



भारतीय प्रौद्योगिकी संस्थान मद्रास, चेन्नई / 600 036  
INDIAN INSTITUTE OF TECHNOLOGY MADRAS, CHENNAI 600 036  
केन्द्रीय इलेक्ट्रॉनिकी केंद्र  
CENTRAL ELECTRONICS CENTRE

रमाण/Phone No: [044] 2257 4946 / 4947 / 4406 / 4945 फैक्स/Fax No: [044] 2257 4986

ई-मेल/ E-mail: [vjk@iitm.ac.in](mailto:vjk@iitm.ac.in)



प्रो. वी. जगदीश कुमार  
Prof. V. Jagadeesh Kumar  
अध्यक्ष/Head

दिनांक/Dated: 04/09/2015

**INVITING QUOTATIONS for Test Finger Nail**

Ref.No. 

CEC	15-16	001	DEIT	VJAG	TFN	1
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**DUE DATE : 24.09.2015**

To,

Dear Sirs,

1. Quotations are invited in duplicate for the **Test Finger Nail in Two Bid System** (specification attached).
2. The Quotations are to be in **two bid system** as: Technical bid and Commercial bid. Two parts of the offer are to be clearly marked on the envelopes. The two parts of the offer in a separate envelop must enclosed in the one bigger envelop duly sealed and superscribed with reference number and due date and, should be addressed to the undersigned so as to reach him on or before the due date stipulated above. A blank price quote (identical to the Commercial bid with numbers removed) should be enclosed with the Technical Part.
3. The Quotations should be valid for Ninety days (90 days) from the due date and the period of delivery required should also be clearly indicated.
4. If the item is under DGS&D Rate contract No. and the price must be mentioned. It may also please be indicated whether the supply can be made direct to us at the Rate contract price (Please note that we are not Direct Demanding Officers). If so please send copy of the RC.
5. Relevant literature pertaining to the items quoted with full specifications (and drawing, if any) should be sent along with the Quotations, wherever applicable. Samples if called for, should be submitted free of charges, and collected back at the supplier's expenses.
6. Local Firms: Quotations should be for free delivery to this Institute. If Quotations for Ex-Godown delivery charges should be indicated separately.
7. Firms Outside Madras : Quotations should be for CIF/F.O.R. Madras. If CIF/F.O.R. consignor station, freight charges by passenger train / lorry transport must be indicated. If Ex-Godown, packing, forwarding and freight charges must be indicated.
8. The rate of sales / General Taxes and the percentage of such other taxes legally leviable and intended to be claimed should be distinctly shown along with the price quoted. Where this is not done, no claim for Sales / General Taxes will be admitted at any stage and on any ground whatsoever. The taxes leviable should take into consideration that we are entitled to have concessional Sales Tax applicable to non Government Educational Institutions run with no profit motive for which a concession. Sales Tax Certificate will be issued at the time of final settlement of the bill.
9. In case of import, the insurance & Freight charges should not exceed 6% of FOB value. You are requested to quote FOB price as well as CIF, CHENNAI mentioning Freight & Insurance charges separately. No Ex-works pricing is considered.
10. **No Advance Payment will be made for Indigenous purchase.** 100% Payment against Delivery on satisfactory installation for local purchase can be agreed to. For Imports normally payment will be made by Letter of Credit only (**Terms 90 % Payment will be released against dispatch of shipping documents and 10 % will be released after satisfactory installation**). Sometimes The Rule 159 GFR may be allowed (i.e.) 30 % Advance Payment against B.G. (Bank Guarantee) and 70 % Payment after supply (All the B.G. Charges will be borne by the supplier only). **Demurrage charges (if any) will be borne by the supplier & it will be deducted from the balance 10%.** Initial opening of Letter of Credit charges will be borne by us. If any amendment is requested for, the charges for the amendment will be borne by the supplier only. Hence, care should be taken in all respects before opening of Letter of Credit.
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12. Goods shall not be supplied without an official supply order.
13. Payment: Every attempt will be made to make payment within 30 days from the date of receipt of bill/acceptance of goods, whichever is later.

*(Signature)*

Yours faithfully,

*(Signature)*

Head, Central Electronics Centre



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CENTRAL ELECTRONICS CENTRE  
I.I.T. MADRAS  
CHENNAI - 600 036.

**Test Finger Nail**      **Quantity- 1set**

Specification:

Type : Test Finger Nail

Standard to support : IEC 60529 to determine compliance with safety requirements

Other optional probe/  
accessory required:

1. Rigid Test Finger with Newton force indication of 30 N, 50 N and 75 N
2. IEC Jointed Test Probe
3. IEC Jointed Test Probe, with Circular Stop Plate
4. Standard Test Cone
5. Standard Taper Test Pin
6. Long Taper Test Pin
7. Test Hook
8. Test Chain
9. Blunt End Probe
10. 3 mm Probe (Preset controls test)
11. 4 mm Probe (Hazardous Live Parts test)
12. Rigidity Test Rod Probe
13. Uninsulated Live Parts Test Probe
14. Telecommunications Test Probe
15. Hazardous Moving Parts Probe
16. Sphere, 50mm diameter, with guard and handle (IEC529 Tb VI)
17. Test Rod, 2.5 mm diameter, 100mm long (IEC 529 Tb VI)
18. Test Rod, 1.0 mm diameter, 100mm long (IEC 529 Tb VI)
19. Sphere, 12.5mm diameter (IEC 529 Tb VII)
20. Sphere, 50mm diameter (IEC 529 Tb VII)





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प्रो. वी. जगदीश कुमार  
Prof. V. Jagadeesh Kumar  
अध्यक्ष/Head

दिनांक/Dated: 04/09/2015

### INVITING QUOTATIONS for Spary & spalsh water test equipment

Ref.No. 

