

# IP Master Stations

INSTALLATION & CONFIGURATION GUIDE



## About this Document

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### Document Scope

This document describes the installation and configuration of the various models of the STENTOFON IP Master Station range including accessories such as the IP DAK-48 unit, gooseneck microphone and handset.

### Revision Information

Rev.	Date	Author	Status/Comments
1.0	3 Feb 2010	HKL	Published
1.1	6 April 2010	HKL	Revised gooseneck mic illustration & instructions
1.2	22 Sept 2010	ER	New dimension drawing IP Flush
2.0	17 Dec 2010	HKL	New display/screenshots & XE
2.1	12 May 2011	HKL	IP Dual Display station. Supersedes analog dual display manual.
2.2	20 Dec 2011	HKL	Screenshots for new station SW

### Related Documentation

For further information, refer to the following documentation:

Doc. no.	Documentation
A100K10805	AlphaCom XE Installation & Configuration Manual
A100K10760	IP DAK-48 Unit Installation Guide
A100K10602	AlphaCom User Guide

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# 1 Introduction

The STENTOFON IP Master Stations are connected to the AlphaCom XE server/exchange which is the heart of the STENTOFON security and communication system. The communication between the AlphaCom XE exchange and the IP Master Stations utilize the STENTOFON CCoIP® protocols. The CCoIP protocols allow for a wide set of call modes and services that provide the ideal solution to your critical communication requirements.

The AlphaCom XE exchange includes all main service configurations for the IP stations and only a minimum configuration is needed to be carried out on the actual station. For further details, see *A100K10805 AlphaCom XE Installation & Configuration Manual*.

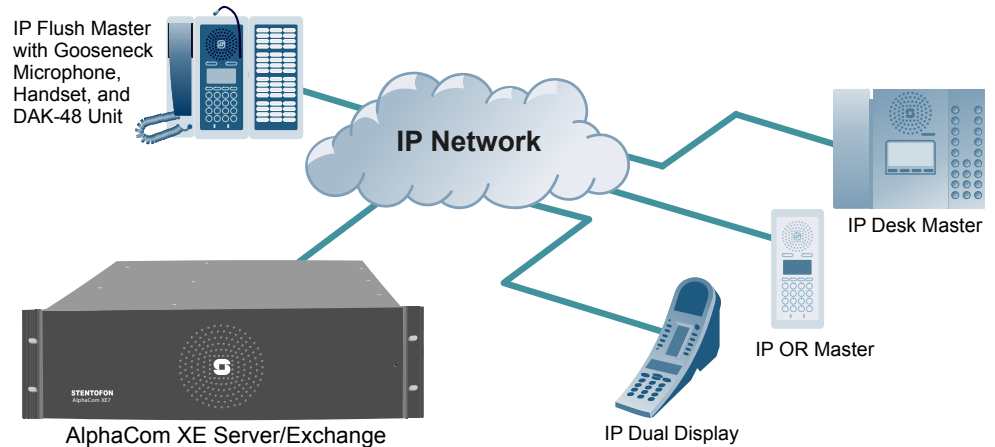


Figure 1 STENTOFON Security and Communication System

## 1.1 Features Overview

The table below shows the available features of the IP Master Stations.

	IP Desktop w/ handset	IP Desktop	IP Flush	IP OR	IP Dual Display	Station Kit
Managed data switch	YES	YES	YES	YES	YES	YES
PoE (802.af)	YES	YES	YES	YES	YES	YES
Inline power	YES	YES	YES	YES	YES	YES
Local power	NO	NO	YES	YES	NO	YES
Relay output	NO	NO	YES	YES	NO	YES
Digital input	NO	NO	YES	YES	NO	YES
Display	YES	YES	YES	YES	YES	OPTION
Handset	YES	NO	OPTION	NO	NO	OPTION
Gooseneck microphone	NO	NO	OPTION	NO	OPTION	OPTION
Headset	NO	NO	OPTION	NO	NO	OPTION
IP DAK-48 unit	NO	NO	OPTION	NO	NO	OPTION

Table 1 Station Features

## 1.2 IP Desktop Master Station



- item nos. 1008001000 (with handset), 1008000000 (without handset)

The IP Desktop Master is a general purpose intercom station featuring a large high contrast display with backlight showing crystal clear information. Ten direct access keys (DAK) provide single-touch access to other stations, group calls, audio monitoring, public address zones, radio channels and/or the opening of doors and gates.

The station connects directly to the IP network, making it easy to deploy anywhere at any distance. The built-in web server allows monitoring, configuration and software updates over the IP network for easy maintenance of remote stations.

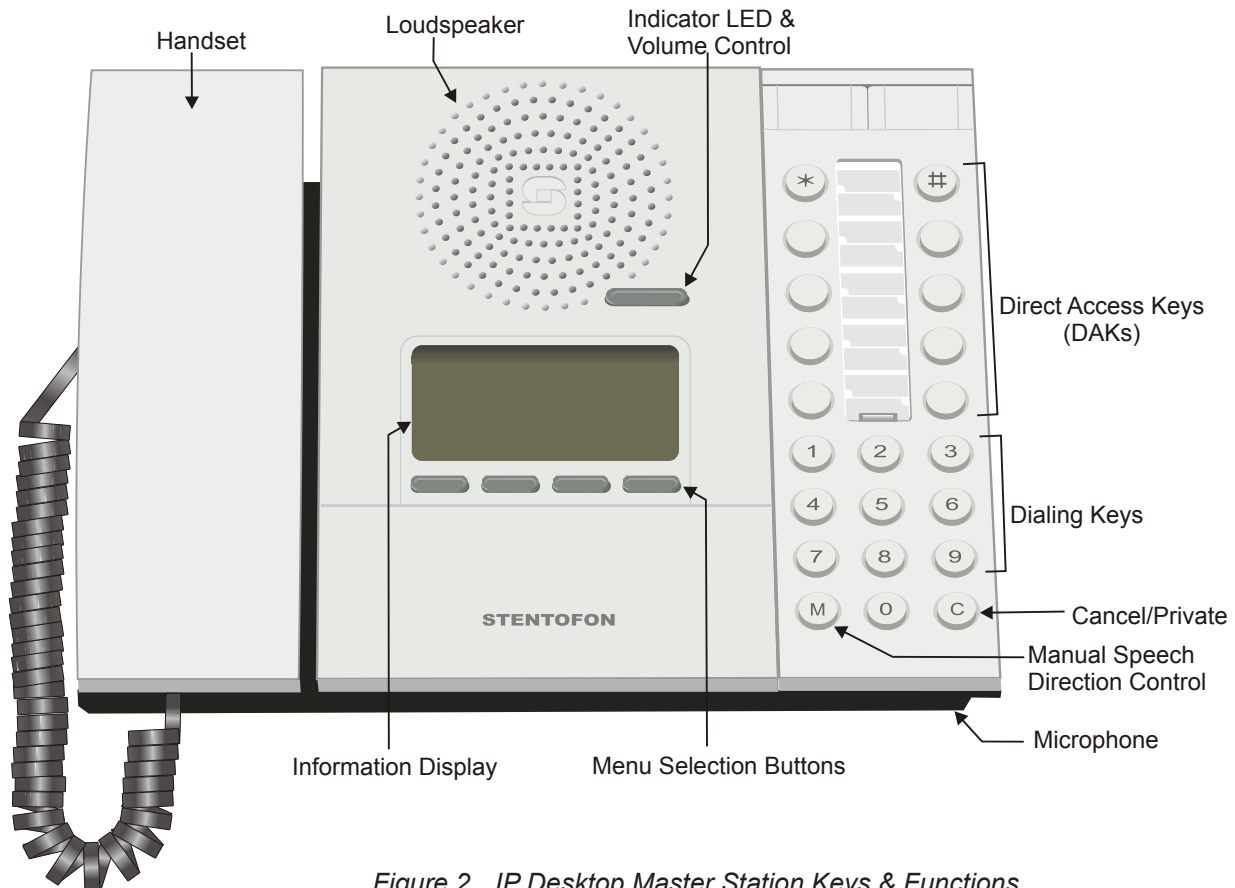


Figure 2 IP Desktop Master Station Keys & Functions

## 1.3 IP OR Master Station

- item no. 1008015000

The IP Operating Room (OR) Master Station is an advanced intercom station intended for use in operating theatres and clean rooms. The chemical resistant and anti-bacterial front plate is completely flat and sealed to minimize bacteria accumulation. The station has an excellent audio quality. With a large backlit display and STENTOFON audio technology, the station allows users to read caller ID, listen and talk at a distance.



## 1.4 IP Flush Master Station

- item no. 1008031000

The IP Flush Master is intended for use in control and guard rooms. The station features a large high contrast display with backlight and up to 8 lines with 20 characters. The IP station has advanced call handling features such as call queuing. The call queue is presented to the user according to priority and time of arrival. The user can select which call to answer by scrolling through the queue. Four direct access keys (DAK) provide single-touch access to stations, group calls, audio monitoring, public address zones, radio channels, and opening of doors and gates. Each DAK key has a red and green LED to show the status.

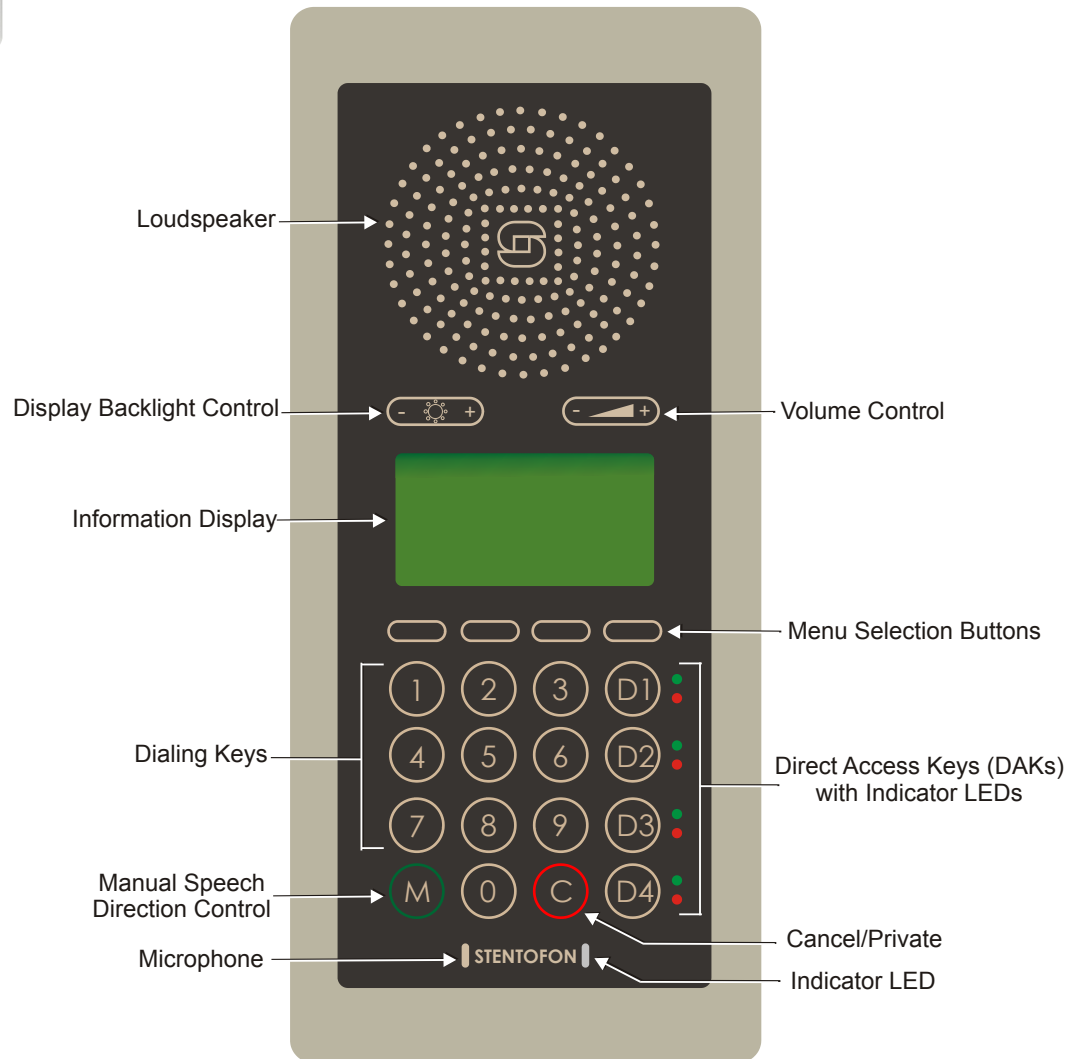


Figure 3 IP Flush/OR Master Station Keys & Functions

## 1.5 IP DAK-48 Unit

- item no. 1008010100

The IP DAK-48 Unit extends the IP Flush Master Station with DAK buttons and visual indicators (LEDs), providing the ideal solution for the control room. Each DAK key is equipped with two programmable LED indicators, one red and one green. The LEDs can be used to show alarms, notifications, call requests, or any other indication required from the system. This opens up for a wide range of integrations and applications such as:

- Advanced call request handling with visual indications
- CCTV and intercom integration
- Dynamic group call and PA zone selection
- Simplex (radio) conference with visual indications



## 1.6 IP Dual Display Station

- item no. 1008007000

The IP Dual Display Station is designed for desktop installation in banking/financial and office environments. It is also well suited as a control room station. The physical size makes it easy to place on desks with limited space. An optional noise cancelling gooseneck microphone module can be mounted in noisy environments. The dual backlit easy-to-read displays and navigation buttons provide single-touch access to stations, group calls, audio monitoring, public address zones, radio channels, opening of doors and gates as well as other functions. The direct access keys are easily programmed from the station and can be changed at any time.



