TR-4416R

Architectural and Engineering Specifications

Version 1.2

(Sep 15, 2021)

**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**

## Manufacturer

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## General

### Product Description

TR-4416R 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 multi standard analog camera. The TVR is a 16 Channel unit and supports up to 480ips (images per second) Full HD recording with H.264/H.265 compression and Intelligent Codec. The TVR supports up to 5MP resolution and UHD display with HDMI output. The TVR is equipped with 16 Channel BNC ports, 4 internal HDD ports, and 1 eSATA storage interface. And also, the TVR supports Raid 1.

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.

### General Specification

1. The TVR shall be a Linux embedded unit with 16 Channel BNC (Multi standard Analog) 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, and 1 alarm reset in.
6. The TVR shall have 4 RCA audio inputs, 1 RCA + 1 HDMI audio output.
7. The TVR shall have 1 USB 2.0 port and 1 USB 3.0 port.
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 480ips (Image per Second).
11. The TVR shall support up to 5MP resolution.
12. The TVR shall support UHD display with HDMI output.
13. The TVR shall support simultaneous live view, record, play back, data transmission in real time.
14. The TVR shall support recording frame rate: 480 ips@1080P.
15. The TVR shall support H.264, H.265 and Intelligent Codec.
16. The TVR shall provide Graphical User Interface (GUI) with multi lingual support.
17. The TVR shall support 2X – 12X digital zoom in live view mode & playback mode.
18. The TVR shall provide time lapse, event, pre-event and panic recording mode.
19. The TVR shall adjust Multi Standard Analog camera’s configuration.
20. The TVR shall support Alarm in, Motion detection, Video loss, Text-in as system event triggering.
21. The TVR shall support email (attach clip (.cbf)), callback to remote s/w, push notification (IDIS Mobile), and NetFS (FTP) notification.
22. The TVR shall provide Time-lapse, Event log, Motion, Text-in search options.
23. The TVR shall support 8 channels 1080P synchronous playback.
24. The TVR shall be equipped with Chained-Fingerprint.
25. The TVR shall support FEN service.
26. The TVR shall be compatible with IDIS Center, IDIS Solution Suite, IDIS Mobile and Web Client.
27. The TVR shall be compatible with network accessory: network keyboard, network switch, etc.
28. The TVR shall be controlled by network keyboard with USB mouse support and remote control.

## Technical Specification

### Video Specification

1. Analog Video Inputs: up to 16 multi standard analog cameras
	1. Built-in 16 channel BNC Switch
2. Supported Camera type: 5MP, 4MP, 3MP, 1080P30, 1080P25, 720P30, 720P25, CVBS(NTSC / PAL).
3. Video Outputs: 1 HDMI, 1 VGA, 1 BNC (Spot)
	1. 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:
	1. HDMI: 3840x2160, 1920x1080, 1280x1024
	2. VGA: 1920x1080, 1280x1024
	3. Composite: 720x480(NTSC) , 720x576(PAL)
5. Maximum Live Display Speed: Up to 480ips
6. Live Digital Zoom: x2 ~ x12
7. PTZ Control and Setup
	1. The TVR shall allow control of PTZ cameras to authorized users and be used to control 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.
	2. Network Keyboard shall be supported with USB mouse.
8. Image Authentication: Chained Finger Print
9. Additional Information
	1. The TVR shall support the following features: Sequence Monitoring, Screen Freeze, Covert cameras, Color Control (Brightness, Contrast, Saturation, Hue), event monitoring.
	2. The TVR shall display camera ID, recording status and recording mode information on the screen.

### Audio Specifications

1. Audio Input: (line level)
	1. TVR: 4 RCA
2. Audio Output
	1. TVR: 1 RCA + 1 HDMI
	2. 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: Yes

### Recording Specifications

1. Maximum Recording throughput
	1. The TVR shall support up to 480ips@1080P recording.
2. Recording Resolution: Up to 5MP (Camera specific)
3. Recording Resolution: 5MP, 4MP, 3MP, 1920x1080, 1280x720, 960x480, 720x480, 960x240, 720x240, 480x240, 360x240
4. Video Compression Codec: H.265, H.264, Intelligent Codec
5. Recording Schedule
	1. The TVR shall allow camera-by-camera configuration of the following recording modes:
		1. Time Lapse Recording (Continuous), Event-Based Recording, Time Lapse with Event-based Recording, Panic Recording, Pre / Post Event Recording
	2. The TVR shall allow the user to create and edit video recording schedules for each connected camera
		1. Basic Schedule
		2. Advanced Schedule which includes different profiles and dwell timer per each occurred event
	3. 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
	1. The TVR shall support individual camera Recording profile Setup.
	2. The factory default resolution is set at the maximum of the camera’s resolution. This is adjustable parameter according to custom configuration.

