

## Product Guide Specification

Specifier Notes: This product guide specification is written according to the Construction Specifications Institute (CSI) 3-Part Format, based on *MasterFormat 2016* and *The Project Resource Manual—CSI Manual of Practice*. The Manufacturer is responsible for technical accuracy.

The section must be carefully reviewed and edited by the Architect or Engineer to meet the requirements of the project and local building code. Words and sentences within brackets [ ] are choices to include or exclude a particular item or statement. Coordinate this section with other specification sections and the Drawings. Delete all "Specifier Notes" after editing this section.

### Section 28 00 00: Electronic Safety and Security

### Section 28 05 00: Common Work Results For Electronic Safety and Security

### Section 28 05 19.11: Digital Video Recorders

#### PENTA-BRID 2 MP DVR - 4/8/16-CHANNEL 2-MP 1U DIGITAL VIDEO RECORDER

#### PART 1 – GENERAL

##### 1.1 SUMMARY

###### A. Section Includes

1. Section 28 05 23: Storage Area Network Electronic Safety and Security
2. Section 28 05 25: Cloud Based Storage for Electronic Safety and Security
3. Section 28 05 29: Storage Management Software for Electronic Safety and Security
4. Section 28 05 31: Communications Equipment for Electronic Safety and Security

###### B. Related Sections

1. [Section 28 33 15: Security Detection, Alarm and Monitoring – Security Monitoring and Control – Security Monitoring and Control Software].

\*\*\*\*\*Specifier's note: Include those standards referenced elsewhere in this SECTION.

##### 1.2 REFERENCES

###### A. Federal Communications Commission (FCC) ([www.fcc.gov](http://www.fcc.gov))

1. CISPR PUB.22,FCC Part 15 Subpart B and ICES 003 Issue 6

###### B. Underwriters Laboratories, Inc. (UL) ([www.ul.com](http://www.ul.com))

1. UL 60950-1 and CAN/CSA C22.2 No. 60950-1-07, Information Technology Equipment - Safety - Part 1: General Requirements

- C. Conformance Européenne(CE)
  - 1. EN 55032:2012+AC 2013(Class B)
  - 2. EN 61000-3-2:2014
  - 3. EN 61000-3-3:2013
  - 4. EN 55024:2010
  - 5. EN 50130-4:2011
  - 6. IEC 61000-4-2:2008
  - 7. IEC 61000-4-3:2006+A1:2007+A2:2010
  - 8. IEC 61000-4-4:2012
  - 9. IEC 61000-4-5:2014
  - 10. IEC 61000-4-6:2013
  - 11. IEC 61000-4-8:2009
  - 12. IEC 61000-4-11:2004

### 1.3 SYSTEM DESCRIPTION

- A. Section Includes
  - 1. Digital Video Recorders
- B. Performance Requirements
  - 1. The Penta-brid 2 MP DVR shall be an embedded processor with Embedded Linux operating system to record video from HDCVI, AHD, TVI, CVBS, and IP data sources.
  - 2. The Penta-brid 2 MP DVR shall be capable of storing up to 16 TB of data from [four (4) HDCVI/AHD/TVI/CVBS camera inputs and two (2) IP camera video inputs] [eight (8) HDCVI/AHD/TVI/CVBS camera inputs and four (4) IP camera video inputs] [sixteen (16) HDCVI/AHD/TVI/CVBS camera inputs and eight (8) IP camera video inputs] with up to 5 MP resolution for each IP input.
  - 3. The Penta-brid 2 MP DVR shall use the Smart H.264+ and H.264 Video compression protocols.
  - 4. The Penta-brid 2 MP DVR shall have a maximum bandwidth of [24] [48] [96] Mbps.
  - 5. The Penta-brid 2 MP DVR shall automatically detect and recognize the transmission protocol (HDCVI/AHD/TVI/CVBS) of each attached analog camera.
  - 6. The Penta-brid 2 MP DVR shall offer a selection of built-in recording options and schedules.

#### 1.4 SUBMITTALS

- A. Submit under provisions of Section [01 33 00.]
- B. Product Data:
  - 1. Manufacturer's data, user and installation manuals for all equipment and software programs including computer equipment and other equipment required for complete video management system.
- C. Dimensional Drawings; include
  - 1. Overall device dimensions.
  - 2. Dimensions specific for installation.
- D. Closeout Submittals
  - 1. User manual.
  - 2. Parts list.
  - 3. Maintenance requirements.

#### 1.5 QUALITY ASSURANCE

- A. Manufacturer:
  - 1. Minimum of [10] years of experience in manufacture and design Video Surveillance Devices.
- B. Video Surveillance System:
  - 1. List certifying bodies (UL,FCC,CE, etc.)
  - 2. Provide evidence of compliance upon request.
- C. Installer:
  - 1. Minimum of [5] years of experience installing Video Surveillance System.

