INSTRUCTION MANUAL

NEUTRON REM MONITOR



TYPE:NSM741

NUCLEONIX SYSTEMS PRIVATE LIMITED

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CHAPTER-I

INTRODUCTION

Neutron Rem Monitor Type : NSM 741 is a portable micro-controller based battery operated instrument designed primarily for measurement of leakage neutron radiation normally encountered in Medical Cyclotron Facilities, Nuclear Power Plants and other industries where neutron source is used for certain industrial applications, Neutron Rem monitor finds industrial applications such as, in cement, mineral and coal industries where cross belt on-line analysers, based on Neutron activation Analysis are used. Neutron Rem Monitor serves as a radiation protection instrument, to measure leakage radiations from the cross belt analyzers. **Neutorn Rem Monitor** can be used for measurement in three modes CPS, CPM & Dose rate (mR/h, μ Sv/h). The unit can measure in the range of (0.1 uSv/h to 10mSv/h) in dose rate mode.

Some important features of this unit are:

- Microcontroller based design.
- Compact, Elegant and light weight.
- Detector : ³He proportional detector surrounded by 9" dia Polyethylene sphere, as moderator.
- Measures Neutron Flux in CPS / CPM.
- Measures dose rate in Sv/h in the range of (0.1 μSv/h to 10mSv/h).
- Accuracy +/-10%.
- Facilitates data storage.

GENERAL VIEW OF NEUTRON REM MONITOR





CHAPTER - II

FRONT PANEL & SIDE PANEL CONTROLS

2.1 FRONT PANEL CONTROLS AND INDICATIONS

2.1.1. LCD DOTMATRIX DISPLAY

This is a 16 X 2 alpha numeric LCD dot matrix display and responds to all the commands from the keypad and displays programme parameters like Acquisition modes (CPS, CPM & DOSE RATE), Calibration factor, Recall, Save etc.

2.1.2. INTELLIGENT KEYPAD

- (a) <u>PROG key button</u>: This key is an important one which facilitates the user to programme the operation of the instrument for different modes / conditions.
- (b) <u>START key button</u>: This is used for starting of acquisition once all the programme parameters have been set.
- (c) <u>STOP key button</u>: This key can be used to stop acquisition.
- (d) <u>INC/DEC key button</u>: These keys are used while setting the programme parameters to increment and decrement a value or to change the option selected to another value available.
- (e) <u>STORE key button</u>: This key is used for storing the readings or data values in the following way.

If you want to store the data, then press STOP button to stop acquisition and then press STORE button.

Note: Keypad commands have been explained in detail under chapter IV - 4.1.

(f) ON/OFF BUTTON : This key is used to switch ON/OFF the unit

2.2.3. TO DETECTOR (MHV-PK)

REM ball, detector(Bonner sphere), MHV female connector is connected through a co-axial cable to the "Hand held measuring instrument" to this connector.

CHAPTER - III SPECIFICATIONS

Radiation Detected	:	Neutron Radiation.
Detector	:	3He proportional detector surrounded by 9" dia Polyethylene sphere, as moderator.
Measurement Range(S)	:	a) Countrate CPS, CPM (0-999999) b) Doserate (0.1µSv/h to 10mSv/hr)
Neutron Dose Rate	:	(0.1 μSv/h to 10mSv/h).
Alarms	:	Provision for audio/visual alarms if Dose rate exceeds preset level.
Calibration Accuracy	:	Better than +/-10% with Am-241-Be source.
Data storage	:	Can store up to 1000 data readings and stored data can be recalled back on to display.
Serial port (optional)	:	Built-in serial port facilitates data downloading in to PC. Data communication software with connecting cable can be provide at extra cost as an additional option.
Detector Operating Voltage	:	1000V aprox. <u>+</u> 50V.
Control Buttons	:	ON/OFF, START, STOP, PROG, STORE, INC & DEC are the SEVEN Control buttons provided on the instrument. The above buttons allow the user to program & operate the instruments in appropriate manner.
Power	:	A rechargeable battery of 7.5V (Clustor 1X2) with 3000mAhr.
Weight	:	<7.5 kgs along with Probe.

