



4ZL

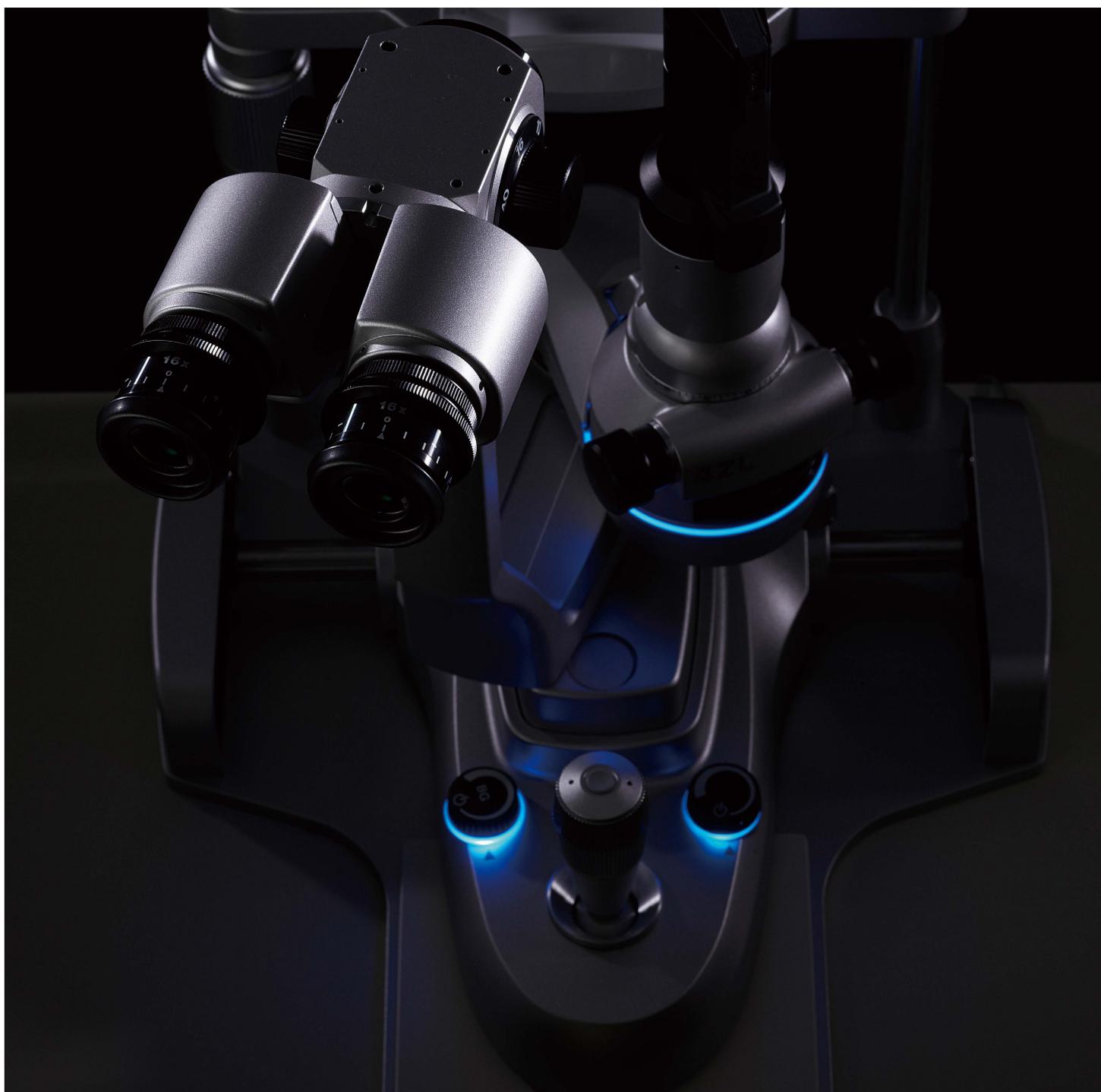
2ZL

# Slit Lamp Microscope

# 4ZL

# 2ZL/2ZLBG

*Serving Your Vision*



# Slit Lamp Microscope 4ZL/2ZL

Slit lamps providing high-level performance and usability, combined with sleek functional beauty.



