
CR SINGLE DIGITAL application version 1.0.34 13-02-2014

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SYSTEM PARAMETERS IN THE CALL RECORDER SINGLE

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The System Parameters can be accessed with the keyboard as follows:

- 1) Press the Install-Recorder key.
- 2) Press the >>> key a few times, until "System Parameters".
- 3) Press softkey START.

Inside System Parameters the following functions are available:

- To jump to the next parameter without change, press NEXT.
- To enter a number, use the numeric keys, then press NEXT.
- To enter 'Yes' or 'No' press softkey YES or NO, then NEXT.
- To enter 'Off' press * (star), then NEXT.
- To stop, press softkey STOP, then select YES or NO to store.
- The >>> key acts the same as softkey NEXT.
- It is not possible to step backwards to the previous parameter.

> 'Service Password (OFF/<max.8>)' [OFF]

This password can be used to prevent the normal user from entering the installation menu. In that case, the installation must be done by a system or service manager.

If activated, it overwrites the user password. The user password is then only used for playback and for the disk menu.

A numeric string of maximal 8 numbers can be filled in. Setting the string to "OFF" (use * from the keypad) will disable the service password again.

> 'Call Recorder ID (OFF/<max.2>)' [xx]
> 'Rename All Recordings (Y/N)' [No]

This ID is used by the PC archive software and is therefore very important. It may not be changed without consulting the system or archive manager! After entering a 2 digit number, the next question must be answered with Yes.

> 'Stereo Recording (Y/N)' [No]

All recordings can be stored in stereo mode. Files are twice as big then. Stereo and compression both enabled does not work correctly. Therefore, if stereo mode is enabled, compression is automatically disabled.

This means that stereo wav-files are always in the G.711 format.

Stereo mode is only available when the Start method is on Protocol!

> 'Notification Beep Interval (0-300/sec)' [0]

If set to non-zero then system message 47 is played at the set interval. This message is standard included and contains a short beep that can be heard at both sides. The beep can be changed by overwriting the file "MESS347.6" with ftp. It must be a small wave file of max 8 kB with the format G.711 A-Law, 8 kHz, Mono.

Default this file contains a beep of 1400 Hz with a length of 180 ms.

The notification beep works independant of the notification message.

The value zero disables the beep again.

> 'Disable Notification (Y/N)' [No]

The notification function in the recorder can be disabled completely here.

```

> 'Disable SD-Card (Y/N)' [No]
-----
The SD-Card interface can be disabled completely.

> 'Disable ChipCard (Y/N)' [No]
-----
The chipcard interface can be disabled completely.

> 'Disable Encryption (Y/N)' [No]
-----
Encryption can be disabled here. The chipcard number is still stored as
part of the recording file name in that case.
Also, the chipcard can still be used to protect the menu's.

> 'No Card Disables Menu's (Y/N)' [No]
-----
All menu functions can be disabled if no card is inserted.
By entering the chipcard numbers above, the machine can be closed for
all other persons not owning these cards.

> 'Search Card Number only (Y/N)' [No]
-----
If set to 'Yes' and a CryptoCard is inserted, the Call Recorder will only
search for recordings with a matching card number. If no card is inserted,
only the no-card-recordings are shown in that case.

> 'Search Date thru Last (Y/N)' [No]
-----
This parameter has effect on how the date is treated when searching for
playback files. Default, the system searches for the entered date only.
If set to Yes, the system searches for files from that date and onwards.

> 'Possibility to Erase (Y/N)' [Yes]
-----
The possibility to erase the recorded files in the playback menu can be
disabled or enabled.
Erasing a recording is done by overwriting it with zero-bytes and then
the file is renamed. So, no disk space comes free.

> 'Take Clock from PSTN (Y/N)' [Yes]
-----
The internal clock (date & time) can be synchronized with the clock from
the public network. Only the clock coming from the NT side (PSTN) is used
then and this is done once per day.
This feature is only available when the ISDN protocol is selected.
Another way to get the clock from the outside world is NTP over the LAN.

> 'Reversed Rx/Tx Operation (Y/N)' [No]
-----
If the used cable has reversed Rx/Tx wires then this parameter can be
set to solve it with software.
The D-channel commands are interpreted reversed and the notification
message on the B-channel is send to the other side.

> 'Reversed Rx/Tx Bit-order (Y/N)' [No]
-----
This can be set if the bytes in the B-channels have reversed bit-order.

> 'Disable CRC Check (Y/N)' [No]
-----
D-channel frames are normally checked for good reception and not processed
if the CRC is incorrect. Disabling this feature is more for test purposes.

> 'Disable Connected Number (Y/N)' [No]
> 'Disable Remote Number (Y/N)' [No]
-----

```

These parameters are used in combination with the black/white list.
When disabled the connected and/or remote number are not used.
The extension number (phone's own number) is always used for descissions.

