Correctional Service Canada
Technical Services Branch
Electronics Systems

ES/SPEC-0005
Revision 5
November 2001

ELECTRONICS ENGINEERING SPECIFICATION

ELECTRONIC SYSTEMS INTEGRATION INTO THE MAIN COMMUNICATIONS AND CONTROL POST IN FEDERAL CORRECTIONAL INSTITUTIONS

AUTHORITY

This Specification is approved by Correctional Service Canada for the procurement and installation of a Main Communications and Control Post (MCCP) Integration Console in Canadian federal correctional institutions.

Recommended corrections, additions or deletions should be addressed to the Design Authority at the following address: Director, Engineering Services, Correctional Service of Canada, 340 Laurier Avenue West, Ottawa, Ontario, K1A 0P9

Prepared by:

Manager,
Electronics Systems Research

Approved by:

Director,
Engineering Services

TABLE OF CONTENTS

ABBREVIATIONS

The following abbreviations are used in this specification:

CCTV	Closed Circuit Television
CER	Common Equipment Room
COTS	Commercial-Off-The- Shelf
CSA	Canadian Standards Association
CSC	Correctional Service Canada
DES	Director Engineering Services
EIA	Electronic Industries Association
FAAS	Facility Alarm Annunciation System
FIU	FAAS Integration Unit
FDS	Fence Disturbance Detection System
FPSA	Fixed Point Security Alarm
GFE	Government Furnished Equipment
MCCP	Main Communications and Control Post
MDS	Motion Detection System
PA	Public Address
PALS	Portable Alarm Location System
PIDS	Perimeter Intrusion Detection System
PIU	PIDS Integration Unit
PPA	Personal Portable Alarm

RFP	Request for Proposal
SIDS	Supplementary Intrusion Detection System
SOW	Statement of Work
STR	Statement of Technical Requirements
TES	Terminal Equipment Space
UPS	Uninterruptable Power Supply
VDU	Video Display Unit

DEFINITIONS

The following definitions are used in this specification:

Design Authority	Director, Engineering Services (DES) - Correctional Service Canada (CSC) is responsible for all technical aspects of the system design and implementation.
Contract Authority	Public Works and Government Services Canada (PW&GSC) is responsible for all contractual matters associated with the system design and implementation.
Contractor	The company selected as the successful bidder.
Project Officer	A CSC employee or a contracted person designated by DES to be responsible for the implementation of the project.
Off-the-shelf	Equipment currently on the market with available field reliability data, manuals, engineering drawings and parts price list.
Custom Equipment	Equipment designed and/or manufactured specifically for a specific contract.

1.0 INTRODUCTION

This specification defines the design, technical and performance requirements for a Main Communication and Control Post (MCCP) Integration Console. The integration console is the supporting infrastructure between the operator and the Perimeter Intrusion Detection System (PIDS) Integration Unit (PIU), the Facility Alarm Annunciation System (FAAS) Integration Unit (FIU), and other communications and alarm systems. The MCCP Integration Console shall incorporate the hardware necessary to perform status monitoring, alarm processing, and display and control of the systems.

The contractor shall be responsible for integrating all subsystems and shall provide all material and labour required for the design, supply, delivery, installation, testing and commissioning of the MCCP Integration Console. The contractor shall provide the documentation and training to the extent described in this and other identified specifications.

Systems to be integrated into the MCCP Integration Console will be identified in the Statement of Technical Requirements (STR) and may include some or all of the following:

a. Perimeter Intrusion Detection System Integration Unit, consisting of:

   Motion Detection System (MDS);
   Fence Disturbance Detection System (FDS);
   PIDS Closed Circuit Television (CCTV);
   PIDS Public Address (PA) System;

b. Facility Alarm Annunciation System Integration Unit, consisting of:

   Personal Portable Alarm (PPA) System;
   Portable Alarm Location (PAL) System;
   Fixed Point Security Alarm (FPSA) System;
   Inmate Cell Call System (ICCS);
   Fire Alarm System;
   Facility/Mechanical Alarms;
   Interior Intrusion Alarms;

c. Supplementary Facility Alarm Systems;
d. Supplementary Closed Circuit Television Systems;
e. Two Way Radio Communications System;
f. Public Address System;
g. Telephone System; and
h. Uninterruptable Power Supply (UPS).

1.1 Commercial-Off-The-Self Equipment

The MCCP Integration console is the central control and integration point for all the institutional security and communication activities. To avoid any interference with operational procedures and requirements, any equipment or programs which require development work to meet the CSC specifications will not be accepted. The system shall use commercial off-the-shelf (COTS) equipment and proven designs to the maximum extent possible. All new equipment shall meet the specified lifespan requirements. New equipment designs shall be restricted to unique interfaces and common control console.