#### 1.6 DELIVERY, STORAGE AND HANDLING

- A. Comply with requirements of Section 01 60 00.
- B. Deliver materials in manufacturer's original, unopened, undamaged containers; and unharmed original identification labels.
- C. Protect store materials from environmental and temperature conditions following manufacturer's instructions.
- D. Handle and operate products and systems according to manufacturer's instructions.

#### 1.7 WARRANTY

- A. Provide manufacturer's warranty covering [3] years for replacement and repair of defective equipment. Warranty varies country to country.

## 1.8 MAINTENANCE

- A. Make ordering of new equipment for expansions, replacements, and spare parts available to dealers and end users.
- B. Provide factory direct technical support via phone and e-mail.

## PART 2 – PRODUCTS

### 2.1 MANUFACTURERS

- A. [Acceptable Manufacturer:  
**Zhejiang Dahua Vision Technology Co., Ltd.**  
Address: No.1199 Bin'an Road, Binjiang District, Hangzhou, China.  
Tel: +86-571-87688883  
Fax: +86-571-87688815  
Email:overseas@dahuasecurity.com
- B. Substitutions: [Not permitted.] [Under provisions of Division 1.]
  - 1. [All proposed substitutions must be approved by the Architect or Engineer professional]
  - 2. [Proposed substitutions must provide a line-by-line compliance documentation.]

### 2.2 PENTA-BRID 2 MP DVR - 4/8/16-CHANNEL 2-MP 1U DIGITAL VIDEO RECORDER DHI-XVR7204A DHI-XVR7208A DHI-XVR7216A

- A. General Characteristics:
  - 1. The Penta-brid 2 MP DVR shall be an embedded processor with Embedded Linux operating system to record video from HDCVI, AHD, TVI, CVBS, and IP data sources.
  - 2. The Penta-brid 2 MP DVR shall be capable of storing up to 16 TB of data from [four (4) HDCVI/AHD/TVI/CVBS camera inputs and two (2) IP camera video inputs] [eight (8) HDCVI/AHD/TVI/CVBS camera inputs and four (4) IP camera video inputs] [sixteen (16) HDCVI/AHD/TVI/CVBS camera inputs and eight (8) IP camera video inputs] with up to 5 MP resolution for each IP input.
  - 3. The Penta-brid 2 MP DVR shall use the Smart H.264+ and H.264 Video compression protocols.
  - 4. The Penta-brid 2 MP DVR shall have a maximum bandwidth of [24] [48] [96] Mbps.
  - 5. The Penta-brid 2 MP DVR shall automatically detect and recognize the transmission protocol (HDCVI/AHD/TVI/CVBS) of each attached analog camera.
  - 6. The Penta-brid 2 MP DVR shall offer a selection of built-in recording options and schedules.
  - 7. The Penta-brid 2 MP DVR shall be powered by a [DC12 V, 4 A] [DC12 V, 4 A] [DC12 V, 5 A] power supply and consume less than 15 W of power (without HDD).

- B. Display
1. The Penta-brid 2 MP DVR shall offer one (1) HDMI and one (1) VGA display interface.
  2. The Penta-brid 2 MP DVR shall offer display resolutions of 1920 × 1080, 1280 × 1024, 1280 × 720, and 1024 × 768.
  3. The Penta-brid 2 MP DVR shall offer [1/4/6] [1/4/8/9/16] [1/4/8/9/16/25] multi-screen display.
  4. The Penta-brid 2 MP DVR shall offer an on-screen display that lists the camera title, time, video loss indication, camera lock indication, motion detection, and recording indicator.
- C. Interface
1. The Penta-brid 2 MP DVR shall have [four (4) HDCVI/AHD/TVI/CVBS camera inputs and two (2) IP camera video inputs] [eight (8) HDCVI/AHD/TVI/CVBS camera inputs and four (4) IP camera video inputs] [sixteen (16) HDCVI/AHD/TVI/CVBS camera inputs and eight (8) IP camera video inputs].
  2. The Penta-brid 2 MP DVR shall offer [two (2) USB 2.0 auxiliary ports] [one (1) USB 2.0 auxiliary port and one (1) USB 3.0 auxiliary port] [one (1) USB 2.0 auxiliary port and one (1) USB 3.0 auxiliary port].
  3. The Penta-brid 2 MP DVR shall offer one (1) RS485 port for PTZ control.
  4. The Penta-brid 2 MP DVR shall offer four (4) Audio In port and one (1) Audio Out port, with a two-way talk capability.
  5. The Penta-brid 2 MP DVR shall offer [eight (8) alarm inputs and three (3) relay outputs] [eight (8) alarm inputs and three (3) relay outputs] [sixteen (16) alarm inputs and three (3) relay outputs].
- D. Storage
1. The Penta-brid 2 MP DVR shall come with two (2) SATA ports that can each support an 8TB HDD.
- E. Playback and Backup
1. The Penta-brid 2 MP DVR shall allow recorded video searches by time/date, motion detection event, Exact Search, and Smart Search.
  2. The Penta-brid 2 MP DVR shall offer the following playback functions: Play, Pause, Stop, Rewind, Fast Play, Slow Play, Next File, Previous File, Next Camera, Previous Camera, Full Screen, Repeat, Shuffle, Backup Selection, and Digital Zoom.
  3. The Penta-brid 2 MP DVR shall allow data backup via a USB device or another network.
- F. Recording
1. The Penta-brid 2 MP DVR shall employ the Smart H.264+ and the H.264 video compression protocols.
  2. The Penta-brid 2 MP DVR shall offer video recording resolutions of 1080p, 720p, 960H, D1, HD1, BCIF, CIF, and QCIF.
  3. The Penta-brid 2 MP DVR shall allow a bit rate between 1 Kbps to 6144K bps per channel.
  4. The Penta-brid 2 MP DVR shall offer dual recording at the following rates:
    - a. Main Stream: 1080p/720p/960H/D1/HD1/BCIF/CIF/QCIF (1 to 25/30 fps)
    - b. Sub Stream: D1/CIF/QCIF(1 to 25/30 fps)

