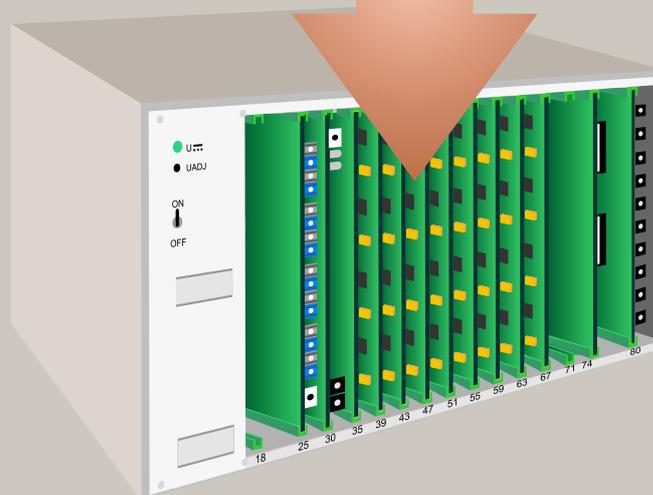


M100 – AlphaCom XE Interface

Quick Guide to Installation & Programming



Document Scope

This document provides a step-by-step procedure for interfacing the M100 exchange with the STENTOFON AlphaCom XE audio server system using the Audio Link Interface Unit.

The M100 exchange can be interfaced with the following AlphaCom servers:

- AlphaCom XE7
- AlphaCom XE20
- AlphaCom XE26

The procedures described in this document applies to the setup between a single-module M100 exchange and an AlphaCom XE7 server/exchange. The setup procedures for equipment other than this will differ somewhat from that described in this document.

Product Information

Product	Item Number
M100 Interface Package for AlphaCom XE7	100 964 9110
AlphaCom XE7 Audio Server	100 960 8100

Publication Log

Rev.	Date	Author	Comments
1.0	17.12.2010	HKL	Published
1.1	12.01.2011	HKL	Applicable AlphaComs
2.0	12.01.2012	HKL	Appendix added
2.1	2.11.2012	HKL	Type numbers
2.2	30.01.2014	ER	Paragraph 4.2 changed Item no changed on even pages

Related Documentation

For further information, refer to the following documentation:

Doc. no.	Documentation
21912	M100 S-72 – S-384 Exchange Installation Manual
A100K10805	AlphaCom XE Installation, Configuration & Operation

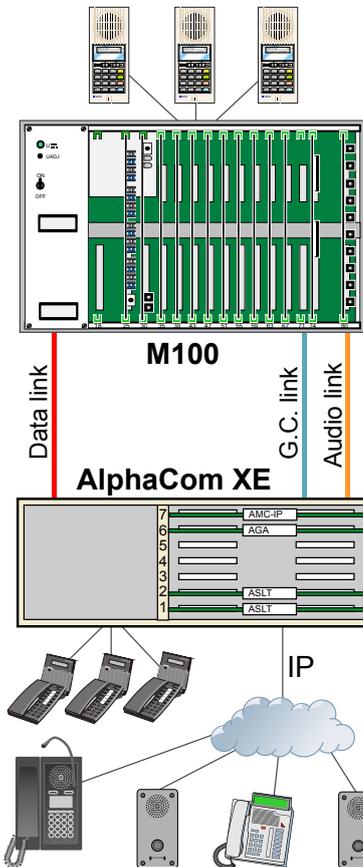
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1 Hardware

1.1 M100 Exchange

The following M100 hardware equipment is required:

- S-72 or SO-72 Rack
- LBB 7102/94 Power Card
- LBB 7103/48 Voice Card
- LBB 7103/05 Computer Card (LBB 7103/07 if SO)
- LBB 7103/13 Function Card (FC)
- LBB 7110/45 Line Card (LU)
- LBB 7110/35 Line Matrix Card (LUS)
- LBB 7109/27 RS232 - Opto interface with cable
- LBB 7105/95 Line Termination Unit
- LBB 7089/18 Display Station with backlight



1.2 AlphaCom XE System

The following AlphaCom hardware equipment is required:

- AlphaCom XE7 Package (100 960 8100) comprising:
 - Rack
 - PSU
 - AMC-IP Board
 - ASLT Board
 - ASLT Connection Kit
- AGA Board (included in M100 Interface Package)
- AGA Connection Kit (included in M100 Interface Package)
- Master Station

1.3 M100 Interface Package for AlphaCom XE7

The following items are included:

- Audio Link Interface Unit (100 970 9000)
- LBB 7103/61 Opto Cable
- RS232 Cable
- 3x2m M100 ribbon cables
- 6x2m AlphaCom XE flat cables

2.1 M100 Exchange

2.1.1 M100 exchange software

Supported SW

- 6U Computer Card LBB 7103/07: SW LBB 7216/83
- 3U Computer Card LBB 7103/05: SW LBB 7216/83
- FC Card LBB 7103/13: SW LBB 7202/28

2.1.2 M100 programming tool - SysMain

The programming tool for M100 is SysMain software version 3.0.

2.2 AlphaCom System

2.2.1 AlphaCom exchange software

The AlphaCom exchange software (AMC-IP) must be version 10.20 or higher.

AMC-IP software version 11.1.3.6 or higher is recommended.

The AMC-IP software includes the following software routines:

- The software daemon (M100D) which is running the M100 format with the Alphacom XE main software.
- The software daemon AMCD which is running the AlphaCom XE main software.
- The embedded web server which is used to configure AMCD and M100D.

