

VIEWWORKS

VIVIX-S 1751S Specifications



CE 2460

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1. Instruction

1.1 Document Guide

This specifications guide is made for the service engineers who install and diagnose **VIVIX-S 1751S** detector made by Vieworks. The field engineers in each serviced area can improve service quality by understanding various contents of this guide, which are not included in the user manual.

1.1.1 Target

This document is intended for customers who use the **VIVIX-S 1751S** detector.

1.1.2 Symbols

This product should be operated under the safety instructions with the warning or caution symbol in this manual. It is important for you to read and understand the contents to operate the products safely.

Caution and Warning



- This symbol is used to indicate a potentially hazardous situation that may cause death, personal injury, or substantial property damage if the instructions are ignored. Users should be well acquainted with this symbol and the related contents.

Information



- This symbol is used for indicating product related references and supplementary information. Users are recommended to read the sentences with this notice carefully.

1.1.3 Notations

Bold Types

Words in bold indicate products terms, or the sentences which are needed to transmit clear meaning to the customers.

1.2 Revision History

Ver.	Date	Descriptions
1.0	2020-02-24	Initial Release
1.1	2020-11-12	<ul style="list-style-type: none">Added the production plant address
1.2	2020-12-29	<ul style="list-style-type: none">Changed the production plant address

1.3 Contact Us

For any comments or inquiries regarding this document and relevant products, contact via email below.

Item	Contents
Department	Customer Support Team at Vieworks
E-mail	CustomerSupport@vieworks.com

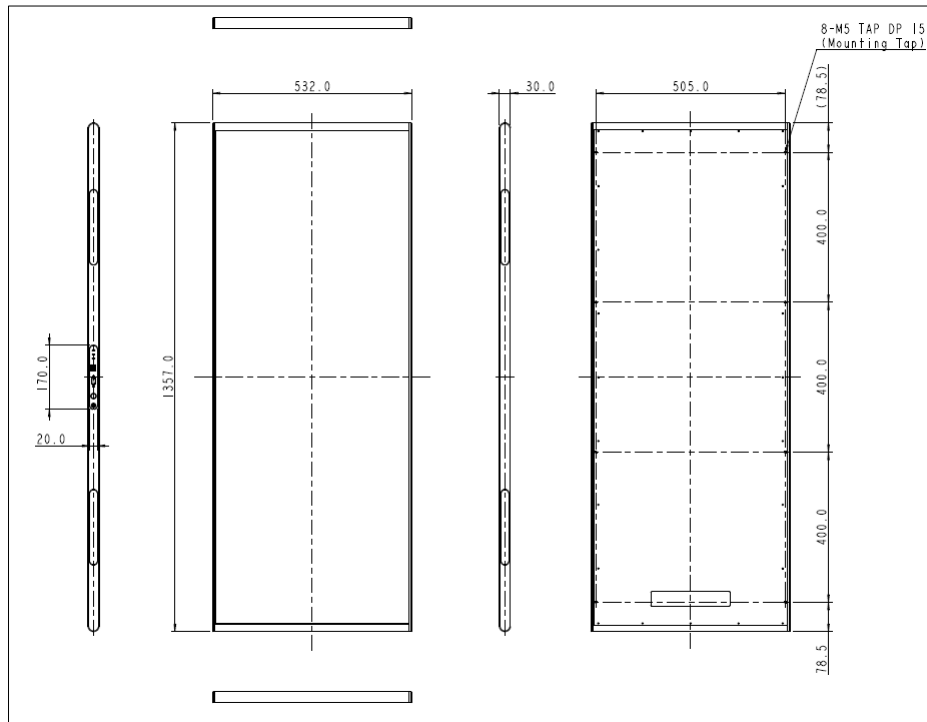
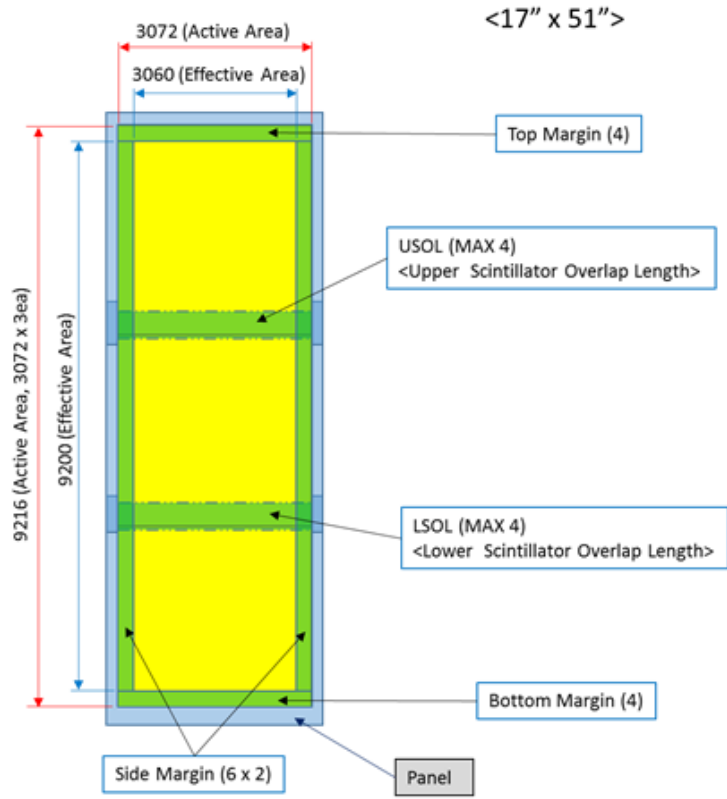
2. Products

