

THANKI ENGINEERING SOLUTIONS

Delivering Excellence in NDT

TF – 28, Suner Complex, Harinagar Crossing, Gotri Road, Vadodara - 390 007, tesndt@gmail.com, 9428173351

LED Radiography Film Viewer ACCU 500



Technical Specifications : -

Model	Mini LED ACCU-500
Viewing Area	6"x3"
Film Density	up to 4.0 Density
Input Voltage	230Volt (+-5%)
Power Consumption	70W approx
Features	<ol style="list-style-type: none">1. High Luminance2. Energy Saving.3. Adjustable Shutter for Viewing Area.4. Electronic Brightness Control5. Cooling Fan : 1 No.

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LED Radiography Film Viewer ACCU 1000



Technical Specifications : -

Model	ACCU-1000
Viewing Area	12"x3"
Film Density	up to 4.0 Density
Input Voltage	230Volt (+-5%)
Power Consumption	70W approx
Features	<ol style="list-style-type: none">1. High Luminance2. Energy Saving.3. Additional Cover Area 65mm x150mm4. Adjustable Shutter For viewing Area5. Cooling Fan : 1 No.6. Plug in foot switch7. Foot switch & Foot switch cable is shock proof

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LED Radiography Film Viewer



Technical Specifications : -

Model	ACCU-5000
Viewing Area	16"x4"
Film Density	up to 5.0 Density
Input Voltage	230Volt (+-5%)
Power Consumption	160W approx
Features	<ol style="list-style-type: none">1. High Luminance2. Energy Saving.3. Adjustable Shutter for Viewing Area.4,. Electronic Brightness Control5. Heavy Aluminium heat sink.6. Cooling Fan: 2 Nos.7. Plug in Foot Switch.8. Foot Switch & foot Switch Cable is shock Proof.

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LED Radiography Film Viewer_ACCU 2000



Technical Specifications : -

Model	ACCU-2000
Viewing Area	12"x4"
Film Density	up to 5.0 Density
Input Voltage	230Volt (+-5%)
Power Consumption	160W approx
Features	<ol style="list-style-type: none">1. High Luminance2. Energy Saving.3. Adjustable Shutter for Viewing Area.4,. Electronic Brightness Control5. Heavy Aluminium heat sink.6. Cooling Fan: 2 Nos.7. Plugin Foot Switch.8. Foot Switch & foot Switch Cable is shock Proof.

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LED Radiography Film Viewer

				
Model	Mini LED ACCU-500	ACCU-1000	ACCU-2000	ACCU-5000
Viewing Area	6"x3"	12"x3"	12"x4"	16"x4"
Film Density	up to 4.0 Density	up to 4.0 Density	up to 5.0 Density	up to 5.0 Density
Input Voltage	230Volt (+-5%)	230Volt (+-5%)	230Volt (+-5%)	230Volt (+-5%)
Power Consumption	70W approx	70W approx	160W approx	160W approx
Features	<ol style="list-style-type: none"> 1. High Luminance 2. Energy Saving. 3. Adjustable Shutter for Viewing Area. 4. Electronic Brightness Control 5. Cooling Fan : 1 No. 	<ol style="list-style-type: none"> 1. High Luminance 2. Energy Saving. 3. Additional Cover Area 65mm x150mm 4. Adjustable Shutter For viewing Area 5. Cooling Fan : 1 No. 6. Plug in foot switch 7. Foot switch & Foot switch cable is shock proof 	<ol style="list-style-type: none"> 1. High Luminance 2. Energy Saving. 3. Adjustable Shutter for Viewing Area. 4,. Electronic Brightness Control 5. Heavy Aluminium heat sink. 6. Cooling Fan: 2 Nos. 7. Plugin Foot Switch. 8. Foot Switch & foot Switch Cable is shock Proof. 	<ol style="list-style-type: none"> 1. High Luminance 2. Energy Saving. 3. Adjustable Shutter for Viewing Area. 4,. Electronic Brightness Control 5. Heavy Aluminium heat sink. 6. Cooling Fan: 2 Nos. 7. Plugin Foot Switch. 8. Foot Switch & foot Switch Cable is shock Proof.

