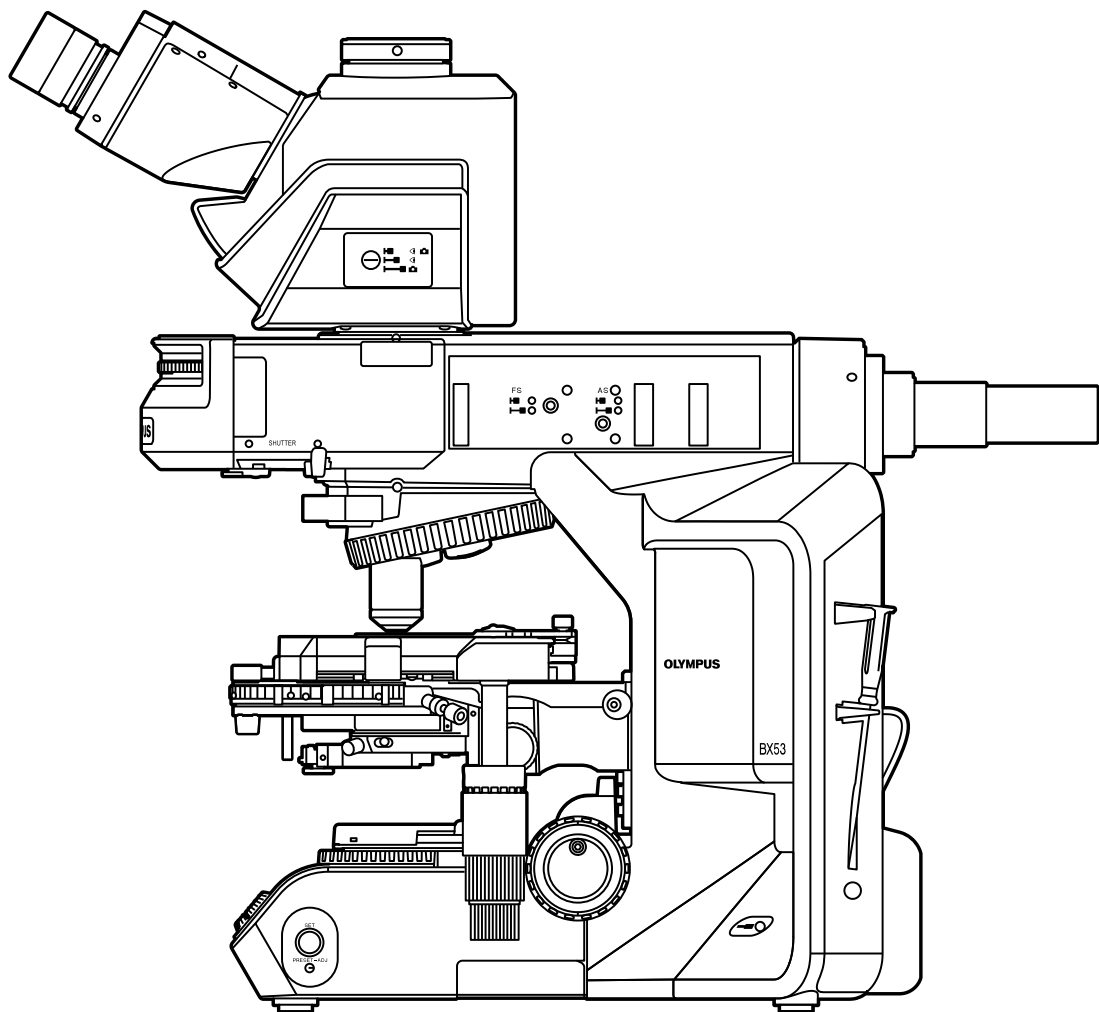


BX3 Microscope Unit Guide



Introduction

Our BX3 series can be configured to meet your microscope needs. The combination of leading-edge imaging capabilities with the flexibility to customize the system to your specific application makes BX3 series microscopes powerful research tools.

Accessories

Objective Lens

X Line UPLXAPO Series

Thanks to novel manufacturing technology, X Line UPLXAPO high-performance objectives offer improved optical performance in three critical areas—a larger numerical aperture (NA), better image flatness, and a wider range of chromatic correction. These advances enable high-quality, large field of view (FOV) imaging for versatility in numerous applications.

Series	Objective Lens	NA	W.D. (mm)	OFN	Cover Glass Thickness (mm)	Chromatic Correction Range	Spring Loaded
X Line	UPLXAPO4X	0.16	13	26.5	-	400-1000 nm	
	UPLXAPO10X	0.40	3.1	26.5	0.17	400-1000 nm	
	UPLXAPO20X	0.80	0.6	26.5	0.17	400-1000 nm	✓
	UPLXAPO40X	0.95	0.18	26.5	0.11-0.23	400-1000 nm	✓
	UPLXAPO40XO	1.40	0.13	26.5	0.17	400-1000 nm	✓
	UPLXAPO60XO	1.42	0.15	26.5	0.17	400-1000 nm	✓
	UPLXAPO100XO	1.45	0.13	26.5	0.17	400-1000 nm	✓
	UPLXAPO60XOPH	1.42	0.15	26.5	0.17	400-1000 nm	✓
	UPLXAPO100XOPH	1.45	0.13	26.5	0.17	400-1000 nm	✓



PLN (PLN-PH) Series

Appropriate for a range of biological applications, these high-quality objectives offer flatness up to OFN 22 in transmitted brightfield (phase contrast) observation. The PLN-PH series is designed for phase contrast observation.

UPLFLN (UPLFLN-PH) Series

These plan objectives provide flat images with high transmission up to the near-infrared region of the spectrum. With their high signal-to-noise ratio, high resolution, and high-contrast images, the objectives are especially effective in brightfield and Nomarski DIC observations. The UPLFLN-PH series is optimized for phase contrast observation.

PLAPON Series

Designed for high resolution and contrast, plan apochromat objectives reduce chromatic aberration to low levels.

Objective Lens	NA	W.D. (mm)	OFN	Cover Glass Thickness (mm)	Immersion	Spring Loaded
PLN2X	0.06	5.8	22	-		
PLN4X	0.10	18.5	22	-		
PLN10X	0.25	10.6	22	-		
PLN20X	0.40	1.2	22	0.17		✓
PLN40X	0.65	0.6	22	0.17		✓
PLN50XOI	0.9-0.5	0.2	22	-	Oil	✓
PLN100XO	1.25	0.15	22	-	Oil	✓
LPLN40X	0.60	3.4-4.1	22	0-1		
PLN10XPH	0.25	10.6	22	-		
PLN20XPH	0.40	1.2	22	0.17		✓
PLN40XPH	0.65	0.6	22	0.17		✓
PLN100XOPH	1.25	0.15	22	-	Oil	✓
UPLFLN4X	0.13	17	26.5	-		
UPLFLN10X2	0.30	10	26.5	-		
UPLFLN20X	0.50	2.1	26.5	0.17		
UPLFLN40X	0.75	0.51	26.5	0.17		✓

Objective Lens	NA	W.D. (mm)	OFN	Cover Glass Thickness (mm)	Immersion	Spring Loaded
UPLFLN100XO2	1.30	0.2	26.5	0.17	Oil	✓
UPLFLN100XOI2	1.3-0.6	0.2	26.5	0.17	Oil	✓
UPLFLN10X2PH	0.30	10	26.5	-		
UPLFLN20XPH	0.50	2.1	26.5	0.17		
UPLFLN40XPH	0.75	0.51	26.5	0.17		✓
UPLFLN100XO2PH	1.30	0.2	26.5	0.17	Oil	✓
PLAPON1.25X	0.04	5.0	26.5	-		
PLAPON2X	0.08	6.2	26.5	-		
MPLFLN10X	0.30	11	26.5	-		
MPLFLN20X	0.45	3.1	26.5	0		
MPLFLN40X	0.75	0.63	26.5	0		✓
MPLFLN100X	0.90	1	26.5	0		
MPLAPON60X	0.90	0.4	26.5	0		✓
MPLAPON100X	0.95	0.35	26.5	0		✓
MPLAPON100XO2	1.45	0.10	26.5	0	Oil	✓

Microscope Frames

Main	Type	Brightness
BX43F	Manual	2 W LED Light Source (30 W Halogen Equivalent)
BX46F	Manual	2 W LED Light Source (30W Halogen Equivalent)
BX53F2	Manual / Motorized	14 W LED Light Source (100 W Halogen Equivalent)
BX63F	Motorized	2 W LED Light Source or 12 V, 100 W Halogen Light Source