CEC	15-16	002	DEIT	VJAG	SSW	1
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**DUE DATE : 24.09.2015**

To,

Dear Sirs,

1. Quotations are invited in duplicate for the **Spary & spalsh water test equipment in Two Bid System** (specification attached).
2. The Quotations are to be in **two bid system** as: Technical bid and Commercial bid. Two parts of the offer are to be clearly marked on the envelopes. The two parts of the offer in a separate envelop must enclosed in the one bigger envelop duly sealed and superscribed with reference number and due date and, should be addressed to the undersigned so as to reach him on or before the due date stipulated above. A blank price quote (identical to the Commercial bid with numbers removed) should be enclosed with the Technical Part.
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Yours faithfully,

  
Head, Central Electronics Centre



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CHENNAI - 600 036.

**Water proof test equipment**      **Quantity- 1No**

**Specification:**

Test grads : IPX1, IPX2, IPX3 and IPX4

**Drip box Spec**

Drip box size : 800x800x75 mm (LxWxH)

Drip hole diameter : 0.4mm

Distance between drip hole : 20mm

**Swing pipe water spray Spec**

Semi diameter of swing pipe : 1 meter

Diameter of hole inside swing pipe : 0.4mm

Swing angle : 120° for IPX3 and 180° for IPX4

Automatic sample rotating base dia : 600mm

Speed : 1 to 5 rpm

Standard to support : IEC 60529



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Prof. V. Jagadeesh Kumar  
अध्यक्ष/Head

दिनांक/Dated: 04/09/2015

**INVITING QUOTATIONS for Tumbling Barrel Apparatus**

Ref.No. 

CEC	15-16	003	DEIT	VJAG	TBA	1
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**DUE DATE : 24.09.2015**

To,

Dear Sirs,

1. Quotations are invited in duplicate for the **Tumbling Barrel Apparatus in Two Bid System** (specification attached).
2. The Quotations are to be in **two bid system** as: Technical bid and Commercial bid. Two parts of the offer are to be clearly marked on the envelopes. The two parts of the offer in a separate envelop must enclosed in the one bigger envelop duly sealed and superscribed with reference number and due date and, should be addressed to the undersigned so as to reach him on or before the due date stipulated above. A blank price quote (identical to the Commercial bid with numbers removed) should be enclosed with the Technical Part.
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Yours faithfully,

Head, Central Electronics Centre



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CHENNAI - 600 036.

**Tumbling Barrel Apparatus      Quantity- 1No**

**Specification:**

<b>Type</b>	: Tumbling Barrel, motorized rotation, electronic control.
<b>Drop Height</b>	: 500 mm
<b>Base Plate</b>	: 3 mm thick Steel plate
<b>Rotation Speed</b>	: 10 falls per minute ( 5 rpm )
<b>Control</b>	: Digital Pre Set Counter, 4 digit, with battery back-up
<b>Sensor</b>	: Non contact Inductive Proximity sensor, 18 mm diameter
<b>Indicators</b>	: Power ON, Barrel ON, End of Test (Audible beeper)
<b>Access</b>	: Through sliding acrylic cover with magnetic latch & key lock
<b>Drive</b>	: AC Induction motor, geared, with reduction pulley and V-Belt
<b>Power</b>	: 230 V AC, 50 Hz, single phase,



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Prof. V. Jagadeesh Kumar  
अध्यक्ष/Head

दिनांक/Dated: 04/09/2015

**INVITING QUOTATIONS for Impact test apparatus**

Ref.No. 

CEC	15-16	004	DEIT	VJAG	ITA	1
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**DUE DATE : 24.09.2015**

To,

Dear Sirs,

1. Quotations are invited in duplicate for the **Impact test apparatus in Two Bid System** (specification attached).
2. The Quotations are to be in **two bid system** as: Technical bid and Commercial bid. Two parts of the offer are to be clearly marked on the envelopes. The two parts of the offer in a separate envelop must enclosed in the one bigger envelop duly sealed and superscribed with reference number and due date and, should be addressed to the undersigned so as to reach him on or before the due date stipulated above. A blank price quote (identical to the Commercial bid with numbers removed) should be enclosed with the Technical Part.
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Yours faithfully,

Head, Central Electronics Centre



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**Impact test Apparatus      Quantity- 1No**

**Specification:**

**Pendulum hammer:**

The test apparatus should consists of a pendulum rotating at its upper end in such a way as to be kept in a vertical plane. The axis of the pivot is at 1000mm above the measuring point.

Pendulum Length	: 1000mm
Impact Height	: 100mm,150mm,200mm,250mm and 400mm
Material of construction	: stainless steel
Impact energy	: low energy (not exceeding 1J) or height energy (2J and above)
Striking element	: equivalent mass: low energy:150g and 250g.
Striking element	: equivalent mass: height energy: 500g.

**Test Sphere spec:**

Type	: Steel ball
Diameter	: $50 \pm 1$ mm
Weight	: Approximately 500 gram

**Spring impact hammer spec**

Body	: should includes release mechanism and striking element guide, mass 1250 g.
Striking element	: With cocking knob and hammer head, face should be polyamide, hemispherical with a radius of 10 mm, hardness of HR85-100, mass 250 g
Release Cone	: mass 60 g, 10N release force
Impact Force	: Single force 0.5J



  
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प्रो. वी. जगदीश कुमार  
Prof. V. Jagadeesh Kumar  
अध्यक्ष/Head

दिनांक/Dated: 04/09/2015

INVITING QUOTATIONS for Compression Test Apparatus

Ref.No. CEC 15-16 005 DEIT VJAG CTA 1

DUE DATE : 24.09.2015

To,

Dear Sirs,

1. Quotations are invited in duplicate for the **Compression Test Apparatus in Two Bid System** (specification attached).
2. The Quotations are to be in **two bid system** as: Technical bid and Commercial bid. Two parts of the offer are to be clearly marked on the envelopes. The two parts of the offer in a separate envelop must enclosed in the one bigger envelop duly sealed and superscribed with reference number and due date and, should be addressed to the undersigned so as to reach him on or before the due date stipulated above. A blank price quote (identical to the Commercial bid with numbers removed) should be enclosed with the Technical Part.
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Head, Central Electronics Centre



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CHENNAI - 600 036.

