Stand Alone Color Image Facsimile System

MODEL: Trans.View AR570

Operating Manual

AOR, LTD.

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This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may causes harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by tuning the equipment OFF and ON, the user is encouraged to correct the interference by one or more of the following measures:

- **Reorient or relocate the receiving antenna.**
- **Increase the separation between the equipment and receiver.**
- **Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.**
- **Consult the dealer or an experienced radio/TV technician for help.**

Names of products used in this manual are for identification purpose only and may be trademarks or registered trademarks of their respective company.

1: Specifications

☐ Product	**AR570** Still Image Color Facsimile System.
☐ Operating Mode	AOR original SCFM format and protocol Color 27, 69 second mode Black & White 18, 35 second mode
☐ Video Input/Output	NTSC (or PAL) Asynchronous 4fs sampling/75Ω 1v p-p
☐ Still Image Input Signal	0dB +10/-30dB
☐ Still Image Output Signal	0～150mVrms (variable)
☐ Modulation	VCO modulation by DSP
☐ Demodulation	Arctangent Angle demodulation by DSP
☐ Color Decoding	Digitally processed by DSP
☐ COM. Port	DB9 Male for expansion and Interface to PC
☐ NCU	Automatic dialing and reception Ringing time for automatic reception 1 to 7 times (programmable) Termination of linked line Automatic/ manual (detection of no sounds in 5, 30, 60 second)
☐ DTMF Control	Built in
☐ Power Requirement	DC12V (11.7 to 15.8VDC) at 300mA maximum (DC12V)
☐ Dimensions	150 x 120 x 50mm
☐ Weight	860 grams
☐ Accessories supplied	Black/Red twin color DC cord Telephone line cable with modular jack (both) 8P Metal microphone connector (disassembled) DIN 5Pin Plug Instruction manual（3.5-inch floppy diskette）

2: Introduction

2-1: General Description

AOR model **AR570** is the latest addition to the AOR's growing family of imaging communication products.

The **AR570** has been designed for the two-way video communications. It is capable of transmit and receive full-color, television-quality still images, over **standard** analog radio, telephone and cellular lines.

The **AR570** is ideal for Business, Commercial and Professional users. For example; in advertising agencies and manufacturing firms who need to transmit and receive high-quality, high-resolution pictures, diagrams, engineering drawing, etc., without regard to time and distance constrains.

The **AR570** is also ideal for the public safety, military, security and news/broadcast applications where traditional video transmission for a distant point is impossible. Since the **AR570** can easily be adapted to an existing voice grade circuit, including land mobile radio, maritime radio, airborne radio, long distance SSB radio and even through satellite link.

The **AR570** is using advanced DSP technology to offer superior picture quality and extremely simple operation. Intelligent design of the unit allows stand alone operation. NO PCs are absolutely necessary. It's DC operation and compact size allows even mobile operation.

Extra fine and standard resolutions are provided for both full color and Black & White operation. Image frame memory, telephone line interface (a NCU function is also provided for automatic dialing and reception over telephone line network), built-in microphone relay, computer interface, DAT/MD compatible recorder jack, rugged metal case, DC operation are all standard feature of the **AR570**.

A dedicated terminal software from options is also available for NTSC or PAL version depends on the item your purchased. Please call your local distributor if it is necessary.

2-2: Equipment List

AR570

At least two **AR570**s are needed. One for originating station and the one for distant station. The unit is designed to run at DC12V regulated power source so that you may need to hock-up car battery for mobile use.

Media Equipment

In addition to the **AR570** and power supply, the media is needed.

Typical media for the **AR570** is a standard telephone line or radio equipment such as transceiver, transmitter or receiver. The **AR570** is not a media sensitive equipment thus Cellular phone can be used.

For a one-way image distribution by radio wave, you may replace receiving side to a conventional scanners or receivers.

Image Capture Device

A Commercially-available image capturing device namely; camcorder, electronic camera, video tape recorder, image scanner or VCR, etc. The device must have video output for connection. The **AR570** is also designed to accept a Black & White device, such as CCD camera, Infrared camera or low light camera that has compatible output.

Image Display Device

A commercially-available image display device namely; TV, TV monitor, Video Printer or a flat-panel LCD monitor, etc. The device must have video input.

2-3: Applications

As a result of extensive market research, AOR found that **AR570** has application beyond commercial use. Potential **AR570** application include distant learning, presentation, remote consultation, experts extension, design exchange, concept exchange, filed service assessment-maintenance, remote surveillance, remote security and news gatherings.

In medical emergency application when the system is tied to existing telephone or cellular phone, the **AR570** could be used as a part of remote treatment by allowing doctors to see and discuss special procedures and / or pharmaceutical updates, etc., as part of second option remote consultations.

In filed engineering/construction/manufacturing, the **AR570** would allow for the image transmission from a remote site, or can be exchange of engineering drawing, blueprints, parts and components, and prototype models.

For the security and military use, when the low right camera is connected, the still image from the remote site can be obtained just like a picture taken by surveillance camera.

3: Summary of Controls

3-1: Front Panel

POWER LED

This LED will illuminate **in green color** when the **AR570** is ON.

POWER (Toggle switch)

The POWER switch toggles between ON and OFF. UP is ON and DOWN is OFF.

ACQ (3.5mm dia monaural jack)

This jack is an external input terminal. This is the same function that you push the **TX** switch by contacting two terminals. Once the two terminals are connected, the **AR570** will immediately acquire the live picture from the camera of which is connected to the **VIDEO IN** on the rear panel of the **AR570** and will image the picture onto the memory. After that, the **AR570** will transmit the image to a distant station over radio link or telephone line link under picture mode selected by DIP switch on the bottom side of the **AR570**. The job sequences using the ACQ terminals on the **AR570** Telephone version are;

Contacted the terminals→acquire live picture→hang up telephone line→make dialing to the specified telephone number (Once the line is connected)→transmit the image→hang off the line→standby

Note: In the sequential functions above, the AR570 radio version is not activated to make the dialing.

The ACQ LED will light while acquiring the picture and off when it is finished. After that, the **AR570** will start to transmit the image promptly and the **TX** LED will also light simultaneously. Once transmission of the image is over, the **AR570** will turn to standby mode and the **TX** LED will off.

HOLD (Toggle switch)

The HOLD switch activate and deactivate over drown function by new image. If this switch is UP position, the **AR570** will not capture new image. Also, the **AR570** will not activate image data transmission via RS-232C port in case of UP position. The HOLD switch is in UP position, the **RX** LED will not illuminate.

VOICE LED

This LED will illuminate **in yellow color** while no operating of the **AR570** together with the radio transceiver. No available to use voice operation using microphone when this LED is not illuminated.

TX LED

This LED will illuminate **in red color** while the **AR570** is transmitting.

TX (Push switch)

Momentary this switch is pressed, the **AR570** will acquire the picture from camera and will transmit it as image picture immediately on the operating mode selected by MODE-SW dip switch provided on the bottom of the **AR570**.

RX LED

This LED will illuminate **in green color** while the **AR570** is receiving of image. This LED also indicates the following status.

