**CSI 2010 Specification for:**

**FLIR CP-6408-21-I IR PTZ Camera**

**Notes to Specifier:**

1. **This CSI 2010-compliant specification is designed to allow the specifier to specify FLIR or similar products for any type of project. Specifier can easily customize this specification to his/her needs.**
2. **The specification is not proprietary to Teledyne FLIR. Any suitable brand can be specified using this specification.**
3. **Teledyne FLIR has placed Text Boxes such as this in bold to alert the specifier of important information. Delete all Text Boxes after editing.**
4. **Teledyne FLIR has also placed edit prompts “[ ]” throughout the specification to prompt the specifier to add or modify information relative to the paragraph at hand. Delete all Edit Prompts “[ ]” after editing.**
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# GENERAL

# Summary

# This Specification is for a 4K UHD (3840x2160) True (Shutter) Wide Dynamic Range (WDR) IR PTZ (Pan-Tilt-Zoom) digital video camera with an integrated infrared (IR) illuminator and auto-focusing, motorized vari-focal lens for installation into a fully operational digital video system. This Specification is part of a larger project which may be covered in one or more of the Specification Sections listed below.

# Section Contents and Related Specification References

# This Specification may be part of a larger Security System project. *[If so, utilize the appropriate specification sections below.]* Refer to the appropriate CSI 2010 Specification Sections as referenced below: *[Delete any sections not for coordination to this work.]*

# 000000 – Procurement and Contracting Requirements (Division 0)

# 010000 – General Requirements (Division 1)

# 020000 – Existing Conditions (Division 2)

# 080000 – Openings (Doors, Door Hardware and other Openings) (Division 8)

# 101400 – Signage (Division 10)

# 111200 – Parking Control Equipment (Division 11)

# 142000 – Elevators (Division 14)

# 250000 – Integrated Automation Systems (Division 25)

# 260000 – Electrical (Division 26)

# 270000 – Communications (Division 27)

# 271000 – Data Communications Network Equipment (including Firewalls, Routers, Codecs, Switches and Access Points)

# 272200 – Data Communications Hardware (including Servers, Storage, Workstations, Printers, etc.)

# 273000 – Voice Communications

# 280000 – General Security System Specification (Division 28)

# Section 280800 – Commissioning of Electronic Safety and Security

# Section 281000 – Electronic Access Control and Intrusion Detection

# Section 281600 – Intrusion Detection

# Section 281619 – Intrusion Detection Remote Devices and Sensors

# Section 282000 – Electronic Surveillance

# Section 282300 – Video Surveillance

# Section 282313 – Video Surveillance Control and Management Systems

# Section 282316 – Video Surveillance Monitoring and Supervisory Interfaces

# Section 282323 – Video Surveillance Systems Infrastructure

# Section 282329 – Video Surveillance Remote Devices and Sensors

# Drawings and Specifications:

# Drawings:

# *[Include this paragraph if Drawings were included.]* Drawings delivered with these Specifications show device locations, and may show conduits, details, device schedules and single-line or detailed schematics.

# *[Include this paragraph if Drawings were not included.]* Drawings are not included. See the descriptive narratives in Articles 1.5 and 1.7 below.

# Specifications: The Specifications describe the Scope of Work including:

# Section 1 – System Descriptions, all items to be delivered and installed and all services to be performed.

# Section 2 – Products, describes acceptable products.

# Section 3 – Execution, describes the standards and practices to be used by the installer for this work.

# Project Background and Site Conditions:

# *[Fill in Project Background and Site Conditions for this work here or delete this paragraph and include the paragraph below if this is part of a complete system.]*

# See Section 282313 – Video Surveillance Control and Management Systems

# Product Description:

# Provide a quantity of PTZ digital video security cameras (CP-6408-21-I) as shown on the associated Purchase Order or Bill of Quantities.

