR	ZVEI	ZVEI-S	Spec. 2	Tone				
Group tone	: A	A	A	1. Tone	: 0820 Hz				
Repeat tone	: R	R	R	2. Tone	: 1320 Hz				
Norm tone	: 000100 m	S 000070 mS	000070 mS						
Enter standard length for extended tones									

It's recommended to increase *TX postamble* to 100 ms, which means that every outgoing call is followed by a carrier wave of 100 ms. This is done to secure the call function. Leave the menu by pressing *ESC*.



ex C:\P50_156\PC1012.E	XE	
V 1.56	TRX 1012 PC UTILITY PROGRAM Copyright (c) 2005 NIROS A/S	COMPANY
00 01 02 03	<pre>RX TONESYSTEM *** undefined *** *** undefined *** *** undefined *** *** undefined ***</pre>	
Del,Ret Define/Reset tone dec	odén	+†1+ ESC

Selecting RX tone system will bring out a new menu.

Go to each one of the four tone receiver presented and press *ENTER*. In the menu then displayed, we may set the parameters for up to four individual and/or group calls. For each parameter under each tone receiver, there are help texts under the key *F1*. After that we have definied an tone receiver we can enter an description at the dotted field second from the left. When all parameters have been set, we return to menu 6 by pressing *ESC*.

The information under the heading - Normal - are activated for an normal incoming call. The information under the heading - group - are activated for an group call, i.e. when the +G control code are used.





Call code	=	Receive tone sequence Enter the actual tone sequence that shall be received. Each tone or controll shall be separated by a "," i.e. <i>1,2,3,4,5</i>
		Apart from fixed digits several commands and buffer references can be entered.
		The following digits can be used: 0,1,2,3,4,5,6,7,8,9,A,B,C,D,R R = Repeat tone
		The following tone buffers can be used: <i>I,J,K,L,M</i> refer to the variables holding the radios own ID/group-number. <i>V</i> refer to the variable for an outgoing call normally set by a quick call number <i>X</i> is a special buffer that pick up unknown digits in an received tone sequence
		Control codes: , = new tone or command /= command for extended tone l= minimum tone time check -= command for reset buffer index (= start on extra parameter) = end on extra parameter +G = Check digit and group tone at this position (enter +G after the current tone, i.e. <i>I</i> , <i>I</i> , <i>I</i> , <i>I</i> +G, <i>I</i> +G) Group tone is set in <i>tone system definition</i> above
Ack code	=	Acknowledge tone to be sent after an received call Syntax is as <i>Call code</i>
L.S. Ctl.	=	Select Loud speaker setting at call (OFF/ON/STB/A. ON/B. ON)
Display	=	Display text at call Press <i>ENTER</i> to define text. Select from standard texts or enter a new text.
Sound No	=	Select alarm cadence number at call. Use +/- to select (00-11)


Back in menu 6, we select *TX tone system* and come to a new menu which contains a list of the 16 available tone transmitters in the radio.

V 1.56 TRX 1012 PC UTILITY PROGRAM Copyright (c) 2005 NIROS A/S 00	COMPANY
TX TONESYSTEM 00	
08	+t1→ ESC =

For each of them, we can press *ENTER* and come to another menu, where we set the required parameters for that specific transmitter. For each parameter under each tone transmitter, there are help texts under the key *F1*. After that we have definied an tone transmitter we can enter an description at the dotted field second from the left. When all parameters have been set, we return to menu 6 by pressing *ESC*.

ex C:\P50_156\PC1012.EXE						
V 1.56	TRX 1012 PC UTILIT Copyright (c) 2005	Y PROGRAM NIROS A/S	COMPANY			
	TX_TONECODE	_0]			
Resp type : NONE	TX monitor : NO	Carr check : NO				
Call code :						
Resp code : Resp time : Def.						
Display : "EDIT"						
Sound : L.S. Ctl. : A. ON Err sound : Close down: NO						
a-Z, "Ret" Transmit code: Ex. 1	L,2,3,V,V or /1,2,3,V,V	/,B,0,0,I,I,I or /(1300)	= +†↓+ ESC =			
Resp type =	Select type of reply (Define if wait for a re	none, carrier, tone)	ng call.			

TX monitor	=	Select monitor on call transmission (YES/NO). If set to YES the tone call will be heard in the radios speaker along transmission.
Carr check	=	Select carrier check before transmission (YES/NO). If set to YES the radio will not transmit the call if the

channel are occupied (i.e. carrier).



Call code	=	Transmit code Enter the actual tone sequence that shall be transmitted. Each tone or controll shall be separated by a "," i.e. <i>1,2,3,4,5</i>
		Apart from fixed digits several commands and buffer references can be entered.
		The following digits can be used: 0,1,2,3,4,5,6,7,8,9,A,B,C,D,N,R,P,Q N = No tone R = Repeat tone P and $Q = Special$ tones ouside std. CCIR/ZVEI (defined under general parameters)
		The following tone buffers can be used: I,J,K,L,M refer to the variables holding the radios own ID/group-number. V refer to the variable for an outgoing call normally set by a quick call number X is a special buffer that pick up unknown digits in an received tone sequence that can be used for example at an reply answer
		Control codes: , = new tone or command /= command for extended tone - = command for reset buffer index (= start on extra parameter) = end on extra parameter
Resp code	=	Response code If Resp Type are set to tone the defines the reply tone sequence. Syntax is as <i>Call code</i> in <i>RX tone system</i>
Resp time	=	Select waiting time for reply answer (mS)
Display	=	Display text at call Press <i>ENTER</i> to define text. Select from standard texts or enter a new text.
Sound	=	Select alarm cadence number at successful transmission (00-11)
L.S. Ctl.	=	Select Loud speaker setting upon correct reply answer (A. ON/B. ON/none/OFF/ON/STB)
Err sound	=	Select alarm cadence number at no reply (00 -11)
Close down	=	Close down distinction between A- and B connection (YES/NO)



And, last in menu 6, we go to User sound edit, confirm with ENTER and come to a new menu where we specify the ringing signals that we want to use for different types of calls. Note that the two last sounds are reserved for "DeadMan alarm" and "Battery Low" alarm.

••• C:\P50_156\PC1012.EXE	
V 1.56 TRX 1012 PC UTILITY PRC Copyright (c) 2005 NIR05	IGRAM SA/S COMPANY
SOUND Edit user sound O Edit user sound 1 Edit user sound 2 Edit user sound 3 Edit user sound 4 Edit user sound 5 Edit user sound 6 Edit user sound 7 Edit user sound 8 Edit user sound 9 "DeadMan alarm" "Battery Low"	
Edit alarm cadence	†↓ ESC

The actual parameters are set in yet another menu, which will be presented when we press *ENTER* for a "user sound".

T:\P50_156\PC1012.EXE							
V 1.56	COMPANY						
Sequence 0 Volume Vol Rep 01	SOUND SOUND SOUND 0 Sound 1 Volume Vol Rep 01	Sequence 2 Volume Vol Rep 01					
Tone Time Pause	Tone Time Pause	Tone Time Pause					
0 None 0000 0000 1 None 0000 0000 2 None 0000 0000	0 None 0000 0000 1 None 0000 0000 2 None 0000 0000	0 None 0000 0000 1 None 0000 0000 2 None 0000 0000					
Set fixed volume level (Vol = current volume level)							

Volume	=	Select volume level for the alarm cadence. 01-30 (vol = current volume level)
Rep	=	Select how many times the cadence shall be repeted
Tone	=	Set freqency for tone $492 - 2976$ Hz (none = no tone)
Time	=	Select tone duration for the tone $0 \text{ mS} - 1.25 \text{ S}$
Pause	=	Select pause after tone 0 mS – 1.25 S

The user sound are divided in three different sequencies. First sequence 0 are activated, thereafter sequence 1 and finally sequence 2. For example the volume can be set on different levels for each sequence, giving a increasing call attention tone.



Quick user setup

In menu 3 we now select the menu item *Quick user setup* and confirm the selection to bring out the menu below, where we set the parameters for a total of 100 abbreviated numbers. Note that the menu can be scrolled. The vertical arrows to the left indicate which abbreviated numbers are included in the four available groups G1 - G4.

