

LINEAR AMPLIFIER



TYPE : LA520

NUCLEONIX SYSTEMS PRIVATE LIMITED

Plot No : 162 A & B, PHASE II, I.D.A.Cherlapally, Hyderabad - 500 051

Ph: 91-040-27263701/27261882, FAX : 27262146

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CONTENTS

Sl.No.	Description	Page No.
	Unpacking	
CHAPTER I	Introduction	4-4
CHAPTER II	Specifications	5-5
CHAPTER III	Installation	
	a. Inserting the module into the bin	6-6
	b. Power to work the Module	
CHAPTER IV	a. Block Diagram & Description	7-7
	b. Operational Controls	8-8
	c. How to Operate the Unit	9-10
CHAPTER V	Availing of maintenance/ calibration services and warranty clause	11-14
CHAPTER VI	CONTACT US FOR AVAILING SERVICES	15-18

UNPACKING

This Instrument has been thoroughly tested and is despatched in ready to operate condition. However, on unpacking and prior to operation, it is advisable to check visually and make sure that there is any visible damage caused in transit.

If any damage to the instrument be observed, do not switch ON the unit and report the matter immediately to :

Customer Support Division
Nucleonix Systems Private Limited
Plot No : 162 A & B, PHASE II,
I.D.A.Cherlapally,
Hyderabad - 500 051.
Ph: 91-040-7263701/7261882, FAX : 7262146
e-mail : info@nucleonix.com www.nucleonix.com

In all correspondance regarding the instrument, please mention the serial numbers of the unit and year and month of the supply.

CHAPTER - I

INTRODUCTION

Many of the Nuclear Detectors give small amplitude pulse outputs. These output pulses cannot be directly counted or analysed by scalers, countrate meters and single channel analyser, without being first amplified.

The Linear Amplifier LA 520 is a solid state pulse amplifier designed by NUCLEONIX to shape and faithfully amplify such pulses to operable levels. Featuring excellent non-overload characteristics, a high gain, low equivalent input noise and flexibility of pulse shaping, LA 520 is ideally suited for use with nuclear counting systems such as Gas flow Proportional counting, NaI detector based Scintillation Counting and Liquid Scintillation counting systems etc.

Input to this amplifier is typically from a NaI scintillation detector. This can be a positive or negative tail pulse, with a fall time of the order of 35 msec or above, is required for PZ to work effectively. If the fall time is less still it can be used but PZ may not be OK for PZ to work. Output from the amplifier will be a Semi-Gaussian shaped pulse of uni-polar or bi-polar pulse.

This unit features compact modular construction and its power requirements are met by Instrumentation bin and power supplies such as IB401/PS401H including minibin and power supply MB403 of Nucleonix make or its equivalent.



Fig. (1) : FRONT VIEW



REAR VIEW

CHAPTER - II

SPECIFICATIONS

Input Polarity	:	Positive or Negative
Input Impedance	:	1k ohms
Total Gain	:	Typical 800 +/-10% with 1 micro second time constant
Gain Adjustment	:	Controlled by two gain controls Accuracy : +/-10% a. Coarse gain : By rotary switch 0.2, 0.5, 1, 2, 5, 8 b. Fine gain : About 1 to 3 adjustable by a ten turn helipot
Attenuator	:	x1 and x2.5
Pulse shaping	:	Time constants variable from second to 5 micro second in sequence of with a provision of switching integration IN/OUT = 0.5, 1, 2, 3, 6, 10 msec.
PZ adj.	:	Built-in, provided on front panel.
Amplifier Rise Time	:	Better than 100 nano seconds.
Output selection (toggle switch)	:	BI (Bipolar) or UNI (Uni polar)
Output (BNC) or UNI / BI	:	0 to 8V positive, linear output Unipolar or Bi-polar with 10V saturation
Output Impedance	:	90 ohms (Approx)
Amplifier noise	:	Equivalent input noise 10 micro volts rms typical at maximum gain and 1 msec time constant
Linearity	:	The integral non-linearity is less than 0.15% from 200 mV to 8 mV at 1 micro sec time constant
Power Requirement	:	+12V at 30mA -12V at 33mA
Dimensions	:	Standard two width module
Temperature Stability	:	0.01% per degree centigrade
Module connector	:	Amphenol connector type 26-159-24P-H (24 pin type) Indian standard or NIM standard, as per AEC specifications TId 20893 (Rev) Type AMP 204186-5 (International standard)

CHAPTER - III

INSTALLATION

LA 520 is intended primarily to be a constituent unit of modular Gamma Ray Spectrometer housed in a Standard instrumentation Bin IB401 with PS401/401H or Minim bin MB403. The Bin has an attached Power Supply to power all the constituent units of the system.

A. INSERTING THE MODULE INTO THE BIN

The bin is fitted with guide bars at the top and bottom to help guide in and position the modules. To insert the module into the bin the projected edges at the top and bottom right hand side of the module should be positioned into the channel grooves and pushed right in until the 24 pin power connector to the bin and module fully engage. The captive screws on the module should be tightened.

