VANDAL RESISTANT AUDIO AND VIDEO DOOR ENTRY SYSTEMS

TECHNICAL MANUAL
EDITION 1.0

VIDEX
The Power to Secure

CONTENTS

MANUAL INTRODUCTION

The information in this manual is intended as an installation and commissioning guide for the standard range of vandal resistant door panels, to be used with standard AC buzzer telephones or with vandal resistant video panels using the Art.890 controller. This manual should be read carefully before the installation commences. Any damage caused to the equipment due to faulty installations where the information in this manual has not been followed is not the responsibility of Videx Security Ltd.

VIDEX run free training courses for engineers who have not installed this system before. Technical help is also available on 0191 224 3174 during office hours or via e-mail tech@videx-security.com.

SYSTEM INTRODUCTION

This system can be used for single entrances or multiple entrances. The system has no limit on the number of apartments for which it can control or the number of entrance points that can be connected together, although we suggest using this system on small to medium sized installation of no more than 20 apartments and three entrances.

SYSTEM COMPONENTS

A standard audio system will comprise of a door panel, power supply and audio telephones. A standard video system will comprise of a door panel, video controller, power supply, video splitters and videophones. The individual parts are described below.

DOOR PANELS

A vandal resistant door panel will consist of an amplifier module, button connector board and 'n' number of buttons.

Amplifier module (Art.437 or Art.537)	
Connection	**Function**
1	Receive speech from apartment
2	Transmit speech to apartment
3	+12Vdc input
4	0V (Ground)

Camera module (Art.830 & 830C)	
Connection	**Function**
I	+20Vdc input 200mA (400mA - 830C)
F1	0V
V	Centre core of coax video cable
M	Screen of coax video cable
SB	+8-12Vdc camera heater

Connector PCB (CB)	
Connection	**Function**
LOCK	Spare connector terminals
CB	Common of call buttons
A	Spare connection terminal
1	Call button 1 connection
2	Call button 2 connection
3	Call button 3 connection
4	Call button 4 connection
5	Call button 5 connection
6	Call button 6 connection
7	Call button 7 connection
8	Call button 8 connection
9	Call button 9 connection
10	Call button 10 connection
TRADE	Trade button connections

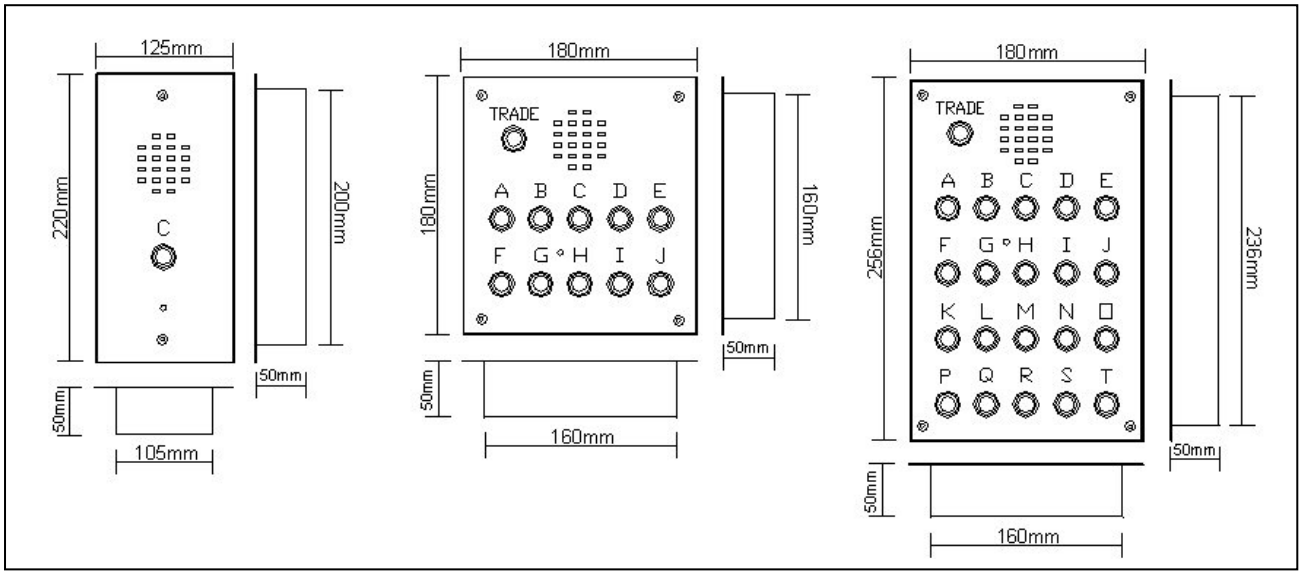
Speech volume adjustments are carried out at the door panel using a small trimmer driver.

Adjustment for speech volume level at the door station

Adjustment for speech volume at the apartment

VANDAL RESISTANT PANEL LAYOUT AND SIZES

Standard audio panels



1 BUTTON = C
2 BUTTON = B, D (Note: Also available in 125mm 220mm panel style)
3 BUTTON = A, C, E
4 BUTTON = B, D, G, I
5 BUTTON = A, C, E, G, I
6 BUTTON = A, C, E, F, H, J
7 BUTTON = A, B, C, D, E, G, I
8 BUTTON = A, B, C, D, E, G, H, I
9 BUTTON = A, B, C, D, E, F, G, I, J
10 BUTTON = A, B, C, D, E, F, G, H, I, J
11 BUTTON = A, C, E, F, H, J, K, M, O, Q, S
12 BUTTON = A, C, E, F, H, J, K, M, O, P, R, T
13 BUTTON = A, C, E, F, H, J, K, M, O, P, Q, S, T
14 BUTTON = A, C, E, F, H, J, K, M, O, P, Q, R, S, T
15 BUTTON = A, B, C, D, E, F, G, H, I, J, K, L, M, N, O
16 BUTTON = A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, R
17 BUTTON = A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, Q, S
18 BUTTON = A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, R, T
19 BUTTON = A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, S, T
20 BUTTON = A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T

Other standard panel sizes:-

1 – 10 button with video [180mm (W) x 256mm (H) x 50mm (D)]
11 – 20 button + video [200mm (W) x 350mm (H) x 50mm (D)]

1 – 10 button + proximity [180mm (W) x 256mm (H) x 50mm (D)]
11 – 20 button + proximity [200mm (W) x 350mm (H) x 50mm (D)]

1 – 10 button + codelock [180mm (W) x 256mm (H) x 50mm (D)]
11 – 20 button + codelock [200mm (W) x 420mm (H) x 50mm (D)]

1 – 10 button + video & proximity [200mm (W) x 350mm (H) x 50mm (D)]
1 – 10 button + video & codelock [200mm (W) x 420mm (H) x 50mm (D)]

AUDIO SYSTEM POWER SUPPLY

Art.520M

The standard power supply is the Art.520M. Outputs of 12Vdc (200mA), 8Vdc (300mA) and 13Vac (1A) are available. The dc outputs are designed to power the amplifier modules only and can not be used to power other devices such as code locks, lock releases etc. These items must be connected to the AC output of this power supply.

