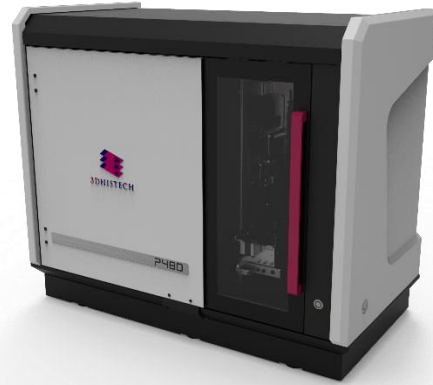


Pannoramic digital scanners

Product specification sheet

PANNORAMIC 480 DX Digital Scanner

Ultra high throughput volume scanner
World class brightfield whole slide scanning
up-to 480-slide capacity robotized loader
Ultra high-speed scanning
Scanning in arbitrary rack order



Common characteristics:

- High-resolution scanner **imaging optics**
- **up to 480 slides** full automatic loading and scanning
- Automated **tissue detection** and automated **coverslip detection**
- 1D and 2D **barcode reading**
- Automated slide loading for single and double (optional) width slides
- **Scan method:** area scanning with autofocus
- Supports **single** and **macro slides** parallel
- New Server based (CaseManager) scanning mode CaseManager defines the scanning parameters)
- **DICOM file format support**

Acceptable **slide format** (Pannoramic 480 DX Digital Scanner):

| Slide | Cover slip |
|---|--|
| <p>Length: 75.0 to 76.0 mm</p> <p>Width: 25.0 to 26.0 mm / 50.0 to 51.0 mm</p> <p>Thickness: 0.9 to 1.2 mm</p> <p>– 45° beveled or 90° corners – Grounded or cut edges – Recommended: Colored area for placement of barcode stickers</p> | <p>Length: max. 50 mm</p> <p>Width: max. 48 mm (recommended: 44 mm)</p> <p>Thickness: No. 1 and 1.5 (0.13 to 0.16 mm and 0.16 to 0.19 mm, respectively)</p> |

Detailed technical specification

Pannoramic 480 DX Digital Scanner

| Dimensions (width x depth x height) | |
|---|--|
| Pannoramic 480 DX Digital Scanner Base Unit | approx. 1195 mm x 902 mm x 1004 mm |
| Pannoramic 480 DX Digital Scanner Control Unit | approx. 190 mm x 620 mm x 430 mm |
| 1920x1200 Display (24") (not included) | approx. 559 mm x 204 mm x 384 mm |
| Weight | |
| Pannoramic 480 DX Digital Scanner Base Unit | approx. 240 kg |
| Pannoramic 480 DX Digital Scanner Control Unit | approx. 20 kg |
| Display (24") (not included) | approx. 7,1 kg |
| Ambient conditions | |
| Transportation / Shipment (packed) | |
| Permissible ambient temperature | -20 °C to +70 °C |
| Storage | |
| Permissible ambient temperature | +0 °C to +60 °C |
| Permissible relative air humidity (non-condensing) | max. 75 % at 35 °C |
| Operation | |
| Permissible ambient temperature | +10 °C to +35 °C |
| Permissible relative air humidity | max. 75 % at 35 °C |
| Altitude of place of installation | max. 2000 m |
| Air pressure | 500 hPa to 1060 hPa |
| Degree of pollution | 2 |
| Operating Data | |
| Category of operating environment | closed room facilities |
| Protection class | I |
| Degree of protection | IP 20 |
| Electrical safety | in compliance with EN 61010-1:2010, EN61010-2-081:2015, EN 61010-2-101:2017 |
| Over-voltage category | II |
| Electromagnetic compatibility | in compliance with EN31326-2-6:2013 |
| Radio interference suppression | in accordance with EN 55011 class B |
| Noise immunity | in accordance with EN 61326-2-6:2005 |
| Base unit input voltage | 100-240V AC |
| Power consumption (Base Unit) | Max 200W |
| Fusing | 2 x T 7A, 250V |
| Light sources | |
| Transmitted light operation | Precision-Aligned Pulsed Xenon Light Source |
| Average service life of light source | 1 x 10 ⁹ flashes |
| Software | |
| Pannoramic 480 DX Digital Scanner Control Software, PANNORAMIC Diagnostic Scanner Software | included by the Pannoramic 480 DX System |
| Case Viewer – Digital Microscopy Software Application | included by the Pannoramic 480 DX System |
| Converter – Digital Slide Converter Application | included by the Pannoramic 480 DX System |
| Slide capacity & loading | |
| Slide capacity | up to 480, depends on configuration |
| Default configuration | 20 slide racks: standard (20 slides/each), or 16 slide racks: standard (30 slides/each), 8 racks: for double width slides (5 slides/each) |