1.2 Technical Acceptability

The Correctional Service Canada (CSC) operational environment is unique for its diversity of locations, climate exposures and the physical restrictive construction techniques of penal institutions. Maintaining national security, the safety of staff and offenders alike is CSC's commitment to the government and public. Electronic security systems operating in this unique environment shall maintain very high standards of dependability and reliability.

The CSC Engineering Services Division has established technical specifications and equipment standards for specific electronic security systems which are based on very specific and restrictive operational performance criteria as detailed in its Electronic Engineering Standard. Technical acceptability of these systems means that the equipment complies with the pertinent CSC specifications and standards.

The technical acceptance process shall involve system and subsystem evaluation in accordance with the applicable CSC specifications in one of CSC facilities or may be tested in a CSC facility to verify the effectiveness of the proposed technologies when subjected to the restrictive operational environment.

CSC shall also verify in depth any of the system technical specifications called up. CSC may when it deems necessary, request the supplier to arrange for a full site demonstration. CSC may rely on manufacturer's test results for specific areas of the specification where an independent test facility has conducted the test, and the facility is deemed acceptable to CSC.

It is the supplier's responsibility to make new developments in products available to CSC for evaluation. Equipment qualification is an ongoing process and can be initiated at any time by a vendor. Any vendor can have access to the CSC specifications and standards. Any new development or products should be submitted to the CSC Engineering Services Division, Technical Authority in a suitable time frame prior to any tendering process to allow for an acceptable evaluation period. The evaluation period may take up to sixteen (16) months.

1.3 Equipment Procurement

Any ordering of equipment/material before the approval of the system design report will be undertaken at the contractor's own risk. The Design Authority may authorize the procurement of certain long lead items at, or shortly after a preliminary design review of the proposed system.

1.4 Quantity of Equipment

The quantity and location of the equipment required for CSC institutions will be contained in the specification identified in the Statement of Technical Requirements (STR)

2.0 APPLICABLE DOCUMENTS

The following documents of the issue in effect on the date of the Request for Proposal (RFP) shall form a part of this specification to the extent specified herein.

ES/SOW-0101	Statement of Work for Procurement and Installation of Electronic Systems
ES/SOW-0102	Statement of Work for Quality Control of Electronic Systems Installations
ES/SOW-0103	Statement of Work for Design Criteria for Electronic Systems
ES/SPEC-0103	Specification for Uninterruptable Power Supplies
ES/SPEC-0201	Specification for SIDS Closed Circuit Television Systems
ES/SPEC-0300	Specification for Two Way Radio Communications Systems
ES/SPEC-0401	Specification for PIDS Integration Units
ES/SPEC-0402	Specification for PIDS Public Address Systems
ES/SPEC-0403	Specification for PIDS Video Switchers
ES/SPEC-0409	Specification for PIDS Closed Circuit Television Systems
ES/SPEC-0800	Specification for Communications and Control Console
ES/STD-0802	Standard for Display and Control Panel
ES/STD-0803	Standard for Video Display Unit
EIA-310-C	Electronic Industry Association Standard for Racks, Panels and Associated Equipment

3.0 REQUIREMENTS

3.1 General

The MCCP Integration Console shall provide the operator with centralized monitoring and control capability over all perimeter intrusion detection and facility alarm annunciation subsystems, other communication systems, and the internal security, fire and mechanical facility alarm systems to the extent specified in the STR. The Integration Console shall incorporate industrial quality and commercially available controllers and Video Display Units (VDU). The VDUs shall display the status of monitored subsystems and provide software control of system features, to the extent specified herein.

To the maximum practical extent, off-the-shelf, Design Authority type-approved equipment shall be selected for use in the system. New designs should be restricted to common interface areas, control panels and consoles, or unique devices for which an off-the-shelf item does not exist.

3.1.1 Period of Operation

The MCCP Integration Console and all associated equipment shall be designed for and capable of 24 hours per day, seven days per week operation.

3.1.2 Wires, Cables, Conduits, Ducts

The contractor shall supply all necessary terminations, cross connection cabinets, conduits, wire and cabling and any other items that may be required for the satisfactory installation of the specified system. All installation workmanship shall be performed in accordance with ES/SOW-0102, SOW and all applicable national, provincial, and local electrical codes.

A wiring diagram shall be supplied in the installation section of the Maintenance Manual to detail where module connections terminate and how wires are routed and terminated.

Conduits, cables, ducts, trays, etc. may be either Government Furnished Equipment (GFE) or supplied and installed by the contractor depending on the particular institution. The determination will be made by the Design Authority and will be identified in the Request for Proposal.

Connectors provided on the ends of any cable must mate with the corresponding connector on the equipment. Adapters from one type of connector to another are not acceptable.

3.1.3 Wiring Supervision

Wiring shall be supervised in all system modes. An alarm shall occur if any system wiring is cut or shorted to other wires or if the system devices are tampered with by unauthorized people or environmental conditions.

