

ANNUNCICOM IC



The Annunicom Technical Documentation

Firmware Version 02.06

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I Software Application Interface

I.1 Control Interface Description

- 0xnn means a hexadecimal number.
 - ↳ means 0x0D 0x0A 0x00 on answers. On requests ↳ could be one or more of the following codes/bytes: 0x0D, 0x0A, 0x00.
- The answers are only echoed to the origin source of the command (not to the other interfaces).
- The answer can be selected by concatenate the L command to the command. If no special answer is requested the file ack.ack will be sent back.
- The answer files can be edited and changed to your needs (see I.13 Own skins and web interface).
- The standard answers are designed as XML.
- All strings and everything else are case sensitive.
- All commands are asynchronous to the stream.
- One command mustn't exceed 1024 bytes even it is concatenated.
- A 2 kByte command buffer will serialize all commands and execute them with the FIFO principle. If the command buffer is full then busy.ack will be returned. In this case the HTTP status code will be 503.

I.2 Concatenate Control Commands

- To concatenate control commands use &. The commands will be executed from left to right in sequence (not parallel). The ↳ must only be placed at the end of the whole command and not after each separate command.
- To start talking and set volume to 12 use: c=83&v=12↳
- This is useful in the init sequence, in UDP commands or to define the answer. The init sequence is based on the serial command interface.

I.3 Formats supported

- Streams MP3, uLaw/aLaw 8/24 kHz and PCM (Motorola 16Bit 8/24 kHz) files. MP3Pro files can be streamed but without the additional quality of MP3Pro.
- Encodes to MP3 (VBR only), uLaw/aLaw 8/24 kHz and PCM (Motorola 16Bit 8/24 kHz).
- The file extension of the audio file in the web application must be for uLaw 8 kHz u8, for uLaw 24 kHz u24, for aLaw 8 kHz a8, for aLaw 24 kHz a24, PCM 8 kHz p8, for PCM 24 kHz p24 and for MP3 mp3. All extensions are case sensitive except mp3.



1.4 Principles of CGI WEB interface

- The browser should support frames.
- Use GET method in forms.
- Respect the common character set for URL's.
- Example for CGI WEB commands: `http://x.x.x.x/rc.cgi?c=84` (command for RESETTALK on Annunicom IC x.x.x.x)

1.5 Principles of SERIAL interface

- Default settings of the serial control interface: 9600 baud, 8 data bits, 1 stop bit, no parity
- Each command must be terminated with an ASCII code less than a space 0x20 (like carriage return or/and line feed).
- If the command is correct and could be executed the answer OK is sent back with attached carriage return (ASCII 0x0D) and line feed (ASCII 0x0A).
- ERROR with attached carriage return (ASCII 0x0D) and line feed (ASCII 0x0A) is sent back when:
 - a byte is gets lost
 - an invalid syntax is used
 - the time between two characters exceeds 10 seconds
 - the command is unknown or can't be executed
 - command buffer is full
- There is no time to wait between two commands or characters.
- The serial connector pin out is described in chapter 2.2 Serial Port. It's the same as on a standard PC 9pol. DSub.
- If IR once is used, the serial command interface can't be used anymore.
- If the serial gateway functionality is used, the serial command interface can't be used anymore.

1.6 Principles of UDP interface

- The standard UDP interface port for control commands is 12301.
- Each command must be terminated with a ASCII 0x00, ASCII 0x0D (carriage return) or ASCII 0x0A (line feed).

1.7 Principles of TCP interface

- The standard TCP interface port for control commands is 12302.
- Each command must be terminated with a ASCII 0x00, ASCII 0x0D (carriage return) or ASCII 0x0A (line feed).
- The answers are the same as on the SERIAL interface.



1.8 Principles of pushed streaming

- The default TCP Receiver port is 2020.
- The default UDP Receiver port is 3030.
- The device listens on the TCP Receiver port.
- Open a TCP connection to the TCP streaming port and send your MP3 file over this connection or send your file as raw UDP packets to the UDP streaming port.
- Send the raw MP3 file/stream in binary mode.
- The TCP streaming port will automatically goes into listen mode after the TCP connection has been closed.
- The streaming buffer (receiving buffer) is 64 kByte. The parameter Play buffer defines after how many received bytes the Annucicom IC will start playing. To start the stream earlier send the command PLAY. In this case don't let the buffer run out of data. So don't start too early.
- If the streaming buffer runs out of data the Annucicom IC stops playing. It will start again after the Play buffer size is reached.
- If another stream should immediately be sent even though a stream is playing already, don't close the TCP connection. Simply send the command FLUSHBUF.

1.9 TCP to Serial and inversely (Serial Gateway)

- Open a TCP connection to the local port (default 12302).
- The serial port parameters can be set in the configuration.
- Each byte transmitted to this TCP port is sent to the serial port.
- Each byte received on the serial port is sent to this TCP port.
- Only one TCP port at once can be used.
- As long as this TCP port is open the serial command interface is disabled.
- If IR functionality is once used (for receiving and/or transmitting), don't use the serial gateway without resetting the device .



1.10 Control, SERIAL, UDP, TCP and CGI WEB interface

Element	Description	CGI command	SERIAL, TCP or UDP command
ANSWERS	Standard answer file ack.ack will be sent if nothing else is specified with the L command. The file nosupport.ack will be sent on an unknown command. To change the answer concatenate the command GETDYNFILE and chose the needed answer file. ex. set volume: v=4&L=volume.ack	see the files in 1.13 Own skins and web interface	
PLAY	If state is pause, streaming will continue. If state is play, nothing happens. After startup the device is in STOP mode.	c=1	0x63 0x3D 0x31 0x00(c=1↵)
PAUSE	If state is play, streaming will stop. If state is pause, streaming will continue.	c=3	0x63 0x3D 0x33 0x00 (c=3↵)
MUTE	Toggle between mute and volume. MUTE stores the last volume and resets to this value on turn on volume. VOLUMEINC, VOLUMEDEC, VOLUME > 0 as well as FORCEMUTEOFF unmutes the device.	c=8	0x63 0x3D 0x38 0x00 (c=8↵)
LOUDNESSON	Turn on loudness.	c=9	0x63 0x3D 0x39 0x00 (c=9↵)
LOUDNESSOFF	Turn off loudness.	c=10	0x63 0x3D 0x31 0x30 0x00 (c=10↵)
VOLUMELOCK	After this command the volume can't be changed until you unlock it.	c=11	0x63 0x3D 0x31 0x31 0x00 (c=11↵)
VOLUMEUNLOCK	Unlock volume.	c=12	0x63 0x3D 0x31 0x32 0x00 (c=12↵)
SETASDEFAULT	Store current values (volume, volume lock, mute, bass, treble, loudness level, loudness on) as default on startup.	c=13	0x63 0x3D 0x31 0x33 0x00 (c=13↵)
FACTORYDEFAULTS	Set factory default values for the current runtime configuration.	c=14	0x63 0x3D 0x31 0x34 0x00 (c=14↵)
VOLUMEINC	Increment volume one step.	c=19	0x63 0x3D 0x31 0x39 0x00 (c=19↵)
VOLUMEDEC	Decrement volume one step.	c=20	0x63 0x3D 0x32 0x30 0x00 (c=20↵)
BASSINC	Increment bass level one step.	c=23	0x63 0x3D 0x32 0x33 0x00 (c=23↵)
BASSDEC	Decrement bass level one step.	c=24	0x63 0x3D 0x32 0x34 0x00 (c=24↵)
TREBLEINC	Increment treble level one step.	c=25	0x63 0x3D 0x32 0x35 0x00 (c=25↵)
TREBLEDEC	Decrement treble level one step.	c=26	0x63 0x3D 0x32 0x36 0x00 (c=26↵)



SERIALBIN	Select Serial B as input source (digital MP3 data).	c=27	0x63 0x3D 0x32 0x37 0x00 (c=27.↓)
LINEIN	Select Line In as input.	c=28	0x63 0x3D 0x32 0x38 0x00 (c=28.↓)
MICIN	Select Mic In as input.	c=29	0x63 0x3D 0x32 0x39 0x00 (c=29.↓)
FORCEPAUSE	playing will stop (no toggle)	c=39	0x63 0x3D 0x33 0x39 0x00 (c=39.↓)
FORCEMUTEON	mute on forced (no toggle), details see MUTE command	c=40	0x63 0x3D 0x34 0x30 0x00 (c=40.↓)
FORCEMUTEOFF	mute off forced (no toggle)	c=41	0x63 0x3D 0x34 0x31 0x01 (c=41.↓)
LOUDNESSINC	Increment loudness one step.	c=42	0x63 0x3D 0x34 0x32 0x00 (c=42.↓)
LOUDNESSDEC	Decrement loudness one step.	c=43	0x63 0x3D 0x34 0x32 0x00 (c=43.↓)
FLUSHBUF	Flushes the streaming buffer (without closing TCP connection)	c=44	0x63 0x3D 0x34 0x34 0x00 (c=44.↓)
MONOOUT	Set output to mono	c=48	0x63 0x3D 0x34 0x38 0x00 (c=48.↓)
BRIDGEOUT	Set output to bridge mode. This makes sense only for the line out.. This will be achieved by set the output to mono and invert the right channel.	c=49	0x63 0x3D 0x34 0x39 0x00 (c=49.↓)
SETRTS	Sets output RTS to logic 1 (-12V) Set the parameter RTS usage to off first.	c=60	0x63 0x3D 0x36 0x30 0x00 (c=60.↓)
RESETRTS	Sets output RTS to logic 0 (+12V) Set the parameter RTS usage to off first.	c=61	0x63 0x3D 0x36 0x31 0x00 (c=61.↓)
SETTARGET	Sets a target temporary to another one. e is the number of the entry starting with 1 i is the IP address of the target p is the port of the target (decimal) t is the type (0=not used, 1=raw udp, 2=raw tcp) ip and/or port and/or type can be missed. the sequence of the elements is important and has to be as in the definition. Note after a reboot the device uses the stored configuration. example: c=77&entry=2&ip=192.168.2.223&port=1234&type=1	c=77&entry=e&i p=i&port=p&typ e=t	0x63 0x3D 0x37 0x37 0x26 ... 0x00 (c=77&....↓)
SETDOUT	Sets DOUT	c=78	0x63 0x3D 0x37 0x38 0x00 (c=78.↓)
RESETDOUT	Resets DOUT	c=79	0x63 0x3D 0x37 0x39 0x00 (c=79.↓)
PULSEDOUT	Pulses DOUT during the Relay pulse duration	c=80	0x63 0x3D 0x38 0x30 0x00 (c=80.↓)
SETTALK	Starts talking/streaming	c=83	0x63 0x3D 0x38 0x33 0x00 (c=83.↓)
RESETTALK	Stops talking/streaming	c=84	0x63 0x3D 0x38 0x34 0x00 (c=84.↓)