### Compression Test Apparatus    Quantity- 1No

#### Specification:

<b>Jaw Radius</b>	: 25 mm, cylindrical, rounded at the edges to 2.5mm
<b>Force Exerted on sample</b>	: 20 N, $\pm 0.1$ N
<b>Material of construction</b>	: Stainless Steel, brushed
<b>Overall dimensions</b>	: 161 mm W x 106 mm D x 130 mm H, approximate
<b>Case dimensions (mm)</b>	: 300 W x 180 D x 115 H, approximate
<b>Jaw Width</b>	: 15 mm
<b>Guide Pin Spacing</b>	: 15.4 mm
<b>Width between Guide Pins</b>	: 67mm



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प्रो. वी. जगदीश कुमार  
Prof. V. Jagadeesh Kumar  
अध्यक्ष/Head

दिनांक/Dated: 04/09/2015

**INVITING QUOTATIONS for Cord Guard Flexing Test Apparatus**

Ref.No. 

CEC	15-16	006	DEIT	VJAG	CGF	1
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**DUE DATE : 24.09.2015**

To,

Dear Sirs,

1. Quotations are invited in duplicate for the **Cord Guard Flexing Test Apparatus** in Two Bid System (specification attached).
2. The Quotations are to be in **two bid system** as: Technical bid and Commercial bid. Two parts of the offer are to be clearly marked on the envelopes. The two parts of the offer in a separate envelop must enclosed in the one bigger envelop duly sealed and superscribed with reference number and due date and, should be addressed to the undersigned so as to reach him on or before the due date stipulated above. A blank price quote (identical to the Commercial bid with numbers removed) should be enclosed with the Technical Part.
3. The Quotations should be valid for Ninety days (90 days) from the due date and the period of delivery required should also be clearly indicated.
4. If the item is under DGS&D Rate contract No. and the price must be mentioned. It may also please be indicated whether the supply can be made direct to us at the Rate contract price (Please note that we are not Direct Demanding Officers). If so please send copy of the RC.
5. Relevant literature pertaining to the items quoted with full specifications (and drawing, if any) should be sent along with the Quotations, wherever applicable. Samples if called for, should be submitted free of charges, and collected back at the supplier's expenses.
6. Local Firms: Quotations should be for free delivery to this Institute. If Quotations for Ex-Godown delivery charges should be indicated separately.
7. Firms Outside Madras : Quotations should be for CIF/F.O.R. Madras. If CIF/F.O.R. consignor station, freight charges by passenger train / lorry transport must be indicated. If Ex-Godown, packing, forwarding and freight charges must be indicated.
8. The rate of sales / General Taxes and the percentage of such other taxes legally leviable and intended to be claimed should be distinctly shown along with the price quoted. Where this is not done, no claim for Sales / General Taxes will be admitted at any stage and on any ground whatsoever. The taxes leviable should take into consideration that we are entitled to have concessional Sales Tax applicable to non Government Educational Institutions run with no profit motive for which a concession. Sales Tax Certificate will be issued at the time of final settlement of the bill.
9. In case of import, the insurance & Freight charges should not exceed 6% of FOB value. You are requested to quote FOB price as well as CIF, CHENNAI mentioning Freight & Insurance charges separately. No Ex-works pricing is considered.
10. **No Advance Payment will be made for Indigenous purchase.** 100% Payment against Delivery on satisfactory installation for local purchase can be agreed to. For Imports normally payment will be made by Letter of Credit only (**Terms 90 % Payment will be released against dispatch of shipping documents and 10 % will be released after satisfactory installation**). Sometimes The Rule 159 GFR may be allowed (i.e.) 30 % Advance Payment against B.G. (Bank Guarantee) and 70 % Payment after supply (All the B.G. Charges will be borne by the supplier only). **Demurrage charges (if any) will be borne by the supplier & it will be deducted from the balance 10%.** Initial opening of Letter of Credit charges will be borne by us. If any amendment is requested for, the charges for the amendment will be borne by the supplier only. Hence, care should be taken in all respects before opening of Letter of Credit.
11. Goods should be supplied carriage paid and insured.
12. Goods shall not be supplied without an official supply order.
13. Payment: Every attempt will be made to make payment within 30 days from the date of receipt of bill/acceptance of goods, whichever is later.

Yours faithfully,

Head, Central Electronics Centre



**HEAD**  
CENTRAL ELECTRONICS CENTRE  
I.I.T. MADRAS  
CHENNAI - 600 036.

**Cord Guard Flexing Apparatus      Quantity- 1No**

Type	: Cord Guard Flexing Apparatus
Flexing Rate	: 60 per minute, $\pm 3$
Flexing Angle	: 45° from vertical on either side
Max. Specimen weight	: 8 kgs
Set of Weights (Kgs)	: 2.000, 1.9 + Fixing Clamp (2.000kg total), 1.000, 0.500, 0.200, 0.200, 0.100
Motor rating	: ¼ HP, 230 V AC, 50 Hz, 30 rpm geared motor
Counter	: Digital, Presetable, 6 digits, with memory.
Sensor	: Non contact Proximity Sensor. ( Backup by Micro Switch )
Indicators	: Mains ON, END of Test audio & visual alarm
Supply	: 230 V AC, 50 Hz, 1 phase

*CC Indira*



*V. Arun*

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केन्द्रीय इलेक्ट्रॉनिक्स केंद्र  
CENTRAL ELECTRONICS CENTRE

