

Pro700

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Installation and Programming Manual



Pro700 Communication System

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Important Information

The information in this manual is based upon stations with REV. C. These stations have Software Edition HM2. For older versions of stations, please use the Guide A100K10226/02.00 Aug. 1998 or /03.00 Jan. 2002.

Old and new versions of stations will work together with all functions they can be programmed to perform. It is important to note that if the feature SILENT ALARM is to be used on the system; all stations must have the new software (rev.C).

It is especially important to note that the switch programming is different on new and old stations.



1 GENERAL SYSTEM DESCRIPTION

- Up to 40 subscribers
- No central exchange
- One speech channel
- One program distribution channel
- Stations with LCD display
- Hands-free duplex operation
- Wide range of standard and programmable features
- Easy to expand
- Simple installation - bus, loop and/or star cabling
- Best price/performance on the market

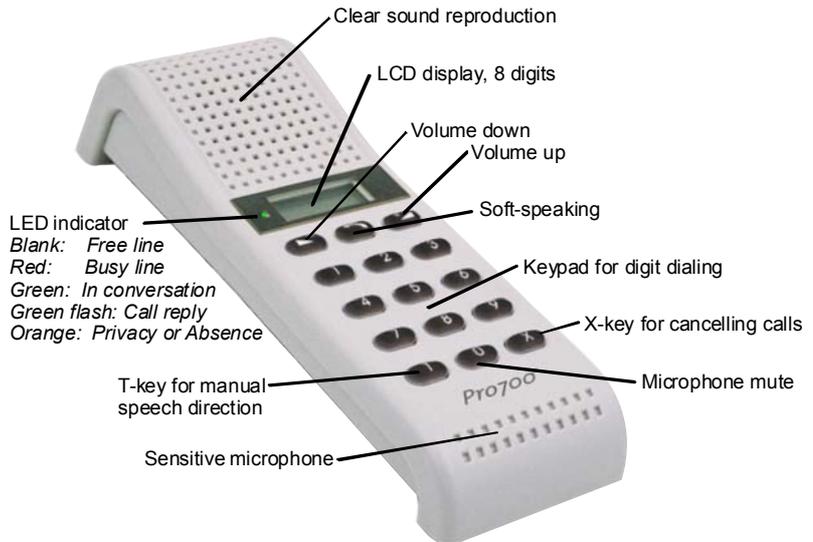
1.1 Typical Pro700 System Users

- Small industries
- Small prisons
- Police stations
- Warehouses
- Shops/supermarkets
- Petrol/Gas stations
- Doctor offices
- Dentist offices
- Workshops
- Nursing homes
- Door and gate control
- Schools
- Private homes



System Features

Loud-speaking hands-free
 Soft-speaking confidential
 Privacy
 Microphone cut-out
 Manual control of speech direction (simplex)
 Camp on busy / queue feature
 Call-back
 Hurry up
 Absence registration
 Display information
 Call reply
 Last number redial
 Call to last caller
 Emergency call
 All call with reply
 Two Group call groups with reply
 Priority
 Always privacy
 Paging
 Door opening
 Program distribution (music)
 Remote program distribution
 External loudspeaker
 Silent alarm
 Direct Dial 1-key station
 Direct Dial 3-key station
 Direct Dial 10-key station



1.2 Keypad Features

- 10-49 - Subscriber call numbers
- 5 - Door opening feature (only from programmed stations)
- 5 - Reply-back on "Doorbell" function
- 6 - Last number redial / Activating Silent Alarm
- 7 - Activate all-call
- 8 - Activate/reply on call-back
- 8 - Reply back on all/group call
- 9 - Activate Emergency Call
- 91 - Activate group-call no. 1
- 92 - Activate group-call no. 2
- 93 - Activate call reply
- 96 - Access the program distribution channel (music)
- 97 + up to 4 digits
 - Storage of absence / message information
- 97X - Delete absence / message information
- 98 + call number + volume
 - Activate remote program distribution
- 99 - Activate/deactivate the privacy function
- 0 - Accept a call when the station is in privacy mode
- 0 - Give priority stations access to a busy line
- 0 - Microphone cutout
- 0 - Hurry up
- 0 - Call last caller

2 STATIONS AND KITS

2.1 Categories

Pro700 stations are divided into two categories:

MASTER STATIONS

- make calls to any stations by dialing its number
- receive calls from any station.

Master stations are equipped with a standard 15-button keypad. No extra feature buttons are required.

SUBSTATIONS

- make calls to a limited number of predetermined call numbers with 1 or 3 direct call buttons
- receive calls from any station.

2.2 Master Stations

AA711

Desk/Wall Master Station with Display

- Loud-speaking hands-free communication
- Soft-speaking confidential handset
- Total privacy
- Internal 1 Watt amplifier
- The volume can be adjusted with two keys in 16 levels (32dB)
- An external loudspeaker can be connected to the station's wall socket
- Programmable features and extension numbers
- 8 digit LCD display show caller identification and message/absence information
- A built-in relay can be used for remote output, door lock control or to drive external call indication
- Designed for desk use or wall-mounting using wall-bracket GF732
- Connected to an RJ45 wall socket with flexible station cord
- High-grade, silver gray impact-resistant ABS plastic with a satin finish



AA702

Wall Master Station with Display

- Loud-speaking hands-free communication
- Total privacy
- Internal 1 Watt amplifier
- The volume can be adjusted with two keys in 16 levels (32dB)
- An external loudspeaker can be connected to the station's screw terminals
- Programmable features and extension numbers
- 8 digit LCD display show caller identification and message/absence information
- Designed for wall-mounting using the BF 636 frame.
- High-grade, impact-resistant ABS plastic with a satin finish





AA703 Industrial Master Station

- Loud-speaking hands-free communication
- Surface mount, splash-proof station designed for humid, dirty and outdoor conditions
- Shock resistant casing in durable Bayblend plastic
- The front can be removed to allow easy access during installation and service
- Internal 3 Watt amplifier
- Speaker volume is adjustable with switches inside the station
- The unit is prepared for connection of an external speaker
- The 10 Watt power amplifier FC740 can be used with this station
- A built-in relay can be used for Remote Output or Door Opener function or to drive external call indicators



AA704 Console Master Station

- Loud-speaking hands-free communication
- Well suited as a control desk station
- Flush mounting in back-box 6020 or wall mounting in back-box 6030
- Keyboard foil of UV-cured PVC, resistant to numerous fluids and chemicals
- The keyboard is equipped with an adjustable backlight
- Internal 3 Watt amplifier
- Speaker volume is adjustable with switches inside the station
- The unit is prepared for connection of an external speaker
- The 10 Watt power amplifier FC740 can be used with this station
- A built-in relay can be used for Remote Output/Door Opener function or to drive external call indicators



AA705 Heavy Industrial Master Station

- Loud-speaking hands-free communication
- Surface mount, splash-proof station designed for humid, dirty and outdoor conditions
- Noise canceling microphone for areas with extreme noise
- Orange Makrolon plastic housing and a membrane film keyboard
- Internal 3 Watt amplifier
- Speaker volume is adjustable with switches located inside the station.
- The unit requires connection of an external loudspeaker.
- The 10 Watt power amplifier FC740 can be used with this station
- A built-in relay can be used for Remote Output/Door Opener function or to drive external call indicators



AA706 Clean Room Station

- Specially designed for hospital clean rooms
- Flush or on-wall mounting in optional back box
- Foil front with full numeric keypad including volume, simplex and cancel buttons
- Front foil is washable using all common cleaning detergents and chemicals
- Front material is antimicrobial treated
- Built-in microphone and loudspeaker
- Inputs for program distribution, remote emergency call and local reset
- Outputs for external loudspeaker, 'door opening' and CAS call-in or doorbell lamp

2.3 Substations



AB708 Wall Substation with 1 direct dialing button

- Loud-speaking hands-free communication
- Designed for wall surface mounting under indoor conditions
- Suitable as door station
- One call button programmed for:
 - "door bell" function to all programmed stations
 - direct dial to station no.13
 - emergency call to all stations
- Internal 1 Watt amplifier
- The speaker volume can be adjusted inside the station
- External loudspeaker can be connected to the station's terminals
- Designed for wall surface mounting with BF 636 frame
- High-grade, impact-resistant ABS plastic with a satin finish



