

TruVision TVN 22 A&E Specifications



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This A&E Specification conforms to CSI MasterFormat 2016 guidelines.

28 01 00 Operation and Maintenance of Electronic Safety and Security

28 01 20 Operation and Maintenance of Video Surveillance

# Operations

## The recorder shall use an easy-to-read, browser-based menu structure.

## The recorder shall support Digital Zoom in a user defined area.

## Live view

### The live viewing of the recorder cameras will contain:

#### Camera live view with up to 16 cameras simultaneously.

#### Capability to switch between Main stream and Substream on individual cameras and all cameras at once.

#### PTZ functionality with Preset call up.

#### Control the recorder relay outputs.

## Playback

### The video player shall be a zero footprint player and exported with the video as an evidence player.

### The user shall be able to play back images smoothly at normal or fast speeds and in forward modes, without distortion.

### The recorder will allow for reverse playback.

### The recorder will allow the user to select which resolution, frame rate, and bandwidth will be streamed to the browser interface when in playback.

## Search

### During investigations, it shall be possible to search and retrieve stored video data by date, time, camera, and alarm.

### The recorder shall have log view screens to show the entire system status at a glance.

### The unit shall provide full media search capabilities for archiving, restoring, and playback operations. Search capabilities shall include filters for start/stop times, start/stop dates, alarm and event occurrences, inserted text, and camera number.

### The recorder shall have an alarm history display capable of showing the last 100 alarms received by the system.

### The recorder will provide the ability to search based on motion metadata in-screen.

## Configuration

### The recorder browser pages will contain full configuration capability of the recorder and all of its features.

### The recorder will be configurable using standard available free-of-charge software or through SDK implementation in custom software.

### The recorder shall prevent unauthorized program tampering through the use of at least 16 users and passwords, with settings including:

#### Local user priveleges

#### Remote user priveleges

#### Local play priveleges

#### Remote play priveleges

#### Remote view priveleges

### The system shall be upgraded through flash programming upgrades of software, using either an USB drive or TCP/IP.

28 01 20.17 Revisions and Upgrades of Video Surveillance

# Upgrades

## The system shall be upgraded through flash programming upgrades of software, using either a USB drive or TCP/IP.

28 05 00 Common Work Results for Electronic Safety and Security

28 05 07 Power Sources for Electronic Safety and Security

28 05 07.13 Power Sources for Video Surveillance

# The recorder shall be provided with a built-in power supply to prevent susceptibility to power spikes, surges, harmonics, and other common electrical disturbance phenomena associated with the installation environment.

28 05 09.13 PoE Power Sources for Electronic Safety and Security

# PoE ports

## The recorder model shall exist with built-in PoE ports for cameras (8 or 16 ports, depending on the model)

## The PoE camera interfaces shall use RJ45 connectors and shall support a data connection of 10 Mb or 100 Mb

## The PoE budget per port shall be self-adaptive. However, the user must be able to adjust the budget manually.

## The following settings shall be possible per port: No PoE, PoE-at, PoE-af or 12.5 W.

## A PoE port shall support up to 30 W maximum.

## The total budget for the 8/16 channel recorder shall be 200 W.

## There will be a dynamic tracking of the PoE power consumption. This will be visualized in the OSD and via the web GUI.

28 05 09 Surge Protection for Electronic Safety and Security

28 05 09.13 Surge Protection for Video Surveillance

# The recorder shall be provided with a built-in power supply to prevent susceptibility to power spikes, surges, harmonics, and other common electrical disturbance phenomena associated with the installation environment

28 05 19 Storage Appliances for Electronic Safety and Security

28 05 19.15 Network Video Recorders

# Hardware:

## The recorder shall function as a standalone unit. It shall not require the use of a personal computer, special monitors, or other peripheral devices for either programming or operation. Live and recorded playback of video images shall display on conventional CCTV monitors or LCD monitors.

## The recorder shall be capable of displaying on-screen text and menus in more than one language. This shall be user-selectable via the menu system.