# Submittals:

# *[Fill in Submittal Requirements for this work here or delete this paragraph and include the paragraph below if this is part of a complete system.]*

# See Section 013300 – Submittal Procedures

# Quasar 4K 22x IR PTZ CP-6408-21-I Quick Install Guide

# Quasar 4K IR PTZ CP-6408-x1-I Range Installation and User Guide

# Delivery, Storage and Handling

# *[Fill in Submittal Requirements for this work here or delete this paragraph and include the paragraph below if this is part of a complete system.]*

# See Section 016000 – Product Requirements

# Quality Assurance:

# *[Fill in Submittal Requirements for this work here or delete this paragraph and include the paragraph below if this is part of a complete system.]*

# Manufacturer:

# Minimum 10 years’ experience in manufacture and design of IP Video Surveillance Systems.

# ISO 9001:2008 certification

# Installer:

# Minimum 5 years’ experience in installing IP Surveillance Systems.

# All camera installation, configuration and commissioning shall be performed by technicians fully authorized by manufacturer.

# Applicable Codes and Standards:

# *[Fill in Applicable Codes and Standards for this work here or delete this paragraph and include the paragraph below if this is part of a complete system.]*

# Electromagnetic Compatibility: CE (EN 50130-4)

# H.264, MJPEG

# FCC Part 15 (subpart B, class A)

# RoHS

# ONVIF Profile S

# Warranty:

# *[Fill in specific services for this work here or delete this paragraph and include the paragraph below if this is part of a complete system.]*

# Manufacturer’s warranty will cover two years for replacement or repair of defective equipment.

# PRODUCTS

# Acceptable Manufacturer and Model:

# Acceptable Manufacturers: *[Teledyne FLIR and/or name acceptable alternative manufacturers here, or indicate to submit all for review.]*

# Models: *[FLIR CP-6408-21-I and/or name acceptable alternative models here, or indicate to submit all for review.]*

# General Product Description:

# 4K UHD True (Shutter) WDR IR PTZ digital video camera with integrated 6.4mm to 138.5mm motorized auto-focusing, vari-focal P-iris lens, within an IK10 vandal-resistant upper housing for wall mounting or pendant mounting

# Detailed Product Description:

# Basic Description:

# The integrated system shall operate either as a stand-alone PTZ security camera or as part of an integrated network or DVR configuration.

# The camera shall include a mechanism that ensures precise positioning and preset location.

# The digital video camera shall support H.264/MJPEG compression on two simultaneous video streams (up to 4K UHD) through a digital network.

# Resolution and bandwidth shall be scalable.

# The camera shall incorporate a fully digital 4K UHD CMOS imaging system with IR illumination and day/night IR cut filter for infrared sensitivity.

# The camera shall support infrared illumination up to 200 meters (656 feet).

# The camera shall provide bi-directional audio via audio I/O.

# The camera shall accommodate alarm inputs and provide relay outputs.

# The camera may be powered by 24 VAC or by Universal PoE 60W (4 pair forced mode; no support for CDP/LLDP).

# The camera shall be IEEE-compliant utilizing the multicast networking protocol such that a single camera may be transmitted to multiple viewers/archivers on the network simultaneously, further reducing bandwidth and providing greater flexibility in network monitoring/recording configurations.

# Field software upgrades shall be distributable across the network.

# The camera shall provide digital IP video output using an Ethernet connection.

# The camera shall include a web interface for remote control/configuration without requiring the use of a VMS.

# The camera shall be compatible with 3rd party Network Video Management Software (NVMS), digital video displays or recording devices.

# The camera shall digitally encode images into a compressed IP video stream over IP to a VMS.

# Setup and Configuration:

# Single-handedly install and set up one or more cameras without requiring another person’s assistance.

# It shall be possible to configure the camera via its web interface.

# The camera shall enable the following additional functionality:

# Via the unit’s web interface, set up and configure the unit

# Utilize the unit’s relay outputs to control external devices

# Support for ONVIF Profile S

# Support for IEEE 802.1X authentication (EAP-TLS)

# Support for digest authentication

# Firewall with options to allow RTSP, UPnP, and ICMP

# Support for TLS control and HTTPS redirect

# Product Performance Requirements:

# The digital video camera shall provide the user with H.264/MJPEG video compression on up to two digital streams simultaneously.