AB709 Wall Substation with 3 direct dialing buttons

- Loud-speaking hands-free communication
- Designed for wall surface mounting under indoor conditions
- Suitable as door station
- Three call buttons programmed for:
 - "door bell" function to all programmed stations
 - direct dial to stations no.11, 12 and 13, and to no. 21, 23 and Program Distribution channel (code 96) by using X as prefix
 - emergency call to all stations
- Internal 1 Watt amplifier
- The speaker volume can be adjusted inside the station
- External loudspeaker can be connected to the station's terminals
- Designed for wall surface mounting with BF 636 frame
- High-grade, impact-resistant ABS plastic with a satin finish

AB731, AB731-F **Tamper resistant substation**



- Robust, vandal proof and dust resistant designed for indoor use
 - AB731 on-wall mounting
 - AB731-F flush mounting
- Aluminum construction with stainless steel front plate for optimal protection
 - AB731 2 mm plate
 - AB731-F 3 mm plate
- Optional back box BF934 for flush mounting in concrete etc.
- Suitable in correctional institutions, prisons, police stations, parking garages, subway stations
- One call button programmed for:
 - "door bell"
 - direct dial to station no.13
 - CAS call-in function
 - emergency call to all stations
- Internal 3 Watt amplifier
- The speaker volume can be adjusted inside the station
- An external loudspeaker can be connected to the station
- Built in relays for Remote Output or Door Opener function
- Optional Sound Detection Module DP996 can initiate a call when a preset sound level is reached

AB731A, AB731A-F **Door station substation**



- Robust, vandal proof and dust resistant designed for in- or outdoor use
 - AB731A on-wall mounting
 - AB731A-F flush mounting
- Aluminum construction with 1.5 mm stainless steel front plate for optimal protection
- Optional back box BF934 for flush mounting in concrete etc.
- Suitable as door stations, for use in corridors, parking garages, subway stations etc.
- One call button programmed for:
 - "door bell"
 - direct dial to station no.13
 - CAS call-in function
 - emergency call to all stations
- Internal 3 Watt amplifier
- The speaker volume can be adjusted inside the station
- An external loudspeaker can be connected to the station
- Built in relays for Remote Output or Door Opener function
- Optional Sound Detection Module DP996 can initiate a call when a preset sound level is reached



BC735 Multipurpose substation

- Multipurpose substation without loudspeaker or microphone
- Surface mount, splash-proof housing designed for humid, dirty and outdoor conditions
- Shock resistant casing in durable Bayblend plastic
- The front can be removed to allow easy access during installation and service
- Internal 3 Watt amplifier
- Speaker volume is adjustable with switches inside the station
- Two external speakers must be added, one used as microphone - alternatively, a separate dynamic microphone may be connected
- The 10 Watt power amplifier FC740 can be used with this station - the loudspeaker in FC740 can be used both as loudspeaker and microphone, (talk-back function)
- A built-in relay can be used for Remote Output or Door Opener function or to drive external call indicators
- Handset GD745 can be connected to the unit

2.4 Optional Equipment and Interface Units



GD745 Handset module

- The GD745 Handset Module can be connected to the following Pro700 stations:
 - AA703, AA704, AA705, BC735
- Equipped with a cradle switch and a press-to-talk button for simplex function.

GH750 Multipurpose Relay Unit

- Equipped with 8 programmable relays.
- *CCTV control.*
 - When a door station activates the "doorbell" function, one or several relays can operate CCTV cameras. The relay(s) is active until the call is cancelled.
- *Auto scan function.*
 - 3 - 8 relays will step in sequence when activated by an external closing contact.
 - The auto scan time interval can be set to 8 or 16 sec.
- *Audio recording etc.*
 - The relays can be individually programmed to operate when a pre-determined extension number is called.
- *Line supervision.*
 - The relay(s) may operate when the right combination of calling and called extension numbers occur.
- *Remote control.*
 - Relays can operate on any specific station number.





HD752 Audio, PA and Radio Interface

- General interface for connection of various external audio sources to the Pro700 system
 - public address
 - closed radio networks
 - alarm systems and more.
- The unit has one input (RX) for receiving and one for transmitting (TX) audio signals.
- Built-in relays control the KEY and ON functions.
- All Call can be activated by an external closing contact and use an external audio source as input.



HD754 Telephone Interface

- Analogue interface unit to interconnect a Pro700 system with a public telephone line or PABX.
- The unit permits calling in both directions
- A call number must be dedicated to the interface unit
- *Outgoing calls*
 - One pre-programmed number in the telephone network.
 - One alternative pre-programmed number if the first number does not answer within a specified time
- *Incoming calls*
 - One preprogrammed number in the Pro700 system (call no. 13 or the door bell function)
 - Selective dialing (any number) in the Pro700 system.
- A programming option is to give a 4-digit password code to incoming calls before access is given to the Pro700 system.
- The telephone conversation may be loud-speaking and hands-free in the Pro700 system.

FC740 10 Watt Amplifier w/ talk-back

- 10W amplifier unit for use with stations AA703, AA704, AA705 and BC735.
- The unit can be used as an amplifier with talk- back function or as a plain amplifier.
- It contains a printed circuit board NFE1832 which is a piggy-back card for mounting on top of the station PCB NFE1830.

DP996 Sound Detection Module

- This module is designed to be mounted inside the stations AB731, AB731-F, AB731A and AB731A-F.
- The circuit on the Sound Detection Module will detect voice, screams or audible noise and then output an alarm signal.
- The card can be configured by the installer to fit the particular application. The loudness and length of the audio signal to activate the alarm output is user selectable.

PSDC24-1.3, PSDC24-5 and PSDC24-12 Power Supplies

- One or more 110 VAC mains power supplies are connected to the common power line in the cabling.
 - PSDC24-1.3 24 VDC / 1.3A max 5 stations
 - PSDC24-5 24 VDC / 5A max 20 stations
 - PSDC24-12 27 VDC / 12A max 40 stations



BD702 Station Kit

Station designs have sometimes to be adapted to meet local requirements.

A station kit is available for local production of Pro700 stations. This kit contains all electronic parts needed to build up a working station with 1 or 3 buttons as well as full keyboard.

- Two printed circuit boards NFE1825A and NFE1829, loudspeaker and microphone block as used in the AB731 stations series are included.
- Mechanical parts such as housing, front plate, button(s) and keyboard must be supplied locally. Detailed assembling diagrams are included.

2.5 Accessories

GF732 Wall bracket

Gray plastic bracket for wall-mounting of station AA711

BF636 Front plate frame

Plastic frame for flush mounting of stations AA702, AB708 and AB709

Back boxes

- BBF731 Metal box for flush-mounting AB731-F and AB731A-F
- BBF602 Metal box for flush-mounting AA702, AA704, AB708 and AB709
- BBS602 Metal box for surface mounting AA704 and AA706

Station cords for station AA711

There is a variety of station cords with 8-pin RJ45 plugs:

- | | | | |
|----------|------------|---------------|---------|
| - BF640A | 2 m (6') | straight cord | 8 wires |
| - BF641A | 6 m (20') | straight cord | 8 wires |
| - BF642A | 2 m (6') | spiral cord | 8 wires |
| - BF643A | 0.3 m (1') | spiral cord | 8 wires |

KB170, KB171 Wall sockets

Two types with 8-pin RJ45 modular jacks are available:

- KB171, surface mounting
- KB170, flush mounting.

3 INSTALLATION

3.1 General Information

3.1.1 Stations

- Up to 40 stations can be connected in one system.
- A maximum of 16-20 stations is recommended.

3.1.2 Station connection

- Desk-top master station AA711 is connected to wall sockets via station cords and RJ45 connector.
 - Various types are available
- All other stations are connected with screw terminals inside the station.

3.1.3 Power supply

The power supply output voltage must be between 12 and 27 VDC.

- All stations are connected to the power unit via the installation cabling.
- The power current capacity depends on the system size.
 - PSDC24-1.3 24VDC/1.3A units should be used in systems with max. 5 stations.
 - PSDC24-5 24VDC/5A units should be used in systems with max. 20 stations.
 - PSDC24-12 24VDC/12A units should be used in systems with long cable runs and max. 40 stations.
- Maximum distance on a 0,6 mm^Ø /24 AWG wire between any station and a power unit is:
 - 12 V 100 meters (300 ft.)
 - 18 V 300 meters (1000 ft.)
 - 24 V 500 meters (1600 ft.)
- A system can be powered with more than one unit to give a decentralized solution for large installations.

Battery backup

12 or 24 Volt batteries can be used as emergency backup power.

- Adjust the power supply to act as a trickle charger
 - 24 V battery PSDC24-12 to 27,0 V

3.1.4 Installation cable

- 2 pairs 0.5 or 0.6 mm^Ø (24 AWG) twisted telephone cable should be used for call and power.
 - One extra pair is required when Program Distribution (music) is required.
- If the cable has to pass close to radio aerials or other interference sources, each individual pair in the entire installation cable must be screened.
- A cable of good quality and low capacitance should be used.

