

**Date: April 11, 2013**

**RFQ # 7461419**

**TITLE: Surveillance Security System (Providence, Lincoln, Warwick campus's) - CCRI**

**CLOSING DATE AND TIME: Thursday May 9, 2013 @ 10:30 am (Local Prevailing Time) (LPT)**

**PRE-BID PROPOSAL CONFERENCE: YES, April 23, 2013 @ 8:00 am (LPT)**

**MANDATORY: YES**

**LOCATION: CCRI Flanagan Campus, Physical Plant Directors Office Rm. 0140, 1762 Louisquissett Pike, Lincoln, RI 02865 (all campus's will be visited that day, you must sign in at the Lincoln campus and check it at the other sites)**

Questions concerning this solicitation may be e-mailed, in Microsoft Word format, to the Division of Purchases at [questions@purchasing.ri.gov](mailto:questions@purchasing.ri.gov) no later than **4/29/2013 @ 12:00 noon LPT**. Please reference the RFQ # on all correspondence. Answers to questions received, if any, will be posted on the Internet as an addendum to this solicitation. It is the responsibility of all interested parties to download this information.

**SURETY REQUIRED: Yes**

**BOND REQUIRED: Yes**

**Thomas Bovis  
Interdepartmental Project Manager**

**Vendors must register on-line at the State Purchasing Website at [www.purchasing.ri.gov](http://www.purchasing.ri.gov)**

**NOTE TO VENDORS:**

**Offers received without the entire completed four-page RIVIP Generated Bidder Certification Form attached may result in disqualification.**

**THIS PAGE IS NOT A BIDDER CERTIFICATION FORM**



STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

Department of Administration  
DIVISION OF PURCHASES  
One Capitol Hill  
Providence, RI 02908-5855

**NOTICE TO VENDORS**

Effective **January 1, 2013** all *public works project* related bids or proposals exceeding **Five Hundred Thousand (\$500,000) dollars** are required to include a "public copy." All agency contract solicitations and invitations for bids, etc. shall state that any bid or proposal that exceeds Five Hundred Thousand (\$500,000) dollars must include a copy to be available for public inspection upon the opening of the bids. Any bid or proposal in excess of Five Hundred Thousand (\$500,000) dollars which does not include a copy for public inspection shall be deemed to be non-responsive. For further information, please see R. I. Gen. Laws §37-2-18(j)..

Dated: December 11, 2012



State of Rhode Island Department of Administration  
Division of Purchases

REVISED  
December 11, 2012

NOTICE TO CONTRACTORS  
AND VENDORS BIDDING  
ON PUBLIC WORKS PROJECTS

Effective January 1, 2013 all Public Works related project proposals exceeding Five Hundred Thousand (\$500,000) dollars are required to include a "public copy." All agency contract solicitations, requests for proposals, invitations for bids, etc. shall state that any bid or proposal that exceeds Five Hundred Thousand (\$500,000) dollars must include a copy to be available for public inspection upon the opening of the bids. Any bid or proposal in excess of Five Hundred Thousand (\$500,000) dollars which does not include a copy for public inspection shall be deemed to be non-responsive. Additionally, proposals submitted for a Master Price Agreement, when the total amount potentially may exceed Five Hundred Thousand (\$500,000) and the solicitation expressly requires any or all vendors to submit a public copy, must include a copy to be available for public inspection.

For further information, see R.I. Gen. Laws Section 37-2-18(j) and State Procurement Regulations at [www.purchasing.ri.gov](http://www.purchasing.ri.gov). This requirement applies to all public works projects (vertical and horizontal) exceeding Five Hundred Thousand (\$500,000) dollars and any combination of base bid plus all alternates.

In accordance to the State Procurement Regulations the following conditions are required:

1. All bid proposals shall be opened publicly and read aloud.
2. Each bid, together with the name of the bidder, shall be recorded and an abstract made available "immediately" for public inspection.
3. Copy of the redacted bid proposal shall be available for public inspection by the close of the business the day the subject bid(s) and/or contract(s) is opened by the Division of Purchases.

4. The burden to identify and withhold from the public copy that is released at the bid opening any trade secrets, commercial or financial information, or other information the bidder deems not subject to public disclosure pursuant to Chapter 38-2, the Access to Public Records Act, shall rest solely and exclusively with the bidder submitting the bid proposal.
5. At the time that a proposal is submitted, a bidder must submit a redacted copy of the bid proposal in a PDF (Portable Document File) file format on a read only CD-R Media Disk (hereinafter referred to as a "CD"). Vendors are required to provide all documents submitted in response to the bid solicitation on the CD.
  - a. The acceptable media is a CD-R. Media that is read/writable (CD RW) will not be accepted.
  - b. Only readable, not writeable media is acceptable.
  - c. Vendor is responsible for supplying their own CD-R media.
  - d. Vendor is responsible for the integrity of the CD.
6. Failure of the bidder to submit a public copy on a readable CD, as required by RIGL 37-2-18 as amended, shall result in the disqualification of said bid.
7. CD must be enclosed in a protective cover and the protective cover clearly labeled with the following:
  - a. Marked "Public Copy"
  - b. Title of Solicitation as it appears on the RIVIP cover letter.
  - c. Name of Company and Vendor ID as it appears on the RIVIP cover letter.
  - d. Bid Response Number as it appears on the RIVIP cover letter.
  - e. Date of Bid as it appears on the RIVIP cover letter.
8. Bid response on CD-R to be in a PDF (Portable Document Format).
  - a. One PDF file will be on the CD-R. File to meet the following requirements:
    - i. Only one file will contain all documents in response to the bid. If you have more than one document for the response, the documents must be concatenated or merged into one PDF document. Failure to submit only one PDF file may result in disqualification of bid.
    - ii. File should be named in the following manner:
      1. BidNumber\_DateofBid\_VendorName\_VendorID.pdf. Where:
        1. Bid Number is the bid number for which the response is for as it appears on the RIVIP cover sheet.
        2. Dateofbid is date of bid using the format (mm-dd-yyyy).
        3. VendorName is the name of the vendor as one word -- no spaces or punctuation.
        4. Vendor ID as it appears on the RIVIP vendor cover sheet.

**Note: you must use underscores in separating the fields. Do not use underscores anywhere else in the filename other than to separate the fields.**

**Example: 1234567\_06-01-2011\_Vendor1\_9876.pdf**

9. Purchasing staff will officially conclude the bid opening and all loaded proposals will be posted to the Purchasing web site. All proposals will be available immediately after bid opening [www.purchasing.ri.gov](http://www.purchasing.ri.gov).

For technical assistance, contact the Division of Purchases office at 574-8100.

DOCUMENT 000020

INVITATION TO BID

NOTICE TO CONTRACTORS – BID NO. 7461419

DATE: April 11, 2013

AWARDING AUTHORITY: STATE OF RHODE ISLAND  
DEPARTMENT OF ADMINISTRATION  
OFFICE OF PURCHASES, 2<sup>nd</sup> Floor  
ONE CAPITOL HILL  
PROVIDENCE, RHODE ISLAND 02908

OWNER: COMMUNITY COLLEGE OF RHODE ISLAND  
400 EAST AVENUE  
WARWICK, RI 02886

PROJECT: COMMUNITY COLLEGE OF RHODE ISLAND  
KNIGHT, LINCOLN AND LISTON CAMPUS'S  
LINCOLN, RHODE ISLAND 02865  
Surveillance Security System

Contractors are invited to submit a sealed lump sum bid proposal on the Bid Form attached for the above referenced Project in accordance with the requirements of the Contract Documents and the following instructions. The work comprises a single General Contract to provide (furnish and install) all Surveillance Security Networks at the CCRI Campus's.

Bid Proposals are to be submitted in duplicate on the attached Bid Forms in a sealed envelope addressed to the above awarding authority on or before: **May 9, 2013 @ 10:30 am (LPT)** clearly marked with the Project Name.

**NOTE:** Plans and specifications are available to download from the RI Division of Purchases website at [www.purchasing.ri.gov](http://www.purchasing.ri.gov) (labeled with the issue date of this Solicitation Information document) at no cost.

BID SECURITY is required in the amount of FIVE PERCENT (5%) of the Bid for all bidders, in accordance with the Instructions to Bidders. Bid Security shall be in the form of Bid Bond or a certified check payable to the STATE OF RHODE ISLAND.

The successful Contractor shall furnish PERFORMANCE AND LABOR AND MATERIALS PAYMENT BONDS covering the faithful performance of the Contract and Payment of obligation arising thereunder. The cost of bonds shall be included in the Contract Sum. The amount of each bond shall be equal to ONE HUNDRED percent (100%) of the Contract Sum.

This project is subject to terms, conditions and provisions of the Rhode Island General Laws Chapter 37-14.1 et. Seq, and regulations promulgated thereunder, which require that ten percent (10%) of the dollar value of work performed on the project be performed by minority business enterprises, and that wage rates to be paid under the Contract for this project must be in accordance with those prevailing wages on file in the Rhode Island Department of Labor, Office of the Director.

Bidders are also subject to the terms, conditions, and provisions of Chapters 2, 12, and 13 of Title 37, general laws of the State of Rhode Island, 1956 as amended, including apprentice requirements of 13-3.1.

The **Owner** will hold a **Mandatory pre-bid** conference beginning at:

**CCRI Lincoln Campus, 1762 Louisquissett Pike, Lincoln, RI 02865 (all campus's will be visited that same day)**

**Time: 8:00 am (LPT) Date: April 23, 2013**

Any vendor which intends to submit a bid proposal in response to this solicitation must have its designated representative attend the **mandatory pre-bid conference**. The representative must register at the pre-bid conference and disclose the identity of the vendor whom he/she represents. Because attendance at the pre-bid conference is mandatory, a vendor's failure to attend and register at the pre-bid conference shall result in disqualification of the vendor's bid proposal as non-responsive to the solicitation.

The Owner reserves the right to waive irregularities and to reject any or all bids, wholly or in part, to waive any informalities or defects in any or all bids and to make awards deemed in the best interest of the Owner.

VENDOR TO SUPPLY ALL LABOR, MATERIAL AND EQUIPMENT REQUIRED FOR A TURNKEY INSTALLATION OF A NEW INTEGRATED IP SURVEILLANCE MONITORING SYSTEM AND EMERGENCY CALL STATIONS. .

PROJECT SPECIFICATIONS/REQUIREMENTS:

1. VENDOR MUST BE A LICENSED TELECOMMUNICATION SYSTEM CONTRACTOR THROUGH THE RI DEPARTMENT OF LABOR AND TRAINING. VENDOR MUST EMPLOY IN-HOUSE CERTIFIED SECURITY IP NETWORK WEB BASED INTEGRATION EXPERTISE FOR SURVEILLANCE, INTRUSION MONITORING, AND EMERGENCY COMMUNICATIONS.
- 2..VENDOR TECHNICIANS AND SUBCONTRACTORS TO BE OSHA CERTIFIED AND LICENSED AS TELECOMMUNICATIONS SYSTEM TECHNICIANS BY THE RI DEPARTMENT OF LABOR AND TRAINING.
3. VENDOR AND ITS TECHNICIANS AND SUBCONTRACTORS TO BE FACTORY TRAINED, CERTIFIED AND APPROVED BY THE EQUIPMENT MANUFACTURER
4. VENDOR TECHNICIANS TO BE CERTIFIED IN STATE, LOCAL, AND NFPA CODE PROCEDURES FOR "FIRE STOP" INSTALLATIONS.
5. VENDOR MUST BE A CERTIFIED MANUFACTURE'S DEALER AND MAINTAIN A DEDICATED SERVICE TEAM INCLUDING AN INVENTORY OF PARTS AT VENDOR'S FACILITY WHICH MIRRORS THE EQUIPMENT INSTALLED AT CCRI.
6. VENDOR MUST HAVE A 24/7 SERVICE CAPABILITY WITH ELECTRONIC TRACKING AND REPORTING OF ALL SERVICE ISSUES AND MUST RESPOND WITHIN 4 HOURS OF SERVICE CALLS WITH REPLACEMENT EQUIPMENT AS NEEDED.
7. VENDOR MUST HAVE ALL OF THE EQUIPMENT NECESSARY TO PERFORM THE INSTALLATION AND SERVICE INCLUDING, TOOLS, STAGING, LIFT TRUCK, AVAILABLE.
8. CCTV SURVEILLANCE SYSTEM TO BE FULLY INTEGRATED INTO THE EXISTING CCRI CAMPUS WIDE HIGH SPEED DATA NETWORK. SEE ATTACHED NETWORK ARCHITECTURE SPECS.
9. CONDUIT AND/OR WIREMOLD TO BE USED WHERE WIRING MUST BE SURFACE MOUNTED ON WALLS OR CEILINGS PER CURRENT NEC AND NFPA CODES.
10. PROJECT COMPLETION: 90 DAYS FROM ISSUANCE OF PURCHASE ORDER.
11. VENDOR MUST CONDUCT WEEKLY PROJECT PROGRESS MEETINGS AND ISSUE MINUTES OF MEETINGS BY THE NEXT BUSINESS DAY. MEETINGS WILL BE HELD ONSITE AT CCRI . THE SITE LOCATION AND SCHEDULE FOR THE PROGRESS MEETING WILL BE ARRANGED WITH ASSOCIATE DIRECTOR PHYSICAL PLANT OR DESIGNEE.

12. WORK HOURS: PROJECT IS TO BE COMPLETED DURING NORMAL OPERATING BUSINESS HOURS 7 AM - 3:30 PM, MON-FRI. VENDOR MUST SCHEDULE WORK FOR NON OPERATING HOURS IN ADVANCE WITH PHYSICAL PLANT DEPARTMENT.

13. VENDOR RESPONSIBLE FOR ALL REQUIRED LOCAL AND STATE PERMITS.

14. AT ALL TIMES DURING AND AT COMPLETION PROJECT, CONSTRUCTION AREAS ARE TO BE KEPT IN A CLEAN, SAFE AND ACCEPTABLE CONDITION.

15. VENDOR RESPONSIBLE FOR REMOVING ALL PROJECT DEBRIS OFF-SITE DAILY. PER ALL LOCAL, STATE AND FEDERAL REGULATIONS.

16. ALL COMPLETED WORK MUST BE INSPECTED AND APPROVED BY ASSOCIATE DIRECTOR PHYSICAL PLANT OR DESIGNEE.

17. VENDOR TO PROVIDE THE COST FOR A FIVE (5) YEAR WARRANTY COVERING ALL PARTS AND LABOR. .

NOTE: CAMERA INSTALLATION LOCATIONS AS PER ATTACHED SCHEDULE. .

**END OF DOCUMENT**

**Bid Form**  
**RFQ # 7461419**  
**Furnish Install SURVEILLANCE SECURITY SYSTEM CCRI**

**STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS**

Department of Administration  
 Tel: (401) 574-8100  
 Division of Purchases  
 Fax:(401) 574-8387  
 Capitol Hill  
 Website: www.purchasing.ri.gov  
 Providence, RI 02908

One



Line	Description	Total
1	LINCOLN CAMPUS	
2	LINCOLN CAMPUS BOOKSTORE	
3	PROVIDENCE CAMPUS	
4	PROVIDENCE CAMPUS BOOKSTORE	
5	WARWICK CAMPUS BOOKSTORE	
<b>Total all Campus Locations</b>		<div style="display: flex; align-items: center;"> <span style="margin-right: 5px;">\$</span> <div style="border: 1px solid black; width: 100%; height: 100%;"></div> </div>

DOOR/RM	DESCRIPTION	FIXED		PTZ		FIXED		PTZ	
		INDR	OUTDR	INDR	OUTDR	INDR	OUTDR	INDR	OUTDR
<b>FLANAGAN CAMPUS - LINCOLN - MAIN BUILDING</b>									
1100	EXTERIOR ENTRANCE - 1 DBLE / 2 SINGLE	1					1		1
1400	EXTERIOR ENTRANCE - 1 DBLE / 2 SINGLE	1					1		1
1406	CORRIDOR	1							
1806	CORRIDOR SCIENCE LABS	1							
2100	EXTERIOR ENTRANCE - 1 DBLE / 2 SINGLE	1					1		1
2102	LOBBY AREA FOR ENTRY 2100			1					
2400	EXTERIOR ENTRANCE - 1 DBLE / 2 SINGLE	1					1		1
2402	LOBBY AREA FOR ENTRY 2400			1					
2406	CORRIDOR	1							
2806	CORRIDOR SCIENCE LABS	1							
1800	STUDY AREA LOUNGE	1							
2558	CORRIDOR MAC LABS	1							
2568	CWCE CORRIDOR, MOD 2 SOUTH 2ND FLOOR	1					1		1
2208	CORRIDOR LEFT, MOD 2 SOUTH	1							
2208	CORRIDOR RIGHT, MOD 2 SOUTH	1							
2152	CORRIDOR, MOD 2 SOUTH 1ST FLOOR	1							
2154	ADMIN COUNTER MOD 2 SOUTH 1ST FLOOR			1					
2162	BURSR COUNTER MOD 2 SOUTH 1ST FLOOR			1					
3100	EXTERIOR ENTRANCE - 1 DBLE / 2 SINGLE	1					1		1
3102	LOBBY AREA FOR ENTRY 3100						2		
3200	CAFETERIA 3200								
1500	STUDY AREA LOUNGE	1							
3602	CAFETERIA 2 <sup>ND</sup> FLOOR COMP LAB	1							
1506	CORRIDOR DENTAL CLINIC	1							
3300	AUDITORIUM 37 FT CEILINGS 2706	2							
3400	EXTERIOR ENTRANCE - 1 DBLE / 2 SINGLE	1					1		1
3402	LOBBY AREA FOR ENTRY 3400						1		2
EXTERIOR	NW CORNER								1
EXTERIOR	PARKING LOT - NW BUILDING MOUNT								1
EXTERIOR	PARKING LOT - NE BUILDING MOUNT								1
EXTERIOR	PARKING LOT - SW BUILDING MOUNT								1
EXTERIOR	PARKING LOT - S BUILDING MOUNT								1
EXTERIOR	PARKING LOT - SE BUILDING MOUNT								1
1200	FACULTY 1 <sup>ST</sup> FLOOR	2					9		8
<b>TOTALS</b>		<b>23</b>					<b>9</b>		<b>5</b>

LINCOLN FIELD HOUSE

DOOR/RM	DESCRIPTION	FIXED INDR	PTZ INDR	FIXED OUTDR	PTZ OUTDR
0004	MAIN ENTRANCE	1			
0002	LOBBY	1			
0001	GYM		2		
0020	DANCE STUDIO	1			
0047	WEIGHT ROOM	1			
0085	POOL				1
EXTERIOR	PARKING LOT SOUTH BUILDING MOUNT				1
EXTERIOR	SOUTH EMERGENCY EXITS			1	
EXTERIOR	MOTORCYCLE RANGE				1
EXTERIOR	REAR OF BUILDING NW MOUNT				1
TOTALS		4	2	1	4



# COMMUNITY COLLEGE OF RHODE ISLAND

## Lincoln and Providence High Speed Network Architecture

Both campuses have similar star topologies and use identical Cisco networking electronics. At each campus a core Cisco 6509 router connects in a star configuration to Cisco layer 2 switches located in each wiring closet. The Cisco closet switches are a mixture of Cisco 3548's, 3550's and 3560's, most of which are non-POE. Most switches do not have UPS backup power. Switch ports are 10/100 M with one G uplinks to the core router. Closet racks are standard 19" but are completely full in some instances. Dual one gig multimode fiber links connect each closet's electronics directly to that campuses core 6509 router. VLAN's are assigned based on application requirements. All protocols are IP Ethernet. Address translation is available. Each campus has its own DHCP/DNS server. VoIP is converged with data traffic for the 1G CCRI Providence to CCRI Warwick dark fiber circuit.

Horizontal wiring at each campus is Mohawk Category 5E 400 MHz unshielded twisted pair. All room rj45 jacks and wall plates are Panduit.

Each campus is connected to the CCRI Warwick campus in a star WAN configuration via a point to point 1G dark fiber circuit provided by the OSHEAN ([www.OSHEAN.org](http://www.OSHEAN.org)) networking consortium. At each of the campus locations the core Cisco 6509 routers directly connect to the dark fiber Ethernet WAN. A Cisco 6509 router located in Warwick connects to the 6509 units in Providence and Lincoln. This same Warwick router has a 1G dark fiber OSHEAN circuit from Warwick to an OSHEAN AP located in Providence. A 100M Internet connection is available to CCRI at this Providence AP location. All Internet firewalls and bandwidth management appliances for all CCRI campuses are centrally located at the Warwick campus.

Vendor must notify CCRI of any specific network configuration requirements to insure security camera compatibility with CCRI infrastructure.

# COMMUNITY COLLEGE OF RHODE ISLAND

## High Speed Network Architecture Specifications

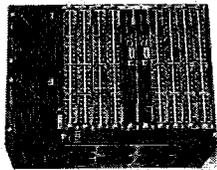
### SWITCH, CABLE, AND CONDUIT SPECIFICATIONS:

- A. CONDUIT AND/OR WIREMOLD TO BE USED WHERE WIRING HAS TO BE SURFACE MOUNTED ON EXPOSED WALLS OR CEILINGS PER CURRENT NEC AND NFPA CODES. ON THE WARWICK AND LINCOLN CAMPUSES THE WIRING MUST BE PIPED TO THE DROP LOCATION. ON THE PROVIDENCE CAMPUS THE WIRING WILL BE IN TRAYS TO THE CLOSEST POINT OF THE DROP THEN BE SUPPORTED BY "J" HOOKS TO THE DROP LOCATION.
- B. CCRI SPECIFIES THE FOLLOWING CISCO SWITCH TO BE USED FOR ALL REQUIREMENTS. NO SUBSTITUTES.
- |    |                 |   |
|----|-----------------|---|
| i. | WS-C3750X-48P-L | CATALYST 3750X 48 PORT POE LAN BASE             |
|    | C3KX-PWR-715WAC | CATALYST 3K-X 715W AC POWER SUPPLY 1            |
|    | C3KX-NM-10G     | CATALYST 3K-X 10G NETWORK MODULE OPTION PID     |
|    | C3KX-NM-10G     | CATALYST 3K-X 10G NETWORK MODULE OPTION PID     |
|    | CAB-3KX-AC      | AC POWER CORD FOR CATALYST 3K-X (NORTH AMERICA) |
|    | SFP-10G-LRM=    | 10GBASE-LRM SFP MODULE                          |
- C. CCRI SPECIFIES THE FOLLOWING CABLE AND TERMINATIONS TO BE USED FOR ALL INSTALLATIONS AT EACH CAMPUS. NO SUBSTITUTES.
- i. MOHAWK MEGALAN 400 CABLE WITH PANDUIT MINI-COM TX8 10GIG JACK MODULE FOR TERMINATION. SEE DATA SHEETS IN BID PACKAGE.

# Cisco Catalyst Access Switching



## Cisco Modular Access Switches



### Cisco® Catalyst® 4500E Series:

- Cisco's leading platform for borderless access and price/performance distribution offering up to 848 Gbps in Layer 2 and Layer 3 switching capacity
- First Cisco switch supporting Cisco Universal Power Over Ethernet (60W per port) and Energy-Efficient Ethernet
- Full Borderless Networks services support, including Flexible NetFlow for application visibility and malware detection, medianet, Cisco TrustSec® security, and EnergyWise
- Lowers TCO with simplified operations such as sub-200msec In-Service Software Upgrade (ISSU), Embedded Event Manager, Smart Call Home, Auto Smartports, Limited Lifetime Warranty (LLW)
- Industry's best investment protection in its class with backward and forward compatibility across all generations dating back to 1999
- Single platform for access and distribution supporting up to 384 Fast Ethernet or Gigabit Ethernet (GE) ports (PoE or data) and up to 100 10 Gigabit Ethernet (10 GE) ports per chassis

<http://www.cisco.com/en/US/products/hw/switches/ps4324/index.html>

### 4500E Value Bundles:

- WS-C4503E-S7L-48V+
- WS-C4506E-S7L-96V+
- WS-C4507RE+96V+, WS-C4510RE-S7+96V+

### 4500E borderless offering chassis:

- WS-C4503-E: 3-slot chassis
- WS-C4506-E: 6-slot chassis
- WS-C4507R+E: 7-slot chassis supporting redundancy
- WS-C4510R+E: 10-slot chassis supporting redundancy

### Supervisor engines:

- WS-X45-SUP7-E: 4500E Series Supervisor, 848Gbps
- WS-X45-SUP7L-E: 4500E Series Supervisor 7-E Lite, 520Gbps

### Line cards:

- WS-X4748-UPOE+E: 4500 E-Series 48-port 802.3af PoE, 802.3at PoEP and UPOE 10/100/1000
- WS-X4748-RJ45-E: 4500E Series, 48-port 10/100/1000 (RJ-45)
- WS-X4748-RJ45V+E: 4500E 48-port PoE 802.3at 10/100/1000 (RJ-45)
- WS-X4648-RJ45V+E: 4500E Series, 48-port 802.3af PoE 10/100/1000 (RJ-45)
- WS-X4648-GB-RJ45: 4500E Series, 48-port 10/100/1000 (RJ-45)

## Cisco Fixed Access Switches



### Cisco Catalyst 3750-X Series:

- GE copper and fiber stackable switches with support for advanced Layer 3 and IPv6 capabilities Higher availability and resiliency using StackWise® Plus and Cisco StackPower™ technology combined with dual redundant, hot-swappable power supplies and fan modules
- Feature rich BN services platform with Cisco TrustSec, Medianet & EnergyWise
- Support more PoE devices with 30W power available on all ports simultaneously
- Configuration flexibility and future-proofing with four hot-swappable network modules (GE and 10 GE ports) and the choice of LAN Base, IP Base, and IP Services software
- Ensure data confidentiality and integrity with Media Access Control Security (MACsec) hardware-based line-rate encryption
- EnergyWise for operational cost optimization by measuring actual power consumption of the PoE devices, reporting, and reducing energy consumption across the network
- Smart Operations to simplify LAN deployment, configuration, and troubleshooting
- Investment protection with enhanced limited lifetime warranty (eLLW)

<http://www.cisco.com/en/US/products/ps10745/index.html>

- WS-C3750X-24T-L: Stackable 24 10/100/1000 Ethernet ports, 350W PS, LAN Base
- WS-C3750X-48T-L: Stackable 48 10/100/1000 Ethernet ports, 350W PS, LAN Base
- WS-C3750X-24P-L: Stackable 24 10/100/1000 PoE+ ports, 715W PS, LAN Base
- WS-C3750X-48P-L: Stackable 48 10/100/1000 Ethernet ports, 350W PS, LAN Base
- WS-C3750X-48PF-L: Stackable 24 10/100/1000 Ethernet ports, 1100W PS, LAN Base

- WS-C3750X-24T-S: Stackable 24 10/100/1000 Ethernet ports, 350W PS, IP Base
- WS-C3750X-48T-S: Stackable 48 10/100/1000 Ethernet ports, 350W PS, IP Base
- WS-C3750X-24P-S: Stackable 24 10/100/1000 PoE+ ports, 715W PS, IP Base
- WS-C3750X-48P-S: Stackable 48 10/100/1000 Ethernet ports, 350W PS, IP Base

- WS-C3750X-48PF-S: Stackable 24 10/100/1000 Ethernet ports, 1100W PS, IP Base
- WS-C3750X-12S-S: Stackable 12 Gigabit Ethernet SFP ports, 350W PS, IP Base
- WS-C3750X-24S-S: Stackable 24 Gigabit Ethernet SFP ports, 350W PS, IP Base
- WS-C3750X-12S-E: Stackable 12 Gigabit Ethernet SFP ports, 350W PS, IP Services
- WS-C3750X-24S-E: Stackable 24 Gigabit Ethernet SFP ports, 350W PS, IP Services



Cisco Fixed Access Switches	
	<p>Cisco Catalyst 3560-X Series:</p> <ul style="list-style-type: none"> <li>• GE stand-alone switch with support for advanced Layer 3 and IPv6</li> <li>• Feature rich BN services platform with Cisco TrustSec, Medianet &amp; EnergyWise</li> <li>• Support more PoE devices with 30W power available on all ports simultaneously</li> <li>• Configuration flexibility and future-proofing with four hot-swappable network modules (GE and 10 GE ports) and the choice of LAN Base, IP Base, and IP Services software</li> <li>• High availability with dual redundant, hot-swappable power supplies and fan modules</li> <li>• Ensure data confidentiality and integrity with MACsec hardware-based line-rate encryption</li> <li>• EnergyWise for operational cost optimization by measuring actual power consumption of the PoE devices, reporting, and reducing energy consumption across the network</li> <li>• Smart Operations to simplify LAN deployment, configuration, and troubleshooting</li> <li>• Investment protection with eLLW <a href="http://www.cisco.com/en/US/products/ps10744/index.html">http://www.cisco.com/en/US/products/ps10744/index.html</a></li> </ul>
	<p>Cisco Catalyst 2960-S Series:</p> <ul style="list-style-type: none"> <li>• GE switch with support for advanced Layer 2, static routing, and IPv6 manageability</li> <li>• Cisco FlexStack stacking for ease of operation with Cisco Catalyst Smart Operations</li> <li>• PoE+ with up to 30W per port</li> <li>• Standards based 802.1x and identity based solution</li> <li>• Lower operational costs through efficient switch operation</li> <li>• EnergyWise for operational cost optimization by measuring actual power consumption of the PoE devices, reporting, and reducing energy consumption across the network</li> <li>• Smart Operations to simplify LAN deployment, configuration, and troubleshooting</li> <li>• Investment protection with eLLW <a href="http://www.cisco.com/en/US/products/ps6406/index.html">http://www.cisco.com/en/US/products/ps6406/index.html</a></li> </ul>