2.2.2 AlphaCom programming tool - AlphaPro

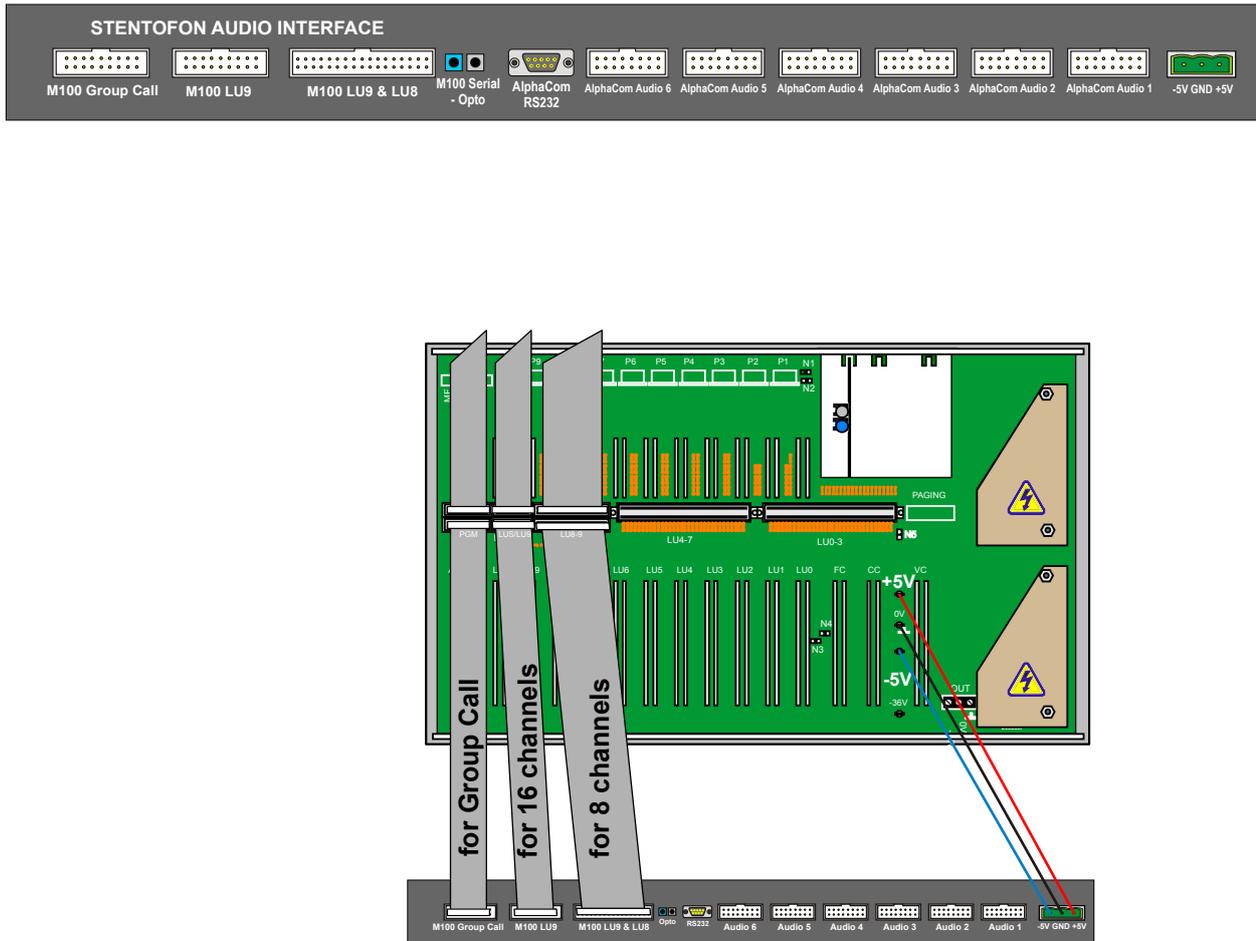
The programming tool for AlphaCom is AlphaPro software version 10.28 or higher. AlphaPro version 11.2.3.1 or higher is recommended.

AlphaPro is used to identify M100 modules as nodes in the AlphaNet and to configure the AGA audio routing.

3 Power Connection

3.1 Audio Link Interface

The Audio Link Interface Unit is powered from the M100 module. Solder a 3-wire power cable to the three solder studs labeled **+5V**, **0V** (GND), and **-5V** on the M100 backplane. Connect the other free end of the cable to a 3-way plug-in screw terminal that connects to the receptor labeled **-5V GND +5V** at the back of the Audio Link Interface Unit.



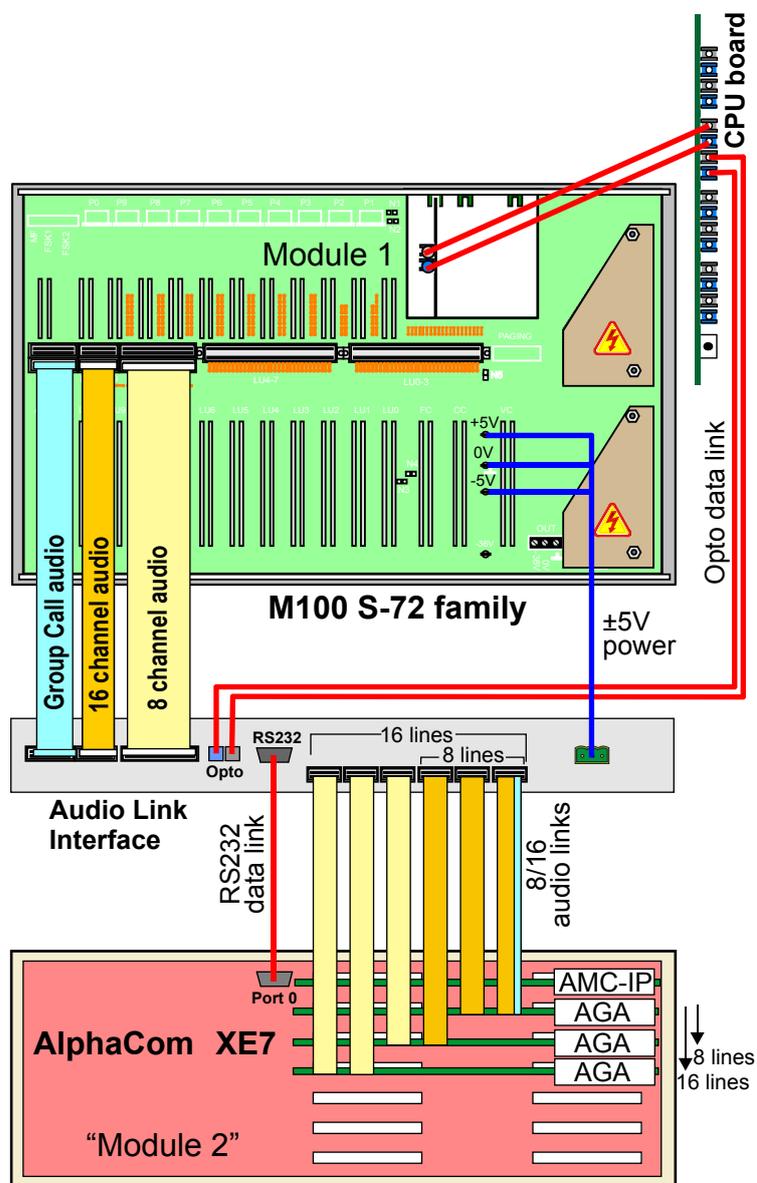
4 Data Connection

4.1 M100

The M100 system communicates via optical fiber cables. The opto cable (LBB 7103/61) connects from the M100 Computer Card (LBB 7103/05) to the Audio Link Interface Unit. On the Computer Card, connect the opto cable to the connector labeled **Module 1** (assuming that the M100 is a single-module system). The other end of the opto cable connects to the receptors labeled **M100 Serial - Opto** at the back of the Audio Link Interface Unit.