SETIO	Simulates the a set on IO	c=85	0x63 0x3D 0x38 0x35 0x00 (c=85.↓)
RESETIO	Simulates a reset on IO	c=86	0x63 0x3D 0x38 0x36 0x00 (c=86.↓)
SETII	Simulates the a set on II	c=87	0x63 0x3D 0x38 0x37 0x00 (c=87.↓)
RESETII	Simulates a reset on II	c=88	0x63 0x3D 0x38 0x38 0x00 (c=88.↓)
SETCTS	Simulates the a set on CTS	c=89	0x63 0x3D 0x38 0x39 0x00 (c=89.↓)
RESETCTS	Simulates a reset on CTS	c=90	0x63 0x3D 0x39 0x30 0x00 (c=90.↓)
FORCETALK	Starts talking/streaming even if there is an incoming stream	c=91	0x63 0x3D 0x39 0x31 0x00 (c=91.↓)
FORCETALKT	Like FORCETALK but stops sending after 200ms (for keypad)	c=92	0x63 0x3D 0x39 0x32 0x00 (c=92.↓)
SETTALKT	Like SETTALK but stops sending after 200ms (for keypad)	c=93	0x63 0x3D 0x39 0x33 0x00 (c=93.↓)
DEFAULTS	Set factory defaults without the network settings (without own IP, Gateway, Netmask and SonicIP) and reboots the device.	c=94	0x63 0x3D 0x39 0x34 0x00 (c=94.↓)
PULSERTS	Pulses RTS during the RTS pulse duration	c=95	0x63 0x3D 0x39 0x35 0x00 (c=95.↓)
DEVICERESET	Hard reboot of device.	c=99	0x63 0x3D 0x39 0x39 0x00 (c=99.↓)
BOOTLOADER	Starts the bootloader. The application will be left. It isn't running until the next reboot.	c=100	0x63 0x3D 0x31 0x30 0x30 0x00 (c=100.↓)
DISCOVER	If this command is received the device answers with the file discover.ack.	c=65535	0x63 0x3D 0x36 0x35 0x35 0x33 0x35 0x00 (c=65535.↓)
PASSWORD	Concatenate this command to the rest of the command sequence if the command interface is password (level 3) protected. The password has to be added in plain text.	a=...	0x61 0x3D ... 0x00 (a=...↓)
BASSM10	Set minimal bass level.	B=-10	0x42 0x3D 0x2D 0x31 0x30 0x00 (B=-10.↓)
BASSM09	Set bass level to -9.	B=-9	0x42 0x3D 0x2D 0x39 0x00 (B=-9.↓)
---		---	---
BASSP00	Set neutral bass level.	B=+0 or B=0	0x42 0x3D 0x2B 0x30 0x00 (B=+0.↓)
---		---	---
BASSP09	Set bass level to 9.	B=+9 or B=9	0x42 0x3D 0x2B 0x39 0x00 (B=+9.↓)
BASSP10	Set maximal bass level.	B=+10 or B=10	0x42 0x3D 0x2B 0x31 0x30 0x00 (B=+10.↓)
	Corresponding values sent to the codec for 0..10: 0x00, 0x09, 0x13, 0x1D, 0x26, 0x30, 0x3A, 0x43, 0x4D, 0x56, 0x5B, 0x60 (corresponding neg. value for neg. bass)		

CONFIG	Configuration commands via the normal CGI WEB command interface. Append the setup elements to this command. (see 1.11)	C=	0x43 0x3d ... 0x00 (C=...)
CFGENCODE	Sets the encoding quality. The high nibble of byte is used for the encoding quality 0..7. 0 for the lowest up to 7 for the highest quality. The low nibble of byte is used for the sampling frequency: 3 = MPEG1 / 48 kHz 1 = MPEG1 / 44.1 kHz 5 = MPEG1 / 32 kHz 2 = MPEG2 / 24 kHz 0 = MPEG2 / 22.05 kHz 4 = MPEG2 / 16 kHz ex. for MPEG2/24khz and encoding quality 6: hexadecimal 0x62 is decimal 98. The command then will be e=98 e=255 restarts the encoder without changing the settings.	e=...	0x65 0x3D ... 0x00 (e=...)
SETSERGATEWAY	Sets the destination IP address and port for the serial gateway and connect to it or close it. On close the state of the serial gateway will be like configured. If this command is executed via the serial command interface the connection will be closed 1 sec after the last transmitted or received byte. g=[<ip>][:<port>] <ip> is the destination IP address. 0.0.0.0 for close connection. <port> is the destination port. No port uses the LOCALPORT.	g=...	0x67 0x3D ... 0x00 (g=...)
LOUDNESS00 LOUDNESS01 --- LOUDNESS20	Set minimal loudness level. Set loudness level 1. --- Set maximal loudness level. Corresponding values sent to the codec for 0..20: 0, 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36, 39, 42, 46, 50, 56, 60, 64, 68	l=0 l=1 --- l=20	0x6C 0x3D 0x30 0x00 (l=0.) 0x6C 0x3D 0x31 0x00 (l=1.) --- 0x6C 0x3D 0x32 0x30 0x00 (l=20.)

GETDYNFILE	The response is the dynamic file stored in a cob file (see 1.13 Own skins and web interface) with that name. Example: L=getstate.ack	L=...	0x4C 0x3D ... 0x00 (L=...↵)
PLAYROMSONG	Plays a song locally out of a flash page embedded in a web application. It waits until previous song has been played. 'm=' stops immediately the flash file streaming.	m=...	0x6D 0x3D ... (m=...↵)
LOOPROMSONG	Loops a song locally out of a flash page embedded in a web application. The loop can be stopped with 'M='. After a stop the current loop will be played until the end and then the device returns to its normal operation it has before. To stop immediately use 'm='.	M=...	0x4D 0x3D ... (M=...↵)
QUIETCONFIG	!!!ONLY FOR EXPERTS!!! Quietly change configuration commands via the normal CGI WEB command interface. The commands are updated in RAM only without resetting the device and the changes lost if the device is rebooted. Append the setup elements to this command. (see 1.11) cf. C= command. QUIETCONFIG specifically supports the change of the UDP listen ports and was the main reason for adding the command. Examples of these commands via the Serial port: 1) To change the UDPRXPORT to 3035 Q=L=&W499=3035 2) To change the UDPPRIOPORT to 9090 Q=L=&W287=9090 3) To change the UDPCMDPORT to 12399 Q=L=&W791=12399 Not all commands are changeable on the fly, for example changing the TCP ports will have no affect. As a general rule if there is already a separate command to perform the change, e.g Volume control then QUIETCONFIG will not work. If you are not sure please ask Barix for advice.	Q=	0x51 0x3d ... 0x00 (Q=...↵)