5. The Penta-brid 2 MP DVR shall offer the following built-in recording modes:
  - a. Manual
  - b. Schedule, regular or continuous
  - c. Motion Detection
  - d. Video Loss
  - e. Tampering
  - f. Alarm
  - g. Stop
6. The Penta-brid 2 MP DVR shall offer a recording interval between 1 minute and 60 minutes. In addition, the Penta-brid 2 MP DVR shall offer a pre-record interval of between 1 second to 30 seconds, and a post-record interval of between 10 seconds to 300 seconds.
7. The Penta-brid 2 MP DVR shall be capable of recording from third-party devices, including: Dahua, Arecont Vision, AXIS, Bosch, Brickcom, Canon, CP Plus, Dynacolor, Honeywell, Panasonic, Pelco, Samsung, Sanyo, Sony, Videotec, and Vivotek.

#### G. IP Connectivity

1. The Penta-brid 2 MP DVR shall allow full control and configuration capabilities via a TCP/IP network.
2. The Penta-brid 2 MP DVR shall offer [one (1) RJ-45 port (100 M)] [one (1) RJ-45 port (1000 M)] [one (1) RJ-45 port (1000 M)].
3. The Penta-brid 2 MP DVR shall support a maximum of 128 user access points.
4. The Penta-brid 2 MP DVR shall conform to the ONVIF 2.4.1 and to the CGI standard.
5. The Penta-brid 2 MP DVR shall support the IPv6 internet-layer protocol for packet switched internetworking across multiple IP networks.
6. The Penta-brid 2 MP DVR shall support the IPv4/ IPv6, HTTP, HTTPS, SSL, TCP/IP, UDP, UPnP, SNMP, RTSP, RTP, SMTP, NTP, DHCP, DNS, PPPOE, DDNS, FTP, IP Filter.
7. The Penta-brid 2 MP DVR shall support the IOS and the Android mobile operating systems.

#### H. Installation Requirements

1. The Penta-brid 2 MP DVR shall be capable of operating in temperatures between -10°C to +55°C (+14°F to +131°F), 86 to 106 kpa.
2. The Penta-brid 2 MP DVR shall receive power from a DC12V power source and consume less than 15 W of power (without HDD).

## **PART 3 – EXECUTION**

### **3.1 EXAMINATION**

- A. Examine areas to receive devices and notify adverse conditions affecting installation or subsequent operation.
- B. Do not begin installation until unacceptable conditions are corrected.

### **3.2 PREPARATION**

- A. Protect devices from damage during construction.

### **3.3 INSTALLATION**

- A. Install devices in accordance with manufacturer's instruction at locations indicated on the floor drawings plans.
- B. Perform installation with qualified service personnel.
- C. Install devices in accordance with the National Electrical Code or applicable local codes.
- D. Ensure selected location is secure and offers protection from accidental damage.
- E. Location must provide reasonable temperature and humidity conditions, free from sources of electrical and electromagnetic interference.

### **3.4 FIELD QUALITY CONTROL**

- A. Test snugness of mounting screws of all installed equipment.
- B. Test proper operation of all video system devices.
- C. Determine and report all problems to the manufacturer's customer service department.

### **3.5 ADJUSTING**

- A. Make proper adjustment to video system devices for correct operation in accordance with manufacturer's instructions.
- B. Make any adjustment of camera settings to comply with specific customer's need.

### **3.6 DEMONSTRATION**

- A. Demonstrate at final inspection that video management system and devices functions properly.

**END OF SECTION**