4.2 AlphaCom

Use a crossed RS232 cable with male 9-pin D-sub connectors at each end to connect the AlphaCom XE7 serial Port 0 to the Audio Link Interface connector labeled AlphaCom RS232.



5 Audio Connection

5.1 M100

5.1.1 Group Call

To connect Group Call audio for M100:

1. Connect a 20-core ribbon cable to the free connector labeled **PGM** at the back of the M100 module.
 - Only the Group Call channel is transmitted and not the Program Distribution channels.
2. Connect the other end to the connector at the back of the Audio Link Interface labeled **M100 Group Call**.

5.1.2 8 audio channels - 1 LUS board

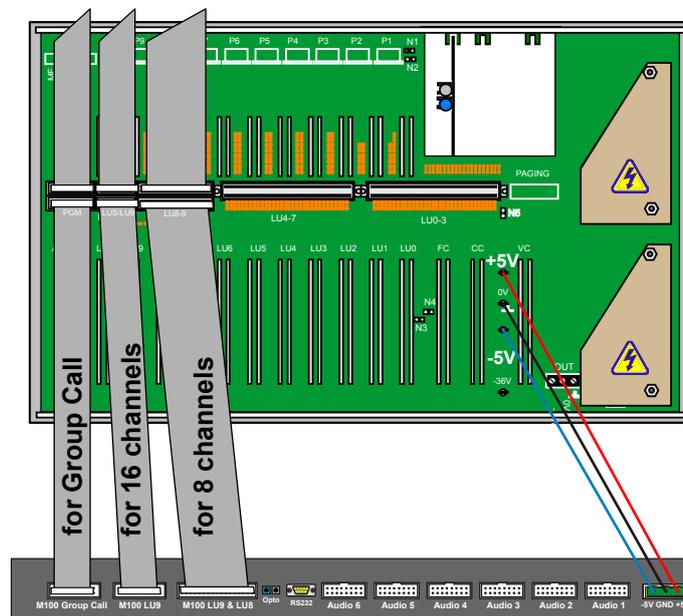
To connect 8-channel audio for M100:

1. Connect a 32-core ribbon cable to the free connector labeled **LU8-9** at the back of the M100 module.
2. Connect the other end to the connector at the back of the Audio Link Interface labeled **M100 LU9 & LU8**.

5.1.3 16 audio channels - 2 LUS boards

To connect 16-channel audio for M100:

1. Connect a 16-core ribbon cable to the free connector labeled **LUS/ LU9** at the back of the M100 module.
2. Connect the other end to the connector at the back of the Audio Link Interface labeled **M100 LU9**.



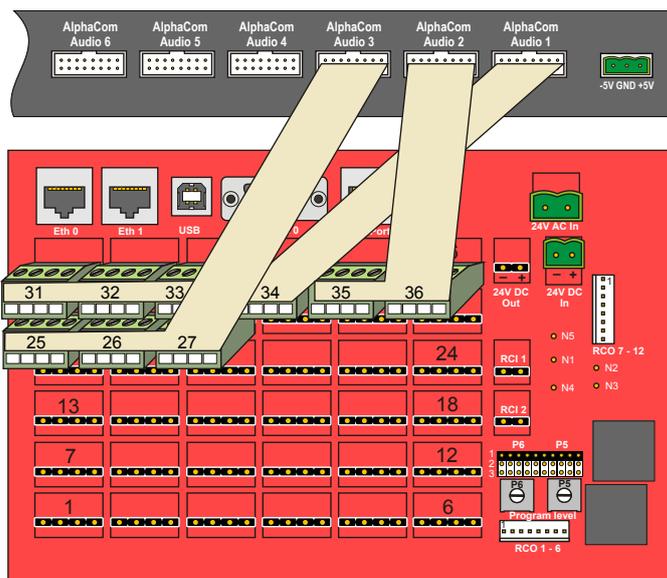
5.2 AlphaCom

5.2.1 Group Call & 8 Audio Channels

To connect 8-channel Group Call audio for AlphaCom:

1. Cut off one connector on three 8-pair flat cables.
2. Connect the free ends to nine 4-way plug-in screw terminals according to the table below.

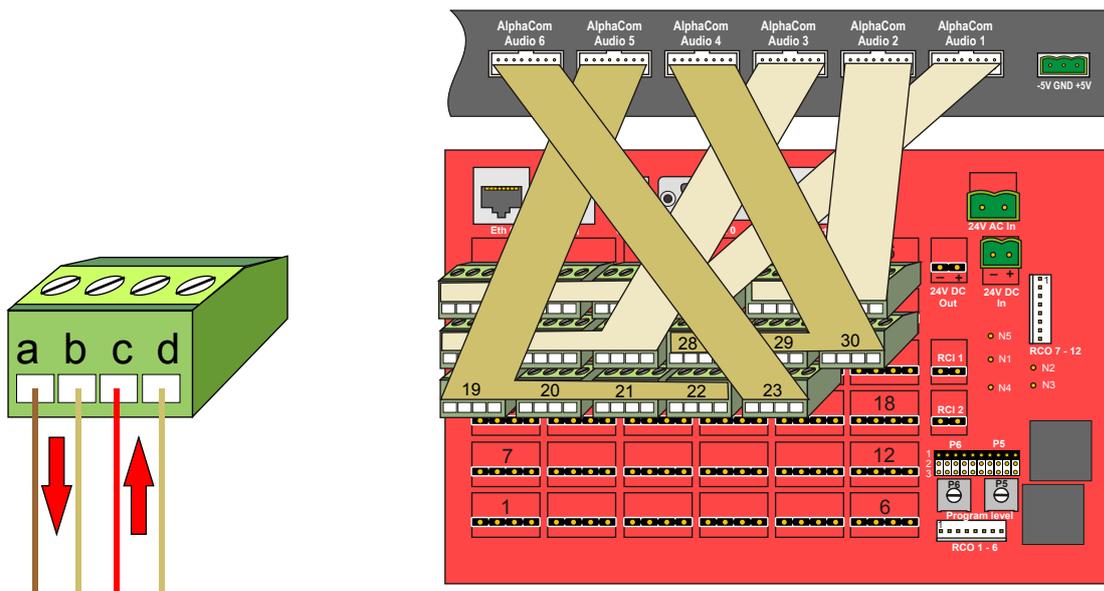
3. Connect the plugs to the corresponding connectors at the back of the AlphaCom XE7 Audio Server according to the table below.
4. Connect the other end of the cables to the connectors at the back of the Audio Link Interface labeled **AlphaCom Audio 1 to 3**.