C: \	T:\P50_156\PC1012.EXE													
ľ	V 1.56 TRX 1012 PC UTILITY PROGRAM Copyright (2) 2005 NIROS A/S COMPANY							COMPANY						
G	1	G2	G3	G4	Card	Num	Display	QUICK Num	SETUP Call	Ch	A_Num	Sc_Ena	Ch_Ex	SL_Num
						000			100					
						001								
		Ŧ				002								
•		<u>.</u>				003								
•			Ψ.			004								
•		•	4	•		005								
•				¥		006								
•		•		4		007								
		•		•	•	008								
•		•	•	•		009								
•		•	•			010								
		•	•	•		011								
		•	•	•	•	012								
		•	•	•		013								
E	a-Z,"Ret" Home End PgUp PgDn +11+ ESC Enter display text for quick call number													

G1 – G4	=	Set the limits for quick call group 1 - 4. Move the cursor to the position where you want upper limit and press +. Then move to the position where you want lower limit and press
Card	=	Set a reference to a quick call that can be transmitted by a single key activation. Enter <i>1, 2, 3</i> or <i>4</i> to select a reference or <i>DEL</i> to deselect.
Display	=	Shortnumber text (8 digits)
Num	=	Call number. <i>0-9, A, B, C, D</i> and <i>V</i> (=Variable digit) A special function where quick call is used as channel selection can be obtained if numbers are cleared. Press <i>DEL</i> to clear the number field. However, channel information must be entered.
Call	=	Select the transmit tone encoder. If empty the tone encoder defined as default on the channel will be used.
Ch	=	Select channel on which the quick call shall be transmitted. If empty the call will be transmitted on the current display channel.
A_Num	=	Not in use
Sc_Ena	=	Search among a channel group at an outgoing call
Ch_Ex	=	Exclude the present channel and search only on channels in the list
SL_Num	=	Search list number (00-15). (Search list 15 = emergency call, will proceed until reply answer is received)



Search scanlist definition

The next selection in menu 3 is *Search scanlist definition,* which opens the menu below, where we define the channel to be used for an outgoing call with a specific abbreviated number where search list are enabled.

🗪 C:\P50_156\P0	1012.EXE																۵×
V 1.56	TR Cop	X 10 yrig	12 ht	PC (c)	UTI 20	LIT 105	Y P NIR	ROG OS	ir.am A/s						Ģ	сом	PANY
				SCA		IST.											
1022		0	1	2	3	-4	5	6	- 7	8	9	10	11	12	13	14	15
00						•			•		1		•	•			
02																	
02																	
04		- S.	12		- 21	- 5-	12			÷.	12.		÷.	÷.	<u>.</u>		
04		- 21	12.		- 21	÷2.	12	12		÷2.	÷2.		э.	а.	÷.	2.	
06					- 21	- G.				- Q.	- 22 -		2	Q.,			
07																	
08																	
09																	
10			1				1				1						
11																	
12			1.				1.				18						
13					•												•
14							-		-					-			
0-9,+,-,Del,Ins Mark'a channel to include in scanning list (SPACE)																	

The channels are defined in 16 available lists (0 - 15). Please note that list 15 is special. It is normally used for outgoing alarm calls where the defined search channels is looped through until an answer is received, no matter upon channel occupancy.

Here we define which channels to include in each one of 16 available scan lists. Horisontally the 16 scanning lists are presented. Vertically are all defined channels. One with a *X* states that a channel are included in the respective scan list. Press *INS* to include all channels in a list. Press *DEL* to delete all channels from the list. Press *SPACE* to include/delete a specific channel from the list.





System timers

Confirming (with *ENTER*) the selection *System timers* in menu 3 will bring up the following menu which specifies the times for the listed functions. Normally not to be changed.

🕵 C:\P50	_156\PC1012.EXE		
V 1.56	TRX 1012 PC UT Copyright (c) 2	ILITY PROGRAM DOS NIROS A/S	COMPANY
	SYSTEM LS hold time Battery off time Fall back time No answer fall back time Key beep length PWM key beep length Scanning time Dead until alarm Alarm until alarm call TX max timer	TIMER 010000 mS 021755 mS 005000 mS 003750 mS 004840 mS 000130 mS 000130 mS 0000300 mS 000000 mS 005000 mS 010000 mS	
= 0-9,+,; Select	time to hold LS after A- or B o	Home End Pgl pening	Jp PgDn †↓ ESC —

LS hold time	=	Time to hold loudspeaker after A ON and B ON
Battery time	=	Time from reset until battery condition is checked
Battery off time	=	Time from battery reach "Batt-Off" condition until auto shut-down
Fall back time	=	Auto fall-back to standby from function
No answer fall back time	=	Time duration where "NoAnswer" is displayed
Key beep length	=	Key beep duration
PWM key beep length	=	Key beep duration in radio without tone system
Scanning time	=	Time between channel shift during scanning
Dead until alarm	=	Time from "dead man" switch activated until audiable alarm
Alarm until alarm call	=	Time with audiable alarm until alarm call is transmitted (<i>Card 4</i>).
TX max timer	=	Maximum allowed TX Time (OFF = no TX limit)



SETUP PROGRAM

The station uses 3 setups: INIT, PUR and USER.

INIT is the settings that is selected the first time the station is switched on. *INIT* is also selected if the battery/power has gone dead or has been removed.

The *PUR*-setup is used to select the settings you want to have each time the station is switched on. It's executed when the radio has been turned off by the ON/OFF key and then turned on again. If the rows in *PUR*-setup don't have any data the settings as the radio had before it was switched off are used.

The USER-setup holds constant buffers for the tone system, i.e. ID an group-number.

In Setup 1 and 2 can the same functions as in *INIT* and *PUR*-setup be selected. The functions that have been activated in Setup 1 and 2 can be activated via a button or a menu position that points on the relevant Setup.

Setup program / Edit user setup

Via menu 3 and Setup program, we now go to the item Edit user setup, confirm with ENTER and come to the following menu, where we set the radio unit's own call numbers (individual and group): variable buffers *I*, *J*, *K* and *L*.

The following digits can be used: 0-9, A, B, C, D, E and F E = Repeat tone F = No tone (the length of this is the same as for a normal tone, 100 ms)

Note that the variables can contain up to 8 digits. Normally only the first five are used and the remaining can be omitted.

🛯 C:\P50_156\PC1012.	EXE	
V 1.56	TRX 1012 PC UTILITY PROGRAM Copyright (c) 2005 NIROS A/S	COMPANY
	USER SETUP	
CD : FFFFFFFF	(M): 999999999	
(1): 56789012	(√) : 00000	
(K) : 00000000	(¥): 000	
(L) : 11111111		
0-9,"Ret" Enter "I" digits		= +11+ ESC =



Setup program / Edit init setup

Via *Edit system setup* in menu 7 and the menu item *Edit init setup* in menu 8, we come to the following menu, where we select the settings that the radio must take on automatically at power-on, after it has been off with the battery removed or dead.



This menu contains much more data than the picture above shows; use the arrow keys or the keys PgUp / PgDn to scroll to other items.

Having set all values, we now press ENTER to return to menu 8.

Setup program / Edit P U.R. setup

Back in menu 8, we select and confirm *Edit P.U.R. setup*, which brings us to the menu below, used to set the values that the radio must take on automatically at power-on after it has been off, with a live battery mounted on the radio unit. Note that we will only do this, if we want to set different values than the default ones (*Edit init setup*). In other words, if no values are set here, the radio will take on the values defined in *Edit init setup*.

📧 C:\P50_156\P	C1012.EXE		
V 1.56	TRX 1012 PC UTILITY F Copyright (c) 2005 NIR	ROGRAM OS A/S	COMPANY
	Power up (EMPTY) Setup name *** Clear setup *** FLAG SECTION PA default setting Dead Man func. enable Enable A-E in QC var LS default ON Auto fallback CTCSS enable Sound startup Inhibit monophone Enable Int and Ext LS Display light automatic Key cue enable		
a-Z,Ret Not in use		Home E	nd PgUp PgDn †l ESC =



Init Setup, PUR setup, Setup 1-2

FLAG SECTION		
PA default setting	=	Select Low (1 W), Medium (2 W) or High (4 W) Power
Dead Man func. Enable	=	Enable "Dead Man" function
Enable A-E in QC var	=	Enable digits A-E in quick call entry
LS default ON	=	Select loudspeaker default setting
Auto fallback	=	Select if auto channel fallback shall be active
CTCSS enable	=	Enable sub Audio tones
Sound startup	=	Enable audiable indication at power-on and power-off
Inhibit monophone	=	Inhibit detection of external attachments
Enable Int and Ext LS	=	Enable both internal and external loudspeaker when monophone attached
Display light automatic	=	Enable light in display at key press
Key cue enable	=	Select keyboard cue
Fixed/variable cue vol	=	Select key cue volume NO = Fixed, YES = current volume level
Display CH user No	=	Select if channel function shall display user specified numbers
Display CH name	=	Select channel name to be displayed
CH display I standby	=	Select channel name display in stand-by
Volume bar enable	=	Select volume bar in display
Battery indicator bar	=	Select battery indicator bar in display
TX symbol enable	=	Select transmit symbol in display
HML symbol enable	=	Select symbols H M L to display current power setting
SQ symbol enable	=	Select symbol SQ in display to show current squelch setting
Speaker symbol enable	=	Select LS symbol in display
Keylock excl Rotary ena	=	Exclude rotary switch in keylock function
Keylock incl PTT ena	=	Include internal PTT in KEYLOCK function



STATUS SECTION

Start-up channel No.

