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TR-4116

Architectural and Engineering Specifications

Version 1.1

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PART 2 - PRODCUTS

Division 28 – Electric Safety and Security

Section 28.23.19 – Video Surveillance – Digital Video Recorder and Analog Recording Devices

Section 28.23.12 - Video Surveillance – System Infrastructure

2.1.0 Manufacturer

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2.2.0 General

2.2.1 Product Description

TR-4116 TVR (HD-TVI DVR) is a HD over Coaxial Recording System designed and manufactured by IDIS. TVR utilizes existing coaxial cable to leverage analog infrastructure for seamless upgrade to 1080P surveillance solution. The TVR is a hybrid system which supports 1080P and backward compatible with 960H and analog. The TVR is a 16 Channel unit and supports up to 480ips (images per second) Full HD real-time with H.264 compression. The TVR is equipped with 16 Channel BNC ports, 4 internal HDD ports and 1 eSATA port. The TVR is an integrated security system, capable of time division multiplexing and real time recording of multiple cameras and storing their digitized and compressed images on embedded hard disk drives for fast search and retrieval either locally at the unit, or from a remote workstation using a Graphical User Interface (GUI). The TVR is equipped with technology that allows legacy coaxial cable to work up to 1500ft with advanced camera OSD control. The TVR is fully compatible with IDIS products across different platforms such as DirectIP solution and Video Management System.

2.2.2 General Specification

1. The TVR shall be a Linux embedded unit with 16 Channel BNC (Analog and HD-TVI) video recording capability.
2. The TVR shall be equipped with 1 Gigabit network port, 16 BNC ports.
3. The TVR shall have 4 internal SATA ports and 1 eSATA port.
4. The TVR shall have 1 HDMI output and 1 VGA output, 1 BNC (Spot) output.
5. The TVR shall have 16 alarm inputs, 4 alarm relay outputs, 1 alarm reset in.
6. The TVR shall have 4 RCA audio inputs, 1 RCA audio output, 1 HDMI audio output.
7. The TVR shall have 2 USB 2.0 ports
8. The TVR shall have 1 RS-232 terminal block, 1 RS-485 terminal block.
9. The TVR shall have 1 internal buzzer.
10. The TVR shall support up to live 480 ips (Image per Second).
11. The TVR shall support simultaneous live view, record, play back, data transmission in real time.
12. The TVR shall support recording frame rate: 480 ips@1080P.

13. The TVR shall support H.264 compression.
14. The TVR shall provide Graphical User Interface (GUI) with multi lingual support.
15. The TVR shall support 2X – 12X digital zoom in live view mode & playback mode.
16. The TVR shall provide time lapse, event, time lapse + event, pre/post-event, panic recording schedule.
17. The TVR shall adjust Analog camera's configuration.
18. The TVR shall support alarm, audio, motion, video loss, video blind, text-in, system event triggering, face detection, fan error, record failure, storage related alerts and alarm in error.
19. The TVR shall support email (attach clip (.cbf)), callback to remote s/w, push notification (IDIS Mobile), SNS (Twitter), and NetFS (FTP) notification.
20. The TVR shall provide Time-lapse, Event log, Motion, Text-in search options.
21. The TVR shall support 4 channels 1080P synchronous playback.
22. The TVR shall be equipped with Chained-Fingerprint™, SSL, Password encryption options.
23. The TVR shall support FEN service (A name resolution service equivalent to DDNS), Bonjour, DNS-SD (DNS Service Directory).
24. The TVR shall be compatible with IDIS Center, IDIS Solution Suite, IDIS Mobile and Web Client.
25. The TVR shall be compatible with network accessory: network keyboard, network switch, etc.
26. The TVR shall be controlled by network keyboard with USB mouse support and remote control.