5.2.2 Group Call & 16 Audio Channels

To connect 16-channel Group Call audio for AlphaCom:

1. Cut off one connector on six 8-pair flat cables.
2. Connect the free ends to seventeen 4-way plug-in screw terminals according to the two tables below.
3. Connect the plugs to the corresponding connectors at the back of the AlphaCom XE7 Audio Server according to the tables below.
4. Connect the other end of the cables to the connectors at the back of the Audio Link Interface labeled **AlphaCom Audio 1 to 6**.





8 AUDIO CHANNELS, LUS9 - XE7					
Connector	Channel no.	Color		Plug	Terminal
AlphaCom Audio 1	GC	Brown	Brown	31	a-b
		Red	Red		c-d
	1	Orange	Orange	32	a-b
		Yellow	Yellow		c-d
	2	Green	Green	33	a-b
		Blue	Blue		c-d
3	Violet	Violet	34	a-b	
	Grey	Grey		c-d	
AlphaCom Audio 2	4	Brown	Brown	35	a-b
		Red	Red		c-d
5	5	Orange	Orange	36	a-b
		Yellow	Yellow		c-d
AlphaCom Audio 3	6	Brown	Brown	25	a-b
		Red	Red		c-d
	7	Orange	Orange	26	a-b
		Yellow	Yellow		c-d
	8	Green	Green	27	a-b
		Blue	Blue		c-d

16 AUDIO CHANNELS, LUS8 - XE7					
Connector	Channel no.	Color		Plug	Terminal
AlphaCom Audio 3	9	Violet	Violet	28	a-b
		Grey	Grey		c-d
AlphaCom Audio 4	10	Orange	Orange	29	a-b
		Yellow	Yellow		c-d
11	11	Green	Green	30	a-b
		Blue	Blue		c-d
AlphaCom Audio 5	12	Brown	Brown	19	a-b
		Red	Red		c-d
	13	Orange	Orange	20	a-b
		Yellow	Yellow		c-d
	14	Green	Green	21	a-b
		Blue	Blue		c-d
15	Violet	Violet	22	a-b	
	Grey	Grey		c-d	
AlphaCom Audio 6	16	Brown	Brown	23	a-b
		Red	Red		c-d
NC	NC			24	

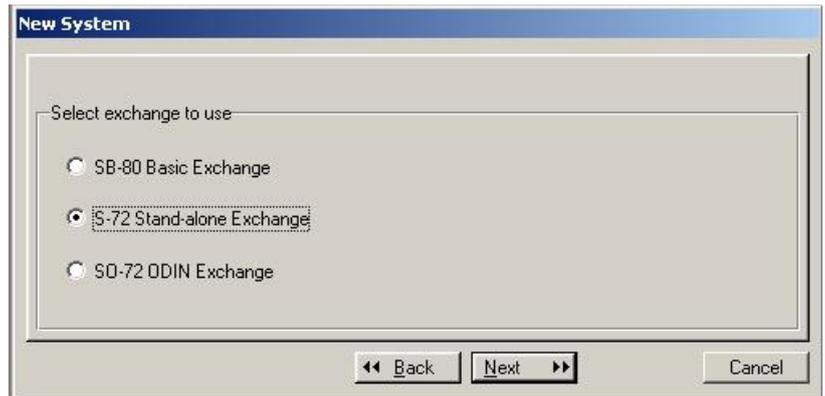
6 Programming in SysMain (M100)

6.1 Installation

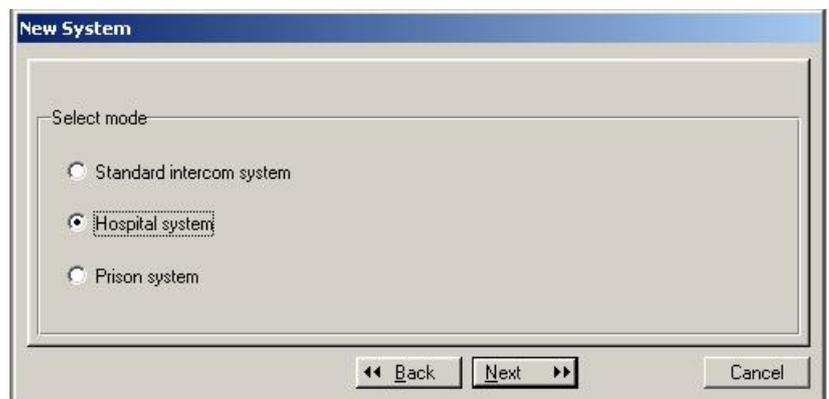
Install and start SysMain on your PC.

6.2 Getting Started for new M100 system

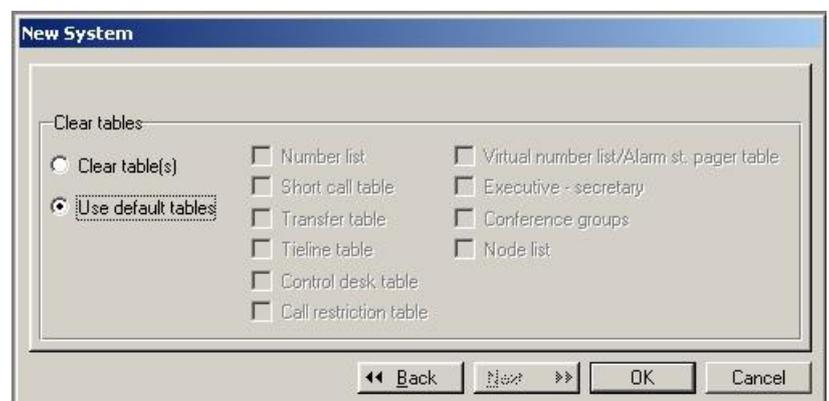
1. Select **File > New**
- A setup wizard will start
2. Click **Next**



