

## SPECIFICATIONS FOR INSTALLATION

### NED.MICRO

Below are the requirements and specifications for the correct installation and operation of the NED.Micro:

- Availability of a flat surface of approximately 1.50 m<sup>2</sup> for the installation of the NED.Micro device and accessories (monitor, keyboard, mouse, joystick, etc.).
- Availability of two nearby power outlets, 110-230Vac / 50-60 Hz (NED.Micro and monitor).
- Availability of a nearby Ethernet outlet.
- Ability to connect the NED.Micro device to the hospital's LAN network, with an IPv4 address, preferably static.
- The operating system of the NED.Micro device is *Microsoft® Windows 10 IoT Enterprise LTSC – 21H1* 64bit x64-based processor.
- The system administrator's Windows user is admin (default password: admin) but must be changed at the time of installation.
- In custom shell mode, local users interface solely with the dedicated "NED.Micro" software, while only the Administrator, upon verification of access credentials, can operate through the Windows graphical interface.
- The NED.Micro can be added to a domain, acquiring all its policies.
- The antivirus software used by the hospital can be installed and configured on the NED.Micro device at the time of installation and domain setup.

- Operating system updates and any security patches will be managed by the IT administrator of the facility hosting the instrument. Verify compatibility of the version to be installed with the manufacturer.
- Profiles of users, both local and remote, authorized to access the NED.Micro device, and their respective credentials, will be created at the time of instrument installation, in accordance with the policies defined by the hospital.
- The NED.Micro device allows simultaneous access for up to four (4) users. Specifically: 1 hospital lab technician (who will start the system and load the slides), 1 Master (who will have remote control of the system when granted by the Technician), and 2 Viewers (who can view the Master's operation for a real-time second opinion).
- Remote users can connect to the NED.Micro device using the Chrome browser, Microsoft Edge browser, any Chromium-based browser, or the dedicated application for Android tablets and smartphones.
- The minimum transmission bandwidth required to ensure good image quality and movement fluidity, without any preliminary QoS configuration, is approximately 40 Megabits/s server-side (important for Upload). For remote client-side access, FTTH or FTTC fiber connections, high-speed ADSL connections, or 4G/5G mobile data connections are recommended.

#### **Accessories:**

- For the basic operation of the instrument, the following accessories are mandatory:
  - ✓ Monitor: with HDMI 1920x1200px (preferably medical grade).
  - ✓ Keyboard and mouse: with USB connection. (preferably wired)
- Additional accessories that can be optionally connected include:
  - ✓ Joystick (USB)
  - ✓ Keypad Streamdeck (USB)
  - ✓ Keypad Loupedeck (USB)
  - ✓ Webcam (USB)
  - ✓ Scanner (USB)
  - ✓ Etc.

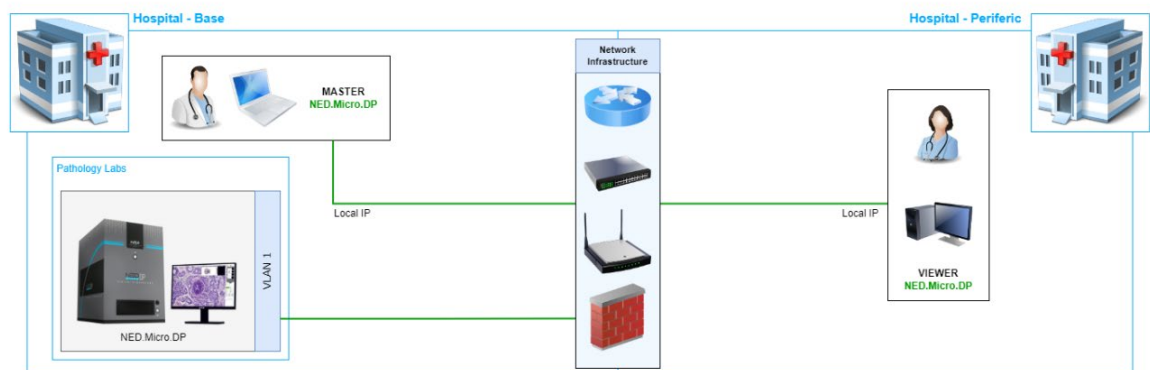
## Connectivity:

To connect the NED.Micro to the network and make the instrument accessible remotely, there are four standard types of connections:

### 1. Local and Public IP with Services Exposed on Specific Ports:

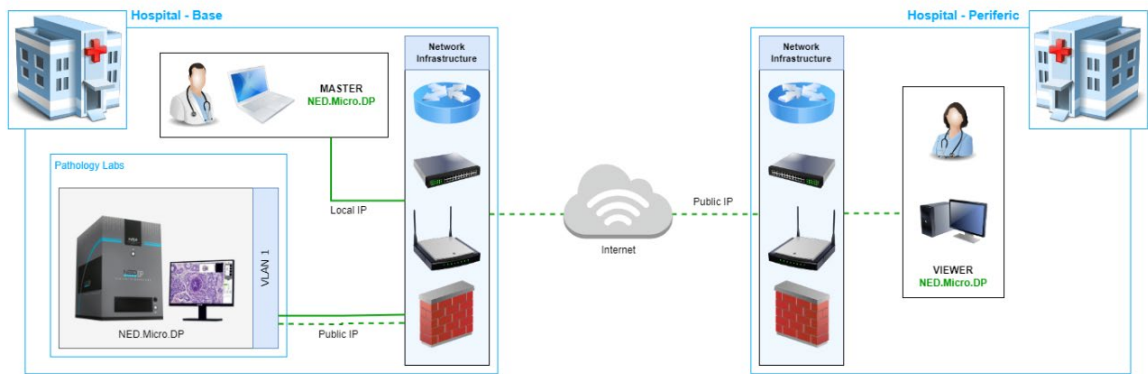
- The NED.Micro is connected to the network or a subnet of it, or a VLAN, and assigned a preferably fixed IP.
- For remote management and use, the NED.Micro device requires the opening of at least three (3) TCP ports. By default, the following ports are used: 8081, 8181, and 5554. If these TCP ports are not available, they can be reconfigured. The TCP ports must be opened for both inbound and outbound traffic in both the firewall and the antivirus.
- The remote connection software for the NED.Micro device is based on a web server that exposes its services on a particular TCP port. Typically, the remote connection session is established by entering the IP address of the remote NED.Micro device in the browser's URL address bar followed by a colon ":" and the port number (e.g., 192.168.210.210:8081). The login interface is then displayed, and by entering the access credentials (username and password), as long as you are authorized to access that particular NED.Micro device, you will be able to access the device as Master or Viewer.

Example 1:



- In case of access from outside the network through the public IP, NAT and port forwarding must be configured from the public IP to the local IP with the three previously assigned ports.

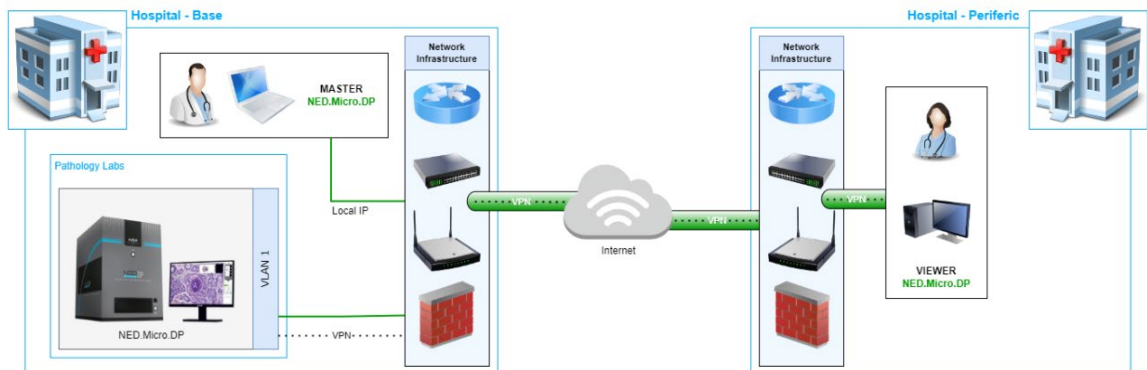
Example 2:



## 2. IP-VPN:

- The NED is placed in the domain and assigned an IP address (preferably static). Three TCP ports are required (as in point 1).
- Users connect to the network using their VPN access credentials and reach the NED via its IP address (refer to point 1).
- Additionally, there is a request for VPN access for NTP technicians, in case software updates or remote technical support interventions for users are needed.