# Resolution shall be scalable between VGA (640 x 480), 720p (1280 x 720), 1080p (1920 x 1080), and 4K UHD (3840 x 2160) on selected digital streams, which can be set to unicast or multicast. (4K UHD available only with H.264 compression.)

# Bandwidth shall be scalable between 100Kbps and 12,000Kbps.

# The audio capabilities shall support:

# Full-duplex audio on two-way connections

# Unicast or multicast digital stream

# The camera shall support G.711 audio compression.

# The camera shall accommodate four (4) digital alarm inputs and provide two (2) digital alarm relay outputs.

# The camera shall provide a web interface for viewing, configuration and control.

# The camera shall include the following specifications:

# Camera:

# Image sensor:

# 1/1.8” CMOS

# Day/Night with IR sensitivity

# Sensor Resolution: 3840 x 2160

# Scanning Mode: Progressive

# Minimum Illumination:

# Color (Day) Mode: 0.04 Lux

# B/W (Night) Mode: 0.02 Lux, 0 lux with IR On

# Measured with DSS off at 30 IRE

# Lens Type:

# Auto-focusing, motorized vari-focal F1.6 lens

# Horizontal viewing angle: 3° (tele) ~ 64° (wide)

# Focal length: 6.4~138.5 mm

# IR Illuminator: High-power/high-efficiency SMD devices with wide-angle illumination.

# Effective IR range: 200 m/656 ft.

# Illumination Angle: 6° / 30° / 90°

# White Balance: Auto/ATW/One Push/Manual

# Noise Reduction: Color NR On/Off (3 levels), 2D NR, 3D NR,

# Night Mode:

# Color (day)

# B/W (night)

# Auto, with separate night-to-day and day-to-night thresholds

# Wide Dynamic Range Settings

# Digital Wide Dynamic Range (dWDR): On/Off (3 levels)

# True (Shutter) Wide Dynamic Range: On/Off

# Day/Night IR Cut Filter: Auto / Manual

# Digital Zoom: up to 8x

# Optical Zoom: 22x

# Gyro-based Electrical Image Stabilizer

# Servo motor for precise positioning and preset location

# Video:

# The camera shall provide two digital streams plus bi-directional audio on one Ethernet connection.

# Compression: H.264 Main/High Profile (MPEG-4 Part 10) and MJPEG compression

# Maximum Performance: 30/25 FPS @ 4K (NTSC/PAL) & 30/25 FPS @ VGA (NTSC/PAL)

# Resolution Range: Four selectable resolutions from VGA to 4K Ultra HD (4K UHD only available with H.264 compression)

# Bandwidth:

# Configurable between 100 Kbps to 12,000 Kbps

# Rate Control: CBR/VBR

# Audio:

# Bidirectional Audio:

# Line-In for using line-level audio inputs

# Line-Out to feed any single-ended line-level audio input, such as an amplified bullhorn, amplified speakers, or public address system

