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This product specification is based on recognized industry standards for project documentation found within the Construction Specification Institute (CSI) Project Resource Manual – CSI Manual of Practice [5<sup>th</sup> Edition], MasterFormat™ [2004 Edition], SectionFormat™ [1997 Edition] and PageFormat™ [1999 Edition].

This specification is based on JVC model TK-C925U and may be used as a manufacturer based proprietary specification or edited to be a performance based specification. Optional text is presented in brackets [\_\_\_\_]. Edit or Delete optional text as required in final project documentation. Specifier Notes are intended to provide information and guidance relative to the specific product or system ensuring proper configuration, performance and operation; delete these notes in final project documentation.

## Section 28 23 29

### Video Surveillance Remote Devices and Sensors

#### PART 1 GENERAL

##### 1.01 SUMMARY

- A. Section includes: High performance color CCD closed circuit television camera with integrated 10-bit Digital Signal Processing capable of automatically increasing sensitivity by switching between color and black and white modes during low light conditions
- B. Related Requirements:

*Specifier Note: Projects may vary in scope and complexity; as such it is important to identify those sections which may have an impact on system operation or integrity. Closed circuit television systems often interface or integrate with other building systems. Within certain projects communication and electrical cabling may often be related to requirements found in the overall building wiring requirements. Edit or revise those sections as required for specific project or are specification practices. It is important these sections be reviewed and addressed if the project warrants or are specification practices. Contact a JVC Representative for further assistance.*

- |    |          |  |
|----|----------|--|
| 1. | 26 05 19 | Low-Voltage Electrical Power Conductors and Cables   |
| 2. | 26 41 23 | Lighting Protection, Surge Arrestors and Suppressors |
| 3. | 26 55 53 | Security Lighting                                    |
| 4. | 26 56 00 | Exterior Lighting                                    |

*Specifier Note: The convergence of IT Infrastructures and Network Video technology may often require the integration of equipment enclosures and related hardware typically found in data center environments. Edit or revise those sections as required for specific project or are specification practices*

- 5. 27 11 16 Communication Cabinets, Racks, Frames and Enclosures
- 6. 27 21 00 Data Communication Network Equipment
- 7. 27 22 00 Data Communication Hardware

C. Multi-Section Requirements:

*Specifier Note: Product(s) in this section require interface to or integration with other closed circuit television components to operate as a complete system. As projects vary in scope and complexity; it is important to identify those sections which may require product integration, have an impact on system operation or infrastructure integrity. Edit or revise those sections which may apply to a specific project. Contact a JVC Representative for further assistance.*

- 1. 01 61 13 Software Licensing Requirements
- 2. 01 86 33 Electronic Safety and Security Performance Requirements
- 3. 28 01 20 Operation and Maintenance of Electronic Surveillance
- 4. 28 05 00 Common Work Results for Electronic Safety and Security
- 5. 28 06 20 Schedules for Electronics Surveillance
- 6. 28 08 00 Commissioning of Electronic Safety and Security Systems
- 7. 28 13 33.33 Access Control Interfaces to Video Surveillance
- 8. 28 16 33.33 Intrusion Detection Interfaces to Video Surveillance
- 9. 28 23 13 Video Surveillance Control and Management Systems
- 10. 28 23 16 Video Surveillance Monitoring and Supervisory Devices
- 11. 28 23 19 Digital Video Recorders and Analog Recording Devices
- 12. 28 23 26 Video Surveillance Remote Positioning Equipment
- 13. 28 23 23 Video Surveillance Infrastructure
- 14. 28 31 33.33 Fire Detection and Alarm Interfaces to Video Surveillance

1.02 REFERENCE STANDARDS

- A. National Television System Committee - NTSC (North America)
- B. Underwriters Laboratory – UL
- C. Federal Communications Commission – FCC
- D. Interference Causing Equipment Standard – ICES (Canada)
- E. Restriction of Hazardous Substances Directive (RoHS)

1.03 ADMINISTRATIVE REQUIREMENTS

*Specifier Note: Closed Circuit Television systems are often installed in multiple phases, similar to certain electrical components. It is important to schedule these phases in conjunction with construction phases. Improperly run wires or undesirable mounting locations may degrade system performance, and, may void the manufacturer’s warranty.*