Maximum cable length

The total cable run in a system is limited by a mutual cable capacitance of **max. 87 nF**.

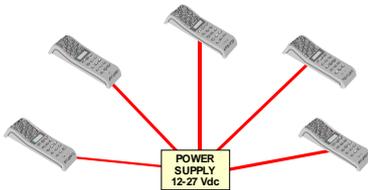
- Standard quality cable: 120 nF/km max. length: 700m (2100 ft)
- High quality cable: 47 nF/km max. length: 1700m (5100 ft)

3.1.5 Cable layout

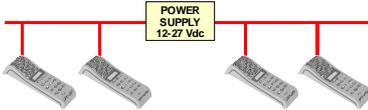
All stations are normally connected to the system power supply in parallel. Clusters of stations may have their own local supplies.

As all stations are connected in parallel, the system cable layout may be star- bus- or loop connected, or any combination.

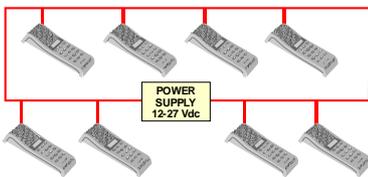
STAR CONFIGURATION



BUS CONFIGURATION



LOOP CONFIGURATION



All stations in parallel

Star configuration

- The stations are cabled directly to the power unit which is used as a central distribution point.

Bus configuration

- The stations are connected in parallel along one cable run.
- The system power should be connected to a central point of the cable.

Loop configuration

- The stations are connected in parallel along one cable run.
- The system power should be connected where the majority of stations are located.

3.1.6 Considerations

Power supply

- The power supply must be wall mounted and located in an area with adequate ventilation.
- The temperature must be between 0 - 35°C (32 - 95°F)
- The relative humidity range of 30% to 90 % must be maintained.

Installation

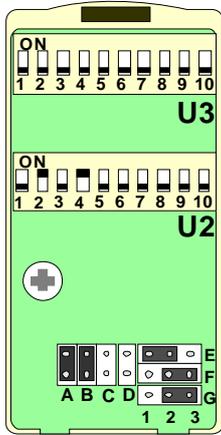
- Do not install power units or stations in an area near electrical noise sources, including equipment such as heavy motors, welders, dimmers, radio transmitters etc.
- Do not run the installation cable parallel to, or near power cables supplying voltage to such equipment.

If the cable passes such equipment the entire installation cable must be screened (each individual pair).

Note that screened cable has a much higher capacitance which will reduce the max. total cable mass.

4 PROGRAMMING

4.1 General



AA711 programming field

All stations in System Pro700 have two 10 switch DIP-switch packages for system configuration and feature programming.

Some stations have jumpers for additional programming.

- A station has to be reset after programming.
- Disconnect the power supply or unplug the station cord.
- Press the reset switch **SW1** on stations AA703, AA704, AA705, AA706, AB731, AB731A and BC735.
- The DIP switch **U2** is used for number programming, set priority station and Group Call settings.
- The DIP switch **U3** is used for station applications and features.
- The switch packages **U2** and **U3** are located on the station board and accessed by disassembling the stations.
 - In AA711, the switches are located under a lid on the rear of the station.

A station can be given any combination of features.

4.2 Subscriber Numbers

Switch Package U2							GROUP CALL			
STATION NUMBERS										
ON	1	2	3	4	5	6	7	8	9	10
OFF										
10	OFF	ON	OFF	ON	OFF	OFF	Priority Station	All Call	Group Call 1	Group Call 2
11	ON	ON	OFF	ON	OFF	OFF				
12	OFF	OFF	ON	ON	OFF	OFF				
13	ON	OFF	ON	ON	OFF	OFF				
14	OFF	ON	ON	ON	OFF	OFF				
15	ON	ON	ON	ON	OFF	OFF				
16	OFF	OFF	OFF	OFF	ON	OFF				
17	ON	OFF	OFF	OFF	ON	OFF				
18	OFF	ON	OFF	OFF	ON	OFF				
19	ON	ON	OFF	OFF	ON	OFF				
20	OFF	OFF	ON	OFF	ON	OFF				
21	ON	OFF	ON	OFF	ON	OFF				
22	OFF	ON	ON	OFF	ON	OFF				
23	ON	ON	ON	OFF	ON	OFF				
24	OFF	OFF	OFF	ON	ON	OFF				
25	ON	OFF	OFF	ON	ON	OFF				
26	OFF	ON	OFF	ON	ON	OFF				
27	ON	ON	OFF	ON	ON	OFF				
28	OFF	OFF	ON	ON	ON	OFF				
29	ON	OFF	ON	ON	ON	OFF				
30	OFF	ON	ON	ON	ON	OFF				
31	ON	ON	ON	ON	ON	OFF				
32	OFF	OFF	OFF	OFF	OFF	ON				
33	ON	OFF	OFF	OFF	OFF	ON				
34	OFF	ON	OFF	OFF	OFF	ON				
35	ON	ON	OFF	OFF	OFF	ON				
36	OFF	OFF	ON	OFF	OFF	ON				
37	ON	OFF	ON	OFF	OFF	ON				
38	OFF	ON	ON	OFF	OFF	ON				
39	ON	ON	ON	OFF	OFF	ON				
40	OFF	OFF	OFF	ON	OFF	ON				
41	ON	OFF	OFF	ON	OFF	ON				
42	OFF	ON	OFF	ON	OFF	ON				
43	ON	ON	OFF	ON	OFF	ON				
44	OFF	OFF	ON	ON	OFF	ON				
45	ON	OFF	ON	ON	OFF	ON				
46	OFF	ON	ON	ON	OFF	ON				
47	ON	ON	ON	ON	OFF	ON				
48	OFF	OFF	OFF	OFF	ON	ON				
49	ON	OFF	OFF	OFF	ON	ON				

- Locate the **U2** DIP-switch.
- The switches 1 - 6 are used for programming the station to extension number 10 - 49.
- Set the switches according to the table.
 - Be sure to give each station a unique number.
- Keep in mind that:
 - 1-key stations are pre-programmed to call no.13.
 - 3-key stations are pre-programmed to call no. 11, 12 and 13, and no. 21, program channel and no. 23 with X as prefix.

4.3 Priority Station

- Set **U2** switch 7 to ON.
 - Set the appropriate jumper according to station type to activate Remote Output by key 5 from a priority station.

4.4 Group Call

- U2** switch 8, 9 and 10 are set to ON to enable the station to receive All Call and Group Calls in group 1 and/or group 2.

4.5 Applications and Features

- Locate the 10-switch **U3** switch package.

4.5.1 Station type

The **U3** switches 1, 2 and 3 are used to set the station type.

- | | |
|-------------------------------|-----------------------------------|
| • Master stations | Substations |
| - Standard station | - Direct Dial 1 and 3-key station |
| - Direct dial, 10-key station | - Doorbell station |
| - CAS Operator station | - CAS Call-in station |

4.5.2 Station features

Each station type has a set of features which are set by the **U3** switches 4-10.

4.5.3 Switch settings

MASTER STATIONS

STANDARD STATION

SW	FUNCTION	ON	OFF
4	Call time	30 sec.	∞
5	Always Privacy	Yes	No
6	Receive Doorbell call #1	Yes	No
7	Receive Doorbell call #2	Yes	No
8	Tone for refused Silent Alarm call in queue	Yes	No
9	Silent Alarm on key 6 Last no. redial on key 6	Yes No	No Yes
10	Receive Silent Alarm	Yes	No

DIRECT DIAL 10-KEY STATION

SW	FUNCTION	ON	OFF
4	Call time	30 sec.	∞
5	Always Privacy	Yes	No
6			
7			
8	Emergency Call on key 9	Yes	No
9	Dir. Dial Number Range		
10	Dir. Dial Number Range		

CAS OPERATOR STATION

SW	FUNCTION	ON	OFF
4	CAS Operator**	Master	Slave
5	T-key scrolls CAS queue	Yes	No
6	Receive Doorbell call #1	Yes	No
7	Receive Doorbell call #2	Yes	No
8	Alert tone when queue	3 sec.	Single
9	Silent Alarm on key 6 Last no. redial on key 6	Yes No	No Yes
10	Receive Silent Alarm	Yes	No

SUBSTATIONS

DIRECT DIAL 3-KEY STATION

SW	FUNCTION	ON	OFF
4	Call time	30 sec.	∞
5	Always Privacy	Yes	No
6			
7			
8	Emergency Call on key 9	Yes	No
9			
10			

