



# TECHNICAL DOCUMENTATION

## The Annunicom

Firmware Version 4.07

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# 1 Interfaces

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## 1.1 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 concatenating the L command. If no special answer is requested the file ack.ack will be returned.
- The answer files can be edited and changed to your needs (see 4 Own skins and web interface).
- The standard answers are designed as XML.
- All strings and commands 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.

## 1.2 Concatenated 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.
- For example, 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 an answer.

## 1.3 Restrictions

- 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 required audio file extensions in the web application are: for uLaw 8 kHz: u8, uLaw 24 kHz: u24, aLaw 8 kHz: a8, aLaw 24 kHz: a24, PCM 8 kHz: p8, PCM 24 kHz: p24 and for MP3: mp3. All extensions are case sensitive except mp3.

## 1.4 Principles of the CGI WEB interface

- The browser should support frames.
- 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 the 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 appended carriage return (ASCII 0x0D) and line feed (ASCII 0x0A) is sent back when:
  - a byte is 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
- The serial connector pin out is as for a standard PC 9pol. DSub.
- If IR is used, the serial command interface can't be used.
- If the serial gateway functionality is used, the serial command interface can't be used.

## 1.6 Principles of the 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 the 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 Annunicom 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 Annunicom 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 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 .

## 2 Control via the SERIAL, UDP, TCP and CGI WEB interfaces

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 4 Own skins and web interface
MUTE	Mute the volume. VOLUMEINC, VOLUMEDEC, VOLUME > 0 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.↓)
FORCEMUTEON	Mute on forced (can only be released by FORCEMUTEOFF) The VOLUMEINC, VOLUMEDEC, VOLUME > 0 updates the stored volume but the device remains muted	c=40	0x63 0x3D 0x34 0x30 0x00 (c=40.↓)
FORCEMUTEOFF	Mute off (if set on by FORCEMUTEON)	c=41	0x63 0x3D 0x34 0x31 0x01 (c=41.↓)

Element	Description	CGI command	SERIAL, TCP or UDP command
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 temporary target using the entry in the table. 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 out. The sequence of the elements is important and must be as defined. example: c=77&entry=2&ip=192.168.2.223&port=1234&type=1 Note: If the entry is not currently used a new temporary entry is created otherwise the existing entry is overwritten. After a reboot the original configuration is restored.	c=77&entry=e&ip=i&port=p&type=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↓)
SETI0	Simulates the a set on I0	c=85	0x63 0x3D 0x38 0x35 0x00 (c=85↓)
RESETI0	Simulates a reset on I0	c=86	0x63 0x3D 0x38 0x36 0x00 (c=86↓)
SETI1	Simulates the a set on I1	c=87	0x63 0x3D 0x38 0x37 0x00 (c=87↓)
RESETI1	Simulates a reset on I1	c=88	0x63 0x3D 0x38 0x38 0x00 (c=88↓)



Element	Description	CGI command	SERIAL, TCP or UDP command
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 BASSM09 --- BASSP00 --- BASSP09 BASSP10	Set minimal bass level. Set bass level to -9.  Set neutral bass level.  Set bass level to 9. Set maximal bass 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. bass)	B=-10 B=-9 --- B=+0 or B=0 --- B=+9 or B=9 B=+10 or B=10	0x42 0x3D 0x2D 0x31 0x30 0x00 (B=-10↓) 0x42 0x3D 0x2D 0x39 0x00 (B=-9↓) --- 0x42 0x3D 0x2B 0x30 0x00 (B=+0↓) --- 0x42 0x3D 0x2B 0x39 0x00 (B=+9↓) 0x42 0x3D 0x2B 0x31 0x30 0x00 (B=+10↓)
CONFIG	Configuration commands via the normal CGI WEB command interface. Append the setup elements to this command. (see 2.1)	C=	0x43 0x3d ... 0x00 (C=...↓)
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	g=...	0x67 0x3D ... 0x00 (g=...↓)

Element	Description	CGI command	SERIAL, TCP or UDP command
	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.		
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 4 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	<p style="text-align: center;"><b>!!!ONLY FOR EXPERTS!!!</b></p> 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 2.1) 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=	0x51 0x3d ... 0x00 (Q=...↵)