> 'Use Redirecting Number (Y/N)' [No]

If enabled (on Yes) then the number from info element 'Redirecting number' is used for the e-maillist. Else the normal 'Called party number' is taken.

> 'Strip 0's from Numberlist (Y/N)' [Yes]

> 'Strip 0's from File Code (Y/N)' [Yes]

Leading 0's are stripped from numbers longer than 7 digits by default.
Maintaining the numberlists (black/fax list) and searching for numbers later on in any archiving software is easier that way.
NOTE: Disabling the stripping may not work well with some digital protocols!

> 'Record Incoming Calls (Y/N)' [Yes]

> 'Record Outgoing Calls (Y/N)' [Yes]

Only incoming or only outgoing calls can be recorded.

> 'Record during Ringing (Y/N)' [No]

If set to Yes, the recording is started as soon as the phone starts ringing. Also on the remote side, for outgoing calls.

> 'Record Protocol 8 only (Y/N)' [No]

> 'Record Audio/Speech only (Y/N)' [No]

> 'Record 64k Rate only (Y/N)' [No]

> 'Record A-Law/u-Law only (Y/N)' [No]

These parameters can be checked inside the ISDN protocol.
Starting a recording can depend on them.

> 'Audio Data is u-Law (Y/N)' [No]

> 'Data Rate is 56 kbs (Y/N)' [No]

The Audio parameter determines what type of data is in the B-channels.
On No means that G.711 A-Law data is expected.
On Yes means that G.711 u-Law data is expected. However, recordings will still produce A-Law wav-files.
The Rate parameter is probably only used for US ISDN lines (4-wire).

> 'Start B-channels Early (Y/N)' [Yes]

> 'Open Recorder Files Early (Y/N)' [No]

If only B-channels are started early, data is already stored in buffers until the call is connected and the file is opened (pre-recording).
This prevents that the first words of a call are missed.
If both parameters are set to Yes, the complete call is recorded from the dialing or ringing process onwards, including not-connected calls.

> 'Store Ringing Time (Y/N)' [No]

The card-field in the file name can be used to store the ringing time.
This is the time between the phone is ringing and the call is taken.
The value can be used in statistics software on the PC.
For not-connected calls this time is always stored.
If the cryptocard is enabled then this parameter is ignored.

> 'Store Not-connected Inc. (Y/N)' [No]

> 'Store Not-connected Out. (Y/N)' [No]

> 'Store with Number only (Y/N)' [Yes]

If a speech call is not-connected, an empty file can be created to report

this call in playback mode.

This is separately installable for incoming and outgoing speech calls. Also if a call is a data connection, an empty file can be created. Additionally for these types of calls, the empty file is only created if there is a phonenumber available.

> 'Process Facility (Y/N)' [No]

The Facility message on the D-channel is sometimes used by the PBX to show a connect thru action at the internal side of the PBX. If the message includes a number, a new recording is started (except if it exists in the blacklist).

> 'E-mail All Calls (Y/N)' [No]

All recordings can be mailed as a WAV attachment. If the remote number is found in the e-mail list then the corresponding address is used, else the mail is sent to the system address from the LAN settings.

> 'Recording Start Time 1 (OFF/<HH:MM>)' [OFF]
> 'Recording Stop Time 1 (OFF/<HH:MM>)' [OFF]
> 'Recording Start Time 2 (OFF/<HH:MM>)' [OFF]
> 'Recording Stop Time 2 (OFF/<HH:MM>)' [OFF]
> 'Recording Week Days (1=sunday)' [1234567]

Timed starting and stopping of recordings can be installed here. The recording days will only work if the start-stop time is used! To record working hours only for example:
start1=09:00 , stop1=17:00 , start2=off , stop2=off , days=2345
Or start1=08:30 , stop1=12:00 , start2=13:00 , stop2=17:30 , days=23456

> 'Line Connect Time (x100ms)' [80]

This parameter is only used when the recorder is operating in sniff mode. So, the hidden Recorder Parameter In-Line mode must be set to Off then. If no line is detected in that case the recorder tries each 8 seconds to re-connect the line. In 2-wire mode this means that the line is disturbed by the recorder, hoping that the phone and PBX are re-connecting again. If set to 0 it will disable the re-connection feature, but then it might happen that the user doesn't notice that no recordings are made anymore.