B. POWER TO WORK THE MODULE

The input power to work the LA 520 module is fed through the connector at the rear side of the module. This connector mates with one of the output connectors of the bin.

CHAPTER - IV

A. BLOCK DIAGRAM DESCRIPTION

This pulse shaping amplifier called as Linear Amplifier is designed to accept input typically from a NaI Scintillation detector. Output from the scintillation detector, pre-amplifier may be of 'POS' or 'NEG' polarity & additionally may have some gain or signal amplification. **Depending upon this pre-amp output, input polarity of the Linear Amplifier LA520 is to be selected.** However amplifier output will be always positive.

From the block diagram it can be seen that the 'input' stage is essentially a differential amplifier stage with input polarity selection, option. Further there is a toggle switch (provided on front panel) to select attenuation of input by a factor of '1' or '2.5'. This first input stage also provides a gain of X5 for the input signals.

First stage output will be a negative pulse. This passes through a pole-zero compensating network & differentiator circuit. Followed by this there is attenuator network which will come into picture for 'COARSE' gain selection.

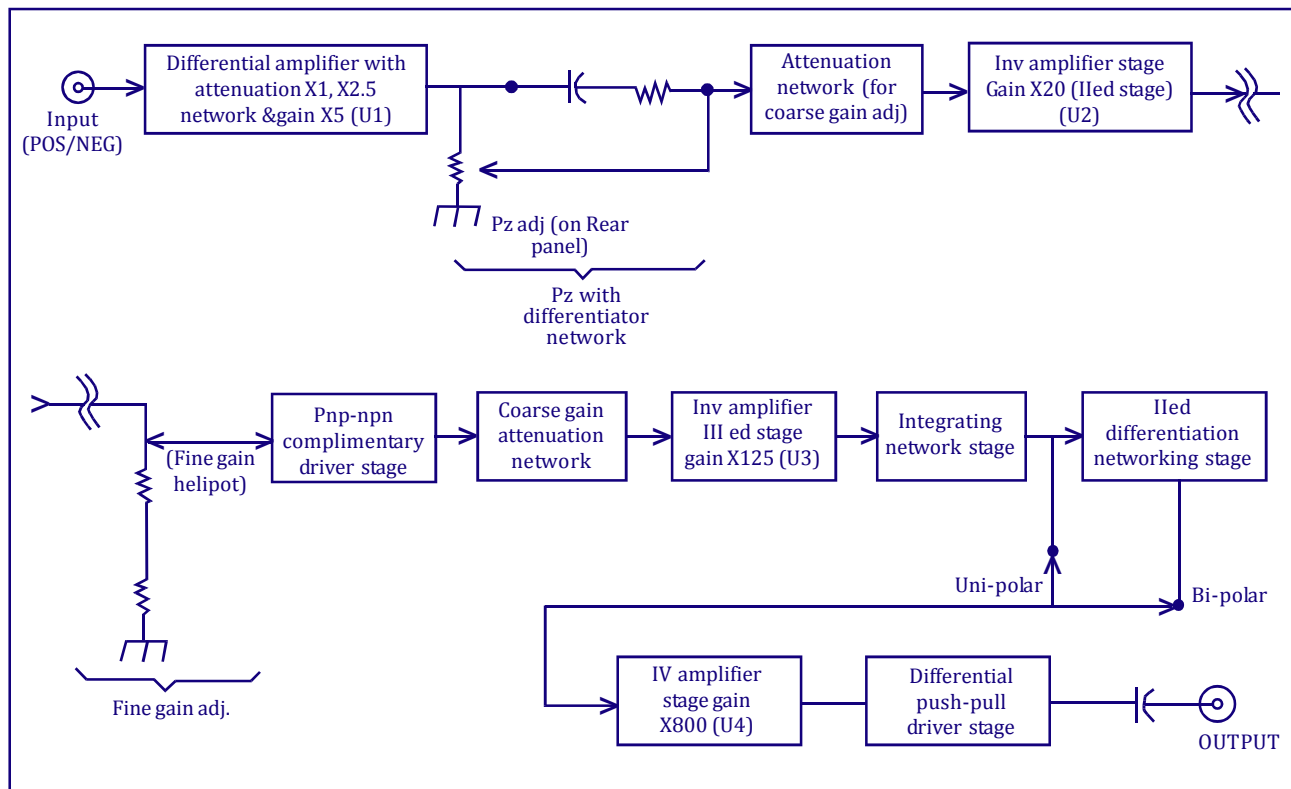
Next stage is an Inverting stage with a gain of X20 output from this stage will be a positive pulse. Followed by this there is a ten turn helipot of 1K ohms which will provide fine gain adjustment to the user. There is a Pn-P-npn complimentary driver stage to provide buffering & driving capability.

The following stage will be second part of the attenuation network which provides 'COARSE' gain adjustability to the user on the front panel.

Next to this, there is another third gain stage. This provides a gain of X12. Next stage is an integrating network stage. Output from this will go straight to Fourth amplifier stage which has a gain of X75, in case of unipolar output.

