

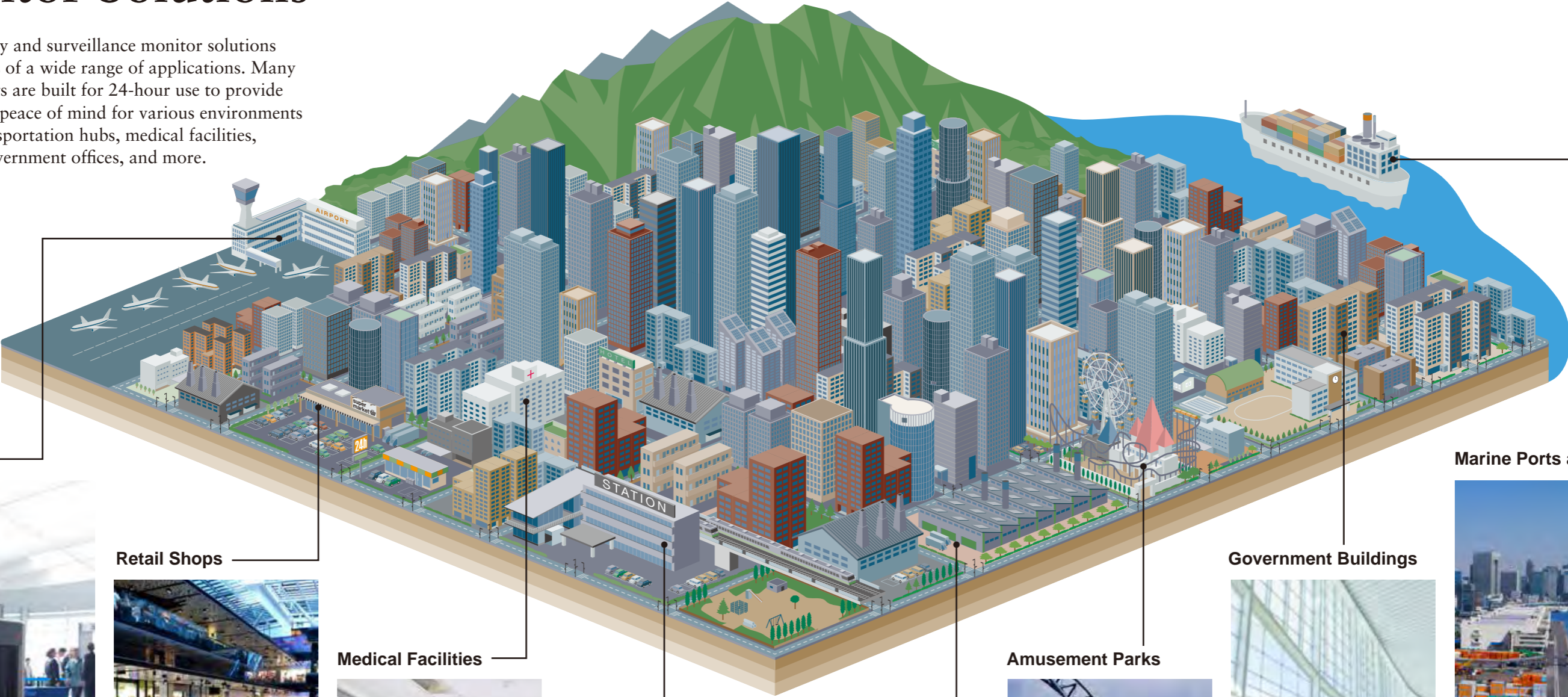


# Security and Surveillance Monitor Solutions

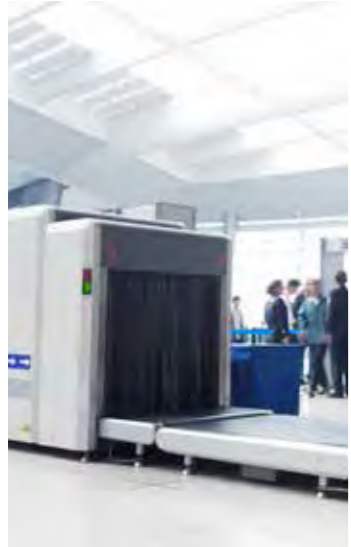


# EIZO Security and Surveillance Monitor Solutions

EIZO's security and surveillance monitor solutions meet the needs of a wide range of applications. Many of our products are built for 24-hour use to provide reliability and peace of mind for various environments including transportation hubs, medical facilities, businesses, government offices, and more.



