

SECTION 13702

VIDEO SECURITY COMMUNICATION SYSTEM

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Display hidden notes to specifier by using "Tools"/"Options"/"View"/"Hidden Text".

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Video security communication system.

1.2 RELATED SECTIONS

- A. Section 16050 - Basic Electrical Materials and Methods.

1.3 REFERENCES

- A. American National Standards Institute (ANSI): ANSI/TIA/EIA 568 - Commercial Building Telecommunications Cabling Standard.

- B. International Organization for Standards (ISO): ISO 9001 - Quality Management Systems - Requirements.

#### 1.4 SYSTEM DESCRIPTION

- A. General: Video security communication system.

1. Installed separately from conventional general-purpose internal communications systems, the IS system shall be used as a video door entry system, emergency announcement system, rescue assistance system, urgent call system, public announcement system, and access control system as scheduled, indicated or required.
2. The system shall be comprised of multiple control units and/or IP direct masters and video door stations. Sub stations shall be installed in multiple locations as scheduled, indicated or required for complete installation.
3. The control unit shall have an add-on feature that permits customization by plugging in additional control units directly or through the network.
4. A full range of control unit functions, including basic conversation, shall be capable: call forwarding, scan monitoring, emergency call, priority call, video audio recording, paging, and zone paging as scheduled, indicated or required.
5. Types of sub stations: vandal resistant, handset indoor use, flush mount, and surface mount types as scheduled, indicated or required.
6. The IS system can be used in combination with CCTV, access control, an emergency broadcast system, scheduled chime distribution system, or other security equipment. This creates a more effective security communication system and ensures a higher level of safety, security, and convenience in each application.

- B. System Capacity: Refer to schedule and drawings for required components.

1. Local (Analog) System:
  - a. 20 Master stations.
  - b. 20 Video Door stations.
  - c. 120 Audio or room sub stations.
  - d. 28 Paging outputs.

e. 2 Chime source inputs.

f. 1 LAN.

2. IP System:

a. 1024 IP units per system (IS-IPC, IS-IPMV, IS-IPDV, IS-IPDVF, and PC master station (IS-SOFT)) Maximum 32 IP devices, including a Maximum of 8 IS-IPC per site. Maximum 32 sites.

b. 5120 Master stations.

c. 5120 Video Door stations.

d. 30720 Audio or room sub stations.

e. 7168 paging outputs.

a. 512 Chime source inputs.

b. 256 Telephone outputs. Maximum 1 per IS-IPC.

C. System Capability:

1. Video, Audio, and Data Logging:

a. PC archives.

b. Record video and audio from door stations.

2. Master Station Flexibility:

a. Pan-tilt zoom and wide video monitoring function.

b. Master station with 3.5 inch display for operation and video monitoring.

c. Hands-free or handset audio communication.

3. Outside Line Communication:

a. One telephone line, call transfer to up to three telephone numbers.

b. Door and room sub stations to outside telephone line communication.

4. Internal Audio file for prerecorded message announcement or notification:

a. Up to 15 audio files can be uploaded to the system.

b. Up to 20 sequences per day for scheduled announcement.

5. External Audio Input:
    - a. Multiple activation inputs with 2 audio inputs for external source distribution.
  6. Audio Distribution Scheduling:
    - a. Up to 1 year scheduling for calendar schedule.
    - b. Up to 20 daily events can be programmed.
    - c. Individual scheduled activation can also be set one time or daily.
- D. System Functions:
1. Call-Related Functions:
    - a. Video Door Station Call: A designated group of up to 20 master stations can be called from any video door station; any designated master can answer the call. 170 degrees view from the door station camera can be viewed from the master station, and zoom and pan/tilt operations are functional.
    - b. Sub Station Call: A designated group of up to 20 master stations can be called from any substation; any designated master can answer the call. External speaker and emergency call button can also be added.
    - c. Group Call/All Call: A designated group of up to the full capacity of the system with any mix of master stations and door stations can be called from a master station. System needs to be pre-programmed to function.
  2. Transfer-Related Function:
    - a. Call (Communication) Transfer: A master station can transfer a conversation to any master station within the system.
  3. Call Forwarding-Related Functions:
    - a. Call Forwarding: Incoming calls can be automatically forwarded to another receiving station or telephone. The receiving station number or telephone number can be registered at the original forwarding station. Unit number will be assigned to each telephone number.
    - b. Time-Based Call Forwarding: All incoming calls to the original station can be automatically rerouted to a designated master station or telephone number during a specific period of the day.

