ZEISS Primostar 3 iLED

Your LED-Fluorescence Microscope for Sputum Examination

zeiss.com/primostariled

Seeing beyond

Your LED-Fluorescence Microscope for Sputum Examination

According to the WHO*, 10 million people fall ill with tuberculosis (TB) every year, 1.5 million people even die. Those numbers make TB the world's top infectious disease. TB is present all over the world, but about half of those infected with TB live in 8 countries: Bangladesh, China, India, Indonesia, Nigeria, Pakistan, Philippines and South Africa.

TB is caused by the bacteria *Mycobacterium tuberculosis*, which was detected with the help of ZEISS microscopes by Robert Koch in 1882. As a member of the Stop TB Partnership ZEISS is following Koch's footsteps in the battle against TB.

ZEISS Primostar 3 iLED is your microscope to visualize small structures down to 0.2 – 5 µm. So you can even observe objects such as the rod-shaped *Mycobacterium tuberculosis*.

The gold standard for sputum smear microscopy is Ziehl-Neelsen staining and brightfield light microscopy. According to WHO**, LED fluorescence microscopy is even more sensitive and less time-consuming, making it a real alternative to the conventional standard. With Primostar 3 iLED you have the benefit of both, LED fluorescence and transmitted-light brightfield illumination.

* www.who.int/health-topics/tuberculosis

** https://apps.who.int/iris/bitstream/handle/10665/44602/9789241501613_eng.pdf

Simpler. More Intelligent. More Integrated.

Fluorescence or Brightfield – the Choice is Yours

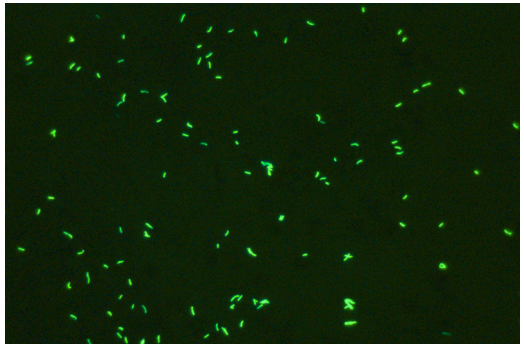
With Primostar 3 iLED you can easily change between fluorescence and brightfield.
This microscope is out-standingly well suited for your laboratory and routine applications.
Your images will show excellent contrast, especially if you work with specimens stained with auramine-rhodamine.

With Fluorescence up to Four Times Faster

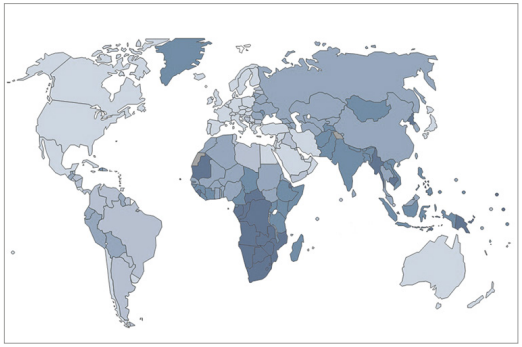
Auramine-rhodamine fluorescently labeled mycobacteria light up greenish yellow in front of a dark background. Using fluorescence and the 40× objective lens of your Primostar 3 iLED allows to clearly visualize even small structures. With the large field of view you identify such details up to four times faster than with brightfield microscopy using Ziehl-Neelsen and a 100× oil immersion objective lens.

ZEISS Supports the Worldwide Fight Against Tuberculosis

Robert Koch worked with ZEISS objectives, when he discovered the *Mycobacterium tuberculosis* in 1882. Primostar 3 iLED continues this tradition. Primostar 3 iLED is the result of our joint project with the Swiss Foundation for Innovative Diagnostics (FIND). As a customer from one of the countries most heavily affected by tuberculosis, Primostar 3 iLED is available for you at a special price. ZEISS is a member of the Stop TB Initiative.



Representative example of tubercle bacilli in fluorescence illumination. Courtesy of Dr. H. Hoffmann, WHO – Supranational Reference Laboratory IML, Gauting, Germany



The distribution of tuberculosis around the world

Expand Your Possibilities

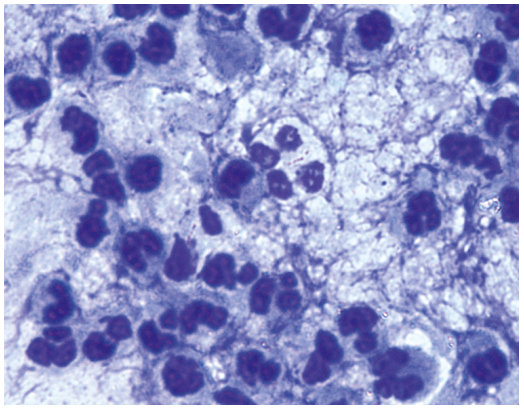
In remote areas with fluctuating or no electricity, use your Primostar 3 iLED's power bank.

