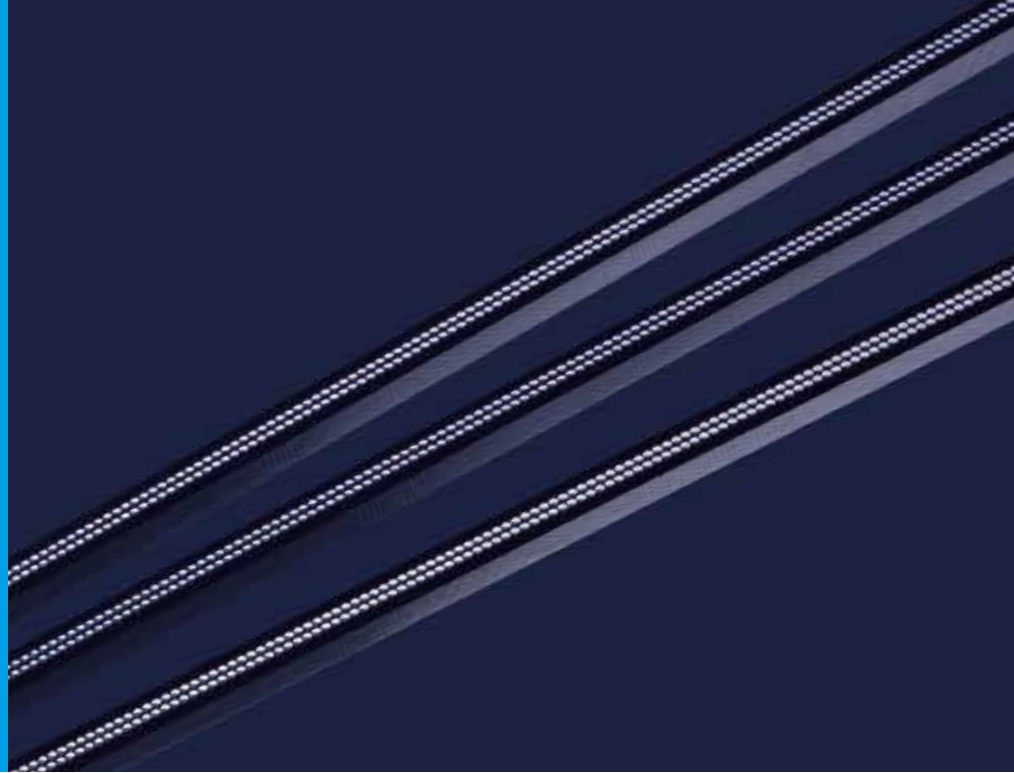


Substantially simple and compact lens array

SLA

SELFOC® LENS ARRAY



POINT 1 **POINT 2** **POINT 3** **POINT 4**

Simple and compact optical system

The remarkably short working distance (LO) of SLA, ranging from around 2 to 32mm, allows to significantly reduce the overall size of the system. In addition, since SLA forms an erect 1:1 image, the lens array does not require any other lenses or mirrors in the system, unlike ordinary lenses. With this feature, SLA realizes a very simple and cost competitive optical system.

Easy installation

Because of its flat form, SLA does not require any specific lens holders or complex optical alignment, and its placement is extremely simple and easy compared with ordinary lenses.

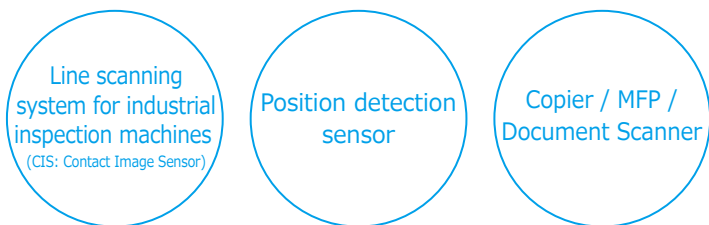
Uniform linear image with little distortion

SLA provides uniform resolution and light intensity over its entire length, whereas ordinary lenses have peripheral distortion. Therefore, it doesn't require complicated image correction, and is suitable for accurate length measurement and inspection.

Up to almost one meter image width with single lens

The maximum image width of SLA is up to approximately 1m, and it makes the inspection of wide objects easy and cost competitive.

Applications

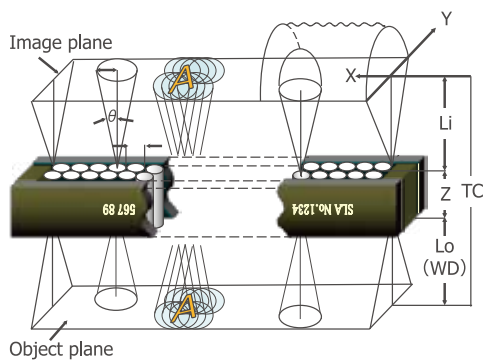


Specification

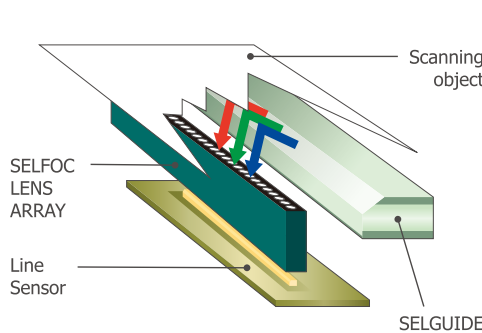
Total width (WT)	~980mm (Shorter sizes are also available)
Total conjugate length (TC) ^{*1}	Approximately 10mm~100mm
Working distance (LO) ^{*2}	Approximately 2mm~32mm
Resolution	MTF is approximately 80% at 300 dpi and 70% at 600 dpi. Depending on the lens type, it is possible to accurately capture foreign objects and patterns of up to about 40um size.