If user wants to have bi-polar output then it goes to Iled differentiating network, before it is fed to fourth amplification stage. Finally there is a differential push-pull driver stage for output. There is a capacitor in the output to provide a.c coupled output.

This amplifier gives semi-gaussian shaped output either uni-polar or bi-polar output. Output from this can be fed to the input of MCA module (1K / 4K / 8K) of Nucleonix systems make or any other Multi-channel Analyzer or to Single Channel Analyzer in case of a Single Channel Gamma Ray Spectrometer.



B. OPERATIONAL CONTROLS

Polarity (Toggle switch) : Toggle switch to be set depending upon the polarity of the 'input' to LA520 (i.e to scintillation detector pre-amplifier output polarity).

a. Coarse gain (Rotary switch) : Rotary control to vary the gain of the amplifier in three steps viz 0.2, 0.5, 1, 2, 5, 8

b. Fine (Helipot with knob) : A ten turn helipot control to provide continuous variation in the gain of the unit over a range of 1 to 3

Time Constant (Rotary switch) : Rotary controls providing a choice of six time constants. (differentiation and integration time constants combined). These are variable from (0.5 to 10) msec 0.5, 1, 2, 3, 6, 10.

Input (BNC) : Coaxial BNC connector for feeding the input pulses to the amplifier (Typicall scintillation detector output is fed to this input)
Polarity : Unipolar / Bi-polar

Output (BNC) : Coaxial BNC connector providing the output pulses from the amplifier (Output from this is taken either to MCA (Multi channel Analyser input or SCA module in a Gamma Ray Spectrometer System)

PZ adj. : Built-in, Provided on front panel for pole zero cancellation

ATN : X1 and X2.5

UNI/BI : Unipolar (or) Bipolar which we select to operate the system

C. HOW TO OPERATE THE UNIT

(i). For Single Channel Gamma Ray Spectrometer setup

Figure (3) on next page below indicates single channel gamma ray spectrometer (GRS) block diagram for a modular system. This clearly indicates how the Linear Amplifier is integrated into this system. Basically all these modules draw low voltage power from instrumentation bin & power supply type IB401/PS401/401H or Mini-bin power supply MB403.

Detector bias voltage required for the scintillation detector is provided by a High voltage module typically HV501 / 502 of Nucleonix systems make or its equivalent can be used.

In this GRS system Scintillation detector output (which is either POS or NEG polarity) is fed to Linear Amplifier LA520. Appropriate input signal polarity is to be selected. Now by placing Cs-137 source. Time constant can be left at 1.0msec for all practical purposes. Usually for Gamma Ray Spectroscopy work 1.0 msec TC is recommended.

Ofcourse observe the amplifier output in Oscilloscope, & measure the amplitude of Cs-137 photopeak so that it is 3.0V. Adjust gain (coarse & fine of LA520) to get this photopeak amplitude to 3.0V. The purpose of this exercise is to ensure that we are able to cover 100 keV to 2.0 MeV range within linear range of (0-8V) for analysis. If Cs-137 with 662keV is adjusted for 3.0V photopeak then Co-60 higher energy peak will be at around 6.0V, as the higher energy peak of Co-60 is 1.33 MeV.

Output from here goes to single channel analyser (SCA) module. Followed by this to a counter timer module. Function of SCA is to do pulse height analysis in 'WINDOW' mode. Once it is done, user can select desired energy band for counting application. Function of counter/timer module is to count the pulses for a preset time selected.