2.3.0 Technical Specification

2.3.1 Video Specification

1. Analog Video Inputs: up to 16 Analog cameras
   A. Built-in 16 channel BNC Switch
2. Supported Camera type: 720P25, 720P30, 1080P25, 1080P30, and CVBS (NTSC / PAL).
3. Video Outputs: 1 HDMI, 1 VGA, 1 BNC (Spot) OUT
   A. The TVR shows live video through VGA, HDMI, and CVBS Spot monitor. It supports various camera display formats; Full-screen, Quad (2x2), 3x3, 4x4, 1+5, 1+7, PIP.
4. Display Resolution:
   A. HDMI / VGA: 1920 x 1080, 1440 x 900, 1280 x 1024,
   B. Composite: 720 x 480 (NTSC), 720 x 576 (PAL).
5. Maximum Live Display Speed: Up to 480 ips
6. Live Digital Zoom: x2 ~ x12
7. PTZ Control and Setup
   A. The TVR shall allow control of PTZ cameras to authorized users and be used to maneuver a PTZ camera using Built-in GUI PTZ control; Pan, Tilt and Zoom, Focus Near / Far, Set / Move to Preset, Advanced PTZ capabilities. When PTZ capable camera is connected, this function shall be enabled automatically.
   B. Network Keyboard shall be supported with USB mouse.

8. Image Authentication: Chained Finger Print
9. Additional Information
   A. The TVR shall support the following features: Sequence Monitoring, Screen Freeze, Covert cameras, Privacy Mask, Color Control (Brightness, Contrast, Saturation, Hue), event monitoring.
   B. The TVR shall display camera ID, recording status and recording mode information on the screen.

2.3.2 Audio Specifications

1. Audio Input: (line level)
   A. TVR: 4 RCA
   B. The TVR shall support recording and re-broadcasting of audio inputs from audio equipped cameras and audio input connected.
   C. The TVR shall stream live and recorded audio to connected local speaker / amplifier and remote clients such as IDIS Center, Windows / MAC Workstations and Mobile Devices.
2. Audio Output
   A. TVR: 1 RCA + 1 HDMI
   B. Audio signal can be transferred to the audio output devices such as a speaker via RCA or HDMI port.
3. Audio Codec Format: G.726
4. Audio Data Size: 128 Kbps (per channel)
5. Two-way (Bidirectional) Audio:
   A. Audio equipped camera, audio device and IDIS Center
   B. Audio equipped camera, audio device and TVR

2.3.3 Recording Specifications

1. Maximum Recording throughput
   A. The TVR shall support up to 480 ips@1080P recording.
2. Recording Resolution: Up to 2MP (Camera specific)
3. Recording Resolution: 1920x1080, 1280x720, 960x480, 960x240, 720x480, 720x240 480x240, 360x240
4. Video Compression: H.264
5. Recording Schedule
   A. The TVR shall allow camera-by-camera configuration of the following recording modes:
      i. Time Lapse Recording (Continuous), Event-Based Recording, Time Lapse with Event-based Recording, Panic Recording, Pre / Post Event Recording
   B. The TVR shall allow the user to create and edit video recording schedules for each connected camera
      i. Basic Schedule
      ii. Advanced Schedule which includes different profiles and dwell timer per each occurred

event

C. The TVR shall include the ability for Pre-Event recording, which records video for a specified time before an event or alarm has occurred. The allowed time Pre-Event recording is from 5 seconds to 30 minutes.

6. Additional Information
   A. The TVR shall support individual camera Recording profile Setup.
   B. The factory default resolution is set at the maximum of the camera's resolution. This is adjustable parameter according to custom configuration.

2.3.4 Playback Specifications

1. Performance
   A. The TVR shall support 4 channels 1080P synchronous playback.
2. Display Format
   A. The TVR shall offer multi-screen playback (single-screen, quad or multiple layouts), series display (displaying images from one camera image by image), and full-screen display.
3. Search Mode: Time-lapse, Event log, Motion, Text-in.
   A. The TVR shall provide various search filters for fast retrieval; Calendar Search, Go To Search, Record table search, Search by Event, Motion, Text-in, Bookmark Search.
4. Playback Digital Zoom: x2 ~ x12

2.3.5 Storage Specifications

1. HDD: Internal SATA x4, eSATA x1,(Up to 4TB capacity for each disk)
2. Total Capacity: 32TB = 4TB x (4 Internal + 1x4 eSATA option)
   A. The TVR shall support increased recording storage capability if direct attached storage device such as eSATA storage unit is connected
3. Data Export
   A. Device: USB Storage Device (USB HDD, USB Memory, etc.)
   B. Data Export with Audio: Supported
   C. Multichannel Data Export: Supported
   D. The TVR shall have the ability to save the current images to Bitmap, JPEG and video clip as an ".exe" (IDIS Player) file. The IDIS Player (ClipPlayer) is a self-executable file (Single / Multi Channel with compressed video and audio), which requires no additional program to play back on any compatible Windows PCs. The exported file can be saved using USB thumb drives.
4. Additional Information
   A. The TVR shall be equipped with Self-Monitoring Analysis and Reporting Technology (S.M.A.R.T.), incorporating a suite of advanced diagnostics that monitor the internal operation of hard drives and provide early warning for many types of potential problems.