- c. No Answer Call Forwarding: Calls to the original station are automatically rerouted to a designated receiving station if the called party does not respond within a preset period of time.
4. Monitoring-Related Functions:
- a. Monitoring: Any door, room or substation can be monitored from a master station. A master station can also disable this function if monitoring is not necessary.
  - b. Scan Monitoring: Any pre-programmed door stations or room sub stations (Maximum 20) can be scan monitored.
5. Paging-Related Functions:
- a. Zone Paging: Permits paging to up to 99 individual zones (01-99), established by combining multiple master stations, door stations, and room sub stations with or without public address system equipment. Up to five zones can simultaneously be selected.
  - b. Pre-Recorded Audio File Paging: Pre-recorded audio file or outside sound sources can be distributed to pre-programmed paging zones.
6. Priority Call-Related Functions:
- a. Priority Call: Any call from the master station or substation can be pre-programmed with priority level based on normal call, priority call, and urgent call. Urgent call will have the highest priority within individual calls.
  - b. Emergency Paging: Emergency paging calls can be made to pre-programmed paging zones. Emergency paging will have the highest priority level. Paging can also be pre-programmed with priority level based on normal call, priority call, and urgent call. Urgent call will have the highest priority.
7. Telephone-Related Functions:
- a. Outgoing Telephone Calls: Outside telephone lines can be connected to the IS system, permitting calls from room subs and doors to be forwarded to an outside telephone line.
  - b. Pre-Recorded Audio File Paging Via Telephone: Pre-recorded audio file can be distributed to programmed paging zones or stations via the telephone.
  - c. Time-Based Outside Line Call Forwarding: Three telephone numbers can be pre-programmed to be forwarded if the called party does not respond within a preset period of time.
8. Scheduled Pre-Recorded Audio File Paging:

- a. Scheduled Paging and Bell: Paging or bell schedules can be programmed onto daily, weekly or yearly calendar.

## 1.5 SUBMITTALS

- A. Submit under provisions of Section 01300.
  
- B. Product Data: Manufacturer's data sheets on each product to be used, including.
  - 1. Preparation instructions and recommendations.
  - 2. Storage and handling requirements and recommendations.
  - 3. Installation methods.
  
- C. Shop Drawings: Submit the following:
  - 1. Wiring Diagrams: Indicate wiring for each item of equipment and interconnections between items of equipment.
  - 2. Include manufacturer's names, model numbers, ratings, power requirements, equipment layout, device arrangement, complete wiring point-to-point diagrams, and conduit layouts.
  
- D. Installation and Operation Manuals:
  - 1. Submit manufacturer's installation and operation manual, including operation instructions and component wiring diagrams.
  - 2. Provide detailed information required for Owner to properly operate equipment.
  
- E. Warranty: Submit manufacturer's standard warranty.

## 1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: ISO 9001:2008 certified company.
  
- B. Installer Qualifications: Minimum 2 years experience installing similar equipment and manufacturer's certification is recommended.

## 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.
  
- B. Storage: Store materials in clean, dry area indoors in accordance with manufacturer's instructions.
  
- C. Handling: Protect materials during handling and installation to prevent damage.

## 1.8 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

# PART 2 PRODUCTS

## 2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Aiphone Company Limited, Nagoya, Japan.. Toll Free Tel: (800) 692-0200. Tel: (425) 455-0510. Fax: (425) 455-0071. Email: tech@aiphone.com. Web: <http://www.aiphone.com>.

- B. Substitutions: Not permitted.
  
- C. Requests for substitutions will be considered in accordance with provisions of Section 01600.

## 2.2 SECURITY AND COMMUNICATION SYSTEM

- A. Video Security IP Communication System:
  - 1. Product: Aiphone "IS Series" as manufactured by Aiphone Co. Ltd.
  
