VINGTOR STENTOFON



Exigo Network Amplifier for Rolling Stock ENA2060-DC1 Installation & Configuration Manual

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1 Introduction

1.1 Document Scope

This document describes the mounting, installation and configuration of the ENA2060-DC1 Amplifier for Rolling Stock that can be integrated with the Train Communication Network.

Item Number	Item Name	Description
1023122061	ENA2060-DC1	Exigo Network Amplifier for Rolling Stock

1.2 Publication Log

Revision	Date	Author	Status/Comments
1.0	17.10.2017	HKL	Published
1.1	26.3.2018	HKL	UIC Priority signal input
1.2	16.7.2018	HKL	General Purpose Input

1.3 Related Documentation

Document No.	Documentation
A100K11460	Exigo Technical Manual

1.4 **Product Features**

- Two SIP addressable audio channels 2x60W
- Supports wide set of IP and networking standards
- Easily integrated into existing information concepts
- 100V speaker line technology ease of cabling with galvanic separation
- Supports direct audio routing to wide range of induction loop amplifiers
- Designed, manufactured and tested according to EN50155 and EN45545
- Speaker loop monitoring
- Local audio inputs
- Additional I/Os for various integration options
- Fanless design
- Supports MIB2 and has the system MIB in place

1.5 Standards & Certifications

The ENA2060-DC1 Amplifier conforms to the following standards and certifications:

Standard	Description
EN50155	Railway Applications - Electronic Equipment used on Rolling Stock
EN50121-3-2	Railway Applications - Electromagnetic Compatibility - Part 3-2: Rolling Stock – Apparatus
EN45545	Railway Applications - Fire protection on railway vehicles
ETSI EN300 019-1-3	Stationary use at weather-protected locations. At altitudes with air pressure 70kPa – 106kPa.
IEC/EN 61373 Category 1, Class B	Railway applications – Rolling stock equipment – Shock and vibration tests
UIC 558/568	Standardized Connection Cable for PA for Mainline Trains

2 Mounting the Amplifier

The amplifier's mechanical construction is rigid enough to be mounted using the six slots in the mounting flanges to secure it to the mounting surface in the rail carriage. For the rolling stock environment, it is considered good practice to **mount support rails to better secure the amplifier**.

- Use six 5 mm diameter bolts (M5) that are suitable for the mounting surface
- Secure the amplifier to the mounting surface by fastening the bolts in the slots on the mounting flanges (see Figure 1: Mounting Measurements)
- Mount the amplifier in a position that allows the free flow of air through its cooling fins



Figure 1: Mounting Measurements

3 Amplifier Connectors



Figure 2: Connectors

3.1 Ethernet Ports 1 & 2

Ethernet Ports 1 & 2 are connected to the Train Communication Network (TCN) for exchanging data packets with the SIP server and other systems such as Network Monitoring System (NMS). Port 1 is the main Ethernet connector while Port 2 is the backup Ethernet connector. The amplifier shall be connected to the network using a **4-pin M12 D-Coded** male connector.

There are two LED indicators next to each Ethernet port:

Link: Green LED is lit when the amplifier is connected to the network

Activity: Yellow LED is lit when data is being transmitted

3.2 Status Indicators

The status indicators display the status of important parameters such as power supply and faults.

Power: Green LED is lit when the system has power and is hardware controlled.

Fault: **Yellow** LED is lit when the device has detected any faults in hardware or on the loudspeaker line (software controlled). The LED is lit when the processor is not running correctly (hardware controlled).

Operating: Green LED is in low frequency flashing pattern to indicate CPU is running and system is OK.

3.3 Activity Indicators

Activity: Blue LEDs (one for each audio channel Ch1 and Ch2) that will be lit when audio is present on the audio outputs.

3.4 Multi-Connector

The Multi-Connector can be used for various functions as described below.