Example 3:



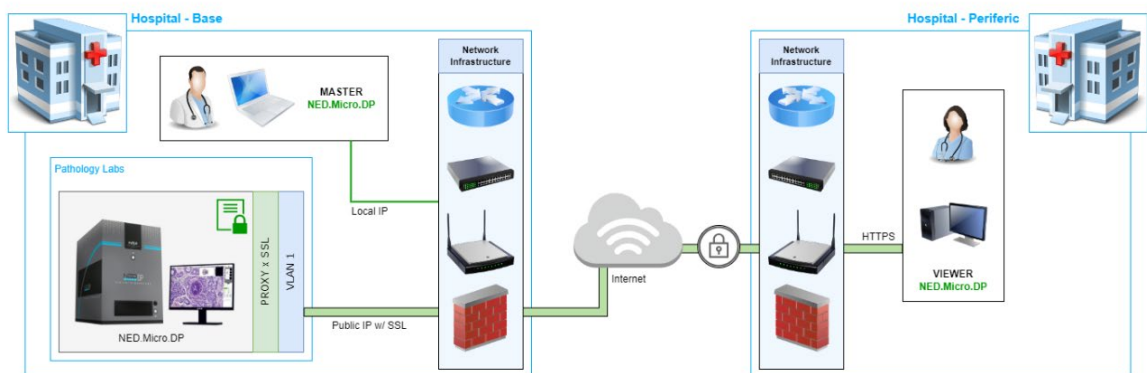
## 3. Public IP with Service Routing and SSL Certificate:

- The NED is connected to a network, subnet, or VLAN and assigned a local IP address.
- NAT (Network Address Translation) from the public IP to the local IP needs to be

configured.

- Optionally, a domain name may be assigned that resolves the NED's IP through DNS.
- Installation of Transport Layer Security (TLS) / Secure Sockets Layer (SSL) is required on the NED.Micro (server) for HTTPS connections.
- ✓ On the day of installation and commissioning of the NED.Micro, the following should be available:
  - The assigned static IP or domain name of the NED.Micro;
  - Necessary files: key and certificate (**.key**, **.crt**).

Example 4:

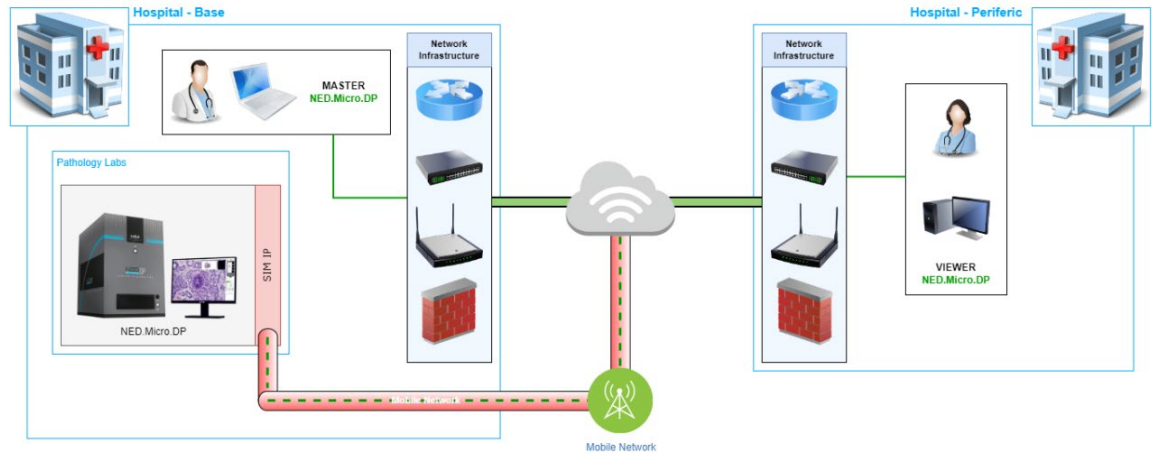


#### 4. Mobile Network 4G/5G:

- The NED.Micro can be equipped with a connection via a data SIM card for connectivity through the mobile network in one of these two configurations:
  - ✓ Compatible 4G/5G LTE router, where the connection to the device remains via an Ethernet cable and the configuration remains unchanged.
  - ✓ Compatible 4G/5G LTE USB dongle, where the connection to the device is through a USB port. In this case, the administrator will need to install the necessary software for the dongle to function.
  - ✓ In both cases, the data SIM must be reachable via a static IP. The USB dongle, SIM card, software, and any accessories are not provided with the device.
- Feasibility must be verified in every circumstance and location to optimize signal coverage.