Element	Description	CGI command	SERIAL, TCP or UDP command
	<p>Q=L=&amp;W499=3035                      2) To change the UDPPRIOPORT to 9090                      Q=L=&amp;W287=9090                      3) To change the UDPCMDPORT to 12399                      Q=L=&amp;W791=12399</p> <p>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.</p>		
SENDUDPSTRING	<p>Send a command string in an UDP packet                      Syntax: r=[&lt;prot&gt;://][[&lt;ip&gt;]:&lt;port&gt;]/&lt;cmd_seq&gt;                      &lt;prot&gt; = udp                      &lt;cmd_seq&gt;:= &lt;cmd&gt; &lt;start bracket&gt;{&amp;&lt;cmd&gt;}&lt;end bracket&gt;                      &lt;cmd&gt; = [&lt;param&gt;]{&amp;&lt;cmd&gt;}                      &lt;start bracket&gt;=&lt;end bracket&gt; := any character that is not part of a CGI command sequence OR                      &lt;start bracket&gt;&lt;end bracket&gt;:= []   {}   ()</p> <p>If no &lt;prot&gt; is defined then udp is used.                      If no &lt;ip&gt; is in the command then the IP address of the last received stream is used.                      If no &lt;port&gt; is defined then the UDP command port is used</p> <p>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.</p> <p>Example bracketed command sequence:                      r=192.168.0.22:12301/[v=2&amp;t=3]                      But note that in the following sequence the last command is local                      r=192.168.0.22:12301/[v=2&amp;t=3]&amp;c=78</p>	r=...s	0x72 0x3D (r=...␣)

Element	Description	CGI command	SERIAL, TCP or UDP command
SETTEMPTARGET	<p>Set a temporary target to talk to.                      Syntax: s=[udp://[&lt;ip&gt;]:&lt;port&gt;] or s=[file cfg tab]://&lt;nr&gt;                      If no port is defined then the UDP RX Port is used.</p> <p>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:                      &lt;nr&gt;=[&lt;prot&gt;://[[&lt;ip&gt;]:&lt;port&gt;]]                      &lt;nr&gt; as a decimal number between 1 and 9999.                      If targets.ini isn't available and &lt;nr&gt; is 1..8, the target is taken from the table entry.</p> <p>If cfg is defined, &lt;nr&gt; 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.</p> <p>If 'tab' is defined, &lt;nr&gt; 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.</p> <p>An empty command s= or a reboot discards the temporary target and the operation reverts to the original settings.</p>	s=...	0x73 0x3D ...0x00 (s=...)
TREBLEM10only TREBLEM09 --- TREBLEP00 --- TREBLEP09 TREBLEP10	<p>Set minimal treble level.                      Set treble level to -9.</p> <p>Set neutral treble level.</p> <p>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,</p>	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)

Element	Description	CGI command	SERIAL, TCP or UDP command
SENDTCPSTRING	0x5B, 0x60 (corresponding neg. value for neg. treble) Sends the attached string through the TCP interface. The answer is the string itself.	T=...	0x53 0x3D (T=...↵)
VOLUME00 VOLUME01 --- VOLUME20	Set minimal volume level (volume off). Set volume level 1.  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=0 v=1 --- v=20	0x76 0x3D 0x30 0x00 (v=0↵) 0x76 0x3D 0x31 0x00 (v=1↵) --- 0x76 0x3D 0x32 0x30 0x00 (v=20↵)

## 2.1 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	<p>Sets the configuration</p> <p>The expected string is exactly the one the HTML browser generates for the forms used for the configuration. (L= see GETDYNFILE)</p> <p>(see table in chapter 4 Own skins and web interface for the names)</p> <p>The device will respond with HTTP status 200 OK and if referenced with the optional &lt;file&gt;. Then it will reboot.</p> <p>Examples for set the IP address to 192.168.1.22:                      for Serial: C=L=&amp;B0=192&amp;B1=168&amp;B2=1&amp;B3=22                      for cgi: setup.cgi?                      L=uinetwork.html&amp;B0=192&amp;B1=168&amp;B2=1&amp;B3=22                      or rc.cgi?C=L=uinetwork.html&amp;B0=192&amp;B1=168&amp;B2=1&amp;B3=22</p>	L=<file>&...	0x43 0x3D 0x4C ... (C=L=...)

### 3 Configuration - 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 is loaded to the EEPROM on factory default.

#### 3.1 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.

#### 3.2 Configuration Setup Table

In the following configuration table (also known as the Setup table) the column Byte shows the byte offset in the configuration starting at 0. If a command password is defined, take care that the password is set correctly when issuing commands.

