

Section 1: Access Control System

Approved Make:

1. Honeywell
2. Lenel
3. Cardkey
4. Tyco
5. Johnson control

S. No	Part Code	Product Description
1	Software	Access Control Software, Unrestricted User / Com User with time attendance software
2	Controller	Intelligent controller with power supply and cabinet
3	Smart Card	Omni Class Mullion Mount Smart Card Reader. Black bezel, 18" pigtail wire connection. Dimensions: 1.90" W x 4.04" L x .80" D (4.83 cm W x 10.26 cm L x 2.3 cm D).
4	Door Lock	Magnetic Lock with Sensor - Electro Magnetic Lock
5	Push Button	Push Button
6	Bio Metric	Biometric ENROLLER Read Only Contactless Smart Card Reader/Enroller, Wiegand (6180) or Clock-and-Data (6188),
7	Smart Card	Contactless Smart Card, 16K bits with 16 application areas
8	Cable	PVC Insulated Tinned Copper Conductor, Tinned Copper Braid Shielded Wire: Size : 0.5 Sq.mm x 6

Detailed Technical Specification

Software

1. System Overview

- The Integrated Security Management System (ISMS) shall be a modular, networked access control system capable of handling large proprietary corporations with multiple remote sites, alarm monitoring, video imaging, badging, paging, guard tour, digital video servers and CCTV switcher control. The system shall allow for easy expansion or modification of inputs, outputs, and remote control stations.
- The system control at the central computer location shall be under a single software program control, shall provide full integration of all components, and shall be alterable at any time, depending upon the facility requirements. Reconfiguration shall be accomplished online through system programming, without hardware changes.
- The software program shall be a true 32-bit or Higher, client/server, ODBC compliant application based on Microsoft tools and standards. The software program shall operate in one of the following environments; Windows 2003 Server, Windows Vista Business, Windows XP Professional SP2, Windows 2000 Professional or Server using Service Pack 4 or Latest Version.
- The software program shall consist of multiple servers including, but not limited to, Database Server, Communications Server, and Client Workstation Server. The Servers shall be capable of being installed on one or more PCs across a network providing a distribution of system activities and processes. The Client Workstation servers allowed shall be unlimited in number.
- The system shall support multiple communication servers on a LAN/WAN, to provide distributed networking capabilities, which significantly improve system performance.
- The database architecture shall be MSDE 2000 as standard with the capability to utilize Microsoft SQL Server 2005; SQL Server 2005 Express Edition or SQL Server 2000 or Latest Version.
- The system shall have the capability to communicate with the control panels via LAN/WAN connections utilizing industry standard communication protocol.
- The system software shall allow support for unlimited accounts allowing separate access to the card database, badge layout, operator access, and reporting. Physical hardware may be filtered by operator level into sites. Sites may reside in multiple accounts. The system shall allow control of common areas between accounts. Access levels and time zones shall be global to allow for easy administration. The global access levels and time zones shall be capable of being used by several accounts. Administrators shall have the ability to move cardholders from one account to another. When moving cardholders in such a manner, access level information shall not be transferred automatically in order to ensure proper security settings are made upon changing the status of the cardholder.
- The software program shall be used in Floor Plans to provide the user interface to control and monitor the system, and shall also be used in the Data Trees to organize, display, and control system information.
- The system shall support both manual and automatic responses to alarms entering the system. Each alarm shall be capable of initiating a number of different actions, such as camera switching, video pop-up, activation of remote devices, door control, and activation of WAV files.
- The system shall provide both supervised and non-supervised alarm point monitoring. Upon recognition of an alarm, the system shall be capable of switching and displaying a view from either the CCTV camera or video from the digital video server camera that is associated with the alarm point. The system shall be capable of arming or disarming alarm points both manually and automatically, by time of day, and by day of week.

- Access control functions shall include validation based on time of day, day of week, holiday scheduling, site code and card number verification, automatic or manual retrieval of cardholder photographs, and access validation based on positive verification of card, card and PIN, card or pin, pin only and Site Code only.
- Camera functions such as pan/tilt, lens control, limits, and home position shall be supported by the system. Unless specific programming dictates otherwise, an operator shall be able to control these functions for all cameras so equipped.
- Live video from a CCTV system and/or digital video server shall be able to be displayed on the computer screen. The live video window shall allow the user to change its size and location on the computer screen.
- Video controls (pan, tilt, zoom, camera/monitor selection) shall be able to be sent to the CCTV system and/or digital video server from the live video window. The user shall have the ability to freeze and save a single frame of video from the CCTV system to a file.
- Alarm events with defined priorities shall be able to pop-up automatically in an Alarm event window for operator attention. The pop-up shall display the name of the event (reader, alarm point, cardholder or system alarm), time, date, site, account, if a card event the card number, type of event and cardholder name. An event counter shall also display the number of times the event was reported to the Alarm event monitor prior to Acknowledgement or Clearing the event. Event instructions shall be made available by double clicking on the event. The event shall also display an icon to indicate that video is available for events so programmed.
- The Alarm event window shall allow the operator to initiate a physical response to the event as well as a written response. Responses shall include but not be limited to: acknowledge, clear, open a pre-programmed floor plan, energize, de-energize, pulse, time pulse, add comment, retrieve event video, and bring up live video, shunt or un-shunt.
- Assigned passwords shall be possible to define the levels of system operation for each individual operator. System operation for individual operators shall include, but not be limited to, restricted time periods for login, available accounts and default language selection at login. Operator actions range from no view or control rights to basic monitoring including the ability to block the viewing of card and or personal identification numbers, to full control of the system including programming.
- The system programming shall be user friendly, and capable of being accomplished by personnel with no prior computer experience. A quick start wizard shall allow the operator to easily program a system including basic time zones, access panels (IP connection, Modem Pools or direct connections to an RS-232 port), card activation to a general purpose access area and deactivation date. The software shall utilize drop boxes for all previously entered system-required data. The programming shall be MENU driven and include online "Help" or "Tutorial" information, as well as online data entry examples. The Help shall be available by using the F1 key. When using the F1 help access, the help menu will provide detailed information relative to the operation that the user is performing without the need to key in additional search parameters. An operation Tutorial shall also be provided with the access control software. The contents of the Tutorial shall include, but not be limited to: Floor plan setup and control, Visitor management integration, Digital video integration, and operation.
- After installation, the Customer shall be able to perform hardware configuration changes. These hardware configuration changes shall include, but not be limited to, door open time, door contact shunt time, point and reader names, when and where a cardholder is valid, and the ability to add or modify card databases as desired;
- Equipment repair shall be able to be accomplished on site, by module replacement, utilizing spare components.

