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Installation Instructions Pro700

GENERAL INFORMATION

For proper installation of the intercom System Pro700, the following equipment is required:

A. Stations

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

Master stations: AA701, AA702, AA703, AA704 and AA705.

Substations: AB707, AB708, AB709, AB731, AB731-F, AB731A, AB731A-F and BC735.

B. Station cords

Various station cords are available for connecting of the station AA701 and AB707 to the cable network (wall socket). All other stations are connected with screw terminals inside the station.

C. Wall sockets

. Modular jack assembly, for termination of the station AA701and AB707 to the installation cable. The following sockets are available:

- KB171, surface mounting,
- KB172, flush mounting.

D. Power supply

The power supply output voltage should be between 12 and 24 Volt DC. All stations are connected to this power unit via the installation cable, using the parallel wiring principle. The capacity of the power (Amp) depends on the system size. The following power supplies are available:

- LA617, 230VAC/18VDC,1A
- LA617A, 115VAC/18VDC, 1A
- LA618, 230VAC/18VDC, 4 A
- LA618A, 115VAC/18VDC, 4 A
- LA925, 230VAC/24VDC, 5A
- LA924A, 115VAC,24VDC, 5A

The LA617/LA617A (1A) unit should be used in systems with max. 5 stations.

The LA618/LA618A (4A) should be used in systems with max. 20 stations. They are adjustable between 13,5 and 18VDC output.

LA925/LA924A (27VDC) should be used in systems with long cable runs to stations, max. 25 stations. This power supply is delivered with an output voltage of 27 Volt DC.

The stations can be cabled to the power unit in star or loop configuration, or a combination of both. If a standard telephone cable quality (0,6mm/24 AWG) is used, the maximum distance from any station to a power unit is:

- 12 V DC, 100 meters (300 ft.),
- 18 V DC, 300 meters (1000 ft.),
- 24 V DC, 500 meters (1600 ft.)

A system can be powered with more than one unit, to give a decentralized solution for large installations.

E. Battery backup

Either a 12 or 24 Volt battery can be used as an emergency backup power unit. By adjusting the power supply LA618/ LA618A to 13,5 Volt or LA925 to 27,2 Volt these units will function as trickle chargers.

F. Installation cable

2 pairs (4-wires), 0.5 or 0.6 mm. diam. (24 AWG) twisted telephone cable.

3-pairs must be used when the feature Programme Distribution (Music) is required. If the cable to one or several stations passes close to radio aerials or other interference sources, the entire installation cable must be screened type (each individual pair). Due to data transmission on the cable network between stations, a cable of good quality should be used (low capacitance).

G. Maximum cable length

The maximum total cable run in a system, (max. capacitance 87 nF):

- cable with 120 nF/km (standard quality) max. 700m, (2100 ft).
- cable with 47 nF/km (good quality) max. 1700m, (5100ft).

H. TOOLS.

Ordinary installation tools.

INSTALLATION DETAILS (See Fig. 1)

All stations (masters and subs) must be connected to the system power supply LA type in the parallel wiring principle.

TWO CONFIGURATIONS ARE POSSIBLE:

1. STAR CONFIGURATION:

All stations are cabled directly to the power unit, (LA617/617A/618/618A/LA925/ LA924A) which is used as a cental distribution point.

2. LOOP CONFIGURATION:

The installation cable is connected to the system's power supply in one central point. All the stations are connected along this cable in parallel, and it is strongly recommended to locate the power unit in the centre to avoid imbalance in power loading. In order to minimize the length of cable runs, **install the power unit where the majority of stations is located.** The power supply must be wall mounted and located in an area that has adequate ventilation.

A combination of star and loop configuration is acceptable.

A temperature of 0°C (32°F) to 35°C (95°F) and a relative humidity range of 30% to 90 % must be maintained.