रभाष/Phone No: [044] 2257 4946 / 4947/ 4406 /4945 फैक्स/Fax No: [044] 2257 4986

ई-मेल/ E-mail: vjk@iitm.ac.in



प्रो. वी. जगदीश कुमार  
Prof. V. Jagadeesh Kumar  
अध्यक्ष/Head

दिनांक/Dated: 04/09/2015

INVITING QUOTATIONS for Needle Flame Test Apparatus

Ref.No. CEC 15-16 007 DEIT VJAG NFT 1

DUE DATE : 24.09.2015

To,

Dear Sirs,

1. Quotations are invited in duplicate for the **Needle Flame Test Apparatus** in Two Bid System (specification attached).
2. The Quotations are to be in **two bid system** as: Technical bid and Commercial bid. Two parts of the offer are to be clearly marked on the envelopes. The two parts of the offer in a separate envelop must enclosed in the one bigger envelop duly sealed and superscribed with reference number and due date and, should be addressed to the undersigned so as to reach him on or before the due date stipulated above. A blank price quote (identical to the Commercial bid with numbers removed) should be enclosed with the Technical Part.
3. The Quotations should be valid for Ninety days (90 days) from the due date and the period of delivery required should also be clearly indicated.
4. If the item is under DGS&D Rate contract No. and the price must be mentioned. It may also please be indicated whether the supply can be made direct to us at the Rate contract price (Please note that we are not Direct Demanding Officers). If so please send copy of the RC.
5. Relevant literature pertaining to the items quoted with full specifications (and drawing, if any) should be sent along with the Quotations, wherever applicable. Samples if called for, should be submitted free of charges, and collected back at the supplier's expenses.
6. Local Firms: Quotations should be for free delivery to this Institute. If Quotations for Ex-Godown delivery charges should be indicated separately.
7. Firms Outside Madras : Quotations should be for CIF/F.O.R. Madras. If CIF/F.O.R. consignor station, freight charges by passenger train / lorry transport must be indicated. If Ex-Godown, packing, forwarding and freight charges must be indicated.
8. The rate of sales / General Taxes and the percentage of such other taxes legally leviable and intended to be claimed should be distinctly shown along with the price quoted. Where this is not done, no claim for Sales / General Taxes will be admitted at any stage and on any ground whatsoever. The taxes leviable should take into consideration that we are entitled to have concessional Sales Tax applicable to non Government Educational Institutions run with no profit motive for which a concession. Sales Tax Certificate will be issued at the time of final settlement of the bill.
9. In case of import, the insurance & Freight charges should not exceed 6% of FOB value. You are requested to quote FOB price as well as CIF, CHENNAI mentioning Freight & Insurance charges separately. No Ex-works pricing is considered.
10. **No Advance Payment will be made for Indigenous purchase.** 100% Payment against Delivery on satisfactory installation for local purchase can be agreed to. For Imports normally payment will be made by Letter of Credit only (**Terms 90 % Payment will be released against dispatch of shipping documents and 10 % will be released after satisfactory installation**). Sometimes The Rule 159 GFR may be allowed (i.e.) 30 % Advance Payment against B.G. (Bank Guarantee) and 70 % Payment after supply (All the B.G. Charges will be borne by the supplier only). **Demurrage charges (if any) will be borne by the supplier & it will be deducted from the balance 10%.** Initial opening of Letter of Credit charges will be borne by us. If any amendment is requested for, the charges for the amendment will be borne by the supplier only. Hence, care should be taken in all respects before opening of Letter of Credit.
11. Goods should be supplied carriage paid and insured.
12. Goods shall not be supplied without an official supply order.
13. Payment: Every attempt will be made to make payment within 30 days from the date of receipt of bill/acceptance of goods, whichever is later.

Yours faithfully,

Head, Central Electronics Centre



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I.I.T. MADRAS  
CHENNAI - 600 036.

**Needle Flame Test Apparatus**      **Quantity- 1No**

**Specification:**

Angle of burner	: Incline with 45° (when in test)/ Plumb (when adjust the flame's height)
Time of start burning	: 0 – 999.9s ± 0.1s (adjustable, 30s in general)
Time of keep burning	: 0 – 999.9s ± 0.1s , auto mark, pause with hand
Burning Angle	: 0°, 20°, 45°
Flame height	: 12mm ± 1mm ( test tool with height)
Burning air	: 95% butagas
Test range of temperature	: 0 – 1000 °C
Requirement of flame's temp	: with in 23.5s ±1s when the temperature rises from 100 °C±2 °C to 700 °C±3 °C
Temperature sensor	: 0.5 mm dia k type thermocouple
Standard to support	: IEC60695-2-2 and IEC60695-11-5

*C. J. M.*

*V. R.*



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ई-मेल/ E-mail: [vjk@iitm.ac.in](mailto:vjk@iitm.ac.in)