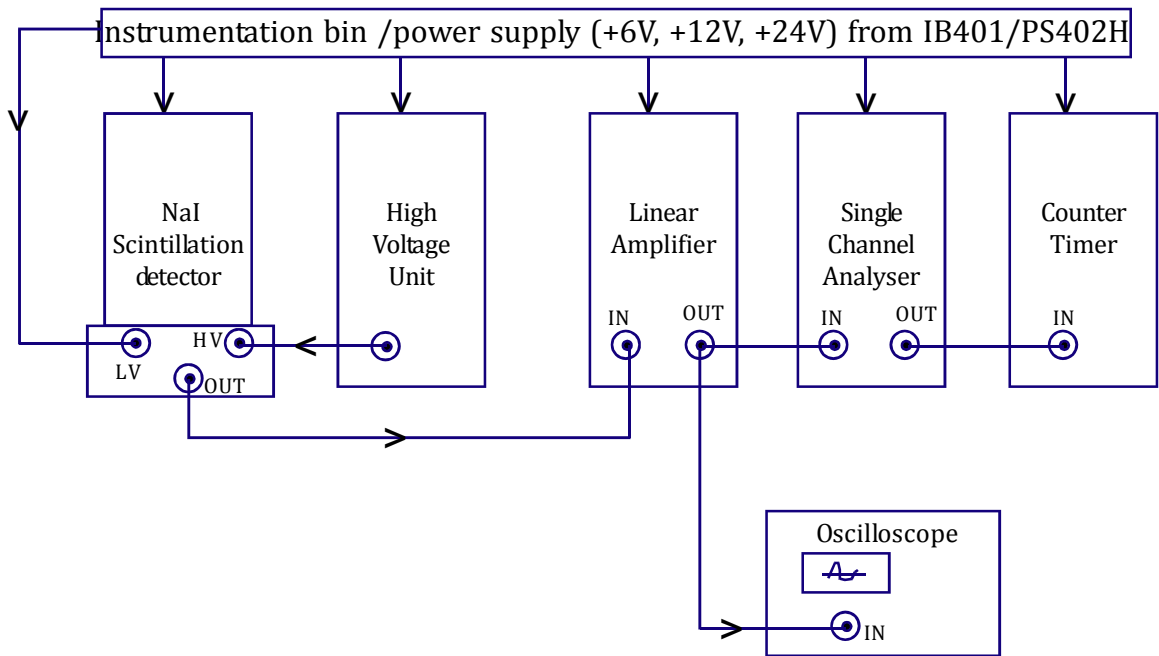


Fig. (3): Gamma Ray Spectrometer setup (modular) - using Single Channel Analyser

(ii). For Multi Channel Analyser setup

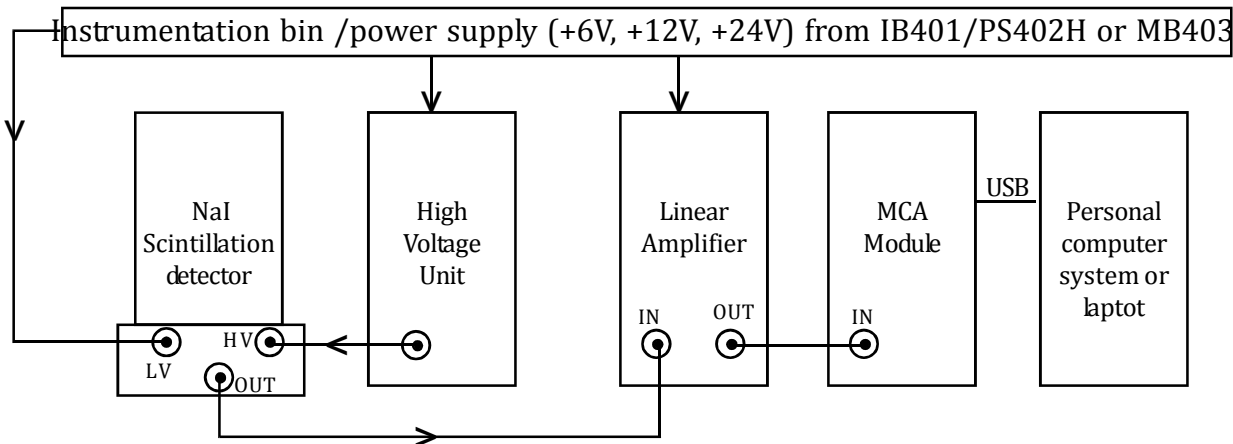


Fig. (4) : Gamma Ray Spectroscopy system using Multi Channel Analyser module

If your experimental setup is using Multi Channel Analyser, the system interconnections are as shown in Fig (4). All the above description given under C (i) holds good upto linear amplifier. Output from this Linear amplifier LA520, is fed to MCA module. Ofcourse, ensure to set the High Voltage to operating voltage of the Scintillation detector, as specified by the detector manufacturer.

Now adjusted as said in C (i), the LA520 gain setting so as to get Cs-137 photopeak to 3.0V, as seen in the oscilloscope & feed this to MCA input to acquire PHA spectrum. Typical Cs-137 PHA spectrum will be as indicated in Fig. (5).