Do not install power unit or stations in an area near electrical noise, including equipment such as heavy motors, welders, dimmers, radio transmitters etc. Do not run the installation cable parallel/near power cables supplying voltage to such equipment. If the cable, to one or several stations, passes such equipment, the entire installation cable must be of screened type (each individual pair). Note, that the screened type of cable has a much higher capacitance and therefore the total cable run in such installation will be reduced.

Connecting station AA701 and AB707

The station cords BF640/641/642/ 643 are used to terminate this station to the wall socket (Modular Jack Assembly). Please note that different types of wall sockets do not always have the same connection layout. When terminating the socket you must refer to the pin numbers and not necessarily the numbers marked on the screw terminal.

The socket has the following pin configuration for connection to the system's 3-pair installation cable:

2 - programme distribution channel
3 - power (12 - 27 V DC, positive)
4 - audio and signalling
5 - audio and signalling
6 - power (negative)
7 - programme distribution channel

Important:

The audio signals (pin 4 and 5) must be a twisted pair.

The power supply (pin 3 and 6) must be a twisted pair.

The programme distribution signals (pin 2 and 7) must be a twisted pair.

No connection other than for station external loudspeaker/remote output feature must be terminated to socket pin 1 and 8:

1 - external loudspeaker
8 - external speaker/remote output

Connecting stations AA702, AB708 and AB709

The installation cable is connected to 6 screw terminals in the back plate of these stations, 2 terminals (nos. 1 and 8) are for external loudspeaker/remote output.

Connecting stations AB731, AB731-F, AB731A and AB731A-F

The installation cable is connected to screw terminal TB1 on the printed circuit boards NFE1825A.

Extra equipment are connected to terminal TB2 on NFE1829.

Connecting stations AA703, AA704, AA705 and BC735

The installation cable is connected to screw terminal TB1 on the printed circuit board NFE1830. Extra equipment is connected to terminal TB2 and TB3.

NOTE: The stations in the PRO700 system are NOT compatible with discontinued CB600 series stations!

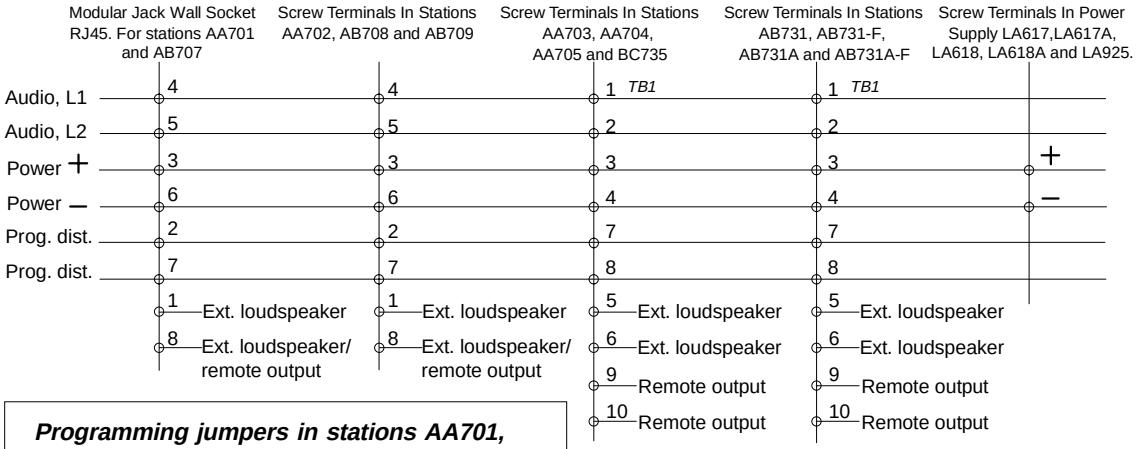


Fig. 1

Programming jumpers in stations AA701, AA702, AB707, AB708 and AB709.

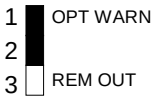
Jumpers in position External Loudspeaker (1-2)

Jumpers in position Remote Output (2-3)

Fig. 5

Programming jumper J1 in stations AA703, AA704, AA705 and BC735.

