

Pro700 Communication System

Installation & Programming Manual



Pro700

Contents

1 GENERAL SYSTEM DESCRIPTION	4
1.1 Typical Pro700 System Users.....	4
1.2 Keypad Features.....	5
2 STATIONS AND KITS	6
2.1 Categories.....	6
2.2 Master Stations.....	6
AA711 Desk/Wall Master Station with Display.....	6
AA702 Wall Master Station with Display.....	6
AA703 Industrial Master Station.....	7
AA704 Console Master Station.....	7
AA705 Heavy Industrial Master Station.....	7
AA706 Clean Room Station.....	8
2.3 Substations.....	8
AB708 Wall Substation with 1 direct dialing button.....	8
AB709 Wall Substation with 3 direct dialing buttons.....	8
AB731, AB731-F Tamper resistant substation.....	9
AB731A, AB731A-F Door station substation.....	9
BC735 Multipurpose substation.....	10
2.4 Optional Equipment and Interface Units.....	10
GD745 Handset module.....	10
FC740 10 Watt Amplifier w/ talk-back.....	10
DP996 Sound Detection Module.....	10
LA617, LA618 and LA925 Power Supplies.....	11
BD702 Station Kit.....	11
2.5 Accessories.....	11
GF732 Wall bracket.....	11
BF636 Front plate frame.....	11
Back boxes.....	11
Station cords for station AA711 and AA701.....	11
KB171, KB172 Wall sockets.....	11
3 INSTALLATION	12
3.1 General Information.....	12
3.1.1 Stations.....	12
3.1.2 Station connection.....	12
3.1.3 Power supply.....	12
3.1.4 Installation cable.....	12
3.1.5 Cable layout.....	13
3.1.6 Considerations.....	13
4 PROGRAMMING	14
4.1 General.....	14
4.2 Subscriber Numbers.....	14
4.3 Priority Station.....	14
4.4 Group Call.....	14
4.5 Applications and Features.....	14
4.5.1 Station type.....	14
4.5.2 Station features.....	14
4.5.3 Switch settings.....	15
5 CONNECTING STATIONS	16
5.1 AA711.....	16
5.2 AA702, AB708 and AB709.....	16
5.3 AA703, AA704, AA705, BC735.....	17
5.4 AA706, AB731, AB731-F, AB731A, AB731A-F.....	18
5.5 Call Annunciation System – CAS.....	19
5.6 Adjusting Audio Level.....	20
5.6.1 Master stations AA711, AA702, AA704, AA706.....	20

- 5.6.2 Substations AB708 and AB70920
- 5.6.3 Industrial stations AA703 and AA705 Multipurpose Unit
BC73520
- 5.6.4 Substations AB731, A, F and A-F20
- 5.7 Sound Detection Module DP996.....20
- 5.8 Wiring Diagram, all stations20
- 6 TYPICAL CONFIGURATIONS.....21**
 - 6.1 Police Station, Guard – Cell Communication.....21
 - 6.2 Police Station Door – Guard – Cell communication.....22
 - 6.3 Police Station, Remote radio control.....23
 - 6.4 Supermarket.....24
 - 6.5 Small Industry25
- 7 TECHNICAL SPECIFICATIONS.....26**

Important Information

The information in this manual is based on 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 20 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

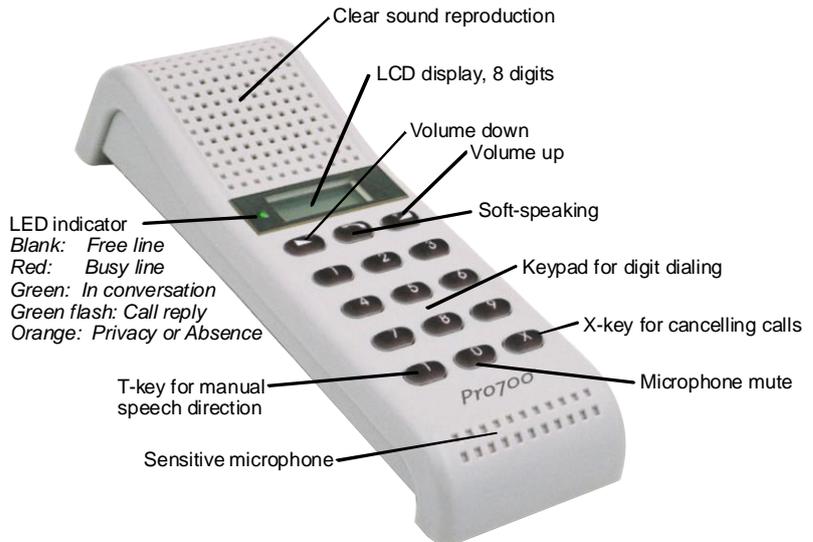
1.1 Typical Pro700 System Users

- 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.

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 piggyback 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 suit the particular application. The loudness and length of the audio signal to activate the alarm output is user selectable.

LA617, LA618 and LA925 Power Supplies

- One or more 220 VAC mains power supplies are connected to the common power line in the cabling.