3. Select **S-72 Stand-alone Exchange** and click **Next**



4. Select **Hospital System** and click **Next**

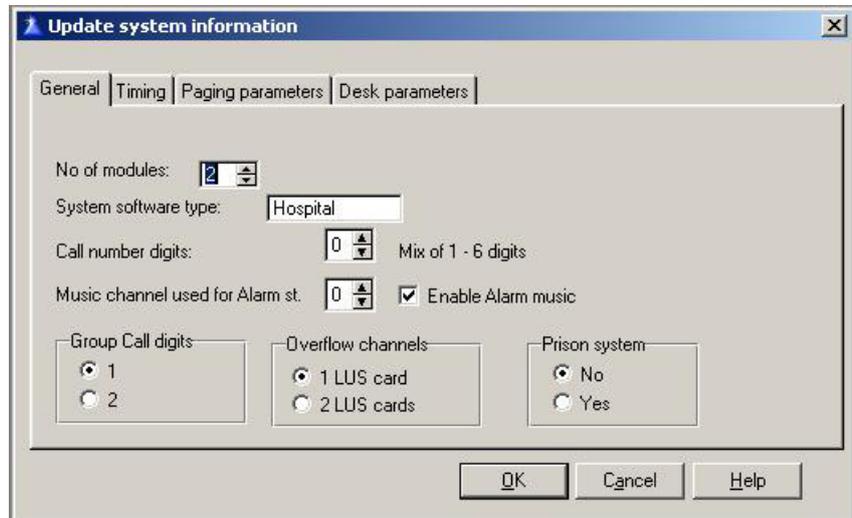


5. Select **Use default tables** and click **OK**

A new database will then be created.

6.3 Setting system parameters

After setup is completed, the **Update system information** window automatically opens.



1. Set **No. of modules** to **2**.
2. Select the number of **LUS cards** installed.
3. Click **OK**

6.4 Updating the exchange

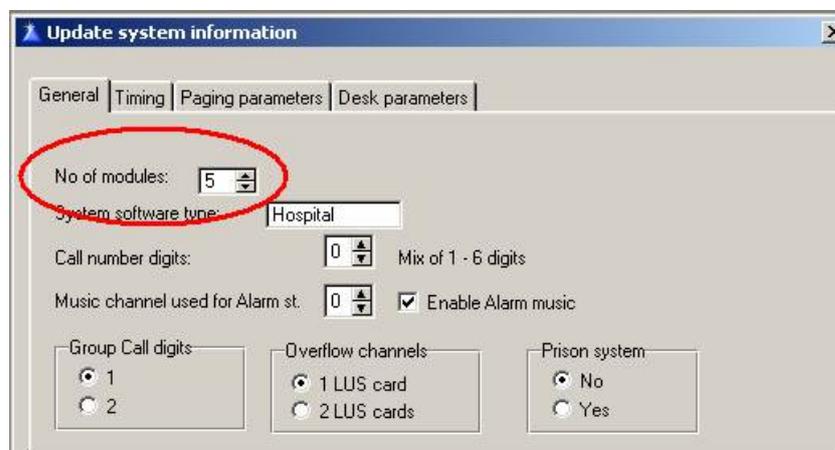
1. In the menu, click **Exchange** and select **Send data to the exchange**



2. Select **Module 0**
3. Enable **Number list** and **System parameters**
4. Click **Send**

6.5 Adding new module to existing M100 exchange

When there is an existing M100 exchange with modules that are already defined, a new module has to be added before connecting to the Audio Link Interface. In the **Update system information** window in SysMain, activate a new module by increasing the number of existing modules by one:



The opto cable connects to the first available output. If no outputs are available, an ACIA card (LBB 7103/56) has to be installed. The ACIA card requires that the exchange is already fitted with the Computer Card (LBB 7103/05).

See M100 documentation for further details.

7 Programming in AlphaPro (AlphaCom)

The programming procedures described in this section is for setting up a single-module M100 exchange with an AlphaCom XE7. The setup procedures for equipment other than the above will differ somewhat from that described in this section.

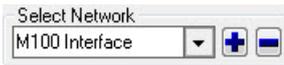


7.1 Installation

Install and start AlphaPro on your PC.

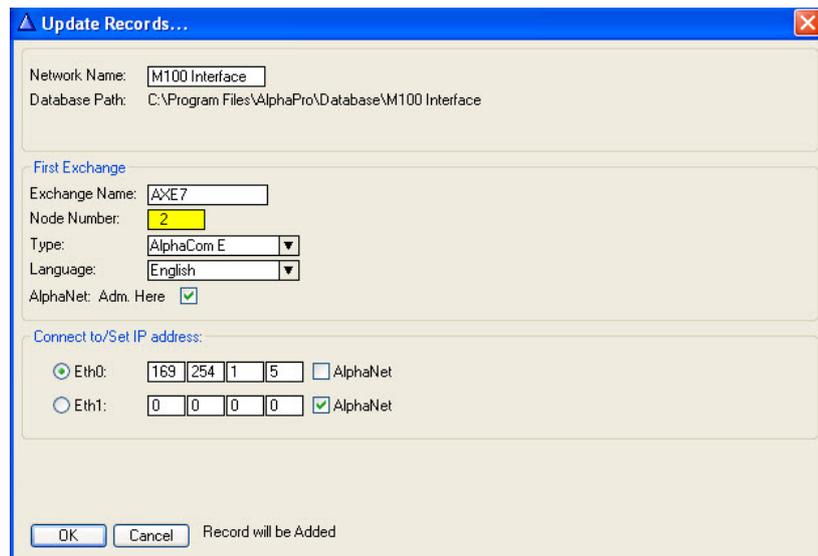
7.2 Creating Nodes

Create a network and an AlphaCom node



1. From the menu bar, select **[+]** next to the **Select Network** drop-down menu.
2. Enter **2** in the **Node Number** field
- this node number must be higher than M100 node number
3. Select **AlphaCom E** from the **Node Type** drop-down menu

Enter other relevant data for the network.