Min vol value

Max vol value

- = Select start-up channel (0-99)
- Start-up volume level = Select start-up volume level (0-31)
 - = Minimum accepted volume level (0-31)
 - = Maximum accepted volume level (0-31)





Special functions

In the main menu, we now select *Special functions*, confirm and come to menu 4, where we can select the menu items *Standard message edit* and *Function message edit*.

In *Standard message edit* we may enter alternatives to the standard texts that the radio presents on the display.

🚾 C:\P50_156\P0	1012.EXE	
V 1.56	TRX 1012 PC UTILITY PROGRAM Copyright (c) 2005 NIROS A/S	COMPANY
	SYSTEM STRING [Error] [TRX-1012] [Pwr-Off?] [Pwr OFF!] [Pwr OFF!] [BYE-BYE] [Error 1] [Error 2] [Error 3] [Low Batt] [TX Block] [Batt Off] [External] [Internal]	
a-Z Message at erro	Home End	d PgUp PgDn †i ESC =

Error	=	Message at error
TRX-1012	=	Radio type ID
Pwr-Off?	=	Message at Power Off
BYE-BYE	=	Message at Power Off
Error 1	=	Error 1
Error 2	=	Error 2
Error 3	=	Error 3
Low Batt	=	Message at battery level Low Batt
TX Block	=	Message at battery level when transmitter is blocked
Batt Off	=	Message at battery level when radio is automatically shut-down
	=	Blank. Do not change!
External	=	Message at external mic./LS
Internal	=	Message at internal mic./LS
PA Off	=	Message for Power Amp Off
PA Low	=	Message at power level Low
PA Med.	=	Message at power level Medium
PA High	=	Message at power level High



NoChange	=	Message at "No Change"
InputAMP	=	Service function
PWM Adj	=	Service function
NoAnswer	=	Message at missing reply answer
NoAccess	=	Message when channel are not free
Own ID	=	Message at display of own ID number
Sub. ON	=	Message at CTCSS manually turned ON
Sub. OFF	=	Message at CTCSS manually turned OFF
Search	=	Message when quick call search is in progress
No Scan!	=	Scanning not allowed on present channel
ALARM ??	=	Display text at audible alarm when "Dead man" func. triggered
DEAD ON	=	Function to enable "Dead Man" feature
DEAD OFF	=	Function to disable "Dead Man" feature
ALARM !!	=	Display text when alarm call transmitted @ "Dead man"



In *Function message edit* we may enter, the names that we want our radio unit to display for various function text/messages.

🚾 C:\P50_156\PC1012.EX	E	
V 1.56	TRX 1012 PC UTILITY PROGRAM Copyright (c) 2005 NIROS A/S	COMPANY
	FUNCTION STRING [No Func.] [[Channel] [[Channel] [[Volume] [[Scanning] [[Scanning] [[SubAudio] [[TRX-1012] [[SubA Adj] [[SubA Adj] [[SubA Sto] [[Tone Adj] [[Modul.] [
a-Z Message at "No functio	n" Ho	me End PgUp PgDn †↓ ESC —

No Func.	=	Message at "No function"
Channel	=	Message at channels selection menu
Volume	=	Message at volume setting menu
CALIBR.	=	Message at calibration menu (service function)
Scanning	=	Message at scanning ON/OFF function
SubAudio	=	Message at CTCSS ON/OFF toggle function
TRX-1012	=	Message at stand-by (if channel name in stand-by not chosen)
E/I M-LS	=	Message at internal/external mic./LS function
PA Level	=	Message at power level setting function (service function)
SubA Adj	=	Service function
SubA Sto	=	Service function
Tone Adj	=	Service function
Tone Sto	=	Service function
Modul.	=	Service function
STO Mod	=	Service function
LS Tgl	=	Message at LS ON/OFF toggle function
LS On	=	Message at LS ON function
LS Off	=	Message at LS OFF function
SQ Tgl	=	Message at Squelch ON/OFF toggel function
SQ On	=	Message at Squelch ON function
SQ Off	=	Message at Squelch OFF function

Volume +	=	Message at volume step-up function
Volume -	=	Message at volume step-down function
Ch +	=	Message at channel step-up function
Ch -	=	Message at channel step-down function
TX ON	=	Not in use
TX OFF	=	Not in use
PA L Adj	=	Service function
PA M Adj	=	Service function
PA H Adj	=	Service function
STO Pa L	=	Service function
STO Pa M	=	Service function
STO Pa H	=	Service function
SQ Adj	=	Service function
Hyst Adj	=	Service function
STO SQ	=	Service function
STO Hyst	=	Service function
VOGAD ON	=	Service function
R In Amp	=	Service function
T In Amp	=	Service function
STO R In		Service function
STO T In		Service function
QUIT CAL		Service function
COPY 1-2		Service function
COPY 2-1		Service function
VOGADOFF		Service function
6 V Ref		Service function
TONEBEEP		Service function
TONE PWM		Service function
Call Gr1	=	Message at quick call group 1 menu
Call Gr2	=	Message at quick call group 2 menu
Call Gr3	=	Message at quick call group 3 menu
Call Gr4	=	Message at quick call group 4 menu



Card 1	=	Message at direct quick call 1 function
Card 2	=	Message at direct quick call 2 function
Card 3	=	Message at direct quick call 3 function
Card 4	=	Message at direct quick call 4 function
Repeat	=	Message at "repeat last quick call" function
Call 11	=	Message at direct transmit encoder 11 function
Call 12	=	Message at direct transmit encoder 12 function
Call 13	=	Message at direct transmit encoder 13 function
Call 14	=	Message at direct transmit encoder 14 function
Call 15	=	Message at direct transmit encoder 15 function
TGL_HILO	=	Message at Low/High power toggle function
T_H_M_L	=	Message at Low/Medium/High power toggle function
KEY_LOCK	=	Message at keyboard lock function
Light	=	Not in use
DeadMan	=	Function text for "Dead man" feature
Setup 0	=	Function text for initialization set-up
Setup 1	=	Function text for Power-on-reset set-up
User 1	=	Function text for User 1 set up
User 2	=	Function text for User 2 set up

Via the menu item *Message language* and in the menu below, we choose between Danish and English as the language to be used for standard texts.





View ID data

In menu 1 we can select the menu item *View ID data* and confirm with *ENTER* to view individual ID data for the unit we are programming, e.g. frequency range, implemented hardware options, etc.

For this information to be presented, the unit must, of course, be connected to the PC. These parameters are fixed and cannot be changed.

C:\P50_156\PC1012	.EXE		
V 1.56	TRX 1012 P Copyright (C UTILITY PROGRAM <pre>c) 2005 NIROS A/S</pre>	COMPANY
		ID DATA	
Min TX freq Min RX freq	: 145000000 : 145000000	Max TX freq 👌 : Max RX freq :	174000000 174000000
PC user FX803 excist 100 CH enable Tone sys enable FM modulation HW BOS version	: 000000 : YES : YES : YES : NO : YES	Factory ID : Second Eeprom excist: RF revision 2 :	01 YES NO
Software version Programming date	: 01.50 : 15/06-2005	PC software version : Factory test date :	01.56 15/06-2005
Display radio specif	fic data		

Print

Next, we select *Print* in the main menu, confirm and access the menu below, where we can select one of two types of programming printout - *print all with frames* or *print all quick*.

Print all with frames	=	Print all data with frames and columns
Print all quick	=	Print all data without frames and columns

🔤 C:\P50_156\PC1012.E	XE	
V 1.56	TRX 1012 PC UTILITY PROGRAM Copyright (c) 2005 NIROS A/S	COMPANY
"abc",Ret Write all data with f	Print all with frames Print all quick Ba <mark>Sic configuration</mark> Special functions View ID data Program unit Print Quit	



Check / Compile user data

Having completed all programming, we step to *Check / Compile user data* in the main menu, and press *ENTER*. The program will now check automatically if the values that we have entered are in any way conflicting. If so, a text presenting the programming errors, is displayed. From the list more information on the indivual error or warning can be displayed by pressing the *F1* key. Warnings can be overruled when the radio is programmed; but errors have to be corrected before programming can be carried out.

If everything is accepted the message below are presented.







Program unit

First check that the programming box is connected to the PC and the radio (see the beginning on this chapter). Then, the radio is turned on.

Finally, we go to *Program unit* in the main menu, confirm and then answer Y (Yes) to the question if we want to update all parameters. The new parameters are now read into the P50EX unit, a procedure which takes approx. two minutes.

In order to clear the memory it's recommended that the station is without power approximately 30 seconds after the programming.





STORING AND RETRIEVING CONFIGURATIONS

Read config from disk

In situations when we want to program our P50EX unit with a preprogrammed configuration that already exists in the computer, we only have to go to the menu item *Read config from disk* in menu 2 and confirm with *ENTER*. This brings out a new menu, where we can enter the name of the required configuration. If we do not know the name, we can confirm once more to see a list of all stored configurations. When we confirm the selected configuration with *ENTER*, the selected file is loaded.