- LA617	18 VDC / 1A	max 5 stations
- LA925	27 VDC / 5A	max 20 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

- BF934 Metal box for flush-mounting AB731-F and AB731A-F
- BF935 Metal box for flush-mounting AA702, AA708 and AA709
- 100 0602 000 Metal box for flush-mounting AA704 and AA706
- 100 0603 000 Metal box for surface mounting AA704 and AA706

Station cords for station AA711 and AA701

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

- | | | | |
|---------|-----|----------------|---------|
| - BF640 | 2 m | 8 wires | |
| - BF641 | 6 m | 8 wires | |
| - BF642 | 2 m | w/ spiral cord | 8 wires |
| - BF947 | 2 m | | 4 wires |
| - BF948 | 2 m | w/ spiral cord | 4 wires |
- for Multinet
for Multinet

KB171, KB172 Wall sockets

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

- KB171, surface mounting
- KB172, flush mounting.

3 INSTALLATION

3.1 General Information

3.1.1 Stations

- Up to 20 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 18 and 27 VDC.

- All stations are connected to the power unit via the installation cabling.
- The power current capacity depends on the system size.
 - LA617 18VDC/1A units should be used in systems with max. 5 stations.
 - LA618 18VDC/4A units should be used in systems with max. 20 stations.
 - LA925 27VDC/5A units should be used in systems with long cable runs and max. 20 stations.
- Maximum distance on a 0.6 mm^Ø /24 AWG wire between any station and a power unit is:
 - 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

24 Volt battery can be used as emergency backup power.

- Adjust the power supply to act as a trickle charger
 - 24 V battery LA925 to 27.2 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 shielded.
- A cable of good quality and low capacitance should be used.

Maximum cable length

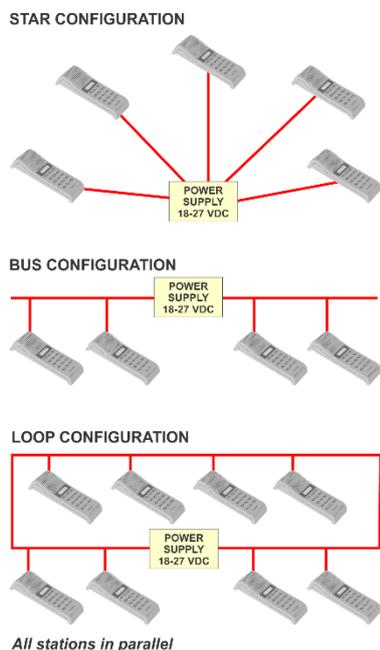
The total cable run in a system is limited by a mutual cable capacitance of **max. 87 nF**.

- 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

- 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

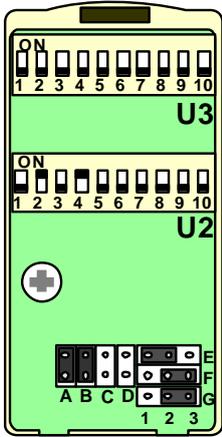
- Do not install power units or stations in an area near electrical noise sources, including equipment such as heavy motors, welders, dimmers, radio transmitters etc.
- Do not run the installation cable parallel to, or near power cables supplying voltage to such equipment.

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

Note that shielded 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

- 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.

		STATION NUMBERS						GROUP CALL			
ON	OFF	1	2	3	4	5	6	7	8	9	10
10	OFF	ON	OFF	ON	OFF	OFF					
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					

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.

- | | |
|---|--|
| <ul style="list-style-type: none"> • Master stations <ul style="list-style-type: none"> - Standard station - Direct dial, 10-key station - CAS Operator station | <ul style="list-style-type: none"> • Substations <ul style="list-style-type: none"> - Direct Dial 1 and 3-key station - Doorbell 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			

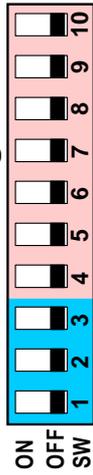
DOORBELL STATION

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	
OFF	ON	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

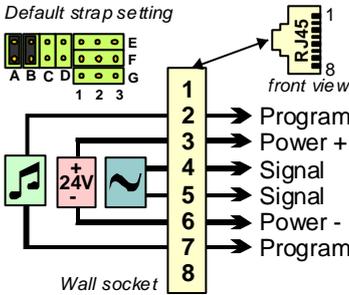
5.1 AA711

Open the lid at 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.

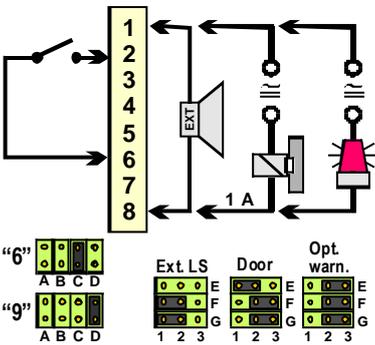
- Set jumper **F** and **G** in pos **2 - 3**.
- Connect the optional equipment in series with its power supply to terminals **1** and **8**.