Observation Tubes

Observation Tube	FN	Type	Angle Type	Feature
U-BI30-2	22	Binocular	Fixing	-
U-TBI-3	22	Binocular	Tilting	High Eye Point
U-TBI-3-CLI	22	Binocular	Tilting	Low Eye Point
U-TTBI	22	Binocular	Tilting	Telescopic
U-TTLBI	22	Binocular	Tilting	Lift Adjustment, Telescopic
U-ETR-4	22	Trinocular	Fixing	Erected Image
U-TR30-2	22	Trinocular	Fixing	-
U-TTR-2	22	Trinocular	Tilting	-
U-SWTR-3	26.5	Trinocular	Fixing	Super Widefield
U-SWETTR-5	26.5	Trinocular	Tilting	Erected Image, Super Widefield



Eyepieces

Eyepieces	FN	Reticle	Helicoid
WHN10X	22	-	
WHN10X-H	22	-	✓
CROSSWHN10X	22	Crosshair	✓
SWH10X-H	26.5	-	✓



Accessories

Illumination Tubes

Illumination Tube	# of FL Cube	Turret Type	Illumination Pattern
BX3-URA	8	Manual	Normal
BX3-RFAS	8	Coded	Fly-Eye
BX3-RFAA	8	Motorized	Fly-Eye



Motorized Controller

Motorized Controller	Description
U-HSCBM	Hand Switch for CBM
U-HSEXP	Hand Switch for Exposure
BX3M-HSRE	Hand Switch
U-MCZ	Controller
BX3-CBH	Control Box
BX3-CBM	Control Box
U-CBS	Control Box for Coded Function
U-IFRES	Interface for Coded Nosepiece



Fluorescence Light Sources

Fluorescence Light Source	Description
U-LGPS	LED and LDP Light Source
U-LH100HG	100 W Mercury Lamp Housing
U-LH100HGAP0	100 W Mercury Apo Lamp Housing



Brightfield Light Sources

Brightfield Light Source	Bulb	Brightness
U-LH100-3	Halogen	12 V, 100 W
U-LHLEDC	LED	2 W (30 W Halogen Equivalent)
U-LHLEDC100	LED	14 W (100 W Halogen Equivalent)

Intermediate Tubes

Intermediate Tube	Description
U-EPA2	Eyepoint Adjuster
U-EPAL-2	Eyepoint Adjuster
U-CA	Magnification Changer
U-KPA	Intermediate Attachment for Simple Polarizing Observation
U-TRU	Trinocular Intermediate Unit
U-TRUS	Trinocular Intermediate Unit
U-DP	Dual Port
U-DP1XC	Dual Port 1X



Nosepieces

Nosepieces	Type	# of Objectives	Working Slot
U-5RE-2	Manual	5	
BX43-5RES	Coded	5	
U-D6RE	Manual	6	✓
U-D6RES	Coded	6	✓
U-D7RES	Coded	7	✓
U-D7REA	Motorized	7	✓



Stages

Stage	Control Handle	Type	Applicable System
U-SVLB-4	Left	Manual	All
U-SVRB-4	Right	Manual	All
U-SVRC	Right	Manual	Only BX46
U-SVRC-CY	Right	Manual	Only BX46
U-SP	No Handle	Manual	All
IX-SVL2	Left	Manual	Only BX63



Stage Accessories

Stage Accessories	Description
BX3-SHEA	Stage Handle Extention Adaptor
U-SHG	Rubber Grip
U-SHGT	Rubber Grip (Thick)



Sample Holders

Sample Holder	Handle	# of Slide	Thickness
U-HLD-4	Left	Double	Thin
U-HLDT-4	Left	Double	Thick
U-HLS-4	Left	Single	Thin
U-HLST-4	Left	Single	Thick
U-HRD-4	Right	Double	Thin
U-HRDT-4	Right	Double	Thick



Accessories

TV Adaptors

TV Adaptor	Description
U-TV0.35XC-2	0.35X C-Mount Adaptor
U-TV0.5XC-3	0.5X C-Mount Adaptor
U-TV0.63XC	0.5X C-Mount Adaptor
U-TV1XC	1X C-Mount Adaptor (XY adjustment)
U-TV1X-2	TV Adaptor
U-CMAD3	C-Mount Adaptor
U-BMAD	Bayonet-Mount Adaptor
U-SMAD	Sony Mount Adaptor
U-TMAD	T-Mount Adaptor
U-FMT	F-Mount Adaptor
U-CMT	C-Mount Adaptor
U-DPCAD	Double Port Tubes with C Mounts



Condensers

Condenser	NA	Type	Contrast Method
U-AC2	1.1	Manual	BF
U-SC3	0.9	Manual	BF/PO
U-LC	0.75	Manual	BF/PO
U-AAC	1.4	Manual	BF
U-PCD2	1.1	Manual	BF/PH/DF
U-DCD	0.92	Manual	DF
U-DCW	1.4	Manual	DF
U-UCD8-2	Oil Top Lens 1.4 / Dry Top Lens 0.9	Manual	BF/PH/DIC/DF/PO
BX3-UCD8A	Oil Top Lens 1.4 / Dry Top Lens 0.9	Motorized	BF/PH/DIC/DF/PO



Polarizer/Analyzer/DIC Slider

Polarizer/Analyzer/DIC Slider	Description
U-POT	Polarizer
BX45-P0	Polarizer
U-ANT	Analyzer for Transmitted Light
U-AN-2	Analyzer Slider
U-GAN	Analyzer for Urate Crystals Observation
U-DFA	Darkfield Ring
U-PH1-S	Phase Contrast Ring (small)
U-PH2-S	Phase Contrast Ring (small)
U-PH3-S	Phase Contrast Ring (small)
U-DIC10	DIC Prism
U-DIC10S	DIC Prism (small)
U-DIC20	DIC Prism
U-DIC40	DIC Prism
U-DIC60	DIC Prism
U-DIC100	DIC Prism
U-DICT	DIC Slider for Transmitted Light
U-DICTS	Shift DIC Slider for Transmitted Light
U-FDICT	DIC Mirror Unit



U-DICT

Mirror Units

Mirror Unit	Excitation Filter	Emission Filter	Dichroic Mirror
U-FF	No Filter	No Filter	No Mirror
U-FUW	BP340-390	BA420IF	DM410
U-FUN	BP360-370	BA420IF	DM410
U-FUNA	BP360-370	BA420-460	DM410
U-FBVW	BP400-440	BA460IF	DM455
U-FBW	BP460-495	BA510IF	DM505
U-FBWA	BP460-495	BA510-550	DM505
U-FBN	BP470-495	BA510IF	DM505
U-FBNA	BP470-495	BA510-550	DM505
U-FGW	BP530-550	BA575IF	DM570
U-FGWA	BP530-550	BA575-625	DM570
U-FGNA	BP540-550	BA575-625	DM570
U-FYW	BP540-585	BA600IF	DM595
U-FCFP	BP425-445CFP	BA460-510CFP	DM455CFP
U-FGFP	BP460-480GFP	BA495-540GFP	DM490GFP
U-FYFP	BP490-500YFP	BA515-560YFP	DM515YFP
U-FRFP	BP535-555HQ	BA570-625HQ	DM565HQ
U-FMCHE	BP565-585	BA600-690	DM595