List all config on disk

If we need a list of stored configurations, we go to *List all config on disk* in menu 2 and confirm the selection with *ENTER*. This bring out a menu which lists all configurations together with our own comments, written during the programming. The file highlighted can be read by pressing *ENTER*.

Write config to disk

To save a new configuration, we go to the menu item *Write config to disk* in menu 2 and confirm with *ENTER*. Enter filename (up to 8 characters) and press *ENTER*. If a file already exists with the same name, you will be promted to overwrite it.

Further you will be asked to enter a short description of the actual file/configuration.

CHAPTER 7

Functions

Chapter 6 describes how the menu item *Keyboard function* and *Menu function* is used to define the functions of the different keys on the radio. To facilitate this, you may display a list of alternative functions for a unit key by pressing the computer's key *INS*. Some of the abbreviations in this list are not self-explanatory, so the explanations below should be useful. Functions marked with an asterisk (*) are standard functions.

* No Func	No function
* Channel	Step up or down to the next channel
* Volume	Volume control
CALIBR.	Set radio to service mode (service function)
* Scanning	Scanning function on/off " <i>Manual scan</i> " must also be set to YES on the channel, see chapter 6, " <i>Channel defination</i> "
* SubAudio	CTCSS signalling ON/OFF
* TRX-1012	Standby mode (not used)
E/I M-LS	Switch between external/internal microphone and loudspeaker
* PA Level	Having pressed the key, you can use the menu to select high, medium or low transmitter level
SubA Adj	Adjust CTCSS tone (Service function)
SubA Sto	Store set CTCSS tone (Service function)
Tone Adj	Tone adjustment (Service function)
Tone Sto	Store set tone (Service function)
Modul.	Adjust modulation (Service function)
STO Mod	Store set modulation (Service function)
* Ls Tgl	Toggle between loudspeaker on / off
* Ls On	Loudspeaker on
* Ls Off	Loudspeaker off
* Sq_Tgl	Toggle between squelch on / off
* Sq_On	Squelch on

* Sq_Off Squelch off



* Vol +	Volume increase when the key is pressed
* Vol-	Volume decrease when the key is pressed
* Ch +	Step to the next higher channel number when the key is pressed
* Ch -	Step to the next lower channel number when the key is pressed
TX ON	Start continuous transmission
TX OFF	Stop continuous transmission
PA L Adj	Adjust to low transmitter power (Service function)
PA M Adj	Adjust to medium transmitter power (Service function)
PA H Adj	Adjust to high transmitter power (Service function)
STO Pa L	Store low transmitter power (Service function)
STO Pa M	Store medium transmitter power (Service function)
STO Pa H	Store high transmitter power (Service function)
SQ Adj	Adjust squelch open level (Service function)
Hyst Adj	Adjust squelch close level (Service function)
STO SQ	Store squelch open level (Service function)
STO Hyst	Store squelch close level (Service function)
VOGAD ON	(Service function)
R In Amp	(Service function)
T In Amp	(Service function)
STO R In	(Service function)
STO T In	(Service function)
QUIT CAL	Exit calibration function (Service function)
COPY 1 - 2	(Service function)
COPY 2 - 1	(Service function)
VOGAD OFF	(Service function)
6 V Ref	Measures 6 V reference (Service function)
TONEBEEP	Check audible signal (Service function)
TONE PWM	(Service function)



* Call Gr 1	Call group 1
-------------	--------------

- * Call Gr 2 Call group 2
- * Call Gr 3 Call group 3
- * Call Gr 4 Call group 4
- * Card 1 Transmit fixed card 1
- * Card 2 Transmit fixed card 2
- * Card 3 Transmit fixed card 3
- * Card 4 Transmit fixed card 4
- * Repeat Repeat the last transmitted abbreviated number
- * Call 11 Transmit "personally defined" call CALL 11
- * Call 12 Transmit "personally defined" call CALL 12
- * Call 13 Transmit "personally defined" call CALL 13
- * Call 14 Transmit "personally defined" call CALL 14
- * Call 15 Transmit "personally defined" call CALL 15
- * TGL HiLo Toggle between high and low transmitter power
- * T H M L Toggle between high, medium and low transmitter power
- KEY LOCK Keyboard lock only T/R button works Simultaneosly press ON/OFF and ENTER to unlock
- * Light Keyboard light on / off
- * DeadMan Toggle "Deadman" function on / off
- * Setup 0 Shift to init setup
- * Setup 1 Shift to Power on Reset Setup
- * User 1 Shift to user 1 setup
- * User 2 Shift to user 2 setup
- On / Off Unit on / off
- * MENU_1 Display of menu 1
- * MENU 2 Display of menu 2
- * MENU 3 Display of menu 3
- * MENU 4 Display of menu 4
- LOOP Return to beginning of "menu cycle"

CHAPTER 8

The P50EX in a "basic" radio system

GENERAL

This chapter describes how the P50EX can be programmed in order to function in a fictive typical "basic" radio system, i.e. a system with comparatively few functional possibilities, where the system designer's ambition has been to create the simplest possible use.

Initially, in the section *System overview* below, we will describe and comment on the system solution and system function. The section *Parameters* specifies the data that the programming will be based on. The programming, finally, is described in the section *How to set the parameters*.

SYSTEM OVERVIEW

Our "basic" radio system, as illustrated in the picture below, includes five groups of P50EX radio units. Each group belongs to a working team - e.g. a group of firemen - in our fictive organisation.

Each team has been assigned their own channel, which is used for all messages to, from and within the group. The communication is in open-traffic mode, meaning that every team member can hear what is being said on the channel that his unit is currently set on.





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	1	E.	1

CALL NUMBERS

Appendix 5:A

Company:
Compiled by:
Date:

Comment:

- Since this "basic" system only uses open traffic, no call numbers need to be entered.

PARAMETERS

Individual No. 1	Individual No. 2	Group No. 1	Group No. 2



03	164,175	164,175	CH4	100,0	100,0
04	164,200	164,200	CH5	100,0	100,0
					-
-X					

CHANNELS

Appendix 5:B

Company: <u>Rescue Service Ltd</u> Compiled by: <u>H. Denver</u> Date: <u>9902</u>

Comment:

 Note that the numbers (CH1 - CH5) that we have assigned to the channels, differ from the "logical" channel numbers 00 - 04.

Ch No.	Tx Freq.	Rx Freq.	Ch name	Tx-Sub	Rx-Sub
(channel number)	(transmitter frequency)	(receiver frequency)	(channel name, max. 10 characters)	(frequency for Tx subaudible signalling)	(frequency for Rx subaudible signalling)
00	164,100	164,100	CH1	67,0	67,0
01	164,125	164,125	CH2	71,9	71,9
02	164,150	164,150	СНЗ	67,0	67,0



ABBREVIATED NUMBERS

Appendix 5:C

Company:
Compiled by:
Date:

Comment:

- This form does not have to be used, since we have no abbreviated numbers in this "basic" system.

	Display	Number	Call	Ch	SL	
(abbrev. number)	(call text)	(call number) (call type No. X)		(channel No. X)	(scan list No. X)	



	Channel selection	
(T1)	Not used	
(T2)	Not used	
OTHER INF	ORMATION	
1. Loudspeak	ker autom, on when there is communication on the channel.	9. Indication of battery capacity.
2. Initial low o	output power level at unit power on.	10. Indication of Tx symbol.
3. Loudspeak	ker automatically on at unit power on.	 Indication of output power level (HML).
4. Tone burst	t at power on and power off.	Indication of loudspeaker status (on / off).
5. Display lig	ht automatically on at key pressing.	Automatic selection of channel CH1 at power on.
6. Beep sign	al at key pressing + battery low warning.	14. Automatic selection of sound level 1 at power on.
7. Presentati	on of set channel on the display,	15. Lowest possible sound level = 1.
8. Indication	of set sound volume on the display.	
UNIT k	KEYS AND OTHER INFORMATI	ON (Radio unit (ID):)
UNIT k Appendix : Compar	KEYS AND OTHER INFORMATI 5:D ny: <u>Rescue Service Ltd</u>	ON (Radio unit (ID):)
UNIT k Appendix : Compar Compile	KEYS AND OTHER INFORMATI 5:D ny: <u>Rescue Service Ltd</u> ad by: <u>H.Denver</u>	ON (Radio unit (ID):)
UNIT k Appendix : Compar Compile Date:	KEYS AND OTHER INFORMATI 5:D ny: <u>Rescue Service Ltd</u> ed by: <u>H.Denver</u> 9902	ON (Radio unit (ID):)
UNIT k Appendix : Compar Compile Date:	KEYS AND OTHER INFORMATI 5:D ny: <u>Rescue Service Ltd</u> ed by: <u>H.Denver</u> 9902 Not used	ON (Radio unit (ID):)
UNIT k Appendix : Compar Compile Date: (Al.)	KEYS AND OTHER INFORMATI 5:D ny: <u>Rescue Service Ltd</u> ed by: <u>H.Denver</u> 9902 Not used Subaudible signalling on / off	ON (Radio unit (ID):)
UNIT k Appendix : Compar Compile Date: (AI.) (S)	CEYS AND OTHER INFORMATI 5:D ny: <u>Rescue Service Ltd</u> ed by: <u>.H.Denver</u> <u>9902</u> Not used Subaudible signalling on / off Optional output power	ON (Radio unit (ID):)



HOW TO SET THE PARAMETERS

Important! In this "basic" system, programming is identical for all included P50EX units. Individual units do not, for example, have their own ID Note that, in the following, we will only show menus where we need to set parameters for this particular system. Other menus, not displayed here, remain "intact', i.e. preset (default) parameter values are used. To make the procedure clearer, we will also comment on each action we take in the different menus. (Refer also to the program help texts under the computer's key *F1*.) How to reach the menus is explained in *chapter 6, Programming*.