Pin Configuration Table

Pin	Function	Description	$0 \longrightarrow 0$
1	UIC Pri +	UIC Priority Signal Input	
2	UIC Pri -		
3	GPO1 +	24 VDC Signal Output (physical volume controller override)	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$
4	GPO1 -	0 VDC Signal Output	2100024
5	UIC ON/OFF +	UIC On/Off Signal Input	
6	UIC ON/OFF -		0
7	GPI1 +	General Purpose Input	
8	GPO2 +	24 VDC Signal Output (physical volume controller override)	
9	GPO2 -	0 VDC Signal Output	
10	UIC IN +	UIC Audio Signal Input	
11	UIC IN -		
12	GPI2 +	General Purpose Input (PTT key or audio	
13	GPI1 -	triggered by other equipment)	
14	CH1 0dB + (OUT)	Balanced Line Out for audio channel (inductive	
15	CH1 0dB – (OUT)	loop system)	
16	LINE IN +	Audio Input, Line Input (local audio source)	
17	LINE IN -		
18	GPI2 -	General Purpose Input (PTT key or audio triggered by other equipment)	
19	CH2 0dB + (OUT)	Balanced Line Out for audio channel (inductive	
20	CH2 0dB – (OUT)	loop system)	
21	MIC IN +	Audio Input for Microphone (ambient noise	
22	MIC IN -	sensing or local announcement)	
23	MIC IN CHASSIS		
24	SPARE/TEST		

3.5 Audio Line Connector

The Audio Line / Speaker connector is a **4-pin M12 A-Coded female** connector that has two channels with 100-volt output per channel.

Audio Outputs

- 2 x 60W, 100V Audio
- Channel Outputs
- Monitoring Signals



3.6 Grounding Stud

This is an M4x20 stud for fixing a tab to the chassis and grounding the amplifier.



If the amplifier isn't connected to ground, it will not be able to detect ground faults or short-circuits to ground.

3.7 Power Connector

The power connector is a 4-pin M12 A-Coded male plug connector for 110 VDC power supply.

The green LED indicator for Power will be lit when the amplifier is powered up.

110 VDC connector



4 **Configuration**

Configuration of the amplifier can be done manually via the amplifier's web interface or automatically with DHCP provisioning via a TFTP server (see section 4.6).

After making sure that the amplifier is connected to the same LAN and logical subnet as your PC, follow the procedure described below.

When the amplifier is connected to the network, the IP address is automatically obtained in one of two ways:

- An IP address is obtained from a DHCP server if there is one.
- If there is no DHCP server, an IP address in the range 169.254.x.x will be assigned.

To be able to hear the amplifier announce its IP address:

- Either connect a 100 V speaker to Channel 1 on the 100V Audio Line (see section 3.5) or connect a 50-ohm speaker (or headset) to channel output 1 (pins 14 and 15) on the Multi-Connector (see section 3.4)
- 2. Ensure that the amplifier is NOT connected to any SIP server
- 3. After powering up the amplifier, short input 1 between pins 7 and 13 on the Multi-Connector (see section 3.4)
- The connected speaker will now announce the amplifier's IP address

4.1 Main Settings

To configure the IP address and directory number:

- 1. Open a web browser and enter the amplifier's IP address
- 2. Log in with username: admin and password: alphaadmin
- 3. Select Station Main > Main Settings

Station Main	SIP Configuration	Station Administration	Advanced SIP	Advanced Network	
▹ Station Inf	ormation St	ation Mode			
▼ Main Settin	ngs 0 IP DH	Use SIP Use Pulse Settings CP O Static			
	16	P-address:		10.5.11.160	
	s	ubnet-mask: ateway:	4	255.255.255.0	_
	0	NS 1: NS 2:			
	н	ostname:			
	NT	P Settings			
	E	nable NTP:			
	н	ostname:		10.5.2.19	
	s	elect Region:		Europe 🗸	
	s	elect Zone:		Oslo 🗸	
		Save Res	tart		

Set the following values:

- Station Mode: Use SIP
- IP Settings: Static IP or DHCP
 - o IP-address: 10.5.11.160 (example IP address of Amplifier)
 - Subnet-mask: **255.255.255.0**
 - Gateway: **10.5.11.1**
- NTP Settings:
 - Enable NTP: Check the box to enable NTP
 - Hostname: 10.5.2.19 (example IP address of Hostname)
 - Select Region: **Europe** (example Region)
 - Select Zone: Oslo (example Zone)
- Click Save followed by Restart