2. Basic System Capabilities

The following functional capabilities are considered essential for the system described in this specification. The capabilities are to be considered standard, without the need for add-on software or hardware.

2.1 General

- All databases will have the ability to ADD, DELETE, REPORT, VIEW or EDIT information.
- Provide storage of all system transactions in a retrievable file.
- Log all events by time and date with reference to GMT.
- Provide capability to store all or selected system transactions to a disk file.
- Provide ability for CUSTOMER to make system configuration changes such as, but not limited to door open time, door contact shunt time, point and reader names, when and where a cardholder is valid, and the ability to add or modify card databases at any time.
- Support "Global Anti-passback", allowing cardholder to enter/exit any card reader on the same RS485 drop line.
- Duress feature where when a PIN is used in conjunction with a card read, the number of digits is selected at the keypad where the PIN number is a value of one different from the normal PIN.
- Provide mode of system operation that stores system commands that were not accepted by the hardware.
- Provide mode of system operation that requires the operator to enter a response to an event when acknowledging it from the alarm view window.
- Provide mode of system operation that allows acknowledged alarms to be automatically cleared.
- Provide mode of system operation where un-acknowledged events will cause the computer to continuously emit a pulsating beep until all un-acknowledged alarms are acknowledged. A momentary silence feature shall allow the beeping to cease for up to 60 seconds. The silence feature shall also provide a visual countdown to when the beeping will begin again.
- Provide mode of system operation where when an acknowledged, but not cleared event will be reissued requiring acknowledgement when the event changes to an alarm or trouble state.
- Provide mode of system operation that does not allow the operator to clear an alarm prior to it being restored to normal.
- Provide ability for manual operator control of system output relays. The manual functions shall include the ability to energise, de-energise, return to time zone, or pulse the output relay. The pulse time shall be a programmable setting.
- Provide ability for manual operator control of system doors. The manual functions shall include the ability to Lock, Un-Lock, Shunt, Un-Shunt and Return to Time Zone.
- Provide ability to automatically display stored "video image" of cardholder, and switch real-time camera from CCTV or digital video server to card reader location for specific card usage.
- The cardholder "video image" pop-up shall be activated based on a priority level set to the cardholder or reader. Information in the pop-up shall include, but not be limited to the cardholder's primary image a live video pop-up showing the person who initiated the pop-up, entrance name, time, date, cardholder name, and status. User shall be able to display up to 40 note fields. The size of the pop-up(s) shall be adjustable by the operator.
- Support multiple card reader technology including Proximity, Wiegand effect, Biometrics, Magnetic stripe, Bar Code, Keypad, Card/keypad (PIN), High-speed long range Vehicle ID, Smart Card
- Provide a means for scheduled automatic backups of any or all database system files. A means to restore these files from a simple menu shall exist.
- Provide the ability to address up to 2 serial communication ports, where each port can be configured for either hardwired or dial-up. When configured for dial-up, any one port can support multiple dial-up locations.
- Communication from the access control server to the remote control panels shall be selectable. Communication options shall be via RS-485 converter, dial-up, leased line from a defined communication port or by LAN/WAN using an IP address for direct connection to the remote RS-485 converter via network interface card. When using IP addressing it shall be unacceptable to use a communication port converter device on the communication server side of the transmission. A minimum of 64 such IP connections shall be allowed.
- All commands and updates to the panels shall be verified and shall automatically retry if communications have failed.
- Provide the ability to select ACK/NAK communication feature by communications port for either dial-up or hardwire.

- Provide a system scheduler that shall automatically:
 - ✓ Call remote locations to retrieve history transactions and update panel information, including time and date.
 - ✓ Activate or deactivate cards locally or at remote dial-up sites.
 - ✓ Initiate a pre-programmed command event/action.
 - ✓ Synchronize system to controller time.
- Provide the ability to initiate an alarm based on a transaction state. A transaction state shall be defined as but not limited to Normal, Alarm, Trouble, Ajar, Trace, Not Found, Anti-Passback Violation, PIN Violation, Time Zone Violation, Site Code Violation and System Alarms including Panel Com, Panel Power Failure, Modem Pool, Guard Tour, and Tamper.
- A host grant mode of operation shall exist that requires the host computer to grant accesses to “valid” cards. An alternate host grant mode shall allow the card access information to be downloaded along with unlocking the door for “valid” cards.

2.2 Card Database

- Provide a simple card and card holder database import utility. The utility shall be password protected and accessible only to administrators of the access control system. Information that can be imported shall include but not be limited to: First Name, Last Name, card number, activation date, de-activation date, status, up to 40 note fields and photo images. A simple CSV (comma separated value) file shall be used for the importing of data and image file names.
- Cardholder information shall include unique card number up to 15 digits and optional Personal Identification Number.
- Allow multiple cards per cardholder.
- Allow for up to 32 access levels to be assigned to a card, or a single “precision” access level. When using “precision” access levels it shall be possible to create a unique access level per card using an existing access level as a baseline template. This customized card access level shall have both beginning and ending dates.
- Provide 20 user definable fields or more.
- Each card holder note filed shall allow the option to be entered as free form data or structured data. Structured data shall be by use of a template or drop list. The template and drop list shall be created by the operator. The capacity of the template shall allow for up to 65,000 characters.
- Provide special card options that include, but are not limited to:
 - ✓ Time zone reference, which defines valid time.
 - ✓ Visitor use, which provides a specified activation date and expiration date (spanning years).
 - ✓ Trigger control value, which can initiate a predefined procedure at the intelligent control independent from any control function from the system computer.
- Provide a card “Trace” function. The Trace function shall allow normal access control, but will provide a tracking alarm at the system monitor.
- Provide ability to store digital images and written signature of cardholder.
- Provide the ability to priorities specific card usage from 1 to 99 with separate priority options for Anti-pass back, Trace, PIN Violation, Normal, Not Found, Expired, Host Grant, Site Code and Time Zone card activities or violations.
- Allow the user the ability to assign an operator message per card event state.
- Upon editing card information, the updated information shall be sent automatically to the appropriate access control panel, when hardwired, with no other user intervention. If the port is dial-up, the entry will be stored on disk and shall be updated when connection is made to the remote loop. If the scheduler is used, then card updates shall be sent based on scheduling.
- In a traditional (Wiegand) 5-digit card database, the numbers 0 and 65,535 shall not be valid card numbers as some devices transmit these numbers on an improper read.
- In a 15-digit card database, the number 0 shall not be a valid card number as some devices transmit this number on an improper read.