प्रो. वी. जगदीश कुमार  
Prof. V. Jagadeesh Kumar  
अध्यक्ष/Head

दिनांक/Dated: 04/09/2015

### INVITING QUOTATIONS for Horizontal Vertical Flame Test Apparatus

Ref.No. CEC 15-16 008 DEIT VJAG HVF 1

DUE DATE : 24.09.2015

To,  
Dear Sirs,

1. Quotations are invited in duplicate for the **Horizontal Vertical Flame Test Apparatus** in Two Bid System (specification attached).
2. The Quotations are to be in **two bid system** as: Technical bid and Commercial bid. Two parts of the offer are to be clearly marked on the envelopes. The two parts of the offer in a separate envelop must enclosed in the one bigger envelop duly sealed and superscribed with reference number and due date and, should be addressed to the undersigned so as to reach him on or before the due date stipulated above. A blank price quote (identical to the Commercial bid with numbers removed) should be enclosed with the Technical Part.
3. The Quotations should be valid for Ninety days (90 days) from the due date and the period of delivery required should also be clearly indicated.
4. If the item is under DGS&D Rate contract No. and the price must be mentioned. It may also please be indicated whether the supply can be made direct to us at the Rate contract price (Please note that we are not Direct Demanding Officers). If so please send copy of the RC.
5. Relevant literature pertaining to the items quoted with full specifications (and drawing, if any) should be sent along with the Quotations, wherever applicable. Samples if called for, should be submitted free of charges, and collected back at the supplier's expenses.
6. Local Firms: Quotations should be for free delivery to this Institute. If Quotations for Ex-Godown delivery charges should be indicated separately.
7. Firms Outside Madras : Quotations should be for CIF/F.O.R. Madras. If CIF/F.O.R. consignor station, freight charges by passenger train / lorry transport must be indicated. If Ex-Godown, packing, forwarding and freight charges must be indicated.
8. The rate of sales / General Taxes and the percentage of such other taxes legally leviable and intended to be claimed should be distinctly shown along with the price quoted. Where this is not done, no claim for Sales / General Taxes will be admitted at any stage and on any ground whatsoever. The taxes leviable should take into consideration that we are entitled to have concessional Sales Tax applicable to non Government Educational Institutions run with no profit motive for which a concession. Sales Tax Certificate will be issued at the time of final settlement of the bill.
9. In case of import, the insurance & Freight charges should not exceed 6% of FOB value. You are requested to quote FOB price as well as CIF, CHENNAI mentioning Freight & Insurance charges separately. No Ex-works pricing is considered.
10. **No Advance Payment will be made for indigenous purchase.** 100% Payment against Delivery on satisfactory installation for local purchase can be agreed to. For Imports normally payment will be made by Letter of Credit only (**Terms 90 % Payment will be released against dispatch of shipping documents and 10 % will be released after satisfactory installation**). Sometimes The Rule 159 GFR may be allowed (i.e.) 30 % Advance Payment against B.G. (Bank Guarantee) and 70 % Payment after supply (All the B.G. Charges will be borne by the supplier only). **Demurrage charges (if any) will be borne by the supplier & it will be deducted from the balance 10%.** Initial opening of Letter of Credit charges will be borne by us. If any amendment is requested for, the charges for the amendment will be borne by the supplier only. Hence, care should be taken in all respects before opening of Letter of Credit.
11. Goods should be supplied carriage paid and insured.
12. Goods shall not be supplied without an official supply order.
13. Payment: Every attempt will be made to make payment within 30 days from the date of receipt of bill/acceptance of goods, whichever is later.

Yours faithfully,

*[Signature]*

Head, Central Electronics Centre



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CHENNAI - 600 036.

**Horizontal Vertical Flame Test Apparatus**      **Quantity- 1No**

**Specification:**

Burning time : 0 – 999.9s (adjustable)

After flame time : 0 – 999.9s (adjustable)

After-blanch Time : 0 – 999.9s (adjustable)

Burning Angle : 0°, 20°, 45°

Flame height : 20mm – 175 mm (adjustable)

Gas flow : 0.03 – 0.3 ml/Min

Gas Pressure : 0 – 16 Kpa

Pressure gauge : ±200mm spout

Burning Lamp internal tube dia : 9.5±0.3 mm , Length 100 mm ± 10 mm

Time device accuracy : ±0.5s

Flow meter accuracy : ±2%

Position adjustment : Sample clamp bracket can be up and down, left and right controlled , combustion seat can be adjusted back and forth, the stroke adjustment is greater than 300 mm.

Standard to support : IEC60695-2-1



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रमाप/Phone No: [044] 2257 4946 / 4947/ 4406 /4945 फैक्स/Fax No: [044] 2257 4986

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प्रो. वी. जगदीश कुमार  
Prof. V. Jagadeesh Kumar  
अध्यक्ष/Head

दिनांक/Dated: 04/09/2015

INVITING QUOTATIONS for Inclined Plane Device

Ref.No. CEC 15-16 009 DEIT VJAG IPD 1

DUE DATE : 24.09.2015

To,

Dear Sirs,

1. Quotations are invited in duplicate for the **Inclined Plane Device** in Two Bid System (specification attached).
2. The Quotations are to be in **two bid system** as: Technical bid and Commercial bid. Two parts of the offer are to be clearly marked on the envelopes. The two parts of the offer in a separate envelop must enclosed in the one bigger envelop duly sealed and superscribed with reference number and due date and, should be addressed to the undersigned so as to reach him on or before the due date stipulated above. A blank price quote (identical to the Commercial bid with numbers removed) should be enclosed with the Technical Part.
3. The Quotations should be valid for Ninety days (90 days) from the due date and the period of delivery required should also be clearly indicated.
4. If the item is under DGS&D Rate contract No. and the price must be mentioned. It may also please be indicated whether the supply can be made direct to us at the Rate contract price (Please note that we are not Direct Demanding Officers). If so please send copy of the RC.
5. Relevant literature pertaining to the items quoted with full specifications (and drawing, if any) should be sent along with the Quotations, wherever applicable. Samples if called for, should be submitted free of charges, and collected back at the supplier's expenses.
6. Local Firms: Quotations should be for free delivery to this Institute. If Quotations for Ex-Godown delivery charges should be indicated separately.
7. Firms Outside Madras : Quotations should be for CIF/F.O.R. Madras. If CIF/F.O.R. consignor station, freight charges by passenger train / lorry transport must be indicated. If Ex-Godown, packing, forwarding and freight charges must be indicated.
8. The rate of sales / General Taxes and the percentage of such other taxes legally leviable and intended to be claimed should be distinctly shown along with the price quoted. Where this is not done, no claim for Sales / General Taxes will be admitted at any stage and on any ground whatsoever. The taxes leviable should take into consideration that we are entitled to have concessional Sales Tax applicable to non Government Educational Institutions run with no profit motive for which a concession. Sales Tax Certificate will be issued at the time of final settlement of the bill.
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Yours faithfully,

Head, Central Electronics Centre



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CHENNAI - 600 036.

**Inclined Plane Device      Quantity- 1No**

**Specification:**

Standard to support : **IEC 60065** :2005-12 cl. 19.1, **IEC 60335-1** :2006-09 cl. 20.1,  
**IEC 60950** :2005-12 cl. 4.1 (to determine the stability of electric Appliances)

Construction requirement : should have

- (1) table board, with stiffening frame
- (2) base plate with hinges for the stiffening frame and for the spindle bearing
- (3) threaded spindle with hand wheel for adjusting the incline of the table board from the horizontal up to 30° against the horizontal
- (4) lifting nut, of red brass, articulated in the jib of the stiffening frame
- (5) knurled nuts at the threaded spindle, for adjusting the maximum incline

Table area : 700 mm x 700 mm

Maximum load : 75 kg

**Other requirements:**

- (i) Inclination Angle Measuring Instrument to mount at the table board, consisting of a protractor with adjustable spirit level for checking the angle of inclination of the table board should be provided
- (ii) Railing to catch the samples with insufficient stability, mounted on to the stiffening frame of the table board should be provided



  
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प्रो. वी. जगदीश कुमार  
Prof. V. Jagadeesh Kumar  
अध्यक्ष/Head

दिनांक/Dated: 04/09/2015

**INVITING QUOTATIONS for Glow Wire Test Apparatus**

Ref.No. 