TAKAGI has been serving the vision of the global eye-care industry since 1955.

TAKAGI brand products are developed, designed and manufactured in Nagano, a region famed for its thriving precision manufacturing industry. Protecting eye health means protecting opportunities to see the beautiful things in the world. It is based on this belief that we take great joy and pride in making our instruments beautiful as well as functional. Our world-class technological capabilities, assured quality and outstanding service, make us trusted by ophthalmic professionals in more than 80 countries worldwide.

TAKAGI's slit lamps feature globally recognised technologies that are essential for high-quality eye care, including outstanding light source characteristics and reliable optics.

The unique design combines both style and usability, offering ease of operation and infection control.

The 2ZL and 4ZL are simple and practical slit lamps ideal for routine examinations.

Designed with both comfort and practicality in mind, it provides high-level performance in a wide range of examinations from cornea to retina. The five-step magnification 4ZL is positioned as the high-end model, with background illumination installed as standard, and the three-step magnification 2ZL provides outstanding cost performance.

# Optics

## Clear observation of both the anterior and posterior segments of the eye

An inter-optical path distance of 22 mm is used to provide a balanced three-dimensional view of both the anterior and posterior segments of the eye. The eyepiece unit with a binocular stereo angle of 10° convergence helps to realise easy fusion and stress-free observation.

On both the 2ZL and 4ZL the focal length of the objective lens (distance from the objective lens to the subject) is set at 125 mm to ensure a wide object field, and in so doing maximising the volume of information acquired.

## Wide range of filters included as standard

The 2ZL and 4ZL come with a wide range of filters included as standard.

The blue correction filter protects patients' eyes from harmful light while leveraging the merits of LEDs. It also has the effect of producing a colour tone similar to that of a halogen lamp, while preventing harmful light damage.

The blue filter is effective for fluorescein staining observations and the green (red-free) filter can be used for contrast enhancement, meaning that a diverse range of observations can be easily conducted.



Bright and sharp LED light source



Image with blue correction filter in use

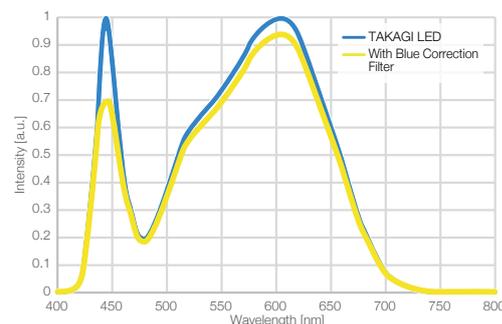
## Latest TAKAGI LED technologies

The 2ZL and 4ZL are designed specifically for LED light sources and provide a natural warm white colour similar to that of halogen and sharp slit illumination.

The lamp unit uses a specially designed LED light source, virtually eliminating all concerns about bulb replacement for the lifetime of the product.

## Uniform LED light source provides bright and sharp illumination

A single 1-element, high-luminance LED is used to realise a stable and uniform slit illumination by controlling the colour variations and irregularities inherent in LEDs. The bright and sharp light makes it possible to clearly see the details of hard-to-discern microstructures in the eye.



# Design

## Functional beauty that realises a safe, clean and comfortable examination environment

Adopting a ground-breaking design that keeps all cables, including power cables, out of sight and unexposed makes it possible to eliminate damage to cables caused by external factors, and so greatly reduces potential causes of failure.

The ST-50 Smart Table, which has no exposed mechanical parts, and the CR-750S Motorized Patient Chair, which can be raised and lowered using buttons on the ST-50, can be used together to enhance convenience, ensuring an examination environment that is safe, comfortable and exudes a sense of cleanliness.



Installation example for the ST-50 with a slit lamp from the same series (700GL)

# Usability

## Comfortable design based on ergonomics

The 2ZL and 4ZL are high-performance slit lamps based on an ergonomic design that aims to optimise the size and placement of various knobs in pursuit of comfortable operability.