3.1.4 Sabotage, Tampering and Survivability

Elements of the system shall have high resistance to damage or destruction. All interconnecting service must be secure against tampering

3.1.5 Human Factors

Elements of the system which are used directly by staff (i.e., control panels, annunciators, call originating devices, etc.) shall conform with accepted principles of good human factors design and in accordance with the CSC Specification, ES/SOW-0103.

3.1.6 Annunciation and Control Panels

In an effort to reduce the overall space requirements, the designer should make maximum possible use of annunciation and control devices which combine two or more functions into a single unit (e.g., a lighted push-button instead of a separate light and an unlit push-button).

The system may use EIA standard display and control panels or video display units. The design of either display and control method shall be in accordance with the ES/STD-0802 or ES/STD-0803, Standards.

3.2 General System Configuration

3.2.1 Hardware

The industrial grade PIDS and the FAAS central controllers shall act as an interface between the operator peripherals and the digital control panels for remote devices and subsystems. Each controller shall incorporate the following physical attributes:

- designed to operate in industrial conditions on a continuous basis;
- built to withstand a harsh, rugged work environment;
- designed with a positive pressure cooling system which passes air through an external synthetic filter element which screens contaminants, then circulates flow through the controller chassis, drives, power supply and cards;

- equipped with a security lock which shuts off keyboard access preventing any tamper activity; and

- powered by a heavy duty power supply sized with 25% spare capacity when driving all expansion ports.

Each industrial grade PIDS and FAAS controllers shall incorporate the following electronic features:

- microprocessor based, modular in structure;

- featuring Pentium III, or equivalent, processor;

- running at a clock speed of 500 MHZ or higher, with zero wait states;

- configured with spare expansion port(s) capability;

- equipped with a CDR;

- equipped with dynamic expandable RAM, sized to suit software requirements;

- equipped with a 3.5 inch floppy drive system; and

- equipped with a fast access hard disk with an access speed of no longer than 28 ms, sized to suit all operating and system requirements, and suitable to hold the data storage/retrieval software and archival data for a period of one year with 25% spare disk capacity.

3.2.2 **Software**

The system software shall be designed specifically for security applications and shall provide for:

- polling and demand requests to monitor status;

- processing alarms according to predefined priorities;

- executing event-initiated software programs and related background software routines;

- controlling and processing communications with operator peripherals; and

- synchronizing all system activity including interfaces to peripherals, digital control panels and all field devices

For reasons of reliability and prevention of inadvertent changes, system software including operating systems and data files shall be maintained in non-volatile memory. The contractor shall also take all reasonable measures to ensure that no computer viruses are present in the delivered system. These measures shall include controls on the use of the software during the development and integration phases, and the tests for the presence of viruses. Similarly, steps must be in place through the careful selection of the operating system to prevent any introduction of software viruses without the constant need for extensive software security measures. The system shall incorporate security featured software for authorized access control by operators, supervisors and maintenance personnel.

The system software, especially for alarm processing, shall be written in a hardware compatible programming language, operating under a real time multitasking operating system to ensure that all priority activities are presented to the operator immediately as they occur. A capability shall be incorporated to ensure that all alarm data can be configured and exported in an appropriate format that can be processed by "DOS" family of operating system software.

3.2.3 **Redundancy**

The MCCP Integration Console shall be configured in a fully redundant hardware and software configuration and consist of two (2) controllers and two (2) interactive peripheral VDUs, capable of sustaining a complete controller failure without affecting the operation of either the PIDS, the FAAS, or any other integrated system. Master-Slave arrangements shall not be accepted. A failure in any integration system or any system which has the display and controls integrated shall not effect the proper operation of the remainder of the equipment.

Two (2) additional interactive peripheral VDUs are required. These units shall also be in a fully redundant configuration. One unit shall be dedicated for system maintenance requirements, while the second unit shall be dedicated for operational supervisory control purposes or training related duties and may be located away from the MCCP. Neither one of these units will be mounted in the main console, but will be available in a satellite configuration as outlined below. All VDU consoles must function in a simultaneous and independent manner.

All input and output data shall be available to both controllers with a continuous dynamic update occurring in both controllers in order to allow cross-checking of input and output information between the controllers. In case of a discrepancy in the information between the controllers:

- the faulty controller shall be automatically removed from service;

- all system/operating software and current data files shall be automatically driven from the functional controller;

- a system status alarm shall alert the operator that automatic switch-over has occurred; and

- no interruption in service or loss of system status shall be perceivable when switching between controllers.

Under normal operating conditions, and where both the PIDS and FAAS controls are required, one of the interactive peripheral VDUs shall be dedicated to PIDS operational duties with a second VDU dedicated to FAAS operations. In the event of a controller or VDU failure, it shall be possible to combine PIDS and FAAS operations on a single VDU.