4.2 SIP Settings

• Select SIP Configuration > SIP Settings

Channel 1 Account Settings		
channel i Account Settings		
Description Display Name	Configuration	
Directory Number (SIP ID):	0401	-
Server Domain (SIP):	10.5.11.75	
Backup Domain (SIP):		
Backup 2 Domain (SIP):		
Authentication Username	0401	
Authentication Password	******	
Register Interval	600	
Outbound Proxy (optional):		Port: 5080
Outbound Backup Proxy (optional):		Port: 5060
Outbound Backup Proxy 2 (optional):		Port: 5080
Gain (dB):	-10	-40 to 0 dB
	Save	
Channel 2 Account Settings		
Description	Configuration	
Display Name		
Directory Number (SIP ID):	0402	
Server Domain (SIP):	10.5.11.75	
Backup Domain (SIP):		
Backup 2 Domain (SIP):		
Authentication Username	0402	
Authentication Password		-
Register Interval	600	-
Outbound Proxy (optional):		Port 5080
Outbound Backup Proxy (optional):		Port 5080
Outbound Backup Proxy 2 (optional):		Port 5060
Gain (dB):	-10	-40 to 0 dB
Com (55).	10	
	Save	
Line In 1 Account Settings		
Description	Configuration	
Display Name		
Directory Number (SIP ID):	0481	
Server Domain (SIP):	10.5.11.75	
Backup Domain (SIP):		
Backup 2 Domain (SIP):		
Authentication Username	0481	
Authentication Password	•••••	
Register Interval	600	
Outbound Proxy (optional):		Port: 5080
Outbound Backup Proxy (optional):		Port: 5080
Outbound Backup Proxy 2 (optional):		Port: 5060
Gain (dB):	15	0 to 40 dB
	Save	
Line In 2 Account Cattings		
Description	Configuration	
Display Name		
Directory Number (SIP ID):	0482	
Server Domain (SIP):	10.5.11.75	
Backup Domain (SIP):		
Backup 2 Domain (SIP):		
Backup 2 Domain (SIP): Authentication Username	0482	
Backup 2 Domain (SIP): Authentication Username Authentication Password	0482	
Backup 2 Domain (SIP): Authentication Username Authentication Password Register Interval	0482 600	
Backup 2 Domain (SIP): Authentication Username Authentication Password Register Interval Outbound Proxy (optional):	0482 600	Port 5080
Backup 2 Domain (SIP): Authentication Username Authentication Password Register Interval Outbound Proxy (optional): Outbound Backup Proxy (octional):	0482 	Port 5080
Backup 2 Domain (SIP): Authentication Username Authentication Password Register Interval Outbound Proxy (optional): Outbound Backup Proxy (optional): Outbound Backup Proxy (optional):	0482 600	Port 5080 Port 5080 Port 5080
Backup 2 Domain (SIP): Authentication Username Authentication Password Register Interval Outbound Broxy (optional): Outbound Backup Proxy (optional): Outbound Backup Proxy 2 (optional): Gain (dB):	0482 000 15	Port 5080 Port 5080 Port 5080 0 to 40 dB
Backup 2 Domain (SIP): Authentication Username Authentication Password Register Interval Outbound Proxy (optional): Outbound Backup Proxy (optional): Outbound Backup Proxy 2 (optional): Gain (dB):	0482 ••••••• 800 15	Port 5080 Port 5080 Port 5080 0 to 40 dB
Backup 2 Domain (SIP): Authentication Username Authentication Password Register Interval Outbound Proxy (optional): Outbound Backup Proxy (optional): Outbound Backup Proxy 2 (optional): Gain (dB):	0482	Port 5060 Port 5060 Port 5060 0 to 40 dB