Ergonomic eyecups keep ambient light out so that you get high-contrast fluorescence images even without a darkroom.

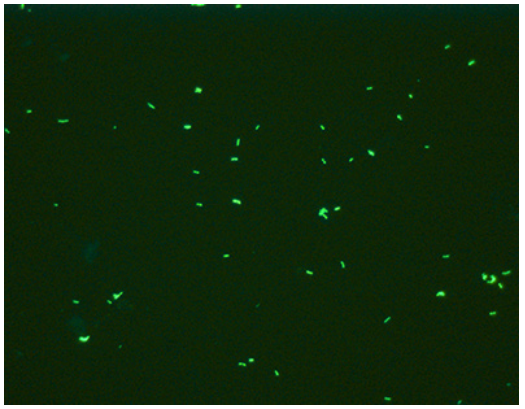
Working in the field, you have the option of working in brightfield with a mirror and sunlight.

You can transport your Primostar 3 iLED conveniently and safely in its practical trolley case.

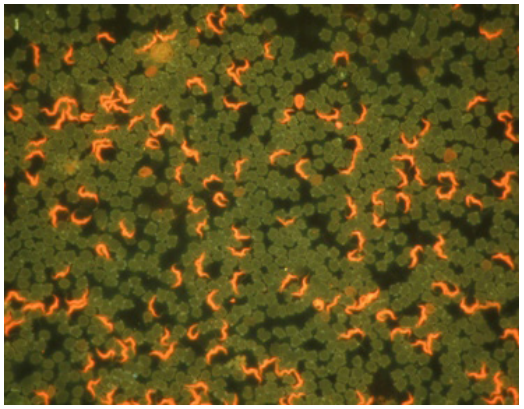
ZEISS Primostar 3 iLED at Work



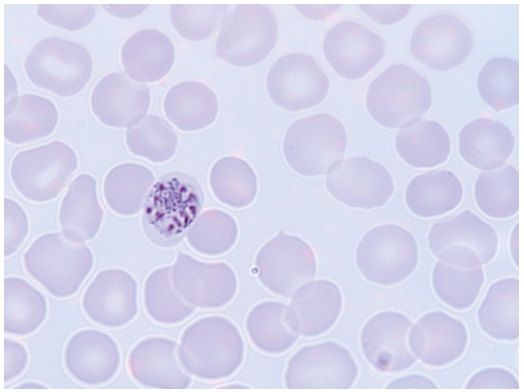
Representative example of Mycobacterium tuberculosis investigation after Ziehl-Neelsen staining; the purple colored mycobacteria are hard to see in the microscopic image



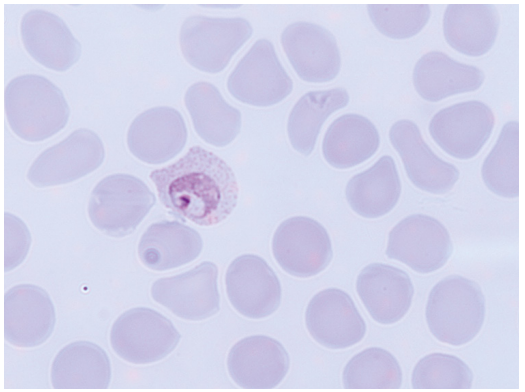
Representative image of mycobacterium tuberculosis visualized in fluorescence with auramine O. The mycobacteria are clearly visible as greenish yellow particles in front of a dark background



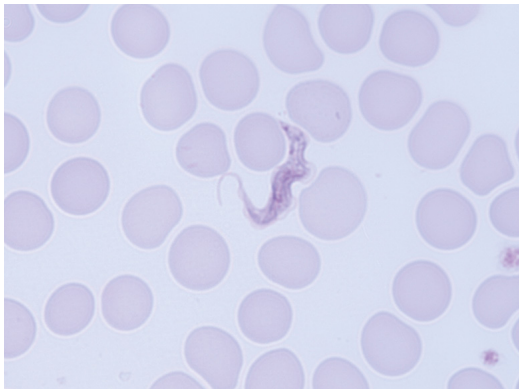
Representative example of Trypanosomas brucei – the African sleeping sickness pathogen – after staining with acridine orange, using fluorescence contrast



