

Technical Manual



A100K10300/1.1

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**AlphaCom
Prison Communication System**

Table of Contents

1	INTRODUCTION.....	4
2	PRISON COMMUNICATION SYSTEM.....	5
2.1	System Integration	5
2.2	System Layout.....	6
2.2.1	Modularity	6
2.2.2	AlphaNet - Distributed System Layout.....	6
2.3	System Functions.....	7
2.3.1	Call functions	7
2.3.2	Error messages and logging.....	7
2.3.3	Full data retrieval in case of power failure.....	7
2.3.4	Public address system.....	7
2.3.5	Listen-in	8
2.3.6	Database for prisoner data	8
2.4	Degradation Mode and Signalling	8
2.4.1	Intercom.....	8
2.4.2	Light signaling.....	8
2.4.3	Data communication	8
2.5	System Maintenance - AlphaPro.....	9
3	CONTROL ROOM.....	10
3.1	Overview Control Desk.....	10
3.2	AlphaVision	10
3.3	Day / night mode	10
3.4	Call forward	10
3.5	Call escalation	10
4	EQUIPMENT.....	11
4.1	Guard Stations	11
4.2	Tamper and Vandal Proof Stations.....	11
4.2.1	Properties	11
4.2.2	Functions	12
4.2.3	Technical data	12
4.3	Flush Mount Back Box with Anchor	13
4.3.1	Technical data	13
4.4	Wall Mount Back Box	13
4.4.1	Technical data	13
4.5	Cell Terminal	13
4.6	Key Switch.....	13
4.7	Light Switch Relay.....	14
4.8	Signal Lamp	14
4.9	Group Lamp	14
4.10	Features Station Kit.....	15
4.11	Features Station Board	15
4.12	Sensor Keys.....	15
4.13	Tamper Resistant Sub Stations	15
5	FUNCTIONAL DESCRIPTION.....	16
5.1	Call from Guard to Cell.....	16
5.2	Call Request from a Cell	16
5.2.1	Initiating a call request.....	16
5.2.2	Accept a call request	17
5.2.3	Terminating a call or call request.....	17
5.3	Alarm Call.....	17
5.3.1	Guard present in cell	17
5.3.2	Touch alarm.....	18
5.3.3	Scream alarm	18
5.3.4	Timed alarm call	18
5.3.5	Resetting an alarm call	18
5.4	Tamper / Sabotage Call	19
5.4.1	Tamper reset	19

5.5	Fault	19
5.6	Program Distribution in Cells	19
5.7	General Purpose Inputs and Outputs	19
6	INTERCONNECTION.....	20
6.1	General Connection	20
6.1.1	External connections	20
6.1.2	Optional connections	20
6.2	Intercom Line	21
6.3	Local Power	21
6.4	Cell Light	22
6.5	Key Switch	22
6.6	External Call Button	22
6.7	Signal Lamps	23
6.8	General Purpose Outputs	23
6.9	General Purpose Inputs	23

About this Document

This system description gives relevant information on the system features, available equipment, typical prison configurations, simplified wiring and programming and technical data for the STENTOFON Prison Communications concept.

The document is aimed at:

- Sales and marketing personnel
- Consultants
- Installers
- End users

Software requirement

- **AMC SW v.9.09** or later must be installed in the exchange in order to utilize the prison communication features.
- **AlphaPro v.9.21** or later must be used to program the prison communication features.

Event Handler Programming

Note that some parameters may need to be programmed in the STENTOFON Event Handler to be in accordance with project specifications.

This is described in the “Programming of Tamper and Vandal Proof Station” configuration sheet found on www.zenitel.biz

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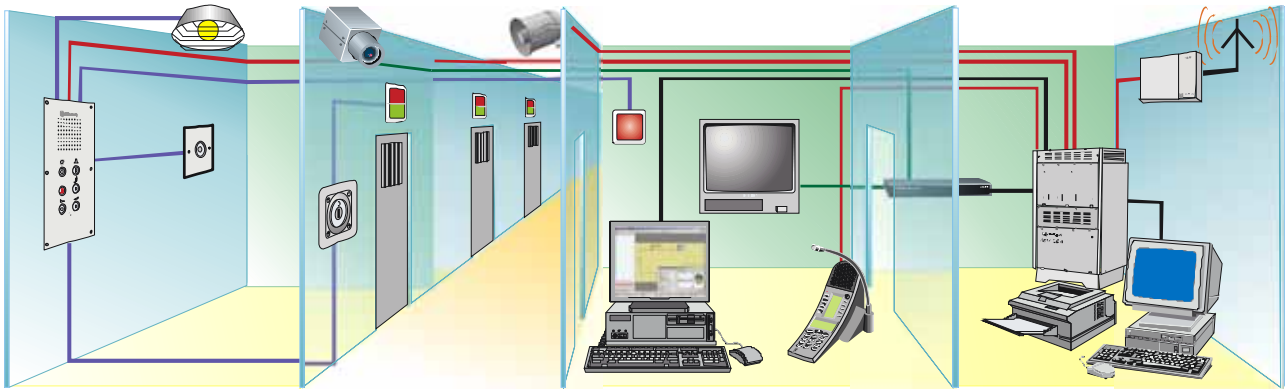
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1 INTRODUCTION

The STENTOFON AlphaCom Prison Communications system aims primarily at three main user groups:

- Prisoners
- Guards and personnel on duty
- Prison administration and management



Although totally different in their needs, the demand for an efficient communication system is the same.

The STENTOFON AlphaCom Prison Communications system provides for:

- **System functions**
 - Modular hardware and software for small, medium and large prisons
 - PC-controlled functions
 - Connection to database for personal data
 - Prisoner (cell) communication
 - Simple cabling
 - Redundant system backup for power, communication and signaling
 - Distributed system architecture for improved cost and safety
- **Exchange functions**
 - Interfaces for supplementary systems like CCTV, PA, DECT, Fire alarm etc.
 - Easy change or update of system parameters and data
 - Data storage and transfer
 - Data logging
 - Error messages
 - Information recovery in case of power failure
 - Control desk day / night mode
 - Control desk 'follow me' function
- **Station functions**
 - Call request
 - Loud-speaking, hands-free duplex conversation
 - Alarm calls
 - Scream alarm
 - Tamper alarm
 - Fault warning
 - Light signaling
 - Cell light control
 - Programmable I/O functions
 - Music distribution

