

**Rajiv Gandhi Institute of Technology, Kottayam**

No. D3/2774/18/RIT

Dated: 11.05.2018

TENDER SCHEDULE

Superscription	: Tender No.D3/2774/18/RIT, Purchase of various items for the Power electronics Lab of EEE Department
Last date and time receipt of tender	: 04/07/2018 2 p.m
Date and time of opening of tender	: 05/07/2018 2 p.m
Last date and time of sale of tender form	: 03/07/2018 2 p.m
Date upto which the rates are to be firm	: 31/12/2018
Cost of tender form	: <b>Original Rs.672/- includes GST</b> <b>Duplicate Rs.336/- " "</b> <b>By Post Rs.707/- includes GST &amp; postal charges</b>
Address of the Officer from whom Tender Forms are to be obtained to whom tenders are to be send	: THE PRINCIPAL, RAJIV GANDHI INSTITUTE OF TECHNOLOGY, VELLOOR P.O, PAMPADY, KOTTAYAM, KERALA, PIN - 686 501

List of Items Required

<u>Details of items</u>	<u>Quantity</u>
1 List attached	

PRINCIPAL

List of items required

Sl.No.	Item	Specification	Quantity
1	Clamp -on current tester	Detailed specification attached	2 nos
2	Flexible AC current probe	Detailed specification attached	2 nos
3	Digital infrared thermometer	Detailed specification attached	1 no
4	Contactless digital tachometer	Detailed specification attached	2 nos

**Detailed Specification**

**1. Clamp-on current tester**

Description : Leakage current Mini Clamp-on, 3/30mA/30/60 Amp

Method detection : Mean Value detection and rms value calibration

Display : (Bar-graph display:32 segments)  
LCD (Digital display:3200 counts)

Range Switching : Auto -range

Operating temperature and humidity: 0-50°, 80% RH or less (no condensation)

Influence of conductor position : Within accuracy

Safety Standard : Approved for conformity to EN 61010-1, EN 61010-2-032

Circuit voltage : 300 Vms or less

Withstanding voltage :3.7 KV AC for one minute

Power Supply : One CR2032 (Coin-shaped) 3 V Lithium battery

Power Consumption : 6 mW maximum

Battery Life : Approx. 90 hours (when continuously used)

Auto power-off :Approx. 10 minutes

Diameter of measurable conductor :40 at maximum mm

Dimensions	: Lesser than 75 (W) x 180(H) x 30 (D) mm
Weight	: Lesser than 250 g
Accessories	: Instruction manual, battery , soft case
AC Current	: 3/30 mA, 30/60A
Frequency Characteristics	: 50/60 Hz 1.0 + 5 (0~30mA)
Accuracy (50/60Hz)	: 1.0 + 5 (0~50A) 5.0 + 5 (50~60A)
Measurement Cycle	: 2 times/second (Dgital display), 12 times/second (bar- graph display)
Temperature Coefficient	: 0.05% of range/"C or less (within the ranges of 0-18° and 28-50° for measurement of 0-50A)
Filter function	: Filter function can cut off harmonics-currents components from 2nd order i Filter function select on or off must be available Amplitude ratio at 100 Hz -38 dB (1.26%) or less (typical: -41 dB)
Filter specification ( 3 mA and 30 mA ranges and 30 A: and 30 A and 60 A ranges)	Amplitude ratio at 120 Hz: -53 dB (0.22%) or less typical -56 dB)
Zero correction	: 3 mA range: Displays 0.000 mA (zero) when 0.010 mA<1 30 A range: Displays 0.00 A (zero) when 0.05 A <1
Warranty	: 3 years

Note:-

- ▶ Can measure leakage currnts of 1 mA, which is useful or checking. Tthe insulation of low voltage circuits and electrical components
- ▶ Can measure a broad range of currents from leakage currents (at a resolution of 0.001 mA) to load currents up to 60 A
- ▶ Typical influence ( on the currnet value of an adjacent cable) from an external magnetic field is 0.0005%
- ▶ Durability of clamp: more than 50,000 opening/closing events
- ▶ High tensional strength
- ▶ Lengthened clamp lever enabling smooth opening /closing of the clamp even for thick cables of 40 mm in diameter
- ▶ Approved for conformity to safety standards EN 61010-1 and EN 61010-2-032 (CAT III 300V, -pollution degree 2)

**2. Flexible AC current probe**

Ranges: 30/300/3000A  
Output: 100/10/1 mV/A

Accuracy: 1% of range  
 Frequency Range: 10Hz - 50 Hz  
 Zero Offset: AC coupled  
 Noise: 4mV  
 Operating Temperature: -20 °C to +85 °C  
 Battery life: 400 hrs cont.  
 ext.power supply option  
 Connections: BNC connector and 4 mm plug adaptor  
 Phase error:  $\pm 1^\circ$  (45 to 65 Hz)  
 $\pm 10^\circ$  (at 50 Hz)  
 Optional external power supply: Yes  
 Working voltage: 600 V Cat III  
 input + output

