DIVAR 2.0 with Internal DVD Writer
DIGITAL VIDEO RECORDER
ARCHITECTURAL AND ENGINEERING SPECIFICATION
Section 13740 – Closed Circuit Video Surveillance Systems

PART 2 – PRODUCTS

2.01 MANUFACTURER

A. Bosch Security Systems
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B. This product shall be manufactured by a firm whose quality system is in compliance with the I.S./ISO 9001/EN 29001, QUALITY SYSTEM.

C. The manufacturer shall be ISO 14001 Certified and adhere to an Environmental Management System that strives to reduce the impact its products and processes have on the environment.

2.02 DIGITAL VIDEO RECORDER REQUIREMENTS

A. The product specified shall be a 6, 9, or 16 channel digital video recorder, as the application requires, that records multiple camera signals while simultaneously providing live multiscreen viewing and playback. With the addition of up to four (4) optional keyboard(s), the system shall also function as a switcher/controller providing control of Bosch Security Systems AutoDome cameras or receiver drivers. Camera control shall also be available from remote viewing PC stations equipped with the appropriate manufacturer supplied software. The manufacturer shall offer the recorder with internal disk storage capacities of 80GB, 160GB, 320GB, and 600GB and an **internal DVD writer**. External storage arrays, as recommended by the recorder manufacturer, may be connected via a SCSI-2 port in the event that customer video storage demands increase beyond the internal storage recording limits of the video recorder.

B. The recorder shall be designed using wavelet technology and produce file compression sizes selectable as 40kB (high quality), 24kB (medium quality), and 16kB (standard quality).

C. The recorder shall provide on-screen menu selection of the following languages: English, German, Dutch, French, Spanish, Italian, Polish, and Portuguese

D. The recorder shall maintain all system programming, including the date and standard/daylight saving time as programmed, in the event main power is lost.

E. The digital recorder shall provide a quick-installation mode to assist in the initial settings of time, date, active cameras, network settings, alarms, motion, and images per second recording. The approximate record duration at the current settings is also displayed. The recorder is automatically placed in the record mode upon exiting the quick installation menu.

F. Recorder programming shall allow any or all of the connected cameras to be restricted from operator view while the unit records to the internal hard

drive or external array. Menus that allow access to recorded video, system configuration setup, and camera restrictions shall be password protected. The menu shall be accessible from the front panel buttons or via a network connection using the manufacturer's remote configuration software program. The recorder shall provide on-screen, context-sensitive help for all topics.

G. The system shall provide the following two modes of recording:
   1) Continuously record to the disk until it is full, and then overwrites the oldest data. If the application requires, the system shall provide overwrite protection of the latest files for a period of 1 day up to 15 weeks. This overwrite protection period shall be menu selectable during record setup.
   2) Record to the disk and provide a warning when the disk is nearly full, and then stop recording when the disk is full. Display a disk-full alert on the main monitor and sound an alarm beeper. Older recordings must then be manually deleted.

H. The images per second (IPS) rate and image quality shall be selectable for each connected camera as described below:
   1) The NTSC system version digital recorders allow selectable image per second (ips) record rates of 30, 15, 10, 7.5, 6, 5, 4, 3, 2, 1, ½, 1/5, 1/10, 0. The PAL system version digital recorders shall allow selectable image per second (ips) record rates of 25, 12.5, 8, 6, 5, 4, 3, 2, 1, ½, 1/5, 1/10, 0.

I. The recorder shall provide a video authentication mode where all video recordings have an encrypted code embedded in them to allow video authentication to ensure that the video or associated data have not been tampered with or modified. Authentication shall be available from the local recorder unit or via the manufacturer's remote software program.

J. The recorder shall have a function that allows the video to be marked during playback review that will prevent the video from being deleted.

K. The recorder shall provide a function that blocks the playback from any or all cameras after a specified period of time. When the specified time has elapsed, no recordings before that time can be played back from the selected camera(s). Programming of the block time shall range from no blocking at all up to 31 days.