Airports



Retail Shops



Medical Facilities



Railways



Factories



Amusement Parks



Government Buildings



Marine Ports and Ships



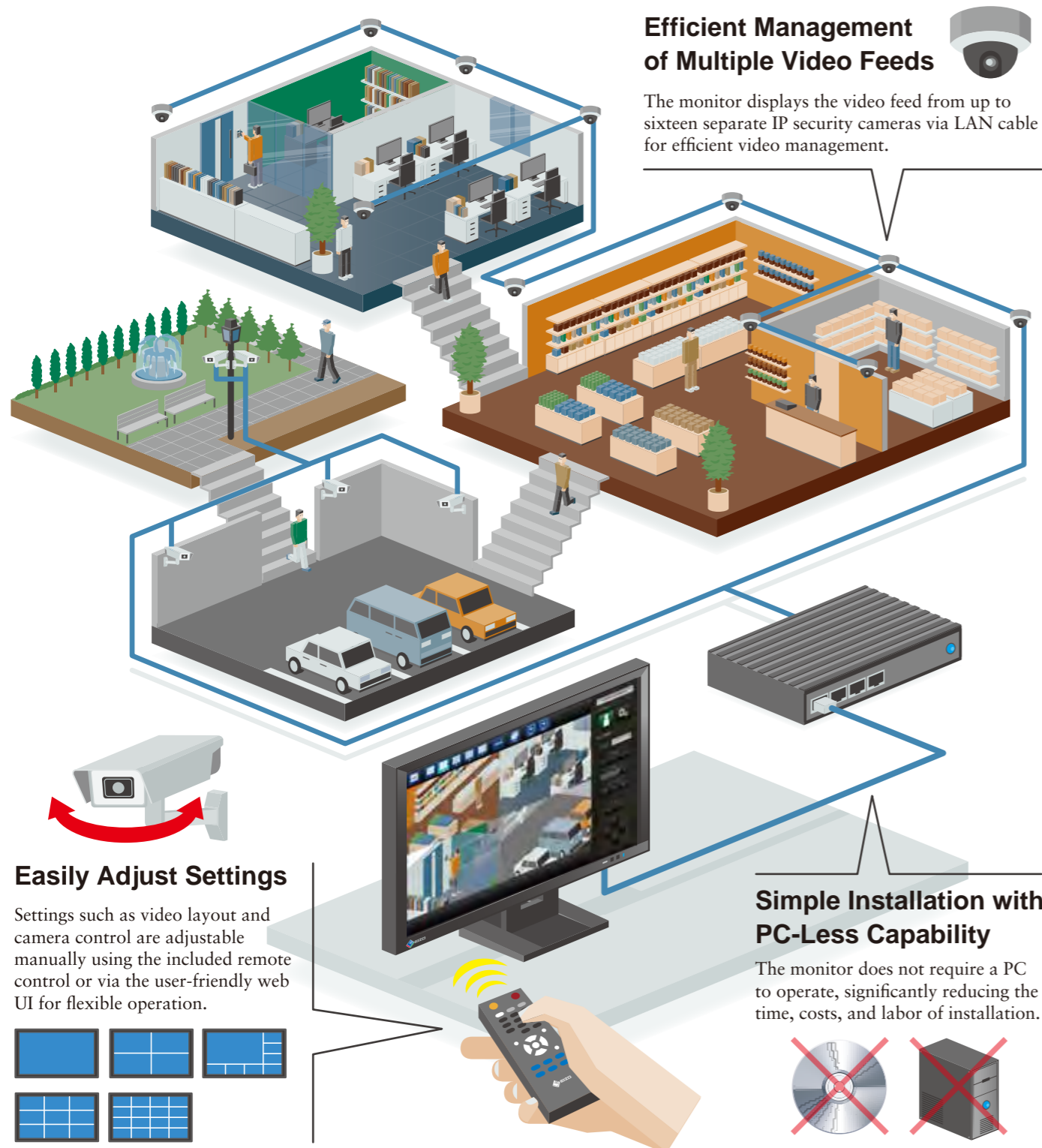
# IP Decoding Monitor

With hassle-free installation, efficient video management, and exceptional visibility and performance, this full HD (1920 x 1080) monitor is built specifically for IP security camera connection and management.



DuraVision  
**FDF2304W-IP**

24/7 Use LED Backlight Remote Control 1920 x 1080 Non-glare IPS Flicker-Free



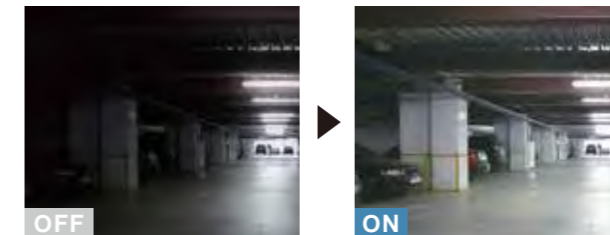
## High Performance Decoding Technology

The monitor comes equipped with decoding technology to ensure that the images you see on screen are true to the original source data.

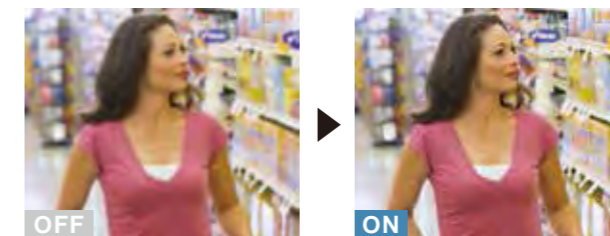
## High Visibility with Smart Functions

EIZO's unique Smart Insight visibility-enhancement technology automatically detects and adjusts dark areas of the screen, brightening images while reproducing them with a realistic sense of depth. Smart Resolution blur-reduction technology analyzes the displayed content and ensures noise is not accentuated while correcting blurred areas.

### Smart Insight

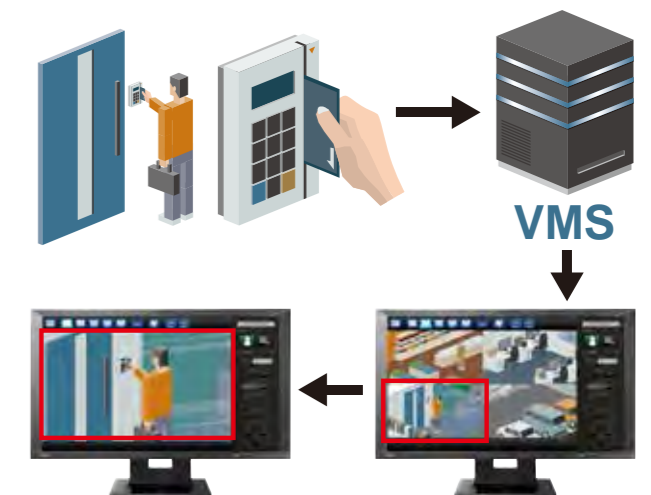


### Smart Resolution



## Customizable Event Response to VMS

The monitor's web API supports customizable integration with the local video management system (VMS). This allows operators to assign a specific response from the monitor to automatically occur based on a preset time schedule or when a particular event takes place.