Immediately below the slit width adjustment knob is a dial. The slit length and filters can be easily changed by operating the dial with your thumb during an examination.

Using the joystick enables one-handed control with a lightness and smoothness of movement that does not place a burden on the wrists, fingers or arms. Using the optional 13°inclined adapter or tiltable binocular tubes helps to enhance neck and shoulder comfort and realise a comfortable sitting posture when using the slit lamp. The headrest can be easily adjusted up and down, and the forehead rest features a finger rest, making examinations easier.

## Imaging and informed consent

A background illumination device that brightens the background is included as standard on the 4ZL and 2ZL BG, making it easy to capture high-definition observation images.

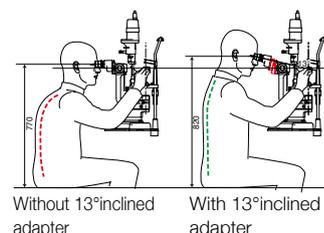
The same LED as the main light source is also used for background illumination, which keeps the colour balance even and is also highly effective in visualising observation findings.

If you require a background illumination device, please order either the 2ZL BG or the 4ZL.

## Practical options

For IOP measurement the R-type applanation tonometer AT-1 and the Z-type applanation tonometer AT-2 can be used. (Please select a tonometer base to match your tonometer of choice.)

Please use together with the S12-18 a reusable measuring prism that is environmentally friendly and economical.



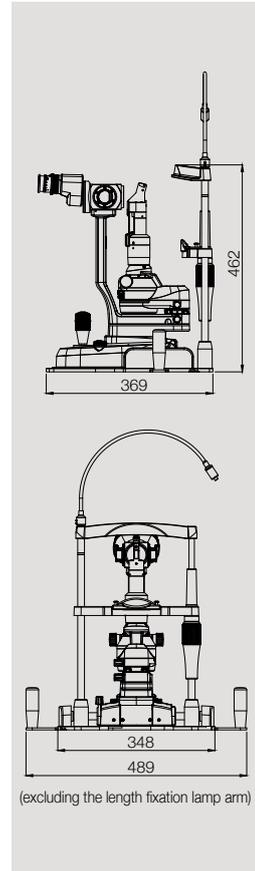
Without 13°inclined adapter      With 13°inclined adapter



## Specifications

Model name		2ZL Slit Lamp Microscope Standard BG	4ZL Slit Lamp Microscope
Microscope	Type	Galilean binocular stereo microscope	Galilean binocular stereo microscope
	Magnification changer	3 position rotating drum	5 position rotating drum
	Eyepiece	16x widefield, high-eyepoint	16x widefield, high-eyepoint
	Total magnifications	10x, 16x, 25x	6.3x, 10x, 16x, 25x, 40x
	Field of view (diameter)	23.3, 14, 8.8 mm	35.9, 23.3, 14, 8.8, 5 mm
	Stereo angle	10°	10°
	Inter pupillary distance	52-82 mm	52-82 mm
	Eyepiece diopter range	± 7 D	± 7 D
	Working distance	119 mm (from objective lens to patient's eye)	119 mm (from objective lens to patient's eye)
	Focal length	125 mm (Objective lens)	125 mm (Objective lens)
Illumination Unit	Slit image width	Continuously variable 0-14 mm (almost circular at 14 mm)	Continuously variable 0-14 mm (almost circular at 14 mm)
	Slit image length	Continuously variable 1-14 mm with steps at 0.3, 3, 5, 8, 14 mm	Continuously variable 1-14 mm with steps at 0.3, 3, 5, 8, 14 mm
	Slit image rotation	Continuously variable 0-180° with click stop at 90°	Continuously variable 0-180° with click stop at 90°
	Slit decentration (horizontal)	Possible (fixable at 0°)	Possible (fixable at 0°)
	Illumination field diameter	14, 8, 5, 3, 0.3 mm	14, 8, 5, 3, 0.3 mm
	Filters	Blue / Green (red-free) / Blue correction	Blue / Green (red-free) / Blue correction
	Light source	LED(3500K)	LED (3500K)
Base Unit	Base unit operation	Single-handed joystick operation for forward-backward, left-right, up-down movement.	Single-handed joystick operation for forward-backward, left-right, up-down movement.
	Movement range	105 mm (forward-backward, left-right), 30 mm (up-down)	105 mm (forward-backward, left-right), 30 mm (up-down)
	Fine movement range	15 mm (forward-backward, left-right)	15 mm (forward-backward, left-right)
Headrest Unit	Vertical movement range	95 mm	95 mm
	Fixation light	LED (red)	LED (red)
Power Unit	Power supply	AC 100-240 V (±10%)	AC 100-240 V (±10%)
	Power input	DC 5 V 2 A	DC 5 V 2 A
Weight (excl. power adapter & options)		11 kg	11.5 kg