Jumper J1 in position Optional Warning (1-2)



Jumper J1 in position Remote Output (2-3)

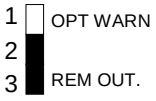
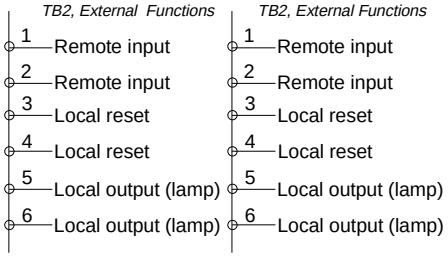
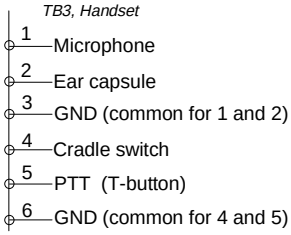
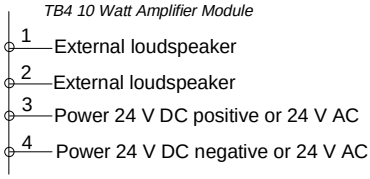


Fig. 6







Switch package U4 - audio level

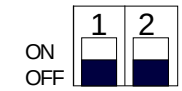


Fig. 7

high	ON	ON	level 4
	OFF	ON	level 3
	ON	OFF	level 2
low	OFF	OFF	level 1

Fig. 8

CAS Function, simplified programming instruction:

Set CAS Call-in station:

Type of station, switches 1 & 2
Ringing signal, switch 3
Call button, switch 4
Call delay, switch 5
Audio monitoring, switch 7
Station mode, switches 9 & 10

Type of station, switch 1
Master/Slave, switch 2
Alert tone, switch 3
Queue scroll, switch 4
Doorbell Call 1/2, switches 7 & 8

Doorbell Function, simplified programming instruction:

Set Doorbell calling station:

Type of station, switches 1 & 2
Ringing signal, switch 3
Doorbell Call 1/2, switch 4
Station mode, switches 9 & 10

Type of station, switch 1 & 2
Doorbell Call 1/2, switches 7 & 8

Feature Programming Various Substations, Switch package U3

	Switch package U3, SW1=OFF, SW2=OFF			Switch package U3, SW1=OFF, SW2=ON		
AB707/709 AB731XX	SW9=ON SW10=OFF	SW9=OFF SW10=ON	SW9=ON SW10=ON	SW9=ON SW10=OFF	SW9=OFF SW10=ON	SW9=ON SW10=ON
3	11*	11	11*	11*	11	11*
6	12*	12	12*	12*	12	12*
9 (Call)	13*	13	DB	CAS Call	CAS Call	CAS Call
X	-	-	-	-	-	-
X+3	21*	21	21*	21*	21	21*
X+6	Program	Program	Program	Program	Program	Program
X+9	23*	23	DB	CAS Call	CAS Call	CAS Call
X+9+P	GC1	GC1	DB	CAS Call	CAS Call	CAS Call

Substations AB707 and AB709 have the following keys: 3,6,9 and X.
Substations AB708,AB731,AB731-F,AB731A and AB731A-F have the 9 key only.
P = priority (switch package no. U2, switch no. 7 - ON)
*=call automatic cancel after 30 seconds
DB=doorbell call
GC1=call to group-call no. 1

Fig. 4

System configuration,
Feature/Function Programming.
All stations in System Pro700 have switch packages for system configuration and feature/ function programming. The stations AA701, AA702, AB707, AB708 and AB709 have additional jumpers for function programming. *After programming, the station has to be reset. Disconnect the power supply, unplug the station cord. On stations AA703, AA704, AA705, AB731, AB731A and BC735 press the reset switch SW1 or RESET.*

Default switchsettings from factory.
Stations are delivered without features/ functions. All switches are set in position OFF except for:
- Switch package U3, switch 9 and 10 ON: station activates door bell with ringing tone #1.
- Switch package U3, switch 8 ON: station receives door bell call with ringing tone # 1.

