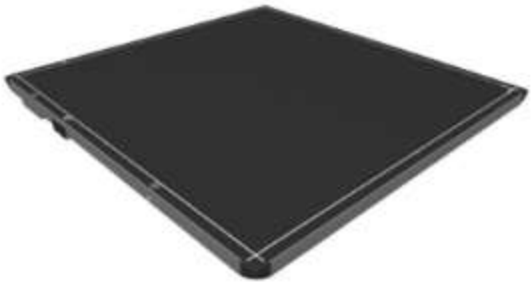
VDX Next System 4343VW

DR acquisition system with Flat Panel Technology

Product Data

The VDX Next System 4343VW imaging system is an image acquisition system that can be integrated with general-purpose radiology systems. Designed to improve the general X-ray diagnostic room workflow, it provides high quality images and long-term reliability.
The acquisition system uses the Varex 4343W CsI PREMIUM flat panel detector, in wireless mode, which provides outstanding image sharpness and detail.

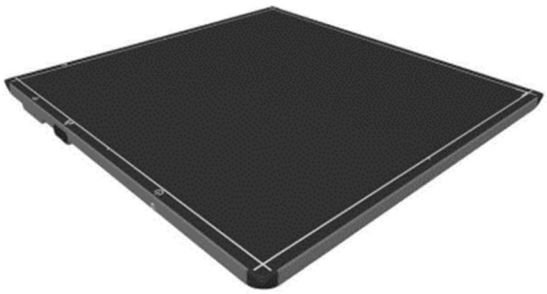


The system includes:

- Cabinet on wheels: it contains all the hardware and power supply parts (computers, cables, sockets, etc.)
- Personal computer with VDX Next application Software
- Amorphous Silicon 4343W CsI PREMIUM, amorphous silicon flat panel detector with Cesium Iodide scintillator. It converts X-ray photons into a digital image (one or two detectors according to the system configuration).
- Keyboard and mouse
- UPS (Optional)
- Monitor (to be purchased separately)

VDX Next System 4343VW is equipped with a Hot-Swappable Battery: when a discharged battery is removed from the X-ray detector, the User will have approximately 3 minutes of operation for the battery hot-swap to occur without any disconnection from the wireless access point.

Digital Detector – Varex 4343W CsI PREMIUM



Type	Wireless Flat Panel Detector
X-ray conversion layer	Cesium Iodide (CsI) with amorphous Silicon (a-Si) photodiode
Image matrix size (H) x (V)	3072 x 3072 pixel (427 x 427 mm)
Active Area (H) x (V)	3032 x 3032 pixel (421 x 421 mm)
Limiting resolution	3.6 lp/mm typical
MTF, typical values (RQA5)	83% @ 0,5 lp/mm 62% @ 1 lp/mm 45% @ 1,5 lp/mm 32% @ 2 lp/mm 23% @ 2,5 lp/mm 17% @ 3 lp/mm 13% @ 3,5 lp/mm 11% @ 3,6 lp/mm
DQE, typical values (RQA5)	73% @ 0 lp/mm 66% @ 0,5 lp/mm 58% @ 1 lp/mm 53% @ 1,5 lp/mm 49% @ 2 lp/mm 42% @ 2,5 lp/mm 34% @ 3 lp/mm 22% @ 3,5 lp/mm 19% @ 3,6 lp/mm
A/D converter	16 bit (65.536 greyscale)
Pixel size	139 µm
Energy range	40 to 150 kVp
Acquisition time window	550 ms Tomography and Dual Energy functions are not supported.
Dimensions (W x D x H)	460 x 460 x 15 mm

Weight without battery	3.3 kg
Maximum load applicable on the detector	- Maximum load weight of 300 kg distributed around the overall surface of the detector - Maximum load weight of 200 kg distributed on an area of 40 mm in diameter of the detector surface
Wireless connection	Ethernet & IEEE 802.11 a/g/n/ac
Ingress protection rating	IP68

Rechargeable Li-ion battery

Number of batteries	2 batteries included
Nominal voltage	15,4 V
Nominal capacity	3430 mAh
Dimensions (W x D x H)	212,3 x 152,3 x 6,7 mm
Weight	338 g
Autonomy	5 h in normal mode, 12 h in sleep mode
Charging time	2,5 h in normal mode 3,5 h with totally discharged battery
Hot swap	~ 3 min