2 PRISON COMMUNICATION SYSTEM

2.1 System Integration

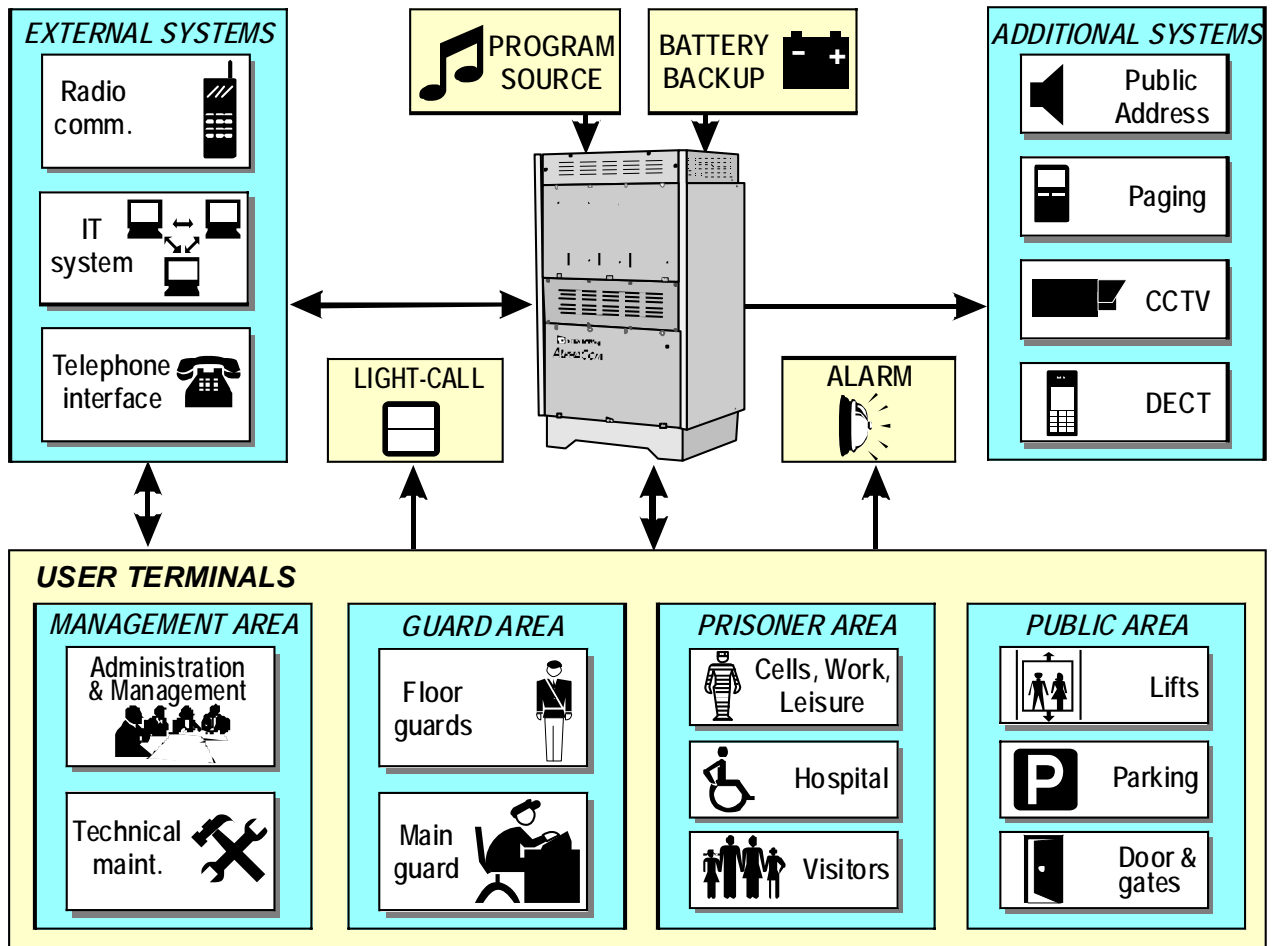
The core in the STENTOFON AlphaCom prison communication system is a number of communication terminals for prisoners and staff connected to an AlphaCom exchange with prison software according to needs.

A light-call system may be connected to the intercom system either as an integral part or as backup in case of breakdown.

External systems like Public Address, Paging, Telephone, DECT and CCTV may be included to add extended features.

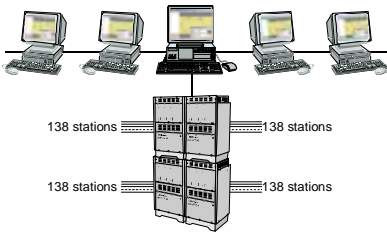
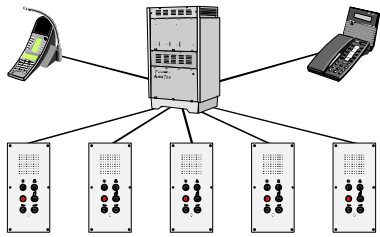
If program distribution is required, program sources are connected to the exchange.

To prevent system breakdown in case of power failure, an UPS battery back-up system should be installed.



2.2 System Layout

2.2.1 Modularity

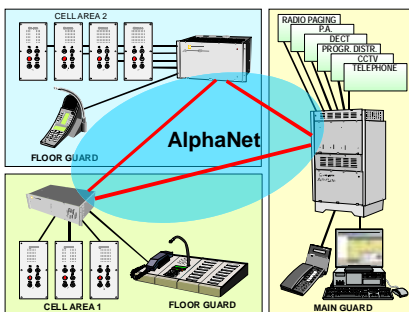


The focal points of the STENTOFON AlphaCom prison communication system are the prison software and the intercom exchange to which all cell terminals, intercom stations and PCs are connected. The AlphaCom exchange range is suitable for small, medium and large installations due to its modularity and flexibility. The intercom system can handle from 6 to well over 50,000 subscriber lines.

Intercom stations are connected to subscriber cards inside the exchange. AlphaCom is available in three module sizes:

- AlphaCom M supports up to 36 stations
- AlphaCom 80 supports up to 80 stations
 - Up to four modules can be connected to form one larger exchange.
- AlphaCom 138 supports up to 138 stations
 - Up to four modules can be connected to form one larger exchange.
- Any mix of AlphaCom exchanges up to 254 modules can be interconnected in an AlphaNet network.

2.2.2 AlphaNet - Distributed System Layout



The system is provided with the STENTOFON AlphaNet technology, where up to 254 intercom exchanges can be networked. AlphaNet provides the following key benefits:

- All services available across the network
- Any transmission medium
- Decreased installation costs and distributed system layout
- Secure and safe operation
- Network management

All services available across the network

When the AlphaCom exchanges are networked in an AlphaNet configuration the total system operates as a single large exchange where all services are available across the network. The services which are of main importance to the prison application are calls, group calls, call requests, call transfer, call and call request forwarding and door opening.

In addition, a single exchange can be used to connect to shared equipment such as a printer, telephone interface, DECT and paging equipment.

Any transmission medium

AlphaNet links can be analogue, digital (E1/T1¹) as well as IP.

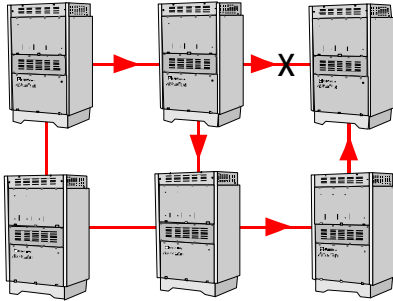
When digital links are used, the links can be set in E1CAT5 mode, which means that standard CAT5 cable can be used for distances up to 1 km.

If leased lines are going to be used between the exchanges, a fractional E1/T1 option is supported where it is only needed to lease the capacity that is really needed.

¹ E1 and T1 are the standard adopted by the telecom industry for transmission network. E1 and T1 can be used as direct links between exchanges or they can go via a transmission network. These links carry 30 audio channels.

Decreased installation costs

Exchanges can be installed local to clusters of intercom stations. This will dramatically decrease installation cost as it reduces the required cable length between the intercom station and the exchange.



Safe and secure operation

A distributed exchange system may be preferred to enhance the security within the prison. Several individual AlphaCom exchanges serve their own floor or wing. In case of broken communication links or infrastructure, the system will still operate within the area as well as routing traffic at alternative paths.

Network management

AlphaNet provides network management support. This means that the system management application can be connected to a central exchange. AlphaNet supports:

- Downloading of configuration to the exchanges in the network
- Reporting of events
- Sending commands to execute functions

2.3 System Functions

NOTE that AMC software v.9.09 or later must be installed to utilize all prison communication functions.

2.3.1 Call functions

The main functions in any prison communication system are:

- **Normal calls** from the cells to the guards or vice versa
- **Guard presence** indication when a guard enters a cell
- **Alarm calls** released by guards in cell or automatic timers
- **Scream alarm** automatic noise detection when guard present in cell
- **Tamper calls** if equipment is attempted to be sabotaged
- **Fault** reported station line errors

2.3.2 Error messages and logging

Errors and disturbances in the system will be shown on the guard's PC as type of error and location. Errors can be documented in a printable log file.

Functions in the main system will not be influenced in the event of failure in part of the system. If, e.g. there is a fault in a floor guard PC, the functions of this part of the system can be taken over by any other PC in the system with or without password authorization.

2.3.3 Full data retrieval in case of power failure

In the event of power failure, the actual information in the system at the time of the failure will not be lost. When the power is reconnected, all information at the time of the power failure is retrievable and will be displayed on the relevant screens.

2.3.4 Public address system

Messages can be given to different departments in several ways:

- By initiating a group call to a selected group of intercom stations or all call to all stations.

- By activating a public address system with separate amplifier and loudspeakers.

These alternatives are normally initiated from the guards' intercom stations.

2.3.5 Listen-in

It is normally not possible to listen in to a cell from the guard station without the prisoner's knowledge.

This restriction can be unblocked in the cell station hardware.

Overhearing (listen-in) from one cell station to another is not possible.