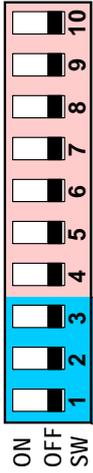
DOORBELL STATION

SW	FUNCTION	ON	OFF
4	Call time	30 sec.	∞
5	Doorbell no. on key 6	2	1
6	Doorbell tone on key 6	5 sec.	Single*
7	Doorbell no. on key 9	2	1
8	Doorbell tone on key 9	5 sec.	Single*
9	Doorbell active time	30 sec.	2 min.
10			

CAS CAL-IN STATION

SW	FUNCTION	ON	OFF
4			
5	CAS call activation delay	3sec.	No
6	Audio Monitoring	Yes	No
7	Key for CAS call	Key 0	Key 9
8	CAS acknowl. request tone	10 sec.	Single*
9			
10			

Switch Package U3



STATION APPLICATION

SW1	SW2	SW3	FUNCTION
OFF	OFF	OFF	Standard Station
ON	OFF	OFF	Direct Dial 3-key Station
OFF	ON	OFF	Direct Dial 10-key Station
ON	ON	OFF	Doorbell Station
OFF	OFF	ON	
ON	OFF	ON	CAS Call-in Station
ON	ON	ON	CAS Operator Station

DIRECT DIAL NUMBER

SW9	SW10	KEY 0 - 9	KEY 0 - 8*
OFF	OFF	10 - 19	10 - 18
ON	OFF	20 - 29	20 - 28
OFF	ON	30 - 39	30 - 38
ON	ON	40 - 49	40 - 48

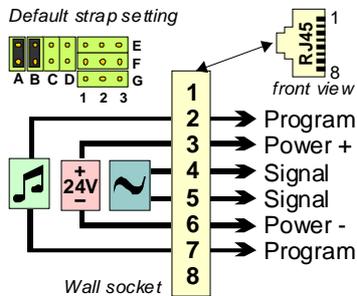
* If SW8 is ON, Emergency Call on key 9

* Connected to Program Distribution Channel

** One must be Master, one or two may be Slave

5 CONNECTING STATIONS

5.1 AA711



Open the lid on the rear of the station to get access to the programming DIP switches and strap jumpers.

- The station cords BF640/641/642/ 643 are used to terminate this station to an 8-pin modular jack wall socket, KB170 or KB171.

Note that some types of wall sockets on the market do not always have the same connection layout.

- The 3-pair installation cable is connected to the terminals 2-7in the wall socket as shown
- Jumper **A** and **B** must be set to allow program distribution.
- Pin 1 and 8 are reserved for optional external loudspeaker or remote output.

External loudspeaker

- Set jumper **F** and **G** in pos 1 - 2.
- Connect a 20 ohm loudspeaker to terminals 1 and 8.

Remote Output

The built-in relay can carry max. 48 V/1 A.

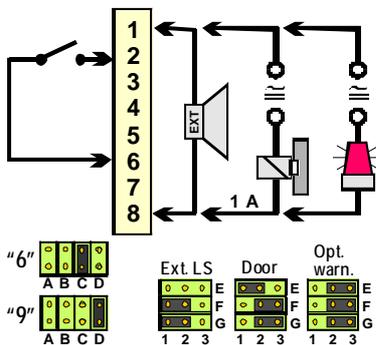
- Set jumper **F** and **G** in pos 2 - 3.
- Connect the optional equipment in series with its power supply to terminals 1 and 8.

Door opening: (activated by "5" from a priority station during conversation).

- Set jumper **E** pos 1 - 2.

Optional Warning: (active when station is called, cancelled by "2").

- Set jumper **E** pos 2 - 3.



External call switch

Program distribution can be substituted by an external switch in parallel with the keyboard switch "6" or "9".

- Connect the switch between terminals 2 and 6.
- Remove jumper **A** and **B**

Silent Alarm, button 6:

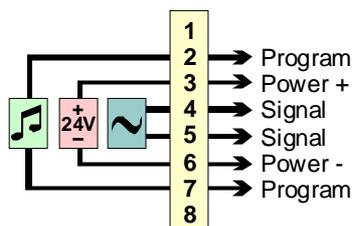
- Set jumper **C**.

Emergency call, button 9:

- Set jumper **D**.

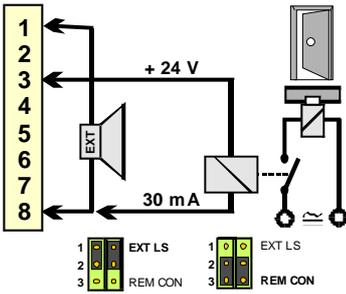
*Note that the program distribution cable **must not** be connected to terminals 2 and 7 if an external switch is used.*

5.2 AA702, AB708 and AB709



The 3-pair installation cable is connected to the terminal block on the back plate of these stations.

The stations have to be opened to get access to the terminal block.



External loudspeaker

- ☑ Set jumpers to pos 1 – 2, **EXT LS**.
- ☑ Connect a 20 ohm loudspeaker to terminals 1 and 8.
 - Remote Output function can then not be used.

Remote Output

Door opening (activated by "5" from a priority station during conversation).

These stations have a 30mA transistor output.

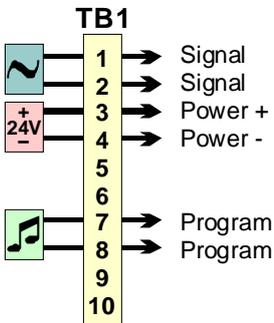
- ☑ Set jumpers to pos 2 – 3, **REM CON**.
 - External loudspeaker can then not be connected.
- ☑ Connect 12 VDC relay to the screw terminal 3 and 8.
- ☑ Connect the door lock magnet via the relay contact.
 - External power for the door lock magnet is needed.

5.3 AA703, AA704, AA705, BC735

The 3-pair installation cable is connected to terminals 1/2, 3/4 and 7/8 on screw terminal block **TB1** on the printed circuit board NFE1830.

Extra equipment is connected to terminals 5/6 and 9/10 on terminal block **TB1** and to **TB2** and **TB3** on the same printed circuit board.

The stations have to be opened to get access to the terminal blocks.



External loudspeaker

- ☑ Connect a 20 – 50 ohm loudspeaker to terminals **TB1 - 5** and **6**.
 - The loudspeaker can be connected independent of jumper settings and other equipment.

Remote Output

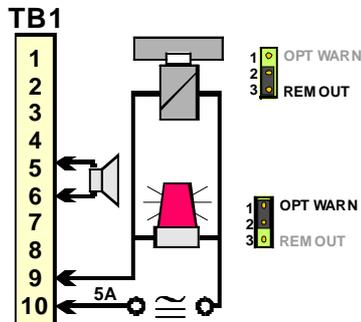
The built-in relay can carry max. 5 A.

Door opening: (activated by "5" from a priority station during conversation).

- ☑ Set jumper 1 to pos 2 - 3.
- ☑ Connect the door magnet in series with its power supply to terminals **TB1 - 9** and **10**.

Optional Warning: (active when station is called, cancelled by "2").

- ☑ Set jumper 1 to pos 1 - 2.
- ☑ Connect the warning device in series with its power supply to terminals **TB1 - 9** and **10**.



Remote Input, Emergency Call

External switch in parallel with the keyboard switch "9".

- ☑ Connect a closing contact switch to **TB2** terminals 1 and 2.

Local Reset

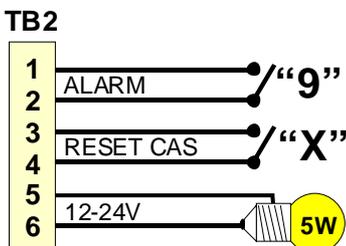
Reset a CAS call-in station by pushing an external switch "X".

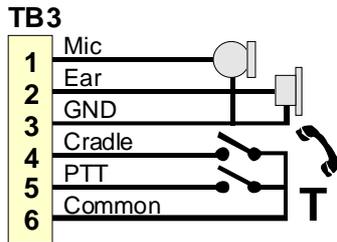
- ☑ Connect a closing contact switch to **TB2** terminals 3 and 4.

Local Output

A lamp will light when a CAS call-in or doorbell call is made.

- ☑ Connect a 5W lamp to **TB2** terminals 5 and 6.
 - The lamp voltage must correspond to the available power!

