



INDIAN INSTITUTE OF TECHNOLOGY BOMBAY

MATERIALS MANAGEMENT DIVISION

Powai, Mumbai 400076.

Ref. PR No.1000057448

RFx. No. 6100003122

Technical Specifications for Lock-in Setup with Accessories

Sr. No .	Component and Specifications	Details	Compliance (Yes/No)	Additional Information (If any)
	<u>Lock-in Setup with Accessories</u>			
1	Electro-optic amplitude modulator (Quantity: 2)			
	a) Operation Wavelength range	400–600 nm or larger		
	b) Modulation frequency	Broadband operation from DC to > 50 MHz		
	c) Clear aperture	> 1.5 mm		
	d) Extinction ratio	> 10 dB		
	e) Warranty requirement	2 years		
2	High-voltage amplifier (Quantity: 2)			
	a) Voltage range	-200 V to + 200 V		
	B) Bandwidth	1 MHz or larger		
	c) Voltage gain magnitude	> 20		
	d) Warranty requirement	2 years		
3	Zero-order achromatic half-waveplate (Quantity:1)			
	a) Operation Wavelength range	400–800 nm or larger		
	b) Aperture size	½ inches or larger		

	c) Reflectance in the operational range	< 1% per surface		
	d) Warranty requirement	2 years		
4	Single-mode patch cable (Quantity: 2)			
	a) Operation Wavelength range	400–600 nm or larger		
	b) Connector type	Ferrule Connector/Physical Contact (FC/PC)		
	c) Length	2 meters		
	d) Warranty requirement	2 years		
5	Polarizing beam-splitter (Quantity: 1)			
	a) Operation Wavelength range	620–1000 nm or larger		
	b) Size	1 Inch		
	c) Warranty requirement	2 years		
6	Achromatic fiber port connector (Quantity: 2)			
	a) Operation wavelength range	420–680 nm or larger		
	b) Clear aperture	> 4 mm		
	c) Compatible connector type	Ferrule Connector/Physical Contact (FC/PC)		
	d) Warranty requirement	2 years		
7	Benchtop Organizer with balldriver set (Quantity: 1)			
	a) Balldriver type	Metric		
	b) Other requirements	Dedicated space for optics cleaning liquids		
		Storage for post-mounted optics		
	c)Warranty requirement	Lifetime		

8	Polarizing beam-splitter (Quantity: 1)			
	a) Operation Wavelength range	520–600 nm or larger range		
	b) Size	1 Inch		
	c) Warranty requirement	2 years		
9	Free-space optical delay line (Quantity: 1)			
	a) Travel range	> 50 mm		
	b) Minimum step size	5 µm or lower		
	c) Other requirements	Should include a retroreflecting mirror pair		
	d)Warranty requirement	2 years		
10	Fiber Collimator (Quantity: 2)			
	a) Operation wavelength range	400–600 nm or larger range		
	b) Clear aperture	> 3 mm		
	c) Compatible connector type	Ferrule Connector/Angled Physical Contact (FC/APC)		
	d)Warranty requirement	2 years		
11	2x2 fiber optic coupler (Quantity: 1)			
	a) Operation wavelength range	520–600 nm or larger range		
	b) Coupling ratio	50:50		
	c) Connector type	Ferrule Connector/Angled Physical Contact (FC/APC)		
	d)Warranty requirement	2 years		

12	Fiber polarization controller (Quantity: 2)			
	a) Operation wavelength range	500–600 nm or larger		
	b) Connector type	Ferrule Connector/Angled Physical Contact (FC/APC)		
	c) Warranty requirement	2 years		
13	Linear Polarizer (Quantity: 1)			
	a) Operation Wavelength range	520–800 nm or larger		
	b) Extinction ratio	> 100000		
	c) Transmission	> 70%		
	d) Type	Mounted		
	e) Aperture	½ Inch		
	f) Warranty requirement	2 years		
14	Rotational mount for linear polarizer (Quantity: 1)			
	a) Compatibility	Compatible with the linear polarizer described in component no. 13		
	b) Angular resolution	< 1 degree		
	c) Warranty requirement	Lifetime		
15	Kinematic beamsplitter mounts (Quantity: 2)			
	a) Compatibility	Compatible with 1” beam-splitters described in components no. 5 and 8		
	b) Tip/tilt adjustment	> 3 degrees		
	c) Other requirements	Should have M4 taps to mount the beamsplitters		
	d) Warranty requirement	Lifetime		

