API Documentation
S-Series Amplifiers

Version 1.1

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SEEBURG
acoustic line

1 Content

2 Introduction

The objective of this document is to be a guide to the “third-party” user when communicating with an amplifier via an Ethernet connection.

3 Communication

TCP is the protocol used for communicating a controller device with the amplifiers on an Ethernet network. Each amplifier is assigned a unique IP address on the local network they will be installed.

All Ethernet-controllable amplifiers leave our factory configured to receive a dynamic IP through a DHCP server. If this server is not present, an auto IP will be assigned using the APIPA protocol. In any case, a manual IP can be configured.

In order to be able to communicate with any of these amplifiers, it is necessary to send the data to the IP mentioned above on the TCP port 1001. In the same way, all amplifiers will respond to the pre-selected IP control (selected by means of a command that will be later referred to). On the other hand, the Controller must read the incoming TCP packet and extract the IP address that sends this data.

4 Data type

In the communication between an amplifier and a controller, two types of data are found: the monitoring parameters (with which we can obtain the value of parameters like the output tension, the temperature, etc) and the control commands (with which we can modify the value of certain amplifier’s parameters like the output level or its power-on state). This communication is made by means of data packets, which structure will be explained next.

4.1 General structure of data packets

The data packets consist of a series of bytes and their length will vary according to each case.

In this manual, the bytes are represented in different ways, either in hexadecimal or decimal format.

4.2 Real-Time structure of data packets

4.2.1 Real-Time control message header

Byte	Code	Description
0	0x53	
1	0x43	
2	0x4f	
3	0x4c	
4	0x01	
5	0x00	Message ID Size LSB (0x000000FF)
6	0x00	Message ID (0x0000FF00) » 8
7	0x00	Message ID (0x00FF0000) » 16
8	0x00	Message ID MSB (0xFF0000) » 24
9	0x00	
10	0x08	Real Time Command
11	0x00	
12	0x0a	Params Size LSB (0x000000FF)
13	0x00	Params Size MSB (0x0000FF00) » 8
14	0x00	
15	0x00	

4.2.2 User input gain

This data is 6 bytes long and includes gain, mute and polarity control.

RT Header (16 Bytes)	Data (6 Bytes)

Byte	Code	Description
0	0x1f	Input user gain
1	0x01 0x02 0x03 0x04	Input Way 1 Input Way 2 Input Way 3 Input Way 4
2	xx	Gain in dB. Lower part of the word (0x00FF). +12.0 to -40.0 dB
3	xx	Gain in dB. Upper part of the word (0x00FF). +12.0 to -40.0 dB
4	0x00 0x01	Normal polarity Inverted polarity
5	0x00 0x01	Muted Unmuted

Example:

To put in channel 1 input gain of +12dB with normal polarity and unmuted, send:

53 43 4f 4c 01 00 01 00 00 00 08 00 0a 00 00 00 **1f 01 78 00 00 01**

4.2.3 User output gain

This data is 6 bytes long and includes gain, mute and polarity control.

RT Header (16 Bytes)	Data (6 Bytes)

Byte	Code	Description
0	0x1f	Input user gain
1	0x10 0x20 0x30 0x40	Output Way 1 Output Way 2 Output Way 3 Output Way 4
2	xx	Gain in dB. Lower part of the word (0x00FF). +12.0 to -40.0 dB
3	xx	Gain in dB. Upper part of the word (0x00FF). +12.0 to -40.0 dB
4	0x00 0x01	Normal polarity Inverted polarity
5	0x00 0x01	Muted Unmuted

Example:

To put in channel 1 output gain of +12dB with normal polarity and unmuted, type:

53 43 4f 4c 01 00 01 00 00 00 08 00 0a 00 00 00 **1f 10 78 00 00 01**

4.2.4 User HP Filter

This data is 8 bytes long and includes gain, filter type, frequency cut, order and active control.

RT Header (16 Bytes)	Data (8 Bytes)

Byte	Code	Description
0	0x27	HP user filter gain
1	0x01 0x02 0x03 0x04	Input Way 1 Input Way 2 Input Way 3 Input Way 4
2	0x00	0: High Pass
3	 0x00 0x01 0x02	X-over Type: Butterworth Linkwitz-Riley Bessel
4	xx	Frequency Cut [20..20000] LSB (0x00FF)
5	xx	Frequency Cut [20..20000] MSB (0xFF00) » 8
6	0x00...0x08	Order
7	0x00 0x01	Active Disabled Active Enabled

Example:

To active the user HP Butterworth filter on channel 1 at a cutoff frequency of 50 Hz with order 4, send:

53 43 4f 4c 01 00 01 00 00 00 08 00 0a 00 00 00 **27 01 00 00 32 00 04 01**

4.2.5 Select Snapshot Preset

Select Snapshot Preset message header

Byte	Code	Description
0	0x53	
1	0x43	
2	0x4f	
3	0x4c	
4	0x01	
5	0x00	Message ID Size LSB (0x000000FF)
6	0x00	Message ID (0x0000FF00) » 8
7	0x00	Message ID (0x00FF0000) » 16
8	0x00	Message ID MSB (0xFF0000) » 24
9	0x00	
10	0x08	Snapshot Recall
11	0x00	
12	0x0a	Params Size LSB (0x000000FF)
13	0x00	Params Size MSB (0x0000FF00) » 8
14	0x00	
15	0x00	

Select number of Snapshot

This data is 1 byte long and includes the number of Snapshot to select.