Group Observation Systems

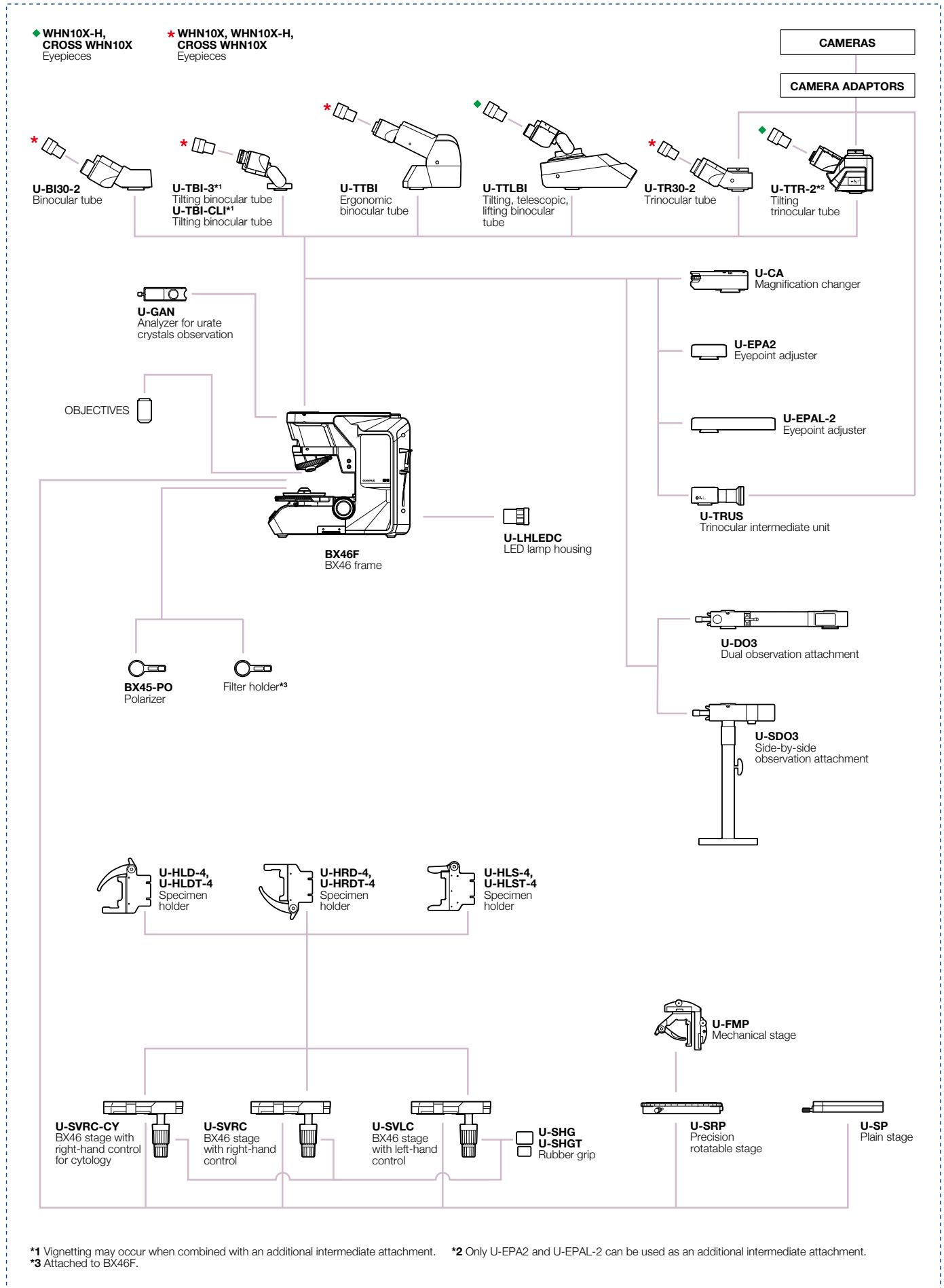
Multi-head discussion systems are invaluable for lab training and education. We offer discussion systems for as few as two or as many as 26 people. With our BX3 series multi-discussion observation (MDO) system, every participant can see the same high-quality image. The integrated LED arrow pointer helps instructors highlight key features in the teaching specimen.

Heads	2	2	3	5	9	10	18	26
Shape	Front to Back	Side by Side	Linear	Linear	Linear	H-Shape	H-Shape	H-Shape
U-D03	1							
U-SD03		1						
U-MD0B3			1	1	1			
U-MD010B3						1	1	1
U-MD010R3						1		
U-MDOSV			1	2	4	4	8	12
BX3-MD018R							1	1
BX3-MDOE					2		4	8