SENDUDPSTRING	Send a command string in an UDP packet Syntax: r=[<prot>://][[<ip>][:<port>]/]<cmd> <prot> = udp <cmd> = [<param>]{&<cmd>} If no <prot> is defined then udp is used. If no <ip> is in the command then the IP address of the last received stream is used. If no <port> is defined then the UDP command port is used Example: r=udp://192.168.0.22:12301/v=2 is the same as r=192.168.0.22:12301/v=2 or r=192.168.0.22/v=2 or r=v=1 if the last received stream is from 192.168.0.22.	r=...	0x72 0x3D (r=...↵)
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SETTEMPTARGET	Set a temporary target to talk to. Syntax: s=[udp://][<ip>][:<port>] or s=[file cfg tab]://<nr> If no port is defined then the UDP RX Port is used. If 'file' is defined, the target is taken out of the text file targets.ini. The file contains one target per line with the following syntax: <nr>=[<prot>://][[<ip>][:<port>]]• <nr> as a decimal number between 1 and 9999. If targets.ini isn't available and <nr> is 1..8, the target is taken from the table entry. If cfg is defined, <nr> is a bit mapped setting where each bit refers to a table entry, bit1=entry1, bit2=entry2, bit3=entry3 .. bit8=entry8 Examples: s=cfg://4 use table entry 3, s=cfg://16 use table entry 5. These can be combined. Example: s=cfg://49. 49= 1(bit1) +16(bit5) +32(bit6) which means use entries: 1,5 and 6. If 'tab' is defined, <nr> is the number of the table 0..8. Default is always table 1. Table 0 has a special meaning. It is a virtual table with all entries set to 0. So use s=tab://0 to stop all streaming. An empty command s= or a reboot discards the temporary target and the operation reverts to the original settings.	s=...	0x73 0x3D ...0x00 (s=...↓)
TREBLEM10 TREBLEM09 --- TREBLEP00 --- TREBLEP09 TREBLEP10	Set minimal treble level. Set treble level to -9. Set neutral treble level. Set treble level to 9. Set maximal treble level. Corresponding values sent to the codec for 0..10: 0x00, 0x09, 0x13, 0x1D, 0x26, 0x30, 0x3A, 0x43, 0x4D, 0x56, 0x5B, 0x60 (corresponding neg. value for neg. treble)	t=-10 t=-9 --- t=+0 or t=0 --- t=+9 or t=9 t=+10 or t=10	0x74 0x3D 0x2D 0x31 0x30 0x00 (t=-10↓) 0x74 0x3D 0x2D 0x39 0x00 (t=-9↓) --- 0x74 0x3D 0x2B 0x30 0x00 (t=+0↓) --- 0x74 0x3D 0x2B 0x39 0x00 (t=+9↓) 0x74 0x3D 0x2B 0x31 0x30 0x00 (t=+10↓)

SENDTCPSTRING	Sends the attached string through the TCP interface. The answer will be the string itself.	T=...	0x53 0x3D (T=...)
VOLUME00	Set minimal volume level (volume off).	v=0	0x76 0x3D 0x30 0x00 (v=0.)
VOLUME01	Set volume level 1.	v=1	0x76 0x3D 0x31 0x00 (v=1.)
---		---	---
VOLUME20	Set maximal volume level. Corresponding values sent to the codec for 0..20: 0, 76, 80, 84, 88, 92, 96, 99, 102, 106, 108, 110, 112, 114, 116, 118, 120, 124, 125, 126, 127 One step is showed as 5%. The level 0 equals the 0%.	v=20	0x76 0x3D 0x32 0x30 0x00 (v=20.)

1.11 Configuration via the command interfaces (only for internal use)

The difference between the command and the configuration interface is only the used prefix `setup.cgi` instead of `rc.cgi` for cgi web interface.

Element	Description	CGI command	SERIAL, TCP or UDP command
SETCONFIG	Sets the configuration The expected string is exactly the one the HTML browser generates for the used forms for the configuration. (L= see GETDYNFILE) (see table in chapter 1.16 The Dynamic Mark for the names) The device will respond with HTTP status 200 OK and if referenced with the optional <file>. Then it will reboot. Examples for set the IP address to 192.168.1.22: for Serial: C=L=&B0=192&B1=168&B2=1&B3=22 for cgi: <code>setup.cgi?L=uinetwork.html&B0=192&B1=168&B2=1&B3=22</code> or <code>rc.cgi?C=L=uinetwork.html&B0=192&B1=168&B2=1&B3=22</code>	L=<file>&...	0x43 0x3D 0x4C ... (C=L=...␣)

1.12 Setup

The factory default setup is contained in the binary file `config.bin`. This file can be edited with a hex editor. Be careful if you do changes. This file will be loaded to the EEPROM on factory default.

General Terms (EEPROM Organization)

- IP addresses are always stored with the highest byte at the lowest address.
- Strings are coded in ASCII and terminated with 0x00. The Length includes the termination.
- Values are stored in little endian format (Intel) (low byte first)
- All Values are integer.
- Signed values are stored in 2-complement.
- Unused bytes must be set to 0x00.

In the following table the column Byte shows the byte number in the 1016 bytes of configuration. The first byte has the number 0. If a password is set then the device only will answer to this commands if the password in the command is set correct.



Parameter	Byte [dec]	Dyn. Name	Length [Byte]	Default Value	Short Description																																																																																	
Own IP	0	B0, B1, B2, B3	4	0.0.0.0	Static IP address of the device. 0.0.0.0 for DHCP. 0.0.1.0 disable AutoIP 0.0.2.0 disable DHCP 0.0.4.0 disable BOOTP 0.0.8.0 disable IPzator add this special IP addresses for disabling multiple protocols																																																																																	
Gateway IP	4	B4, B5, B6, B7	4	0.0.0.0	Gateway IP address. 0.0.0.0 for no gateway																																																																																	
Netmask	8	N8B0, N8B1, N8B2, N8B3	1	0	Subnetmask. The value is the count of the zero bits counted from the lowest byte. (ex. 8 for 255.255.255.0)																																																																																	
Password	72	S72	8		Password as String. Used in the Telnet Setup. All 0 means no password.																																																																																	
IFMODE0	80	B80b0-1, B80b2-3, B80b4-5, B80b6-7 or B80	1	0x4C	Definition of the bits in that byte for the serial port 0: <table><tr><td>Function</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr><tr><td>RS232-C</td><td></td><td></td><td></td><td></td><td></td><td></td><td>0</td><td>0</td></tr><tr><td>7 Bit</td><td></td><td></td><td></td><td></td><td>1</td><td>0</td><td></td><td></td></tr><tr><td>8 Bit</td><td></td><td></td><td></td><td></td><td>1</td><td>1</td><td></td><td></td></tr><tr><td>no parity</td><td></td><td></td><td>0</td><td>0</td><td></td><td></td><td></td><td></td></tr><tr><td>even parity</td><td></td><td></td><td>1</td><td>1</td><td></td><td></td><td></td><td></td></tr><tr><td>odd parity</td><td></td><td></td><td>0</td><td>1</td><td></td><td></td><td></td><td></td></tr><tr><td>1 Stopbit</td><td>0</td><td>1</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>2 Stopbit</td><td>1</td><td>1</td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>	Function	7	6	5	4	3	2	1	0	RS232-C							0	0	7 Bit					1	0			8 Bit					1	1			no parity			0	0					even parity			1	1					odd parity			0	1					1 Stopbit	0	1							2 Stopbit	1	1						
Function	7	6	5	4	3	2	1	0																																																																														
RS232-C							0	0																																																																														
7 Bit					1	0																																																																																
8 Bit					1	1																																																																																
no parity			0	0																																																																																		
even parity			1	1																																																																																		
odd parity			0	1																																																																																		
1 Stopbit	0	1																																																																																				
2 Stopbit	1	1																																																																																				
BAUDRATE0	81	B81	1	2	Baudrate for the serial port 0. (7 = 300, 6 = 600, 5 = 1200, 4 = 2400, 3 = 4800, 2 = 9600, 1 = 19200, 0 = 38400, 9 = 57600, 8 = 115200)																																																																																	
FLOWCONTROL0	82	B82	1	0	Flow control for the serial port 0. (0 = no, 1= Software XON/XOFF, 2 = Hardware RTS/CTS) , 8 = RS485 direction control)																																																																																	

IFMODEI	83	B83b0-1, B83b2-3, B83b4-5, B83b6-7 or B83	1	0x4C	Definition of the bits in that byte for the serial port 0: <table><tr><td>Function</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr><tr><td>RS232-C</td><td></td><td></td><td></td><td></td><td></td><td></td><td>0</td><td>0</td></tr><tr><td>7 Bit</td><td></td><td></td><td></td><td></td><td>1</td><td>0</td><td></td><td></td></tr><tr><td>8 Bit</td><td></td><td></td><td></td><td></td><td>1</td><td>1</td><td></td><td></td></tr><tr><td>no parity</td><td></td><td></td><td>0</td><td>0</td><td></td><td></td><td></td><td></td></tr><tr><td>even parity</td><td></td><td></td><td>1</td><td>1</td><td></td><td></td><td></td><td></td></tr><tr><td>odd parity</td><td></td><td></td><td>0</td><td>1</td><td></td><td></td><td></td><td></td></tr><tr><td>1 Stopbit</td><td>0</td><td>1</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>2 Stopbit</td><td>1</td><td>1</td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>	Function	7	6	5	4	3	2	1	0	RS232-C							0	0	7 Bit					1	0			8 Bit					1	1			no parity			0	0					even parity			1	1					odd parity			0	1					1 Stopbit	0	1							2 Stopbit	1	1						
Function	7	6	5	4	3	2	1	0																																																																														
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2 Stopbit	1	1																																																																																				
BAUDRATEI	81	B81	1	2	Baudrate for the serial port 0. (7 = 300, 6 = 600, 5 = 1200, 4 = 2400, 3 = 4800, 2 = 9600, 1 = 19200, 0 = 38400, 9 = 57600, 8 = 115200)																																																																																	
FLOWCONTROLI	82	B82	1	0	Flow control for the serial port 0. (0 = no, 1= Software XON/XOFF, 2 = Hardware RTS/CTS) , 8 = RS485 direction control)																																																																																	
Version Major	116	B116	1	1	Version Major value (do not change)																																																																																	
Version Minor	117	B117	1	4	Version Minor value (do not change)																																																																																	
Setupex Length	120	W120	2	894	Length of the extended setup (always 894)																																																																																	
Password Level 1	122	S122	8		Password stored as MD5 hash (first 8 bytes) used for save configuration via web, all 0 means no password																																																																																	
Password Level 2	130	S130	8		Password stored as MD5 hash (first 8 bytes) used for view the configuration via web, all 0 means no password																																																																																	
Password Level 3	138	S138	8		Password stored as MD5 hash (first 8 bytes) used for control/commands, all 0 means no password																																																																																	
Password Level 4	146	S146	8		Password stored as MD5 hash (first 8 bytes), all 0 means no password																																																																																	
Password Level 5	154	S154	8		Password stored as MD5 hash (first 8 bytes), all 0 means no password																																																																																	
Password Level 6	162	S162	8		Password stored as MD5 hash (first 8 bytes), all 0 means no password																																																																																	
Volume	244	B244	1	10	Volume 0..20																																																																																	
Bass	246	B246	1	0	Bass -10..10																																																																																	
Treble	247	B247	1	0	Treble -10..10																																																																																	
Loudness	248	B248	1	20	Loudness 0..20																																																																																	