Parameter	Byte [dec]	Dynamic 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)

Parameter	Byte [dec]	Dynamic Name	Length [Byte]	Default Value	Short Description
Lan Mode	9	B9b1-1, B9b2-1, B9b3-1 or B9	1	0	Ethernet Mode bit 0 - not used (reserved for WLAN mode) bit 1 - auto-negotiate disable (set to 1 to disable) bit 2 - 100/10MBit (set to 1 for 10mbps) bit 3 - full/halfduplex (set to 1 for half duplex) Default 0 - auto-negotiate set
Set Type of Service	59	B59	1	0	ToS value used for TCP and UDP streaming. DSCP (Differentiated Service Code Point) supersedes IP4 ToS value and uses the same byte. Check for DSCP services available to set this value. Valid values are 0-63. Default value is 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: [Frame7]
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)
IFMODE1	83	B83b0-1, B83b2-3, B83b4-5, B83b6-7 or B83	1	0x4C	Definition of the bits in that byte for the serial port 1: [Frame7]
BAUDRATE1	84	B84	1	2	Baudrate for the serial port 1. (7 = 300, 6 = 600, 5 = 1200, 4 = 2400, 3 = 4800, 2 = 9600, 1 = 19200, 0 = 38400, 9 = 57600, 8 = 115200)
FLOWCONTROL1	85	B85	1	8	Flow control for the serial port 1. (0 = no, 1= Software XON/XOFF, 2 = Hardware RTS/CTS, 8 = RS485 direction control)
LOCALPORT	86	W86	2	12303	Defines the network port on which the serial interface 0 can be accessed for the gateway application. Only when "Local port" is set to "0" can the serial interface be used as a command interface. If the serial gateway is enabled (Destination IP defined) and the "Local port" is set then this will be the source port of the TCP connection. On "0" a random source port is used.
GATEWAYDSTIP	88	B88, B89,	4	0.0.0.0	Gateway destination IP address. If this IP address is 0.0.0.0 and the



Parameter	Byte [dec]	Dynamic Name	Length [Byte]	Default Value	Short Description
		B90, B91			GATEWAYDSTPORT is 0 then the serial gateway is disabled.
GATEWAYDSTPORT	92	W92	2	0	Gateway destination Port (see GATEWAYDSTIP).
DHCPNAME	98	S98	16	NULL	DHCP Host Name - ASC II string 16 bytes including terminating 0
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
Listening password selector	204	B204	1		Value from 0 to 7. 0 means listening is not protected with a password and 1-6 mean Password level 1 to level 6 is used. Value=99, no access is allowed. Other values treated as 0.
Reserved	205		23		
SNMP Read Only selector	229	B229	1		Value from 0 to 7. 0 means SNMP Read Only is not protected with a password and 1-6 mean Password level 1 to level 6 is used. Value=99, no access is allowed. Other values treated as 0.
SNMP Read/Write	230	B230	1		Value from 0 to 7. 0 means SNMP Read/Write is not protected with a password and 1-6 mean Password level 1 to level 6 is used. Value=99, no access is allowed. Other values treated as 0.
Supervision	241	B241	1	0	Speaker supervision with 11Hz in-band tone (Annunicom 155 only) 0 = permanently off 1 = permanently on 2 = 10 seconds every 1 minute
Speaker also as microphone	242	B242	1	0	0=disabled, 1=enabled. If enabled amplifier is turned off when Annunicom is in TALK mode (receiving from microphone).
Minimum priority message volume	243	B243	1	5	Range 0...20. The meaning of the units is identical to that of Volume (B244). If the current volume is set to less than Minimum priority message volume and a priority message begins, the volume is set to Minimum priority message volume. This ensures that priority messages are not missed when the volume is accidentally turned down.

Parameter	Byte [dec]	Dynamic Name	Length [Byte]	Default Value	Short Description
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	0 for stereo, 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	282	B282	1	0	This parameter defines how the packets are generated:

Parameter	Byte [dec]	Dynamic Name	Length [Byte]	Default Value	Short Description
Strategy					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.
Reserved	291		61		
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 <a href="http://a.a.a.a/xstream">http://a.a.a.a/xstream</a> 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 1 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 1 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 1 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 1 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 1 Entry 5 IP	469	B469, B470,	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

Parameter	Byte [dec]	Dynamic Name	Length [Byte]	Default Value	Short Description
		B471, B472			corresponding port)
Table 1 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 1 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 1 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 = 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 6=uLaw / 24 kHz (G.711) 7=uLaw / 8 kHz (G.711) 8=aLaw / 24 kHz (G.711) 9=aLaw / 8 kHz (G.711) 10=PCM / 24 kHz (16bit) 11=PCM / 8 kHz (16bit)
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

Parameter	Byte [dec]	Dynamic Name	Length [Byte]	Default Value	Short Description
					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)

Parameter	Byte [dec]	Dynamic Name	Length [Byte]	Default Value	Short Description
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 I1 pushed	663	S663	64	r=c=78	Command sequence executed if I1 will be pushed
Command I1 released	727	S727	64	r=c=79	Command sequence executed if I1 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	ific 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

Parameter	Byte [dec]	Dynamic Name	Length [Byte]	Default Value	Short Description
					(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)

Parameter	Byte [dec]	Dynamic Name	Length [Byte]	Default Value	Short Description
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,	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet



Parameter	Byte [dec]	Dynamic Name	Length [Byte]	Default Value	Short Description
		B1002, B1003, B1004			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, B1,009 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	1015	B1015, B1016, B1017, B1018	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	1019	W1019	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	1021	B1021	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 3 Entry 4 IP	1022	B1022, B1023, B1024, B1025	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	1026	W1026	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	1028	B1028	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 3 Entry 5 IP	1029	B1029, B1030, B1031, B1032	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	1033	W1033	0	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)

Parameter	Byte [dec]	Dynamic Name	Length [Byte]	Default Value	Short Description
Table 3 Entry 6 Type	1035	B1035	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 3 Entry 6 IP	1036	B1036, B1037, B1038, B1039	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	1040	W1040	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	1042	B1042	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 3 Entry 7 IP	1043	B1043, B1044, B1045, B1046	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	1047	W1047	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	1049	B1049	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 3 Entry 8 IP	1050	B1050, B1051, B1052, B1053	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	1054	W1054	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	1056	B1056	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 4 Entry 1 IP	1057	B1057, B1058, B1059, B1060	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	1061	W1061	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	1063	B1063	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 4 Entry 2 IP	1064	B1064, B1065, B1066,	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)

Parameter	Byte [dec]	Dynamic Name	Length [Byte]	Default Value	Short Description
		B1067			
Table 4 Entry 2 Port	1068	W1068	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	1070	B1070	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 4 Entry 3 IP	1071	B1071, B1072, B1073, B1074	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	W1075	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	B1077	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 4 Entry 4 IP	1078	B1078, B1079, B1080, B1081	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	W1082	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	B1084	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 4 Entry 5 IP	1085	B1085, B1086, B1087, B1088	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	W1089	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	B1091	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 4 Entry 6 IP	1092	B1092, B1093, B1094, B1095	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	W1096	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	B1098	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)

Parameter	Byte [dec]	Dynamic Name	Length [Byte]	Default Value	Short Description
Table 4 Entry 7 IP	1099	B1099, B1100, B1101, B1102	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	W1103	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	B1105	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 4 Entry 8 IP	1106	B1106, B1107, B1108, B1109	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	W1110	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	B1112	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 5 Entry 1 IP	1113	B1113, B1114, B1115, B1116	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	W1117	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	B1119	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 5 Entry 2 IP	1120	B1120, B1121, B1122, B1123	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	W1124	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	B1126	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	1131	W1131	0	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use

Parameter	Byte [dec]	Dynamic Name	Length [Byte]	Default Value	Short Description
Port					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,	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

Parameter	Byte [dec]	Dynamic Name	Length [Byte]	Default Value	Short Description
		B1164, B1165			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	1183	B1183, B1184, B1185, B1186	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	1187	W1187	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	1189	B1189	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 6 Entry 4 IP	1190	B1190, B1191, B1192, B1193	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	1194	W1194	0	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Table 6 Entry 5	1196	B1196	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP,

Parameter	Byte [dec]	Dynamic Name	Length [Byte]	Default Value	Short Description
Type					3=not used)
Table 6 Entry 5 IP	1197	B1197, B1198, B1199, B1200	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	1201	W1201	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	1203	B1203	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 6 Entry 6 IP	1204	B1204, B1205, B1206, B1207	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	1208	W1208	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	1210	B1210	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 6 Entry 7 IP	1211	B1211, B1212, B1213, B1214	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	1215	W1215	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	1217	B1217	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 6 Entry 8 IP	1218	B1218, B1219, B1220, B1221	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	1222	W1222	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	1224	B1224	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 7 Entry 1 IP	1225	B1225, B1226, B1227, B1228	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)

Parameter	Byte [dec]	Dynamic Name	Length [Byte]	Default Value	Short Description
Table 7 Entry 1 Port	1229	W1229	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	1231	B1231	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 7 Entry 2 IP	1232	B1232, B1233, B1234, B1235	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	1236	W1236	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	1238	B1238	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 7 Entry 3 IP	1239	B1239, B1240, B1241, B1242	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	1243	W1243	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	1245	B1245	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 7 Entry 4 IP	1246	B1246, B1247, B1248, B1249	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	1250	W1250	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	1252	B1252	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 7 Entry 5 IP	1253	B1253, B1254, B1255, B1256	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	1257	W1257	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	1259	B1259	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 7 Entry 6 IP	1260	B1260,	4	0.0.0.0	Destination IP for the connection (on type Raw UDP 0.0.0.0 is the subnet