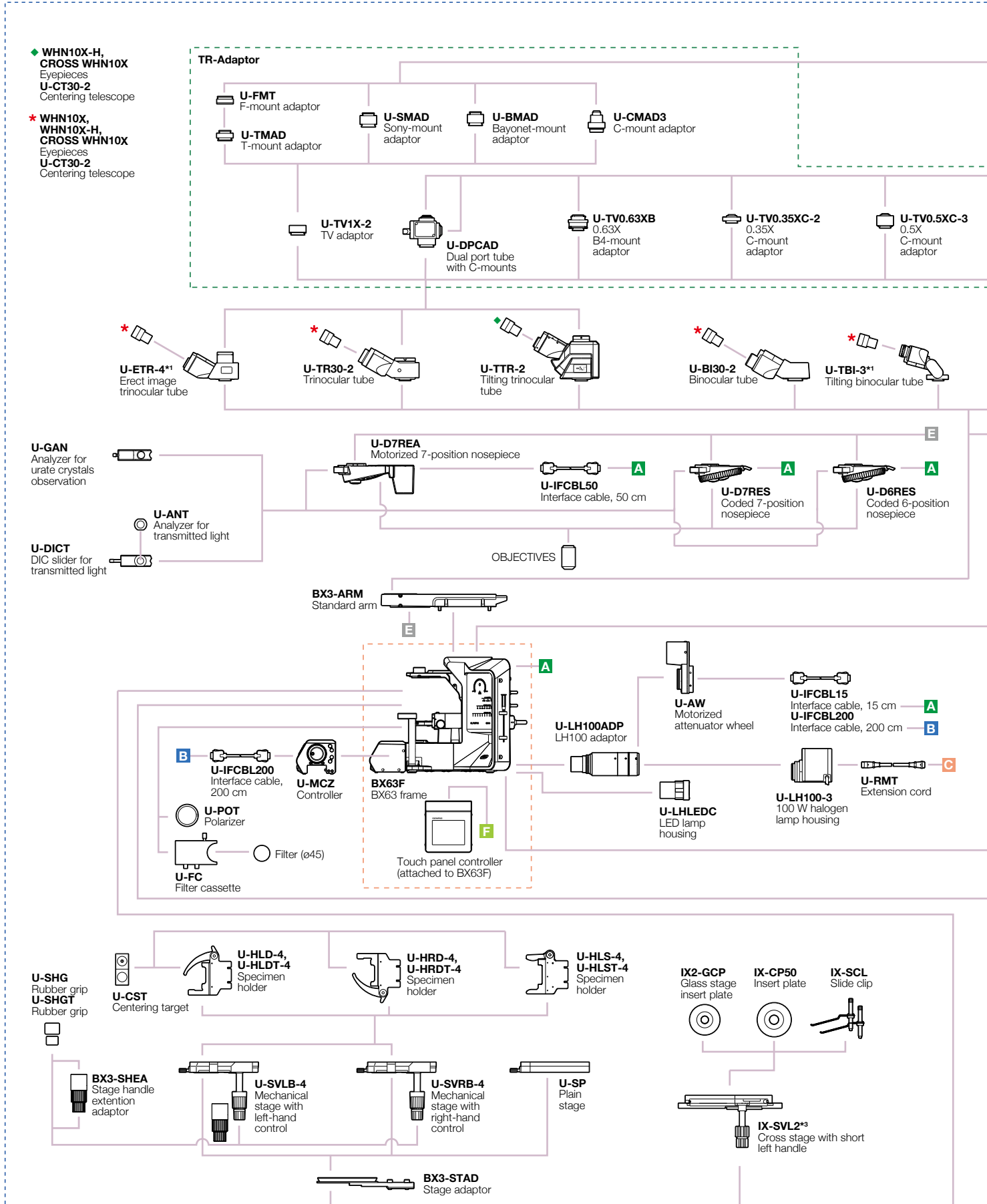
System Diagram

BX46 SYSTEM DIAGRAM

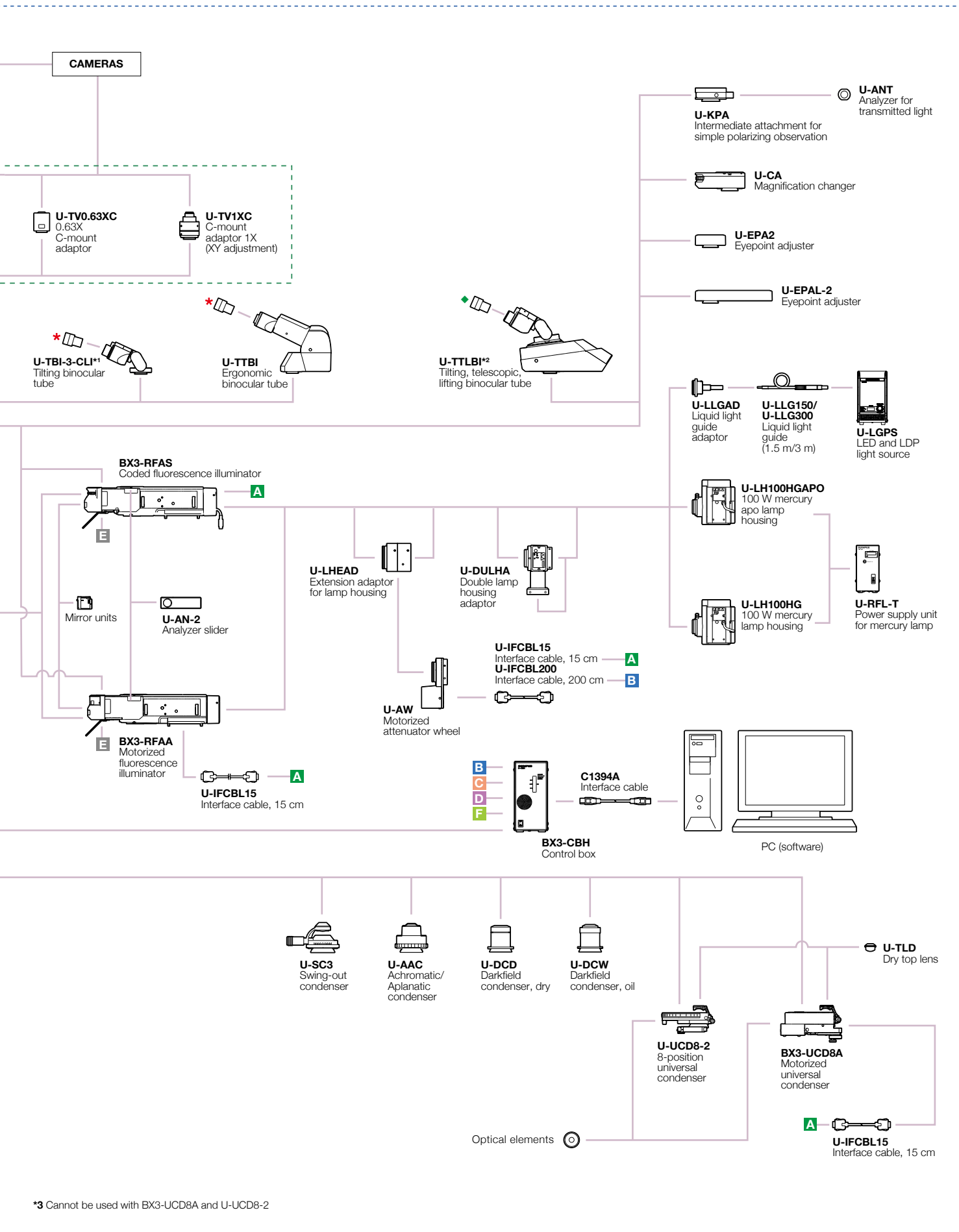


System Diagram

BX63 SYSTEM DIAGRAM



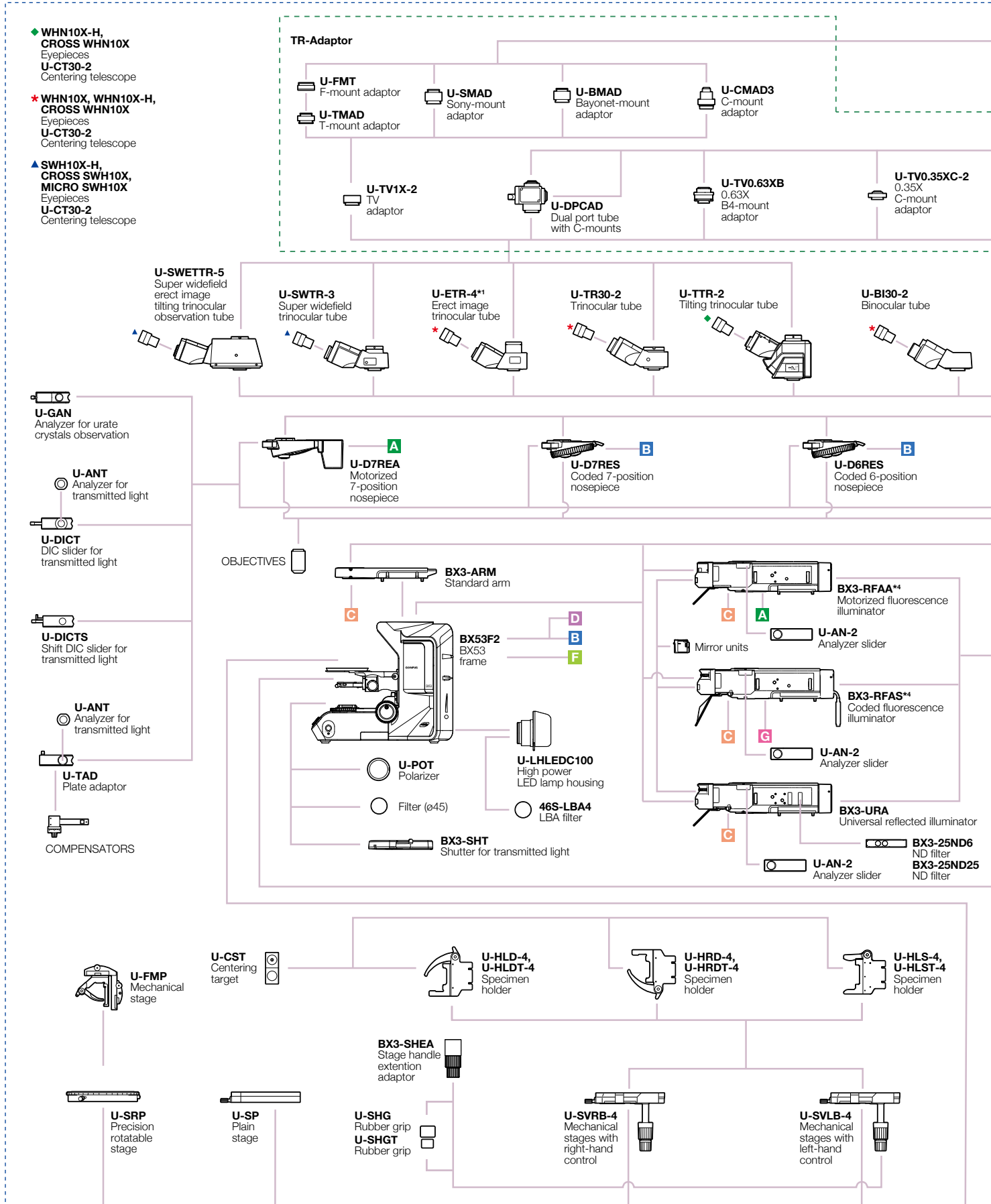
*¹ Slight vignetting may occur when combined with an additional intermediate attachment or fluorescence illuminator. *² Requires an additional intermediate attachment or fluorescence illuminator.



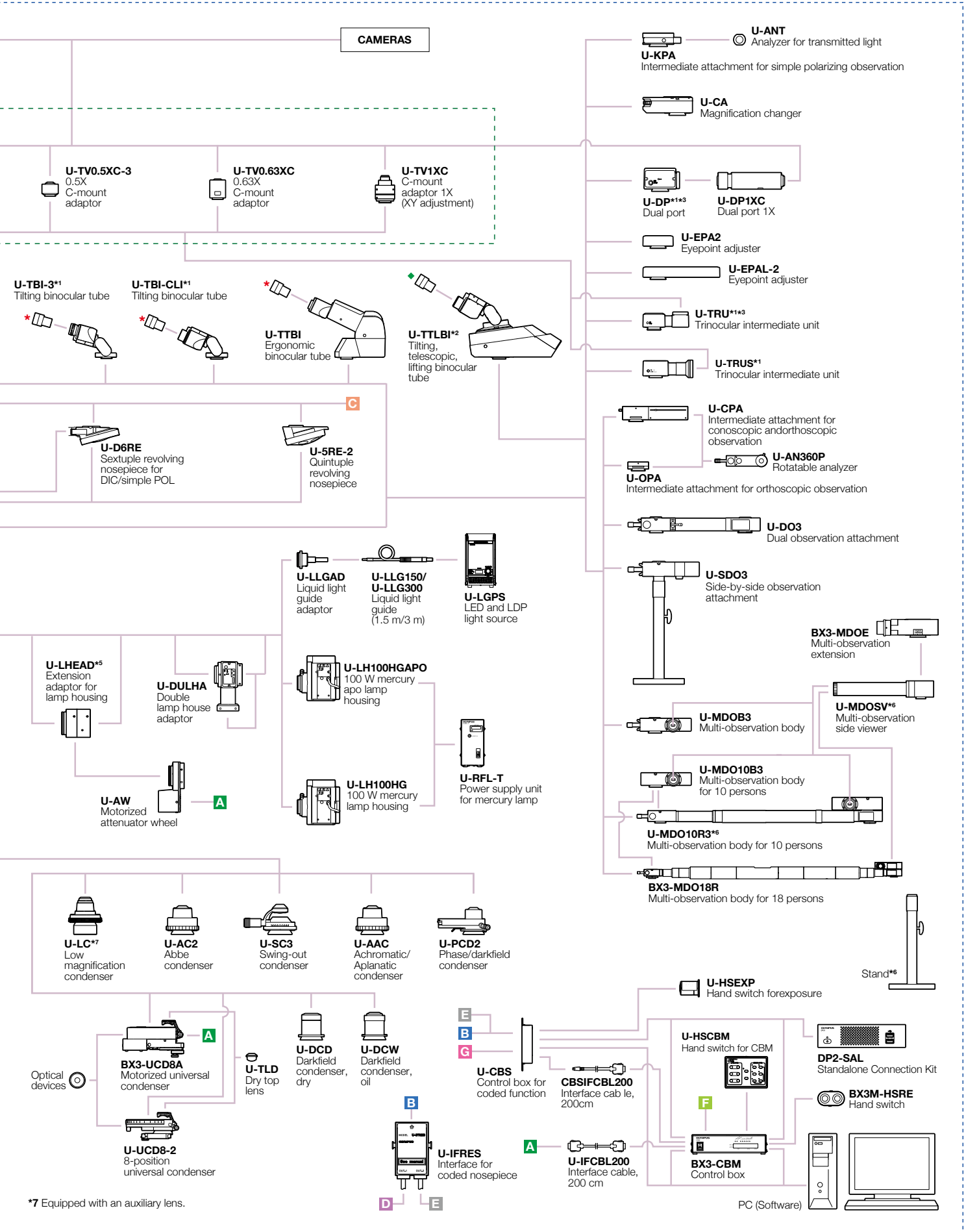
*3 Cannot be used with BX3-UCD8A and U-UCD8-2