HOLD switch is ON	not illuminate
Receiving of image	blinking
Standby	illuminate

RX (Push switch)

Momentary this switch is pressed, the **AR570** will start reception on the operating mode selected by MODE-SW dip switch provided on the bottom of the **AR570**. (**manual reception)** Momentary this switch is pressed while transmission, the **AR570** will stop the transmission immediately. **(terminate the transmission)**

MIC

Connection for external microphone for voice communication.

3-2: Rear Panel

COM

Communication Port for future expansion and options.

LINE/TEL

Connect telephone set and telephone line. Connect telephone to TEL and telephone line to LINE

using modular plug. The **AR570** provides NCU function for automatic dialing and reception.

RADIO

Connection to radio transceiver.

VIDEO IN (RCA Pin Jack)

Connect video camera, camcorder etc .

VIDEO OUT (RCA Pin Jack)

Connect video monitor, LCD display, etc.

AUX (3.5mm dia monaural jack)

Auxiliary modulator and demodulator input/output port.

DC12V

Connect DC power source. Need DC 13.8V at minimum 500mA regulated power supply. Use the supplied black/red cord to connect the power supply.

3-3: DIP Switches

The **AR570** has four kinds of DIP switch placed on the bottom side to set provided various functions as illustrated below.

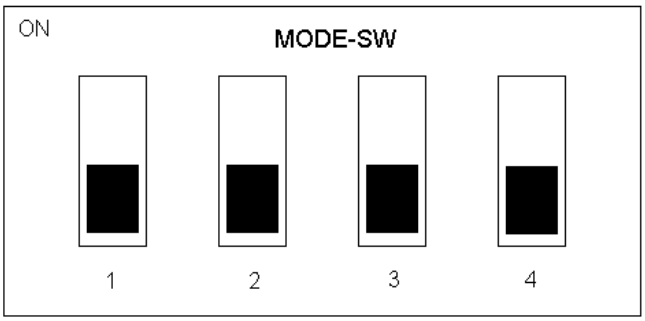
3-3-1: Mode Switch (MODE-SW)

This section of DIP switches has three functions. The first one uses to determine an operating mode of image. The second one uses to determine a communication speed on RS-232C port

between a PC. The third one uses to enable an automatic dialing transmission.

3-3-1-1: Operating Mode

The SW1 and SW2 are used to determine the operating mode of the image picture. There are four modes as below.



SW 1	SW 2	Functions	Speed (Seconds)
OFF	**OFF**	Monaural mode with normal resolution.	**18**
OFF	**ON**	Monaural mode with fine resolution.	**35**
ON	**OFF**	Color mode with normal resolution.	**27**
ON	**ON**	Color mode with fine resolution.	**69**

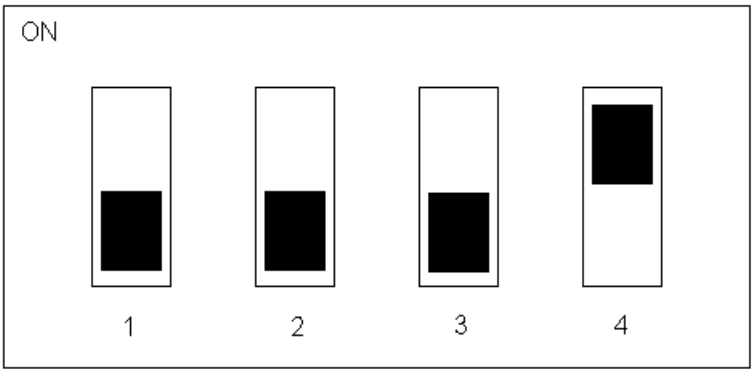
The setting illustrated above is now determined the transmission mode at **Monaural Mode with normal resolution.**

3-3-1-2: RS232C communication speed and Automatic Dialing transmission

This function is a very unique when your **AR570** is installed in the telephone line network. As explained the function of the ACQ jack on page 3, once the contact switch of which is connected to the ACQ jack is contacted, the **AR570** will immediately acquire the live picture through the video camera of which is connected to the **VIDEO IN** on the rear panel of the **AR570**. And the AR570 will

activate to digitize the acquired picture and will store it onto the memory. After that, the **AR570** will transmit the image to a distant station over radio link or telephone line link under the picture mode selected by the **MODE** DIP switch on the bottom side of the **AR570**. The job sequences using the ACQ terminals are; **(For telephone version)**

Contacted the terminals→acquire live picture→hang up telephone line→make dialing to the specified telephone number (Once the line is connected)→transmit the image→hang off the line→standby.



SW		Functions
SW 3	**ON**	Enable to program the communication speed on the RS232C port. The setting method is; ①Once the **AR570** OFF. ②The HOLD switch is ON and turn the **AR570** ON while pressing both **TX** and **RX** switches.

		③Press the **RX** switch to select the communication speed in the range of 1200bps, 75Kbps and 115Kbps. ④The HOLD switch is OFF. Then the setting progress is now completed. It is normally used the SW 3 at OFF.
SW 4	**ON**	Activate the automatic dialing transmission. If the SW4 is OFF, this function is not activated.

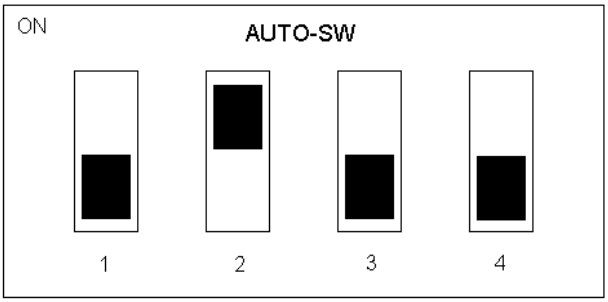
The setting illustrated is;

Transmission Mode:	**Monaural Mode with Normal Resolution**
Communication Speed (RS232C)	**115Kbps**
Automatic Dialing Transmission	**Enable**

3-3-2: Continuous Transmission and DTMF Remote Control Mode (AUTO-SW)

This section of DIP switches has two functions. The SW1 and SW2 use when you want to transmit the image continuously with a programmed time interval (5, 30 and 60 seconds). The SW3 enables to control via DTMF tone. The SW4 enables to transmit DTMF tone using the **TX** switch placed on the front panel of the **AR570**.

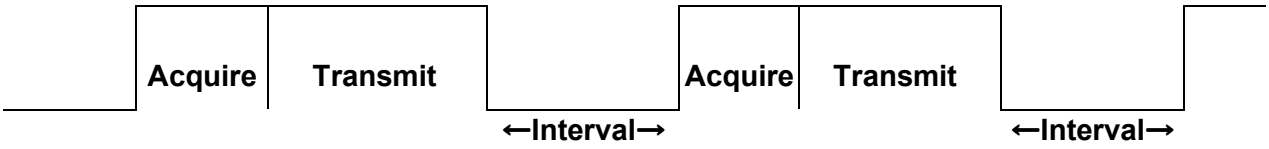
3-3-2-1: Continuous Transmission (for only operation via leased line)



SW 1	SW 2	Functions
OFF	**OFF**	Not activate the continuous transmission
OFF	**ON**	Activate the continuous transmission with a 5-second time interval.
ON	**ON**	Activate the continuous transmission with a 30-second time interval.
ON	**OFF**	Activate the continuous transmission with a 60-second time interval.