*1: Distance between the object and the line image sensor *2: Distance between the object and the edge of SLA

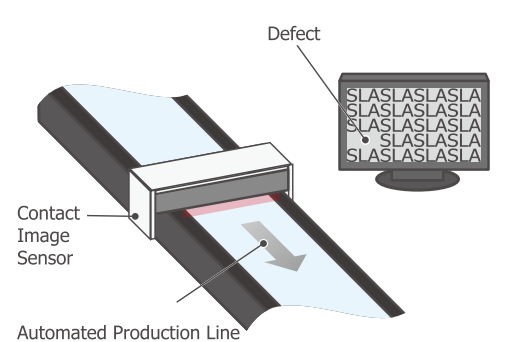
Schematic of image transmission by SLA



Application: CIS (Contact Image Sensor)



Application: CIS for industrial inspection machine

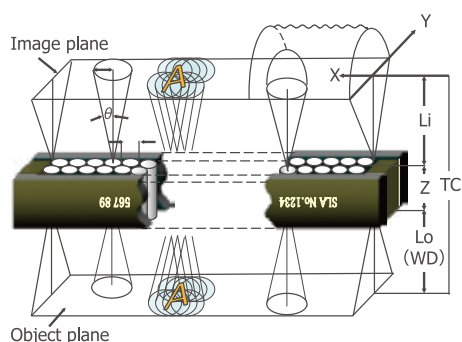


Substantially simple and compact lens array

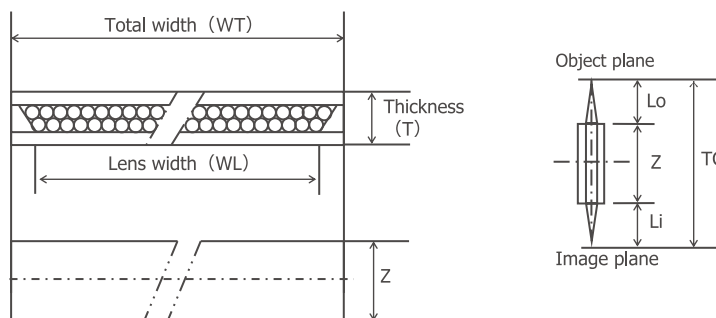
SLA

SELFOC® LENS ARRAY

Schematic of image transmission by SLA



The external and optical dimensions (WT, WL, Z, T, TC, LO)



SLA product line up

Lens type	Number of rows	Optical dimensions			External dimensions		Optical performance					Main features	Main applications
		Aperture angle ̸0 (Deg)	Total conjugate TC (mm)*1	Working distance (LO) (mm)	Thickness T (mm)*2	Lens length Z0 (mm)*2	MTF ave. (%) at 6 LP/mm	Depth of field (mm)*3	F#	Brightness irregularity (%)	Wavelength (nm)		
5AG	2	5	(100)	32.4	4.8	35.2	60	±1.3	5.9	20	570	Deepest DOF, Long working distance	Machine vision (Industrial inspection)
5DG	2	5	(48)	13.9	3.4	20.2	70	±1.3	7.7	20	570	Deepest DOF, Small chromatic aberration	Machine vision (Industrial inspection)
			(54)	17.2	3.9	19.6	65		6.1	20	570		
9AG	2	9	(54)	17.1	4.8	19.9	75	±0.6	3.1	17.5	510	Deep DOF, Small chromatic aberration	Machine vision (Industrial inspection), Large format scanner
			(48)	13.8	4.8	20.4			2.9	17.5	570		
			(40)	9.1	4.8	21.7			2.4	17.5	570		
12DX	1	12	(18.2)	4.8	2.5	8.6	85	±0.4	2.7	25	570	High resolution, Small chromatic aberration	Scanner
	2		(18.2)	4.8	3.0	8.6			2.0	20	570		
12EG	1	12	(9.9)	2.8	1.2	4.3	85	±0.4	3.2	30	530	Compact, High resolution, Small chromatic aberration	Scanner (Multi-function printer) LED printer
	2		(9.9)	2.8	1.2	4.3			2.3	20	530		
	2		(10.0)	2.9	1.2	4.3			2.3	20	near IR		
20DG	1	20	(9.5)	2.7	2.5	4.2	80	±0.3	1.4	25	530	High brightness	Scanner (banknote, etc.) LED printer
	2		(9.5)	2.7	2.95	4.2			1.0	20	530		
	2		(9.1)	2.3	2.95	4.5			1.0	20	near IR		
20BG	1	20	(13.8)	3.5	2.8	6.9	70	±0.3	1.3	20	570	High brightness	Scanner (banknote, etc.) LED printer
	2		(13.8)	3.5	3.6	6.9			0.9	15	570		
	2		(15.1)	4.1	3.6	6.9			1.0	15	near IR		

*1 TC (Total Conjugate length): Distance between object and image sensor (design value)

*2 Thickness (T) and Lens fiber length (Z0) are estimated guaranteed values. The other parameters and characteristics are estimated typical values

*3 DOF (Depth of Field): the range of ΔWD (ΔLo) where MTF ave. (at 6LP/mm=300dpi) is larger than 10%.