2.3.6 Database for prisoner data

The system can include a database for prisoners and/or employees personal data. The data can be displayed on both the floor guard and the main guard's PCs according to authorization. Update or change of data is based on password authorization.

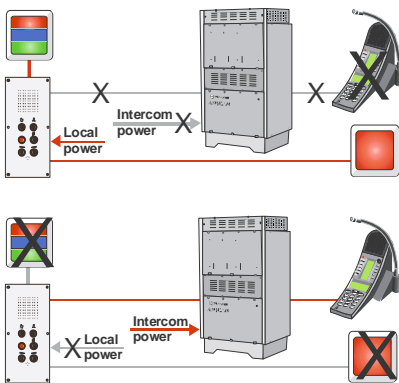
Alternatively, a data protocol is available for connection to an overall management system which holds these databases. This makes it possible to use such a database directly.



2.4 Degradation Mode and Signalling

The system features a degradation mode. The cell intercom stations are built up as two parts, intercom and light signaling system

- If the exchange fails or the connection to the exchange is broken, the light call system will still operate. With the use of call lamps and group lamps guards can still receive signaling when an inmate is making a call.
- If the local power at the cell fails, the intercom station will still operate normally. A call request will be sent to the exchange and a speech connection can be set up. The call lamps and group lamp will then not work.



2.4.1 Intercom

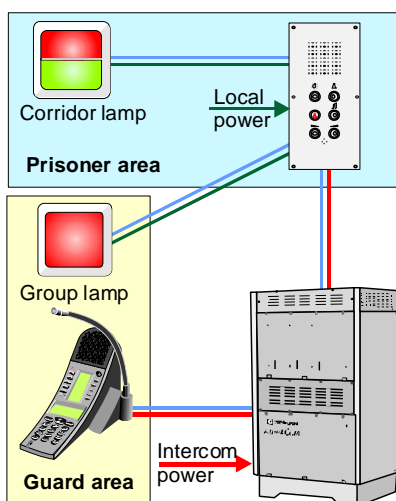
The intercom part of the station does not rely on the local power supply connected to the station. If this local power supply fails, the intercom part will continue to operate as the station receives the required power directly from the AlphaCom exchange. The station can therefore still be used to make and receive intercom calls, while also the guard presence information is sent to the exchange.

2.4.2 Light signaling

The light signaling function does not rely on the functioning of the AlphaCom exchange. The appropriate lamp signals (including the group lamp functionality) are generated locally in the station also if the exchange fails, or the connection between station and exchange is broken.

2.4.3 Data communication

The data communication between a cell station and an AlphaCom exchange is via a safe protocol. The station and exchange acknowledge each others transmission if received correctly. If the sending item does not receive the acknowledgement, the message will be sent again.



2.5 System Maintenance - AlphaPro

AlphaPro is the tool for configuration of the AlphaCom system. It is self contained and simple to install and use. AlphaPro connects to an exchange via a local RS232 interface. Distribution of configuration data to other exchanges is supported over the AlphaNet.

When a new exchange shall be configured, the exchange is given a working default factory setting. The system maintainer can then modify settings such as:

- Directory (type of station, line interface, display name, directory number and more).
- Define groups (cell groups, guard groups).
- Interface to CCTV, Public Address systems and paging and DECT equipment.
- Other custom behavior.

There are currently over 100 defined features which can be programmed with AlphaPro.

NOTE that a licensed AlphaPro dongle is needed to program the prison features.

NOTE that AlphaPro v.9.21 or later must be used to program all prison communication functions.

3 CONTROL ROOM

3.1 Overview Control Desk



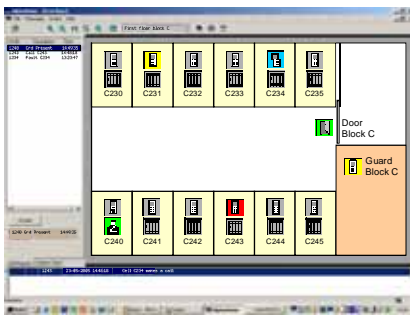
See figure for a typical layout of the guard rooms. The main guards have usually a control desk application in addition to an intercom guard station, while floor guards only have an intercom guard station. The AlphaCom system comes with a range of guard stations – see chapter 4.1 for an overview.

AlphaCom provides a service creation environment to build control desk application. A wide range of 3rd party control desk applications are available on AlphaCom. For an overview of the 3rd party application in your area contact your STENTOFON dealer.

STENTOFON/Zenitel has also developed its own control desk application for AlphaCom called AlphaVision.

It is recommended to have a PC and a printer for logging in the technical room. This PC can also be used for system maintenance, changing system parameters and database updates.

3.2 AlphaVision



The AlphaVision control desk application provides support for the following functions:

- Visual map of the prison area
- Visual icon indication of station, door and other system statuses
- Allows setting up of calls, announcements, and control doors
- Separate event window showing events and calls in chronological or priority order.
- Link to prisoner database to show information about the prisoner
- Day and night and 'follow me' functions to transfer the control desk
- Log all events to file or printer

3.3 Day / night mode

Staff is most often reduced at night time with only the main guard present. All cell call requests must therefore automatically be forwarded to the main guard on duty during night.

Programming to achieve such functionality is performed by means of event handler programming.

3.4 Call forward

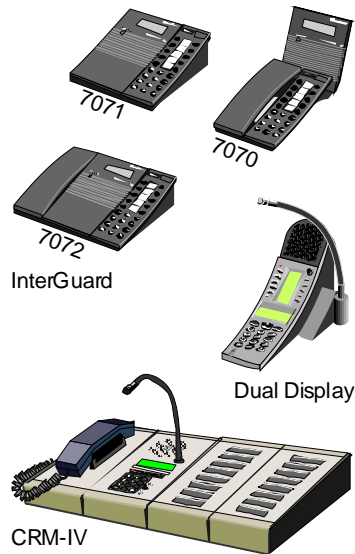
Some control desks may be temporary unmanned when the guard has to leave for other duties. Cell call requests will then be forwarded to another guard desk by entering a code in the guard station.

3.5 Call escalation

If call a request is not responded within a predefined time, the request will be forwarded to another guard station.

4 EQUIPMENT

4.1 Guard Stations

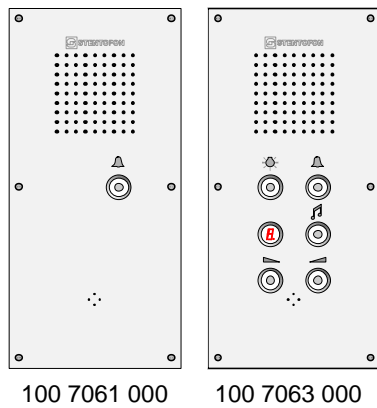


All STENTOFON intercom stations with display can be used as guard stations. If the guard has a PC with a program such as AlphaVision, a relatively simple intercom station will suffice. Otherwise stations with more indication possibilities in the form of LEDs, LCD-displays and Direct Access Keys (DAK) are more appropriate.

Type no. 100 ...	Name	Display	DAK keys	Hand-set	Goose-neck mic
7070 090	InterGuard	2 lines 16 char./line	10	YES	NO
7071 090	InterGuard	2 lines 16 char./line	10	NO	NO
7072 090	InterGuard	2 lines 16 char./line	10	YES	NO
7007 000	Dual Display	<i>INFO</i> : 4 lines 20 char./line <i>DAK</i> : 10 lines 5-8 char./line	40 (10 keys in 4 pages)	NO	OPTION
7006 101	CRM IV ¹⁾ Main Module	4 lines 20 char./line	4	OPTION	YES
7006 110	CRM IV DAK Module	2 LEDs per DAK key	48 / module (max. 2)	NA	NA

¹⁾ Require local 12 VDC power.

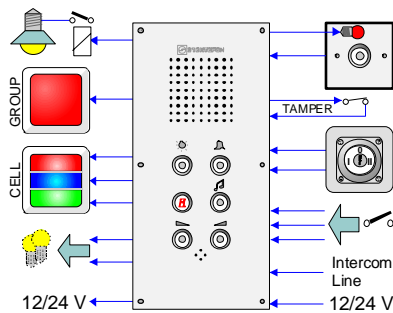
4.2 Tamper and Vandal Proof Stations



4.2.1 Properties

Designed for prisoner cells, leisure areas and work rooms classified as high security rooms.