# Compression: G.711

# Input/output:

# Input: Four (4) dry contacts

# Output: Two (2) relay contacts

# Network:

# Ethernet: RJ45 10/100/1000 Mbps

# Services and protocols: IPV4, HTTP, HTTPS, UPnP, DNS, NTP, TCP, UDP, ICMP, IGMP, DHCP, ARP, SNMP

# Video: RTP/RTSP Unicast/Multicast

# Alarms and commands: TCP/IP, HTTP

# Cybersecurity:

# User credentials with policy enforcement

# Protection from brute force attack

# Digest authentication

# IEEE 802.1X Authentication (EAP-TLS)

# TLS/HTTPS

# Access control via firewall

# IP address filtering

# Management:

# Configuration: Remote (via web interface or supported video management system)

# Firmware Updates: Flash memory for upgrade of camera firmware over the network

# Electrical:

# Power Input:

# 24 VAC

# Universal Power over Ethernet (PoE) 60W (4 pair forced mode; no support for CDP/LLDP)

# Power Consumption: Max 39 W with heater and IR on

# Connections:

# Network: RJ45

# Power:

# 24 VAC (Through terminal block connector)

# PoE: Through the RJ45 connector

# Audio In/Out:

# Line In/Line Out: Through terminal block connector

# Alarm In/Alarm Out: Through terminal block connector

# RS-485: PelcoD and PelcoP protocols

# Analog Video: BNC (1V p-p), 75Ω

# Physical and Mechanical:

# Physical:

# Dimensions: ∅ 207.43 mm x 300.39 mm (8.16 in. x 11.83 in.)

# Unit Weight: 8.38 lbs. (3.8 kg)

# Mechanical:

# Pan Manual Speed: 0.1° to 90° / second

# Tilt Manual Speed: 0.1° to 60° / second

# Pan Travel: 360° continuous

# Tilt Travel: -10° to 190°

# Pan Preset Accuracy: 0.16°

# Tilt Preset Accuracy: 0.18°

# Preset Speed: 5 to 280° / second

# Software:

# Integrated web server

# Discovery Network Assistant (DNA) tool to discover and configure the camera’s IP addressing and DNS server settings; set device properties and user credentials; set the TV system (PAL/NTSC); upgrade the camera’s firmware; reset defaults; reboot the analytics firmware; and display camera properties.

# Environmental:

# IP Rating (Dust & Water Ingress) / Enclosure Rating: IK10 Upper / IP66 Overall

# Operating Temperature: -40° F to 122° F (-40° C to 50° C), up to 140° F (60° C) with IR LEDs off

# Storage Temperature: -4° F to 158° F (-20° C to 70° C)

# Humidity: 10% ~ 90% (non-condensing)

# Shock tolerance: IEC 60068-2-27

# Vibration tolerance: IEC 60068-2-64

# Internal Heater: Automatic

# Certifications:

# USA: FCC Part 15 (subpart B, class A)

# International: CE marked, EN50130-4, EN 61000-6-4 (Class A), RoHS, LVD, WEEE

# Optional Accessories:

# CX-GSNK-G32: Gooseneck mount kit (1.5" PF inner threaded), including base and gooseneck pipe

# CX-GSNK-G32-B: Gooseneck mounting bracket

# CX-DRP-G32-B: Ceiling mount kit (1.5" PF inner threaded), including base and 20cm drop-down pipe

# CX-PIPE-G325: 50cm long extender pipe (1.5″ PF outer & inner threaded)

# CX-ARMX-G3: Wall mount bracket (1.5" threaded)

# CX-ELBX-G3: Wall mount bracket (1.5" inch threaded) with IP68 electrical box enclosure

# CX-GSNK-G3: Gooseneck mount (1.5" inch threaded) with IP68 electrical box enclosure

# CX-CRNR-G3: 90-degree angle exterior corner adapter for CX-xxxx-G3 mounts

# CX-POLE-G3: Pole adapter for CX-xxxx-G3 mounts, including 2.5"-8.5" straps

# CP-POE-4P-60W-US: Inline 60W 4 pair PoE injector with USA-type power plug

# CX-PRWR-241: NEMA 4X 24 VAC Power Supply in Weather Resistant Enclosure for 1 PTZ

# EXECUTION

# Examination:

# See Section 282313 – Video Surveillance Control and Management Systems

# Installation:

# See Section 282313 – Video Surveillance Control and Management Systems

# Preparation:

# See Section 282313 – Video Surveillance Control and Management Systems

# Quality Control:

# See Section 282313 – Video Surveillance Control and Management Systems

# Testing and Commissioning:

# See Section 282313 – Video Surveillance Control and Management Systems

# Handing Over:

# See Section 282313 – Video Surveillance Control and Management Systems

--- End of Specifications ---