Example: Automatic screen layout adjustment in response to key card usage.

## Noise Reduction

The monitor includes settings to reduce the amount of block noise that occurs due to video compression.

## Clear Video Reproduction

An overdrive circuit accelerates gray-to-gray response time to just 8 ms which minimizes ghosting and blurring during high motion video capture for clear video reproduction.

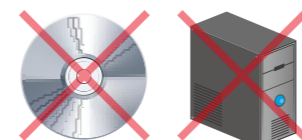
## Smooth Gradations

The monitor reproduces smooth images by converting an 8-bit input signal to 10 bits within the monitor and selecting the optimum color values from a 10-bit LUT. The optimized data is then converted back to an 8-bit output signal, resulting in smoother gradations.

## Secure Investment with ONVIF Camera Support



See [eizoglobal.com/ifiip-camera](http://eizoglobal.com/ifiip-camera) for camera compatibility information.



# Visibility Enhancement Monitors

The DuraVision FDF2306W and FDF2305W are two full HD (1920 × 1080) monitors equipped with visibility-enhancement technology for improving the clarity of security video footage in real time.



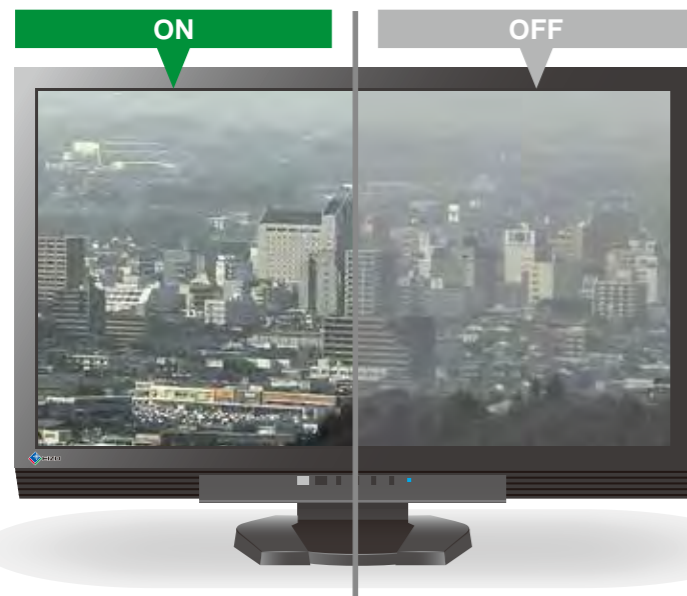
DuraVision  
FDF2306W



DuraVision  
FDF2305W

24/7 Use LED Backlight Remote Control HDMI x 2 1920 x 1080

## Visibility Optimizer for Clear Images



1

### Defog

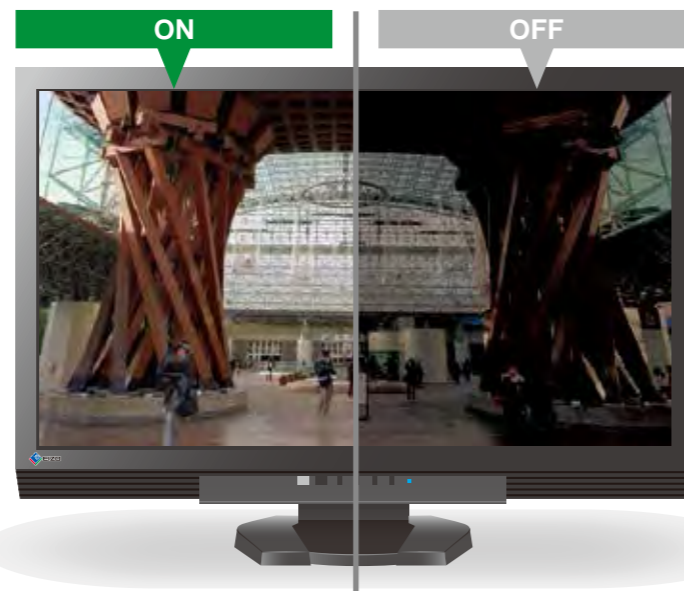
The DuraVision FDF2306W's defog function enhances images that are affected by fog, snow, or other environmental factors that cause the video to appear hazy or unclear.

2

### Low-Light Correction

Low-Light Correction detects areas of the screen that are dark and difficult to see and adjusts the brightness of each pixel. This reproduces highly visible images with a realistic sense of depth by brightening dark areas while keeping lighter areas from becoming washed out.

Equivalent technology for FDF2305W is called *Smart Insight*.



3

### Outline Enhancer

Outline Enhancer analyzes the displayed content and ensures that noise is not accentuated while correcting blurred areas for a sharper, clearer image. For images with a great deal of depth, it sharpens the foreground more strongly to maintain a real-world sense of focus.

Equivalent technology for FDF2305W is called *Smart Resolution*.

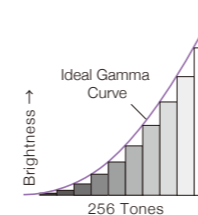
### Smooth Gradations

The monitor reproduces smooth images by converting an 8-bit input signal to 10 bits within the monitor and selecting the optimum color values from a 10-bit LUT. The optimized data is then converted back to an 8-bit output signal, resulting in smoother gradations.

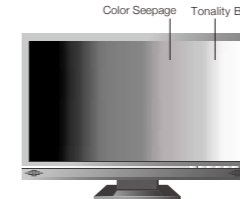
FDF2305W / FDF2306W



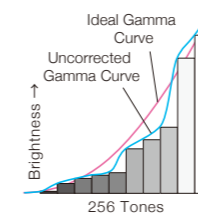
Gamma Curve



Other Monitors



Gamma Curve



### Clear View from Below

For environments where the monitor is placed above eye level, the FDF2306W includes a function called Up View that minimizes color washout that may occur from viewing an LCD screen from below.