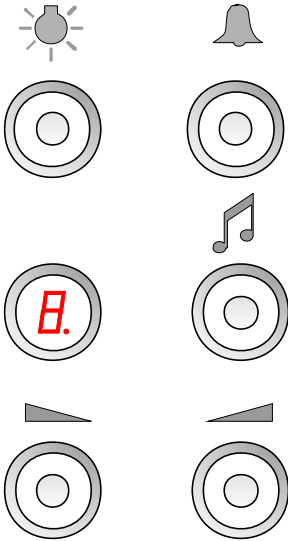
- There are two standard types of stations with different number of sensor buttons. The buttons are vandal proof and flush mounted in the front panel. The buttons have no moving parts and can be operated by people wearing latex sanitary gloves.
- The stations are normally mounted in a flush-mount back box close to the door inside the cell.
- The front panel is made of 2.5 mm stainless steel. The microphone and loudspeaker are mounted behind a labyrinth formed grid to prevent penetration.
- A tamper switch will give tamper alarm if the station is attempted opened. External tamper switches can be connected in series with the internal tamper switch.
- Cell stations are equipped with a scream detector that will activate an alarm if the noise exceeds an adjustable level and time when a guard is present in the cell.
- There are I/O terminals for communication line, local power, external call button with confirmation light, key switch, three-chamber signal lamp, common group lamp and relay for cell light.



- Cell stations have 3 general purpose inputs and 2 general purpose outputs. These can be used for detection and control in combination with third party equipment. The I/O functions are programmable in Event Handler.

4.2.2 Functions

All buttons are vandal proof sensor buttons with no moving parts. There is a glowing light inside the buttons for night orientation.

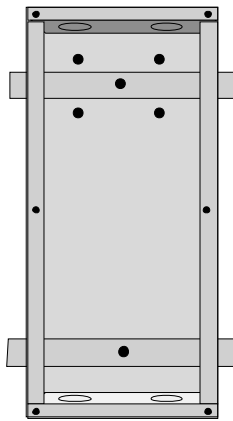


- **Call.**
Normal and alarm call to the appropriate guard. There is a reassuring light inside the button to indicate that a call has been made.
- **Program selection.**
Select between 9 program channels.
- **Program display.**
The selected program is shown on a 7-segment display.
- **Volume control.**
Two buttons for stepping the program volume in 8 levels.
- **Cell light.**
Cell light control via a static or bi-stable relay.

FUNCTION	100 7061 000	100 7063 000
Duplex Intercom	X	X
Call Request	X	X
Call Indication	X	X
Program Selection		X
Program Display		X
Program Volume Control		X
Cell Light Control		X
Sensor Buttons	X	X
Night backlight in buttons	X	X
Tamper Switch	X	X
Scream Detector	X	X
General Purpose Input	3	3
General Purpose Output	2	2

4.2.3 Technical data

Front panel	2.5 mm brushed stainless steel (V2A)
Dimension (W x H x D)	128 x 264 x 51 mm / 5.0 x 10.4 x 2.4 in
Weight (net)	950 g / 2.0 lb
Temperature range	0°C to +40°C / +32°F to +104°F
Humidity range (non condensing)	10% - 85% RH
Protection (front access)	IP65
Sensor keys (capacitive detection)	Vandal proof, steel / glass
Intercom line (2 twisted pairs)	0.5-0.6 mm ^Ø / AWG 24
Operating voltage	12 / 24 (9-27) VDC
Current consumption (at 24V, without external equipment)	Max. 32.5 mA Idle: 11 mA - Music: 16 mA - Conversation: 20 mA
Output power (RMS)	1 W
Audio freq. range	200 – 10 000 Hz
General purpose I/O ports	3 x input / 2 x output
Lamp drivers (max.)	24 VDC/1 A, overload protected
Connector type	Pluggable screw terminals



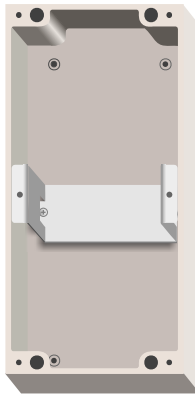
100 7073 76

4.3 Flush Mount Back Box with Anchor

- The back box is used for flush mounting of cell stations 7061 and 7063.
- The box can be molded into a concrete wall and secured by four anchor points.
- The cell station is secured to the back box with six tamper-proof screws. The screws are **not** supplied with the station but should be acquired locally.
- The back box is prepared for concealed wire tubes.

4.3.1 Technical data

Order number	100 7073 76
Material	1 mm steel plate, grey lacquer
Dimension, max. (W x H x D)	124 x 256 x 63 mm / 4.9 x 10.1 x 2.5 in
Dimension, cut-out (W x H x D)	126 x 235 x 62 mm / 5.0 x 9.3 x 2.5 in

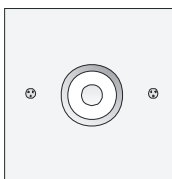


4.4 Wall Mount Back Box

- The zinc welded back box is used for on-wall mounting of cell stations 7061 and 7063.
- The box is secured to the wall by four screws.
- The cell station is secured to the back box with six tamper-proof screws. The screws are **not** supplied with the station but should be acquired locally.
- The cables are fed through three rubber grommets in the bottom wall.

4.4.1 Technical data

Order number	100 7060 150
Material	Molded zinc
Dimension, max. (W x H x D)	128 x 264 x 63 mm / 5.0 x 10.4 x 2.5 in



4.5 Cell Terminal

- A cell terminal has one call button which acts in parallel with the call button in a cell station.
- The cell station provides an output for a reassuring light (LED) inside the button to indicate that a call has been made.
- The cell terminal may be equipped with a tamper switch which will give tamper alarm if the terminal is opened by unauthorized persons. The tamper switch is then connected in series with the cell station tamper.

Order number	100 7060 120
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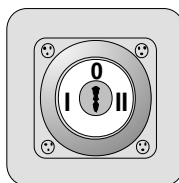
4.6 Key Switch

A key switch may be mounted outside cells or rooms with a cell station.

The switch may have two or three positions:

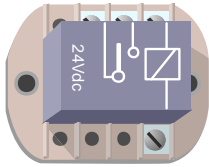
- 0** Cell call mode (normal)
- I** Guard present / Armed for touch- and scream alarm
- II** Guard present / Armed for timed-, touch- and scream alarm

- The time before a timed alarm is raised is configurable, default is 2 min.
- It must be possible to remove the key in any position



- The key switch should be a hard-surfaced flush-mount unit with tamper-proof screws
- Mount the switch in a back box suited for the selected switch type
- The key switch may be equipped with a tamper switch which will give tamper alarm if the terminal is opened by unauthorized persons. The tamper switch is then connected in series with the cell station tamper. The switch can be delivered on request or acquired locally.

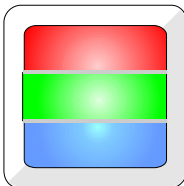
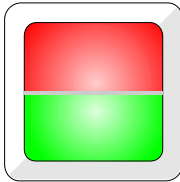
4.7 Light Switch Relay



In order to switch the cell light on and off by the stations light button, a 12 / 24 VDC relay is needed to manage the mains voltage for the lamp. The relay voltage is by default toggled on and off for each push on the button. The station can be programmed to give an impulse when the button is pushed to trigger a bi-stable relay. The relay must be acquired locally.

4.8 Signal Lamp

A signal lamp is normally mounted above the door outside cells or rooms with a cell station.



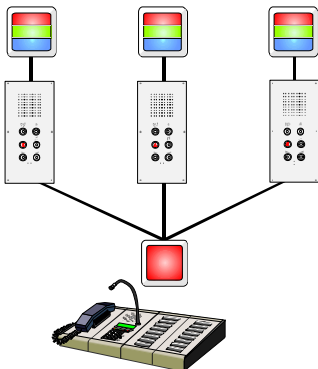
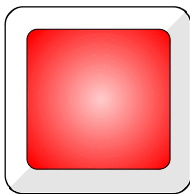
- The lamp can have 1, 2 or 3 fields with colored lamps according to needs and regulations.
- The bulb voltage must correspond to the local power supply and not exceed 1 A.
- The glass should be made of reinforced unbreakable glass.