A/D Amplifier Gain	249	B249	1	0	A/D amplifier gain 0=-3, 15=19.5 dB, one step is 1,5 dB (only for the line input)
Output Mode	250	B250	1	1	1 for mono, 2 for bridge (mono)
Non MP3 Packet Size	251	W251	2	1400	Defines with how many bytes a non MP3 packet will be filled up before it is sent. (1..1400)
MP3 Configuration	255	B255b0, B255b1, B255b2, B255b3, B255b4-5, B255b4-5, B255b6, B255b7	1	0x00	This bits define the mp3 header configuration. This values can be added (the function is activated by set the bit): 0x01: set for disable CRC in MP3 frame header 0x02: set for disable MS-Stereo encoding 0x04: set for bitreservoir kept empty 0x08: not used 0x10: for emphasis 50/15 µs 0x30: for emphasis CCITT J.17 0x40: set for original stream 0x80: set for not copyright protected
Device Name	256	S21	21		Name of the device
Media Configuration	277	B277b0, B277b1, B277b2, B277b3, B277b4, B277b5, B277b6, B277b7	1	0x00	This values can be added (the function is activated by set the bit): 0x01: not used 0x02: not used 0x04: locks volume 0x08: loudness on (level see parameter loudness) 0x10: mute 0x20: not used 0x40: not used 0x80: no SonicIP
Serial Port Usage	278	B278	1	0	0=used as command interface, 1=used for keypad (Qtronix QX-022)
Relay pulse duration	279	W279	2	30	Relay (DOUT) pulse duration in 0.1 sec (Door buzzing duration)
Buffer Underrun Mode	281	B281	1	0	This parameter defines what should happen if a buffer underrun is detected. 0=disconnect 1=skip
Stream Packet Strategy	282	B282	1	0	This parameter defines how the packets are generated: 0=send as fast as possible (if a frame is received from the encoder) 1=optimal package size (send if the packet is full or after 200ms)
WEB Server Port	283	W283	2	0	This parameter defines on which port the device's web server are on. (0=default HTTP port 80)
RTS pulse duration	285	W285	2	0	RTS pulse duration in 0.1 sec

UDP Priority Rx Port	287	W287	2	0	This parameter defines the UDP Priority Receiver Port. A stream sent to this port always will be played unless another priority stream already will be received.
TCP Priority Rx Port	289	W289	2	0	This parameter defines the TCP Priority Receiver Port. A stream sent to this port always will be played unless another priority stream already will be received.
Mode	352	B352	1	5	5=send on TALK/CTS, 6=send always, 7=send on level, 8=receive only, 9=auto answer
Radio Path	353	S353	33	/xstream	Path for the internet radio connection (example URL for an internet radio connection to the Annunicom IC http://a.a.a.a/xstream where a.a.a.a is the IP address of the serving device)
Init Sequence	386	S386	64		String of commands (like serial command interface) which is executed after each startup of the device.
Table I Entry 1 IP	453	B453, B454, B455, B456	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address), (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table I Entry 2 IP	457	B457, B458, B459, B460	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address) , (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table I Entry 3 IP	461	B461, B462, B463, B464	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address) , (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table I Entry 4 IP	465	B465, B466, B467, B468	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address) , (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table I Entry 5 IP	469	B469, B470, B471, B472	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address) , (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table I Entry 6 IP	473	B473, B474, B475, B476	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address) , (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table I Entry 7 IP	477	B477, B478, B479, B480	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address) , (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table I Entry 8 IP	481	B481, B482, B483, B484	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address) , (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Encoding Quality	485	B485	1	0	Encoding quality 0..7, 0 for the lowest up to 7 for the highest quality.
Sampling Frequency	486	B486	1	0	Sampling frequency 3 = MPEG I / 48 kHz 1 = MPEG I / 44.1 kHz 5 = MPEG I / 32 kHz 2 = MPEG2 / 24 kHz 0 = MPEG2 / 22.05 kHz 4 = MPEG2 / 16 kHz

Mic Amplifier Gain	487	B487	1	0	Microphone amplifier gain, $n = 0..15$ and $(n * 1.5) + 21$ [dB]
Pre Trigger Start	488	W488	2	0	Amount of bytes that will be streamed before the trigger occurred
Post Trigger Play	490	W490	2	0	Amount of time [ms] that will be streamed after the trigger has switched off
Trigger Level	492	W492	2	1000	Audio receiving level that defines when to start streaming
Input Mode	494	B494	2	0x81	Input Mode 0x01 = Line In 0x02 = Mic In 0x03 = Detect Line In/Mic In and take first one if audio signal has been detected 0x80 = Mono (always set this flag for mono)
UDP TX Source Port	495	W495	2	0	UDP stream source port, 0 for use corresponding destination port, else fixed
UDP RX Port	499	W499	2	0	UDP streaming receiver port (0 for disable)
Receive Timeout	501	W501	2	200	Receive timeout, time [ms] after that the device changes from receiving (decode) into encoding mode
Sub Mode	503	B503	1	0	0 = stream to configured destination IPs, 1 = stream to origin source
Loop Input to Output	508	B508	1	0	0 = don't loop, 1 = loop audio input to output
Play Buffer	509	W509	2	4096	Play buffer size in bytes, amount of bytes received in the streaming buffer until the stream starts playing
Table 1 Entry 1 Port	511	W511	2	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 1 Entry 2 Port	513	W513	2	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 1 Entry 3 Port	515	W515	2	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 1 Entry 4 Port	517	W517	2	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 1 Entry 5 Port	519	W519	2	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 1 Entry 6 Port	521	W521	2	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 1 Entry 7 Port	523	W523	2	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 1 Entry 8 Port	525	W525	2	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 1 Entry 1 Type	527	B527	1	1	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 1 Entry 2 Type	528	B528	1	0	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 1 Entry 3 Type	529	B529	1	0	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 1 Entry 4 Type	530	B530	1	0	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 1 Entry 5 Type	531	B531	1	0	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 1 Entry 6 Type	532	B532	1	0	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 1 Entry 7 Type	533	B533	1	0	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)



Table 1 Entry 8 Type	534	B534	1	0	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Command IO pushed	535	S535	64	c=83	Command sequence executed if IO will be pushed
Command IO released	599	S599	64	c=84	Command sequence executed if IO will be released
Command II pushed	663	S663	64	r=c=78	Command sequence executed if II will be pushed
Command II released	727	S727	64	r=c=79	Command sequence executed if II will be released
UDP Command Port	791	W791	2	12301	Receiving port for the UDP command interface (0 for disable)
TCP Command Port	793	W793	2	12302	Listening port for the TCP command interface (0 for disable)
Command CTS opened	795	S795	64	r=c=78	Command sequence executed if CTS will be opened
Command CTS closed	859	S859	64	r=c=79	Command sequence executed if CTS will be closed
Preset	923	B923	1	0	User-specific storage, this parameter has no functionality. It can be used by the user for the web interface.
SNMP Target Trap IP	924	B924, B925, B926, B927	4	0.0.0.0	SNMP Target IP (0.0.0.0 for disable SNMP)
Low Level Left	928	W928	2	0	Trap will be triggered if the quasi peak an the left channel falls below this level. (0 disables Trap)
Low Level Right	930	W930	2	0	Trap will be triggered if the quasi peak an the right channel falls below this level. (0 disables Trap)
High Level Left	932	W932	2	0	Trap will be triggered if the quasi peak an the left channel falls above this level. (0 disables Trap)
High Level Right	934	W934	2	0	Trap will be triggered if the quasi peak an the right channel falls above this level. (0 disables Trap)
Trap Repeat Left	936	W936	2	0	The Trap for the left channel will be repeated after this number of seconds (0 disable)
Trap Repeat Righth	938	W938	2	0	The Trap for the right channel will be repeated after this number of seconds (0 disable)
Silence Timeout Left	940	W940	2	0	Silence for the left channel will be detected after this number of seconds
Silence Timeout Right	942	W942	2	0	Silence for the left channel will be detected after this number of seconds
Table 2 Entry 1 Type	944	B944	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 2 Entry 1 IP	945	B945, B946, B947, B948	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address), (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table 2 Entry 1 Port	949	W949	0	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 2 Entry 2 Type	951	B951	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 2 Entry 2 IP	952	B952, B953, B954, B955	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address), (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table 2 Entry 2 Port	956	W956	0	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 2 Entry 3 Type	958	B958	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)