## Dimensions



Breath shield (H290 mm x W 220 mm) as standard



AT-1 Applanation tonometer

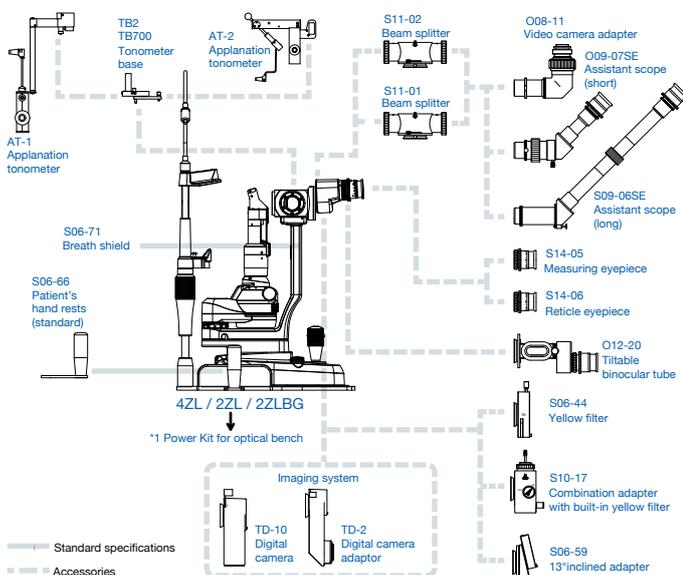


S06-59 13° inclined adaptor



S10-17 Combination adaptor with built-in yellow filter

## System Chart



\*1 Please contact our Sales Department for details about the power kit.

## Accessories

Model number	Detailed information
AT-1	Applanation tonometer R-type (requires a tonometer base for installation)
AT-2	Applanation tonometer Z-type (requires a tonometer base for installation)
O08-11	Adapter to connect TV or video camera F = 50 mm
O12-20	Binocular tube to change the angle of the eyepiece tube for enhanced neck/shoulder comfort.
S06-44	Yellow filter to enhance contrast for fluorescence observation
S06-59	13° inclined adaptor to enhance neck/shoulder comfort
S06-66	Patient handrests so patient can grasp and comfortably maintain their posture during examinations (included as standard, available to purchase separately)
S06-71	Breath shield (included as standard, available to purchase separately)
S09-06SE	Long monocular microscope for assistant
S09-07SE	Short monocular microscope for assistant
S10-17	Adapter fitted with beam splitter, camera adapter and yellow filter function
S11-01	Beam splitter to attach a camera or assistant microscope (spectroscopic ratio 40: 60)
S11-02	Beam splitter to attach a camera or assistant microscope (spectroscopic ratio 30: 70)
S14-05	Eyepiece with scale for measuring
S14-06	Eyepiece with reticle (crosshair)
TB2	Tonometer base for AT-2
TB700	Tonometer base for AT-1
TD-10	Digital camera to be attached to slit lamp (including image filling software)
TD-2	Adapter for attaching digital Canon SLR camera

**Caution** To ensure safe and correct handling please read the user manual before using.

- Description and appearance as detailed in this brochure may be subject to change as improvements are made to products.
- Colours as they appear in brochure photographs may be slightly different to actual products due to lighting conditions when photographs were taken, or print colours.

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