The continuos operation for transmission of the image picture is available by using a combination of the SW1 and SW2 on the AUTO DIP switch. However, this function is only used when you apply the AR570 into the leased line network.

The time interval will be placed with between the time when the transmission is over and the next acquiring motion. **The setting illustrated above indicates you can transmit the image continuously with the interval of 5 seconds.**

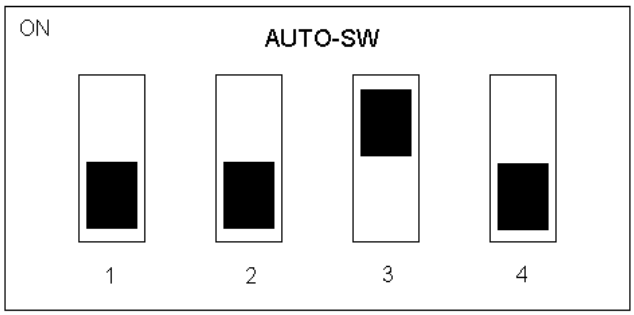


To activate the continuos transmission mode, you should the SW4 of the MODE DIP switch ON to enable the automatic dialing function to ON.

Also, the both transmit and receive stations are synchronized the position of the SW 1 and SW2 on the AUTO DIP switch to each other when this operation is selected.

The continuos transmission will be activated until the receive station sends the termination signals to the transmit station. The termination signals will be released when the RX switch on the receive station is pressed. Once the transmit station receives the termination signals from the receive station, the link of the line will be disconnected immediately.

3-3-2-2: DTMF Remote Control

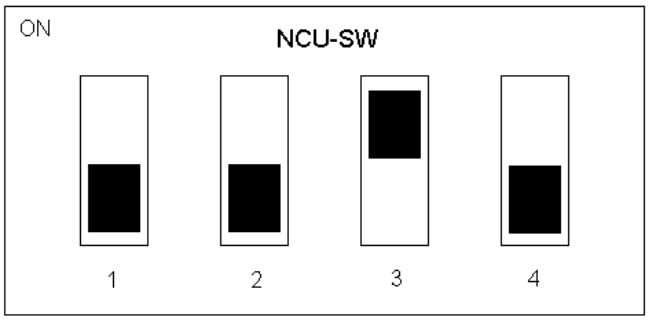


SW		Functions
SW 3	**ON**	Enable an automatic reception by DTMF tone control remotely. If this switch is OFF, the remote control by DTMF tone is not activated.
SW 4	**ON**	Enable an automatic transmission using the **TX** switch of which is placed on the front panel of the **AR570**. The **TX** swtich releases DTMF tone to enable the automatic reception at a distant station.

You can control a distant station where is no operator attendance remotely by using this function.

3-3-3: NCU function (NCU-SW) (for only operation via leased line)

This section of DIP switches enables to use NCU (=Network Control Unit) functions that is provided on the **AR570** as the standard feature. A combination of the DIP switches can program a number of Ring of which effects to turn the **AR570** to reception.

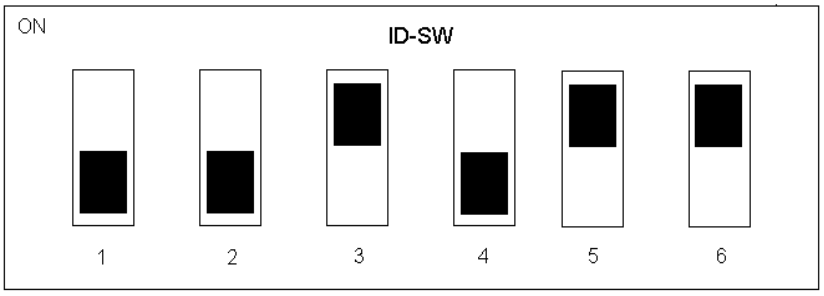


SW 1	SW 2	SW 3	SW 4	Functions
OFF	**OFF**	**OFF**	**OFF**	Not activate the automatic reception.
ON	**OFF**	**OFF**	**OFF**	Activate to turn reception after ring calls 1 time.
OFF	**ON**	**OFF**	**OFF**	Activate to turn reception after ring calls 2 times.
ON	**ON**	**OFF**	**OFF**	Activate to turn reception after ring calls 3 times.
OFF	**OFF**	**ON**	**OFF**	Activate to turn reception after ring calls 4 times.
ON	**OFF**	**ON**	**OFF**	Activate to turn reception after ring calls 5 times.
OFF	**ON**	**ON**	**OFF**	Activate to turn reception after ring calls 6 times.
ON	**ON**	**ON**	**OFF**	Activate to turn reception after ring calls 7 times.

The setting illustrated on the former page enables to turn the **AR570** to reception after the ring calls 4 times. If the SW4 ON, the **AR570** will release answer-request tone after the automatic reception is executed. The answer-request tone will be automatically released with a certain time interval.

3-3-4: Station ID and Superimpose

This section of DIP switches use to determine the station ID and to activate to superimpose the daytime clock and the station ID on the image.



SW 1	SW 2	SW 3	SW 4	Station ID
OFF	**OFF**	**OFF**	**OFF**	Station ID = 0
ON	**OFF**	**OFF**	**OFF**	Station ID = 1
OFF	**ON**	**OFF**	**OFF**	Station ID = 2
ON	**ON**	**OFF**	**OFF**	Station ID = 3
OFF	**OFF**	**ON**	**OFF**	Station ID = 4
ON	**OFF**	**ON**	**OFF**	Station ID = 5

OFF	**ON**	**ON**	**OFF**	Station ID = 6
ON	**ON**	**ON**	**OFF**	Station ID = 7
OFF	**OFF**	**OFF**	**ON**	Station ID = 8
ON	**OFF**	**OFF**	**ON**	Station ID = 9
OFF	**ON**	**OFF**	**ON**	Station ID = 10
ON	**ON**	**OFF**	**ON**	Station ID = 11
OFF	**OFF**	**ON**	**ON**	Station ID = 12
ON	**OFF**	**ON**	**ON**	Station ID = 13
OFF	**ON**	**ON**	**ON**	Station ID = 14
ON	**ON**	**ON**	**ON**	Station ID = 15

SW		**Functions**
SW 5	**ON**	Enable to assign the station ID.
SW 6	**ON**	Enable to superimpose the daytime clock and the station ID.

3-4: DTMF Commands

The **AR570** enables to control a distant station remotely using provided DTMF tones over line links.

