



TECHNICAL INFORMATION

SECTION 28 13 53.11 IP NETWORK COMPATIBLE INTERCOM (IX SYSTEM)

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. IP Video Intercom. (Aiphone IX Series)

1.2 RELATED SECTIONS

- A. Section 26 05 48 - Vibration and Seismic Controls for Electrical Systems.

1.3 REFERENCES

- A. American National Standards Institute (ANSI/TIA/EIA) 568 - Commercial Building Telecommunications Cabling Standard.
- B. International Organization for Standards (ISO) 9001:2000 - Quality Management Systems - Requirements.

1.4 SYSTEM DESCRIPTION

- A. IP Network Compatible Video Intercom System: A network-based communication and security system featuring video entry security, internal communication, emergency stations, and paging. All units and app in the systems shall be able to unlock doors remotely on a network, assist onsite visitors from an offsite location, broadcast emergency announcements, and communicate using a PoE network.
 1. Power Source: Power over Ethernet (802.3af).
 2. Network Interface: 10 BASE-T / 100 BASE-TX Ethernet (RJ-45).
 3. Network Protocols: IPv4, IPv6, TCP, UDP, SIP, HTTP, HTTPS, MJPEG, RTSP, RTP, RTCP, IGMP, MLD, SMTP, DHCP, NTP, DNS.
 4. Bandwidth Usage:
 - a. G.711: 64Kbps x 2 per video call.
 - b. 64Kbps per monitor.
 - c. H.264: 24Kbps ~ 2,048Kbps.
 5. Communication: Hands-free (VOX), push-to-talk (simplex), or handset (full-duplex).
 6. Video Display: 3-1/2 inches (89 mm) color LCD.
 7. Camera: Type:
 - a. 1/4 inch (6 mm) color CMOS.

- b. View Area: 2 feet 2 inches (660 mm) vertical x 3 feet 1 inch (940 mm) horizontal at 20 inches (508 mm).
- 8. Video Stream: ONVIF Profile S.
- 9. Door Release: Programmable Form C dry contact, 24V AC/ DC, 500mA - use EL-12S (use RY-24L for larger contact rating, which requires 24V DC power supply) or use RY-IP44 with 4 multipurpose relays.
- 10. Wire Type: CAT-5e or CAT-6.
- 11. Distance:
 - a. Door Station or RA Station to Network Node: 330 feet (100 meters).
 - b. Master Station to Network Node: 330 feet (100 meters).

1.5 SUBMITTALS

- A. Submit under provisions of Section 01 30 00 - Administrative Requirements.
- 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.
- F. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.
- G. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, color, and patterns.

1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: ISO 9001:2008 certified company.
- B. Installer Qualifications: Factory trained and experienced with system installations of scope and size required for the Project.
- C. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
 - 1. Finish areas designated by Architect.
 - 2. Do not proceed with remaining work until workmanship is approved by Architect.
 - 3. Refinish mock-up area as required to produce acceptable work.

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 Corp., which is located at: 1700 130th Ave. N. E.; Bellevue, WA 98005; Toll Free Tel: 800-692-0200; Tel: 425-455-0510; Fax: 425-455-0071; Email:[request info \(info@aiphone.com\)](mailto:request_info@aiphone.com); Web:www.aiphone.com
- B. Substitutions: Not permitted.
- C. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.
 - 1. VIDEO INTERCOM SYSTEM
- D. IP Video Intercom System: IX Series Intercom System as manufactured by Aiphone Corporation.