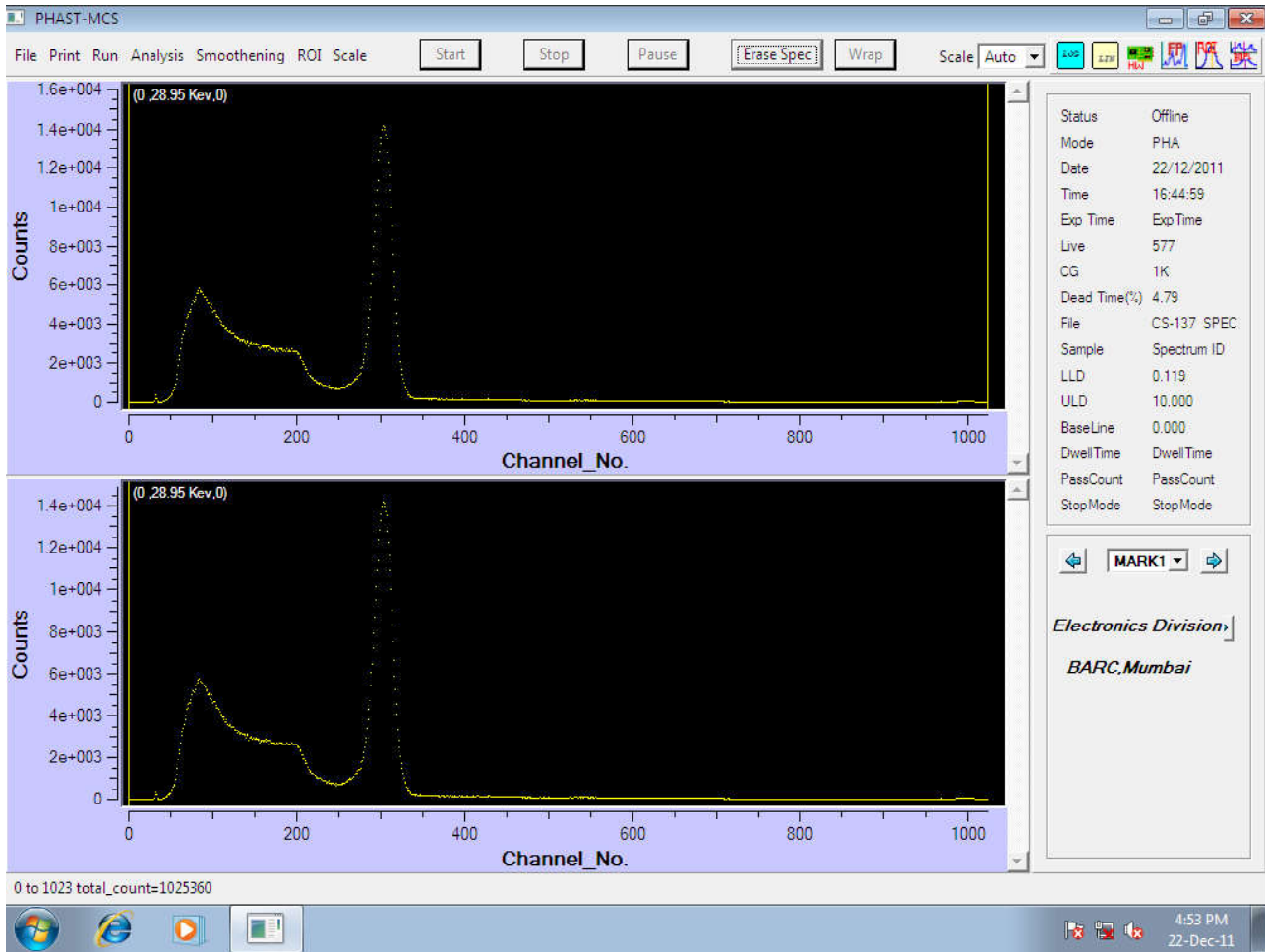


Fig. (5) : Typical Cs-137 spectrum acquired using Nucleonix System make MCA module, LA520, High voltage module HV501 which provides detector bias are powered by IB401 & PS402H.

CHAPTER - V

AVAILING OF MAINTENANCE/ CALIBRATION SERVICES AND WARRANTY CLAUSE (with in India)

5.1 GENERAL

As per the warranty clause of the company, we provide one year warranty during which period we provide free service at our works. Hence in case of any mal-function in our instruments, you are requested to send the unit back to our works by RPP/COURIER/SPEED POST PARCEL/GATI/XPS/door delivery. We shall arrange immediate rectification/replacement within two weeks from the date of receipt of the equipment at our place. Please note that the equipment will be serviced at our works only.

The equipment is to be sent to:

The Servicing Department
NUCLEONIX SYSTEMS PRIVATE LIMITED
Plot No: 162 A & B, PHASE II, I.D.A. Cherlapally,
Hyderabad - 500 051 Ph: 040-27263701/329145448/32918055
E-mail: info@nucleonix.com www.nucleonix.com

For all the Radiation monitoring equipment, detectors built-in or external probes will not have one-year warranty, but only inspection warranty at the time of supply is provided. Since detectors will / may have fragile glass construction, we do not provide warranty. In case of failure of these components, Nucleonix will supply detector replacement at cost-cost price.

Note: In respect of all types of portable radiation monitors, it may be necessary to checkup and recalibrate the equipment once a year at our works.

5.2 EQUIPMENT REPAIRS / SERVICING POLICY (WITH IN INDIA)

(a) During Warrantee

The following procedure is to be followed by the customers with in India for availing services/ repairing facility during warrantee period.