Figure 4 IP Dual Display Station Keys & Functions

## 1.7 IP Master Station Kit

- item no. 1008093000

The IP Master Station Kit features the printed circuit board (PCB) as used in IP master stations. It is designed to produce custom IP stations to the highest specifications and for use in the harshest of environments. The IP Master Station Kit provides up to 1.5 W audio output. If even higher audio output is required, an external power amplifier may be used. As a special function, the PCB can extract power from the Ethernet's PoE circuit and provide up to 6 W power to external units. This means that the PCB can power an external power amplifier using its own PoE.





## 2 Installation

### 2.1 Introduction

The table below is an overview of the main connectors involved when installing the STENTOFON IP Master Stations.

LAN	10/100 Mbps RJ-45 port for LAN (uplink) connection. Supports PoE (802.3af). Draws power from either spare line or signal line.
AUX	10/100 Mbps RJ-45 ports for auxiliary equipment such as PC and IP camera.
Handset Port	RJ11 (only for IP Flush Master Station and IP Master Kit)
Headset Port	RJ11 (only for IP Flush Master Station and IP Master Kit)
Input/Output	Pluggable screw terminal (all stations except IP Desktop Station)
Extension Unit (IP DAK-48)	RJ45 (only for IP Flush Master Station and IP Master Kit)
Local Power	Pluggable screw terminal, 17-27 VDC Idle 4W, max. 8W (all stations except IP Desktop Station)

Table 2 Station Connectors

### 2.2 Power Supply

The IP Master Station supports Power over Ethernet (PoE, IEEE 802.3 a-f) where power can be drawn from either the spare line or signal line.

If PoE is not available, the IP Master Station (except for IP Desktop) can be connected to a 24 VDC local power supply. See *Appendix A: Station Board Connections* for local power supply connections.

### 2.3 Network Connection

There are two RJ45 ports on the IP Master stations:

- LAN port is for connecting to the network and the AlphaCom XE exchange.
- AUX port is for connecting to auxiliary equipment such as a PC.

There is one RJ45 port located at the bottom of the IP Dual Display station that is used as the LAN port.

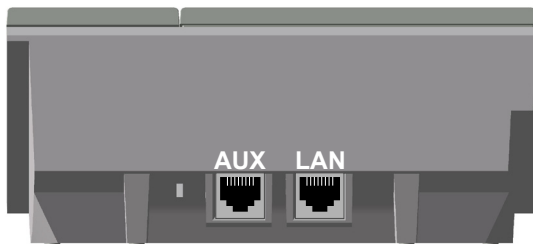


Figure 5 RJ45 Ports at Rear of IP Desktop Master Station



Figure 7 RJ45 Ports on IP Flush/OR Master Stations

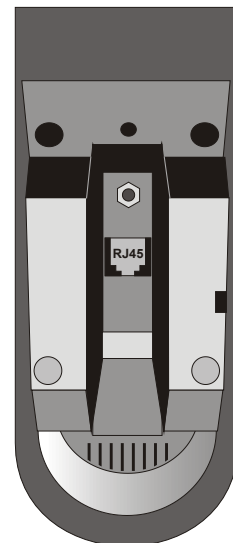


Figure 6 RJ45 Port at Bottom of IP Dual Display Station



## 2.4 Handset

- item no. 1008097100

The Handset accessory is available for the IP Flush Master Station.

### To connect the handset:

- Insert the RJ11 plug of the handset into the lower port of the dual RJ11 ports on the lower left of the station.



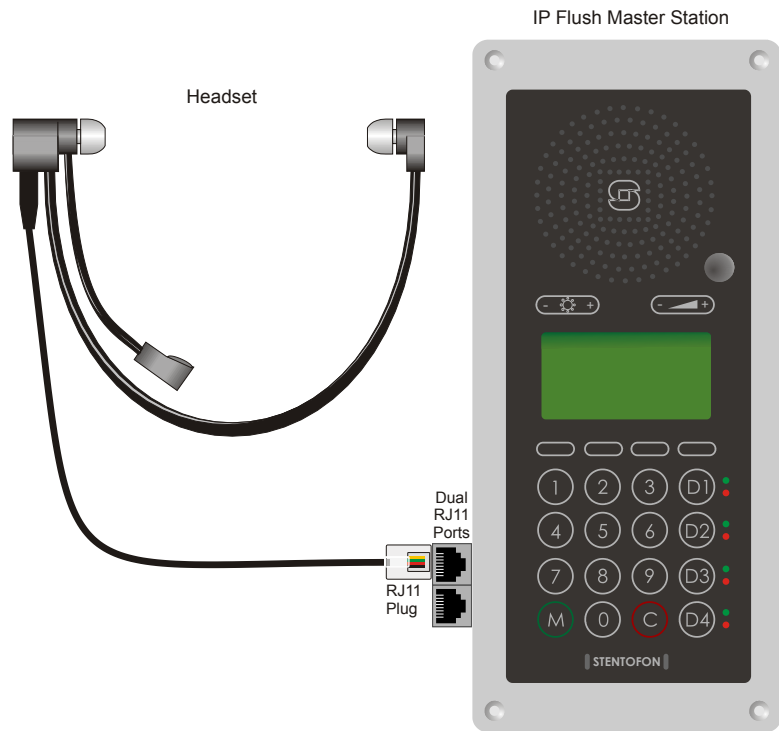
Figure 8 Installing the Handset

## 2.5 Headset

The IP Flush Master Station has an RJ11 port for a Headset accessory.

*✎ Zenitel does not supply headsets. Use headsets with an RJ11 plug.*

To connect the headset, insert the RJ11 plug of the headset into the upper port of the dual RJ11 ports on the lower left of the station.



*Figure 9 Installing the Headset*

Connector pin settings for the headset can be found in *Appendix A: Station Board Connections*.

## 2.6 Gooseneck Microphone for IP Flush Master

- item no. 1008097500

### To install the Gooseneck Microphone:

1. Remove the cover plug from the opening for the microphone on the front panel.
2. Thread the microphone cable through the opening, the lock washer and nut.
3. Tighten the nut on the microphone's threaded stud.
4. Insert the microphone's IDC socket into the upper two pins of the 3-pin header (**J7**) located at the lower left side of the station. The signal wire (**white**) should be on the top pin while the ground wire (**green**) should be on the bottom pin.
5. Slide the **S1** switch (bottom back of station) to **EXT** to activate the external microphone function.

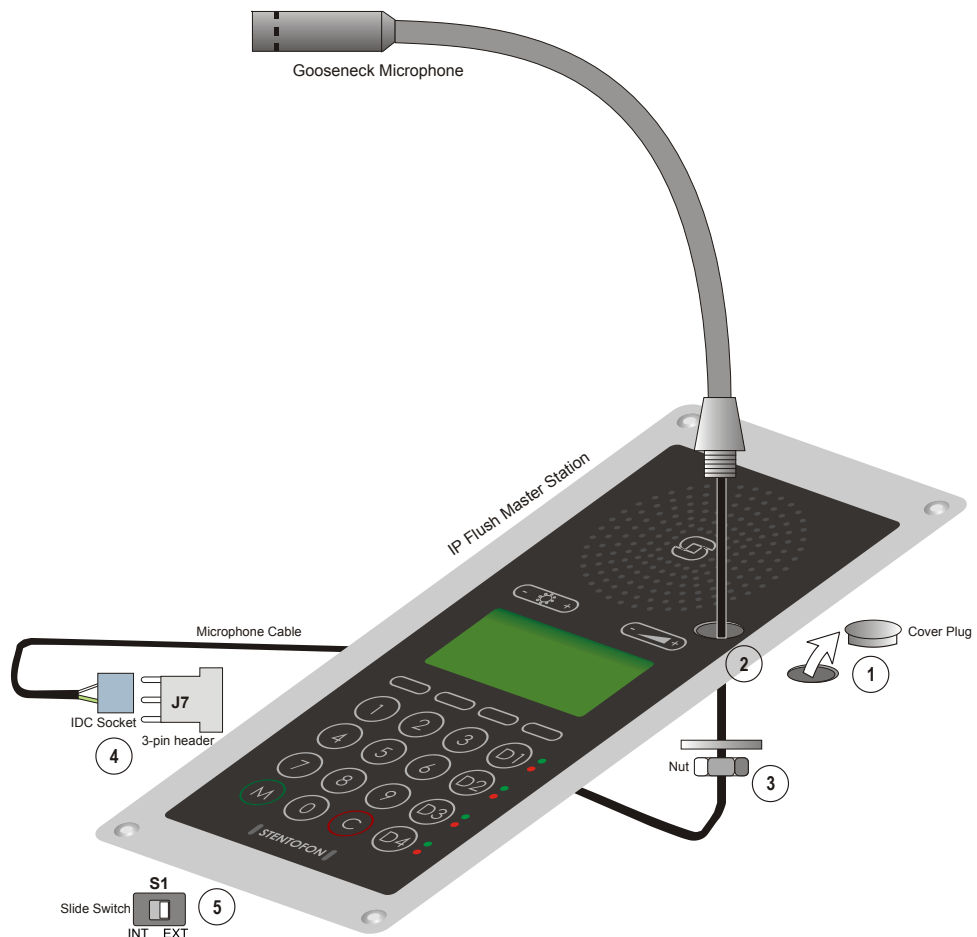


Figure 10 Installing the Gooseneck Microphone for Flush Master

## 2.7 Gooseneck Microphone for IP Dual Display

- item no. 1007007010



### To install the Gooseneck Microphone:

1. Flip the station over so that the bottom side is facing up
2. Slide the tab on the microphone foot into the slot on the side of the station
3. Secure the microphone foot to the station with a screw as shown
4. Plug the microphone jack into the socket just above the RJ45 port

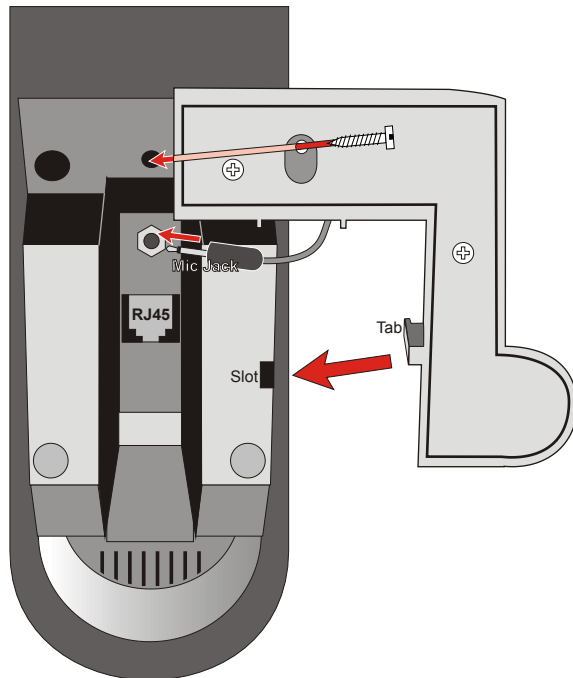


Figure 11 Installing the Gooseneck Microphone for Dual Display

⚠ The internal microphone is automatically disconnected when the gooseneck microphone jack is inserted.