- The NED.Micro thus becomes independent of the hospital network.
- User connection is established using one of the three previous types.

Example 5:



## Operational Environment and Cybersecurity

To ensure the proper functioning of the device, it is recommended to use it only for its intended purposes.

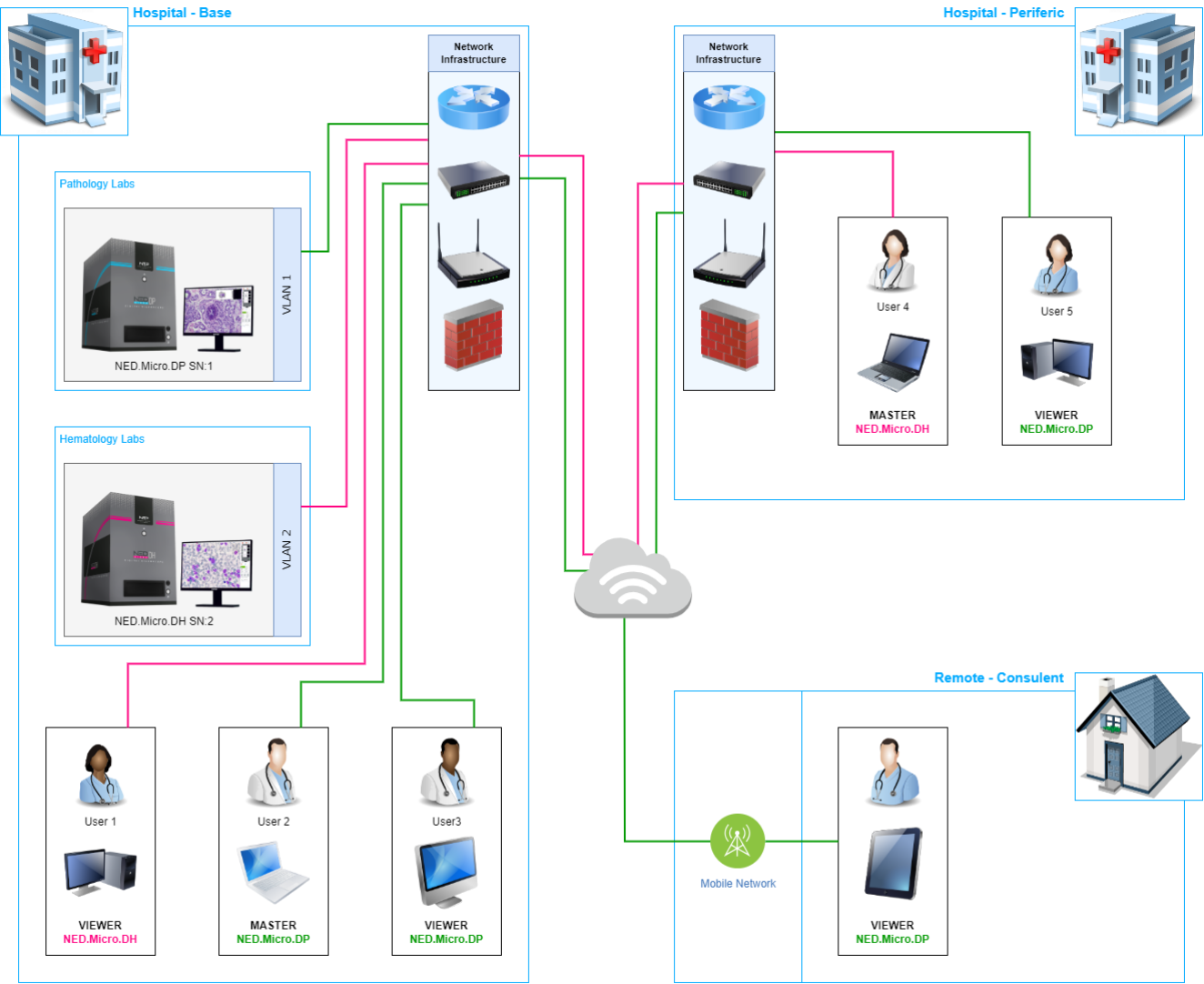
Keep security systems (Antivirus/Firewall) updated, regularly change passwords, and choose passwords with a high level of security.