CAS- and Doorbell Functions
Note: See fig. 8 for Simplified Programming of CAS - and Doorbell Functions.

A. Switch package U2: (see fig. 2) containing 10 mini-switches each with position ON and OFF. In stations AA701 and AB707 this switch package is accessible through a slot in the lower part on the back of the station by removing a plastic cover. Other stations have to be disassembled for access to the printed circuit board where the switch package is located.
The following features can be programmed with the 10 switches:
- Station extension number.
- Initiative access to priority and remote output.
- Receiver in all-call
- Receiver in group-call, group no. 1
- Receiver in group-call, group no. 2

A station can be given any combination of features.
The system can operate with up to 40 stations, (extension numbers 10 to 49), but as it is equipped with one conversation channel only, we strongly recommend to connect 16-20 stations as a maximum.

Switches nos. 1 - 6.
Station Extension number.
(See separate table).

Switch no. 7.
Priority, Remote Output (Door Opener).
Switch pos.: ON.

Switch no. 8.
Receive All-Call.
Switch pos.: ON.

Switch no. 9.
Receive Group-Call no. 1.
Switch pos.: ON.

Switch no. 10.
Receive Group-Call no. 2.
Switch pos.: ON.

B. Switch package U3: (See Fig. 3 and 8) containing 10 mini-switches each with position ON and OFF. The stations have to be disassembled for access to the printed circuit board where the switch package is located.

Switch no. 1
CAS Operator Station.
If the station should be a CAS Operator Station, set switch to position ON. This also enables the features "Silent Call" and "Audio Monitoring" to this station.
-Standard station, set switch to position OFF.

Switch no. 2.
CAS Call-in station
If the station should be a CAS call-in station, set switch to position ON.
Standard station, set switch to position OFF.

Master and Slave CAS Operator Stations.
Up to 3 CAS Operator Stations can be installed in the system. One must always be programmed to be the *master* and up to two other stations can be connected as *slaves.*
Switch no. 1 must be set in position ON for CAS Operator Station, then switch no 2 defines CAS Operator Master or Slave:
Master, put switch in position ON
Slave(s), (one or two stations) put switch in position OFF.

Switch no. 3
Alert tone in CAS Operator Stations.
Switch no. 1 must be set in position ON for CAS Operator Station, then switch no 3 defines type of alert tone in CAS Operator Stations:
1 alert tone for each displayed call, put switch in position ON.
Alert tone every third second, put switch in position OFF.

Warning signal in CAS call-in stations.
Switch no. 1 must be set in position OFF and switch no. 2 in position ON for CAS call-in station, then switch no 3 defines type of warning signal in CAS call-in stations:
1 alert tone every 10 secs., put switch in position ON.
Connection to Programme Distribution Channel, put switch in position OFF.

Ringing signal in Doorbell Station
Switches no. 1 and no. 2 must be set in OFF position and switches 9 and 10 to ON, then switch no 3 defines type of ringing signal in Doorbell stations:
Ringing tone repeated every 5 second., put switch in position ON.
Connection to Programme Distribution Channel, put switch in position OFF.

Switch no. 4.
Additional Scroll Features
Switch no. 1 must be set in position ON, then switch no 4 gives additional scroll features on the CAS Operator Station (use of T and X buttons.)
Additional Scroll Feature, put switch no. 4 in position ON.
No Scroll Feature, put switch no. 4 in position OFF.

CAS Call Key - Master Stations as CAS call-in stations.
The Master Stations AA701, AA702, AA703, AA704, AA705 as well as substations AB707, AB708 and AB709 can operate as CAS call-in stations. Pressing button "0" or "9" will initiate a CAS call.
Switch no. 1 must be set in position OFF and switch no. 2 in position ON, then switch no 4 defines which button to press for activating a CAS call:
Enable button "0" for CAS call, put switch in position ON.
Enable button "9" for CAS call, put switch in position OFF.