3.2.4 **Operator VDUs**

The primary "operator-to-system" interface for the display of alarm annunciation and for the operator controlled functions on both the PIDS and FAAS systems shall be via color VDUs.

To eliminate confusion during an emergency situation, VDU screens shall have dedicated areas for alarms, secure and access states, operator prompts, operator commands, as well as time, day and date information.

To enhance operator understanding, full perimeter and facility graphics, complete with language descriptions, shall be used throughout to display and describe all system activity and instruction. The PIDS and FAAS shall each be capable of generating a minimum of sixteen graphic maps. All descriptions, alarm messages and operator instruction prompts shall be user definable in order to accurately describe unique institution configurations as well as future changes to perimeter/facility areas and operational requirements. Language of preference (French or English) for the operator interface shall be determined by location as specified in the Statement of Technical Requirement.

A typical graphic map shall incorporate the following display features as applicable:

- location of fences, building structures, gates, sally ports, guard towers, patrol roads, etc.;

- outlines of floor plans, area/room numbers, location of doors/windows;

- location, type, condition, priority and real time status of all perimeter or interior sensors; and

- emergency instruction and operator prompts.

The system graphics shall reduce information clutter to a minimum with the appropriate use of icons, especially to display sensor location and state. The following colours shall be supported for alarm sensors:

- green/light blue secure,
- yellow masked,
- red alarm, and
- purple failed/tamper.

The operator displays for the PIDS and FAAS systems shall be based on a 14" high resolution color CRT with a minimum matrix size of 640 x 350 individually addressable pixels. The VDU shall be capable of displaying as a minimum the colors white, black, red, green, blue and all combinations of the primary colors in order to provide flexibility in color map displays.

All system interfaces which are software controlled and map displays shall be able to be configured and reconfigured from a user friendly graphic software package, accessed from the maintenance menu.

3.2.5 **Operator Controls**

It is preferred that the color VDUs for the PIDS and FAAS systems use a "Touch Screen" employing resistive membrane or surface acoustic wave technology (or equivalent). Plain language descriptions shall be utilized to initiate all system functions, minimizing operator activity and decision making. Typing mnemonic abbreviations or using unlabeled or numerical function buttons is unacceptable. When a function key is touched on the screen, the VDU shall lead the operator through the predefined functions by asking for a choice of options or menus. At every step of alarm processing, a help screen shall be available to guide the operator through system operation. The help screen shall contain information about functions currently available to the operator.Keyboard control will not be accepted for operator control and/or interface. Mouse driven interfaces will be accepted as an option.

3.2.5.1 **Smart Key Control**

The need for operator decision making and interaction with the PIU video display unit must be minimized to take full benefit of the real-time processing capability of the system as outlined in section 3.2.2. In order to achieve this requirement, all controls shall be handled through the use of "smart keys" on the PIU video display unit. "Smart Keys" are understood to be programable keys whose function are changed as the situation demands. The identification of the smart keys functions shall be flexible and identified according to the circumstances which are present. In addition, only the key selections which are appropriate to the specific circumstance shall be displayed and presented to the operator for his/her attention, and all other screen controls shall be eliminated to avoid confusion to the operator. As an example, only an "Acknowledge" function will be presented upon receipt of an alarm. Once the alarm is acknowledged, the next logical

process may consist of two smart keys for "reset" and "mask" functions. All other PIDS related controls must be handled in a similar fashion, and be limited to the specific choices available in order to limit any complications which are presented to the operator during and after an alarm condition.

3.2.6 **Maintenance and Satellite VDUs**

The maintenance and the satellite VDUs shall be based on a 12" diagonal high resolution monochrome presentation. The maintenance VDU shall be located in the MCCP. The satellite VDU shall be removable up to 500 feet. Specific location detail shall be stipulated in the STR. Further operational requirements and parameters for these VDUs are detailed in subsequent sections entitled PIDS/FAAS System Menus and PIDS/FAAS Maintenance Functions, sections 3.2.8 and 4.6 respectively.

3.2.7 **Maintenance and Satellite Controls**

The maintenance and satellite VDUs shall have an associated keyboard with an integral key-lock switch for command and data input. All keyboard interfaces shall be removable or shall be stored in a locked drawer when not in use. Multi-level password protection shall be available in software to limit maintenance and satellite access, assignment and editing capability to authorized personnel only. All passwords shall be user definable.

3.2.8 **PIDS/FAAS System Menus**

The PIDS and FAAS System Menus shall permit display and control of various system functions, including for the operator:

- a user definable checklist and an emergency instruction set;
- the capability to activate secure or access states for perimeter or interior sensors;
- the ability to clear tamper, jam, fail and diagnostic alarms;
- the ability to scan all applicable site maps;
- an automatic or manual step through available camera view at a variable and selectable dwell time;
- the ability to set up an automatic camera viewing sequence; and
- the ability to perform sensor(s) test(s).

