Hanwha Techwin is a leading supplier of advanced video surveillance solutions for IP-video, analog and hybrid systems. Building on the company's history of innovation, Hanwha Techwin is dedicated to providing systems solutions with the highest levels of performance, reliability and cost-efficiency. Hanwha Techwin is committed to the continued development of innovative systems products for professional security applications.

For additional information, visit https://hanwhasecurity.com

**WISENET WAVE Client Workstation**

**DIVISION 28 – ELECTRONIC SAFETY AND SECURITY**

**Notes to Specifier:**

**1.** Where several alternative parameters or specifications exist, or where, the specifier has the option of inserting text, such choices are presented in **<bold text>.**

2. Explanatory notes and comments are presented in **colored** text.

**Important: See further notes on the following page.**

**Important Note to Security Systems Specifiers**

CSI MasterFormat 2016 incorporates numerous significant changes affecting electronic safety and security. This document is written to provide flexibility in using either format, although adoption of MasterFormat 2016 is encouraged. The following is a guide to the MasterFormat numbers relevant to the product referenced in this specification.

**Primary Specification Area:**

MasterFormat 2014:

28 23 19 Electronic Surveillance
28 23 00 Video Surveillance
28 23 19 Digital Video Recorders and Analog Recording Devices

MasterFormat 2016:

28 05 00 Common Work Results
28 05 xx Storage Appliances for Electronic Safety and Security
28 05 xx.xx Network Video Recorders

**Related Requirements:**

MasterFormat 2014:

27 20 00 Data Communications
28 23 13 Video Surveillance Control and Management Systems
28 23 16 Video Surveillance Monitoring and Supervisory Interfaces
28 23 19 Video Surveillance Remote Devices and Sensors
28 23 23 Video Surveillance Systems Infrastructure

MasterFormat 2016

27 15 01.xx Video Surveillance Communications Conductors and Cables
27 20 00 Data Communications
28 05 xx.xx PoE Power Sources for Electronic Safety and Security
28 05 xx Cyber Requirements for Electronic Safety and Security
28 05 xx Safety and Security Network Communications Equipment
28 2x xx IP Cameras
28 2x 00 Video Management System

# WISENET WAVE CLIENT WORKSTATION

## PART 1 GENERAL

### 1.01 SUMMARY

A. Section includes a WISENET WAVE Client Workstation.

B. Product - A WISENET WAVE Client Workstation, ONVIF compliant, with support for H.265, H.264, and MJPEG compression.

C. Related Requirements

**Refer to MasterFormat notes at the beginning of this document to select requirements specific to the MasterFormat version being used in the specification.**

### 1.02 REFERENCES

A. Abbreviations

1. ARP – Address Resolution Protocol
2. DHCP - Dynamic Host Configuration Protocol
3. DNR – Digital Noise Reduction
4. DDNS – Dynamic Domain Name Server
5. fps - frames per second
6. GUI – Graphical User Interface
7. HDD – Hard Disk Drive
8. HTTP - Hypertext Transfer Protocol
9. ICMP – Internet Control Message Protocol
10. IGMP - Internet Group Management Protocol
11. IP - Internet Protocol
12. iSCSI – Internet Small Computer System Interface
13. JBOD – Just a Bunch of Disks
14. JPEG - Joint Photographic Experts Group
15. MJPEG - Motion JPEG
16. MP - Megapixel
17. MPEG - Moving Pictures Experts Group
18. NAS – Network Attached Storage
19. NTP - Network Time Protocol
20. POS – Point of Sale
21. PPPoE – Pont to Point Protocol over Ethernet
22. RAID – Redundant Array of Independent Disks (Drives)
23. RTP - Real-Time Transport Protocol

24. RTCP – Real-Time Control Protocol
25. RTSP - Real-Time Streaming Protocol
26. SMTP - Simple Mail Transfer Protocol
27. SNMP – Simple Network Management Protocol
28. SSL – Secure Sockets Layer
29. TCP - Transmission Control Protocol
30. UDP - User Datagram Protocol
31. UPnP – Universal Plug and Play
32. VMS - Video Management System
33. PoS – Point of Sales

B. Reference Standards
   1. Network - IEEE
      a. 802.3 Ethernet Standards
      b. 802.1x Port-based Network Access Control
   2. Video
      a. H.265
      b. H.264
      c. MJPEG
      d. ONVIF – Profile S
   3. Emissions
      a. FCC-47 CFR Part 15 Subpart B Class A
      b. EN 55022:2010, Class A
   4. Immunity
      a. EN 50130-4:2011
      b. EN 61000-3-2:2006+A2:2010
      c. EN 61000-3-3:2008
   5. Safety
      a. UL Listing, cUL, CB, FCC