Table 2 Entry 3 IP	959	B959, B960, B961, B962	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address), (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table 2 Entry 3 Port	963	W963	0	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 2 Entry 4 Type	965	B965	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 2 Entry 4 IP	966	B966, B967, B968, B969	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address), (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table 2 Entry 4 Port	970	W970	0	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 2 Entry 5 Type	972	B972	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 2 Entry 5 IP	973	B973, B974, B975, B976	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address), (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table 2 Entry 5 Port	977	W977	0	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 2 Entry 6 Type	979	B979	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 2 Entry 6 IP	980	B980, B981, B982, B983	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address), (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table 2 Entry 6 Port	984	W984	0	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 2 Entry 7 Type	986	B986	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 2 Entry 7 IP	987	B987, B988, B989, B990	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address), (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table 2 Entry 7 Port	991	W991	0	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 2 Entry 8 Type	993	B993	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 2 Entry 8 IP	994	B994, B995, B996, B997	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address), (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table 2 Entry 8 Port	998	W998	0	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 3 Entry 1 Type	1000	B1000	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 3 Entry 1 IP	1001	B1001, B1002, B1003, B1004	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address), (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table 3 Entry 1 Port	1005	W1005	0	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 3 Entry 2 Type	1007	B1007	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 3 Entry 2 IP	1008	B1008, B1009, B1010, B1011	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address), (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table 3 Entry 2 Port	1012	W1012	0	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 3 Entry 3 Type	1014	B1014	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)

Table 3 Entry 3 IP	I015	BI015, BI016, BI017, BI018	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address), (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table 3 Entry 3 Port	I019	WI019	0	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 3 Entry 4 Type	I021	BI021	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 3 Entry 4 IP	I022	BI022, BI023, BI024, BI025	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address), (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table 3 Entry 4 Port	I026	WI026	0	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 3 Entry 5 Type	I028	BI028	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 3 Entry 5 IP	I029	BI029, BI030, BI031, BI032	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address), (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table 3 Entry 5 Port	I033	WI033	0	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 3 Entry 6 Type	I035	BI035	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 3 Entry 6 IP	I036	BI036, BI037, BI038, BI039	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address), (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table 3 Entry 6 Port	I040	WI040	0	00	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 3 Entry 7 Type	I042	BI042	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 3 Entry 7 IP	I043	BI043, BI044, BI045, BI046	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address), (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table 3 Entry 7 Port	I047	WI047	0	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 3 Entry 8 Type	I049	BI049	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 3 Entry 8 IP	I050	BI050, BI051, BI052, BI053	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address), (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table 3 Entry 8 Port	I054	WI054	0	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 4 Entry 1 Type	I056	BI056	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 4 Entry 1 IP	I057	BI057, BI058, BI059, BI060	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address), (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table 4 Entry 1 Port	I061	WI061	0	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 4 Entry 2 Type	I063	BI063	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 4 Entry 2 IP	I064	BI064, BI065, BI066, BI067	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address), (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table 4 Entry 2 Port	I068	WI068	0	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 4 Entry 3 Type	I070	BI070	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)

Table 4 Entry 3 IP	1071	BI071, BI072, BI073, BI074	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address), (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table 4 Entry 3 Port	1075	WI075	0	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 4 Entry 4 Type	1077	BI077	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 4 Entry 4 IP	1078	BI078, BI079, BI080, BI081	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address), (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table 4 Entry 4 Port	1082	WI082	0	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 4 Entry 5 Type	1084	BI084	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 4 Entry 5 IP	1085	BI085, BI086, BI087, BI088	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address), (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table 4 Entry 5 Port	1089	WI089	0	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 4 Entry 6 Type	1091	BI091	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 4 Entry 6 IP	1092	BI092, BI093, BI094, BI095	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address), (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table 4 Entry 6 Port	1096	WI096	0	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 4 Entry 7 Type	1098	BI098	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 4 Entry 7 IP	1099	BI099, BI100, BI101, BI102	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address), (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table 4 Entry 7 Port	1103	WI103	0	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 4 Entry 8 Type	1105	BI105	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 4 Entry 8 IP	1106	BI106, BI107, BI108, BI109	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address), (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table 4 Entry 8 Port	1110	WI110	0	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 5 Entry 1 Type	1112	BI112	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 5 Entry 1 IP	1113	BI113, BI114, BI115, BI116	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address), (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table 5 Entry 1 Port	1117	WI117	0	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 5 Entry 2 Type	1119	BI119	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 5 Entry 2 IP	1120	BI120, BI121, BI122, BI123	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address), (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table 5 Entry 2 Port	1124	WI124	0	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 5 Entry 3 Type	1126	BI126	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)

Table 5 Entry 3 IP	1127	B1127, B1128, B1129, B1130	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address), (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table 5 Entry 3 Port	1131	W1131	0	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 5 Entry 4 Type	1133	B1133	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 5 Entry 4 IP	1134	B1134, B1135, B1136, B1137	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address), (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table 5 Entry 4 Port	1138	W1138	0	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 5 Entry 5 Type	1140	B1140	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 5 Entry 5 IP	1141	B1141, B1142, B1143, B1144	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address), (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table 5 Entry 5 Port	1145	W1145	0	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 5 Entry 6 Type	1147	B1147	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 5 Entry 6 IP	1148	B1148, B1149, B1150, B1151	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address), (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table 5 Entry 6 Port	1152	W1152	0	00	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 5 Entry 7 Type	1154	B1154	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 5 Entry 7 IP	1155	B1155, B1156, B1157, B1158	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address), (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table 5 Entry 7 Port	1159	W1159	0	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 5 Entry 8 Type	1161	B1161	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 5 Entry 8 IP	1162	B1162, B1163, B1164, B1165	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address), (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table 5 Entry 8 Port	1166	W1166	0	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 5 Entry 1 Type	1168	B1168	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 6 Entry 1 IP	1169	B1169, B1170, B1171, B1172	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address), (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table 6 Entry 1 Port	1173	W1173	0	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 6 Entry 2 Type	1175	B1175	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 6 Entry 2 IP	1176	B1176, B1177, B1178, B1179	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address), (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table 6 Entry 2 Port	1180	W1180	0	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 6 Entry 3 Type	1182	B1182	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)

Table 6 Entry 3 IP	I183	BI183, BI184, BI185, BI186	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address), (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table 6 Entry 3 Port	I187	WI187	0	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 6 Entry 4 Type	I189	BI189	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 6 Entry 4 IP	I190	BI190, BI191, BI192, BI193	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address), (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table 6 Entry 4 Port	I194	WI194	0	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 6 Entry 5 Type	I196	BI196	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 6 Entry 5 IP	I197	BI197, BI198, BI199, BI200	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address), (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table 6 Entry 5 Port	I201	WI201	0	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 6 Entry 6 Type	I203	BI203	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 6 Entry 6 IP	I204	BI204, BI205, BI206, BI207	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address), (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table 6 Entry 6 Port	I208	WI208	0	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 6 Entry 7 Type	I210	BI210	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 6 Entry 7 IP	I211	BI211, BI212, BI213, BI214	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address), (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table 6 Entry 7 Port	I215	WI215	0	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 6 Entry 8 Type	I217	BI217	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 6 Entry 8 IP	I218	BI218, BI219, BI220, BI221	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address), (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table 6 Entry 8 Port	I222	WI222	0	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 7 Entry 1 Type	I224	BI224	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 7 Entry 1 IP	I225	BI225, BI226, BI227, BI228	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address), (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table 7 Entry 1 Port	I229	WI229	0	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 7 Entry 2 Type	I231	BI231	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 7 Entry 2 IP	I232	BI232, BI233, BI234, BI235	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address), (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table 7 Entry 2 Port	I236	WI236	0	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 7 Entry 3 Type	I238	BI238	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)

Table 7 Entry 3 IP	I239	BI239, BI240, BI241, BI242	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address), (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table 7 Entry 3 Port	I243	WI243	0	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 7 Entry 4 Type	I245	BI245	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 7 Entry 4 IP	I246	BI246, BI247, BI248, BI249	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address), (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table 7 Entry 4 Port	I250	WI250	0	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 7 Entry 5 Type	I252	BI252	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 7 Entry 5 IP	I253	BI253, BI254, BI255, BI256	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address), (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table 7 Entry 5 Port	I257	WI257	0	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 7 Entry 6 Type	I259	BI259	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 7 Entry 6 IP	I260	BI260, BI261, BI262, BI263	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address), (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table 7 Entry 6 Port	I264	WI264	0	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 7 Entry 7 Type	I266	BI266	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 7 Entry 7 IP	I267	BI267, BI268, BI269, BI270	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address), (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table 7 Entry 7 Port	I271	WI271	0	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 7 Entry 8 Type	I273	BI273	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 7 Entry 8 IP	I274	BI274, BI275, BI276, BI277	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address), (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table 7 Entry 8 Port	I278	WI278	0	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 8 Entry 1 Type	I280	BI280	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 8 Entry 1 IP	I281	BI281, BI282, BI283, BI284	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address), (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table 8 Entry 1 Port	I285	WI285	0	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 8 Entry 2 Type	I287	BI287	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 8 Entry 2 IP	I288	BI287, BI288, BI289, BI290	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address), (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table 8 Entry 2 Port	I292	WI292	0	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 8 Entry 3 Type	I294	BI294	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)