1. Representative example of Plasmodium malariae daisy-head stage



2. Representative example of Plasmodium vivax showing characteristic Schüffner's dots



3. Representative example of Trypanosoma brucei gambiense with undulating membrane

Courtesy of Andrea Michelsen, general manager and chairwoman of the Deutscher Verband Technischer Assistentinnen/Assistenten in der Medizin e.V., head of the central laboratory of the Ortenau Klinikum Lahr-Ettenheim, Germany

Your Flexible Choice of Components

1. Microscopes

- Primostar 3 iLED (fixed Köhler) with reflected light fluorescence illumination

2. Objectives

- iPlan ACHROMAT with magnifications of 10×, 20×, 40× and 100× optimized for specimens without cover slip (D = 0)

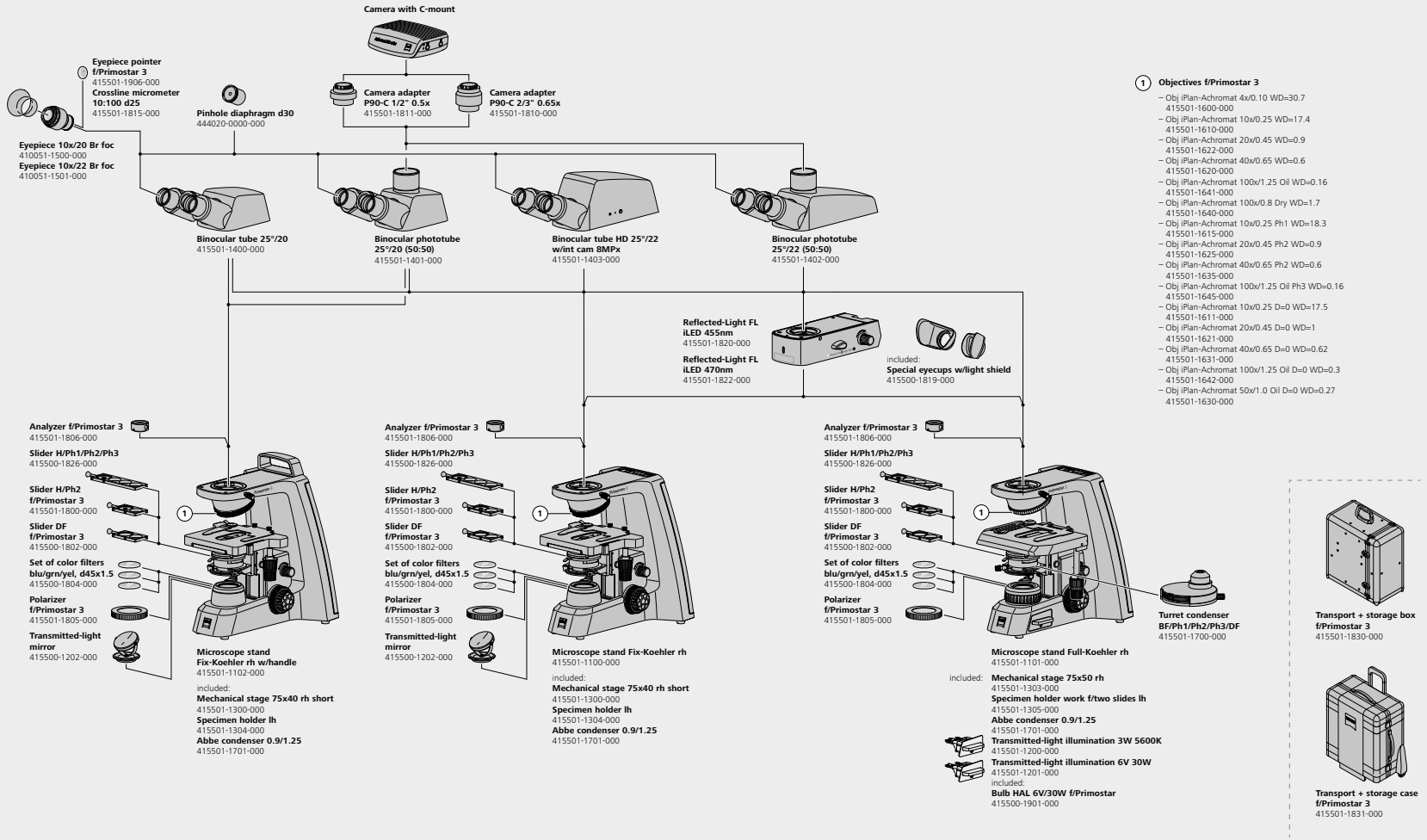
3. Illumination

- Transmitted light
- Reflected light fluorescence module with 455 nm LED

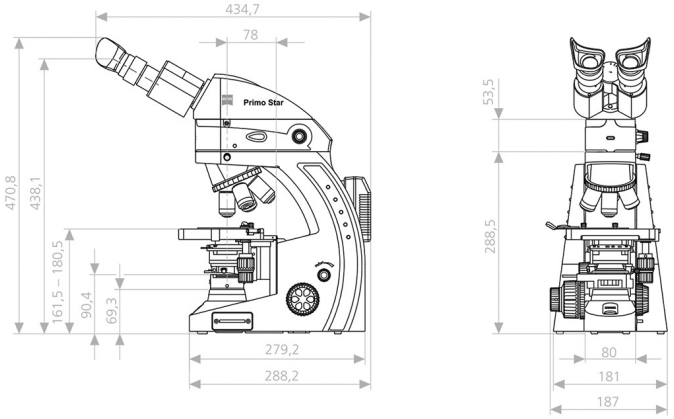
4. Accessories

- Transport case
- Rechargeable power bank
- Illuminating mirror

System Overview



Technical Specifications



Dimensions (width × depth × height)	
Stand with reflected fluorescent illumination	Approx. 190 × 410 × 449 mm
Weight	
Primostar 3 iLED	Approx. 10 kg
Ambient Conditions	
Transportation (in packaging)	
Permissible ambient temperature	–40 °C to +70 °C
Storage	
Permissible ambient temperature	+10 °C to +40 °C
Permissible relative humidity (without condensation)	Max. 75 % at 35 °C
Operation	
Permissible ambient temperature	+10 °C to +40 °C
Permissible relative humidity (without condensation)	Max. 75 % at 35 °C