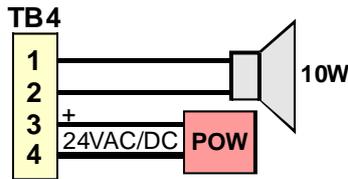




**Handset
GD745**

An external Handset Module can be connected to perform low-speaking conversations.

- ☑ Connect all wires from the handset module GD745 to the **TB3** screw terminal block:
 - Microphone 1 - 3
 - Ear capsule 2 - 3
 - Cradle switch 4 - 6
 - T-button 5 - 6

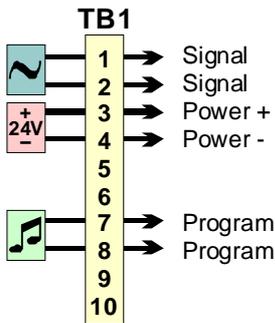


**10 Watt amplifier
FC740**

A10 W Amplifier Module can be mounted inside the stations according to separate instructions.

- ☑ Connect external loudspeaker(s) to **TB4** terminals 1 and 2.
- ☑ Connect external 24 Volt DC or AC to **TB4** terminals 3 and 4
 - positive pole to terminal 3.

5.4 AA706, AB731, AB731-F, AB731A, AB731A-F



The 3-pair installation cable is connected to terminals 1 - 4 and 7 - 8 on screw terminal block **TB1** on the printed circuit board NFE1825.

Extra equipment is connected to terminals 5/6 and 9/10 on terminal block **TB1** and to **TB2** on NFE1829.

The stations have to be opened to get access to the terminal blocks.

External loudspeaker

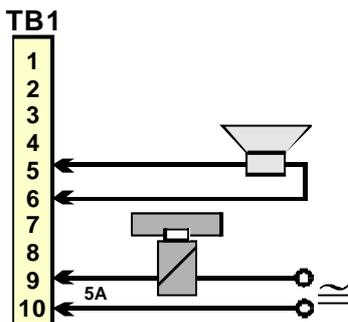
- ☑ Connect a 20 – 50 ohm loudspeaker to terminals **TB1 - 5** and **6**.
 - The loudspeaker can be connected independent of other equipment.

Remote Output

The built-in relay can carry max. 5 A.

Door opening: (activated by "5" from a priority station during conversation).

- ☑ Connect the door magnet in series with its power supply to terminals **TB1 - 9** and **10**.



Remote Input, Emergency Call

External switch in parallel with the keyboard switch "9".

- ☑ Connect a closing contact switch to **TB2** terminals 1 and 2.

Local Reset

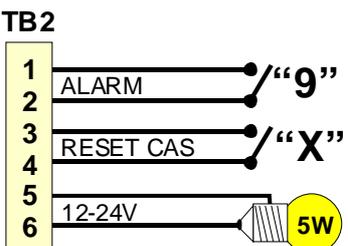
Reset a CAS call-in station by pushing an external switch "X".

- ☑ Connect a closing contact switch to **TB2** terminals 3 and 4.

Local Output

A lamp will light when a CAS call-in or doorbell call is made.

- ☑ Connect a max. 5 W lamp to **TB2** terminals 5 and 6.
 - The lamp voltage must correspond to the available power!



5.6 Adjusting Audio Level

5.6.1 Master stations AA711, AA702, AA704, AA706

- ☑ Use the + and – keypad buttons.

5.6.2 Substations AB708 and AB709

- ☑ Turn the variable resistor R20 on the printed circuit board clockwise to increase volume.

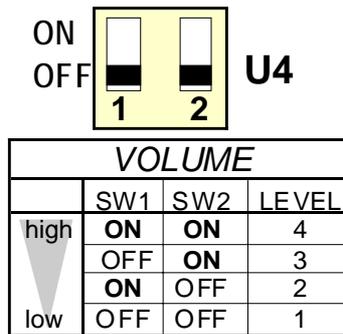
5.6.3 Industrial stations AA703 and AA705 Multipurpose Unit BC735

- ☑ Use switch package U4 on the printed circuit board.
- The output level can be fine tuned by resistor R20.

5.6.4 Substations AB731, A, F and A-F

- ☑ Use switch package U4 on printed circuit board.

The switch package U4 has two switches to preprogram the audio level in four levels.



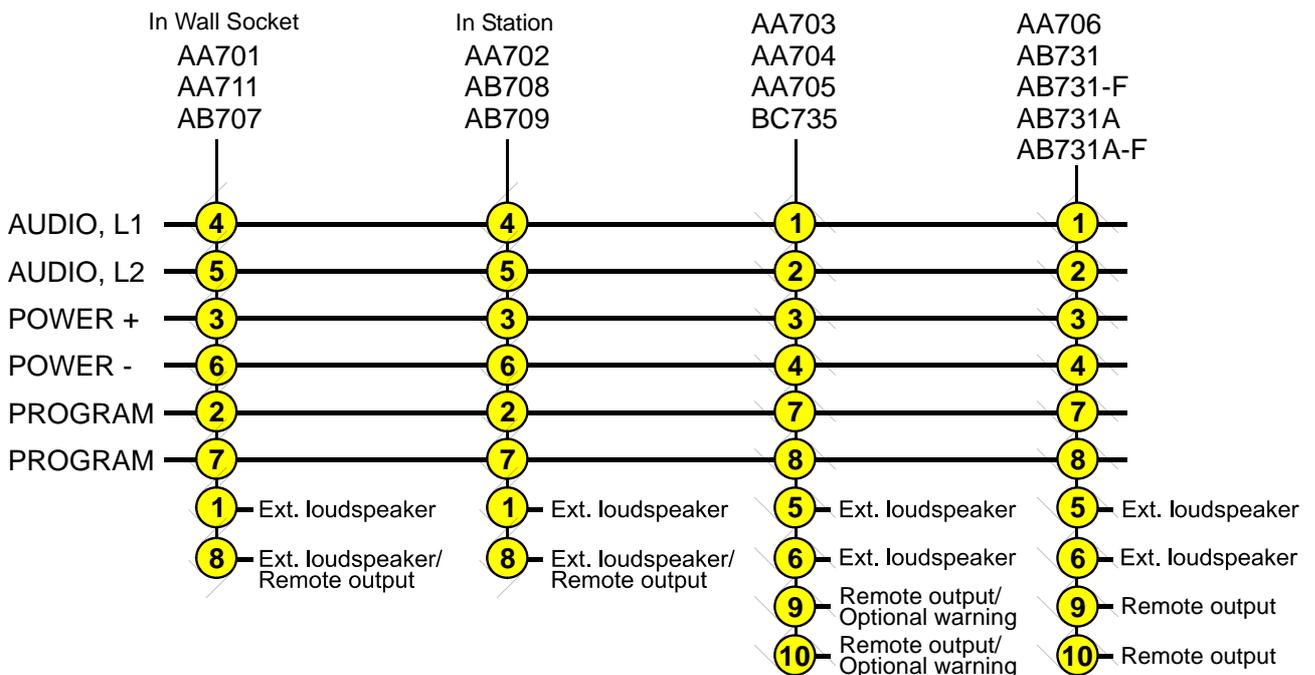
5.7 Sound Detection Module DP996

DP996 can be mounted inside all stations in the AB731 series.

- ☑ Open the station and replace the 3 nuts on NFE1825 with the 3 supplied spacers.
- ☑ Press NFE1821 into the 7 pin header P2 of NFE1825A.
- ☑ Fasten NFE1821 with the 3 nuts.

See separate documentation for programming of the DP996 module.

