

# **MODEL POLYTECHNIC COLLEGE KARUNAGAPPALLY**

**(0476-2623597,8547005083)**

## **TENDER NOTICE**

### **Tender No. P/1148(1)/17/MPTCK purchasing of Digital Multimeters.**

Last date for sale of tender form	: 20/03/2017 2 PM
Last date for receipt of tender	: 22/03/2017 2 PM
Date and Time for opening of tender	: 23/03/2017 3PM
Date up to which the rates are to be firm	: 6 Months
EMD	: The amount of EMD shall be one percentage of total cost of articles tendered for. (This is subject to a Minimum of Rs.1500/-)
Price of tender form	: Rs.1125 /-
Price of duplicate copy	: 50% of cost of the original copy.
Place(s) and timing of sale of tender documents:	The Principal, Model Polytechnic, Karunagappally, Edakkulangara PO, Kerala, PIN-690562 From 25/02/2017 to 20/03/2017 2pm
Place and deadline for receipt of tenders	: The Principal, Model Polytechnic, Karunagappally, Edakkulangara PO, Kerala, PIN-690562 From 25/02/2017 to 22/03/2017 2pm
Place, time & date for opening of tenders	: The Principal, Model Polytechnic, Karunagappally, Edakkulangara PO, Kerala, PIN-690562 Date: 23/03/2017, 3.00PM
Any other important information	: nil