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RT Accessories

		
SOURCE GUIDE TUBE	CRANKING UNIT	COLIMETER
		
CEE VEE TONGUE	LEAD POT	LEAD SHEET
		
DENSITOMETER	DENSITY STRIP	FILM VEWER
		
PVC WARNING STICKER	WARNING BLINKER WITH SIREN	DOSIMETER

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Penetrators / IQI



PVC CASSETTES



LEAD SCREEN



SS TANK



MANUAL PROCESSING TANK



FILM HANGER



FILM CUTTER



FILM DRYING CLIP



YELLOW CHOLK



FLOATING THERMOMETER



WALL THERMOMETER



STOP WATCH

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LEAD NUMBERS & LETTERS



LEAD ARROW



STORAGE BOX



LEAD APRON



LEAD LINED GLOVES



LEAD MAKER TAPES



LEAD SHOT



EXPOSURE CALC SCALE



LEUCOPLAST



DARK ROOM SAFE LIGHT



DARK ROOM DIGITAL METER



PERMENT MAGNETS

STRUCTURIX CERTIFIED DENSTEP



STRUCTURIX CERTIFIED DENSTEP (AGFA DENSTEP) :-

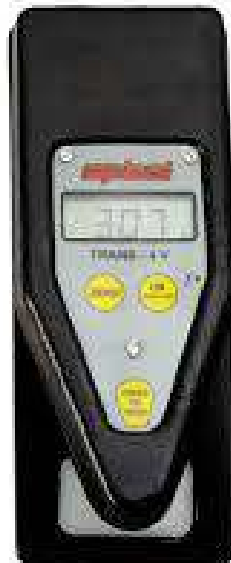
EN 584-2 and ISO 11699-2 require that processed X-ray film strips be evaluated with a densitometer which must have been calibrated with a reference wedge. The STRUCTURIX Certified Denstep is an X-ray film step tablet for calibrating optical densitometers used in NDT and industrial X-ray procedures.

The density values reported, cross referenced by serial number to the certificate, are traceable to NIST (the United States National Institute of Standards and Technology) through traceable calibrations of the instrumentation and procedures in accordance with our ISO 9001 approved QA system.

THIS IS A SEALED PRODUCT IS AS GUARRANTEED BY AGFA / GE

DENSITOMETER

For Measurement of Optical Density of Films , TRANS-4V : Black & White Transmission Densitometer (with built-in light source)



Technical Data : -

- Light Source : Built in lamp
- Density Measuring Range : 0 to 4
- Measuring Area : 2mm dia,. Length : 150mm
- Accuracy : ± 0.02 Repeatability : Better than $\pm 0.01D$
- Operating Temperature : 10°C to 50 °C
- Display : 3 ½ digit LCD
- Controls : On, Off, Lamp, Zero and Read
- Battery : 4 Nos. AA
- Battery check : Low BAT Display
- Size (mm) : L 190 x W 78 x H 50
- Weight (gms): 700

Trans-4V is Improved Densitometer with V shaped arm, press arm to Read and auto OFF. These easy to use compact instruments measure optical density of films mostly used for X-Ray films and printing/photography films. These Densitometers have a range of 0 to 4 D with an accuracy of 0.01D. They are quite rugged and designed for industrial use. with "V" Shaped arm.

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RADIATION MONITORING AND MEASURING INSTRUMENTS



MINIRAD

This was our first model to be approved by DRP. It meets all the requirements of a wide range survey meter. Excepting the display the meter is fully solid-state using CMOS ICs. Radiation levels are displayed on a meter in four decade ranges.

MINIRAD-LED

This model takes advantage of the solid-state display viz. LEDs. A bar graph of LEDs in place of a meter indicates the radiation level. Other indications like low batt, over range, count, range etc. are also indicated by LEDs. The luminous display makes it ideal for night time use.

DIGIRAD

This digital model incorporates advance techniques of auto ranging and auto/manual response time. The response time is fast enough to indicate changes in radiation field and slow enough to take a meaningful reading. It is auto ranging with over range indication and a switch-off timer. It will continuously display readings in the range 0 to 2000 mR, hence, there is no need to switch ranges and use multiplying factors.

ZONE MONITOR

Gamma Area/Zone Monitor Type ZM is an instrument designed to measure and monitor gamma radiation exposure rates in the working areas of industrial radiological installation, radiation source rooms and other radio-isotope laboratories. Audio/Visual alarm is provided to alert the radiation worker when radiation level exceeds the normal or other limits which can be preset. The Gamma Area/Zone Monitor incorporates GM counter as radiation detector and works from mains with a battery back-up in case of mains failure. The self diagnostic circuitry of the ZM gives a non-resettable alarm if there is a circuit/GM Tube failure.

DOSIRAD

This is a pocket size dose meter for measuring cumulative dose of X-Ray, gamma ray radiation from isotopes and other radiation sources. It has a wide range (2000mR) with high DIGITAL resolution (0.01mR) and gives a audible chirp every 0.01 mR dose. It operates for 10 to 20 hours from dry cell and may be operated continuously using a rechargeable battery with charger.