Doorbell Identification Tone
Switches no. 1 and no. 2 must be set in OFF position and switches 9 and 10 to ON, then switch no 4 defines two different ringing tones from a doorbell station:
Ringing signal no. 2, two ringing tones, put switch in position ON.
Ringing signal no. 1, one ringing tone, put switch in position OFF.

Switch no. 5.
CAS Call Delay.
Switch no. 1 must be set in position OFF and switch no. 2 in position ON. If switch no 5 is put in position ON, the push of a button on a CAS call-in station needs to be a lasting press for approx. 3 seconds. This is for security reasons, i.e,. in lift/elevators, etc.
When the switch is in position OFF, just a short push is sufficient for activation.

Switch no. 6.
Always Privacy
When a call is made to a station programmed for Always Privacy, both caller and called extension will hear a continuous ringing tone. The ringing tone in the called extension is automatically put on maximum audio level, and will continue to ring until the call is accepted.
To enable this feature switch no. 6 must be set in position ON.

Switch no. 7.
Silent Call/Audio Monitoring Receive.
(NOTE: Use of this feature dependent on local approval).
To enable these functions, i.e. to be able to make a Silent Call or to Audio Monitor a CAS call-in station (to listen in to the CAS Call station without giving warning tone or light), switch no. 7 in the called CAS call-in station must be set in position ON. If the switch is in position OFF, the CAS call-in station can not be audio monitored.
Switch no. 1 must be set in position OFF and switch no. 2 in position ON.
Only a CAS Operator Station can initiate these functions. (See switch no. 1).

Receivers of Doorbell calls with ringing tone no 2
The station to receive a call from a Doorbell station can NOT be a CAS Call-in station (switch no. 1 in position OFF and no. 2 in position ON). To receive calls from a Doorbell station with ringing signal no. 2, switch no. 7 must be set in position ON.

Switch no. 8.
Receivers of Doorbell calls with ringing signal

no. 1
The station to receive a call from a Doorbell station can NOT be a CAS Call-in station (switch no. 1 in position OFF and no. 2 in position ON). To receive calls from a Doorbell station with ringing signal no. 1, switch no. 8 must be set in position ON.
Switch no. 9 and 10. (See Fig. 3 and 4)
Features Various Substations
Additional Call Digits
Central Answering Service
Automatic Cancel of calls
Switch SW9 and SW10 are used for additional features in combination with switch no. 2.

C. Jumper Programming, stations AA701, AA702, AB707, AB708 and AB709: (See Fig. 5)

Two jumpers, EXT LS and REM CON, mounted on the printed circuit board NFE1690A near the station plug and output amplifier U3, are used for feature programming. The cabinet front must be removed to access the jumpers. Remove the screw in the station's back plate. Push screw with screw driver to open front, and pull out front carefully. Authorized service personnel ONLY MUST do this.
The following features can be programmed with these jumpers:
- External loudspeaker; both jumpers in position EXT LS
- Door opener; both jumpers in position REM CON. (External relay is optional).

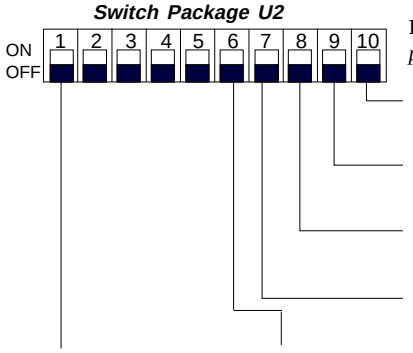
The features are NOT set from the factory.