## The recorder shall have robust buttons integrated into the front panel of the unit, used for menu navigation, setup, and control of the unit, with no need for an external control device.

## The recorder shall have robust and illuminated buttons integrated into the front panel of the unit for each camera, display, sequence, monitor A, monitor B, live, playback, pause, alarm, and a multi-function navigation.

### Status LEDs

#### Power: A steady green light indicates the recorder is working correctly.

#### Event alarm: A flashing red light indicates that there is a sensor Alarm In or another alarm such as motion or tampering.

#### HDD: HDD indicator blinks red when data is being read from or written to the HDD. A steady red light indicates an HDD exception or error.

#### Tx/Rx: Flashing green indicates a normal network connection. No light indicates that it is not connected to a network.

#### Technical Alarm: A steady red light indicates that there is a technical alarm from the recorder. No light indicates that there is no alarm.

## The comprehensive search function shall be activated by using the search button.

## The recorder shall support a one-button quick archive, auto detecting the storage media inserted and the maximum storage capacity.

## The recorder shall have two USB ports at the front panel supporting a mouse or memory sticks for archiving video and audio files for evidence and one USB port on the back panel.

## The recorder shall provide external keyboard support. All DVR and PTZ control functions shall be supported.

## The recorder shall use an easy-to-read, onscreen menu system of icons and pop-up selections.

## The recorder shall use a battery to back up memory that stores the time, date, and all internal programming functions.

## The recorder shall have log view screens to show the entire system status at a glance.

## The recorder shall support Auto Install to do the following:

### Automatically detect loss of video sync, with onscreen indicators. If video loss is detected during recording, the recorder will warn by onscreen message, sending a message to remote, sounding a buzzer, and switching a relay.

### Automatically control gain per camera, which shall be adjustable by the user.

## The recorder shall prevent unauthorized program tampering through the use of at least sixteen users and passwords, with settings including:

### Local user privileges

### Remote user priveleges

### Local play privileges

### Remote play privileges

### Remote view privileges

## The recorder shall have no default password for the administrator user. At the initial startup the user must define a complex password. A valid password range must be between 8 and 16 characters. You can use a combination of numbers, lower and upper case letters, and special characters : \_ - , . \* & @ / $ ? Space. The password must contain characters from at least two of these groups.

The password is case-sensitive so a mixture of upper and lower case letters can be used.

## The recorder shall be 1.5/2 units of rack space in height (1.5/2U),depending on the model and capable of being rack mounted (EIA 19-inch standard), with rack mount hardware that was designed by the manufacturer to support the units.

## The recorder shall support Digital Zoom in a user defined area.

## The eSATA port shall be configurable either as a Storage Expansion Port or for external video archiving on eSATA media.

## The video player shall be a zero footprint player and export video with an evidence player.

## A Windows Media Player filter shall be available in order to allow the playback of evidence video using the default Windows Player.

## The recorder shall support an easy-to-use Internet Explorer-based Web browser. The supported features shall be:

### Camera live view with up to 16 cameras simultaneously

### Capability to switch between Main stream and Substream per camera individual and all cameras at once

### PTZ functionality with Preset call up

### Playback of recorded video

### Archiving of recorded video

### Comprehensive remote configuration

# Network Video Recorder Features

## The recorder shall support both H.264 and H.265 encoding. The selection of the desired encoding is possible via the local configuration or via remote configuration (webpage)

## Live view

### The recorder shall display cameras in live mode via the connected monitors.

### When the recorder powers up, the recorder shall start up in live mode.

### The recorder shall display status icons on the connected monitors. Camera status icons shall be used for each camera. There shall be an icon for:

#### Alarm detection by the camera channel

#### Recording of the camera channel

#### Motion detection by the camera channel

### There will be a message in case of video loss for each channel

### There will be an icon that shows the alarm and system events. Clicking on the icon will show all alarms/events in a pop-up window. The icon will be visible when a system event or alarm occurs. The events and alarms for which the icon is visible can be defined.