The default lamp code is set to:

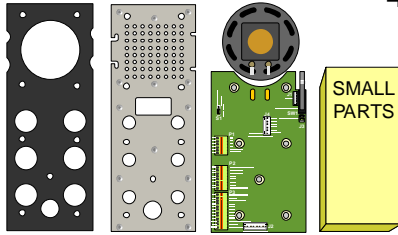
Normal cell call	Steady RED
Guard present	Steady GREEN
Alarm call	Flashing RED + Steady GREEN
Tamper call	Steady BLUE

Order number	Two chambers lamp, red/green	100 7060 130
	One or three chambers	On request

4.9 Group Lamp



- Signal lamps can be used as group lamps.
- Group lamps can be installed at key positions in every department e.g. at the main guard terminal.
- The group lamp will indicate the 'OR' - function of any lamp in the department.
- The cell station has one common output for call, alarm and tamper. Any of these signals will be shown on a single bulb group lamp by default. The signal types may be split by programming and using free outputs.
- If there is a pending call, this will be indicated by light in the corresponding group lamp segment. The light will be terminated in parallel with the call.

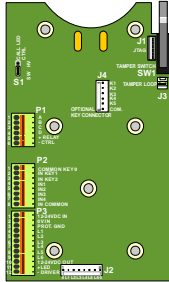


4.10 Features Station Kit

This kit includes all parts used in the stations 100 7061 000 and 100 7063 000 except the front plate and sensor buttons. The station is not assembled.

This kit can be used to build custom designed stations where the front is manufactured locally.

Order number 100 7060 100
 Electrical data Same as 100 7061 000 and 100 7063 000

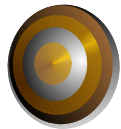


4.11 Features Station Board

The station board used in the stations 100 7961 000 and 100 7063 000 can be delivered separately without any other station components.

The board can be used to build custom designed stations where all parts except the main board are acquired locally.

Order number 100 7060 105
 Electrical data Same as 100 7061 000 and 100 7063 000



4.12 Sensor Keys

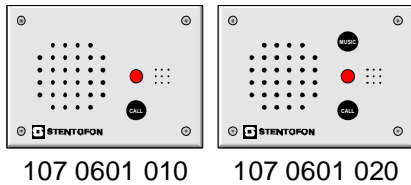
These sensor keys are the same as used in the stations 100 7961 000 and 100 7063 000 and may be used together with the station kit 100 7060 100 or station board 100 7060 105 to build custom designed stations.

Order number set of 10 100 7060 105

4.13 Tamper Resistant Sub Stations

These stations are primarily designed for common areas like lifts, parking garages, information and emergency posts where simple and rugged tamper resistant stations are needed. They may also be used in low security cells.

The stations have no alarm function or connection for signal lamps.



- ¼ “ anodized brushed aluminum front plate
- Mounting to flush mount or on-wall back box with tamper proof screws
- One or two large buttons for programmable extension number or features
- Station-on indication light

Order no.	One button	107 0601 010
	Two buttons	107 0601 020
Dimensions	H x W x D	140 x 190 x 63 mm / 5.5 x 7.5 x 2.5 in
Weight	Net	1000 g / 2.2 lb
Back box	Flush mount	100 0629 700
	On-wall	100 0629 800

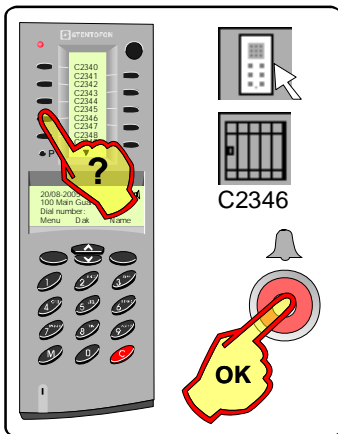
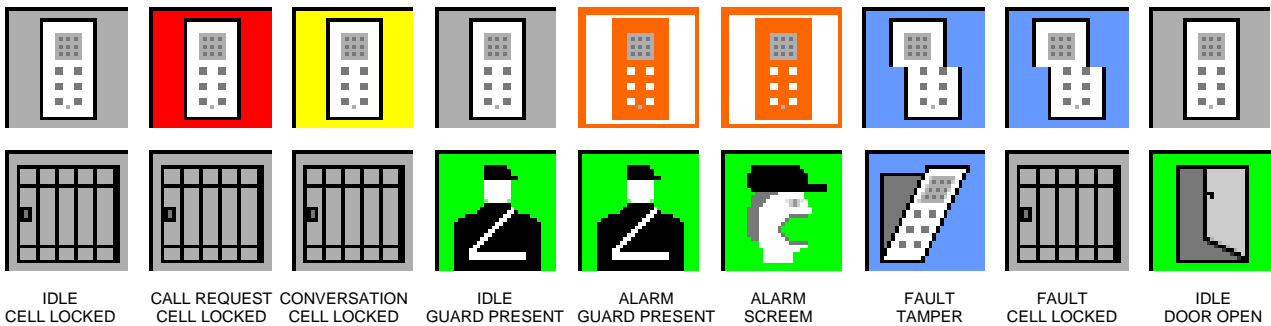
5 FUNCTIONAL DESCRIPTION

There are several different standard call types and status information that can be initiated from the cell. These have to be treated and terminated differently. In addition, several custom status indications may be reported.

Ongoing calls and alarms are indicated on the guard station's display with information about type of call, call origin and extension number.

If the guard is equipped with a PC and the AlphaVision program, the screen will show a map of the cell area with icons in the cells to inform about the status. Information lines and action buttons are available on the screen. In addition, prisoner data and video window may be included.

In the STENTOFON AlphaVision program, a set of two icons are placed in each cell on the map. The upper icon shows the cell station call status and the lower icon the cell status. The following icons are used in AlphaVision:



5.1 Call from Guard to Cell

A call to a cell station is normally made as a call request; the cell station is in privacy mode. When called, a call signal is heard and the call must be accepted by the prisoner.

The call can be made as an open call by changing an event in AlphaPro.

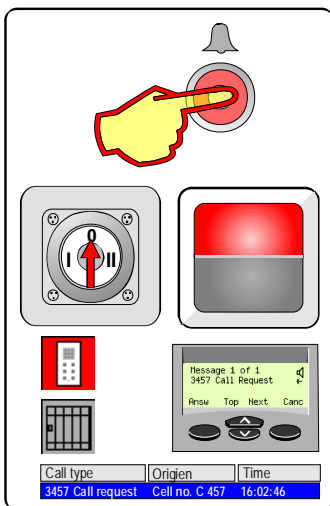
- **Guard station** Select DAK key with cell number or dial the cell station directory number
- **AlphaVision** Double click on the idle station cell icon
- **Reply to call** Push the call button on the cell station.

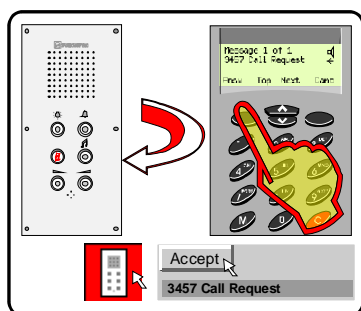
5.2 Call Request from a Cell

Several Guard desks may be connected in parallel, the same indications will be present on these guard stations and PCs.

5.2.1 Initiating a call request

- **Key Switch** Must be in position 0.
- **Cell station** Push the call button
 - Reassuring light in the call button
 - Program distribution is interrupted
 - Reassurance tone, never a busy tone
- **Signal lamp** Steady red light
- **Guard station** Call information on the display call tone
- **AlphaVision** An event line with call information and call icon in the cell on the map





5.2.2 Accept a call request

A call can be accepted either from the guard PC or from the guard station. A call request can be treated from any guard station receiving the call.

- **Guard station** Press the 'Answer' function key or dial the cell station directory number.
- **AlphaVision** Double-click the red call icon or select the event line and click on the 'Accept' button.

Yellow icons on the map represent the stations in conversation

5.2.3 Terminating a call or call request

Termination of calls from cell stations can be done in two ways depending on where the guard is located at the time of the call.