DTMF Command	Functions
1#	Acquire Live picture
2#	Transmit Image
3#	Acquire live picture and after that transmit the image
4#	Change of transmission mode to High speed Monaural
5#	Change of transmission mode to Normal speed Monaural
6#	Change of transmission mode to High speed Color
7#	Change of transmission mode to Normal speed Color
00#	Make disconnect the line
*****	Cancel of the received DTMF Control tone. But it is unable to accept this cancel code after the **AR570** entered in the specified Job already by receiving the # tone.
Automatic Disconnect	Automatic disconnect is available by placing 0(=zero) on the front of the DTMF command of 1#, 2# and 3#. For example, if you specify the command as 03#, the **AR570** will acquire the live picture and transmit the image to a distant station. After the transmission is over, the **AR570** will make disconnect automatically . Cancel of the received DTMF Control tone. But it is unable to accept this cancel code after the **AR570** entered in the specified Job already by receiving the # tone.
Special function	If the DIP SW4 on the AUTO-SW is ON, the DTMF command of **3#** will be released by pressing the **TX** switch placed on the front panel of the **AR570**.

3-5: Daytime clock adjustment and program phone number

The **AR570** has a dedicated daytime clock CPU battery. And also the **AR570** can store two phone numbers (**P1 as primary and P2 as secondary**) in the memory.

The stored telephone number can be used in the application of a full automatic dialing system for connection to a distant station via leased line.

The both of them are backed up by a built-in lithium battery (**CR2032**) for 2 years.

3-5-1: Adjust daytime clock

The formation of the daytime clock consists of MMDDHHMM (HH=24-hour). You can adjust it by using the **TX** and **RX** switches. To adjust the daytime clock, the procedures are as follows:

① Once the **AR570** is OFF.
② Connect a display device to the **AR570**.
③ Place the HOLD switch to upward (ON), and power the **AR570** ON while pressing both **TX** and **RX** switches
④ You can see a white screen in the display device momentary and once you release your finger from the **TX** and **RX** switches. Then a daytime clock will be appeared at right lower corner soon as below.(The figures for the daytime are different from the values depends on setting at default)

00-00 00:00

⑤ You can recognize that the first figure is now blinking. This indicates that the first figure is now ready to adjust.
⑥ You can adjust the first figure in 0 to 1 by pressing the **RX** switch while it is blinking.
⑦ If the first figure was adjusted, press the **TX** switch. The second figure will start blinks. The second figure can be adjusted in 0 to 2 by pressing the **RX** switch while it is blinking.
⑧ If the second figure was adjusted, **the month of the daytime was set at the new value.**

⑨ You can press the **TX** switch. The third figure will start blinks. The third figure can be adjusted in 0 to 3 by pressing the **RX** switch while it is blinking.
⑩ If the third figure was adjusted, press the **TX** switch. The fourth figure will start blinks. The fourth figure can be adjusted in 0 to 9 by pressing the **RX** switch while it is blinking.

⑪ If the fourth figure was adjusted, **the day of the daytime was set at the new value.** And the month and the day of the daytime have been set completely by this adjustment.

⑫ The next step is to adjust the hour and the minute. Press **TX** switch after the fourth figure is set. Then the fifth figure will start blinks. You can adjust the hour in 0 to 2 by pressing the **RX** switch while it is blinking.

⑬ The fifth figure was adjusted, you can press the **TX** switch. The sixth figure will start blinks. You can adjust the sixth figure in 0 to 9 by pressing the **RX** switch while it is blinking.

⑭ If the sixth figure was adjusted, the hour of the daytime was set at the new value.

⑮ Press the **TX** switch. The seventh figure will start blinks. You can adjust the seventh figure in 0 to 5 by pressing the **RX** switch while it is blinking.

⑯ If the seventh figure was adjusted, press the **TX** switch. The eighth will start blinks. You can adjust the eighth figure in 0 to 9 by pressing the **RX** switch while it is blinking.

⑰ If the eighth figure was adjusted, place the **HOLD** switch to downward (OFF) to confirm the new daytime clock.

3-5-2: Program phone number

You can program two telephone numbers (primary and secondary) for the distant station with 15 digits maximum each.

① After the daytime clock was set, the **HOLD** switch is now placed at OFF position (Down).

② Upward the **HOLD** switch to program the telephone numbers. Then the following will be appeared at left lower corner on the screen soon.

P1:0

③ The word of "**P1**" is to program the telephone number as primary. You can see that "**0**" is now blinking.

④ You can take same processes using the TX and RX switches that you did on the section of the adjustment of the daytime clock.

⑤ After the telephone number is programmed on the P1 address, downward the HOLD switch (OFF) to confirm it.

⑥ After the daytime clock was set, the **HOLD** switch is now placed at OFF position (Down).

⑦ Upward the **HOLD** switch to program the telephone numbers. Then the following will be appeared at left lower corner on the screen soon.

P2:0

⑧ The word of "**P2**" is to program the telephone number as primary. You can see that "**0**" is now blinking.

⑨ You can take same processes using the TX and RX switches that you did on the section of the adjustment of the daytime clock.

⑩ After the telephone number is programmed on the P1 address, downward the HOLD switch (OFF) to confirm it.

3-5-3: Sender's Name

The sender's name can also be superimposed on the image picture. The sender's name is determined in among of A to Z and 0 to 9.

⑪ After the P2 is specified at the above sentence, the HOLD switch is ON again. The following figures will be appeared on the display device.

TT:

⑫ You can take same processes using the TX and RX switches that you did on the section of the adjustment of the daytime clock.

⑬ After the sender's name is programmed, downward the HOLD switches (OFF) to confirm it.

3-6: Superimpose

The **AR570** can superimpose the daytime clock and the sender's name on the image picture.

If you want to superimpose of them, you can switch the **SW6** on the **ID-SW (refer to the page 10).**

4: Installation

4-1: General

Before you can perform “Operational Test”, which follows in this section, you will have to properly connect your **AR570** to an image capture device and image display device. In addition, you will have to connect the **AR570** to your media equipment such as telephone line, radio transceiver, etc.

It is beyond the scope of this manual to show you how to connect your **AR570** to every kind of media equipment. It does however, provide you with information for common media equipment. If your particular equipment is not listed, you can probably adapt the information that is presented to suit your needs. The supplied information is based on the connection to public telephone line and radio equipment as a guide line of system setup. **(Refer to Equipment List on next page.)**

EQUIPMENT LIST

Equipment List	Special Note	MOD
Source Image		
Composite Video Camera	NTSC or PAL color Video format	1
Camcorder	VIDEO OUTPUT is required.	1
8mm Video Camera	VIDEO OUTPUT is required.	1
Electronic Camera	VIDEO OUTPUT is required.	1
VCR	Can be used to send pre-recorded image.	1
DAT	Can be used to send pre-recorded image.	1
MD	Can be used to send pre-recorded image.	1
Laser Disk	Check with copyright law. (Private use only.)	1
Display & Local Monitor		
Monitor TV	VIDEO INPUT is required. (Monitor local image)	1
Flat LCD Display	VIDEO INPUT is required. (Monitor local image)	1
Video Printer	Print incoming image.	1
Recording		
VCR	Record image from a distant station.	1
DAT	Record image from a distant station.	1
MD	Record image from a distant station.	1
Media		
Mobile Radio	Ideal for short range.	2
Hand-Held Radio	Ideal for filed use.	2
HF SSB Transceiver	Ideal for long distance.	2
Cellular Phone	To access public telephone link.	2
Telephone	To access public telephone line.	1
Receiver/Scanner	To receive broadcasting image.	1
Accessory		
PC	Image enhancement	2

MOD: This column indicates the level of interfacing.