5.8 Wiring Diagram, all stations

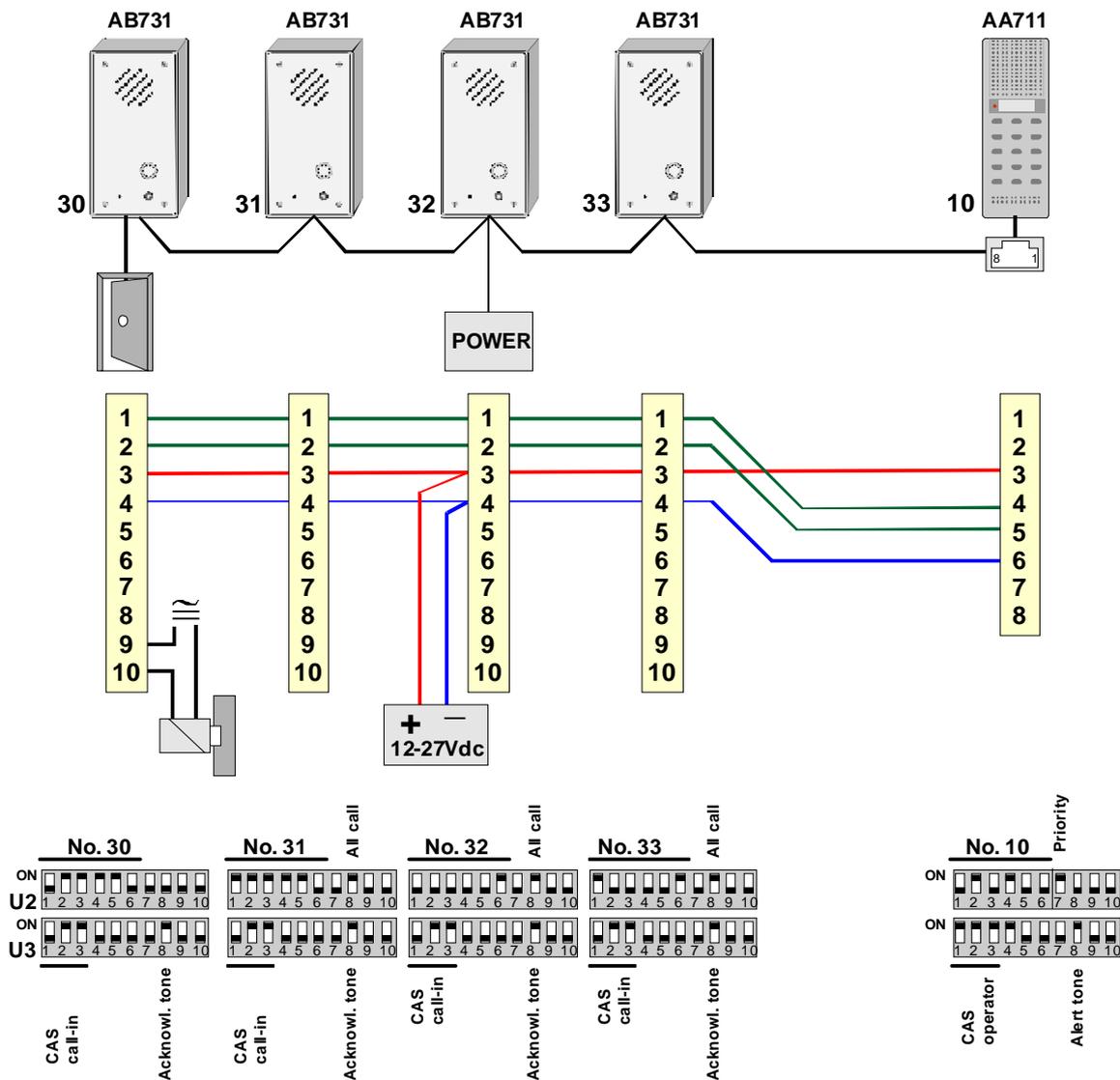


6 TYPICAL CONFIGURATIONS

The following configurations are just a few examples on how to connect and program Pro700. More examples are found in the Pro700 Configuration sheets 15 911 003 ... at www.zenitel.biz/pro700

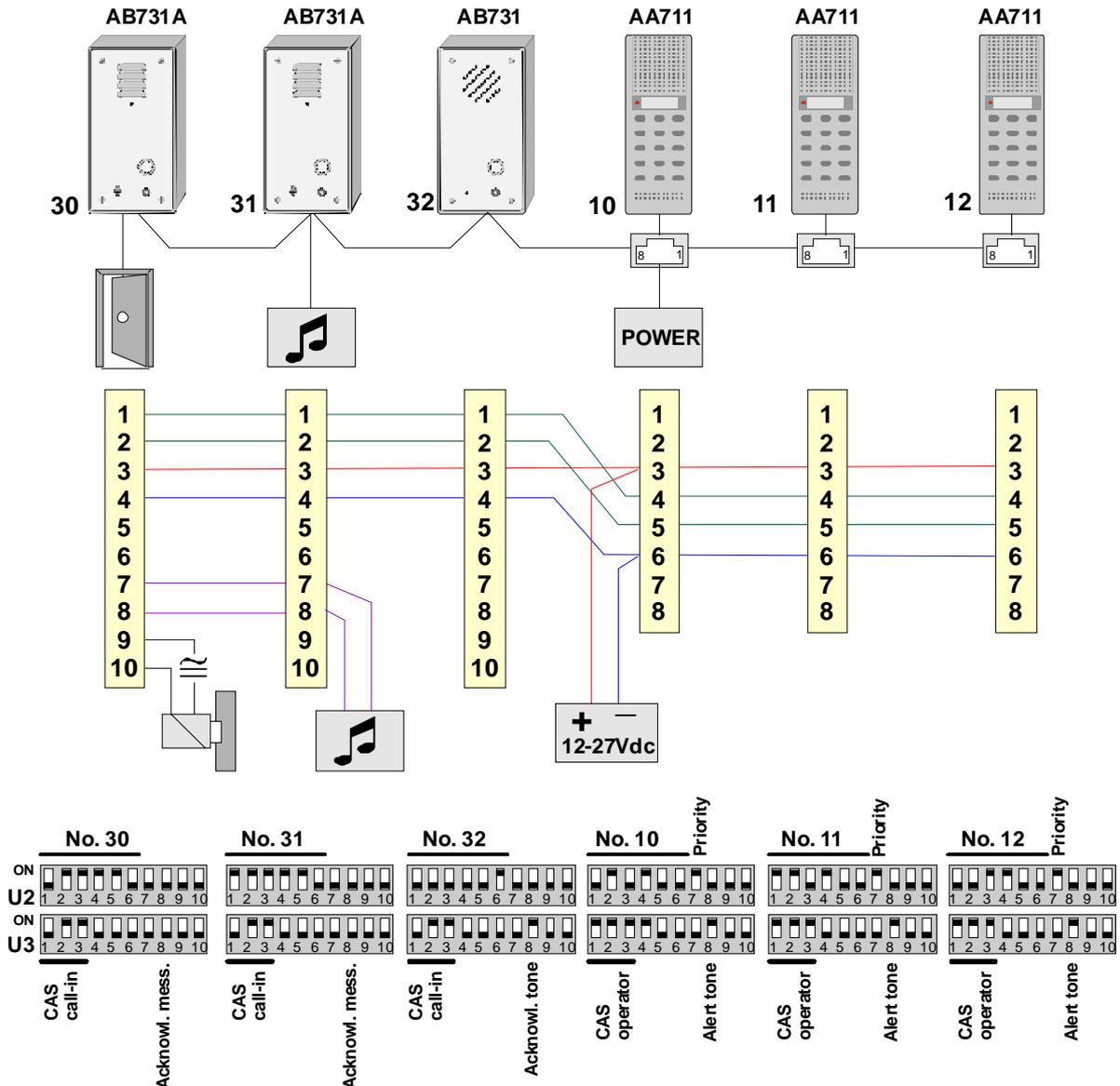
6.1 Police Station, Guard – Cell Communication

- Stations AB731 are located inside cells.
- The relay in station no. 30 can open the cell door.
 - The door opening relay is operated from station no.10 by pressing the “5” button during conversation with no.30.
- Stations no. 30 – 33 will receive a 10 sec. ringing tone while waiting in the CAS call-in queue.
- All cell stations can make a call to no. 10 by pressing the call button.
 - The call queue is indicated in the display of no. 10.
 - The calls are accepted one by one by pressing “0”.
- Station no. 10 can dial to all cell stations
- Stations no. 31, 32 and 33 can receive All-call messages from no. 10.