2.1 Detector

2.1.1 Specifications

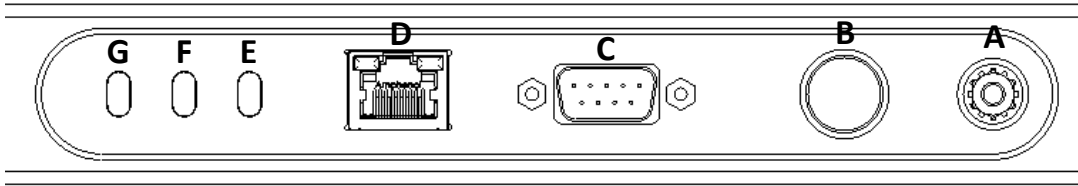
Item	Specifications		
Model	• FXRD-1751SB (Gadox)		
Image Sensor	• TFT: a-Si (Amorphous Silicon)		
X-ray Scintillator type	• Gd2O2S:Tb (Gadolinium Oxysulfide)		
Pixel Pitch	• 0.14mm (140 μ m)		
Field of View	• 17" x 51"	• 17" x 34"	• 17" x 17"
Active Area (H x V)	• 430.08mm x 1290.24mm	• 430.08mm x 860.16mm	• 430.08mm x 430.08mm
Active Array	• 3072 x 9216 pixels	• 3072 x 6144 pixels	• 3072 x 3072 pixels
Effective Area (H x V)	• 428.4mm x 1288.0mm	• 428.4mm x 855.4mm	• 428.4mm x 425.6mm
Effective Array	• 3060 x 9200pixels	• 3060 x 6110pixels	• 3060 x 3040pixels
Panel Overlap Length	• Max. 52 pixels	• Max. 26 pixels	• N/A
Scintillator Overlap Length	• Max. 8 pixels	• Max. 4 pixels	• N/A
Pixel value ratio of panel overlapping area	• 75-120%	• 75-120%	• N/A
Image Acquisition and Transfer Time	• 8 sec. (post image processing time is not included)	• 8 sec.	• 6 sec.
Grayscale	• 16bit		
Spatial Resolution	• Min. 3.5 lp/mm		
Recommended Cycle Time	• 15 sec.		
Energy Range	• 40 to 150kVp		
X-ray Synchronization Control	<ul style="list-style-type: none"> • AED (Auto Exposure Detect) • DR Trigger (External line trigger) 		
Rated Power Supply	<ul style="list-style-type: none"> • DC +24V, Max. 3A <ul style="list-style-type: none"> ▫ Powered by PCU with a DC power cable. 		
Power Consumption	• Max.72W		
Dimensions (H x W x D)	• 1357.0mm x 532.0mm x 30.0mm		
Weight	• 19.7kg		
Image Transfer	• Gigabit Ethernet (1000BASE-T)		
Data Transmission Rate	• Max. 1Gbps		
Scan Mode	<ul style="list-style-type: none"> • Full Area Scan (17" x 51") • Partial Area Scan (17" x 17"), (17" x 34") <ul style="list-style-type: none"> ▫ Divided into Top, Middle, Bottom according to the position 		

2.1.2 Drawing Sheet



Item	Description
Dimensions (H x W x D)	1357.0mm x 532.0mm x 30.0mm

2.1.3 Functions



Name	Description
A Equipotential Terminal	<ul style="list-style-type: none"> Equipotential Terminal
B DC Power Connector	<ul style="list-style-type: none"> DC + 24V input
C Generator Interface Connector	<ul style="list-style-type: none"> D-SUB 9-pin, Female
D LAN Port	<ul style="list-style-type: none"> Gigabit Ethernet port (1000BASE-T) Communication between detector and PC
E Status Indicator [POWER]	<ul style="list-style-type: none"> Power on/off status (Light green)
F Status Indicator [STATUS]	<ul style="list-style-type: none"> Standby status (Orange)
G Status Indicator [EXP_OK]	<ul style="list-style-type: none"> Detector communication and transmission status (Blinking blue)