### In live mode, a full screen sequence of different cameras can be defined. It will be possible to set the dwell time between each camera.

### When clicking on each camera tile in the live mode, a live view toolbar shall be displayed for the camera. That toolbar will contain different buttons for the camera.

#### Pause button: This button shall freeze the live image of the selected camera.

#### Start/stop manual recording: By clicking on the button, manual recording of the camera shall start/stop.

#### Instant Playback: Instant playback of the last 5 minutes shall start.

#### Audio: Button to enable/disable the audio output.

#### Snapshot: Button that takes a snapshot of a video image. The image shall be saved in the recorder.

#### PTZ control: This button shall enter the PTZ mode.

#### Digital zoom: This button shall enter the digital zoom mode.

#### Image settings: This button shall change the image lighting levels.

#### Auxiliary focus: This button shall automatically focus the camera lens.

#### Lens initialization: This button shall initialize a motorized lens of a camera.

#### Stream information: Clicking this button shall show the real-time frame rate, bit rate, resolution, and video compression.

## Recording

### The recorder shall support user programmable stored video frame rates that can be programmed on a per-camera basis. All cameras shall be programmable to capture images in one of the following operating modes:

#### Constant

#### TimeLapse

#### Event

#### Alarm

### At a minimum, the recorder shall support the following stored video frame rates per camera:

#### Real time (NTSC/PAL)

#### 22 fps

#### 20 fps

#### 18 fps

#### 16 fps

#### 15 fps

#### 12 fps

#### 10 fps

#### 8 fps

#### 6 fps

#### 5 fps

#### 4 fps

#### 3 fps

#### 2 fps

#### 1 fps

### The recorder shall support an alarm record mode that is user programmable. At a minimum, the recorder shall support the following alarm mode stored video frame rates:

#### Real time (NTSC/PAL)

#### 22 fps

#### 20 fps

#### 18 fps

#### 16 fps

#### 15 fps

#### 12 fps

#### 10 fps

#### 8 fps

#### 6 fps

#### 5 fps

#### 4 fps

#### 3 fps

#### 2 fps

#### 1 fps

### The recorder shall allow the user to select whether the hard drive recording should automatically overwrite data (starting with the oldest data first), or if the user must confirm overwriting before recording will continue when the hard drive is filled.

### The recorder shall have image quality settings that are adjustable on a per-camera basis by the end user, including the following:

#### QCIF, CIF, 2CIF, DCIF, 4CIF, VGA, 720P, UXGA, 1080P, 3MP, 4MP, 5MP, 6MP, 8MP Streaming bandwidth: by User (128-16384 Kb),16 Mb, 8 Mb, 4 Mb, 3 Mb, 2 Mb, 1.75 Mb, 1.5Mb, 1.25 Mb, 1 Mb, 896 Kb, 768 Kb, 640 Kb, 512 Kb, 448 Kb, 384 Kb, 320 Kb, 256 Kb, 224 Kb, 192 Kb, 160 Kb and 128 Kb

### The recorder shall support camera bandwidth of up to 80/160/256/320 Mbps for incoming camera connections

### The recorder shall support from one to thirty seconds of pre-alarm recording, maintained in a buffer, and shall append this buffer to the beginning of all recorded alarms. The recorder shall continue to record at the alarm rate until the alarm is reset, times out, or is acknowledged as determined by the alarm menu programming.

### The recorder shall support from 1-30 seconds of pre‑event recording maintained in a buffer, and shall append this buffer to the beginning of all recorded events. The recorder shall continue to record at the event rate until the programmed event duration (from 5 seconds to 10 minutes) expires.

### The recorder shall allow the user to manually or automatically customize the record rates per camera for events and motion detection.

### The user shall be able to play back images smoothly at normal or fast speeds and in forward modes, without distortion.

### The recorder shall provide full media search capabilities for archiving, restoring, and playback operations. Search capabilities shall include filters for start/stop times, start/stop dates, alarm and event occurrences, and camera number.