- B. System Environment:
  - 1. A PC is required to configure the system.
  - 2. Operating System: \*Windows XP, Windows Vista, or Windows 7.
  - 3. For the IP system, an internet broadband connection is required and routers require Static Global IP Address.
  - 4. A supported router is required when connected to the Internet.
  - 5. Depending on the network environment or the computer's performance, operations may not be carried out normally. Examples include interrupted audio and/or video, or a delayed frame rate.
  - 6. Depending on the network environment, the operation may become invalid when operating systems in succession.
  - 7. The IP system can input chimes from one IS-CCU.
  - 8. The IP system can only input chimes from the host IP control unit and one IS-CCU can be used.
  - 9. The number of calls via IP network corresponds with the number of IP talk channels.
  - 10. Even when all talk channels are occupied in the Local (Analog) system, an incoming call will be announced by tone and LED, but communication cannot begin until a talk channel is opened in the local system. If all video channels are occupied, master stations will be able to communicate, but no video will be displayed.



11. Only a single site can be called at a time.
12. Use of a wireless LAN is not recommended, as it may cause improper operation and latency problems due to security configuration.
13. System functionality is dependent on availability of the network. Depending on the network environment and computer, the system may not be useable.

## 2.3 COMPONENTS

### A. Control Unit:

1. Product: IS-IPC IP Control Unit.
  - a. Power Source: 48V DC (supplied from the power supply unit)
  - b. Current Consumption: Maximum 105mA
  - c. Talk Channels/ Video Channels/ Other Channels: Standard (IP) system: 2 talk and 2 constrained video channels, 1 chime, and 1 telephone (North America only).
  - d. Central Control Unit: Maximum 1.
  - e. Room Sub Control Unit: Maximum 1.
  - f. Setting LAN: Ethernet (10 BASE-T, 100 BASE-TX)
  - g. Mounting: Rack-mount (19-inch, 2U rack).
  - h. Mounting: Wall mount.
  - i. Ambient Temperature: 0 - 40 degrees C (+32 degrees F - +104 degrees F).
  - j. Material: Steel plate.
  - k. Color: Black.
2. Product: IS-CCU Central Control Unit.
  - a. Power Source: 48V DC (supplied from Power supply unit).
  - b. Current Consumption: Maximum 800 mA.
  - c. Master Stations: Maximum 4.
  - d. Video Door Stations/ Audio Door Stations/ Room Sub Stations: Maximum 4.

- e. Add-on Control Unit: Maximum 2.
  - f. Room Sub Control Unit: Maximum 4.
  - g. IP Control Unit: Maximum 1.
  - h. Video Output: NTSC and BNC (Video channel 1,2).
  - i. Setting LAN: Ethernet (10 BASE-T).
  - j. Talk Channels / Video Channels: Local system: 2 talk and 2 video channels, 1 chime.
  - k. Mounting: Rack-mount (19-inch, 2U rack).
  - l. Mounting: Wall mount.
  - m. Ambient Temperature: 0 to 40 degrees C (+32 degrees F to +104 degrees F).
  - n. Material: Steel plate.
  - o. Color: Black.
3. Product: IS-SCU Add-on Control Unit.
- a. Power Source: 48V DC (supplied from Power supply unit).
  - b. Current Consumption: Maximum 1.2 A.
  - c. Talk Channels / Video channels: Local system: 2 talk and 2 video channels, 1 chime.
  - d. Master Stations: Maximum 8.
  - e. Video Door Stations/ Audio door stations/ Room substations: Maximum 8.
  - f. Video output: NTSC and BNC (Video channel 1,2).
  - g. Mounting: Rack-mount (19-inch, 2U rack).
  - h. Mounting: Wall mount.
  - i. Ambient Temperature: 0 to 40 degrees C (+32 degrees F to +104 degrees F).
  - j. Material: Steel plate.
  - k. Color: Black.
4. Product: IS-RCU Room Sub Control Unit.
- a. Power Source: 48V DC (supplied from Power supply unit).