## Details of Specification

### SPECIFICATION FOR MULTIMETERS

SL no	Name Of Item	Unit Price	Qty	Total																																																							
1	<p align="center"><b>3 ¾ Auto Range Digital Multimeter</b></p> <p><b>Features</b></p> <ul style="list-style-type: none"> <li>●New Type Holster, Streamline Design</li> <li>●Large LCD Makes the Reading Clear</li> <li>●Strong Antimagnetic and Anti-jamming Performance</li> <li>●Full Function Protection</li> <li>●Unit Symbol Display, Very Easy to Read</li> <li>●Relative Value, Frequency / Duty Cycle Measuring, Data Hold</li> </ul> <p><b>Technical Specifications</b></p> <table border="1"> <thead> <tr> <th>Basic Function</th> <th>Range</th> <th>Accuracy</th> </tr> </thead> <tbody> <tr> <td>DCV</td> <td>400mV / 4V / 40V / 400V / 1000V</td> <td>±(0.5% +4)</td> </tr> <tr> <td>ACV</td> <td>400mV / 4V / 40V / 400V / 750V</td> <td>±(0.8% +6)</td> </tr> <tr> <td>DCA</td> <td>400uA / 4mA / 40mA / 400mA / 4A/20A</td> <td>±(1.0% +5)</td> </tr> <tr> <td>ACA</td> <td>400uA / 4mA / 40mA / 400mA / 4A/20A</td> <td>±(1.5% +5)</td> </tr> <tr> <td>Resistance</td> <td>400ohm / 4kohm / 40kohm / 400kohm / 4Mohm / 40Mohm</td> <td>±(0.8% +1)</td> </tr> <tr> <td>Capacitance</td> <td>4nF / 40nF / 400nF / 4uF / 40uF / 200uF</td> <td>±(2.5% +6)</td> </tr> <tr> <td>Frequency</td> <td>10Hz / 100Hz / 1kHz / 10kHz / 100kHz / 1MHz / 30MHz</td> <td>±(0.5% +4)</td> </tr> <tr> <td>Temperature</td> <td>-40°C - 1000°C</td> <td>±(0.8% +4)</td> </tr> </tbody> </table> <table border="1"> <tbody> <tr> <td>Diode Test</td> <td>✓</td> </tr> <tr> <td>hFE Test</td> <td>✓</td> </tr> <tr> <td>Continuity Test</td> <td>Approx. less than 30Ω±10Ω.</td> </tr> <tr> <td>Low Battery Indication</td> <td>Approx less than 2.4V.</td> </tr> <tr> <td>Duty Cycle Measuring</td> <td>✓</td> </tr> <tr> <td>Data Hold</td> <td>✓</td> </tr> <tr> <td>Auto Power Off</td> <td>Approx. 15 minutes.</td> </tr> <tr> <td>Function Protection</td> <td>✓</td> </tr> <tr> <td>Input Impedence</td> <td>10MΩ.</td> </tr> <tr> <td>Sampling Rate</td> <td>3 times/s.</td> </tr> <tr> <td>AC Frequency Response</td> <td>40 - 400Hz.</td> </tr> <tr> <td>Operation Method</td> <td>Manual or Auto Range.</td> </tr> <tr> <td>Max. Display</td> <td>4000.</td> </tr> <tr> <td>LCD Size</td> <td>65 x 41mm.</td> </tr> </tbody> </table>	Basic Function	Range	Accuracy	DCV	400mV / 4V / 40V / 400V / 1000V	±(0.5% +4)	ACV	400mV / 4V / 40V / 400V / 750V	±(0.8% +6)	DCA	400uA / 4mA / 40mA / 400mA / 4A/20A	±(1.0% +5)	ACA	400uA / 4mA / 40mA / 400mA / 4A/20A	±(1.5% +5)	Resistance	400ohm / 4kohm / 40kohm / 400kohm / 4Mohm / 40Mohm	±(0.8% +1)	Capacitance	4nF / 40nF / 400nF / 4uF / 40uF / 200uF	±(2.5% +6)	Frequency	10Hz / 100Hz / 1kHz / 10kHz / 100kHz / 1MHz / 30MHz	±(0.5% +4)	Temperature	-40°C - 1000°C	±(0.8% +4)	Diode Test	✓	hFE Test	✓	Continuity Test	Approx. less than 30Ω±10Ω.	Low Battery Indication	Approx less than 2.4V.	Duty Cycle Measuring	✓	Data Hold	✓	Auto Power Off	Approx. 15 minutes.	Function Protection	✓	Input Impedence	10MΩ.	Sampling Rate	3 times/s.	AC Frequency Response	40 - 400Hz.	Operation Method	Manual or Auto Range.	Max. Display	4000.	LCD Size	65 x 41mm.		100	
Basic Function	Range	Accuracy																																																									
DCV	400mV / 4V / 40V / 400V / 1000V	±(0.5% +4)																																																									
ACV	400mV / 4V / 40V / 400V / 750V	±(0.8% +6)																																																									
DCA	400uA / 4mA / 40mA / 400mA / 4A/20A	±(1.0% +5)																																																									
ACA	400uA / 4mA / 40mA / 400mA / 4A/20A	±(1.5% +5)																																																									
Resistance	400ohm / 4kohm / 40kohm / 400kohm / 4Mohm / 40Mohm	±(0.8% +1)																																																									
Capacitance	4nF / 40nF / 400nF / 4uF / 40uF / 200uF	±(2.5% +6)																																																									
Frequency	10Hz / 100Hz / 1kHz / 10kHz / 100kHz / 1MHz / 30MHz	±(0.5% +4)																																																									
Temperature	-40°C - 1000°C	±(0.8% +4)																																																									
Diode Test	✓																																																										
hFE Test	✓																																																										
Continuity Test	Approx. less than 30Ω±10Ω.																																																										
Low Battery Indication	Approx less than 2.4V.																																																										
Duty Cycle Measuring	✓																																																										
Data Hold	✓																																																										
Auto Power Off	Approx. 15 minutes.																																																										
Function Protection	✓																																																										
Input Impedence	10MΩ.																																																										
Sampling Rate	3 times/s.																																																										
AC Frequency Response	40 - 400Hz.																																																										
Operation Method	Manual or Auto Range.																																																										
Max. Display	4000.																																																										
LCD Size	65 x 41mm.																																																										