- A. Coordination: Ensure Closed Circuit Television System installation is fully coordinated with provisions of Division 1, section 01 31 00 – Project Management and Coordination
- B. Scheduling: Ensure pre-installation of cabling, mounting hardware and equipment installation is fully coordinated with Division 1, Section 01 32 00 – Construction Progress Documentation

1. Building envelop must be substantially completed and HVAC systems installed and operationally prior to final equipment installation

#### 1.04 SUBMITTALS

- A. General: In compliance with Conditions of the Contract and Division 1, Section 01 33 00 Submittal Procedures
- B. Product and technical data:
  1. Manufacturers technical data sheets and bulletins
  2. Manufacturers installation and operation manuals
  3. Manufacturer Maintenance data
  4. Spare parts list and recommended hardware
    - a. Recommended maintenance contract
- C. Shop Drawings:
  1. Wiring diagrams
  2. Equipment placement locations
  3. Schedules and tables: Product quantity and placement

*Specifier Note: When comparing/choosing digital video security equipment, many products may be derivatives of consumer electronics. The following language ensures the Owner the proper equipment is being used for the intended purpose.*

#### 1.05 QUALITY ASSURANCE

- A. The system shall be manufactured for the intended purpose in a commercial / industrial, 24 hour day, 7 days per week, and 365 days per year operating environment
- B. Manufacturer Qualifications:
  1. Obtain [products] [systems] from a manufacturer experienced in the engineering, production and support of closed circuit television systems, and, with sufficient production capability to meet the required project schedule
  2. Manufacturer capable of providing field representation during design, installation and commissioning of systems

*Specifier Note: Regulations specific to this section vary by geographic location and Owner requirements. Coordinate article below with Local Authority Having Jurisdiction and/or Owner for requirements. Edit or revise article below as required for a specific project or specifiers practice.*

- C. Regulatory Requirements:
  1. Emission / Immunity:
    - a. FCC Part 15, Class B Digital Device
    - b. ICES-003, Class B Digital Apparatus
  2. Safety:
    - a. UL Listed
  3. Sustainability:
    - a. RoHS Directive Compliant

1.06 DELIVERY, STORAGE AND HANDLING

- A. General: Comply with Division 1, Section 01 61 00 Common Product Requirements and the manufacturers recommended procedures for receiving and protection of the equipment
- B. Storage and Protection: Store materials protected from exposure to extreme or harmful environmental conditions and at temperature and humidity levels recommended by the manufacturer:
  - 1. Deliver individual components in the manufacturers original packaging and labeling
  - 2. Prevent physical damage, soiling or wetting
  - 3. Provide secure storage prior to and during installation

1.07 PROJECT/SITE CONDITIONS

- A. Environmental Requirements:
  - 1. Site should be substantially enclosed and secure prior to installation of hardware
  - 2. Environmental systems should be in place and operational
  - 3. Deliver materials onsite at least 24 hours prior to installation to allow materials to reach temperature and humidity equilibrium

1.08 WARRANTY

- A. Provide original equipment manufacturers warranty documentation for acceptance by the Owner

*Specifier Note: Coordinate sub-paragraph below with manufacturers warranty policies and procedures if different from General Conditions, specifically Division 01, Section 01 78 36 - Warranties*

- 1. Warranty Period: *[specify term]* commencing with the Date of Substantial Completion

**PART 2 PRODUCTS**

2.01 CLOSED CIRCUIT TELEVISION CAMERA

*Specifier Note: Edit or revise paragraph as required for proprietary or performance method specification*

- A. Manufacturer:
  - 1. JVC Professional Products Company  
Division of JVC AMERICAS CORP.  
1700 Valley Road, Wayne, NJ; (800) 582-5825  
www.JVC.com/pro
- B. General specifications:
  - 1. Provide high resolution color/black and white digital surveillance camera
  - 2. The camera shall feature a programmable mechanical infrared cut filter which switches between color and black and white modes during low light conditions:
    - a. Automatic switching mode with level and time delay setting:
      - 1. Low Illumination level
      - 2. Normal Illumination level
      - 3. High Illumination level