1- Almost no modifications are required.

2- Must provide interface cable and level adjustment.

4-2: Capture Device

The **AR570** can accept only the video device that is complied with NTSC (or PAL) composite video format. Video devices such ass video camera, camcorder are complied with this format.

Connect VIDEO OUTPUT to the **VIDEO IN** jack on the rear panel of the **AR570** using shielded cable with RCA plugs on both end.

4-3: Display Device

Depending upon your system layout, you can connect image display device to the **VIDEO OUT** jack on the rear panel of the **AR570**. The display device must have composite video input. For two-way video communication, you will need to connect display device to this jack on the stations.

4-4: Public Telephone Line Connection

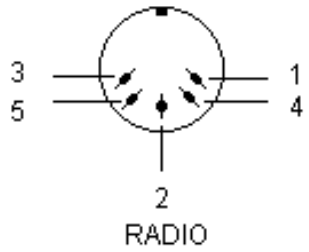
You can use TEL and LINE modular jacks to connect **AR570** to a public telephone line. Connect telephone handset of which can dispatch DTMF tones to the TEL and connect telephone line to the LINE using cables with modular type plugs.

4-5: Radio Connections

You can use the **RADIO** jack (5PIN DIN Jack) provided on the rear panel of the **AR570** to connect radio equipment such as transceiver of which can dispatch DTMF tone.

The format panel **MIC** jack is provided for a connection of microphone. You may connect hand-held microphone to this jack f you want to use your radio for both voice and video transmission. Microphone circuit is disable when the **AR570** is transmitting video signal.

The following shows the connections for the **RADIO** jack. A DIN connector that fits this jack is provided. You will have to use high quality shield cable to make radio cable.



RADIO

Pin No.	Signal Name
Pin 1	MIC Output (SCFM Output)
Pin 2	Ground
Pin 3	PTT Output
Pin 4	SP Input (SCFM Input)
Pin 5	Connected to MICROPHONE PIN 2
E	Ground

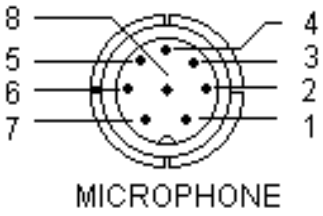
Typical portable transceiver connections

AR570 Radio Jack			Radio Miniature Phone Jacks
Pin 1	SCFM Output	→→→→→→→→→→→→	MIC/PTT
Pin 2	Ground	←←←←←←←←←←←←	Ground
Pin 3	PTT	→→[2.2K to 3.3K Ω]→→	MIC/PTT
Pin 4	SCFM Input	←←←←←←←←←←←←	Speaker
E	Shield	←←←←←←←←←←←←	Ground

Typical mobile transceiver connections

AR570 Radio Jack			Miniature Phone Jacks
Pin 1	SCFM Output	→→→→→→→→→→→→	MIC/PTT
Pin 2	Ground	←←←←←←←←←←←←	Ground
Pin 3	PTT	←←←←←←←←←←←←	MIC/PTT
Pin 4	SCFM Input	←←←←←←←←←←←←	Speaker
E	Shield	←←←←←←←←←←←←	Ground

Radio



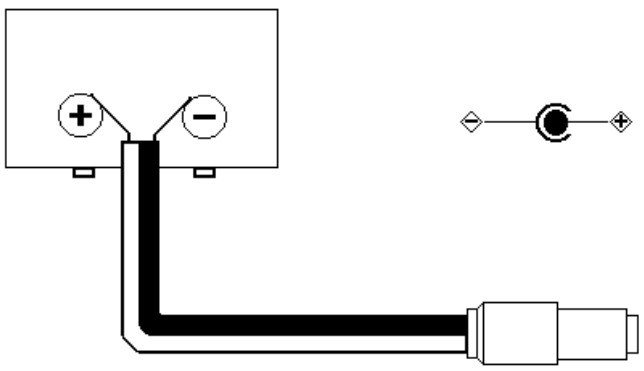
MICROPHONE

Pin No.	Signal Name
Pin 1	MIC
Pin 2	Connected to RADIO PIN 5
Pin 3	PTT
Pin 4	DC+5V Bias
Pin 5	MIC Ground
Pin 6	Control Pulse Input
Pin 7	Ground
Pin 8	SP Output
E	Ground

Note: You do not use the Pin 2, 4 and 6 in usual operation.

4-6: Power Source

To power your **AR570**, you will either need and an external power supply or a battery. An external power supply must be able to provide 10 to 13.8VDC at 500mA. The Black/Red power cord which comes with the **AR570** can be used to connect the power source.



5: Operation

This section describes operational test you can perform to make sure your **AR570** is connected and operating properly. This section is also describes the function of each controls indicators and jack, as refer to the illustration below.

Front View

Rear View

5-1: Operational Tests and Adjustment

5-1-1: Telephone Equipment

5-1-1-1: Acquire image, image transmission and reception

Make sure you have the **AR570** connected to a suitable power source by a supplied DC power cord with a DC plug. **(Be carefully the polarity on the terminal of the power source.)** Also make sure you have the **AR570** connected to your telephone line **(TEL)**, video capturing device **(VIDEO IN)** and video display device **(VIDEO OUT)** as described **in the section of 4 Installation, on page 12 of this manual.**

① Select transmission mode by **MODE-SW** Dip switch provided on the bottom of the **AR570** **(Refer to the section of 3-3-1: Mode Switch, on page 12 of this manual.)**

② The **HOLD** switch should be an OFF position (Down).

③ Turn the **POWER** switch to ON. The **POWER, VOICE** and **RX** LEDs will light.

④ Pick up a handset and make a phone call to establish voice communication with the other end. Once vice communication is established, place your telephone handset away from the **AR570**. If your telephone equipment has mute switch, push it to mute the background noise.

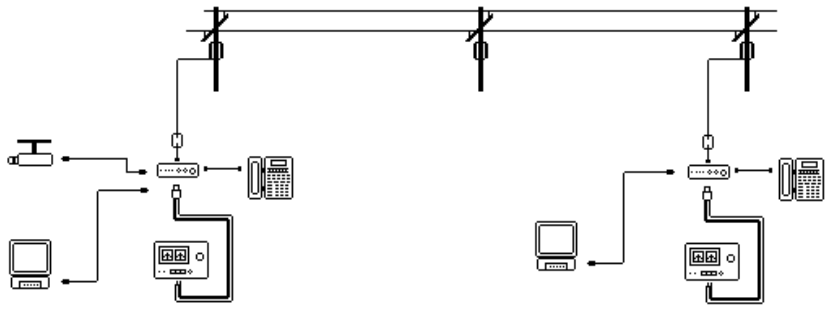
⑤ Push **TX** switch once. The both **VOICE** and **RX LEDs** will turn OFF simultaneously. This condition indicates that **AR570** is now acquiring of the live picture from the video capturing device (such as video camera). Also, you can see the captured picture on the monitor screen at this time.