Menu item: File operation / Select unit type

🔤 C:\P50_156\PC1012.EXE	JN
V 1.56 TRX 1012 PC UTILITY PROGRAM Copyright (c) 2005 NIROS A/S COMP	ANY
TRX 1012C 146 - 174 MHz / 25 KHz. Standard 16 channels	
TRX 1012D 403 - 470 MHz / 25 KHz. Standard 16 channels with tonesyste TRX 1012D/200 403 - 470 MHz / 20 KHz. Standard 16 channels with tonesyste TRX 1012D/125 403 - 470 MHz / 12.5 KHz. Standard 16 channels with tonesystem TRX 1012B 68 - 88 MHz / 25 KHz. Special 100 channels with tonesystem TRX 1012B/200 68 - 88 MHz / 20 KHz. Special 100 channels with tonesystem	em em st
TRX 1012B/125 68 - 88 MHz / 12.5 KHz. Special 100 channels with tonesyste TRX 1012C 146 - 174 MHz / 25 KHz. Special 100 channels with tonesyste TRX 1012C/200 146 - 174 MHz / 20 KHz. Special 100 channels with tonesyste TRX 1012C/125 146 - 174 MHz / 12.5 KHz. Special 100 channels with tonesyste TRX 1012D 403 - 470 MHz / 25 KHz. Special 100 channels with tonesyste	em em st em
TRX 1012D/200 403 - 470 MHz / 20 KHz. Special 100 channels with tonesyste TRX 1012D/125 403 - 470 MHz / 12.5 KHz. Special 100 channels with tonesys TRX 1012D/125 403 - 470 MHz / 12.5 KHz. Special 100 channels with tonesyste TRX 1012D/125 403 - 470 MHz / 12.5 KHz. Special 100 channels with tonesyste TRX 1012D/125 403 - 470 MHz / 12.5 KHz. Special 100 channels with tonesyste TRX 1012D/125 403 - 470 MHz / 12.5 KHz. Special 100 channels with tonesyste TRX 1012D/125 403 - 470 MHz / 12.5 KHz. Special 100 channels with tonesyste TRX 1012D/125 403 - 470 MHz / 12.5 KHz. Special 100 channels with tonesyste TRX 1012D/125 403 - 470 MHz / 12.5 KHz. Special 100 channels with tonesyste TRX 1012D/125 403 - 470 MHz / 12.5 KHz. Special 100 channels with tonesyste TRX 1012D/125 403 - 470 MHz / 12.5 KHz. Special 100 channels with tonesyste TRX 1012D/125 403 - 470 MHz / 12.5 KHz. Special 100 channels with tonesyste TRX 1012D/125 403 - 470 MHz / 12.5 KHz. Special 100 channels with tonesyste TRX 1012D/125 403 - 470 MHz / 12.5 KHz. Special 100 channels with tonesyste TRX 1012D/125 403 - 470 MHz / 12.5 KHz. Special 100 channels with tonesyste TRX 1012D/125 403 - 470 MHz / 12.5 KHz. Special 100 channels with tonesyste TRX 1012D/125 403 - 470 MHz / 12.5 KHz. Special 100 channels with tonesyste TRX 1012D/125 403 - 470 MHz / 12.5 KHz. Special 100 channels with tonesyste TRX 1012D/125 403 - 470 MHz / 12.5 KHz. Special 100 channels with tonesyste TRX 1012D/125 403 - 470 MHz / 12.5 KHz. Special 100 channels with tonesyste TRX 1012D/125 403 - 470 MHz / 12.5 KHz. Special 100 channels with tonesyste TRX 1012D/125 403 - 470 MHz / 12.5 KHz. Special 100 channels with tonesyste TRX 1012D/125 Hz / 12.5 KHz. Special 100 channels with tonesyste TRX 1012D/125 Hz / 12.5 KHz	em st
Select radio type for current configuration	

Comment:

- In this menu, we step to and select the unit type which corresponds to our specific P50EX units, i.e. frequency range 146 - 174 MHz, 25 kHz channel spacing, and special 100 channels with tone system.



Menu item: Customer info /Description



Comment:

- Here we enter all the requested data that apply to the programming.

Menu item: Basic Configuration / Channel definition

V 1	/ 1.56 TRX 1012 PC UTILITY PROGRAM Copyright (c) 2005 NIROS A/S								BAS	
CHANNEL DEF										
No	Tx Freq	Rx Freq	Ch name	Tx-Sub	Rx-Sub	LS	PA	Mon	Ext	
00	164100000	164100000	CH 1	67.0	67.0	ON	1	YES	***	
01	164125000	164125000	CH 2	71.9	71.9	ON		YES	***	
02	164150000	164150000	CH 3	67.0	67.0	ON		YES	***	
03	164175000	164175000	CH 4	100.0	100.0	ON		YES	***	
04	164200000	164200000	CH 5	100.0	100.0	ON		YES	***	
05								YES	***	
06								YES	***	
07								YES	***	
08								YES	***	
09								YES	***	
10								YES	***	
11							•	YES	***	

- Columns *Tx Freq* and *Rx Freq* are completed with selected radio frequencies for the different channels.
- Input of channel names in the column CH name.
- Columns *Tx-Sub* and *Rx-Sub* are completed with selected frequencies for subaudible signalling.
- *LS* is set to *ON*, since we want the loudspeaker to be on whenever there is communication over the channel.



	BASIC			
6-5		- KEYBOARD DEF		
On/Off	°Ch '∓	Ch 🕾	TX ON	
(s) SubAudio	LS Tgl	No Func	(T 2) No Func	
(Al.) No Func	Invert A-D	keys : No	(T SW) Volume +	(ETon) No Func
No function				
No function				+†↓→ ES

Menu item: Basic Configuration / Keyboard function

- The key *M* is set to *T_H_M_L*, whereby it can be used to select high, medium or low output power.
- The key S is set to *SubAudio*, whereby it can be used for subaudible signalling on / off.
- The arrow keys are set to *Ch* + and *Ch* -, whereby they can be used to step up and down between channel numbers.
- The "*speaker key*" is set to *LS Tgl*, whereby it can be used for loudspeaker on / off.





Menu item: Basic Configuration / Setup program / Edit system setup / Edit init setup

- *PA default setting* is set to *L*, meaning that low output power will always be applied at unit power on.
- *LS default ON* is set to *YES*, whereby the loudspeaker will be turned on automatically at power on.
- CTCSS enable is set to YES, since we want to use subaudible signalling.
- *Sound startup* is set to *YES*, since we want a tone burst at power on and power off.
- *Display light automatic* is set to *YES*, since we want the display to light up automatically whenever a key is pressed down.
- *Key cue enable* is set to *YES*, whereby the unit will emit a beep sound for each key pressing and also as a reminder that the battery needs to be charged.



Same menu as above after Page Down

🔤 C:\P50_156\PC1012.	EXE			
V 1.56	TRX 1012 PC UTILITY P Copyright (c) 2005 NIR	ROGRAM .OS A/S		BASIC
+,-,Del Select key cue volume	Thit setup Fixed/variable cue vol Display CH user No Display CH name CH display i standby Volume bar enable Battery indicator bar TX symbol enable ML symbol enable SQ symbol enable S	NO YES YES YES YES YES NO YES NO YES NO YES NO YES NO YES NO YES NO	ne End PgUp PgDn Iume level	TI ESC =



- *Display CH name* is set to *YES*, since we want display of the channel names that we have selected.
- *CH display in standby* is set to *YES*, since we want the display to show the name of the currently selected channel when the unit is in standby mode.
- Volume bar enable is set to YES, since we want the display to indicate currently set sound volume.
- *Battery indicator* is set to *YES*, since we want the display to indicate the current battery capacity.
- *TX symbol enable, HML symbol enable* and *Speaker symbol enable* are all set to *YES*, since we want these three symbols to be displayed.
- *Start-up Channel No.* is set to *0*, whereby the unit will select this channel at power on. (Note that, in our radio unit, channel 0 has the designation CH 1.)
- *Start-up Volume level* is set to *1*, whereby the unit will select this loudspeaker volume automatically at power on.
- Min vol value is set to 1 to indicate lowest possible loudspeaker volume.