## 2.8 Input/Output Connections

There are I/O connection options for the IP Flush Master Station, the IP OR Master Station, and the IP Master Station Kit.

These connections are used for as relay contacts for door lock control and external I/O devices.

For pin settings on the P3 and P4 connectors on the station board, see *Appendix A Station Board Connections*.

## 2.9 IP DAK-48 Unit

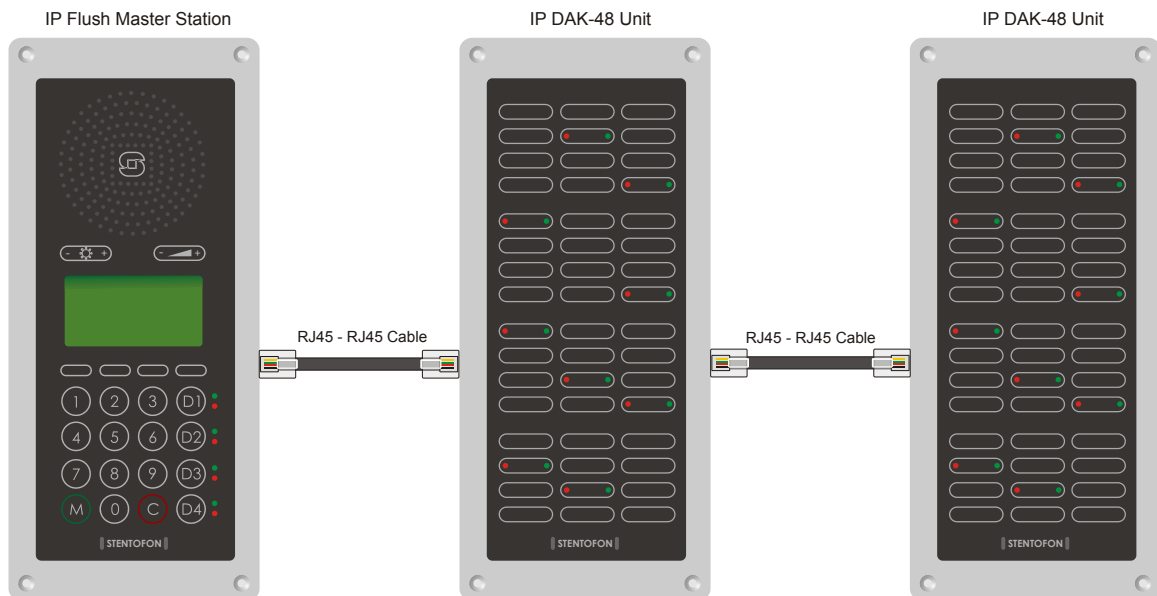
The IP DAK-48 unit expands the IP Flush Master station with an additional 48 Direct Access Keys.

*✎ Before installation, disconnect power from the IP Flush Master station*

The accompanying RJ45-RJ45 cable is used to install the DAK unit on an IP Flush Master station. This cable has an RJ45 plug at both ends. The two ends are interchangeable. Up to two DAK units can be installed per station. Each DAK unit has two RJ45 ports, one located on the left side and one on the right side.

### To install the IP DAK-48 Unit:

1. Plug one end of the RJ45-RJ45 cable into the RJ45 port on the right of the station (when the station is viewed from the front).
2. Plug the other end of the RJ45-RJ45 cable into the left (when the unit is viewed from the front) RJ45 port on the DAK unit.



*Figure 12 Installing the IP DAK-48 Unit*

To add another DAK unit, plug one end of an RJ45-RJ45 cable into the RJ45 port of the installed unit and plug the other end into the RJ45 port of the new unit.

# 3 Configuration

There are two ways of configuring the IP Master Station:

- Using the station keypad
- Using a web browser

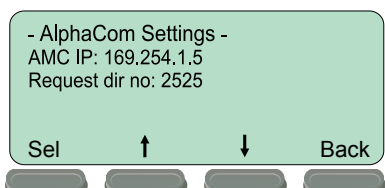
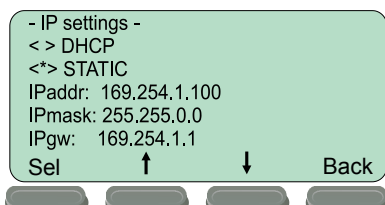
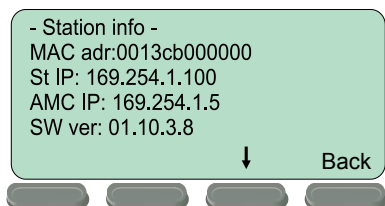
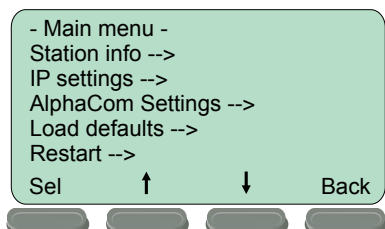
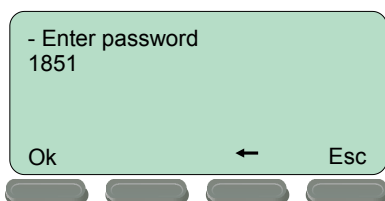
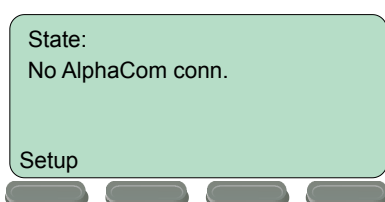
For station configuration, there are essentially three parameters to set:

- AlphaCom IP address
- Station directory number
- Station IP address

*⚠ Advanced configuration settings as described in section 3.3 are not mandatory for the station to function properly.*

## 3.1 Configuration Via Station Keypad

When the IP Master Station is not connected to the AlphaCom exchange, an offline menu is displayed. The offline menu can be used to configure the station and is navigated with the 4 buttons below the display. The button on the left is used as a **Select** or **Ok** button as shown in the display, while the button on the right is used as a **Back** button. The two buttons in the middle are used to navigate up or down according to the arrows. When configuring IP settings, the **M** key is used to insert a “.” (dot) and the **right-middle button** is used to delete a character.



### Main menu

To enter the setup menu:

1. Press the **Setup** button on the left
2. Enter the password **1851**
3. Press the **Ok** button

A menu with five options will be displayed. Use the two arrow buttons in the middle to navigate through the menu options. Press the **Sel** button on the left to select the menu option and the **Ok** button to confirm data entered. When entering data, the left-arrow is used for deleting characters.

### Station info

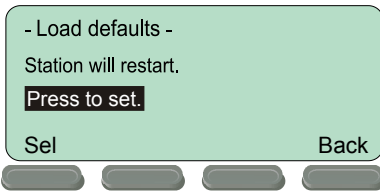
This shows the station MAC and IP addresses, the configured AlphaCom IP address and software version.

### IP settings

Choose between DHCP and STATIC IP address. If STATIC is chosen, it is possible to configure the IP address, mask and gateway.

### AlphaCom Settings

Set the IP address of AlphaCom that the station shall connect to, and the directory number of the station. If a directory number is not entered, the station will register with its MAC address.



### **Load defaults**

This will load the factory default settings.

- Press the **Sel** button to load the default settings.



### **Restart**

This will restart the station.

- Press the **Sel** button to restart the station.

Restart the station to apply new settings.

## **3.2 Configuration Via Web Browser**

### **3.2.1 IP Master Station Web Interface**

The IP Master Station features an embedded web server, which allows users to log in via a standard web browser.

At commissioning, the IP station needs to be configured to enable it to subscribe to an AlphaCom server/exchange. To do this, your PC and the IP station have to be connected together via a PoE switch using network cables:

- Connect the PC to the PoE switch
- Connect the **LAN** port on the IP station to the PoE switch

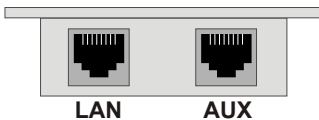


Figure 13 LAN Port on IP Flush/OR Master Stations

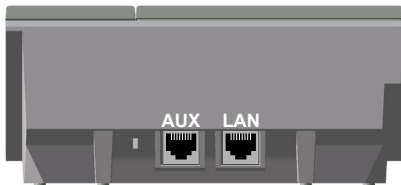


Figure 14 LAN Port on IP Desktop Master Station

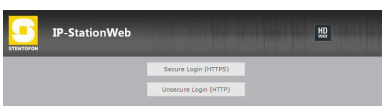
The factory default IP address of the station is **169.254.1.100**. In order for your PC to communicate with the station it is necessary to change its **Internet Protocol Properties** to use an IP address that is in the same range as 169.254.1.100, e.g. 169.254.1.1 with subnet mask 255.255.255.0.

After the IP properties have been changed, access the station by logging into the web interface using a standard web browser:

1. Open a web browser
2. In the browser's address bar, type the default IP address **169.254.1.100** and press the ENTER key
  - The station login page will be displayed.

To log into the station:

1. Click **Login**
2. Enter the default User name: **admin**
3. Enter the default password: **alphaadmin**



The **Station Information** page will now be displayed, showing the IP station configuration including the MAC address which needs to be entered into the AlphaPro programming tool.



Use the menu bar at the top of each page to browse through the different pages.

### 3.2.2 Station Main Settings

- Click **Station Main > Main Settings** to access the page for configuring station mode and IP parameters.

The screenshot shows the 'Station Main Settings' configuration page. The navigation bar at the top includes 'Station Main', 'Station Administration', and 'Advanced Configuration'. The sidebar on the left has 'Station Information' and 'Main Settings'. The main content area is titled 'Station Mode' and contains four radio buttons: 'Use SIP', 'Use Alphacom' (selected), 'Use Pulse', and 'Use Pulse Server'. Below this is the 'Registration Settings' section with 'AlphaCom IP-address' (169-254-1-5) and 'Directory Number' (2525) fields. The 'IP Settings' section has 'DHCP' and 'Static IP' (selected) radio buttons, followed by 'IP-address' (10-5-11-125), 'Subnet-mask' (255-255-255-0), and 'Gateway' (10-5-11-1) fields. A 'Save' button is at the bottom.

#### Station Mode

- Select the **Use Alphacom** radio-button

#### Registration Settings

- Enter the IP address of the AlphaCom server/exchange in which the IP station is to be a subscriber in the **AlphaCom IP-address** field.
- Enter the directory number of the station in the **Directory Number** field.
  - If a directory number is not entered, the station will register with its MAC address. The MAC address is found on the Station Info page and needs to be entered into the AlphaPro programming tool.

#### CCoIP Station – IP Settings

- **DHCP** – Select this option if the IP station shall receive IP Settings from a DHCP server.
- **Static IP** – Select this option if the IP station shall use a static IP address. Enter values for:
  - **IP-address**
  - **Subnet-mask**
  - **Gateway**
- Click **Save** followed by **Apply** to apply the new configuration settings.

## 3.3 Advanced Configuration Options

✎ The configuration settings described in this section are not mandatory.

### 3.3.1 Noise Reduction

Active noise reduction uses advanced signal processing algorithms in the IP stations. These algorithms will try to identify the noise signal (background repetitive audio). When noise is identified, the algorithm filters out the noise while retaining the voice signal. If you set noise reduction at a high level, more of the voice signal will also be filtered out.

The range of filtering levels are from 0 to 7 for the station characteristics to be tuned optimally to the environment. The settings will take effect immediately after being saved, making it easy to test various parameters while the conversation is active.

**Noise Reduction Level** is configured in the web server of the IP station.

- Select **Advanced Configuration > Audio** from the menu

The screenshot shows the 'Advanced Configuration' page with the 'Audio' tab selected. The 'Audio Settings' section contains the following configuration options:

Description	Configuration	
Handset Volume:	2	Restart required
Noise Reduction Level:	4	0 = disabled
Microphone Sensitivity:	5	0 = disabled
Drop X packets:	0	Number of packets to drop when simplex switches from receive to send
Override Amplifier:	<input type="checkbox"/>	Override the amplifier when input 3 is activated

A 'Save' button is located at the bottom right of the configuration area.