- WS-C3560X-24T-L: 24 10/100/1000 Ethernet ports, 350W PS, LAN Base
  - WS-C3560X-48T-L: 48 10/100/1000 Ethernet ports, 350W PS, LAN Base
  - WS-C3560X-24P-L: 24 10/100/1000 PoE+ ports, 715W PS, LAN Base
  - WS-C3560X-48P-L: 48 10/100/1000 PoE+ ports, 715W PS, LAN Base
  - WS-C3560X-48PF-L: 48 10/100/1000 PoE+ ports, 1100W PS, LAN Base
  - WS-C3560X-24T-S: 24 10/100/1000 Ethernet ports, 350W PS, IP Base
  - WS-C3560X-48T-S: 48 10/100/1000 Ethernet ports, 350W PS, IP Base
  - WS-C3560X-24P-S: 24 10/100/1000 PoE+ ports, 715W PS, IP Base
  - WS-C3560X-48P-S: 48 10/100/1000 PoE+ ports, 715W PS, IP Base
  - WS-C3560X-48PF-S: 48 10/100/1000 PoE+ ports, 1100W PS, IP Base
- 
- WS-2960S-48TS-S: 48 10/100/1000 Ethernet ports, GE SFP uplink ports, LAN Lite
  - WS-C2960S-24TS-S: 24 10/100/1000 Ethernet ports, GE SFP uplink ports, LAN Lite
  - WS-C2960S-48FPD-L: 48 10/100/1000 PoE+ ports, 10 GE uplink ports, 740W PoE power, operational Cisco FlexStack, LAN Base
  - WS-C2960S-48LPD-L: 48 10/100/1000 PoE+ ports, 10 GE uplink ports, 370W PoE power, optional Cisco FlexStack, LAN Base
  - WS-C2960S-24PD-L: 24 10/100/1000 PoE+ ports, 10 GE uplink ports, 370W PoE power, optional Cisco FlexStack, LAN Base
  - WS-C2960S-48TD-L: 48 10/100/1000 Ethernet ports, 10 GE uplink ports, optional Cisco FlexStack, LAN Base
  - WS-C2960S-24TD-L: 24 Ethernet 10/100/1000 Ethernet, 10 GE uplink ports, LAN Base
  - WS-C2960S-48FPS-L: 48 10/100/1000 PoE+ ports, GE SFP uplink ports, 740W PoE power, operational Cisco FlexStack, LAN Base
  - WS-C2960S-48LPS-L: 48 10/100/1000 PoE+ ports, GE SFP uplink ports, 370W PoE power, optional Cisco FlexStack, LAN Base
  - WS-C2960S-24PS-L: 24 10/100/1000 PoE+ ports, GE SFP uplink ports, 370W PoE power, optional Cisco FlexStack, LAN Base
  - WS-C2960S-48TS-L: 48 10/100/1000 Ethernet ports, GE SFP uplink ports, optional Cisco FlexStack, LAN Base
  - WS-C2960S-24TS-L: 24 Ethernet 10/100/1000 Ethernet, GE SFP uplink ports, LAN Base



**Cisco Catalyst C Series Compact Switches**

	<p>Cisco Catalyst 3560-C Series:</p> <ul style="list-style-type: none"> <li>• Fanless small form factor switch with support for Layer 3 and IPv6</li> <li>• Designed specifically to be deployed outside the wiring closet</li> <li>• PoE+ with up to 30W per port</li> <li>• Featuring PoE pass-through, an innovative feature and industry first for passing PoE power from the compact switch to end devices</li> <li>• MACsec hardware-based line-rate encryption</li> <li>• Ease of deployment with Cisco Catalyst Smart Operations</li> <li>• Investment protection with eLLW <a href="http://www.cisco.com/en/US/products/ps11290/index.html">http://www.cisco.com/en/US/products/ps11290/index.html</a></li> </ul>	<ul style="list-style-type: none"> <li>• WS-C3560CG-8TC-S -8 GE, 2 s dual-purpose uplink, IP Base</li> <li>• WS-C3560CG-8PC-S -8 GE PoE, 2 x dual-purpose uplink, IP Base</li> <li>• WS-C3560CPD-8PT-S: Cisco Catalyst 3560C PD PSE Switch 8 GE PoE 2 x 1G, IP Base</li> <li>• WS-C3560C-8PC-S: Cisco Catalyst 3560C Switch 8 FE PoE, 2 x Dual Purpose Uplink, IP Base</li> <li>• WS-C3560C-12PC-S: Cisco Catalyst 3560C Switch 12 FE PoE, 2 x Dual Purpose Uplink, IP Base</li> </ul>
	<p>Cisco Catalyst 2960-C Series:</p> <ul style="list-style-type: none"> <li>• Fanless small form factor switch with support with comprehensive Layer 2 features</li> <li>• Designed specifically to be deployed outside the wiring closet</li> <li>• Models with and without power supplies</li> <li>• Featuring PoE passthrough, an innovative feature and industry first for passing PoE power from the compact switch to end devices</li> <li>• Ease of deployment with Cisco Catalyst Smart Operations</li> <li>• Investment protection with Enhanced Limited Lifetime Warranty (eLLW) <a href="http://www.cisco.com/en/US/products/ps11289/index.html">http://www.cisco.com/en/US/products/ps11289/index.html</a></li> </ul>	<ul style="list-style-type: none"> <li>• WS-C2960CPD-8TT-L: Cisco Catalyst 2960-C PSE Switch 8 FE, 2 x GE, PoE+ LAN Base</li> <li>• WS-C2960CPD-8PT-L: Cisco Catalyst 2960-C PD PSE Switch 8 FE PoE, 2 x GE, PoE+ LAN Base</li> <li>• WS-C2960CG-8TC-L: Cisco Catalyst 2960-C Switch 8 GE, 2 x dual-purpose uplink, LAN Base</li> <li>• WS-C2960C-8TC-L: Cisco Catalyst 2960C Switch 8 FE, 2 x Dual Purpose Uplink, LAN Base</li> <li>• WS-C2960C-8TC-S: Cisco Catalyst 2960C Switch 8 FE, 2 x Dual Purpose Uplink, LAN Lite</li> <li>• WS-C2960C-8PC-L: Cisco Catalyst 2960C PoE Switch 8 FE PoE, 2 x Dual Purpose Uplink, LAN Base</li> <li>• WS-C2960C-12PC-L: Cisco Catalyst 2960C PoE Switch 12 FE PoE, 2 x Dual Purpose Uplink, LAN Base</li> </ul>

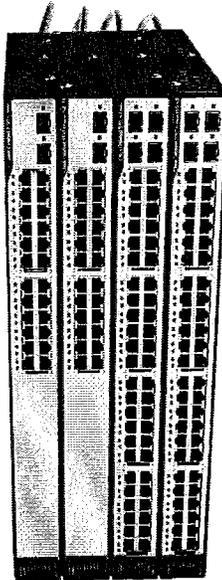


# Cisco Catalyst 3750 v2 Series Switches

At-A-Glance

The Cisco Catalyst® 3750 v2 Series is the next generation energy-efficient Layer 3 fast Ethernet, stackable switches. This new series of switches support Cisco EnergyWise technology, which enables companies to measure and manage power consumption of network infrastructure and network-attached devices, thereby reducing their energy costs and their carbon footprint. The Cisco Catalyst 3750 v2 Series consumes less power than its predecessors and is the ideal access layer switch for enterprise, retail, and branch-office environments, as it maximizes productivity and investment protection by enabling a unified network for data, voice, and video (figure 1).

Figure 1 Cisco Catalyst 3750 v2 Series Switches



## Product Highlights

- Lower power consumption than its predecessors
- Backward compatible with Cisco Catalyst 3750 and 3750-E Series
- Full Energy Wise support to monitor energy consumption of network infrastructure and implement energy saving programs to reduce energy costs
- Compatible with Cisco Redundant Power System (RPS) 2300
- All units have a uniform depth of 11.9 inches for better cable management
- Preconfigurable with the Cisco IOS Software release at the time of ordering
- IPv6 routing included in the IP Services feature set

## Cisco EnergyWise

The Cisco Catalyst 3750 v2 Series supports Cisco EnergyWise, which is a technology that enables monitoring, reporting, and management of energy consumption by end devices that are Cisco EnergyWise enabled. This technology enables companies to reduce their energy cost carbon footprint. These are some of the EnergyWise features available:

- Discover all Cisco EnergyWise enabled devices on the network
- Monitor and report power consumption by these devices
- Implement business rules to control power to these end devices

## Cisco StackWise Technology

The Cisco Catalyst 3750 v2 Series are stackable switches with Cisco StackWise® technology. Cisco StackWise technology unites up to nine individual switches into a single logical unit, using special stack-interconnect cables and stacking software. Cisco StackWise stacking creates a 32-Gbps switch interconnection and does not require user ports for stacking. The Catalyst 3750 v2 Series are also fully compatible with Catalyst 3750 and 3750-E stackable switches.

## Ease of Use and Deployment

With features such as auto smart ports, smart install, configuration replace and rollback, and auto QoS, the Cisco Catalyst 3750 v2 Series Switches are easy to deploy and manage.

## Enhanced Security

The Cisco Catalyst 3750 v2 Series Switches have several security features, such as IEEE 802.1x, flexible authentication, multi-authentication, Web authentication, multi-domain authentication, VLAN ACLs, and port-based ACLs that enable a secure network.

## Configurable Cisco IOS Software

The Cisco Catalyst 3750 v2 Series can be preconfigured with a specific Cisco IOS Software release at the time of ordering. This option eliminates the need to reload a specific Cisco IOS Software release during deployment, thereby reducing deployment time and cost. The Cisco IOS Software release to be preloaded can be selected from a list of supported Cisco IOS Software releases, including the crypto version.

## Redundant Power System

The Cisco Catalyst 3750 v2 Series Switches support the Cisco RPS 2300, which increases availability in a converged data, voice, and video network by providing transparent power backup to two of six attached devices. The Cisco Catalyst 3750 v2 Series Switches are capable of reverting back to their internal power supply without any service interruption. In addition, the RPS 2300 can be managed using a Cisco Catalyst 3750 v2 Series Switch that is connected to the RPS 2300.

## Ordering Information

Part Number	Description
WS-C3750V2-24TS-S	24 10/100 + 2 SFP IP Base
WS-C3750V2-24TS-E	24 10/100 + 2 SFP IP Services
WS-C3750V2-48TS-S	48 10/100 + 4 SFP IP Base
WS-C3750V2-48TS-E	48 10/100 + 4 SFP IP Services
WS-C3750V2-24PS-S	24 10/100 PoE + 2 SFP IP Base
WS-C3750V2-24PS-E	24 10/100 PoE + 2 SFP IP Services
WS-C3750V2-48PS-S	48 10/100 PoE + 4 SFP IP Base
WS-C3750V2-48PS-E	48 10/100 PoE + 4 SFP IP Services

## For More Information

<http://www.cisco.com/en/US/products/hw/switches/ps5023/index.html>

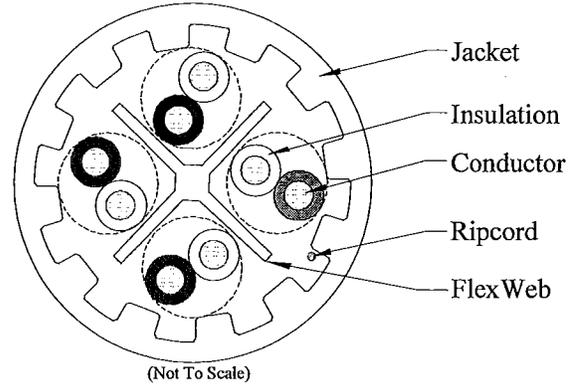
**MASTER SPECIFICATION**  
**XGO™ UTP CABLE**  
**4 PAIR #23 AWG CATEGORY 6A PLENUM**

Design Number:  
**HT54074**

**DESCRIPTION**

UNSHIELDED TWISTED PAIR (UTP) XGO(TM) CABLE FOR USE IN HORIZONTAL CABLING SYSTEMS PER ANSI/TIA-568-C AND ISO/IEC 11801:2002 CLASS EA. THE CABLE EXCEEDS ANSI/TIA-568-C.2 AND ISO/IEC 11801:2002 CATEGORY 6A ELECTRICAL CHARACTERISTICS. THIS PATENTED CABLE CONSISTS OF #23 AWG SOLID BARE COPPER INSULATED CONDUCTORS, ASSEMBLED INTO FOUR TIGHTLY TWISTED PAIRS, WITH A FLEXWEB® CORE SEPARATOR, WITH A RIPCORD, UNDER A FLUTED JACKET WHICH MITIGATES ALIEN CROSSTALK. PRINT INCLUDES DESCENDING FOOTAGE MARKERS FROM 1000 TO 0 ON EACH 1000 FT REEL. THIS PRODUCT AND/OR ITS MANUFACTURE IS COVERED BY US PATENT NOS. 6074503, 7135641, 7154043, 7663061 & 7977575.

THE CABLE IS PLENUM RATED FOR USE IN AIR HANDLING DUCTS AND SPACES IN ACCORDANCE WITH ARTICLE 800 OF THE NATIONAL ELECTRICAL CODE (NEC). THE CABLE IS UL (USA) & cUL (CANADA) LISTED FOR THIS APPLICATION BY PASSING NFPA 262 (FT6 OR PREVIOUSLY UL 910 STEINER TUNNEL) TEST.



**SUPPORTED APPLICATIONS**

IEEE 802.3an 10GBASE-T (10 GIGABIT ETHERNET), 1000BASE-T (GIGABIT ETHERNET), 100BASE-T (FAST ETHERNET), AND IEEE 802.3 10BASE-T (ETHERNET), IEEE 802.3af POWER OVER ETHERNET FOR VoIP, ANSI X3.263 FDDI TP-PMD, IEEE 802.5 4 AND 16 Mbps TOKEN RING, ATM UP TO 1.2 Gbps, 550 MHz BROADBAND VIDEO AND STANDARDS UNDER DEVELOPMENT SUCH AS ATM AT 2.4 AND 4.8 Gbps.

**CONSTRUCTION**

**PRIMARIES:** CONDUCTOR: 23 AWG (.6 mm) SOLID BARE COPPER  
 INSULATION: FEP ON ALL 4PAIRS

**PAIR ASSEMBLY:** 2 PRIMARIES TWISTED IN VARIED LAYS

**COLOR CODE:** SEE TABLE 1

**CABLE ASSEMBLY:** 4 PAIRS CABLED TOGETHER WITH A FLEXWEB CORE SEPARATOR

**JACKET:** NO LEAD PLENUM RATED THERMOPLASTIC  
 JACKET COLOR: SEE TABLE 2  
 NOMINAL CABLE OD: .340" (8.64 mm)

**LISTINGS:** C(UL)US OR C(ETL)US TYPE CMP  
 UL OR ETL VERIFIED CAT.6A

**TABLE 1**

PAIR NUMBER	PAIR COLOR CODE	
1	WHITE	BLUE
2	WHITE	ORANGE
3	WHITE	GREEN
4	WHITE	BROWN

**TABLE 2**

MOHAWK PART NUMBER	MOHAWK DESIGN NUMBER	JACKET COLOR
M58865	HT56984	BLUE
M58866	HT56985	WHITE
M58867	HT56986	YELLOW
M58868	HT56987	GRAY
M58869	HT56988	PINK
M58870	HT56989	GREEN
M58871	HT56990	RED
M58873	HT56991	ORANGE
M58874	HT56992	BLACK
M58875	HT56993	VIOLET

**PHYSICAL CHARACTERISTICS**

**CABLE WEIGHT:** 57 lbs/1000ft (85 kg/km)  
**BENDING RADIUS:** 1.4" (35 mm) MIN (4 x CABLE OD)  
**PULLING TENSION:** 25 lbf (110 N) MAX  
**OPERATING TEMP.:** -20°C to +60°C (-4°F to +140°F)  
**STORAGE TEMP.:** -20°C to +75°C (-4°F to +167°F)  
**\*INSTALLATION TEMP.:** 0°C to +60°C (+32°F to +140°F)

\*THE INSTALLATION TEMPERATURE REFERS TO THE TEMPERATURE OF THE CABLE WHILE BEING INSTALLED OR PULLED. DO NOT INSTALL BELOW 0°C (+32°F).



**MOHAWK**  
 Cabling Excellence for Open Architecture

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Rev	Description	Date	Init.
L	UPDATE DESC, LISTINGS, WGT, STDS	08/12/10	JS
M	UPDATE PATENT INFO & STDS	05/27/11	JS
N	UPDATE DESC, PATENT INFO, CABLE WGT	08/09/11	JS
O	UPD DESC; ADD ICEA TO STANDARDS	10/28/11	JS
Date: 03/10/05		Page 1 of 2	
Orig:		Review:	
			Design Number: <b>HT54074</b>

**MASTER SPECIFICATION**  
**XGO™ UTP CABLE**  
**4 PAIR #23 AWG CATEGORY 6A PLENUM**

Design Number:  
**HT54074**

**ELECTRICAL CHARACTERISTICS (REF TABLE 3)**

**STANDARDS:** EXCEEDS ANSI/TIA-568-C.2 CAT 6A,  
 ICEA S-90-661-1997 CAT 6,  
 ISO/IEC 11801 ed 2.0 AMEND 1 CLASS EA &  
 IEC 61156-5 ed 2.0 HORIZONTAL CABLE

**CONDUCTOR DCR:** 6.6 Ω/100m (20.0 Ω/Mft) MAX

**DCR UNBALANCE:** 3% MAX

**MUTUAL CAPACITANCE:** 46 pF/m (14 pF/ft) NOM

**CAPACITANCE UNBALANCE PAIR/GROUND:** 33 pF/100m (100 pF/Mft) MAX

**CHARACTERISTIC IMPEDANCE:** 100 Ω ± 7% (10-550 MHz)

**INPUT IMPEDANCE:** 100 Ω ± 10% (1-100 MHz)  
 100 Ω ± 15% (>100-350 MHz)  
 100 Ω ± 22% (>350 MHz)

**RETURN LOSS (RL):** 20 + 5 log<sub>10</sub>(f) dB MIN (1-10 MHz)  
 25 dB MIN (>10-20 MHz)  
 25 - 7 log<sub>10</sub>(f/20) dB MIN (>20 MHz)

**PROPAGATION DELAY:** 534+36 / √f ns/100m MAX

**PROPAGATION DELAY SKEW:** 45 ns/100m MAX

**INSERTION LOSS**

**(ATTENUATION):**  $1.82\sqrt{f} + .0091f + .25/\sqrt{f}$  dB/100m MAX

**NEAR END CROSSTALK (NEXT):** 44.3 - 15 log<sub>10</sub>(f/100) dB/100m MIN

**POWER SUM NEAR END CROSSTALK (PS NEXT):** 42.3 - 15 log<sub>10</sub>(f/100) dB/100m MIN

**ATTENUATION TO CROSSTALK RATIO FAR END (ACRF):** 27.8 - 20 log<sub>10</sub>(f/100) dB/100m MIN

**POWER SUM ATTENUATION TO CROSSTALK RATIO FAR END (PS ACRF):** 24.8 - 20 log<sub>10</sub>(f/100) dB/100m MIN

**POWER SUM ALIEN NEAR END CROSSTALK (PS ANEXT):** 62.5 - 15 log<sub>10</sub>(f/100) dB/100m MIN  
 67 dB MIN

**POWER SUM ALIEN ATTENUATION TO CROSSTALK RATIO FAR END (PS AACRF):** 38.2 - 20 log<sub>10</sub>(f/100) dB/100m MIN  
 67 dB MIN

**NOMINAL VELOCITY OF PROPAGATION (NVP):** 72%

NOTE: Attenuation To Crosstalk Ratio Far End (ACRF) was previously referred to as Equal Level Far End Crosstalk (ELFEXT).  
 WHERE f = Frequency in MHz from 1 to 500 MHz.

**TABLE 3**  
**REFERENCE ELECTRICAL CHARACTERISTICS**

FREQ (MHz)	INSERTION LOSS (dB/100m)	NEXT (dB/100m)	PS NEXT (dB/100m)	ACRF (dB/100m)	PS ACRF (dB/100m)	RETURN LOSS (dB)	PROP. DELAY (ns/100m)	ALIEN CROSSTALK	
								PS ANEXT (dB/100m)	PS AACRF (dB/100m)
	max	min	min	min	min	min	max	min	min
1.0	2.0	74.3	72.3	67.8	64.8	20.0	570.0	67.0	67.0
4.0	3.8	65.3	63.3	55.8	52.8	23.0	552.0	67.0	66.2
8.0	5.3	60.8	58.8	49.7	46.7	24.5	546.7	67.0	60.1
10.0	5.9	59.3	57.3	47.8	44.8	25.0	545.4	67.0	58.2
16.0	7.4	56.2	54.2	43.7	40.7	25.0	543.0	67.0	54.1
20.0	8.3	54.8	52.8	41.8	38.8	25.0	542.0	67.0	52.2
25.0	9.3	53.3	51.3	39.8	36.8	24.3	541.2	67.0	50.2
31.25	10.5	51.9	49.9	37.9	34.9	23.6	540.4	67.0	48.3
62.5	14.9	47.4	45.4	31.9	28.9	21.5	538.6	65.6	42.3
100.0	19.1	44.3	42.3	27.8	24.8	20.1	537.6	62.5	38.2
155.0	24.0	41.4	39.4	24.0	21.0	18.8	536.9	59.6	34.4
200.0	27.5	39.8	37.8	21.8	18.8	18.0	536.5	58.0	32.2
250.0	31.0	38.3	36.3	19.8	16.8	17.3	536.3	56.5	30.2
300.0	34.2	37.1	35.1	18.3	15.3	16.8	536.1	55.3	28.7
350.0	37.2	36.1	34.1	16.9	13.9	16.3	535.9	54.3	27.3
400.0	40.0	35.3	33.3	15.8	12.8	15.9	535.8	53.5	26.2
500.0	45.2	33.8	31.8	13.8	10.8	15.2	535.6	52.0	24.2
550.0	47.7	33.2	31.2	13.0	10.0	14.9	-	-	-
600.0	50.0	32.6	30.6	12.2	9.2	14.7	-	-	-
650.0	52.3	32.1	30.1	11.54	8.5	14.4	-	-	-
750.0	56.6	31.2	29.2	10.3	7.3	14.0	-	-	-

VALUES ABOVE 500 MHz ARE FOR ENGINEERING INFORMATION ONLY.



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Rev	Description	Date	Init.
L	UPDATE DESC, LISTINGS, WGT, STDS	08/12/10	JS
M	UPDATE PATENT INFO & STDS	05/27/11	JS
N	UPDATE DESC, PATENT INFO, CABLE WGT	08/09/11	JS
O	UPD DESC; ADD ICEA TO STANDARDS	10/28/11	JS
Date: 03/10/05		Page 2 of 2	
Orig:		Review:	
			Design Number: <b>HT54074</b>

Mohawk reserves the right to change any specification in the interest of product enhancement.  
 This cable complies with the EU-RoHS directive 2002/95/EC (restrictions on hazardous substances) regulations.

## IS20/IS21 Series Camclosure® 2 Camera System INDOOR MINI DOME, SURFACE AND FLUSH MOUNT

### Product Features

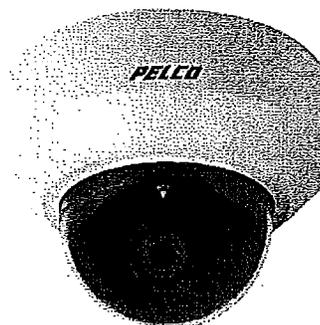
- Fully Integrated Indoor Enclosure with Camera and Lens
- 3 Camera Options
  - Super Dynamic 5 (SD5)™ Day/Night Wide Dynamic Range (WDR)
  - Day/Night High Resolution
  - High Resolution Color
- Varifocal Lens
- Shipped Completely Assembled, Easy to Install
- 24 VAC or 12 VDC Operation, Autosensing
- Manual, 3-Axis (Pan/Tilt/Rotation) Positioning Allows Adjustment for Optimum Camera Rotation and Placement
- Service Connector for Video Output
- Available in Surface or Flush Mount Models with Smoked or Clear Domes
- Auto Image Stabilizer to Compensate for External Vibration

The **IS20/IS21 Series Camclosure® 2 Camera System** integrates a camera and lens package into a small, versatile indoor enclosure that can be mounted directly to, or recessed into, a ceiling or wall. The **IS20/IS21 Series** features a three-axis camera and lens positioning system that is capable of a wide variety of pan and tilt angles.

The **IS20/IS21 Series** offers three high resolution camera options suitable for a variety of indoor environments:

- **Super Dynamic 5 (SD5)™ day/night wide dynamic range (WDR):** Features a high resolution (650 TVL) color camera with auto iris, varifocal lens, and auto back focus. Application examples include environments with difficult lighting that require extremely high sensitivity and dynamic range.
- **True day/night:** Features a high resolution (540 TVL) color camera with auto iris and varifocal lens. Application examples include environments that require color images during the day but use monochrome images at night with or without supplemental IR lighting.
- **Color:** Features a high resolution (540 TVL) color camera with auto iris, simple day/night functions, and varifocal lens. For use in all general-purpose environments.

All cameras in the **IS20/IS21 Series** offer adaptive black stretch (ABS) to provide optimal image quality in dark areas by increasing the visibility in those areas without sacrificing the image quality in brighter areas. In addition, in some cameras the **IS20/IS21 Series**



IS20-DNV10S MODEL

features Super Dynamic 5 (SD5) technology, ensuring the best picture quality even in challenging environments. The Super Dynamic 5 (SD5) day/night WDR camera is equipped with auto back focus (ABF) and intelligent motion detection (i-VMD). The ABF feature automatically adjusts the camera's CCD position when installing or changing from color to black-white mode, saving time during setup and optimizing focus. The i-VMD feature is an intelligent built-in video motion detector that provides more efficient and reliable surveillance, while eliminating the loss of notification in vital scenes. Using advanced motion analytics provides the ability to accurately detect motion within a targeted area. The i-VMD analytics include three behaviors: motion detection, object abandonment/removal, and scene change detection.

The **IS20/IS21 Series** is shipped completely assembled, making installation fast and easy. To surface-mount the unit, remove it from the box, attach it to the mounting surface, and connect video and power. For recessed installations, use the supplied mounting bracket to install the unit inside a ceiling or wall.

The **IS20/IS21 Series** also features a complete line of optional mounting accessories. Optional pendant and wall mounts are available for all models, which allow the cameras to be adapted for a variety of installations. In addition, the flush mount kits allow surface mount cameras to be installed in a ceiling if the installation type should change after the original deployment.

**PELCO**

by Schneider Electric

International Standards  
Organization Registered Firm  
ISO 9001 Quality System  
**ISO 9001**  
CERTIFIED

C3472 / REVISED 1-3-12

# TECHNICAL SPECIFICATIONS

## CAMERA/OPTICS

	IS20/IS21-DWS Series Super Dynamic (SD5) Day/Night Wide Dynamic Range Models	IS20/IS21-DN Series True Day/Night Models	IS20/IS21-CH Series Color Models with Simple Day/Night
Image Sensor	1/3-inch interline transfer CCD	1/3-inch interline transfer CCD	1/3-inch interline transfer CCD
Effective Pixels NTSC PAL	976 (H) x 494 (V) 976 (H) x 582 (V)	768 (H) x 494 (V) 752 (H) x 582 (V)	768 (H) x 494 (V) 752 (H) x 582 (V)
Scanning Area	0.19-inch (H) x 0.14-inch (V) (4.8 x 3.6 mm)	0.19-inch (H) x 0.15-inch (V) (4.9 x 3.7 mm)	0.19-inch (H) x 0.15-inch (V) (4.9 x 3.7 mm)
Scanning System	2:1 interlace	2:1 interlace	2:1 interlace
Scanning Lines NTSC PAL	525 lines 625 lines	525 lines 625 lines	525 lines 625 lines
Scanning Frequency NTSC PAL	Horizontal, 15.734 kHz Vertical, 59.94 Hz  Horizontal, 15.625 kHz Vertical, 50.00 Hz	Horizontal, 15.734 kHz Vertical, 59.94 Hz  Horizontal, 15.625 kHz Vertical, 50.00 Hz	Horizontal, 15.734 kHz Vertical, 59.94 Hz  Horizontal, 15.625 kHz Vertical, 50.00 Hz
Synchronization	Internal LL (phase adjustable power supply synchronization)	Internal	Internal
Horizontal Resolution	650 TV lines, typical (color mode) 700 TV lines or more (B-W mode)	540 TV lines (color mode, at center) 570 TV lines (B-W mode)	540 TV lines (at center)
Minimum Illumination	0.1 lux (color mode) 0.003 lux (sensitivity up x32) 0.01 lux (B-W mode) 0.0003 lux (sensitivity up x32)	0.06 lux (color mode) 0.05 lux (B-W mode)	0.6 lux (color mode) 0.4 lux (B-W mode)
Dynamic Range	54 dB/128X	Adaptive Black Stretch	Adaptive Black Stretch
Day/Night Type	IR filter removal	IR filter removal	Simple
Video Output	1.0 Vp-p, NTSC/PAL composite, 75 ohms, BNC connector	1.0 Vp-p, NTSC/PAL composite, 75 ohms, BNC connector	1.0 Vp-p, NTSC/PAL composite, 75 ohms, BNC connector
White Balance	Auto Tracking White Balance/Automatic White Balance Control	Auto Tracking White Balance/Automatic White Balance Control	Auto Tracking White Balance/Automatic White Balance Control
Signal-to-Noise Ratio	50 dB (equivalent to AGC Off, weight On)	50 dB (equivalent to AGC Off, weight On)	50 dB (equivalent to AGC Off, weight On)
Lens	2X varifocal lens	3.6X varifocal lens	3.6X varifocal lens
Focal Length	3.8 ~ 8.0 mm	2.8 ~ 10.0 mm	2.8 ~ 10.0 mm
F-Number	f/1.4 (WIDE) to f/1.8 (TELE)	f/1.3 (WIDE) to f/3.1 (TELE)	f/1.3 (WIDE) to f/3.1 (TELE)
Focus Range	∞ to 3.9 ft (1.2 m)	∞ to 3.9 ft (1.2 m)	∞ to 3.9 ft (1.2 m)
Angle of View Horizontal Vertical	73.6° wide zoom; 35.6° telephoto zoom 53.4° wide zoom; 26.6° telephoto zoom	100.2° wide zoom; 27.4° telephoto zoom 73.3° wide zoom; 20.3° telephoto zoom	100.2° wide zoom; 27.4° telephoto zoom 73.3° wide zoom; 20.3° telephoto zoom
Adjusting Angle Panning Range Tilting Range Rotation Range	±170° ±75° ±100°	+180° to -140° ±75° ±100°	+180° to -140° ±75° ±100°
Exposure (Shutter) NTSC  PAL	SD5 Off: 1/60, 1/100, 1/250, 1/500, 1/1,000, 1/2,000, 1/4,000, and 1/10,000 SD5 On: 1/60 and 1/100  SD5 Off: 1/50, 1/120, 1/250, 1/500, 1/1,000, 1/2,000, 1/4,000, and 1/10,000 SD5 On: 1/50 and 1/120	Auto Light Control (ALC)   Auto Light Control (ALC)	Auto Light Control (ALC)   Auto Light Control (ALC)

# TECHNICAL SPECIFICATIONS

## GENERAL

Construction	ABS plastic	
Enclosure	Polycarbonate resin	
Bubble	White	
Finish	White	
Weight		
Super Dynamic 5 (SD5) WDR Models	Unit	Shipping
Surface Mount	1.98 lb (0.9 kg)*	5 lb (1.85 kg)*
Flush Mount	3.53 lb (1.6 kg) <sup>†</sup>	10 lb (4.39 kg) <sup>†</sup>
Color and Day/Night Models		
Surface Mount	0.95 lb (0.43 kg)	2 lb (0.69 kg)
Flush Mount	1.57 lb (0.71 kg)	4 lb (1.78 kg)
Multilingual On-Screen Display	English, French, Spanish, German, Portuguese, Russian, Japanese	

## ENVIRONMENTAL

Environment	Indoor
Ambient Temperature	14° to 122°F (-10° to 50°C)
Ambient Humidity	Less than 90%

## ELECTRICAL

Power Source <sup>‡</sup>	Super Dynamic 5 (SD5) WDR Models	
	NTSC	PAL
	24 VAC, 60 Hz	24 VAC, 50 Hz
	12 VDC, 280 mA	12 VDC, 280 mA
Color and Day/Night Models		
	NTSC	PAL
	24 VAC, 60 Hz	24 VAC, 50 Hz
	12 VDC, 220 mA	12 VDC, 220 mA
Power Consumption	Super Dynamic 5 (SD5) WDR Models	
	NTSC	PAL
	3.4 W	3.4 W
Color and Day/Night Models		
	NTSC	PAL
	2.7 W	2.7 W

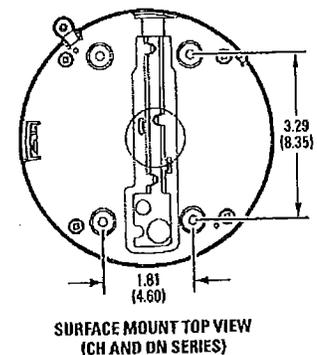
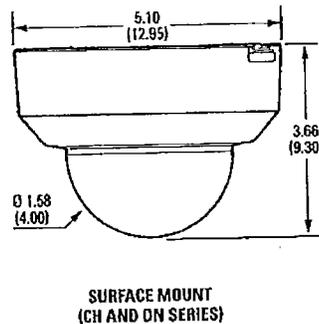
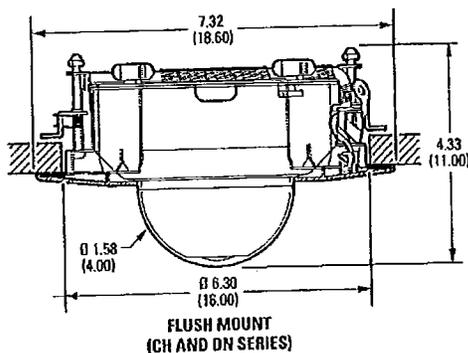
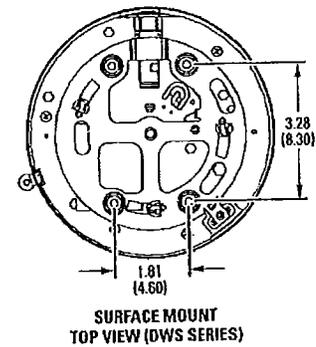
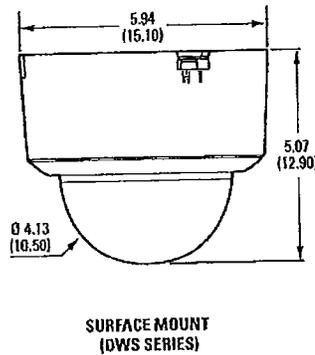
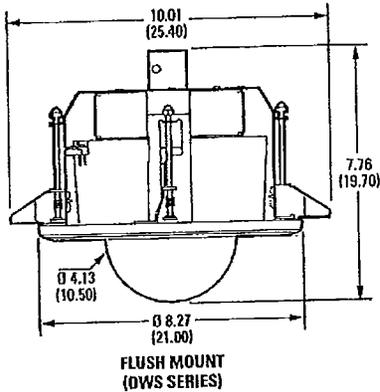
## CERTIFICATIONS/RATINGS/PATENTS

- CE, Class A
- FCC, Class A
- UL/cUL Listed
- C-Tick

\*The total surface mount weight includes 0.22 lb (0.1 kg) for the camera attachment.