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:

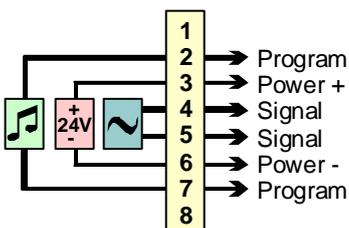
- Set jumper **D**.

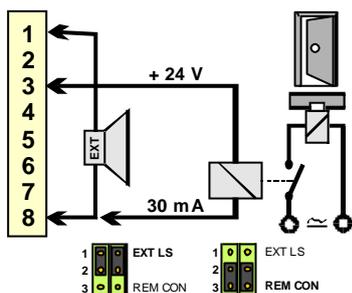
*Note that the program distribution cable **must not** be connected to terminals 2 and 7 if an external switch is used.*

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.

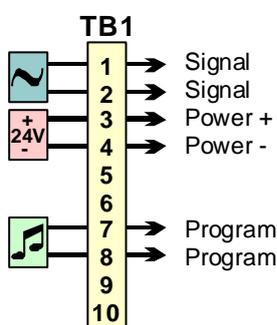
Remote Output

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

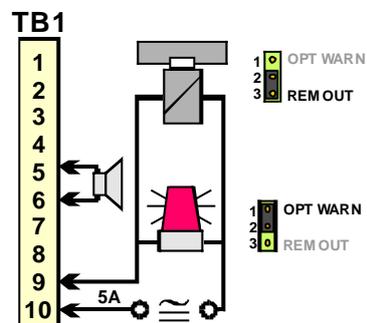
The built-in relay can carry max. 5 A.

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

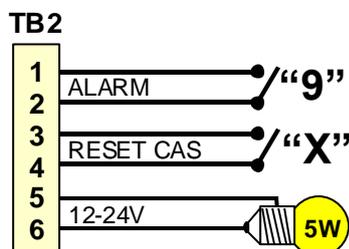
Reset a CAS call-in station by pushing an external switch "X".

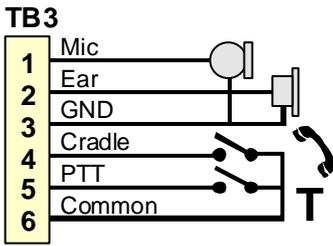
- Connect a closing contact switch to **TB2** terminals 3 and 4.

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**

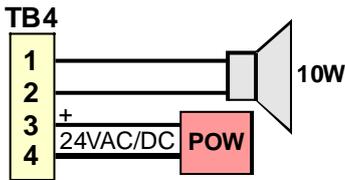
An external Handset Module can be connected to perform low-speaking conversations.

- ☑ 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.

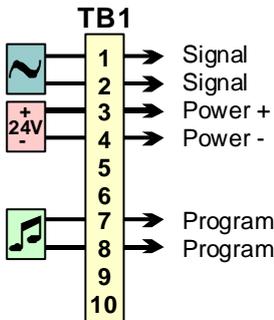


5.4 AA706, AB731, AB731-F, AB731A, AB731A-F

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

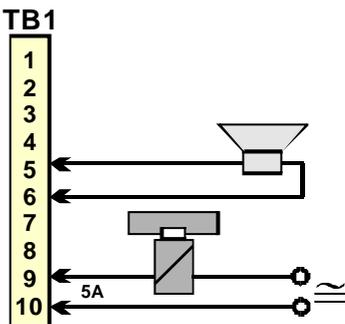
- ☑ Connect a 20 – 50 ohm loudspeaker to terminals **TB1 - 5** and **6**.
 - The loudspeaker can be connected independent of other equipment.

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

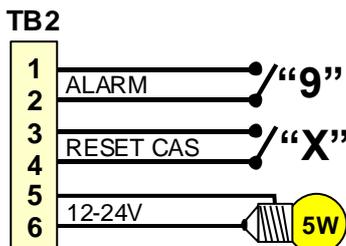
Reset a CAS call-in station by pushing an external switch "X".

- ☑ 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.

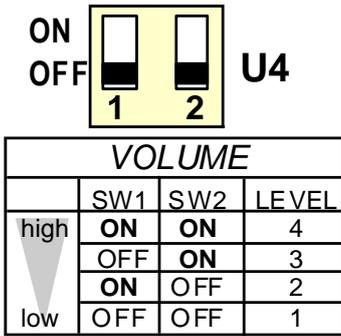
5.6.3 Industrial stations AA703 and AA705 Multipurpose Unit BC735

- ☑ 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.