Atmospheric pressure	800 hPa to 1,060 hPa

Technical Specifications

Technical Specifications	
Protection class	II
Protection type	IP20
Electrical safety	According to DIN EN 61010-1 (IEC 61010-1) and in accordance with CSA and UL standards
Pollution degree	2
Overvoltage category	II
Radio interference suppression	According to DIN EN 61326-1 and DIN EN 61326-2-6
Power supply	100 to 240 V (±10 %), thanks to its worldwide power supply unit, the voltage does not have to be adjusted
Power frequency	50/60 Hz
Power consumption	70 VA; secondary voltage of external power supply 12 V
Output of the plug-in power supply unit	12 V DC; max. 2.5 A
Microscope 12 V/6 V DC	Adjustable 1.5 V to 6 V
LED hazard class of entire device	3B

Light Sources	
LED white light illumination	White-light LED 1 W 5,600 K (fixed), peak wavelength 440 nm, LED hazard group 1 according to DIN EN 62471 (low risk)
Homogeneous field illumination	20 mm
Analogous brightness adjustment	Approx. 15 to 100 %
Average operation lifetime	Approx. 30,000 hours
Suitable for objectives with magnifications from	4× to 100×
LED Module (reflected fluorescent illumination)	Max. 40 mW, 455/470 nm; LED hazard group 2 according to DIN EN 62471

Battery Supply unit (accessory)	
Rechargeable battery Type Capacity	Multi-voltage charger. Input: 15~25V, 1.5~4A Max; DC out put: 12V, 16V, 19V, 24V; USB output: 5V/2.4A Max. UPS feature on 19V setting Lithium-Ion. 20100 mAh 73Wh 24,000 mAh/88 Wh
Operating duration	Several hours, depending on the capacity of the batteries
Weight	700 g

