Theia TECHNOLOGIES

The Theia ultra wide series of lenses are high quality precision optical lenses designed for megapixel class cameras.

Models

DC Autoiris	*Manual iris*	*Mount*	*Focus*
SY110A [1]	SY110M [1]	CS-mount	Fixed
SY125A [1]	SY125M [1]	CS-mount	Fixed
SL183A [1]	SL183M [1]	CS-mount	Varifocal
SL940A	SL940M	CS-mount	Varifocal
MY125A [1]	MY125M [1]	C-mount	Fixed
MY110A [1]	MY110M [1]	C-mount	Fixed

[1] *See "Image Inversion" below*

Notices and Safety information

- Do not look through the lens towards strong illumination such as the sun.
- The mounting thread may be sharp. Handle the lens carefully to avoid injury.
- The lens is a precision optical assembly and should not be subject to excessive vibration or shock.
- Do not disassemble the lens, there are no serviceable parts inside. If the lens requires service, see the warranty and return section.
- In some situations water vapor from the air may condense on the lens, such as rapidly moving from a cold place to a warm place. Avoid this condensation by letting the lens adjust to the ambient temperature before removing the lens caps or installing onto a camera.
- Do not touch the glass elements of the lens. To clean the lens, refer to the **routine service** section.
- Do not allow the lens to become wet.
- Do not use organic solvents on the lens such as thinner or acetone.

Image inversion

LINEAR OPTICAL TECHNOLOGY

Theia Technologies' Linear Optical Technology which allows the ultra wide angle lens to maintain very low distortion inverts the image. This requires the camera to be mounted upside down or the image to be inverted electronically.

Installation

Before installing the lens, make sure the lens is rotated fully towards the "near" focus position (fully rotated counterclockwise when looking at the front of the lens while holding the lens mount stationary). Remove the lens caps and carefully screw the lens onto the camera. Tighten the lens against the camera mount.

Theia varifocal lenses have a slip ring CS mount which allows the user to rotate the lens up to 320° after mounting. Simply rotate the lens to the desired position without loosening the mount. The slip ring is tensioned and will resist further movement.

If the lens has an autoiris, plug the cable into the receptacle on the camera.

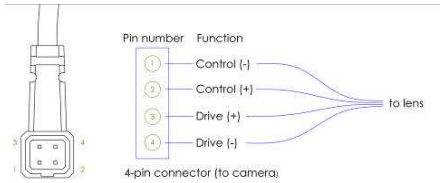
Iris operation

Manual iris lens

Adjust the iris opening by loosening the thumb screw and rotating until the desired illumination is allowed through the lens. To allow more illumination, open the iris by rotating counter clockwise (looking at the front of the lens). Tighten the thumb screw to hold the iris in place.

Autoiris lens

The iris operation is controlled electronically by the camera with DC autoiris control. The autoiris cable should be connected to the camera's iris cable receptacle. Refer to your camera manufacturer's operators manual to set the camera's iris control to "DC autoiris".



Adjusting lens focus

Adjust focus using this procedure:

- For autoiris lens; place a dark neutral density filter in front of the lens to fully open the autoiris for focusing.
- For manual iris lens; make sure the iris is fully opened by rotating the iris ring towards "open".
- Loosen the focus thumbscrew, rotate the focus ring until the proper focus is achieved, and then tighten the thumb screw to lock the focus in place.

If focus cannot be achieved you may have to adjust the back focus of the camera. Start by positioning the lens focus to the middle of the focus range. Using the camera operating instructions, adjust the camera back focus to bring the image into focus. Now slightly readjust the lens focus ring to find the best overall focus.

If the lens is still not in focus or the camera does not have a back focus adjustment, verify that there is not a C-CS adapter ring between the camera and lens (some CS-mount cameras come with this additional part so a C-mount lens can be used). This C-CS adapter is not required for lens models starting with "SY" or "SL".

Adjusting zoom on Varifocal lenses

Adjust zoom using this procedure:

- Loosen the zoom thumbscrew, rotate the zoom ring until the desired image size is achieved, and then tighten the thumb screw to lock the zoom in place.
- On some varifocal lenses the image will go out of focus when the zoom ring is adjusted. Simply refocus the lens using the focus adjustment procedure.

Compliance

All products listed in this manual comply with applicable requirements for RoHS and CE marks. Compliance certificates are available by request.

Routine service

Never touch the glass elements of the lens. Remove any dust or dirt accumulated on the lens with compressed air or a blower brush.

To remove oil or fingerprints from the lens use a soft lint-free cloth or lens tissue dampened with alcohol or lens cleaning fluid. Wipe lightly in a spiral motion starting from the center of the glass element and working towards the edge. Repeat as necessary with a fresh area of cloth or lens cleaning tissue.

Patents

Theia Technologies has multiple issued and pending US and international patents for lens technologies.

Contact information

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Optical Specifications

Models	SY110A SY110M	MY110A MY110M	SY125A SY125M	MY125A MY125M	SL183A SL183M	SL940A SL940M
Focal length	1.7mm		1.3mm		1.8 - 3mm	9 – 40mm
Horiz. Distortion for 1/3"	<1% barrel		<3% barrel		<1% barrel	<5% barrel
F/#	F/1.8 to closed					F1.5 to closed
Focus range	0.5m to ∞					2.5m to ∞
Day/Night	Yes	Yes	No	No	Yes	Yes
Length from mount	56mm	51mm	59mm	54mm	49.5mm	50mm

Field of View

Sensor size		1/4" sensor	1/3" sensor	1/2.7" HD format	1/2.5" sensor	1/2" sensor
SY110A SY110M MY110A MY110M	(H)	94°	110°	120°	120°	125°
	(V)	78°	94°	88°	104°	110°
	(D)	107°	122°	127°	130°	*
SY125A SY125M MY125A MY125M	(H)	109°	125°	135°	135°	141°
	(V)	93°	109°	103°	119°	125°
	(D)	122°	137°	142°	141°	*
SL183A SL183M	(H)	89° - 62°	105° - 77°	116° - 89°	115° - 88°	120° – 94°
	(V)	73° - 49°	90° - 62°	84° - 57°	99° - 71°	105° – 77°
	(D)	102° - 74°	117° - 90°	123° - 96°	126° - 100°	*
SL940A SL940M	(H)	22° – 5.3°	30° - 7.1°	37° - 8.6°	36° - 8.5°	40° – 9.4°
	(V)	17° – 4.0°	22° - 5.3°	20° - 4.8°	27° - 6.3°	30° – 7.1°
	(D)	28° – 6.6°	38° - 8.8°	42° - 9.9°	46° - 10.6°	*

*When using the lens with a sensor of greater than 1/2.5", dark corners will be seen in the full image.

Environmental

Operating temperature	-20°C to 50°C
Storage temperature	-20°C to 60°C