	Battery	3V, AAA x 2.	
	Power Dissipation	Quiescent current approx. 2mA.	
	<b>General Characteristic</b>		
	Weight	290g (including battery).	
	Meter Size	185 x 93 x 35 mm.	
	Standard Accessory	Test Leads, Battery, Manual, TP01 Temperature Probe.	
2	<b>Digital Multimeter</b>		
	<ul style="list-style-type: none"> <li>• 4½ Digital Multimeter</li> <li>• <b>diode Test.</b></li> <li>• Large LCD display makes reading clear</li> <li>• No Power-OFF under natural operation</li> <li>• Data Hold, Max. / Min. Value Hold</li> <li>• Capacitance, Frequency / Duty Cycle, Temperature and Transistor Test</li> </ul>		
	<b>Technical Data :</b>		
	<b>Basic Functions</b>	<b>Range</b>	<b>Basic Accuracy</b>
	DC Voltage	0.1mV ~ 1000V	±(0.5% + 4digit)
	AC Voltage	0.1mV ~ 750V	±(0.8%+ 10digit)
	DC Current	0.1uA ~ 20A	±(1.0% + 10digit)
	AC Current	0.1uA ~ 20A	±(1.5% + 20digit)
	Resistance	0.1Ω ~ 30MΩ	±(0.8% + 3digit)
	Capacitance	10pF ~ 2000uF	±(2.5% + 5digit)
	Frequency	5Hz ~ 30MHz	±(0.5% + 4digit)
	Temperature	-40°C ~ 1000°C	±(0.8% + 4digit)
	<b>Special Function :</b>		
	Diode and hFE test	✓	Function Protection ✓
	Transistor testing	✓	Input impedance 10MΩ
	Continuity Buzzer	Lower 30Ω ±10Ω	Sampling Rate 3 times per second
	Low Battery Display	Lower 5.5 V	AC Frequency Response 30Hz-60Hz or 60Hz-200Hz
	Auto Power OFF	Approx.15 min	Power 9V(6F22)
	<ul style="list-style-type: none"> <li>• <b>Standard Accessories</b> : Test Leads, Battery, Manual, Probe, Crocodile Clip</li> <li>• <b>Dimension</b> : 185(H) x 93(W) x 35(D)mm</li> </ul>		
3	<b>4½ DIGIT TRUE RMS DIGITAL MULTIMETER</b>  Features 19999 Counts 4½ Digit 40mm High Characters Jumbo LCD Display Dual Slope Integration A/D Converter System Basic DC Voltage Accuracy of ±0.05% True RMS AC Measurement Capacitance Measurement		
			45
			2

All Ranges are Fully Overload Protected  
 Frequency Measurement upto 200KHz  
 Diode Testing  
 Continuity Testing (Buzzer)  
 Automatic Polarity Indication  
 hfe Testing

**Technical Specifications**

Accuracies are  $\pm$ (% reading + no. of digits), 23°C $\pm$ 5°C, <80% RH.

**DC VOLTAGE**

Input Impedance : 10M $\Omega$ , all ranges.

Overload Protection : 250V DC/AC PEAK on 200mV range;  
 1000V DC or AC PEAK on other ranges.

Range	Accuracy	Resolution
200mV	$\pm$ (0.05%+3d)	10 $\mu$ V
2V		100 $\mu$ V
20V		1mV
200V		10mV
1000V	$\pm$ (0.1%+5d)	100mV

**AC VOLTAGE (True RMS)**

Input value more than 10% of full scale range.

Input Impedance : 2M $\Omega$  on all ranges.

Overload Protection : 1000V DC/AC PEAK, except AC 200mV range (250V DC/AC PEAK).

Range	Input Frequency	Accuracy (Input>10% of full scale)	Resolution
200mV	50Hz-50kHz	$\pm$ (0.8%+80d)	10 $\mu$ V
2V	50Hz-20kHz		100 $\mu$ V
20V			1mV
200V	50Hz-5kHz		10mV
750V	50Hz-400Hz	$\pm$ (1.0%+20d)	100mV

**DC CURRENT**

Overload Protection : 0.2A/250V, 20A/250V fast-fuse.

Max. Input Current : 20A (up to 15 seconds).

Max. Measuring Voltage : 200mV.

Range	Accuracy	Resolution
20mA	$\pm$ (0.3%+10d)	1 $\mu$ A
200mA		10 $\mu$ A
2A		100 $\mu$ A
20A	$\pm$ (0.8%+10d)	1mA

**AC CURRENT (True RMS)**

Overload Protection : 0.2A/250V, 20A/250V fast-fuse.

Max. Input Current : 20A (upto 15 seconds)

Max. Measuring Voltage : 200mV.

Range	Input frequency	Accuracy (Input>10% of full scale)	Resolution
200mA	50Hz-5kHz	$\pm$ (0.8%+80d)	10 $\mu$ A
2A			100 $\mu$ A
20A	50Hz-400Hz	$\pm$ (1.0%+20d)	1mA

**RESISTANCE**

Overload Protection : 250V DC/AC PEAK on all ranges.