Battery charger

Single bay battery charger (standard)

Number of slot	1 slot for battery charging
Dimensions (W x D x H)	240 x 180 x 25 mm
Weight	300 g
Input	19 V DC, 2,1 A
Output	16,8 V DC, 1,4 A

Triple bay battery charger (optional)

Number of slot	3 slot for battery charging
Dimensions (W x D x H)	259.9 x 341.7 x 57.5 mm
Weight	1.3 kg
Input	19 V DC, 4,5 A
Output	16,8 V DC, 1,4 A

Inductive recharge with FPD holder (optional)

Functionality	This feature is provided in addition to the standard single bay battery charger. It allows to charge the detector battery, once it is inserted in its dedicated support and housed in the Moviplan iC Table Bucky and Tele iC Bucky When inductive charging is present the Bucky can only accommodate the Varex 4343W CsI FPD with its holder and cannot accommodate any other FPD or CR cassettes. The inductive battery recharging works also when the system is turned off.
Compatibility	Available for Moviplan iC Table Bucky and Tele iC Bucky only. To be defined at the order, it is not available as upgrade kit.

FPD holder

Material	Plastic material with carbon fiber covering
Attenuation	≤ 0.2 mmAl @100 kVp, HVL = 3.6 mmAl
Dimensions (W x D x H)	566 x 474 x 22 mm (with handle) 529 x 474 x 22 mm (without handle)
Weight	1.1 kg

Acquisition Workstation

Hardware Specs

Mode	PC Boxer 6641 (AAEON)
CPU	Intel® i5-8500T
Chipset	Intel® H310
RAM	DDR4 SODIMM 8 GB
Local storage	1x 2.5" SSD 1 TB

O.S. hard disk	1x mSATA SSD 128 GB
Operating system	Windows 10 IoT Enterprise LTSC
Video interface	1x HDMI Display
Ethernet	Intel® GbE LAN x 4 (3x i211 + 1x i219)
I/O ports	4x USB 3.2 Gen1 + 4x USB 2.0 + 6x DB-9 per RS-232/422/485
Power supply	10 ~ 35 V DC
Image size	Up to 19 MB according to the examination type, without any compression
Patient data input	Keyboard, HIS/RIS connection
Image preview time	1.5 s
Final image time	≤ 5 s with at least 75% Wi-Fi signal
Cycle time	The system is ready to acquire after the display of the previous image
Connectable detectors	Up to 2 digital detectors with automatic selection according to the selected procedure
Accessories	– Keyboard – Mouse – USB pen drive with Acronis image for the system backup
UPS (optional)	650 VA (functioning covered for at least 20 min)

Software Specs

Authentication	Three levels of authentication: – Operator: it is assigned to the Radiology Technician who will perform patient management, procedures and exams. – Supervisor: it is assigned to the Radiology Dept. Manager or supervisor. In addition to the use allowed for the Operator profile, it allows for setting APRs and Procedures, and for managing the Advanced and Operator user profiles. It does not allow software configuration. – Administrator: it allows the full use of the software, access to all settings and configurations, DICOM communication network and management of user profiles.

Exam preparation and image acquisition features	The console has been designed to maximize the examination workflow by providing an intuitive graphical user interface with fully integrated provisions for: – Automatic data input from RIS/HIS via DICOM Modality Worklist query* – Manual input of patient data – Emergency patient registration – RIS Mapping: Automatic selection of exam procedure based on Worklist* – Programmable X-Ray technique factors for each exam, including APR program and AEC settings with manual override capability – "Broselow Tape" color coding for pediatric emergencies – 7 patient sizes available, with customized exposure parameters – Display of the generator and x-ray tube status and operator messages field – Display of patient and procedure information, X-ray generator exposure factors, status and control functions integrated in a single display screen – Post-exposure display of actual exposure parameters and acquired thumbnail images – Dose per area product readout is displayed on the workstation monitor and is automatically burned in the DICOM header (if the generator is connected to a DAP camera) * these functions are subject to availability and compatibility of exam data on the RIS/HIS network
Image processing features	The following post-processing features can be applied to the acquired images: – Markers and comments entering (predefined or free text) on the image – Pan and zoom – Mosaic display up to 16 images – Full size image display – 90° image rotation clockwise or counter-clockwise – Horizontal and vertical flip of the image – Electronic shutters, with manual or automatic image cropping to the collimated area – Spatial filters management – Mask application to display only a part of the image – Image greyscale inversion