<sup>†</sup>The total flush mount weight includes 1.54 lb (0.7 kg) for ceiling mount bracket assembly.

<sup>‡</sup>Power source specifications include ±10% tolerance.



NOTE: VALUES IN PARENTHESES ARE CENTIMETERS; ALL OTHERS ARE INCHES.

# TECHNICAL SPECIFICATIONS

## MODELS

Camera Type	Mount Type	Bubble	NTSC	PAL
Super Dynamic 5 (SD5) Day/Night WDR (DWS Series)	Surface	Clear	IS21-DWSV8S	IS21-DWSV8SX
		Smoke	IS20-DWSV8S	IS20-DWSV8SX
	Flush	Clear	IS21-DWSV8F	IS21-DWSV8FX
		Smoke	IS20-DWSV8F	IS20-DWSV8FX
Day/Night (DN Series)	Surface	Clear	IS21-DNV10S	IS21-DNV10SX
		Smoke	IS20-DNV10S	IS20-DNV10SX
	Flush	Clear	IS21-DNV10F	IS21-DNV10FX
		Smoke	IS20-DNV10F	IS20-DNV10FX
Color (CH Series)	Surface	Clear	IS21-CHV10S	IS21-CHV10SX
		Smoke	IS20-CHV10S	IS20-CHV10SX
	Flush	Clear	IS21-CHV10F	IS21-CHV10FX
		Smoke	IS20-CHV10F	IS20-CHV10FX

## RECOMMENDED MOUNTS

IS20-P	Pendant mount, indoor; compatible with Color and Day/Night models
IS20-WM	Wall mount, indoor; compatible with Color and Day/Night models
IS20DWS-P	Pendant mount, indoor; compatible with Super Dynamic 5 (SD5) day/night WDR models
IS20DWS-WM	Wall mount, indoor; compatible with Super Dynamic 5 (SD5) day/night WDR models
IS20-FK	Flush mount kit; compatible with surface mount Color and Day/Night models
IS20DWS-FK	Flush mount, indoor; compatible with Super Dynamic 5 (SD5) day/night WDR models
IS20-AP	Adapter plate for a 4S electrical box; compatible with all models

## RECOMMENDED POWER SUPPLIES

TF2000	Power supply for one 24 VAC camera, 20 VA
MCS Series	Multiple 24 VAC camera power supply, indoor

## OPTIONAL ACCESSORIES

TW3001PC	Passive twisted wire transmission for use in unshielded twisted pair (UTP) installations
13VD15-50	15 to 50 mm lens; compatible with DWS models only

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**DIGITAL SENTRY® DS-SRV AND DS-SRV-DVD**

**TECHNICAL SPECIFICATIONS**

**SECURITY SYSTEM**

**DIVISION – 28 ELECTRONIC SAFETY AND SECURITY**

**LEVEL 1\_28 20 00 ELECTRONIC SURVEILLANCE**

**LEVEL 2\_28 23 00 VIDEO SURVEILLANCE**

**LEVEL 3\_28 23 19 DIGITAL VIDEO RECORDERS AND ANALOG RECORDING DEVICES**

**1 GENERAL**

- A. Equipment and materials used shall be standard components that are manufactured and available for purchase as standard replacement parts as long as the product is commercially available from the manufacturer.
- B. All manufactured products shall be thoroughly tested and proven in actual use.
- C. All manufactured products shall include, at no additional cost, online support services and availability of a toll-free (U.S. and Canada), 24-hour technical assistance program (TAP) for emergencies.
- D. The manufacturer shall repair or replace without charge, manufactured products proven defective in material or workmanship for the stated warranty period from the date of shipment.

**2 PRODUCTS**

**2.1 IP VIDEO MANAGEMENT SYSTEM**

- A. The IP video management system shall consist of Digital Sentry® NVs version 7 software operating on an optimized Pelco-supplied hardware platform. The NVs software shall consist of base software with individual, non-expiring licenses in the required quantity.
- B. The IP video management system software updates shall be downloadable from a publicly available website.
- C. The IP video management system shall support up to 128 combined IP and analog video streams, with up to 64 direct-attached analog cameras. Analog streams shall be supported using Pelco and/or third-party encoders.
- D. The IP video management system shall provide 280 Mbps throughput for recording of analog and IP video streams, playback and export.
- E. The IP video management system shall support recording of JPEG, MPEG-4 and H.264 IP streams.
- F. The IP video management system shall support Pelco and third-party H.264 Megapixel video streams up to 10 Megapixel resolution with quantities based on a total system of 280 Mbps throughput for recording of analog and IP video streams, playback and export.
- G. The IP video management system shall have a fully open architecture with support for both IP-specific camera as well as cameras with ONVIF compliance.
- H. The IP video management system shall support automatic detection of Pelco IP cameras. Third-party IP cameras shall be automatically detected dependent on IP driver versions and manufacturers specifications.

- I. The IP video management system shall support up to 64 looping analog camera inputs with direct-attached 16-channel encoders; up to four direct-attached units. The direct-attached 16-channel encoders shall support H.264 compression, CIF, 2CIF, and D1 resolutions at maximum 30fps, 16 audio inputs and RS422/485 PTZ control with Pelco P and D protocols.
- J. The IP video management system shall support an unlimited number of systems connected over a network. Each system shall contain two 1GB network ports; one for IP camera/encoder data, and one to connect to a network for client computer access.
- K. The IP video management system shall be viewed, managed, and played back through a single user interface simultaneously with other Digital Sentry digital video management systems through supplied DS Admin or DS ControlPoint Client software.
- L. The IP video management system shall operate on a 2nd Generation Intel® Core™ i7 processor and 8 GB of RAM.
- M. The IP video management system shall utilize a Windows® 7 Ultimate 64-bit operating system.
- N. The IP video management system shall support and have an option for an internal DVD+/-RW.
- O. The IP video management system shall contain two DVI-D ports.
- P. The IP video management system shall allow expansion of IP video channel capacity through a licensing without any hardware modification.
- Q. The IP video management system shall support multiple models of IP cameras and encoders including Pelco cameras and encoders with Sarix technology and multiple third-party manufacturers.
- R. The IP video management system shall support audio recording from Pelco cameras with Sarix technology in addition to third-party manufacturer's audio recording.
- S. The IP video management system shall support recording the internal server with additional storage utilizing SCSI attached Pelco DX8100-HDDI storage.
- T. The IP video management system shall be capable of continuous scheduled alarm/event and motion recording. Pre- and post- alarm recording shall also be available and shall be fully programmable on a per channel basis.
- U. The IP video management system shall allow archival of video data to computers or SAN storage devices over a network connection with the optional DS Archive Utility. The archival schedule shall be either automatic at user-defined intervals or manual and shall be configurable per connected camera.
- V. The IP video management system shall support network health and monitoring utilizing third-party SNMP monitoring tools.
- W. The IP video management system shall indicate system performance and operation status utilizing a variety of HTML reports.
- X. The IP video management system shall display system health monitoring data utilizing front panel LED displays and display popups.

Y. The IP video management system shall optionally support on-board video analytics in quantities of two or four channels with Active Alert software and the DS DataPoint interface. The DS DataPoint interface shall provide video analytics monitoring including tracking and counting objects and people.

Z. The IP video management system shall support Lightweight Directory Access Protocol (LDAP).

AA. System Specifications

- |                          |  |
|--------------------------|--|
| 1. Processor             | 2nd Generation Intel® Core™ i7                         |
| 2. Internal Memory       | 8 GB RAM   |
| 3. Network               | 2 Gigabit Ethernet RJ-45 (1000Base-T)                  |
| 4. User Interface        | DS Control Point                                       |
| 5. Internal Storage      | (JBOD or RAID 5)                                       |
| a. DS-SRV                | 500 GB, 3 TB, 6 TB, 9 TB, 12 TB, or 18 TB              |
| 6. DS-SRV-DVD            | 500 GB, 3 TB, 6 TB, 9 TB, or 12 TB                     |
| 7. Raid Level            | RAID 5 (required optional DS-SRV-RAID controller card) |
| 8. External Storage      | Up to 24 TB JBOD or RAID 5 through DX8100HDDI          |
| 9. System Drives         |  |
| a. DS-SRV                | 6, 3.5-inch hard drive bays, hot swappable             |
| b. DS-SRV-DVD            | 4, 3.5-inch hard drive bays, hot swappable             |
| c. Optical Drive         | DVD±RW and 4 HDD configuration                         |
| 10. PCI-E Slots          | 1 PCI-E x 16 and 1 PCI-E x 4                           |
| 11. Auxiliary Interfaces |  |
| a. USB Ports             | 1 front (USB 2.0), 4 rear (2 USB 3.0; 2 USB 2.0)       |
| 12. Power Input          | 100 to 240 VAC, 50/60 Hz, Autoranging                  |

BB. Environmental Specifications

- |                              |   |
|------------------------------|---|
| 1. Operating Temperature     | 10° to 35°C (50° to 95°F)                               |
| 2. Operating Humidity        | 20% to 80%, noncondensing                               |
| 3. Maximum Humidity Gradient | 10% per hour  |
| 4. Operating Altitude        | -15 to 3,048 m (-50 to 10,000 ft)                       |
| 5. Operating Vibration       | 0.25 G at 3 Hz to 200 Hz at a rate of 0.5 octave/minute |
| 6. Dimensions                | 50.8 x 43.4 x 8.9 cm                                    |

CC. Certifications

1. CE, Class A; meets EN50130-4 standard requirements
2. FCC, Class A
3. UL/cUL Listed
4. CCC
5. KCC

DD. Remote Client Minimum PC Requirements

- |                     |   |
|---------------------|---|
| 1. Processor        | 2nd Generation Intel® Core i7 processor with integrated graphics                    |
| 2. Memory           | 4 GB or higher  |
| 3. Operating System | Windows XP Professional SP2, Windows Vista (32 or 64 bit), Windows 7 (32 or 64 bit) |

EE. Warranty

1. 3 year parts and labor

FF. Pelco Model Numbers

1. DS-SRV-005
2. DS-SRV-030
3. DS-SRV-060
4. DS-SRV-090
5. DS-SRV-120
6. DS-SRV-150
7. DS-SRV-180
8. DS-SRV-005DVD
9. DS-SRV-030DVD
10. DS-SRV-060DVD
11. DS-SRV-090DVD
12. DS-SRV-012DVD

GG. Supplied Accessories

1. Power Cord
2. USB Keyboard and Mouse
3. Bezel key
4. Rack Mount Kit
5. DS-SRV-LIT

1, all cables are 3 prong, molded connector, 1.8 m (6 ft)  
1  
2  
Brackets, rails, and hardware for mounting in a rack  
Documentation, resource and recovery disc

HH. Optional Accessories

1. DS-SW-CAM

Includes eight IP licenses for Pelco and third-party IP cameras. Additional DS-SW-CAM licenses can be purchased separately

II. ENC5416

1. DS-SRV-RAID
2. DS-SRV-SCSI
3. ENC5400-2PORT
4. ENC5400-4PORT
5. KBD5000 Keyboard

Direct-attached analog encoder  
LSI 3Ware 9750-8i RAID controller card  
Adaptec® SCSI Card 29320LPE  
2-port host card (analog) connects 2 ENC5416  
4-port host card (analog) connects 4 ENC5416  
Desktop keyboard with control pods provides lens, iris and focus control; playback and menu navigation; and monitor control of one DS ControlPoint tear-off tab.  
Tear-off tabs are selected through mouse control.

## 2.2 IP VIDEO MANAGEMENT CLIENT

- A. The IP video management system shall provide the capability of running a client application in addition to the video management system.
- B. A client computer with system compatible software shall be the user interface for viewing one or more systems. Live and recorded video and current event video shall be displayed on any client computer using a proper login and password. The client computer shall be able to connect to an unlimited number of recorders simultaneously to display live and recorded video.
- C. Client Software shall be unlicensed and available to be installed on as many clients as required by the user.
- D. Client Software shall be compatible with multiple DVR and NVR platforms to include all Pelco Digital Sentry®, Pelco DX8000/DX8100, and Pelco DX4100, DX4500/DX4600, DX4700/DX4800.
- E. Client Software shall be password controlled such that password functionality set at each connected system will be recognized at the client. Password shall limit the ability to access live or recorded video as well as the ability to export video.

- F. Client Software shall allow multiple monitor support for up to four displays per client workstation, providing virtual matrix functionality.
- G. Client Software shall allow the connection of Pelco KBD5000 keyboard controllers to the client workstation to control PTZ operations and camera call-up.
- H. Client Software shall allow video streams to be selectable from a system tree on an individual camera, individual system, client defined local groups, or from predefined recorder based groups.
- I. Client Software shall be a tab based work environment with the ability to undock the tabs creating a virtual workspace on single or multiple monitor clients.
- J. Client tabs shall include system management, live, and search options. Tabs can be displayed simultaneously on the client.
- K. Systems Tab shall display and sort available systems, connection status, system names, system IP addresses, and custom categories. This tab shall additionally allow:
  - 1. Manual connect and disconnect of systems to the client
  - 2. Virtual systems naming
  - 3. Auto Connecting
  - 4. Adding, deleting, and editing available systems
- L. Live video tab shall have the ability to be created up to four times on a single client workstation providing for video display combinations and simultaneous video streams from as many different systems with consideration for maximum client bandwidth. Live video tab shall provide the following functionalities:
  - 1. Quick Review which shall display recorded video from the last 1, 5, 15, 30, 60 or 90 minutes, providing near instantaneous review of recent events
  - 2. One week graphical display of recorded video
  - 3. Borderless display option
  - 4. Screen layout selection
  - 5. On the fly on-screen display changes including time, date, camera name, frame rate, frame size, alarm display, and border indicators
  - 6. Digital zoom
  - 7. User selectable in-video PTZ control or dashboard style control
  - 8. Drag and drop audio support associating any audio with any video
- M. Search video tab shall allow for the search of one or multiple cameras from one or multiple systems simultaneously. Search tab shall provide the following functionalities:
  - 1. Time and date search
  - 2. Advanced data search with DataPoint interfaced software to Active Alert Intelligent Video and POS
  - 3. Drag and drop audio support to associate audio with any video
  - 4. Video export to any system accessible media including locally to HDD, CD/DVD, Flash USB device or to network storage
  - 5. Video authentication of exported video via check sum verification
- N. Alarm video tab shall allow for alarm pop-up and playback of active alarms. Alarms may be based on motion activity, an external software trigger from Active Alert analytics or a preset data alarm from DS DataPoint. An alarm list pane shall be displayed for playback of queued alarms.

- O. The Client shall incorporate virtual matrix functionality whereby camera sequences may be created on the monitoring workstation with the following functionalities:
1. Each sequence shall have a maximum of 500 cameras
  2. Each camera in the sequence shall have its own individual dwell time, from 1 to 60 seconds
  3. Each entry in a sequence shall have the capacity to trigger PTZ camera presets, patterns, or auxiliaries
  4. The Client shall have the capability to display recorded video with full VCR controls. This feature shall display video from multiple cameras simultaneously. The user shall be able to play video as fast as possible (all images), in real time, or by skipping a selectable number of seconds
  5. The Client shall support simultaneous playback of up to sixteen cameras all synchronized with each other. Non-synchronous playback of multiple cameras shall not be acceptable
  6. The Client shall support tours of multi-camera displays

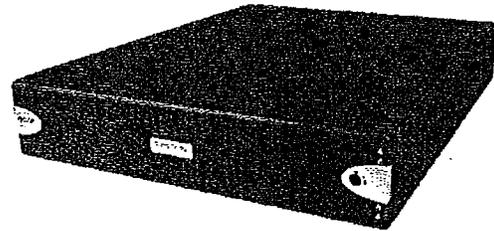
# Digital Sentry® Network Video Recorder

## H.264 CAPABILITY, FULLY SCALABLE HARDWARE/SOFTWARE SOLUTION



### Product Features

- 280 Mbps to support IP and analog video
- Supports up to 128 IP Camera Streams; up to 64 Analog Cameras
- Optimized to Support Pre-Installed DS NVs Software
- Records H.264, MJPEG, and MPEG-4 IP Streams
- Supports Pelco and Third-Party IP Cameras and Network Encoders
- Expandable by Networking an Unlimited Number of Servers and Encoders (Dependent on Available Network Bandwidth)
- Compatible with DS ControlPoint for Simultaneous Monitoring of All DS Series and DX Series Products in a Single Client Interface
- Network Health and Event Monitoring Support Through Simple Network Management Protocol (SNMP) and New Digital Sentry® System Information (DSSI) Utility



- Compatible with the DS Archive Utility
- Recording Rate Configurable per Individual Camera
- Support for DS DataPoint Integration

### OPTIMIZED FOR VIDEO SURVEILLANCE

The new Digital Sentry® network video recorder (NVR) is optimized by Pelco to deliver the essential hardware support for the DS NVs video management software (VMS) without the extra cost or risk of integrating hardware and software.

Boosted by the 2nd Generation Intel® Core™ i7 processor and 8 GB of RAM, Digital Sentry NVR provides an optimal combination of processing power and reliability to meet the demands of HD video recording and playback operations. The system is powered to support up to 128 combined IP and analog video streams, with up to 64 analog cameras supported via the optional ENC5416 direct-attached encoder. Analog streams are also supported using Pelco and third-party encoders.

The new DS NVR delivers total available throughput of 280 Mbps for recording of analog and IP video streams as well as playback and export through the DS ControlPoint client. When determining the maximum number of cameras and the desired frame rate to host on each system, the number of concurrent client connections, the number of streams likely to be viewed in playback on each client, and the bandwidth required to support the client connections must be taken into consideration.

The DS NVR functions as a stand-alone system or as part of a network of servers, monitored from the DS ControlPoint user interface. The system can be deployed solely as a network video recorder, as a digital video recorder (DVR), or as a hybrid NVR.

Two gigabit network ports provide for convenient network architecture planning by allowing one port to be dedicated to IP cameras, while the second network port is used for client connections. Two DVI-D ports provide a convenient connection for high resolution digital monitors for use with HD cameras.

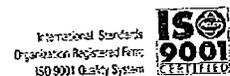
### RELIABILITY

With front-available drives for easy servicing and upgrades, the DS NVR is available with up to 18 TB for models without the optional optical disk drive (ODD), or up to 12 TB for ODD models. The drives are hot-swappable when configured for internal RAID 5 storage with the optional RAID 5 controller card. A minimum of three drives is required for a RAID 5 configuration. External storage is supported through USB attached storage or by using the optional DSSRV-SCSI interface card connected to DX8100HDDI storage of up to 24 TB. The external storage can be configured for JBOD storage of software controlled RAID 5. Internal RAID 5 storage cannot be used in conjunction with external storage.

Front panel LED displays on the DS NVR provide heads-up information on system operation. The LEDs are integrated with the new Digital Sentry System Information (DSSI) utility, providing critical, real-time statistics on system resource utilization, temperature, and throughput status.

**PELCO**

by Schneider Electric



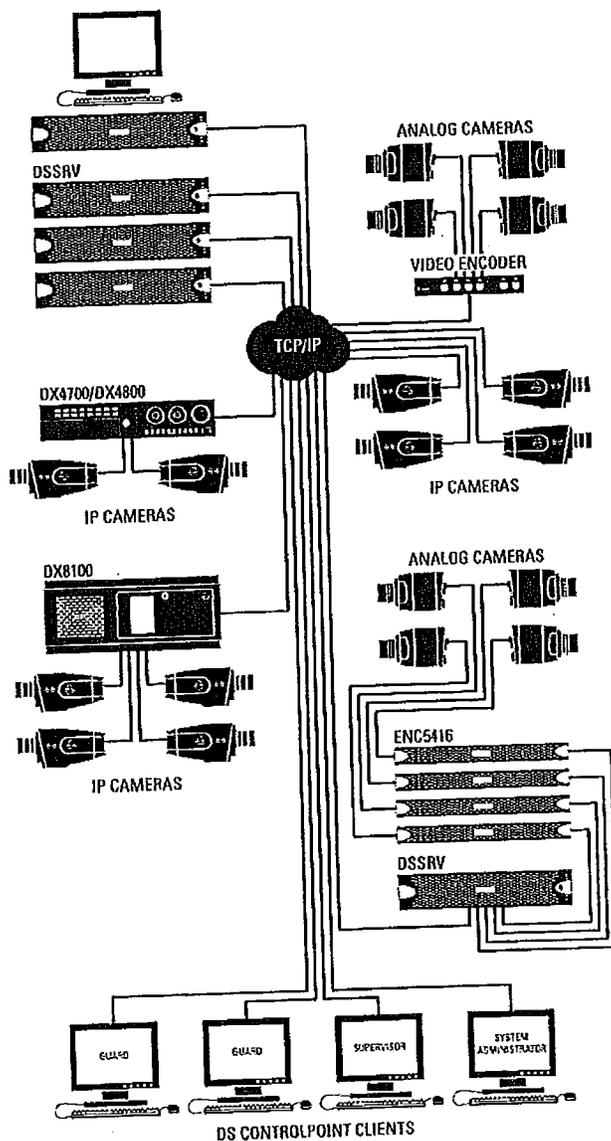
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# TECHNICAL SPECIFICATIONS

## OPEN ARCHITECTURE

The cornerstone of Digital Sentry design, a fully Open Architecture, is provided through ONVIF compliance and support for a large number of IP-specific drivers. Users can choose specific IP cameras or encoders to fit their application.

Eliminate the risk of deferred support that comes with VMS software from one vendor and a general purpose hardware platform from another. Replace it with the assurance of an integrated platform built specifically for the rigors of IP video recording. Make the performance, reliability, and Open Architecture of DS NVs running on DS NVR the core foundation of your video management solution.



**IMPORTANT NOTE. PLEASE READ.** The network implementation is shown as a general representation only and is not intended to show a detailed network topology. Your actual network will differ, requiring changes or perhaps additional network equipment to accommodate the system as illustrated. Please contact your local Pelco Representative to discuss your specific requirements.

# TECHNICAL SPECIFICATIONS

## SYSTEM

Processor	2nd Generation Intel® Core™ i7
Operating System	Windows 7 Ultimate 64-bit SPI
Internal Memory	8 GB RAM
User Interface	DS ControlPoint
Internal Storage (JBOD or RAID 5*)	
DSSRV	500 GB, 3 TB, 6 TB, 9 TB, 12 TB, 15 TB, or 18 TB
DSSRV-DVD	500 GB, 3 TB, 6 TB, 9 TB, or 12 TB
RAID Level	Internal RAID 5 (requires DS-SRV-RAID controller card for hot-swappable drives)†
External Storage	Up to 24 TB JBOD or RAID 5 through DX8100HDDI (requires optional DSSRV-SCSI card)
System Drives	
DSSRV	6, 3.5-inch hard drive bays
DSSRV-DVD	4, 3.5-inch hard drive bays
Optical Drive	DVD±RW with DSSRV-DVD

\*The minimum configuration for an internal RAID 5 is three hard disk drives. One hard disk drive of the RAID 5 configuration is used for parity, reducing net storage capacity by the value of one hard disk drive.

†Requires an optional DSSRV-RAID controller card. The internal RAID 5 requires reimaging of the system with the recovery DVD (supplied). Non-DVD units require reimaging from a bootable 8 GB USB key (not supplied).

## REMOTE CLIENT PC REQUIREMENTS‡

Processor	2nd Generation Intel® Core™ i7 processor with integrated graphics
Memory	4 GB or higher
Operating System	Windows XP Professional SP2, Windows Vista (32 or 64 bit), Windows 7 (32 or 64 bit)

‡While the DS ControlPoint client can be run at the server, doing so can impact performance of the DSSRV. For optimum performance, run DS ControlPoint at a client station.

## NETWORK

Interface	2 Gigabit Ethernet RJ-45 (1000Base-T)
Auxiliary Interfaces	
USB Ports	1 front (USB 2.0) 4 rear (2 USB 3.0; 2 USB 2.0)

## POWER

Power Input	100 to 240 VAC, 50/60 Hz, autoranging		
Power Supply	Internal		
Power Consumption	Operating	Maximum	
	Watts	Amperes	BTU/H
100 VAC / 50 Hz	222.0	2.22	758.0
110 VAC / 50 Hz	224.0	2.02	759.4
110 VAC / 60 Hz	223.0	2.03	761.4
115 VAC / 50 Hz	217.0	1.89	740.8
115 VAC / 60 Hz	215.5	1.87	735.7
220 VAC / 50 Hz	213.0	0.97	727.2
220 VAC / 60 Hz	204.1	0.93	696.8
240 VAC / 50 Hz	211.9	0.88	723.4
240 VAC / 60 Hz	207.6	0.86	708.8

## CONNECTIONS

Video Out	2 DVI-D connectors
Audio Out	1, 1/8-inch audio jack connector

## FRONT PANEL INDICATORS/FUNCTIONS

Buttons	Power
Indicators	
Unit Status	Green, amber, red
Primary Network	Green, amber, red
Secondary Network	Green, amber, red
Software Status	Green, amber, red (based on diagnostics)
Hard Disk Status	Green, red, off (behind bezel)

## ENVIRONMENTAL

Operating Temperature	10° to 35°C (50° to 95°F)
Storage Temperature	-40° to 65°C (-40° to 149°F)
Operating Humidity	20% to 80%, noncondensing
Maximum Humidity Gradient	10% per hour
Operating Altitude	-15 to 3,048 m (-50 to 10,000 ft)
Operating Vibration	0.25 G at 3 Hz to 200 Hz at a rate of 0.5 octave/minute

Note: The temperature at the unit air intake can be significantly higher than room temperature. Temperature is affected by rack configuration, floor layout, air conditioning strategy, and other issues. To prevent performance failure and unit damage, make sure the temperature at the unit is continuously within the operating temperature range.

## PHYSICAL

Dimensions	50.8 x 43.4 x 8.9 cm (20" D x 17.1" W x 3.5" H)	
Weight	Unit	Shipping
DSSRV-005	11.8 kg (26 lb)	20.9 kg (46 lb)
DSSRV-030	11.8 kg (26 lb)	20.9 kg (46 lb)
DSSRV-060	12.7 kg (28 lb)	21.8 kg (48 lb)
DSSRV-090	13.6 kg (30 lb)	22.7 kg (50 lb)
DSSRV-120	14.5 kg (32 lb)	23.6 kg (52 lb)
DSSRV-150	15.4 kg (34 lb)	24.5 kg (54 lb)
DSSRV-180	16.3 kg (36 lb)	25.4 kg (56 lb)
DSSRV-005DVD	12.7 kg (28 lb)	21.8 kg (48 lb)
DSSRV-030DVD	13.6 kg (30 lb)	22.7 kg (50 lb)
DSSRV-060DVD	14.5 kg (32 lb)	23.6 kg (52 lb)
DSSRV-090DVD	15.4 kg (34 lb)	24.5 kg (54 lb)
DSSRV-120DVD	16.3 kg (36 lb)	25.4 kg (56 lb)

# TECHNICAL SPECIFICATIONS

## MODELS

The following table describes the DSSRV and DSSRV-DVD model numbers. For example, the model number for a 12 TB, DSSRV device with a United Kingdom power cord is DSSRV-120-UK. The model number for a 6 TB, DSSRV-DVD device with an Australian power cord is DSSRV-060DVD-AU.