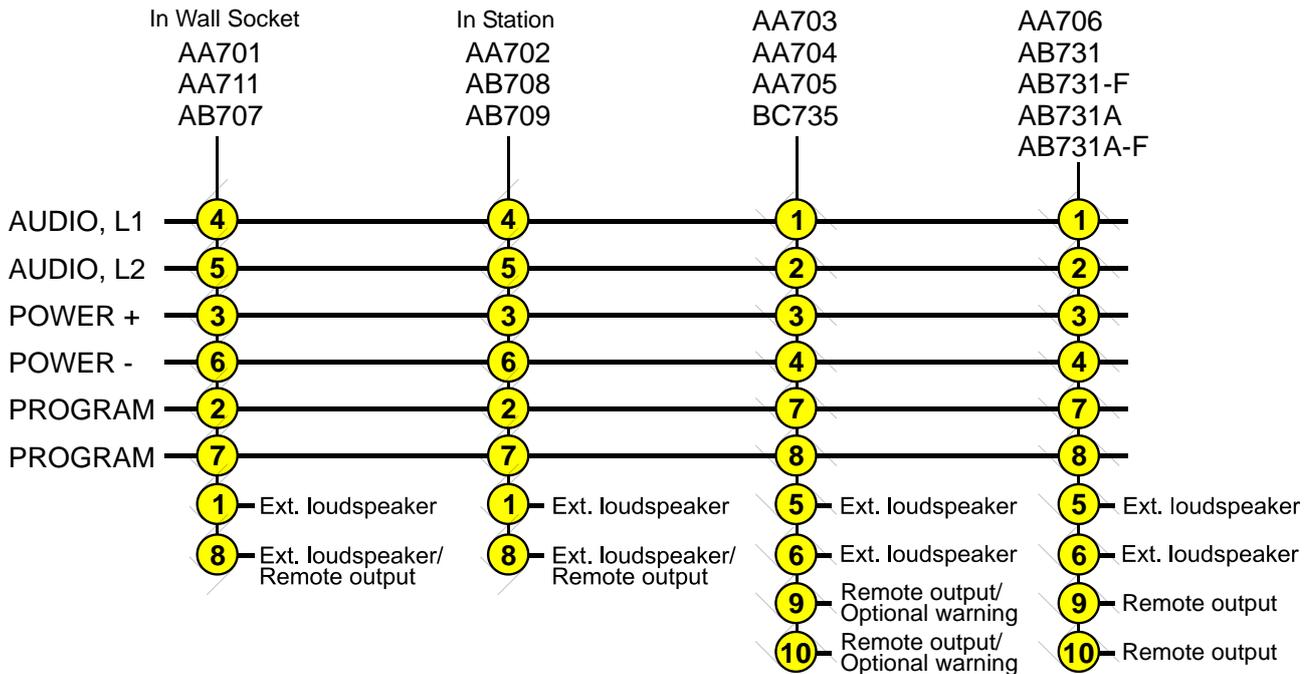
5.7 Sound Detection Module DP996

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

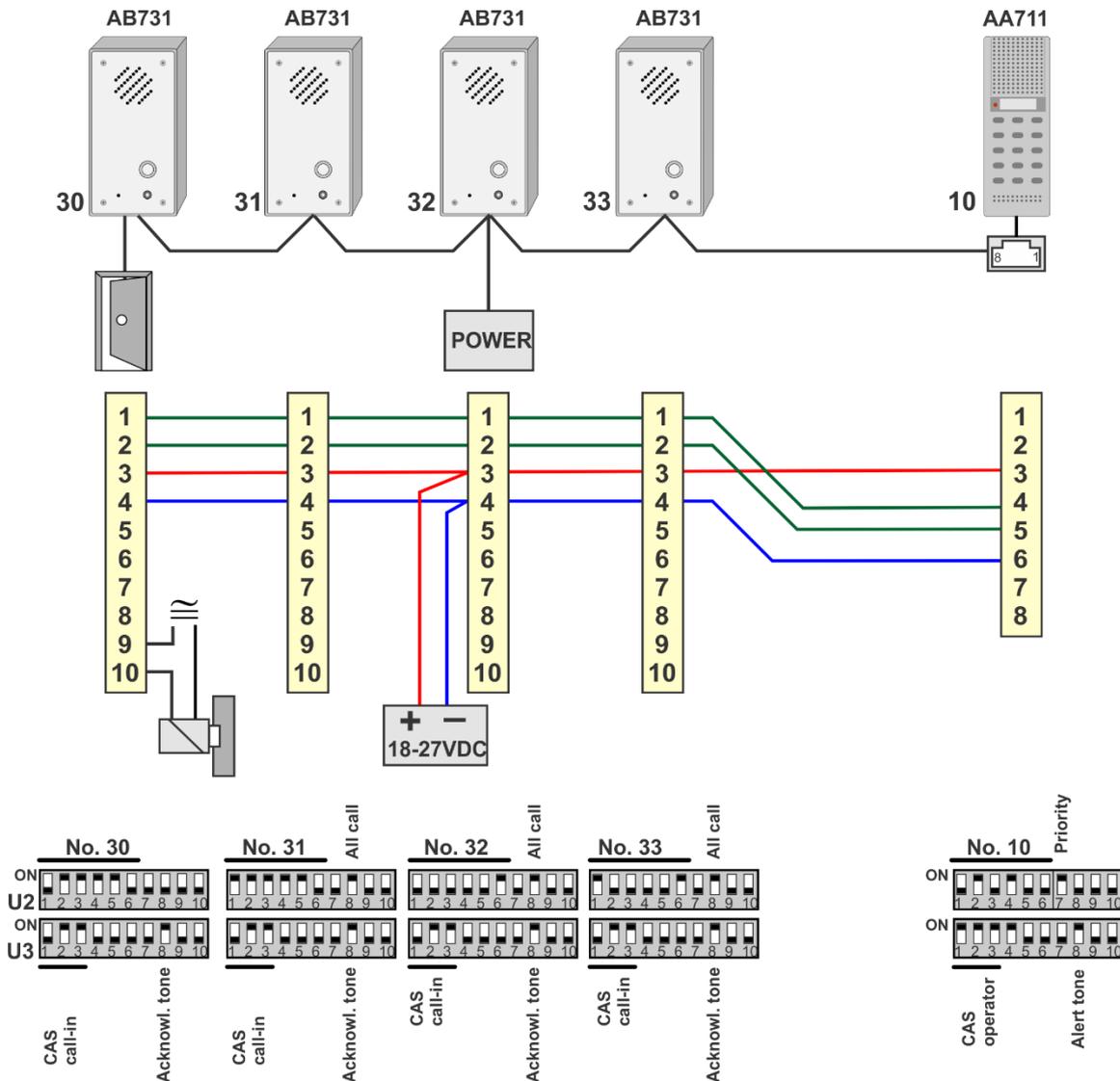


6 TYPICAL CONFIGURATIONS