Table 8 Entry 3 IP	I295	BI295, BI296, BI297, BI298	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address), (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table 8 Entry 3 Port	I299	WI299	0	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 8 Entry 4 Type	I301	BI301	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 8 Entry 4 IP	I302	BI302, BI303, BI304, BI305	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address), (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table 8 Entry 4 Port	I306	WI306	0	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 8 Entry 5 Type	I308	BI308	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 8 Entry 5 IP	I309	BI309, BI310, BI311, BI312	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address), (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table 8 Entry 5 Port	I313	WI313	0	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 8 Entry 6 Type	I315	BI315	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 8 Entry 6 IP	I316	BI316, BI317, BI318, BI319	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address), (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table 8 Entry 6 Port	I320	WI320	0	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 8 Entry 7 Type	I322	BI322	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 8 Entry 7 IP	I323	BI323, BI324, BI325, BI326	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address), (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table 8 Entry 7 Port	I327	WI327	0	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 8 Entry 8 Type	I329	BI329	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 8 Entry 8 IP	I330	BI330, BI331, BI332, BI333	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet broadcast IP address), (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table 8 Entry 8 Port	I334	WI334	0	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)

1.13 Own skins and web interface

With the Annunicom IC App Development Kit (DOS) you can design your own web pages (skin) and modify the answers to your needs. This kit is available on www.barix.com.

The stuff folder holds the files you need for the web pages. You can simply edit these files and/or add new ones. The web interface (and the firmware) need at least the following files:

File	Dyn.	Description
Version file		
ANNUNICOMICAPPVERSION		for the version number and the history

Answer files (see 1.17 Configuration via HTML Pages for the dynamic marks contained in the files and the exact description therefore).

ack.ack		standard answer for commands
bass.ack	✓	current value of the bass
busy.ack		standard answer for ignored commands (UDP)
discover.ack	✓	answer for the DISCOVER command
getconfig.ack	✓	complete configuration
getcts.ack	✓	actual state of CTS
getdout.ack	✓	actual state of DOUT
geti0.ack	✓	actual state of I0
geti1.ack	✓	actual state of I1
getlastcaller.ack	✓	gets the IP address of the last incoming caller
getrts.ack	✓	actual state of RTS
getstate.ack	✓	outputs the state of the device
loudness.ack	✓	current value of the loudness
nosupport.ack		answer for unknown and/or unsupported commands
treble.ack	✓	current value of the treble
volume.ack	✓	current value of the volume



Configuration file

config.bin		factory default settings. The file is binary and an exact mirror for the EEPROM. See 1.12 Setup for the organization. Edit this file with a hex editor if you need your own factory default settings.
keypad.ini		configuration for the keys of the keypad for the keypad driver (see command SETTEMPTARGET), for internal use only
targets.ini		configuration of sending targets, this file isn't included per default. (see command SETTEMPTARGET)

Pictures

4to0.gif		needed for apply the configuration for waiting for the reboot of the device
active.gif		used as refresh button on the control page
annunicomic.gif		picture for the control interface, used in skin.html
barix.gif		used in uicfg.html
barix0.gif		used in uimenu0.html
d0.gif		pixel used for showing logical states
d1.gif		pixel used for showing logical states
d2.gif		pixel used for showing logical states
i0.gif		pixel used for showing logical states
il.gif		pixel used for showing logical states
menu.gif		picture for the menu buttons in the configuration, used in uicfg.html
menu0.gif		picture for the menu buttons in the control interface, used in uimenu.html

HTML pages (see 1.17 Configuration via HTML Pages for the dynamic marks included in the files)

index.html	✓	main page of the web server, included the five frames: skin, info, playlist, songlist, empty. empty is a hidden frame that receives the answer of the CGI commands.
notauthorized.html		showed if the user isn't authorized to view a page
skin.html		for the control interface of the device, used in index.html
status	✓	shows the actual states and configuration of the device
toomanyusers.html		for the songlist frame of index.html



uiaudio.html	✓	configuration pages for the corresponding settings
uicontrol.html	✓	
uiio.html	✓	
uinetwork.html	✓	
uisecurity.html	✓	
uiserial.html	✓	
uistreaming.html	✓	
uittable1.html	✓	
uittable2.html	✓	
uittable3.html	✓	
uittable4.html	✓	
uittable5.html	✓	
uittable6.html	✓	
uittable7.html	✓	
uittable8.html	✓	
uicfg.html	✓	shows the current loaded versions of the device
uiconfig.html	✓	main configuration, contains the main frames for the configuration
uidefaults.html	✓	set factory defaults

uifaudio.html uifcontrol.html uifdefaults.html uifio.html uifloader.html uifnetwork.html uifreboot.html uifsecurity.html uifserial.html uifstreaming.html uiftable1.html uiftable2.html uiftable3.html uiftable4.html uiftable5.html uiftable6.html uiftable7.html uiftable8.html uifupdate.html		specific configuration page, contains the frames for the corresponding configuration pages
uifmenu.html		frame page for the skin and version
uifstatus.html		frame page for the device status
uihaudio.html uihcontrol.html uihdefaults.html uihio.html uihloader.html uihnetwork.html uihreboot.html uihsecurity.html uihserial.html uihstreaming.html uihtable.html uihupdate.html		help for the corresponding configuration pages

uihstatus.html		help for the device status page
uilogout.html		logout page
uimenu.html	✓	frame for menu
uimenuline.html	✓	menu for the configuration buttons on the configuration pages
uimenu0.html		menu for the configuration button on the control page
uiraudio.html	✓ ✓ ✓	showed after pressing apply or a reboot of the device is needed until the device has rebooted
uircontrol.html		
uirdefaults.html		
uirio.html		
uirloader.html		
uirnetwork.html		
uirnetwork0.html		
uirnetwork00.html		
uirreboot.html		
uirsecurity.html		
uirserial.html		
uirstreaming.html		
uirttable1.html		
uirttable2.html		
uirttable3.html		
uirttable4.html		
uirttable5.html		
uirttable6.html		
uirttable7.html		
uirttable8.html		
uirupdate.html		
uirdefaults1.html		showed after the device is set to factory defaults an has successfully rebooted
uireboot.html		reboot the device
uirreboot1.html		showed after the device is rebooted an has then successfully rebooted
uistatus.html	✓	control page for IO and talk
uistatus1.html	✓	status page that shows the states
uiupdate.html	✓	update the device
update.html		forwarding page to hide the command for the update

Java Script

util.js		javascript functions for the HTML configuration pages (range checks)
---------	--	--

The filenames shouldn't start with rc.cgi or setup.cgi.

Don't exceed 64 kByte of data per file. Note that a bigger .cob file needs per 64 kByte one flash page of 64 kByte.

To generate a .cob file start the batch annunicomicapp.bat. Upload the generated .cob file into the device to the web application page (overwrite).

For the upload go to the configuration page of the device and click on the button Update. Follow the instructions there. If the device has rebooted and the update page is showed type <http://x.x.x.x/updateex.html> in the address field of the browser where x.x.x.x is the IP address of the device.

Free targets can be found in 1.14 Memory Page Usage. The target field is case sensitive. If you upload a .cob file to used pages the current content will be overloaded by the new one.

Another way to upload is with TFTP. Use the name of the page as target.

The web server in the device sees all the targets (.cob files) as one directory.

If two files in different .cob files have the same name then the one from the lower page is chosen.

After the upload reboot the device and reload the modified page in the browser to see the changes. Sometimes it's needed to close the browser to see the changes depending on the browser's cache strategy.



1.14 Memory Page Usage

A page is 64 kByte of flash memory. Free pages can be used for additional resources.

Annunicom IC (IMB Flash) (Note: 0xC00000 = 0xD00000 = 0xE00000 = 0xF00000)

Page / Target	Content	Address for Rescuekit
8K (WEB0)	annuncicomware.rom (Firmware)	
WEB1	reserved	0xC10000
WEB2	xt05.bin (BIOS)	0xC20000
WEB3	sg.bin (Util library)	0xC30000
WEB4	sonicip.cob (Sonic IP Resources)	0xC40000
WEB5	annuncicomapp.cob (Web Application)	0xC50000
WEB6	annuncicomapp.cob continued (Web Application)	0xC60000
WEB7	annuncicomapp.cob continued (Web Application)	0xC70000
WEB8	free (see 1.13 Own skins and web interface)	0xC80000
WEB9	temporary used for updates	0xC90000
WEB10	free (see 1.13 Own skins and web interface)	0xCA0000
WEB11	free (see 1.13 Own skins and web interface)	0xCB0000
WEB12	free (see 1.13 Own skins and web interface)	0xCC0000
WEB13	Free (see 1.13 Own skins and web interface)	0xCD0000
WEB14	temporary used for updates	0xCE0000



1.15 Dynamic Web Page

Dynamic Web Pages are built in HTML or XML or each other text file format that doesn't contain the binary character 0x00. A dynamic page can be an HTML file. To indicate such a page it has to contain the initial mark `&L(0,"*")` in the first 500bytes before the first dynamic value is used. It's possible to use scripts or everything else allowed in the document's file format. The optional third parameter (decimal value) in the initial mark is for file options. If the bit 0 (`&L(0,"*",1);`) in the third parameter is set the content length will not be added in the HTTP header. That's faster because the file will then only be parsed once. Normally the file is parsed once for the content length defined in the HTTP header. Since the length could change during execution a second time parsing is needed in order to send the page to the browser (ex. current uptime). If the content length is need (for special web servers) the format string can be used in order to define a fix length.