Parameter	Byte [dec]	Dynamic Name	Length [Byte]	Default Value	Short Description
		B1261, B1262, B1263			broadcast IP address), (on type Raw TCP 0.0.0.0 means listener on the corresponding port)
Table 7 Entry 6 Port	1264	W1264	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	1266	B1266	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 7 Entry 7 IP	1267	B1267, B1268, B1269, B1270	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	1271	W1271	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	1273	B1273	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 7 Entry 8 IP	1274	B1274, B1275, B1276, B1277	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	1278	W1278	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	1280	B1280	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 8 Entry 1 IP	1281	B1281, B1282, B1283, B1284	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	1285	W1285	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	1287	B1287	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 8 Entry 2 IP	1288	B1287, B1288, B1289, B1290	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	1292	W1292	0	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)

Parameter	Byte [dec]	Dynamic Name	Length [Byte]	Default Value	Short Description
Table 8 Entry 3 Type	1294	B1294	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 8 Entry 3 IP	1295	B1295, B1296, B1297, B1298	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	1299	W1299	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	1301	B1301	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 8 Entry 4 IP	1302	B1302, B303, B1304, B1305	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	1306	W1306	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	1308	B1308	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 8 Entry 5 IP	1309	B1309, B1310, B1311, B1312	0.0.0.0	0.0.0.0	on 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	1313	W1313	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	1315	B1315	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 8 Entry 6 IP	1316	B1316, B1317, B1318, B1319	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	1320	W1320	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	1322	B1322	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 8 Entry 7 IP	1323	B1323, B1324, B1325,	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)

Parameter	Byte [dec]	Dynamic Name	Length [Byte]	Default Value	Short Description
		B1326			
Table 8 Entry 7 Port	1327	W1327	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	1329	B1329	1	3	Type for the connection (0=Internet Radio, 1 = Raw UDP, 2 = Raw TCP, 3=not used)
Table 8 Entry 8 IP	1330	B1330, B1331, B1332, B1333	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	1334	W1334	0	0	Destination Port for the connection (0 for use UDP Rx Port, if this is 0 use default 3030)
Stop background TCP streams	1336	B1336	1	0	TCP flow-control setting for streams interrupted by priority stream (background streams). If not 0, TCP connections are stopped (full buffer is announced in TCP flow-control). 0 means any incoming data of background streams are accepted and thrown away. UDP connections are not affected.
Command Broadcast	1337	B1337	1	0	Backward compatibility bit. If set to 1, "r=c=" commands (no IP address specified) are broadcast no matter if there was any previous communication or not. If set to 0, "r=c=" commands are sent to the last partner address and only if "stream to origin source" is set.
Relay on Audio	1338	B1338	1	0	When set to nonzero, relay is activated and deactivated according to whether audio is coming out or not.
Remote TCP port for 2 <sup>nd</sup> serial port	1339	W1339	2	0	Remote port for the 2 <sup>nd</sup> serial port/TCP interface (0 for passive listening connection at port 12304). If this is set to nonzero, an active TCP connection to the remote machine to this port is initiated.
Remote TCP IP address for 2 <sup>nd</sup> serial port	1341	B1341, B1342, B1343, B1344	4	0.0.0.0	When set to nonzero, a TCP connection is initiated to this IP and used to carry the communication on the 2 <sup>nd</sup> serial port .
Local TCP port for 2 <sup>nd</sup> serial port	1345	W1345	2	12304	When set to nonzero, a TCP connection is passively awaited on this port and then connected to the 2 <sup>nd</sup> serial port.
Multicast address	1347	B1347, B1348, B1349, B1350	4	0.0.0.0	A Multicast address on which to receive an audio stream. As receive port the "UDP Receiver Port" is taken. At start up the device will join the multicast group by periodically issuing IGMP join group messages. Default setting is no address set, "0.0.0.0".

## 4 Own skins and web interface

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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 at [www.barix.com](http://www.barix.com). This and the following chapter describe the WEB UI approach taken and a user guide to designing your own web pages.

The webuidevkit folder holds the files you need for the web pages. You can simply edit these files and/or add new ones. It is recommended to study and fully understand how the current files are used before replacing any. In the list below the files marked with \* are directly addressed in the software and cannot be removed or renamed without loss of functionality.

From Software Version 4.06 and WEB UI Version 2.0 the “look and feel” has been altered and the file structure simplified. For the configuration It is now possible for the user to choose between Basic, Advanced and Table Settings. All the parameters in any one of these sections can be updated without requiring a reset for each individual page. So, for example, a user can edit all the Advanced parameters and apply the changes and then edit all the Table Settings and apply the changes. For initial testing and simple cases the Basic Settings will be often sufficient.

Each device has either 1M or 2Mbytes of uploadable memory composed of 64 kByte flash pages. A cob file can occupy a number of flash pages but each individual file must not exceed 64 kByte. Filenames must not start with rc.cgi or setup.cgi.

To generate a .cob file start the batch annunicomicapp.bat. Upload the .cob file generated to the web application page (overwrite). Unix or Mac users should use the alternative tools provided in the release zip file.