CHAPTER 9

The P50EX in an "advanced" radio system

GENERAL

This chapter describes how the P50EX can be programmed in order to function in an "advanced" radio system, i.e. a system with extended functions.

Initially, in the section *System overview* below, we will describe and comment on the system solution and system function. The section *Parameters* specifies the data that the programming will be based on. The programming, finally, is described in the section *How to set the parameters*.

SYSTEM OVERVIEW

Our "advanced" radio system, as illustrated in the picture below, is based on a radio exchange, connected to five base stations and three dispatchers. The radio exchange is also connected to a company-internal PABX for communication between the mobile units and the company's regular fixed telephones. Each base station handles radio traffic over a duplex channel - channels CH1 - CH5. In addition to three duplex channels, there are two "direct channels" for communication in simplex between the mobile units.

The radio traffic is selective, i.e. each radio unit is normally called up selectively by means of tone signalling. To make it possible to contact, for example, all members of a specific working team in one call, the radio units included in that team also share a common group number. Finally, there is a general multi-call number (01000) for simultaneous calls to all mobile units.





01204	-	A	
01205		~	
01206	•	л.	
01301	•	01300	
01302		A	
01303		~	12
01304		A	•
01305		~	
01306	•	~	
01401	-	01400	-
01402		~	-
01403		λ.	-
01404		~	
01405		×.	

CALL NUMBERS

Appendix 5:A

Company:	Euroway Rescue Ltd
Compiled by	P.Smith
Date:	.9902

Comment:

 Every radio unit can be called up on its own individual number or on a group number, shared by several units.

PARAMETERS

Individual No. 1	Individual No. 2	Group No. 1	Group No. 2
01201		01200	
01202		25	-
01203	-	Α.	1



03	410,175	420,175	CH4	· · · · · · · · · · · · · · · · · · ·	•
04	410,200	420,200	CH5	•	-
05	409,125	409,125	DIRECT 1		
06	409,150	409,150	DIRECT 2		•
_					
60 S C 11		. Ne cochrana ann an th			

CHANNELS

Appendix 5:B

Company: <u>Euroway Rescue Ltd</u> Compiled by: <u>P.Smith</u> Date: <u>9902</u>

Comment:

 Note that the numbers (CH1 - CH5) that we have assigned to the channels, differ from the "logical" channel numbers 00 - 04.

Ch No Tx Freq.		Rx Freq.	Ch name	Tx-Sub	Rx-Sub
(channel number)	(transmitter frequency)	(receiver frequency)	(channel name, max. 10 characters)	(frequency for Tx subaudible signalling)	(frequency for Rx subaudible signalling)
00	410,100	420,100	CH1		
01	410,125	420,125	CH2		•
02	410,150	420,150	СНЗ		(m)
	and the second se	the state of the second s			



004	Group	01200			
005	Phone	37775	00		00
006	Direct 1			05	00
007	Direct 2			06	00
008	Alarm	11991			15
					-

ABBREVIATED NUMBERS

Appendix 5:C

Company: <u>Euroway Rescue Ltd</u> Compiled by: <u>P.Smith</u> Date: <u>9902</u>

Comment:

 Note that the group number 01200 for group 1 must be changed to 01300 and 01400, respectively, when programming radio units from groups 2 and 3.

(abbrev. number)	Display (call text)	Number (call number)	Call (call type No. X)	Ch (channel No. X)	SL (scan list No. X)
000	VDU 1	11001	00		00
001	VDU 2	11002	00		00
002	VDU 3	11003	00		00
003	Mobile	01VVV	00		00
004	Casua 1	01200	00		00


(T1)	Display light						
<u>(T2)</u>	Not used						
ÖVRIGA I	UPPGIFTER						
1. CCIR to	ne system.	11. Display light automatically on at key pressing.					
2. Tone mo	onitoring on all channels.	12. Same type of alarm signal for all activities.					
3. Call sign	halling with CALL 11.	13. Indication of set sound volume on the display.					
4. One me	nu loop.	14. Indication of battery capacity.					
5. Loudspe	eaker automatically on at unit power on.	15. Automatic selection of sound level 15 at unit power on.					
6. Tone bu	rst at power on and power off.	16. Lowest possible sound level = 2.					
7. Group 1	to be named Pipeline.	17. Presentation of Tx symbol.					
8. Alarm tr	ansmission via alarm button and Card 1.	18. Presentation of output power level (HML).					
A	ledgement of call from receiving station.	19. Loudspeaker automatically on when a connection is established.					
Acknow							

UNIT KEYS AND OTHER INFORMATION (Radio unit (ID):)

Appendix 5:D

Company	Euroway Rescue Ltd
Compiled	by: <u>P. Smith</u>
Date:	9902

(AL)	Alarm (Card 1)	
(S)	Not used	
(M)	Optional output power	
(T SW)	Volume control	n-E
	Menu selection	



HOW TO SET THE PARAMETERS

Important! In this 'advanced" system, programming is individual for all included P50EX units. Each unit has, for example, its own ID number Note that, in the following, we will only show menus where we need to set parameters for this particular system. Other menus, not displayed here, remain "intact', i.e. preset (default) parameter values are used. To make the procedure clearer, we will also comment on each action we take in the different menus. (Refer also to the program help texts under the computer's key *F1*.) How to reach the menus is explained in *chapter 6, Programming*.

Menu item: File operation / Select unit type

🔍 C:\P50_156\P0	C1012.EXE	
V 1.56	TRX 1012 PC UTILITY PROGRAM Copyright (c) 2005 NIROS A/S	ADVANCED
TRX 1012C	RADIO TYPE	
TRX 1012D TRX 1012D/200 TRX 1012D/125 TRX 1012B TRX 1012B/200 TRX 1012B/125 TRX 1012C/200 TRX 1012C/200 TRX 1012C/125 TRX 1012D/125	403 - 470 MHz / 25 KHz. Standard 16 channels with t 403 - 470 MHz / 20 KHz. Standard 16 channels with t 403 - 470 MHz / 12.5 KHz. Standard 16 channels with ton 68 - 88 MHz / 25 KHz. Special 100 channels with ton 68 - 88 MHz / 20 KHz. Special 100 channels with ton 68 - 88 MHz / 20 KHz. Special 100 channels with to 146 - 174 MHz / 25 KHz. Special 100 channels with t 146 - 174 MHz / 25 KHz. Special 100 channels with t 146 - 174 MHz / 25 KHz. Special 100 channels with t 146 - 174 MHz / 26 KHz. Special 100 channels with t 403 - 470 MHz / 25 KHz. Special 100 channels with t 403 - 470 MHz / 26 KHz. Special 100 channels with t 403 - 470 MHz / 26 KHz. Special 100 channels with t	onesystem onesystem tonesyst esystem onesystem onesystem tonesyst onesystem onesystem onesystem onesystem tonesystem
Ret Select radio ty	pe for current configuration PgUp Pg	Dn †l ESC =

Comment:

- In this menu, we step to and select the unit type which corresponds to our specific P50EX units, i.e. frequency range 403 - 470 MHz, 25 kHz channel spacing, and special 100 channels with tone system.



Menu item: Customer info / Description

🕰 C:\P50_156\PC1012.EXE		
V 1.56 TRX 1012 PC UTI Copyright (c) 20	LITY PROGRAM OS NIROS A/S	ADVANCED
CUSTOMER IN Address : The Mall 567 : St John 4678 : Person : P Smith SYSTEM DESC	FORMATION Order No Phone Info	o: 0123 : 1234567 : Radio unit 01201 :
Five base stations. Radio exchange conn Selective calls and simplex conncetion channels for simplex selective communic divided in two groups. 7 mobile radios	ected to PABX on five channe ation. 24 P50 making one gro	and three dispatchers. els. Two direct EX portable radios oup. +11+ ESC =

Comment:

- Here we enter all the requested data that apply to the programming.



Menu item: Basic configuration / Channel definition

V 1.56 TRX 1012 PC UTILITY PROGRAM Copyright (c) 2005 NIROS A/S A										
Ch	Reference :	25000 Mix	ed : NO	RNNELDE						
No	Tx Freq	Rx Freq	Ch name	Tx-Sub	Rx-Sub	LS	PA	Mon	Ext	
00	410100000	420100000	CH 1	Off	Off	OFF	1	YES	***	
01	410125000	420125000	CH 2	Off	Off	OFF		YES	***	
02	410150000	420150000	CH 3	Off	Off	OFF		YES	***	
03	410175000	420150000	CH 4	Off	Off	OFF	-	YES	***	
04	410200000	420200000	CH 5	Off	Off	OFF		YES	***	
05	409125000	409125000	Direct 1	Off	Off	ON		YES	***	
06	409150000	409150000	Direct 2	Off	Off	ON		YES	***	
07								YES	***	
08								YES	***	
09								YES	***	
10								YES	RRR	
11							-	YES	KKK (
0- Ent	9,+,-,Del,R er transmit	et,(TAB) frequency					id Pg	Up Pg	Dn +†l→ ESC	

- Columns *Tx Freq* and *Rx Freq* are completed with selected radio frequencies for the different channels.
- Input of channel names in the column CH name.
- Note that columns *Tx-Sub* and *Rx-Sub* have been set to *OFF*, since no subaudible signalling will be used.
- *LS* is set to *OFF* for channels CH1 CH5, since we want the loudspeaker to open only when a connection has been established. With *LS* set to *ON*, the loudspeaker would open as soon as the station has been set to one of the channels.



