June 2017

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**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**

**TRI-BRID 4K DVR - 4/8/16-CHANNEL 4K 1U DIGITAL VIDEO RECORDER**

1. **– GENERAL**
	1. SUMMARY
		1. 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
		2. 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. REFERENCES
		1. Federal Communications Commission (FCC) ([www.fcc.gov](http://www.fcc.gov))
			1. FCC Part 15 Subpart B
		2. Underwriters Laboratories, Inc. (UL) (www.ul.com)
			1. UL 60950-1
			2. CAN/CSA C22.2 No. 60950-1-07
		3. European Norms
			1. ICES 003
			2. EN 55032: 2012+AC:2013 (Class B)
			3. EN 55024 : 2010 EN 61000-3-2 : 2014
			4. EN 50130-4: 2011 EN 61000-3-3 : 2013
	2. SYSTEM DESCRIPTION
		1. Section Includes
			1. Digital Video Recorders
		2. Performance Requirements
			1. The Tri-brid 4K DVR shall be an embedded processer with Embedded Linux operating system to record video from HDCVI, CVBS, and IP data sources.
			2. The Tri-brid 4K DVR shall be capable of storing up to 12 TB of data.
			3. The Tri-brid 4K DVR shall accept video inputs from from [four (4) HDCVI/CVBS camera inputs] [eight (8) HDCVI/CVBS camera inputs] [16 HDCVI/CVBS camera inputs].
			4. The Tri-brid 4K DVR shall be capable of accepting a maximum of [4+2] [8+4] [16+8] IP camera inputs, with a resolution up to 4K per channel.
			5. The Tri-brid 4K DVR shall use the Smart H.264+ and H.264 Video compression protocols.
			6. The Tri-brid 4K DVR shall have a maximum bandwidth of [24] [48] [96] Mbps.
			7. The Tri-brid 4K DVR shall automatically detect and recognize the transmission protocol (HDCVI or CVBS) of each attached analog camera.
			8. The Tri-brid 4K DVR shall offer a selection of built-in recording options and schedules.
	3. SUBMITTALS

* + 1. Submit under provisions of Section [01 33 00.]
		2. 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.
		3. Dimensional Drawings; include
			1. Overall device dimensions.
			2. Dimensions specific for installation.
		4. Closeout Submittals
			1. User manual.
			2. Parts list.
			3. Maintenance requirements.
	1. QUALITY ASSURANCE
		1. Manufacturer:
			1. Minimum of [10] years of experience in manufacture and design Video Surveillance Devices.
		2. Video Surveillance System:
			1. List certifying bodies (UL, CSA, etc.)
			2. Provide evidence of compliance upon request.
		3. Installer:
			1. Minimum of [5] years of experience installing Video Surveillance System.
	2. DELIVERY, STORAGE AND HANDLING
		1. Comply with requirements of Section 01 60 00.
		2. Deliver materials in manufacture’s original, unopened, undamaged containers; and unharmed original identification labels.
		3. Protect store materials from environmental and temperature conditions following manufacturer’s instructions.
		4. Handle and operate products and systems according to manufacturer’s instructions.
	3. WARRANTY
		1. Provide manufacturer’s warranty covering [2] years for replacement and repair of defective equipment. Warranty varies country to country.
	4. MAINTENANCE
		1. Make ordering of new equipment for expansions, replacements, and spare parts available to dealers and end users.
		2. Provide factory direct technical support via phone and e-mail.
1. **– PRODUCTS**
	1. MANUFACTURERS
		1. [Acceptable Manufacturer:

Dahua Technology USA Inc.