Guard terminal

The call request has been accepted and a conversation is established. *It is not possible to terminate an unattended call request from a guard terminal.*

- **Guard station** Press the red C-key
- **AlphaVision** Click on the 'Cancel' button under the event line.

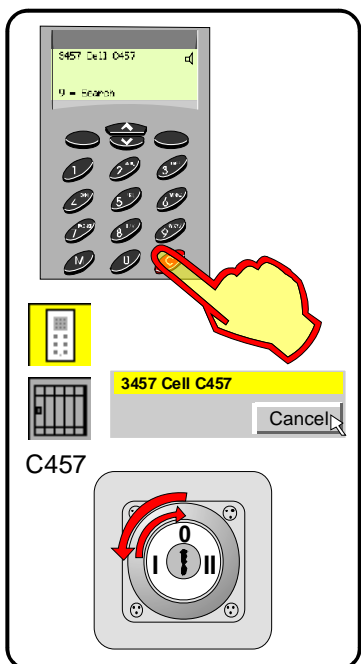
This will subsequently disconnect the call, remove the corresponding event line and reset all functions and indications related to the call.

Cell area

The call request is possibly not accepted and a conversation not established.

- **Key switch** Turn the key to position I and back to 0.

The call request is reset including all indications.

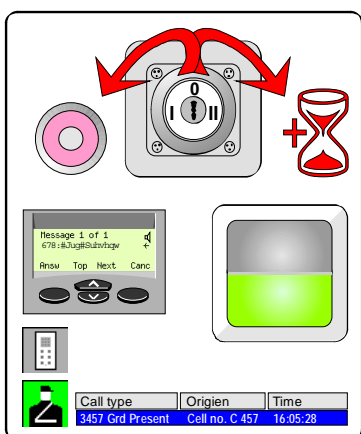


5.3 Alarm Call

5.3.1 Guard present in cell

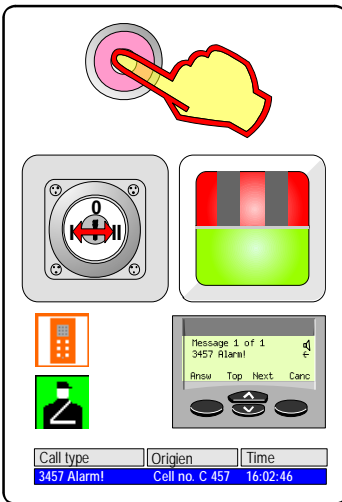
When a guard wishes to enter a cell he may activate alarm preparation mode by using the key switch outside the cell. It can be set in either position I or II and the key can be removed.

- **Key switch** Turn the switch to position I or II.
- **Signal lamp** The green part shows a steady light.
- **Cell light** The cell light will be turned on automatically²
- **Cell station** Program distribution (if selected) is interrupted. All buttons are converted to alarm call². The scream alarm is prepared. The time-out alarm function is activated in pos II.
- **Guard station** Call number and 'Guard present' text in display. - *Press the 'Answ' function key to call if needed.*
- **AlphaVision** An event line with 'Guard present' information and guard + idle station icons in the cell on the map. - *Double-click the icon to call if needed.*



² Valid if light is operated by a static relay.

If an impulse (bi-stable) relay is used, the light must be turned on by a separate switch and the station's light button will not be sensitive to alarm.



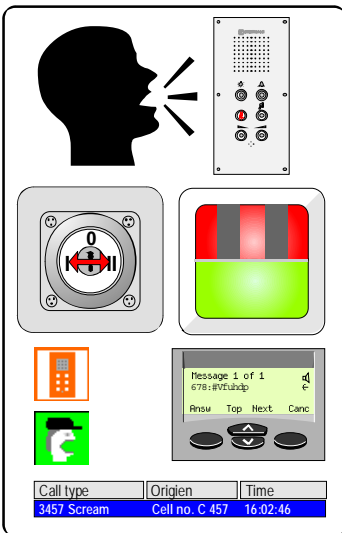
5.3.2 Touch alarm

A manual alarm call can be initiated with the key switch in position I or II.

- **Key switch** Must be in pos I or II
- **Cell station** Press any key.²
Call indication LED will start flashing.
- **Signal lamp** The red part will start flashing
the green part will remain steady.
- **Group lamp** The alarm call will be indicated.
- **Guard station** Call number and 'Alarm!' text in display.
- Press the 'ANSW' function key to call if needed.
- **AlphaVision** An event line with 'Alarm!' information
and guard + alarm icons in the cell on the map.
- Double-click the icon to call if needed.

5.3.3 Scream alarm

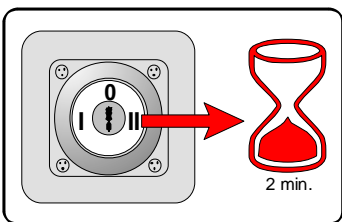
All cell stations are equipped with a sound detector. An alarm call will be sent to the exchange if a sound above a certain level and duration is detected when a guard is present. The level is set individually for each station.



- **Key switch** Must be in position I or II
- **Cell station** Cry loud for help
Call indication LED will start flashing.
- **Signal lamp** The red part will start flashing
the green part will remain steady.
- **Group lamp** The alarm call will be indicated.
- **Guard station** Call number and 'Scream!' text in display.
- Press the 'ANSW' function key to call if needed.
- **AlphaVision** An event line with 'Scream!' information
and guard + scream alarm icons in the cell on the map.
- Double-click the icon to call if needed.

5.3.4 Timed alarm call

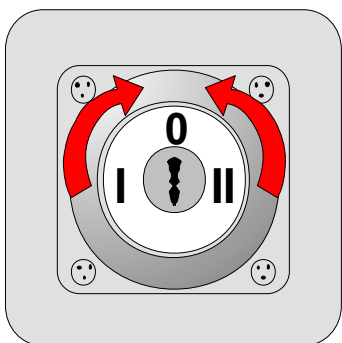
A timed alarm is initiated automatically if the guard has not reset the key switch outside the door within a predetermined time. Default time is 2 min., other values can be programmed from AlphaPro.



- **Key switch** Must be in position II.
- The timed alarm call sequence is identical to a touch alarm call.

5.3.5 Resetting an alarm call

An alarm call can only be cancelled by the key switch outside the cell door. *The key switch must be left in position 0 to avoid false alarm.*

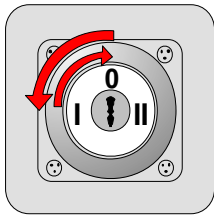
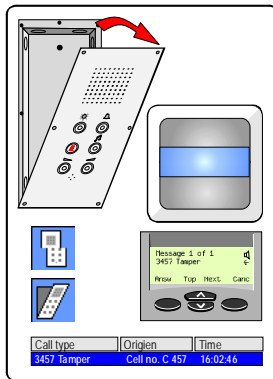


- **Key switch** Turn the key to position 0.
- **Signal lamp** Switches off.
- **Group lamp** Switches off.
- **Cell station** Call indication LED is switched off.
- **Guard station** Returns to idle or shows next message in queue
- **AlphaVision** Removes all activity information from the cell

5.4 Tamper / Sabotage Call

The cell station and other items in the cell area can be secured with tamper switches. If a tamper switch is activated, a tamper message will be released with priority higher than a normal call but lower than alarm call.

- **Signal lamp** If installed, the blue part will turn on.
- **Guard station** Call number and 'Tamper' text in display.
- **AlphaVision** An event line with 'Tamper' information and fault + tamper icons in the cell on the map.



5.4.1 Tamper reset

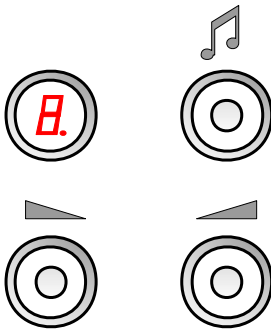
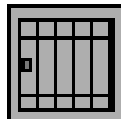
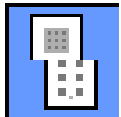
Termination of a tamper call is only possible if the reason for the call is removed, i.e. the switch initiating the call must be deactivated.