CHAPTER IV OPERATING INSTRUCTIONS

4.1 INSTRUCTIONS ON INTELLIGENT KEY PAD COMMANDS

When we switch on the unit, the display will show up, **<u>Backlite</u>** is ON till the acquisition mode is executed.



Note: <u>Backlite</u> for this unit is ON for about 6 seconds on operation of any key.

4.1.1 ACQUISTION MODE SELECTION

By default, it will be in Dose rate mode and it will acquire in mR/h mode



User can straight away measure the contamination in mR/h. If user wants to change to other modes (i.e. CPS /CPM/ μ Sv/h) than the default selection then press STOP key to notice that blinking "A" vanishes and display appears as,



Now by pressing PROG key, display changes to



For changing ACQ MODE to different modes, user can change the mode by using \blacktriangle or

v keys to change the mode to CPM or CPS, Dose rate (μ Sv/hr).



4.1.2 ACQUIRE IN CPM MODE

If user wants to acquire contamination in CPM mode he can now stop the acquiring of contamination by pressing STOP key and press PROG key once again, display appears as follows.



Now press \blacktriangle or \triangledown keys to change the mode to CPM.



Having selected CPM mode one can acquire the dose rate in CPM mode by

pressing START key Now display appears as,



4.1.3 ACQUIRE IN CPS MODE

If user wants to acquire contamination in CPS mode he can now stop the acquiring of contamination by pressing STOP key and press PROG key once again, display appears as follows.



Now press \blacktriangle or \checkmark keys to change the mode to CPS.



Having selected CPS mode one can acquire the dose rate in CPS mode by pressing START key, Now display appears as,



It will indicate CPS with time constant of 1 second, to stop the acquiring of contamination press STOP key



4.1.4 ACQUIRE IN DOSE RATE MODE:

Now press Increment or Decrement keys to select DOSE RATE

\square	\bigcirc
\bigcirc	
\bigcirc	

ACQ MODE µSv/h

4.1.5 SETTING OTHER PARAMETERS

Press PROG key to select the required parameters.

By pressing PROG key, display changes to





If one presses PROG key, then the option changes from ACQ MODE to other option as follows

4.1.6 STORED READINGS:



STORED READINGS: This displays the number of readings stored in unit.

4.1.7 SETTING ALARM SET POINT:

Having selected pre set time, user needs to enter the pre set time for which he intends to acquire. He can be do so by first setting ACQ mode to Dose rate/count rate mode.



Now using Increment or Decrement buttons Alarm set time can be adjusted.



Now using increment or decrement buttons we can adjust the alarm set point time in the range of 0-99999 CPS / 0-99999 CPM / 200.00 mR/hr, 2000.0 $\mu Sv/hr$



4.1.8 PASS CODE: This is a very useful & important feature ,it allows one to enter the calibration factor to obtain expected dose rate. Since the unit is calibrated at factory, user is advised not to disturb the calibration. This is to be changed only if user intends to recalibrate the unit.

PASS CODE 90

If you want to change the Calibration factor, use increment or decrement keys set for PASS CODE 90 Then press PROG KEY to change the calibration factor, then the display will appear like this. By using the keys change the Calibration factor



4.1.9 BUZZER : On pressing PROG key the following display appears,

BUZZER	OFF

The default buzzer condition is OFF. User can change this by pressing increment or decrement keys



Note: Chirping Sound will not disabled to keep the user active in identifying the dose

4.1.10 RECALL DATA READINGS:

This is a very useful feature that has been provided in this unit. At the end of storing/saving of a set of readings, this feature will enable the users to recall the readings on to the display

By pressing PROG key, display changes to,



Recall the stored data in serial wise by pressing increment or decrement





4.1.11 ERASING THE PROGRAMME PARAMETERS: ERASE MEMORY?

To erase stored values press Increment or Decrement keys.