Backup 2 Domain (SIP): Authentication Username Authentication Password Register Interval Outbound Proxy (optional): Outbound Backup Proxy 2 (optional): Outbound Backup Proxy 2 (optional): Gain (dB): Call Settings	0482 000 15 Save	Port 5060 Port 5060 Port 5060 0 to 40 dB
Backup 2 Doman (SIP): Authentication Desmanne Authentication Password Register Interval Outbound Proxy (optional): Outbound Backup Proxy (optional): Outbound Backup Proxy 2 (optional): Gain (dB): Call Settings Description Mar Torion Timeout	0482	Port 5060 Port 5060 Port 5060 0 to 40 dB
Backup 2 Domain (SIP): Authentication Desename Authentication Password Register Interval Outbound Backup Proxy (optional): Outbound Backup Proxy 2 (optional): Outbound Backup Proxy 2 (optional): Gain (dB): Call Settings Description Max Trying Timeout Max Trying Timeout	0482 000 15 Configu 15 Configu	Port 6080
Backup 2 Doman (SIP): Authentication Username Authentication Password Register Interval Outbound Backup Proxy (optional): Outbound Backup Proxy 2 (optional): Outbound Backup Proxy 2 (optional): Gain (dB): Call Settings Description Max Trying Timeout Max Ringing Timeout	0482 0482 000 15 Save 15 15 15 15 15 15 15 15 120 15 15 120 15 15 120 15 120 15 15 120 15 15 15 15 15 15 15 15 15 1	Port 5060
Backup 2 Doman (SIP): Authentication Desmanne Authentication Password Register Interval Outbound Proxy (optional): Outbound Backup Proxy 2 (optional): Gain (dB): Call Settings Description Max Trying Timeout Max Ruging Timeout Max Quested Timeout	0482	Port 5060 Port 5060 Port 5060 0 to 40 dB
Backup 2 Doman (SIP): Authentication Dsemame Authentication Dsaxword Register Interval Outbound Backup Proxy (optional): Outbound Backup Proxy 2 (optional): Gain (dB): Call Settings Description Max Trying Timeout Max Conversation Timeout Max Conversation Timeout	0482 600 15 Save Configu 15 120 30 3800	Port 5060
Backup 2 Doman (SIP): Authentication Desaword Register Interval Outbound Proxy (optional): Outbound Backup Proxy 2 (optional): Outbound Backup Proxy 2 (optional): Gain (dB): Call Settings Description Max Toying Timeout Max Ringing Timeout Max Conversation Timeout RTP Timeout RTP Timeout	0482	Port 5080 Port 5
Backup 2 Doman (1917): Authentication Desmanne Authentication Desmanne Authentication Password Register Interval Outbound Backup Proxy (optional): Outbound Backup Proxy 2 (optional): Gain (dB): Call Settings Description Max Toying Timeout Max Queued Timeout Max Queued Timeout Max Conversation Timeout RTP Timeout Code g71 1a	0482 0482 000 15 15 Configu 15 120 300 0 Low	Port 5060
Backup 2 Domain (SIP): Authentication Desmanne Authentication Desmanne Authentication Password Register Interval Outbound Backup Proxy (optional): Outbound Backup Proxy 2 (optional): Gain (dB): Call Settings Description Max Ringin Timeout Max Ringin Timeout Max Roy Timeout Max Conversation Timeout Max Conversation Timeout RTP Timeout Codee g711a Codee g711a	0482	Port 5060