FDF2306W



Other Monitors



# Multi-Monitor Configuration

The FlexScan EV2450 is a 23.8-inch full HD (1920 × 1080) monitor that combines reduced power consumption and improved visual ergonomics inside an extremely compact cabinet for multi-monitor environments.



## World's Thinnest Bezels for Multi-Monitor Environments

The monitor features 1 mm ultra-slim bezels on the sides and top with black borders of 4.3 mm and a depth of a mere 47.9 mm. This makes for an attractive design that blends in with the desktop and reduces eye movement in a multi-monitor setup.

## Flicker-Free for Reduced Eye Fatigue

The FlexScan EV Series monitors utilize a hybrid solution to regulate brightness and make flicker unperceivable without compromising color stability. In a comparison text conducted by EIZO, the FlexScan EV2450 on average reduced flicker by more than 74% compared to LED-backlit monitors from other manufacturers.



## Visual Ergonomics

Auto brightness control detects changes in ambient lighting and adjusts the screen to the ideal brightness level. The monitor is also adjustable to less than 1% of maximum brightness for a comfortable working environment.



# 4K Resolution Monitor

The FlexScan EV3237 is a 31.5-inch 4K IPS monitor with 3840 × 2160 native resolution that offers a streamlined viewing experience with more information displayed on a single screen instead of across multiple monitors.



## Convenient Multitasking with PbyP / PinP

Picture by Picture (PbyP) is a feature that allows you to view data from multiple signal sources on a single screen simultaneously. Picture in Picture (PinP) allows you to display a small separate screen from a second signal source within the monitor.



## Streamline Your Workflow

Display 3840 × 2160 resolution data in full on one screen without the obtrusive bezels found in typical multi-monitor workstations. This allows controllers and security personnel to view more information easily in one place instead of across multiple monitors.

## Smooth Gradations

The monitor reproduces smooth images by converting an 8-bit input signal to 10 bits within the monitor and selecting the optimum color values from a 10-bit LUT. The optimized data is then converted back to an 8-bit output signal, resulting in smoother gradations.

# FlexScan Lineup

EIZO's extensive range of FlexScan monitors offer a multitude of feature sets that meet the diverse requirements of any security and surveillance environment. A range of sizes from 15 to 31.5 inches and resolutions of up 4K UHD are available as well as touch panel models.



15 to 31.5 inches!



# Analog Input Monitors

The 1280 × 1024 resolution DuraVision FDS1903 and FDS1703 offer PC and composite (BNC) inputs, high image quality, and long-term reliability.



DuraVision  
FDS1903

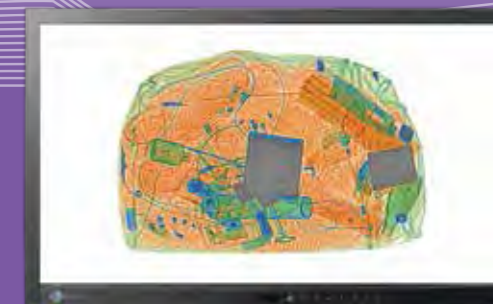


DuraVision  
FDS1703

24/7 Use  
LED Backlight  
BNC  
1280 × 1024

# Security Screening Monitor

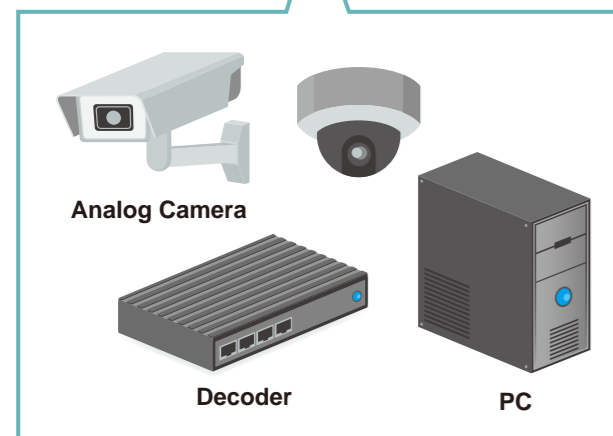
The DuraVision DV2324 is a full HD (1920 × 1080) monitor and offers sharp image quality of moving images, making it ideal for screening baggage or freight.



DuraVision  
DV2324  
24/7 Use  
LED Backlight  
1920 × 1080  
120 Hz

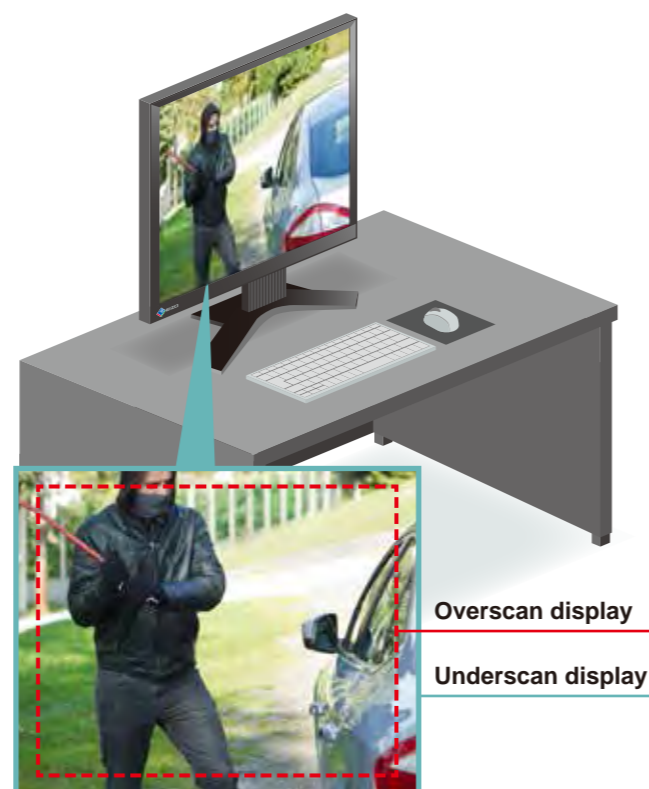
## Complete Connection

Both monitors are equipped with an analog D-sub mini 15-pin input for connection to a PC and a composite (BNC) input for connection to video surveillance equipment such as close-circuit televisions (CCTV) and security cameras. They also support NTSC, PAL, and SECAM signals.