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 flash page targets can be found in the section Additional Information under Memory Page Usage. The target field is case sensitive. If you upload a .cob file to pages already used the current content will be overwritten.

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.

### 4.1 WEB UI Files

The WEB UI files used and supplied in the standard software package are as follow:

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

Answer files (see 5 Web pages and the use of dynamic marks for the dynamic marks included in the files).

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
fbbyte.ack	✓	information about the audio output buffering
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
getsettarget.ack	✓	information about the target set by c=77
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 files

*config.bin		factory default settings. The file is binary and an exact mirror for the EEPROM. See 3 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)

Images

4to0.gif		used to count down while waiting for the device to reboot
barix.png		Barix logo
favico.ico		Barix icon
d0.gif		icon showing logical states: inactive (grey)
d1.gif		icon showing logical states: active (green)
d2.gif		icon showing logical states: action forced (red)

File	Dyn.	Description
i0.gif		icon showing the status of a button: pressed
i1.gif		icon showing the status of a button: not pressed
i2.gif		icon showing the status of a button: shortcut
i3.gif		icon showing the status of a button: not connected
m0.gif		icon showing the status of the microphone/speaker: working OK
m1.gif		icon showing the status of the microphone/speaker: not connected or shortcut
m2.gif		icon showing the status of the speaker: no measurement available
o0.gif		Icon for output inactive
o1.gif		Icon for output active
ox.gif		Icon for output not available
volume.gif		volume update slider used on the home page

HTML pages (see 5 Web pages and the use of dynamic marks for the dynamic marks included in the files)

*index.html	✓	main page of the web server, included the frames: menu, uifhome and empty. empty is a hidden frame that receives the answer of the CGI commands. Can be overridden by start.html. This allows the creation and execution of an alternative cob file which can be loaded into any of the available flash web pages. Free pages are listed in the chapter: Additional Information. The existing Barix application cob files can be left in the flash.
menu.html	✓	Vertical menu bar with logo and software name on the top of each page
*notauthorized.html		shown if the user isn't authorized to view a page
(*start.html	✓	This normally doesn't exist. If you add it, it will override index.html and be displayed when you access the device as a default.
status	✓	shows the actual states and configuration of the device
*toomanyusers.html		provides a 503 service error if too many users request a WEB radio stream
uiadvanced.html	✓	configuration pages for Basic, Advanced and Table settings
uibasic.html	✓	
uitables.html	✓	
uidefaults.html	✓	set factory defaults
uifadvanced.html	✓	frame set for specific pages
uifbasic.html		
uifdefaults.html		
uifhome.html		
uifloader.html		
uifreboot.html		
uifstatus.html		
uiftables.html		
uifupdate.html		

File	Dyn.	Description
uihadvanced.html uihbasic.html uihdefaults.html uihhome.html uihloader.html uihreboot.html uihtable.html uihupdate.html	✓	help for the corresponding pages
uihome.html	✓	Home page with runtime device status
*uilogout.html		logout page
uimadvanced.html	✓	Menu for advanced settings
uimbasic.html	✓	Menu for basic settings
uimtables.html	✓	Menu for table settings
uiradvanced.html uirbasic.html uirdefaults.html uirloader.html uirreboot.html uirtables.html uirupdate.html	✓	shown while the device reboots after pressing apply or when inviting the user to reboot the device
uirdefaults1.html		shown after defaults are applied and the device has successfully rebooted
uireboot.html		reboot the device
uirreboot1.html		shown after reboot is applied and the device has successfully rebooted
uiupdate.html	✓	update the device
update.html		forwarding page to hide the command for the update

Style Sheet

basic.css		CSS for basic settings (uibasic.html)
help.css		CSS for all help frames
menu.css		CSS for menu settings
settings.css		CSS for advanced and table settings
vumeter.css		CSS for VU-meter on the homepage (uihome.html)

Java Script and supporting files

util.js		javascript functions for the HTML configuration pages (range checks, etc.)
update.js	✓	Javascript functions for runtime updating the device status on the homepage (uihome.html)
visual.js		Javascript functions for switching categories in advanced and tables settings (uiadvanced.html, uihadvanced.html, uitable.html, uihtable.html)

vumeter.js		Javascript functions for VU-meter implementation on the homepage (uihome.html)
realtime_status.txt	✓	A text file with ordered dynamic state variables used as input to update.js



## 5 Web pages and the use of dynamic marks

---

Web pages can include dynamic values. Dynamic Web Pages are built in HTML or XML or in an other text file format that exclude the binary character 0x00, i.e. the dynamic page can be an HTML file. It's possible to use scripts or everything else allowed in the given document's file format.