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

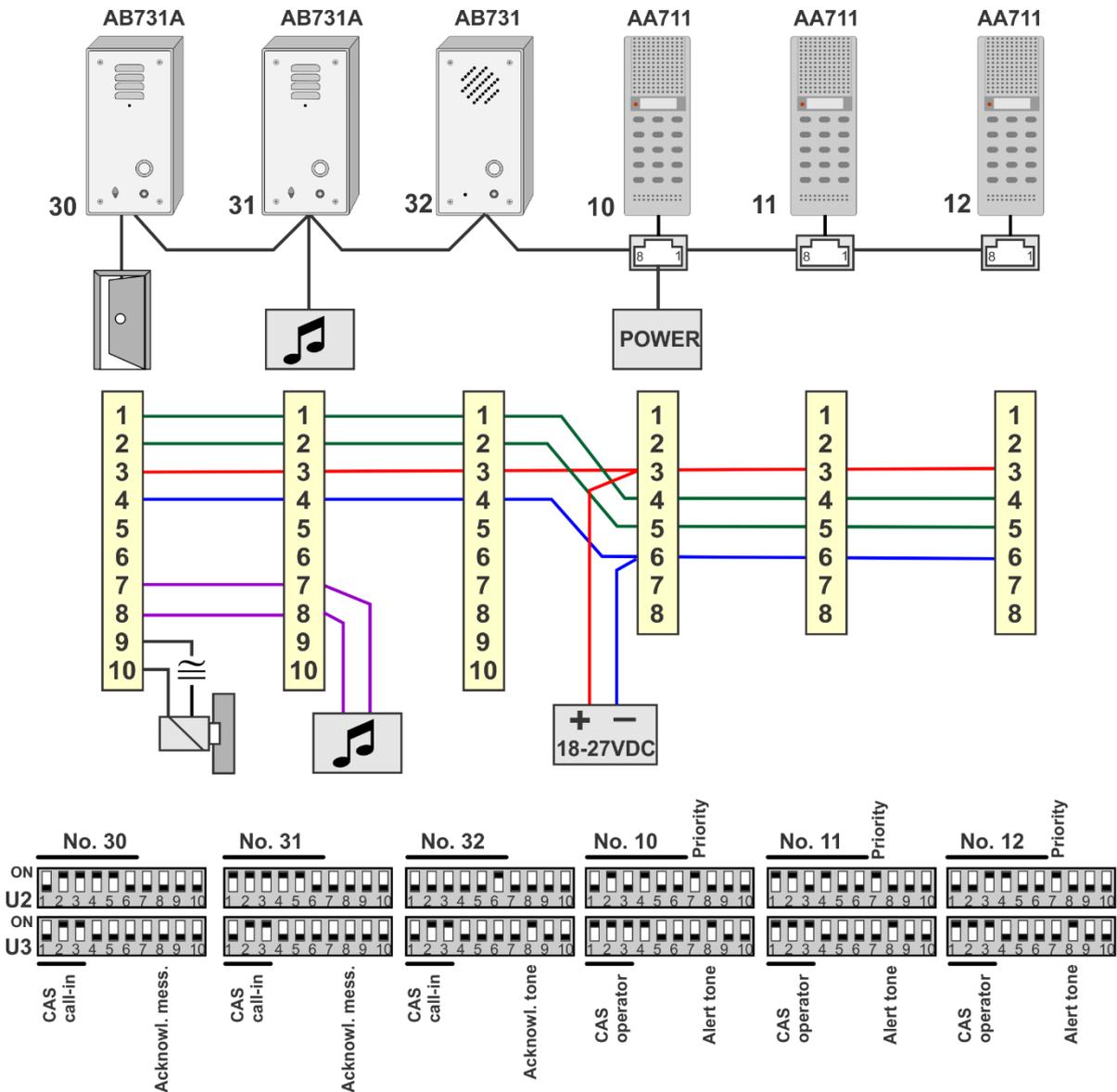
6.1 Police Station, Guard – Cell Communication

- 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.