CONNECTIONS

Terminal		Function
+12		12Vdc output (200mA Max.)
+8		8Vdc output (300mA Max.)
-		0V (Ground)
~		13Vac (1A Max.)
230		Mains in (Live connection)
0		Mains in (Neutral connection)

Fuse compartment

VIDEO SYSTEM POWER SUPPLY AND CONTROL UNIT

Art.890

The 890 control unit is used on video systems. Its functions include call tone generation, voltage regulation and switching to both door panels and videophones, lock release control and camera recall. The Art.890 requires both 13Vac and 24Vac to operate.

CONNECTIONS

Terminal	Function
~ & ~	Power input 24Vac
⎓ & ~	Power input 13Vac
1	Switched 20Vdc to videophones (Only on during a call)
2	Switched negative from videophones to activate lock
3	Receive speech from videophone
4	Transmit speech to videophone
5	Ground for speech circuits
6	Ground for video circuits
TV1	Camera recall facility
T	Electronic call tone output for call buttons
A	13Vac output for ac lock release
+8	8Vdc output 200mA max.
F	Ground for door panel speech circuits
E	Push button commons for AC calling
I	Switched 20Vdc for camera (Only on during a call)
G2	Receive speech from door panel
H1	Transmit speech to door panel
F1	Negative supply for camera unit
F2	Switched negative (Switches off when lock released)
SE	Switched negative to lock
+12V	12Vdc output 200mA max.
V & M	Coax in from camera (V=Centre core, M=Screen)
V & M	Coax out to videophones (V=centre core, M=Screen)

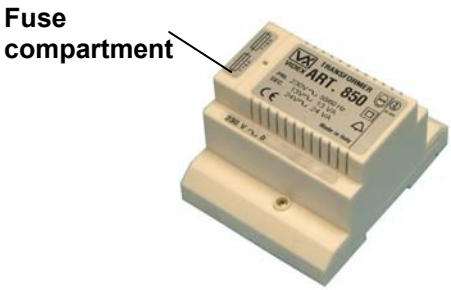
For more information on the Art.890 please see the Videx Video technical manual

Art.850

The 850 transformer includes a 13Vac (1A max.) output and a 24Vac (1A max.) output. Each of the two outputs is individually fused.

CONNECTIONS

Terminal	Function
24V	24V ac output
13V	13V ac output
230V	Live mains connection In
0	Neutral mains connection In



Art. 893N

20Vdc 800mA continuous 1A surge PSU and is used as a booster supply or when more than two videophones are required in an apartment. This power supply only has an output when either a 0V is applied to –C or when a voltage is applied to +C. At all other times the + output is switched off.

Connection	Function
230V~ 0	Mains voltage input
+	Switched 20Vdc output (Triggered by –C or +C)
-	0V
-C	0V trigger input (From 4V to 0V)
+C	+ volts trigger input (From 8V up to 30V)
D+	Switched +20Vdc output via diode

Art.701

BST/GMT digital time clock. This time clock operates from a 12Vac or dc power supply. The output is a dry contact relay. When used with this system the trade button input is used. This allows the dry contact relay to drive the lock release directly. The relay can be programmed to release the lock for 1 – 99 seconds.

Connection	Function
+	12Vac or dc voltage input
-	0V
TR	Trade button input (Switched 0V)
C	Common connection on relay
NO	Normally open connection on relay
NC	Normally closed connection on relay

For more information see time clock instruction sheet

Art.502

The Art.502 is a two door switching relay for an audio system. One unit is required for a two door system, one unit per door is required for a three or more door system. The Art.502 switches both audio and lock release request to the door that calls. The relay stays latches at the last door called.

CONNECTIONS

Connection	Function
-	0V connection from PSU
~	13Vac supply input
A1	Current sensing path for call from door A
A2	
B1	Current sensing path for call from door B
B2	
1	Receive speech from telephone
2	Transmit speech to telephone
5	Lock trigger from telephone
1A	Transmit speech to door A
1B	Transmit speech to door B
2B	Receive speech from door A
2B	Receive speech from door B
5A	Lock trigger to door A
5B	Lock trigger to door B
LA	LED command (Speech open to door A)
LB	LED command (Speech open to door B)
R	Reset signal (To other Art.502's)

Art.892

The Art.892 is a two door switching relay for a video system. One unit is required for a two door system, one unit per door is required for a three or more door system. The Art.892 switches audio, video and lock release request to the door that calls. The relay stays latches at the last door called.

CONNECTIONS

Connection	Function
1	13Vac supply input
2	0V connection
3	Current sensing path for call from door A
4	
5	Current sensing path for call from door B
6	
R	Reset signal (To reset other Art.892's)
7	Receive speech from videophone
8	Transmit speech to videophone
9	Lock release command from Art.890
10	Centre core of coax to apartments
11	Screen of coax to apartments
12	Switched 20Vdc from Art.890
7A	Transmit speech to door A
7B	Transmit speech to door B
8A	Receive speech from door A
8B	Receive speech from door B
9A	Lock trigger to door A
9B	Lock trigger to door B
10A	Centre core of coax from door A camera
10B	Centre core of coax from door B camera
11A	Screen of coax from door A camera
11B	Screen of coax from door B camera
12A	20Vdc to power camera at door A
12B	20Vdc to power camera at door B

AUDIO TELEPHONES

Art.3101

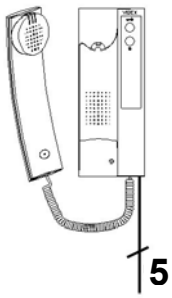
The Art.3101 AC buzzer phone includes a lock release push button and spare dry contact push to make button for other services.

Art.3021

Smart line AC buzzer phone includes a lock release push button.

CONNECTIONS:-

	Function
1	Transmit speech to the door panel
2	Receive speech from the door panel
3	0V
4	Not used (Electronic call tone input)
5	Lock trigger (Switched 0V)
6	Call line (13Vac input to trigger buzzer)
8	Dry contact switch
9	

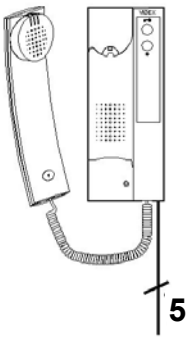


Art.3102

The Art.3102 AC buzzer telephone includes a lock release push button and spare dry contact push to make button for other services. Additionally it includes a slide mute switch to turn the phone off when the tenant does not want to be disturbed.

CONNECTIONS:-

	Function
1	Transmit speech to the door panel
2	Receive speech from the door panel
3	0V
4	Not used
5	Lock Trigger (Switched 0V)
6	Call line (13Vac input to trigger buzzer)
8	Dry contact switch
9	



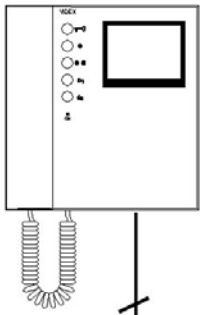
VIDEOPHONES

Art.3311

The Art.3311 (3411 for colour) includes a lock release push button, camera recall button and three dry contact push to make spare push buttons for other services. An Art.3980 back plate is required with this videophone.