### 5.1 Initial Dynamic Mark

In order to indicate that Web page is dynamic, it has to contain the special initial dynamic mark `&L(0,"*")`; in the first 500 Bytes and before any other dynamic value is used. The initial mark can also have decimal number as its optional third parameter. Example of such initial mark is `&L(0,"*",1)` ;.

The third parameter is parsed bitwise and has the following meaning:

- If bit 7 is set then the code page IBM437 will be used instead of the standard HTML code page.
- If 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 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).
- Bits 1-3 are used as password level (1-6) for the file corresponding to the password level parameters in the configuration.  
Example for level 5: `&L(0,"*",10)` ;
- If bit 0 is set, then the content length will not be included in the HTTP header. Page is sent faster by saving the time needed to calculate the content length.

### 5.2 Dynamic Marks Syntax

Dynamic marks can be used to put dynamic values in Web pages. All dynamic marks have the following syntax:

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

A dynamic mark always starts with `&L` and it is always case sensitive.

- `<name>` selects a group of dynamic values. Defined is the "Setup" group for all configuration parameters and the "State" group for actual parameter states. Remaining parameters are included in parentheses, with the right parenthesis followed by a semicolon.
- `<id>` determines the desired function.
- `<format>` is a C-style format string (refer to the ANSI documentation).
- `<par>` are optional additional parameters. If additional parameters are needed, it is mentioned in the function lists below.

**Note:** The string `" ;"` is not allowed inside a dynamic mark.

To have this construct inside the format string, use `" \ ;"` (in an unknown escape sequence, only the `'\'` will be removed).

To have a `"%"` sign (percent sign) inside the format string, use `"%%"` (two signs without space).

The whole mark is replaced by the dynamic value formatted with the `<format>` string. Only one value is allowed per dynamic mark. The length of the dynamic mark mustn't exceed 500 characters. The resulting string from the dynamic mark must not exceed 500 characters.

A dynamic mark can be contained in another dynamic mark. Only one recursion step is allowed and correct "escaping" has to be applied. Example:

```
&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 because the escape sequence is interpreted as only a semicolon and is needed in order to include the prohibited sequence `" ;"` inside a dynamic mark.

### 5.3 Configuration via HTML Pages

The HTML pages for the device configuration make use of dynamic marks. All of the configuration parameters are placed in HTML forms and transferred by the method POST or GET. Some of the values may be checked by java script to prevent wrong input. 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.

Since SW release V4.06, the firmware supports both GET and POST methods, so the WEB page developer has the choice of both. The form has to start with the following two tags (method GET shown):

```
<form action=setup.cgi method=get><input type=hidden name=L value=uirdefaults.html>
```

The target of the form could be changed. The answer after transmitting the form will be the HTML page `uirdefaults.html`. For another HTML page change this value. If this value isn't available only the HTTP status 200 OK will be sent back. For the POST method replace `method=get` with `method=post`.

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.

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.

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

To set a password the name Sxxx is also used with the address of the corresponding password level. The max. length if the plain password is 24. To 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. 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 in 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.

### 5.3.1 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) 6 hardware type (1=old Annunicom, 4=new Annunicom) 12 loudness on (0 = off, 1 = on) 13 volume mute (0 = off, else on) 20 encoding - as for Setup Sampling Frequency (0-5 MPEG, >5 uncompressed) 22 mode (0 = unknown, 1 = streaming, 2 = pull) 23 status (0 = idle, 1 = play, 2 = pause) 33 number of digital inputs

<id>	Type	Description
		34 number of digital outputs 35 IPAM type 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 - linear values 0-32k 2 quasi peak value right in - linear values 0-32k 3 quasi peak value left out - linear values 0-32k 4 quasi peak value right out - linear values 0-32k 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 IO (0 = pushed, 1 = released, 2=shortcut, 3=not connected) 11 state of I1 (0 = pushed, 1 = released, 2=shortcut, 3=not connected) 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)

<id>	Type	Description
		17 receive stream (0 = no, 1 = yes) 18 current number of bytes in the output streaming buffer 19 minimum number of bytes in the output streaming buffer (double word) 20 number of codec underruns 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 27 entry set with c=77, 0 if not set 28 IP set with c=77, 0 if not set. Use %A for format. 29 port set with c=77, 0 if not set 30 type set with c=77, 0 if not set 31 current CTS (0 = off, 1 = on) 33 number of digital inputs 34 number of digital outputs 35 IPAM type 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 47-50 are only available if supported by the HW (Annunicom 155): 47 microphone status: 0=OK status, 1=microphone removed or shortcut (iostate(211)) 477 microphone bias current in 1uA units (iostate(502)) 48 device temperature in deg C, integer part 49 device temperature in deg C, decimal part (in 1/100ths) 50 speaker supervision (if configured). 0 = speaker loop current within valid range, 1 = wrong loop current (i.e. speaker broken/not connected), 2 = invalid (no measurement available) (iostate(210)) 51 quasi peak value left - dB values 52 quasi peak value right in - dB values 53 quasi peak value left out - dB values 54 quasi peak value right out - dB values

### 5.3.2 Dynamic Marks for Group Setup:

<id>	Type	Description
1	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
13	Byte (integer)	Song Major
14	Byte (Integer)	Song Minor
15	Byte (integer)	XT Major
16	Byte (integer)	XT Minor
17	Pointer	Song build date string (20 bytes including termination)

See chapter 3 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 3 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

## 5.4 Configuration Logout

The logout is placed in an HTML form and is transferred by the method GET or POST. 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.

Example with method GET

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

Example with method POST