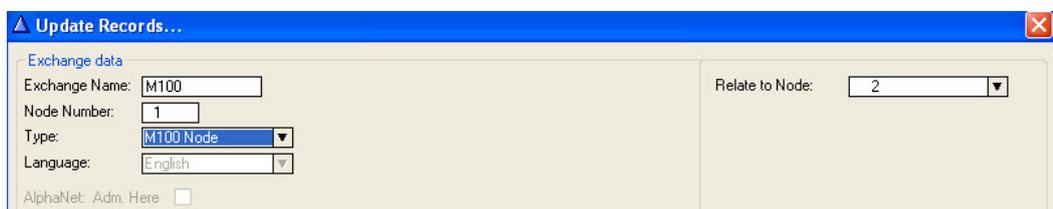


Create an M100 node



1. From the menu bar, select **[+]** next to the **Select Exchange** drop-down menu
2. Enter **1** in the **Node Number** field
- this node number must be lower than AlphaCom node number
3. Select **M100 Node** from the **Node Type** drop-down menu

Enter other relevant data for the node.



7.3 Define Data Communication



Select destination node

Node	Number
M100	1

Select Cancel

1. Select the AlphaCom node created previously
2. Click the **Exchange & System** icon
3. Click **Net Routing**
4. Click **Insert**
5. Highlight **M100** as the destination node and click **Select**
6. Under **Primary Route**, select **M100 Link** from the **ACDP Link** drop-down list
7. Click **Close** to close the Net Routing window

Update Records...

Source
 Source: AXE7 AlphaCom E
 Description:

Primary Route
 To reach the destination, go to/via neighbour node:

Data:
 ACDP Link: M100 Link
 Node Number:

Audio:
 Node Number: 1 Audio on IP

7.4 Define Audio connections



1. Click the **Exchange & System** icon
2. Click **Net Audio**
3. Click **Insert**
4. Highlight **M100** as the destination node and click **Select**
5. Enter **31** in the **Physical no.** field
6. Enter **1** in the **Channel** field
7. Click **Close** to close the Net Audio window

Update Records...

Source
 Source: AXE7 AlphaCom E
 Description:
 Physical no: 31
 Mod Pos Line
 65 6 1

Destination
 Destination: M100 M100 Node
 Description:
 Physical no:
 Mod Pos Line
 0 0 0
 Use dynamic license

Channel: 1

OK Cancel Record will be Changed

Repeat this procedure for the number of audio channels desired according to the tables below.

8 audio channels		16 audio channels	
Channel	Physical Number	Channel	Physical Number
1	31	10	28
2	32	11	29
3	33	12	30
4	34	13	19
5	35	14	20
6	36	15	21
7	25	16	22
8	26	17	23
9	27		

7.5 Define Global Numbers

All M100 numbers need to be defined in the AlphaCom XE as **global numbers**.



1. Click the **Directory & Features** icon
2. Click **Insert**
3. Select **Global Number for AlphaNet – 83** from the **Feature** drop-down list
4. Enter **1** in the **Node** field
5. In the **Directory Number** field, enter the M100 directory number
6. In the **Display Text** field, enter an appropriate station name
7. Confirm by clicking **OK**

Repeat this procedure for all M100 directory numbers.

Directory Numbers/Features

Dir No	Display Text	Feature No
6708	Ringing Gr8	109 / 58
6709	Ringing Gr9	109 / 59
9	Search	28 / 0
7	SendStkMail	17 / 0
616	Service menu	21 / 7
785	SetTime/Date	33 / 0
783	SetVolume	38 / 0
110	Station 10	9 / 10
111	Station 11	9 / 11
112	Station 12	9 / 12
113	Station 13	9 / 13
114	Station 14	9 / 14
115	Station 15	9 / 15
116	Station 16	9 / 16
117	Station 17	9 / 17
118	Station 18	9 / 18
119	Station 19	9 / 19
102	Station 2	9 / 2
120	Station 20	9 / 20
121	Station 21	9 / 21
122	Station 22	9 / 22
123	Station 23	9 / 23
124	Station 24	9 / 24
125	Station 25	9 / 25
126	Station 26	9 / 26
127	Station 27	9 / 27

Search Directory Number:

Feature: 003 **Global Number for AlphaNet**

Node: Parameter 2: Parameter 3:

Directory Number:

Display Text:

Hide In Station Display (INFO)

AlphaNet Visibility:

When COS NOT OK, Give Access To Group:

When COS OK, No Calls From Group:

Establish audio link to exchange in AlphaNet.
 This dir no plus succeeding dialing is sent to remote exchange.
 Global number, dial: <dir.no 1-4 digits>.
 Exchange prefix, dial: <dir.no 1-2 digits> <remaining digits>
 Parameter 2 = Collect N more Digits (SIP)

Ok Cancel Insert Delete Close

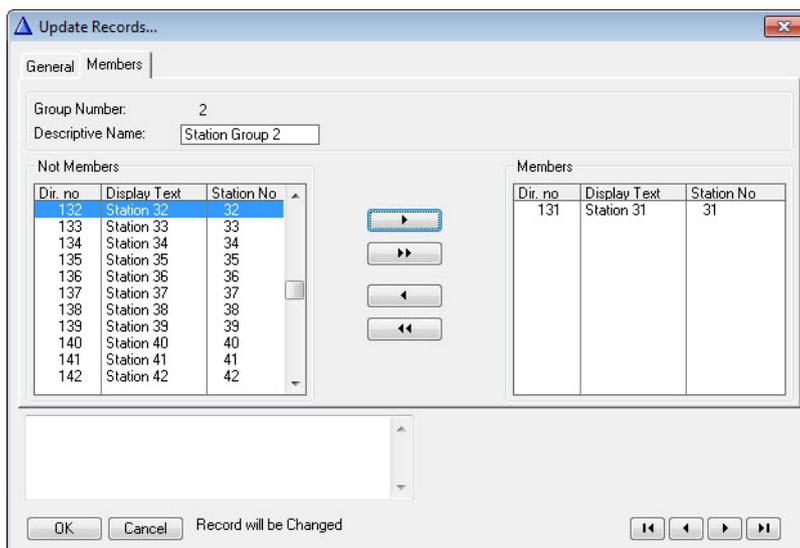
7.6 Define a Global Group

As in a standard AlphaNet, Global Groups must be used if there are members in both exchanges, or if the group call is initiated from one exchange, with members in the other. In all cases, the Group Call port (31) must be included as a member in order to establish the Audio Link.