| | |
|--|--|
| Slide loading | Automatic |
| Supported rack type | 3DH, Sakura 4768, Leica 14051252473 |
| Available objectives | |
| 20x/0.8 NA | (1 st objective, default) |
| 40x/0.95 NA | (2 nd objective, default) |
| Carl Zeiss C-Apochromat 40xw/1.2 NA | (3 rd objective, optional, requires immersion system) |
| Number of supported objectives | 3 |
| Motorized objective changer | Yes, for 3 objectives |
| Identification of slides / Barcode reading | |
| Slides are identified by a 12megapixel preview camera. Label area is saved as image and barcode is interpreted as a character string, with capability for interpretation of the following types of 1D and 2D s: | |
| 1D barcodes: | |
| <ul style="list-style-type: none"> • Code39 (ASCII encoding) • Code128 (UCC/EAN128) (ASCII encoding) • Code 16K • Interleaved 2 of 5 • Standard 2 of 5 • IATA 2 of 5 • Matrix 2 of 5 • Telepen • Code93 (ASCII encoding) • Code 11 • MSI • Codabar • Patch Code • Pharmacode • EAN-13 (Numeric encoding) • EAN-8 (Numeric encoding) • UPC-A (Numeric encoding) • UPC-E | |
| 2D barcodes: | |
| <ul style="list-style-type: none"> • Aztec • Data Matrix (Numeric encoding, Alpha encoding, AlphaNumericPunc encoding, AlphaNumeric encoding, ASCII encoding, IS08 encoding) • Micro QR • Maxicode (Encoding mode 2, 3, 4, 5, 6) • MicroPDF417 (Standard encoding type) • PDF417 (Standard encoding type) • QR (QR code Model 1, 2 encoding) | |
| Image digitization | |
| 12 MP high performance CMOS digital imaging camera | |
| Pixel size | 5.5 µm x 5.5 µm |
| Camera resolution | 4096 (H) x 3072 (W) pixel |
| Bit depths | 8 bit |
| Pixel resolution with 20x objective and C-mount adapter | 0.24 µm / 41x |
| 1.6x | 0.12 µm / 82x |
| Pixel resolution with 40x objective and C-mount adapter | 1.6x |
| Connection type | CoaXPress – 4 lanes |

| | |
|---|--|
| 25 MP high performance CMOS digital imaging camera for brightfield scan mode | |
| Pixel size | Global Shutter CMOS 2.5 µm x 2.5 µm |
| Camera resolution | 5120 x 5120 pixel |
| Digital slide image resolution: | |
| Pixel resolution with 20x objective and C-mount adapter 1.0x | 0.24 µm / 40x |
| Pixel resolution with 40x objective and C-mount adapter 1.0x | 0.12 µm / 80x |
| Connection type | CoaXPress – 4 lanes or Rapixo 4 lanes |
| Scanning speed (brightfield, 20x objective, 15 mm x 15 mm) | |
| 0.24 µm / pixel (1.6x camera adapter, 12 MP high perf. CMOS or 1x adapter, 25MP high perform. CMOS) | up to 80-100 slides / hour (depending on sample) |
| Features of the Diagnostic Scanner Software (DX) | |
| Digital slide properties | |
| Digital slide format | MRXS |
| Image type | .JPG, |
| Slide file format | DICOM, MRXS, |
| Scanning mode | Brightfield only |
| Integrated Scanning system to Diagnostic product package | |
| Recognition of tissue area | |
| AI-based (Artificial Intelligence) fully automated tissue detection YES | |
| Via the USB preview camera (VRmC-8+ Pro) with automatic threshold | |
| Exclusion of cover glass | Automatic |
| Remove of specks from digitization | Automatic |
| Scan inside marker (selectable) | Only areas encircled by marker pen will be scanned |
| Multiple tissue areas selectable / recognized automated | Yes |
| Control Unit and minimum system requirements | |
| CPU | Intel® Xeon® Gold 6240 Processor 49,5 MB L3 cache Sockets:2, 36 Cores / 28 Thread (Base 2,3 GHz, Max Turbo 3,37 GHz) |
| RAM | 96 GB (12x8 GB DDR4-2666 rg ECC) |
| Hard Disk (SSD) OS | 256 GB SSD |
| Hard Disk | 1+2 TB SATA III / 2x1 TB SSD |
| Graphics Output | 4x MiniDisplayPort (max resolution 5120x2880 px) |
| Ports | Front 2x USB 3.0, 2x USB 2.0 Rear 6x USB 3.0 2 x Ethernet (RJ-45) 10/100/1,000 MBit/s 1x Double CameraLink 1x CoaXPress Quad 1x FireWire (1394 A) |
| Input units | keyboard, mouse |
| Operating System | Windows 10 Pro (64) Windows 11 (64) |
| Zero Noise function | Intel® vPro™ technology, |
| System management | DeskView manageability suite |
| Green technology | |

| Digital Slide Storage | |
|--|-------------------------------------|
| Scan to local network (Slide Server not included) | Yes |
| Scan to SlideCenter server | Yes |
| Scan to PANNORAMIC Information System's server (Slide Server not included) | Yes |
| Scan to local Hard Drive | Yes |
| Scanner features | |
| Fully automated scanning process | Yes |
| CaseManager Server based scanning mode | Yes |
| Secured access to the DX scanner software | Yes |
| Multiple user levels | Yes |
| Easy to use scanning operation | Yes |
| Automated sample detection | Yes |
| Automated image quality check | |
| Automated rescanning process in the case of poor image quality | Yes |
| Priority scan | Yes |
| Multiple server handling during scanning operation | Yes |
| Automated image quality check | Yes |
| Event History export to csv | |
| Central Log Service server client connection. External control of the set of the scanning process. | Yes |
| Multilayer Scan (Z-stack) (optional) | 1-30 |
| Number of layers | 0.2 μm - 2 μm |
| Adjustable layer distance | Yes |
| Flash Z stack scanning mode | Yes |
| Extended focus scanning mode | Yes |
| Multiple Scanning mode | Yes |
| Multiple Color Profiles & Color Schemes | Yes: 1 to 10 |
| Image compensation | Yes |
| Barcode parsing | |
| - Digital slide name | Yes |
| - Patient identification | Yes |
| - Scanning mode auto selection through LIS/PIS | Yes |
| Preview types | Brightfield |