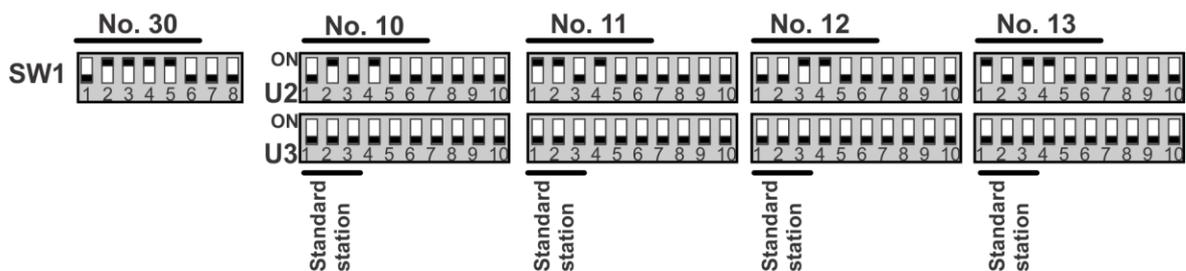
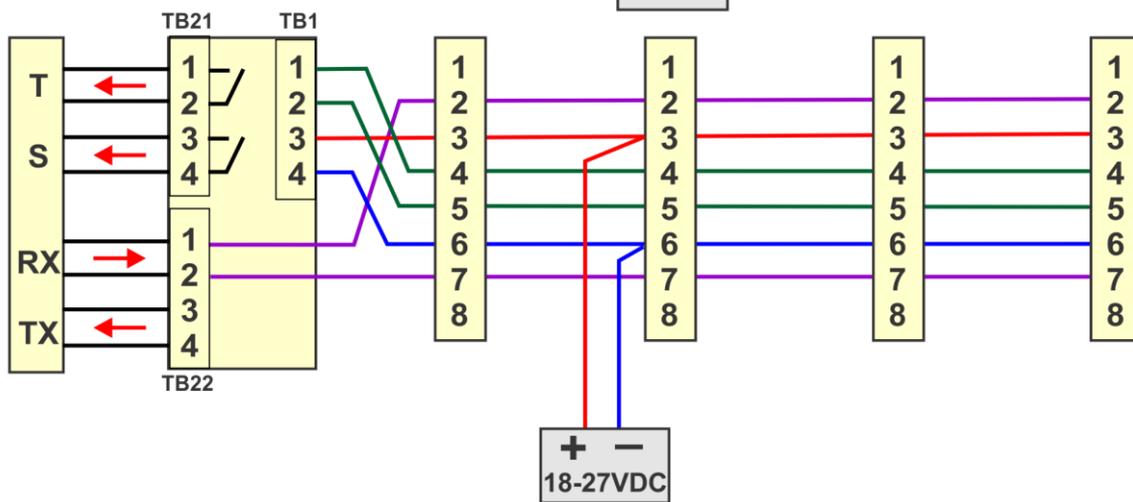
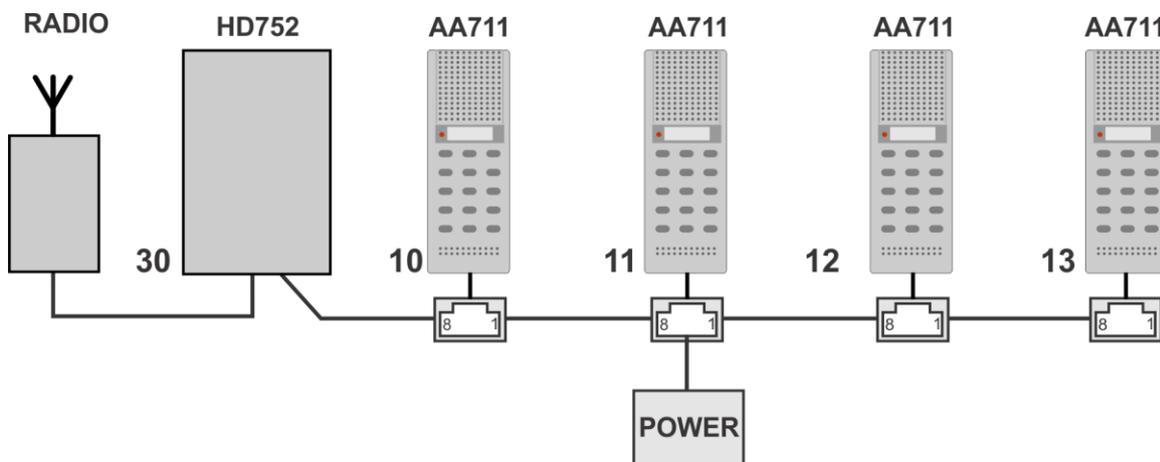
6.2 Police Station Door – Guard – Cell communication

- 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.