- **Key switch** Turn the key to position I and back to 0.
- **Signal lamp** (if installed) is reset.
- **Guard station** Returns to idle or shows next message in queue
- **AlphaVision** Removes tamper information from the cell

5.5 Fault

The lines to all stations are constantly checked for faults; a shorted or open line is reported.

- **Guard station** Call number and 'Fault' text in display.
- **AlphaVision** An event line with 'Fault' information and fault icon in the cell on the map.
- The fault should be corrected before cancelled from the guard desk or PC.



5.6 Program Distribution in Cells

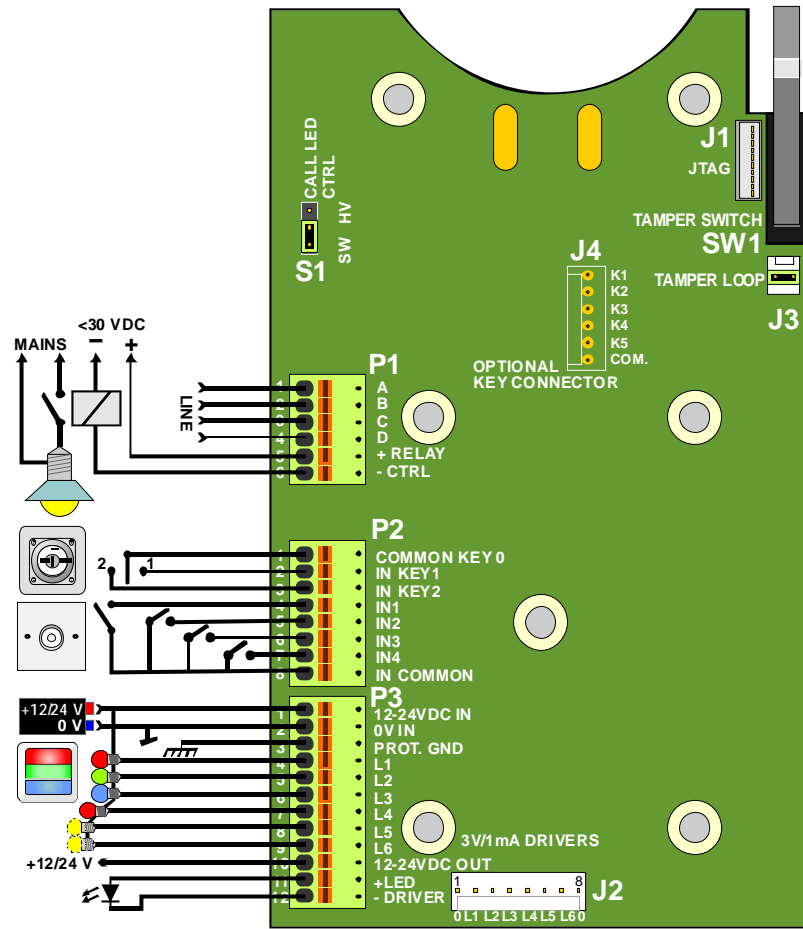
- It is possible to distribute up to 9 different program channels.
- The prisoner can select channels and turn the programs off.
- The selected program number is shown on a display.
- The volume can be regulated up and down in 8 levels.
- Calls from the guard desks will turn the program off.
- Program distribution is muted during 'Guard present'.
- The program distribution possibility can be withdrawn on a per cell base from the guard PC.

5.7 General Purpose Inputs and Outputs

All cell stations are equipped with 3 general purpose inputs and 2 general purpose outputs. These I/O terminals must be programmed in AlphaPro in order to respond to the desired task.

- The logical inputs can be used to interface to other equipment.
 - Any equipment which can give a potential free switch closing can be connected such as door position detection, etc.
 - The information can be indicated on the guard PC or intercom station.
 - The information can also be sent to a management system.
- The outputs can be used to control extra lamps or other equipment.
 - The outputs give an electronic closure to local power 0V. The max. voltage over an open output must not exceed 30 VDC, max. load is 1 A.

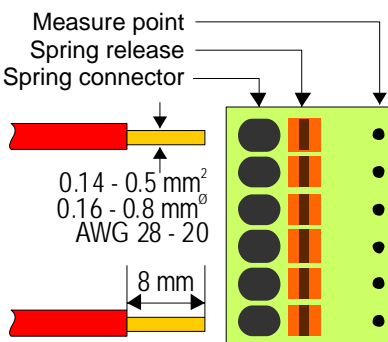
6 INTERCONNECTION



6.1 General Connection

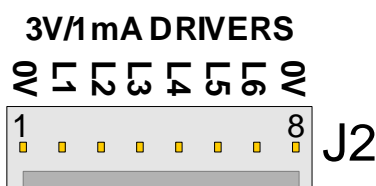
6.1.1 External connections

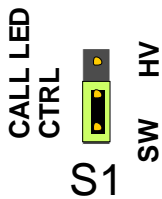
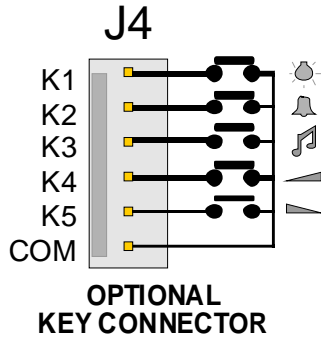
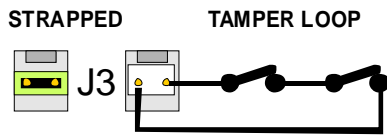
- All external connections are terminated in the plug-in terminal blocks P1, P2 and P3.
- The spring loaded terminals can accept cable dimensions from 0.14 to 0.5 mm² (0.16 – 0.8 mm^Ø, AWG 28-20).
- Single treaded cables >0.2 mm² (0.5 mm^Ø) can be pushed directly into the spring connectors without the use of tools. For smaller dimensions or multi threaded cables, the red spring release buttons must be pushed during insertion.
- Dismantle 8 mm of the cables before insertion.



6.1.2 Optional connections

- **J1 - JTAG**
A station programming connector which is used during production only.
- **J2 - 3V/1mA DRIVERS**
An 8-pin IDC connector carrying the general purpose outputs L1 – L6 as 3V/1mA signals which may be used for connection to the STENTOFON MRBD relay card. For other purposes the ELCON 42080 plug should be used.





• **J3 - TAMPER LOOP**

A 2-pin IDC connector in series with the station tamper switch. The pins are shorted by a jumper as default. External NC tamper switches may be connected to this terminal by using an ELCON 42050 plug.

• **J4 - OPTIONAL KEY CONNECTOR**

The J4 connector is normally not mounted in stations delivered with original front panel. If the station PCB is used with a custom made front panel, the buttons can be terminated to a 6-pin IDC connector.
 - Mount and solder a PCB pin header ELCON 42610 in the J4 space.
 - Use an ELCON 42060 plug to connect desired buttons. Max cable length is 150 mm.

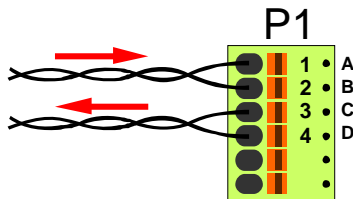
- K1 CELL LIGHT
- K2 CALL BUTTON
- K3 PROGRAM SELECTOR
- K4 VOLUME UP
- K5 VOLUME DOWN
- COM. COMMON RETURN WIRE

• **S1 – CALL LED CONTROL**

The jumper is used to select between hardware or software controlled station-on LED.

- HW LED is always on when the microphone is powered. It is impossible to listen-in without LED indication.
- SW LED on or off according to software programming (default). This is normally same function as the HW setting.

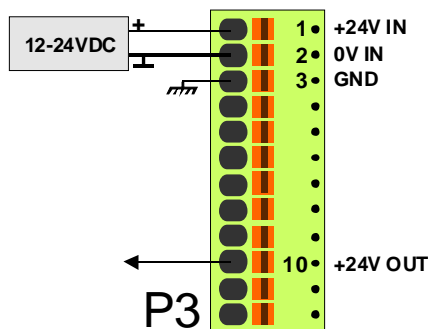
6.2 Intercom Line



The cell stations are connected in a normal AlphaCom star wiring system using 2 pair twisted 0.5 or 0.6 mm^Ø (AWG 24) cable. The maximum cable length is as for display stations.