#### Noise Reduction Levels

- Level 0 means that noise reduction is disabled
- Level 1 gives a maximum noise reduction of 0.2 dB
- Level 2 gives a maximum noise reduction of 6.2 dB
- Level 3 gives a maximum noise reduction of 12.2 dB
- Level 4 gives a maximum noise reduction of 18.3 dB
- Level 5 gives a maximum noise reduction of 24.3 dB
- Level 6 gives a maximum noise reduction of 30.3 dB
- Level 7 gives a maximum noise reduction of 36.3 dB

By default, the noise reduction level is disabled, i.e. set to 0. In very noisy environments, we recommend setting the noise reduction level to 4. At this level, the audio quality is good when quiet, and when noisy, most of the noise is filtered out.

- Set the level required in the **Noise Reduction Level** scroll-down box and click **Save**.

### 3.3.2 VLAN

VLAN Tagging or IEEE 802.1Q is a networking standard allowing multiple bridged networks to transparently share the same physical network link without leakage of information between networks. IEEE 802.1Q — along with its shortened form *dot1q* — is commonly used to refer to the encapsulation protocol used to implement this mechanism over Ethernet networks.

✎ STENTOFON IP Stations support 802.1Q as from firmware version 01.09.3.0.

## User interface

VLAN is configured in the IP station web interface.

- Select **Advanced Configuration > VLAN** from the menu

Station Main | Station Administration | **Advanced Configuration**

▶ Audio  
▼ **VLAN**  
▶ VAD  
▶ 802.1X  
▶ Firewall  
▶ Keyboard

### CCoIP Station - Switch Enhancement

Apply settings

Enable VLAN

#### Port specific VLAN rules and tagging options

Port	VLAN ID	VLAN priority	Sending filter	Acceptance filter
IP-station	<input type="text" value="3"/>	<input type="text" value="0"/>	<input type="text" value="MEMBERS"/>	<input type="text" value="ALL"/>
LAN	<input type="text" value="1"/>	<input type="text" value="0"/>	<input type="text" value="MEMBERS"/>	<input type="text" value="ONLY TAGGED"/>
AUX	<input type="text" value="2"/>	<input type="text" value="0"/>	<input type="text" value="MEMBERS"/>	<input type="text" value="ONLY TAGGED"/>

IP-station upgrade with VLAN  If set yes, then during upgrade station uses IP-Station VLAN ID to tag/untag packets.

#### VLAN priority tag to switch priority

VLAN priority tag	0	1	2	3	4	5	6	7
Switch priority	<input type="text" value="LOW"/>	<input type="text" value="LOW"/>	<input type="text" value="LOW"/>	<input type="text" value="LOW"/>	<input type="text" value="HIGH"/>	<input type="text" value="HIGH"/>	<input type="text" value="HIGH"/>	<input type="text" value="HIGH"/>

Save VLAN settings

#### Add ports to a VLAN

Port	Membership	Egress tagging
IP-station	<input type="text" value="Not member"/>	<input type="text" value="Remove tag"/>
LAN	<input type="text" value="Not member"/>	<input type="text" value="Remove tag"/>
AUX	<input type="text" value="Not member"/>	<input type="text" value="Remove tag"/>

VLAN ID

Add VLAN

#### Remove VLAN by ID

VLAN ID

Remove VLAN

#### VLAN table

VLAN ID	Membership Info	Egress Tagging Info
1	IP-station, LAN, AUX	

Clicking the **Apply settings** button will apply the chosen settings. With the exception of a restart, the saved settings will not come into effect until **Apply settings** is clicked.

### Enable VLAN

This option determines whether the switch uses 802.1Q or not. If this is enabled, the switch is VLAN aware. Select **YES** or **NO** from the dropdown menu.

### Port specific VLAN rules and tagging options

Here, it is possible to specify which VLAN ID and priority the ports should assign untagged packets to. Tagged packets are not changed.

- **VLAN ID** has a value range from 0 to 4094. It specifies which VLAN ID tag to add to a packet.
- **VLAN priority** has a value range from 0 to 7. It specifies which VLAN priority tag to add to a packet.
- **Sending filter** specifies whether a given port will only send to VLANs which it is a member of or all VLANs. For example, if the chosen option is **MEMBERS** then a packet with VLAN ID 1 at the LAN port will only reach another port which is a member of VLAN ID 1. Select

**MEMBERS** or **ALL** from the dropdown menu.

- **Acceptance filter** specifies whether a port will accept only tagged packets or all packets. The option **ONLY TAGGED** should only be used against VLAN aware devices which tag packets. Select **ONLY TAGGED** or **ALL** from the dropdown menu.
- If the **IP-station upgrade with VLAN** scrolldown box is set to **YES** the IP station will send tagged packets during the upgrade.

### **VLAN priority tag to switch priority**

Here, it is possible to specify how the switch should queue the packets with **VLAN priority tag**.

- **Switch priority**: Select **HIGH** or **LOW** from the dropdown menu. By default, packets with VLAN priority tags from 4 to 7 are set to the **HIGH** priority queue.

### **Add ports to a VLAN**

Here, it is possible to determine whether the ports should be members of the specified VLAN. There is also a setting for specifying whether the ports should strip or keep the VLAN tag when sending egress packets.

- **Membership** determines whether the port is a member of the specified VLAN or not. Select **Not member** or **Member** from the dropdown menu.
- **Egress tagging** determines whether the port should remove VLAN tags or keep them for the specified VLAN. Select **Remove tag** or **Keep tag** from the dropdown menu.

Clicking the **Add VLAN** button will add the current chosen settings to the **VLAN table** below. If a VLAN in the **VLAN table** already exists with the chosen **VLAN ID**, then the settings will be updated.

### **Remove VLAN by ID**

Here, it is possible to determine which VLAN is to be removed from the **VLAN table** by specifying the **VLAN ID**, then clicking the **Remove VLAN** button.

### **VLAN table**

The VLANs that the ports are members of are listed under the **Membership Info** column. The table also lists the ports that keep the VLAN tag when sending egress packets; this is shown under the **Egress Tagging Info** column. The **VLAN table** can accommodate a maximum of 63 VLANs.

⚠ *The DHCP address is received before the switch is VLAN aware (during startup). Either trunk all VLANs or set the DHCP server which should reach the IP station on a native VLAN.*

## **3.3.3 Network Access Control**

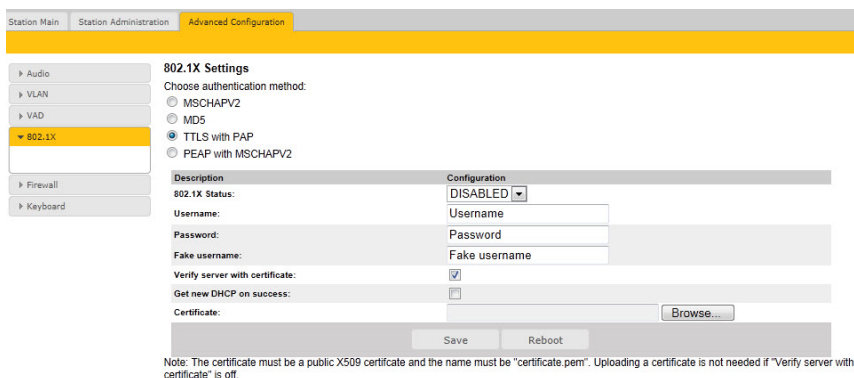
IEEE 802.1X is an IEEE Standard for Port-based Network Access Control (PNAC) By “port” we mean a single point of attachment to the LAN infrastructure. It provides an authentication mechanism to devices wishing to attach to a LAN, either establishing a point-to-point connection or preventing it if authentication fails.

⚠ *STENTOFON IP Stations support 802.1X as from firmware version 01.09.3.0.*

### **User interface**

802.1X Network Access Control is configured from the IP station web interface.

- Select **Advanced Configuration > 802.1X** from the menu.



The radio button list lets the user choose the authentication method to configure and use.

The different authentication methods are:

- MSCHAPV2
- MD5
- TTLS with PAP
- PEAP with MSCHAPV2.

**MSCHAPV2** and **MD5** will encrypt the password.

**TTLS with PAP** and **PEAP with MSCHAPV2** will encrypt both the **Username** and **Password**.

The parameters to configure depend on the authentication method:

**802.1X status:** Enable or disable 802.1X.

**Username:** The user name that identifies a station.

**Password:** The password associated with the user name.

**Fake username:** The fake user name sent outside of encrypted tunnel with **TTLS with PAP** and **PEAP with MSCHAPV2**. The user name is encrypted.

If **TTLS with PAP** or **PEAP with MSCHAPV2** is chosen, a certificate must be uploaded to the station by clicking **Browse**. The certificate must either be in Privacy Enhanced Mail (PEM) or Distinguished Encoding Rules (DER) format, and it must be named *certificate.pem*.

- Click **Save** to save the current settings
- Click **Reboot**
  - The new 802.1X settings will only come into effect after the reboot.

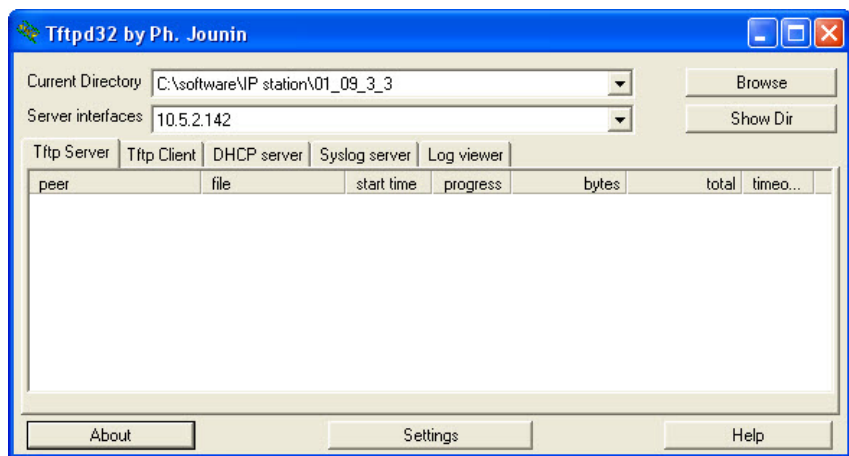
## 4 Software Upgrade

There are two ways of upgrading the software on the IP station:

- Uploading the software via the webserver of the station
- Uploading the software via the web interface (AlphaWeb) of the AlphaCom exchange

### 4.1 Prerequisites

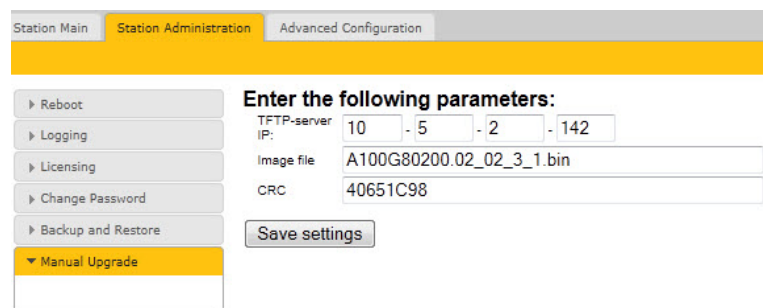
Both upgrade methods require that an TFTP Server is available and that the latest software image file has been downloaded from Zenitel's support website (AlphaWiki). During the upload process, the IP station will connect to the TFTP Server and download the software. The TFTP Server program must already be installed on your PC. A free TFTP Server program can be downloaded from <http://tftpd32.jounin.net>. Before starting the IP station upgrade procedure, the TFTP Server program must be running and the folder where the software image file is located must be selected by using the **Browse** button in the program interface.



### 4.2 Upgrade Via Station Web Server

To upgrade the software from the station web server:

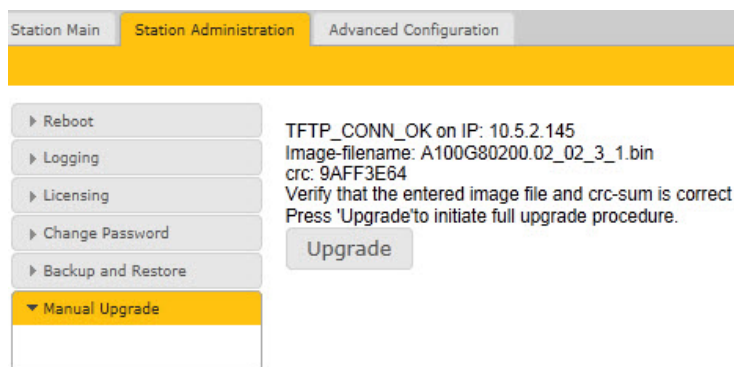
1. Start the TFTP server and browse to the folder where the software file is located
2. Log on to the IP Station web server
3. Select **Station Administration > Manual Upgrade**



4. Enter the IP address of the **TFTP server** (your PC IP address)
5. Enter the name of the software **Image file** (include *bin* file extension)
6. Enter the **CRC** checksum (found in the text file from the downloaded software package)

7. Click **Save settings** to store the data

The station will now try to contact the TFTP server. If the connection cannot be established or the file *tftp\_test.txt* 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.