23 Hubble, Irvine, CA 92618

Tel: (949) 679-7777

Fax: (949) 679-5760

Email: sales.usa@global.dahuatech.com]

* + 1. 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.]
	1. TRI-BRID 4K DVR - 4/8/16-CHANNEL 4K 1U DIGITAL VIDEO RECORDER
	[C52A1N] [C52A2N] [C52A3N]

		1. General Characteristics:
			1. The Tri-brid 4K DVR shall be an embedded processer with Embedded Linux operating system to record video from HDCVI, CVBS, and IP data sources.
			2. The Tri-brid 4K DVR shall be capable of storing up to 12 TB of data.
			3. The Tri-brid 4K DVR shall accept video inputs from from [four (4) HDCVI/CVBS camera inputs] [eight (8) HDCVI/CVBS camera inputs] [16 HDCVI/CVBS camera inputs].
			4. The Tri-brid 4K DVR shall be capable of accepting a maximum of [4+2] [8+4] [16+8] IP camera inputs, with a resolution up to 4K per channel.
			5. The Tri-brid 4K DVR shall use the Smart H.264+ and H.264 Video compression protocols.
			6. The Tri-brid 4K DVR shall have a maximum bandwidth of [24] [48] [96] Mbps.
			7. The Tri-brid 4K DVR shall automatically detect and recognize the transmission protocol (HDCVI or CVBS) of each attached analog camera.
			8. The Tri-brid 4K DVR shall offer a selection of built-in recording options and schedules.
			9. The Tri-brid 4K DVR shall be powered by a [12 VDC, 4 A] [12 VDC, 5 A] power supply and consume less than 15 W of power.
		2. Display
			1. The Tri-brid 4K DVR shall offer one (1) HDMI and one (1) VGA display interface.
			2. The Tri-brid 4K DVR shall offer display resolutions of: 3840 x 2160, 1920 × 1080, 1280 × 1024, 1280 × 720, and 1024 × 768.
			3. The Tri-brid 4K DVR shall offer [1/4/6] [1/4/8/9/16] [1/4/8/9/16/25] multi-screen display.
			4. The Tri-brid 4K DVR shall offer an on-screen display that lists the camera title, time, video loss indication, camera lock indication, motion detection, and recording indicator.
		3. Interface
			1. The Tri-brid 4K DVR shall have [four (4) HDCVI camera inputs and two (2) IP camera video inputs] [eight (8) HDCVI camera inputs and 4 IP camera video inputs] [16 HDCVI camera inputs and four (4) IP camera video inputs].
			2. The Tri-brid 4K DVR shall offer one (1) USB 2.0 auxiliary port and one (1) USB 3.0 auxiliary port. .
			3. The Tri-brid 4K DVR shall offer one (1) RS485 port for PTZ control.
			4. The Tri-brid 4K DVR shall offer one (1) Audio In port and one (1) Audio Out port, with a two-way talk capability.
		4. Storage
			1. The Tri-brid 4K DVR shall come with two (2) SATA ports that can each support a 6 TB HDD.
		5. Playback and Backup
			1. The Tri-brid 4K DVR shall allow recorded video searches by time/date, motion detection event, Exact Search, and Smart Search.
			2. The Tri-brid 4K 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 Tri-brid 4K DVR shall allow data backup via a USB device or another network.
		6. Recording
			1. The Tri-brid 4K DVR shall employ the Smart H.264+ and the H.264 video compression protocols.
			2. The Tri-brid 4K DVR shall offer video recording resolutions of 4K, 4 MP, 1080p, 720p, 960H, D1, HD1, BCIF, CIF, and QCIF.
			3. The Tri-brid 4K DVR shall allow a bit rate of 1 Kbps to 12288 Kbps per channel.
			4. The Tri-brid 4K DVR shall offer dual recording at the following analog channel recording rates:
				1. Main Stream:

First Channel: 4K (8 MP) at 15 fps or 4 MP at 15 fps

Other Channels: 4 MP at 15 fps or 1080p, 720p, 960H, D1, HD1, BCIF, CIF, QCIF at 30 fps