## Flexible Display Options with Underscan and Overscan

Underscan is an option that shows 100% of an image and is ideal for video. Overscan displays approximately 95% of an image, eliminating extraneous TV broadcasting data that sometimes appears at the edges of the screen.

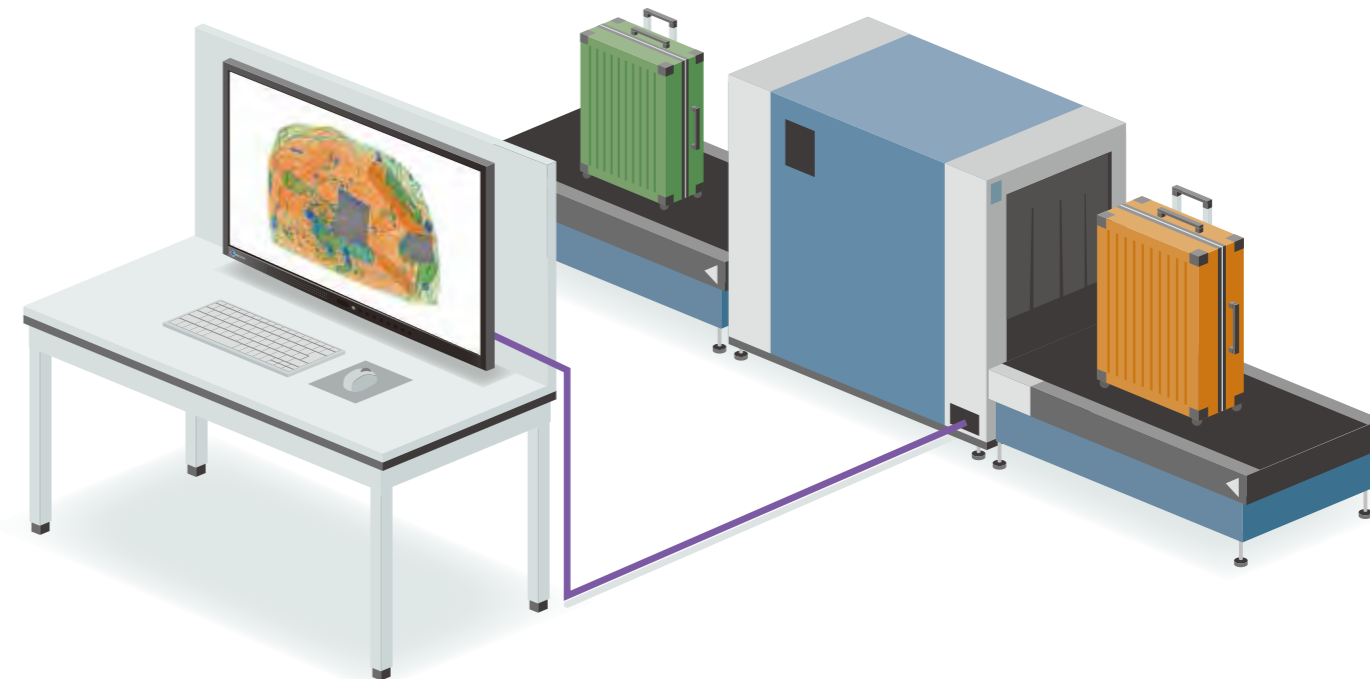


## Reduced Noise for High Image Quality

To reduce ghosting and flicker, the video input has a Y/C separation circuit which separates the brightness signal (Y) from the color information signal (C), minimizing noise in the images on screen.

## Clear View from Below

For environments where the monitor is placed above eye level, the DuraVision FDS1903 includes a function called Up View that minimizes color washout that may occur from viewing an LCD screen from below.



## Clear Moving Images with 120 Hz Refresh Rate

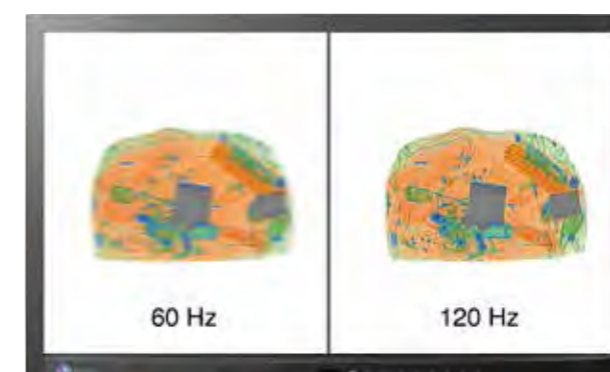
With a refresh rate of 120 Hz and the active color TFT LCD, the monitor is ideal for screening baggage or freight and cargo without needing to constantly stop and start conveyors. 120 Hz capability significantly decreases ghosting on the screen so you can examine images more clearly and efficiently.

## Complete Connection

The monitor supports NTSC, PAL, and SECAM signals and can connect to a variety of different security and surveillance equipment.

## High Visibility Display

With a maximum brightness of 350 cd/m<sup>2</sup> and a contrast ratio of 1000:1, the screen has high visibility even in bright ambient environments.



## Multiple Resolution Support and Image Scaling

The monitor supports multiple resolutions up to its native resolution of 1920 × 1080 (full HD). Non-native resolutions can be displayed in their actual size, scaled proportionately, or expanded to fill the screen.