Menu item: Basic configuration / Channel definition / "Ext"

🗪 C:\P50_156\P	1012.EXE		
V 1.56	TRX 1012 Copyright	2 PC UTILITY PROGRAM E (c) 2005 NIROS A/S	ADVANCED
No 00 Tx 1	CH/ Freq 410100000	CHANNEL DEF	
TX block : NO Scan on : YE Scan list: OO	TX encoder: 00 5 Carr scan : NO 20 KHz : NO	Decoder ctl : •210 Carr scan all: NO ANI : NO	D Tone Sys ctl: CCIR Manuel scan : NO
+,-,(TAB) Select transmit	t blocking on char	Home	End PgUp PgDn +†1→ ESC =

- Note that the menu picture above is only used for channels CH1 CH5. No parameters are set in the corresponding menu picture for channels Direct 1 and 2.
- In the column *Decoder ctl* we select tone receivers 2, 1 and 0.
- In Tone Sys ctl we select tone system CCIR.
- Scan on is set to YES, since we want to have channel scanning on this channel.



Menu item: Basic configuration / CH Scanlist definition

••• C:\P50_156\P	C1012.EXE TR Cop	X 10 yrig	12 ht	PC		LIT	Y P NIR	ROG	ir am A/S						AI		
00 410100000 01 410125000 02 41015000 03 410175000 04 410200000 05 409125000 06 409150000 07 08 09 10 11 12 14 14	CH 1 CH 2 CH 3 CH 4 CH 5 Direct 1 Direct 2	0 X X X X X X	1 car	sca 2	N L 3	IST 4	5	6 PAC	7 Hom E)	8	9 nd	10 PgU	11	12 gDn	13	14	15 ESC =

Comments:

- For this particular P50EX unit, we only apply one scan list, list 0.
- No scanning on channels Direct 1 and 2, since they are direct frequencies without tone signalling.

Menu item: Basic configuration / Menu function

••• C:\P50_156\PC1012.	EXE	<u>_0×</u>
V 1.56	TRX 1012 PC UTILITY PR Copyright (c) 2005 NIRO	OGRAM S A/S ADVANCED
No Func No Func LOOP *Call Gr1 Channel LOOP No Func No Func No Func No Func No Func No Func No function	MENU DEF MENU 2 *No Func No Func Menc Menc No Func No Func	NU 3 MENU 4 Func Func Func Func Func Func Func Func

- Note that the "menu loop" for Quick Call Group 1 begin and end with LOOP.
- The asterisk (*) identifies the menu text where the loop will start at power on.



V 1.56	ADVANCED			
6-5		- KEYBOARD DEF		
On/Off	MENU_1	MENU_1	TX ON	
(S) No Func	No: Funcio	Ca]] 11	(T 2) No Func	
(Al.) Card 1	Invert A-D	keys : No	(T SW) Volume +	(ETon) No Func
Menu function 1				
+Del.Tns				

Menu item: Basic Configuration / Keyboard function

- Our selection of *MENU_1* for the arrow keys makes it possible to step between the items in the menu loop.
- *Call 11* for the , ← key means that outgoing calls are disconnected with call signalling according to the tone transmitter encoder 11.
- The key *M* is set to *T H M L*, whereby it can be used to select high, medium or low output power.
- Transmission of alarm calls with the alarm button *AI* shall be made with the call routine *Card 1*.
- The *PTT* key is set to *TX ON*, which means press for transmission.
- The key *T1* is set to *Light*, which means it will be used to turn on the display light.
- The switch *T SW* is set to *Volume* +, whereby it can be used to adjust the loudspeaker volume.

Man	itom	Doolo	appliquiration (Tana a	votom	definition	/ Canaral	noromotoro
went	пет.	Dasic	comouraiion /	TONES	vsiem	<i>demmon</i>	General	Dalameleis
					,			100000000000000000000000000000000000000

🔤 C:\P50_156\PC1012.EXE										
V 1.56	ADVANCED									
	GI	ENERAL TONE PAR	CAMETER S							
Long tone	: 000700 mS	Max	first tone :	001500 mS						
TX preamble	: 000150 mS	TX p	ostamble :	000100 mS						
Max TX resp	: 001500 mS	Def	min time :	000800 mS						
	CCIR	ZVEI	ZVEI-S	Spec. 2	Tone					
Group tone	: A	A	A	1. Tone	: 0820 Hz					
Repeat tone	: R	R	R	2. Tone	: 1320 Hz					
Norm tone	: 000100 mS	000070 mS	000070 mS							
Enter standard length for extended tones										

Comment:

- We increase TX postamble to 100 mS, which means that every outgoing call is followed by a carrier wave of 100 mS. This is done to secure the call function.

Menu item: Basic configuration / Tone system definition / Rx tone system



Comment:

- The parameters for the different tone receivers (00 - 03) are presented here, after we have selected them in the menu shown on the next page. To illustrate the procedure, we step to "tone receiver 00" in the current menu and confirm the selection with *ENTER*, which brings out the menu shown on the next page.



The menu picture shown here was selected for tone receiver 00 and applies to tone receiver 00 only. To set the parameters for tone receivers 01 - 03, you must select them accordingly in the picture on the previous page.

C:\P50_156\PC1	1012.EXE		
V 1.56	TRX 10 Copyrig	D12 PC UTILITY PROGRAM ght (c) 2005 NIROS A/S	ADVANCED
		= RX_TONECODE_0	
Call code : /I,I	I,I,I,I,B,X,X,X	с,х,х	
Ack code : /B			
L.S. Ctl. : B. O)N		
Normal		group	
Display : "EDI	T" [Call	Display : "EDIT"	
Sound No : 00	Carr	Sound No :	
a-Z,"Ret" Receive code: Ex	<. 1,2,3,I,I or	r 1,2,3,J+G,D,0,0,X,X,X	++11+ ESC -

- We want tone receiver 00 to receive selective calls, so we enter the ID number of the radio unit in the column *Call code*. In this case, we enter the ID-number by means of a reference to the *I* buffer. *B* is a 930 Hz separator tone, and the reference to the *X* buffer is intended for registration of the calling unit's call number.
- Ack code is set to /B, whereby our radio unit will transmit the CCIR tone B to acknowledge an incoming call. The slash (/) means that the tone is prolonged to 700 mS.
- *L.S. Ctl* is set to *B. ON* to make the radio function as a "slave" at incoming calls: when the calling radio unit disconnects, our unit will also be disconnected automatically.
- Display is used to enter the text we want displayed for incoming calls. In this case, we have chosen the text *CALL*.
- Sound is used to enter the sound signal we want for incoming selective calls. In this case, we have chosen sound 00. (Refer to the menu item *User sound edit* below to learn how this sound is defined.)



V 1.56	TRX 1012 PC Copyright (c)	UTILITY PROGRAM 2005 NIROS A/S	ADVANCED
00 TX_TONECODE_0 01 TX_TONECODE_1 02 TX_TONECODE_2 03 04 05 06 07 08 09 10 TX_TONECODE_11 12 13 14 15	Ready ALARM Direct *** undefined *** undefined	<pre>NESYSTEM //,V,V,V,V,V,B,I,I,I,I,I //,V,V,V,V,V,D,I,I,I,I,I //,V,V,V,V,V *** *** *** *** *** *** *** *</pre>	

Menu item: Basic configuration / Tone system definition / Tx tone system

Comment:

- The parameters for the different tone transmitters (00 - 15) are presented here, after we have selected them in the menu shown on the next page. To illustrate the procedure, we step to "tone transmitter 00" in the current menu and confirm the selection with *ENTER*, which brings out the menu shown on the next page.