L. The recorder shall provide a search mode for recorded video:
   1) Search mode: Search for non-event recorded video from a particular camera(s) by time/date or search for video recorded during an alarm, motion or both. If equipped for ATM/POS operation, search for data transactions based on the text string entered.
   2) Smart Motion Search: Search and retrieve recorded video for motion within designated areas of a particular camera picture. Sensitivity of the motion within the selected area shall be adjustable.

M. The recorder shall provide video loss detection to indicate the loss of a video input signal.

N. The recorder shall provide the following monitor outputs:
   1) A main monitor output provides composite video that displays full-screen, quad, or multiscreen live or playback camera pictures. This monitor also sequences cameras in quad format or sequences cameras in a full-screen display. This monitor displays the menu, status messages, events, alarms, and video loss warnings.
   2) A secondary monitor composite video output displays a single, full-screen

picture of a selected camera or a sequence of full-screen pictures. This monitor also displays alarmed or action detected video and sequences the video in the case of multiple alarms or action.

O. The recorder shall store up to six (6) different system profiles that contain configuration settings for recording data, handling alarms, and access restriction that determine system behavior when that particular profile is active. Profiles can be activated by an input alarm switch or automatically by date and time.

P. The recorder shall provide five (5) Bosch bi-phase control code outputs that are compatible with Bosch Allegiant Series Receiver/Driver units to provide remote camera pan, tilt, and zoom control. The biphase codes may also be directly connected to Bosch AutoDome series cameras.

Q. ATM/POS Capability
   1) The recorder shall provide ATM (automatic teller machine) and POS (point of sale) capability via an Ethernet local area network connection to record and view transaction data via an optional ATM/POS bridge.
   2) The bridge shall provide an interface between the specified digital recorder and either Automatic Teller Machines or Point-of-Sale equipment, such as cash registers, to allow financial transaction data to be recorded and linked to specific camera images.
   3) Up to 4 devices may be connected to each ATM/POS bridge.
   4) Both single and multi-drop ATM networks shall be supported.
   5) The bridge shall be configured via Windows HyperTerminal and a PC connected to the bridge using a standard serial cable.
   6) Transactions may be searched based on a maximum 16-character text string.

R. The recorder shall provide an RS-232 serial port to be used for service purposes or future recorder software upgrades.

S. The recorder shall provide video motion detection in user-definable areas of the image of any camera input. When motion is sensed, the record rates and quality levels of up to four (4) cameras may be changed.

T. The recorder shall provide, but not be limited to, the following alarm handling capability upon activation of from 1 to 16 normally open or normally closed alarm system contacts, upon video loss, or motion detection:
   1) The main monitor highlights the alarmed video in its full or multi-screen display and provides alarm, motion, or video loss warnings as appropriate. The secondary spot monitor output provides a full-screen display of an alarm or sequences multiple alarmed camera(s) as preprogrammed.
   2) A pre-event function records from 0 up to 30 seconds of the video that occurred prior to the activation of an alarm or video loss.
   3) Controllable camera(s) move automatically to pre-programmed pre-positions.
   4) Automatically activates 1 of 6 preprogrammed system configuration profiles that will determine system behavior for the current alarms.
   5) Activates up to four (4) output relay(s), if programmed.
   6) Activates an audible alarm (beeper) and flashes a front panel icon associated with the type of alarm that is active.

U. The recorder shall be fully compatible with any standard 10/100 Base T Ethernet port for networking capability.

V. As a security feature, when connected via a network, the system shall allow the programming of eight (8) separate ranges of IP addresses that will restrict access to the local unit to only those IP ranges specified.

W. The recorder shall have a loop-through Keyboard In and Out connection to allow interconnection of up to thirty (30) of the specified recorder units when using a Bosch KBD-DIGITAL keyboard.

X. Up to sixteen (16) of the specified digital video recorders may be interfaced using the Bosch Video Manager System to provide full system functionality for 256 cameras.

Y. All video inputs shall be auto-terminating, loop-through BNC connectors.

Z. Where video is required for evidence of an incident, the digital video recorder specified shall include an internal DVD writer capable of archiving video, along with a dedicated PC player, to a DVD or CD. Via a PC, the DVD or CD containing these secure video files may then be reviewed, and any alteration of the recorded video shall be automatically detected. The media supported by the DVD writer shall be DVD+R, DVD+RW, CD-R, and CD-RW.