D. Jumper Programming, stations AA703, AA704, AA705 and BC735: (See Fig. 6)

One jumper, J1, mounted on the printed circuit board NFE1830 is used to define type of operation of the built-in relay.
Optional Warning - the relay operates when the station is called, (ordinary call or All-/Group Call, but not when connected to Program Distr. Channel).
Remote Output - in the called station, the relay is controlled by the feature Remote Output/Door Opener (pressing key "5" in initiating station).
Put J1 in position 1 - 2 (OPT WARN) for Optional Warning
Put J1 in position 2 - 3 (REM OUT) for Remote Output.

E. Adjusting the audio level of stations (See Fig. 7)

Master stations AA701, AA702 and Substation AB707.
Use the keypad buttons marked + and -
Industrial Master stations AA703, AA704, AA705 and Multipurpose Unit BC735.
Use switch package U4 on printed circuit board NFE1830. Note that output level can be fine tuned by variable resistor R20
Substations AB708 and AB709
Use variable resistor R20 on the printed circuit board NFE1690A. Turn clockwise to increase volume.
Substations AB731, AB731-F, AB731A and AB731A-F:
Use switch package U4 on printed circuit board NFE1825A.



IMPORTANT: *To update switch settings, power up the station or press reset switch SW1.*

Fig. 2

10	OFF	ON	OFF	ON	OFF	OFF		30	OFF	ON	ON	ON	ON	OFF	
11	ON	ON	OFF	ON	OFF	OFF		31	ON	ON	ON	ON	ON	OFF	
12	OFF	OFF	ON	ON	OFF	OFF		32	OFF	OFF	OFF	OFF	OFF	ON	
13	ON	OFF	ON	ON	OFF	OFF		33	ON	OFF	OFF	OFF	OFF	ON	
14	OFF	ON	ON	ON	OFF	OFF		34	OFF	ON	OFF	OFF	OFF	ON	
15	ON	ON	ON	ON	OFF	OFF		35	ON	ON	OFF	OFF	OFF	ON	
16	OFF	OFF	OFF	OFF	ON	OFF		36	OFF	OFF	ON	OFF	OFF	ON	
17	ON	OFF	OFF	OFF	ON	OFF		37	ON	OFF	ON	OFF	OFF	ON	
18	OFF	ON	OFF	OFF	ON	OFF		38	OFF	ON	ON	OFF	OFF	ON	
19	ON	ON	OFF	OFF	ON	OFF		39	ON	ON	ON	OFF	OFF	ON	
20	OFF	OFF	ON	OFF	ON	OFF		40	OFF	OFF	OFF	ON	OFF	ON	
21	ON	OFF	ON	OFF	ON	OFF		41	ON	OFF	OFF	ON	OFF	ON	
22	OFF	ON	ON	OFF	ON	OFF		42	OFF	ON	OFF	ON	OFF	ON	
23	ON	ON	ON	OFF	ON	OFF		43	ON	ON	OFF	ON	OFF	ON	
24	OFF	OFF	OFF	ON	ON	OFF		44	OFF	OFF	ON	ON	OFF	ON	
25	ON	OFF	OFF	ON	ON	OFF		45	ON	OFF	ON	ON	OFF	ON	
26	OFF	ON	OFF	ON	ON	OFF		46	OFF	ON	ON	ON	OFF	ON	
27	ON	ON	OFF	ON	ON	OFF		47	ON	ON	ON	ON	OFF	ON	
28	OFF	OFF	ON	ON	ON	OFF		48	OFF	OFF	OFF	OFF	ON	ON	
29	ON	OFF	ON	ON	ON	OFF		49	ON	OFF	OFF	OFF	ON	ON	