C. Definitions
   1. CIF Resolution – 352 x 288 pixels
   2. JBOD - a collection of hard disks that have *not* been configured to act as a redundant array of independent disks (RAID) array.
   3. GOV (Group of Video object planes) - A set of video frames for H.264 and H.265 compression, indicating a collection of frames from the initial I-Frame (key frame) to the next I-Frame. GOV consists of 2 kinds of frames: I-Frame and P-Frame.
   4. WiseStream – Smart Codec that controls quantization parameter in H.265 and H.264 to efficiently manage bitrate of the video stream and reduce the storage required.
   5. Dynamic GOV – Dynamic assignment of GOV length based on the complexity of the scene to efficiently manage bitrate of the video stream and reduce the storage required.
   6. ARB (Auto Recovery Backup) – Automatic backup mechanism that enables WiseNet cameras to store videos on to SD card during the network failure and stream it to the storage device after the network is recovered.

**1.03 SUBMITTALS**

A. Product Data
   1. Manufacturer's printed or electronic data sheets
   2. Manufacturer's installation and operation manuals
   3. Warranty documentation

**1.04 QUALIFICATIONS**

A. Manufacturer shall have a minimum of five years' experience in producing IP video equipment.
B. Installers shall be trained and authorized by the Manufacturer to install, integrate, test, and commission the system.

**1.05 DELIVERY, STORAGE AND HANDLING**

A. Deliver the product in the manufacturer's original, unopened, undamaged container with identification labels intact.
B. Store the product in a temperature environment of 0° C to 50° C (32° F to 122° F) and humidity environment of 5% - 85%, protected from mechanical and environmental conditions as designated by the manufacturer.

**1.06 WARRANTY, LICENSING AND SUPPORT**

A. Manufacturer shall provide a limited 3 year warranty for the product to be free of defects in material and workmanship.

END OF SECTION

## PART 2 PRODUCTS

### 2.01 EQUIPMENT

A. Manufacturer: Hanwha Techwin America
https://hanwhasecurity.com

B. Model WWT-5301 Client Workstation

C. Alternates: None

### 2.02 GENERAL DESCRIPTION

A. The WISENET WAVE WWT-5301 Client Workstation shall record video and audio up to 170 Mbps and send data from video cameras to a hard disk array of 1 -4 HDD's within a Mini-Tower format and enable playback of video and audio from any connect NVR.

B. The Workstation will be pre-configured with Wisenet WAVE VMS to ensure quick and easy development with minimum setup time.

C. The workstation shall provide a remote monitoring environment for video and audio over the network.

D. Workstation will use a SQLite – a free database technology – included in the installation package

E. The workstation shall have the following further general properties:

1. Camera search and discovery: The workstation shall have the capability to search the network of Wisenet Network Video Recorders for connected cameras.
    a. Cameras are searched or discovered, each camera will be automatically viewed and current camera information (fps, days of recording) displayed.
2. The workstation shall support WiseStream, Wisestream II and Dynamic GOV, a smart codec used by WiseNet IP cameras.
3. The Workstation shall support dual monitor out.
4. Playback functions:
    a. Simultaneous playback capability up to 128 video channels of resolutions of (4cif to 12MPS)
    b. H.265, H.264, and MJPEG compression support
    c. Workstations shall view AAC, PCM, g726, and MPS audio
    d. View status of internal connected storage hardware
    e. Set recording schedules
    f. Set up triggered recording based on:
        1.) sensor (input) detection
        2.) camera event, analytics based in Wisenet Cameras
        3.) Motion Detection
        4.) video loss detection
    g. Available recording settings that can be set up or changed by channel for standard and event-based recording types:
        1.) compression type
        2.) resolution
        3.) images per second
        4.) quality
        5.) data transfer limit

6.) pre-event and post-event record duration

7.) I-frame and full frame recording

h. Search recorded data by time, event trigger, motion alarms, events

5. Storage
   a. Up to 4, 8TB HDDs for a maximum of 32TB.
   b. USB connection for export device for video clip backup and settings export
6. Live view:
   a. Live, remote monitoring using Wisenet WAVE supplied viewer
   b. Live Streams: H.265, H.264, MJPEG
   c. Offline Media: AVI MKV MP4 MOV TS M2TS MPEG MPG FLV WMV 3GP JPG PNG GIF BMP TIFF
   d. Configure and exercise functions for connected PTZ cameras, including functionality with compatible USB joystick
   e. Capture and save snapshot images
7. Two High Definition (HDMI) local monitor outputs live viewing, playback, & backup functions
8. ONVIF Profile S compliance
9. Alarm connections: none on workstation