4. Time delay: 10, 20 or 30 seconds
- b. Manual: Fixed color or black and white mode
- c. Externally switched: Color or black and white mode
3. Image Sensor: One third inch Interline Transfer CCD Chip measuring 4.8mm horizontal by 3.6mm vertical:
  - a. Effective pixels: 380,000 (768H x 494V)
  - b. Resolution: 540 horizontal
4. Signal system: NTSC
5. Video Processing: Built-in 10-bit Digital Signal Processing

*Specifier Note: There is no industry testing standard for determining Scene Illumination, or Sensitivity. Light source, scene reflectance, lens type and aperture opening all play a critical role in determining sensitivity (LUX) of a camera. The quality of a video signal is often subjective based on the personal preferences of the Owner. Prior to selecting and specifying cameras you are encouraged to perform a side by side comparison with all variables being equal between cameras. Contact your JVC Representative for further information.*

6. Scene Illumination:
  - a. Color: 0.4 lux, F 1.2, 25 IRE (25% video) AGC Super mode
  - b. BW: 0.05 lux, F 1.2, 25 IRE (25% video) AGC Super mode
7. Electronic Shutter: Automatic or Manual, switchable:
  - a. Manual: 1/60 second
  - b. Automatic: AES 1/60 ~ 1/10,000 second
8. Backlight Compensation (BLC): On /Off with four (4) programmable photometric areas patterns
9. White Balance:
  - a. Manual
  - b. Auto Tracking White (ATW) – continuously adjusts white balance based on scene color temperature:
    1. Provide narrow and wide modes to optimize ATW based on scene illumination source
    2. 2,500 to 10,000 degrees Kelvin
  - c. Auto White Control (AWC) – Adjusts white balance based on ambient light conditions
10. Gain Control:
  - a. Off
  - b. Fixed: 0 to 20 dB
  - c. High: increases range up to 26 dB
  - d. Super; increases range up to 32 dB
  - e. Automatic (AGC)
11. Lens Mount: Selectable C or CS
12. Iris Control: Selectable Video or DC Iris
  - a. External iris level control
13. Programmable external sensitivity control via on screen menu:
  - a. Programmable input or output:
    1. Make or break
14. Programmable Focus Adjustment function
15. On screen display via built in camera setup menu
16. Programmable display mode for cathode ray tubes (CRT) or liquid crystal displays (LCD)

## C. Electrical:

1. Input voltage: Automatic sensing:
  - a. DC 12 volts
  - b. AC 24 volts, 60 hertz  $\pm 10\%$
2. Power consumption: 4.8 Watt
3. External terminal:
  - a. Open collector, low signal
  - b. 25 volts maximum
  - c. 30mA maximum
4. Scanning system: 2-1 interlace, 525 lines:
  - a. Horizontal Frequency - 15,734Hz
  - b. Vertical Frequency - 59.94Hz
5. Synchronization System: Switchable:
  - a. Internal
  - b. Line Lock with vertical phase adjustment
6. Video Output: Composite, 1.0 volt, peak to peak, 75 ohms impedance
7. Video Frame Rates: 30 frames per second
8. Signal to Noise Ratio: 50dB typical , (AGC off)

## D. Mechanical:

1. Dimensions: 2.50 inches (65mm) wide by 2.125 inches (55mm) high by 5.00 inches (126mm) long
2. Weight: 0.88 pound (480g)
3. External Controls, Connections and Indicators:
  - a. Front:
    1. Lens Mount
    2. Back focus adjustment ring
    3. Adjustment screw x1: Back focus lock
  - b. Side:
    1. 4 Pin Connector x1: Auto Iris connector
    2. Slide Switch x1: DC / Video Iris selector switch
    3. Dial x1: Iris level control
  - c. Bottom:
    1. Camera mount – 1/4-20 UNC threaded insert
  - d. Back:
    1. Screw terminal x2: Power input
    2. Mini terminal x2: Auxiliary input
    3. Mounting screw x1: Fall prevention wire
    4. Power LED
    5. Slide Switch x1: Synchronization switch
    6. Push Button x1: On screen display menu button
    7. Mini toggle control switch: Menu navigation and selection
    8. BNC x1: Composite video output

## E. Environmental:

1. Temperature Range:
  - a. Operating: 14 to 122 degrees Fahrenheit (-10 to +50 degrees Celsius)
2. Relative Humidity Range:
  - a. Operating: less than 90%, non-condensing.