CONNECTIONS:-

	Function
1	+12V out to power video splitter
2	Camera recall
3	Spare button
4	+20V power input
5	Door release command
6	Transmit speech to door panel
7	Receive speech from door panel
8	Speech Ground
9	Video power ground
10	Local call tone input
11	Coax centre core
12	Coax Screen
13	Speech common for intercommunicating systems
14	Call tone input
15	Speech ground for intercommunicating systems
16	Common of spare buttons
17	Spare button
18	Spare button



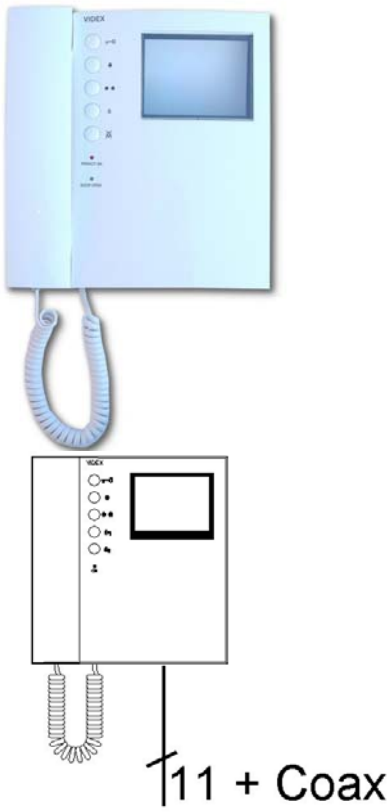
9 + COAX

JUMPER OPTIONS

Jumper	Position	Function
JP1	A	● ● As a dry contact switch (Terminals 3 & 16)
	B	● ● As a camera recall button
JP2	A	**S1** As a dry contact switch (Terminals 17 & 16)
	B	**S1** As a camera recall button
JP3	A	**S2** As a dry contact switch (Terminals 18 & 16)
	B	**S2** As a camera recall button
JP4	A	Slave monitor (Does not switch picture on when called)
	B	Master monitor (Picture switches on automatically when called)

Art.3313

The Art.3313 (3413 for colour) includes a lock release push button and two dry contact push to make spare push buttons for other services. An Art.3980 back plate is required with this videophone.



CONNECTIONS:-

	Function
1	+12V out to power video splitter
2	Not used
3	Spare button
4	+20V power input
5	Door release command
6	Transmit speech to door panel
7	Receive speech from door panel
8	0V (Ground)
9	Not used
10	Local call tone input
11	Coax centre core or non-coax sync-
12	Coax Screen or non-coax Sync+
13	Switched +12 for door open LED
14	Select input to switch on videophone
15	Call tone input
16	Common of spare buttons
17	Spare button
18	+12V to power videophone privacy

DIP SWITCH SETTINGS

8 Way dip switch (Switches 1 – 5)

Mute Duration time					
Time	**1**	**2**	**3**	**4**	**5**
15 Minutes	ON	OFF	OFF	OFF	OFF
30 Minutes	OFF	ON	OFF	OFF	OFF
2 Hours	OFF	OFF	ON	OFF	OFF
4 Hours	OFF	OFF	OFF	ON	OFF
8 Hours	OFF	OFF	OFF	OFF	ON

8 Way dip switch (Switch 6)

Mute LED	
Switch	**6**
Fixed	OFF
Flashing	ON

8 Way dip switch (Switches 7 & 8)

°° Button Operation		
Switch	**7**	**8**
Camera recall	ON	OFF
Dry contact	OFF	ON

4 Way Dip Switch (Switches 1 & 2)

S Button Operation		
Switch	**1**	**2**
Camera recall	ON	OFF
Dry contact	OFF	ON

4 Way Dip Switch (Switches 3 & 4)

VIDEO MODE		
Switch	**3**	**4**
Coax	ON	ON
Non-Coax	OFF	OFF

3 Way Dip Switch

VIDEO MODE continued			
Switch	**1**	**2**	**3**
Coax	OFF	OFF	OFF
Non-Coax	ON	ON	ON

ACCESSORIES

Art. 512A, Art.512R

Extension sounder for an apartment. This sounder can be wall mounted and will ring whenever the telephone it is connected to rings. The 512A is used on video systems and the 512R is used on AC buzzer audio systems

512A Connections	
4	Call tone input
-	0V (Ground)

The 512R has two non-polarity connections requiring 13Vac to buzz

ES/1

Timed strobe unit for the hard of hearing or noisy environments. The strobe will flash when a call is received and will continue flashing for an adjustable time period or until the reset button is pressed.

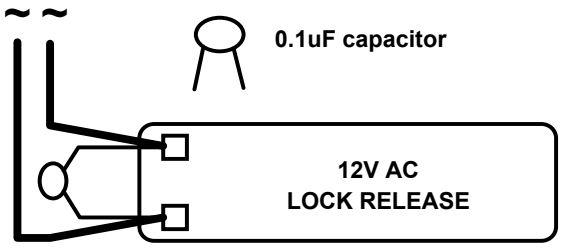
Connections	
POWER	12V AC or DC input
I/P	+ trigger
+O/P	12Vdc output
GND	Ground
RESET	Switched negative reset
NC	Normally closed relay connection
CO	Common relay connection
NO	Normally open relay connection

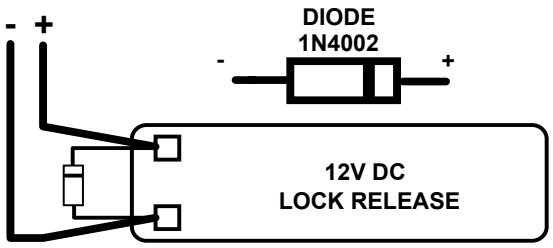
INSTALLATION

The wiring diagrams towards the back of this manual should be followed carefully. Heavy duty conductors on wiring diagrams are shown heavily outlined, These wires should be doubled up.

- Check that all components are free from damage before installing (Do not proceed with installation in the event of damage).
- Keep all packaging away from children.
- Do not obstruct the ventilation openings or slots on any of the devices.
- All connections to mains voltages must be made to the current national standards (IEE Wiring regulations)
- Install an appropriate fused spur or isolation switch to isolate the mains.
- Isolate the mains before carrying out any maintenance work on the system.
- All intercom and access control cables must be routed separately from the mains.

Lock release back EMF protection : A capacitor must be fitted across the terminals on an AC lock release and a diode must be fitted across the terminals on a DC lock release as shown in the diagrams below to suppress back EMF voltages.





CABLE SIZE GUIDE

AUDIO SYSTEM

Connections from door panel to telephone.

Connections	50m	100m	200m	300m	400m
1	0.25mm²	0.35mm²	0.5mm²	0.75mm²	1.0mm²
2	0.25mm²	0.35mm²	0.5mm²	0.75mm²	1.0mm²
3	0.5mm²	0.75mm²	1.5mm²	2.0mm²	2.5mm²
5	0.5mm²	0.75mm²	1.5mm²	2.0mm²	2.5mm²
6	0.25mm²	0.35mm²	0.5mm²	0.75mm²	1.0mm²

When ever possible connection 1(Tx) should be twisted with connection 3(Gnd) and connection 2(Rx) should be twisted with connection 3(Gnd) as pairs.
Maximum acceptable resistance for terminals 1,2 & 6 = 10Ω and for terminals 3 & 5 = 3Ω

Connections for power supply output to door panel and lock release connections.

	50m	100m
Connections	0.5mm²	0.75mm²

The power supply should be located as close to the door panel as possible for best performance.
Maximum acceptable resistance for above cables = 3Ω

VIDEO SYSTEM

Connections from door panel to the Art.890 controller.