### The recorder shall support the recording of all images with a digital watermark. The verification of watermarked images shall reside solely with the manufacturer.

## Dual Streaming

### The recorder shall allow the installer to setup a sub stream for streaming Video and Audio over Network without affecting the record rate, quality, and resolution of recorded video.

### The recorder shall also have the option to record both the main and the sub stream.

## Multiscreen

### The recorder shall be a triplex type unit, allowing simultaneous recording, playback, and live multiscreen viewing at the unit, with no need for additional hardware.

### The recorder shall provide the following displays in live mode: full screen, sequencing, 4-way, 6-way, 8-way, 9-way, or 16-way.

### The recorder shall provide the following Triplex displays in playback mode: full screen, 2-way, 4-way, 9-way, or 16-way and switching between cameras.

### The recorder shall allow the user to rearrange cameras in any multiscreen display in live mode.

### The recorder shall incorporate the following display options:

#### Camera titling with a minimum of up to 16 alphanumeric characters

#### Title display enable/disable, per channel

#### Time/date formatting

#### Time/date enable/disable, per channel

### The recorder shall provide image update rates for live and record modes of up to 30 fps for NTSC or up to 25 fps for PAL per channel.

#### The recorder shall have three/five monitor outputs as follows: The recorder can use the BNC, HDMI, and VGA outputs independently. The recorder shall support up to 1280 × 1024 / 60 Hz resolution in VGA and 4K resolution in HDMI.

##### One analog multiscreen output

###### Composite video, BNC connector

###### NTSC/EIA or PAL/CCIR compatible

###### Shall display event video

##### One/two digital multiscreen output (depending on the model)

###### HDMI connector

###### Shall be able to display all cameras live or in sequence mode

###### Shall display live, playback, and programming functions

##### One/two analog multiscreen output (depending on the model)

###### VGA connector

###### Shall display live, playback, and programming functions

###### Shall be able to display all cameras live or in sequence mode

## Video motion detection

### The recorder shall support the following video motion detection, with on-screen indications when motion is occurring:

### Motion detection, which shall be treated as an event and follow the event encoding settings.

#### The recorder shall support an onscreen setup scale to determine the optimum sensitivity setting for each camera input.

#### The recorder shall have 396 zones per camera, arranged in a 22 by 18 grid.

#### The recorder shall have 7 levels of sensitivity.

## Masking / Privacy Zones

### The recorder shall support video masking.

### The recorder shall have four mask areas per camera.

## Tampering

### The recorder shall support video tampering.

### The recorder shall have three levels of sensitivity.

## Alarms

### The recorder shall support up to 16 alarm inputs, programmable as normally open or normally closed from within the menus.

### The recorder shall support four form-C relays as alarm outputs, and rated for 0.5 A continuous, 1.0 A momentary. Upon alarm, the system shall be able to execute a change of state (COS) to relay number 1, relay number 2, relay number 3, relay number 4 or all.

### The recorder shall have a fully programmable additional audible device to alert the user to alarms, motion detection, and video loss occurrences or operation failure.

### The recorder shall support alarm latching with two settings, which shall be manually set or programmable from the menus as follows:

#### Manual acknowledge – When an alarm is activated, the recorder shall be manually acknowledged to reset the COS back to normal condition.

#### Timed out – the alarm shall automatically reset after a user-defined elapsed time.

### The recorder shall have automatic full screen associated alarm display that shall change as incoming alarms continue to arrive. As additional alarms arrive, the display monitor shall sequence between the cameras in alarm. It shall be possible, using the telemetry preset control described elsewhere in this specification, to utilize presets with associated alarm display to show the alarmed scene and surrounding escape paths during a high level alarm condition.

### The recorder shall provide status relays that shall link to alarms, motion detection, and video loss.

### The recorder shall have an alarm history display capable of showing the last 100 alarms received by the system.

### The recorder shall be supplied with push-in wire terminal connections to facilitate easy connection of alarms and other input/output signals.