The maintenance and satellite menus shall permit control of the following:

- system time and date;
- activation or deactivation of any field device;
- generation of status, test and statistical reports for sensors and other field devices with available inputs; and
- viewing of equipment configuration;
- generation of field profiles for MDS or FDS with available field inputs;
- generation of system resets, or threshold establishment for MDS or FDS with available field inputs;
- assignment of menus and accessibility for operators;
- creation of checklists and emergency instruction prompts; and
- simulation of alarms for operator training.

Further requirements for PIDS/FAAS maintenance functions are detailed in Section 4.6.

4.0 PIDS INTEGRATION UNIT

4.1 General

The PIU is the principal controller, display module and supporting infrastructure between the operator and the perimeter alarm Motion Detection System and Fence Disturbance Detection System, CCTV assessment system and any ancillary support systems.

4.2 Intrusion Detection Systems

4.2.1 Data input

Bi-directional data links shall be provided in order for the PIU controller to receive the following information from the Motion Detection System and the Fence Disturbance Detection System:

a. Alarm annunciation;

b. System test results;

c. Zone tamper annunciation;

d. Zone tamper cancel;

e. System fail annunciation;

f. System fail cancel;

g. Alarm information data (where applicable);

h. Threshold information (where applicable); and

j. Test alarm data and results (where applicable).

These messages shall be available using form C dry contact closures, opto-isolated outputs, or an EIA standard RS-232-C data link as required by the MDS and the FDS system controllers.

4.2.2 **Data Output**

Bi-directional data links shall be provided in order for the PIU controller to provide the following information to the MDS and FDS terminal equipment:

a. Alarm acknowledge;

b. Alarm cancel;

c. Zone mask;

d. Zone secure;

e. Zone tamper acknowledge;

f. Test target activation (where applicable); and

g. System test.

These messages shall be available using form C dry contact closures, or an EIA standard RS-232-C or RS-485 data link, as required by the MDS and the FDS system controllers.

4.2.3 **Miscellaneous Inputs**

4.2.4 Where applicable, secondary outputs from FDS sensors, such as audio, shall be PIU software controlled and switchable on a sector by sector basis. In general, only the information from those sectors being assessed or monitored will be relayed for use by the operator.

4.2.4 **Data Protocol**

All RS232 or RS485 signals provided to, and received from, the PIDS should conform to either the Senstar-Stellar Sennet or StarCom protocols. Any driver required for another protocol will be the responsibility of the contractor.

4.3 **PIDS Alarm Processing**

4.3.1 **Priorities**

The PIU controller shall have multiple levels of priority for displaying alarms. This capability must have the flexibility to address individual sensors instead of being restricted on a system basis. Each possible alarm type shall be assigned a separate priority level as defined in the STR. Unless otherwise stated, all alarms shall have the priority in the following order, starting at the highest priority:

- all new alarms;
- all new FDS alarms;
- all acknowledged alarms; and
- all acknowledged FDS alarms.

All alarms shall be held in non-volatile memory. The PIU controller shall rank the alarms, displaying highest priority alarms at the top of the list and lowest priority alarms at the bottom. The total number and type of alarms to be processed shall also be displayed.

When multiple alarms occur, the first received, highest priority alarm shall be displayed on the VDU until acknowledged by the operator. Then the next highest priority alarm shall be displayed until processed, etc. If a higher priority alarm is received before a lower priority alarm is processed, the high priority alarms shall replace the lower priority alarm on the VDU. The lower priority alarm shall then be retained in memory and be redisplayed after the higher priority alarm has been processed.

The operator shall have the capability of stepping through the list of alarms and dealing with the alarms in any order. If at any time the operator is viewing an alarm which is not the highest priority alarm present in the system, he/she shall have the option of returning directly to the highest priority alarm by activating a single control.

4.3.2 **Simulation Priority**

The PIU controller shall be capable of distinguishing between simulated and genuine alarm inputs. In the event that a genuine alarm is received while the alarm simulation is in use, the PIU computer shall:

- cancel all existing simulated alarms;
- ignore any additional simulated alarms; and
- display the genuine alarm.

The PIU controller shall only accept simulated alarms when there are no genuine alarms in the system.

4.3.3 **Alarm Processing**

Activation of any alarm from a PIDS subsystem, connected to the PIU controller shall cause the following action:

- full, plain language description and perimeter graphic display of the alarm condition, type and location
- audible signal, flashing alarm condition and emergency instruction set presentation
- activation of all CCTV related equipment, including automatic video switching to the assessable area, and video recording etc.
- initiation of an audio path via the PIDS public address system
- acknowledgment of the alarm by the operator as his only course of action
- assignment of alarm causes by the operator by choosing from a predefined menu of causes.

4.4 PIDS CCTV System

4.4.1 General

The PIU shall integrate the CCTV assessment system described in Specification ES/SPEC-0409 and provided by others. The contractor shall mount the PIDS CCTV monitors in the PIU console and shall connect the monitors and cameras to the switcher described in 4.4.2.