Connections	50m	100m	200m	300m	400m
T	0.35mm²	0.5mm²	0.5mm²	0.75mm²	1.0mm²
A	0.5mm²	1.0mm²	1.5mm²	2.0mm²	2.5mm²
+8	0.35mm²	0.5mm²	0.75mm²	1.0mm²	1.5mm²
F	0.35mm²	0.5mm²	0.75mm²	1.0mm²	1.5mm²
I	0.35mm²	0.5mm²	1.0mm²	1.5mm²	2.0mm²
G2	0.35mm²	0.35mm²	0.5mm²	0.75mm²	1.0mm²
H1	0.35mm²	0.5mm²	0.75mm²	1.0mm²	1.5mm²
F1	0.35mm²	0.5mm²	0.75mm²	1.0mm²	1.5mm²
F2	0.35mm²	0.5mm²	0.75mm²	1.0mm²	1.5mm²
SE	0.5mm²	1.0mm²	1.5mm²	2.0mm²	2.5mm²
V	Standard quality	Medium quality	Good quality	Good quality	High quality
M	75Ω Coax cable	75Ω Coax cable	75Ω Coax cable	75Ω Coax cable	75Ω Coax cable

When ever possible connection H1(Tx) should be twisted with connection F(Gnd) and connection G2(Rx) should be twisted with connection F(Gnd) as pairs.

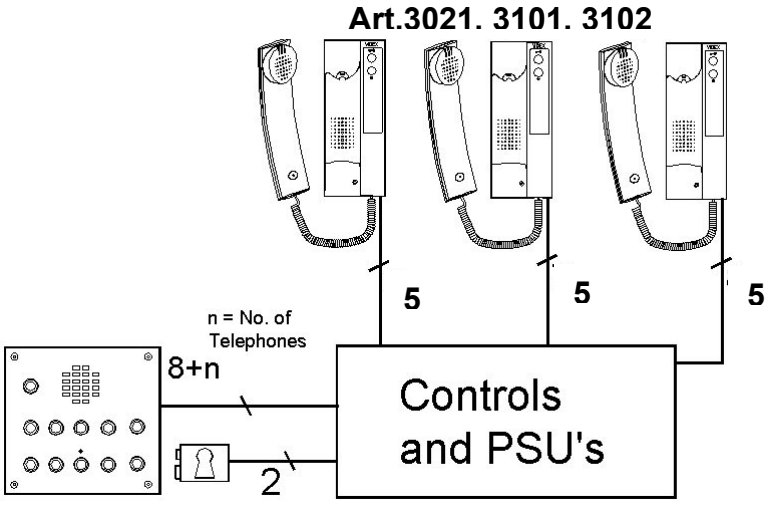
Maximum acceptable resistance for terminals T, G2, H1 = 10Ω and for terminals A, +8, F, F1 & I = 6Ω and for terminals SE & F2 = 3Ω
V is the centre core of the coax and M is the screen.
The transformer should be mounted next to the Art.890 and connected using 1mm² cores

Connections from the Art.890 controller to the videophone.

Connections Numbers in brackets are those of the videophone back plate. Without brackets are signal	**50m**	**100m**	**200m**	**300m**	**400m**
+12(1)	0.35mm²	0.35mm²	0.5mm²	0.75mm²	1.0mm²
TV1(2)	0.35mm²	0.35mm²	0.5mm²	0.75mm²	1.0mm²
TV2(3)	0.35mm²	0.35mm²	0.5mm²	0.75mm²	1.0mm²
1(4)	0.35mm²	0.5mm²	1.0mm²	1.5mm²	2.0mm²
2(5)	0.35mm²	0.35mm²	0.5mm²	0.75mm²	1.0mm²
3(6)	0.35mm²	0.35mm²	0.5mm²	0.75mm²	1.0mm²
4(7)	0.35mm²	0.35mm²	0.5mm²	0.75mm²	1.0mm²
5(8)	0.35mm²	0.35mm²	0.5mm²	0.75mm²	1.0mm²
6(9)	0.35mm²	0.5mm²	1.0mm²	1.5mm²	2.0mm²
7(10)	0.35mm²	0.35mm²	0.5mm²	0.75mm²	1.0mm²
V(11)	Standard quality	Medium quality	Good quality	Good quality	High quality
M(12)	75Ω Coax cable	75Ω Coax cable	75Ω Coax cable	75Ω Coax cable	75Ω Coax cable
R(13)	0.35mm²	0.35mm²	0.5mm²	0.75mm²	1.0mm²
C(14)	0.35mm²	0.35mm²	0.5mm²	0.75mm²	1.0mm²
-(15)	0.35mm²	0.35mm²	0.5mm²	0.75mm²	1.0mm²
T(16)	0.35mm²	0.35mm²	0.5mm²	0.75mm²	1.0mm²
1T(17)	0.35mm²	0.35mm²	0.5mm²	0.75mm²	1.0mm²
2T(18)	0.35mm²	0.35mm²	0.5mm²	0.75mm²	1.0mm²

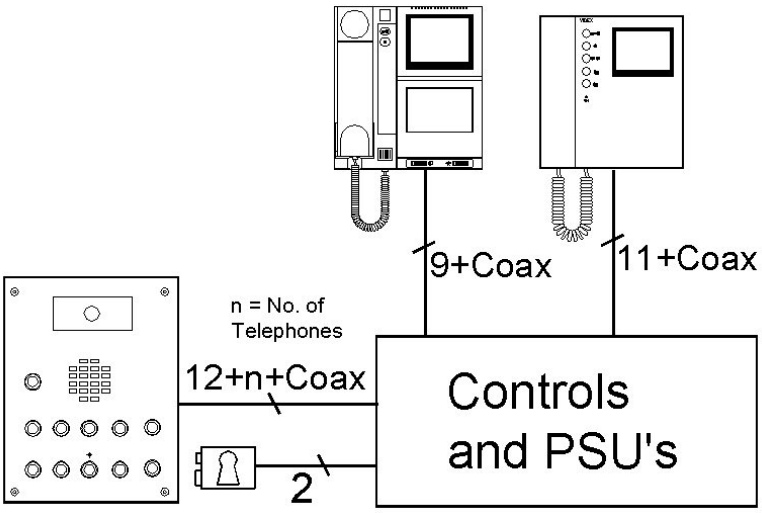
When ever possible connection 3(6) should be twisted with connection 5(8) and connection 4(7) should be twisted with connection 5(8) as pairs.
Maximum acceptable resistance for all terminals except 1(4) & 6(9) = 10Ω and terminals 1(4) & 6(9) = 6Ω
V is the centre core of the coax and M is the screen.

AUDIO SYSTEM BLOCK DIAGRAM



Note: Additional cores will be required for auxiliary devices such as push to exit buttons, fireman switches, proximity access control etc.

VIDEO SYSTEM BLOCK DIAGRAM



Note: Additional cores may be required for auxiliary items such as push to exit buttons, fireman switch proximity access control etc..
The block diagram above shows all videophones coming back to one point with all the video distributors at that point. It is also possible to spread the video distributors around the building (Please see wiring diagrams for more information).

Safety Note : An earth connection should also be fitted to the door panel stainless steel facia using one of the studs provided.

TESTING THE INSTALLATION

- Check all the connections have been made correctly and then power up the system.