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TECHNICAL DATA		MINIRAD	MINIRAD LED	DIGIRAD	ZONE MONITOR	DOSIRAD	RAM-I
DETECTOR		GEIGER MÜLLER COUNTER (GM TUBE)					
RADIATION DETECTED		GAMMA (γ) AND X - RAYS					
ENERGY RESPONSE		100 KeV TO 1.3 MeV			50 KeV TO 2 MeV		
RANGE	STANDARD	0-5, 0-50, 0-500mR, 0-5R		20, 200, 2000 mR AUTO RANGING	0-100 mR LOG SCALE	0-9999.99mR	2 & 60 CHIRPS/MIN IN 1 mR/H
	LOW	0-0.5, 0-5, 0-50, 0-500 mR		20, 200, 2000 mR AUTO RANGING			
ACCURACY with Cs 137		± 20%		± 15%			± 20%
RESPONSE TIME		10 SECONDS		10 SECONDS	20 SECONDS	INSTANTANEOUS	
OPERATING CONDITIONS		0 TO 50° C AND 90% RH (NON-CONDENSING HUMIDITY)					
DISPLAY	VISUAL	METER	LED BAR GRAPH	DIGITAL	METER	DIGITAL	-
	VISUAL	FLASHING LED		FLASHING + SIGN	FLASHING LED		-
	SOUND	PIEZO BUZZER CHIRPS			PIEZO BUZZER & LIGHT ALARM	PIEZO BUZZER CHIRPS	
BATTERY	TYPE	5 NOS. PENLITE	4 NOS. PENLITE		230w/6 PENLITE	9v (EVEREADY 216 TYPE)	
	CHECK	METER	LED	DISPLAYS 'LO BAT'	METER	CONTINUOUS SOUND INDICATION	
	LIFE HRS	50/60	30/40	50/60	30/40	20/30	60/80
SPECIAL FEATURES		PUSH BUTTON RANGE SELECTION LINEAR SCALES		DIGITAL AUTORANGING SWITCH OFF TIMER SLOW/FAST RESPONSE	SELF DIAGNOSTIC MAINS/BAT OPERATION SOUND/LIGHT ALARM SETTABLE ALARM LEVEL	ULTRA SMALL COMPACT WITH POCKET CLIP	
		LOW COST	NO MOVING PARTS			OVER RANGE INDICATION	DIGITAL DISPLAY
CONTROLS		A) ON/OFF B) RANGE SELECT		ON/FAST SWITCH	REFER PHOTOGRAPH	ON/OFF	ON/OFF & SENSITIVITY
CONSTRUCTION		AL FABRICATION	ABS PLASTIC		M.S. FABRICATION	ALUMINUM EXTRUDED CHANNEL	
SIZE (in mm)	L x W x H	140 x 80 x 40	145 x 80 x 40	145 x 80 x 40	260 x 150 x 100	125 x 50 x 25	115 x 50 x 25
WEIGHT	GRAMS	400	300	300	2.5 KGS	175	150
10 micro Sievert = 1 milli Roentgen 10 milli Sievert = 1 Roentgen				Note : Colours are used to improve readability only ! An end windows GM tube to detect Beta (β) radiation (counts/sec.) can be incorporated in MINIRAD-Low Range.			

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SMARTRAD: Radiation Survey Meter with internal Beta / gamma / X-Ray Detector



- 0.00 mR/H to 10 R/H, Auto Ranging.
- Dose range from 0-999 mR
- Graphic LCD Display With LED backlight
- Internal type G.M. Detector LND make.
- Menu driven Operation
- Built in buzzer audio chirps for exposure rate.
- Shows Calibration Due Date at On / Off
- Analog bar shows sudden variation in radiation
- Alarm thresholds for Dose and Exposure rate
- Statistical screen for Max & 30 Sec Average
- Available in Roentgen or Sievert Scale
- Counts per Second (CPS) available for contamination monitoring (SmartRad Beta & SmartRad Micro)
- Auto Switch Off
- Accuracy $\pm 15\%$ with CS-137
- ABS casing, compact and light weight
- 4 AA size Batteries with Low Bat Display.
- Size 140 x 65 x 50 mm; Weight 300 gm