- A card shall have the ability to be allowed to access one or selected accounts up to all available accounts.

2.3 Access Levels

- It shall provide the ability to define specific times of access, specific readers for access, provide a template of a defined access level detail, where changes can be made to the template and saved as a new access level detail and provide an access control tree structure that allows groupings of entrances. User shall have the ability to group program all entrances on the branch or make specific changes to individual entrances.

2.4 Digital Video Server and Camera Control

- Provide ability to interface to network of digital video servers and microprocessor-based matrix video switcher via a system communication port or LAN connection.
- Provide ability to program descriptions and camera titles for all system cameras, to manually switch any camera in the system to any monitor in the system, to automatically switch any camera in the system to any monitor in the system based on any alarm point or system alarm, to manually control the pan, tilt, and lens functions (zoom, iris and focus), to set and clear the movement limits of the pan and tilt mechanisms so equipped, and to manually access live video from any camera on any defined digital video server.
- A “live view” from the Digital Video Server and CCTV switcher shall be displayed on the system computer. The view shall include pan, tilt, zoom, camera/monitor selection, and the ability to send user programmed information to the video switcher. The ability to change the size and location of the view shall exist.
- The viewer windows shall allow at least 16 live videos to be displayed at one time.
- Provide ability to automatically pop-up any camera in the system based on any alarm point, system alarm or cardholder video image pop-up.

2.5 Alarm Monitoring – Alarms Only View

- Report alarm point activity.
- Provide colour for each specific alarm point action of “Alarm”, “Normal” and “Trouble”, conditions.
- Provide the ability to access the default floor plan graphic for any active alarm point by a right click option, to acknowledge any alarm, card, or reader activity based on priority and to bypass alarms in the system
- Live video pop-up from the digital video server(s) shall follow the alarm event pop-up. The number of live camera views in the pop-up window shall be no less than 16. The live pop-up window shall allow the user to define the quantity of views from 1 – 16. The ability to adjust the size of the live pop-up window shall exist.
- Execute alarm notification in all modes of operation.
- Provide display of system activity with the higher priorities displayed at the top of the list with identical points stacked with a frequency count of each point’s change of state.
- Provide a video icon for events that have video associated with it. Right clicking on such an event shall allow the option to retrieve recorded video or view “live”. The stored video clip shall playback by default a minimum of 2 seconds before the actual event without any adjustment.

- Provide ability for the operator to acknowledge and clear alarms from display. Prior to acknowledgment, the user shall be allowed to enter a response per alarm. The system shall offer a means to require acknowledgement of an alarm before it can be cleared.
- Provide a display of the most current transactions in real time.
 - ✓ Provide the ability for dynamic alarm monitoring of alarm points in real time on the system computer's video display terminal.
 - ✓ Provide an alarm view filter that is structured as a tree allowing the operator to select individual devices or groups of devices to be viewed.
 - ✓ Provide a "Panel Not Responding" alarm if communication to a panel is lost.
 - ✓ Provide real time printing of alarms as they occur by line printing with a dot matrix printer or provide printing of alarms, one page at a time, using typical Windows page printing.

2.6 Alarm Monitoring/System Control – Tree View

- Provide the ability for dynamic alarm monitoring of alarm points in real time on the system computer's video display terminal
- Provide colour and icon shapes for each specific alarm point action of "Alarm", "Normal" and "Trouble", and "Shunted".
- Access control panels in the alarm tree, like alarm points, shall also indicate if they are in the buffered mode of operation as well as any "system" related alarm such as "Tamper" or "Primary Power Loss" or Loss of communication.
- Devices connected to the communication server shall provide additional popup information as to the communication port or IP connection the device is programmed for.

2.7 Operator Database

- The software shall allow the assignment of operator levels to define the system components that each operator has access to view, operate, change or delete.
- The ability to view, edit or delete cardholder sensitive information such as note fields, card number and PIN shall be definable by field per operator.
- Define the accounts that the operator has access to.
- Provide the ability to log operator actions in the history files.
- Provide default language to be used based on operator's login.
- Provide specified time periods that the operator can log in.

2.8 Reports

- Provide reporting capability for printing of selected system transactions from the disk files by specific time and date selection, range from time and date to time and date, or from start time to end time each day of the selected date range.
- Provide feature to generate a history report for an alarm point(s) state. An alarm point state shall be defined as Normal, Alarm, Trouble, or Ajar.
- Provide feature to generate a history report of system alarms. A system alarm state shall be defined by panel and include any of the following information: communication, ground fault, power, panel reset, low voltage, panel tamper, and loop communication.
- Provide feature to generate a history report for a card(s) state. A card state shall be defined as Normal, Trace, Not Found, Anti-Pass back Violation, PIN Violation, Time Zone Violation, Site Code Violation, or Expired card. Additional search criteria shall include cardholders that meet up to at least 3-note field restriction and filter the report with defined reader location(s).

- Provide feature to generate a history report for system operator(s) activities. The report shall include time, date, operator name the device associated with the action and the type of action performed by the operator. Activities shall include but not limited to: acknowledged and cleared transactions, camera control, door and relay control such as unlock, lock; door and input control such as shunt, unshunt; login, logout, panel initialization, panel buffer and panel un buffer.
- Provide complete database reporting of all data programmed into the system data files.
- Provide a means to define how long a card holder has been in a defined area. This report shall allow the time to be accumulated representing an attendance report. The definable filters shall include time/date range, reader(s) definition, card number, card holder and note field. The output of the report shall allow sort options to include First Name, Last Name, Event Time, and Card Number. The sorted data shall be selectable as Alpha or Numeric sorting and Ascending or Descending.
- Provide feature to generate a report based on the frequency of usage of a card. The report shall allow the operator to define a time/date period, a minimum and maximum usage limit, a means to define which reader or readers should be used to filter the report and the ability to further define the type of card to be reported on based on note field selections. This report shall also provide a disposition function. The cards meeting the filtering criteria shall be acted upon based on the disposition setting. Disposition settings shall include but not be limited to: Report only, De-activate the card or Re-assign to a specified an access level. This report shall be available in the event scheduler. When defining when to run the report an option to select the number of previous days to run the report against shall be provided. As an example a scheduled weekly report for the last 14 days could generate allowing for an overlap of time if desired.
- Provide a means to create report templates. Report templates shall include, but not be limited to, History and Card Holder information. The templates shall be able to be assigned to a scheduler to run automatically per the scheduler settings.