- Call all the apartments in turn. Check for call tone to the apartment, speech in both directions, video (optional) and lock release.

- If the volume of speech needs to be adjusted, this can be done by adjusting the presets on the rear of the amplifier at the door panel.

- On calltone call system only, if the call tone volume needs adjusting this can be done at each handset (Three position slid switch on the telephone).

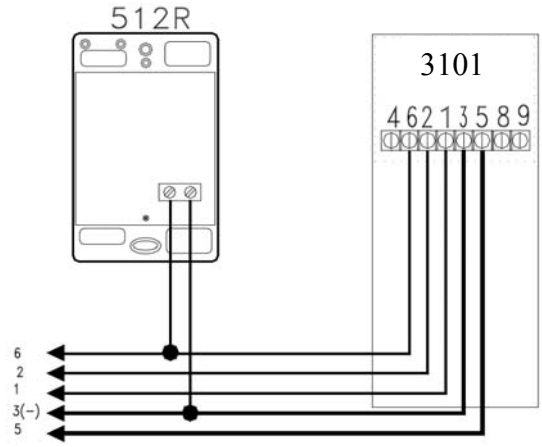
- Set the time clock on/off times (Use the instructions supplied with the time clock). Check the trade button only works when the time clock is on.

PANEL CARE

The door panels are manufactured from either 12 Gauge 304 grade stainless steel or mirror finished brass. It is important that the facia is cleaned on regular occasions to prevent dirt build up and tarnishing of the metal. A general household metal polish can be used but care should be taken to follow the grain of the metal when polishing and also avoid any polish build up around the call buttons which may prevent the buttons from operating correctly.

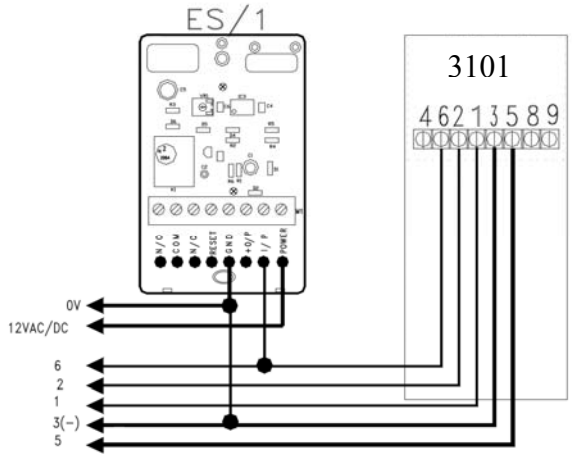
ACCESSORIES CONNECTION GUIDE

CONNECTING THE 512R EXTENSION SOUNDER



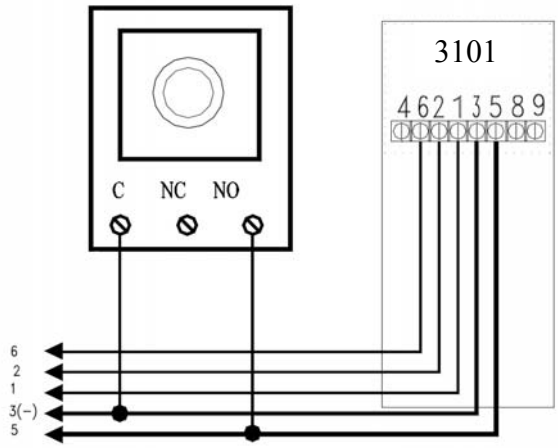
DURING A CALL THE EXTENSION SOUNDER WILL BUZZ

EXTENSION STROBE

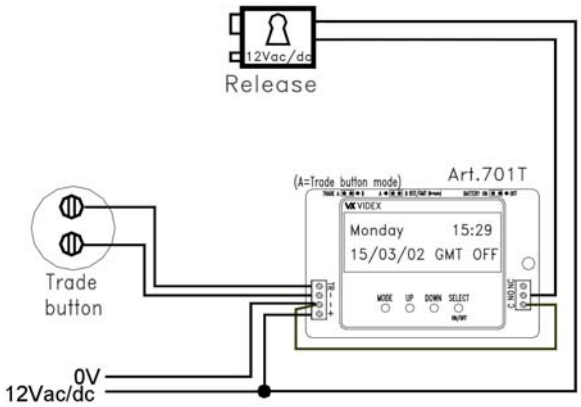


DURING A CALL THE STROBE LIGHT WILL FLASH

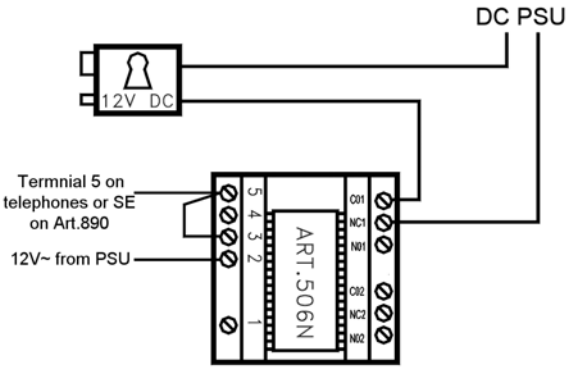
PUSH TO EXIT (PUSH TO MAKE)