- b. Current Consumption: Maximum 1.8 A.
- c. Talk Channels: Local system: 2 talk, 1 chime.
- d. Audio Door Stations: Maximum 30.
- e. Mounting: Rack-mount (19-inch, 2U rack).
- f. Mounting: Wall mount.
- g. Ambient Temperature: 0 to 40 degrees C (+32 degrees F to +104 degrees F).
- h. Material: Steel plate.
- i. Color: Black.

B. Color Monitor Master Station:

- 1. Product: Color monitor IP master station (IS-IPMV).
  - a. Power Source: 24V DC (PoE).
    - 1) Current Consumption: Maximum 65 mA.
  - b. Power Source: 24V DC (supplied from the power supply unit).
    - 1) Current Consumption: Maximum 130 mA.
  - c. Communication:
    - 1) Handset: Simultaneous communication (When press-to-talk (PTT) is not set)
    - 2) Hands-free: Auto-voice actuation or Press-to-talk (PTT).
  - d. Monitor: 3.5 inch (89 mm) color LCD monitor.
  - e. Call Record: 20.
  - f. Reception Record: 20.
  - g. Paging Capacity: Simultaneous paging to Maximum 5 zones/stations.
  - h. Mounting: Desktop use, with stand.
  - i. Mounting: Desktop use, without stand.
  - j. Mounting: Wall mount.

- k. Ambient Temperature: 0 - 40 degrees C (+32 degrees F - +104 degrees F).
  - l. Electrical Box: 1 gang box, for wiring only, unit fixed to the wall directly.
  - m. Electrical Box: 3 gang box, for wiring and fixing the unit.
  - n. Material: Flame resisting ABS resin.
  - o. Color: Black.
2. Product: IS-MV.
- a. Power Source: Supplied from Central control unit or Add-on control unit.
  - b. Call Tone: Audible indication and LED blinking (until call timeout).
  - c. Communication:
    - 1) Handset: Simultaneous Communication (When press-to-talk (PTT) is not set).
    - 2) Hands-free: Auto-voice actuation (VOX) or Press-to-talk (PTT).
  - d. Monitor: 3.5 inches (89 mm) color LCD monitor.
  - e. Call Record: 20.
  - f. Reception Record: 20.
  - g. Paging Capacity: Simultaneous paging to Maximum 5 zones/stations.
  - h. Mounting: Desktop use, with stand.
  - i. Mounting: Desktop use, without stand.
  - j. Mounting: Wall mount.
  - k. Ambient Temperature: 0 to 40 degrees C (+32 degrees F to +104 degrees F).
  - l. Electrical Box: 1 gang box, for wiring only, unit fixed to the wall directly.
  - m. Electrical Box: 3 gang box, for wiring and fixing the unit.
  - n. Housing: Flame resisting ABS resin.
  - o. Color: Black.

C. Door Station:

1. Product: IP vandal-resistant video door station (surfacemount) (IS-IPDV).
  - a. Power Source: 24V DC (PoE).
    - 1) Current Consumption: Maximum 85 mA.
  - b. Power Source: 24V DC (supplied from the power supply unit).
    - 1) Current Consumption: Maximum 160 mA.
  - c. Communication: Open voice hands-free communication.
  - d. Ambient Temperature: -10 - 60 degrees C (+14 degrees F - +140 degrees F)
  - e. Camera: 1/4-inch color CMOS.
  - f. Minimum Illumination: 5 Lux.
  - g. Camera Angle: Wide, approximately 170 degrees (horizontal).
  - h. Mounting: Surface-wall mount (directly to wall).
  - i. Front panel: Aluminum die-cast, dull-gray silver color.
  - j. Material, Main Unit: Flame resisting PC+ABS resin.
  - k. Description: Weather-resistant.
2. Product: IP vandal-resistant video door station (flush-mount) (IS-IPDVF).
  - a. Power Source: 24V DC (PoE).
    - 1) Current Consumption: Maximum 85 mA.
  - b. Power Source: 24V DC (supplied from the power supply unit).
    - 1) Current Consumption: Maximum 160 mA.
  - c. Communication: Open voice hands-free communication.
  - d. Ambient Temperature: -10 - 60 degrees C (+14 degrees F - +140 degrees F).
  - e. Camera: 1/4-inch (6 mm) color CMOS.
  - f. Minimum Illumination: 5 Lux.
  - g. Camera Angle: Wide, approximately 170 degrees (horizontal).
  - h. Mounting: Flush-mount.
  - i. Electrical Box: Not used, mounts on built-in back box.