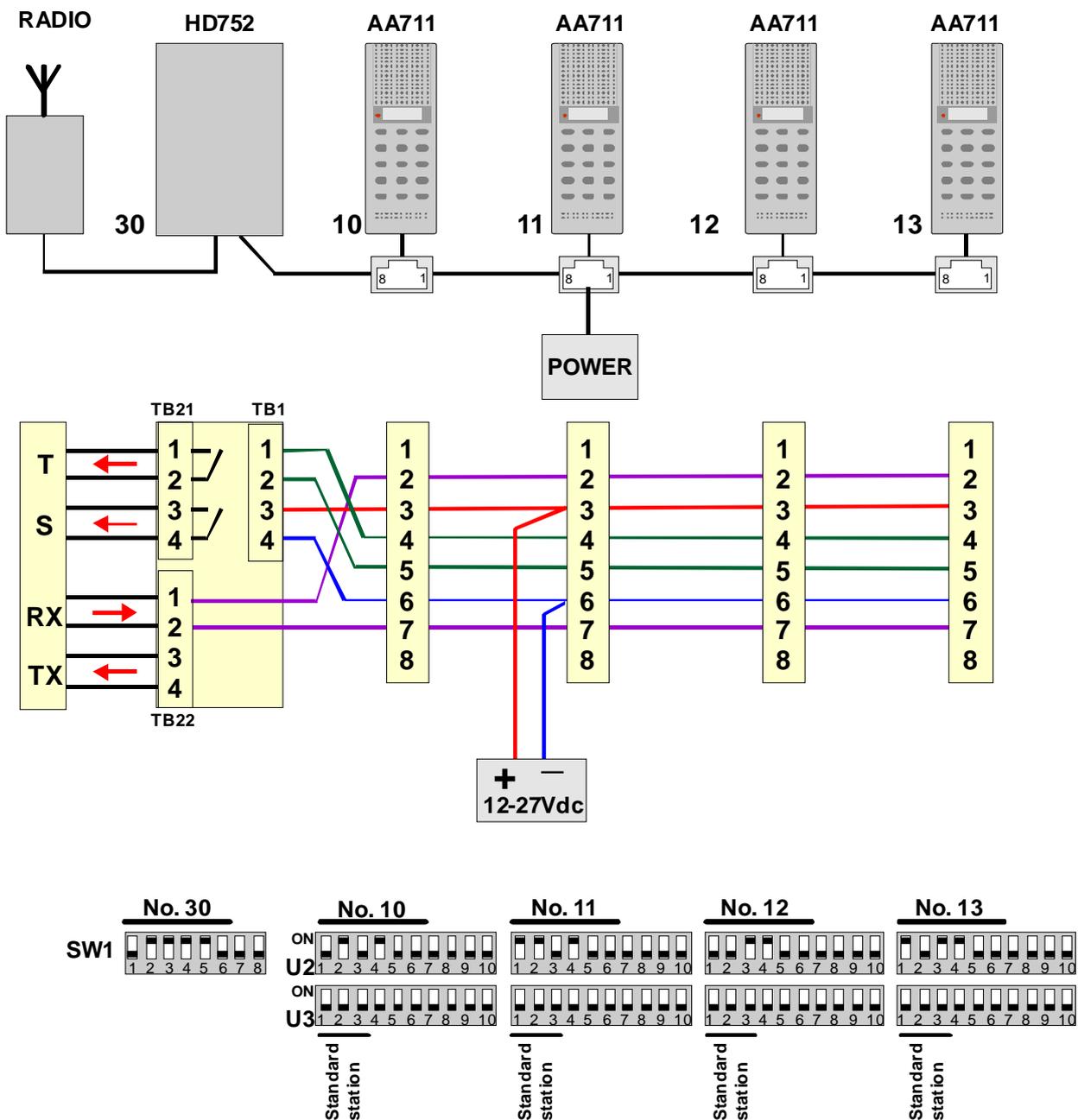
6.2 Police Station Door – Guard – Cell communication

- One AB731 station is located inside a cell.
- Two AB731A stations are located outside two entrance doors.
 - Door station no. 30 has a relay for remote door opening.
 - Door station no. 31 must be opened manually by a guard.
- The relay in no. 30 is operated from guard station no. 10, 11 or 12 by pressing the “5” button during conversation with no.30.
- Station no.30 and 31 will receive a recorded message or music when waiting in the call queue. Station no.32 will receive a ringing tone.
- Station no. 30, 31 and 32 can make a call to all guard stations by pressing the call button.
 - The call queue is indicated in the display of no. 10, 11 and 12.
 - The calls are accepted one by one by pressing “0” in any of the guard stations.
- All guard stations can call each other and all substations.



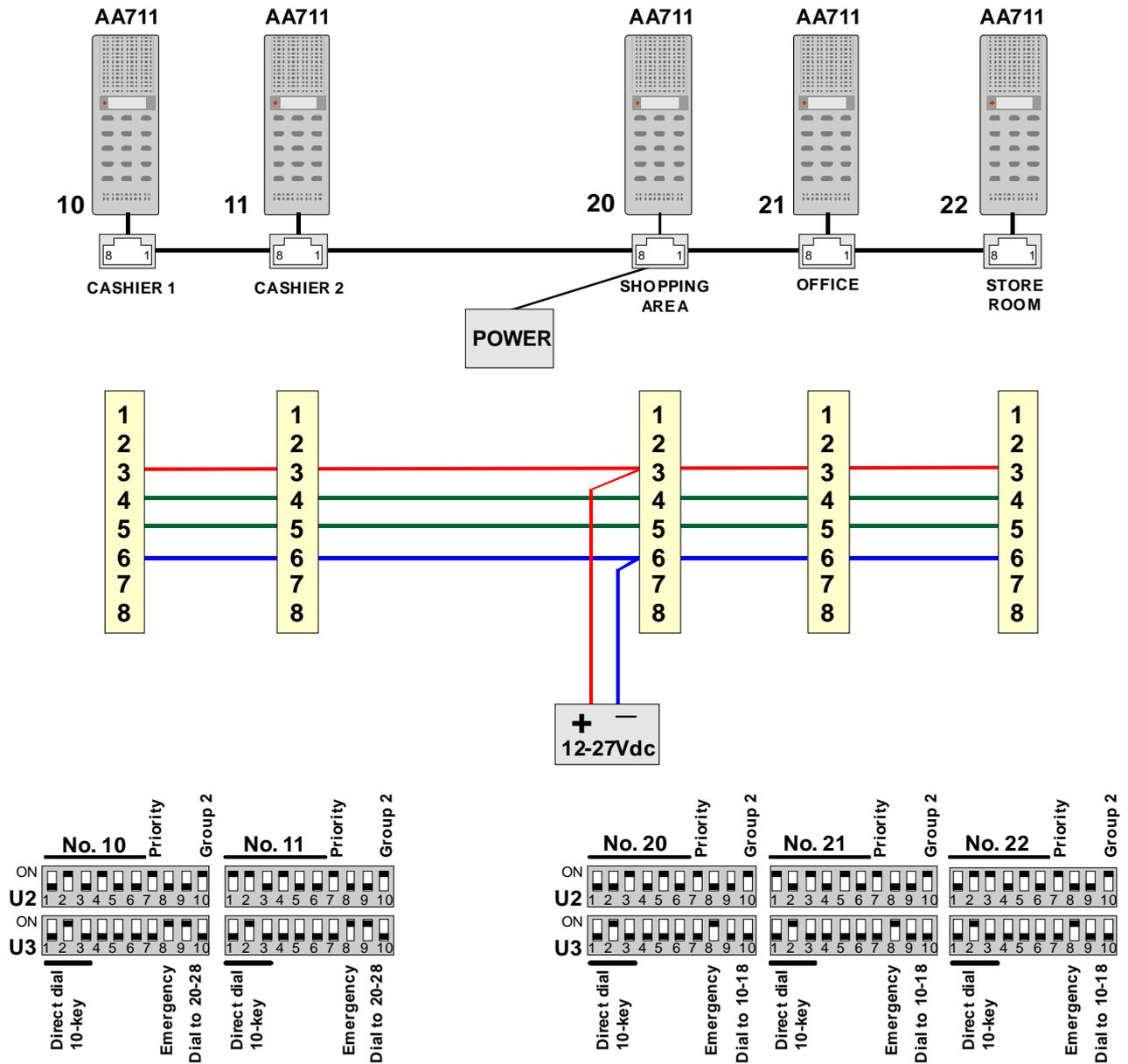
6.3 Police Station, Remote radio control

- Stations no. 10, 11, 12 and 13 can call each other by normal dialing.
- The station's program channel cable is connected to the RX line from the radio.
 - The officer on duty can leave the radio room and move freely in locations with intercom stations. By dialing "96" (program channel) from any station he can monitor all ongoing radio traffic.
 - If the duty officer hears a request for answer, he just dials "30" to connect to the radio for conversation.
- In the radio, the "S" is 'start duplex operation'.
 - closed during the whole conversation if required by the radio set.
- The "T" is 'Talk' in simplex operation.
 - closed when press-to-talk button "T" is used in the calling station.



