



JVC U.S.A.  
Professional Products Group  
1700 Valley Road  
Wayne, New Jersey 07470  
(800) 582-5825  
www.jvc.com/pro

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-C2201U/WPU and may be used as a manufacturer based proprietary specification or edited to a performance based specification. Optional text is presented in brackets [ ]; 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 resolution CCD color camera with integrated 12-bit Digital Signal Processing and variable focal length lens in a vandal resistant clear dome. The camera automatically increases sensitivity during low light conditions by switching between color and black and white modes.
- 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. UL 2044: Commercial Closed Circuit Television System
- B. FCC Part 15 Radio Frequency Radiators
- C. ICES-003 Emission
- D. ISO
- E. 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 submittal requirements
  - 1. Product Data: Submit original equipment manufacturers product, installation, operation and maintenance data

*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: 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
  - 1. Specified Manufacturer to provide field engineering support services

*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. Edit or revise those sections as required for a specific project or specification practices.*

- C. Installer Qualifications:
  - 1. Engage Installer with [license] [certification] [type] as required by the [State of] [City of] with demonstrated successful experience designing, installing, commissioning, training and servicing closed circuit television systems for commercial and/or residential security applications
  - 2. Installer shall have completed factory training and be certified by the manufacturer as qualified to install, operate and maintain product(s) specified

#### 1.06 WARRANTY

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

*Specifier Note: Coordinate paragraph below with manufacturers warranty requirements*

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

## 1.07 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

## 1.08 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

## PART 2 PRODUCTS

### 2.01 COLOR CLOSED CIRCUIT TELEVISION CAMERA

- A. General:
  - 1. High resolution CCD color camera with integrated 12-bit Digital Signal Processing and variable focal length lens in a vandal resistant clear dome The camera automatically increases sensitivity during low light conditions by switching between color and black and white modes
    - a. Automatic switching mode
    - b. Fixed color mode
  - 2. One third inch Interline Transfer CCD Chip measuring 4.8mm horizontal by 3.6mm vertical with 380,000 (768H x 494V) effective pixels producing 580 lines horizontal resolution
  - 3. Signal system: NTSC
  - 4. Video Processing: Built-in 12-bit Digital Signal Processing
  - 5. [TK-C2201U] Vandal resistant dome enclosure.
  - 6. [TK-C2201WPU] IP66 rated vandal proof dome housing.
  - 7. Scene illumination:
    - a. Color Mode: 0.025 lx F 1.2, AGC HIGH, 25 IRE (25% video)
    - b. B/W Mode: 0.015 lx, F 1.2, AGC HIGH, 25 IRE (25% video)

*Specifier Note: There are no industry standards for testing or 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. 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.*

- 8. Provide Integrated Manually Variable Focal Length Lens with Auto Iris:
  - a. Focal Length: adjustable 2.8 mm to 10.5 mm
  - b. Aperture: F 1.2 to F 3.6

- c. View Angle:
    - 1. 2.8mm: 100 degrees horizontal x 73 degrees vertical
    - 2. 10.5mm: 24 degrees horizontal x 21 degrees vertical
  - d. Iris: DC
  - 9. Adjustable 3 axis gimbals allows manually lens adjustment in following range:
    - a. Horizontal: 350 degrees
    - b. Vertical: plus or minus 80 degrees
    - c. Rotation: plus or minus 80 degrees
  - 10. Back Light Compensation: 4 patterns
  - 11. Shutter Speed
  - 12. Programmable external sensitivity control via on screen menu
  - 13. Programmable Focus Adjustment function
  - 14. Automatic Gain Control: OFF / MID / HIGH
  - 15. Sense up (slow shutter): OFF, x2, x4, x8, x16, x32, x64, x128
  - 16. Camera title overlay
  - 17. Brightness
  - 18. White Balance Area
  - 19. Color Level
  - 20. Black Level
  - 21. Auto Black
  - 22. Enhance Level
  - 23. DNR (digital noise reduction) Level
  - 24. Digital Zoom: x1, x1.4, x2
  - 25. Reverse Mode
  - 26. Privacy Mask (4 areas)
  - 27. CCD Spot compensation
- B. Electrical
- 1. Input voltage: AC 24V 60 Hz , DC 12V
  - 2. Power consumption:
    - a. 1.9 watts
    - b. [TK-C220IWPU] 20.3 watts including heater
  - 3. Scanning system: 2-1 interlaced, 580 lines
  - 4. Synchronization System: Internal
  - 5. White Balance: Continuous Auto Tracking White (ATW) or Manual
    - a. 2,300 to 10,000 degrees Kelvin
  - 6. Automatic Gain Control
  - 7. Video output: Composite video, 1V peak to peak, 75 Ohms impedance.
  - 8. Signal to Noise Ratio: 52dB (AGC off)
- C. Mechanical
- 1. Dimensions:
    - a. [TK-C220IU] 4 3/8 inches (110mm) diameter by 3 7/8 inches (97mm) high
    - b. [TK-C220IWPU] 6 1/4 inches (160mm) diameter by 4 7/8 inches (125mm) high
  - 2. Weight:
    - a. [TK-C220IU] 0.73 pounds (330g)
    - b. [TK-C220IWPU] 2.9 pounds (1300g)
  - 3. Interior Housing - Controls/Connectors/Indicators:

- a. Screw x 2: Mounting bracket attachment screws
- b. RCA Pin x 1: Monitor Out connection
- c. 3 Mini Dip Switches:
  1. Automatic Day/Night – Auto/Off
  2. Back Light Compensation - On/Off
  3. Monitor Type – LCD/CRT
- d. 6 Push Button:
  1. On screen display menu x 1
  2. Menu navigation and selection x 4
  3. Setting execute parameter x 1
4. Base controls, connectors or indicators:
  - a. Flying leads: Power input cables
  - b. BNC connector on flying lead: Video output – 1V peak to peak, 75 ohms impedance
  - c. [TK-C2201WPU] Power connector for heater

#### D. Environmental

*Specifier Note: JVC provides environmental specifications for optimal operation while achieving maximum in service life of its products. JVC will not mislead owners with the maximum thresholds products will operate to if they reduce the product life cycle. JVC products may operate to more extreme (higher/lower) ratings if required, however the product lifecycle may be shortened. Should you require different environmental conditions please contact your JVC Representative for assistance in specifying the proper products and/or optional accessories.*

1. Temperature Range:
  - a. Operating: 14 to 122 degrees Fahrenheit (-10 to 50 degrees Celsius)
  - b. Recommended: 32 to 104 degrees Fahrenheit (0 to 40 degrees Celsius)
  - c. [TK-C2201WPU] With heater: -22 to 122 degrees Fahrenheit (-30 to 50 degrees Celsius)
2. Relative Humidity Range:
  - a. Storage: up to 85%, non-condensing
  - b. Operating: up to 85%, non-condensing.
3. [TK-C2201U] The unit is suitable for indoor operation.
4. [TK-C2201WPU] The unit is suitable for outdoor operation.

#### E. Regulatory

1. Emission:
  - a. FCC Part 15, Subpart B, Class B
  - b. ICES-003, Class B
2. Safety:
  - a. UL 2044 - Commercial Closed Circuit Television Equipment
3. Ingress Protection:
  - a. [TK-C2201WPU] IEC IP66
4. Environmental Sustainability:
  - a. RoHS Directive

## 2.02 MANUFACTURED UNITS

#### A. JVC Model Number:

1. TK-C2201 1/3 inch CCD Fixed Dome Camera

2. TK-C2201WPU 1/3 inch CCD Fixed Dome Camera Vandal Proof
- B. Included Items:
1. Warranty Card
  2. Instructions
  3. Service Information Card
  4. [TK-C2201WPU] Wrench
  5. [TK-C2201WPU] Silica Gel
  6. [TK-C2201WPU] Template
- C. Optional accessories:
1. [TK-C2201WPU] KA-ZH215U - Heater unit

## PART 3 EXECUTIONS

### 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. Install the system in accordance with the equipment manufacturers recommended procedures
- B. Install system using generally acceptable industry practices for Closed Circuit Television systems and in compliance with building and electrical codes according to authority having jurisdiction

*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 performance specification specific to a particular project.*

- C. Ensure system and all related components are 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

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