**Note:** Units shipped to China do not include power cords.

Model	Storage	Country Code
<b>NVR Without Optical Disk Drive</b>		
DSSRV-005	500 GB	US = North America EU = Europe UK = United Kingdom CN = China AU = Australia AR = Argentina
DSSRV-030	3 TB	
DSSRV-060	6 TB	
DSSRV-090	9 TB	
DSSRV-120	12 TB	
DSSRV-150	15 TB	
DSSRV-180	18 TB	
<b>NVR With Optical Disk Drive</b>		
DSSRV-005DVD	500 GB	US = North America EU = Europe UK = United Kingdom CN = China AU = Australia AR = Argentina
DSSRV-030DVD	3 TB	
DSSRV-060DVD	6 TB	
DSSRV-090DVD	9 TB	
DSSRV-120DVD	12 TB	

## SUPPLIED ACCESSORIES

Power Cord	1 USA standard, 1 based on country designation; all cables are 3 prong, molded connector, 1.8 m (6 ft) <b>Note:</b> Units shipped to China do not include power cords.
USB Keyboard and Mouse	1
Bezel key	2
Rack Mount Kit	Brackets, rails, and hardware for mounting in a 2 RU rack
DSSRV-LIT	Documentation, resource and recovery discs

## OPTIONAL ACCESSORIES

DS-SW-CAM	DSSRV models include eight licenses for Pelco and third-party IP cameras. Additional DS-SW-CAM licenses can be purchased separately.
ENC5416	Direct-attached analog encoder
ENC5400-2PORT	2-port host card (analog) connects 2 ENC5416
ENC5400-4PORT	4-port host card (analog) connects 4 ENC5416
DSSRV-RAID	LSI 3Ware 9750-8i RAID controller card
DSSRV-SCSI	Adaptec® SCSI Card 29320LPE
KBD5000	Desktop keyboard with control pods provides lens, iris and focus control; playback and menu navigation; and monitor control of one DS ControlPoint tear-off tab. Tear-off tabs are selected through mouse control.

## CERTIFICATIONS/RATINGS

- CE, Class A; meets EN50130-4 standard requirements
- FCC, Class A
- UL/cUL Listed
- C-Tick
- CCC\*
- KCC\*
- S-Mark\*

\*As of the date of this publication, these certifications are pending. Please consult the factory, our Web site [www.pelco.com](http://www.pelco.com), or the most recent B.O.S.S.<sup>®</sup> update for the current status of certifications.

## STANDARDS/ORGANIZATIONS

- Pelco is a member of the MPEG-4 Industry Forum
- Pelco is a member of the Universal Plug and Play (UPnP) Forum, Steering Committee
- Pelco is a member of the Universal Serial Bus (USB) Implementers Forum
- Pelco is a contributor to the Internal Standards for Organization/Electrotechnical Commission (ISO/IEC) Joint Technical Committee 1 (JTC1), "Information Technology," Subcommittee 29, Working Group 11
- Compliance, ISO/IEC 14496 standard (also known as MPEG-4)
- Compliance, International Telecommunication Union (ITU) Recommendation G.711, "Pulse Code Modulation (PCM) of Voice Frequencies"
- Pelco is a member of the ONVIF Open Industry Forum

*Notice: Judgment as to the suitability of the products for users' purposes is solely the users' responsibility. Users should refer to the Operation manuals for cautionary statements regarding user selected options and how they might affect video quality. Users shall determine the suitability of the products for their own intended application, picture rate and picture quality. In the event users intend to use the video for evidentiary purposes in a judicial proceeding or otherwise, users should consult with their attorney regarding any particular requirements for such use.*

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**IES0 SERIES SARIX® INTEGRATED RUGGED ENVIRONMENTAL FIXED DOME CAMERA**  
**SECURITY SYSTEM**

**TECHNICAL SPECIFICATIONS**

**DIVISION – 28 ELECTRONIC SAFETY AND SECURITY**

**LEVEL 1 \_28 20 00 ELECTRONIC SURVEILLANCE**

**LEVEL 2 \_28 23 00 VIDEO SURVEILLANCE**

**LEVEL 3 \_28 23 29 VIDEO SURVEILLANCE REMOTE DEVICES AND SENSORS**

**1 GENERAL**

- A. Equipment and materials used shall be standard components that are manufactured and available for purchase as standard replacement parts as long as the product is commercially available from the manufacturer.
- B. All manufactured products shall be thoroughly tested and proven in actual use.
- C. All manufactured products shall include, at no additional cost, online support services and availability of a toll-free (U.S. and Canada), 24-hour technical assistance program (TAP) for emergencies.
- D. The manufacturer shall repair or replace without charge, manufactured products proven defective in material or workmanship for the stated warranty period from the date of shipment.

**2 PRODUCTS**

**2.1 ENVIRONMENTAL 0.5 MEGAPIXEL NETWORK DOME CAMERA**

- A. The network camera shall offer dual video streams with up to 0.5 megapixel resolution (800 x 600) in progressive scan format.
- B. An alarm input and relay output shall be built in for integration with hard wired external sensors.
- C. The network camera shall provide a removable, local storage medium (Micro SD) for scheduled and event-based recording of images.
- D. The network camera shall be outdoor/environmentally rated. The camera shall also be vandal and tamper resistant.
- E. The network camera shall be capable of firmware upgrades through a network using a software-based device utility.
- F. The network camera shall provide an accessory port for hardware expansion and two-way audio.
- G. The network camera shall offer auto back focus (ABF) functionality through a push button on the camera. ABF parameters shall also be configurable through a standard Web browser interface.
- H. The network camera shall offer a video output port providing an NTSC/PAL analog video output signal for adjusting field of view and focus at the camera.
- I. The network camera shall provide advanced low-light capabilities for day/night models with sensitivity down to 0.12 lux in color and 0.03 lux in black-white.
- J. The network camera shall have a removable IR cut filter mechanism for increased sensitivity in low-light installations. IR cut filter removal shall be configurable through a Web browser.

- K. The network camera shall support two simultaneous, configurable video streams. H.264 and MJPEG compression formats shall be available for primary and secondary streams with selectable Unicast and multicast protocols. The streams shall be configurable in a variety of frame rates and bit rates.
- L. The network camera shall support industry standard Power over Ethernet (PoE) IEEE 802.3af to supply power to the camera over the network. The network camera shall also offer a 24 VAC power input for optional use.
- M. The network camera shall use a standard Web browser interface for remote administration and configuration of camera parameters.
- N. The network camera shall provide a built-in heater. The heater shall operate below 32°F (0°C) with 24 VAC power.
- O. The network camera shall have Camera Sabotage analytics to detect changes in the camera's field of view, including obstruction of the lens (examples include by cloth, spray paint, or a lens cap cover) and unauthorized movement of the camera. Such behaviors shall trigger an alarm.
- P. The network camera shall have a window blanking feature to conceal user-defined privacy areas that cannot be viewed by an operator. The network camera shall support up to four blanked windows. A blanked area shall appear on the screen as a solid gray window.
- Q. The network camera shall support standard IT protocols.
- R. The network camera shall support open architecture best practices with a published API available to third-party network video recording and management systems.
- S. The network camera shall meet or exceed the following design and performance specifications.

1. Camera Specifications	
a. Imaging Device	1/3-inch, effective
b. Imager Type	CMOS
c. Imager Readout	Progressive scan
d. Maximum Resolution	800 x 600
e. Signal-to-Noise Ratio	50 dB
f. Auto Iris Lens Type	DC drive
g. Electronic Shutter Range	1~1/100,000 sec
h. Wide Dynamic Range	60 dB
i. White Balance Range	2,000° to 10,000°K
j. Sensitivity	f/1.2; 2,850°K; SNR >24dB
1. Color (1x/33ms)	0.50 lux
2. Color SENS (15x/500 ms)	0.12 lux
3. Mono (1x/33ms)	0.25 lux
4. Mono SENS (15x/500 ms)	0.03 lux
k. Dome Attenuation	
1. Clear	Zero light loss
2. Smoke	f/1.0 light loss
l. Construction	
1. Body	Cast aluminum
2. Bubble	Polycarbonate plastic
3. Finish	Light gray powder coat
4. Weight (without lens)	3.30 lb (0.50 kg)

5. Available Languages	Chinese, English, French, German, Italian, Portuguese, Russian, Spanish, and Turkish
2. Video Specifications	H.264 in Base profile, MJPEG, and MPEG-4
a. Compression	Up to 2 simultaneous streams, the second stream variable based on the setup of the primary stream
b. Video Streams	Up to 30, 25, 24, 15, 12.5, 12, 10, 8, 7.5, 6, 5, 4, 3, 2, 1 (depending upon coding, resolution, and stream configuration)
c. Frame Rate	800 x 600; 4:3 aspect ratio; 30.0 ips max., 5.8 Mbps bit rate for MJPEG; 25.0 ips max., 2.0 Mbps bit rate H.264; n/a MPEG-4
d. Available Resolutions	640 x 480; 4:3 aspect ratio; 30.0 ips max., 3.7 Mbps bit rate for MJPEG; 30.0 ips max., 1.6 Mbps bit rate H.264; 30 ips max., 1.7 Mbps bit rate for MPEG-4
1. 0.5 Megapixel	320 x 240; 4:3 aspect ratio; 30.0 ips max., 0.9 Mbps bit rate for MJPEG; 30.0 ips max., 0.4 Mbps bit rate H.264; 30 ips max., 0.4 Mbps bit rate for MPEG-4
2. 0.3 Megapixel	640 x 512, 640 x 352, 480 x 368, 480 x 272, 320 x 256, 320 x 176
3. 0.1 Megapixel	TCP/IP, UDP/IP (Unicast, Multicast IGMP), UPnP, DNS, DHCP, RTP, RTSP, NTP, IPv4, SNMPv2c/v3, QoS, HTTP, HTTPS, LDAP (client), SSH, SSL, SMTP, FTP, and 802.1x (EAP)
4. Additional	Up to 20 simultaneous users Unlimited H.264
e. Supported Protocols	Password protected Web browser view and setup Pelco IP camera API
f. Users	Intel® Pentium® 4 microprocessor, 1.6 GHz Microsoft® Windows® XP, Windows Vista®, or Mac OS® X 10.4 (or later)
1. Unicast	512 MB RAM
2. Multicast	100 Mbps or greater
g. Security Access	Minimum of 1024 x 768 resolution, 16- or 32-bit pixel color resolution
h. Software Interface	Internet Explorer® 7.0 (or later); Mozilla® Firefox® 3.5 (or later); Internet Explorer® 8.0 (or later) is recommended for configuring analytics
i. Open IP Integration	Pelco Media Player or QuickTime® 7.6.5 for Microsoft Windows XP, Windows Vista, or QuickTime 7.6.4 for Mac OS X 10.4
j. Minimum PC Requirements	RJ-45 for 100Base-TX, Auto MDI/MDI-X Cat5 cable or better for 100Base-TX 24 VAC or PoE (IEEE802.3af class 3) <7 W
1. Processor	
2. Operating System	
3. Memory	
4. Network Interface Card	
5. Monitor	
6. Web Browser	
7. Media Player	
3. Electrical Specifications	
a. Connectors	
b. Cabling	
c. Input Voltage	
d. Power Consumption	
e. Current Consumption	

<ul style="list-style-type: none"> <li>1. PoE</li> <li>2. 24 VAC</li> </ul>	<p>&lt;140 mA max 510mA nominal without heater operation &lt;2.5 A maximum with heater operation Micro SD 10 VDC max, 5 mA max 0 to 15 VDC max, 75 mA max External 3-connector, 2.5 mm provides NTSC/PAL video output Connects Pelco accessories Bi-directional: half duplex line level/external microphone input, 600 ohm differential, 1 Vp-p max signal level; Compression: G.711 PCM 64 kbit/s</p>
<ul style="list-style-type: none"> <li>f. Local Storage</li> <li>g. Alarm Input</li> <li>h. Alarm Output</li> <li>i. Service Connector</li> <li>j. Accessory Port</li> <li>k. Audio</li> </ul>	
<ul style="list-style-type: none"> <li>4. Environmental Specifications <ul style="list-style-type: none"> <li>a. Operating Temperature</li> <li>b. Thermostat Operation</li> <li>c. Operating Humidity</li> </ul> </li> </ul>	<p>-22° to 122°F (-30° to 50°C); PoE operates below &lt;41°F (&lt;5°C) between 32° to 122°F (0° to 50°C); 24 VAC power is required for heater operation below 32°F (0°C) Heater thermostatically controlled to operate 20% to 80%, noncondensing</p>
<ul style="list-style-type: none"> <li>5. Impact Resistance</li> </ul>	<p>IK10++ per EN62262 (70J)</p>
<ul style="list-style-type: none"> <li>6. Mechanical Specifications <ul style="list-style-type: none"> <li>a. Lens Mount</li> <li>b. Pan/Tilt Adjustment <ul style="list-style-type: none"> <li>1. Pan</li> <li>2. Tilt</li> <li>3. Rotate</li> </ul> </li> </ul> </li> </ul>	<p>CS mount, adjustable</p> <p>360° 160° (10° to 170°) 355°</p>
<ul style="list-style-type: none"> <li>7. Certifications <ul style="list-style-type: none"> <li>a. CE, Class A</li> <li>b. FCC, Class A</li> <li>c. UL/cUL Listed</li> <li>d. C-Tick</li> <li>e. Meets IP66 standards</li> </ul> </li> </ul>	
<ul style="list-style-type: none"> <li>T. Warranty <ul style="list-style-type: none"> <li>1. 36 months, parts and labor</li> </ul> </li> </ul>	
<ul style="list-style-type: none"> <li>U. Pelco Model Numbers <ul style="list-style-type: none"> <li>1. IES0C12-1</li> <li>2. IES0DN12-1</li> <li>3. IES0C-0</li> <li>4. IES0C-1</li> <li>5. IES0DN-0</li> <li>6. IES0DN-1</li> </ul> </li> </ul>	<p>Sarix outdoor fixed dome network camera, 0.5 Mpxl, color, 2.8~12 mm varifocal lens, clear dome</p> <p>Sarix outdoor fixed dome network camera, 0.5 Mpxl, day/night, 2.8~12 mm varifocal lens, clear dome</p> <p>Sarix outdoor fixed dome network camera, 0.5 Mpxl, color, no lens, smoked dome</p> <p>Sarix outdoor fixed dome network camera, 0.5 Mpxl, color, no lens, clear dome</p> <p>Sarix outdoor fixed dome network camera, 0.5 Mpxl, day/night, no lens, smoked dome</p> <p>Sarix outdoor fixed dome network camera, 0.5 Mpxl, day/night, no lens, clear dome</p>

**SPECTRA® IV IP H.264 SERIES NETWORK DOME SYSTEM**

**SECURITY SYSTEM**

**TECHNICAL SPECIFICATIONS**

**DIVISION – 28 ELECTRONIC SAFETY AND SECURITY**

**LEVEL 1\_\_28 20 00 ELECTRONIC SURVEILLANCE**

**LEVEL 2\_\_28 23 00 VIDEO SURVEILLANCE**

**LEVEL 3\_\_28 23 29 VIDEO SURVEILLANCE REMOTE DEVICES AND SENSORS**

**PART 2 – PRODUCTS**

**2.01 GENERAL**

- A. All equipment and materials used shall be standard components that are regularly manufactured and used in the manufacturer's system.
- B. All systems and components shall have been thoroughly tested and proven in actual use.
- C. All systems and components shall be provided with the availability of a toll-free (U.S. and Canada), 24-hour technical assistance program (TAP) from the manufacturer. The TAP shall allow for immediate technical assistance for either the dealer/installer or the end user at no charge for as long as the product is installed.
- D. All systems and components shall be provided with a one-day turnaround repair express and 24-hour parts replacement. The repair and parts express shall be guaranteed by the manufacturer on warranty and nonwarranty items.

**2.02 INDOOR/OUTDOOR CAMERA DOME SYSTEM**

- A. The indoor/outdoor camera dome system shall provide a 100Base-TX network interface for live streaming to a standard Web browser.
- B. The indoor/outdoor camera dome system shall be a discreet camera dome system consisting of a dome drive with a variable speed/high speed pan/tilt drive unit with continuous 360° rotation; 1/4-inch high resolution color, monochrome, or color/black-white CCD camera; motorized zoom lens with optical and digital zoom; auto focus; and an enclosure consisting of a back box, lower dome, and a quick-install mounting.
- C. The indoor/outdoor network positioning camera shall support standard IT protocols.
- D. The indoor/outdoor network positioning camera shall use a standard Web browser interface for remote administration and configuration of camera parameters. The browser interface shall support multi-screen remote monitoring for up to 16 cameras on the same virtual local area network (VLAN) and provide PTZ control including preset and pattern and on-screen display (OSD) for access to camera programming.
- E. The indoor/outdoor network positioning camera shall feature open architecture connectivity for third-party software recording solutions allowing integration into virtually any IP-based system. It is also compatible with Endura and Digital Sentry® video management systems. As with all Pelco IP camera solutions, Spectra® IV IP is Endura Enabled™ to record, manage, configure, and view multiple live streams.
- F. The indoor/outdoor fixed dome system shall meet or exceed the following design and performance specifications.

2.03 ELECTRICAL SPECIFICATIONS

- A. Ports RJ-45 for 100Base-TX  
Auto MDI/MDI-X  
Autonegotiate/Manual setting
- B. Cabling Cat5 cable or better for 100Base-TX
- C. Input Voltage 18 to 32 VAC; 24 VAC nominal  
22 to 27 VDC; 24 VDC nominal
- D. Input Power
  - 1. 24 VAC 23 VA nominal (without heater);  
73 VA nominal (with heater)
  - 2. 24 VDC 0.7 A nominal (without heater);  
3 A nominal (with heater)
- E. Alarm Outputs
  - 1. 35X SE, 27X SE 7
  - 2. 23X SL 1
- F. Auxiliary Outputs
  - 1. 35X SE, 27X SE 2
  - 2. 23X SL 1

2.04 VIDEO SPECIFICATIONS

- A. Video Encoding H.264 base profile, MPEG-4, MJPEG
- B. Video Streams 2, simultaneous
- C. Frame Rate Up to 30, 25, 24, 15, 12.5, 12, 10, 8, 7.5, 6, 5, 4,  
3, 2, 1 (dependent upon coding, resolution, and  
stream configuration)
- D. Available Resolutions

Resolution			MJPEG	H.264 Base Profile	MPEG-4			
W	H	Format	Max IPS	Rec* Bit Rate	Max IPS	Rec* Bit Rate	Max IPS	Rec* Bit Rate
704	480	NTSC	30 ips	5.4 Mbps	30 ips	1.9 Mbps	30 ips	2.0 Mbps
352	240	NTSC	30 ips	1.3 Mbps	30 ips	0.5 Mbps	30 ips	0.6 Mbps
704	576	PAL	25 ips	5.4 Mbps	25 ips	1.9 Mbps	25 ips	2.0 Mbps

\*Recommended

- E. Web User Interface Pelco Device Utility interface for viewing HTTP, requires Java Runtime Environment (JRE™)
- F. Supported Protocols TCP/IP, UDP/IP (Unicast, Multicast IGMP), UPnP, DNS, DHCP, RTP, RTSP, NTP, IPv4, SNMP, QoS, HTTP, HTTPS, LDAP (client), SSH, SSL, SMTP, FTP, mDNS (Bonjour®) and 20 simultaneous using unicast; unlimited using multicast H.264 or MPEG-4 802.1x (EAP)
- G. Users Web browser view and setup, up to 16 cameras
- H. Software Interface Endura® 1.5 or later (MPEG-4) or Endura® 2.0 or later (H.264); Digital Sentry® 4.2 IP bundle 3 or later; DX8100 Series 2.0 or later; and DVR5100 version 1.5.4 or later
- I. Pelco System Integration Pelco IP camera API
- J. Open IP Integration

## K. Minimum Web Browser Requirements

- |                           |  |
|---------------------------|--|
| 1. Processor              | Intel® Pentium® 4 microprocessor 1.6 GHz                           |
| 2. Operating System       | Microsoft® Windows® XP, Windows Vista®, or Mac® OS X 10.4 or later |
| 3. Memory                 | 512 MB   |
| 4. Network Interface Card | 100 Mbps or greater  |
| 5. Web Browser*           | Internet Explorer® 7.0 or later, Mozilla® Firefox® 3.0 or later    |
| 6. Monitor                | 1024 x 768 pixels resolution; 16- or 32-bit pixel color resolution |

\*Internet Explorer is not supported by Mac OS X 10.4.

## 2.05 DOME DRIVE

- A. The variable speed/high speed pan/tilt dome drive unit shall meet or exceed the following design and performance specifications.
- |                                |  |
|--------------------------------|--|
| 1. Pan Speed                   | Variable between 400° per second continuous pan to 0.1° per second   |
| 2. Vertical Tilt               | Unobstructed tilt of +2° to -92°   |
| 3. Manual Control Speed        | Pan speed of 0.1° to 80° per second, and pan at 150° per second in turbo mode. Tilt operation shall range from 0.1° to 40° per second  |
| 4. Automatic Preset Speed      | Pan speed of 400° and a tilt speed of 200° per second  |
| 5. Presets                     |  |
| a. 35X SE, 27X SE (Models)     | 256 positions with a 20-character label available for each position; configurable camera settings, including selectable auto focus modes, iris level, LowLight™ limit, and backlight compensation for each preset; command to copy camera settings from one preset to another; and preset configuration through control keyboard or through dome system on-screen menu |
| b. 23X SL (Model)              | 64 positions with a 20-character label available for each position; configurable camera settings, including selectable auto focus modes, iris level, and backlight compensation for each preset; command to copy camera settings from one preset to another; and preset programming through control keyboard or through dome system on-screen menu                     |
| 6. Preset Accuracy             | ± 0.1°   |
| 7. Proportional Pan/Tilt Speed | Speed decreases in proportion to the increasing depth of zoom  |
| 8. Automatic Power Up          |  |
| a. 35X SE, 27X SE (Models)     | User-selectable to the mode of operation; the dome will resume when power is cycled, including an automatic return to position or function before power outage   |

- |                                |  |
|--------------------------------|--|
| 9. Zones                       | 8 zones with up to 20-character labeling for each, with the ability to blank the video in the zone   |
| 10. Motor Drive                | Cogged belt with 0.9° stepper motor  |
| 11. Motor Operating Mode       | Microstep to 0.015° steps  |
| 12. Motor                      | Continuous duty and variable speed, operating at 18 to 32 VAC, 24 VAC nominal  |
| 13. Limit Stops                | Configurable for manual panning, auto/random scanning, and frame scanning  |
| a. 35X SE, 27X SE (Models)     |  |
| 14. Inner Liner                | Rotating black ABS liner inside a sealed lower dome  |
| 15. Alarm Inputs               | Ability to control 7 alarm inputs  |
| a. 35X SE, 27X SE (Models)     |  |
| b. 23X SL (Model)              | Ability to control 1 alarm input   |
| 16. Alarm Outputs              | Ability to control 1 auxiliary Form C relay output and 1 open collector auxiliary output   |
| a. 35X SE, 27X SE (Models)     |  |
| b. 23X SL (Model)              | Ability to control 1 auxiliary Form C relay output   |
| 17. Alarm Output Configuration | Auxiliary outputs can be alternately configured to operate on alarm  |
| 18. Alarm Action               | Individually configured for 3 priority levels, initiating a stored pattern or going to a preassigned preset position   |
| 19. Resume after Alarm         | After completion of alarm, dome returns to previously configured state or its previous position  |
| 20. Window Blanking            | 8, four-sided user-defined shapes, each side with different lengths; window blanking setting to turn off at user-defined zoom ratio; window blanking set to opaque gray or translucent smear; blank all video above user-defined tilt angle; blank all video below user-defined tilt angle |
| a. 35X SE, 27X SE (Models)     |  |
| b. 23X SL (Model)              | 4, four-sided user-defined shape, each side with different lengths; window blanking setting to turn off at user-defined zoom ratio; window blanking set to opaque gray or translucent smear; blank all video above user-defined tilt angle; blank all video below user-defined tilt angle  |
| 21. Patterns                   | 8 user-defined configurable patterns including pan/tilt/zoom and preset functions, and pattern configuration through control keyboard or through dome system on-screen menu  |
| a. 35X SE, 27X SE (Models)     |  |
| b. 23X SL (Model)              | 1 user-defined configurable pattern including pan/tilt/zoom and preset functions, and pattern configuration through control keyboard or through dome system on-screen menu   |
| 22. Pattern Length             | User-defined length based on dome memory   |
| 23. Internal Clock             | Internal system clock, user configurable for 12- or 24-hour day format and mm/dd/yy or dd/mm/yy calendar format  |

- |                                    |  |
|------------------------------------|--|
| 24. Scheduler                      | Internal scheduling system for configuration presets, patterns, window blanks, alarms, and auxiliary functions based on internal clock settings  |
| 25. Autosensing                    | Automatically sense and respond to protocol utilized for controlling the unit whether Coaxitron® or RS-422 Pelco P or Pelco D protocols  |
| 26. Menu System                    | Built-in setup of configurable functions and multiple languages including English, French, Italian, Spanish, Portuguese, German, Russian, Turkish, Polish, and Czech   |
| 27. Auto Flip                      | Rotates dome 180° at bottom of tilt travel   |
| 28. Password Protection            | Configurable settings with optional password protection  |
| 29. Clear                          | Clear individual, grouped, or all configured settings  |
| 30. Freeze Frame                   | Freeze current scene of video during preset movement   |
| 31. Display Setup                  | User-definable locations of all labels and displays and user-selectable time duration of each display  |
| 32. Azimuth/Elevation/Zoom         | On-screen display of pan/tilt locations and zoom ratio   |
| 33. Compass Display                | On-screen display of compass heading and user-definable compass setup  |
| 34. Camera Title Overlay           | 20 user-definable characters on the screen camera title display  |
| 35. Video Output Level             | User-selectable for normal or high output levels to compensate for long video wire runs  |
| 36. Dome Drive Compatibility       | All dome drives are compatible with all back box configurations  |
| 37. RJ-45 Jack                     | Contains a plug-in jack on the dome drive for control and setup of the unit, the uploading of new operating code and language file updates, and is compatible with personal computers                            |
| 38. Remote Data Port Compatibility | Ability to set up and control unit, and upload new operating code and language file updates through the easily accessible optional remote data port; remote data port is also compatible with personal computers |
| 39. Power Consumption              | Maximum 70 VA  |

B. The high resolution CCD camera shall meet or exceed the following design and performance specifications.

**Color/Black-White Optic System (35X)**

- |                     |                                  |
|---------------------|----------------------------------|
| 1. Image Sensor     | 1/4-inch EXview HAD™ CCD         |
| 2. Scanning System  | Interlace/Progressive selectable |
| 3. Effective Pixels |                                  |
| a. NTSC             | 768 x 494                        |
| b. PAL              | 752 x 582                        |

- |   |   |
|---|---|
| 4. Horizontal Resolution                    | >540 TVL  |
| a. NTSC                                     | >540 TVL  |
| b. PAL                                      |   |
| 5. Lens                                     | f/1.4 (focal length, 3.4~119 mm; 35X optical zoom, 12X digital zoom)  |
| 6. Configurable Zoom Speeds                 | 3.2, 4.6, or 6.6 seconds  |
| 7. Horizontal Angle of View                 | 55.8° at 3.4 mm wide zoom, 1.7° at 119 mm telephoto zoom  |
| 8. Focus                                    | Automatic with manual override  |
| 9. Sensitivity at 35 IRE                    |   |
| a. NTSC/EIA                                 | 0.55 lux at 1/60 sec (color)<br>0.018 lux at 1/2 sec (color)<br>0.00018 lux at 1/2 sec (B-W)  |
| b. PAL/CCIR                                 | 0.45 lux at 1/50 sec (color)<br>0.015 lux at 1/1.5 sec (color)<br>0.00015 lux at 1/1.5 sec (B-W)  |
| 10. Synchronization System                  | Internal/AC line lock phase adjustable through remote control, V-sync<br>Automatic with manual override   |
| 11. White Balance                           |   |
| 12. Shutter Speed                           |   |
| a. NTSC                                     | 1/2~1/30,000  |
| b. PAL                                      | 1/1.5~1/30,000  |
| 13. Iris Control                            | Automatic with manual override  |
| 14. Gain Control                            | Automatic/ off  |
| 15. Video Output                            | 1 Vp-p, 75 ohms   |
| 16. Video Signal-to-Noise                   | >50 dB  |
| 17. Type of Lighting                        | Menu selection of indoor or outdoor lighting for optimum camera performance   |
| 18. Wide Dynamic Range                      | 128X  |
| 19. Motion Detection                        | User-definable motion detection settings for each preset scene, can activate auxiliary outputs, and contains three sensitivity levels per zone              |
| 20. Electronic Image Stabilization          | Electronic compensation for external vibration sources that cause image blurring; user selectable for 2 frequency ranges, 5 Hz (3~7 Hz) and 10 Hz (8~12 Hz) |
| 21. Image Enhancement                       | Electronic improvement of sharpness of objects, lines or text in high contrast areas  |
| <b>Color/Black-White Optic System (27X)</b> |   |
| 1. Image Sensor                             | 1/4-inch EXview HAD™ CCD  |
| 2. Scanning System                          | Interface/Progressive selectable  |
| 3. Effective Pixels                         |   |
| a. NTSC                                     | 768 x 494   |
| b. PAL                                      | 752 x 582   |
| 4. Horizontal Resolution                    |   |
| a. NTSC                                     | >540 TVL  |
| b. PAL                                      | >540 TVL  |
| 5. Lens                                     | f/1.4 (focal length, 3.4~91.8 mm; 27X optical zoom, 12X digital zoom)   |
| 6. Configurable Zoom Speeds                 | 3.2, 4.6, or 6.6 seconds  |
| 7. Horizontal Angle of View                 | 55.8° at 3.4 mm wide zoom, 2.3° at 91.8 mm telephoto zoom   |

8. Focus	Automatic with manual override
9. Sensitivity at 35 IRE	
a. NTSC/EIA	0.55 lux at 1/60 sec (color) 0.018 lux at 1/2 sec (color) 0.00018 lux at 1/2 sec (B-W)
b. PAL/CCIR	0.45 lux at 1/50 sec (color) 0.015 lux at 1/1.5 sec (color) 0.00015 lux at 1/1.5 sec (B-W)
10. Synchronization System	Internal/AC line lock phase adjustable through remote control, V-sync
11. White Balance	Automatic with manual override
12. Shutter Speed	
a. NTSC	1/2~1/30,000
b. PAL	1/1.5~1/30,000
13. Iris Control	Automatic with manual override
14. Gain Control	Automatic/ off
15. Video Output	1 Vp-p, 75 ohms
16. Video Signal-to-Noise	>50 dB
17. Type of Lighting	Menu selection of indoor or outdoor lighting for optimum camera performance
18. Wide Dynamic Range	128X
19. Motion Detection	User-definable motion detection settings for each preset scene, can activate auxiliary outputs, and contains three sensitivity levels per zone

#### Color/Black-White Optic System (23X)

1. Image Sensor	1/4-Inch EXview HAD™ CCD
2. Scanning System	2:1 interlace
3. Effective Pixels	
a. NTSC	768 x 494
b. PAL	752 x 582
4. Horizontal Resolution	>540 TVL
a. NTSC/PAL	f/1.6 (focal length, 3.6~82.8 mm; 23X optical zoom, 12X digital zoom)
5. Lens	2.9, 4.2, or 5.8 seconds
6. Configurable Zoom Speeds	54° at 3.6 mm wide zoom, 2.5° at 82.8 mm telephoto zoom
7. Horizontal Angle of View	Automatic with manual override
8. Focus	
9. Sensitivity at 35 IRE	
a. NTSC/EIA	0.65 lux at 1/60 sec (color) 0.15 lux at 1/60 sec (B-W)
b. PAL/CCIR	0.55 lux at 1/50 sec (color) 0.12 lux at 1/50 sec (B-W)
10. Synchronization System	Internal/AC line lock phase adjustable through remote control, V-sync
11. White Balance	Automatic with manual override
12. Shutter Speed	
a. NTSC	1/2~1/30,000
b. PAL	1/1.5~1/30,000
13. Iris Control	Automatic with manual override
14. Gain Control	Automatic/ off
15. Video Output	1 Vp-p, 75 ohms