The menu picture shown here was selected for tone transmitter 00 and applies to tone transmitter 00 only. To set the parameters for tone transmitters 01 - 15, you must select them accordingly in the picture on the

C:\P50_156\PC101	2.EXE		
V 1.56	TRX 1012 PC UTILI Copyright (c) 2005	TY PROGRAM NIROS A/S	ADVANCED
	TX_TONECOD	E_0	
Resp type : TONE	TX monitor : NO	Carr check : YES	
Call code : /V,V,V,	V,V,B,I,I,I,I,I		
Resp code : I,I,I,I Resp time : 001500	,I		
Display : "EDIT"	Ready		
Sound : L.S. Ctl. : A. ON Err sound : Close down: NO			
a-Z,"Ret" Transmit code: Ex.	1,2,3,V,V or /1,2,3,V,	V,B,0,0,I,I,I or ∕(1300)	P. HTLH ESC -

- By setting *Resp tone* to *TONE*, we indicate that we expect a tone sequence from the other unit as an acknowledgement of our call.
- *Carr check* is set to *YES*, meaning that our unit will check for carrier wave before transmitting a call.
- *Call code* is set to /V, V, V, V, V, B, I, I, I, I, I. The character / means that the first tone will be prolonged; V, V, V, V, W means that the call number is retrieved from the V buffer; *B* is a separator tone; 1, 1, 1, 1, 1 is our own call number, as an information to the receiving party of who the caller is.
- *Resp code* is set to *I,I,I,I,I* which means that our own call number will be used as the receiving unit's ackowledgement.
- *Resp time* is set to *001500* = the maximum time that our unit will wait for acknowledgement.
- *Display* is used to enter the text we want displayed when a connection has been established with the called-up radio. In this case, we have chosen the text *Ready*.



/ 1.56 TRX 1012 PC UTILITY PROGRAM Copyright (c) 2005 NIROS A/S	ADVANCED
SOUND	
<mark>Edit user sound O</mark> Edit user sound 1	
Edit user sound 2 Edit user sound 3	
Edit user sound 4 Edit user sound 5	
Edit user sound 6 Edit user sound 7	
Edit user sound 8 Edit user sound 9	
"DeadMan alarm" "Battery Low"	

Menu item: Basic configuration / Tone system definition / User sound edit

Comment:

- We only define one alarm tone here - *sound 0*. So we step to "*Edit user sound 0*" in the menu picture and confirm the selection, which brings out the menu below.

ex C:\P50_156\PC1012.EXE		
V 1.56 Ti Co	RX 1012 PC UTILITY PROGRAM pyright (c) 2005 NIROS A/S	ADVANCED
Volume 25 Rep 03	SOUND SOUND_0 Sequence 1 Volume Vol Rep 01	Sequence 2 Volume Vol Rep 01
Tone Time Pause 0 0781 0100 0010 1 1250 0100 0000 2 None 0000 0000	Tone Time Pause O None 0000 0000 1 None 0000 0000 2 None 0000 0000	Топе Time Раизе О None 0000 0000 1 None 0000 0000 2 None 0000 0000
0-9.+,- Set fixed volume level (V	ol = current volume level)	

Comment:

- Our alarm tone is made up of one single sequence, consisting of two 100 ms tones with frequency 731 and 1250 Hz, respectively, and a 10 ms pause between them.



Menu item: Basic configuration / Quick user setup

<u>C:N</u>	C:\/	Р5	0_	156	5\PC1	012.E	XE							
ľ							TRX 101 Copyrigh	2 PC U t (c)	TILITY 2005 N	PRO IROS	GRAM A/S		A	DVANCED
G	LG	2	G3	G4	Card	Num	Display	OUICK Num	SETUP Call	Ch	A_Num	Sc_Ena	Ch_Ex	SL_Num
*****	A THE PARTY OF A THE			NA 1011010000000000000000000000000000000		000 001 002 003 004 005 006 007 008 009 010	VDU 1 VDU 2 VDU 3 Mobile Group Phone Direct 1 Direct 2 ALARM	11001 11002 11003 01VVV 01200 3VVVV		05		YES YES YES YES NO NO YES	YES YES YES YES YES NO NO YES	00 00 00 00 00 00 00 15
			-			012 013			Ξ.					
E	a-Z ite	," r	Ret dis	t" spl:	ay te:	<t fo<="" td=""><td>r quick ca</td><td>11 numl</td><td>oer (</td><td></td><td>Home E</td><td>nd PgUp</td><td>PgDn +†</td><td>I→ ESC =</td></t>	r quick ca	11 numl	oer (Home E	nd PgUp	PgDn +†	I→ ESC =

Comments:

- We have chosen to have all the abbreviated numbers in one group only: *G1* (Quick Call Group 1). The only exception is the alarm call, which is transmitted when the alarm key is pressed.
- The alarm call has been assigned scan list 15, which means that the transmission will continue until some other unit has acknowledged it.

Menu item: Basic configuration / Search Scanlist definition

ex C:\P50_156\P0	E 1012.EXE TR Cop	x 10 yrig	12 ht	PC	UTI 20	LIT	Y P NIR	ROG	ir.am A/s						AI		
00 410100000 01 410125000 02 410150000 03 410175000 04 410200000 05 409125000 06 409150000 07 08 08 10 11 12 14 14	CH 1 CH 2 CH 3 CH 4 CH 5 Direct 1 Direct 2	oxxxxx	1 	sca 2	N L 3 g 1	IST 4	5	6 PAC	7 Hom E)	8) 	9 ind	10 PgU	11 •	12 	13	14	15 XX XX ESC

- Here we only apply list 0 for outgoing calls. The list includes all channels CH1 CH5, so the radio will select a currently free channel for an outgoing call.
- List 15 (for outgoing alarm calls) also includes channels CH1 CH5.



Menu item: Basic configuration / Setup program /Edit user setup

💀 C:\P50_156\PC1012.I	EXE	
V 1.56	TRX 1012 PC UTILITY PROGRAM Copyright (c) 2005 NIROS A/S	ADVANCED
	USER SETUP	
(I) : 01201000	(M) : 999999999	
(1): 01200000	(V) : 00000	
(K) : 00000000	(W) : 000	
(L) : 11111111		
0-9,"Ret" Enter "I" digits		= +t↓+ ESC =

- The / buffer is used for input of our P50EX unit's call number 01201.
- The *J* buffer is used for input of the group's call number 01200.

V 1.56	TRX 1012 PC UTILITY P Copyright (c) 2005 NIR	ROGRAM	ADVANCED
	Init setup Setup name *** Clear setup *** FLAG SECTION PA default setting Dead Man func. enable Enable A-E in QC var LS default ON Auto fallback CTCSS enable Sound startup Inhibit monophone Enable Int and Ext LS Display light automatic Key cue enable	INIT *** NO NO YES NO YES NO YES YES YES	

Menu item: Basic configuration / Setup program / Edit system setup / Edit init setup

- *PA default setting* is set to *L*, meaning that low output power will always be applied at unit power on.
- LS default ON is set to YES, whereby the loudspeaker will be turned on automatically at power on.
- Sound startup is set to YES, since we want a tone burst at power on and power off.
- *Display light automatic* is set to *YES*, since we want the display to light up automatically whenever a key is pressed down.
- *Key cue enable* is set to *YES*, whereby the unit will emit a beep sound for each key pressing and also as a reminder that the battery needs to be charged.



Same menu as above after PageDown

🚾 C:\P50_156\/	PC1012.EXE	
V 1.56	TRX 1012 PC UTILITY PROGRAM Copyright (c) 2005 NIROS A/S	ADVANCED
	Init setupFixed/variable cue volNODisplay CH user NoNODisplay CH nameYESCH display i standbyYESVolume bar enableYESBattery indicator barYESTX symbol enableYESHML symbol enableYESSQ symbol enableNOSpeaker symbol enableYESKeyLock excl Rotary enaNO STATUS SECTION***Start-up Channel No.0	
+,-,Del Select key cu	e volume - NO = fixed, YES = current volume	nd PgUp PgDn †1 ESC — Tevel
	Start-up Channel No. 0 Start-up Volume level 15 Min vol value 2 Max vol value 31 END	

Comments

- *Display CH name* is set to *YES*, since we want display of the channel names that we have selected.

+,-,Del Select symbols H M L to display current power setting

- *CH display in standby* is set to *YES*, since we want the display to show the name of the currently selected channel when the unit is in standby mode.
- Volume bar enable is set to YES, since we want the display to indicate currently set sound volume.
- *Battery indicator* is set to YES, since we want the display to indicate current battery capacity.
- *TX symbol enable*, *HML symbol enable* and *Speaker symbol enable* are all set to *YES*, since we want these three symbols to be displayed.
- *Start-up Channel No.* is set to *0*, whereby the unit will select this channel at power on. (Note that, in our radio unit, channel 0 has the designation CH 1.)
- Start-up volume level is set to 15, whereby the unit will select this loudspeaker volume automatically at power on.
- *Min vol value* is set to 2 to indicate lowest possible loudspeaker volume.



	TRX 1012 PC U Copyright (c)	TILITY PROGRAM 2005 NIROS A/S	ADVANCED
	FUNCTIO [QUIT CAL] [COPY 1-2] [COPY 2-1] [6 V Ref] [TONEBEEP] [TONEBEEP] [Call Gr1] [Call Gr2] [Call Gr3] [Call Gr4] [Card 1] [Card 2] [Card 3]	N STRING	
a-Z Message at qui	ck call group 1 menu	Home End Pgl	Jp PgDn †↓ ESC

Menu item: Special functions / Function message edit

Comment:

- Input of Pipeline, which is the name of our working team, Group 1. Scrolling the menu to "*Call Gr1*" will then result in display of the text PIPELINE.



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