SIP Settings have to be done for Channel 1, Channel 2, Line In 1, and Line In 2.

Channel 1 & Channel 2 / Line In 1 & Line In 2 Account Settings

Display Name

Optional - Enter a name that will be shown on the display at the remote party.

Directory Number (SIP ID)

This is the identification of the amplifier in the SIP domain, i.e. the ID number for the amplifier. This parameter is mandatory. Enter the SIP ID in integers according to the SIP account on the SIP domain server. Channel 1 and Channel 2, Line In 1 and Line In 2 have different SIP ID numbers.

Server Domain (SIP)

This parameter is mandatory and specifies the primary domain for the amplifier and is the IP address for the **SIP Server** (e.g. Asterisk or Cisco Call Manager). Enter the IP address in regular dot notation, e.g. 10.5.11.75.

Backup Domain (SIP)

Optional - This is the secondary (or fallback) SIP Server Domain. If the amplifier loses connection to the primary SIP Server Domain, it will switch over to the secondary one. Enter the IP address in regular dot notation.

Backup 2 Domain (SIP)

Optional - This is the tertiary SIP Server Domain used as backup in case both the primary and secondary domains fail.

Authentication Username

This is the authentication user name used to register the amplifier to the SIP server. This is required only if the SIP server requires authentication and is normally the same as the SIP ID.

Authentication Password

This is the authentication user password used to register the amplifier to the SIP server. This is required only if the SIP server requires authentication.

Register Interval

This parameter specifies how often the amplifier will register, and re-register in the SIP domain. This parameter will affect the time it takes to detect that a connection to a SIP domain is lost. Enter the values in number of seconds from 60 to 999999. The default interval is 600 seconds.

Outbound Proxy (optional)

Enter the IP address of the outbound proxy server in regular dot notation.

Port

Enter the port number used for SIP on the outbound proxy server. The default port number is 5060.

Outbound Backup Proxy 1&2 (optional)

Enter the IP address and **Port** number of the backup outbound proxy server.

Gain (dB)

Enter the audio gain value in decibels in the range -40 to 0 dB for Channel 1/2 and 0 to 40 dB for Line In 1/2

• Click Save for each Account Setting that has been completed

Call Settings

Max Ringing Time

How long a PA call can be ringing before hanging up.

Max Conversation Time

How long a PA call can be in conversation before hanging up.

Max Queued Time

How long a PA call can be queued before hanging up.

RTP Timeout

This cancels a PA call if the amplifier does not receive RTP packets from the remote party. Enter values in the range 0-9999 seconds. The default setting is 0 which means RTP timeout is disabled.

Codec g729 / Codec g722 / Codec g711a / Codec g711u

Options are: Unused, Low, Medium, High.

• Click Save

4.3 Station Information

To confirm that configuration has been done correctly, open the Station Information page:

• Select Station Main > Station Information

Station Main	SIP Configu	ration	Station Administration	Advanced SIP	Advanced Netw	rk		
 Station In 	formation	ENA	2060 Information					
		Des	cription		Inf	ormation		
		Station IP:			10.	5.11.160		
		Sub	net Mask:		25	.255.255.0		
Main Setti	ngs	Defa	ault Gateway:		10.	5.11.1		
		DNS	S Server 1:		10.	5.2.19		
		DNS	S Server 2:		10.	5.2.47		
		Har	dware Type:		833	5		
		Har	dware Version:		1			
		Soft	ware Versions:		Lis			
		Image Package Version:			4.6	4.6.1.4 (sti)		
		MAG	MAC Address:			00:13:cb:0c:00:bd		
		System Model Name:			Ste	Stentofon Exigo Amplifier ENA2-RS		
		Hardware Revision:			001	001a		
		Ker	nel Version:		3.1 PD	0.0[st_develop_cc469a3]+ #2 PREEMPT Tue Sep 27 05:12:00 F 2016		
		Dev	icetree Version:		04			
		Boo	t/Environment Version:		201	6.02.05/2015.04.21		
		Stati	on Status					
		Des	cription		Sta	tus		
		Stat	ion Mode:		SIF			
		Stat	tus Channel 1:		Re	jistered		
		Stat	us Channel 2:		Re	jistered		
		Stat	us Mic In:		Re	jistered		
		Stat	tus Line In:		Re	jistered		

4.4 Speaker Line Monitoring

The ENA2060-DC1 amplifier has the option to monitor each speaker line to detect line faults such as **Open**, **Shorted** or **Ground Fault**.