	– Graphic functions, linear and angular measurements, graphic elements insertion on the acquired image – Initial image restore – Labelling – Acceptance or rejection of the image – Display of the grey level histogram, with manual adjustment of the curve, contrast and brightness values – Application of grid suppression algorithm – Choice between two different image processing algorithms: LUT or ATH. LUT algorithm controls the minimum and maximum densities used in the printed or displayed image, with the possibility to customize the default settings for each procedure when the system is installed. Possibility to modify Level and Window values. ATH (Anatomic Tissue Harmonization) applies an advanced image processing according to the examined anatomy, with customization of processing parameters, enhancing the visualization of low contrast structures such as tissues and vessels, while maintaining and enhancing the visibility of high contrast structures such as bones.
Grid Suppression	The Grid Suppression function allows the removal of grid artifacts
Rejected images management	"Statistic" window dedicated to search and display of exams with rejected images
Image hardcopy	The Print Layout Editor allows to: – Select different printing formats – Print up to 25 images on one film, according to printer capability – "True Size" print – Print patient and examination data within the acquired images (customizable during the installation phase)
Data safety and privacy	The system is equipped with multiple-level password protected access to preserve the patient's data integrity and privacy according to the actual standards.
Graphic User Interface Language	English, Italian, French, Spanish, German, Russian, Portuguese
Remote access	Remote access capability for troubleshooting

DICOM Protocols

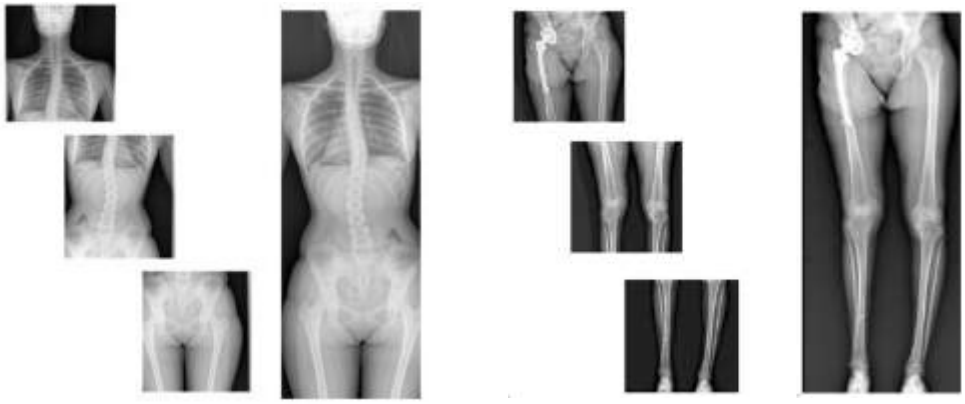
Connectivity	System can be connected to DICOM-compatible devices through Ethernet port. Capable of sending images to multiple destinations at the same time (PACS, Diagnostic workstations, RDSR server).
Standard DICOM classes	Print Store Modality Worklist MPPS Query/retrieve Storage Commitment RDSR Export/Off-line Media
DICOM output	Up to 16 bit
CD/DVD burner (optional)	The workstation can be equipped with a CD/DVD burner to export acquired images in Dicom, Raw and Jpeg format.

Optional SW modules

- Dual Detector -

This module allows to use two flat panel detectors.

- Stitching and Orthopedic Measurements -



The Stitching module allows the acquisition of a sequence of images of a wide anatomical district (full spine, full leg) that are so jointed together in one single image in a fully automatic way.

Operations:

- Clinical examination in standing or supine position
- Automatic exposure parameter and technique set for each single acquisition
- Manually correction of the overlaying area
- Post-processing of the single exposures and manual reconstruction
- Storage in one single patient record both single exposure and the reconstructed stitching image.