> 'Line Disconnect Time (x100ms)' [6]

This time is used as a debounce for detecting a line disconnect-error. The value 0 disables the line-disconnect detection (not recommended).

> 'State Machine Mask TE (0-255)' [3]
> 'State Machine Mask NT (0-255)' [7]

Both phone and PBX sides (TE and NT) are constantly checked for the right layer1 state (TE must be G3 and NT must be F7). If the state changes when a line is busy, the disconnect-error is generated on the display. Recording on that line is stopped. If set to 0, the state is not checked anymore and the line disconnect-error is disabled for that side. Pressing * on the keypad during normal operation will show the status of both sides: In/Out = PBX/Phone = NT/TE = 97/93 (if ok).

> 'State Machine Force ' [0]

Normally (if on 0) the layer1 states are passed from the phone side to the PBX side and the other way around. With this parameter the layer1 states can be forced into fixed values:
bits0-3 = 0-8 = NT PBX side = TE mode = F0-F8
bits4-6 = 0-4 = TE Phone side = NT mode = G0-G4
For example: Connected state for both sides (F7/G3) = 7+3x16 = 55.

Setting bit7 (+128) disables pass through of the state from NT<>TE.

```
> 'D-channel Poll Timer      (0-320/0.1ms)' [0]
> 'D-channel Error Count    (0-32767)' [4]
```

These parameters must not be changed.

```
> 'B-channel Message Config  (0-255)' [3]
> 'B-channel Sound Config    (0-255)' [83]
```

'Message' is the Notification message.
'Sound' are beeps or other sound notification (currently not used).
The following values are possible:
 3 = Message/Sound heard on both Line-In/PBX and Line-Out/Phone.
 67 = Message/Sound heard on Line-In/PBX only.
 83 = Message/Sound heard on Line-Out/Phone only.

```
> 'Maximum Part Time        (1-7200/min)' [240]
> 'Maximum Parts per Call   (0-1000)' [18]
```

This parameter is important and will effect all recordings.
After the Maximum Part Time a recording is closed and a new file is
opened automatically. Long calls are divided into parts.
The default part size is 4 hours.
The Maximum Parts per Call is build in for savety reasons.
A call can be max 72 hours long. After that, recording is stopped.

```
> 'Pre-recording Time       (0-32767/25ms)' [10]
```

Before the recorded data is stored in a file, it is stored in a buffer.
At the time the file is opened (start of call) some 'pre-recorded' data
can be taken from that buffer.
For GSM mode (compression enabled) the value is per 25 ms (max 60 secs).
For G.711 mode (compression disabled) the value is per 30 ms.

```
> 'Record Service Time     (0-255/10ms)' [0]
```

This parameter must not be changed.

```
> 'Compression Quality      (0-15)' [3]
```

Compression is default on GSM 6.10. Other formats are:

```
Quality 3 = GSM 6.10      = 1625 bytes/sec (default)
Quality 6 = G.711 A-Law  = 8000 bytes/sec (same as 'Compression Off')
Quality 7 = G.711 u-Law  = 8000 bytes/sec
```

```
> 'Microphone Quality       (0-15)' [6]
```

Microphone recordings are used for the notification message.
At the moment, only G.711 A-Law is supported (quality 6).

```
> 'Microphone Gain          (0-127)' [25]
```

Bits0-4 (0-31) are used for the gain and bit6 enables a 20dB boost.

```
> 'Recording Gain           (0-15)' [6]
```

This gain is only used for microphone recordings (notification) and can be
set from 0 till 15 (15 = loudest).

```
> 'Speaker Volume           (0-31)' [20]
> 'Headset Volume           (0-31)' [25]
> 'Operate Beeps Volume     (0-31)' [10]
> 'Alarm Beeps Volume       (0-31)' [15]
```

These volume settings are additional offsets apart from the normal playback volume. The maximum value is 31.