16. Video Signal-to-Noise >50 dB

## 2.06 BACK BOX AND LOWER DOME

A. The back box and lower dome shall meet or exceed the following design and performance specifications.

### Pendant, Environmental (35X SE, 27X SL, 23X SL)

- |                             |  |
|-----------------------------|--|
| 1. Connection to Dome Drive | Quick, positive mechanical and electrical disconnect without the use of any tools  |
| 2. Trap Door                | Easy access trap door that allows complete access to the installation wiring, providing complete separation of the wiring from the dome drive mechanics when closed  |
| 3. Terminal Strips          | Removable terminal strips with screw-type terminals for use with 22-14 gauge wire  |
| 4. Auxiliary Connections    | 1 Form-C relay output up to 40 VAC or 40 VDC at 2 A maximum 1 open-collector output up to 32 VDC at 150 mA maximum   |
| 5. Alarm Inputs             | 7 alarm inputs   |
| a. 35X SE, 27X SE (Models)  | 1 alarm input  |
| b. 23X SL (Model)           |  |
| 6. Installation             | Quick-mount wall, corner, pole, parapet, or ceiling adapter  |
| 7. Cable Entry              | Through a 1.5-inch NPT fitting   |
| 8. Environmental Features   | Factory-installed heaters, blowers, and sun shroud   |
| 9. Operating Temperatures   | Maximum temperature range of -60° to 140°F (-51° to 60°C) for two hours and a continuous operating range of -50° to 122°F (-45° to 50°C)   |
| 10. Memory                  | Built-in memory storage of camera and location-specific dome settings such as presets and patterns; if new dome drive is installed in back box, all settings will automatically download into new dome drive |
| 11. Color                   | Gray, baked-on enamel powder coat  |
| 12. Construction            | Aluminum   |
| 13. Lower Dome Material     | Acrylic, optically clear, with no distortion in any portion of the dome up to +2° above the horizon  |
| 14. Dome Color              | Clear and smoked versions  |
| 15. Trim Ring Connection    | 2 screws   |
| 16. Safety Cable            | Plastic tether   |

### Pendant, Standard (35X SE, 27X SE, 23X SL)

- |                             |   |
|-----------------------------|---|
| 1. Connection to Dome Drive | Quick, positive mechanical and electrical disconnect without the use of any tools   |
| 2. Trap Door                | Easy access trap door that allows complete access to the installation wiring, providing complete separation of the wiring from the dome drive mechanics when closed |
| 3. Terminal Strips          | Removable terminal strips with screw-type terminals for use with 22-14 gauge wire   |

4. Auxiliary Connections	1 Form-C relay output up to 40 VAC or 40 VDC at 2 A maximum, 1 open-collector output up to 32 VDC at 150 mA maximum
5. Alarm Inputs	7 alarm inputs
a. 35X SE, 27X SE (Models)	1 alarm input
b. 23X SL (Model)	Quick-mount wall, corner, pole, parapet, or ceiling adapter
6. Installation	Through a 1.5-inch NPT fitting
7. Cable Entry	Maximum temperature range to 113°F (45°C) for two hours, and a continuous operating range of 25° to 95°F (-4° to 35°C)
8. Operating Temperatures	Built-in memory storage of camera and location-specific dome settings such as presets and patterns; if new dome drive is installed in back box, all settings will automatically download into new dome drive
9. Memory	Gray or black, baked-on enamel powder coat
10. Colors	Aluminum
11. Construction	Acrylic, optically clear with no distortion in any portion of the dome up to +2° above the horizontal
12. Lower Dome Material	Clear, smoked, chrome, and gold versions
13. Dome Color	2 screws
14. Trim Ring Connection	Plastic tether
15. Safety Cable	
<b>In-Ceiling, Environmental (35X SE, 27X SE, 23X SL)</b>	
1. Connection to Dome Drive	Quick, positive mechanical and electrical disconnect without the use of any tools
2. Trap Door	Easy access trap door that allows complete access to the installation wiring, providing complete separation of the wiring from the dome drive mechanics when closed
3. Terminal Strips	Removable terminal strips with screw-type terminals for use with 22-14 gauge wire
4. Auxiliary Connections	1 Form-C relay output up to 40 VAC or 40 VDC at 2 A maximum, 1 open-collector output up to 32 VDC at 150 mA maximum
5. Alarm Inputs	7 alarm inputs
a. 35X SE, 27X SE (Models)	1 alarm input
b. 23X SL (Model)	Quick-mount spring clips
6. Installation	Through a 0.75-inch conduit hole
7. Cable Entry	Factory-installed heaters and blowers
8. Environmental Features	Maximum temperature range of -60° to 140°F (-51° to 60°C) for two hours, and a continuous operating range of -50° to 122°F (-45° to 50°C)
9. Operating Temperatures	Built-in memory storage of camera and location-specific dome settings such as presets and patterns; if new dome drive is installed in back box, all settings will automatically download into new dome drive
10. Memory	Black, baked-on enamel powder coat
11. Color	Aluminum
12. Construction	

- |                          |   |
|--------------------------|---|
| 13. Lower Dome Material  | Acrylic, optically clear, with no distortion in any portion of the dome up to +2° above the horizon |
| 14. Dome Color           | Clear and smoked versions   |
| 15. Trim Ring Connection | 2 screws  |
| 16. Safety Cable         | Plastic tether  |

**In-Ceiling, Interior (35X SE, 27X SE, 23X SL)**

- |                             |  |
|-----------------------------|--|
| 1. Connection to Dome Drive | Quick, positive mechanical and electrical disconnect without the use of any tools  |
| 2. Trap Door                | Easy access trap door that allows complete access to the installation wiring, providing complete separation of the wiring from the dome drive mechanics when closed  |
| 3. Terminal Strips          | Removable terminal strips with screw-type terminals for use with 22-14 gauge wire  |
| 4. Auxiliary Connections    | 1 Form-C relay output up to 40 VAC or 40 VDC at 2 A maximum, 1 open-collector output up to 32 VDC at 150 mA maximum  |
| 5. Alarm Inputs             |  |
| a. 35X SE, 27X SE (Models)  | 7 alarm inputs   |
| b. 23X SL (Model)           | 1 alarm input  |
| 6. Installation             | Quick-mount spring clips   |
| 7. Cable Entry              | Through a 0.75-inch conduit hole   |
| 8. Operating Temperatures   | Maximum temperature range of 32° to 122°F (0° to 50°C)   |
| 9. Memory                   | Built-in memory storage of camera and location-specific dome settings such as presets and patterns; if new dome drive is installed in back box, all settings will automatically download into new dome drive |
| 10. Color                   | Black back box with baked-on enamel powder coat; white trim ring   |
| 11. Construction            | Aluminum   |
| 12. Lower Dome Material     | Acrylic, optically clear with no distortion in any portion of the dome up to +2° above the horizon   |
| 13. Dome Color              | Clear, smoked, chrome, and gold versions   |
| 14. Trim Ring Connection    | Snaps in place   |
| 15. Safety Cable            | Plastic tether   |

**Heavy-Duty In-Ceiling, Interior (35X SE, 27X SE)**

- |                             |   |
|-----------------------------|---|
| 1. Connection to Dome Drive | Quick, positive mechanical and electrical disconnect without the use of any tools   |
| 2. Trap Door                | Easy-access trap door that allows complete access to the installation wiring, providing complete separation of the wiring from the dome drive mechanics |
| 3. Terminal Strips          | Removable terminal strips with screw-type terminals for use with 22-14 gauge wire   |
| 4. Auxiliary Connections    | 1 Form-C relay output up to 40 VAC or 40 VDC at 2 A maximum, 1 open-collector output up to 32 VDC at 150 mA maximum                                     |
| 5. Alarm Inputs             | 7 alarm inputs  |
| 6. Installation             | Quick-mount spring clips  |
| 7. Cable Entry              | Through a 0.75-inch conduit hole  |

8. Operating Temperatures	Maximum temperature range of 32° to 122°F (0° to 50°C)
9. Memory	Built-in memory storage of camera and location-specific dome settings such as presets and patterns. If new dome drive is installed in back box, all settings to download automatically into new dome drive
10. Color	Black, baked-on enamel powder coat
11. Construction	Aluminum, with 0.090-inch thick, clear polycarbonate lower dome and aluminum trim ring
12. Trim Ring Connection	Barrel type key locks
13. Lower Dome Protection	Available with optional stainless steel cage around lower dome. Bars of cage not to interfere with picture at medium to high zoom rates
14. Safety Cable	Plastic tether
<b>Heavy-Duty Pendant, Environmental (35X SE, 27X SE)</b>	
1. Connection to Dome Drive	Quick, positive mechanical and electrical disconnect, without the use of any tools
2. Trap Door	Easy-access trap door that allows complete access to the installation wiring, providing complete separation of the wiring from the dome drive mechanics
3. Terminal Strips	Removable terminal strips with screw-type terminals for use with 22-14 gauge wire
4. Auxiliary Connections	1 Form-C relay output up to 40 VAC or 40 VDC at 2 A maximum, 1 open-collector output up to 32 VDC at 150 mA maximum
5. Alarm Inputs	7 alarm inputs
6. Installation	Quick-mount wall, corner, pole, parapet, or ceiling adapter
7. Cable Entry	Through a 1.5-inch NPT fitting
8. Environmental Features	Factory-installed heaters, blowers, and sun shroud
9. Operating Temperatures	Maximum temperature range of -60° to 140°F (-51° to 60°C) for two hours, and a continuous operating range of -50° to 122°F (-45° to 50°C) continuous operation
10. Memory	Built-in memory storage of camera and location-specific dome settings such as presets and patterns. If new dome drive is installed in back box, all settings to download automatically into new dome drive
11. Color	Gray, baked-on enamel powder coat
12. Construction	Tough, dual wall aluminum enclosure with a 0.090-inch thick, clear polycarbonate lower dome and aluminum trim ring
13. Trim Ring Connection	Barrel type key locks
14. Lower Dome Protection	Available with optional stainless steel cage around lower dome. Bars of cage not to interfere with picture at medium to high zoom rates
15. Safety Cable	Plastic tether

**Heavy-Duty Pendant, Standard (35X SE, 27X SE)**

1. Connection to Dome Drive Quick, positive mechanical and electrical disconnect without the use of any tools
2. Trap Door Easy-access trap door that allows complete access to the installation wiring, providing complete separation of the wiring from the dome drive mechanics
3. Terminal Strips Removable terminal strips with screw-type terminals for use with 22-14 gauge wire
4. Auxiliary Connections 1 Form-C relay output up to 40 VAC or 40 VDC at 2 A maximum, 1 open-collector output up to 32 VDC at 150 mA maximum
5. Alarm Inputs 7 alarm inputs
6. Installation Quick-mount wall, corner, pole, parapet, or ceiling adapter
7. Cable Entry Through a 1.5-inch NPT fitting
8. Operating Temperatures Maximum temperature range of 32° to 122°F (0° to 50°C) for two hours, and a continuous operating range of 32° to 122°F (0° to 50°C) continuous operation
9. Memory Built-in memory storage of camera and location-specific dome settings such as presets and patterns. If new dome drive is installed in back box, all setting to download automatically into new dome drive
10. Colors Gray baked-on enamel powder coat
11. Construction Tough, dual wall aluminum enclosure with a 0.090-inch thick, clear polycarbonate lower dome and aluminum trim ring
12. Trim Ring Connection Barrel type key locks
13. Lower Dome Protection Available with optional stainless steel cage around lower dome. Bars of cage not to interfere with picture at medium to high zoom rates
14. Safety Cable Plastic tether

**Stainless Steel Pendant, Environmental (35X SE, 27X SE)**

1. Connection to Dome Drive Quick, positive mechanical and electrical disconnect without the use of any tools
2. Trap Door Easy-access trap door that allows complete access to the installation wiring, provides complete separation of the wiring from the dome drive mechanics
3. Terminal Strips Removable terminal strips with screw-type terminals for use with 22-14 gauge wire
4. Auxiliary Connections 1 Form-C relay output up to 40 VAC or 40 VDC at 2 A maximum, 1 open-collector output up to 32 VDC at 150 mA maximum
5. Alarm Inputs 7 alarm inputs
6. Installation Quick-mount wall, corner, pole, parapet, or ceiling adapter
7. Cable Entry Through a 1.5-inch NPT fitting
8. Environmental Features Factory-installed heaters, blowers, and sun shroud

9. Operating Temperatures	Maximum temperature range of -60° to 140°F (-51° to 60°C) for 2 hours, and a continuous operating range of -50° to 122°F (-45° to 50°C) continuous operation
10. Memory	Built-in memory storage of camera and location-specific dome settings such as presets and patterns. If new dome drive is installed in back box, all settings to download automatically into new dome drive
11. Color	Gray, baked-on enamel powder coat
12. Construction	All 316 stainless steel enclosure, sun shroud, trim ring, and mounting plate
13. Lower Dome Material	Acrylic, optically clear, with no distortion in any portion of the dome up to +2° above the horizon
14. Dome Color	Clear and smoked versions
15. Trim Ring Connection	2 screws
16. Safety Cable	Plastic tether

## 2.07 DOME SYSTEM DIMENSIONS

A. Diameter of Bubble, All Models	Maximum of 5.90 inches (14.99 cm)
B. Pendant, Environmental	10.60 inches (26.92 cm) overall length (including dome) by 8.60 inches (21.84 cm) diameter
C. Pendant, Standard	10.60 inches (26.92 cm) overall length (including dome) by 8.60 inches (21.84 cm) diameter
D. In-Ceiling, Environmental	4.40 inches (11.18 cm) above ceiling, lower dome 4.30 inches (10.92 cm) below ceiling, 8.60 inches (21.84 cm) diameter
E. In-Ceiling, Interior	5.20 inches (13.21 cm) above ceiling, 3.50 inches (8.89 cm) below ceiling, 8.20 inches (20.8 cm) diameter
F. Heavy-Duty In-Ceiling, Interior	5.25 inches (13.34 cm) above ceiling, 3.25 inches (8.25 cm) below ceiling, 9.75 inches (24.77 cm) diameter
G. Heavy-Duty Pendant, Environmental	10.10 inches (25.65 cm) overall length (including dome) by 9.70 inches (24.70 cm) diameter
H. Heavy-Duty Pendant, Standard	10.10 inches (25.65 cm) overall length (including dome) by 9.70 inches (24.70 cm) diameter
I. Stainless Steel Pendant, Environmental	10.90 inches (27.69 cm) overall length (including dome) by 8.52 inches (21.64 cm) diameter

## 2.08 MANUFACTURER'S WARRANTY

- A. Repair or replacement of defective parts for a period of three years from the date of shipment, including continuous motion modes.

## 2.09 CERTIFICATIONS AND RATINGS

- A. CE, Class B
- B. FCC, Class B
- C. UL/cUL Listed
- D. C-Tick
- E. Meets the following standards:
  1. NEMA Type 4X, IP66 when installed properly (BB4E-F-E, BB4E-PB, BB4E-PG, BB4E-PG-E, BB4EHD-PG, BB4EHD-PG-E, and BB4E-PSG-E)
  2. NEMA Type 1, IP40 (BB4E-F and BB4EHD-F)

## 2.10 MODELS

- A. The discreet camera dome system shall be the Pelco Spectra® IV IP H.264 Series.

## Color/Black-White Dome System (35X)

Type	Back Box	Model	Dome			
1. In-Ceiling, Indoor	Black	SD4E35-F0	Smoked			
		SD4E35-F1	Clear			
		SD4E35-F2	Chrome			
		SD4E35-F3	Gold			
2. In-Ceiling, Environmental	Black	SD4E35-F-E0	Smoked			
		SD4E35-F-E1	Clear			
		SD4E35-F-E2	Chrome			
		SD4E35-F-E3	Gold			
3. Pendant, Standard	Black	SD4E35-PB-0	Smoked			
		SD4E35-PB-1	Clear			
		SD4E35-PB-2	Chrome			
		SD4E35-PB-3	Gold			
4. Pendant, Standard	Lt. Gray	SD4E35-PG-0	Smoked			
		SD4E35-PG-1	Clear			
		SD4E35-PG-2	Chrome			
		SD4E35-PG-3	Gold			
5. Pendant, Environmental	Lt. Gray	SD4E35-PG-E0	Smoked			
		SD4E35-PG-E1	Clear			
6. Heavy-Duty In-Ceiling	Lt. Gray	a. Without Cage	SD4E35-HF0 SD4E35-HF1	Smoked Clear		
		b. With Cage	SD4E35-HCF0 SD4E35-HCF1	Smoked Clear		
		7. Heavy-Duty Pendant, Standard	Lt. Gray	a. Without Cage	SD4E35-HP0 SD4E35-HP1	Smoked Clear
				b. With Cage	SD4E35-HCP0 SD4E35-HCP1	Smoked Clear

8.	Heavy-Duty Pendant, Environmental	Lt. Gray	SD4E35-HPE0 SD4E35-HPE1	Smoked Clear
	a. Without Cage		SD4E35-HCPE0 SD4E35-HCPE1	Smoked Clear
	b. With Cage			
9.	Stainless Steel Pendant, Environmental	Lt. Gray	SD4E35-PSGE0 SD4E35-PSGE1	Smoked Clear

**Color/Black-White Dome System (27X)**

	<u>Type</u>	<u>Back Box</u>	<u>Model</u>	<u>Dome</u>
1.	In-Ceiling, Indoor	Black	SD4E27-F0 SD4E27-F1 SD4E27-F2 SD4E27-F3	Smoked Clear Chrome Gold
2.	In-Ceiling, Environmental	Black	SD4E27-F-E0 SD4E27-F-E1	Smoked Clear
3.	Pendant, Standard	Black	SD4E27-PB-0 SD4E27-PB-1 SD4E27-PB-2 SD4E27-PB-3	Smoked Clear Chrome Gold
4.	Pendant, Standard	Lt. Gray	SD4E27-PG-0 SD4E27-PG-1 SD4E27-PG-2 SD4E27-PG-3	Smoked Clear Chrome Gold
5.	Pendant, Environmental	Lt. Gray	SD4E27-PG-E0 SD4E27-PG-E1	Smoked Clear
6.	Heavy-Duty In-Ceiling	Lt. Gray	SD4E27-HF0 SD4E27-HF1	Smoked Clear
	a. Without Cage		SD4E27-HCF0 SD4E27-HCF1	Smoked Clear
	b. With Cage			
7.	Heavy-Duty Pendant, Standard	Lt. Gray	SD4E27-HP0 SD4E27-HP1	Smoked Clear
	a. Without Cage		SD4E27-HCP0 SD4E27-HCP1	Smoked Clear
	b. With Cage			
8.	Heavy-Duty Pendant, Environmental	Lt. Gray	SD4E27-HPE0 SD4E27-HPE1	Smoked Clear
	a. Without Cage		SD4E27-HCPE0 SD4E27-HCPE1	Smoked Clear
	b. With Cage			
9.	Stainless Steel Pendant, Environmental	Lt. Gray	SD4E27-PSGE0 SD4E27-PSGE1	Smoked Clear

**Color/Black-White Dome System (23X)**

	<u>Type</u>	<u>Back Box</u>	<u>Model</u>	<u>Dome</u>
1.	In-Ceiling, Indoor	Black	SD4E23-F0 SD4E23-F1 SD4E23-F2 SD4E23-F3	Smoked Clear Chrome Gold
2.	In-Ceiling, Environmental	Black	SD4E23-F-E0 SD4E23-F-E1 SD4E23-F-E2 SD4E23-F-E3	Smoked Clear Chrome Gold
3.	Pendant, Standard	Black	SD4E23-PB-0 SD4E23-PB-1 SD4E23-PB-2 SD4E23-PB-3	Smoked Clear Chrome Gold
4.	Pendant, Standard	Lt. Gray	SD4E23-PG-0 SD4E23-PG-1 SD4E23-PG-2 SD4E23-PG-3	Smoked Clear Chrome Gold
5.	Pendant, Environmental	Lt. Gray	SD4E23-PG-E0 SD4E23-PG-E1	Smoked Clear

(Revised October 06, 2010)

## PRODUCT SPECIFICATION

# Spectra® IV IP Series Network Dome System

H.264, DIGITAL PAN/TILT/ZOOM HIGH-SPEED DOME

### Product Features

- Ability to Control and Monitor Video Over IP Networks
- Simultaneous IP and Analog Video and Control
- H.264, MPEG-4, and MJPEG Compression
- Supported Protocols: TCP/IP, UDP/IP (Unicast, Multicast IGMP), UPnP, DNS, DHCP, RTP, RTSP, NTP, IPv4, SNMP, QoS, HTTP, HTTPS, LDAP (client), SSH, SSL, SMTP, FTP, and 802.1x (EAP)
- Multilevel Password Protection
- 3 Autofocus, High Resolution Integrated Camera/Optics Packages
- Autotracking
- Horizontal Zone and Window Blanking
- Sensitivity Down to 0.00015 lux PAL (35X Models)
- On-Screen Compass and Tilt Display
- Up to 2 Simultaneous Video Streams
- Web Viewing, up to 16 Cameras Simultaneously
- Open IP Standards

Spectra® IV IP dome systems incorporate all of the features and functions of Spectra IV (including analog), while allowing you to control and monitor video over an IP network from virtually anywhere in the world. Spectra IV IP is a high-speed dome with a built-in 100Base-TX network interface for live streaming to any network application.

Spectra IV IP supports two simultaneous video streams. The two streams can be compressed in MJPEG, MPEG-4, and H.264 formats across several resolution configurations. The streams can be configured in a variety of frame rates, bit rates, and group of pictures (GOP) structures for additional bandwidth administration. The H.264 compression video files are up to 20 times smaller than MJPEG, making network video storage more affordable.

Spectra IV IP allows you to view and control analog video while viewing, recording, and controlling network IP video. There is no need to abandon your current analog infrastructure if you are making the move to network video as a recording solution. Continue to monitor and control video in the analog domain while recording video in the network domain, and let Spectra IV IP's professional compression method do the work for you without the need for external encoders.

Spectra IV IP dome system consists of a back box, a dome drive, and a lower dome. These three system components are interchangeable with other Spectra IV IP dome systems, making retrofitting and application adjustments simple.

Spectra IV IP features several back box options. All back boxes feature built-in memory, which can be used to store camera and



- ONVIF v1.02 Conformant
- Bidirectional Full-Duplex Audio

location-specific dome settings, including labels, presets, patterns, and zones.

All cameras in Spectra IV IP dome drives feature an EXview HAD™ imager for increased sensitivity and LowLight™ technology allowing the cameras to compensate for scenes where minimal light is present. Both the 27X and the 35X cameras feature built-in motion detection and advanced 128X wide dynamic range (WDR) that enables the system to compensate for scenes where dramatic contrasts in lighting are present. The 35X day/night camera's electronic image stabilization digitally reduces blurring of the camera image due to vibration caused by external sources, such as wind and traffic.

### Web Interface

Spectra IV IP uses a standard Web browser for powerful remote setup and administration. Up to 16 cameras can be viewed on the same network.

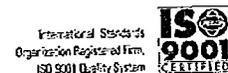
Network protocols such as Secure Sockets Layer (SSL) configuration for security certificates, Secure Shell (SSH) for remote logon, and Quality of Service (QoS) for priority or guarantee data flow can be managed using a Web browser.

### Video Systemization

Spectra IV IP easily connects to Pelco IP and hybrid systems such as Endura® version 1.5 (or later), MPEG-4; Endura version 2.0 (or later), H.264; Digital Sentry® version 7.3 (or later); DX8100 version 2.0 (or later); and DVR5100 version 1.5.4 (or later). The camera also features open architecture connectivity to third-party software. Pelco offers an

**PELCO**

by Schnelder Electric



C3469 / REVISED 3-21-12

# TECHNICAL SPECIFICATIONS

application programming interface (API) and software developer's kit (SDK) for interfacing with Pelco's IP cameras.

## CAMERA/OPTICS

	Day/Night (35X)	Day/Night (27X)	Day/Night (23X)
Signal Format	NTSC (DD4CBW35) PAL (DD4CBW35-X)	NTSC (DD427) PAL (DD427-X)	NTSC (DD423) PAL (DD423-X)
Scanning System	Interface/Progressive selectable	Interface/Progressive selectable	2:1 Interlace
Image Sensor	1/4-inch EXview HAD*	1/4-inch EXview HAD	1/4-inch EXview HAD
Effective Pixels			
NTSC	768 (H) X 494 (V)	768 (H) X 494 (V)	768 (H) X 494 (V)
PAL	752 (H) X 582 (V)	752 (H) X 582 (V)	752 (H) X 582 (V)
Horizontal Resolution			
NTSC	>540 TV Lines	>540 TV Lines	540 TV Lines
PAL	>540 TV Lines	>540 TV Lines	540 TV Lines
Lens	f/1.4 (focal length, 3.4 - 119 mm)	f/1.4 (focal length, 3.4 - 91.8 mm)	f/1.6 (focal length, 3.6 - 82.8 mm)
Zoom	35X optical, 12X digital	27X optical, 12X digital	23X optical, 12X digital
Zoom Speed (optical range)	3.2/4.6/6.6 seconds	3.2/4.6/6.6 seconds	2.9/4.2/5.8 seconds
Horizontal Angle of view	55.8° at 3.4 mm wide zoom; 1.7° at 119 mm telephoto zoom	55.8° at 3.4 mm wide zoom; 2.3° at 91.8 mm telephoto zoom	54° at 3.6 mm wide zoom; 2.5° at 82.8 mm telephoto zoom
Focus	Automatic with manual override	Automatic with manual override	Automatic with manual override
Maximum Sensitivity at 35 IRE NTSC/EIA	0.55 lux at 1/60 sec (color) 0.018 lux at 1/2 sec (color) 0.00018 lux at 1/2 sec (B-W)	0.55 lux at 1/60 sec (color) 0.018 lux at 1/2 sec (color) 0.00018 lux at 1/2 sec (B-W)	0.65 lux at 1/60 sec (color) 0.15 lux at 1/60 sec (B-W)
PAL/CCIR	0.45 lux at 1/50 sec (color) 0.015 lux at 1/1.5 sec (color) 0.00015 lux at 1/1.5 sec (B-W)	0.45 lux at 1/50 sec (color) 0.015 lux at 1/1.5 sec (color) 0.00015 lux at 1/1.5 sec (B-W)	0.55 lux at 1/50 sec (color) 0.12 lux at 1/50 sec (B-W)
Sync System	Internal/AC line lock, phase adjustable using remote control, V-Sync	Internal/AC line lock, phase adjustable using remote control, V-Sync	Internal/AC line lock, phase adjustable using remote control, V-Sync
White Balance	Automatic with manual override	Automatic with manual override	Automatic with manual override
Shutter Speed	Automatic (electronic iris)/Manual	Automatic (electronic iris)/Manual	Automatic (electronic iris)/Manual
NTSC	1/2 - 1/30,000	1/2 - 1/30,000	1/2 - 1/30,000
PAL	1/1.5 - 1/30,000	1/1.5 - 1/30,000	1/1.5 - 1/30,000
Iris Control	Automatic iris control with manual override	Automatic iris control with manual override	Automatic iris control with manual override
Gain Control	Automatic/OFF	Automatic/OFF	Automatic/OFF
Video Output	1 Vp-p, 75 ohms	1 Vp-p, 75 ohms	1 Vp-p, 75 ohms
Video Signal-to-Noise	>50 dB	>50 dB	>50 dB
Wide Dynamic Range	128X	128X	---
Electronic Image Stabilization	Integrated/Selectable	---	---
Image Enhancement	Integrated/Selectable	---	---
Video Motion Detection	Integrated	Integrated	---

# TECHNICAL SPECIFICATIONS

## VIDEO

Video Encoding H.264 base profile, MPEG-4, and MJPEG  
 Video Streams Up to 2 simultaneous streams; the second stream is variable based on the setup of the primary stream  
 Frame Rate Up to 30, 25, 24, 15, 12.5, 12, 10, 8, 7.5, 6, 5, 4, 3, 2, 1 (dependent upon coding, resolution, and stream configuration)

Available Resolutions	Resolution			MJPEG		H.264 Base Profile		MPEG-4	
	Width	Height	Format	Maximum IPS	Recommended Bit Rate	Maximum IPS	Recommended Bit Rate	Maximum IPS	Recommended Bit Rate
	704	480	NTSC	30 ips	5.4 Mbps	30 ips	1.9 Mbps	30 ips	2.0 Mbps
	352	240	NTSC	30 ips	1.3 Mbps	30 ips	0.5 Mbps	30 ips	0.6 Mbps
	704	576	PAL	25 ips	5.4 Mbps	25 ips	1.9 Mbps	25 ips	2.0 Mbps

Supported Protocols TCP/IP, UDP/IP (Unicast, Multicast IGMP), UPnP, DNS, DHCP, RTP, RTSP, NTP, IPv4, SNMP, QoS, HTTP, HTTPS, LDAP (client), SSH, SSL, SMTP, FTP, and 802.1x (EAP)

Users  
 Unicast Up to 20 simultaneous users depending on resolution settings (2 guaranteed streams)  
 Multicast Unlimited users H.264 or MPEG-4  
 Security Access Password protected  
 Software Interface Web browser view and setup, up to 16 cameras  
 Pelco System Integration Endura 1.5 or later (MPEG-4) or Endura 2.0 or later (H.264); Digital Sentry 7.3 IP bundle 3 or later; DX8100 Series 2.0 or later; and DVR5100 version 1.5.4 or later  
 Open API Pelco API or ONVIF v1.02  
 Minimum System Requirements  
 Processor Intel® Pentium® 4 microprocessor, 1.6 GHz  
 Operating System Microsoft® Windows® XP, Windows Vista®, Windows 7, or Mac® OS X 10.4 (or later)  
 Memory 512 MB RAM  
 Network Interface Card 100 megabits (or greater)  
 Monitor Minimum of 1024 x 768 resolution, 16- or 32-bit pixel color resolution  
 Web Browser\* Internet Explorer® 7.0 (or later) or Mozilla® Firefox® 3.0 (or later)  
 Media Player† Pelco Media Player or QuickTime® 7.6.5 for Windows XP, Windows Vista, or QuickTime 7.6.4 for Mac OS X 10.4

\*Internet Explorer is not supported by Mac OS X 10.4.

†This product is not compatible with QuickTime version 7.6.4 for Windows XP or Windows Vista. If you have this version installed on your PC, you will need to upgrade to QuickTime version 7.6.5.