The third parameter is used as a bitset. The bits 1-3 are used as password level (1-6) for the file corresponding to the password level parameters in the configuration (see 1.12 Setup). Example for level 5: (`&L(0,"*",10);`). If the password level is 7 then the password for the Telnet/Serial setup is used.

If the bit 4 is set the access will be exclusive (only one user at a time, tested by its IP address). The user has to logout (see 1.18 Configuration Logout) or the software does an automatic logoff 20 min after the last access to such a page. Only one password level can have the exclusive feature (doesn't matter which one).

1.16 The Dynamic Mark

Definition: `&L<name>(<id>,<format>[,par]);`

A dynamic mark always starts with `&L`. The mark is case sensitive. Attached is a name which selects a group of dynamic values. Defined is the group 'State' for values used in the firmware during runtime. The group 'Setup' is defined for all configuration parameters. In the parentheses are the formal parameters like in a C function call. The mark ends always with a `“;”`. `<id>` defines the desired value. `<format>` is a C-style format string (refer to the ANSI documentation). `<par>` are additional parameters. If an additional parameter is needed it is mentioned in the related chapter in this document. No `“;”` is allowed in the dynamic mark. To have this construct inside the format string use `“\;”` (in unknown escape sequence only the `\` will be removed). The have a `“%”` sign inside the format string use `“%%”`. The whole mark is replaced by the `<format>` string filled with the dynamic value. Only one value is allowed per dynamic mark. The length of the dynamic mark mustn't exceed 500 characters. The resulting string out from the dynamic mark mustn't exceed 500 characters.

A dynamic mark can be contained in another dynamic mark but the C-style format string must be respected. Only one recursion step is allowed.

Exampe: `&LSetup(3,"%s",419,B,!0,"<meta http-equiv=refresh content=\"&LSetup(1,\"%u\",419)\;; url=info.html\">");`

Note the special `\` before the semicolon of the dynamic mark inside. This is escape sequence is interpreted as only a semicolon and is needed for the prohibited sequence `;)` inside a dynamic mark.

Example: `<td>&LSetup(1,"<b>%u</b>",0); highest byte of the own IP address</td>`
 is going to the following line if the current value of the highest byte of the own IP address will be 192:
 `<td><b>192</b> highest byte of the own IP address</td>`



1.17 Configuration via HTML Pages

The HTML pages for the device configuration use the functionality for dynamic web pages (see 1.15 Dynamic Web Page). All of the configuration parameters are placed in HTML forms and are transferred by the method GET. Some of the values are checked by java script to prevent wrong values. Not all of the configuration parameters have to be present in a form. It is possible to have only a part of the configuration on a web page. The form has to start with the following two tags:

```
<form method=GET action=setup.cgi target="answer"><input type="hidden" type="text" name=L value=uirnetwork.html>
```

The target of the form could be changed.

The answer after transmitting the form will be the HTML page uirnetwork.html. For another HTML page change this value. If this value isn't available only the HTTP status 200 OK will be sent back.

The following example shows how to implement a form field for the configuration value of the highest byte in the 'own IP address'.

The input element name is a defined string, which has to be handled with care (see more about this below). The type character B stands for an unsigned value (see table below). 0 is the address of the expected configuration parameter (see table in 1.12 Setup).

The value is a dynamic mark (see table below).

```
<input name=B0 size=3 maxlength=3 value=&LSetup(1,"%u",0); onChange=IPCheck(this)>
```

In the next example the name selects the configuration parameter 'CTS close command' in the setup (see table in 1.12 Setup).

```
<input name=S535 size=20 maxlength=20 value='&LSetup(4,"%s",535);'>
```

To set a password also the name Sxxx is used with the address of the corresponding password level. The max. length if the plain password is 24. The delete the password use 24 or more characters (ex. 25 spaces). The device builds the MD5 hash over the plain password and stores the lower 8 bytes. All 8 bytes set to 0 means no password set.



This example shows how to implement a form field for the configuration of the Netmask. The names for the bytes of the Netmask are N8B0, N8B1, N8B2 and N8B3. 8 is the address of the Netmask in the common setup (see table in 1.12 Setup). The value after the B is the byte number of the byte in the Netmask starting with 0 for the first byte at the left. This special handling for Netmask is needed because the Netmask is stored in one byte and not like the IP address in 4 bytes.

```
<input name=N8B0 size=3 maxlength=3 value=&LSetup(2,"%u",8,0); onChange=netMaskCheck(this)>
```

The next example shows how to implement a form field for the configuration of the parameter 'Flow control' as a selection. If the value of the configuration parameter is equal to the second last parameter in the dynamic mark it will be replaced by the last parameter of the dynamic mark.

```
<select size=1 name=B82>
  <option value=0 &LSetup(3,"%s",82,B,0,"selected");>none</option>
  <option value=1 &LSetup(3,"%s",82,B,1,"selected");>Software (XON/XOFF)</option>
  <option value=2 &LSetup(3,"%s",82,B,2,"selected");>Hardware (RTS/CTS)</option>
</select>
```

This example shows how to implement radio buttons for the configuration parameter 'Sonic IP'. The function of the dynamic marks are equal to the example above.

```
<input type=radio name=B277b7 value=0&LSetup(3,"%s",277,b7,0," checked");>Yes<input type=radio name=B277b7 value=1&LSetup(3,"%s",277,b7,1,"
checked");>No
```

To transmit the new configuration data to the device the submit input type of the form is used.

```
<input type=submit value=' Apply '>
```

By pressing the Apply button the new configuration data will be transferred to the device. It will store the new data to its configuration memory (EEPROM). After this it sends the answer (see above) to the browser and then it reboots itself to apply the new configuration.



Dynamic Marks For Group State:

<id>	Type	Description
1	Function	Print string if equal 3. [par]: state variable 5 volume lock (0 = no lock, 1 = locked) 12 loudness on (0 = off, 1 = on) 13 volume mute (0 = off, else on) 22 mode (0 = unknown, 1 = streaming, 2 = pull) 23 status (0 = idle, 1 = play, 2 = pause) 45 streaming mode (0 = none, 1 = talk, 2 = suppressed talk, 3 = forced talk, 4 = receive) 46 temporary target number (see destinations) 47 temporary file target number 4. [par]: Type (see id 1 in 'Dynamic Marks for Group Setup' below) 5. [par]: value to compare. The prefixes !, > or < are allowed to change the comparison (no spaces between) 6. [par]: string for output if state value is equal to 5. [par]
2	Function	Print Byte 3. [par]: state variable 1 current IP address 2 LAN MAC address 3 current netmask (stored as 4 bytes like the current IP address) 4 current gateway IP address 5 current DNS IP address 6 current MAC address 7 last received IP address (received stream or command from) 4. [par]: offset in bytes for the state variable ex. &LState(3,"%u",1,0); for the highest byte of the current IP address ex. &LState(3,"%H",2,0); for the MAC address
3	Function	Print state value 3. [par]: state variable 1 quasi peak value left in 2 quasi peak value right in 3 quasi peak value left out 4 quasi peak value right out



		6 hardware type (0 = unknown, 1 = Annunicom IC) 7 codec type (0 = no codec, 1 = MAS3509 (decoder), 2 = MAS3587 (encoder)) 8 mode (0 = unknown, 1 = streaming, 2 = pull) 9 status (0 = idle, 1 = play, 2 = pause) 10 state of I0 (0 = pushed, 1 = released) 11 state of I1 (0 = pushed, 1 = released) 12 state of DOUT (0 = reset, 1 = set) 13 state of last CTS (0 = close, 1 = open), stores change until manual reset 14 state of RTS (0 = close, 1 = open) 15 state of talk (0 = off, 1 = on, 2 = forced) 16 send stream (0 = no, 1 = yes) 17 receive stream (0 = no, 1 = yes) 18 amount of bytes in the streaming buffer 19 number of encoded/played bytes (double word) 21 current volume 22 current mute volume (if mute on equal to last current value, else 0) 24 current bass 25 current treble 26 current loudness 31 current CTS (0 = off, 1 = on) 35 always 0 39 current uptime in milliseconds (double word) 40 current uptime in seconds (double word) 41 temporary file target 45 streaming mode (0 = none, 1 = talk, 2 = suppressed talk, 3 = forced talk, 4 = receive) 46 current table number
--	--	--

Dynamic Marks for Group Setup:

<id>	Type	Description
I	Function	Print setup value



		3. [par]: Address (decimal) of the value in the setup 4. [par]: Type of the value (B for unsigned byte, W for word, D for double word, c for char/signed byte, b for bit numbered from 0 to 7 ex. b3 for the fourth bit). If this parameter isn't available the type will be B. ex. &LSetup(1,"%08lx",315,D); as hexadecimal value with 8 characters an leading zeros ex. &LSetup(1,"%lu",311,D); as unsigned long decimal value
2	Function	Print Netmask Byte 3. [par]:Address (decimal) of the value in the setup 4. [par]: Byte number of the netmask IP address byte starting with 0 for the first left byte and incremented by one for the next bytes
3	Function	Print string if equal 3. [par]: Address (decimal) of the value in the setup 4. [par]: Type (see id 1 above) 5. [par]: value to compare. The prefixes !, > or < are allowed to change the comparison (no spaces between) 6. [par]: string for output if value at address is equal to 5. [par]
4	Function	Print string 3. [par]: Address (decimal) of the value in the setup
5	Byte (integer)	Firmware Version Major
6	Byte (integer)	Firmware Version Minor
7	Byte (integer)	Bootloader Version Major
8	Byte (integer)	Bootloader Version Minor
9	Function	Prints the version out of a standard version file in a *.cob application 3. [par]: name of the version file 4. [par]: 1 for major version number (byte), 0 for minor version number (byte)
10	Byte (integer)	year of the firmware build (only decade)
11	Byte (integer)	month of the firmware build
12	Byte (integer)	day of the firmware build

See chapter 1.12 Setup for the addresses of the configuration parameters.