### The recorder shall support notification on alarm to user accounts. The recorder shall allow the user to program notification in response to any of the following conditions:

#### Hard drive full

#### NTSC/PAL mismatch

#### Illegal access

#### IP Address conflict

#### Network issues

#### Abnormal recording

#### Hard drive error

## RS-232 communications

### The recorder shall support RS-232 communications and control for:

#### Technical support

#### Transparent communication channel

#### Integration with an intrusion panel

## Ethernet communications

### The recorder shall support LAN/WAN Ethernet access.

### The recorder shall support Ethernet bandwidths of 10 Mbps or 100 Mbps or 1000 Mbps.

### The recorder shall support simultaneous Ethernet access by not less than 16 workstations connected to the LAN/WAN.

### The recorder shall be provided with a Graphical User Interface (GUI) software for remote playback and viewing that shall support the Windows 7, 8 and 10 operating systems and full searching capabilities. It shall be possible to remotely set up the recorder unit using the remote viewing software.

### The recorder shall not stop recording during any Ethernet access.

### The recorder shall allow the user full programming of Ethernet parameters, including the following:

#### Working mode

##### Multi address

##### Load balance

##### Net fault tolerance

#### DHCP (enable/disable)

#### DDNS

#### IP address

#### Default gateway

#### Sub-net mask

#### HTTP port

#### HTTPS port

#### Main port

### The recorder shall have the option to define access filters based on IP addresses.

## Hot spare

### A spare recorder shall be able to act as a slave unit for up to four recorder master units. The models with PoE ports built-in will not support this hot spare function.

### The slave unit shall continuously monitor the master units and if one of the master units should fail, it can take over recording until the failed units come back online.

### Once the failed unit is back operating normally again, the slave unit will send its recordings to the HDDs of the recovered unit so that no recordings shall be missed.

### The hot spare unit shall only back up one master unit at a time. If more than one unit should fail, the hot spare unit will only back up the unit that failed first.

### All units must have the same number of channels and must be the same device types.

# Specifications:

## Video

### Total available video memory shall be at least 1 GB.

#### Live/playback display memory shall be at least 128 MB.

#### Record memory shall be at least 72 MB.

### Video sampling rate shall be at least 27 MHz.

### Available colors shall be to specification YUV 4:2:2, providing up to 65K colors.

### There shall be 256 grayscale levels.

### Horizontal resolution shall be 704 pixels.

### Vertical resolution shall be:

#### 480 active lines NTSC/EIA

#### 576 active lines PAL/CCIR

## Inputs

### Camera

#### There shall be 8, 16, 32 or 64 camera inputs.

#### Inputs shall use Ethernet.

#### Inputs shall be NTSC/EIA or PAL/CCIR compatible.

## Audio

### There shall be per camera one associated and synchronized audio input

### One bidirectional audio line input

### The line audio input shall use RCA connectors

#### Signal conditioning

##### All inputs shall have automatic gain control.

## The recorder shall have a RS-232 serial data ports to support the following functionality:

### Technical support

### Transparent communication channel

### Integration with an intrusion panel

## The recorder shall have three USB ports for:

### USB memory key archiving devices

### USB HDD archiving devices

### Mouse control functions

## eSATA

### The recorder shall have an eSATA port for eSATA HDD archiving devices

## The recorder shall have a removable strip for input/output connector to support the following functionality:

### Alarm inputs

### Relay outputs

## Remote control

### The recorder shall have an IR-remote that will emulate the front panel keys

## Mouse: The recorder shall provide mouse control support for

### All menu settings and navigation functions

### Control functions live, playback, PTZ and archive

28 05 27 Archival Systems for Electronic Safety and Security

# Archiving

## The recorder shall support archiving of recorded images through USB memory stick.

## The recorder shall support archiving of recorded images through eSATA to an external eSATA HDD.

## The recorder shall support archiving of recorded video and audio data through eSATA to an external eSATA HDD

## The recorder shall have an option to select the type of archiving device connected, when interfaced to the devices specified or approved equals.