**2.03 DETAILED SPECIFICATIONS**

A. System

| | | |
|---|---|---|
| 1. | Processor: | Intel Core i5-7500 3.4GHz |
| 2. | Memory: | 8 GB DDR4 |
| 3. | Operating Systems: | Linux Ubuntu 16.04 LTS |
| 4. | USB Ports: | 4x USB 3.0(rear), 1x USB 3.0 Type-C (rear), 2x USB 2.0(front) |
| 5. | Video Output: | 2x HDMI (rear), 1x DVI (rear) |
| 6. | Wi-Fi | IEEE 802.11ac |
| 7. | Other ports: | 1x PS2, 2x Wi-Fi Antennas, 3.5mm audio in/out, 1x SPDIF out |
| 8. | Keyboard: | Included |
| 9. | Mouse: | Included |
| 10. | RAID Support: | none |

B. Video

| | | |
|---|---|---|
| 1. | Compression: | H.265, H.264, MJPEG |

C. Events and Response Actions
   1. Triggers:
      a. Motion
      b. video loss
      c. event defined by camera
   2. Response Actions:
      a. Record
      b. E-mail
      c. activate PTZ preset

d. Event Trigger program
e. Sound output

D. Playback
1. Number of simultaneous channels: not limited

E. OS Drive
1. OS Drive Bays 1 – 256GB SSD internally Mounted

F. Storage
1. Internal
a. Number of HDD's bays: 1 – 4 Bays
b. Capacity per HDD: 1 – 8 TB
2. External
a. Acceptable types:
1.) USB HDD/Flash drive for backup of video clips, firmware update, settings backup/restore, log export

G. Network
1. Connectivity: 1000 Base-T Ethernet, 2 x RJ-45 connectors
2. Protocols supported:
a. Transmission Control Protocol (TCP), Internet Protocol (IP) v4 and v6, User Datagram Protocol (UDP)
b. Configuration: Dynamic Host Configuration Protocol (DHCP)
c. Web services: Hypertext Transfer Protocol (HTTP), Secure HTTP (HTTPS)
d. Network services: Address Resolution Protocol (ARP), Domain Name System (DNS), Internet Control Message Protocol (ICMP), Network Time Protocol (NTP), Simple Network Management Protocol (SNMP v1/2c/3 – MIB-2), Universal Plug and Play (UPnP)
e. Media: Real-Time Transport Protocol (RTP), Real-Time Control Protocol, Real-Time Streaming Protocol (RTSP)
f. Multicast: Internet Group Management Protocol (IGMP)
g. Notifications: Simple Mail Transfer Protocol (SMTP)
h. Remote Access: Point-to-Point Protocol over Ethernet (PPPoE)
3. DDNS – The NVR shall support DDNS services offered by the Manufacturer and other publicly available service offerings.
4. Security features:
a. user password protection with group restrictions
b. IP address filtering - list of allowed or blocked IP addresses
c. HTTPS(SSL) login authentication
d. User access log
e. 802.1x authentication
f. Restriction of all network access/web viewer access
5. Discovery - Manufacturer shall offer a discovery program to identify all devices of his manufacture on the network, as well as ONVIF Profile S conformant devices.

H. Alarm/sensor interface:
1. Input (0) : NO or NC, selectable

2. Output (0) : NO or NC, selectable

I. Audio

1. Direction: Bi-directional
2. Compression: AAC (16/48KHz), G.711 u-law, G.726 selectable
3. Output: Line level (RCA)

J. Electrical

1. Power: 100 – 240 VAC
2. Power Supply: 250 W

K. Mechanical And Environmental

1. Color: Black, Silver / Metal
2. Front Panel: Front panel with lock
3. Form Factor: Mini-Tower form factor
4. Mouse and Keyboard: Included
5. Dimensions (W x H x D): 7.87 in. x 10.63 in. x 12.2 in. (200 mm x 270 mm x 310 mm)
6. Weight: 15.4 lbs. (7kg)
7. Temperature:
   a. Operating and storage: 0° C to 50° C (32° F to 122° F)
8. Humidity: 5% - 85%, RH non-condensing

END OF SECTION

## PART 3 EXECUTION

### 3.01 INSTALLERS

A. Contractor personnel shall comply with all applicable state and local licensing requirements.

### 3.02 PREPARATION

A. The network design and configuration shall be verified for compatibility and performance with the camera(s).

B. Network configuration shall be tested and qualified by the Contractor prior to camera installation.

C. All equipment shall be tested and configured in accordance with instructions provided by the manufacturer prior to installation

D. All firmware found in products shall be the latest and most up-to-date provided by the manufacturer, or of a version as specified by the provider of the Video Management Application (VMA).

E. All equipment requiring users to log on using a password shall be configured with user/site-specific password/passwords. No system/product default passwords shall be allowed.

### 3.03 INSTALLATION

A. The Contractor shall carefully follow instructions in documentation provided by the manufacturer to insure all steps have been taken to provide a reliable, easy-to-operate system.

B. Before permanent installation of the system, the Contractor shall test the system in conditions simulating the final installed environment.

### 3.04 STORAGE

A. The hardware shall be stored in an environment where temperature and humidity are in the range specified by the Manufacturer.

END OF SECTION