To configure Speaker Line Monitoring:

• Select Advanced SIP > Monitoring

Station Main SIP Configu		on Station	Administration	Advanced SIP	Advanced Network		
▶ Updates	S	LM - Line	ch1				
Monitoring		Description State Voltage Current Ground Fault Phase Timestamp	t	Calibrat	Calibrated calibrated 1373 500 399 1456 16:14:07 e Measure	Res	Measured ok 1372 500 400 1455 9:57:45 et Calibration
		LM Mode:	Set Continuous Disable ch2	Set Manua Enable	l Disable	3	
		Description			Calibrated		Measured
		State Voltage Current Ground Fault Phase Timestamp	t	Calibrat	calibrated 1365 495 398 1452 14:26:24	Rese	ok 1371 495 400 1450 9:57:54 et Calibration
				Calibrat	e Medsule		er Galibration
		LM Mode:	Set Continuous	Set Manua	l Disable	e	
		hannel:	Disable	Enable			
	s	ystem Me	ssages				
		Reporter	-		Text		Timostamp

This **Monitoring** page shows the current status for each speaker line and whether there are any System Messages reported.

After the speaker line is set up with all the speakers and the line is properly connected to the amplifier, the speaker line that is to be monitored must be calibrated. When calibration is carried out, the amplifier makes an initial measurement of the speaker line to check whether the line load is within acceptable limits. The calibration values are used as a reference and are compared with later speaker line measurements for any significant changes that will cause line fault reporting. After the calibration, the speaker line load must not be changed, or else false fault messages may be reported.

SLM – Line

The **SLM – Line** status section shows the speaker line calibration status in the **Calibrated** column and the latest measured line values in the **Measured** column. The various statuses are:

State: This shows the line's calibrated state, i.e. calibrated, uncalibrated, ok, open, shorted or ground fault under the Calibrated column and the latest measured line state, i.e. unknown, ok, open, shorted or ground fault under the Measured column.

Voltage / Current / Ground Fault / Phase: These show the line's measured calibration values under the **Calibrated** column and the latest measured values under the **Measured** column.

Timestamp: This shows the time when either the **Calibrate** or **Reset Calibration** button were clicked and the time when the last SLM measurement or any operation that affects the line measurement values were executed.

The 3 buttons in this section have the following functions.

Calibrate: Click to start the speaker line calibration sequence. The Channel must be ON (**Enable** must be clicked) and a proper line load must be attached.

Measure: Click to start a manual SLM measurement. The line state must be calibrated as **ok** and **Set Manual** must be clicked.

Reset Calibration: Click to clear the calibrated state (state=**uncalibrated**) and remove any line fault related **System Messages**.

SLM Mode:

Set Continuous: Click to monitor the speaker line once every xx minutes and report any fault detected.

Set Manual: Click to have an operator/technician manually execute an SLM operation by clicking the **Measure** button. The manual operation may take up to 15 seconds.

For either SLM mode used, the status and timestamp for the latest measurement will be shown in the **Measured** column and any faults will be visible in the **System Messages** section.

Any faults reported will be removed if subsequent SLM measurements result in an **ok** state or if the **Reset Calibration** button is clicked.

Channel:

Disable: Click to switch OFF the amplifier output for that channel.

Enable: Click to switch ON the amplifier output for that channel.

To calibrate a speaker line:

- 1. Click the **Enable** button to switch ON amplifier output
- 2. Click either Set Continuous or Set Manual button
- 3. Click the Calibrate button

Wait for the calibration state to be updated (approx. 5-10 seconds).

State will report either ok, open, shorted or ground fault.

If the state is **ok** the amplifier's Speaker Line Monitoring (SLM) feature is ready to operate.

If the state is either **open**, **shorted** or **ground fault**, the line must be corrected and the calibration procedure must be repeated.

The four benchmarks for the evaluation of line state is Voltage, Current, Phase and Ground Fault.

The values measured on Voltage, Current and Phase will together provide an evaluation of the line state regarding whether it is Shorted, Open or OK.

Typical SLM values for a 100 m line with 15W speaker load, calibrated values and various Shorted, Open and Ground Fault situations are as follows:

	Calibration OK	Shorted @ENA	Shorted @100M	Open @ENA	Open @100M	Ground Fault
Voltage	985	403	403	780	1015	4001500
Current	1045	1370	1365	435	1065	4001500
Phase	1075	765	925	1545	975	4001500
Ground Fault	405	405	405	405	405	1580

4.5 Firewall Settings

To be able to upload configuration data, the amplifier network port must be opened for certain protocols.