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	SmartRad Mini	SmartRad Low	SmartRad Beta	SmartRad Micro
Radiation Detected	Gamma & X-Ray		Gamma, X-Ray & Beta	Gamma, X-Ray, Alpha & Beta
Detector	Miniature halogen quenched internally mounted GM Tube shielded for energy correction		Miniature halogen quenched internally mounted GM Tube shielded for energy correction with openable Beta window	Externally mounted halogen quenched pancake GM detector with openable Beta shield
Measuring Range in Roentgens	Rate: 0.1 mR/h to 9.99 R/h Dose: 0.1 mR to 999 mR (in up to 2 R/h field)	Rate: 0.01 mR/h to 1.0 R/h Dose: 0.01 mR to 999 mR (in up to 1 R/h field)	Rate: 0.01 mR/h to 999 mR/h Dose: 0.01 mR to 999 mR (in up to 1 R/h field)	Rate: 1 μ R/h to 99.9 mR/h Dose: 0.01 mR to 999 mR (in up to 100 mR/h field)
Measuring Range in Sievert	Rate: 1 μ Sv/h to 99.9 mSv/h Dose: 1 μ Sv to 99.9 mSv (in upto 20 mSv field)	-	-	Rate: 0.01 μ Sv/h to 999 μ Sv/h Dose: 0.01 μ Sv to 999 μ Sv (in upto 1 mSv field)
Accuracy	±15% when calibrated with Cs 137			
Operating Temperature	0°C to 50°C			
EHT	500V (nominal) Regulated			
Battery	4 penlite dry cells (Gives 50 to 60 Operating Hours)			
Dimensions (in mm)	140 x 65 x 50			140 65 x 50 + External Probe
Weight (with battery)	250 grams			500 grams with external probe

E-DOSIRAD / DOSIRAD and E-DOSIRAD-AL / DOSIRAD-AL



REILABLE Pocket dose meter with the specification as below :

Detectors: PN junction Silicon Semiconductor OR GM Tube for Gamma Rays

Signal range: 1 micro sievert to 100 mili sievert. OR .1 mR to 10R (1mSv = 100mR = 0.1R)

Sensitivity: 1 count per micro sievert

Energy range: 80 KEv to 1.5MEv.

Accuracy: +/- 20%.

Duty cycle: continuous operation.

Display: 6 digits LCD.

RESET: Reset facility operated only by a recessed switch.

Dimension: Pocket size 50 X 23 X 115 mm. Weight 160 Gms.

Construction – Extruded Aluminum with ABS caps.

Environment:Temperature:20°C to 60°C.

Relative humidity: < 90%. Non condensing.

EMI: free from electromagnetic interference.

Power supply: Standard market available 9v battery with low battery indication.

Maintainability: Excellent single PCB design with hard wiring.

Storage: Dosirad should be stored with battery in removed state in the leather case provided.

Calibration Certificate: Traceable RSSD, BARC certificate provided.

Documentation: Operation & Maintenance manual supplied.

Warranty period: Minimum 12 month for manufacturing defects only.

**Additional Features of AL - ALARM Model (1mSv = 100mR = 0.1R) Settable Alarms -
50,100,150,200,250,300,350,400,450 mR**

Settable Alarm – 0.5, 1, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5 mili Sievert

High Radiation Alarm – 30 mili Sievert / 3R/hr

Detector : DOSIRAD - GM Tube for Gamma Rays

Detector : E-DOSIRAD - PN junction Silicon Semiconductor

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AREA ZONE MONITOR - NZM: Microprocessor based Digital Wall Mount Area Monitor

The all new NZM, is a microprocessor based Digital Wall-Mount Area Monitor, designed for clear visibility and ease of use. Featuring a wall-mount chassis, the Model NZM has a four digit LED display, which is readable from up to 30 feet away. The backlit indicators along with audible alarms warn of low radiation, high radiation, instrument failure, detector failure and low battery. NZM comes with battery backup which provides long hours of additional use after the primary power is removed. NZM comes with an option of an external detector in lieu of an internal detector.



	Detector
Application Areas	Continuous radiation level monitoring in <ul style="list-style-type: none">• Medical radiation therapy units• Industrial radiological installations• Radiation source rooms• Other radio-isotope laboratories
Radiation Detected	Gamma, X-Ray
Detector	Internally / Externally mounted halogen quenched GM detector
Display	Four Digit LED Display, with separate LEDs for visual alarm indications
Audio	Settable low and high alarms, Detector failure alarm
Measuring Range (Select One)	Available Units: mR/h, μ R/h, R/h, μ Sv/h, mSv/h, CPS, CPM, kCPM 0.1 - 999.9 , 0.1 – 9999 , 1 – 99.99 , 10 – 999.9
Other Outputs (Optional)	<ul style="list-style-type: none">• RS-232 for PC connectivity• Relay output for• Analog output: 5 decade logarithmic voltage output
Energy Response	100 KeV to 2 MeV
Accuracy	$\pm 15\%$ when calibrated with Cs 137
Operating Temp	0°C to 50°C
EHT	500V (nominal) Regulated
Power	230 Volts ($\pm 10\%$), with built-in battery backup
Dimensions (in mm)	240 x 190 x 60 + External Probe
Weight (with battery)	2350 grams + External probe