- 1 Equipments are to be sent to our works for availing free repair services during warrantee, after the customer receives approval from the customer support division, by sending an e-mail.
- 1 For all equipments, costing less than 6.0 lakhs one year warrantee & free service is offered, when the equipments are sent to our works only. For larger systems such as installed systems, networked systems, specialized systems, costing more than 6.0 lakhs during one year warrantee, free service is offered at site. Field service Engineer will be deputed subject to warrantee terms & conditions.
- 1 This does not include personal computer related problems, for which local computer service provider of the PC vendor is to be contacted. Also for software related problems online support will be provided. Software support doesn't include cleaning of virus problems etc.
- 1 When the equipments are sent to our works for warrantee services, they are to be properly packed with adequate cushion to prevent any transportation damages. Nucleonix Systems is not responsible for damages or loss during transportation.
- 1 Packing / Freight charge is to be borne by customer when he sends the equipment to our works. However when we return after servicing packing will be Nucleonix responsibility & Freight charges will be to your account. Only services are free.
- 1 Please indicate in your correspondence equipment model & serial number.
- 1 All the equipments are to be sent to our works only on door delivery basis.
- 1 For Door Delivery Transportation contact XPS/GATI cargo in your city / town or a reliable courier service to pick the consignment from your place. For their nearest local address & phone no's look into their websites. Transit insurance if the customer feels is necessary it is to be covered.
- 1 Nucleonix Systems will not receive the equipments sent by other modes of transportation, such as Rail/Road.
- 1 After servicing, equipments will be sent back by same mode of transport such as XPS/GATI/COURIER/RPP.

- 1 All types of Radiation detectors, glass ware, PMTs etc which are fragile are not covered in warrantee, if the failure is due to physical damage, external or internal due to shock, dropping, miss-handling etc. If the failure is due to a natural fault then only it is covered under warrantee for a limited period of three months. However complete electronics is covered for 1 year warrantee.
- 1 You can also send the equipment personally to our works for repairs either during or after warrantee, after fixing up with our service dept (Customer Support Division). If possible we may repair on same day or your person can stay for a day or two & get it repaired & or calibrated.

(b) After warrantee Services

- 1 On expiry of 1yr warrantee if you like to send the equipment (low cost less than 6.0 lakhs) for repairs to our works, you may please observe the following procedure.
- 1 Send an e-mail with details mentioning that you agree to pay service charges which includes: Basic service charges per unit / module in the range of Rs: 2500 to Rs : 10,000 depending on the sophistication of the unit calibration charges (if applicable for your equipment) + cost of components + packing charges + Return Freight charges @ actual.
- 1 Once our customer support department responds & requests you to despatch the equipment to our works for repairs, you may do so by following the steps given below.
- 1 Followed by this you can send the equipment straight away if it is within 5 yrs old. If the equipment is beyond 5 yrs old, then also you can send it for repairs, however only after you receive confirmation from Customer Support Division, that it is repairable & is not an obsolete model. If the design is obsolete then customer support division (CSD) may give you 'buy back' offer to replace with new model or upgrade it with electronic circuit boards & enclosure.
- 1 For all installed equipments costing above Rs: 6.0 lakhs which are larger in size & for which field servicing only is recommended, you can obtain a quotation with relevant details by sending an e-mail & avail the services accordingly.
- 1 For all field servicing jobs, since we need to depute engineers, it is likely, to take time & also it will cost more which includes Engineer's TA & DA etc., apart from basic service charges + cost of spares etc. Please note that basic service charges will be different for different products depending upon sophistication.
- 1 Also in some cases it may not be possible to fix-up the problems in the field itself, in such cases we may advise you to send them to our works.
- 1 For all jobs to be serviced in the field, customer is requested to provide adequate details on the nature of problems, to enable our engineer to come prepared with adequate spares.
- 1 For any additional information send an e-mail to info@nucleonix.com, Atten: Customer support division.

5.3 EQUIPMENT REPAIRS / SERVICING POLICY (FOR EXPORTS)

Equipments, manufactured & exported are subjected to a well defined quality assurance (QA) plan & Factory acceptance tests (FAT). Nucleonix systems has the following policy to provide maintenance support to overseas customers either directly or through international dealers / distributors.

(a) During & after warranty:

- 1 For minor problems, which can be handled by customers, servicing tips have been provided in the user manual / servicing manual.
- 1 Also most of the equipments have built-in fault diagnostic features which will indicate to the user nature of problem in the equipment. Based on the visual indication in the instrument Display, user can take corrective action or contact Nucleonix systems by email for help.
- 1 Nucleonix systems will guide in localizing the defective part / module or sub-system by interacting with the customer if required. Skype will be used for communication.
- 1 During warranty free replacement of sub-system or board (PCB) will be done. However customer has to send defective sub-system back to Nucleonix system with-in 15 days on arranging replacement
- 1 During & after warranty, any Freight charges & customs clearance charges are to be borne by customers, both ways.
- 1 If it is a manufacturing defect, then Nucleonix system will bear the replacement cost of sub-system / unit. However any Freight charges & customs clearance charges in their country are to be borne by customer.
- 1 After warranty, services will be similar to that of services during warranty. However, customer will have to pay for cost of parts replaced, freight charges both ways & customs clearance charges in both the countries. Nucleonix systems plans to introduce audio visuals on web or on CDs to facilitate product demonstration, installation & minor maintenance very soon.

5.4 HOW TO AVAIL CALIBRATION SERVICES (FOR INDIAN CUSTOMERS)

Nucleonix Systems offers radiation calibration services to its customers. Calibration services are provided for Nucleonix Systems manufactured products only, in general, as a company policy.