* + - * 1. Sub Stream: D1/CIF/QCIF at 30 fps
			1. The Tri-brid 4K DVR shall offer the following built-in recording modes:
				1. Manual
				2. Schedule, regular or continuous
				3. Motion Detection
				4. Camera Blank
				5. Video Loss
				6. Stop
			2. The Tri-brid 4K DVR shall offer a recording interval between 1 minute and 60 minutes. In addition, the Tri-brid 4K 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.
			3. The Tri-brid 4K 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.
		1. IP Connectivity
			1. The Tri-brid 4K DVR shall allow full control and configuration capabilities via a TCP/IP network.
			2. The Tri-brid 4K DVR shall offer one (1) RJ-45 port (1000 Mbps).
			3. The Tri-brid 4K DVR shall support a maximum of 128 user access points.
			4. The Tri-brid 4K DVR shall conform to the ONVIF 2.4 and to the CGI standard.
			5. The Tri-brid 4K DVR shall support the IPv6 internet-layer protocol for packet switched internetworking across multiple IP networks.
			6. The Tri-brid 4K DVR shall support the IPv4/ IPv6, HTTP, HTTPS, SSL, TCP/IP, UDP, UPnP, ICMP, IGMP, SNMP, RTSP, RTP, SMTP, NTP, DHCP, DNS, PPPOE, DDNS, FTP, IP Filter, QoS, Bonjour, and 802.1x.
			7. The Tri-brid 4K DVR shall support the IOS and the Android mobile operating systems.
		2. Intelligent Video System
			1. The Tri-brid 4K DVR shall offer a built-in Intelligent Video System to provide advanced analytics for a scene transmitted from an IP camera connected to the DVR.
			2. The Intelligent Video System shall offer intelligent video analytics built-in to the Tri-brid 4K DVR on one (1) IP channel.
			3. The Intelligent Video System shall be capable of processing and analyzing video within the camera itself, with no extra hardware required.
			4. The Intelligent Video System shall trigger an alarm and take a defined action for the following events:
				1. Standard Features

Tampering with the camera.

Error writing to an onboard Micro SD Card.

Error sending or receiving data over the network.

Unauthorized access to the camera.

* + - * 1. Premium Features (available on one analog channel)

Motion: object moves through any part of the scene.

Tripwire: a target crosses a user-defined line.

Intrusion: a target enters or exits a defined perimeter.

Scene Change: a person or object moves the camera to change the scene or covers the camera to obscure the scene.

Abandoned/Missing Object: a target leaves an object in a designated area, or a target removes and object from the same designated area.

* + 1. Installation Requirements
			1. The Tri-brid 4K DVR shall be capable of operating in temperatures between
			-10°C to +55°C (+14°F to +131°F), 0 to 90% RH.
			2. The Tri-brid 4K DVR shall receive power from a 12 VDC power source and consume less than 15 W of power.
1. **– EXECUTION**
	1. EXAMINATION
		1. Examine areas to receive devices and notify adverse conditions affecting installation or subsequent operation.
		2. Do not begin installation until unacceptable conditions are corrected.
	2. PREPARATION
		1. Protect devices from damage during construction.
	3. INSTALLATION
		1. Install devices in accordance with manufacturer’s instruction at locations indicated on the floor drawings plans.
		2. Perform installation with qualified service personnel.
		3. Install devices in accordance with the National Electrical Code or applicable local codes.
		4. Ensure selected location is secure and offers protection from accidental damage.
		5. Location must provide reasonable temperature and humidity conditions, free from sources of electrical and electromagnetic interference.
	4. FIELD QUALITY CONTROL
		1. Test snugness of mounting screws of all installed equipment.
		2. Test proper operation of all video system devices.
		3. Determine and report all problems to the manufacturer’s customer service department.
	5. ADJUSTING
		1. Make proper adjustment to video system devices for correct operation in accordance with manufacturer’s instructions.
		2. Make any adjustment of camera settings to comply with specific customer’s need.
	6. DEMOSTRATION
		1. Demonstrate at final inspection that video management system and devices functions properly.

END OF SECTION