```
<form action=setup.cgi method=POST style="float: right">  
  <input type=hidden name=L value=uilogout.html><input type=hidden name=D><input type=submit value=" Logout ">  
</form>
```

The names for the method are case insensitive. The target of the form could be changed.

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

## 6 Additional Information

### 6.1 Memory Page Usage

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

- The bootloader advanced upload mode will assume WEB0 if a target is given not beginning with WEB.  
The value of the rom target is important for a multipack build and has the format nK where 1<=n<=F  
In this case the target is compared with a value stored in the configuration in order to switch between packages.  
A multipack build contain 2 or more products when the HW is delivered from the factory, e..g sip+annunicomic.
- The bootloader advanced upload mode will assume WEB0 if a target is given not beginning with WEB.  
The value of the rom target is important for a multipack build and has the format nK where 1<=n<=F  
In this case the target is compared with a value stored in the configuration in order to switch between packages.  
A multipack build contain 2 or more products when the HW is delivered from the factory, e..g sip+annunicomic.
- Annunicom IC (1MB Flash) (0xC00000 = 0xD00000 = 0xE00000 = 0xF00000)
- Annunicom IC (2 MB Flash) (0xC00000 = 0xE00000, 0xD00000 = 0xF00000)

Page / Target	Content	Address for Rescuekit
8K (WEB0)	annunicomicware.rom (Firmware)	0xC00000
WEB1	reserved	0xC10000
WEB2	xt05.bin (BIOS)	0xC20000
WEB3	sg.bin (Util library)	0xC30000
WEB5	sonicip.cob (Sonic IP Resources)	0xC50000
WEB6	bclio.bin	0xC60000
WEB7	annunicomicapp.cob (Web Application)	0xC70000
WEB8	annunicomicapp.cob continued (Web Application)	0xC80000
WEB9	annunicomicapp.cob continued (Web Application)	0xC90000
WEB10	annunicomicapp.cob continued (Web Application)	0xCA0000
WEB11	annunicomicapp.cob continued (Web Application)	0xCB0000
WEB12-13	free (see 4 Own skins and web interface)	0xCC0000-CB0000
WEB14	temporary used for updates	0xCE0000



## 6.2 Binary Discovery Interface

Added in Release V3.05 was the Binary Discovery Protocol.

The main purpose of the Binary Discovery Protocol is to enable Barix devices to be more easily found on a local LAN. It was added in Release V3.05.

UDP packets are accepted on port 30718. Two commands are supported:

- GET to obtain a limited amount of information from the device.
- SET to write information to the device typically an IP address.

A Java PC program which supports this protocol is available on the Barix web site.

A Barix Technical Note describing the Binary Discovery Protocol is available on request.

## 7 Hardware and Connectors

---

### 7.1 Green and Red LEDs

Two status LEDs provide information on the current device operation.

#### 7.1.1 Application starts (Barix boot-up sequence)

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

If no IP address is configured, then during DHCP the red LED blinks with a continuous cycle . The green LED blinks five times and then pause four times.

If an error is detected the red LED remains on and the device resets itself after the green LED has indicated the error as follows:

##### Error

Corrupt application or IP address conflict

The Network hardware could not be initialized or a Corrupt MAC address

##### Green LED blinks

five times.

three times.

#### 7.1.2 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.

#### 7.1.3 Holding the reset button during power up to start the Bootloader

While the reset is held the red LED blinks and the green LED blinks four times then pauses. This cycle continues until the reset is released.

#### 7.1.4 Bootloaded entered: No Application loaded or started by holding the reset button during power up

The green LED is on and the red LED blinks.

#### 7.1.5 Device after production with bootloader but without MAC:

The green and the red LED blink alternately indicates waiting for then performing the factory test. If the test is successful the red LED stops blinking. If the test fails the green LED stops blinking.

### 7.1.6 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.

## 7.2 Ethernet

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

## 7.3 HW Connectors

Please refer to the HW specific Quick Install Guide at [www.barix.com](http://www.barix.com)