

# DHI-HWS1600D

## Speed Measuring System



### System Overview

The speed measuring system adopts a fully embedded system with functions such as vehicle speed measurement, image capture, video surveillance, and automatic recognition of license plate number, lane, color, and vehicle model. Compared with traditional radar system that separates industrial PC and IP camera, the integrated system, combining the company's technical advantages in intelligent traffic field, offers users with stable performance, powerful functions, and ease of installation.

### Functions

#### Integrated and Compact Design, Easy to Install and Maintain

Integrates intelligent HD camera, control unit, LCD display, touch screen, power supply, speed measurement radar, and dedicated picture storage device, compact and attractive. Either portable or fixed, thanks to the integrated design.

#### Built-in Large-capacity SSD for Storing Pictures and Videos

The device can upload pictures to the central server for storage, backup, and viewing in real time, and supports 24-hour video recording or video footage of traffic violations for forensic evidence.

#### Capturing HD Pictures for Forensic Evidence

16 MP high-definition GS CMOS camera helps capture pictures of traffic violations. Information such as vehicle speed, capture time, capture location can be displayed on the pictures. With the watermark function, any tampering with the picture can be detected.

- Monitors real-time conditions through LCD display or the web page of the device.
- Man-machine interaction interfaces facilitate user operations. High-performance radar helps quickly and accurately measure vehicle speed. The speed measurement range is adjustable between 5 km/h and 300 km/h.
- Multi-lane speed measurement.
- Speed measurement of ultra-low speed vehicles.
- Supports local SSD storage and ANR (automatic network replenishment). It overwrites pictures automatically when memory is insufficient.
- Supports traffic flow statistics by minute.
- Detection of traffic violations such as overspeed, underspeed, wrong-way driving, and more.
- Records vehicles with traffic violations, and links the captured picture to video.
- Data transmission, remote access and system maintenance are realized through Ethernet, 3G/4G, WIFI, and other technologies. You can also check the device operating temperature, operating status of major components, and more.
- NTP/GPS time synchronization; synchronization interval is adjustable; supports synchronizing with PC time.

#### Multiple Networking Methods

Connects to network by using wired network and 3G/4G, reducing the requirements on installation locations.

#### Auto Calibration

Flexible parameter configuration, and automatic calibration of radar and video targets.

#### GPS Positioning

GPS positioning and time synchronization.

#### Multi-target Tracking and Recognition

Recognizes and tracks maximum 64 targets within 15 m–60 m (49.21 ft–196.85 ft).

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It is applicable to highways, city roads, and other scenarios that require speed measurement and traffic violations capture.

Technical Specification

|                            |                                                                                                           |
|----------------------------|-----------------------------------------------------------------------------------------------------------|
| Basic                      |                                                                                                           |
| Snapshot Resolution        | 16 MP, 5320 × 3032 pixels                                                                                 |
| Video Resolution           | 16 MP, 5320 × 3032 pixels                                                                                 |
| Image Sensor               | 1.1" GS CMOS                                                                                              |
| Transmission Mode          | TCP/IP, FTP                                                                                               |
| Image Compression          | JPEG                                                                                                      |
| Video Format               | H.265/H.264M/H.264H/H.264B/MJPEG                                                                          |
| Video Frame Rate           | 1 fps–30 fps                                                                                              |
| Lane Coverage              | 1–4 lane(s)                                                                                               |
| Speed Measurement Range    | 5 km/h–300 km/h                                                                                           |
| Speed Measurement Accuracy | Simulated Speed Measurement Error Range: ± 1km/h                                                          |
|                            | On-site Speed Measurement Error Range:<br>Vehicle speed <100 km/h: ±2km/h<br>Vehicle speed ≥100 km/h: ±2% |
| Radar Response Time        | 30 ms                                                                                                     |
| Transmit Power             | <20 dBm (100 mW)                                                                                          |
| Storage Capacity           | 1000 GB (standard), PCIe 2280 M.2 SSD                                                                     |
| Radar Frequency            | 24.00 GHz–24.25 GHz                                                                                       |
| Beam Width                 | Horizontal: ±23° (–3 dB), Pitch angle: ±12° (–3 dB)                                                       |
| White Balance              | Full-automation;High color temperature;Partial auto;Low color temperature;Autocolor temerature            |

|                      |                                                                    |
|----------------------|--------------------------------------------------------------------|
| Port                 |                                                                    |
| Data Ports           | 1 RS-232 port, 1 RS-485 port, 1 1000M Ethernet port, 1 USB3.0 port |
| Lithium Battery Port | 1 port of 14.4 V 12.12 AH lithium battery                          |
| Power Input Port     | 24 VDC;power adapter supports 100 VAC to 240 VAC, 50 Hz–60 Hz      |
| Power Output Port    | 1 12 VDC power output port, with maximum power of 12 W             |
| Flash Sync Port      | 2                                                                  |
| Lens Mount           | C mount                                                            |
| Lens                 | Included                                                           |
| Focal                | 16mm-40mm                                                          |
| Lens Type            | Motorized vari-focal                                               |

|                         |     |
|-------------------------|-----|
| Capture Triggering Mode |     |
| Triggered by Radar      | Yes |