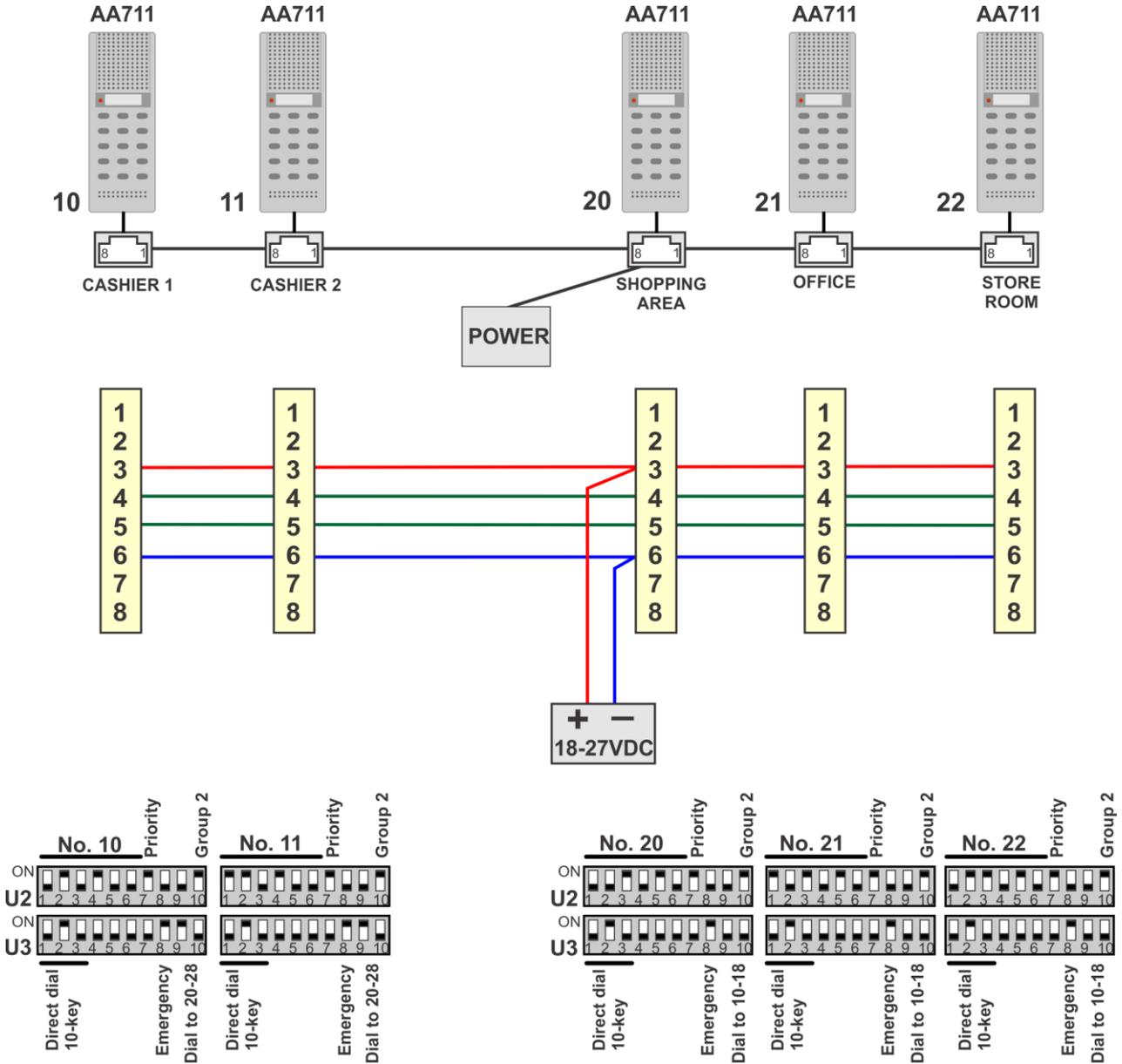
6.3 Police Station, Remote radio control

- 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.