Click the **Upgrade** button to upgrade the software of the IP station. The upgrade procedure takes about 3 minutes. The transfer process can be monitored by selecting the **Log viewer** tab in the TFTP server program.

### 4.3 Upgrade Via AlphaCom XE

Start the TFTP server and browse to the folder where the software file is located.

Log on to the AlphaCom webserver AlphaWeb:

1. Select **System Upgrade > IP Station Upgrade**
2. Enter the IP address of the **TFTP server**, the filename of the software **Image** and its **CRC** checksum and click **Save**.
3. Select the station to upgrade and click **Update Station List**.
4. Click **Start Upgrade Process**.

The AlphaCom XE exchange will tell the station to contact the TFTP server, download the software image and carry out the upgrade.

A short status description of the process will be displayed in the Upgrade status column. The message *IPST:ERROR* indicates that there is no connection to the TFTP server, or that the *tftp\_test.txt* file is missing from the folder. The transfer process can be monitored by selecting the **Log viewer** tab in the TFTP server program.

- ⚠ *Windows Explorer may be set to hide known file extensions so the file may appear without the **.bin** extension. The name of the software image file has to be entered with the extension **.bin**.*
- ⚠ *During an upgrade, the IP station switch will not be VLAN aware. Make sure the IP station can reach the TFTP server from the native VLAN.*
- ⚠ *During an upgrade of the IP station, 802.1X will not be running. Thus if 802.1X reauthentication is enabled and is performed during the upgrade, the IP station may lose contact with the TFTP server (depending on the configuration when 802.1X authentication fails). If the IP station loses contact with the TFTP server, it will not be upgraded.*

# A: Station Board Connections

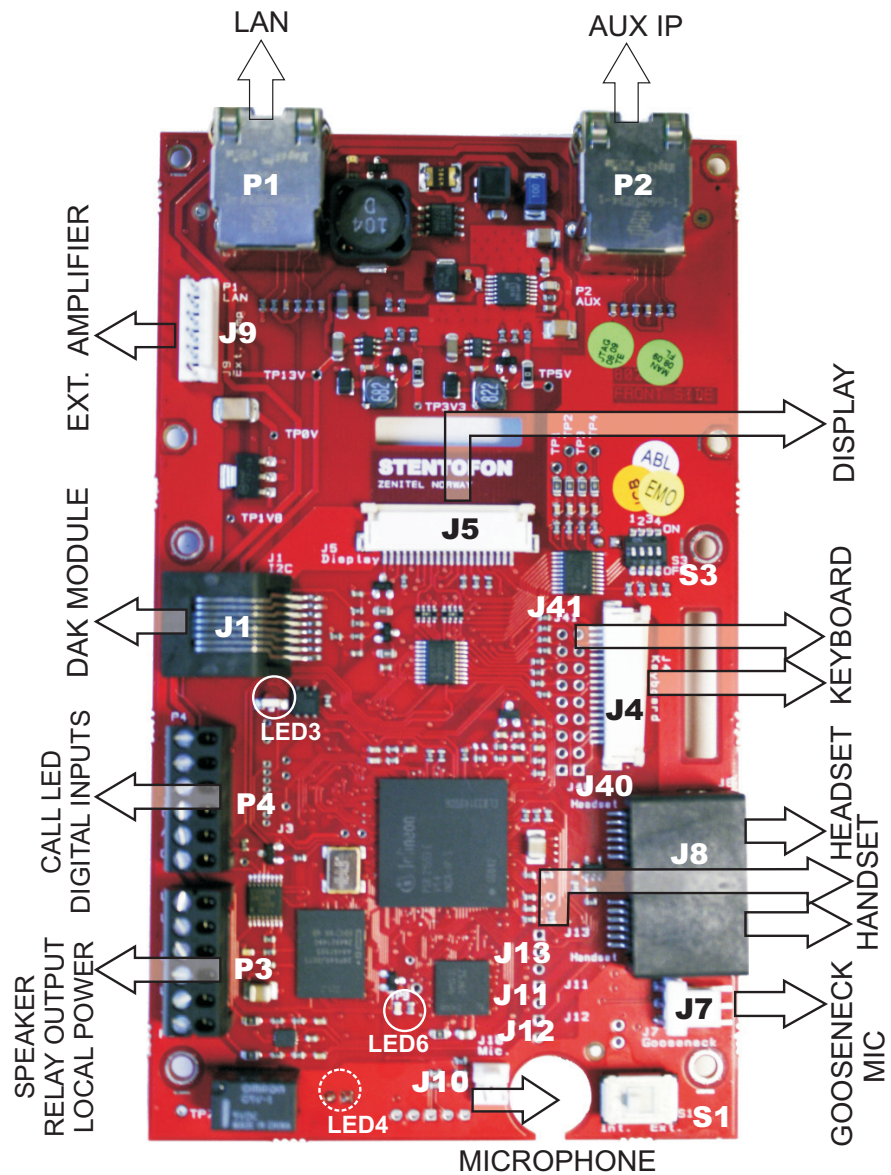
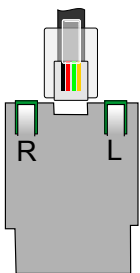
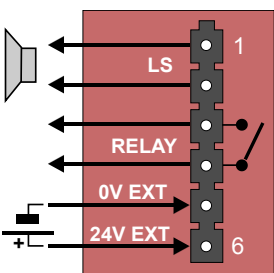


Figure 15 Station Board Connections



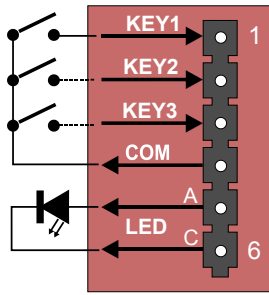
- P1** RJ45 LAN connector for 10/100 Mbit Ethernet connection. The station can be powered from this connection if the line supports Power over Ethernet (PoE).  
The connector has two LEDs in front where the right (R) LED indicates Ethernet speed and the left (L) LED verifies Ethernet link and traffic. (L and R as seen from the connector side).
- P2** RJ45 connector for auxiliary equipment like IP camera, PC or a second IP station. This port does not have an individual IP address. It does not carry power for AUX equipment.



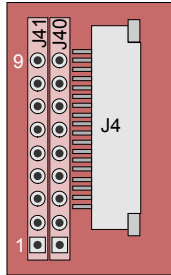
- P3** 6-pin plug-on screw terminal for external connections.
  - Pin 1/2 Connect to 1.5 W loudspeaker. Typical impedance: 8 Ω Recommended impedance: 6-25 Ω.
  - Pin 3/4 Internal NO relay contact for door lock control etc.



Pin 5/6 Connect 24 VDC for station power if PoE is not used. Pin 6 is positive.



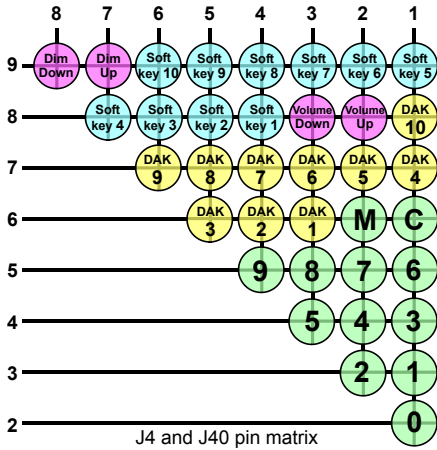
- P4** 6-pin plug-on screw terminal for external connections.
- Pin 1/4 Input 1
  - Pin 2/4 Input 2
  - Pin 3/4 Input 3
  - Pin 5/6 Station LED for call message info.



- J4** 18-pin ZIF-connector for keyboard. The keyboard may have up to 10 dialling keys, M and C keys, 10 DAK keys, 10 soft keys, volume up/down and light dim up/down keys connected in a matrix according to the drawing.

**J40** Optional keyboard connection.

**J41** Optional DAK LED connection. Connection to J40/J41 can either be to a pin header or soldered directly to holes in the PCB.



J4 & J40 pin1-9 Keyboard matrix

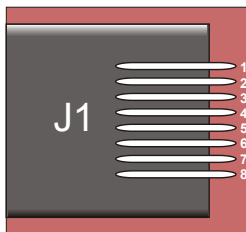
- J4/10 - J41/1 DAK1 Green LED
- J4/11 - J41/2 DAK1 Red LED
- J4/12 - J41/3 DAK2 Green LED
- J4/13 - J41/4 DAK2 Red LED
- J4/14 - J41/5 DAK3 Green LED
- J4/15 - J41/6 DAK3 Red LED
- J4/16 - J41/7 DAK4 Green LED
- J4/17 - J41/8 DAK4 Red LED
- J4/18 - J41/9 Common +3.3 V

The DAK keys and the DAK LEDs are programmed using IND commands in the Event Handler. DAKs 1 to 4 and Soft keys 1 to 4 are used in current master stations.

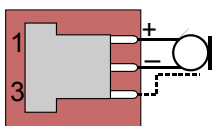
Privacy on/off is accomplished by pressing the **C** key for 3 seconds. A **(P)** is shown in the display during Privacy mode.

**J5** 20-pin ZIF connector for LCD display. Separate display panels are available as a kit of 5 units (order no. 100 8099 000).

**J1** RJ45 Connector for I2C interface. Used for connection of DAK modules.

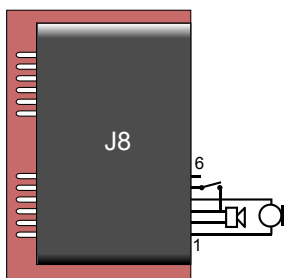


- Pin 1 GND
- Pin 2 A0 (GND)
- Pin 3 A1 (GND)
- Pin 4 NC (GND)
- Pin 5 IRQ
- Pin 6 SCL (Clock)
- Pin 7 SDA (Data)
- Pin 8 +13 V



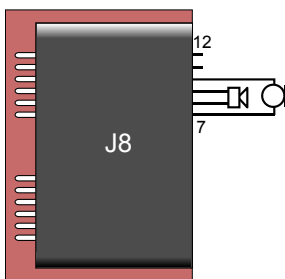
- J7** 3-pin header for connecting gooseneck microphone.
- Pin 1 MIC+
  - Pin 2 MIC-
  - Pin 3 GND

**J8** Dual RJ11 for handset and headset.  
Handset can optionally be connected via J11, J12 and J13.



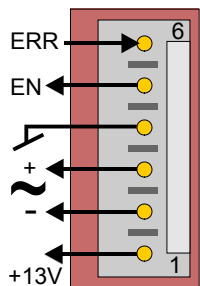
**Handset:**

- Pin 1 Mic+
- Pin 2 Spk+
- Pin 3 Spk- (0 V)
- Pin 4 Mic-
- Pin 5 Hook-switch (must be connected to pin 3 with a switch)
- Pin 6 PTT (May not be supported by SW)



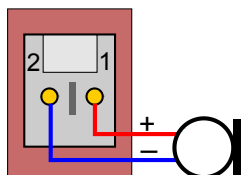
**Headset:**

- Pin 7 Mic+
- Pin 8 Spk+
- Pin 9 Spk-
- Pin 10 Mic-
- Pin 11 PTT Ground
- Pin 12 PTT (May not be supported by SW)



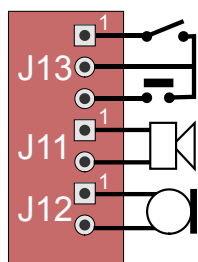
**J9** 6-pin header for connecting external amplifier.  
12V/5W can be supplied to the external amplifier.  
Signal to amplifier is balanced 0dBm 600 ohm.