2.1.4 Use Environment

Item	Operation	Storage & Transportation
Temperature	+10 ~ +35°C	-15 ~ +55°C
Humidity	30% ~ 85% (Non-condensing)	10% ~ 90% (Non-condensing)
Atmospheric Pressure	70 ~ 106kPa	50 ~ 106kPa
Shock	20G	25G
Vibration	2G	5G

3. Performance

3.1 FXRD-1751SB (Gadox)

- Test Condition: RQA5, 2.5uGy, IEC 62220-1 standard
- The typical values are for reference only.
- Method: Set 17" x 17" area as a unit size, define top/middle/bottom position, then measure performance for each position. X-ray beam should be perpendicular to the surface of detector

Parameters	Unit	Minimum	Typical	Maximum
Dark Noise	cts	-	4	5
Offset (Black image)	cts	1500	-	3500
Sensitivity at G=1	cts/uGy	400	500	550
Quantum Limited Dose	uGy	-	-	0.3
Max. Exposure Level	uGy	110	-	-
Dynamic Range	a.u	400	-	-
MTF (Top/Middle/Bottom)	0.5 lp/mm	81	83	-
	1 lp/mm	56	58	-
	2 lp/mm	22	24	-
	3 lp/mm	9	10	-
DQE (Top/Middle/Bottom)	0.5 lp/mm	29	33	-
	1 lp/mm	22	26	-
	2 lp/mm	11	15	-
	3 lp/mm	4	6	-



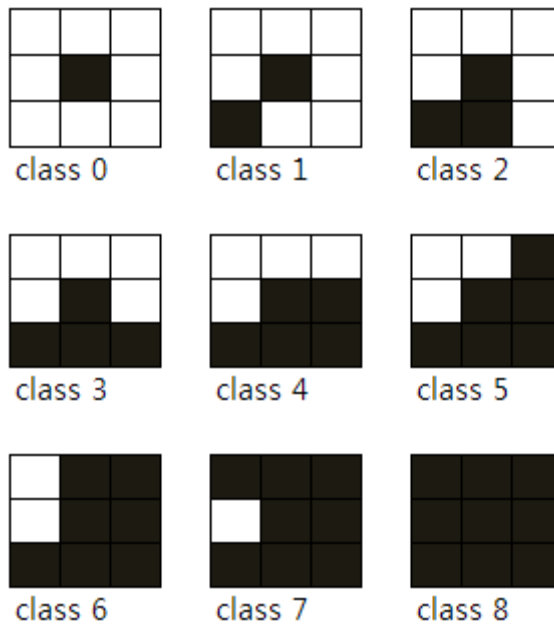
- The formula of dynamic range is as follows.

$$\square \text{ Dynamic Range} = \frac{\text{Max.Exposure Level}}{\text{Quantum Limited Dose}}$$

4. Defect

4.1 Defect Type

Type	Description
Single Defect	Isolated defects, adjacent pixels are normal. (Class 0)
Cluster Defect	More than consecutive 2 pixels are defected. (Class 1~Class 8)
Line Defect	Defects occur horizontal direction from left to right, or vertical direction from top to bottom.



- No cluster defects are allowed over 3x3 pixels.

4.2 Defect Allowance

Item	Unit	Value
Total number of pixel defects	cts	Max. 150,000 pixels
Number of line defects	cts	Max. 30 lines
Number of normal lines between two bad lines	cts	Min. 3 lines

5. Regulatory Information

5.1 Medical Equipment Classification

Item	
Type of protection against electrical shock	Class I
Degree of protection against electrical shock	Operator accessible
Degree of protection against ingress of water	IPX0
Operation mode	Continuous operation
Flammable anesthetics	Do not combine with air, oxygen, or nitrous oxide.

5.2 Product Safety Standard

U.S.A / Canada

Item	
IEC 60601-1:2012 (ed. 3.1)	Medical electrical equipment- Part 1: General requirements for safety.
UL 60601-1 (ed. 3.1)	-
CAN/CSA-C22.2 NO. 60601-1:14	Medical electrical equipment –Part 1: General requirements for basic safety and essential performance
IEC 60601-1-2:2014 (ed.4)	Medical electrical equipment-Part 1-2: Collateral standard: Electromagnetic compatibility
IEC 62304:2006	Medical device software-software life cycle processes
IEC 62366	Medical device – Part 1: Application of usability engineering to medical devices
ISO 14971:2012	Medical Device- Application of risk management to medical devices

European Union

Item	
MDD (Medical Device Directive)	(93/42/EEC as amended by 2007/47/EC) Medical Device Directive
EN ISO 13485:2012	Medical devices – Quality Management systems – Requirements for regulatory purposes
IEC 60601-1: 2012(ed.3.1)	Medical electrical equipment- Part1: General requirements for safety
IEC 60601-1-2:2014 (ed.4)	Medical electrical equipment -Part 1-2: Collateral standard: Electromagnetic compatibility - Requirements and tests
IEC 62304:2006	Medical device software-Software life cycle processes
ISO 14971: 2012	Medical device – Application of risk management to medical devices

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