## 2.02 MANUFACTURED UNITS

- A. JVC Model: TK-C925U
- B. Included Accessories:
  - 1. Installation Manual
  - 2. Mounting plate
  - 3. Auto Iris Connector

## PART 3 EXECUTION

### 3.01 INSTALLATION

*Specifier Note: Certification or licensing requirements for contractors, installers or integrators of safety and security systems vary from state to state in the continental United States. Verify requirements with the Authority Having Jurisdiction for the specific project. Coordinate article with Section 28 08 00 Commissioning of Electronic Safety and Security. Edit or revise articles below as required for a specific project or specification practices.*

- A. Installer Qualifications:
  - 1. Engage Installer with [license] [certification] [*specify type*] as required by the [State of] [City of] with demonstrated successful experience designing, installing, commissioning, training and servicing closed circuit television systems
  - 2. Installer shall have completed factory approved training and be certified by the manufacturer as qualified to install, operate and maintain product(s) specified
- B. Install the system in accordance with the equipment manufacturers recommended procedures
- C. Install system using generally acceptable industry practices for closed circuit television systems
- D. Ensure electrical and communication wiring is coordinated with Section 28 05 13.13 CCTV Communication Conductors and Cables

*Specifier Note: The following may be deleted for projects of smaller scope in which full Division 1 project documentation is not provided or required. It is recommended that performance requirements be specified within the project documentation to ensure proper configuration and operation of the system. Contact your JVC Representative for assistance in developing a system performance specification specific to a particular project.*

- E. Ensure system and all related components are installed and configured to support performance requirements outlined in Division 1, 01.86.33 Electronic Safety and Security Performance Requirements

### 3.02 EXAMINATION

*Specifier Note: There are often changes to building interior structures during the course of construction. It is imperative as built mounting locations be assessed to ensure the desired field of view can be achieved. Owners often require very specific views of their facility and physical changes to the structure may prevent ideal mounting locations. Coordinate and/or revise Division 1, Section 01 86 33 Electronic Safety and Security Performance Requirements*

- A. Verification of Conditions:
  - 1. Ensure wiring cable chase requirements are available
  - 2. Ensure substrate for physical mounting locations meet manufacturer recommendations
- B. Examination and Assessment:
  - 1. Review mounting location of each device to ensure required field of view is achievable

### 3.03 FIELD QUALITY ASSURANCE

- A. Provide Manufacturer Authorized Field Representation for engineering, installation, testing and commissioning assistance as required in Division 1

### 3.04 COMMISSIONING

*Specifier Note: Edit and revise paragraphs below for projects of smaller scope in which full Division 1 project documentation is not provided or required, it is recommended that performance requirements be specified within the project documentation to ensure proper configuration and operation of the system. Contact your JVC Representative for assistance in developing performance specification for a particular project.*

- A. Testing: Ensure system operates to manufacturers specifications
- B. Ensure system and all related components are configured to and comply with performance requirements in Division 1, Section 01.86.33 Electronic Safety and Security Performance Requirements, and Division 28, section 28.01.20 Operation and Maintenance of Electronic Surveillance
- C. User/Owner Training:
  - 1. Provide original manufacturers [approved] [certified] training for system administrators and operators designated by the Owner
- D. Documentation: Provide [x] set(s) of manufacturers hardware installation and/or software user guides for each level of authorized users

### 3.05 INSPECTION/MAINTANENCE

- A. Follow manufacturers recommended practices for preventative maintenance
- B. Comply with Division 28, section 28.01.20 Operation and Maintenance of Electronic Surveillance
- C. Ensure continuous, unrestricted airflow in environment where equipment is installed

## END OF SECTION