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microRAD : Radiation Survey Meter / Contamination Detector :-

microRAD Is a portable, battery operated Radiation Survey Meter / Contamination Detector. It Provides a fast and accurate measure of Alpha, Beta and GAMMA RADIATION. It covers a wide range from a few microrads TO 100 milirads. The Pancake Beta Detector connects to the main unit with a one meter cable. For Alpha and Beta Detection the pancake window must be exposed by sliding the SS metal cap on the face of the Detector Head. Keep the cap closed when blocking Alpha & Beta and in storage.



TECHNICAL DATA OF microRAD (1 uSv/h = 0.1mR/h)

1.	Dose rate or Contamination Ranges: 1uSv/h = 0.1mR/h CPS : Counts Per Second	I - 0-100 uR/h (0 – 1 uSv/h)	0-6 CPS
		II - 0-1mR/h (0 – 10 uSv/h)	0-60 CPS
		III - 0-10 mR/h (0 – 100 uSv/h)	0-600 CPS
		IV - 0-100 mR/h (0 – 1 mSv/h)	0-6000 CPS
2.	Radiation Detected	Alpha, Beta, Gamma and X-rays	
3.	Display	50mm Analog Meter	
4.	Range Selection	Push Button and LED Range Indication	
5.	Accuracy	± 15 % (calibration with Co-60, 25C)	
6.	GM Detector	7312 Pancake 1.75" Dia. 0.5" Depth	
7.	Energy Dependence referred to Cs-137	From 80 keV to 200 keV + 15%, - 25% From 0.2 MeV to 2 MeV ± 15%	
8.	Beta Detection Window	1.5 mg/cm ² ~ 2" Diameter and 0.5" depth	
9.	Detector Housing - Aluminum	25D X 70W X 130L mm with SS shield	
10.	microRAD Housing -Aluminum	40D x 80W x 140L mm	
11.	Operating Temperature	0 to 50C	
12.	Battery	Five 1.5V cells, Penlite / AA Size	
13.	Lo BAT Indication	LED	
14.	Audio Output	Piezo Buzzer	

Direct Reading Dosimeters : -

The direct reading dosimeter is a rugged instrument which measures accumulated quantities of gamma and x-ray radiation. Applications include personal and environmental monitoring. The low energy feature has hospital applications including fluoroscopy, portable radiography, and angiography. This pocket size instrument is light weight, and has a sturdy clip to attach to an individual's pocket.



ENERGY RESPONSE: 16 keV - 2 MeV

RADIATION DETECTED: Gamma and x-ray from 16 keV - 2 MeV

RANGES: 0 - 200 mR OR 0-500 mR OR 2mSv OR 5mSv

ENERGY RESPONSE: See response curve below

DETECTOR: Fiber electrometer mounted in an electrically conducting plastic ion chamber **DETECTOR**

HOUSING: Very low permeability plastics-hermetically sealed **ACCURACY:** Within $\pm 10\%$ of true exposure

RATE RESPONSE: Dose rate independent for gamma and x-ray **ELECTRICAL LEAKAGE:** Less than 1.0% of full scale for 24 hours at 50°C **TEMPERATURE RANGE:** -20°C - +50°C

RELATIVE HUMIDITY: Up to 90% non condensing **DIMENSIONS:**

4.5"(12.4cm)L X 0.6"(1.5cm) Diameter **WEIGHT:** 1 oz (25 grams)

FINISH: Barrel and end caps: Natural matte; Clip: Metal

Low Leakage: Measures Background

Dosimeter Charger

FEATURES

- **COMPACT** Small, lightweight, rugged.
- **HIGH INTENSITY** QFD Scale can be viewed clearly.
- **LOW POWER** Will consume less than 20 milliwatts.
- **LONG LIFE** Long LED life (upto 7000 Hours).
- **PORTABLE** Use in laboratories or on site.

DESCRIPTION

OPTEL's Charger for Quartz Fiber (Pen Type QFD) Dosimeter with built-in light source.

Place the QFD on the LED Base. Press gently and adjust the '0' control to set the QFD pointer to ZERO division. Make sure the dosimeters makes a contact with the LED contact.