How to avail calibration services:

It is best advised that each of the Radiation monitors including Area monitors are calibrated once in a year. When you want to send your Radiation monitor / Area monitor / Contamination monitor for calibration to our works. You may send the equipment for calibration, by following the steps given below:

1. Our standard calibration charges per equipment (All types of Radiation monitors including portable survey meters, contamination monitors & Area Gamma Monitors) are Rs: 2500 + Packing + Freight charges. You can email a 'work order' accepting these charges.
2. Email your work order and despatch / send the equipment to our works if it is 5 years old or less including details of mode of transport sent with docket particulars.
3. Also mention in your work order & clearly indicate that you will agree to pay calibration charges & also equipment repair charges additionally if the unit is faulty & requires repairs before one can take it up for calibration.
4. You are requested to ensure good packing to avoid any transportation damages. Especially if there are external detector probes, they are to be packed with sufficient soft foam to ensure no damage in transportation.
5. Use only the specified following mode of transportation system for dispatching on door delivery basis. XPS/GATI cargo / Courier/RPP/Speed Post parcel etc. Send the equipment on freight paid basis. (Equipments sent by other methods such as Rail/Road etc will not be collected). Also you can cover for transit insurance both ways if you wish. Nucleonix system is not responsible for any transportation damages or loss during transportation both ways.
6. Immediately on receipt of the equipment, we will send an acknowledgement & also a proforma bill by email/ post.
7. Based on the proforma bill, once we receive the payment, equipment will be dispatched back by similar mode of transportation as mentioned above.

5.5 HOW TO AVAIL CALIBRATION SERVICES (FOR FOREIGN CUSTOMERS)

Foreign customers can calibrate Nucleonix make Radiation monitors/equipments in their country at any of their accredited Radiation calibration labs. Nucleonix systems will be happy to provide any help and guidance if needed, for calibration. Alternatively if you send the equipment here to India we can also provide calibration services.

Calibration Standards Lab & Facility:

We have two calibration labs.

- i. Low Level Calibration Lab.
- ii. High Dose Rate Calibration lab.

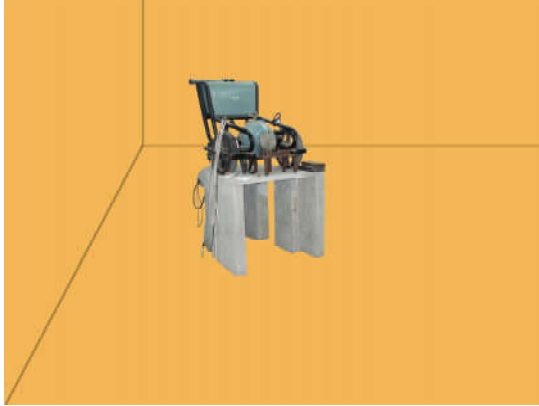
Low Level Calibration Lab: This has a Cs-137, 165 mCi standard. "Gamma Survey Instruments Calibrator" from Amersham.

This calibration service has NIST Traceability standard. Calibration of all portable radiation monitors, survey meters, contamination monitors, Area monitors etc., is carried out in this lab upto 1 R/hr max dose rates.



Gamma Survey instruments calibrator has Cs-137 source 161.5 mCi as on 05 Aug 2002. It is basically a gamma survey instruments calibrator procured from AEA Technologies UK/USA. Has NIST traceability accuracy within +/- 7%

Gamma Survey instruments calibrator has Cs-137 source 161.5 mCi as on 05 Aug 2002. It is basically a gamma survey instruments calibrator procured from AEA Technologies UK/USA. Has NIST traceability accuracy within +/- 7%



CRC-2 camera has Co-60 standard obtained from Bhabha Atomic Research Centre, Mumbai. It is a certified source.

5.5 ANNUAL MAINTENANCE CONTRACT (AMC)

Annual maintenance contract (AMC) services:

For all sophisticated instruments & systems and also for installed monitors & networked systems in a nuclear facility or a Radiological lab or in a Medical cyclotron facility where no. of instruments are networked, it is advised that customer enters into an economical Annual maintenance contract with Nucleonix system.

Detailed AMC proposal can be obtained from our customer support division (CSD), by giving required inputs.

Inputs required by our CSD to send you AMC proposal:

- 1 Name, year & date of purchase, Sl. Nos. of equipments, Model No's, No. of equipments for which AMC is required. Additionally no. of calls per annum required for preventive & breakdown maintenance may also be indicated.

Advantage of entering into AMC:

- 1 Equipment services offered will be prompt & timely
- 1 Nucleonix systems maintain required spares, spare tested PCBs, detectors & other critical components which may become obsolete.
- 1 Obsolescence in electronics is quite rapid. If you enter into AMC guaranteed service for the period of AMC will be the responsibility of Nucleonix Systems.
- 1 Nucleonix Systems will maintain Engineers at your disposal to attend to AMC calls on time
- 1 Without AMC prompt service calls are not guaranteed.
- 1 If some critical components become obsolete, then Nucleonix systems may request you to upgrade the product with new model or new electronics which may be expensive if you are not under AMC.