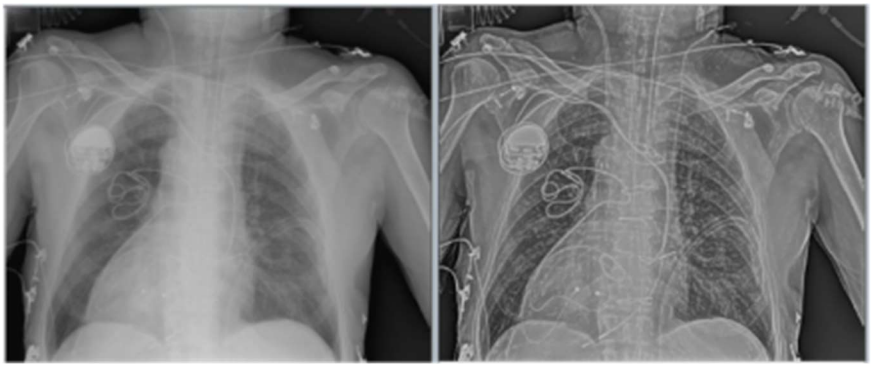
The Orthopedic measurements module includes the following functions:

- Height difference between two points
- Perpendicularity lines
- Cobb angle
- Full leg measurements

- Bone Suppression -

The Bone Suppression module automatically removes the bone structures from a standard chest X-ray image with a single exposure, improving soft tissues visibility and image quality.

- Boost Lines -



The Boost Lines module is a software algorithm used to enhance the visualization of vessels and catheters on a standard chest x-ray image

- Software Grid -

The Software Grid module allows to remove the signal, coming from the scattered radiation, from the X-Ray images acquired without the physical anti-scatter grid.

Environmental conditions

Operating conditions	Temperature Relative humidity Pressure	10 to +35 °C (50° to 95 °F) 30% to 70%, non-condensing 70 to 106 kPa
Conditions for transport and storage	Temperature Relative humidity Pressure	-10 a +55 °C (14 to 131°F) 10% to 90%, non-condensing 70 to 106 kPa

Electrical features

Power supply	Single-phase voltage 220-240 Vac, 50-60 Hz
Absorbed current	0.8 A (single 24" monitor system)

Mechanical features

Cabinet

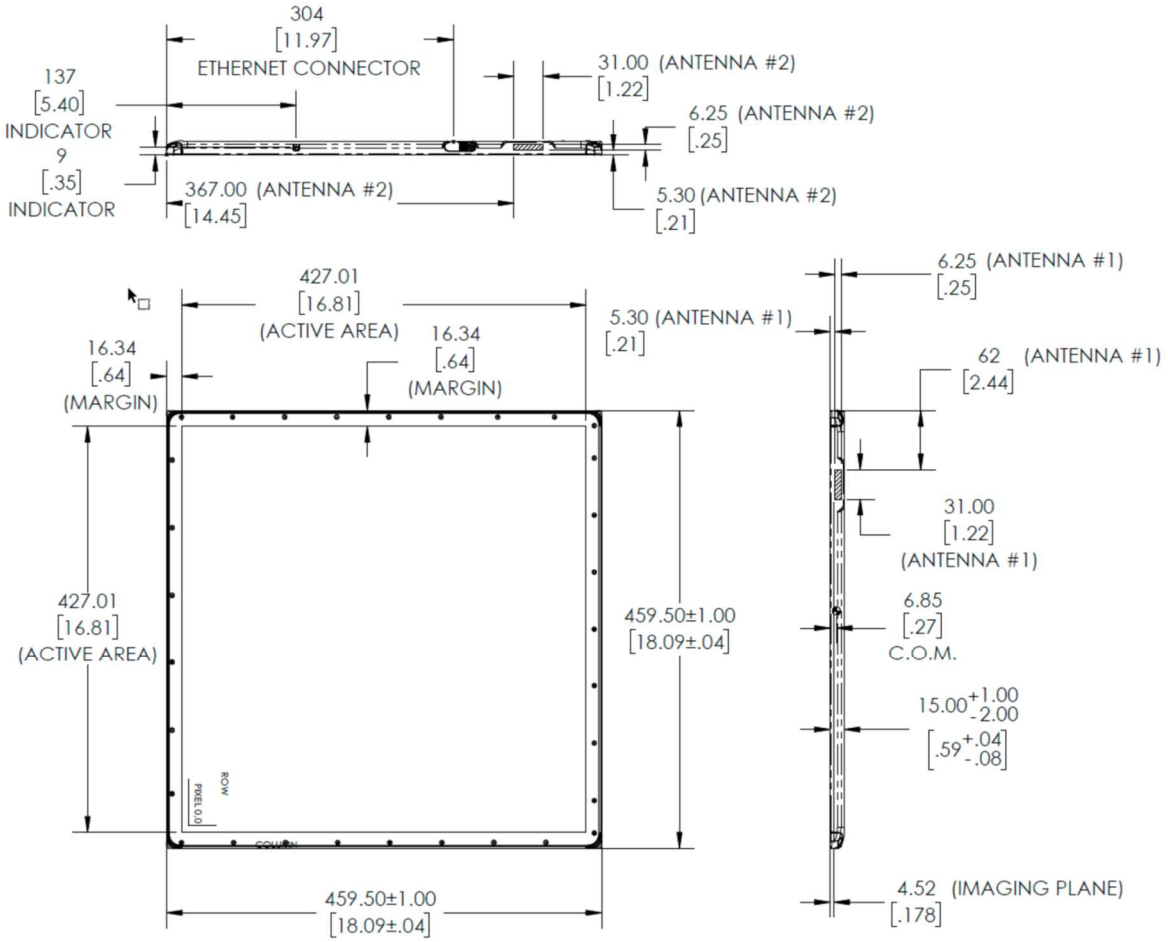
Dimensions (L x W x D)	28.5 x 45 x 54.5 cm
Weight	31.5 kg