- Pin 1 +13 V max. 500 mA to amplifier
- Pin 2 LSN negative line
- Pin 3 LSP positive line
- Pin 4 GND
- Pin 5 AMP\_EN enable signal to amplifier
- Pin 6 AMP\_ERR error signal from amplifier



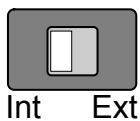
**J10** Internal microphone

- Pin 1 MIC+
- Pin 2 MIC-

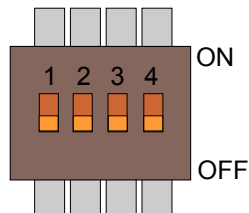


**J11, J12, J13** Pin header for handset connection.  
Same as J8 pin 1 - 6.

- J11 Pin 1 Spk+
- J11 Pin 2 Spk-
- J12 Pin 1 Mic+
- J12 Pin 2 Mic-
- J13 Pin 1 OFFHOOK
- J13 Pin 2 GND
- J13 Pin 3 PTT



**S1** Slide-switch to select internal microphone (Int) or gooseneck microphone (Ext).



**S3** 4-way DIP switch for future use.  
Leave all in default OFF position.

## B: Station Indication LEDs

---

### B.1 Station LED

LED4 - Red 5mm LED on board rear side, also seen through front plate.

#### Blinking at 1 second intervals

- Station has no connection to the AlphaCom XE exchange.

Possible reasons:

- No connection to Ethernet
- Wrong AlphaCom IP address configured
- Invalid IP address
- No gateway or wrong gateway to the AlphaCom XE exchange



#### Blinking at 5 second intervals

- Station connected but NOT registered in the AlphaCom XE exchange.

Reason:

- Station has not been programmed in AlphaPro
- Missing IP Station license in AlphaCom XE exchange

#### No blinking

Possible reasons:

- Station connected and registered to the AlphaCom XE exchange
- Station not powered up (if no other LEDs are active)

### B.2 Status LED

LED3 – Bicolor SMD LED on board component side.

#### Blinking 2 red + 1 green

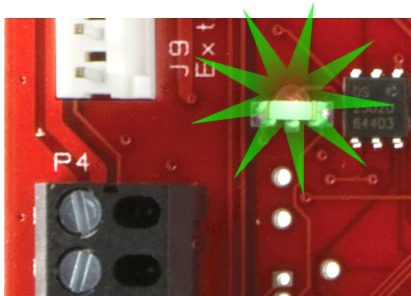
- Station has no connection to the AlphaCom XE exchange.

#### Blinking 1 red + 2 green

- Station connected but NOT registered in the AlphaCom XE exchange.

#### Blinking 3 green

- Station connected and registered in the AlphaCom XE exchange



### B.3 Power LED

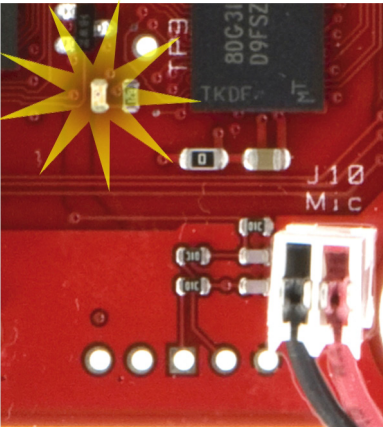
LED6 – Yellow SMD LED on board component side.

Light: 13 V board power OK.

No light: 13 V board power faulty if no other LEDs are lit.

Possible reasons:

- 24 VDC or PoE not connected
- Faulty board



### B.4 LAN LEDs

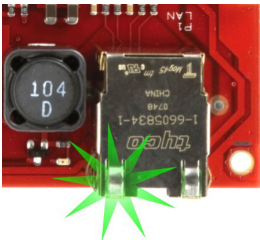
These LEDs are on the LAN (P1) and AUX (P2) RJ45 ports.

#### Left LED

Steady light: Ethernet connection OK

Blinking: Ethernet traffic

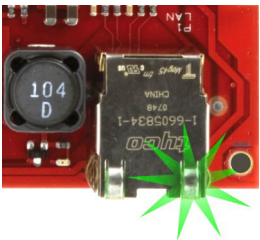
No light: No Ethernet connection



#### Right LED

Light: 100 Mbit Ethernet connection

No light: 10 Mbit Ethernet connection



## C: Dimensions & Mounting Instructions

	Dimensions (WxHxD)	Weight
IP Desktop Master with handset	225 x 176 x 75 mm	0.7 kg
IP Desktop Master	168 x 176 x 75 mm	0.5 kg
IP Flush Master	125 x 280 x 33 mm	0.63 kg
IP OR Master	125 x 280 x 30 mm	0.63 kg
IP Dual Display Station	72 x 270 x 139 mm	0.4 kg
Master Station Kit	88 x 152 x 20 mm	250 g
Gooseneck Microphone	300 mm (length)	0.09 kg
DAK-48 Unit	125 x 280 x 30 mm	0.65 kg
Handset - IP Flush Master	67 x 280 x 41 mm	0.4 kg

Table 3 Station Dimensions

### C.1 IP Desktop Master Station with Handset

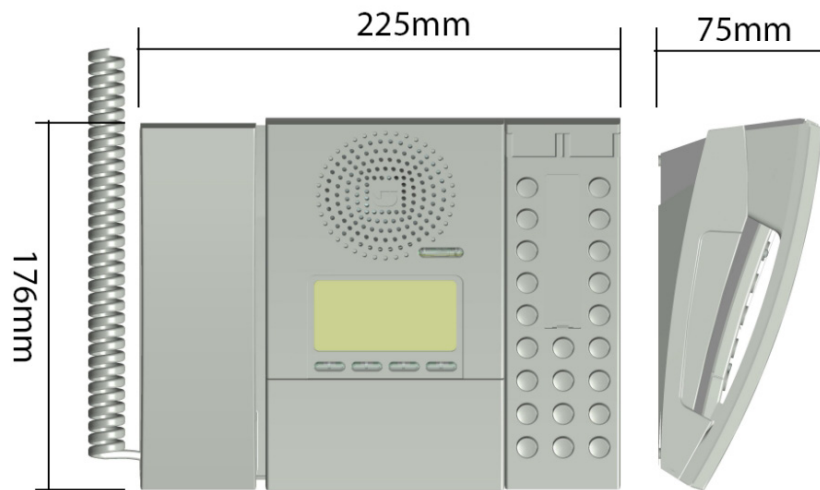


Figure 16 IP Desktop Master with handset - Dimensions

### C.2 IP Desktop Master (Handset) Wall Mounting

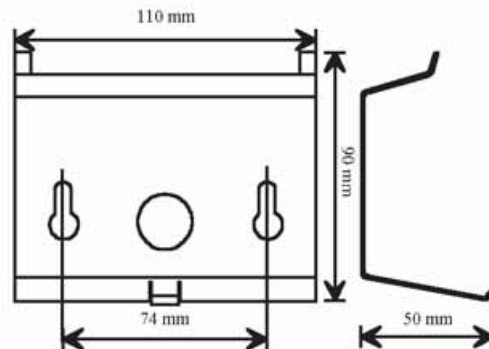


Figure 17 IP Desktop Master (handset) Wall Mounting

### C.3 IP Desktop Master Station

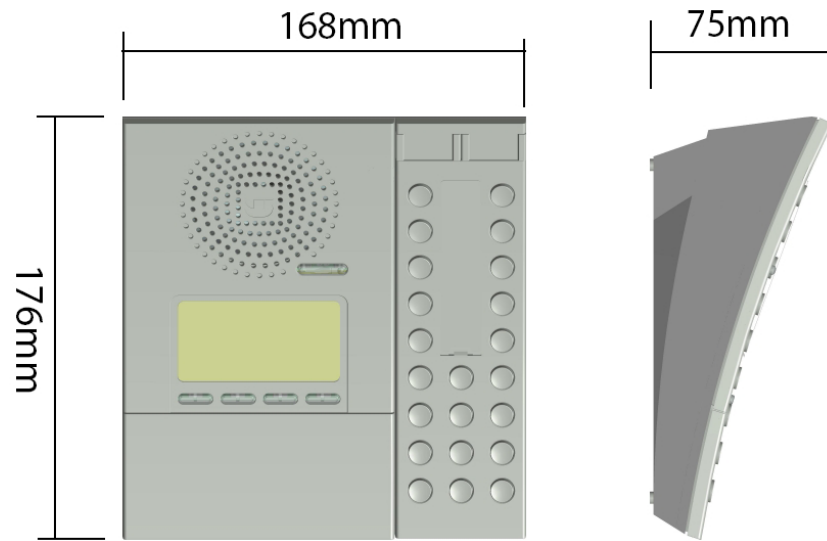


Figure 18 IP Desktop Master - Dimensions

### C.4 IP Desktop Master Wall Mounting

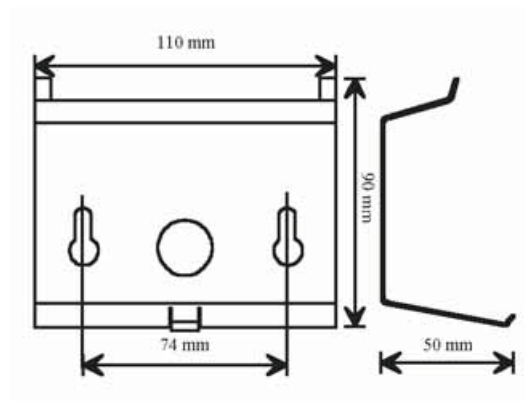


Figure 19 IP Desktop Master Wall Mounting

## C.5 IP Flush Master Station

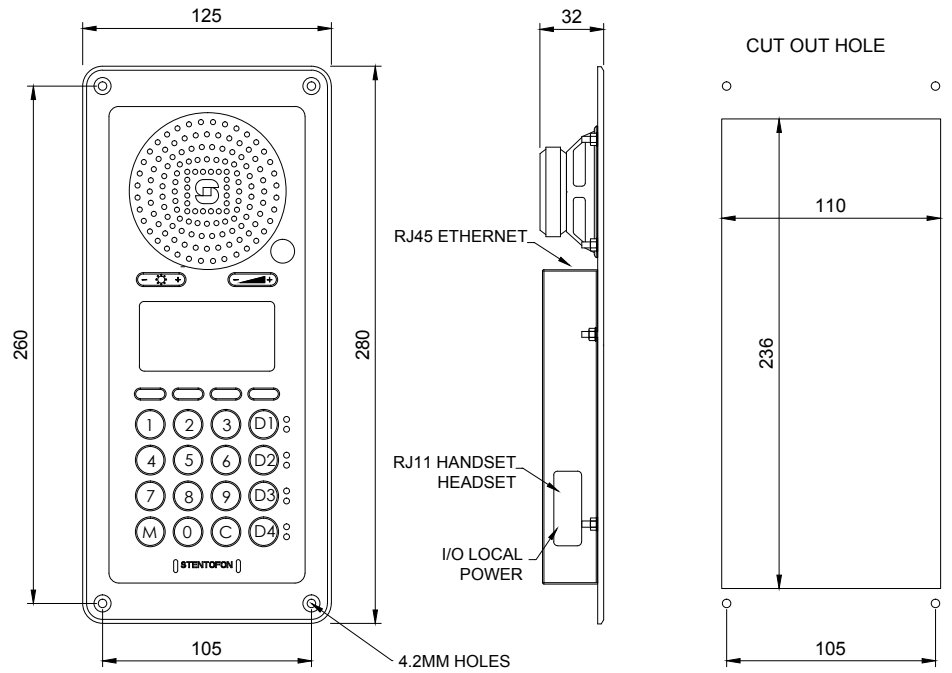


Figure 20 IP Flush Master - Dimensions

## C.6 IP Flush Master Station and Handset Backboxes

Backboxes for flush mounting, surface mounting, as well as the handset are available for the IP Flush Master Station.