Training on maintenance / servicing:

- 1 To a limited extent, we offer training on maintenance / repairs at our works to customers on chargeable basis. Details can be obtained from our customer support division, by customers who may require such services.

CHAPTER –VI

CONTACT US FOR AVAILING SERVICES

Postal/Mailing Address (Phone / Fax / Email)

Nucleonix Systems Pvt Ltd.
Plot No. 162 A&B, Phase II, I.D.A.,
Cherlapally, Hyderabad - 500 051, Telangana, India.
Phone: + 91-40-27263701, 040-27262146, 68888777
Mobile: 7331104480, 7331104481, 7331104482
Fax : + 91-40 - 27262146
Email : info@nucleonix.com

**For any information, Contact by email is always appreciated.
(This will help us to respond to you quickly)**

Marketing Department :

a) Sales / Commercial Information / Field installation and servicing

For any Commercial, Price information, Product information, customer coordination & quotation

of our products customer related commercial services, please contact front office marketing staff through the listed Email Ids or Phone Nos. given below

Whom to Contact:

Business Executives:	Contact Numbers	Contact by E-mail ID
1. R.Maniram (Sr. Business Executive)	Mob:7331104481, Ph-040-27263701	info@nucleonix.com
2. Ch.Gayatri (Business Executive)	Mob:7331104481, Ph-040-27263701	info@nucleonix.com
3. K.Swapna (Business Executive)	Mob:7331104481, Ph-040-27263701	info@nucleonix.com

Note: Our business executives will also connect you to concerned Engineer or General Manager for any technical clarifications if required

b) Factory Services

For **Servicing and Calibration** factory services & follow up on the above jobs including dispatch related/payment related issues of serviced & calibrated items please contact

Ms.K.Sarika
(Executive services)

Mob:7331104482

E-mail: info@nucleonix.com

She will also connect you to concerned engineer or general manager if required, for any clarifications & deficiencies in services

c) Dispatch Related Issues (Production Items)

For dispatch related issues of your ordered equipments, including delays, purchase order related document deficiencies, payment proofs, dispatch docket details and bills etc.,contact

Ms.V.Anusha / Renuka
Devi (Executive Dispatch)

Ph:040-27263701, Ex-26

E-mail: info@nucleonix.com

d) Product Technical Information / Clarifications

Whom To Contact:

Contact any front office "Business Executive"- He/She will take your details and connect you to concerned product engineer for any technical clarifications. Best thing is to email your technical queries and obtain the reply, rather than on telephone.

You can also contact General Manager or Director (Tech) if required.

e) Marketing Manager

On business matters for all your marketing services / techno commercial requirements about Nucleonix Products contact:

Bhaskara I.V.

Mob:8019662500

Land lines : 91-40-27263701, 91-40-68888777

Email: info@nucleonix.com

f) General Manager

Dr.M.S.R.Murthy PhD (Nuclear physics)

Land line: 91-40-27263701, 91-40-68888777

Email: info@nucleonix.com

Contact General Manager for all sales / servicing and technical information including customer support related issues, on the delays, gaps & lapses by our staff. Contact G.M. regarding field installations & field servicing jobs schedule etc.

g) H.R -Incharge

Contact her regarding, job vacancies, sending resume for employment, H.R. related issues etc. contact

Ms. M.Swarna Jyothi

Mob:7331104480

Email: recruit@nucleonix.com

h) Director -Technical

Mr. J. Dheeraj Reddy

Email: jdreddy@nucleonix.com

Mobile No :+91-7674009005

Contact him for, any Technical Information and clarifications on products, which cannot be answered by General Manager / Customer support executives.

For any technical deficiencies in products, related issues & suggestions on product improvements you may contact by email or telephone. This will help the company to improve the product & serve you better.

Dealer's complaints, on commercials, lapses by our commercial staff, or any other discrepancy, or you like to give any feedback on any Nucleonix staff doing any wrong thing against cleaner / ethical business principles / practices can be complained to any of the directors or managing director.

i) Director - IT

Mr. J. Nishanth Reddy

Email: nishureddy@yahoo.com; info@nucleonix.com

Mobile No. +91-9966691000

For any deficiencies in product software's, related issues, & any suggestions or improvisations in software's can be contact by email or telephone. This will help the company to improve the product & serve you better.

j) Managing Director

Shri. J.Narender Reddy (Managing Director)

Email : jnreddy@nucleonix.com; info@nucleonix.com

Contact Managing Director for, Foreign relations, International Business co-operation, Joint ventures, Exports, Dealership in other countries, Policy matters, Technology tie-ups etc.

k) Dealers Complaints :

Dealers complaints, on commercials, lapses by our commercial staff, or any other discrepancy, or you like to give any feedback on any Nucleonix staff doing any wrong thing against cleaner / ethical business principles / practices can be complained to any of the directors or managing director.