Select Advanced Network > Firewall

Station Main	SIP Configuration	Station Administration	Advanced SIP	Advanced Network	
► Firewall	Fir	ewall Settings			
	N	lame	Protocol	Port	Enabled
	S	SH	tcp	22	\checkmark
	н	ITTPS	tcp	443	\checkmark
	D	IP	tcp	50001	\checkmark
	Z	AP	tcp	50004	\checkmark
	D)emo	tcp	50010	
	н	ITTP	tcp	80	\checkmark
	Z	apWeb	tcp	8080	\checkmark
	S	NMP	udp	161	\checkmark
	D	0IP Multicast	udp	50001	\checkmark
	D	Discovery	udp	50002	\checkmark
	s	IP	udp	5060	\checkmark
	P	ulse	udp	5062	\checkmark
	m	DNS	udp	5353	\checkmark
	V	/oIP	udp	61000:61150	\checkmark
	т	FTP Server	udp	69	\checkmark
				Save	

Make sure that the port for SIP, SSH, DIP, HTTP, ZAP, SNMP, TFTP server, VoIP is enabled by checking the relevant boxes as shown.

4.6 Automatic Configuration using TFTP

The EN2060-DC1 Amplifier may be set up to automatically poll configuration settings for SIP and SNMP from a TFTP server. The IP address of this TFTP server can be obtained using DHCP procedures or be manually configured.

Before you start the automatic configuration procedure:

• Create a **configuration file**

An example configuration file can be found in section 6 Example Configuration File.

To implement automatic configuration from the amplifier web interface:

- 1. Start the TFTP server program and set the server path by browsing to the directory where the configuration file is located
- 2. Log on to the amplifier web interface
- 3. Select Advanced SIP > Updates

Station Main	SIP Configuration	Station Administration	Advanced SIP	Advanced Network			
_							
 Updates 	Co	nfiguration Updates	:				
Automatic TETP. server IP							
▶ Monitoring	1	From DHCP					
		0.0.0	0.0				
Manual Web Configuration Only							
Software Updates:							
O Automatic (requires "Automatic Configuration Updates" enabled)				Jpdates" enabled)			
	Manual Web Configuration Only						
Automatic Update Interval:							
Check for update every 60 minutes							
Save							

- 4. Under Configuration Updates select the radio-button for Automatic
- 5. Either select the radio-button for **From DHCP** or enter the IP address of the **TFTP server** (your PC IP address)
- 6. Under Automatic Update Interval enter the interval in minutes for checking updates
 - The value must be between 1 and 999 and the default setting is 60
- 7. Click Save

The amplifier will then contact the TFTP server and automatically run the configuration file to carry out the configuration procedure according to the set time interval.

5 Software Upgrade

Software upgrade is accomplished by uploading the latest software via the web interface of the amplifier. The software upgrade process requires that an TFTP Server is available and that the latest software image files have been downloaded from Zenitel's support website (AlphaWiki). During the upgrade process, the amplifier will connect to the TFTP Server and download the software.

Install the TFTP Server program on your PC.

Follow the procedure below to upgrade the amplifier software:

1. Start the TFTP server program and click **Browse** to select the folder where the software image files are located

🇞 Tftpd64 by Ph. Jounin						
Current Directory C:\soft		oftware\sti-4.2.2.4			•	Browse
Server interfa	ces 10.5.	2.153	Intel(R) 82579LM Gigabit Network Co 💌		Network Co 💌	Show Dir
Tftp Server	Tftp Client	DHCP server S	yslog server	Log viewer		
peer		file	start time	progress	bytes	total timeo
Ab			C - W		1	
Abo	ut		Setti	ngs		Help

2. Log into the amplifier web interface

3. Select Station Administration > Manual Upgrade

Station Main SIP Configu	ration Stat	tion Administration	Advanced SIP	Advanced Network	
▶ Reboot	Enter th	ne following	parameters:		
▶ Logging	TFTP-	10 - 5	- 2 - 153]	
▶ Licensing	Image file	sti-4.6.1.4			
▹ Change Password	Save settings				
▹ Backup and Restore					
👻 Manual Upgrade					

