INDIAN INSTITUTE OF TECHNOLOGY BOMBAY
MATERIALS MANAGEMENT DIVISION
Powai, Mumbai 400076.

Ref No. (PR No. 1000037704) **(Rfx No. 6100001644)**

Technical specifications for DC Electronic components for our low-noise transport measurement (Add-on components for an existing measurement rack)

Sr. No	Technical Specification	Qty	Compliance
01	**Analogue Summing Amplifier** Summing Amplifier to have four input channels that can be added or subtracted from each other. Number of summing inputs: 4 Function: Inverting, non-inverting or off Gain: 1× Impedance: 1 MΩ Bandwidth: DC to 1 MHz Output noise: 60 nV/√Hz @ 1 kHz Low Crosstalk: −80 dB @ 1 kHz Offset: ±100 µV (after 5 min. warm up) Operating range Max. input & output: ±10 V Input slew rate: 40 V/µs THD: 0.01 % (80 dB) @ 1 kHz Output slew rate: 75 V/µs Operating temperature: 0 °C to 40 °C (non-condensing) Interface Serial via SIM interface Connectors BNC (5 front-panel, 1 rear-panel) DB15 (male) SIM interface Power (max.) Power supplied by the suitable SIM Mainframe, or optionally by a user-supplied DC power supply (±15 V and +5 V). Dimensions: 1.5" × 3.6" × 7.0" (WHL) Weight: 1.5 lbs (680gms).	**03 Nos**	

02	**<u>isolation amplifier</u>** The wide bandwidth, low noise isolation amplifier Isolation voltage: ±1000 V (max) Leakage current : <2 µA at 1000 VDC Isolation capacitance: 1000 pF IMRR: 150 dB (DC) Max. input: ±10 V Input Impedance: 1 MΩ Input noise (typ.): 15 nV/√Hz @ 1 kHz Input offset drift: 3 µV/°C (typ) Output voltage range: ±10 V Output current: ±20 mA (max) Output resistance: 50 Ω Output offset: ±0.1 V, adjustable Output offset drift: 1 mV/°C (typ.) Output noise: 80 µVrms (100 Hz bandwidth); 200 µVrms (10 kHz bandwidth); 1.5 mVrms (1 MHz bandwidth) Gain: x1, x10, x100 Gain error: ±0.5 % THD: 0.005 % (at 1 kHz, 600 Ω load) Frequency range: DC to 100 Hz (Low BW); DC to 10 kHz (Mediate BW); DC to 1 MHz (High BW) Rise time: 300 ns (Vout = 4 V) Slew rate: 25 V/µs (Vout = 20 Vpp) Interface: Serial via SIM interface Connectors: Banana jacks (2 front-panel), BNC (1 front-panel), BNC (1 rear-panel) ,DB15 (male) SIM interface Power: Power supplied by the SIM900 Mainframe, or optionally by a user-supplied DC power supply (±15 V, +5 V, and +24 V). Dimensions: 1.5" × 3.6" × 7.0" (WHL) Weight: 1.5 lbs (680gms).	**03 Nos**	

03	**<u>Bessel and Butterworth Filter</u>** Analog Filter is ideal for signal conditioning applications where Bessel or Butterworth filters are needed. Settable upper & lower limits (±10 V); 10 mV resolution; 1 MHz bandwidth; TTL outputs for limit detecting; High slew rate **Input** Impedance: 1 MΩ Coupling: AC or DC Gain: 1× Max. input: ±5 V (48 dB/Oct Butterworth setting); ±7 V (36 dB/Oct Butterworth setting); ±10 V (all other Butterworth settings and all of the Bessel settings) **Filter** Filter: Low-pass or high-pass Tuneable freq. range: 1 Hz to 500 kHz Resolution: 3-digit Type: Butterworth, Bessel Rolloff: 12 dB/oct., 24 dB/oct., 36 dB/oct., or 48 dB/oct. **Output** Noise <200 µVrms (1 MHz bandwidth) THD 0.01 % (80 dB) at 1 kHz **General** Operating temperature: 0 °C to 40 °C (non-condensing) Interface: Serial via SIM interface Connectors BNC (2 front, 1 rear); DB15 (male) SIM interface Power: Power supplied by the suitable SIM Mainframe, or optionally by a user-supplied DC power supply (±15 V and +5 V). Dimensions 1.5" × 3.6" × 7.0" (WHL) Weight: 1.5 lbs (680gms).	**03 Nos**	

04	**<u>JFET Preamplifiers</u>** Low-noise, programmable preamplifiers which are ideal for a wide range of small signal applications Frequency range DC to 1 MHz Gain 1 to 100 (1-2-5 sequence) Gain accuracy ±0.5 % (DC to 100 kHz), ±5 % (<1 MHz) Gain stability 200 ppm/°C Input noise (typ.): 4 nV/√Hz @ 1 kHz Input impedance: 100 MΩ // 35 pF Input bias current (DC coupled): 0.5 pA (typ.) AC coupling freq. (-3dB) 16 mHz Input selection: A, A-B or GND Input coupling: AC or DC Input shields: Floating or ground Maximum input : ±1 V differential, ±5 V common mode Maximum output: ±10 V Common mode rejection 85 dB @ 1 kHz Operating temperature 0 °C to 40 °C(non-condensing) Interface Serial via SIM interface Connectors: BNC (3 front, 1 rear); DB15 (male) Power Power supplied by the compatible Mainframe, or optionally by a user-supplied DC power supply (±15 V and +5 V) Dimensions: 1.5" × 3.6" × 7.0" Weight: 1.5 lbs (680gms).	**01 Nos**	

- **Warranty**: 1 year from the date of Installation