> 'SD-Card Date Directories (Y/N)' [Yes]

If set to Yes then recordings are stored in directory \RECORDER\YYMMDD.
If set to No then all recordings are stored in one directory \RECORDER.

> 'SD-Card Day Directories (Y/N)' [No]

Alternatively recordings can be stored on the SD-card in directories that have the day of the month in the dir-name; \RECORDER\1 till \RECORDER\31.

> 'SD-Card Clock & Options (0-32767)' [2]

Bit0 is used to define the behaviour of the connected telephone during automatic file copy to the card (menu setting "Copy to SD = On"):
bit8 =0= telephone does not work during copy
bit8 =1= telephone works during copy
Default the telephone does not work during copy, which is the most safe way of operating, in case the copy fails or hangs.
Bits1-7 define the SPI clock speed, used to communicate with SD-Cards.
It must be an even number between 2 and 254. The clock is calculated as follows: 14745600 Hz / factor (so the default is 7372800 Hz = 7.37 MHz).

> 'I2C Error Threshold (0-32767)' [0]

> 'I2C Controller Timer (0-320/0.1ms)' [0]

These parameters must not be changed.

> 'FIFO's Configuration	' [256]	< FUNC2	(0x01/0x00)
> 'Synchronization Source	' [256]	< FUNC4	(0x00)
> 'Interface Control 0	' [256]	< FUNC5	(0x03)
> 'Interface Control 1	' [256]	< FUNC6	(0x01)
> 'Interface Control 2	' [256]	< FUNC7	(0x03 or 0x0B!)
> 'Interface Control 3	' [256]	< FUNC8/9	(0x7C/0x01)
> 'Clock Control TE mode	' [256]	< FUNC10/12	(0x0E/0x0F)
> 'Clock Control NT mode	' [256]	< FUNC11	(0x6C)
> 'Multi/Superframe TX TE	' [256]	< FUNC15	(0x0F)
> 'Multi/Superframe TX NT	' [256]	< FUNC16	(0x0F)
> 'Multi/Superframe Flow	' [256]	< FUNC17	(0x00 or 0x0D!)
> 'PCM Mode 0	' [256]	< FUNC18	(0x01)
> 'PCM Mode 1	' [256]	< FUNC19	(0x00)
> 'PCM Mode 2	' [256]	< FUNC20	(0x00)
> 'PCM Synchronization 0	' [256]	< FUNC21	(0x00)
> 'PCM Synchronization 1	' [256]	< FUNC22	(0x00)
> 'HDLC Flow Config	' [256]	< FUNC28	(0xD9)

Each parameter represents a register setting in the line interface chip.
The value 256 means that the OS default is used, see hex value between ().
These parameters must not be changed without the proper knowledge.

> 'Disable Key-Click (Y/N)' [No]

Beeps on the speaker when entering a number or name can be disabled.

> 'Timeout for Code Keys (30-300/10ms)' [66]

This timeout is used when entering a searchcode. It defines the maximum time between pressing a key on the keypad more than once, to enter a character.

> 'Serial Baud Rate (1-31)' [0]

The baud rate is used to enter the machine locally with a terminal:
(If 16 is added to the baud rate, the start-bits are set to 2.)

baud rate = 0 = 57600 default
baud rate = 2 = 300
baud rate = 3 = 600
baud rate = 4 = 1200
baud rate = 5 = 2400
baud rate = 6 = 4800
baud rate = 8 = 9600
baud rate = 10 = 19200
baud rate = 11 = 38400
baud rate = 12 = 57600
baud rate = 13 = 115200
baud rate = 14 = 230400

> 'Display Light Control (0-32767/sec)' [10]

The 16bit value is as follows:

bits0-7 = active-to-inactive delay in seconds
bit10=1 => bits8+9 = active value 0-3 for rack model
bit13=1 => bits11+12= inactive value 0-3 for rack model

Examples:

10 = 10 secs, active=medium, inactive=low
0 = light always low
255 = light always medium
9216 = light always off (rack only)
9482 = 10 secs, active=low , inactive=off (rack only)
9738 = 10 secs, active=medium, inactive=off ,,
12042 = 10 secs, active=high , inactive=low ,,

> 'Overheated Temperature (0-255)' [55]

The temperature is in degrees Celcius (default 55 C).
Setting this parameter to 0 prevents that the system detects overheating.
Disabling the temperatur-check is not recommended.