⑥ After acquiring of the picture is completely finished, the **AR570** will turn to transmit the image to the distant station immediately. While transmitting, the **TX** LED will light.

⑦ If you want to terminate the transmission on the middle way, you can push the **RX** switch to execute it. Then the **AR570** will stop the transmission and will turn to standby. The **VOICE** and **RX** LEDs will light when the **AR570** is in standby.

⑧ At the distant station, first answer the phone call and place telephone handset away from the **AR570**. Once the unit start receiving the image, the **RX** LED start blinks. This indicate that the unit is receiving image and at the same time the picture can be screen.

⑨ Hang up a handset to make the telephone line OFF.



5-1-2: Radio Equipment

Operation through the radio equipment is almost same as the operation using telephone line. It is important that the radio link should be free from the noise to ensure the highest quality picture transmission and reception.

The **AR570** has a built-in microphone relay. This means that you can use your radio equipment for both voice and video transmissions. If the microphone is connected to the MIC jack placed on the front panel of the **AR570**, you can share the operation for voice and video communication as follows:

AR570 is OFF	**Normal voice operation is available.**
AR570 is ON	**Normal voice operation when AR570 is not transmitting.**
AR570 is transmitting	**When the AR570 is transmitting, microphone is** disabled until video transmission is completed.

Note: When TX switch is pressed during the voice communication, the AR570 overrides the voice operation, and picture is being transmitted.

6: Extended Operation

The **AR570** is designed to correspond with various users' applications. All functions provided on the **AR570** can be preset the functions by the DIP SWITCH control placed on the bottom of the **AR570** according to use of the applications.

This chapter explains how to preset the DIP SWITCH according to the applications.

6-1: Remote Control

This function enables to make remote control of a distant station over telephone or radio link by using DTMF tones of which is provided in the AR570 as a standard function. For example, there are two stations. The one is a control site and the other one is a remote site where is no operator attendance.

Now the control site wants to get an update picture at the remote site.

6-1-1: Remote control over telephone line link

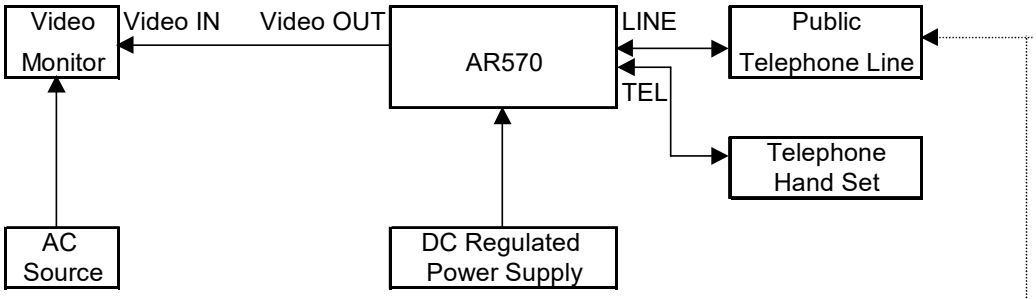
You should connect a telephone handset of which can dispatch DTMF tones to the TEL jack on the AR570.

Operating conditions

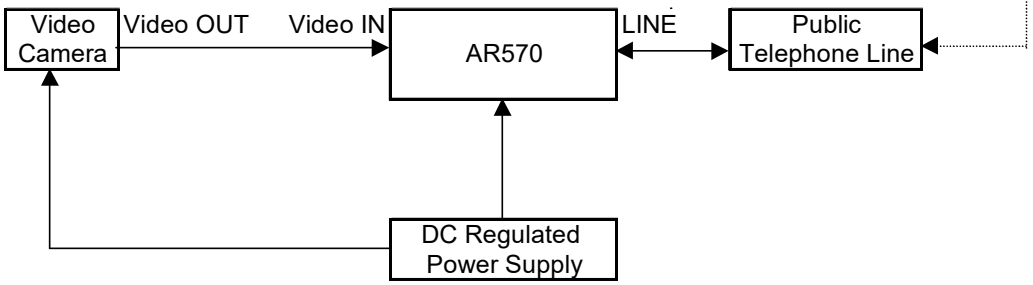
● Operating Mode	(MODE-SW)	color fine (69 seconds)
● DTMF Control	(AUTO-SW)	enable
● Ringing Time	(NCU-SW)	2
● Superimpose	(ID-SW)	enable

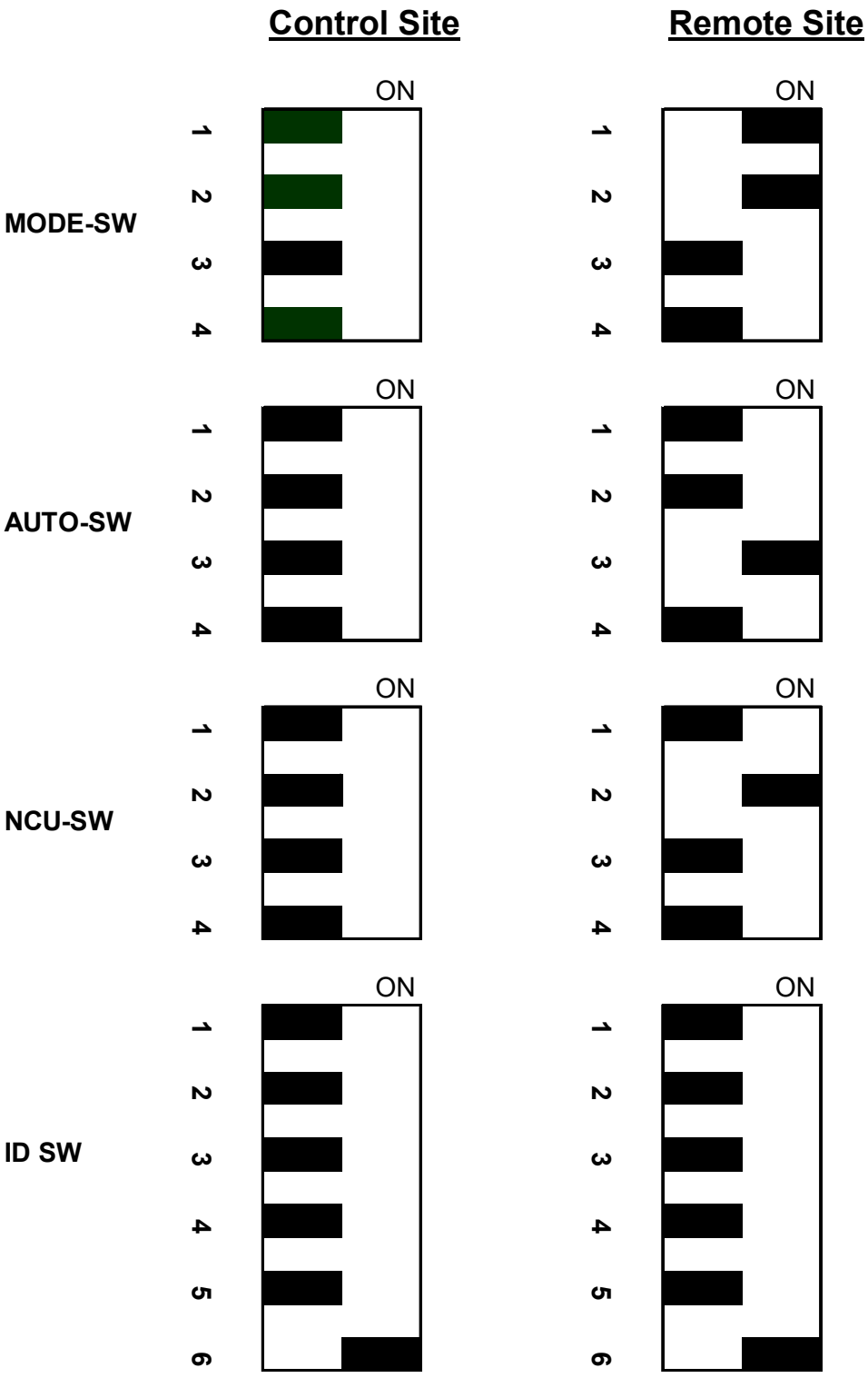
Note that the setting of the DIP switches shown below is differed depending on the operation site.