- j. Front Panel: Stainless steel, vertical hair-line processed.
  - k. Main Unit: Flame resisting PC+ABS resin.
  - l. Color, Back box: Black.
  - m. Description: Weather-resistant.
3. Product: IS-DV Vandal Resistant Video Door Station - Surface Mount.
- a. Power Source: Supplied from Central control unit or Add-on control unit.
  - b. Type of Communication: Open voice hands-free communication.
  - c. Camera: 1/4 inch (6 mm) color CMOS.
  - d. Minimum Illumination: 5 Lux.
  - e. Camera Angle: Wide, approximately 170 degrees (Horizontal).
  - f. Ambient Temperature: -10 to 60 degrees C (+14 degrees F to +140 degrees F).
  - g. Mounting: Surface wall mount (Directly to wall).
  - h. Material, Front panel: Aluminum, die cast.
  - i. Main Unit: Flame resisting PC and ABS resin.
  - j. Color, Front Panel: Dull-gray silver.
  - k. Description: Weather-resistant.
4. Product: IS-DVF Vandal Resistant Video Door Station - Flush Mount.
- a. Power Source: Supplied from Central control unit or Add-on control unit.
  - b. Communication: Open voice hands-free communication.
  - c. Camera: 1/4 inch (6 mm) color CMOS.
  - d. Minimum Illumination: 5 Lux.
  - e. Camera Angle: Wide, approximately 170 degrees (Horizontal).
  - f. Ambient Temperature: -10 to 60 degrees C (+14 degrees F to +140 degrees F).
  - g. Mounting: Flush mount.
  - h. Electrical box: Not used (Mounts on built-in back box).
  - i. Material, Front Panel: Stainless steel.

- j. Color, Front Panel: Silver/Stainless steel, vertical hair-line processed.
  - k. Color, Back Box: Black.
  - l. Main Unit: Flame resisting PC and ABS resin.
  - m. Description: Weather-resistant.
5. Product: IS-SS Vandal Resistant Door Station - Flush Mount.
- a. Power Source: DC Supplied from Central control unit or Add-on control unit or Room sub control unit.
  - b. Communication: Open voice hands-free communication.
  - c. Ambient Temperature: -10 to 60 degrees C (+14 degrees F to +140 degrees F).
  - d. Mounting: Flush mount.
  - e. Electrical Box: Not used (Mounts on built-in back box.)
  - f. Material, Front Panel: Stainless steel.
  - g. Main Unit: Flame resisting PC and ABS resin.
  - h. Color:
    - 1) Front panel: Silver (stainless steel, vertical hair-line processed),
    - 2) Back box: Black
  - i. Description: Weather-resistant.
6. Product: IS-RS Room Sub Station.
- a. Power Source: DC Supplied from Central control unit or Add-on control unit or Room sub control unit.
  - b. Communication:
    - 1) Handset: Simultaneous Communication (when press-to-talk (PTT) is not set).
    - 2) Hands-free: Auto-voice actuation or Press-to-talk (PTT).
  - c. Ambient Temperature: 0 to 40 degrees C (+32 degrees F to +104 degrees F).
  - d. Mounting: Surface wall mount (Directly to wall).
  - e. Electrical box: Single-gang box.

- f. Housing: Flame resisting ABS resin.
  - g. Color: Black.
7. Product: IS-SS-2G 2 Gang Audio Door Station.
- a. Power Source: DC Supplied from Central control unit or Add-on control unit or Room sub control unit.
  - b. Communication: Open voice hands-free communication.
  - c. Ambient Temperature: -10 to 60 degrees C (+14 degrees F to +140 degrees F).
  - d. Mounting: Flush mount to standard 2-gang box.
  - e. Electrical Box: 2-gang box.
  - f. Material, Front Panel: Stainless steel.
  - g. Main Unit: Flame resisting PC and ABS resin.
  - h. Front Panel: Silver (stainless steel, vertical hair-line processed),
  - i. Description: Weather-resistant, for indoor or outdoor use.