4.4.2 Vertical Interval Switcher

The PIU shall integrate a Video Switcher as outlined in Specification ES/SPEC-0403. The PIU controller will control the video switcher to provide the following sequence options:

a. zone sequence mode - the monitors sequence by zone, simultaneously displaying all cameras associated with a zone.

b. group selection mode - the monitors sequence cameras by predesignated groupings, e.g., all sally port cameras, etc.

c. alarm lock-up mode - all cameras associated with a zone are automatically displayed in the event of an MDS/FDS intrusion or tamper alarm.

Camera/monitor assignments shall be user defined, and variable through software control.

Sequence options a. and b. shall be user selectable. Camera sequences shall occur under operator control, or automatically by the PIU controller with a predefined dwell time. In case of an alarm, fail or tamper condition, the system shall revert immediately to the alarm lock-up mode to display the sector in question. Upon completion of the alarm condition, the system shall return to the sequence mode in use prior to the alarm lock-up mode. In the case of a tamper condition, the system shall return to the sequence mode in use prior to the alarm lock-up mode once the tamper has been acknowledged.

4.4.3 Dwell Time

Dwell times used in the PIDS sequence modes shall be generated by the PIU controller and shall be user definable.

4.4.4 **VCR Control**

The PIU controller shall automatically start the record function of the Time Lapse VCRs (TL VCR), supplied by others as per Specification, ES/SPEC-0409, any time an alarm, fail or tamper condition has been received. The TL VCRs shall continue to record until an alarm cancel, tamper or fail reset has occurred.

Manual operation of the TL VCRs shall also be possible, using the appropriate VCR record button. TL VCR activity shall be relayed to the Data Logging system via the serial data interface.

4.4.5 **CCTV Character Generator**

The PIU shall incorporate a video character generator interfaced to the video switcher and CCTV monitors. The character generator shall provide the appropriate camera number identification, date and time of day to each monitor. The size of the characters displayed shall be adjustable. The position of the camera number identification and date/time shall be independently adjustable and shall not be restricted to any portion of the monitor screen.

The CCTV character generator may be an integral part of the video switches specified in paragraph 4.4.2.

4.4.6 **Unused Camera Ports**

At anytime a CCTV monitor is unused, the PIU shall route a "video black" signal to the monitor. This may occur if a camera fails, is removed or if less than four PIDS CCTV cameras are assigned to a zone or group.

4.4.7 **Miscellaneous CCTV Functions**

The PIU controller shall be able to sense and annunciate VCR end-of-tape conditions and relay this information for data logging.

Similarly, the wiper function of the camera housings, supplied by others as per ES/SPEC-0409 Specification shall be PIU computer controlled on a sector by sector basis. This function shall be user operated and shall involve those units being assessed or monitored at that time.

4.5 Time/Date Information

The PIU controller shall generate accurate time/date information, suitable to act as a central generating unit of this information for all systems forming part of the MCCP. This shall include the video systems and the data logging system. Interfaces to the various systems shall be in either parallel or serial form, as required. The availability of both types of output ports shall be provided to allow for future expansion or interfacing.

4.6 PIDS PA Control

4.6.1 PA Control

The PIDS PA provides one way voice communication to an alarmed sector. The PIU controller shall drive the PA, as per Specification, ES/SPEC-0402. The output of the PA shall be switched on a sector by sector basis under alarm conditions as outlined in section 4.0 of this specification. In case of an alarm condition, the output of the PA shall be switched to the sector being assessed.

The activation of the PA shall be under the control of the operator. Only the activation and actual use of the PIDS PA shall be logged by the data logging system.

4.6.2 PIDS PA Control Panel

The PIU contractor shall provide a PIDS PA Control panel in the operator console. The panel shall contain a microphone input and test tone generator to permit access to and testing of the PIDS PA subsystem on a sector by sector basis.

4.7 FDS Audio Monitoring Panel

The PIU contractor shall provide an FDS audio monitoring panel in the MCCP operator console as specified in the STR. The panel shall contain controls to permit the operator to monitor the audio signals generated by the sensors via remote selection of FDS sector audio. A speaker shall be provided in the MCCP or the operator console for FDS audio monitoring. The contractor shall provide a volume control in the FDS audio monitoring panel to control the audio level. The contractor shall be responsible for the connection to and integration of audio signals and controls with the audio monitoring panel.

5.0 FAAS INTEGRATION UNIT (FIU)

5.1 General

The Facility Alarm Annunciation System (FAAS) Integration Unit is used to integrate all facility alarms and sundry security information systems into a common display and control. The integration capability of the FAAS shall also be used as a port in a transparent feed through format to present all event recording from the various institutional security systems onto a common data logging system as outlined later on in this specification.