Avoid using third-party software that could compromise the functioning of the device.

Use USB dongles only for their intended purposes.



# TYPICAL NETWORK SCENARIO



## DATASHEET

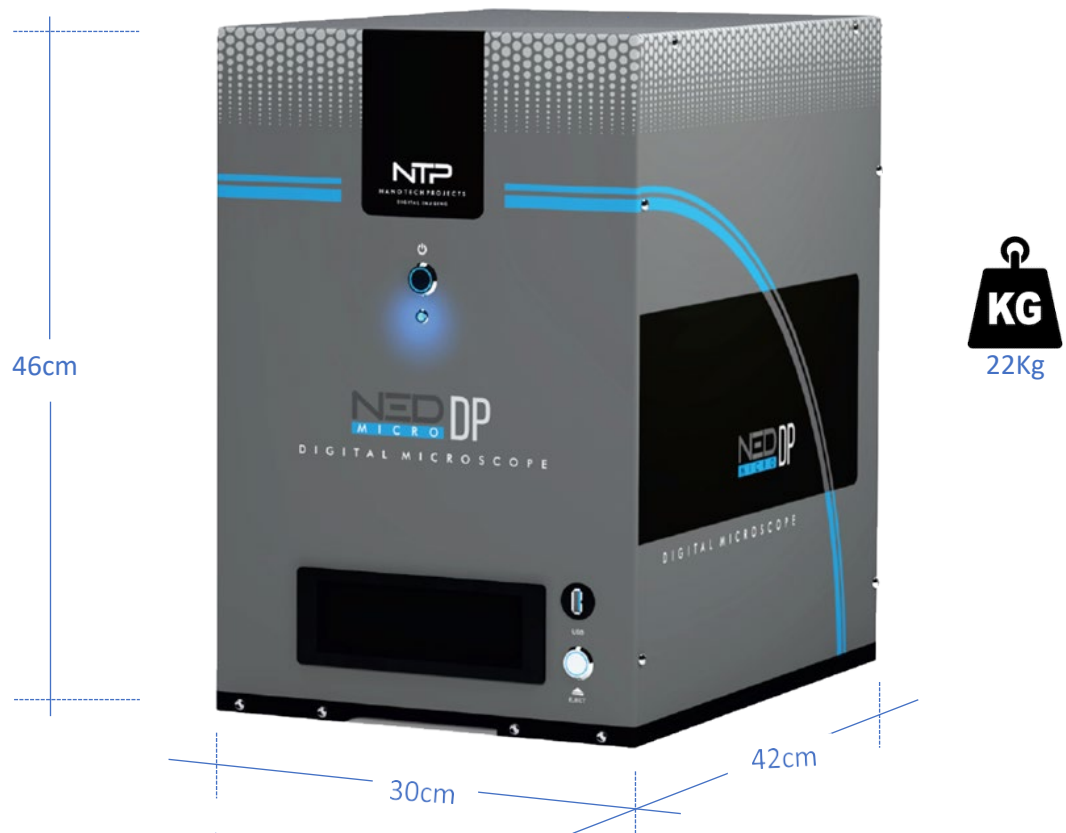
NED.MICRO

Processor	Intel® Atom™ x7-E3950 Quad Core @1.6 GHz (Burst 2.0GHz), 2MB L2 Cache, 12W TDP
Memory	8GB Dual Channel DDR3L-1866 RAM Memory. eMMC 5.0 drive - 32 GB on board. Up to 1TB SSD HD.
Graphics	Integrated Intel® HD Graphics 500 series controller with up to 18 Execution Units
Video Interface	HDMI (up to 3840 x 2160 px @30Hz)
Networking	Gigabit Ethernet interface Intel® I210 or I211 Controller (MAC + PHY)
Other Interfaces	1x USB 3.0 4x USB 2.0
Operating System	Microsoft® Windows 10 IoT Enterprise 2021 LTSC (64bit)