System Diagram

BX53 SYSTEM DIAGRAM



*1 Slight vignetting may occur in combination with an additional intermediate attachment or observation method. *2 Require an additional intermediate attachment or fluorescence illuminator. *3 Cannot be used with U-TTLBI. *4 Compatible with FN 22. *5 Cannot be used with BX3-URA. *6 Stand is a standard equipment of the U-MDOSV, BX3-MDO18R, and U-MDO10R3.



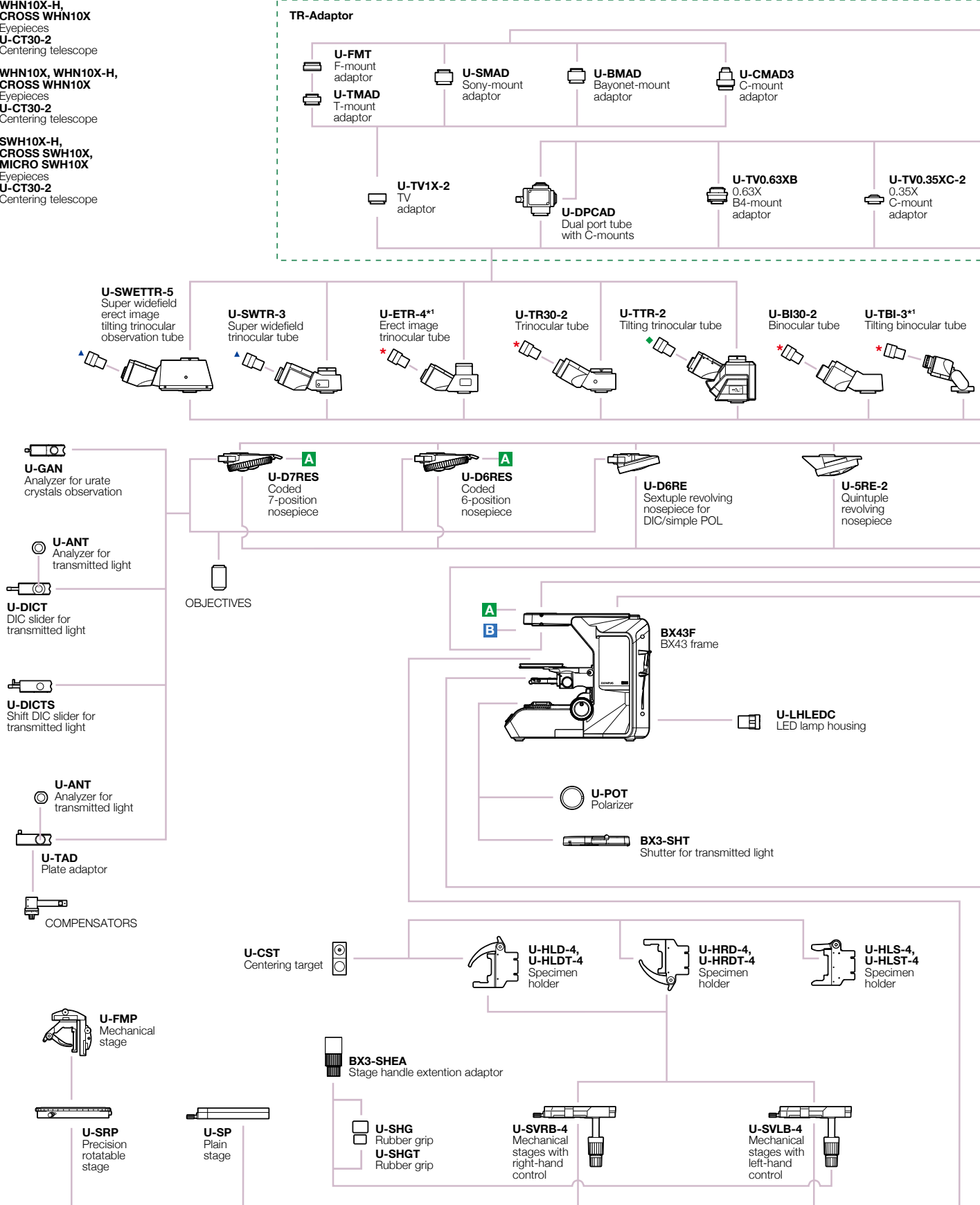
System Diagram

BX43 SYSTEM DIAGRAM

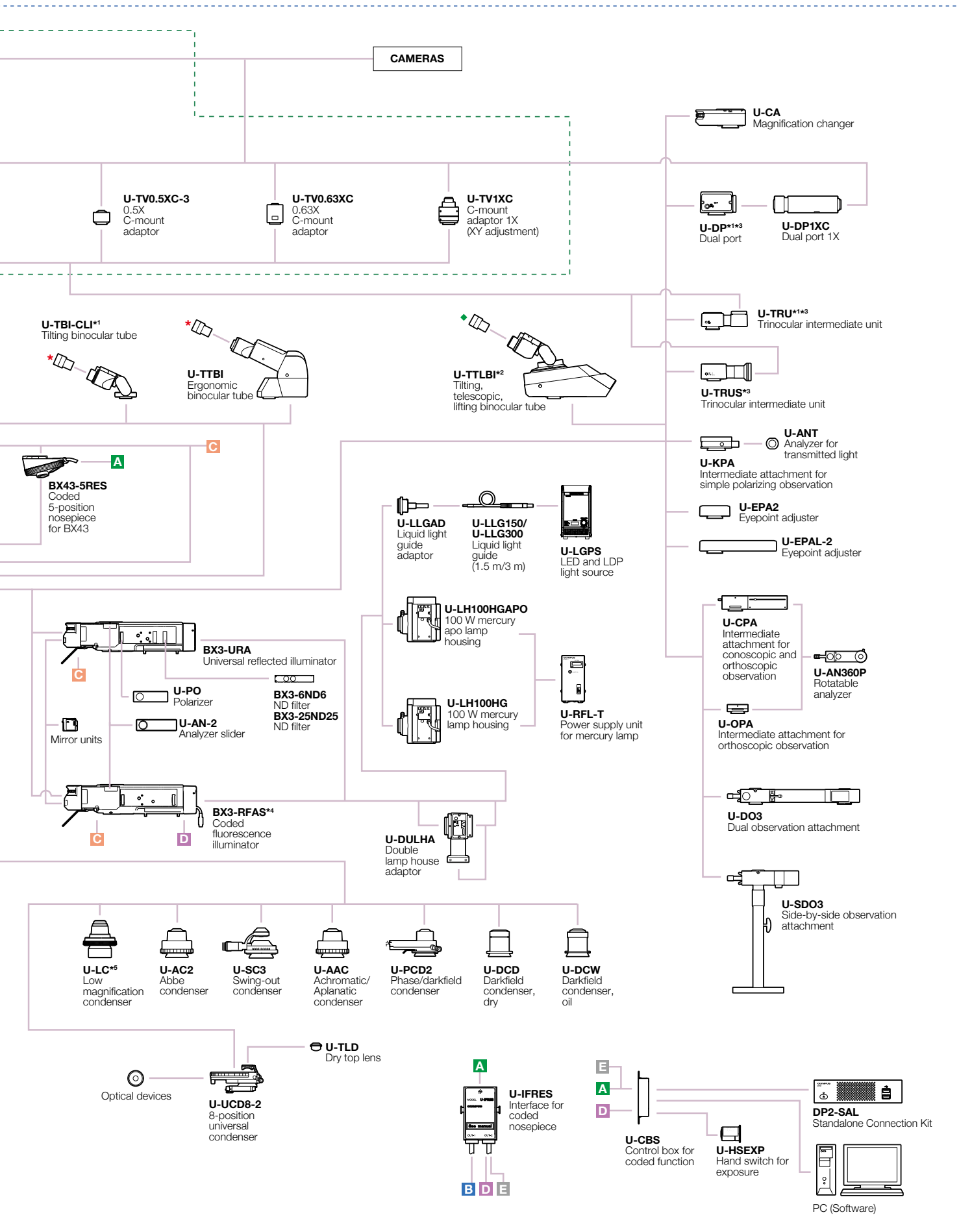
◆ **WHN10X-H, CROSS WHN10X**
Eyepieces
U-CT30-2
Centering telescope