Control Site



Remote Site





The Remote Site makes a phone call to the remote site station by using the connected telephone handset. Once the line is connected, you can hear three DTMF tones (11#) of which is being dispatched from the remote site station. The DTMF tones indicate that the line is connected.

After the DTMF tones were dispatched, you can send DTMF commands via push buttons on the

telephone handset of which is connected to the AR570.
The DTMF commands are referred as below (This table is also stated on page 12.)

DTMF Command	Functions
1#	Acquire Live picture
2#	Transmit Image
3#	Acquire live picture and after that transmit the image
4#	Change of transmission mode to High speed Monaural
5#	Change of transmission mode to Normal speed Monaural
6#	Change of transmission mode to High speed Color
7#	Change of transmission mode to Normal speed Color
00#	Make disconnect the line
*****	Cancel of the received DTMF Control tone. But it is unable to accept this cancel code after the **AR570** entered in the specified Job already by receiving the # tone.
Automatic Disconnect	Automatic disconnect is available by placing 0(=zero) on the front of the DTMF command of 1#, 2# and 3#. For example, if you specify the command as 03#, the **AR570** will acquire the live picture and transmit the image to a distant station. After the transmission is over, the **AR570** will make disconnect automatically . Cancel of the received DTMF Control tone. But it is unable to accept this cancel code after the **AR570** entered in the specified Job already by receiving the # tone.
Special function	If the DIP SW4 on the AUTO-SW is ON, the DTMF command of **3#** will be released by pressing the **TX** switch placed on the front panel of the **AR570**.

For example, the control site sends the DTMF commands of **03#** to the remote station, the AR570 at the remote site will acquire the live picture and digitize it as image picture immediately.

After that the AR570 at the remote site will send the image picture in the specified operating mode (In this case, the operating mode is the COLOR FINE) to the remote site over telephone line link.

Once the transmission of the image picture is over, the AR570 at the remote site will make disconnect the line immediately and will turn to standby mode.

If the control site wants to several pictures from the remote site, you can send the DTMF commands without 0 tone on the front. For example, if the DTMF commands of 3# (without 0), the AR570 at the remote site sends the image picture. But after the transmission is over the line is still being connected. So you can send new DTMF commands to the remote site.

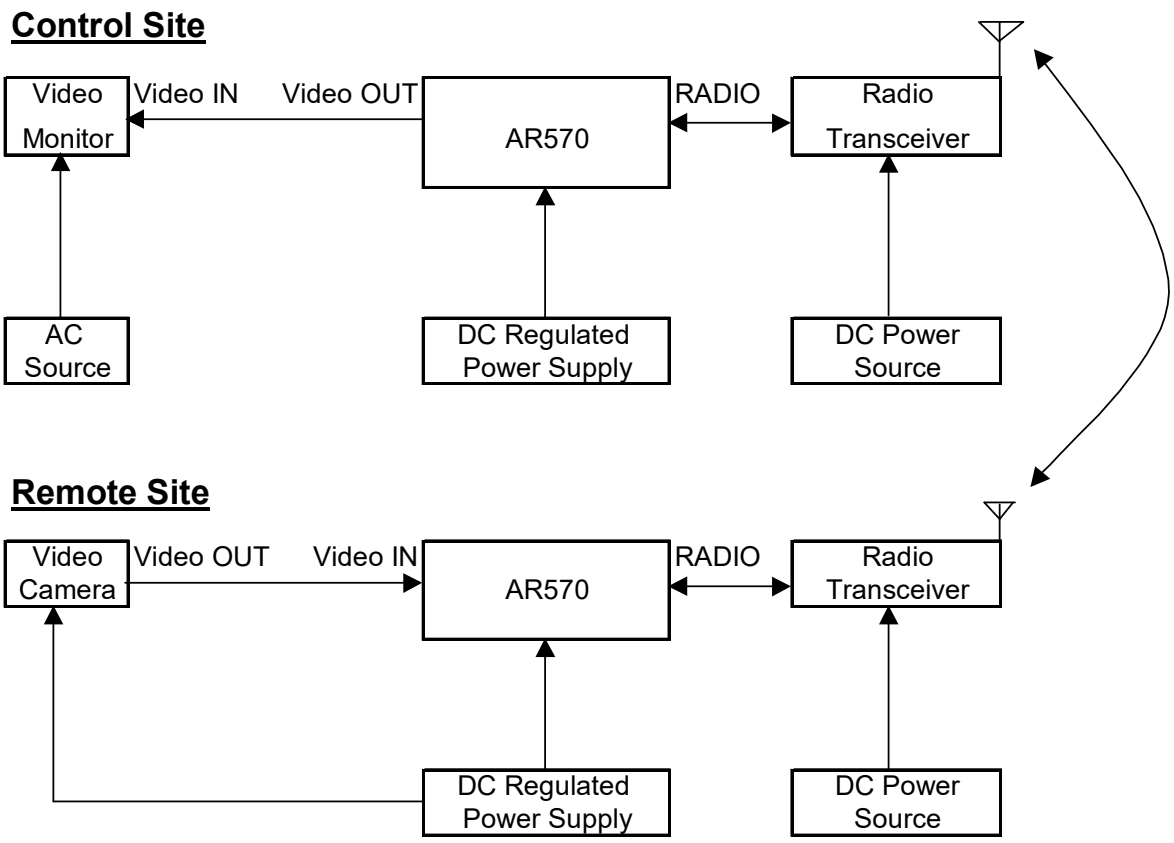
6-1-2: Remote control over two-way Radio link

You should connect the a radio transceiver of which can dispatch DTMF tones the RADIO jack on the AR570 . Use your prepared radio connection cable according to the information on page 18 for each connection.

Operating conditions

- Operating Mode (MODE-SW) color fine (69 seconds)
- DTMF Control (AUTO-SW) enable
- Superimpose (ID-SW) enable

Note that the setting of the DIP switches shown below is differed depending on the operation site.