Names for the form elements:

If the value is an integer the first character is a B.

If the value is a Netmask the first character is an N.



If the value is a string the first character is an S.
If the value is a long (4 byte) the first character is a D.
If the value is a signed byte the character is a c.
if the value is a word the character is a W.

The following decimal value in the name is the address of the configuration parameter (see 1.12 Setup).

To set a bit in a configuration parameter (ex. Mediaconfig) add the character b followed by the number of the bit (ex. 7 for the 8. bit in the byte) starting at 0.
To define the byte of the Netmask add the character B followed by the byte number (see <id> 2 in the table above).

Examples of names:

B0	first (left) byte of the configuration parameter 'own IP address'
B1	second byte of the configuration parameter 'own IP address'
N8B0	first (left) byte of the Netmask
N8B1	name of the second byte of the Netmask
S535	CTS close command
B277b7	Sonic IP

1.18 Configuration Logout

The logout is placed in an HTML form and is transferred by the method GET. The form has to contain an element named L with the value for the answer page and a second element with the name D. This element is the indication for the logout.

```
<form action=setup.cgi method=get target=_top>  
  <input type=hidden name=L value=logout.html><input type=hidden name=D><input type=submit value=" Logout ">  
</form>
```

The target of the form could be changed.

The answer after transmitting the form will be the HTML page logout.html. For another HTML page change this value. If this value isn't available only the HTTP status 200 OK will be sent back.



1.19 Green and Red LED

Application is starting:

First the red goes on and the green LED blinks once.

Then during the startup the green and red LEDs are blinking. During DHCP the red LED is blinking always and the green LED is blinking alternate for five times and then pause for four times. After SonicIP the red will go off.

If the application is corrupt the red led is on and the green LED blinks five times. After that the device resets itself.

If the network hardware could not be initialized the red led is on and the green LED blinks three times. After that the device resets itself.

If the MAC address is corrupted the red led is on and the green LED blinks three times. After that the device resets itself.

If an IP address conflict occurs the red led is on and the green LED blinks five times. After that the device resets itself.

Application is running:

On stop (not talking/receiving) the green LED is on and the red LED is off.

During talk the green LED is blinking slowly.

On force talk the red and green LED blink slowly.

On suppressed talk the red LED blinks fast and green LED blinks slowly.

On receiving the red LED is off and the green LED blinks fast.

Serial Configuration is activated:

The red LED is blinking always. The green LED is on for four times blinking of the red LED and then off for four red LED blinks.

Telnet Configuration is activated:

The red LED is blinking always. The green LED is blinking four times with the red LED and then pause for four red LED blinks.

No Application loaded (only bootloader) or started with hold reset button during power up:

The green LED is on and the red LED is blinking.

Device after production with bootloader but without MAC:

The green and the red LED are blinking alternate. Indicates waiting for the factory test. During the factory test the blinking remains. If the test has been successful the red LED stops blinking. If the test fails the green LED stops blinking.



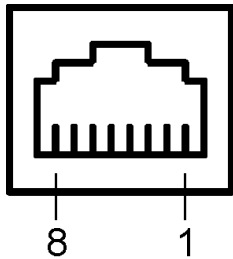
Device after production without bootloader:

Red LED	Green LED	Meaning
Off	Off	No power or bootstrap checksum failed
Off	On	RAM Test in progress, stays on if test failed
On	Off	Serial port being polled
Blink	On	Serial port load in progress
On	On	Serial port load failed
Off	Blink	Serial flash load in progress (not used)
Blink	Blink	Serial flash load failed (not used)
Blink	Off	No valid non-volatile storage found, serial port being polled indefinitely.



2 Hardware and Connectors

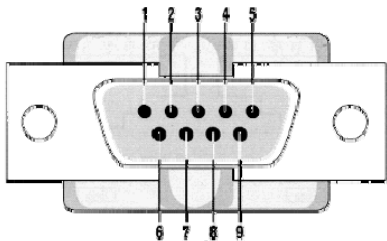
2.1 Ethernet



1	TX+		5	NC
2	TX-		6	RX-
3	RX+		7	NC
4	NC		8	NC

Yellow LED (right LED): Link ok if on
Green/Orange LED (left LED): green if 10Mbit, orange if 100Mbit

2.2 Serial Port



1	NC		6	NC
2	RxD		7	RTS
3	TxD		8	CTS
4	12VDC		9	NC
5	GND			

V_{RxD} +/- 15V TxD is short circuit protected.
Max. Input Logic Threshold LOW 0.8V Min. Input Logic Threshold HIGH 2.0V
 i_{max} (RTS): 10mA
 I_{max} (12VDC with supplied 12V power supply): 100mA. This pin is connected directly to the power supply.

Transceiver: SIPEX SP3232E

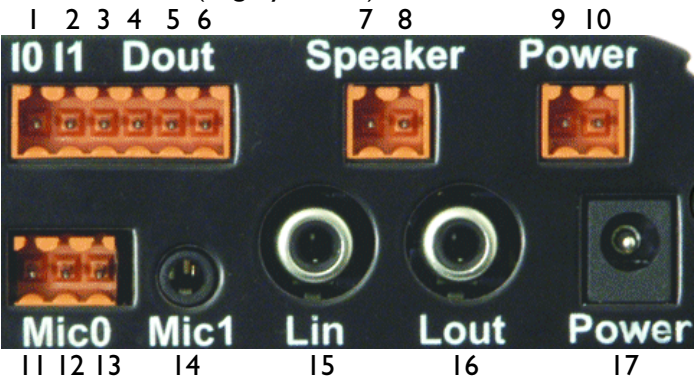
2.3 Codec

Built in as a Micronas MAS3587 Revision B2. For further information see Micronas' datasheets of the codec.

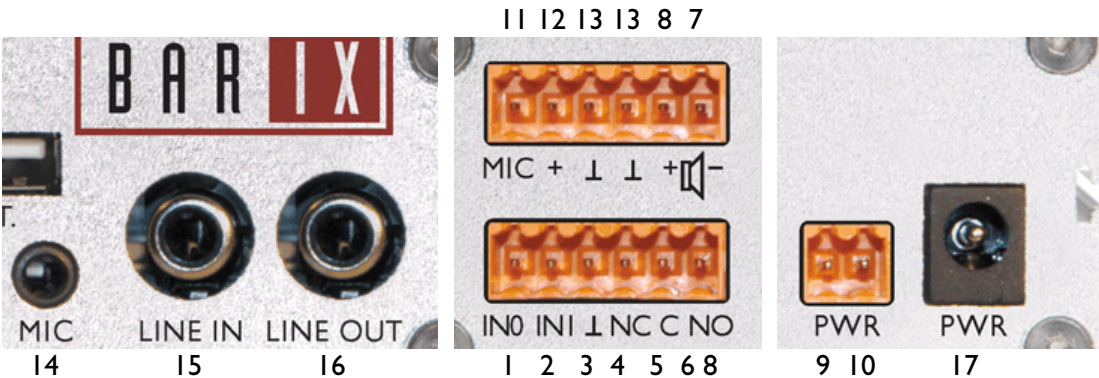


2.4 Other Connectors

Annunicom IC (Legacy device)



Annunicom I00



Name	Nr	Description
I0	1	Input 0, switch against In GND, no DC supply needed
I1	2	Input 1, switch against In GND, no DC supply needed
In GND	3	Input Ground
Dout	4, 5, 6	Relais output: 4 normally open, 5 common, 6 normally closed, max 50V/1A
Speaker	7, 8	Speaker min. 40hm, 2 Watt, 7 SPKR-, 8 SPKR+
Power	9, 10	9: Ground, 10: +9..24 VDC, Consumption: approx. 4 Watt
Mic0	11, 12, 13	Mic input 3.5 mm Jack, 11 Mic, 12 Mic Power, 13 Ground
Mic1	14	Mic input Jack, Tip Mic, Ring Power, End Ground
Lin	15	Line input RCA, 2Vpp max. level (0dbFs)
Lout	16	Line output RCA, 4.2Vpp max. level (0 dbFs), SNR>85dbFs
Power	17	Power in, Center +9..24 VDC, Ring Ground, approx. 4 Watt

2.5 Thermal Characteristics

Working Temperature Range	0-50°C
Humidity	0-70% relative humidity, noncondensing