* **WHN10X, WHN10X-H, CROSS WHN10X**
Eyepieces
U-CT30-2
Centering telescope

▲ **SWH10X-H, CROSS SWH10X, MICRO SWH10X**
Eyepieces
U-CT30-2
Centering telescope



*1 Slight vignetting may occur when combined with an additional intermediate attachment or observation method.
*2 Requires an additional intermediate attachment or fluorescence illuminator. *3 Cannot be used with U-TTLBI. *4 Compatible with FN 22. *5 Equipped with an auxiliary lens.



Specifications

BX63 SPECIFICATIONS

Microscope Frame	Optical System	UIS2 optical system
	Focus	Built-in motorized nosepiece focus Stroke: 20 mm; minimum increment: 0.01 μm ; maximum nosepiece movement speed: 5 mm/s
	Illuminator	Built-in Köhler illumination for transmitted light, light intensity LED indicator, built-in motorized field stop <ul style="list-style-type: none"> • High color reproductivity LED light source • 12 V 100 W halogen bulb (pre-centered)
Revolving Nosepiece		<ul style="list-style-type: none"> • Motorized septuple revolving nosepiece • Interchangeable reversed coded sextuple/coded septuple nosepiece
Observation Tube	Widefield (FN 22)	<ul style="list-style-type: none"> • Widefield tilting trinocular • Widefield trinocular • Widefield erect image trinocular • Widefield tilting binocular • Widefield tilting, telescopic, lifting binocular • Widefield ergo binocular • Widefield binocular
Stage		<ul style="list-style-type: none"> • Ceramic-coated coaxial stage with left or right hand low drive control: with rotating mechanism and torque adjustment mechanism, optional rubber grips, and available stage handle extension adaptor • Cross stage with short left handle
Condenser		<ul style="list-style-type: none"> • Motorized universal condenser (NA 0.9, motorized 8-position turret, aperture stop, polarizing filter in/out mechanism, and top lens swing out mechanism), for 1.25X–100X [swing-out 1.25X-4X, with oil top lens: (NA 1.4)] • Swing out Achromatic (NA 0.9), for 1.25X–100X (swing-out: 1.25X–4X) • Achromatic Aplanatic (NA 1.4), for 10X–100X • Universal (NA 0.9), for 1.25X–100X [swing-out: 1.25X–4X, with oil top lens: (NA 1.4)] • Darkfield dry (NA 0.8–0.92), for 10X–100X • Darkfield oil (NA 1.20–1.40), for 20X–100X
ND Filter Wheel		<ul style="list-style-type: none"> • Motorized 6-position ND filter wheel
Fluorescence Illuminator		<ul style="list-style-type: none"> • Motorized multi-purpose coded type (FN 22, motorized 8-position mirror unit turret, 4-position ND slider) • Multi-purpose coded type (FN 22, 8-position mirror unit turret, 4-position ND slider)
Fluorescence Light Source		<ul style="list-style-type: none"> • LED and LDP light source • 100 W mercury apo lamp housing and power supply unit • 100 W mercury lamp housing and power supply unit
Controller		<ul style="list-style-type: none"> • High-performance control box (I/F: FireWire)

BX53 SPECIFICATIONS

Microscope Frame	Optical System	UIS2 optical system
	Focus	Vertical stage movement: 25 mm stage stroke with coarse adjustment limit stopper, torque adjustment for coarse adjustment knobs, stage mounting position variable, high sensitivity fine focusing knob (minimum adjustment gradations: 1 μm)
	Illuminator	Built-in Köhler illumination for transmitted light, light preset switch, light intensity manager switch, high color reproductivity 14 W LED light source (Brightness: equivalent to or brighter than a 100 W halogen lamp, LED light emission method: 405 nm excited RGB fluorescence substance)
Revolving Nosepiece		Interchangeable reversed quintuple/sextuple/septuple/coded sextuple/coded septuple nosepiece
Observation Tube	Widefield (FN 22)	<ul style="list-style-type: none"> • Widefield tilting trinocular • Widefield trinocular • Widefield tilting binocular • Widefield tilting, telescoping and lifting binocular • Widefield ergo binocular • Widefield binocular
	Super Widefield (FN 26.5)	<ul style="list-style-type: none"> • Super widefield trinocular • Super widefield erect image tilting trinocular
Stage		Ceramic-coated coaxial stage with left or right hand low drive control: with rotating mechanism and torque adjustment mechanism, optional rubber grips and stage handle extension adaptor available (non-stick grooved coaxial, plain, rotatable stages are also available)
Condenser		<ul style="list-style-type: none"> • Abbe (NA 1.1), for 4X–100X • Swing out Achromatic (NA 0.9), for 1.25X–100X (swing-out: 1.25X–4X) • Achromatic Aplanatic (NA 1.4), for 10X–100X • Phase contrast, darkfield (NA 1.1), [phase contrast: for 10X–100X, darkfield: for 10X–100X (up to NA 0.80)] • Universal (NA 0.9), for 1.25X–100X [swing-out: 1.25X–4X, with oil top lens:(NA 1.4)] • Low (NA 0.75), for 2X–100X (Dry) • Darkfield dry (NA 0.8–0.92), for 10X–100X • Darkfield oil (NA 1.20–1.40), for 20X–100X
Fluorescence Illuminator		<ul style="list-style-type: none"> • Multi-purpose coded type (FN 22, 8-position mirror unit turret, 4-position ND slider) • Economical type (FN 26.5, 8-position mirror unit turret)
Fluorescence Light Source		100 W mercury apo lamp housing and power supply unit, 100 W mercury lamp housing and power supply unit, or LED and LDP light source

BX43 SPECIFICATIONS

Microscope Frame	Optical System	UIS2 optical system
	Focus	Vertical stage movement: 25 mm stage stroke with coarse adjustment limit stopper, torque adjustment for coarse adjustment knobs, stage mounting position variable, high sensitivity fine focusing knob (minimum adjustment gradations: 1 µm)
	Illuminator	Built-in Köhler illumination for transmitted light, light intensity manager switch high color reproductivity 2 W LED light source
Revolving Nosepiece		Interchangeable reversed quintuple/coded quintuple/sextuple/septuple/coded sextuple/coded septuple nosepiece
Observation Tube	Widefield (FN 22)	<ul style="list-style-type: none"> • Widefield tilting, telescopic and lifting binocular • Widefield tilting trinocular • Widefield trinocular • Widefield erect image trinocular • Widefield tilting binocular • Widefield ergo binocular • Widefield binocular
	Super Widefield (FN 26.5)	<ul style="list-style-type: none"> • Super widefield trinocular • Super widefield erect image tilting trinocular
Stage		Ceramic-coated coaxial stage with left or right hand low drive control: with rotating mechanism and torque adjustment mechanism, optional rubber grips and stage handle extension adaptor available (non-stick grooved coaxial, plain, rotatable stages are also available)
Condenser		<ul style="list-style-type: none"> • Abbe (NA 1.1), for 4X–100X • Swing out Achromatic (NA 0.9), for 1.25X–100X (swing-out: 1.25X–4X) • Achromatic Aplanatic (NA 1.4), for 10X–100X • Phase contrast, darkfield (NA 1.1), [phase contrast: for 10X–100X, darkfield: for 10X–100X (up to NA 0.80)] • Universal (NA 0.9), for 1.25X–100X [swing-out: 1.25X–4X, with oil top lens:(NA 1.4)] • Low (NA 0.75), for 2X–100X (Dry) • Darkfield dry (NA 0.8–0.92), for 10X–100X • Darkfield oil (NA 1.20–1.40), for 20X–100X