# EIZO — The Visual Technology Company

## Comprehensive Solutions

EIZO integrates hardware and software technologies with consulting, web hosting, and other services for customers in a wide range of fields.



**DuraVision**  
Industrial Monitor Solutions



**FlexScan**  
Business Enterprise Monitor Solutions



**Raptor I Re/Vue**  
Air Traffic Control Visual Display Solutions



**RadiForce**  
Medical Monitor Solutions



**CuratOR**  
Operating Room Solutions



**ColorEdge**  
Color Management Monitor Solutions



**FORIS**  
Gaming Monitors

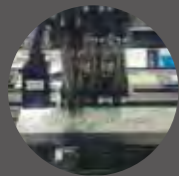
## Integrated Approach

With over 45 years of technical expertise, EIZO is dedicated to developing innovative and high quality visual display solutions.



### R&D

To incorporate the latest technologies in our products, we follow a unique in-house research and development production model.



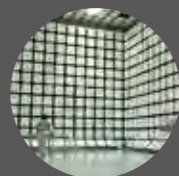
### Printed Circuit Boards

We apply our in-house production model to the production of our own printed circuit boards (PCBs) that are used in each EIZO monitor — essential to providing comprehensive quality control.



### Manufacturing

Our in-house manufacturing combines manual and automated operations to ensure high quality products are made as efficiently as possible.



### Quality Control

We use our own anechoic chambers to confirm that our products comply with international regulations covering electromagnetic interference (EMI) and susceptibility. We also conduct long-life testing where our monitors are kept powered on for thousands of hours and their image quality is checked regularly.



### Customization

We offer extensive customization for select monitors to meet the diverse requirements of various markets, including mission-critical fields such as maritime and air traffic control.



### Global Reach

EIZO products are highly regarded in many specialty fields throughout the world because of their accurate and stable image display. EIZO is based in Japan and is represented in over 80 countries by a network of group companies and exclusive distributors.

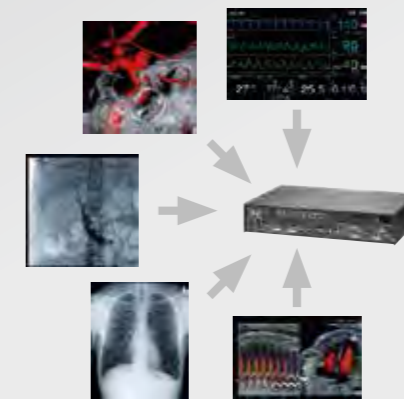
**45+**  
years of  
expertise

## Innovative Technology



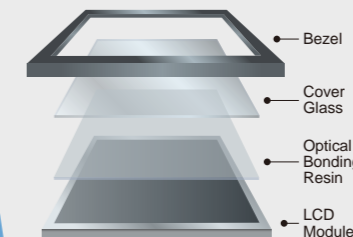
### Recording and Streaming Solutions

The Re/Vue Series of video recording and streaming solutions features industry-leading lossless compression ratios of up to 30,000:1 and redundant components, providing accuracy and dependability for mission-critical markets. Models supporting resolutions of up to 4K x 2K are available.



### Video Management Solutions

EIZO's Large Monitor Managers gather various video inputs and display them on a large screen. Different layouts can be arranged according to user preference and work environment for a streamlined workflow.



### In-House Optical Bonding

EIZO has an in-house production line for optical bonding which allows the company to continue to meet the needs of professionals while ensuring each product maintains high quality standards.



### Web Hosting

EIZO's Web Hosting QC solutions will free you from concern over initial investment and running costs of setting up your own network. EIZO provides expert maintenance services and hosts the server for you.

