



INDIAN INSTITUTE OF TECHNOLOGY BOMBAY

MATERIALS MANAGEMENT DIVISION

PR No. 1000041381

RFx No. 6100001961

Technical Specification of Spectroscopy Amplifier Non ROHS, Timing Single Channel Analyzer Non ROHS, Universal Coincidence, and Detector Bias Supply

Technical Specifications		Compliance (Yes/No)	Additional Information (If any)
Item A	Amplifier for Energy spectroscopy for all type of detector (575A) (Qty -2)		
1.	Gain Range -Continuously adjustable from 1 to 1250.		
2.	Pulse Shape -Semi-Gaussian on all ranges with peaking time equal to 2.2τ and pulse		
3.	width at 0.1% level equal to 2.9 times the peaking time.		
4.	Integral Nonlinearity -For 1.5- μ s shaping time, $\leq \pm 0.05\%$		
5.	Noise- $< 5 \mu$ V rms referred to the input using 3- μ s unipolar shaping;		
6.	$< 7 \mu$ V using 1.5- μ s shaping; both for a gain ≥ 100 .		
7.	Shaping Time - 6-position switch selects time constants for active pulse-shaping filter network from 0.5, 1.5, 3, μ s.		
8.	Fine Gain - Ten-turn precision potentiometer with graduated dial for continuously variable		
9.	direct-reading gain factor of X2.5 to X12.5.		
10.	Course Gain- Six-position switch selects feedback resistors for gain factors of 2, 4, 10, 20, 40, and 100.		
11.	Pole Zero Adjustment - Screwdriver adjustable potentiometer to set the pole-zero cancellation.		
12.	Preamplifier Power – connector on rear panel.		
13.	Input/output connector – BNC		
14.	Output – Unipolar/Bipolar pulse		

15.	Input - BNC front- and rear-panel connectors accept either positive or negative pulses with rise times of 10 to 650 ns and decay times of 30 μ s to ∞ .		
16..	Dimension – Stander single wide NIM module.		
Item B	Timing Single channel Analyzer (Qty -2)		
1.	Single-channel analyzer and timing signal derivation.		
2.	Adjustable delay 0.1 to 11 μ s		
3.	Trailing-edge constant-fraction timing provides walk $<\pm 3$ ns for 100:1 dynamic range.		
4.	Dynamic range 200:1		
5.	Pulse Pair resolving time - plus 100 ns for fast NIM output or plus 200 ns for positive NIM output. Minimum resolving time for negative output 220 ns; for positive output 800 ns.		
6.	Walk Adjust - Front-panel screwdriver adjustment for precise setting of walk compensation.		
7.	LL REF Mode - Rear-panel 2-position locking toggle switch selects either the front-panel LL potentiometer or the voltage signal applied to the rear-panel LL REF EXT connector as the LL discriminator reference threshold.		
8.	Strobe- Rear-panel 2-position locking toggle switch selects either Internal or External source for the SCA output signal strobe function.		
9.	Input Signal - Front-panel dc-coupled BNC connector accepts positive unipolar or bipolar signal, 0 to +10 V linear range, ± 12 V maximum; width 100 ns.		
10.	Outputs- SCA \pm OUT, Lower Level and Upper Level output		
11.	NIM Stander Single width.		
Item C	Universal Coincidence Unit with Five Inputs (Qty -2)		
1.	Coincidence/Anticoincidence /Off selectable for each input		
2.	Input pulse polarity - +2 V minimum, 30 V maximum.		
3.	Input Pulse wide 50ns to dc		
4.	Output pulse +5V		
5.	Output Pulse wide 500ns.		
6.	Single width NIM Stander		
Item D	Dual Detector Bias Supply (Qty -2)		
1.	Voltage range 0 to ± 1 kV		
2.	Individually adjustable output bias		

3.	Noise and Ripple <0.0002%.		
4.	Output Connectors – SHV on front panel provide short-circuit-proof outputs for each detector.		
5.	Double wide NIM Stander		
Item E	Warranty		
	One year from the date of Installation.		