> 'Sound Chip Sleep Mode (Y/N)' [Yes]

The AC97 sound chip, used for monitoring and playback, is put into sleep mode if not used (low power mode).

> 'Display Sound Chip Error (Y/N)' [Yes]

If no sound chip was found, an error is displayed and beeps are heard.
This can be disabled and recording can continue normally. Playback or channel-monitoring is not possible then.

> 'CPU Fastbus/Sync/Async (0,1,2,3)' [0]

> 'Disable MMU & D-cache (Y/N)' [No]

> 'Disable I-cache (Y/N)' [No]

> 'Disable Watchdog (Y/N)' [No]

These parameters must not be changed! Used for debug purposes.

> 'Disable Error Log (Y/N)' [Yes]

Errors and resets can be stored in the file "ERROR.LOG".

> 'Disable STOP on Keyboard (Y/N)' [Yes]

The keyboard code to directly jump to system mode can be enabled here.
Only used for debug purposes.

> 'Disk Free Hours (0-30000)' [0]

If set then the directory starts rotating if the free space on disk becomes less than this value.

Rotating in this way is done at night, after the directory mirror has been made.
The value 0 will calculate a number that is depending on the maximum number of simultaneously recorded channels for 12 hours per channel per day. During normally operation, rotating also happens if the free space on disk becomes less then the 'Maximum Part Time' (see above).

> 'Disk Full Warning (0-1000/MB)' [0]

If set (non-zero), the system checks for the disk to become full. If found almost full, it is shown in the display and beeps are heard. 1 MB is about 20 minutes of speech storage in G.723 mode and 2 minutes in G.711 mode (uncompressed).

> 'Disk Park Time (0-1275/sec)' [600]

After 10 minutes of no action, the disk stops spinning and low power mode is entered automatically. The value can only be set in steps of 5 seconds. The value 0 will disable this feature, but is not recommended.

> 'Disk Start Early (Y/N)' [Yes]

Default, the disk starts spinning as soon as a call is detected. Otherwise, it is started as soon as a recording is opened.

> 'Enable Disk Restore (Y/N)' [No]
> 'Enable Disk Seek (Y/N)' [Yes]
> 'Enable Disk Errors (Y/N)' [No]

These parameters must not be changed.

> 'Predict Disk Failure (Y/N)' [Yes]
> 'Autosave Disk Failure (Y/N)' [No]

Failure prediction is a feature of the disk (S.M.A.R.T. standard). If enabled in the application (by default) and a problem is found, a warning message will be display on the LCD. The disk's failure-status is checked after each recording and when entering the disk menu.

> 'Automatic Mirror Time (OFF/HH:MM>)' [06:01]

If the power is left on, the system automatically makes a copy (mirror) of the directory on the disk at the installed time. If problems are encountered later on, the latest mirror can be retrieved. At this time, the disk is also checked for other problems and repaired if possible. If 'Days to Keep Recordings' is enabled (see below) old files are deleted at this time after saving the mirror. The last digit on "1" will reset the Up/ISDN chips before restart. The last digit on "3" will reset all hardware before restart. Do not set this parameter to 'OFF'.

***** End of System Parameters *****

=====
NETWORK PARAMETERS IN THE CALL RECORDER SINGLE
=====

The Network Parameters can be accessed with the keyboard as follows:

- 1) Press the Install-Recorder key.
- 2) Press the >>> key a few times, until "Network Parameters".
- 3) Press softkey START.