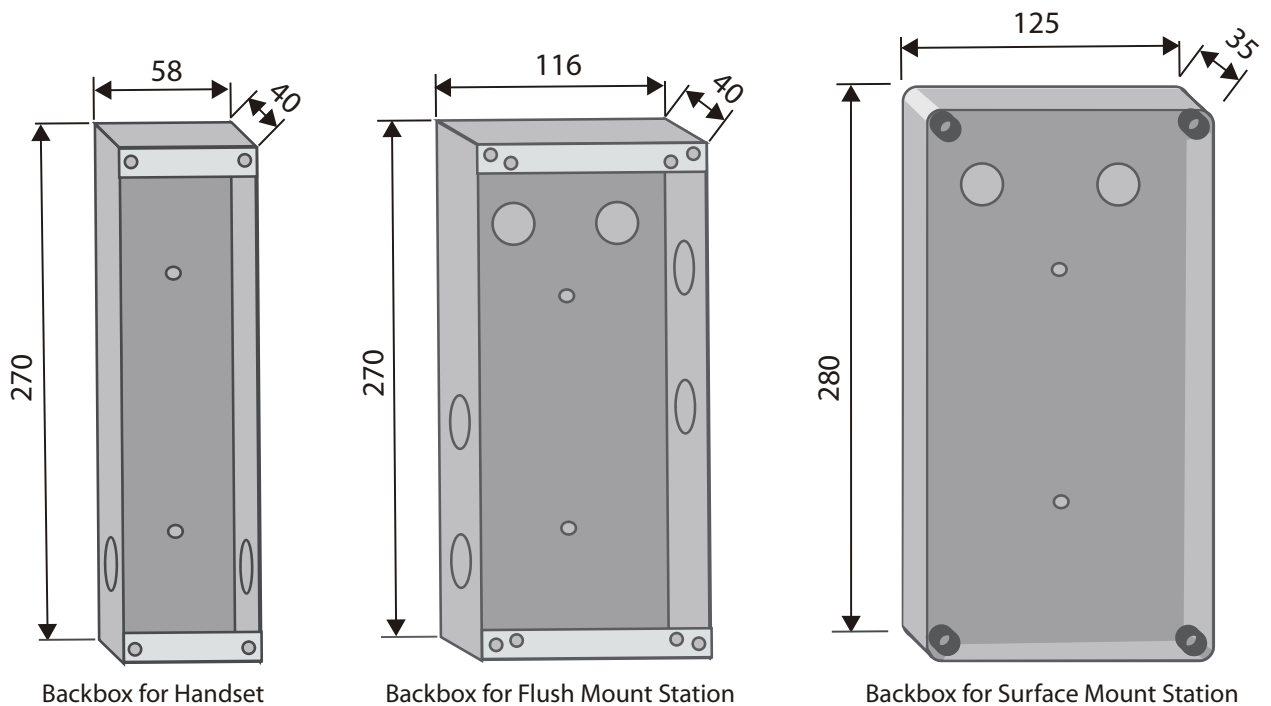


Figure 21 IP Flush Master - Backboxes

## C.7 IP OR Master Station

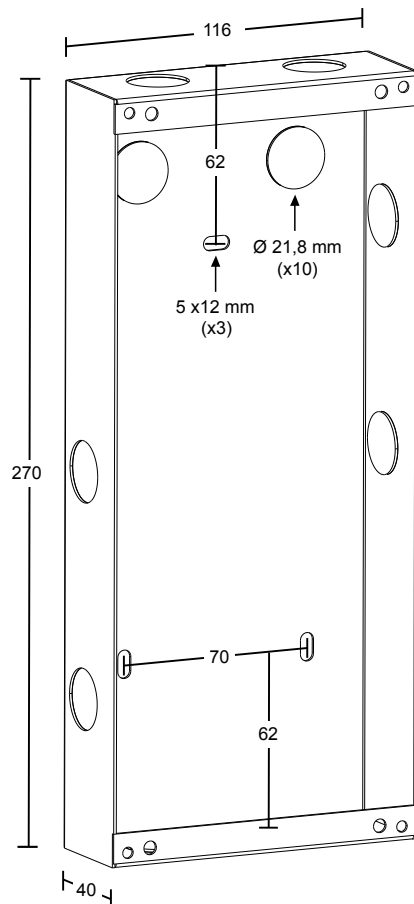


Figure 22 Flush Mount Backbox for IP OR Master Station

## C.8 Mounting & Demounting the IP OR Station

The station is securely fastened to the backbox using the four retention pegs supplied.

To mount the station:

1. Insert the four plastic retainers into the larger and inner of the holes at each corner of the backbox.
2. Align the four retention pegs with the four plastic retainers and push the station down until flush with the backbox.

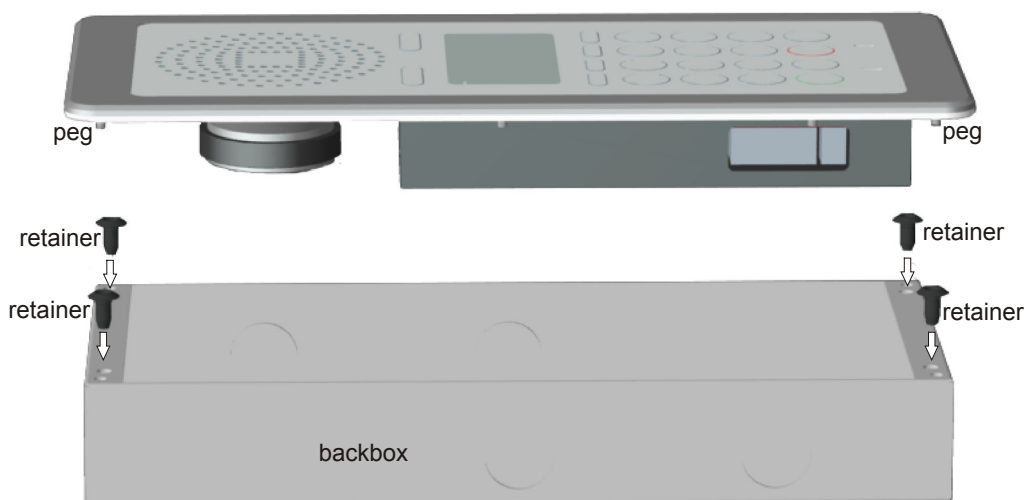


Figure 23 Mounting the IP OR Master Station



To demount the station, follow the instructions precisely:

1. Using a flat-head screwdriver, gently pry loose each retention peg from the four corners. Make sure to pry loose each peg gradually so that all four pegs remain at an even plane during the whole process.
2. When the retention pegs are loose enough, lift the station out, making sure to keep the station at an even plane as it is lifted out from the backbox.

**Caution!**

**Do not lift the station at an angle as this may damage the pegs.**

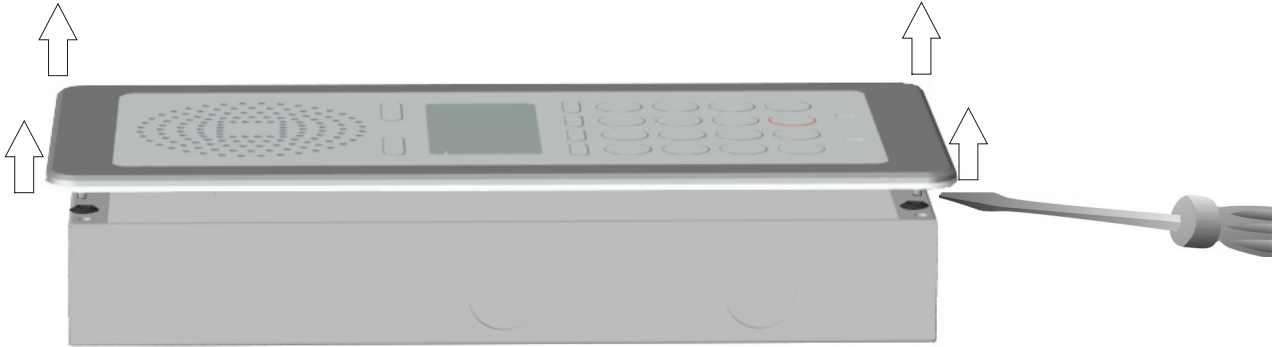


Figure 24 Demounting the IP OR Master Station

## C.9 IP Dual Display Station

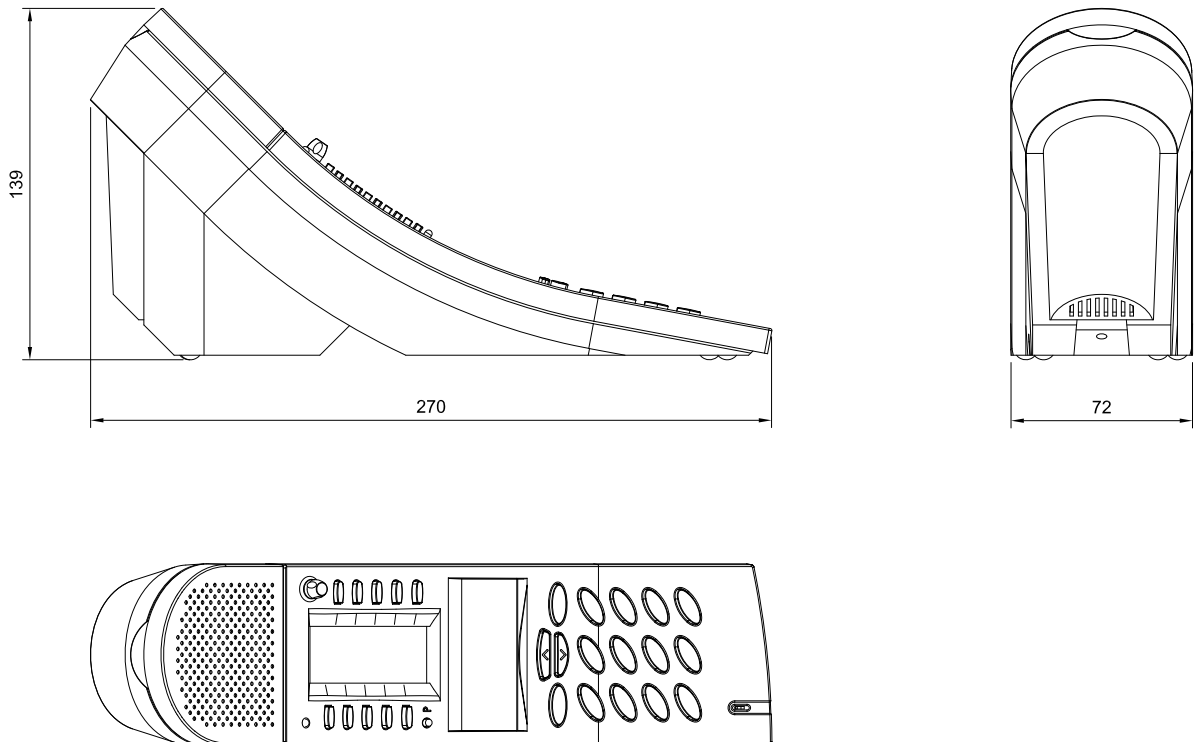


Figure 25 IP Dual Display Station - Dimensions

# C.10 IP Master Station Kit

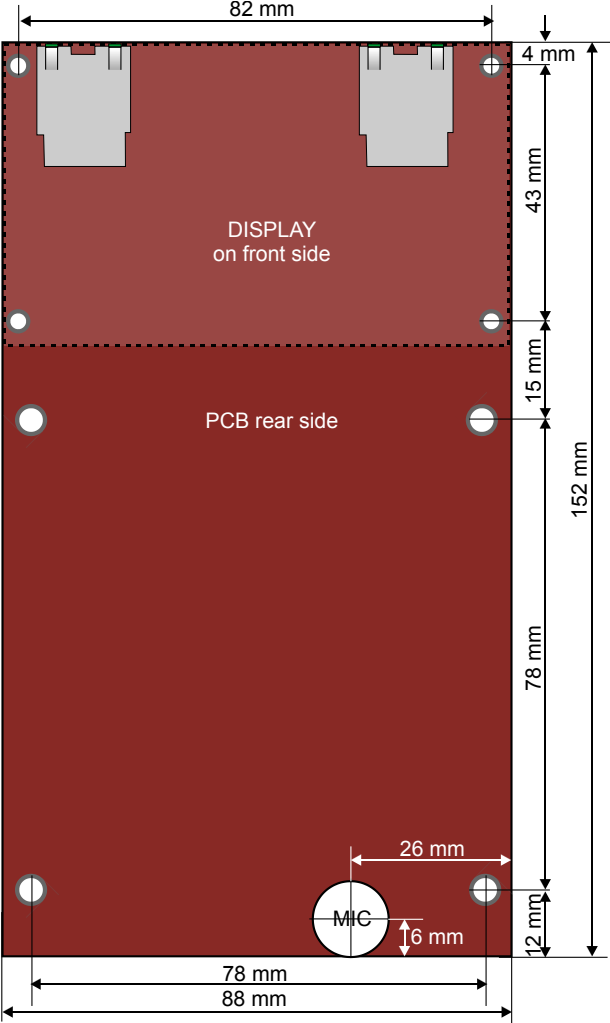
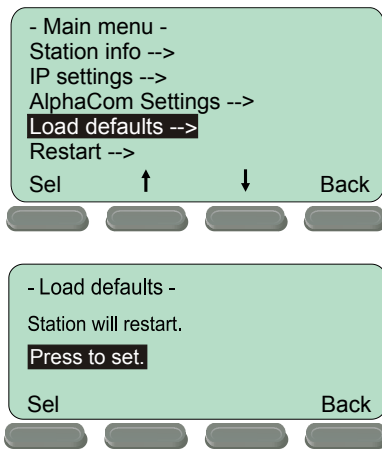


Figure 26 IP Master Station Kit PCB Dimensions

## D: Restoring Factory Defaults

An IP Station may have to be reset to its original factory default settings if, for instance, the password to the web server is forgotten.