Snapshot Select Header (16 Bytes)	Data (1 Byte)

Byte	Code	Description
0	xx	Snapshot preset number (1…20)

Example:

To select the Snapshot number 2, send:

53 43 4f 4c 01 00 00 00 00 00 20 00 01 00 00 00 **02**

4.2.6 Select On/Off Standby

Select Standby State message header

Byte	Code	Description
0	0x53	
1	0x43	
2	0x4f	
3	0x4c	
4	0x01	
5	0x00	Message ID Size LSB (0x000000FF)
6	0x00	Message ID (0x0000FF00) » 8
7	0x00	Message ID (0x00FF0000) » 16
8	0x00	Message ID MSB (0xFF0000) » 24
9	0x00	
10	0x10	Standby
11	0x00	
12	0x01	Params Size LSB (0x000000FF)
13	0x00	Params Size MSB (0x0000FF00) » 8
14	0x00	
15	0x00	

Select Standby

This data is 1 byte long and includes the Standby state to be set.

Select Standby Header (16 Bytes)	Data (1 Byte)

Byte	Code	Description
0	0x00 0x01	Standby Enabled Standby Disabled

Example:

To put the device in Standby, send:

53 43 4f 4c 01 00 00 00 00 00 10 00 01 00 00 00 **00**

4.2.7 Select Get Device Data (from v2.0.11 and above)

Select Get Device Data message header

Byte	Code	Description
0	0x53	
1	0x43	
2	0x4f	
3	0x4c	
4	0x01	
5	0x00	Message ID Size LSB (0x000000FF)
6	0x00	Message ID (0x0000FF00) » 8
7	0x00	Message ID (0x00FF0000) » 16
8	0x00	Message ID MSB (0xFF0000) » 24
9	0x00	
10	0xC8	Get Device Info
11	0x00	
12	0x0a	Params Size LSB (0x000000FF)
13	0x00	Params Size MSB (0x0000FF00) » 8
14	0x00	
15	0x00	

Select Data

This data is 2 bytes long and includes the select data and the channel to get information.

Get Device Data Header (16 Bytes)	Data (1 Byte)

Byte	Code	Description
16	0x00 0x01 0x02 0x03 0x04 0x05 0x06	Preset Name Use Name Way Name Snapshot Name Device Name User Input Gain User Output Gain
17	0x01 0x02 0x03 0x04	Channel 1 Channel 2 Channel 3 Channel 4

Example:

To get the input data gain from channel 2, send:

53 43 4f 4c 01 00 00 00 00 00 **C8** 00 01 00 00 00 **05 01**

4.2.8 Data received (from v2.0.11 and above)

Recieved message header

Byte	Code	Description
0	0x49	
1	0x50	
2	0x41	
3	0x44	
4	0x01	
5	0x00	Message ID Size LSB (0x000000FF)
6	0x00	Message ID (0x0000FF00) » 8
7	0x00	Message ID (0x00FF0000) » 16
8	0x00	Message ID MSB (0xFF0000) » 24
9	0x00	
10	0xC8	Device Info
11	0x00	
12	0x0a	Params Size LSB (0x000000FF)
13	0x00	Params Size MSB (0x0000FF00) » 8
14	0x00	
15	0x00	

Data Recieved

This data is 1 byte long and includes the Standby state to be set.

Received message Header (16 Bytes)	Data (variable length)

4.2.8.1 *Preset Name*

Byte	Code	Description
16…27	xx	Character in Hex ASCII code

4.2.8.2 *Use Name*

Byte	Code	Description
16…27	xx	Character in Hex ASCII code

4.2.8.3 *Way Name*

Byte	Code	Description
16…21	xx	Character in Hex ASCII code

4.2.8.4 *Snapshot Name*

Byte	Code	Description
16…37	xx	Character in Hex ASCII code

4.2.8.5 *Device Name*

Byte	Code	Description
16…23	xx	Character in Hex ASCII code

4.2.8.6 User Input Gain Data

Byte	Code	Description
16	xx	Gain in dB. Lower part of the word (0x00FF). +120 to -400 (Real value +12.0 to -40.0 dB)
17	xx	Gain in dB. Upper part of the word (0xFF00). +120 to -400 (Real value +12.0 to -40.0 dB)
18	0x00 0x01	Normal polarity Inverted polarity
19	0x00 0x01	Muted Unmuted

4.2.8.7 User Output Gain Data

Byte	Code	Description
16	xx	Gain in dB. Lower part of the word (0x00FF). +120 to -400 (Real value +12.0 to -40.0 dB)
17	xx	Gain in dB. Upper part of the word (0xFF00). +120 to -400 (Real value +12.0 to -40.0 dB)
18	0x00 0x01	Normal polarity Inverted polarity
19	0x00 0x01	Muted Unmuted

Example:

If you send to get the input data gain from channel 2:

53 43 4f 4c 01 00 00 00 00 00 **C8** 00 01 00 00 00 **05 01**

You receive, if Gain = +7 dB, Normal polarity and Unmuted:

49 50 41 44 01 00 00 00 00 00 **C8** 00 **04** 00 00 00 **46 00 01 01**

API Documentation

Irrtum bei Beschreibung
sowie technische
Änderungen vorbehalten.

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