Further control is the same as System Parameters (see above).
Most of these parameters can also be changed in the normal Install-LAN menu.

```
-----
> 'Service with LAN (Y/N)' [No]
-----
This will set 'Network active' in the normal LAN menu.

> 'Service Timer (0-255/10ms)' [0]
-----
The value 0 is the same as 'Auto' in the normal LAN menu. Other values:

    Slow: S1=1 , S2=2 , S3=3 , S4=4 , S5=5 (slowest)
    Fast: F1=65 , F2=129 , F3=193
    Ultra: U1=33 , U2=97 , U3=49 (fastest)

> 'Display 'Not Connected' (Y/N)' [No]
-----
If the network is enabled and the cable is removed an error can be
displayed and beeps are heard.

> 'Enable 100 Mbps (Y/N)' [Yes]
-----
If disabled, the network interface is fixed to 10 Mb.
In that case, also 'Autonegotiation' must be disabled.

> 'Enable Full Duplex (Y/N)' [Yes]
-----
If disabled, the network interface is fixed to half duplex operation.
In that case, also 'Autonegotiation' must be disabled.

> 'Enable Autonegotiation (Y/N)' [Yes]
-----
This enables or disables low level negotiation (10/100 Mb).

> 'Enable Re-Init (Y/N)' [No]
-----
This enables automatic periodic initiation of the network interface.
With a fixed IP address this is done each minute. With a DHCP server it is
done each 5 minutes. Only done if there is no ftp connection at that time.

> 'Enable TelNet (Y/N)' [No]
-----
This can be enabled for remote maintainance.
After connecting with TelNet, the user must enter "ATMENU" at the remote
site to get the system menu.

> 'Enable FTP (Y/N)' [No]
> 'FTP User ID (OFF/<max.31>)' [0000]
> 'FTP Password (OFF/<max.31>)' [0000]
> 'FTP Server Port (0-65535)' [0]
-----
See normal manual.

> 'FTP Failure Timeout (0-32767/sec)' [0]
-----
The default ftp overall timeout is 150 seconds.
The default ftp no-data-transfer timeout is 40 seconds.
Settings the failure timeout will set both these timeouts.
Settings the failure timeout to an odd value (bit0=1) disables the
no-data-transfer timeout, but not the overall timeout.

> 'FTP Erase Recordings (Y/N)' [No]
-----
If set to 'Yes', the archived recordings can be erased using ftp.
```

> 'FTP List Open Files (Y/N)' [No]

If set to 'Yes', all open files (busy recordings) are included in the ftp list. The PC Access Software must be a compatible version!

> 'E-mail Destination (OFF/<max.63>)' []
> 'E-mail Source/Reply (OFF/<max.63>)' []
> 'E-mail Server Address (OFF/#.#.#.#)' [OFF]
> 'E-mail Server Name (OFF/<max.47>)' [OFF]
> 'E-mail Server Port (0-65535)' [0]
> 'E-mail Send Tries (0-9)' [3]
> 'E-mail Delete after Fail (Y/N)' [No]
> 'Use SMTP Login (Y/N)' [No]
> 'SMTP User ID (OFF/<max.47>)' []
> 'SMTP Password (OFF/<max.47>)' []
> 'DNS Server Address (OFF/#.#.#.#)' [OFF]
> 'Domain Name (OFF/<max.47>)' [...]

E-mail stuff.

> 'NTP Server IP Address (OFF/#.#.#.#)' [OFF]
> 'NTP Server Name (OFF/<max.47>)' [OFF]
> 'NTP Server Port (0-65535)' [123]
> 'GMT Correction (minutes)' [60]
> 'Disable Summer Time (Y/N)' [No]

Network Time Protocol stuff (automatic clock update).

> 'Use DHCP Server (Y/N)' [Yes]
> 'IP Source Address (OFF/#.#.#.#)' [OFF]
> 'IP Subnet Mask (OFF/#.#.#.#)' [OFF]
> 'IP Gateway Address (OFF/#.#.#.#)' [OFF]
> 'IP Name (OFF/<max.47>)' [...]

See normal manual.

> 'IP Packet Size (0-1518)' [0]

The default packet size is the maximum.
A value of 1024 or 512 can be tried if there are problems.

> 'Enable Voice Monitor (Y/N)' [No]
> 'Voice Monitor Password (OFF/<max.31>)' [0000]

See normal manual.

> 'Voice Monitor on Display (Y/N)' [Yes]

A voice monitor connection is shown on the display as 'LAN-MON' in stead of the day-of-the-week.

> 'Ethernet Address (OFF/hhhhhhhhhhhh)' [...]

This parameter must not be changed!

> 'Enable LAN Chip Error (Y/N)' [Yes]

If the LAN hardware fails an error occurs on the display and beeps are heard over the speaker. All recording continues normally in that case.

***** End of Network Parameters *****

=====

RECORDER PARAMETERS IN THE CALL RECORDER SINGLE

=====

The Network Parameters can be accessed with the keyboard as follows:

- 1) Press the Install-Recorder key.
- 2) Press the >>> key a few times, until "Recorder Parameters".
- 3) Press softkey START.