# TECHNICAL SPECIFICATIONS

## DOMEST DRIVE FEATURES

### 35X and 27X Models

- 256 Presets
- $\pm 0.1^\circ$  Preset Accuracy
- Electronic Image Stabilization (35X model)
- Image Enhancement (35X model)
- Multilingual Menus (English, Spanish, Portuguese, Italian, French, German, Russian, Polish, Turkish, and Czech)
- RJ-45 Data Port for Software Update and Setup
- On-Screen Compass, Tilt, and Zoom Display
- Password Protection
- 400°/sec Pan Preset Speed and 200°/sec Tilt Preset Speed
- Rotating Discreet Liner with Sealed Fixed Bubble
- Window Blanking: Up to 8, Four-Sided, User-Defined Shapes
- 8 Zones (configurable in size) Can Be Labeled with up to 20 Characters Each or Set to Output Blank Video
- 7 Alarm Inputs
- 1 Auxiliary (Form C) Relay Output and 1 Open Collector Auxiliary Output (can be alternately configured to operate upon alarm)
- Configurable Locations of Labels and On-Screen Displays
- Action on Alarm: Alarms Can Be Individually Configured for 3 Priority Levels, to Initiate a Stored Pattern, or to Go to an Associated Preset When Received
- Resume After Alarm: Allows the Dome to Return to a Previously Configured State After Alarm Acknowledgement or to its Previous Position Before Alarm
- Multiple Park and Power-Up Action
- Patterns: Up to 8, On-Screen, User-Defined Configurable Patterns; Includes Pan, Tilt, Zoom, and Preset Functions
- Proportional Pan/Tilt: Continually Decreases Pan/Tilt Speeds in Proportion to Depth of Zoom
- Variable Scan Speed: Scan Speed Can Be Configurable Between 1 to 40°/sec
- Pan Motion Allows 0.1° to 150°/sec Pan Speed
- Configurable Limit Stops for Auto/Random/Frame Scan Modes
- Autosensing Protocol (Coaxitron®, RS-422 Pelco P and Pelco D, Sensormatic®, Vicon®); Accepts Other Control Protocols with Optional Translator Card
- Digital Position and Zoom Control and Feedback Through Pelco D Protocol
- Built-in Menu System for Setup of Configurable Functions
- "Auto Flip" Rotates Dome 180° at Bottom of Tilt Travel
- Configurable Zoom Speeds
- Freeze Frame During Presets

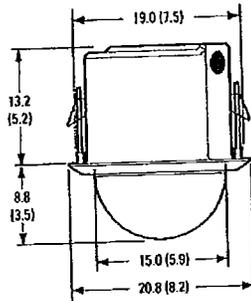
### 23X Models

- 64 Presets
- $\pm 0.1^\circ$  Preset Accuracy
- Multilingual Menus (English, Spanish, Portuguese, Italian, French, German, Russian, Polish, Turkish, and Czech)
- RJ-45 Data Port for Software Update and Setup
- On-Screen Compass, Tilt, and Zoom Display
- Password Protection
- 400°/sec Pan Preset Speed and 200°/sec Tilt Preset Speed
- Rotating Discreet Liner with Sealed Fixed Bubble
- Window Blanking: Up to 4, Four-Sided, User-Defined Shapes
- 8 Zones (configurable in size) Can Be Labeled with up to 20 Characters Each or Set to Output Blank Video
- 1 Alarm Input
- 1 Auxiliary (Form C) Relay Output
- Configurable Locations of Labels and On-Screen Displays
- Patterns: 1 On-Screen, User-Defined Configurable Pattern; Includes Pan, Tilt, Zoom, and Preset Functions
- Proportional Pan/Tilt: Continually Decreases Pan/Tilt Speeds in Proportion to Depth of Zoom
- Variable Scan Speed: Scan Speed Can Be Configurable Between 1 to 40°/sec
- Pan Motion Allows 0.1° to 150°/sec Pan Speed
- Autosensing Protocol (Coaxitron®, RS-422 Pelco P and Pelco D, Sensormatic®, Vicon®); Accepts Other Control Protocols with Optional Translator Card
- Digital Position and Zoom Control and Feedback through Pelco D Protocol
- Built-in Menu System for Setup of Configurable Functions
- "Auto Flip" Rotates Dome 180° at Bottom of Tilt Travel
- Freeze Frame During Presets

# TECHNICAL SPECIFICATIONS

## BACK BOX FEATURES

 NOTE: VALUES IN PARENTHESES ARE INCHES; ALL OTHERS ARE CENTIMETERS.

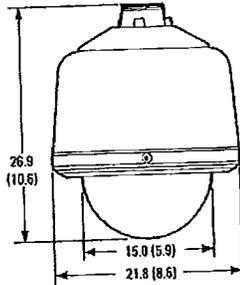


### In-Ceiling (Indoor)

- Built-in Memory Stores Camera/Dome Settings
- Single Back Box for Suspended or Hard Ceiling Applications
- Requires 13.35 cm (5.25 in.) Space Above Ceiling and 8.25 cm (3.25 in.) Below
- Minimum Ceiling Thickness 1.27 cm (0.50 in.); Maximum 4.45 cm (1.75 in.)
- Quick Disconnect to Dome Drive
- Aluminum Construction
- Suitable for Use in Environmental Air Handling Spaces

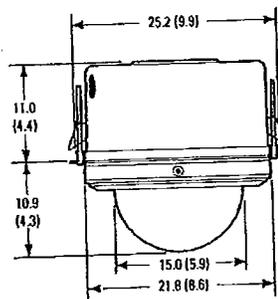


(ENVIRONMENTAL DOME WITH SUN SHROUD SHOWN)



### Standard and Environmental Pendant

- Standard and Environmental Models
- Built-in Memory Stores Camera/Dome Settings
- Standard Pendant Available in Black or Gray Finish; Environmental Pendant Gray Finish Only
- Quick Disconnect to Dome Drive
- Aluminum Construction
- Environmental Model Includes Sun Shield, Fan, and Heater



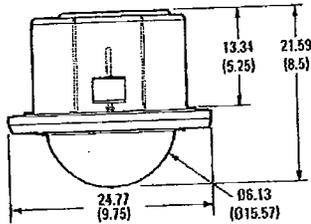
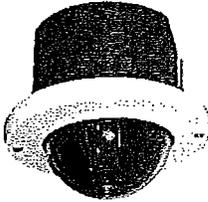
### Environmental In-Ceiling

- Built-in Memory Stores Camera/Dome Settings
- Single Back Box for Hard Ceiling Applications
- Requires 11.18 cm (4.40 in.) Space Above Ceiling and 10.92 cm (4.30 in.) Below
- Includes Heater and Fan
- Minimum Ceiling Thickness 1.27 cm (0.50 in.); Maximum 4.45 cm (1.75 in.)
- Quick Disconnect to Dome Drive
- Aluminum Construction

# TECHNICAL SPECIFICATIONS

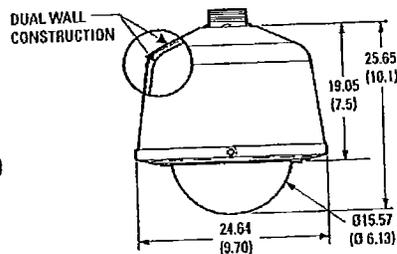
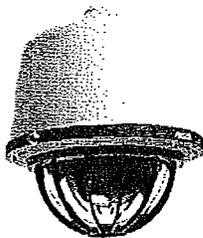
## BACK BOX FEATURES

 NOTE: VALUES IN PARENTHESES ARE INCHES; ALL OTHERS ARE CENTIMETERS.



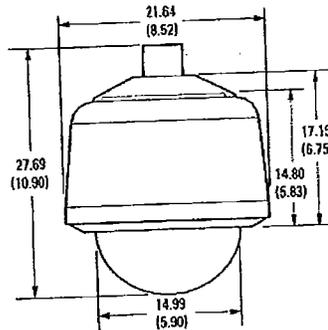
### Heavy-Duty In-Ceiling (Indoor) Available only with 27X and 35X models

- Built-in Memory Stores Camera/Dome Settings
- Single Back Box for Hard Ceiling Applications
- Requires 13.35 cm (5.25 in.) Space Above Ceiling and 8.25 cm (3.25 in.) Below
- Quick Disconnect to Dome Drive
- Reinforced Mounting System
- Heavy-Duty Polycarbonate Dome Bubble
- Aluminum Trim Ring with Barrel-Type Key Locks
- Optional Protective Cage



### Heavy-Duty Pendant Available only with 27X and 35X models

- Standard and Environmental Models
- Built-in Memory Stores Camera/Dome Settings
- Quick Disconnect to Dome Drive
- Dual Wall Construction
- Heavy-Duty Polycarbonate Dome Bubble
- Aluminum Trim Ring with Barrel-Type Key Locks
- Optional Protective Cage
- Environmental Model Includes Sun Shield, Fan, and Heater



### Stainless Steel Pendant Available only with 27X and 35X models

- Standard and Environmental Models
- Built-in Memory Stores Camera/Dome Settings
- Quick Disconnect to Dome Drive
- All Stainless Steel Construction
- Includes Sun Shield, Fan, and Heater

# TECHNICAL SPECIFICATIONS

## GENERAL

<b>Construction</b>	
<b>Back Box</b>	
In-Ceiling	Aluminum
Pendant	Aluminum
Heavy-Duty	Aluminum
Stainless Steel	316 stainless steel; gray, polyurethane powder coated finish
<b>Dome Drive</b>	Aluminum, thermo plastic
<b>Lower Dome</b>	
In-Ceiling	Acrylic
Pendant	Acrylic
Heavy-Duty	Polycarbonate, 0.09-inch thick
Stainless Steel	Acrylic
<b>Light Attenuation</b>	
Smoked	f/0.5 light loss
Clear	Zero light loss
Chrome	f/2.0 light loss
Gold	f/2.0 light loss
<b>Cable Entry (back box)</b>	
In-Ceiling	0.75-inch conduit fitting
Pendant	Through 1.5-inch NPT pendant mount
<b>Weight (approximate)</b>	
	<u>Unit</u> <u>Shipping</u>
In-Ceiling	2.4 kg (5.2 lb)              3.6 kg (8 lb)
Environmental In-Ceiling	2.8 kg (6.2 lb)              4.5 kg (10 lb)
Standard Pendant	3.0 kg (6.5 lb)              5.0 kg (11 lb)
Environmental Pendant	3.5 kg (7.6 lb)              5.4 kg (12 lb)
Heavy-Duty In-Ceiling*	3.3 kg (7.3 lb)              5.4 kg (12 lb)
Heavy-Duty Pendant*	4.5 kg (9.8 lb)              7.3 kg (16 lb)
Heavy-Duty Environmental	
Pendant*	4.5 kg (9.8 lb)              7.3 kg (16 lb)
Stainless Steel	4.6 kg (10.1 lb)              (7.3 kg (16 lb))
<b>Environment</b>	
In-Ceiling	Indoor
Environmental In-Ceiling	Outdoor
Pendant, Standard and	
Environmental	Indoor/outdoor
Heavy-Duty In-Ceiling	Indoor
Heavy-Duty Pendant,	
Standard & Environmental	Indoor/outdoor
Stainless Steel	Indoor/outdoor
<b>Operating Temperature</b>	
In-Ceiling	0° to 50°C (32° to 122°F)
Standard Pendant	(Assumes no wind chill factor)
Maximum	45°C (113°F) absolute maximum; 35°C (95°F) sustained maximum
Minimum	-4°C (25°F) sustained minimum
Environmental In-Ceiling	
and Environmental Pendant	(Assumes no wind chill factor)
Maximum	60°C (140°F) absolute maximum; 50°C (122°F) sustained maximum
Minimum	-51°C (-60°F) absolute minimum; prevents icing at sustained minimum of -45°C (-50°F); de-ices 2.5 mm (0.1 inch) within 3 hours after power-up
Heavy-Duty In-Ceiling	0° to 50°C (32° to 122°F)
Heavy-Duty Pendant	0° to 50°C (32° to 122°F) absolute maximum; 0° to 50°C (32° to 122°F) sustained maximum

<b>Heavy-Duty Environmental Pendant</b>	(Assumes no wind chill factor)
Maximum	60°C (140°F) absolute maximum; 50°C (122°F) sustained maximum
Minimum	-51°C (-60°F) absolute minimum; minimal icing at sustained minimum of -45°C (-50°F); prevents icing at sustained minimum of -40°C (-40°F); de-ices 2.5 mm (0.1 inch) within 3 hours after power-up
<b>Stainless Steel</b>	(Assumes no wind chill factor)
Maximum	60°C (140°F) absolute maximum; 50°C (122°F) sustained maximum
Minimum	-51°C (-60°F) absolute minimum; minimal icing at sustained minimum of -45°C (-50°F); prevents icing at sustained minimum of -40°C (-40°F); de-ices 2.5 mm (0.1 inch) within 3 hours after power-up
<b>Effective Projected Area (EPA)</b>	132.257 sq cm (20.5 sq in.) without mount; 303.225 sq cm (47 sq in.) with IWM Series mount

## MECHANICAL

### (Dome Drive Only)

<b>Pan Movement</b>	360° continuous pan rotation
<b>Vertical Tilt</b>	Unobstructed +2° to -92°
<b>Manual Pan/Tilt Speeds</b>	
Pan	0.1° to 80°/sec manual operation, 150°/sec Turbo
Tilt	0.1° to 40°/sec manual operation
<b>Preset Speeds</b>	
Pan	400°/sec
Tilt	200°/sec
	For variable-speed operation, an appropriate controller is required; (with nonvariable speed control, Spectra IV IP pan/tilt speed is 20°/sec)

## AUDIO

<b>Streaming Input/Output</b>	Bidirectional: full or half duplex Terminal block, analog for microphone and speaker; 600-ohm differential; 1 Vp-p maximum signal level
<b>Compression</b>	G.711 PCM 8 bit, 8 kHz mono at 64 kbit/sec

## ELECTRICAL

<b>Ports</b>	RJ-45 connector for 100Base-TX Auto MDI/MDI-X Autonegotiate/Manual setting
<b>Cabling Type</b>	Cat5 or better for 100Base-TX
<b>Input Voltage</b>	18 to 32 VAC; 24 VAC nominal 22 to 27 VDC; 24 VDC nominal
<b>Input Power</b>	
24 VAC	23 VA nominal (without heater); 73 VA nominal (with heater)
24 VDC	0.7 A nominal (without heater); 3 A nominal (with heater)
<b>Fuse</b>	1.25 A
<b>Auxiliary Outputs</b>	2
<b>Alarm Inputs</b>	7

\*Add 0.90 kg (2 lb) to the total weight if the system includes a lower dome cage.

## RELATED PRODUCTS

### CERTIFICATIONS/RATINGS/PATENTS

- CE, Class B
- FCC, Class B
- UL/cUL Listed
- C-Tick
- U.S. Patents 5,931,432; 6,793,415 B2; 6,802,656 B2; 6,821,222 B2; 7,161,615 B2
- Meets NEMA Type 4X, IP66 when installed properly (BB4E-F-E, BB4E-PB, BB4E-PG, BB4E-PG-E, BB4EHD-PG, BB4EHD-PG-E, and BB4E-PSG-E)
- Meets NEMA Type 1, IP40 (BB4E-F and BB4EHD-F)
- ONVIF 1.02

### OPTIONAL ACCESSORIES

HD-KEYS	1 set of keys for heavy-duty lower dome
IPS-CABLE	Remote monitor cable and software kit consisting of the Spectra IV remote monitor interface cable and necessary software for use with a PC; refer to <a href="http://www.pelco.com">www.pelco.com</a> for a list of compatible devices
IPS-RDPE-2	Remote data port; 24 VAC, wall/pole mount video/data breakout box; allows ground-level control/configuration when used with the IPS-CABLE

### RECOMMENDED MOUNTS

<b>In-Ceiling Domes</b>	
SD5-P	2' x 2' drop ceiling panel, aluminum construction; replaces 2' x 2' ceiling tile
SCA1	Support rails for BB4N-F; for use in ceiling tile applications
<b>Pendant Domes</b>	
BB5-PCA-BK	Pendant conduit adapter, black
BB5-PCA-GY	Pendant conduit adapter, gray
IWM Series	Wall mount, with or without integral 24VAC, 100 VA transformer; black or gray finish; can be adapted for corner, parapet or pole application
MRC4	Ceiling mount, black
PP4348	Parapet roof mount
PP350/PP351	Parapet wall/roof mount
SWM Series	Compact wall mount, black or gray finish; can be adapted for corner or pole applications
IDM4012SS	Stainless steel wall mount with feedthrough capabilities

### RECOMMENDED POWER SUPPLIES

MCS Series	Indoor, 24 VAC power supply
WCS Series	Outdoor, 24 VAC power supply

Refer to individual power supply specifications for more information.

# SYSTEM AND COMPONENT MODELS

## SYSTEM MODEL NUMBERS

Type	Back Box Color	Lower Dome	Cage	35X Day/Night		27X Day/Night		23X Day/Night			
				NTSC	PAL	NTSC	PAL	NTSC	PAL		
In-Ceiling, Indoor	Black	Smoked		SD4E35-F0	SD4E35-F0-X	SD4E27-F0	SD4E27-F0-X	SD4E23-F0	SD4E23-F0-X		
				SD4E35-F1	SD4E35-F1-X	SD4E27-F1	SD4E27-F1-X	SD4E23-F1	SD4E23-F1-X		
				SD4E35-F2	SD4E35-F2-X	SD4E27-F2	SD4E27-F2-X	SD4E23-F2	SD4E23-F2-X		
				SD4E35-F3	SD4E35-F3-X	SD4E27-F3	SD4E27-F3-X	SD4E23-F3	SD4E23-F3-X		
In-Ceiling, Environmental*	Black	Clear		SD4E35-F-E0	SD4E35-F-E0-X	SD4E27-F-E0	SD4E27-F-E0-X	SD4E23-F-E0	SD4E23-F-E0-X		
				SD4E35-F-E1	SD4E35-F-E1-X	SD4E27-F-E1	SD4E27-F-E1-X	SD4E23-F-E1	SD4E23-F-E1-X		
				SD4E35-F-E2	SD4E35-F-E2-X	SD4E27-F-E2	SD4E27-F-E2-X	SD4E23-F-E2	SD4E23-F-E2-X		
				SD4E35-F-E3	SD4E35-F-E3-X	SD4E27-F-E3	SD4E27-F-E3-X	SD4E23-F-E3	SD4E23-F-E3-X		
Pendant, Standard	Black	Smoked		SD4E35-PB-0	SD4E35-PB-0-X	SD4E27-PB-0	SD4E27-PB-0-X	SD4E23-PB-0	SD4E23-PB-0-X		
				SD4E35-PB-1	SD4E35-PB-1-X	SD4E27-PB-1	SD4E27-PB-1-X	SD4E23-PB-1	SD4E23-PB-1-X		
				SD4E35-PB-2	SD4E35-PB-2-X	SD4E27-PB-2	SD4E27-PB-2-X	SD4E23-PB-2	SD4E23-PB-2-X		
				SD4E35-PB-3	SD4E35-PB-3-X	SD4E27-PB-3	SD4E27-PB-3-X	SD4E23-PB-3	SD4E23-PB-3-X		
	Light Gray	Clear			SD4E35-PG-0	SD4E35-PG-0-X	SD4E27-PG-0	SD4E27-PG-0-X	SD4E23-PG-0	SD4E23-PG-0-X	
					SD4E35-PG-1	SD4E35-PG-1-X	SD4E27-PG-1	SD4E27-PG-1-X	SD4E23-PG-1	SD4E23-PG-1-X	
					SD4E35-PG-2	SD4E35-PG-2-X	SD4E27-PG-2	SD4E27-PG-2-X	SD4E23-PG-2	SD4E23-PG-2-X	
					SD4E35-PG-3	SD4E35-PG-3-X	SD4E27-PG-3	SD4E27-PG-3-X	SD4E23-PG-3	SD4E23-PG-3-X	
		Chrome				SD4E35-PG-E0	SD4E35-PG-E0-X	SD4E27-PG-E0	SD4E27-PG-E0-X	SD4E23-PG-E0	SD4E23-PG-E0-X
						SD4E35-PG-E1	SD4E35-PG-E1-X	SD4E27-PG-E1	SD4E27-PG-E1-X	SD4E23-PG-E1	SD4E23-PG-E1-X
						SD4E35-PG-E0	SD4E35-PG-E0-X	SD4E27-PG-E0	SD4E27-PG-E0-X	SD4E23-PG-E0	SD4E23-PG-E0-X
						SD4E35-PG-E1	SD4E35-PG-E1-X	SD4E27-PG-E1	SD4E27-PG-E1-X	SD4E23-PG-E1	SD4E23-PG-E1-X
Pendant, Environmental*	Light Gray	Clear		SD4E35-PG-E0	SD4E35-PG-E0-X	SD4E27-PG-E0	SD4E27-PG-E0-X	SD4E23-PG-E0	SD4E23-PG-E0-X		
				SD4E35-PG-E1	SD4E35-PG-E1-X	SD4E27-PG-E1	SD4E27-PG-E1-X	SD4E23-PG-E1	SD4E23-PG-E1-X		
Heavy-Duty In-Ceiling, Indoor	Light Gray	Smoked	No	SD4E35-HF0	SD4E35-HF0-X	SD4E27-HF0	SD4E27-HF0-X				
			Yes	SD4E35-HCF0	SD4E35-HCF0-X	SD4E27-HCF0	SD4E27-HCF0-X				
		Clear	No	SD4E35-HF1	SD4E35-HF1-X	SD4E27-HF1	SD4E27-HF1-X				
			Yes	SD4E35-HCF1	SD4E35-HCF1-X	SD4E27-HCF1	SD4E27-HCF1-X				
Heavy-Duty Pendant, Indoor		Smoked	No	SD4E35-HP0	SD4E35-HP0-X	SD4E27-HP0	SD4E27-HP0-X				
			Yes	SD4E35-HCP0	SD4E35-HCP0-X	SD4E27-HCP0	SD4E27-HCP0-X				
		Clear	No	SD4E35-HP1	SD4E35-HP1-X	SD4E27-HP1	SD4E27-HP1-X				
			Yes	SD4E35-HCP1	SD4E35-HCP1-X	SD4E27-HCP1	SD4E27-HCP1-X				
Heavy-Duty Pendant, Environmental*	Smoked	No	SD4E35-HPE0	SD4E35-HPE0-X	SD4E27-HPE0	SD4E27-HPE0-X					
		Yes	SD4E35-HCPE0	SD4E35-HCPE0-X	SD4E27-HCPE0	SD4E27-HCPE0-X					
	Clear	No	SD4E35-HPE1	SD4E35-HPE1-X	SD4E27-HPE1	SD4E27-HPE1-X					
		Yes	SD4E35-HCPE1	SD4E35-HCPE1-X	SD4E27-HCPE1	SD4E27-HCPE1-X					
Stainless Steel Pendant, Environmental*	Stainless Steel	Smoked		SD4E35-PSGE0	SD4E35-PSGE0-X	SD4E27-PSGE0	SD4E27-PSGE0-X				
		Clear		SD4E35-PSGE1	SD4E35-PSGE1-X	SD4E27-PSGE1	SD4E27-PSGE1-X				

\*Environmental dome systems include a heater, fan, and sun shield.

# SYSTEM AND COMPONENT MODELS

## COMPONENT MODEL NUMBERS

Back Box		Dome Drive		Lower Dome <sup>1</sup>	
BB4E-F	In-ceiling, black, with back box memory	DD423	Day/Night (NTSC) camera (23X)	LDHQF-0	Smoked, in-ceiling
BB4E-F-E	In-ceiling, black, environmental, with back box memory	DD423-X	Day/Night (PAL) camera (23X)	LDHQF-1	Clear, in-ceiling
BB4E-PB	Pendant mount, black, standard, with back box memory	DD427	Day/Night (NTSC) camera (27X)	LD5F-2	Chrome, in-ceiling
BB4E-PG	Pendant mount, gray, standard, with back box memory	DD427-X	Day/Night (PAL) camera (27X)	LD5F-3	Gold, in-ceiling
BB4E-PG-E*	Pendant mount, gray, environmental, with back box memory	DD4CBW35	Day/Night (NTSC) camera (35X)	LDHQP-0	Smoked, pendant, black
BB4EHD-F	Heavy-duty, in-ceiling, gray, with back box memory	DD4CBW35-X	Day/Night (PAL) camera (35X)	LDHQP-1	Clear, pendant, black
				LD53PB-2	Chrome, pendant, black <sup>2</sup>
BB4EHD-PG	Heavy-duty, pendant, gray, with back box memory			LD53PB-3	Gold, pendant, black <sup>2</sup>
BB4EHD-PG-E*	Heavy-duty, environmental pendant, gray, with back box memory			LD53HDF-1	Clear, in-ceiling, heavy-duty
BB4E-PSG-E*	Stainless steel, environmental pendant, gray 316 SS, with back box memory			LD53HOCF-1	Clear, in-ceiling, heavy-duty with cage
				LD53HDPB-1	Clear, pendant, heavy-duty
				LD53HDCPB-1	Clear, pendant, heavy-duty, with cage
				LD53PSB-0	Smoked, pendant, black trim ring, 316 SS
				LD53PSB-1	Clear, pendant, black trim ring, 316 SS
<b>Note:</b> For environmental applications you must order an environmental back box.					

\*Environmental dome systems include a heater, fan, and sun shield.

<sup>1</sup>Use the pendant lower domes with the environmental in-ceiling and environmental pendant back boxes.

<sup>2</sup>Not recommended for outdoor use due to possible light reflections.

**IMS0-V SERIES SARIX® VANDAL-RESISTANT MINI FIXED DOME CAMERA**

**SECURITY SYSTEM**

**TECHNICAL SPECIFICATIONS**

**DIVISION – 28 ELECTRONIC SAFETY AND SECURITY**

**LEVEL 1 – 28 20 00 ELECTRONIC SURVEILLANCE**

**LEVEL 2 – 28 23 00 VIDEO SURVEILLANCE**

**LEVEL 3 – 28 23 29 VIDEO SURVEILLANCE REMOTE DEVICES AND SENSORS**

**PART 2 – PRODUCTS**

**2.01 GENERAL**

- A. All equipment and materials used shall be standard components that are regularly manufactured and used in the manufacturer's system.
- B. All systems and components shall have been thoroughly tested and proven in actual use.
- C. All systems and components shall be provided with the availability of a toll-free (U.S. and Canada), 24-hour technical assistance program (TAP) from the manufacturer. The TAP shall allow for immediate technical assistance for either the dealer/installer or the end user at no charge for as long as the product is installed.
- D. All systems and components shall be provided with a one-day turnaround repair express and 24-hour parts replacement. The repair and parts express shall be guaranteed by the manufacturer on warranty and nonwarranty items.

**2.02 INDOOR, NETWORK, 0.5 MEGAPIXEL (MPx) STANDARD DEFINITION DIGITAL CAMERA**

- A. The network camera shall offer dual video streams with up to 0.5 MPx resolution (800 x 600) in progressive scan format. Color and day/night models shall be available.
- B. The network camera shall be a compact size with a 3-inch class bubble. It shall also include a compact indoor enclosure and an integrated varifocal 2.8~10 mm lens.
- C. The network camera shall be capable of firmware upgrades through a network using a software-based device utility.
- D. The network camera enclosure shall offer an impact resistance rating of IK10++ per EN62262 (50J). The enclosure shall also be vandal and tamper resistant featuring a tamper-resistant screw that can be opened only with a special tool.
- E. The network camera shall be environmentally rated. The camera shall also be vandal and tamper resistant.
- F. The network camera shall provide an accessory port for hardware expansion.
- G. The network camera shall provide advanced low-light capabilities for day/night models with sensitivity down to 0.12 lux in color and 0.03 lux in black-white (B-W).
- H. The network camera shall have an autofocus lens, which can be activated through a standard Web browser interface.
- I. The network camera (day/night model) shall have a removable IR cut filter mechanism for increased sensitivity in low-light installations. IR cut filter removal shall be configurable through a Web browser.

- J. The network camera shall support two simultaneous, configurable video streams. H.264, MPEG-4, and MJPEG compression formats shall be available for primary and secondary streams with selectable Unicast and Multicast protocols. The streams shall be configurable in a variety of frame rates and bit rates.
- K. The network camera shall support industry standard Power over Ethernet (PoE), IEEE 802.3af to supply power to the camera over the network.
- L. The network camera shall use a standard Web browser interface for remote administration and configuration of camera parameters. The browser interface shall support multiscreen remote monitoring for up to 16 cameras on the same virtual local area network (VLAN).
- M. The network camera shall offer a video output port providing an NTSC/PAL analog video output signal for adjusting the field of view and when focusing the camera.
- N. The network camera shall have a window blanking feature to conceal user-defined privacy areas that cannot be viewed by an operator. The network camera shall support up to four blanked windows. A blanked area shall appear on the screen as a solid gray window.
- O. The network camera shall provide Camera Sabotage analytics to detect changes in the camera's field of view, including obstruction of the lens (examples include by cloth, spray paint, or a lens cap cover) and unauthorized movement of the camera. Such behaviors shall trigger an alarm.
- P. The network camera shall support standard IT protocols.
- Q. The network camera shall support open architecture best practices with a published API available to third-party network video recording and management systems.
- R. The network camera shall meet or exceed the following design and performance specifications.

### 2.03 CAMERA SPECIFICATIONS

A. Imaging Device	1/3-inch, effective
B. Imager Type	CMOS
C. Imager Readout	Progressive scan
D. Maximum Resolution	800 x 600
E. Signal-to-Noise Ratio	50 dB
F. Auto Iris Lens Type	DC drive
G. Electronic Shutter Range	1~1/100,000 sec
H. Wide Dynamic Range	60 dB
I. White Balance Range	2,000° to 10,000°K
J. Sensitivity	f/1.3; 2,850°K; SNR >24dB
1. Color (1x/33ms)	0.50 lux
2. Color SENS (15x/500ms)	0.12 lux
3. Mono (1x/33ms)	0.25 lux
4. Mono SENS (15x/500ms)	0.03 lux
K. Dome Attenuation	Clear dome, zero light loss

L. Construction	
1. Back box	Alodine aluminum
2. Bubble	Polycarbonate plastic
3. Finish	Light gray powder coat
M. Weight	1.4 lb (0.6 kg)
N. Available Languages	Chinese, English, French, German, Italian, Portuguese, Russian, Spanish, and Turkish

## 2.04 VIDEO SPECIFICATIONS

A. Video Encoding	H.264 in Base profile, MPEG-4, and MJPEG
B. Video Streams	Up to 2 simultaneous streams; the second stream is variable based on the setup of the primary stream
C. Frame Rate	Up to 30, 25, 24, 15, 12.5, 12, 10, 8, 7.5, 6, 5, 4, 3, 2, and 1 (dependent upon coding, resolution, and stream configuration)
D. Available Resolutions	
1. 0.5 MPx	800 x 600; 4:3 aspect ratio; 30.0 ips max., 5.8 Mbps bit rate for MJPEG; 25.0 ips max., 2.0 Mbps bit rate for H.264, n/a for MPEG-4
2. 0.3 MPx	640 x 480; 4:3 aspect ratio; 30.0 ips max., 3.7 Mbps bit rate for MJPEG; 30.0 ips max., 1.6 Mbps bit rate for H.264; 30.0 ips max., 1.7 Mbps bit rate for MPEG-4
3. 0.1 MPx	320 x 240; 4:3 aspect ratio; 30.0 ips max., 0.9 Mbps bit rate for MJPEG; 30.0 ips max., 0.4 Mbps bit rate for H.264; 30.0 ips max., 0.4 Mbps bit rate for MPEG-4
4. Additional	640 x 512, 640 x 352, 480 x 368, 480 x 272, 320 x 256, 320 x 176, 4CIF (704 x 489 and 704 x 576), and CIF (352 x 240 and 352 x 288)
E. Supported Protocols	TCP/IP, UDP/IP (Unicast, Multicast IGMP), UPnP, DNS, DHCP, RTP, RTSP, NTP, IPv4, SNMP v2c/v3, QoS, HTTP, HTTPS, LDAP (client), SSH, SSL, SMTP, FTP, mDNS (Bonjour®), and 802.1x (EAP)
F. Users	
1. Unicast	Up to 20 simultaneous users depending on resolution settings (2 guaranteed streams)
2. Multicast	Unlimited H.264
G. Security Access	Password protected
H. Software Interface	Web browser view and setup, up to 16 cameras
I. Pelco System Integration	Endura® 2.0 (or later) or Digital Sentry® 7.1.9 (or later)
J. Open IP Integration	Pelco IP camera API
K. Minimum PC Requirements	
1. Processor	Intel® Pentium® 4 microprocessor, 1.6 GHz
2. Operating System	Microsoft® Windows® XP, Windows Vista®, or Mac OS® X 10.4 (or later)
3. Memory	512 MB RAM
4. Network Interface Card	100 Mbps or greater

- |                  |  |
|------------------|--|
| 5. Monitor       | Minimum of 1024 x 768 resolution, 16- or 32-bit pixel color resolution   |
| 6. Web Browser*  | Internet Explorer® 7.0 (or later);<br>Mozilla® Firefox® 3.5 (or later);<br>Internet Explorer 8.0 (or later) is recommended for configuring analytics |
| 7. Media Player† | Pelco Media Player or QuickTime® 7.6.5 for Microsoft Windows XP, Windows Vista, or QuickTime 7.6.4 for Mac OS X 10.4                                 |

\*Internet Explorer is not supported by Mac OS X 10.4.