Local Group

1. Click the **Groups** icon and select **Local Groups**
2. Select **Station Group 2** from the list on the left and click **Change**
3. Click the **Members** tab
4. Scroll down in the **Not Members** list on the left and select **Station 31**
5. Click the right-arrow to move it to the **Members** list on the right
6. Click **OK** and close the window

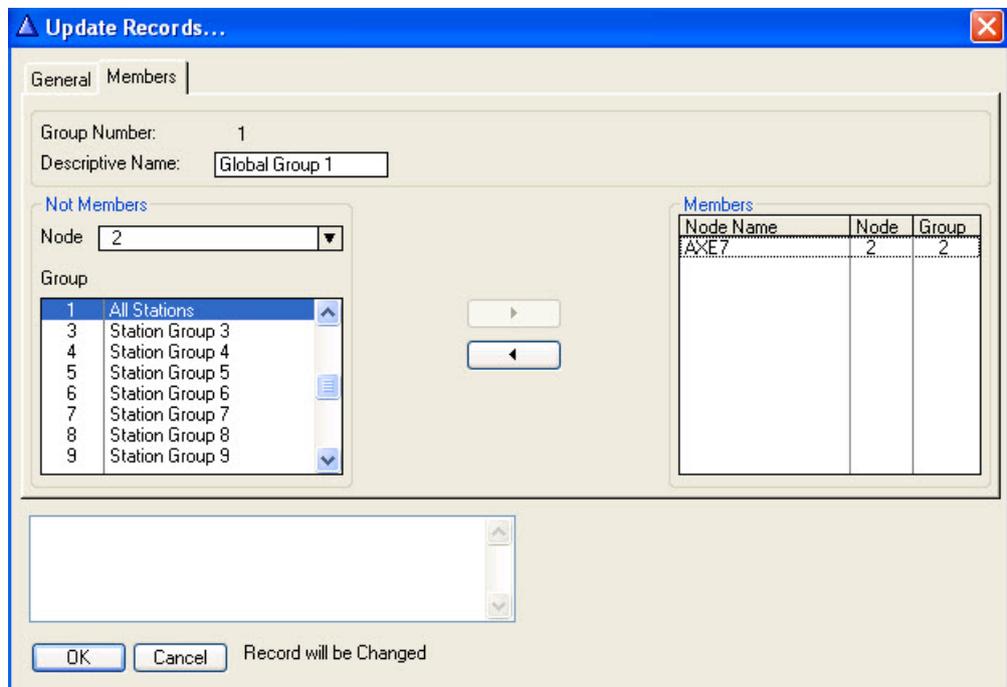


- ① *To prevent AGA positions from being connected during an All Call, delete these positions as members of Local Group Number 1.*

Global Group



1. Click the **Groups** icon and select **Global Groups**
2. Select **Global Group 1** from the list on the left and click **Change**
3. Click the **Members** tab
4. Under **Not Members** on the left, select node number **2** in the **Node** drop-down list
5. Select **Station Group 2** in the **Group** list on the left
6. Click the right-arrow to move it to the **Members** list on the right
7. Click **OK** and close the window



7.7 Updating the exchange

Set your PC's IP address to **169.254.1.2**. Connect a network cable from the computer to the **Eth0** port on the exchange.



1. In AlphaPro, click the **Start Communication Program** icon and log on.
2. Enter the default username and password:
 - Username: **admin**
 - Password: **alphaadmin**
3. Click the **SetNode** button and set the node number to **2**.
4. Click the **SendAll** button to upload all data to the exchange.
5. When uploading is completed, close the Communication Program **without resetting**.

8 Programming in AlphaWeb (AlphaCom)

The programming is done in the web-based tool, AlphaWeb.

1. Open a web browser and enter the IP address of the AlphaCom
- Default IP address: 169.254.1.5
2. Log in using the same default username and password as for the AlphaPro.
3. Click the **System Configuration** tab and then click **Licensing** from the left menu.
4. Click **Insert new License Key** and enter a valid license key required to run the M100 interface software in AlphaCom and click **Insert Key**
5. Click the **External Systems** tab and click **M100** from the left menu.

8.1 General Settings

1. Under **General** settings, enter **2** in the **AMC Node** field and set **M100 Node** to **1**
2. Click **Save**

The screenshot shows the AlphaWeb interface with the 'External Systems' tab selected. The left menu is expanded to 'M100' and 'General' is selected. The 'General' settings page is displayed, showing the following fields:

AMC Node:	2
M100 Node:	1
M100 Odm Node:	None
AlphaCom Default COS:	7FBF
AlphaCom Default Extended COS:	FFFF
Default Alarm Group:	0

Buttons for 'Save' and 'Read Configuration' are visible at the bottom.

8.2 Group Call Map

1. Click **Group Call Map** from the left menu
2. From the drop-down list, set **F71 All Call** to **1 - 9001**
3. Click **Save**

The screenshot shows the AlphaWeb interface with the 'External Systems' tab selected. The left menu is expanded to 'M100' and 'Group Call Map' is selected. The 'Group Call Map' settings page is displayed, showing the following fields:

Number of M100 Group Call Groups:	8
F70 Emergency Call:	
F71 All Call:	1

Buttons for 'Save' and 'Read Configuration' are visible at the bottom.

8.3 Module/Serial Port

1. Click **Module/Serial Port** from the left menu
2. Under **Input Table**, for **M100 Module** number **1** select **Serial0** from the **AlphaCom Serial Port** drop-down list
3. Click **Save**

The screenshot shows the 'Module/Serial Port' configuration page. The navigation menu on the left includes 'RingMaster', 'M100', and sub-items: 'General', 'Group Call Map', 'Module/Serial Port', 'AGA-LUS Map', and 'Ringing Group'. The main content area has a title 'Module/Serial Port' and a subtitle 'Setting Serialport Serial0 to : Module1'. Below this is an 'Input Table' with the following structure:

M100 Module	AlphaCom Serial Port
0	
1	Serial0
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	

At the bottom of the table are two buttons: 'Save' and 'Read Configuration'.

8.4 AGA-LUS Map

To enter settings for 8 or 16 audio channels, click **AGA-LUS Map**.