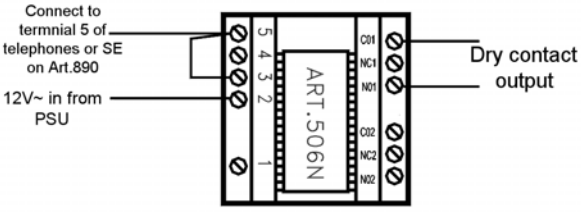
TRADE BUTTON



FAIL SAFE LOCK RELEASE

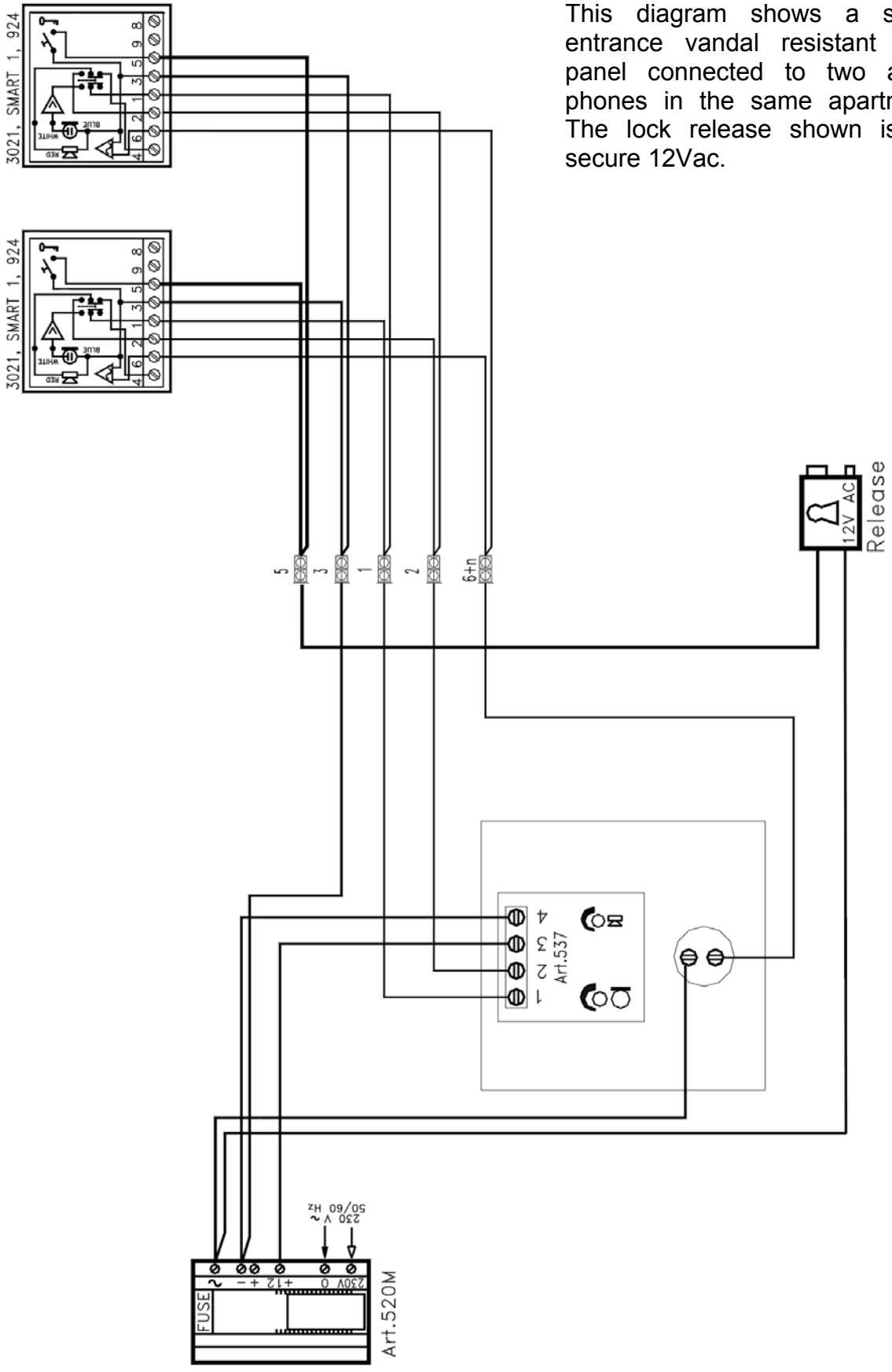


DRY CONTACT LOCK OUTPUT



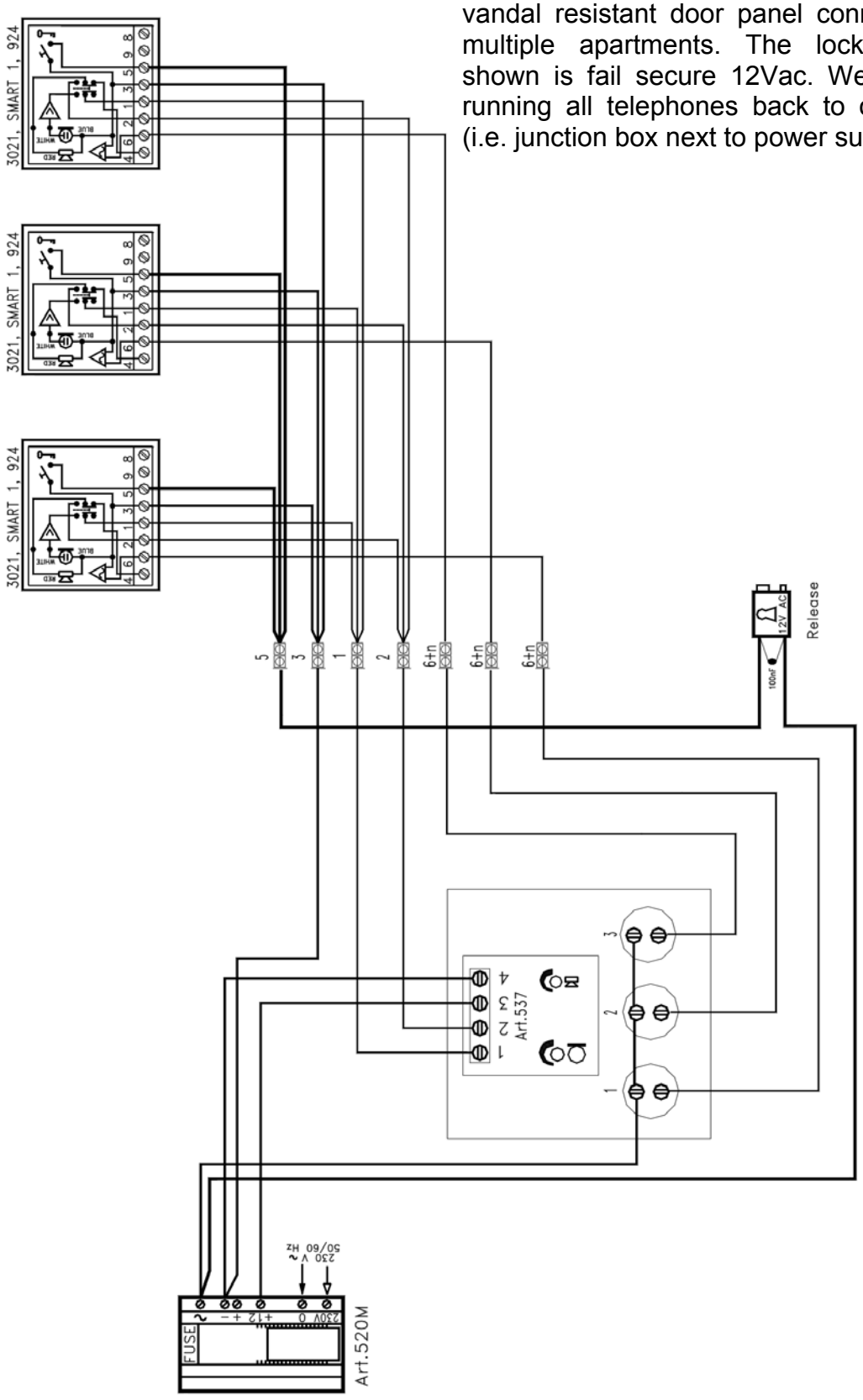
WIRING DIAGRAM

This diagram shows a single entrance vandal resistant door panel connected to two audio phones in the same apartment. The lock release shown is fail secure 12Vac.