D. Power Supply:

1. Product: IS-PU-UL Power Supply Unit.
- a. Power Source: AC 100 - 240V, 50/60Hz.
  - b. Power Consumption: 120W.
  - c. Secondary Output Voltage: DC 48V.
  - d. Secondary Output Current: 2.1 A.
  - e. Mounting: Desktop.
  - f. Mounting: Rack-mount (IS-Rack).
  - g. Material: Steel plate.
  - h. Color: Black.
  - i. Ambient Temperature: 0 to 40 degrees C (+32 degrees F to +104 degrees F).



## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Examine areas to receive video security communication system.
- B. Notify Architect of conditions that would adversely affect installation or subsequent use.
- C. Do not begin installation until unacceptable conditions are corrected.

### 3.2 INSTALLATION

- A. Install video security communication system in accordance with manufacturer's instructions at locations indicated on the Drawings.
- B. Mount equipment plumb, level, square, and secure.
- C. CAT-5e/6 Cables:
  - 1. Run cables from and homerun to one central location where CEU will be installed.
  - 2. Maintain twists of cable pairs to point of termination or no more than 0.5 inch (13 mm) untwisted.
  - 3. Do not remove more than 1 inch (25 mm) of jacket when terminating cables.
  - 4. Cable Bends:
    - a. Make gradual bends of cable, where necessary.
    - b. Do not make bends of cable sharper than 1 inch (25 mm) radius.
    - c. Do not allow cable to be sharply bent or kinked at any time.

5. Cable Ties: Dress cables neatly with cable ties using low to moderate pressure.
6. Cross-connect cables, where necessary, using CAT-5e rated punch blocks and components.
7. Do not splice or bridge cables.
8. Cable Pulling:
  - a. Pull cable with low to moderate force.
  - b. Do not use oil or other lubricants not specifically designed for cable pulling.
9. Keep cables as far away from potential sources of EMI as possible.
10. Do not tie cables to electrical conduits or lay cables on electrical fixtures.
11. Cable Supports:
  - a. Install proper cable supports a maximum of 5 feet (1524 mm) apart.
  - b. Do not support cables by ceiling tiles.
12. Label Cable Termination Points: Use unique number for each cable segment.
13. Testing Cables: Test installed cable segments with cable tester.
14. Jacks: Install jacks to prevent dust and other contaminants from settling on contacts.
15. Cable Slack:
  - a. Leave extra slack on cables, neatly coiled-up in ceiling or nearest concealed place.
  - b. Leave a minimum of 1 foot (305 mm) of cable slack at door station side and a minimum of 10 feet (3048 mm) of cable slack at CEU side.
16. Do not install cables taught.
17. Grommets: Protect cables with grommets where passing through metal studs or other items that could damage cables.
18. Do not mix TIA/EIA 568A and 568B wiring on same installation. Use TIA/EIA 568B wiring throughout installation.
19. Staples:
  - a. Do not use staples that crimp cables tightly.

- b. Do not use T-18 and T-25 cable staples.
- 20. Use firestop cables that penetrate firewalls.
- 21. Use plenum-rated cables where mandated.

### 3.3 ADJUSTING

- A. Adjust integrated security and communication system for proper operation in accordance with manufacturer's instructions.

### 3.4 DEMONSTRATION AND TRAINING

- A. Demonstration:
  - 1. Demonstrate that integrated security and communication system functions properly.
  - 2. Perform demonstration at final system inspection by qualified representative of manufacturer.
  
- B. Instruction and Training:
  - 1. Provide instruction and training of Owner's personnel as required for operation of integrated security and communication system.
  - 2. Provide hands-on demonstration of operation of system components and complete system, including user-level program changes and functions.
  - 3. Provide instruction and training by qualified representative of manufacturer.

### 3.5 PROTECTION

- A. Protect installed integrated security and communication system from damage during construction.

END OF SECTION