†This product is not compatible with QuickTime version 7.6.4 for Windows XP or Windows Vista. If you have this version installed on your PC, you will need to upgrade to QuickTime version 7.6.5.

## 2.05 LENS SPECIFICATIONS

	Aspect Ratio:		
	<u>16:9</u>	<u>4:3</u>	<u>5:4</u>
A. Field of View in Degrees	91	76	73
1. 2.8 mm Horizontal	50	56	58
2. 2.8 mm Vertical	25	21	20
3. 10.0 mm Horizontal	14	16	16
4. 10.0 mm Vertical			

## 2.06 ELECTRICAL SPECIFICATIONS

A. Port	RJ-45 for 100Base-TX; Auto MDI/MDI-X
B. Cable Type	Cat5 cable or better for 100Base-TX
C. Power Input	PoE (IEEE802.3af class 2)
D. Power Consumption*	3.3 W nominal
E. Service Port	External 3-connector, 2.5 mm provides NTSC/PAL video output
F. Accessory Port	Connects Pelco accessories

\*Does not include optional accessories connected to the accessory port.

## 2.07 ENVIRONMENTAL SPECIFICATIONS

A. Operational Temperature	32° to 122°F (0° to 50°C)
C. Operational Humidity	20% to 80%, noncondensing
D. Impact Resistance	IK10++ per EN62262 (50J)
E. Shock and Vibration	Meets EN50155 Category 1, Class B; IEC60068: 2-6 and 2-27

## 2.08 MECHANICAL SPECIFICATIONS

A. Pan/Tilt Adjustment	
1. Pan	355°
2. Tilt	180°
3. Rotate	220°

**2.09 CERTIFICATIONS**

- A. CE, Class A
- B. FCC, Class A
- C. UL/cUL Listed
- D. C-Tick
- E. KCC
- F. Meets NEMA Type 4 and IP66 standards
- G. Patents Pending

\*As of the date of this publication, this certification is pending. Please consult the factory, our Web site at [www.pelco.com](http://www.pelco.com), or the most recent B.O.S.S.® update for the current status of certifications.

**2.10 WARRANTY**

- A. 3 years, parts and labor

**2.11 PELCO MODEL NUMBERS**

- A. IMS0C10-1V Sarix vandal-resistant indoor mini fixed network camera, 0.5 MPx, color, 2.8~10 mm varifocal lens, clear dome
- B. IMS0DN10-1V Sarix vandal-resistant indoor mini fixed dome network camera, 0.5 MPx, day/night, 2.8~10 mm varifocal lens, clear dome

**2.12 OPTIONAL ACCESSORIES**

- A. LDIMVE-0 Smoked bubble
- B. IM-VESM Surface mount ring
- C. IM-VEPM Pendant mount, light gray
- D. WMVE-SR Wall mount light, gray
- E. IM-VECM Corner mount, light gray
- F. IM-VE4S 4S electrical box (deep) adapter plate
- G. ALM-1 External alarm accessory
- H. AUD-1 External audio accessory
- I. POE20U560G Single port PoE injector
- J. PA101 Pole adapter for use with WMVE-SR wall mount

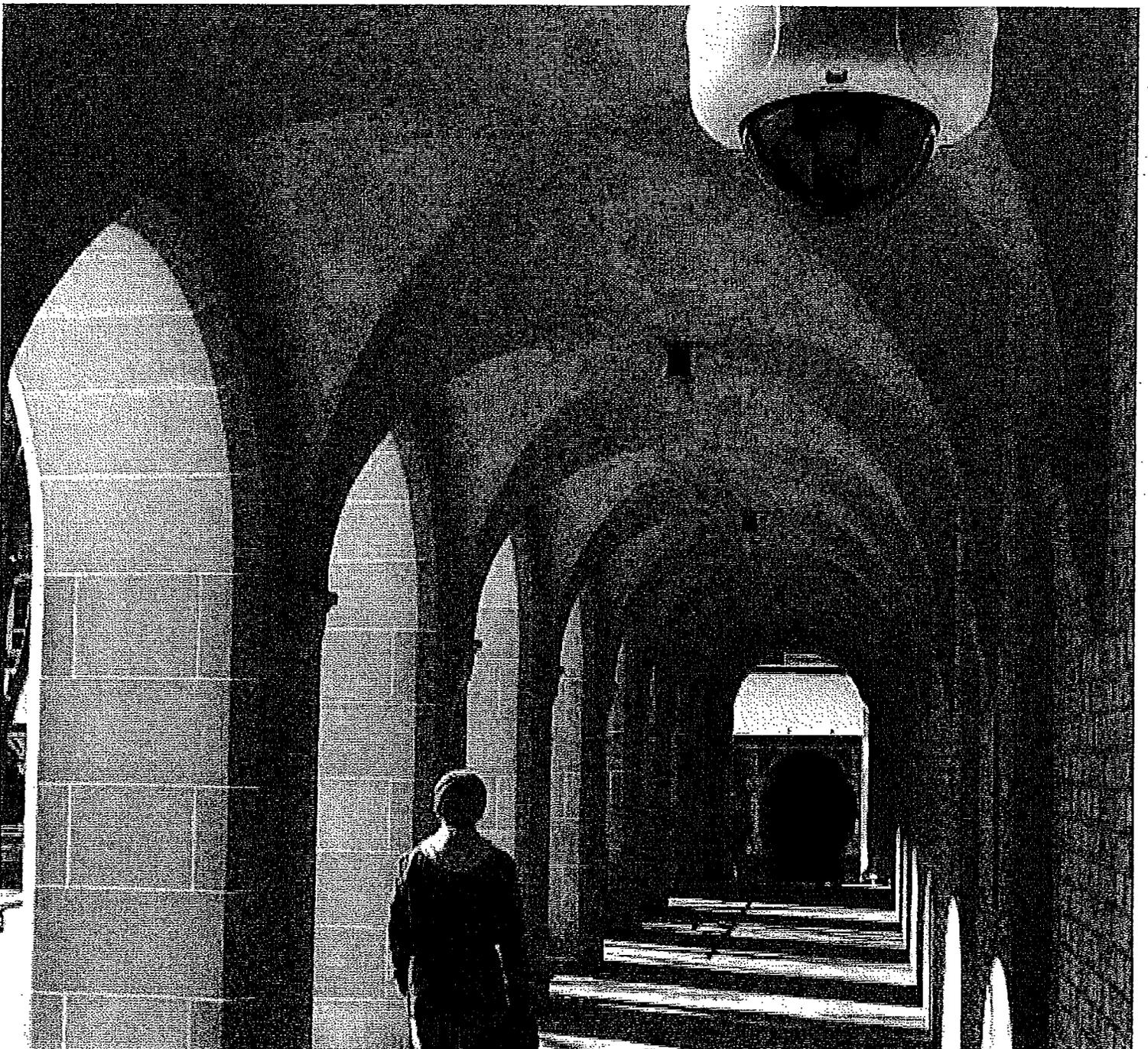
(New April 1, 2011)

**PELCO**

by Schneider Electric

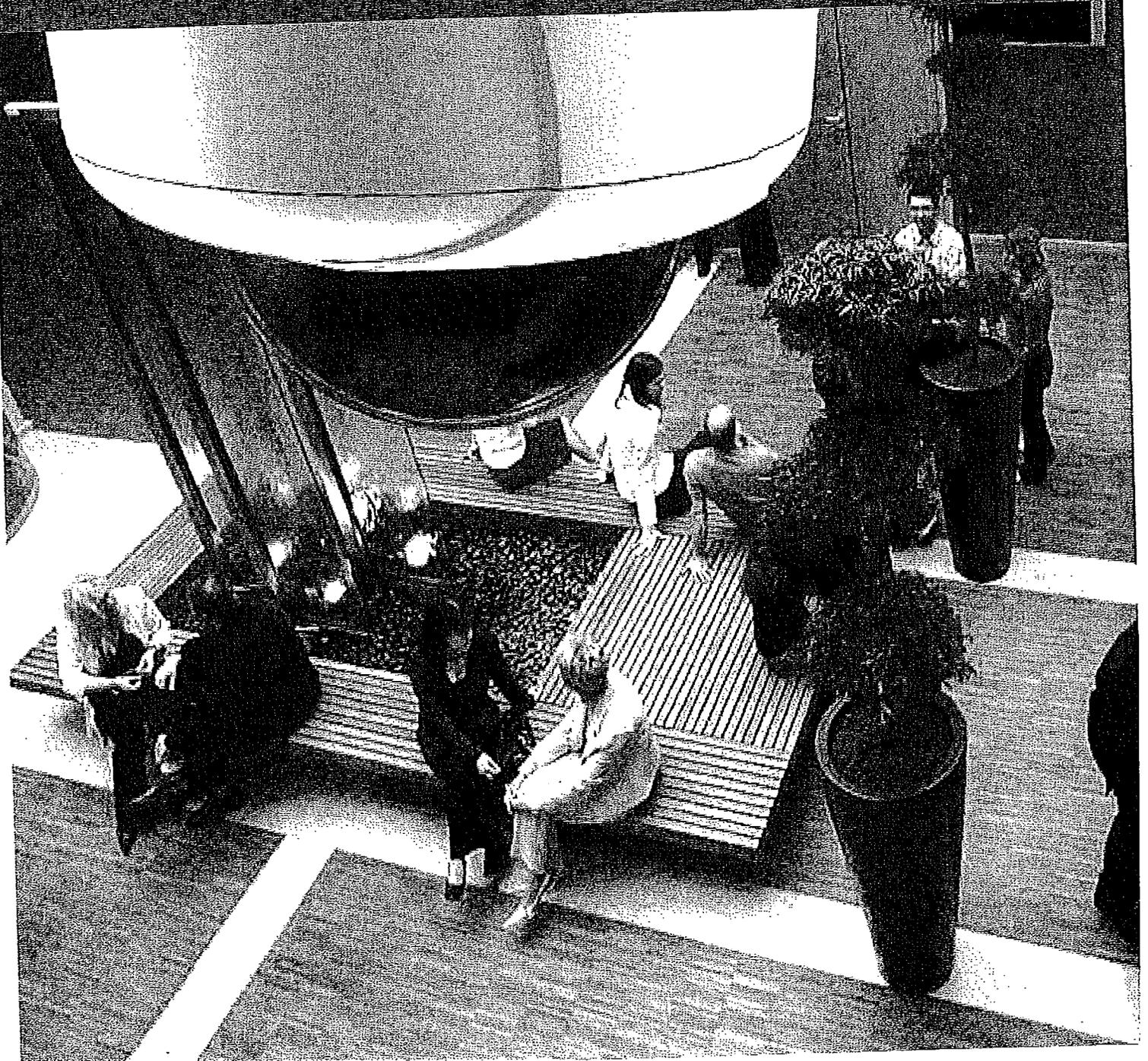
## Sarix® IM Series

Mini Dome Network Camera Systems

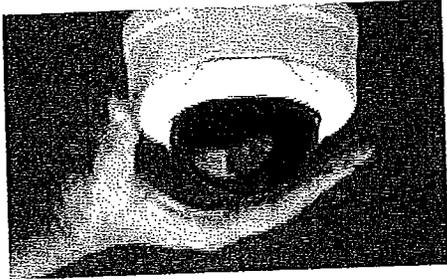


## Cutting Edge Performance. World Class Value.

Sarix technology ushered in a new era for the video security industry by overcoming the limitations security professionals previously experienced with megapixel cameras. Now with the introduction of Sarix IM Series Mini Domes, industry-leading Sarix technology is within reach for any budget. Compact, powerful, and value-driven, the Sarix IM Series is where performance meets value.



# Sarix IM Series Mini Domes



Built upon the three pillars of innovative imaging science, sophisticated industrial design and advanced processing power, Sarix is a truly revolutionary approach to video security. The IM Series packs the most popular features and functionality of Sarix technology into compact and value-driven indoor, outdoor and vandal-resistant dome enclosures.

## Imaging by Sarix

Sarix IM Series cameras set a new standard in imaging performance at a price that works for practically any project budget. These best-in-class cameras are unmatched in their ability to produce consistent color and clear images in low-light conditions.

## Innovative Imaging Science

Featuring both High Definition (HD) resolution and Standard Definition (SD) resolution, Sarix based IM Series Network Cameras deliver greater and more-detailed recognition of objects near or far.

## Low-Light Performance

In the past, megapixel cameras have struggled to produce clear images in low light conditions. Sarix technology overcomes this problem, out performing comparable megapixel cameras in the security industry. Sarix also utilizes digital noise reduction for lower bit rates and significant savings of hard drive space.

## Consistent Color Science

Only Sarix based cameras can deliver such true to life, consistently detailed color. This unique ability allows for precise color reproduction throughout the entire installation and is critical for accurate subject tracking.

## H.264 Compression

Ensuring that users get the most from their system, Sarix IM Series Mini Domes feature the H.264 compression algorithm. H.264 delivers optimized image quality while minimizing bandwidth consumption on the network.



Affordable Solution for Retail and Small Businesses



Ideal for School and Campus Settings



Advanced Technology for Any Environment



Quality and Connectivity for Every Budget

# Powerful. Resilient. Affordable.

## Sarix IM-E Environmental Vandal Mini Domes

The power of Sarix technology is now available in a compact and affordable dome that is tough enough to handle any weather condition. Designed for rain, snow, and the most grueling desert heat, the Sarix IM-E Series delivers advanced technology for any environment. Built to exacting standards, these cameras are fully certified and rated for flawless outdoor performance.

- 1.3 Megapixel (1280 x 1024) or 0.5 Megapixel (800 x 600) Resolution
- Up to 30 Images per Second at 1280 x 720
- Compact Day/Night Camera with 3-Inch Bubble
- Auto Focus Varifocal 2.8-10 mm Megapixel Lens
- Vandal-resistant, Indoor/Outdoor, Environmental
- H.264, MJPEG and MPEG4 (0.5MP cameras only)
- Sensitivity Down to 0.03 lux
- Line-In and Line-Out Audio
- Power over Ethernet (IEEE 802.3af)
- Up to Two Simultaneous Video Streams
- Web Viewing
- Open IP Standards
- Built-in Analytic

Environmental Outdoor Models	Description
Sarix IM10DN10-1E Environmental Mini Dome	Sarix Environmental Indoor/Outdoor Fixed Network Mini Dome Camera; 1.3 Megapixel, Day/Night, 2.8-10mm Varifocal Megapixel Lens, Clear Dome
Sarix IMSOC10-1E Environmental Mini Dome	Sarix Environmental Indoor/Outdoor Fixed Network Mini Dome Camera; 0.5 Megapixel, Color, 2.8-10mm Varifocal Megapixel Lens, Clear Dome
Sarix IMSODN10-1E Environmental Mini Dome	Sarix Environmental Indoor/Outdoor Fixed Network Mini Dome Camera; 0.5 Megapixel, Day/Night, 2.8-10mm Varifocal Megapixel Lens, Clear Dome

## Sarix IM-V Series Vandal-Resistant Mini Domes

Vandals do not stand a chance against the Sarix IM-V Series. These rugged yet affordable fixed mini domes are ideal for corrections facilities, schools, apartment buildings, or any indoor location where video security equipment could be at risk. Featuring Sarix technology, the Sarix IM-V Series delivers remarkable image quality, consistent color reproduction, outstanding low light performance, auto focus, and a built-in camera sabotage analytic.

- 1.3 Megapixel (1280 x 1024) or 0.5 Megapixel (800 x 600) Resolution
- Up to 30 Images per Second at 1280 x 720
- Compact Day/Night Camera with 3-Inch Bubble
- Auto Focus Varifocal 2.8-10 mm Megapixel Lens
- Rugged, Indoor, Vandal-resistant
- H.264, MJPEG and MPEG4 (0.5MP cameras only)
- Sensitivity Down to 0.03 lux
- Line-In and Line-Out Audio, Built-in Microphone
- Power over Ethernet (IEEE 802.3af)
- Up to Two Simultaneous Video Streams
- Web Viewing
- Open IP Standards
- Built-in Analytic

Vandal Indoor Models	Description
Sarix IM10DN10-1V Vandal Mini Dome	Sarix Vandal-Resistant Indoor Fixed Network Mini Dome Camera; 1.3 Megapixel, Day/Night, 2.8-10mm Varifocal Megapixel Lens, Clear Dome
Sarix IMSOC10-1V Vandal Mini Dome	Sarix Vandal-Resistant Indoor Fixed Network Mini Dome Camera; 0.5 Megapixel, Color, 2.8-10mm Varifocal Megapixel Lens, Clear Dome
Sarix IMSODN10-1V Vandal Mini Dome	Sarix Vandal-Resistant Indoor Fixed Network Mini Dome Camera; 0.5 Megapixel, Day/Night, 2.8-10mm Varifocal Megapixel Lens, Clear Dome

## Powerful Image Quality – SD or HD

Sarix IM Series cameras deliver best-in-class imaging science in both High Definition (HD) and Standard Definition (SD) resolution. Because every camera in this product family is available with either 1.3 megapixel or 0.5 megapixel resolution, the IM Series is ideal for a wide range of applications including schools, hospitals, retail stores, corrections facilities, office buildings, and light industrial environments.

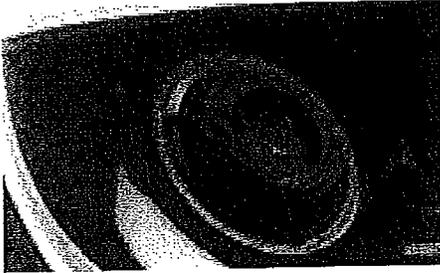


1.3 MP  
1280x1024

0.5 SVGA  
800x600

Sarix IM Series Mini Domes Deliver SD and HD Resolution.

# Sarix IM Series Indoor Mini Dome



The Sarix IM Series packs the most popular features and functionality of Sarix technology into a compact and budget-friendly dome enclosure. All Sarix IM Series cameras also come with the added value of the built-in camera sabotage analytic and free recording software.

The Sarix IM Series is the most affordable way to experience the power of Sarix HD images. Featuring easy one-handed installation, auto focus through the Web and a video setup jack that is accessible with the dome closed, Sarix IM10 Series cameras are as easy to install and configure as they are to use. With both H.264 and MJPEG compression for system flexibility, open IP standards, and Web viewing of up to 16 cameras simultaneously, the Sarix IM Series redefines network mini-dome performance.

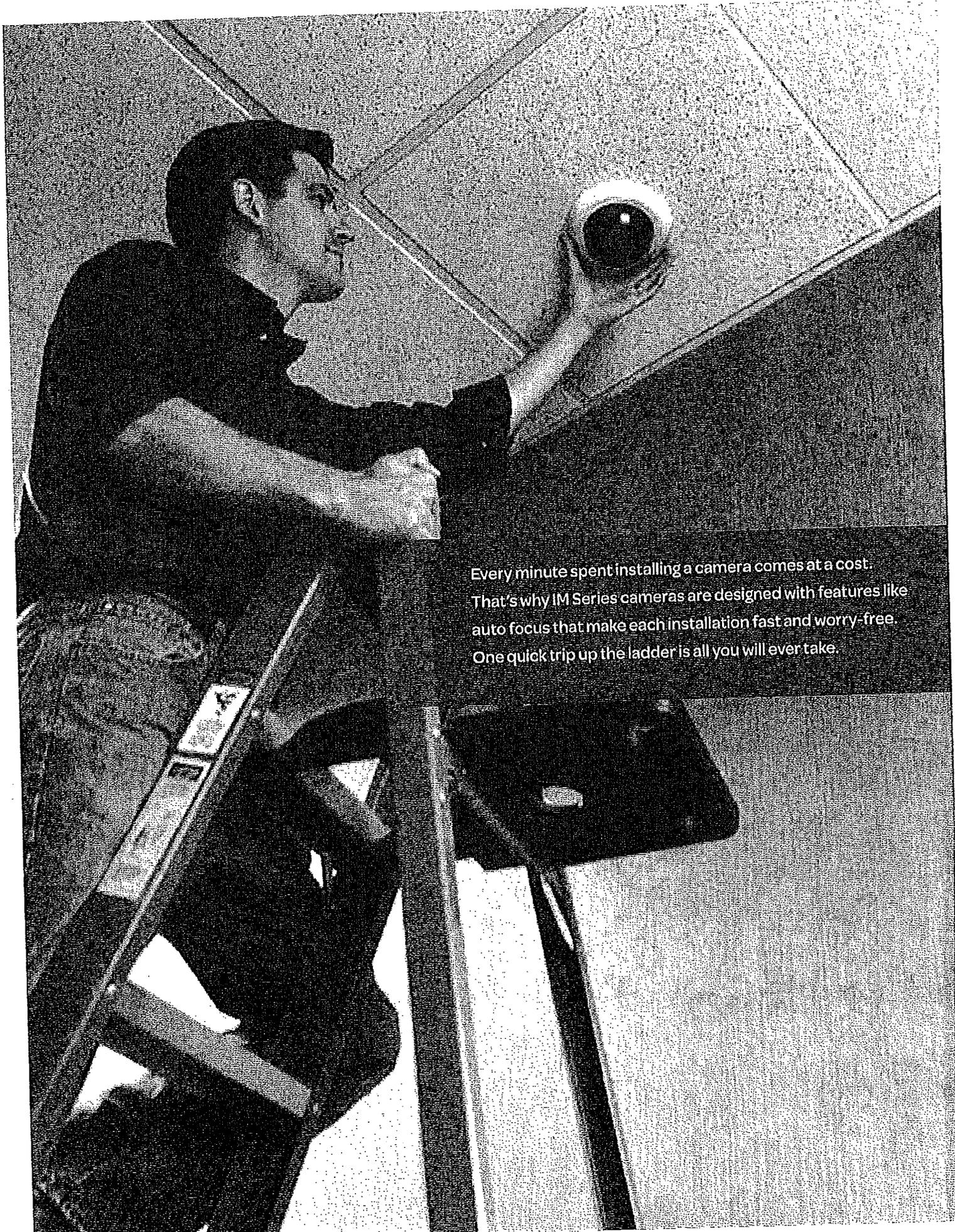
- 1.3 Megapixel (1280 x 1024) or 0.5 Megapixel (800 x 600) Resolution
- Up to 30 Images per Second at 1280 x 720
- Auto Focus Varifocal 2.8-10 mm megapixel lens\*
- H.264, MJPEG and MPEG4 (0.5MP cameras only)
- Sensitivity Down to 0.12 lux
- Power over Ethernet (IEEE 802.3af)
- Accessory Port
- Audio with line-in/out & microphone
- Built-in Analytic

Indoor Models	Description
Sarix IM10C10-B1 Mini Dome	Sarix Indoor Fixed Network Mini Dome Camera Black, 1.3 Megapixel, Color, 2.8-10mm Varifocal Megapixel Lens, Clear Dome
Sarix IM10C10-1 Mini Dome	Sarix Indoor Fixed Network Mini Dome Camera; 1.3 Megapixel, Color, 2.8-10mm Varifocal Megapixel Lens, Clear Dome
Sarix IMSOC10-1 Mini Dome	Sarix Indoor Fixed Network Mini Dome Camera; 0.5 Megapixel, Color, 2.8-10mm Varifocal Megapixel Lens, Clear Dome

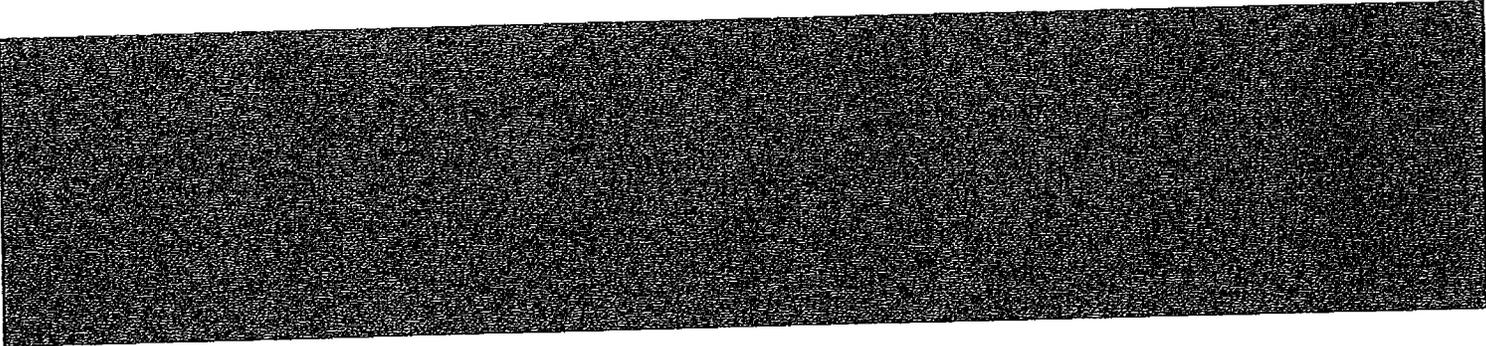
## Get More with Pelco by Schneider Electric

It all starts with a relentless commitment to customer service. Each and every person at Pelco by Schneider Electric is dedicated to ensuring that our customers are completely satisfied each and every time. Just ask anyone who has ever worked with us. From Guaranteed Ship Dates, to Local Service Centers, to the Pelco Global Training Institute, we are fully committed to your success.

\*Sarix IM10 Mini Dome Only



Every minute spent installing a camera comes at a cost. That's why IM Series cameras are designed with features like auto focus that make each installation fast and worry-free. One quick trip up the ladder is all you will ever take.



**PELCO**

by Schneider Electric

*The recognized worldwide leader in video and security systems, Pelco boasts the most comprehensive array of products, services and expertise available in today's marketplace. And now as a member of the Schneider Electric family, Pelco brings a network of assets backed by the strength of a Fortune 500 company to help you define and achieve your business objectives.*

[www.pelco.com](http://www.pelco.com)

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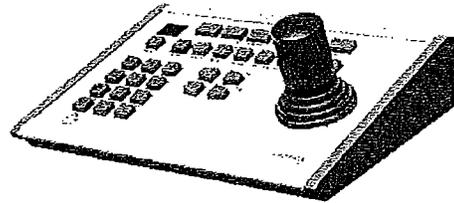


## KBD300A Keyboard

### FULL-FUNCTIONALITY, FIXED/VARIABLE SPEED, PTZ CONTROL

#### Product Features

- Keyboard to Control:
  - CM6700/CM6800/CM9760-SAT/CM9700 Matrix Switchers
  - DX8100 Series Digital Video Recorder
  - Genex® Multiplexer When Used with CM6700 and CM6800
  - Up to 16 Receivers Directly from Keyboard (such as Spectra®, Esprit®, and ExSite®)
- Automatic Recognition of CM6700/CM6800 and Direct P Modes
- Joystick Control of PTZ Functions
- Preset Position and Pattern Control



- Auxiliary Operation
- Auto/Random/Frame Scanning
- Programming of CM6700/CM6800/CM9760-SAT/CM9760-MDA

The **KBD300A** keyboard is a full-function, desktop keyboard controller that can be used in a variety of applications.

A barrel-type joystick provides precise pan and tilt control of fixed speed and variable speed receivers. Twisting the joystick clockwise or counterclockwise zooms the lens in or out.

Keys select cameras and monitors; operate presets, patterns, auxiliaries, and sequences; open and close the iris; zoom and focus the lens; and start and stop auto, frame, and random scanning.

The keyboard can be used in six modes of operation: CM6700/CM6800/CM9760-SAT Mode, Direct P, Direct D, CM6700 ASCII, CM6800 ASCII/DX8100, and CM9760-MDA. The **KBD300A** keyboard automatically recognizes CM6700/CM6800 and Direct P modes. The **KBD300A** must be operated in CM6700 ASCII mode when used with the DX4500/DX4600 Series DVRs and the Digital Sentry® DS ControlPoint server or remote client. The **KBD300A** keyboard must run firmware 5.0 or later to operate in CM6700 ASCII mode.

In the first two modes, the keyboard is plugged into a CM6700, CM6800, or CM9760-SAT switcher/controller unit (SCU) and is used to program and operate the SCU. The maximum number of keyboards per unit is eight (CM6700 and CM6800-32X6), sixteen (CM6800-48X8, CM6800E-48X8, and CM6800-96X16) or four (CM9760-SAT). In CM6700/CM6800 applications, the keyboard can control cameras connected directly to the SCU or through an MX4000 Series Genex® multiplexer.

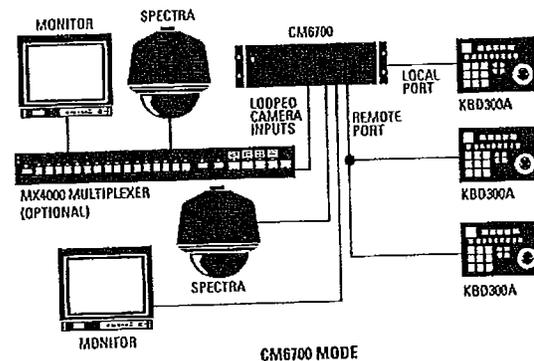
If you do not need all the features of the CM6700/CM6800 SCU but want the same keyboard functionality, then one keyboard can be wired directly to camera receivers in Direct P or Direct D mode (KBD-KIT is required).