Further control is the same as System Parameters (see above).
Most of these parameters can also be changed in the normal Install-LAN menu.

> 'Operator Password (OFF/<max.8>)' [OFF]

This is the user password from the normal installation menu.

> 'Local Extension (OFF/<max.15>)' []

A number or name can be entered here. It is used in the file name of the recordings (chars 21-35, local number).
The local number is sometimes retrieved automatically from the line/protocol (Siemens after first call and ISDN always).
If no local number appears in the CRAS PC software it can be filled in here.

> 'Interface 2/4-wire (2/4)' [2]

See normal installation menu.

> 'Start and Stop Method (0-4)' [4]

The following values are valid:
0 = Activity/Idle detection
1 = Audio/Silence detection
2 = External Switch
3 = Manually
4 = Protocol from command channel

> 'Digital Protocol (0-99)' [3]

The following values are valid:
0 = None/Off
1 = Unknown
2 = ISDN (ITU & Euro)
3 = SIEMENS on HiPath/HiCom (new method)
4 = SIEMENS on HiPath/HiCom (old method)
5 = reserved
6 = AVAYA on Integral Enterprise
7 = AVAYA on IP Office
8 = AASTRA-DeTeWe on OpenCom100/1000
9 = PHILIPS on IS3000 series

The recorder is always looking for number information in the command channel, even if the start method is set other than 'Protocol'!
Automatically the value 1 is selected then. The number search can be disabled completely by setting this parameter to 0.

> 'Idle Word Channel 1 (0-65535)' [832]

> 'Idle Word Channel 2 (0-65535)' [832]

These values come from the 'Activity detect Settings' in the normal installation menu.

> 'Start/Stop Sensitivity (x10ms)' [5]

This parameter is used for the start methods Activity, Audio and Switch.
It is a debounce/delay for the start and stop detections (default 50ms).

> 'Silence Period (x100ms)' [100]

Only used when the start method is on Audio. See normal installation menu.

> 'Start Level (0-32767)' [400]

> 'Stop Level (0-32767)' [200]

These values come from the 'Audio detect Settings' in the normal installation menu.

> 'Level Control (0-255)' [3]

Start control in bits0+1:
1 = Use level from NT/PBX side only.
2 = Use level from TE/Phone side only.
0/3= Use level from both sides.
Stop control in bits4+5:
1 = Use level from NT/PBX side only.
2 = Use level from TE/Phone side only.
0/3= Use level from both sides.

> 'Level Correction Factor (0-32767)' [0]

This value is subtracted from the current read level. It can be used if there is a constant tone or noise on the line.
This offset can also be set by pressing the 'Settings' function key when inside the 'Audio detect Settings' in the normal install menu.

> 'Start Frequency (0-5000)' [0]

> 'Stop Frequency (0-5000)' [0]

Only used when the start method is on Audio.
The measured frequency is default not used for start/stop detection, only the level.

> 'Frequency Control (0-255)' [3]

Same values as 'Level Control' above.

> 'Switch Control (0-255)' [1]

The following switch values are used:
0 = Start on Opening , Stop on Closing contact
1 = Start on Closing , Stop on Opening contact

> 'Dial Number Timeout (x100ms)' [40]

This timeout is started when a user starts dialing a number. For each typed digit the timeout is started again. When the timeout ends the recording is started. So, it is only used for outgoing calls.

> 'Channel Select (0-4)' [0]

Can be set if the recorder must use a specific channel number.
The recorder is using the following internal channels:
4-wire mode = channels 1 and 2
2-wire mode = channels 3 and 4
Digital phone lines have two B-channels reserved for voice. Depending on the system, a phone is using only one channel most of the time. Normally that is the first channel number; 3 in 2-wire mode and 1 in 4-wire mode. Known protocols are no problem because the used channel number is part of the received commands. For example ISDN is using both channels.
The Activity and Audio detection modes are also looking at both channels at

the same time. The Switch and Manual modes are looking at the first channel only; that is 3 in 2-wire mode and 1 in 4-wire mode. Is it possible that an unknown system is using the other channel number or that one of the channels is constantly showing activity.