Technical Specifications

Optical and Mechanical Data	
Stand with stage focus	
Using rough adjustment	45 mm/rev
Using fine adjustment	0.2 mm/rev
Total travel	20 mm
Switching objectives	Manually using four-way objective revolver
Objectives	Range of infinite focus objectives with W 0.8 screw thread
Eyepieces	30 mm diameter
With visual field number 20	PL 10× / 20 Br. foc.
With visual field number 22	PL 10× / 22 Br. foc.
Object stage	Mechanical rackless stage
Dimensions (width × depth)	140 × 135 mm
Range of adjustment (width × depth)	75 × 40 mm
Coaxial drive	Short, right
Verniers	Readable from right
Object holder	With spring clip left
Abbe condenser 0.9/1.25; fixed Köhler	For Vobj 4× to 100×
Abbe condenser 0.9/1.25; full Köhler	For Vobj 4× to 100×
Turret condenser	BF/Ph1/Ph2/Ph3/DF
Binocular Tube 25°/20	
Maximum field of view	20
Eyepiece distance (pupil distance)	Adjustable from 48 to 75 mm
Viewing angle	25°
Viewing height	370 mm to 410 mm
Visual output	Tube factor 1×
Binocular Camera Tube 25°/20	
Maximum field of view	20
Eyepiece distance (pupil distance)	Adjustable from 48 to 75 mm
Viewing angle	25°
Viewing height	370 to 410 mm
Visual output	Tube factor 1×
Photo/video output	Tube factor 1×, interface 60 mm
Fixed split	50% vis/50% doc
Illuminating mirror	With flat surface and spherical surface with f' = 75 mm

An antifungal treatment is applied to all optical components to prevent fungal growths.

ZEISS Service – Your Partner at All Times

Your microscope system from ZEISS is one of your most important tools. For over 175 years, the ZEISS brand and our experience have stood for reliable equipment with a long life in the field of microscopy. You can count on superior service and support - before and after installation. Our skilled ZEISS service team makes sure that your microscope is always ready for use.

Procurement

- Lab Planning & Construction Site Management
- Site Inspection & Environmental Analysis
- GMP-Qualification IQ/OQ
- Installation & Handover
- IT Integration Support
- Startup Training

Operation

- Predictive Service Remote Monitoring
- Inspection & Preventive Maintenance
- Software Maintenance Agreements
- Operation & Application Training
- Expert Phone & Remote Support
- Protect Service Agreements
- Metrological Calibration
- Instrument Relocation
- Consumables
- Repairs

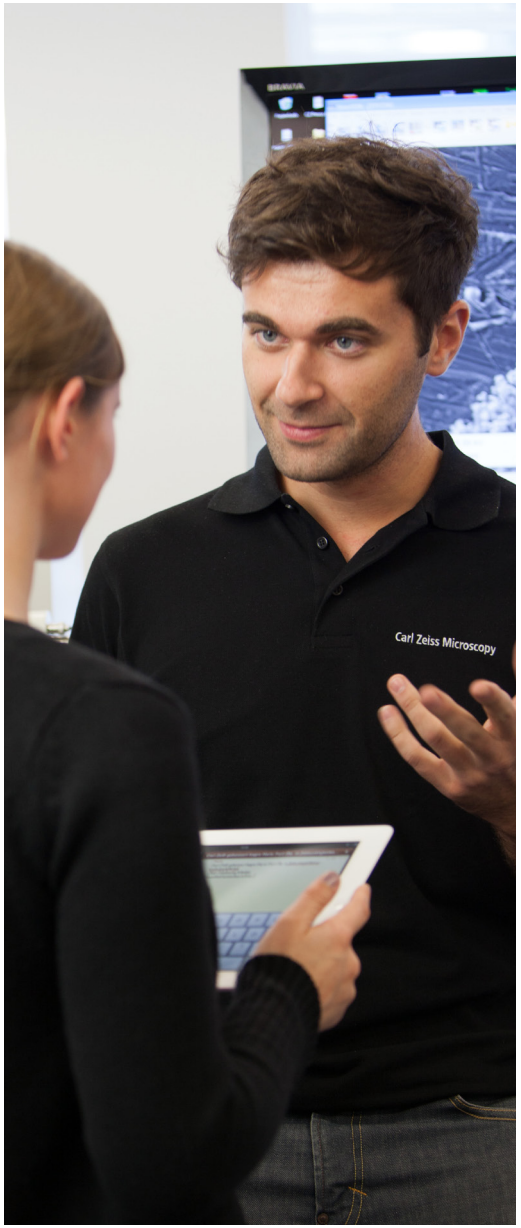
New Investment

- Decommissioning
- Trade In

Retrofit

- Customized Engineering
- Upgrades & Modernization
- Customized Workflows via ZEISS arivis Cloud

Please note: Availability of services depends on product line and location



>> www.zeiss.com/microservice

Stop TB Partnership

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