- 4. Enter the IP address of the TFTP server (your PC's IP address)
- 5. Enter the prefix (e.g. sti-x.x.x) to the software image files in the Image file field
- 6. Click Save settings to store the data

The amplifier will now try to contact the TFTP server. If the connection cannot be established or the

tftp_test.txt file is missing from the folder, the message TFTP_CONN_ERROR is displayed. If the response is TFTP_CONN_OK the settings are saved, and the Upgrade button will appear.

Station Main Station Administra	tion Advanced Alphacom Advanced Network
Reboot Logging	TFTP_CONN_OK on IP: 10.5.2.160 Image-filename: tsi-3.0.3.4 Verify that the entered image file and crc-sum is correct Press 'I logradd'to initiate full ungrade procedure
Change Password	Upgrade
▶ Backup and Restore	
▼ Manual Upgrade	

7. Click the Upgrade button to upgrade the software on the amplifier.

itation Main Station Adm	inistration Advanced Alphacom	Advanced Network	
▶ Reboot			
▶ Logging	Upgrade procedure initiated. The upgrade will take approximately 3 minutes DO NOT POWER DOWN THE STATION! Who upgrade is does not interval upgrade to 5 2 450		
▶ Licensing			
▶ Change Password			
Backup and Restore	when upgrade is done, s	auon will come up with IP = 10.5.2.15	
▼ Manual Upgrade			

The upgrade procedure takes about 3 minutes. The process can be monitored by clicking the **Log viewer** tab in the TFTP server program.

6 Example Configuration File

```
[sip]
sip_id=0203
sip_domain=10.5.11.75
nick_name=CCP03
auth_user=0203
auth_pwd=Ashley77
[call]
# Use 3 GPI as key matrix for DAK1-7
input_as_key_matrix=3
io_pin1=0
io_pin2=0
io_pin3=0
io_pin4=1
io_pin5=1
io_pin6=1
fast_blink_pattern=1011111
slow_blink_pattern=0000001000000
# handset w/offhook - normally closed
accessory=6
# Allow speech mode to be overriden
override_remote_ptt=1
# use DTMF 9 go to open duplex
open_duplex_dtmf=9
# Allow maximum audio output
poe_audio=1
# Use RFC2833 to send DTMF
dtmf_style=1
# Disable tones
tone_volume=-1
# Use PTT as default speech mode
speech_mode=1
# auto answer enabled
auto_answer_mode=1
# reduced mic sensitivity
mic_sensitivity=4
# onhook send dtmf 8 in call
onhook_in_call_function=2
onhook dtmf on=8
# Call 301
dak1_value=0401
dak1_in_call_function=0
dak2_value=401
dak2_in_call_function=0
dak3_value=501
dak3_in_call_function=0
dak4_value=203
dak4_in_call_function=0
dak5_value=510
dak5_in_call_function=0
dak6_value=502
dak6_in_call_function=0
[relays]
gpio3_dtmf_activate=2
gpio3_dtmf_deactivate=0
gpio3_dtmf_flashing_slow=1
gpio4_dtmf_activate=5
gpio4_dtmf_deactivate=3
gpio4_dtmf_flashing_slow=4
gpio5_dtmf_activate=7
gpio5_dtmf_deactivate=6
```

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The WEEE Directive does not legislate that Zenitel, as a 'producer', shall collect 'end of life' WEEE.

This 'end of life' WEEE should be recycled appropriately by the owner who should use proper treatment and recycling measures. It should not be disposed to landfill.

Many electrical items that we throw away can be repaired or recycled. Recycling items helps to save our natural finite resources and also reduces the environmental and health risks associated with sending electrical goods to landfill.



Under the WEEE Regulations, all new electrical goods should now be marked with the crossed-out wheeled bin symbol shown.

Goods are marked with this symbol to show that they were produced after 13th August 2005, and should be disposed of separately from normal household waste so that they can be recycled.

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