8.4.1 8 Audio Channels

1. Set **Number of M100 LUS** to **8**
2. Set **Group Call AGA** to **1**
3. Under **Input Table** enter the data according to the table below
4. Click **Save**

The screenshot shows the 'AGA-LUS Map' configuration page. The navigation menu on the left includes 'RingMaster', 'M100', and sub-items: 'General', 'Group Call Map', 'Module/Serial Port', 'AGA-LUS Map', and 'Ringing Group'. The main content area has a title 'AGA-LUS Map' and a subtitle 'Setting LUS number 8 to AGA channel: 9'. Below this are two dropdown menus: 'Number of M100 LUS:' set to '8' and 'Group Call AGA:' set to '1'. At the bottom of these are two buttons: 'Save' and 'Read Configuration'. Below the buttons is an 'Input Table' with the following structure:

M100 LUS	AlphaCom AGA channel
1	2
2	3
3	4
4	5
5	6
6	7
7	8
8	9

8.4.2 16 Audio Channels

1. Set **Number of M100 LUS** to **16**
2. Set **Group Call AGA** to **1**
3. Under **Input Table** enter the data according to the table below
4. Click **Save**

System Monitoring System Configuration System Maintenance External Systems Custom Scripts Help

RingMaster

M100

- General
- Group Call Map
- Module/Serial Port
- **AGA-LUS Map**
- Ringing Group

AGA-LUS Map

Setting LUS number 16 to AGA channel: 17

Number of M100 LUS: 16

Group Call AGA: 1

Save Read Configuration

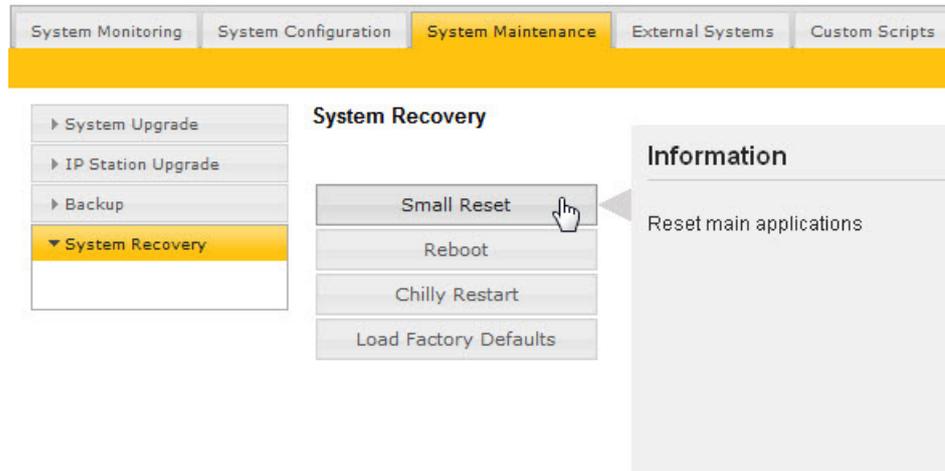
Input Table

M100 LUS	AlphaCom AGA channel
1	2
2	3
3	4
4	5
5	6
6	7
7	8
8	9
9	10
10	11
11	12
12	13
13	14
14	15
15	16
16	17

8.5 Small Reset

To carry out a small reset:

1. Click the **System Maintenance** tab
2. Select **System Recovery** in the left menu
3. Click **Small Reset**
4. Confirm by clicking **Yes**



- ① *Whenever a change to the AlphaWeb settings are done and **Save** is clicked, the software writes the changes to an XML file in the audio server/exchange. To make the audio server/exchange read the new XML file, a **Small Reset** has to be carried out.*
- ① *Any changes in the AlphaCom directory numbers list requires a **Save** under **External Systems > General** followed by a **Small Reset** in AlphaWeb.*

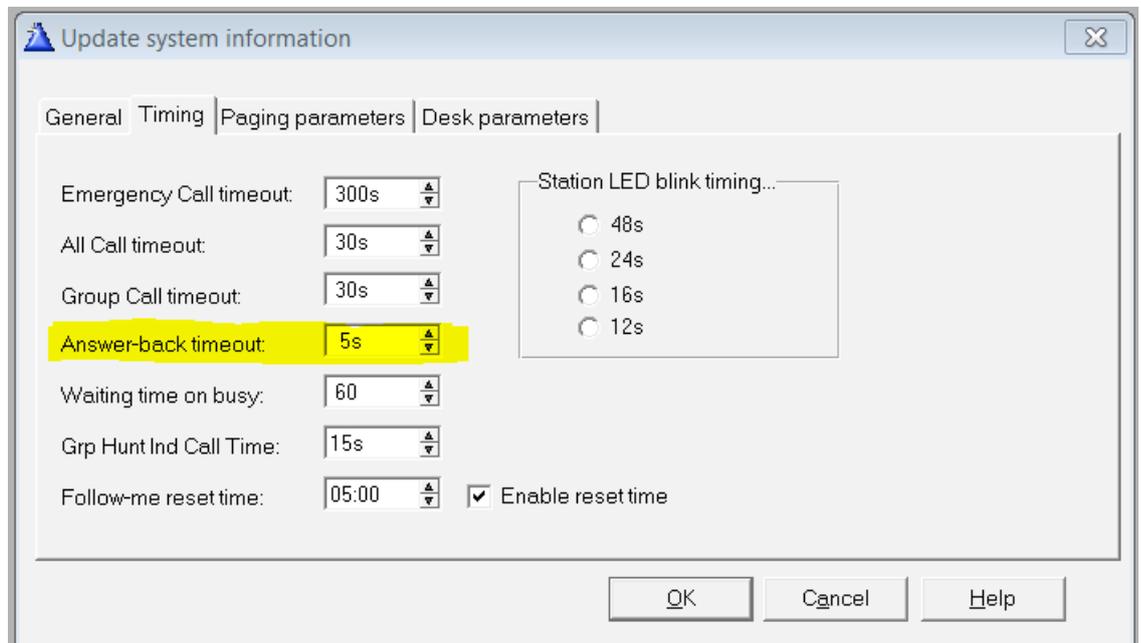
9 Appendix A – Group Calls

In M100 there is a timer allowing a station to answer a voice paging through a Group Call. The system works in the following manner:

A station initiates a Group Call and makes a voice paging. The Group Call is then disconnected. By default the person paged has 30 seconds to dial the Group Call reply code: **FX**. During this time, the M100 exchange does not accept any other Group Calls. If a Group Call is made from the AlphaCom during this time, the Group Call will proceed normally in the AlphaCom system itself but the M100 will reject the Group Call. The initiator will get a message in the station display saying **Exchange missing** and can then choose to wait.

The **Answer-back timeout** timer can be adjusted in the M100 programming tool SysMain:

1. In the top menu, click **Settings**
2. Select **Edit system information**
3. Select the **Timing** tab
4. Set the required values for **Answer-back timeout**



www.stentofon.com

Zenitel Norway AS
P.O. Box 4498 Nydalen
0403 OSLO
Norway

DOC NO.

A100K10955

support@stentofon.com



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