"OK" will be displayed on erasing parameters (PROG)



4.1.12 REAL TIME CLOCK(RTC):



User can change date and time by using the increment or decrement



4.1.13 BACKLITE CONTROL:



This is having two option as ON and OFF . We can select by using these increment or decrement keys.



4.1.14 SAVING PROGRAMMED PARAMETERS:

All the programmed parameters are to be saved by the user before he can start acquisition. Without saving, the system will use the previous parameters for acquisition.

By pressing PROG key, display changes to,

\bigcirc		SAVE? (PRG)	٦
\bigcirc	$ \bigcirc$		
\bigcirc	\bigcirc		ر
\bigcirc	\Box		
\bigcirc			
\bigcirc			

SAVE?

To save the above parameters press Increment or Decrement keys. "OK" will be

displayed on saving of parameters (PRG).

4.1.15 STORING OF DATA READINGS:

This system has CMOS memory to store upto 1000 readings. To store any data use the following procedure.

Press STOP key to stop acquisition.



Then press STORE key to store the current data or readings, and the Sl. no in the display increments to the next value.



MENU	OPTIONS
ACQ MODE	DOSE RATE,CPS,CPM
STORED READINGS	XXXX
ALARM SET PT?	XXXXXX μSv/hr
PASS CODE	90
CAL. FACT	XX.XX
BUZZER	ON/OFF
RECALL DATA	
ERASE MEMORY?	
RTC	XX:XX XX/XX
BACKLITE	ON/OFF
SAVE?(PRG)	

4.2. OPERATING PROCEDURE

- 1. This unit is packed and dispatched in ready to use condition. On unpacking, user is advised to go through Instruction Manual including instructions under Chapter IV (4.1) completely.
- 2. Now switch ON the power to the unit by pressing the Power button to the ON position.
- 3. User can now operate the equipment to make measurements in CPS/CPM or DOSE RATE modes as per the requirement .User can store and recall the readings if required also.
- 4. Optional feature (offered against specific order only):

Stored readings can be downloaded into a PC if required under the control of data communication software which is supplied at extra cost as an optional accessory.

CHAPTER -V

BLOCK DIAGRAM DESCRIPTION

Neutron REM Monitor type NSM741 designed & Manufactured by 'Nucleonix System' consists of two parts namely (i) Measuring hand held electronic Unit & (ii) REM ball detector. Measuring unit has required electronics to generate (1000V \pm 50V), Pre-amplifier, TTL Converter, microcontroller & other peripheral devices including 16X2 display module, a USB port and 7.5V x 2 re-chargeable built-in battery.

Built in keyboard with six command buttons provides required functions for the user to operate in desired mode. Unit also has memory to store 1000 readings. User can recall & view these stored readings.

REM ball detector consists of ³He detector, covered by 9" Polyethyleve spherical moderator.



CHAPTER – VI

USB to UART DATA COMMUNICATION

- A) Verify if Windows 7 is installed on Target PC. Nucleonix provides support only for Windows 7. In case, for whatever reason, it is required to demonstrate the software on Windows XP, install the Service Pack 3 (if it is not already installed).
 1. Double click on "windowsxp-kb936929-sp3-x86-enu._u5Kng" file in "windows xp service pack3" folder.
- B) Login with Administrator privileges on your PC.
 Insert NucSoft software CD and run NucSoft.bat to start installation. The Batch file automatically installs the necessary files.
- C) NucSoft.bat should have installed NucSoft.xls and NucSoftLogin.xls automatically in C:\. In case you do not find these files in C:\, Copy NucSoft.xls and NucSoftLogin.xls to c:\
- D) NucSoft.bat should have installed USB Serial Bridge drivers automatically. In case it is not installed, Install by
 1. Double Clicking on driver.exe in BAFO Prolific_USB Serial Bridge_Driver folder in CD and follow the steps.
- E) NucSoft.bat should have installed dot NET framework automatically. In case it is not installed, Install dot NET framework by
 1. Double Clicking on dotNetFx40_Client_x86_x64.exe in dot NET Client folder in CD and follow the steps.
- F) NucSoft.bat should have installed Setup.exe for NucSoft automatically.
 To verify this, click on Start --> All Program --> Nucleonix Systems. If you do not find NucSoft shortcut, then it means, NucSoft is not installed. Run NucSoft Setup by double clicking on "Setup.exe" application in Debug folder.
- G) NucSoft should have installed Skype automatically. In case it is not installed,
 Run Skype Setup by Double clicking on "Skype Setup" in Skype Setup folder. Internet Connectivity is required. Skype is required for Remote technical support.
- H) In case your PC does not have Windows Live Movie Maker / Windows Media Player, Run Windows Live Movie maker Setup by Double clicking on "windows Live Movie Maker setup-web" in Windows Live Movie maker setup folder. Internet Connectivity is required.
 Windows Live Movie Maker is required to play Movie files (Documentation).
- Go through the following Videos to understand the working of NucSoft, before running the application. To locate the Videos, click on Start --> All Programs--> Nucleonix Systems.
 NucSoft_About Us
 NucSoft_User Manual_System Requirements
 NucSoft_User Manual_Making Connections
 NucSoft_User Manual_Identifying COMPOrt
 NucSoft User Manual Software Features
- J) Default Login and password for NucSoft software is 'admin' and 'Nucleonix'.