2.3.6 Network Specifications

1. Network Connection: Gigabit Ethernet(Client) x 1 port
   A. Network connection is used for connecting the remote client software in LAN or WAN environment
   B. Remote Data Throughput: 3Mbps to 12Mbp (depending on quality and resolution configuration)
2. Remote Data Export: IDIS Player, AVI, JPG
   A. The still or moving images can be captured using remote client software as a JPG, AVI, CBF or EXE file format.(dynamic remote application)
   B. File Printer Interface: PDF file printer
3. Remote Client Viewer application: IDIS Center, IDIS Solution Suite, IDIS Mobile, IDIS Web
   A. IDIS Center: Windows and Mac OS (Note: IDIS Center for Mac OS is limited in functionality)
      i. IDIS Center (for Windows only) supports simultaneous firmware upgrade on multiple TVRs
   B. IDIS Solution Suite: Windows OS
   C. IDIS Mobile: iOS, Android and Windows Mobile platform
   D. IDIS Web works with TVR's embedded web server using a Web Browser with ActiveX plug-in.
4. Maximum Client Connections
   A. Remote connection : 10 (Search : 2)

2.3.7 Alarm and Event Specifications

1. Alarm Input / Output (terminal block)
   A. 16 In / 4 Relay Out
   B. Alarm Input Type: 16 TTL, NC / NO Programmable, 2.4V(NC) or 0.3V(NO) threshold, 5V DC
   C. Alarm Output Type: 4 relay outputs, 2A@125V AC, 1A@30V DC
2. Alarm Reset Input: 1
   A. Input Type: 1 TTL, terminal block
3. Internal Buzzer: Yes (75dB at 10cm)
4. Trigger Events: Alarm in, Audio detection, Motion detection, Trip-zone, Video loss, Text-in, and System events
   A. The TVR shall support alarm sensor trigger in and relay out functions in such event of motion detection, video loss detection, video obscuring, and abnormal system reboot.
   B. Maximum Channels of Text Input: 16
5. Event Notification: Email, notification Remote S/W, Push notification (IDIS Mobile), SNS (Twitter), and NetFS (FTP).
   A. The TVR shall support e-mail notification when events occur: sensor, motion, video loss, camera obscuration, Text-in and / or stop recording
   B. SNS and Mobile device push notification: Twitter is supported and users can receive push notification on their phone when an event is triggered.
   C. The TVR shall include a system log report support that records and displays information relating to alarm events, reboots, and other system information. The user shall receive event notification.

2.3.8 External Interface Specifications

1. Serial Interface: RS232, RS485 (Terminal Block)
2. User Control Interface: Mouse, IR Remote Control, Front Buttons, Network Remote Keyboard.
3. USB Interface: USB 2.0 x 2

2.4.0 Mechanical Specifications

1. Operating System: Embedded Linux
2. Unit Dimensions (W x H x D): 430 mm x 88 mm x 413 mm (16.9" x 3.5" x 16.3")
3. Unit Weight: 6.0 kg (13.2 lb) (with 1 HDD)

2.5.0 Environmental Specifications

1. Working Temperature: 5°C to 40°C (41˚F ~ 104˚F)
2. Operating Humidity: 0% ~ 90%

2.6.0 Electrical Specifications

1. Power Input: AC 100-240V, 50 / 60Hz, 1.0 ~ 0.5A
2. Power Consumption: 80W
3. Regulatory Approvals:
   A. Electrical: FCC, CE, KC, CB, UL, PSE

Version History

Version	Writer	Revision Date	Remarks
1.0	Chris Suh, Daniel Lee	Sep. 14, 2015	Initial release
1.1	Suji Q	Apr.12.2016	Changed spec. release