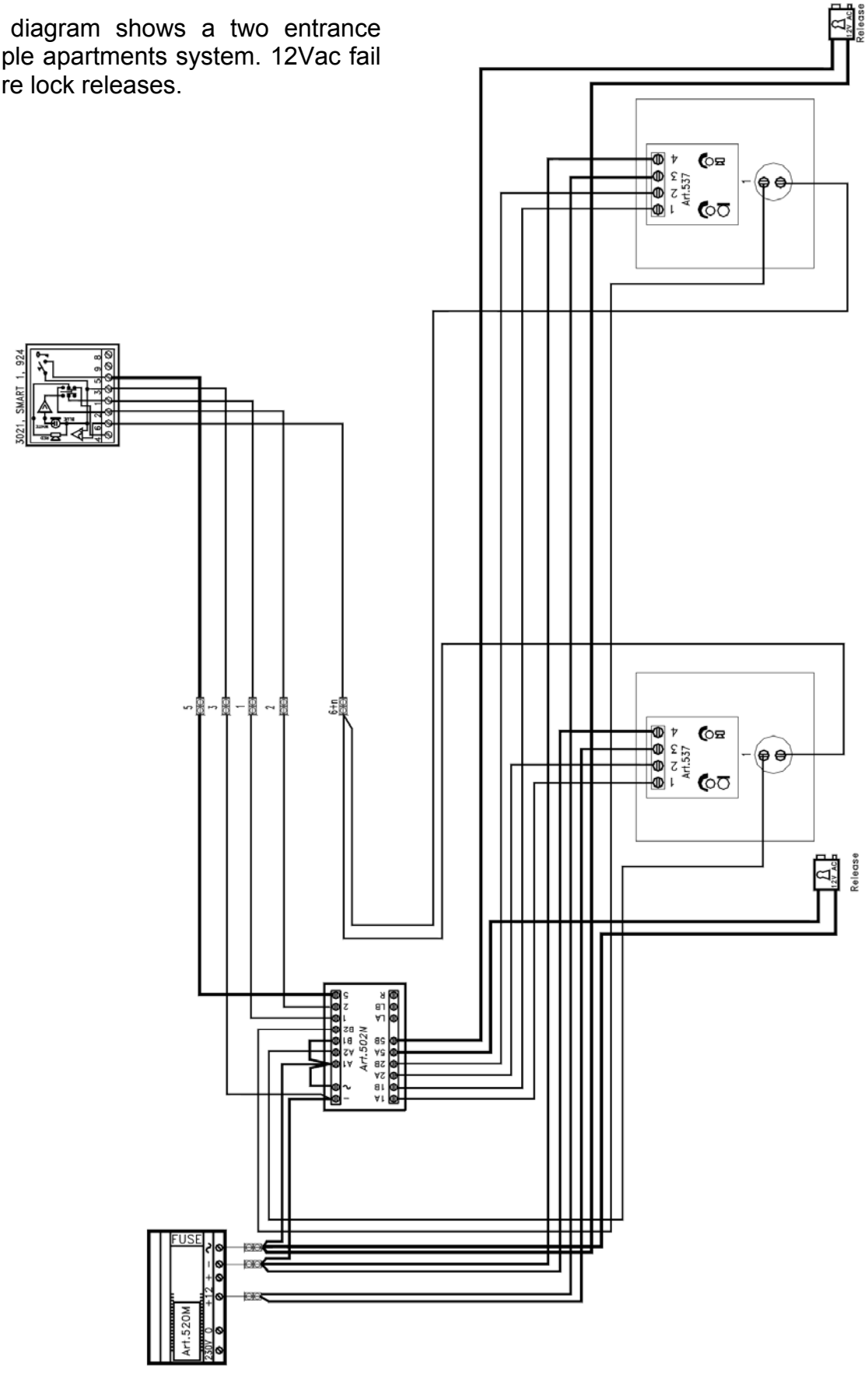
WIRING DIAGRAM

This diagram shows a single entrance vandal resistant door panel connected to multiple apartments. The lock release shown is fail secure 12Vac. We suggest running all telephones back to one point (i.e. junction box next to power supply unit)



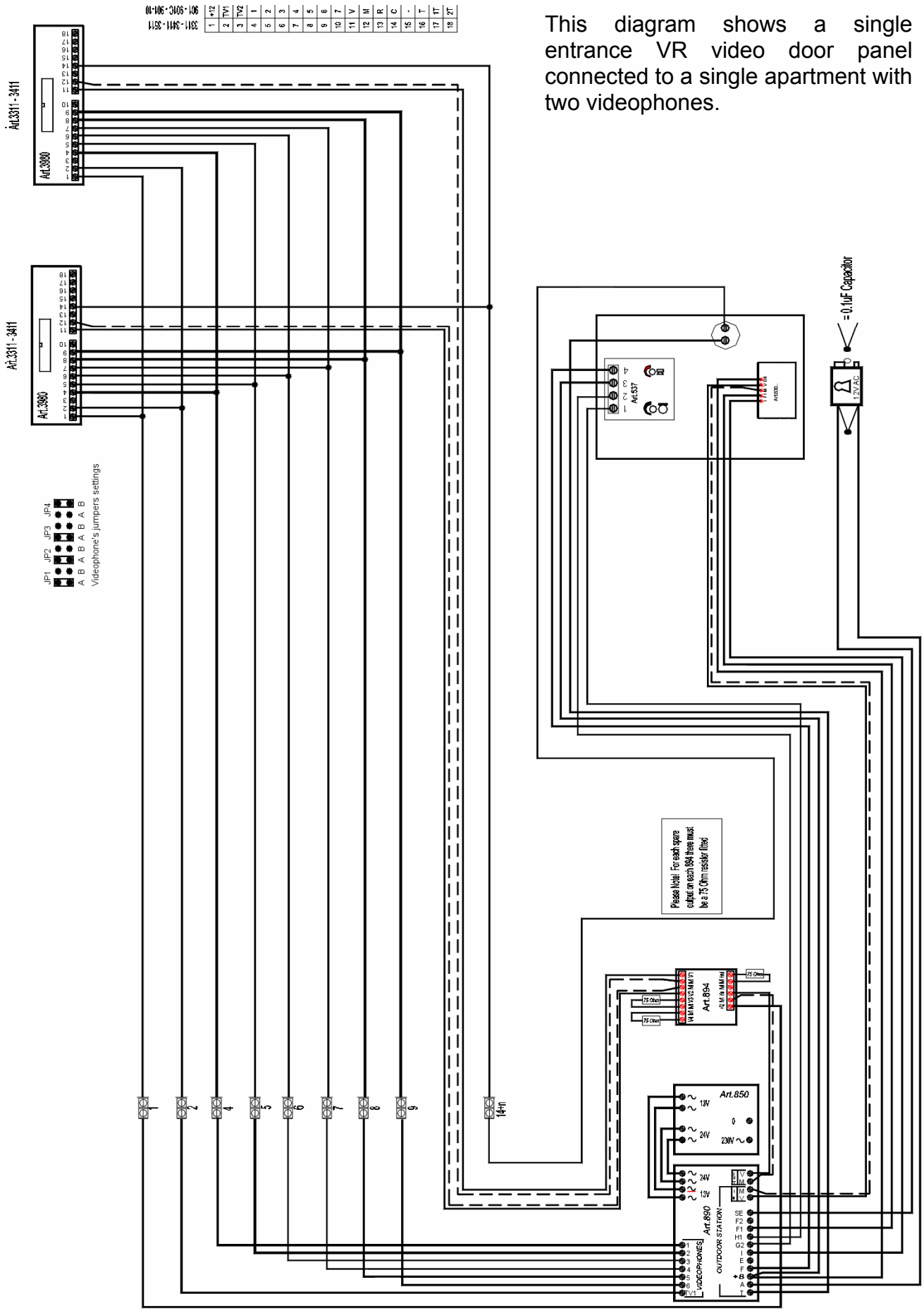
WIRING DIAGRAM

This diagram shows a two entrance multiple apartments system. 12Vac fail secure lock releases.