### Dimensions - Electronics

(H X W XD): less than 120 x 70 x 35 mm  
 Weight: less than 400 gm  
 Measuring head Capacity: 178 mm  
 Head to box cable length: 2m  
 Warranty: 3 years

### 3. Digital infrared thermometer

Temperature Range: -30 °C to 600 °C (-22 °F to 112 °F)  
 Accuracy (Calibration geometry with ambient :  $\pm 1.0$  °C or  $\pm 1.0$  % of reading  
 Temperature 23 °C +/- 2 °C) whichever is greater  
 $\pm 2.0$  °C at -10 °C to 0 °C  
 Opticcal Resolution: 20:1  
 (calculated at 90% energy)  
 Response Time (95%): <500 ms (95 % of reading)  
 Spectral Response: 8 to 14 microns  
 Emissivity: 0.10 to 1.00  
 Display Resolution: 0.1 °C (0.2 °F)  
 Repeatability (% of reading):  $\pm 0.5$  % of reading or  $\pm 0.5$  °C (whichever is  
 greater)  
 Auto Capture: Set time and interval to capture up to 99  
 measurements  
 Internal memory: 99 data point logging capability  
 Flashlight: yes  
 Power: 1 AA battery  
 Battery life: 30 hours with laser and backlight on  
 Weight: lesser than 280 g  
 Size: less than (180 x 90 x 80) mm  
 Operating temperature: 0 °C to 50 °C (32 °F to 122 °F)  
 Storage Temperature: -20 °C to 60 °C (-4 °F to 140 °F (without  
 battery)  
 Operating humidity: Non condensing  $\leq 10$  °C (50 °F)  
 $\leq 90\%RH@ 10$  °C(50 °F) to 30 °C(86 °F)  
 $\leq 75\%RH@ 30$  °C(86 °F) to 40 °C(104 °F)  
 $\leq 45\% RH @ 40$  °C 104 °F to 50 °C(122 °F)  
 Operating Altitude: 2000 meter above mean sea level  
 Optical Resolution: 12000 meters above mean sea level  
 Drop test: 3 meters  
 Implement Standard: Q/ASF01  
 Compliance: IEC 61010-1: Pollution Class 2  
 Laser Safety: IEC 60825-1 Class 2, 650 nm,  $< 1$  mW  
 Ingress Protection Rating: IP 54 IEC 60529  
 Warranty: 3 years

#### **4. Contactless digital tachometer**

Measurement method: tape or reflective plate	Using red visible-spectrum light and reflective
Display:	Transmissive FSTN LCD
Range switching:	Automatic
Detection range:	50mm to 500mm (1.97" to 19.7")
Reflection detection indicator: buzzer	Flashing red LED built into [HOLD] key,
Sampling period: conditions)	62.5 ms to 2 s(depending on usage
Display refresh rate:	Approx. 0.5 to 10 times/sec
Drop proof:	1m onto concrete surface
Dustproof and water proof:	IP50 (EN60529)
Functions: Auto power save, Buzzer, backlight function	MAX/MIN display, Display hold, Average,
Operating temperature:	0 to 50 °C (32 °F to 122 °F)
Operating humidity:	Up to 40 °C (104 °F) 80%RH or less 40 °C 45 °C (104 °F to 113 °F)60%RH or less 45 °C 50 °C (113 °F to 122 °F)50%RH or less (non-condensing)
Storage temperature and humidity:	-10°C to 50°C (114 °F to 122 °F), 80%RH or less (non -condensing)
Applicable standards EMC:	EN61326
Safety:	EN61010
Power supply:	LR6 alkaline batteryx2 AC adpter
Maximum rated power:	0.5VA
Continuous operating time: batteries with buzzer off	Approx. 25 hours; when using alkaline
Dimensions:	less than 75 Wx190xHx40 D mm
Mass Approx:	less than 250g(with batteries)
Analog output:	Output level:0-1Vf.s.,Output resistance:1kΩ, Accuracy:±2%f.s., Accuracy guarantee temperature and humidity range:23°C:±5°C, 80%RH or less,  Temperature coefficient:Add [accuracy specifications x 0.1 x (IT-23)], where T is the operating temperature [°C]. No temperature coefficient for 18°C to 28°C range.
Pulse output:	Output level:0-3.3V±0.3V, Output resistance:1kΩ
Functions:	Power input terminal, AC adapter detection, output terminal setting
Bundled Accessories:	Includes metal contact tip, two Rubber contact tip and Peripheral ring
Warranty:	3 years