CHAPTER – VII

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

8.1 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 Phone: 040-29706483 / 84 / 85, Mobile No: 7331104481 / 82 E-mail: info@nucleonix.com Web : 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.

8.2 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.

- 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.
- 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.
- 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.

- 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.
- 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.
- Please indicate in your correspondence equipment model & serial number.
- All the equipments are to be sent to our works only on door delivery basis.
- 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.
- Nucleonix Systems will not receive the equipments sent by other modes of transportation, such as Rail/Road.
- After servicing, equipments will be sent back by same mode of transport such as XPS/GATI/COURIER/RPP.
- 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.
- 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

- 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.
- 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.
- 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.
- 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.

- 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.
- 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.
- 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.
- 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.
- For any additional information send an e-mail to **<u>info@nucleonix.com</u>**, Atten: Customer support division.

8.3 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:

- For minor problems, which can be handled by customers, servicing tips have been provided in the user manual / servicing manual.
- 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.
- 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.
- 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.
- During & after warranty, any Freight charges & customs clearance charges are to be borne by customers, both ways.
- 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.
- 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.

8.4 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/Neutron Survey Meter for calibration to our works. You may send the equipment for calibration, by following the steps given below:

- Our standard calibration charges per equipment (All types of Radiation monitors including portable survey meters, contamination monitors & Area Gamma Monitors) XXX + Packing + Freight charges. You can email a 'work order' accepting these charges.
- 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.

8.5 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.

8.6 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:

 Name, year & data of purchase, SI. 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:

- Equipment services offered will be prompt & timely
- Nucleonix systems maintain required spares, spare tested PCBs, detectors & other critical components which may become obsolete.
- Obsolescence in electrons is quite rapid. If you enter into AMC guaranteed service for the period of AMC will be the responsibility of Nucleonix Systems.
- Nucleonix Systems will maintain Engineers at your disposal to attend to AMC calls on time
- Without AMC prompt service calls are not guaranteed.
- 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:

• 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 – VIII

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: + 91-4029706483 / 84 / 85 Mobile: 7331104481 / 82 Email : info@nucleonix.com Website : www.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: +91-7207034546	info@nucleonix.com
2. Ch.Gayatri (Business Executive)	Mob:7331104481, Ph: +91-7207034546	info@nucleonix.com
3. K.Swapna (Business Executive)	Mob:7331104481, Ph: +91-7207034546	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.Sowmya	Mob:7331104482	E-mail: info@nucleonix.com
(Executive services)		

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) **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

Email: info@nucleonix.com

f) General Manager Dr.M.S.R.Murthy PhD (Nuclear physics) 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. Shanthi Sri. P

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 discripancy, 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 DirectorShri. 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 discripancy, 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.

An innovative company working towards excellence in the field of Nuclear Instrumentation



NUCLEONIX SYSTEMS PVT. LTD.

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