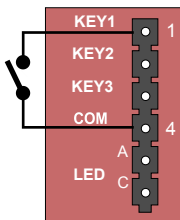
- Connect 24 VDC to P3 5/6 to power the station.



### Stations with display

1. Make sure the IP Station is disconnected from the AlphaCom XE exchange.
2. Press the **Setup** button beneath the display
3. Enter the password **1851** and press the **Ok** button.
4. Navigate to **Load defaults** and press the **Sel** button.
5. Press the **Sel** button to load factory defaults.

The station will now restart with factory settings.



### Stations without display

1. Connect a switch (KEY1) between pin 1 and 4 on the P4 connector.
2. Keep KEY1 pressed while powering up the station.
3. Release KEY1 after precisely two blinks of the station LED, then press KEY1 briefly again.

The station will come up with the factory settings.

# E: Station & Accessory Specifications

## E.1 IP Desktop Master (with & without Handset)

Dimension (WxHxD)	168 x 75 x 176 mm / 225 x 75 x 176 mm (with Handset)
Weight	0.5 kg / 0.7 kg (with Handset)
Display	Backlit display, 35 x 68 mm (64 x 128 pixels)
Temperature range	0°C - 55°C
Power	Power over Ethernet, IEEE 802.3 a-f, Class 0 Local power 19 – 27 VDC, Idle 4W, max. 8W
Connectors	2 x RJ45 (Ethernet) 10/100 Mbps
IP protocols	IP v4 - TCP - UDP - HTTPS – TFTP - RTP - RTCP -DHCP - SNMP - DiffServ - TOS – STENTOFON CCoIP®
LAN protocols	Power over Ethernet (IEEE 802.3 a-f), VLAN (IEEE 802.1pq), Network Access Control (IEEE 802.1x), STP (IEEE 802.1d), RSTP (IEEE 802.1d-2004)
Audio technology	Wideband 200 Hz - 7 kHz (G.722) Telephony 3.4kHz (G.711) Active noise filtering Acoustic echo cancellation Open duplex Adaptive jitter filter Handset and volume override
Audio output	1.5 Watt, 85 dB audio pressure 1m from speaker
Management and operation	HTTPS (Web configuration) DHCP and static IP Remote automatic software upgrade Centralized monitoring Status LED
Advanced features	Dual port managed data switch supporting VLAN and network access control

## E.2 IP OR Master Station

Dimensions: (WxHxD)	125 x 280 x 30 mm
Weight	0.63 kg
User interface	Backlit graphical display, 35 mm x 68 mm, 4 function keys, 4 programmable direct access keys (DAK), Full keypad, Call indication LED
Temperature Range	0°C- 45°C
Protection class	IP-65 front access (silicone must be used around edges when mounting)
Power	Power over Ethernet, IEEE 802.3 a-f, Class 0 Local power 19 – 27 VDC, Idle 4W, max. 8W
Connectors	RJ45 (Ethernet) - RJ11 (Handset & Headset) Pluggable screw terminals (I/O local power)
IP protocols	IP v4 - TCP - UDP - HTTPS – TFTP - RTP - RTCP -DHCP - SNMP - DiffServ - TOS – STENTOFON CCoIP®
LAN protocols	Power over Ethernet (IEEE 802.3 a-f), VLAN (IEEE 802.1pq), Network Access Control (IEEE 802.1x), STP (IEEE 802.1d), RSTP (IEEE 802.1d-2004)
Audio technology	Wideband 200 Hz - 7 kHz (G.722) Telephony 3.4kHz (G.711) Active noise filtering Acoustic echo cancellation Open duplex Adaptive jitter filter Volume override
Audio output	1.5 Watt - 75 dB @ 1 m from speaker
Management and operation	HTTPS (Web configuration) DHCP and static IP Remote automatic software upgrade Centralized monitoring Status LED
Advanced features	Dual port managed data switch supporting VLAN and network access control

## E.3 IP Flush Master Station

Dimensions (WxHxD)	125 x 280 x 33 mm
Weight	0.63 kg
Temperature Range	5° C to +45° C
User interface	Backlit graphical display, 35 mm x 68 mm, 4 function keys, 4 programmable direct access keys (DAK), Green/Red status LED per DAK, Full keypad, Call indication LED
Power	Power over Ethernet, IEEE 802.3 a-f, Class 0 Local power 19 – 27 VDC, Idle 4W, max. 8W
Connectors	RJ45 (Ethernet) - RJ11 (Handset & Headset) Pluggable screw terminals (I/O local power)
IP protocols	IIP v4 - TCP - UDP - HTTPS – TFTP - RTP - RTCP -DHCP - SNMP - DiffServ - TOS – STENTOFON CCoIP®
LAN protocols	Power over Ethernet (IEEE 802.3 a-f), VLAN (IEEE 802.1pq), Network Access Control (IEEE 802.1x), STP (IEEE 802.1d), RSTP (IEEE 802.1d-2004)
Audio technology	Telephony 3.4kHz (G.711) Active noise filtering Acoustic echo cancellation Open duplex Adaptive jitter filter Volume override
Audio output	1.5 Watt - 75 dB @ 1 m from speaker
Management and operation	HTTPS (Web configuration) DHCP and static IP Remote automatic software upgrade Centralized monitoring Status LED
Advanced features	Dual port managed data switch supporting VLAN and network access control

## E.4 IP DAK-48 Unit

Dimension (WxHxD):	125 x 280 x 30 mm
Weight	0.65 kg
Temperature range	0°C to +55°C
Power	Powered over connection cable from IP Flush Master Station
Connectors	RJ45, one in and one out
Backlight	White backlight
Installation	RJ45 terminated cable between IP Flush Master Station and DAK module. 2 modules can be daisy chained (included)
Software	All software for the DAK module is located in the IP Flush Master Station

## E.5 IP Dual Display Station

Dimensions: (W x H x D)	72 x 270 x 139 mm / 2.8 x 10.6 x 5.5 inches
Weight	0.4 kg
Temperature range	0°C - 55°C / 32°F - 131°F
Max SPL	85 dB at 1m
Loudspeaker Impedance	8 ohm
Frequency Range	300 - 7000 Hz
Connector	1 x RJ45 (Ethernet) 10/100 Mbps
Direct access display	10 lines, 5-8 characters graphic
Information display	4 lines, 20 characters graphic
Power consumption	Power over Ethernet, IEEE 802.3 a-f, Class 0, Idle 4W, max. 8W
IP protocols	IP v4 - TCP - UDP - HTTPS – TFTP - RTP - RTCP -DHCP - SNMP - DiffServ - TOS – STENTOFON CCoIP®
LAN protocols	Power over Ethernet (IEEE 802.3 a-f), VLAN(IEEE 802.1pq), Network Access Control (IEEE 802.1x), STP (IEEE 802.1d), RSTP (IEEE 802.1d-2004)
Audio technology	Wideband 200 Hz - 7 kHz (G.722) Telephony 3.4kHz (G.711) Active noise filtering Acoustic echo cancellation Open duplex Adaptive jitter filter Handset and volume override
Management and operation	DuHTTPS (Web configuration) DHCP and static IP Remote automatic software upgrade Centralized monitoring Status LED

## E.6 IP Master Station Kit

Dimensions (WxHxD)	88 x 152 x 20 mm (PCB)
Weight	250 g (PCB)
Temperature	0°C - 55°C
Power	Power over Ethernet, IEEE 802.3 a-f, Class 0, Local 19-27 VDC power, Idle 4 W, max. 13 W (ext. amplifier), 6W power out to external units
Connectors	Ethernet: 2 x RJ45 10/100 Mbit/sec Handset: R J11 Headset: R J11 Microphone: 3-pin plug (Electret, dynamic) Loudspeaker: Plugable screw terminal (1.5 W, 8 Ohm) 24 VDC in, 1 relay out: 6-pin plugable screw terminal LED, 3 inputs: 6-pin plugable screw terminal Gooseneck microphone: 3-pin IDC (Electret) Display: 20-pin ZIF Keyboard: 18-pin ZIF + solder holes (Digits 0-9 + M and C , 10 DAK, 4 softkeys, volume control, backlit control) Audio out: 6-pin IDC (0 dB / 600 Ohm, 13 V power out) I2C bus: 6-pin mini (DAK modules, relay modules, +3.3 V power output)
IP protocols	IP v4 - TCP - UDP - HTTPS – TFTP - RTP - RTCP -DHCP - SNMP - DiffServ - TOS – STENTOFON CCoIP®
LAN protocols	Power over Ethernet (IEEE 802.3 a-f), VLAN (IEEE 802.1pq), Network Access Control (IEEE 802.1x), STP (IEEE 802.1d), RSTP (IEEE 802.1d-2004)
Audio technology	Wideband 200 Hz - 7 kHz (G.722) Telephony 3.4kHz (G.711) Active noise filtering Acoustic echo cancellation Open duplex Adaptive jitter filter Volume override
Management and operation	HTTPS (Web configuration) DHCP and static IP Remote automatic software upgrade Centralized monitoring Status LED
Advanced features	Dual port Ethernet switch Support for external PA amplifier Support for external smart PA amplifier with switching and status Support for external display modules Support for external I/O modules

## F: User Quick Reference

Functions	Actions
Programming Direct Access Keys	784 + number + press DAK
Make a call	Dial subscriber number
High background noise level	Press M when you speak
End a call	C
Re-dial	9532
All Call	84 + M to speak
Group Call	85-89 + M to speak
Answer All Call / Group Call	99
Paging	Subscriber number + 44-47
Answer Paging	96 or answer code shown in display
Radio Programs	801-806 (off: C or 800)
Connect to telephone	0
Call Forwarding	71 + station number + M
Follow Me	72 + own number
Reset Call Forward / Follow Me remotely	73 + station number
Play back messages / Delete absence message	70
Wake-up / reminder within 24 hours	7883 + hour + minute + M
Wake-up / reminder after 24 hours	7883 + hour + minute + day + month
Call Request	623 + station number
Call Request transfer	7870
Conference, Simplex	8201 - 8250 (Off: 8200) M to speak
Conference, Duplex	8301 - 8320 (Off: 8300) C to leave
Ringling Group	6701 - 6710
Alphabetical Name Search	614

Number or key to press during conversation			
Mute/Unmute microphone / Menu step	0	Paging with calling station number	44
Repeat absence message	1	Paging with answer	45
Inquiry Call & Broker Function	2	Text message paging	46
Call Transfer	3	Voice message paging	47
Door opening	6	Remotely change message	50
Leave voice/text message	7 + 66X	Remotely read message	51
Call Back	8	Busy Notify	57 or M
Search	9	Busy Override	58 or MM
		Private/Message Override	59 or M

Absence messages		Standard voice and text messages	
Out at the moment (until time: hhmm)	771	Contact the switchboard	660
At a meeting (until time: hhmm)	772	Call phone number xxxxxxxx	661
Gone for the day (Back tomorrow at time: hhmm)	773	Call home	663
Absent today (until date: ddmm)	774	Call your spouse	664
Busy at the moment (until time: hhmm)	775	Call me	666
At lunch (until time: hhmm)	776	Remember meeting (at time: hhmm)	667
On holiday (until date: ddmm)	777	There is a fax for you	668
Away for a few days (until date: ddmm)	778	There are deliveries for you	669
Not available (Available on phone number: xxxx)	779		

✎ The numbers on this page are factory default settings and may have been changed in your AlphaCom exchange installation.

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