		DuraVision FDF2304W-IP	DuraVision FDF2306W	DuraVision FDF2305W	FlexScan EV2450	FlexScan EV3237	DuraVision FDS1903	DuraVision FDS1703	DuraVision DV2324
Panel	Type	IPS	TN	TN	IPS	IPS	TN	TN	TN
	Backlight	LED	LED	LED	LED	LED	LED	LED	LED
	Size	23" / 58 cm	23" / 58 cm	23" / 58 cm	23" / 60 cm	31.5" / 80 cm	19" / 48 cm	17" / 43 cm	23" / 58 cm
	Native Resolution	1920 x 1080	1920 x 1080	1920 x 1080	1920 x 1080	DisplayPort: 3840 x 2160 (60 Hz, 16:9 aspect ratio) DVI / HDMI: 3840 x 2160 (30 Hz, 16:9 aspect ratio)	1280 x 1024 (5:4 aspect ratio)	1280 x 1024 (5:4 aspect ratio)	1920 x 1080 (16:9 aspect ratio)
	Viewable Image Size (H x V)	509.1 x 286.4 mm	509.7 x 286.7 mm	509.7 x 286.7 mm	527 x 296.4 mm	696.9 x 392 mm	376.3 x 301 mm	337.9 x 270.3 mm	509.2 x 286.4 mm
	Pixel Pitch	0.265 x 0.265 mm	0.266 x 0.266 mm	0.266 x 0.266 mm	0.274 x 0.274 mm	0.181 x 0.181 mm	0.294 x 0.294 mm	0.264 x 0.264 mm	0.265 x 0.265 mm
	Grayscale Tones	256 tones (a palette of 1021)	256 tones (a palette of 1021)	256 tones (a palette of 1021)	256 tones (a palette of 1021)	256 tones (a palette of 1021)	256 tones (a palette of 1021)	256 tones (a palette of 1021)	256 tones (a palette of 1021)
	Display Colors	16.7 million (a palette of 1.06 billion)	16.7 million (a palette of 1.06 billion)	16.7 million (a palette of 1.06 billion)	16.7 million (a palette of 1.06 billion)	16.7 million (a palette of 1.06 billion)	16.7 million (a palette of 1.06 billion)	16.7 million (a palette of 1.06 billion)	16.7 million (a palette of 1.06 billion)
	Viewing Angles (H / V, typical)	178°, 178°	170°, 160°	170°, 160°	178°, 178°	178°, 178°	170°, 160°	160°, 140°	170°, 160°
	Brightness (typical)	300 cd/m <sup>2</sup>	250 cd/m <sup>2</sup>	250 cd/m <sup>2</sup>	250 cd/m <sup>2</sup>	300 cd/m <sup>2</sup>	350 cd/m <sup>2</sup>	350 cd/m <sup>2</sup>	350 cd/m <sup>2</sup>
	Contrast Ratio (typical)	1000:1	1000:1 (5000:1 with Contrast Enhancer)	1000:1 (5000:1 with Contrast Enhancer)	1000:1	1000:1	1000:1	800:1	1000:1
Response Time (typical)	8 ms (gray-to-gray)	10 ms (black-white-black)	10 ms (black-white-black)	5 ms (gray-to-gray)	5 ms (gray-to-gray)	5 ms (black-white-black)	30 ms (black-white-black)	3 ms (gray-to-gray)	
Video Signals	Input Terminals	IP Camera: RJ-45 PC / AV: HDMI	PC: DVI-D 24 pin (with HDCP), D-Sub mini 15 pin PC / AV: HDMI x 2	PC: DVI-D 24 pin (with HDCP), D-Sub mini 15 pin PC / AV: HDMI x 2	D-Sub mini 15 pin, DVI-D 24 pin (with HDCP), HDMI (with HDCP), DisplayPort (with HDCP)	DisplayPort 1.2 x 2 (with HDCP 1.x <sup>3</sup> ), DVI-D 24 pin (with HDCP 1.x <sup>3</sup> ), HDMI (with HDCP 1.x <sup>3</sup> ),	PC: D-Sub mini 15 pin AV: BNC (Composite)	PC: D-Sub mini 15 pin AV: BNC (Composite)	DVI-I 29 pin, HDMI, HD-D, BNC
	Digital Scanning Frequency (H / V)	HDMI: 31 - 68 kHz / 49 - 61 Hz (VGA Text: 69 - 71 Hz)	HDMI: 15 - 68 kHz / 49 - 61 Hz (VGA Text: 69 - 71 Hz), DVI: 31 - 68 kHz, 59 - 61 Hz (VGA Text: 69 - 71 Hz)	HDMI: 15 - 68 kHz / 49 - 61 Hz (VGA Text: 69 - 71 Hz), DVI: 31 - 68 kHz, 59 - 61 Hz (VGA Text: 69 - 71 Hz)	DVI: 31 - 68 kHz, 59 - 61 Hz (VGA Text: 69 - 71 Hz), HDMI: 15 - 68 kHz, 59 - 61 Hz	31 - 134 kHz, 29 - 31 Hz and 59 - 61 Hz	-	-	25 - 165 MHz
	Analog Scanning Frequency (H / V)	-	PC: 31 - 81 kHz, 55 - 76 Hz AV: N/A	PC: 31 - 81 kHz, 55 - 76 Hz AV: N/A	31 - 81 kHz, 55 - 76 Hz	-	24.8 - 74.8 kHz, 56.2 - 75.1 Hz	24.8 - 74.8 kHz, 56.2 - 75.1 Hz	15 - 100 kHz / 50 - 100 Hz
	Sync Formats	-	PC: Separate AV: N/A	PC: Separate AV: N/A	Separate	-	-	-	-
USB	Function	USB ("A" Receptacle) x 2	-	-	1 port for monitor control 2-port USB hub	1 port for upstream 3-port USB hub (including 1 USB battery charge port)	-	-	-
	Standard	USB 2.0	-	-	USB 3.0	USB 3.0, USB BC 1.2	-	-	-
Audio	Speakers	-	0.5 W + 0.5 W (stereo)	0.5 W + 0.5 W (stereo)	1.0 W + 1.0 W	1.0 W + 1.0 W	0.3 W + 0.3 W	0.5 W + 0.5 W	-
	Input Terminals	-	PC: 3.5 mm stereo jack PC / AV: HDMI x 2	PC: 3.5 mm stereo jack PC / AV: HDMI x 2	3.5 mm stereo jack	3.5 mm stereo jack	RCA	RCA	-
	Output Terminals	-	3.5 mm stereo jack, 3.5 mm headphone jack	3.5 mm stereo jack, 3.5 mm headphone jack	3.5 mm headphone jack	3.5 mm headphone jack	-	-	-
	Sound Adjustment	-	Volume, Mute, Sound Level, Source (HDMI)	Volume, Mute, Sound Level, Source (HDMI)	Volume, Source (DisplayPort, HDMI)	Volume, Source (DisplayPort, HDMI)	-	Volume	-