The 'Channel Select' can be set on 1 or 2 in 4-wire mode and 3 or 4 in 2-wire mode. Then the recorder will use a fixed channel. Only that channel is examined and recorded then. Valid for all start methods.

The default value 0 means 'Auto select'.

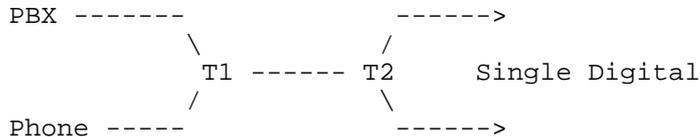
> 'In-Line Mode (Y/N)' [Yes]

Important setting that controls the way the line is connected, also called 'Pass-Through Mode'.

If set to Yes, the recorder is connected in series with the phone and PBX. This is the safest way to connect if recording is a must: The phone does not work anymore when the recorder is powered off or lines are disconnected.

If set to No, the recorder must be connected parallel to the line:

Two normal T-connectors are needed (1:1). The phone/PBX signal on the first one and also to the second T-connector. The second one must be connected to both recorder inputs:



In this 'sniff' mode, the recorder can be disconnected without the user noticing it. Powering off the recorder may or may not be noticed, depending on the PBX and phone system.

Disconnecting the line still gives an error (warning beeps) and the recorder tries to reconnect by disturbing the line. This feature is controlled by the System Parameter 'Line Connect Time' (see above).

Note: Notification is not available anymore if In-Line mode is disabled!

> 'Frame Transmission (Y/N)' [No]

> 'Frame Transmit Delay (x0.1ms)' [0]

Normally the D-channel command frames are passed automatically to the other site (Phone<>PBX). The system will only read and examine them. Enabling frame transmission breaks open the line some more and retransmits all frames to both sides (pbx/phone).

It also gives some extra safety and ensures that the line is connected and that the phone is working.

The delay is waited after each transmitted frame (from both sides).

> 'Disable Record Stop (Y/N)' [No]

Pressing STOP when recording is busy can be disabled here.

> 'Numberlist Control (0-255)' [0]

The following values are valid:

- 0 = Numberlist disabled
- 1 = Use numberlist as Blacklist
- 2 = Use numberlist as Whitelist

> 'Notification Control (0-255)' [0]

The following values are valid:

- 0 = Notification disabled
- 1 = Use notification message on incoming calls only
- 2 = Use notification message on outgoing calls only
- 3 = Always use notification message
- 6 = Notification message on outgoing calls only, but start manually
- 7 = Notification on incoming automatically and outgoing calls manually

```

> 'Minimum Call Time          (0-1800/sec)' [4]
-----
Small recordings are deleted automatically. See normal installation menu.

> 'Automatic Deletion          (Y/N)' [No]
> 'Day's to Keep Recordings    (0-3650)' [31]
-----
This setting is split up into 2 questions for savety.
If enabled the recorder will delete all old recordings once per day.
This is done at night at the 'Mirror Time' (see above).
Auto Delete can also be changed in the normal installation menu, after
pressing the middle two softkeys together.

> 'GSM Compression            (Y/N)' [Yes]
-----
GMS uses 1625 bytes/second. When disabled G.711 A-Law compression is taken,
which uses 8000 bytes/second, but has better quality.
See further normal installation menu.

> 'Copy to SD-Card             (Y/N)' [No]
-----
Not working yet.

> 'Use CryptoCard              (Y/N)' [No]
-----
See normal installation menu.

> 'Red Recording Light         (Y/N)' [Yes]
-----
This controls the blinking red speaker light during recordings.

> 'Signal Bar Control          (0-32767)' [17]
-----
This controls the level signal bar during recordings. Used values:
  bits0-3 =0-15= Level multiply factor (default=1)
  bits4-7 =0-15= Level division factor (default=1)
  bit8 (+256)=1= Only show level bar when a line is busy, not when idle.
  bit9 (+512)=1= Disable level bar completely.

> 'Speaker Control             (0-2)' [1]
-----
Can be set to 0 to disable the speaker when playback mode is entered.

> 'Speaker Volume              (0-15)' [4]
-----
Default speaker volume used for playback and channel monitoring.

> 'LCD Contrast                (0-8)' [0]
-----
The value 0 uses the default value from the OS.

> 'Display Language            (A-Z)' [E]
-----
Use normal installation menu.

```

***** End of Recorder Parameters *****