3. Tracking/Muster Report

- A tracking feature shall allow the system operator to identify an area and the person(s) in that area, which shall be defined by readers representing an IN or OUT read status.
- Defined areas shall provide an automatic update of how many cardholders are in the area.
- A view displaying all card holders in a defined tracking or muster area shall have the ability to be sorted in columns where by clicking on the column the data in the column shall be sorted. At a minimum, the columns can be sorted by: Card Number, Status, Card Holder, Reader, and Time/Date.
- A Muster area shall be defined by a reader(s) used to “muster” individuals in the event of an emergency.
- Reports shall be generated for all muster or tracking areas in the system.
- Tracking areas shall include “nested” areas. Nesting allows for various reports from a large area to smaller areas within the large area.
- A Tracking and Muster area screen shall be continually updated with the most recent card activity, therefore minimizing the time required generating a report.
- A history-priming feature shall load history activities for the defined amount of hours when the software is started. This priming feature shall be implemented in the event that the system computer is offline when a muster call is initiated, thereby allowing the implementation of the tracking and muster features of the software. The history priming time shall be operator selectable in 1-hour increments up to 99 hours.

4. Time Zones

- Time zone definitions shall include Starting time, Ending time, Days of the week, and Holiday override.
- Minimum time zones that can be assigned to a panel shall be 63 and maximum unlimited.
- Holidays shall be definable in two different time zones allowing different time schedule to be programmed for each holiday type.

5. Floor Plan Graphic

- Provide the ability to import floor plan graphics stored in a WMF format and to associate all hardware devices (access, video) to floor plan graphics allowing the user to control and monitor the system.
- Provide the ability to link floor plan graphics together in a hierarchy fashion and allow multiple floor plan views to be displayed simultaneously.

6. Special System Functions

- The manufacturer of the system shall provide in the system software the following unique applications as standard:

6.1 Guard Tour

- Guard Tour shall allow the operator to program a series of guard check points that must be activated to accomplish the task of a Guard Tour.
- The check point shall be either reader points or alarm contact points or a mixture.
- The Guard Tour can be timed sequential allowing travel time between points with +/- tolerance. This type of tour shall allow alarms to be generated for early, missed or late events.
- The Guard Tour can be un-sequenced with no time parameters.
- The Guard Tour shall be started by two methods, Manual or Scheduled by the access control system scheduler.

6.2 ID Badging System/Video Image System

- Allow any card data fields to be assigned to a badge.
- Allow a stored cardholder image to be associated to any background. Each cardholder shall have any one of the background layouts associated to it.
- Provide the ability to create temporary or permanent badges.
- Badges shall be printed without the need to assign an access level or access control card number. Numbers and access levels may be assigned after the print process.
- Provide image export capability. Image shall be exported utilizing the cardholder's name as the file name in .jpg format.
- Provide unlimited custom badge layouts (only limited by the hard disk capacity).
- Provide 24-bit (16.7 Million) color palette for background design or foreground text and all fonts supported by Windows.
- Provide import capabilities of background information by video camera or via BMP, JPG, or TGA files.
- Provide for multiple bitmap images to be imported onto the badge layout.
- Provide video capture capability from a compatible TWAIN device, DirectX device or from a compatible video capture device, such as a high-resolution color camera.
- Provide ability for multiple card enrollment/badging stations on networked system.
- Provide the capability to have a front and back layout selected for a cardholder and the ability to print the card in one step (requires suitable printer) without the need to reinsert the card.
- Provide the capability to encode a magnetic stripe with information from any of the card data fields to include, but not be limited to: First Name, Last Name, Card Number, Activation date, Expiration Date or any data from the card holders note field.

6.3 Networking

- Provide networking capabilities (LAN or WAN) as allowed by the computer's operating system license.

- The access control software shall support two networking methods. By default, Domain controlled networks shall be the standard configuration providing secure networking communications. The ability to work on less secure peer-to-peer (Workgroup) networks shall be allowed for lower security installations. The functionality shall be one or the other and not run in both modes at the same time.
- Provide the ability for a network system to support concurrent users up to the license limit, i.e., one station adding cards and making badges, another station monitoring alarms, yet another running data base report, another controlling door openings and alarm shunting, and so on.
- The workstation shall have the same UI (user interface) functionality as the Server, except the workstation shall not be able to perform database maintenance functions.

7. System Products

7.1 Communication Ports And Loops

The computer shall have two serial communication ports. If additional ports are required, they shall be provided by installing additional compatible multi-port cards. Instead of communication ports a LAN/WAN solution is acceptable using standard 10/100/1000 Ethernet connections.

System communication ports shall be expandable up to a maximum of 255 ports.

Each communication port shall support one of the following configurations. Local direct connect loop or multiple remote loops via modem. A local RS485 multi-drop communication loop shall support up to eight intelligent controllers, 128 readers or 1024 output relays or monitor up to 1024 alarm points. Remote configuration shall be supported.

7.2 Video Image/ID Badging System

The Video Image/ID Badging System shall include a personal computer running the badging software, camera, SVGA monitor, Video/Badge Printer, and Signature Capture Pad (optional).

7.3 Front End Software Specifications

- Databases: The software shall provide edit, add, delete, search, sort, and print options for records in selected databases.
- Printer Output: The software shall direct user-selected activity to the Windows supported printer.
- Monitor Display: The software shall display all system activity on a colour monitor in real time, except for remote locations configured as dial-up. The software shall allow a WAV file to be played upon all alarm conditions. The software shall provide an acknowledge function for all incoming alarm messages that are defined for alarm acknowledgment.
- Disk Storage: The software shall store user-selected activity on the hard disk. Report options shall recall selected history information from the hard disk. The user may request report information based on selected cardholders, specific areas and/or specific times. The software shall allow archiving by defined dates.
- English Descriptions: The software shall support descriptive names for all database entries. The card database shall include name, number, PIN, access level, status, activation, and expiration date or limited usage and 40 user-defined fields.