- Pair A and B Audio and data from exchange P1 / 1 and 2
- Pair C and D Audio and dialing tones from station P1 / 3 and 4

6.3 Local Power



A local power (other than the line power) is used for the signal and group lamps and the free general outputs. This power is also used for the LED segments in the display.

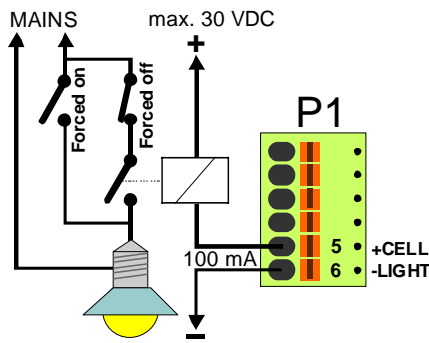
- The local power is not needed if none of the general outputs are used.
- A common 12 or 24 VDC power source is normally used for all stations in the same area.
- It is recommended to connect the local power negative pole to ground.
- The consumption per station is normally 0.5 – 2 A depending on type and number of connected lamps.
- The voltage at the station board must not be less than 9 V which means a maximum voltage drop of 15 V at 24 V supply and 3 V at 12 V.

• **IMPORTANT NOTICE:**

**P3/3 must be connected to local mains earth.
 Static discharges may cause noise and station malfunction!**

- 12-24 VDC IN Local power + P3 / 1
 - 0V IN Local power - P3 / 2
 - PROT.GND Protective earth for the station front P3 / 3
 - 12-24 VDC OUT Power output for local relays etc. P3 / 10
- NOTE that this output is NOT fused!*

6.4 Cell Light



By pushing the light button on the cell station, the cell light will be toggled on and off. The light may also be controlled from the guard PC.

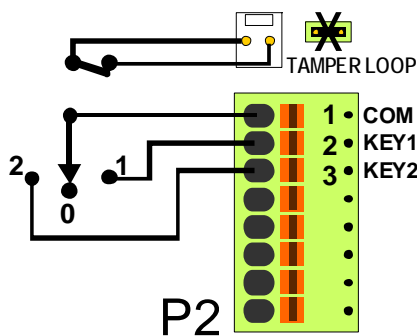
Relay coil terminal a	Positive power
Relay coil terminal b	P1 / 5
Negative power	P1 / 6

Note that the relay MUST be connected between terminal P1/5 and the positive pole since the output is a transistor switch.

- The relay may be an impulse toggle type if operated from the cell only or normal type if also operated from the guard.
- The relay power is taken from a separate source, max. 30 VDC or from the 12 / 24 VDC power.
- The relay coil current must not exceed 100 mA.
- The relay contacts must be rated for min. 1.5 x mains voltage and 2 x bulb current.

- A mechanical light switch may be mounted outside the cell in order to override the relay status.
 - Force the light **OFF** by a switch in **series** with the relay contact
 - Force the light **ON** by a switch in **parallel** with the relay contact.

6.5 Key Switch

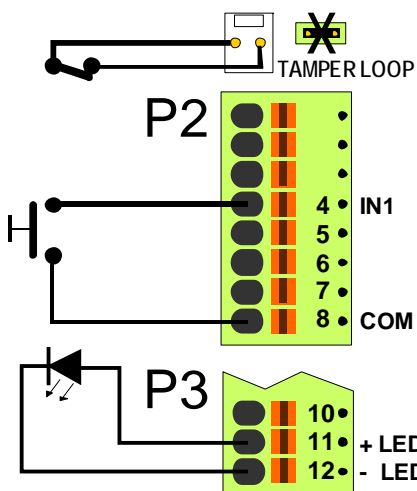


The key switch is acquired locally.

- Mount the key switch outside and close by the cell door.
- The switch may have two or three positions depending on desired function.
- The housing may be secured by a NC tamper switch.
 - Remove the tamper jumper and connect the switch to the jumper pins.

Common terminal		P2 / 1
Pos 0 terminal	(Cell call mode)	Not terminated
Pos 1 terminal	(Guard present / Alarm call prepared)	P2 / 2
Pos 2 terminal	(Guard present / Timed alarm call)	P2 / 3
Tamper switch	NC, used if needed	TAMPER LOOP 1 / 2

6.6 External Call Button



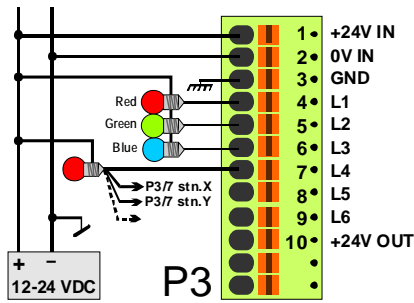
The call button is acquired locally.

- Flush mount the call button inside and close by the cell door easily reached by the guard for alarm call reasons. The button may also be mounted to serve handicaps or in toilets.
- The button may be equipped with a LED for call acknowledgement.
 - The LED current is 0.4 mA for night light and 4 mA during call.
- The housing may be secured by a NC tamper switch.
 - Remove the tamper jumper and connect the switch to the jumper pins.

Switch	common	P2 / 8
Switch	live	P2 / 4
LED	anode	P3 / 11
LED	kathode	P3 / 12
Tamper switch	NC, used if needed	TAMPER LOOP 1 / 2

The terminal IN1 (P2 / 4) is programmed for external call by default. If an external call button is not used, the IN1 terminal may be programmed in the AlphaPro Event Handler for other purposes.

6.7 Signal Lamps



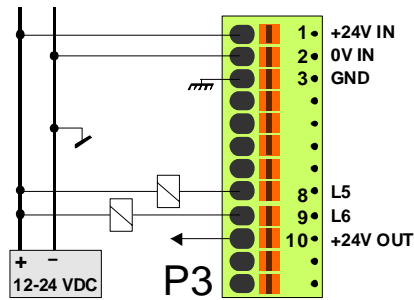
By default, the general purpose outputs L1, L2 and L3 are defined as signal lamp outputs and L4 is defined for group lamp.

- Each output is programmable in the Event Handler for other output purposes if the default lamp option is not used.
- Note that 0V is transistor switched and the positive pole is common. Each output can carry 1 A max.

L1-L4 3V/1mA output signals are also present on the 8-pin connector J3 which may be used for connection to the STENTOFON MRBD relay card.

12-24 VDC IN	Local power +	P3 / 1
0V IN	Local power -	P3 / 2
PROT.GND	Protective earth for the station front	P3 / 3
L1	Red call lamp	P3 / 4
L2	Green guard present lamp	P3 / 5
L3	Blue tamper alarm lamp	P3 / 6
L4	Common group lamp	P3 / 7

6.8 General Purpose Outputs



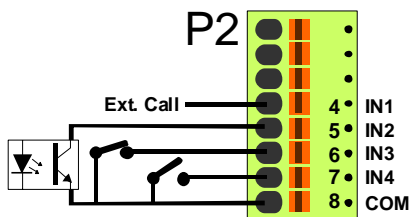
There are 2 undedicated outputs programmable for interface to external equipment.

- The L5 and L6 outputs are programmable in the Event Handler for output purposes such as lamps, TV sets, toilet flushing, etc.
- Note that 0V is transistor switched and the positive pole is common. The power IN on P3/1 or power OUT on P3/10 may be used. Each output can carry 1 A max.

L5-L6 3V/1mA output signals are also present on the 8-pin connector J3 which may be used for connection to the STENTOFON MRBD relay card.

12-24 VDC IN	Local power +	P3 / 1
0V IN	Local power -	P3 / 2
L5	Programmable	P3 / 8
L6	Programmable	P3 / 9
12-24 VDC OUT	Power output for local relays etc.	P3 / 10

6.9 General Purpose Inputs



There are 3 undedicated inputs programmable for interface to external equipment.

- Mechanical and electronic switches, relay contacts, NO or NC connecting to COMMON can be used.

IN1	External call button	default	P2 / 4
IN2	External switch 2	programmable	P2 / 5
IN3	External switch 3	programmable	P2 / 6
IN4	External switch 4	programmable	P2 / 7
COM.	Common	return wire	P2 / 8



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A100K10300/1.1