Open Circuit Voltage : Less than 3V.



Range	Accuracy	Resolution
200Ω	±(0.1%+2d)	0.01Ω
2kΩ		0.1Ω
20kΩ		1Ω
200KΩ		10Ω
2MΩ		100Ω
20MΩ	±(0.2% +5d)	1kΩ

**CAPACITANCE**

Range	Accuracy	Resolution
20nF	±(1.0% +20d)	0.001nF
2μF		0.1nF
200μF		0.01μF

**DIODE TEST AND CONTINUITY TEST**

Overload Protection : 250VDC/AC PEAK.

Range	Description	
	Display read approx. forward voltage of diode	Forward DC Current approx.1mA. Reversed DC voltage approx. 3V.
	Buzzer sounds if resistance between terminals V/Ω and COM is less than about 70Ω	Open circuit voltage 3V.

**FREQUENCY**

Input sensitivity : 100mV RMS.

Overload Protection : 250V DC/AC PEAK (max. 15 seconds).

Range	Accuracy	Resolution
20kHz	±(1.5%+20d)	1Hz
200kHz		10Hz

**GENERAL**

**Power Supply** : 220-240V / 110-120V AC (selectable) ±10%, 50Hz or 60Hz.

**Temperature for** : 23°C ±5°C.

**Guaranteed Accuracy**

**Temperature Range** : Operating 0°C to 40°C (32°F to 104°F), humidity <75% RH.  
Storage -10°C to 50°C (14°F to 122°F), humidity <75% RH.

**Size** : 260 (H) x 220 (W) x 105 (D) mm.

**Weight** : Approx. 1kg.

**Accessories** : Operating Manual

Test Leads (Red & Black 1 Pair) Power Cord etc.

4

**DIGITAL LCR METER**

**Technical data**

Inductance	2mH-20H
Capacitance	2nF-1000uF
Resistance	200Ω-20MΩ

Diode test

Transistor Test

Continuity buzzer

Data Hold

Continuity

Data Hold to freeze the displayed data

4800

20

96000

<b>GENERAL SPECIFICATIONS</b>				
Displaying	LCD			
Max. displaying	1999(3 1/2 digit)auto polarity indication			
Measuring method	dual slope A/D conversion			
Sampling rate	approx. 3 times/second			
Over range indication	the MSD displays "1"			
Low battery indication	' appears.			
Operation environment	(0~40)oC,R.H.<80% .			
Power	9V×1(NEDA1604/6F21 or equivalent model).			
Size	189 × 97 × 35mm			
Accessory	operation manual, gift box, test leads			
<b>TECHNICAL SPECIFICATIONS</b>				
Accuracy: ±(a%×rdg+d) at (23±5)oC, R.H.<75%				
<b>INDUCTANCE</b>				
RANGE	ACCURACY	RESOLUTION	MEASURE FREQUENCY	
2mH	±(2.0%+5d)	1uH	About 200Hz	
20mH		10 uH		
200mH		100uH		
2H	±(5.0%+5d)	1mH		
20H	±(5.0%+15d)	10mH		
<b>CAPACITANCE</b>				
RANGE	ACCURACY	RESOLUTION	MEASURE FREQUENCY	
2nF	±(1.0%+5d)	1pF	About 200Hz	
20nF		10pF		
200nF		100pF		
2uF	±(2.0%+5d)	1nF		About 16Hz
20uF		10nF		
200uF	±(5.0%+5d)	100nf		
1000uF	±(5.0%+25d)	1uF	About 8Hz	
<b>RESISTANCE</b>				
RANGE	ACCURACY	RESOLUTION		
200Ω	±(0.8%+5d)	0.1Ω		
2kΩ		1Ω		
20kΩ		10W		
200kΩ	±(0.8%+3d)	100Ω		
2MΩ		1kΩ		
20 MΩ	±(1.0%+15d)	10 kΩ		

Deepthi.S  
 HOS in Electronics  
 (MPTC, Karunagappally)

**Terms and conditions:**

Whether Samples essential : Yes

Period within which goods should be delivered : 15 days

Rates should be quoted for delivery

FOR KARUNAGAPPALLY

AT Model Polytechnic Store, Karungappally

Other special conditions : Terms of Guaranty/ Warranty should be at least 1 year

**PRINCIPAL**