7.4 Front End Software Requirements

- Password Protection: The software shall provide multi-level password protection, with user-defined operator name/password combinations. Name/password log-on shall restrict operators to selected areas of the program. The software shall allow the assignment of operator levels to define the system components that each operator has access to view, operate, change or delete.
- Action Messages: The software shall allow recall of user created text messages upon any condition
- Graphics: The software shall allow recall of user created screen graphics, upon alarm/trouble/normal conditions. These graphics shall allow the user to go from a general area to a specific area in various layers or stages and shall allow the user to monitor and control system devices from floor plans.
- Manual Panel Control: The software shall allow manual control of selected inputs, outputs and groups of outputs. Manual panel control shall include pulse, timed pulse, and energize/de-energize or return to time zone options for output points and shunt/un shunt or return to time zone options for input points. For entrances and readers manual control shall include but be limited to Lock, Un-Lock, Disable, Card only, Card-Pin only, Pin only, exit only and site code only.

7.5 CCTV System Control:

- The software shall provide complete control of all CCTV System functions from the computer keyboard.
- The software shall support a CCTV system with up to 99 monitors and 999 cameras per CCTV switcher.
- The software shall support individual camera/monitor connections, pan and tilt camera control functions and focus, zoom, and iris control motorized lens control functions.
- Supported CCTV microprocessor-based switchers shall include, but not be limited to: American Dynamics, Burle, Dedicated Micros, Geutebruck, Javelin, Vicon, Panasonic, Pelco, Max Pro, Max Com, and Video Blox.
- The software shall activate selected camera/monitor combinations upon input point, system alarm, or card activity.
- Software for the CCTV system shall allow the highest level operators to change the operating parameters of the system. The software features shall include the following capabilities:
 - ✓ Edit camera title information, consisting of camera number and alphanumeric identification.
 - ✓ Any camera/monitor combination can be programmed to an alarm or card reader.
 - ✓ Program home positions for a pan and tilt camera.
 - ✓ Enunciate local alarms and allow the operator to acknowledge these alarms at the local or remote control locations.

7.6 Video Imaging/ID Badging:

- The Video Image/ID Badging software shall store cardholder images on hard disk. Stored images shall be displayed upon request.
- Custom card backgrounds shall be displayed upon request.

8. TIME & ATTENDANCE MANAGEMENT SUITE

- The attendance module shall work as a report generation module for the employees card badges/ swipes data acquired by security management suites. It will allow attendance data to be automatically updated, as well and leave requests and records shall be maintained.
- It shall allow complete flexibility in defining the rules for attendance keeping facilitating data keeping with a range of reports, catering to user requirements on a regular or periodic basis. It shall provide a strong communication environment for employees and HR departments for exchanging information related to attendances and leave status. With a feature of multiple file uploads. It shall support a multi site operation. The system supports multiple database environments viz. MSDE for lower levels and SQL Server for higher levels of transactions
- It shall allow the attendance rules logic to be set dynamically by the administrator. The system will allow visually setting rules relating to swiping data, attendance record (Present, Late etc), typing of reader / controller, shifts and leave and over time etc.
- It shall be a Web browser based application with password protection for security. The application shall support multiple shifts and shall take due care of the shifts which cross during the midnight. The application shall be capable of supporting unlimited cardholders. Shift allocation employee and department wise, defining periodic rotation pattern shall also possible. Manual updation of attendance / leaves / Out door duty shall be possible.
- The system shall minimum have the following reports : Employee List , Shift Allocation , Holiday Attendance muster report indicating Present, absent, single swipe , early going , late coming , half day, outdoor duty , Leave along with man hour and over time . Reports can be sorted one or all shift / date / employees' wise
- The system shall be capable of exporting the data into *.doc , csv , *.xls formats.

9. Access Control Field Hardware Devices

- The security management system shall be equipped with access control field hardware required to receive alarms and administer all access granted/denied decisions. All field hardware shall meet FCC CE C-Tick requirements. The system shall include the 2-reader intelligent controller.
-
- The IP-enabled controller is an advanced access control panel capable of providing solutions for medium to large applications. The controller provides power and flexibility with its 32-bit CPU architecture, TCP/IP protocol support, flash memory for firmware and large local card holder database.
- The controller is designed to operate off-line, making access control decisions independently from a PC or other controlling device. It can also be connected to a host computer for system configuration, alarm monitoring and direct control. Connectivity to the host computer is accomplished via TCP/IP network connection.
- The board combines intelligent controller and reader interface into one complete unit. It connects for two readers via Wiegand controlling two doors. The controller can support up to 62 doors via RS485 multi-drop communication where 30 downstream controllers are connected to the gateway controller. This architecture can reduce the usage on LANs by using only one TCP/IP address to 62 doors. It accommodates a card database of 55,000 cards, and a transaction buffer of 45,000 transactions. It is designed with tile mounting configuration.

9.1. Database:

- Cardholder capacity: 55,000

- Transaction storage: 45,000
- Flash programming for firmware revision updates
- Access level: 64 or Higher
- Holidays: 255
- Time zone: 127
- Card reader formats: 128 Wiegand format support
- Credential facility codes: 8
- Dedicated tamper alarm
- Dedicated power fail alarm
- Real time clock:
 - ✓ Geographic time zone support
 - ✓ Leap year support
- Embedded web server to configure network attributes

9.2. Environment:

- Temperature:
 - ✓ 0 to 50°C operational
 - ✓ -55 to 85°C storage
 - ✓ Humidity: 0 to 85% RHNC
- Communication:
 - ✓ Ethernet port connected to TCP/IP network as master panel
 - ✓ RS485 multi-drop connection for downstream panels
- Onboard I/O:
 - ✓ Readers, expandable to 62 readers per gateway controller
 - ✓ 8 Supervised inputs
 - ✓ 4 Relay outputs
- Operational Functionality:
 - ✓ Operational modes
 - ✓ Card only
 - ✓ Card and PIN
 - ✓ Maximum site codes: 8 digit
 - ✓ Anti-Passback support:
 - Local
 - Global
 - Forgiveness
 - ✓ Interlocks: 256
- Approvals:
 - ✓ CE/FCC/C-TICK