16	2D beam scanning galvo mirror system (Quantity: 1)			
	a) Operational wavelength range of the mirrors	400–750 nm or larger		
	b) Scan angle range	-20° to + 20°		
	c) Angular repeatability	< 20 μ rad		
	d) Resolution	< 20 μ rad		
	e) Included accessories	Power supply, heat sink, and protective covers		
	f) Warranty	2 years		
17	Color CMOS Camera (Quantity: 2)			
	a) Sensor type	Color CMOS		
	b) Pixel size	< 4 μ m		
	c) Number of pixels	> 1 million		
	d) Mounting requirements	Post mountable and compatible with metric threads		
	e) Software control compatibility	Labview, Matlab and python – API		
	f) Other functionalities	External trigger		
	g) Warranty	2 years		
18	Non-polarizing cube beam splitter (Quantity: 2)			
	a) Operation wavelength range	400–700 nm		
	b) Size	1 Inch		
	c) Warranty	2 years		

19	Mounts for cube beamsplitters (Quantity: 2)			
	a) Compatible thread type	Metric		
	b) Maximum size of the mounted optics	> 1"		
	c) Angular adjustment requirements	Two axes angular adjustment (tip and tilt) or $\pm 4^\circ$ or more		
	d) Warranty	Lifetime		
20	Holding Clamps for beamsplitter mounts (Quantity: 3)			
	a) Thread type	Metric and compatible with component no. 19 (cube beamsplitter mounts)		
	b) Max height of the mounted optics	> 1 Inch		
	c) Warranty	Lifetime		
21	90° Flip Mounts with internal threads for 1" Optics (Quantity: 4)			
	a) Total rotation	90°		
	b) Repeatability	< 25 μ rad		
	c) Warranty	Lifetime		
22	Flip Mount Adapter (Quantity: 4)			
	a) Rotation for flipping	90°		
	b) Repeatability	< 5 μ rad		
	c) Thread type	Metric and post mountable		
	d) Warranty	Lifetime		

23	Fiber optic patch cable with SMA connectors at both ends (Quantity: 1)			
	a) Core diameter	50 μ m		
	b) Operation wavelength range	400–2000 nm or more		
	c) Numerical aperture	0.22		
	d) Outer jacket diameter	3 mm		
	e) Glass type	Low OH		
	f) Warranty	2 years		
24	Standard Connector SMA to SMA mating sleeves (Quantity: 3)			
	a) Insertion Loss	< 2 dB		
	b) Warranty	2 years		
25	Metal caps for SMA connectors and mating sleeves (Quantity: 3)			
	a) Warranty	Lifetime		
26	SMA fiber adapter plate with external threads (Quantity: 2)			
	a) External thread type	Compatible with the component no. 27 (Cage plate)		
	b) Warranty	Lifetime		
27	1” optics mounting plate for cage system with internal threads (Quantity: 4)			
	a) Size	Compatible with the 1” optics		
	b) Mounting characteristics	Post mountable with metric threads		
	c) Thickness	> 8 mm		
	d) Warranty	Lifetime		

28	Single axis Translation mount for fine translations along the cage optical axis (Quantity: 2)			
	a) Travel range	2.0 mm or larger		
	b) Resolution	1 μm		
	c) Size	Compatible with the same cage system that component no. 27 is compatible with		
	d) Mounting thread type	Metric		
	e) Warranty	Lifetime		
29	Mounted plano-convex lens with threaded mount (Quantity: 2)			
	a) Focal length	25 mm		
	b) Lens diameter	1 Inch		
	c) Operation wavelength range	400–1000 nm or larger range		
	d) Thread type	Compatible with the component no. 27 (Cage plate)		
	e) Warranty	2 years		
30	Rods for cage assembly (Quantity: 4)			
	a) Length	2 Inch		
	b) Diameter	Compatible with the cage system's components in component nos. 27 and 28		
	c) Warranty	Lifetime		
31	Rods for cage assembly (Quantity: 4)			
	a) Length	3 Inch		
	b) Diameter	Compatible with the cage system's components in component nos. 27 and 28		
	c) Warranty	Lifetime		

32	FC/APC fiber adapter plate with external threads, narrow key (Quantity: 2)			
	a) External thread type	Compatible with the component no. 27 (Cage plate)		
	b) Warranty	Lifetime		
33	FC/APC fiber adapter plate with external threads, wide key (Quantity: 2)			
	a) External thread type	Compatible with the Component no. 27 (Cage plate)		
	b)Warranty	Lifetime		
34	Kinematic mirror mounts for 1” Optics (Quantity: 8)			
	a) Number of axes	Two		
	b) Angular range	$\pm 4^\circ$ or larger		
	c) Angular Resolution	$< 1^\circ$ tilt per revolution		
	d) Warranty	Lifetime		