Power	Power Requirements	AC 100 - 120 V / AC 200 - 240 V, 50 / 60 Hz	AC 100 - 120 V / AC 200 - 240 V, 50 / 60 Hz	AC 100 - 120 V / AC 200 - 240 V, 50 / 60 Hz	AC 100 - 120 V / 200 - 240 V, 50 / 60 Hz	AC 100 - 120 V / 200 - 240 V, 50 / 60 Hz	AC 100 - 120 V / 200 - 240 V, 50 / 60 Hz	AC 100 - 120 V / 200 - 240 V, 50 / 60 Hz	AC 100 - 120 V / 200 - 240 V, 50 / 60 Hz
	Maximum Power Consumption	61 W	38 W	37 W	47 W	105 W	36 W	36 W	-
	Typical Power Consumption	-	19 W	18 W	12 W	30 W	-	-	50 W
	Power Save Mode	-	Less than 0.4 W	Less than 0.4 W	Less than 0.3 W	Less than 0.5 W	Less than 8 W	Less than 8 W	4 W
	Standby Mode	Less than 3.0 W (Quick start OFF) Less than 33.0 W (Quick start ON)	Less than 0.3 W	Less than 0.3 W	-	-	Less than 1.3 W	Less than 1 W	Less than 1 W
	Power Management	-	DVI DMPM, VESA DPM	DVI DMPM, VESA DPM	Power Save (VESA DPM, DisplayPort Rev. 1.1a, and DVI DMPM), Eco Timer	Power Save (VESA DPM, DisplayPort Rev. 1.1a, and DVI DMPM), Eco Timer	-	-	VESA DPMS
Features & Functions	Preset Modes	Day, Night	User1, User2, sRGB	Day, Night, sRGB	Paper, Movie, sRGB, User1, User2, DICOM	Yes	-	-	-
	Auto EcoView	-	Yes (Default: Disabled)	Yes (Default: Disabled)	Yes	Yes	-	-	-
	Visibility Enhancement Technology	Smart Insight, Smart Resolution, Noise Reduction	Visibility Optimizer (Low-light Control, Defog, Auto Fog Detection, Outline Enhancer, Skin Tone Detection, Text Detection, Noise Reduction)	Smart Insight, Smart Resolution, Smart Detection, Skin Tone Enhancer, Text Enhancer	-	-	-	-	-
Physical Specifications	Dimensions (Landscape, W x H x D)	563.5 x 411.5 x 157 mm	545 x 390 - 450 x 200 mm	545 x 390 - 450 x 200 mm	537.6 x 368 - 473 x 233 mm	731 x 439 - 578 x 245 mm	405 x 406.5 - 506.5 x 205 mm	380 x 400 - 500 x 205 mm	-
	Dimensions (Portrait, W x H x D)	-	-	-	-	-	334 x 441 - 542 x 205 mm	-	-
	Dimensions (Without Stand, W x H x D)	563.5 x 325 x 63 mm	545 x 348.5 x 54 mm	545 x 348.5 x 54 mm	537.6 x 317.6 x 47.9 mm	731 x 428 x 59.5 mm	405 x 334 x 61.5 mm	380 x 353 x 58 mm	547 x 332 x 73 mm
	Net Weight	7.9 kg / 17.4 lbs	5.2 kg / 11.5 lbs	5.2 kg / 11.5 lbs	6.2 kg / 13.7 lbs	10.6 kg / 23.4 lbs	6.1 kg / 13.4 lbs	5.9 kg / 13 lbs	-
	Net Weight (Without Stand)	5.5 kg / 12.1 lbs	3.9 kg / 8.6 lbs	3.9 kg / 8.6 lbs	3.8 kg / 8.4 lbs	7.8 kg / 17.2 lbs	4.3 kg / 9.5 lbs	4.1 kg / 9 lbs	5.8 kg / 12.8 lbs
	Height Adjustment Range	-	60 mm	60 mm	140 mm	139 mm	100 mm	100 mm	-
	Tilt	30° Up, 0° Down	25° Up, 0° Down	25° Up, 0° Down	35° Up, 5° Down	35° Up, 5° Down	30° Up, 0° Down	30° Up, 0° Down	-
	Swivel	-	172°	172°	344°	344°	35°	35°	-
	Pivot	-	-	-	90° (both clockwise and counter clockwise)	-	90°	90°	-
Environmental Requirements	Temperature	0 - 35 °C	5 - 35 °C	5 - 35 °C	5 - 35 °C	5 - 35 °C	0 - 35 °C	0 - 35 °C	0 - 35 °C
	Humidity (R.H., non condensing)	20 - 80%	20 - 80%	20 - 80%	20 - 80%	20 - 80%	20 - 80%	20 - 80%	20 - 80%
Certifications & Standards (Please contact EIZO for the latest information.)	CB, CE, cTUVus, FCC-B, Canadian ICES-003-B, TUV/S, PSE, VCCI-B, CCC, EAC, RCM, RoHS, WEEE	CB, CE, cTUVus, FCC-B, Canadian ICES-003-B, TUV/S, PSE, VCCI-B, CCC, EAC, RCM, RoHS, WEEE, China RoHS	CB, CE, cTUVus, FCC-B, Canadian ICES-003-B, TUV/S, VCCI-B, CCC, EAC, RCM, RoHS, WEEE, China RoHS	TCO Displays 7, EPEAT Gold (US), TUV/Ergonomics, TUV/GS, RCM, CE, CB, cTUVus, FCC-B, Canadian ICES- 003-B, TUV/S, VCCI-B, EPA Energy Star, RoHS, WEEE, China RoHS, CCC, EAC	TCO Displays 6.0, EPEAT Gold (US), TUV/Ergonomics, TUV/GS, RCM, CE, CB, cTUVus, FCC-B, Canadian ICES- 003-B, TUV/S, VCCI-B, EPA Energy Star, RoHS, WEEE, China RoHS, CCC, EAC	CE, CB, cTUVus, FCC-A, Canadian ICES-003-A, TUV/S, VCCI-A, RoHS, WEEE, China RoHS, CCC, RCM, EAC	CE, CB, cTUVus, FCC-A, Canadian ICES-003-A, TUV/S, VCCI-A, RoHS, WEEE, China RoHS, CCC, RCM, EAC	CE, FCC	
Warranty	Two Years <sup>1</sup>	Two Years <sup>1</sup>	Two Years <sup>1</sup>	Five Years	Five Years	Two Years <sup>1</sup>	Two Years <sup>1</sup>	Two Years <sup>1</sup>	
Dimensions (Unit: mm)									

<sup>1</sup> Product is warranted for 24-hour use over the period of two years.

<sup>2</sup> Free from bright sub-pixels for 6 months from the date of purchase.

<sup>3</sup> HDCP 2.2 is not supported.

With current LCD technology, a panel may contain a limited number of missing or flickering pixels.