CEC	15-16	010	DEIT	VJAG	GWT	1
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**DUE DATE : 24.09.2015**

To,

Dear Sirs,

1. Quotations are invited in duplicate for the **Glow Wire Test Apparatus** in Two Bid System (specification attached).
2. The Quotations are to be in **two bid system** as: Technical bid and Commercial bid. Two parts of the offer are to be clearly marked on the envelopes. The two parts of the offer in a separate envelop must enclosed in the one bigger envelop duly sealed and superscribed with reference number and due date and, should be addressed to the undersigned so as to reach him on or before the due date stipulated above. A blank price quote (identical to the Commercial bid with numbers removed) should be enclosed with the Technical Part.
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4. If the item is under DGS&D Rate contract No. and the price must be mentioned. It may also please be indicated whether the supply can be made direct to us at the Rate contract price (Please note that we are not Direct Demanding Officers). If so please send copy of the RC.
5. Relevant literature pertaining to the items quoted with full specifications (and drawing, if any) should be sent along with the Quotations, wherever applicable. Samples if called for, should be submitted free of charges, and collected back at the supplier's expenses.
6. Local Firms: Quotations should be for free delivery to this Institute. If Quotations for Ex-Godown delivery charges should be indicated separately.
7. Firms Outside Madras : Quotations should be for CIF/F.O.R. Madras. If CIF/F.O.R. consignor station, freight charges by passenger train / lorry transport must be indicated. If Ex-Godown, packing, forwarding and freight charges must be indicated.
8. The rate of sales / General Taxes and the percentage of such other taxes legally leviable and intended to be claimed should be distinctly shown along with the price quoted. Where this is not done, no claim for Sales / General Taxes will be admitted at any stage and on any ground whatsoever The taxes leviable should take into consideration that we are entitled to have concessional Sales Tax applicable to non Government Educational Institutions run with no profit motive for which a concession. Sales Tax Certificate will be issued at the time of final settlement of the bill.
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13. Payment: Every attempt will be made to make payment within 30 days from the date of receipt of bill/acceptance of goods, whichever is later.

Yours faithfully,

  
Head, Central Electronics Centre



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I.I.T. MADRAS  
CHENNAI - 600 036.

**Glow Wire Test Apparatus**      **Quantity- 1No**

**Specification:**

Thermocouple Diameter	: $\leq 1$ mm, k Type (1100 °C)
Heating temperature	: Adjustable within the range 500 °C to 1000 °C
Temperature accuracy	: $\pm 3$ °C
Temperature resolution	: $\pm 1$ °C
Glowing time	: 0.1 – 999.9s $\pm 0.1$ s (Time range adjustable)
Burning time	: 0.1 – 999.9s (auto record, manual pause)
Flame chilling time	: 0.1 – 999.9s (auto record, manual pause)
Glow wire pressure on test specimen	: $0.95 \pm 0.1$ N ( Limit pressure depth is 7mm)
Glow Wire Element	: Ni/Cr wire, diameter: 4mm
Current Range	: 0 to 200 A
Standard to support	: IEC60695-2-10:2013 (Edition 2.0)



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केन्द्रीय इलेक्ट्रॉनिकी केंद्र  
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ई-मेल/ E-mail: [vik@iitm.ac.in](mailto:vik@iitm.ac.in)



प्रो. वी. जगदीश कुमार  
Prof. V. Jagadeesh Kumar  
अध्यक्ष/Head

दिनांक/Dated: 04/09/2015

**INVITING QUOTATIONS for Tracking Test Apparatus**

Ref.No. 

CEC	15-16	011	DEIT	VJAG	TTA	1
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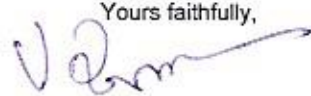
**DUE DATE : 24.09.2015**

To,

Dear Sirs,

1. Quotations are invited in duplicate for the **Tracking Test Apparatus** in Two Bid System (specification attached).
2. The Quotations are to be in **two bid system** as: Technical bid and Commercial bid. Two parts of the offer are to be clearly marked on the envelopes. The two parts of the offer in a separate envelop must enclosed in the one bigger envelop duly sealed and superscribed with reference number and due date and, should be addressed to the undersigned so as to reach him on or before the due date stipulated above. A blank price quote (identical to the Commercial bid with numbers removed) should be enclosed with the Technical Part.
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Yours faithfully,

  
Head, Central Electronics Centre



**HEAD**  
CENTRAL ELECTRONICS CENTRE  
I.I.T. MADRAS  
CHENNAI - 600 036.

**Tracking Test Apparatus      Quantity- 1No**

**Specification:**

Electrode materials	: Electrode head, -- Platinum
Electrode pressure	: $1.0 \pm 0.05\text{N}$
Electrode distance	: $4.0\text{mm} \pm 0.01\text{mm}$ , Angle of $60^\circ \pm 5$
Electrode voltage	: 100 ~ 600V (48 ~ 60HZ) is adjustable, short-circuit current in the $1.0 \pm 0.1\text{A}$ , voltage drop less than 10%
Drops liquid height	: 30 ~ 40mm adjustable
Drops liquid size	: 44 ~ 55 drops / $1\text{cm}^3$ adjustable
Drops liquid time	: $30\text{s} \pm 5\text{s}$ ,
Drops liquid number	: 0 ~ 999 times is adjustable
Leakage judgment	: A loop current exceeds 0.5 A and keep 2 seconds is relay action interrupts the current, instructions, sample unqualified
Test process	: automatic control, independent convulsions
Test standard	: IEC60112

*CC Zindan*

*V. Duran*  
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INDIAN INSTITUTE OF TECHNOLOGY MADRAS, CHENNAI 600 036  
केन्द्रीय इलेक्ट्रॉनिक्स केंद्र  
CENTRAL ELECTRONICS CENTRE

रभाष/Phone No: [044] 2257 4946 / 4947/ 4406 /4945 फैक्स/Fax No: [044] 2257 4986

ई-मेल/ E-mail: [vjk@iitm.ac.in](mailto:vjk@iitm.ac.in)



प्रो. वी. जगदीश कुमार  
Prof. V. Jagadeesh Kumar  
अध्यक्ष/Head

दिनांक/Dated: 04/09/2015

**INVITING QUOTATIONS for Ball Pressure Apparatus**

Ref.No. 