These alarms may include but are not restricted to the following:

- Personal Portable Alarm (PPA);
- PPA Location System (PALS);
- Fixed Point Security Alarm (FPSA);
- Facility/Mechanical Alarms;
- Fire Alarm Systems;
- Inmate Cell Call Systems (ICCS); and
- All interior facility alarm systems.

All control/ annunciation panels shall be colour coordinated with the console.

5.2 Relocation and Interface to Existing Systems

When applicable, the contractor shall relocate the existing control and display units for the various systems which need to be integrated to an allocated space as identified in the STR. All relocated systems must retain their current functionality as a minimum.

The contractor shall provide all cables and mounting hardware as well as all interface requirements to provide a robust and reliable data transfer and bi-directional control between the FIU and the individual systems which are being integrated. As stated previously, the interface to the data logging function shall be through the FAAS, and hence present no unique requirements.

5.3 Alarm Interface

Alarm inputs shall be accepted by the FIU and output signals provided to the output points in the form of form C dry contact closures, opto-isolated outputs or via an RS-232C interface as required by the alarm sensors. The type of interface required for each alarm sensor is detailed in the STR.

Any system which is not capable of a bi-directional communication link or which uses a data transfer protocol which is asynchronous or not compatible with the FAAS will not effect the functionality of the FAAS or any other integrated system.

5.4 Alarm Processing

The FIU requirements for alarm processing are the same generic requirements as stated in Section 4.3 of this specification, except that they are applied to FAAS subsystems and alarm devices.

5.5 Fire Alarm System

When required as stated in the STR, the contractor shall relocate the Fire Alarm annunciation panel to allocated space in the MCCP console, and provide an integrated alarm annunciation function in the FIU. The contractor shall provide all cables and mounting hardware including a new control panel if specified to complete this task. The functionality and the integrity of the Fire Alarm Panel must not be compromised, and must be able to function independently as a standalone system.

6.0 SUPPLEMENTARY SYSTEMS

6.1 Supplementary Video System

6.1.1 General

The Supplementary Intrusion Detection System (SIDS) CCTV system includes auxiliary cameras, camera controls, monitors and VCRs to provide general surveillance of various parts of the institution. The SIDS camera selection and positioning are an independent function and are manually controlled by the MCCP operator. The SIDS is described in detail in Specification, ES/SPEC-0201.

6.1.2 **Monitor and Control Panel Integration**

The contractor shall integrate the SIDS CCTV monitors and control panels, in the quantities listed in the STR, into the PIU operator console. The contractor shall connect the monitors and control panels to the UPS power and to the associated cameras at the defined interface. Time and date information from the PIU shall be available on these monitors.

6.1.3 **SIDS VCR Integration**

The SIDS VCRs shall be mounted in the VCR/Printer cabinet. The contractor shall connect the VCRs to the UPS power and shall interface the VCRs to the SIDS monitors. The contractor shall install VCR RECORD ON/RECORD OFF push-buttons and an end of tape alarm light adjacent to the associated SIDS monitors and shall connect these controls to the VCRs.

6.2 **Radio Control Panel**

The MCCP Integration Console shall incorporate a radio control panel to permit operation of the institutional radio networks. Separate controls shall be provided for each radio channel in accordance with Specification, ES/SPEC-0300 or in accordance with the requirements as outlined in the applicable STR.

6.3 **Data Logging**

6.3.1 **General**

The PIU and the FIU controllers shall provide data logging (ASCII coded text activity archive) storage of over 100,000 lines of subsystem events on hard disk storage. On demand, activity archive stored events shall be sorted by type and/or date and transferred to DOS formatted floppy disks or sent to a printer to provide a hard copy of PIU, FAAS and integrated subsystems events. For each event, the activity file shall show the date, time and event description.

6.3.2 **Event Definition**

Data logged events will include all status changes of monitored subsystems including PIDS alarms, FAAS alarms, alarm acknowledgment, alarm clear/reset, UPS failure or bypass, PIU controller switch-over, etc. Normal sequencing of PIDS CCTV cameras will not be data logged.

6.4 Status Panel

6.4.1 General

The MCCP Integration console shall contain a status panel containing indicators and controls for the major console units. The status panel shall also contain status lights for the UPS.

6.4.2 Console Status Functions

The status panel shall provide the following indicators and controls:

a. PIU and FIU controller fail indicator; and

b. Active computer selection control.

6.4.3 UPS Integration

The Integration Console contractor shall connect UPS power into all PIU and FIU equipment racks. The UPS will be provided as GFE and will be in accordance with Specification ES/SPEC-0103. Power shall be taken from the AC regulator output or from an equivalent point in a distribution panel if available. All PIU equipment shall be connected to the UPS power. UPS status shall be monitored as per section 3.12.3.