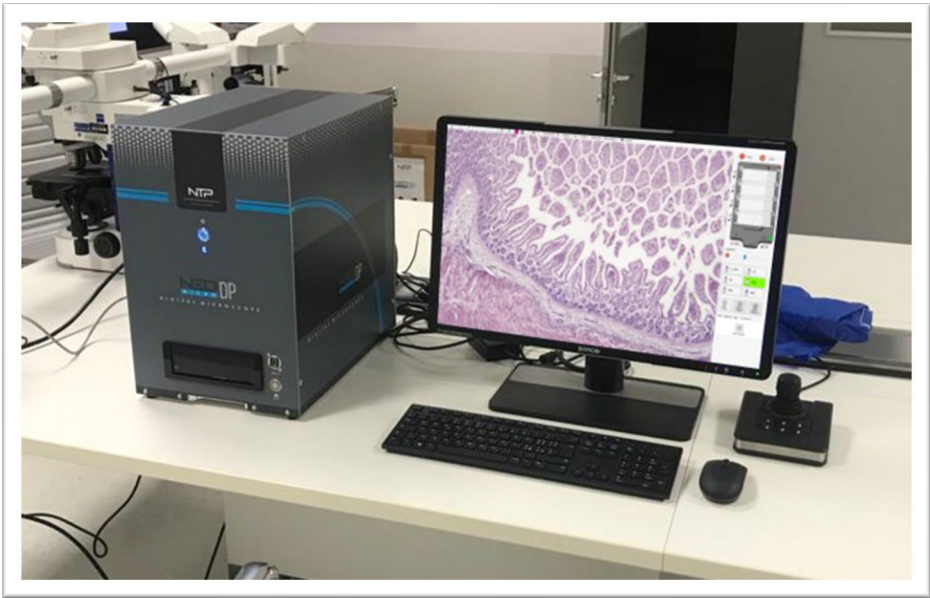
Optic System	Optic with infinite correction of type UIS2
Illumination	LED Bianco: 18.000 cd/m <sup>2</sup> to 90.000 cd/m <sup>2</sup> ; average duration approximately 100.000 hours
Objective revolver	Revolver with 6 positions
Magnifying objectives	For NED.Micro.DP 1,25X; 2X; 4X; 10X; 20X; 40X; For NED.Micro.DH 1,25X; 20X; 40X and 100X Dry NoCover
Power supply and Fuses	110-230Vac / 50-60 Hz PWR: 250W - Fuses 2X T1,25A
Dimension and weight	Width 30,0 cm; Height 46,0 cm; Depth 42,0 cm; Weight 22,0Kg
Environmental conditions of use	Max Relative Humidity 75% for temperature up to 31°C, linearly decreasing to 50% for temperature up to 40°C Environment temperature 15 / 40° C Voltage fluctuation not to exceed ±10%



**DIMENSIONS NED.Micro.DP/DH**

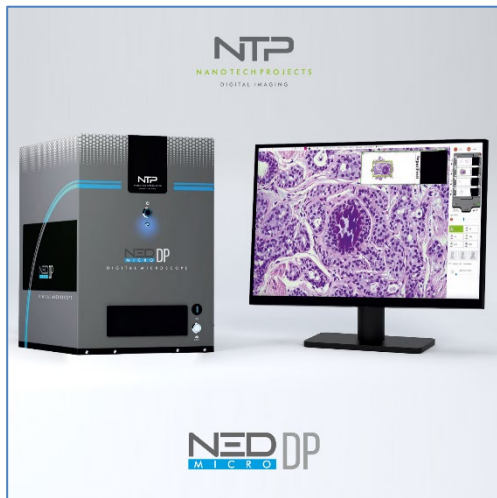


**TYPICAL WORKSTATION**



## NED FAMILY ECOSYSTEM

### NED FOR PATHOLOGY



### +POLARIZER



### NED FOR HEMATOLOGY



### NED FOR VIRUS DETECTION



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