### Playback Specifications

1. Performance
	1. The TVR shall support 8 channels 1080P synchronous playback.
2. Display Format
	1. 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.
	1. 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

### Storage Specifications

1. HDD: Internal SATA x4(Up to 6TB capacity for each disk), eSATA x1(Up to 4TB capacity for each disk)
2. Total Capacity: 40TB = 6TB x 4 Internal SATA + 4TB x 1 eSATA(4 HDDs)
	1. The TVR shall support increased recording storage capability if direct attached storage device such as eSATA storage unit is connected
3. Data Export
	1. Device: USB Storage Device (USB HDD, USB Memory Stick)
	2. Data Export with Audio: Supported
	3. Multichannel Data Export: Supported
	4. 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.

### Network Specifications

1. Network Connection: Gigabit Ethernet(Client) x 1 port
	1. Network connection is used for connecting the remote client software in LAN or WAN environment
2. Remote Data Export: IDIS Player, AVI, JPG
	1. The still or moving images can be captured using remote client software as a JPG, AVI and BMP.
3. Remote Client Viewer application: IDIS Center, IDIS Solution Suite, IDIS Mobile, IDIS Web
	1. IDIS Center: Windows and Mac OS (Note: IDIS Center for Mac OS is limited in functionality)
		1. IDIS Center (for Windows only) supports simultaneous firmware upgrade on multiple TVRs
	2. IDIS Solution Suite: Windows OS
	3. IDIS Mobile: iOS, Android
	4. IDIS Web works with TVR’s embedded web server using a Web Browser with ActiveX plug-in.
4. Maximum Client Connections
	1. Remote connection : 10 (Search : 2)

### Alarm and Event Specifications

1. Alarm Input / Output (terminal block)
	1. 16 In / 4 Relay Out
	2. Alarm Input Type: 16 TTL, NC / NO Programmable, 2.4V(NC) or 0.3V(NO) threshold, 5V DC
	3. Alarm Output Type: 4 relay outputs, 2A@125V AC, 1A@30V DC
2. Alarm Reset Input: 1
	1. Input Type: 1 TTL, terminal block
3. Internal Buzzer: Yes (78dB at 10cm)
4. Trigger Events: Alarm in, Motion detection, Video loss, Text-in.
	1. The TVR shall support alarm sensor trigger in and relay out functions in such event of motion detection, video loss detection and Text-in event.
	2. Maximum Channels of Text Input: 16
5. Event Notification: Email (attach clip (.cbf)), Callback to Remote S/W, Push notification (IDIS Mobile), NetFS(FTP).
	1. The TVR shall support e-mail notification when events occur.
	2. Mobile device push notification: Users can receive push notification on their phone when an event is triggered.
	3. 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.

### External Interface Specifications

1. Serial Interface: RS232, RS485 (Terminal Block), USB 2.0, USB 3.0
2. User Control Interface: Mouse, IR Remote Control, Front Buttons, Network Remote Keyboard.

## 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: 5.6 kg (12.3 lb) (with 2 HDD)

## Environmental Specifications

1. Working Temperature: 0°C to 40°C (32℉ ~ 104℉)
2. Operating Humidity: 0% ~ 90%

## Electrical Specifications

1. Power Input: 100-240V~, 50/60Hz, 1.0-0.5A, 76W
2. Power Consumption: 100-240V~, 50/60Hz, 1.2-0.6A, 76W
3. Regulatory Approvals:
	1. Electrical: FCC, CE, KC, CB, UL, PSE

# Version History

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| --- | --- | --- | --- |
| **Version** | **Writer** | **Revision Date** | **Remarks** |
| 1.0 | TS Team | Apr 13, 2020 | Initial release |
| 1.1 | TS Team | Aug 12, 2020 | Revised Storage Specification |
| 1.2 | TS Team | Sep 15, 2021 | Spec Update |