Up to 16 receivers can be wired to a keyboard; however, a switcher such as an MS500 or VA6100 is required to route video to the monitor. Direct P or Direct D mode uses 2-wire control of receivers using Pelco P or Pelco D protocols.

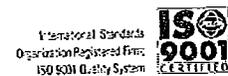
The **KBD300A** keyboard can also be used for on-screen programming of the CM9760-MDA master distribution amplifier.

When used with the CM9760-DMR data manager, up to four **KBD300A** keyboards can be used to control a single Pelco P or Pelco D protocol device such as a Spectra® dome or an Esprit®/ExSite® positioning system.

The optional KBD300USBKIT is required to connect the **KBD300A** keyboard to the DX4500/DX4600. The KBD300USBKIT is also required to control certain functions of DS ControlPoint software.



by Schneider Electric



CS27 / REVISED 7-31-09

# TECHNICAL SPECIFICATIONS

## MODEL

KBD300A

Desktop keyboard with full switching and programming capabilities, plus joystick control of PTZ functions

## ELECTRICAL

Input Voltage 12 VAC or  $\pm 12$  VDC  
 Power Consumption 5 W  
 Keyboard Connector RJ-45, 8-pin, modular (female)  
 Keyboard Communication

### CM6700/CM6800/CM9760-SAT Mode

Interface RS-485  
 Protocol Pelco ASCII  
 Baud 9600  
 Communication Parameters 8 data bits, odd parity, 1 stop bit

### CM6700 ASCII Mode

Interface RS-422  
 Protocol Pelco ASCII  
 Baud 9600  
 Communication Parameters 8 data bits, odd parity, 1 stop bit

### CM6800 ASCII Mode/DX8100

Interface RS-485  
 Protocol Pelco ASCII  
 Baud 9600  
 Communication Parameters 8 data bits, odd parity, 1 stop bit

### Direct P Mode

Interface RS-485  
 Protocol Pelco P  
 Baud 4800  
 Communication Parameters 8 data bits, no parity, 1 stop bit

### Direct D Mode

Interface RS-485  
 Protocol Pelco D  
 Baud 2400  
 Communication Parameters 8 data bits, no parity, 1 stop bit

## GENERAL

Keyboard Keypad Electromechanical  
 Joystick 3-axis, vector-solving with twisting, return-to-center head  
 Display Red LED, 7-segment, 2 cells  
 Dimensions 2.25" H x 9.50" W x 7.125" D (5.72 x 24.13 x 18.10 cm)  
 Weights Unit 2.5 lb (1.12 kg)  
 Shipping 5 lb (2.26 kg)

## ENVIRONMENTAL

Ambient Operating Temperature 20° to 120°F (-7° to 49°C)  
 Humidity 10% to 90%, noncondensing

## CERTIFICATIONS/PATENTS

- CE, Class B
- FCC, Class B
- UL/cUL Listed
- C-Tick
- U.S. Patent D-464,654

## SUPPLIED ACCESSORIES

25-foot (7.6 m) RJ-45 data cable

## OPTIONAL ACCESSORIES

KBDKIT

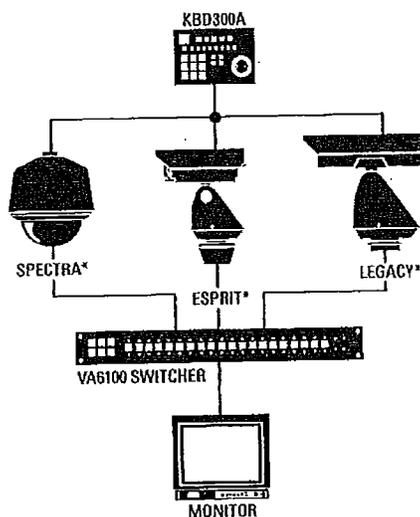
Remote keyboard wiring kit. Required if connecting KBD300A keyboards to the Remote Keyboard Port on the SCU (CM6700/CM6800 Mode) or when using a single keyboard in Direct Mode applications. Includes two RJ-45 wall blocks and one 120 VAC to 12 VAC transformer. Maximum cable distance for RS-422/RS-485 communication over 24-gauge wire is 4,000 feet (1,219 m). Use shielded twisted pairs cable that meets basic requirements for RS-422/RS-485 applications. (One wall block and transformer required for each keyboard.)

KBDKIT-X

Same as KBDKIT except includes 230 VAC to 12 VAC transformer.

K8D300USBKIT

Wiring kit to attach a KBD300A to a USB port on either the DX4500/DX4600 or DS ControlPoint on the DS DVR or remote client. Includes: KBDKIT/KBDKIT-X wiring kit (keyboard power supply and RJ-45 junction box), PV140 RS-232 to RS-422 (DB9 connector) converter and power supply (included but not used), and USB to RS-232C adapter cable.



\* SPECTRA AND ESPRIT HAVE BUILT-IN RECEIVERS.  
 LEGACY REQUIRES LRD41C SERIES RECEIVER.

DIRECT MODE

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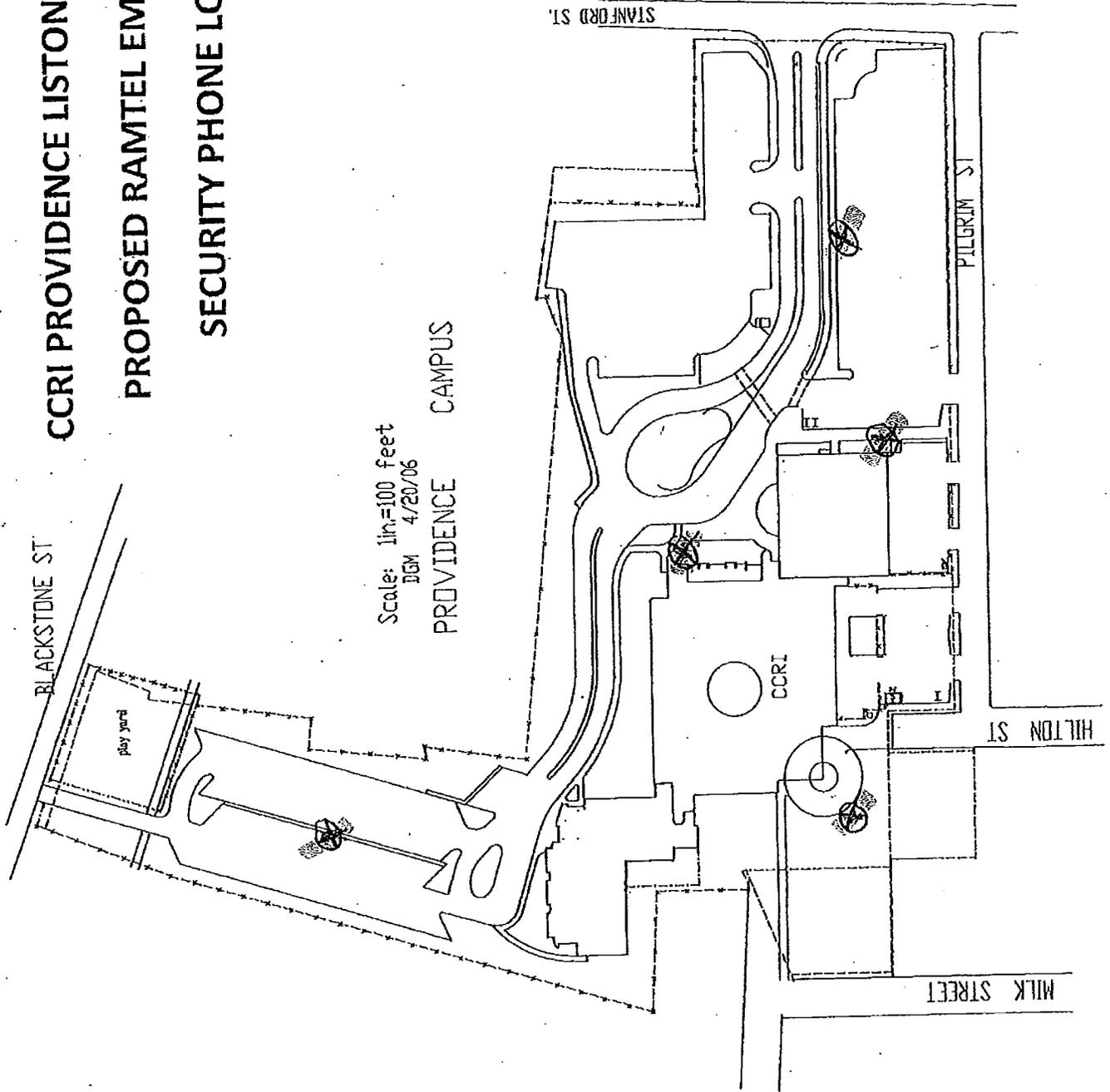


# CCRI PROVIDENCE LISTON CAMPUS

## PROPOSED RAMTEL EMERGENCY

## SECURITY PHONE LOCATIONS

12/2010



## PLC-8 Non Rusting Stainless Steel Column 11" Square with Radius Corners

For the best quality and long term investment, there is no comparison to a Non Rusting Stainless Steel Column. If unit is scratched or If there is any condensation build up within the unit, THERE IS NO RUSTING.

The Square design of this unit fits into both traditional and contemporary surroundings.



### Column includes three lights:

- Sodium Vapor Blue Light - High Intensity 60 Watt lamp illuminates area. Automatically turns ON at dusk and OFF at dawn).

LEXAN Fresnel lens is placed over an aviation blue glass globe for better heat dissipation and color.

- Strobe Light - One million candle power. Housed in a blue Fresnel LEXAN Polycarbonate lens which is located under the sodium vapor light. Strobe flashes when Emergency call button is pressed and stops flashing when called party hangs up. Flashing brings attention to area.
- Phone Panel Light - 5 Watt Fluorescent. Makes phone visible for easier use.

### The Engineering Design cannot be compared.

- Placement of area light is inverted (hangs down) and is vented to eliminate condensation and prevent heat build-up.
- Blue aviation glass globe is placed under Fresnel Lens for color and heat dissipation.
- Top cap provides easy access to lighting and prevents water from entering.
- Shatter resistant LEXAN polycarbonate lens protects blue lights.
- Panel on back of unit provides access to electronics and wiring.
- The phone area of column is sectioned off with two built-in plates (top and bottom) This area is lined with condensation insulation material to further protect electronics of phone.

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Options: Built in heater, Cellular package, Covert camera  
Top mount Surveillance Camera enclosure

### General Specifications of PLC-8 Column

Non Rusting, Non Magnetic Stainless Steel - .125" Thick  
Dimensions: 9 ft. High - 11" Square  
Phone is recessed 2", Top cover vented,  
Pre-wired and assembled

## Free Standing Units

Vandal resistant and weatherproof  
Graffiti resistant  
Lettering 4 sides column.  
Weight: 175 pounds  
Mounting: (4) 5/8" x 16" "J" bolts

### Wiring:

Units are pre-wired in separate conduit for telephone line and 120 Volts AC power  
Operating Voltage Option: 24 Volts AC to 440 Volts AC.

Finish: Powder coated

Standard Colors: Midnight Blue, Architect Brown,  
Forest Green, Safety Red, Black,  
Safety Yellow, White

Custom colors available.

Optional Finish: Natural Stainless - glass beaded finish

Graphics            Emergency, Courtesy, Assistance,  
Wording:            Custom - call for information

Graphics Colors:    White, Blue, Black,  
                          Custom - call for information

Phones purchased separately are interchangeable in Columns, Wall Units, and Enclosures.  
Click for [Security Telephones](#).

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## Model RR733/4 Five Button Auto-Dials

Return to Security Telephones

Consider the Five Button Auto-Dial Hands Free Phone Model when you have a need for a phone that dials five different numbers. One button is used for Emergency Assistance and the other buttons can be used for Non-Emergency, Assistance, Escort and Public Address Recorded Information. An important feature for a multi-button phone model is the Emergency Button override – Emergency call takes precedence. If line busy or no answer, each auto-dial button can dial up to three numbers. The MPBP (Micro Processor Based Phone) is designed to meet the needs of changing times and increasing requirements. Ramtel specializes in Custom Silk Screening Individualized to your needs.



The Five Button Hands Free Phone is designed for indoor or outdoor use.

Phone can be installed in a surface or flush mounted enclosure, wall unit or free standing unit.

What better way to distinctively identify your Security Telephone than with your name and logo Silk-Screened on the phone panel.

Include your custom panel on our Custom Silk Screening Web page.

### Telephone Features

- EEPROM Non Volatile Memory
- Password protected remote programmable
- Custom Silk-Screened Phone Panel
- Louver Design, Anodized Aluminum Panel (3/16" Thick)
- PIEZO Switches (2" Palm Button Option)
- Weatherproofed speaker and microphone
- Tamper resistant screws and special tool
- Weather Resistant - Vandal Resistant
- Low Voltage Heater Option
- Conformal Coated Electronics
- Surge and Grounding Protection
- Condensation Protection

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### Functions

- Auto-Redial of Additional Numbers, if line busy or no answer.
- Emergency Override on Call in Progress.
- Emergency Call in Progress Cannot be terminated.
- Auto-Answer feature allows for call back and monitoring of area.

- *Voice and location identification signal.*
- *ADA Compliant:*
  - a) *"Red" indicator light automatically activated when any button on Ramtel phone is pressed, and changes to "Green" when call is answered.*
  - b) *Braille Plaque includes International Phone Symbol.*
- *Phone Diagnostics include: Emergency and Manual Button, LED, Microphone & Speaker (Use with computer software system Reliance 2003.*
- *Disconnect Functions:*
  - a) *Automatic Shut-Off*
  - b) *Remote Shut-Off*
  - c) *Adjustable Time Out Functions*
- *Emergency button external output control. (i.e. Blinking or Flashing Strobe)*
- *Six miscellaneous External Output Control capability.*  
*(Activated by keypad and Controlled by called party, i.e. release door/gate, turn on and control a top mounted surveillance camera).*

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Applications: Walkways, Parking Lots and Garages,  
Escort Service or Assistance, School Playgrounds and  
Athletic Fields, ATM Machines, Police Call Phones,  
Hospitals, Information Centers, Elevators.

Ramtel phones service: Universities & Colleges,  
Schools, Police Departments, Banks, Hospitals,  
Business Complexes, Industrial Developments,  
Shopping Centers, Public Areas.

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**Cellular.....**


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Cellular is recommended when a phone line is not readily available. We suggest a test of area using your personal cellular phone. If reception is good then the cellular unit we provide with an antenna, would be better.

A molded fiberglass Polyester Enclosure is provided if cellular transceiver is not installed in a wall unit or column.

**Cellular Transceiver**

- Motorola Series IV – EE3 "Data Ready".
- 3 Watt – AMPS compatible
- 832 channels
- Handset programmable
- Frequency: 824 –893 MHz

**Power Supply**

- 90 to 264 VAC, 47 TO 63 Hz
- Terminal Field Connectors
- DC Output: 15VDC
- Load Max. 4.0A
- Switching Frequency: 50KHz
- Over-voltage Protection: Crowbar, V1 only
- Over-current Protection: Short circuit, All outputs, auto restart
- External 12 VDC input
- Optional 11-54 VDC range Input

**Environmental Operating Range**

- -22F (-30C) to 140F (60C)
- Humidity: 5% to 95% (non-condensing)

**Molded Fiberglass Polyester Enclosure (if required)**

- Suitable for outdoor installation
- Standard J1C size
- NEMA 4 type, UL, DSA, IEC approved
- Dimensions: 10.5"H x 9.25"W x 6.5"D
- External mounting feet
- Internal Antenna Option

**Dial Tone Interface**

- RJ11C connection
- Loop current: 30 mA
- Dial Tone frequency: 350 Hz and 440 Hz
- Open circuit voltage: -30 V
- Ringer Equivalence: 3.0
- Line Voltage: -48 VAC
- Terminal Connection: RJ11 Jack

**Internal Battery Back-Up**

- Sealed Lead Acid Rechargeable
- 4 hours standby (at 25c)
- 30 min talk-time
- 4.5 AMP hrs.
- 24 hour charge time

**Current Drain**

- Max standby: .24 AMP
- Max Off Hook: 1.8 AMPS

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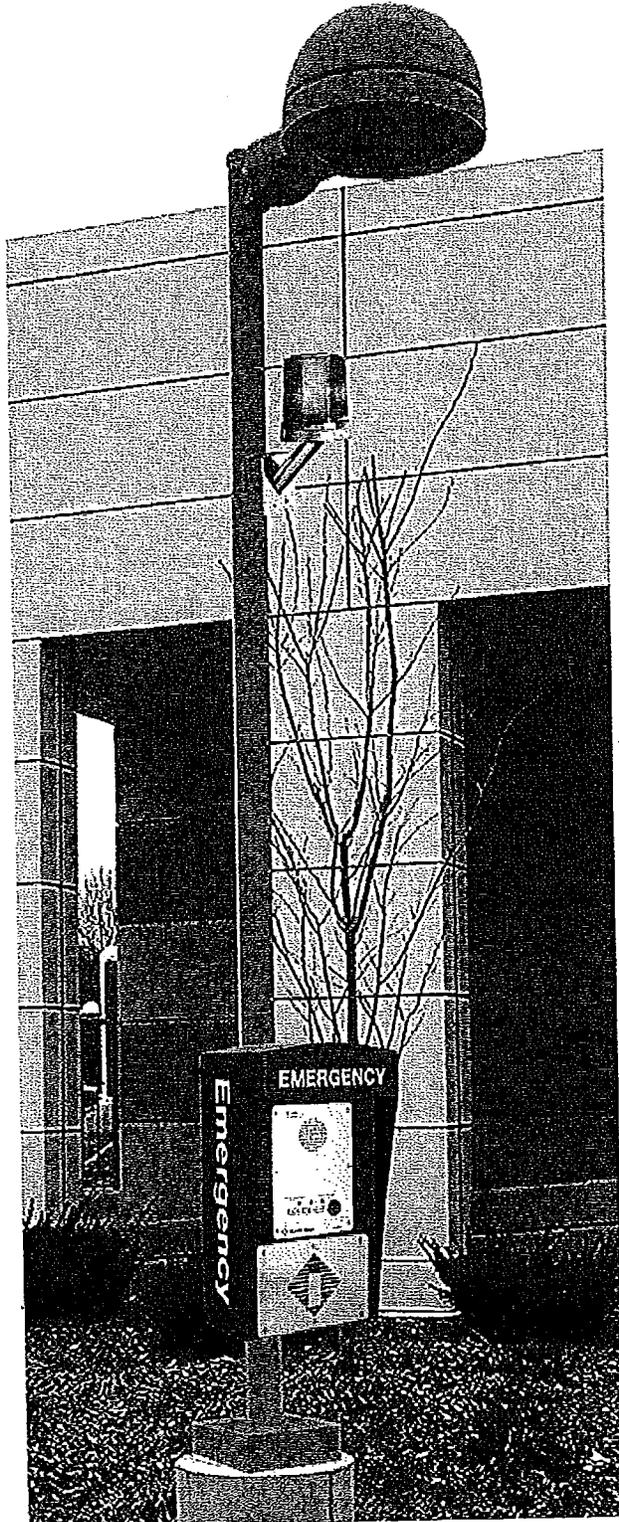


## NightCharge® Alternate Power

### SUPPLEMENTAL BATTERY SOURCE WITH SWITCHED POWER SUPPLY

The NightCharge® system operates from the switched power supply and is available on Code Blue CB 1-d, CB 1-e, CB 1-s and CB 8 units. This option allows Code Blue units to be powered from a 120v AC switched power network. Such networks are commonly used to supply power to outdoor lighting equipment only at night.

During the day, NightCharge provides battery power to operate the unit. At night, NightCharge supplies power to the unit and recharges the batteries.



### STANDARD FEATURES

#### Input Power

The NightCharge system requires 120v AC input. All other switched power network voltages must be stepped down to 120v AC upstream from the Code Blue unit.

#### Output Power

The NightCharge system provides a 12v DC supply to all components. The CB 1 area light however, is on only when the power network grid is on.

#### Battery Capability

The NightCharge system provides sufficient power to run all the required components in the Code Blue units for 24 hours per day without interruption. At least 8 hours of daily continuous power from the switched network power grid is required to fully recharge the batteries. NightCharge will function with one incomplete recharging cycle but will not function with two consecutive incomplete recharging cycles. Two nights of recharge would be required to fully recharge the batteries after a miss in the recharge cycle.

During a typical day — power network on during part of the day and off during part of the day — the NightCharge system provides power for 23 hours of standby operation and at least 1 hour of activated operation.



### WALL/POLE MOUNT – INTERACTIVE VOICE COMMUNICATION UNIT

The CB 8 is a highly flexible wall or pole mount unit specifically designed for areas that do not have accessible power or phone lines. The CB 8 is available with GSM cellular or IP wireless communication options.

The low power consumption, LED-lit faceplate illuminates the exclusive analog InterAct™ and VoIP speakerphones designed for maximum reliability, vandal resistance, auxiliary functions, mass notification control, and fault monitoring and reporting capability; leading the market in system programming flexibility.

The optional remote mount combination LED beacon/strobe kit provides the security with high visibility response to each unit.

With Code Blue's NightCharge® option, the CB 8 can pull power from a switched light grid and operate 24 hours per day, even when the grid is switched off.

#### STANDARD FEATURES

- ▶ Analog and VoIP speakerphone options
- ▶ ToolVox® Communication Manager compatible with Blue Alert®, EMS and UPD software integration
- ▶ 2 Auxiliary inputs/3 Auxiliary outputs (3 NO or 3 NC)
- ▶ LED lit stainless steel faceplate
- ▶ Phone line surge suppressor
- ▶ 24v AC power
- ▶ Voice Identifier
- ▶ ADA compliant
- ▶ Wall mounting kit
- ▶ Vandal resistant hardware
- ▶ Ultra-weather resistant finish

#### OPTIONAL FEATURES

- ▶ Two-button speakerphone w/keypad
- ▶ Two-button speakerphone
- ▶ NightCharge®
- ▶ Solar panel array
- ▶ Custom colors & graphics
- ▶ Pole mounting hardware kit
- ▶ Step-down power transformer
- ▶ GSM cellular & IP wireless communication
- ▶ Remote mounted combination LED beacon/strobe kit

#### UNIT SPECIFICATIONS

Overall Height (w/ solar panel)	25.75" (65.4 cm)
Width	14" (35.6 cm)
Depth	12.6875" (32.2 cm)
Housing Material, steel	.125" (0.3cm)
Overall Weight	80 lbs. (36.29 kg)
Power Requirements	120v AC standard input

#### UNIT FINISH COLORS

Standard Painted Finish	British Racing Green, Cardinal Red, Dark Bronze, Gloss White, Gloss Black, Medium Bronze, Midnight Blue, Safety Blue, Safety Red, Safety Yellow
Custom Painted Finish	Custom colors from Pantone® color chart or sample are available as a special order

#### GRAPHICS TEXT (WORDING)

Standard	Assistance, Courtesy, Emergency, Police, Security
Custom	Custom text graphics are available as a special order

#### GRAPHICS TEXT COLORS

Standard (reflective decal)	Black, Blue, Green, Red, White, Yellow
Custom	Custom colors from Pantone color chart or sample are available as a special order

#### SOLAR POWER

Provides continuous power to the CB 8 from a solar array without additional power requirements. Allows installation where power lines are not available or cost prohibitive. Requires daytime solar energy.

#### GSM CELLULAR & IP WIRELESS OPTION

As more users desire ubiquitous connectivity, Code Blue's GSM cellular eliminates trenching phone line, as well as IP Wireless exploits built-in VLAN (Virtual Local Area Networks) capable of maximizing your investment, including various integration scenarios with existing equipment.

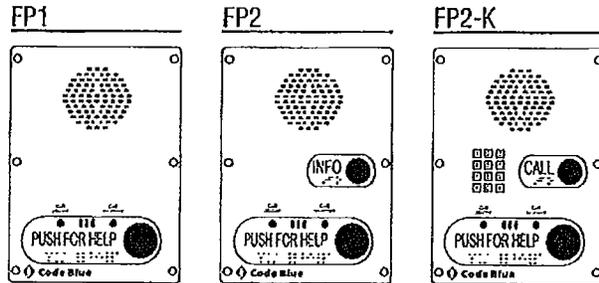
#### NIGHTCHARGE® POWER OPTION

Provides continuous power to the unit from a non-continuous power source. Typically used with an outdoor lighting network when power is only on during a portion of the day or night.

#### REMOTE MOUNT COMBINATION LED BEACON/STROBE

The remote mount allows optimal placement providing a highly visually constant blue beacon and a powerful activated LED strobe for rapid unit location recognition.

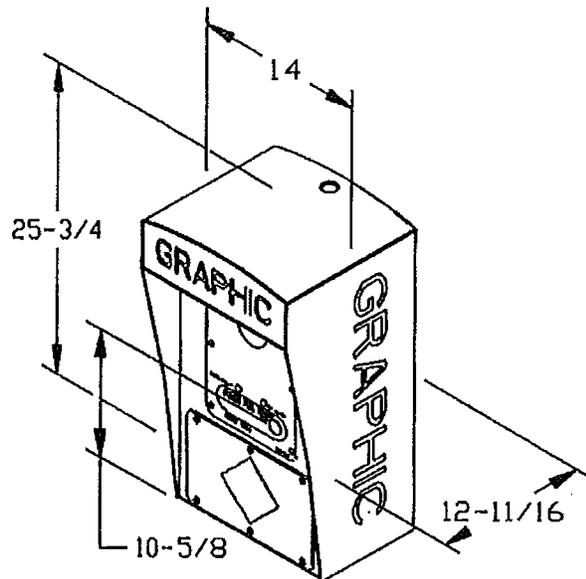
#### FACEPLATE OPTIONS



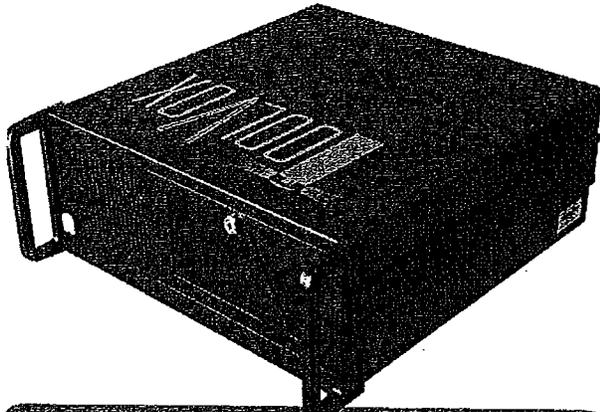
Standard faceplate assembly with single red PUSH FOR HELP button

Optional faceplate assembly with additional black INFO button

Optional faceplate assembly with additional CALL button and keypad



- Mounting hardware and template for unit is shipped in advanced for foundation work.
- Specifications subject to change without notice or obligation on the part of the manufacturer.


**BASE PACKAGE INCLUDES**

- ▷ Pentium® Dual-Core Duo processor
- ▷ 2GB RAM
- ▷ DVD-ROM
- ▷ Onboard LAN and video
- ▷ Secure 4U rack mount chassis
- ▷ Redundant power supplies (optional)
- ▷ RAID drives (optional)



The Code Blue ToolVox Communication Manager provides the integration of analog and IP devices to communicate on one platform. This allows ToolVox to be a complete communications server for all the customer's needs:

- Code Blue/Emergency Phone Management
- Emergency Call Management
- API for third party integration for command and control centers
- Business Communications System

ToolVox systems can be interconnected creating autonomous wide area networks allowing one system to manage multiple geographic locations.



PSTN

PRI/T1/E1/E&amp;M/FXO/FXS

SIP/IAx2/H.323



PBX

 Code Blue  
 Software Platforms  
 UPD  
 EMS  
 Blue Alert


ToolVox

**3<sup>rd</sup> Party Systems Integration**

IA500/IA3100 Analog Phones

IA4100 Full Duplex Analog Phone

IP5000 Full Duplex IP Phone

Blue Alert Client GUI

EMS Client GUI

IP/SIP Phones

Soft Phones

Remote Management

IP Video

Telecommuters

 LAN/WAN  
 IP Wireless  
 Internet  
 WiFi

 Code Blue 24/7  
 Network Monitoring

**SYSTEM FEATURES**

- ADSI On-Screen Menu System
- Alarm Receiver
- Append Message
- Authentication
- Automated Attendant
- Blacklists
- Blind Transfer Call
- Detail Records Call
- Call Forward on Busy
- Call Forward on No Answer
- Call Forward Variable
- Call Monitoring
- Call Parking
- Call Queuing
- Call Recording
- Call Retrieval
- Call Routing (DID & ANI)
- Call Snooping
- Call Transfer
- Call Waiting
- Caller ID
- Caller ID Blocking
- Caller ID on Call Waiting
- Calling Cards
- Conference Bridging
- Database Store / Retrieve
- Database Integration
- Dial by Name
- Direct Inward System Access
- Distinctive Ring
- Distributed Universal Number Discovery (DUNDi™)
- Do Not Disturb
- E911
- ENUM
- Fax Transmit and Receive (Third Party OSS Package)
- Flexible Extension Logic
- Interactive Directory Listing
- Interactive Voice Response (IVR)
- Local and Remote Call Agents
- Macros
- Music On Hold
- Music On Transfer:
  - Flexible MP3-based System
  - Random or Linear Play
  - Volume Control
- Predictive Dialer
- Privacy
- Open Settlement Protocol (OSP)
- Overhead Paging
- Protocol Conversion
- Remote Call Pickup
- Remote Office Support
- Roaming Extensions
- Route by Caller ID
- SMS Messaging
- Spell / Say
- Streaming Media Access
- Supervised Transfer
- Talk Detection
- Text-to-Speech
- Three-way Calling
- Time and Date
- Transcoding Trunking
- VoIP Gateways
- Voicemail:
  - Visual Indicator for Message Waiting
  - Stutter Dial Tone for Message Waiting
  - Voicemail to email
  - Voicemail Groups
  - Web Voicemail Interface

**ADDITIONAL SYSTEM FEATURES**
**SCALABILITY**

- TDMoE (Time Division Multiplex over Ethernet)
- Zero latency
- Voice over Internet Protocol
- Allows for integration of physically separate installations
- Uses commonly deployed data connections
- Allows a unified dial plan across multiple offices and vendor PBX

**PROTOCOLS**

- H.323
- IAX™
- MGCP (Media Gateway Control Protocol)
- SCCP (Cisco® Skinny®)
- SIP (Session Initiation Protocol)

**CODECS**

- ADPCM
- G.711 (A-Law &  $\mu$ -Law)
- G.722
- G.723.1 (pass through)
- G.726
- G.729
- GSM
- iLBC
- Linear
- LPC-10
- Speex

**PRI PROTOCOLS**

- BRI
- DMS100
- EuroISDN
- Lucent 4ESS/5ESS
- National ISDN2
- NFAS

**TRADITIONAL TELEPHONY INTEROPERABILITY**

- E&M/E&M Wink
- Feature Group D
- FXO/FXS
- GR-303
- Groundstart
- Kewlstart
- Loopstart
- MF and DTMF support
- MFC-R2
- Robbed-bit Signaling (RBS) Types