## The recorder shall support selective archiving.

## The recorder shall have an on-screen progress indicator when selective archiving or restoration operations are accessing the archive device.

## The recorder shall have an Automatic Delete Mode (ADM) that may be enabled or disabled, preventing any video that is older than a user-defined period from being viewed or archived, when the unit is used in jurisdictions that mandate a finite storage time. Automatic Delete Mode shall be programmable from 0 to 60 days.

## The recorder shall have the option to upload snapshots to a FTP server.

## The recorder shall have the option to set up auto archiving for the recorded video to an internal or external device (USB, NAS)

28 05 27.13 Storage Media

# Recorder hard drives

## The recorder shall record video on a hard drive. No videotape or videotape recorders shall be required.

## The recorder shall support both internal and external hard drive configurations.

## Internal storage configurations shall be up to multiples of 8 HHDs (depending on the model) using 2 TB, 4 TB, or 6 TB storage capacity per HDD.

## The utilized hard drives shall support the latest SATA technology including SMART reporting.

## The utilized hard drives shall be especially developed for the Digital Video Archiving Industry.

## A specific recorder model shall be available that supports RAID. The RAID levels that shall be supported are 0, 1, 5, 6 and 10.

28 05 29 Storage Management Software for Electronic Safety and Security

# Software

## The recorder shall be provided with a Graphical User Interface (GUI) software for remote playback and viewing that shall support the Windows 7, 8 and 10 operating systems and full searching capabilities.

## It shall be possible to remotely set up the recorder unit using the remote viewing software.

## The recorder shall be able to be operated with:

### Dedicated free of charge software.

### Dedicated free of charge mobile app.

### Integration software packages for Aritech intrusion detection.

### Integration software packages for LenelS2 OnGuard access control.

### MasterMind monitoring station software.

### Other software integration platforms using the SDK.

28 05 45 Systems Integration and Interconnection Requirements

# OH-integration

## The recorder shall integrate the Osborne-Hoffman alarm receiver software module.

## The recorder will be able to receive SIA or XSIA events from Aritech alarm panels.

### The recorder can receive events from a maximum of three alarm panels and a maximum of 32 alarm zones per panel.

### The recorder will display the events in the alarm center via the web page and will register the events in the log file.

### The recorder can report the events to a software based on the SDK.

### The following events can be received by the recorder:

#### Arming events (“C” events)

#### Disarming events (“O” events)

#### Alarm events (“A” as second character in the SIA/XSIA code)

#### Heartbeat alarms (OH & recorder)

### The following actions can be linked to each event

#### Buzzer

#### Trigger a relay output

#### Trigger recording for one or more cameras (alarm recording)

#### Call a preset, shadow tour, or preset tour

#### FTP upload of snapshots

#### Send email

#### Full screen monitoring

28 05 45.11 Mechanical

# Mechanical

## Dimensions shall be 445 (W) x 390 (D) x70(H) mm, 19-inch (1.5U) EIA rack mounting. (there will also be a model that has a 2U desk-based chassis; dimensions: 445 (W) x 470 (D) x 90 (H) mm).

## Weight shall be 10 kg maximum without hard drive.

28 05 45.13 Electrical

# Electrical

## Input voltage: 100 to 240 VAC, 50 to 60 Hz.

## Power: 45 W maximum without hard drive.

28 05 45.15 Information

# Environmental

## Operating temperature range -10 to +55°C (14~131℉), Relative humidity 10 to 90%.

## Relative humidity: 10 to 90% non-condensing.

# Compliance

## FCC

## CE

## UL

28 05 53 Identification for Electronic Safety and Security

# Identification

## The Network Video Recorder with Ethernet connectivity shall be as manufactured by Aritech or an approved equal.

Contacting Support

EMEA:

See specific country listings at:

<https://firesecurityproducts.com/en/support>

Australia:

Email: firesecurityts@carrier.com