Fig. 3

SWITCH U3

Switch no:	ON	OFF
CAS Operator Station		
1	CAS Operator Station	N/A
2	Master	Slave
3	Single alert tone on CAS calls	Alert tone every 3 seconds on CAS calls
4	T-button scroll queues	No scroll facility
5	N/A	N/A
6	N/A	N/A
7	Receives doorbell call w/ringing signal no. 2	Does **not** receive doorbell call w/ringing signal no. 2
8	Receives doorbell call w/ringing signal no. 1	Does **not** receive doorbell call w/ringing signal no. 1
9	N/A	N/A
10	N/A	N/A
CAS Call-In Station		
1	N/A	CAS Call-In Station
2	CAS Call-In Station	N/A
3	Call Request Acknowledgement: One ring every 10 seconds + flashing green lamp	Call Request Acknowledgement: One ring + connection to music channel + flashing green lamp
4	Button **0** gives CAS call request	Button **9** gives CAS call request
5	Delay ON (call button must be pressed for at least 3 seconds)	Delay OFF
6	N/A	N/A
7	Allow Audio Monitoring/Scan of this station	Do **not** allow Audio Monitoring/Scan of this station
8	N/A	N/A
9	See separate table	See separate table
10	See separate table	See separate table
Ordinary Station		
1	N/A	Ordinary Station
2	N/A	Ordinary Station
3	Doorbell Acknowledgement: One ring every 5 seconds + flashing green lamp	Doorbell Acknowledgement: One ring + connection to music channel + flashing green lamp
4	The station can activate doorbell call w/ringing signal no **2** (enable with switch 9 and 10)	The station can activate doorbell call w/ringing signal no **1** (enable with switch 9 and 10)
5	N/A	N/A
6	Always Privacy Enabled	Always Privacy Disabled
7	Receives doorbell call w/ringing signal no. 2	Does **not** receive doorbell call w/ringing signal no. 2
8	Receives doorbell call w/ringing signal no. 1	Does **not** receive doorbell call w/ringing signal no. 1
9	See separate table	See separate table
10	See separate table	See separate table

SWITCH 9 & 10

9	10	Facility	
CAS Call-In Station			
ON	**OFF**	Button 3:	Calls station 11 w/ auto disconnect after 30 seconds
		Button 6:	Calls station 12 w/ auto disconnect after 30 seconds
		Button 9:	CAS Call request
		Button X+3:	Calls station 21 w/ auto disconnect after 30 seconds
		Button X+6:	Set up music program
		Button X+9:	CAS Call request
		Button X+9+P:	CAS Call request
OFF	**ON**	Button 3:	Calls station 11
		Button 6:	Calls station 12
		Button 9:	CAS Call request
		Button X+3:	Calls station 21
		Button X+6:	Set up music program
		Button X+9:	CAS Call request
		Button X+9+P:	CAS Call request
ON	**ON**	As 9=ON and 10=OFF	
Ordinary Station			
ON	**OFF**	Button 3:	Calls station 11 w/ auto disconnect after 30 seconds
		Button 6:	Calls station 12 w/ auto disconnect after 30 seconds
		Button 9:	Calls station 13 w/ auto disconnect after 30 seconds
		Button X+3:	Calls station 21 w/ auto disconnect after 30 seconds
		Button X+6:	Set up music program
		Button X+9:	Calls station 23 w/ auto disconnect after 30 seconds
		Button X+9+P:	Activate group call 1
OFF	**ON**	Button 3:	Calls station 11
		Button 6:	Calls station 12
		Button 9:	Calls station 13
		Button X+3:	Calls station 21
		Button X+6:	Set up music program
		Button X+9:	Calls station 23
		Button X+9+P:	Activate group call 1
ON	**ON**	Button 3:	Calls station 11 w/ auto disconnect after 30 seconds
		Button 6:	Calls station 12 w/ auto disconnect after 30 seconds
		Button 9:	Activates Doorbell function
		Button X+3:	Calls station 21 w/ auto disconnect after 30 seconds
		Button X+6:	Set up music program
		Button X+9:	Activates Doorbell function
		Button X+9+P:	Activates Doorbell function

Switch 9 & 10 X+3/6/9 = First press X, then quickly digit 3, 6 or 9
P = Priority. Set switch no. 7, switch package U2 – ON.