

# PLM 100 Series Polarized Light Microscope System Help Manual



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## 1 System principle

Polarizing light microscope is a microscope used to study so-called transparent and opaque anisotropic materials. Any substance with birefringence can be clearly distinguished under a polarizing microscope. Of course, these substances can also be observed by staining, but some cannot and must use a polarizing microscope. Reflection polarizing microscope is an essential instrument for studying and identifying birefringent substances using the polarization characteristics of light.

## 2 System parameters

- Standard working distance series / long working distance series objectives (optional);
- Imaging light path: 1X ( Tube lens focal length 180 mm ), different magnifications can be customized;
- Imaging light path image surface size: 25mm ;
- Imaging light path spectral range: visible light;
- Camera interface: C/M42/M52, etc. optional;
- Lighting method: Critical lighting / Kohler lighting optional;
- Lighting source: 10W white / blue LED lighting optional;

Table 1 Standard working distance objective lens parameters ( 45mm parfocal length )

Order code	Magnification	NA	WD/mm	Focal length(mm)	Resolution(um)	OFOV(mm)	IFOV(mm)	Thread
POL5XA	5X	0.15	20	36	2.23	5	25	M20*0.705
POL10XA	10X	0.30	15	18	1.1	2.5	25	M20*0.705
POL20XA	20X	0.40	10	9	0.75	1.25	25	M20*0.705
POL50XA	50X	0.80	2.5	3.6	0.41	0.5	25	M20*0.705

Table 2 Long working distance objective lens parameters ( 60mm parfocal length )

Order code	Magnification	NA	WD/mm	Focal length(mm)	Resolution(um)	OFOV(mm)	IFOV(mm)	Thread
POL2.5XA	2.5X	0.075	6.2	80	4.46	10	25	M26*0.705
POLL5XA	5X	0.15	23.5	40	2.2	5	25	M26*0.705
POLL10XA	10X	0.30	22.8	20	1.1	2.5	25	M26*0.705
POL20XA	20X	0.40	19.2	10	0.8	1.1	25	M26*0.705
POLL50XA	50X	0.55	11.0	4	0.6	0.44	25	M26*0.705

### 3 Dimensions

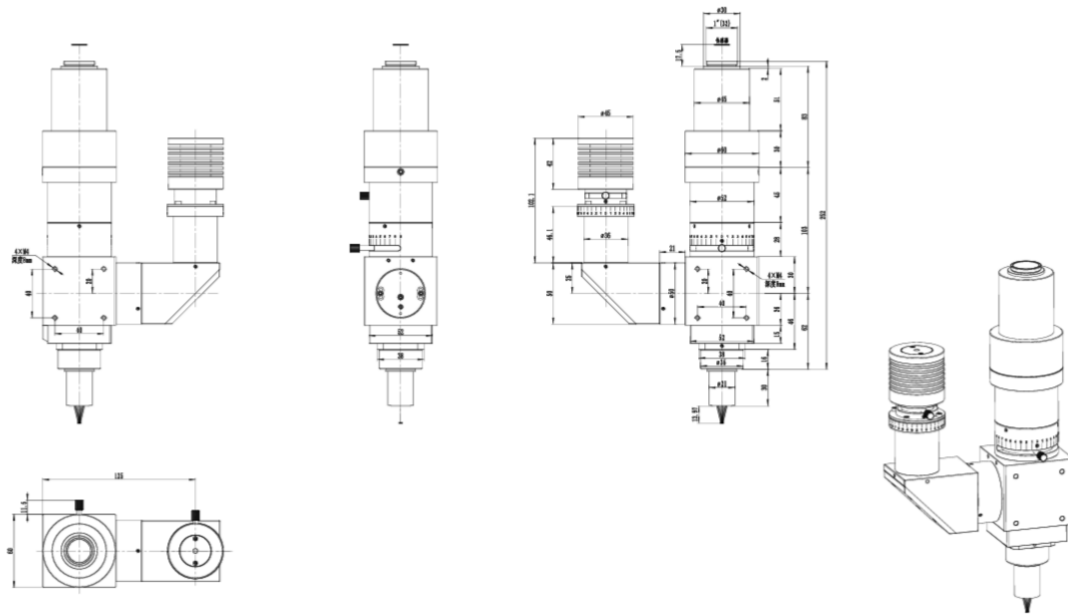


Figure 1 Dimensional diagram of PLM100 series polarized light microscope system

### 4 Applications

#### 4.1 Geology, petrology, minerals, crystal structure characterization, asbestos analysis and coal analysis

Ore is a natural rock containing valuable minerals. Ore is usually collected through mining and then further processed in order to extract the required minerals. Metallic ores are usually oxides, sulfides or silicates. Polarized light microscopy can be used to characterize the crystal structure and composition of ores.



Figure 2 PLM100 series polarizing microscope system photographing ore

#### 4.2 Glass (stress birefringence or inclusions), plastics and polymers (stress birefringence), textiles and fiber inspection

Figure 3 shows the plastic shells taken by the bright-field metallographic microscope system and the PLM100

series polarizing microscope system. Due to the mechanical force of the plastic edge, the elastic effect of light will cause stress birefringence. Ordinary bright-field metallographic microscopy This phenomenon cannot be observed by the system, but the stress distribution can be sensed and analyzed by a polarized light microscopy system.

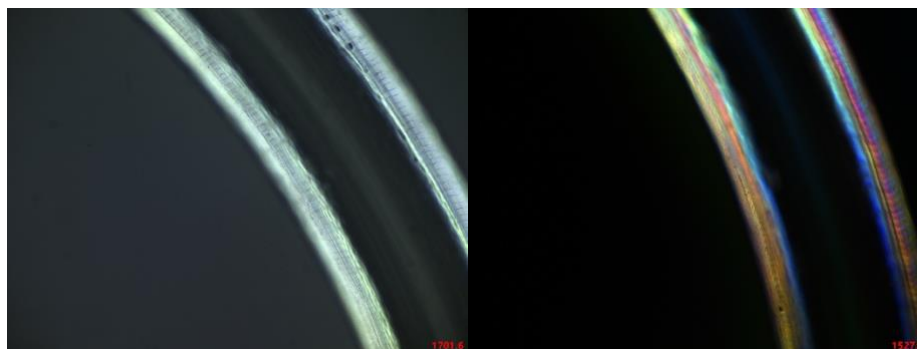






Figure 3 Actual shot of the plastic shell surface (left) bright field metallographic microscope system; (right) PLM100 series polarizing microscope system

## 5 Contact information

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