9.3 Standard Read Range Smart Card Reader:

- Reader shall be read only reader
- Provide surface mounting style 13.56 MHz contactless smart card readers suitable for minimal space mounting configurations as shown on the project plans.
- Contactless smart card readers shall comply with ISO 15693, ISO 14443A (CSN), and ISO 14443B and shall read credentials that comply with these standards.
- Contactless smart card readers shall output credential data in compliance with the SIA AC-01 Wiegand standard as follows:

- ✓ Reads standard proximity format data from cards and outputs data as encoded.
 - ✓ Reads card serial number (CSN) of a MIFARE card with configurable outputs as 26-bit, 32-bit, 34-bit, 40-bit, or 56-bit.
- Data security with cards shall use 64-bit authentication keys to reduce the risk of compromised data or duplicate cards. The contactless smart card reader and cards shall require matching keys in order to function together. All RF data transmission between the card and the reader shall be encrypted, using a secure algorithm. Card readers shall be provided with keys that are compatible with the cards.
- The reader shall be of potted, polycarbonate material, sealed to a NEMA rating of 4X (IP65).
- The contactless smart card reader shall provide the ability to change operational features in the field through the use of a factory-programmed command card. Additionally, firmware may be updated by flashing the reader. Command card operational programming options shall include:
 - ✓ Output configurations
 - ✓ LED & Audio configurations
 - ✓ Keypad configurations
- Contactless smart card readers shall provide the following programmable audio/visual indication:
 - ✓ An audio transducer shall provide various tone sequences to signify: access granted, access denied, power up, and diagnostics.
 - ✓ A high-intensity light bar shall provide clear visual status (red/green/amber) that is visible even in bright sunlight.
- Typical contactless smart card read range shall be:
 - ✓ 2" – 3" (5.0 – 7.6 cm) using card
- Contactless smart card readers shall meet the following physical specifications:
 - ✓ Dimensions: 1.90" x 4.04" x .80" (4.83cm x 10.26 cm x 2.03 cm)
 - ✓ Weight: 3.2.oz (90.7 g)
 - ✓ Material: UL94 Polycarbonate
 - ✓ Three-part design with separate mounting plate, reader body, and cover.
 - ✓ Color: Black.
- Contactless smart card readers shall meet the following electrical specifications:
 - ✓ Operating voltage: 10 – 16 VDC, reverse voltage protected. Linear power supply recommended.
 - ✓ Current requirements: (average/peak) 61/178mA @ 12 VDC
- Contactless smart card readers shall meet the following certifications:
 - ✓ UL 294
 - ✓ Canada/UL 294
 - ✓ FCC Certification
 - ✓ IP55 Rated
- Contactless smart card readers shall meet the following environmental specifications:
 - ✓ Operating temperature: -30 to 150 degrees F (-35 to 65 degrees C)
 - ✓ Operating humidity: 5% to 95% relative humidity non-condensing
 - ✓ Weatherized design suitable to withstand harsh environments
- Contactless smart card reader cabling requirements shall be:
 - ✓ Cable distance: (Wiegand): 500 feet (150m)
 - ✓ Cable type: 5-conductor #22 AWG with overall shield
 - ✓ Standard reader termination: 18" (.5m) cable pigtail
- Warranty of contactless smart card readers shall be lifetime against defects in materials and workmanship.

9.4 Contact Less Smart Card:

- Access cards shall be used with access readers to gain entry to access controlled areas / zones(e.g.; doors, gates, turnstiles , barriers etc.) and to hold information specific to the user.
- Provide (specify quantity) (badge protectors with clips or other accessories), of a type acceptable to the Architect.
- Cards shall meet the following criteria:
 - ✓ The card shall meet the following standards for contactless smart cards: ISO 15693 and ISO 14443B2.
 - ✓ The card shall meet ISO 7810 specifications for length, width, thickness, flatness, card construction and durability, and shall be in a form suitable for direct two-sided dye-sublimation or thermal transfer printing on the specified badge printer.
 - ✓ Card will be 16Kb card with 16 application area's.

10. Electromagnetic Lock:

- Single Leaf doors.
- Surface Mount Electromagnetic Lock with built in magnetic read switch contractor shall consider the U , L , Z brackets based on the site conditions accordingly
- The EM Lock shall have minimum with following specifications:
 - ✓ Suitable for surface mount on single leaf doors
 - ✓ Current Draw: 500mA / 12V, 250mA / 24V
 - ✓ Dual Voltage: 12V / 24 V
 - ✓ Holding Force: About 600 lbs
 - ✓ Built-in magnetic read switch and Voltage Spike Suppressor
 - ✓ UL Listed
- Double Leaf doors.
- Surface Mount Electromagnetic Lock with built in magnetic read switch contractor shall consider the U , L , Z brackets based on the site conditions accordingly
- The EM Lock shall have minimum with following specifications:
 - ✓ Suitable for surface mount on double leaf doors
 - ✓ Current Draw: 1A / 12V, 500 mA / 24V
 - ✓ Dual Voltage: 12V / 24 V
 - ✓ Holding Force: About 600 lbs
 - ✓ Built-in magnetic read switch and Voltage Spike Suppressor
 - ✓ UL Listed

11. Cable:

- Following shall be the cables for the various components of the networked access control system
 - ✓ Reader - six conductor shielded, 18 AWG
 - ✓ Power - twisted pair, 18AWG
 - ✓ RS-485 - 24 AWG, 4,000 ft. (1,200 m) max., 2 twisted pairs' with shield (120W, 23pF)
 - ✓ RS-232 – 8 conductors 24 AWG, 25 ft. (7.6 m) max.
 - ✓ Alarm input – 2 conductor twisted pair, 30 ohms max.