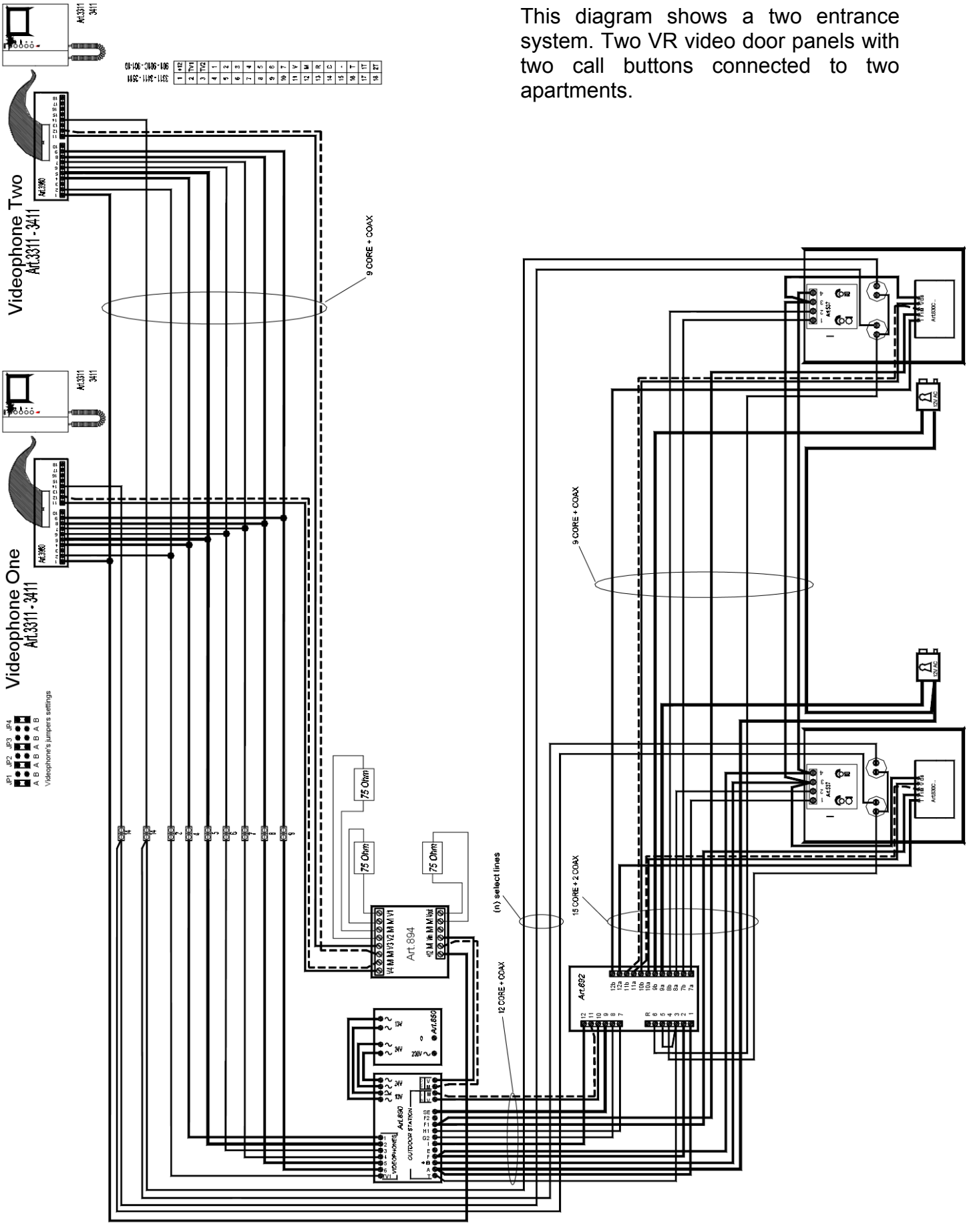
WIRING DIAGRAM

This diagram shows a single entrance VR video door panel connected to a single apartment with two videophones.



WIRING DIAGRAM

This diagram shows a two entrance system. Two VR video door panels with two call buttons connected to two apartments.



TROUBLE SHOOTING

When trouble shooting a large system, it will be easier to break the system down to a manageable size. The simplest way to do this is to remove all but one handset. Doing this, you can confirm the door panel and control cabinet are free from faults. Once this has been confirmed you can reconnect the handsets in small sets (Floor by floor), testing after each set to see if the fault has re-appeared.

AUDIO SYSTEMS

SYMPTOM	TEST
No speech from the door panel to the telephone.	Check terminal 2 on the amplifier for continuity to terminal 2 on the telephone.
	Before lifting the handset, check the voltage to terminal 2 of the amplifier is 8-12Vdc. Trace this voltage to terminal 2 to the telephone.
	Check the voltage drops to approx. 1Vdc after the handset is lifted. (If not try another telephone)
	If all else fails try another amplifier at the door station
No speech from the telephone to the door panel.	Check terminal 1 on the door panel amplifier for continuity back to terminal 1 on the telephone.
	Before lifting the handset, check the voltage to on terminal 1 of the amplifier is 8-12Vdc. Trace this voltage to terminal 1 to the telephone.
	Check the voltage drops to approx. 4Vdc after the handset is lifted. (If not try another telephone)
	If all else fails try another amplifier at the door station
No speech in either direction	Check the 315mA fuse in the power supply
	Check for 12Vdc across terminals 3 & 4 on the door panel amplifier. This should be there all the time and comes directly from the PSU.
Lock will not operate from telephone	Check terminal 5 on the telephone. This terminal shorts to terminal 3 of the telephone when pressed (Becomes 0V).
Nothing happens when any call button is pressed	Check the common of the buttons has 13Vac present at all times.
	When a call button is pressed you should be able to read 13Vac on terminals 3 & 6 of the telephone (6 of the telephone comes direct from the call button). If voltage is there then check/change the buzzer.
Hum on the speech lines	Ensure all intercom cables do not run close to higher voltage cables
	Try another amplifier at the door panel.

TROUBLE SHOOTING

VIDEO SYSTEMS

SYMPTOM	TEST
No call tone, Videophone works only by pressing the camera recall button.	Check the 13Vac on the Art.850 PSU
	Check the wire from terminal T on the Art.890 is not broken or short.
	Try changing the Art.890
Videophone rings but picture remains off.	Check 24Vac on Art.850
	Check jumper JP4 on the videophone is in position B
	Check wires 1 & 6 are ok from the Art890 to the videophone and 20Vdc is present during a call.
	Try changing the Art890
Videophone red LED on but no picture	Check coax cable is not broken or short
	Check Art.894 is powering up with 12Vdc during a call. Try taking the coax straight from the camera to a videophone.
	Check for 20Vdc across the camera terminals I & F1 during a call (powered from Art890)
Picture poor	Check all end of line resistors are fitted to unused outputs on the Art.894 and a resistor is also fitted to the end of line.
	Check for any broken coax's or screens.
	Check wire F1 & 6 is not broken and is not to small.
No Camera recall	Wire TV1 broken
	Try moving the wire from TV1 into T
Hum on the speech lines	Ensure all intercom cables do not run close to higher voltage cables
	Try another amplifier at the door panel.
No audio	Check terminals 3 & 4 for 12Vdc from the Art.890
	Check terminal 5 from the Art.890 to the videophones is not broken.
No speech from videophone to door panel	Check terminals G2 and 4 on the Art.890 for continuity back to door panel and videophone.

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