BX46 SPECIFICATIONS

Microscope Frame	Optical System	UIS2 optical system
	Focus	Fixed low stage nosepiece focus 15 mm focus stroke with coarse adjustment limit stop Torque adjustment for coarse adjustment knobs High sensitivity fine focusing knob (adjustment gradations: 1 µm)
	Illuminator	Built-in Köhler illumination for transmitted light, light intensity manager switch High color reproductivity 2 W LED light source
Revolving Nosepiece		Fixed reversed coded quintuple nosepiece
Observation Tube	Widefield (FN 22)	<ul style="list-style-type: none"> • Widefield tilting trinocular • Widefield trinocular • Widefield tilting binocular • Widefield tilting, telescopic, lifting binocular • Widefield ergo binocular • Widefield binocular
Stage		Ceramic-coated coaxial stage with left or right hand low drive control, rotating mechanism and torque adjustment mechanism (low torque, plain, rotating stages are also available)
Condenser		Built-in condenser (NA 0.9) 1.25X–100X (swing out: 1.25X–2X)

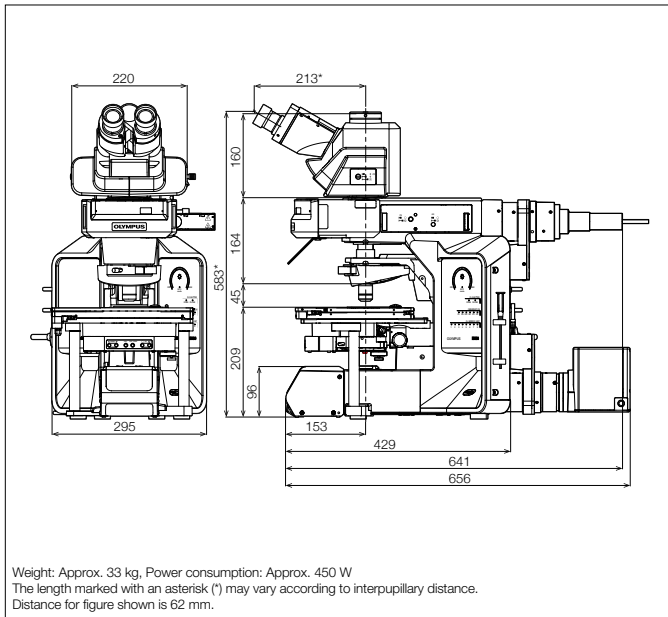
BX53/BX43/BX46 SPECIFICATIONS

Operating Environment	<ul style="list-style-type: none"> • Indoor use • Ambient temperature : 5 °C to 40 °C (41 °F to 104 °F) • Maximum relative humidity : 80% for temperatures up to 31 °C (88 °F), decreasing linearly through 70% at 34 °C (93 °F), 60% at 37 °C (99 °F), to 50% relative humidity at 40 °C (104 °F) • Supply voltage fluctuations : not to exceed ±10% of the normal voltage
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Dimensions

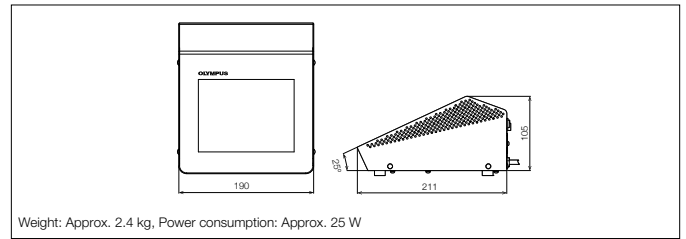
BX63 FL DIMENSIONS

(unit: mm)



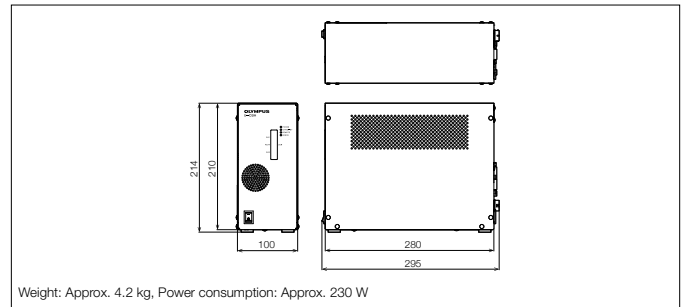
TOUCH PANEL CONTROLLER DIMENSIONS

(unit: mm)



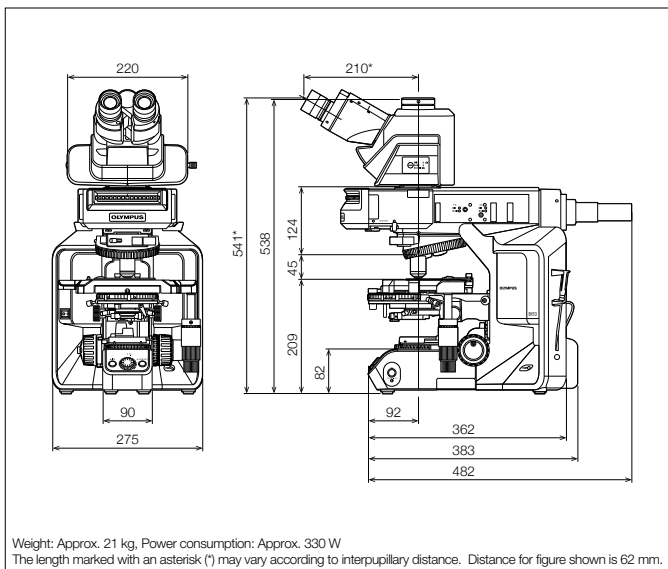
BX3-CBH DIMENSIONS

(unit: mm)



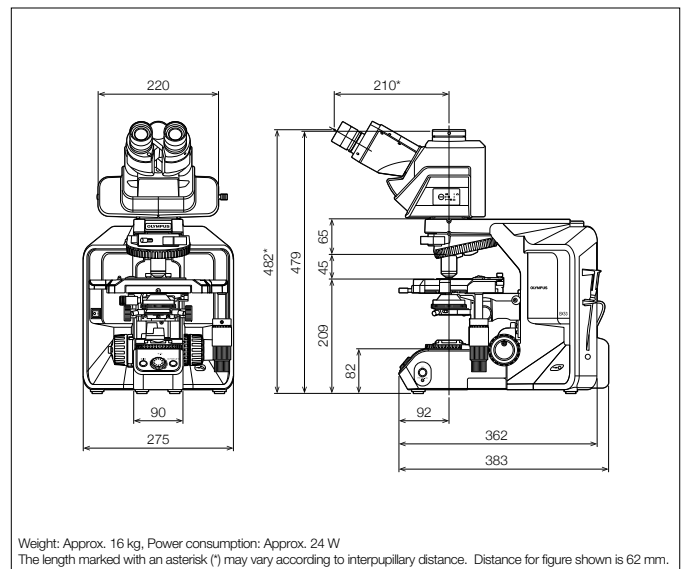
BX53 FL DIMENSIONS

(unit: mm)



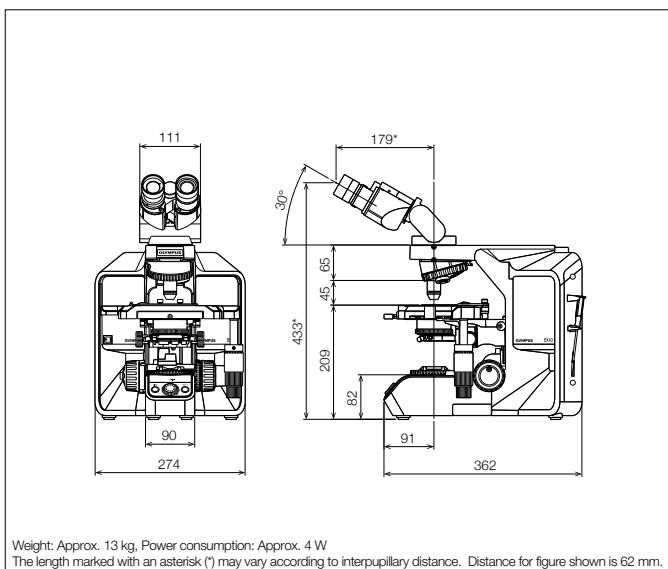
BX53 DIMENSIONS

(unit: mm)