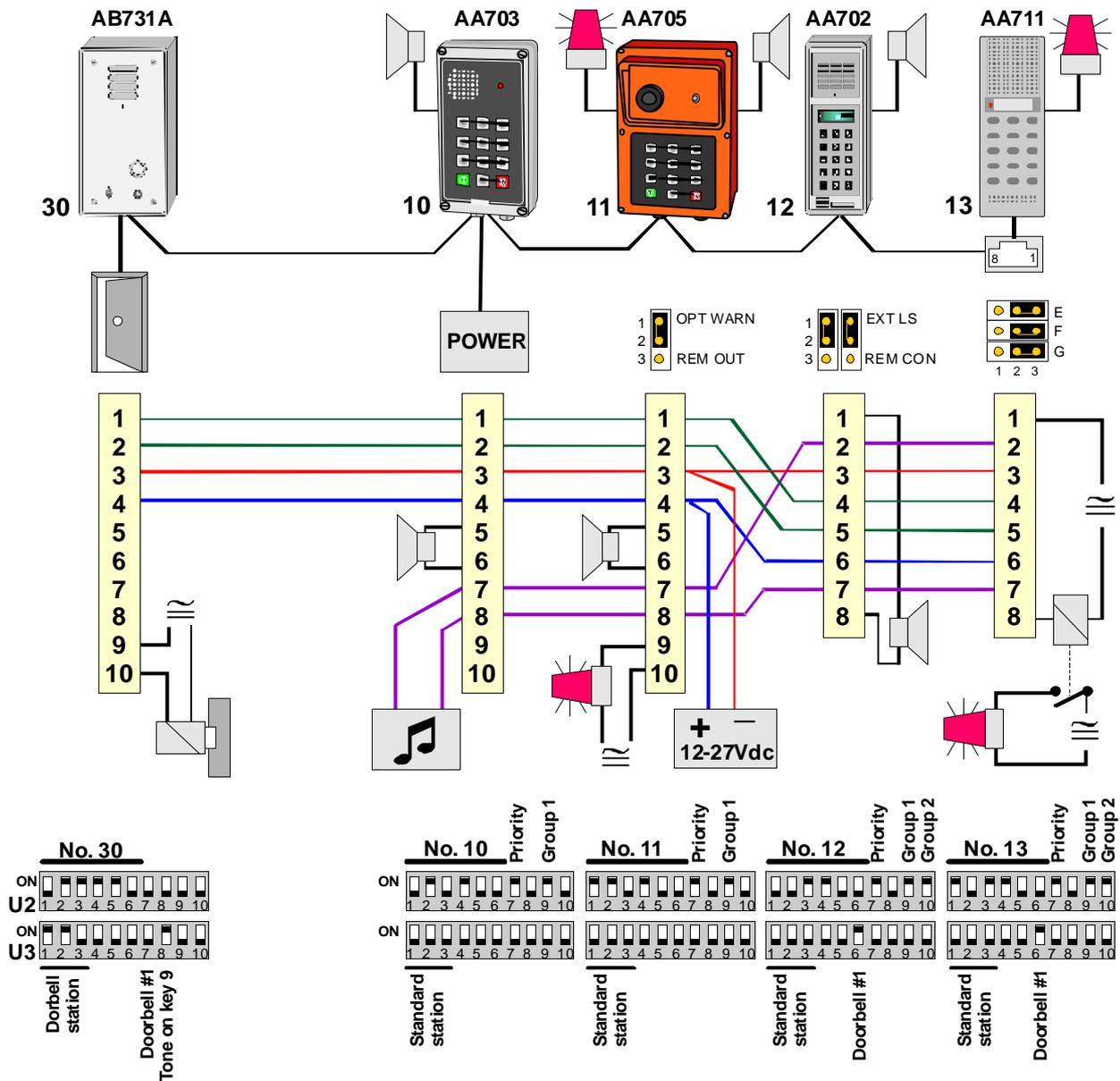
6.4 Supermarket

- All stations are programmed as direct dialing 10-key stations.
- All stations are programmed with priority.
- The cashier stations are programmed to direct dial no. 20 - 28.
- Stations no. 20 - 28 are programmed to direct dial no. 10 - 18.
- Emergency call can be made by all stations on button "9".



6.5 Small Industry

- Doorbell station no. 30 can make a call to station no. 12 and 13.
 - Station no. 12 and 13 can accept the call by button "5".
 - Station no. 12 and 13 can open the door by button "5" in conversation.
- Station no. 10, 11 and 12 have external loudspeaker for increased output.
- Station no. 11 and 13 have optional warning (cancelled by pressing "2").
 - Station no. 11 has a light or bell to alert a call in noisy environment
 - Station no. 13 has a light outside the office door to visually alert absent person about calls.
- All master stations can initiate group call
 - to station no. 10, 11, 12 and 13 in group 1 by dialing "91"
 - to stations no. 12 and 13 in group 2 by dialing "92"
- Station no. 10, 11, 12 and 13 can listen to music by selecting "96".



7 TECHNICAL SPECIFICATIONS

System Pro700

Number of stations	Max recommended	40 16 - 20
Extension call numbers		10-49
Conversation channels		1
Program distribution channels		1
Input to program channel	aux. line	100 mV / 600 ohm
Power supply		18 VDC (12–27)
Line specification	3 twisted pairs	0.5 or 0.6 mm ^Ø
Max. distance between power supply and a station, 0.6 mm ^Ø cable		12 VDC 100 m (330 ft) 18 VDC 300 m (1000 ft) 24 VDC 500 m (1600 ft)
Total cable capacitance	max.	87 nF
<i>Max. cable run in a system</i>		
Standard cable quality	120 nF/km	700 m (2100 ft)
Good cable quality	47 nF/km	1700 m (5100 ft)

Common Station Data

Operating voltage		12 - 27 VDC
Current drain	idle max	30 mA 200 mA
Frequency range		100 - 5000 Hz
Output power	internal loudspeaker	1 W
Volume control range		23 dB
Type of signaling		32 kHz ASK

Master Station - AA711

Type	Gray ABS	Desk / Wall
Wall mounting	Bracket	GF732
Dimensions:	D x W x H	64 x 78 x 214 mm 2.5 x 3.0 x 8.4 inch
Weight		215 g
Output power	external 20 ohm loudspeaker	2 W
Current drain	w/ external loudspeaker	400 mA
Display	LCD	8 digits
Remote Output (relay)	resistant load	max. 48 V/1 A

Master Stations - AA702, AB708, AB709

Type	Gray ABS	Wall
Dimensions	D x W x H	51 x 80 x 220 mm 2.0 x 3.1 x 8.7 inch
Weight		350 g
Output power	external 20 ohm loudspeaker	2 W
Current drain	w/ external loudspeaker	400 mA
Display	AA702	LCD, 8 digits

CE Certification

All Pro700 equipment are tested and comply with the EMC (Electromagnetic Compatibility) directive 89/336-EEC of the European Community and meet or exceed the following standards:
EN 50081-1 Emission
EN 50082-1 Immunity

Industrial Master Stations

AA703, AA704, AA705, BC735

Type	Gray Bayblend / Dark grey foil	Wall
Dimensions	D x W x H	63 x 124 x 244 mm 2.5 x 4.9 x 9.5 inch
Weight		845 g

AA704

Type	Dark grey PVC	Flush / wall w. box
Dimensions	D x W x H	50 x 125 x 280 mm 2.0 x 4.8 x 11 inch
Weight		400 g

AA705

Type	Orange Macrolon	Wall
Dimensions	D x W x H	137 x 160 x 240 mm 5.4 x 6.3 x 9.4 inch
Weight		1000 g

BC735

Type	Gray Bayblend / Dark grey foil	Wall
Dimensions	D x W x H	63 x 124 x 244 mm 2.5 x 4.9 x 9.5 inch
Weight		750 g

Common

Current drain	w/ external loudspeaker	500 mA
Output power	external 20 ohm loudspeaker	3 W
Remote Output (relay)	resistant load	5 A

Door- / Tamper Resistant Stations

AB731, AB731-F, AB731A, AB731A-F

AB731 / AB731A

Type	Aluminum box, steel front	Wall
Dimensions	D x W x H	65 x 90 x 180 mm 2.6 x 3.5 x 7.1 inch
Weight		1500 g

AB731-F / AB731A-F

Type	Steel front	Flush
Dimensions	D x W x H	60 x 130 x 220 mm 2.4 x 5.1 x 8.7 inch
Weight		900 g

Common AB731 stations

Current drain	w/ external loudspeaker	500 mA
Output power	external 20 ohm loudspeaker	3 W
Local Output (lamp)	max. load	300 mA
Remote Output (relay)	resistant load	5 A

Clean room station - AA706

Type	Polyester film w/ antimicrobial front Flush mount in back box	
Dimensions	D x W x H	50 x 125 x 280 mm 2.0 x 4.8 x 11.0 inch
Weight		1200 g
Protection	Front access	IP65
Current drain	w/ external loudspeaker	500 mA
Output power	external 20 ohm loudspeaker	3 W
Local Output (lamp)	max. load	300 mA
Remote Output (relay)	resistant load	5 A