2.03 OPTIONAL KEYBOARD SPECIFICATIONS

A. The optional Bosch KBD-DIGITAL keyboard shall be compatible with the digital recorder specified.
B. The keyboard shall provide full-function system control including video switching and camera control via an integral joystick.
C. The keyboard provides access to the digital recorder to allow navigation of the recorder’s on-screen menus.

2.04 CONTROL CENTER SOFTWARE APPLICATION

A. A **Control Center** software program installed in a remote PC running Windows 98, Windows Millennium, Windows NT 4.0 (SP4), Windows 2000, or Windows XP shall provide a graphics display allowing full remote control of a compatible connected recorder via a 10/100 Base T network. This Control Center software installed in a remote workstation shall provide, but not be limited to, the following operations:
   1) Simultaneously connect via the network to multiple specified digital video recorders and allow up to six users to have control of any specified recorder connected to the network.
   2) View live or recorded video.
   3) Search for video that was recorded during alarms or motion. Search for recorded video containing motion (Smart Motion Search). Playback and authenticate the recorded video. If equipped with an optional bridge, search and playback ATM/POS transactions based on a text string entered. Search and playback shall have the capability to be password protected. Protect/unprotect recordings.
   4) Remote pan, tilt, and zoom control including pre-position, PTZ speed, and auxiliary control of the specified recorder manufacturer’s cameras.
   5) Provide a snapshot mode that captures still images from the active display and saves them in bitmap format (.bmp) to the workstation’s PC hard disk drive.
   6) Video storage to the workstation PC hard disk drive shall be in the digital video recorder’s native format to keep its proof of authenticity.
   7) Export video clips to a PC hard disk drive in generic .AVI format to allow viewing on other workstation PCs when authentication is not necessary.
   8) Provide On-line status overview of connected specified digital recorder.

B. **Configuration Tool**

1) The manufacturer shall provide a system configuration tool that runs on Windows 98, Windows Millennium, Windows NT (SP4), Windows 2000 or Windows XP that allows setup of all configuration settings of the specified digital video recorder. The configuration tool runs on a PC that is connected either directly to the specified digital recorder via an RS232 serial connection or via an Ethernet network connection. Use of the configuration tool shall be restricted to the system administrator and is password protected.

C. **Archive Player**

1) Video archive player software shall be provided by the manufacturer to allow viewing and authentication of the encrypted code-embedded video stored on the remote PC hard drive using the Control Center application. The archive player shall be automatically copied to the same directory as the stored video file.
2) The archive player shall allow ATM/POS transactions archived using the specified recorder connected to an ATM/POS bridge to be viewed.
3) Still images may be captured from the full-screen display of a camera and saved to a PC hard disk in a bitmap format.

2.05 OPTIONAL DIGITAL VIDEO DISK ARRAY SPECIFICATIONS

A. The optional Bosch DVAS Digital Video Disk Array shall be connected via the SCSI-2 port of the digital video recorder specified and shall provide, but not be limited to, the following features:

1) Up to two (2) terabytes of video storage provide RAID 5 protection even if a hard drive completely fails.
2) Hard drives, power supply, and controller board are modular components improving serviceability and minimizing down time.
3) Accommodates up to 14 hot-swappable disk drives.
4) Configurable as a hot spare that automatically rebuilds the data from a failed drive to minimize the time the array would be functioning without RAID 5 protection.
5) Array accommodates two (2) digital video recorders.
6) Three (3) year warranty covers disk array and hard drives.

B. The optional Bosch DVAD Digital Video Disk Array shall be connected via the SCSI-2 port of the digital video recorder specified and shall provide, but not be limited to, the following features:

1) Available as 320GB or 640GB of digital video storage as required by the application.
2) Provides real time drive activity and status indicators visible on the front panel.
3) Three (3) year warranty covers the disk array and hard drives.

The product specified shall be the Bosch Divar 2 Digital Video Recorder Models DVR16F, DVR9F, or DVR6F Series, as required by the application, manufactured by Bosch Security Systems.

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