2.2 SYSTEM DESIGN

- A. Master Station(s): Provide ___ master stations.
- B. Audio Video Door Stations:
 - 1. Model IX-DA - Surface Mount: Provide ___.
 - 2. Model IX-DF with SBX-ISDVF - Surface Mount: Provide ___.
 - 3. Model IX-DF - Flush Mount: Provide ___.
 - 4. Model IX-DF-HID with SBX-ISDVF- Surface Mount with Card Reader: Provide ___.
 - 5. Model IX-DF-HID - Flush Mount with Card Reader: Provide ___.
 - 6. Model IX-DF-HID-I with SBX-ISDVF - Surface Mount with Card Reader: Provide ___.
 - 7. Model IX-DF-HID-I - Flush Mount with Card Reader: Provide ___.
- C. Audio Only Door Stations:
 - 1. Model IX-BA - Surface Mount: Provide ___.
 - 2. Model IX-SS with SBX-ISDVF - Surface Mount: Provide ___.
 - 3. Model IX-SS - Flush Mount: Provide ___.
- D. Stand Alone Emergency Station(s):
 - 1. Audio/Video Model IX-DF-2RA with SBX-ISDVFRA - Surface Mount: Provide ___.
 - 2. Audio/Video Model IX-DF-2RA - Flush Mount: Provide ___.
 - 3. Audio Only Model IX-SS-2RA with SBX-ISDVFRA - Surface Mount: Provide ___.
 - 4. Audio Only Model IX-SS-2RA - Flush Mount: Provide ___.
 - 5. Audio Only Model IX-SS-RA with SBX-ISDVFRA - Surface Mount: Provide ___.
 - 6. Audio Only Model IX-SS-RA - Flush Mount: Provide ___.
- E. Emergency Station(s) in Tower(s):
 - 1. Audio/Video Model IX-DF-2RA with tower: Provide ___.
 - 2. Audio Only Model IX-SS-2RA with tower: Provide ___.
 - 3. Audio Only Model IX-SS-RA with tower: Provide ___.

- F. Emergency Tower(s):
 1. Modules Required For Each Tower: Provide ____.
 2. Provide beacon/strobe for each tower. PS-2420UL has been added for each of the Emergency Towers for strobe/beacon power.
 3. Tower Color: Blue.
 4. Tower Color: Black.
 5. Tower Color: White.
 6. Tower Color: Red.
 7. Tower Color: Yellow.

- G. Signage: Lettering for the maximum number of sides shall be provided.
 1. Tower Signage: EMERGENCY.
 2. Tower Signage: ASSISTANCE.
 3. Tower Signage Color: Blue.
 4. Tower Signage Color: Black.
 5. Tower Signage Color: White.
 6. Tower Signage Color: Red.
 7. Tower Signage Color: Yellow.

- H. Emergency Station(s) in Wall Box(es):
 1. Audio/Video Model IX-DF-2RA with Wall Box: Provide ____.
 2. Audio Only Model IX-SS-2RA with Wall Box: Provide ____.
 3. Audio Only Model IX-SS-RA with Wall Box: Provide ____.
 4. Locator Beacon/Strobe Protection: Cage.
 5. Locator Beacon/Strobe Protection: Hood.

- I. Signage: Lettering for the maximum number of sides shall be provided.
 1. Wall Box Signage: EMERGENCY.
 2. Wall Box Signage: ASSISTANCE.

- J. Provide Selective Door/Gate Release.

- K. Provide Audio/video streaming via ONVIF Profile S.

- L. Provide ONVIF Profile S camera input (max 50).

- M. Provide Overhead paging.

- N. Provide Contact input at door station.

2.3 FUNCTIONAL COMPONENTS:

- A. As indicated on the drawings or as required to complete system.
 1. Video Master Station Model IX-MV:
 - a. An IP addressable video master station with a 3.5 inch (89 mm) color LCD monitor. It can be wall or desk mounted (desk stand included). The IX-MV offers handset (duplex) and hands-free (VOX/PTT) communication and call up to 500 other IX units. It connects directly to a network using CAT-5e/6 cable. This station requires a 802.3af compliant Power-over-Ethernet network.
 2. Audio Only Door Station Model IX-SS:
 - a. Flush mount unit connects to a PoE network using CAT-5e/6 cable. The IX-SS will call up to 20 IX-MV masters or instances of the IX MOBILE. The door station features stainless steel face plate, a form C contact for door release, a 600 ohm output for paging or an amplified speaker, call placed/answered indication, and a contact input.
 3. Audio/Video Door Station Model IX-DF-HID:
 - a. Flush mount unit connects to a PoE network using CAT-5e/6 cable. The IX-DF-