CEC	15-16	012	DEIT	VJAG	BPA	1
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**DUE DATE : 24.09.2015**

To,

Dear Sirs,

1. Quotations are invited in duplicate for the **Ball Pressure Apparatus** in Two Bid System (specification attached).
2. The Quotations are to be in **two bid system** as: Technical bid and Commercial bid. Two parts of the offer are to be clearly marked on the envelopes. The two parts of the offer in a separate envelop must enclosed in the one bigger envelop duly sealed and superscribed with reference number and due date and, should be addressed to the undersigned so as to reach him on or before the due date stipulated above. A blank price quote (identical to the Commercial bid with numbers removed) should be enclosed with the Technical Part.
3. The Quotations should be valid for Ninety days (90 days) from the due date and the period of delivery required should also be clearly indicated.
4. If the item is under DGS&D Rate contract No. and the price must be mentioned. It may also please be indicated whether the supply can be made direct to us at the Rate contract price (Please note that we are not Direct Demanding Officers). If so please send copy of the RC.
5. Relevant literature pertaining to the items quoted with full specifications (and drawing, if any) should be sent along with the Quotations, wherever applicable. Samples if called for, should be submitted free of charges, and collected back at the supplier's expenses.
6. Local Firms: Quotations should be for free delivery to this Institute. If Quotations for Ex-Godown delivery charges should be indicated separately.
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Yours faithfully,

Head, Central Electronics Centre



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CENTRAL ELECTRONICS CENTRE  
I.I.T. MADRAS  
CHENNAI - 600 036.

**Ball Pressure Apparatus      Quantity – 1 No**

**Specification :**

Ball Diameter : 5 mm  $\pm$  0.05mm

Force Exerted on sample : 20 N,  $\pm$  0.1 N

Material of construction : Stainless Steel

Overall dimensions : 270 mm W x 55 mm D x 125 mm H, approximate

Platform dimensions (Test stand) : 100mm to 90 mm H x 50mm to 80 mm dia,  
Approximately, hole dia 2mm

Magnifier : x 10 magnification  
0.1 mm Resolution  
0 ~ 10 mm Scale



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प्रो. वी. जगदीश कुमार  
**Prof. V. Jagadeesh Kumar**  
 अध्यक्ष/Head

दिनांक/Dated: **04/09/2015**

**INVITING QUOTATIONS for 16CH Temperature Recorder**

Ref.No. 

CEC	15-16	013	DEIT	VJAG	TER	1
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**DUE DATE : 24.09.2015**

To,

Dear Sirs,

1. Quotations are invited in duplicate for the **16CH Temperature Recorder** in Two Bid System (specification attached).
2. The Quotations are to be in **two bid system** as: Technical bid and Commercial bid. Two parts of the offer are to be clearly marked on the envelopes. The two parts of the offer in a separate envelop must enclosed in the one bigger envelop duly sealed and superscribed with reference number and due date and, should be addressed to the undersigned so as to reach him on or before the due date stipulated above. A blank price quote (identical to the Commercial bid with numbers removed) should be enclosed with the Technical Part.
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Yours faithfully,

  
**Head, Central Electronics Centre**



**HEAD**  
**CENTRAL ELECTRONICS CENTRE**  
**I.I.T. MADRAS**  
**CHENNAI - 600 036.**



## Technical Specification – 16CH Temperature Recorder (QTY -1No)

S.No:	Description	Specification
1	Input Channels	16
2	Input coupling	TC: temp. (thermocouple) measurement DC: voltage measurement (DC coupling)
3	Data updating period	100 ms, 300 ms, 1 s, and 3 s (Selectable)
4	Input Type	Isolated and Unbalanced
5	<b>Measurement Range/Accuracy</b>	
	<b>Voltage Measurement</b>	Voltage axis sensitivity: 1 mV/div to 2 V/div (1-2-5 steps) Voltage accuracy: $\pm(0.15\%$ of 10 div)
6	<b>Temp. Measurement</b>	<b>Range</b> K -200 - 1300°C E -200 - 800°C J -200 - 1100°C T -200 - 400°C L -200 - 900°C U -200 - 400°C N 0 - 1300°C R 0 - 1700°C S 0 - 1700°C B 0 - 1800°C W 0 - 2300°C Au-Fe-chromel 0 - 300K
		<b>Accuracy</b> For -200°C to 0°C $\pm(0.2\%$ of reading + 1.5°C) For other temperature range $\pm(0.1\%$ of reading + 1.5°C) $\pm(0.1\%$ of reading + 3°C) $\pm(0.1\%$ of reading + 3°C)
7	<b>Maximum input voltage &amp; common mode voltage (1 kHz or less)</b>	
	Both Voltage & temp.	42 V (DC + ACpeak) (CAT I and CAT II)
8	<b>Vertical resolution</b>	
	At voltage measurement	At voltage input: 2400 LSB/div
	At temp. measurement	At temp. measurement: 0.1°C
9	<b>Common mode rejection ratio</b>	
	At voltage measurement	100 dB or more
	At temp. measurement	140 dB or more
	Residual noise level	$\pm 0.01$ div
	Channel-to-channel interference	100 dB or more
10	<b>A/D conversion resolution</b>	
	At voltage measurement	16 bits (24000 LSB/range)
11	<b>Temperature coefficient</b>	
	Zero point	$\pm(0.025\%$ of 10div)
	Gain	$\pm(0.01\%$ of 10div)
12	Reference junction comp. accuracy (at input terminal temp. balancing)	(K, E, J, T, L, U, N) Thermocouples : $\pm 1^\circ\text{C}$ : (R, S, B, W) Thermocouples: $\pm 1.5^\circ\text{C}$ : Au-Fe-chromel thermocouple: $\pm 1\text{K}$
13	<b>Data Acquisition System Specification</b>	
	Number of Channels	Plug in modular inputs - 16 channel isolated voltage/temperature input module (Expandable upto 128 voltage/temperature or 128 logic bits)
	Maximum Memory Length	Standard -250MPts(W)
	Sample Rate	Should support up to 100MS/s