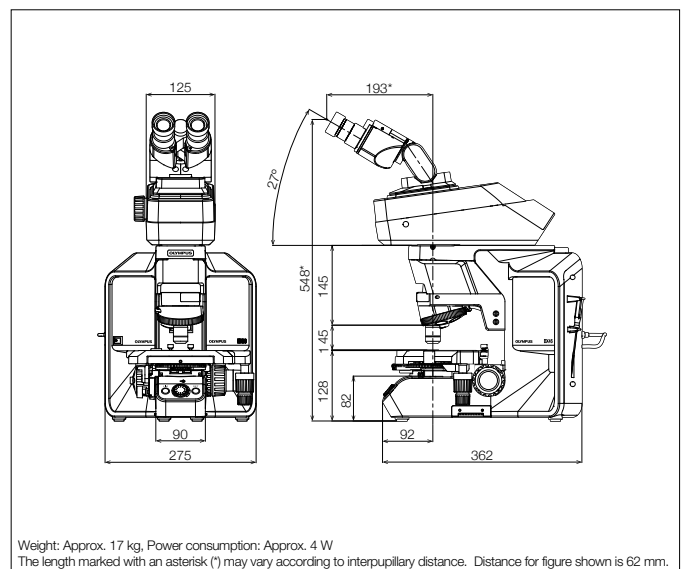
BX43 DIMENSIONS

(unit: mm)



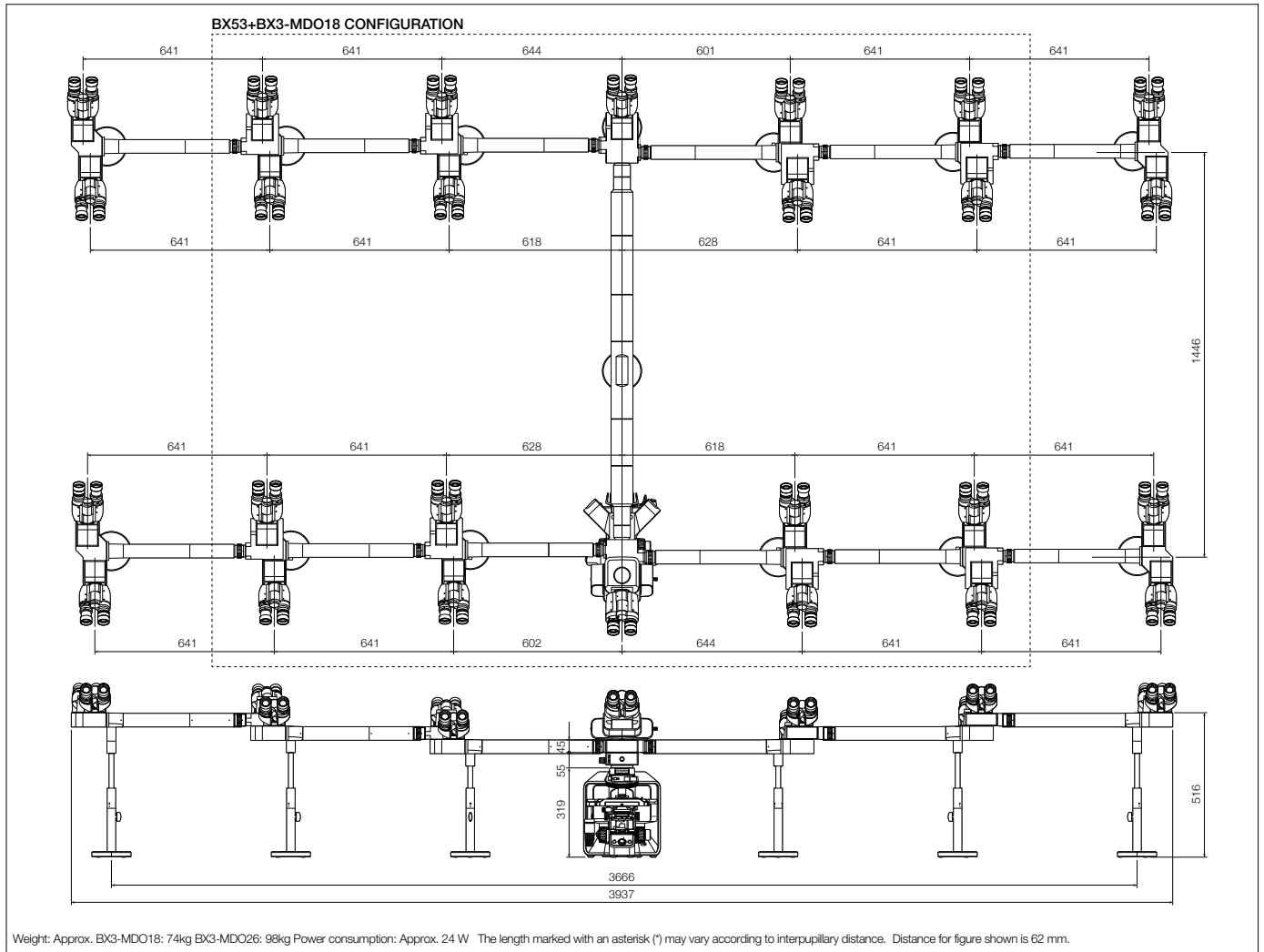
BX46 DIMENSIONS

(unit: mm)



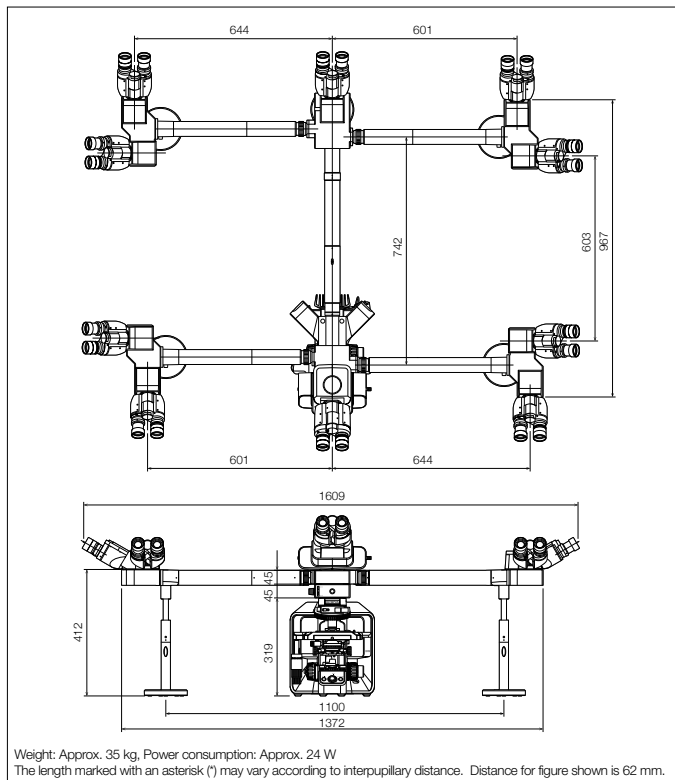
BX53+BX3-MDO18/MDO26 DIMENSIONS

(unit: mm)



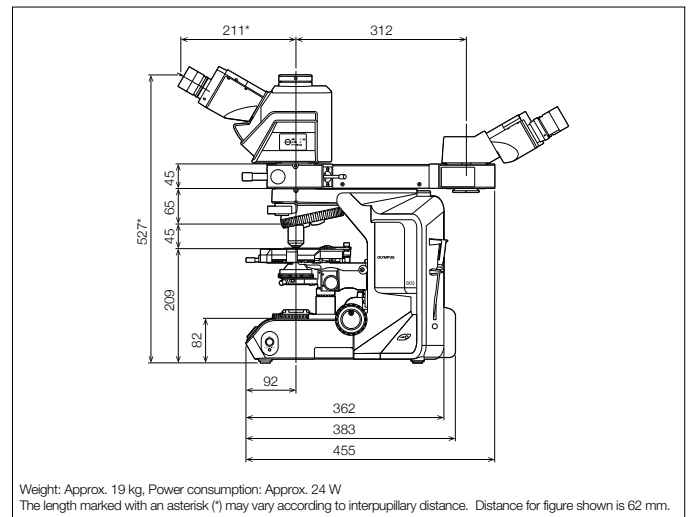
BX53+U-MDO10 DIMENSIONS

(unit: mm)



BX53+U-DO DIMENSIONS

(unit: mm)



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