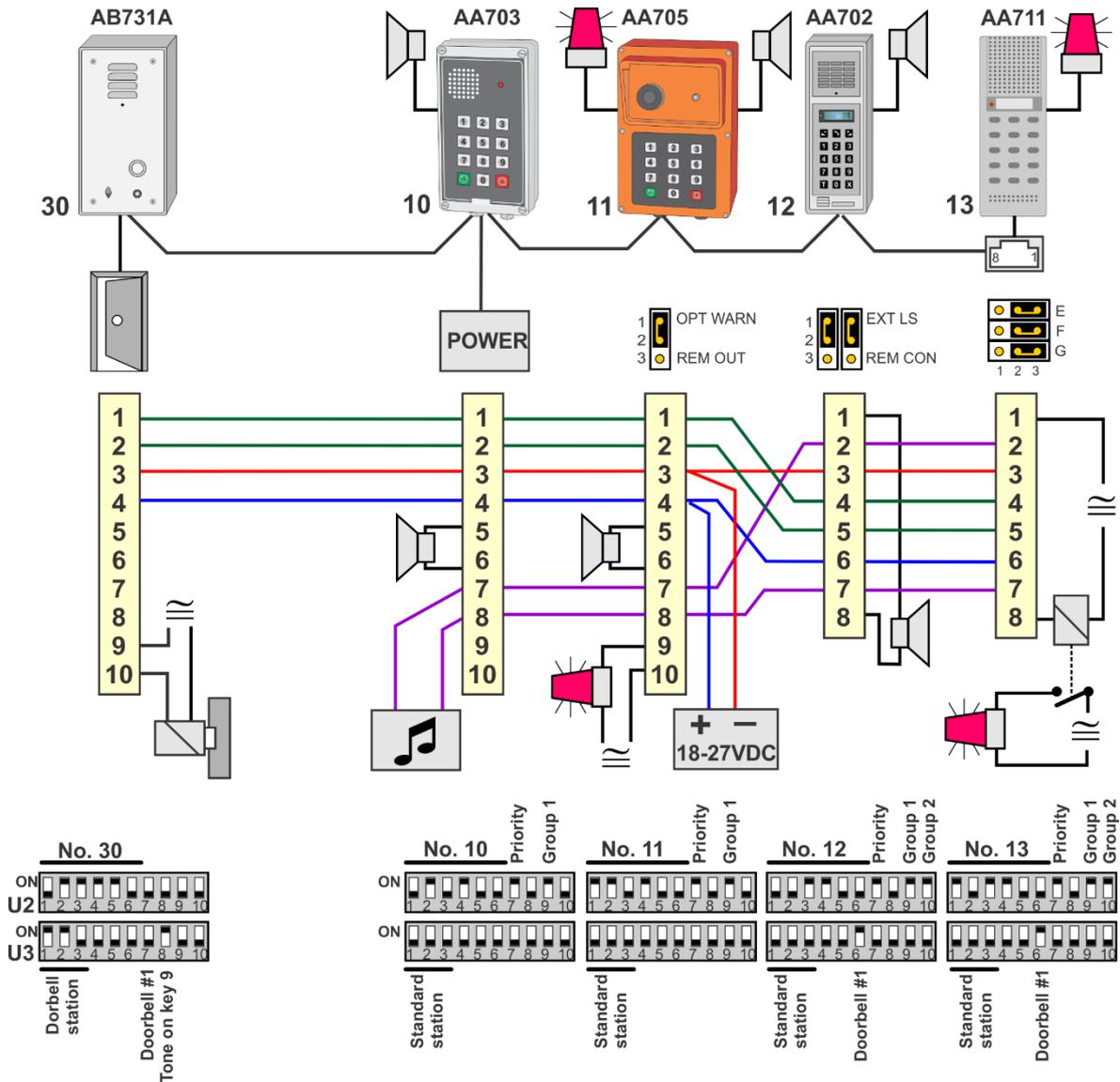
6.4 Supermarket

- 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	20 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 (18–27)
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		
	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		18 - 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

AA703		
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

Tamper Resistant Door 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

Zenitel Norway AS
P.O.Box 4498 Nydalen
NO-0403 OSLO
Norway

Pro700 - As simple as talking together...

Pro700 is a fully electronic intercom system for loud-speaking hands-free duplex communication.

The system is designed for up to 20 subscribers connected in parallel on a four-wire bus.

Pro700 is a decentralized system that does not require any central unit. Each station is microprocessor controlled, providing an extensive range of standard and programmable features.

Pro700 is an “all-to-all” system where any master station may call any other station in the system, and perform all call and group call, emergency call and silent alarm.

An entertainment program can be distributed on a separate line to all stations.

An LCD display in the master station shows calling and feature status as well as absence information. A tri-color LED provides status information to the user.

The station range is suitable for most user segments and environmental conditions, with master stations for office, shop and industrial use, and substations designed for door control, lifts, small prisons and parking garages.

Stations support external loudspeakers for increased sound power or 10 W power amplifiers for PA, and interfaces to e.g. remote door opening, warning lights, telephone, remote alarm, and local reset.

New and old stations in the Pro700 system are compatible, while stations with older software may not support some features.

System Pro700 is developed and marketed by Zenitel Norway AS

DOC NO

A100K10226

customer.service@zenitel.com



Zenitel and its subsidiaries assume no responsibility for any errors that may appear in this publication, or for damages arising from the information therein. VINGTOR-STENTOFON products are developed and marketed by Zenitel. The company's Quality Assurance System is certified to meet the requirements in NS-EN ISO 9001. Zenitel reserves the right to modify designs and alter specifications without notice. **ZENITEL PROPRIETARY.** This document and its supplementing elements, contain Zenitel or third party information which is proprietary and confidential. Any disclosure, copying, distribution or use is prohibited, if not otherwise explicitly agreed in writing with Zenitel. Any authorized reproduction, in part or in whole, must include this legend. Zenitel – All rights reserved.