7.0 DIAGNOSTICS AND MAINTENANCE REQUIREMENTS

To provide a diagnostic capability and to assist in monitoring the PIU and FIU as well as the various PIDS and FAAS subsystems, maintenance information organized by user defined menus shall be made available through the PIU controller and the maintenance and satellite VDUs. User-definable password protection shall be provided to limit access to authorized personnel.

The following information shall be available to the printer via the EIA standard RS-232-C port, as well as displayed on the maintenance and satellite VDUs.

7.1 PIDS Maintenance Functions

The PIDS maintenance menus shall allow:

a. Automated PIU systems and equipment fault diagnostics;

b. Two-way data interface with MDS and/or FDS systems to provide sensor information such as test activation and results, thresholds, status reports, etc., where applicable;

c. PIU data base cross check information;

d. Processor unit error monitoring;

e. Printer port assignments;

f. Statistical PIDS activity summary for MDS and FDS alarms and total "Mask" times, on a sector by sector basis, since the previous request for this data; and

g. MDS and FDS target response information, where available.

7.2 FAAS Maintenance Functions

The FIU maintenance menus shall allow:

a. Automated FIU systems and equipment fault diagnostics;

b. FAAS port configuration control; and

c. FAAS data base editing, including alarm point assignment, system types, alarm location, alarm priority and operator prompts.

8.0 MECHANICAL CONFIGURATION

8.1 General

The PIU and FIU equipment shall be installed in separate units: an operator console, PIU and FIU equipment racks. Displays and controls including GFE required by the operator shall be installed in a contractor provided operator console. Other equipments shall be installed in EIA standard 19-inch racks located in the CER or other location as required by the STR. All racks and console bays shall include side panels, rear doors and front doors where applicable. Requirements for raised flooring, cable entrances and/or rack cooling ducts shall be specified in the proposal.

8.2 Console Design

Specification ES/SPEC-0800 shall apply to the console design. The operator console shall have an ergonomical design to provide the operator with a logical, easily understood display and control layout. All displays shall be clearly viewable and all controls shall be easily reachable from a seated position as outlined and in accordance with section 3.1.5 of this specification. Specific detailed design requirements will be outlined in the Statement of Technical Requirement as they are required.

The contractor shall provide a separate table or attachment to the console for mounting the MCCP operator telephones; if an attachment is provided, it shall not cause the telephones to block any display or control. When specified in the STR, the contractor shall provide a standard non-tip swivel-base chair with casters and arms for the PIU operator.

8.3 VCR/Printer Rack

The MCCP Integration Console contractor shall provide a separate rack or stand to be located near the operator console for mounting the PIDS VCRs, SIDS VCRs and printer. All equipments installed below the top surface of the rack shall be mounted on slide out shelves equipped with positive stops. The VCR/printer rack shall be readily movable.

8.4 Console/Rack Color Schemes

The operator console, telephone table/attachment and VCR/printer rack shall be covered with a high quality paint using a standardized colour scheme in accordance with Specification ES/SPEC-0800. Racks for other equipment shall utilize a common-colour scheme for racks, end panels and doors.

8.5 Environmental Requirements

The MCCP Integration Console shall operate over the indoor environmental conditions in accordance with Specification, ES/SPEC-0800.

8.6 Power Requirements

The MCCP Integration Console shall use VAC power in accordance with Specification, ES/SPEC-0800.

8.7 Installation Requirements

The MCCP Integration Console shall be installed at the site in accordance with the ES/SOW-0101, Statement of Work and the ES/SOW-0102, Statement of Work.

8.8 Documentation Requirements

All final MCCP Integration Console documentation shall be in accordance with the ES/SOW-0101, Statement of Work.

8.9 **Support Requirements**

The MCCP Integration Console maintenance and spares support shall be provided in accordance with the ES/SOW-0101, Statement of Work.

8.10 **Training Requirements**

Operator training and maintenance training on the MCCP Integration Console shall be in accordance with the ES/SOW-0101, Statement of Work.

9.0 QUALITY ASSURANCE

9.1 **General**

The MCCP Integration Console Quality Assurance programme shall be provided as detailed in the ES/SOW-0101, Statement of Work.

All on-site installation work, test plans and MCCP Integration Console acceptance testing shall be conducted in accordance with the ES/SOW-0101, Statement of Work.

10.0 DELIVERY

Delivery requirements for the MCCP Integration Console documents, drawings, plans, manuals, etc. (where applicable) shall be in accordance with the ES/SOW-0101, Statement of Work.

Delivery requirements of the MCCP Integration Console equipment shall be in accordance with the ES/SOW-0102, Statement of Work.

11.0 INTERFERENCE

Performance of the MCCP Integration Console shall not be affected by the use of standard electronic equipment used at the institution. Distance limits of standard electronic equipment shall be in accordance with ES/SOW-0101, Statement of Work.

12.0 SAFETY

All MCCP Integration Console electrically powered elements shall meet the applicable Canadian Standards Association (CSA) standards.