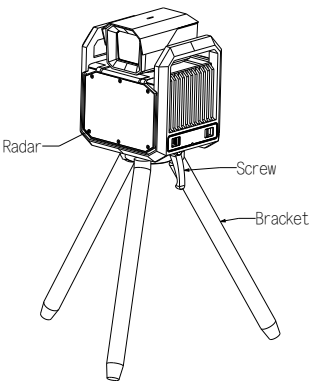
|                                       |                                                                                |
|---------------------------------------|--------------------------------------------------------------------------------|
| Special Function                      |                                                                                |
| License Plate Recognition             | ≥95%                                                                           |
| License Plate Cutout                  | Yes                                                                            |
| Multi-target Tracking and Recognition | Recognizes more than 64 vehicles at distance of 15 m–60 m (49.21 ft–196.85 ft) |
| Positioning                           | GPS positioning                                                                |

|                                       |                                                                                                                                                                                      |
|---------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Composite Image                       | Yes, 1, 2, 3 or 4 snapshot (s) can be composited, and composition method can be selected                                                                                             |
| Image Wireless Transmission           | 3G/4G, WIFI                                                                                                                                                                          |
| 3G/4G Type                            | GSM/WCDMA/LTE                                                                                                                                                                        |
| 3G/4G Frequency Range                 | LTE FDD:B1/B3/B7/B8/B20/B28<br>LTE TDD:B38/B40<br>WCDMA:B1/B8<br>GSM:900/1800 MHz                                                                                                    |
| 3G/4G Power Transmission              | LTE: Power class3: 23 dBm ± 2 dB<br>WCDMA: Power class3: 24 dBm+1/-3 dB<br>GSM: Power class0: 30 dBm ± 2 dB (GSM1800)<br>Power class5: 33 dBm ± 2 dB (GSM900)                        |
| WIFI Standard                         | 802.11b/g/n                                                                                                                                                                          |
| WIFI Frequency Range                  | 2400–2483.5 MHz                                                                                                                                                                      |
| WIFI Power Transmission               | CE EIRP: ≤20 dBm@2400–2483.5 MHz                                                                                                                                                     |
| Auto Registration                     | Yes                                                                                                                                                                                  |
| Automatic Network Replenishment (ANR) | Yes                                                                                                                                                                                  |
| Time Synchronization                  | Local/GPS/NTP                                                                                                                                                                        |
| Speed Overlay                         | Overlays vehicle speed to the front or rear side of a vehicle in the video image                                                                                                     |
| Video Storage                         | Records and stores videos of traffic violations by periods                                                                                                                           |
| Storage Space                         | Supports setting picture and video storage quota to ensure enough storage space of pictures                                                                                          |
| ICR Switch                            | Day/night ICR switch                                                                                                                                                                 |
| Remote Control                        | Remote control through the web interface or the client                                                                                                                               |
| OSD Overlay                           | Supports overlaying date, time, location, plate number, plate color, model, vehicle speed, speed limit, radar direction, violation code, device No., anti-counterfeit code, and more |
| Watermark                             | Watermark verification on the web interface                                                                                                                                          |
| Image Tampering Prevention            | Yes. Watermark is available for pictures and videos                                                                                                                                  |

|                           |                                                                                                                                                                      |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| General                   |                                                                                                                                                                      |
| Operating Voltage         | 24 VDC; power adapter supports 100 VAC to 240 VAC, 50 Hz–60 Hz                                                                                                       |
| Average Power Consumption | <25 W (in screen saver mode)                                                                                                                                         |
| Operating Temperature     | Lithium battery included: –20 °C to +60 °C (–4 °F to +140 °F)                                                                                                        |
|                           | Lithium battery excluded: –40 °C to +65 °C (–40 °F to +149 °F)                                                                                                       |
| Relative Humidity         | 20%–90% (RH, non-condensing)                                                                                                                                         |
| Dimensions                | 238.0 mm × 196.0 mm × 277.6 mm (9.37" × 7.72" × 10.93") (L × W × H)                                                                                                  |
| Net Weight                | 6.5kg(14.3lb)                                                                                                                                                        |
| Gross Weight              | 9.0 kg (19.84 lb)                                                                                                                                                    |
| Protection                | IP54                                                                                                                                                                 |
| Certifications            | CE-LVD: EN61010-1<br>CE-EMC: EN300440; EN301908; EN300328; EN301489; EN62311<br>CE-RED: EN55032; EN55035; EN61000-3-2; EN61000-3-3;<br>OIML R91 (for built-in radar) |

| Ordering Information   |                  |                                                       |
|------------------------|------------------|-------------------------------------------------------|
| Type                   | Model            | Description                                           |
| Speed Measuring System | DHI-HWS1600D     | Speed Measuring System                                |
| Bracket (mobile)       | DHI-ITSZJ-6101-S | Tripod for speed measuring system (order separately)  |
| Battery                | Battery-121A-HWS | Battery for speed measuring system (order separately) |

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Dimensions (mm[inch])