Standard and Regulations

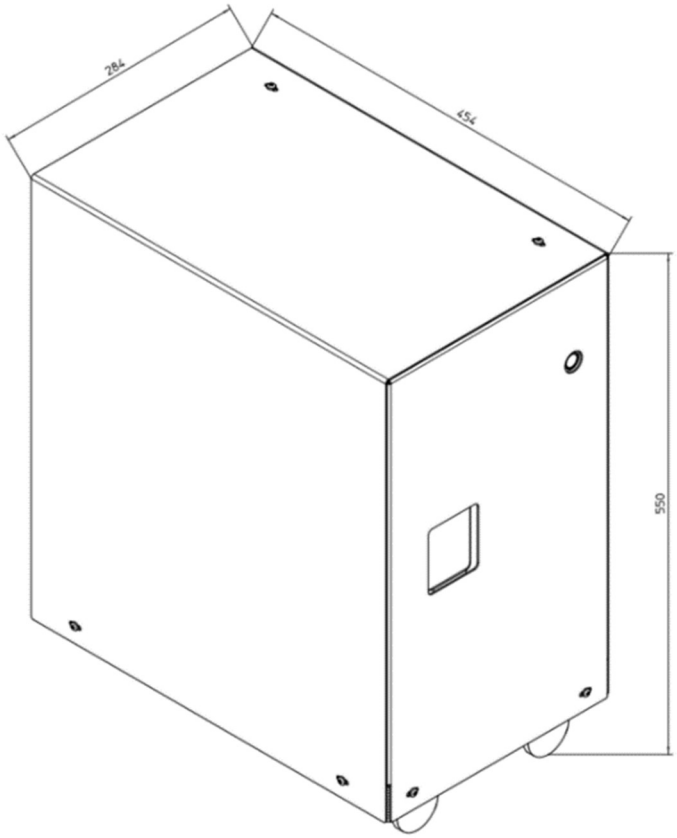
CE symbol marked on a component grants that the component itself is compliant with the European Directive 93/42/EEC and its revised versions or with the Regulation (EU) 2017/745 for Medical Devices

VDX Next System 4343VW is a system according to article 22 of the Regulation (EU) 2017/745 for Medical Devices

Dimensions (all quotes in mm)



Varex 4343W CsI PREMIUM Flat Panel Detector



VDX Next System 4343VW Cabinet

Note: Products are continuously under review in the light of technical advancement. The actual specification may therefore be subject to improvement or modification without notice.

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