Section 2: Closed Circuit Television (CCTV)

Approved Make:

1. Honeywell
2. Pelco
3. Vicon
4. Godrez

S. No	Product Summary	Product Description
1	PTZ Camera	6" Speed Dome, TDN, WDR, Optical 26x, Digital 12x, 540TVL, 1/4" Ex-view CCD, 0.01 lx (TDN, DSS), 128 preset (Max. 360°/sec), 6 tour, 3 patterns, Multi-protocol, AC24V, PAL
2	Dome Camera	1/3" CCD, 580TVL, 1.0 lux (30 IRE), Internal Sync., AWB / BLC / AGC, WDR, DNR, BMB, 3.6mm fixed lens, DC12V
3	DVR	Enterprise Level 16-Channel Embedded DVR, 400/480fps at D1 recording, Support Chinese (Simplified) and English GUI, 4 SATA ports, Hot Swap Hard disk design, 100-240VAC
4	Power Supply	Supply of SMPS Power Adaptors – 12 VDC, 1 AMP
5	VMS	Central Management Software Master Server: Include PC server, OS, DB, software. License covers 300 video channels, 20 clients and E-map application
6	ACS	Access Extension Package: Access control Software for Integration for ACS and CCTV for central management
7	Joystick	Ultrakey Lite, Maxpro Control keyboard with function key, joystick, LED display
8	Cable	Supply of Video Cable – RG 6 Or RG 11 (Where distance is more than 90 Meters)
9	Connector	BMC Connector

Detailed Technical Specification

1. High Resolution Fixed Dome SDN Camera with Wide Dynamic Range:

1.1 The fixed dome camera should have the following features:

- 1/3" CCD with superior digital signal processing.
- Enhanced back light compensation which shall also able to mask strong light focusing directly onto the cameras. Masking colors should be selectable from White / Gray / Black.
- Other Enhanced features such as Wide Dynamic Range, Digital Noise Reduction, PIP (picture in picture), Quad View, Mirror, Digital Zoom, Motion detection and Privacy masking
- Multi-language OSD

1.2 The camera should meet the minimum following specifications:

Video Format	PAL
Horizontal Resolution (TVL)	Minimum 580 TVL
Type of CCD	1/3" Interline CCD
Effective Pixels	752 (H) x 582 (V)
Minimum Illumination	1.0 lx (Day mode); 0.1 lx (Night Mode); 0.001 lx (512 fields, Night ON)
Synchronization	Internal
Electronic Shutter	1/50 - 1/100,000 sec
S/N Ratio	50 dB or more
AGC	Yes (0-40 dB)
White Balance	Various modes such as ATW/AWC/One-push Lock/Indoor/Outdoor/Manual should be available
Day & Night	Shall be provided
Backlight Compensation	BLC (shall be available with settings such as off/ low/ medium/ high); Black masking BLC; WDR(should be 0-20 level adjustable)
OSD Support	Shall be provided with multiple languages
Digital Noise Reduction	Shall be provided
Digital Zoom	Shall be provided and not less than 16X
Motion Detection	Shall be provided
Private Zone Masking	Shall be provided and not less than 8 zones
Lens Specifications	3.6 mm
Video Output	1.0 V p-p, 75 Ohms
Certifications	CE/FCC
Operating Temperature	-10°C ~ 50°C

2. High Resolution Outdoor PTZ Speed Dome Camera with 26x zoom:

2.1 The pan tilt zoom colour camera should have the following features:

- High Resolution of 540 TVL (Color), 570 TVL (B/W)
- Weather-proof 24-hours Surveillance
- ICR true day/night, IP66 standard, lighting & surge protector, high strength metal housing with heater and fan.

- High Performance Memory: 128 preset positions (maximum), 3 self-learning auto tracks (120 seconds per track), 6 vector scan groups, intelligent power off real time memory, 8 privacy mask zones.
- Digital turn over function, built-in multi protocol
- Quick Installation
- Hot plugging technology, wall & suspensor mounting selectable.

2.2 The camera should meet the minimum following specifications:

Video Format	PAL
Horizontal Resolution (TVL)	540TVL (Color), 570TVL (B/W)
Type of CCD	1/4" Ex-View HAD CCD, Sony
Effective Pixels	752 (H) x 582 (V)
Minimum Illumination	1.0lx (30IRE):IR Cut Filter On 0.1lx (30IRE):IR Cut Filter Off 0.001lx:DSSx256-ON 0.0001lx (30IRE):Night ON+DSS
Synchronization	Internal/External(V-Lock)
Electronic Shutter	1/50 ~1/10,000 Sec
S/N Ratio	50 dB or more
AGC	Yes (0-36 dB)
Optical Lens Focal length	f=3.4mm~122.4mm
Aperture Range	F1.6(wide)~F4.5(tele)
Angular Field of View	57.8°(wide)-1.7°(tele)
White Balance	Various modes such as Manual/ Auto/ Indoor/ Outdoor/ ATW should be available
Wide Dynamic Range	Should be available
Optical Zoom	26x
Digital Zoom	12x
Backlight Compensation	BLC (off/ on)
Vector Scan Groups	Should be available and not less than 6
Auto Scan	Should be available
Pan Angle	360°Rotation Capability
Tilt Angle	0° ~ 90°
Pan Speed	0.1°~300°/Sec
Tilt Speed	0.1°~120°/Sec
Preset Speed	360°/Sec
Accuracy	0.1°
Preset Positions	128 at least
Digital Turn Over	Should be available
Power Off Real Time Memory	Should be available
Long-focus Speed-limited	Should be available
PTZ Tours (Pattern)	Should be available not less than 3 Programmable patterns of 120 Seconds duration
Control	RS-485
Protocols	Pelco D/P, KD6, VCL minimum protocols
Video Output	1.0 V p-p, 75 Ohms
Power Input, Current Rating	24VAC, 2A, 60Hz/50Hz, Surge Protector.
Housing	Should be outdoor IP 66 rated with heater and fan
Mountings	Options of Outdoor Pole mount, wall mount, ceiling

	mounts should be available
Power consumption	Not more than 40 W
Certifications	CE/FCC
Operating Temperature	-20°C ~ 55°C

3. 16 channel Digital Video Recorder(DVR) recording at 4CIF real-time, H.264 compression

The Digital Video recorder will have 16 video inputs and have the following features:

- 16 channels at genuine D1 resolution image in live view and playback mode at real time frame rate
- Records / Captures the images in D1 resolution out of front end cameras in full frame
- Advanced H.264 video compression technology should be used for vivid image recording
- Resolution and frame rate of each channel can be set individually
- Support dual stream and multicast for each individual channel
- Support variable bit rate and constant bit rate to provide high video quality under various situations
- 16 channel audio should be available to be recorded and playback synchronized with video image.
- IP address filter protect system from unauthorized IP address access
- Various detections should be available like Camera covered, video loss and relative actions can be taken like alarm notice, environment checking
- Password encryption should be available to avoid password be sniffed on network
- System should have passed the strictest CE, FCC and QAP test
- Tamperproof recording should be available to ensures no record be spitefully modified
- Four hot-swappable internal hard drivers should be available to ensure no video loss even when hard disks as changed
- There should be no system down time even when hard disks are changed
- Hard disk status should be monitored to guarantee continuous recording
- DVR status should be monitored to ensure system continuous operation
- Control center application software should be available and allow:
 - Easy configuration and user management
 - Live view
 - Record and search
 - Alarm handling
 - PTZ controlling
 - System status monitoring
- Mouse operation, plug and play.
- IE browser should be supported and Web configuration should have easy and quick access
- Motion detection should be area selectable and sensitivity adjustable. Relative actions should be taken after motion is detected to enable quick response.
- System log should be available
- DVR auto searching mechanism should ease system configuration
- It should fully support scheduled recording, triggered (alarm in, motion detection, video loss) recording, pre-alarm record and post-alarm record to cater to different needs in recording settings
- Users should be able to search recordings by date, record type (regular, triggered) to quickly find records needed
- Up to 8TB internal storage should be available, which should support at least 22 days continuous recording for 16 channels at D1 resolution and real time
- eSATA port should be available for storage extension if needed
- 16 channel alarm inputs and 4 channel relay outputs should be available for easy connection to 3rd party devices
- The DVR should support various PTZ protocols from different vendors

- 1080P HDMI and VGA high definition display outputs should be available as video outputs in the DVR
- Operation should be easy and intuitive with menu driven and auto prompted tips
- Maximum utilization of storage and network infrastructure should be available with H.264 compression
- The DVR should display high reliability and usability
- Flexible recording mechanism and high efficient searching dramatically improve your video surveillance system's efficiency

Number of Channels	16 Channel, BNC (1.0V Vp-p, 75 Ohm), PAL/NTSC
Video Compression	Advanced H.264
Display Frame Rate	Real Time
Video Recording	4 CIF, 25fps (real time)
Recording Resolutions	D1/4CIF/HD1/2CIF/CIF/QCIF
Video Bit Rate	64Kbps~5Mbps
Video Motion Detection	Independent channel configuration
Video Recording mode	Continuous / Scheduled / Sensor Based / Motion Detection Based / Manual
Video Outputs	Composite, 1080P HDMI (1920x1080 Pixels) and VGA high definition (1920x1080 Pixels), Spot Video Output 2 Channel, BNC (1.0Vp-p, 75Ω)
Event Trigger	External inputs, Video loss, Camera Covered, Motion Detection
Video Buffer	5S pre- and 50S post-alarm per channel
Network Failure Recovery	Automatic local record upload to center storage
Dual Streaming	16 channel individually configurable second stream
Multicast	16 channel individually configurable multicast
Audio Compression	Standard G.711
Audio Bit Rate	64kbps
Audio Input	16 Channel, RCA
Intercom Input	1 Channel, RCA
Audio Output	2 Channel, RCA
Alarm Input	16 (terminal block)
Alarm Output	4 (terminal block)
Internal HDD supported	Hot swappable SATA (Up to 4). Each HDD Supports Up to 2TB
Internal HDD Interface	SATA
External HDD Interface	e-SATA port

Network interface and protocols	RJ-45 (10/100M) RTSP/RTP, HTTP, TFTP, SMTP, DHCP, SSL/TLS, NTP
USB interface	2 USB 2.0 ports
Serial interface	RS-232 port for PC connection
PTZ Connectivity	RS-485
PTZ	Wide range of analog PTZ supported: Scandome, Diamond, VCL, Pelco-P/D
Remote Access Software	Yes
Web Browsing	Yes
Power Input	100 to 240VAC 50Hz/60Hz
Certifications	CCC, CE, FCC

4. Video Management Software with Server (HUS - XPRO)

The Video Management Server shall include, as a minimum, the following features/functions/specifications:
The VMS shall be an enterprise level video, audio, alarm, rule, and data management system
The VMS shall be capable of penta-plex user operations simultaneously. This includes live viewing, configuring, controlling, and handling the exchange of data between the VMS server and Client.
VMS server shall have minimum Quad Core Xeon X3440, 2.53GHz, 6MB Cache
RAM: 4GB, 1333MHz
The VMS application shall have following major capabilities:
Centralized architecture
Integration with intrusion system
Integration with access control system
Integration with video analytics device
Unlimited levels user access rights
Scheduled, event-based and alarm-based recording configuration
E Maps
PTZ control

Alarm management
Recording & Playback
Video Management
Manage minimum 300 channels of live video
Manage video streaming from IP cameras and video encoders to NVR
Record searching by time, camera number, event, devices or complex conditions
Archive evidence to local storage
Virtual matrix operation with CCTV keyboards or client work stations
Live view, record and playback video synchronized with audio
Accelerate investigation with agile replay controls: play & pause & shuttle
Snapshot video image for immediate actions
Configurable tours and patrols on workstation monitors or video walls
The Data Management Center service shall cover:
Users and Roles Management
Data Sync Management
Device Organization
Device Management
Device Type Definition
Device Configuration
Authentication
Disaster Recovery and Backup Configuration
Rules Management
License Management
Event & Control Service shall cover:
Capturing Alarm & Events
Third Party Interface (Video, Intrusion, Access)
Control to Devices (Video, Intrusion, Access, priority management)

Clock Sync
Rules execution
Configuration - The operator (with Admin privileges) shall have the option to configure VMS. The following configuration shall be possible:
VIDEO FRONT END CONFIGURATION – This shall provide an option to add/edit/delete video front ends
MATRIX CONFIGURATION – This shall provide an option to add/edit/delete switchers
KEYBOARD CONFIGURATION – This shall provide an option to add/edit/delete keyboard controllers
USER MANAGEMENT (USERS and ROLES) – This shall provide an option to add/edit/delete roles and associate to self-defined privileges and then add/edit/delete users and associate users with roles.
CLIENT VIEW CONFIGURATION – This shall provide an option to add/edit/delete device in group viewed by client as well as authorize rights of each device.
PARTITION CONFIGURATION – This shall provide an option to add/edit/delete partitions of NVR
VIDEO RECORD CONFIGURATION – This shall provide an option to add/edit/delete recording rule of NVR such as schedule, alarm triggered.
Hot Backup – The VMS should be capable of backup functions for management server, including hot backup for database, trigger service, EC service, rule service.
Client Workstation
Must be 4 cores CPU or above, independent display card with 1G memory or above, 4G RAM