6-2: Full automatic picture transmission control

The AR570 activates a full automatic picture transmission by programming the DIP SWITCH with no requirement of human operation.

This function is applicable when you make a system for security control or for monitoring control at the distant place. To able this application, you should prepare a sensing device of which is to be connected to ACQ jack on the AR570 at the remote site. Depends on programming of the DIP SWITCH, the AR570 will activate the following functions sequentially (**For use of telephone line link**).

Contacted the terminals(activated by the connected sensing device)→acquire live picture→ hang up telephone line→make dialing to the specified telephone number (Once the line is connected)→transmit the image→hang off the line→standby

Note: In the sequential functions above, the AR570 radio version is not activated to make the dialing.

6-2-1: One time transmission

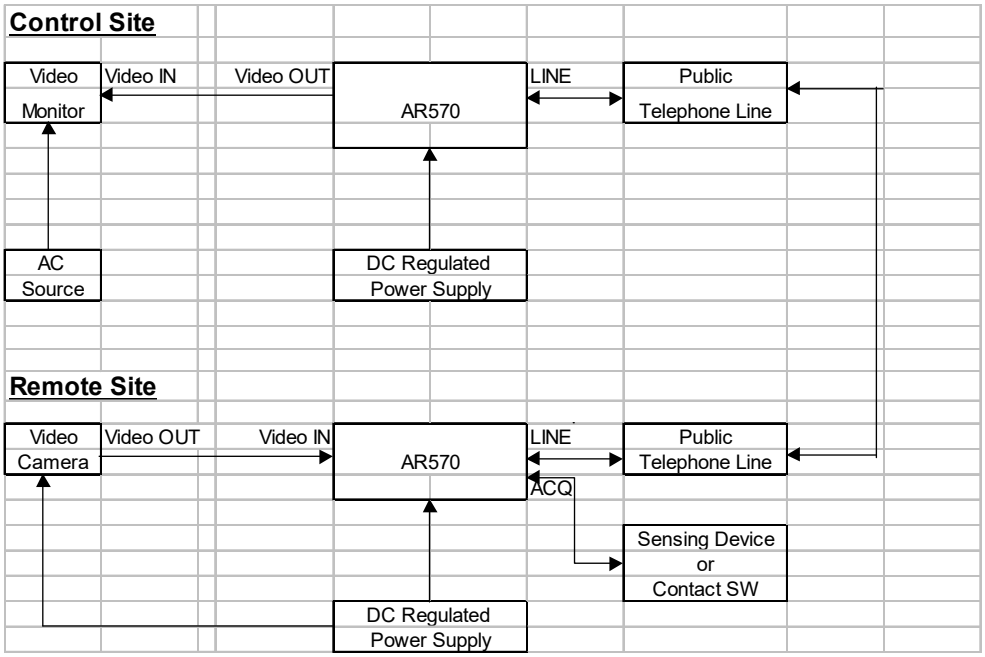
This scene is to be the application that the image picture at the remote site will automatically be transmitted to the control site over telephone line link. One picture transmission is over, the telephone line will also automatically disconnected. This application does not need operator for control.

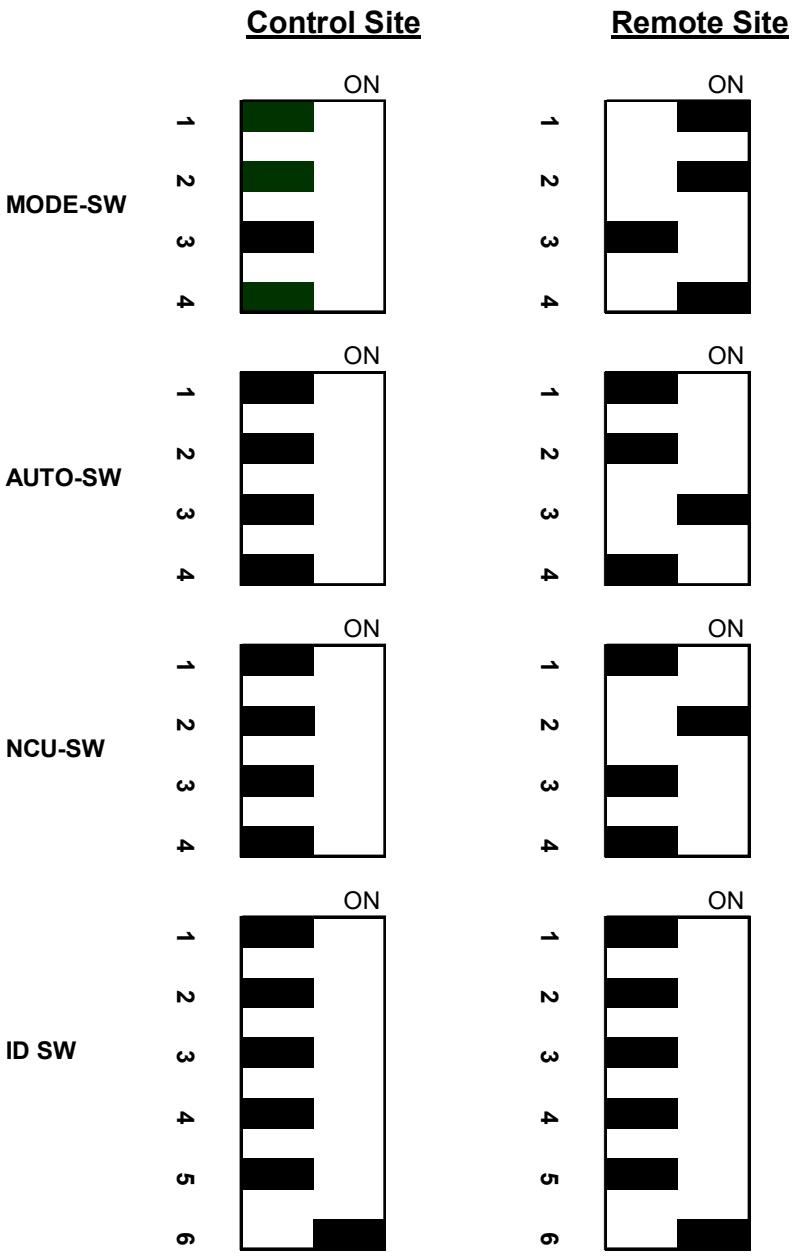
- You should connect a sensing device to the ACQ jack on the front panel of the AR570 at the remote site.
- Make sure the setting of the phone number at P1 and P2 for the control site where the remote site dispatches the image picture over telephone line link. (See page 14 of 3-5-2: Program phone number)
- Make sure the setting of the daytime clock and the sender's name at the remote site (See page 13 & 14) and the setting of the DIP SWITCH to be superimposed the sender's name and daytime clock.

Operating conditions

- Operating Mode (MODE-SW) color fine (69 seconds)
- DTMF Control (AUTO-SW) enable
- Ringing Time (NCU-SW) 2
- Superimpose (ID-SW) enable

Note that the setting of the DIP switches shown below is differed depending on the operation site.




Control Site
Remote Site
MODE-SW
AUTO-SW
NCU-SW
ID SW
ON
1
2
3
4
5
6

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