- HID will call up to 20 IX-MV masters or instances of the IX MOBILE. The door station features a stainless steel face plate, an embedded ProxPoint HID card reader, a form C contact for door release, a 600 ohm output for paging or an amplified speaker, call placed/answered indication, and a contact input.
4. Audio/Video Door Station Model IX-DF-HID-I:
 - a. Flush mount unit connects to a PoE network using CAT-5e/6 cable. The IX-DF-HID-I will call up to 20 IX-MV masters or instances of the IX MOBILE. The door station features a stainless steel face plate, an embedded iClass HID card reader, a form C contact for door release, a 600 ohm output for paging or an amplified speaker, call placed/answered indication, and a contact input.
 5. Audio/Video Door Station Model IX-DF-2RA:
 - a. Flush mount unit connects to a PoE network using CAT-5e/6 cable. The IX-DF-2RA will call up to 20 IX-MV masters or instances of the IX MOBILE. The door station features a stainless steel face plate with two call buttons ("Normal" and "Emergency" Buttons can be programmed to call different master(s)), Braille signage and call placed/answered indication. Additionally, the IX-DF-2RA has a form C contact for door release, two additional relays for auxiliary device control, a 600 ohm output for paging or an amplified speaker, and a contact input.
 6. Audio Only Door Station Model IX-SS-2RA:
 - a. Flush mount unit connects to a PoE network using CAT-5e/6 cable. The IX-SS-2RA will call up to 20 IX-MV masters or instances of the IX MOBILE. The door station features a stainless steel face plate with two call buttons ("Normal" and "Emergency" Buttons can be programmed to call different master(s)), Braille signage and call placed/answered indication. Additionally, the IX-SS-2RA has a form C contact for door release, two additional relays for auxiliary device control, a 600 ohm output for paging or an amplified speaker, and a contact input.
 7. Audio Only Door Station Model IX-SS-RA:
 - a. Flush mount unit connects to a PoE network using CAT-5e/6 cable. The IX-SS-RA will call up to 20 IX-MV masters or instances of the IX MOBILE. The door station features a stainless steel face plate with a single red and "Emergency" call button, Braille signage and call placed/answered indication. Additionally, the IX-SS-RA has a form C contact for door release, two additional relays for auxiliary device control, a 600 ohm output for paging or an amplified speaker, and a contact input.
 8. Audio/Video Door Station Model IX-DA:
 - a. Surface mount unit connects to a PoE network using CAT-5e/6 cable. The IX-DA will call up to 20 IX-MV masters or Instances of the IX MOBILE. The door station features a form C contact for door release, a 600 ohm output for paging or an amplified speaker, call placed/answered indication, and a contact input.
 9. Audio Only Door Station Model IX-BA:
 - a. Surface mount unit connects to a PoE network using CAT-5e/6 cable. The IX-BA will call up to 20 IX-MV masters or instances of the IX MOBILE. The door station features a form C contact for door release, a 600 ohm output for paging or an amplified speaker, call placed/answered indication, and a contact input.
 10. Audio/Video Door Station Model IX-DF:
 - a. Flush mount unit connects to a PoE network using CAT-5e/6 cable. The IX-DF will call up to 20 IX-MV masters or instances of the IX MOBILE. The door station features a stainless steel face plate, a form C contact for door release, a 600 ohm output for paging or an amplified speaker, call placed/answered indication, and a contact input.
 11. RY-IP44 IP Programmable Relay Adaptor:
 - a. With 4 contact inputs and 4 relay outputs (compatible with the IX Series , IS-IP Series, and IPW-1A only).
 12. Emergency Towers:

- a. The modular towers for housing the IS remote stations are designed to suit a variety of application needs for assistance and emergency call stations. Used in areas such as campuses, parking garages, malls or courtyards, these towers can be customized by size, color, configuration, and signage. Compatible with the IX-DF-2RA, IX-SS-2RA, and IX-SS-RA, stations.
- 13. 30 Degree Angle Box Model KAW-D 30:
 - a. Designed for use with one gang mountable video door stations.
- 14. 45 Degree Mullion Mounting Bracket Model KMB-45:
 - a. Bracket suitable for mounting any of the 1 gang door stations.
- 15. Stainless Steel Security Lock Box Model LB-SDVF:
 - a. for IX-DF, IX-DF-HID, & IX-DF-HID-I.
- 16. Electric Door Strike Model EL-12S:
 - a. The door strike is designed for wood framed wooden doors. The unit operates on 12~16 V AC.
- 17. Stainless Steel Wall Mount Box Model IS-WBHE & IS-WBHA:
 - a. The box provides an easy-to-see heavy duty enclosure for an IX Series call station, used for Emergency and Assistance applications. Installed in parking garages, airports, campuses, malls, and a wide variety of locales, these stations provide proper signage and specifications to meet ADA requirements. Beacon is always lit for easy visibility; strobe flashes during emergency call-in. ADA (28 CFR Part 36 section 4.4.1) states that an object must not protrude more than 4 inches (102 mm) if mounted higher than 27 inches (686 mm). Since these units have the potential to include a camera, mounting height restrictions are avoided with this streamline design, while call button mounting height guidelines can still be met. Any Aiphone IX RA series station can fit into the wall mount box. Signage is selectable by the customer.
- 18. Stainless Steel Wall Mount Box Model IS-WBCE & IS-WBCA:
 - a. The box provides an easy-to-see heavy duty enclosure for an IX Series call station, used for Emergency and Assistance applications. Installed in parking garages, airports, campuses, malls, and a wide variety of locales, these stations provide proper signage and specifications to meet ADA requirements. Beacon is always lit for easy visibility; strobe flashes during emergency call-in. ADA (28 CFR Part 36 section 4.4.1) states that an object must not protrude more than 4 inches (102 mm) if mounted higher than 27 inches (686 mm). Since these units have the potential to include a camera, mounting height restrictions are avoided with this streamline design, while call button mounting height guidelines can still be met. Any Aiphone IX RA series station can fit into the wall mount box. Signage is selectable by the customer.
- 19. Stainless Steel Enclosure Model SBX-ISDVF:
 - a. 18-Gauge stainless steel enclosure designed for surface mounting the IX-DF, IS-SS, IX-DF-HID, and IX-DF-HID-I door stations.
- 20. Stainless Steel Enclosure Model SBX-ISDVFRA:
 - a. 18-Gauge stainless steel enclosure designed for surface mounting the IX rescue assistance subs. Compatible with the IX RA stations.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine areas to receive integrated security and 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 PREPARATION

- A. Verify the following compliance before starting installation.
 - 1. The unit turns inoperative during power failure.
 - 2. Keep the intercom wires at least 1 foot (30 cm) away from strong electrical wiring (AC 100-240 V) including, in particular, wiring for inverter electrical appliances. Noise and malfunction could result.
 - 3. If a strong light shines on the main unit screen, the picture may turn white or only silhouettes will be visible.
 - 4. Other manufacturer's devices (such as sensor, detectors, door releases) used with this system, comply with the manufacturer's installation requirements.
 - 5. The LCD panel is manufactured with very high precision techniques, inevitably will have a very small portion of its picture elements always lit or not lit at all. This is not considered a unit malfunction. Please be aware of this in advance.

3.3 INSTALLATION

- A. Install integrated security and communication system in accordance with manufacturer's instructions at locations indicated on the Drawings.
- B. Mount equipment plumb, level, square, and secure. For video entrance stations and video door stations, comply with manufacturer's design requirements to provide optimum picture quality of station monitoring.

3.4 SET-UP AND ADJUSTING

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

3.5 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.

3.6 PROTECTION

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

END OF SECTION