Time axis setting range	100ns/div to 1s/div (1-2-5 step): 2s/div, 3s/div, 4s/div, 5s/div, 6s/div, 8s/div, 10s/div, 20s/div, 30s/div: 1min/div to 10min/div (1min step): 12min/div, 15min/div, 30min/div: 1h/div to 10h/div (1h step): 12h/div, 1day/div, 2day/div, 3day/div, 4day/div, 8day/div, 10day/div, 20day/div
Time axis accuracy	±0.005%
Acquisition mode	Normal - Normal waveform acquisition  Envelope- Maximum sample rate regardless of record time, should hold peak value  Averaging- Average count 2 to 65536 (2n steps) Box average- Increase in A/D resolution up to 4 bits (max 16 bits)
Capture Mode	Should perform data acquisition on the same waveform at 2 different sample rates.
1. Main waveform (low speed)	Maximum sample rate : 100kS/s Maximum Record length : 1G point (1CH)
2. Capture waveform (high speed)	Maximum sample rate : 100MS/s Maximum record length : 500k point
Real time hard disk recording	Maximum sample rate : Maximum 1MS/s (1CH)  Capacity : Internal Hard Disk of 500GB
Real time recording	Recording in PC directly using ACQ software
History memory	Maximum 5000 pages
Linear scaling	Set AX+B mode or P1-P2 mode independently for CHn
Cursor measurement	Horizontal, Vertical, Marker, Degree (for T-Y waveform display only), H&V
Communication Ports	USB, Ethernet
Storage	SD Card, USB, Hard disk
Display	10.4-inch TFT colour LCD monitor, 1024×768(XGA)



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2/2



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INDIAN INSTITUTE OF TECHNOLOGY MADRAS, CHENNAI 600 036  
केन्द्रीय इलेक्ट्रॉनिक्स केंद्र  
CENTRAL ELECTRONICS CENTRE

रमाण/Phone No: [044] 2257 4946 / 4947 / 4406 / 4945 फैक्स/Fax No: [044] 2257 4986

ई-मेल/ E-mail: [vjk@iitm.ac.in](mailto:vjk@iitm.ac.in)



दिनांक/Dated: 04/09/2015

Prof. V. Jagadeesh Kumar

अध्यक्ष/Head

INVITING QUOTATIONS for TV Pattern Generator

Ref.No. CEC 15-16 014 DEIT VJAG TPG 1

DUE DATE : 24.09.2015

To,

Dear Sirs,

1. Quotations are invited in duplicate for the **TV Pattern Generator** in Two Bid System (specification attached).
2. The Quotations are to be in **two bid system** as: Technical bid and Commercial bid. Two parts of the offer are to be clearly marked on the envelopes. The two parts of the offer in a separate envelop must enclosed in the one bigger envelop duly sealed and superscribed with reference number and due date and, should be addressed to the undersigned so as to reach him on or before the due date stipulated above. A blank price quote (identical to the Commercial bid with numbers removed) should be enclosed with the Technical Part.
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Yours faithfully,

Head, Central Electronics Centre



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I.I.T. MADRAS  
CHENNAI - 600 036.



## Technical Specification – TV Pattern Generator (QTY -1No)

S.No:	Description	Specification
1	System & Standard	PAL B/G/D/K/I/M/N, SECAM B/G/D/K/L, NTSC M
2	Video carrier	Resolution : 50 kHz Tuning: By channels or by frequency (CCIR, STDL, OIRT, FCC)
3	Pattern charts	37
4	Modulation	Vestigial sideband VSB
5	<b>Outputs</b>	
	RF Output level	80 dB $\mu$ V), attenuation up to 60 dB in 1 dB steps
	Frequency range	35 - 900 MHz
	Impedance	75 $\Omega$
	Composite video	75 $\Omega$ , 1 Vpp, positive polarity, DC coupling
	Blackburst	75 $\Omega$ , negative polarity, BNC connector
	RGB	75 $\Omega$ , 0.7 Vpp amplitude, BNC connector
	YPbPr	0.7 Vpp amplitude, BNC connector
	S-VHS	75 $\Omega$ , 1.3 Vpp (lum.) amplitude - 0.3 Vpp (crom.)
	Synchronisms	CS, horizontal pulse, vertical pulse
	SCART	--
6	Colour Logo types	2 independent, positionable logos
7	<b>Audio</b>	
	Mono	AM-FM-NICAM modulation
	Dual-Stereo Zweiton	B, G, D, K, M systems
	Dual-Stereo NICAM	B, G, L, I, D, K systems
8	<b>PDC (Program Delivery Control)</b>	
	Systems	PAL B/G/I/D/K, ON/OFF selectable
	Content	Selectable START, STOP and PAUSE; date, time, country
9	<b>VPS</b>	
	Systems	PAL B/G/D/K seleccionable ON/OFF
	Content	Selectable START, STOP and PAUSE; date, time, country
10	<b>WSS (Wide Screen Signaling)</b>	
	Systems	PAL B/G/I/D/K
	Content	Eight combinations for 4:3, 14:9 and 16:9 formats
11	<b>Power supply</b>	
	Mains voltage	230V AC $\pm$ 10%, 50 Hz



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