EIP ENVIRO LEVEL CONTROLS PVT LTD

AN ISO 9001:2015 CERTIFIED COMPANY

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INTRODUCTION TO EPT NUCLEONIC DENSITY / LEVEL METER
EXEMPTED FROM USAGE BY AERB

We would further like to inform you that our Nuclear Density and Level Meters (with Na-22/ Eu-152 as the source) are exempted by AERB for any approvals (letter attached "AERB Approval"). The said device is under the exemption category (highlighted) as per the attached AERB guidelines as the Radioactivity of the device is less than 1 MBq (less than 0.027 mCurie) and we have a high resolution patented detector to work at such a low radioactivity, an algorithm not achieved yet and hence the device by EPT. As discussed, this instrument provides a direct value to customer/end-user as this does not require regular audit report to be provided to AERB by end user and also no training is required for installation and troubleshooting of the instrument.

In addition, **our devices being AERB exempted,**

1. **The user is free from any requirements of approval from AERB for the devices,**
2. **RSO is not required in the plant and**
3. **The user is not required to send any quarterly report for the healthiness of the installed nucleonic density meters**
4. **Moreover, the device is completely safe from a health stand point of view due to the very low radiation.**

The offered technology is the use in the devices of natural or artificial gamma radiation sources emitting **1 - 20 micro Curie** which does not exceed the minimum significant activity level pursuant to the existing IAEA radiation safety standards and regulations therefore our devices are not subject to the supervision by the State Nuclear Supervision Authority, Sanitary Epidemiological Service.

In contrast to its conventional Radio-isotopic analogues,

Our offered devices use natural and artificial gamma radiation sources which activities do not exceed the minimum significant activity levels pursuant to the applicable IAEA radiation safety standards and regulations. Therefore, they are not subject to the supervision by the State Nuclear Supervision Authority, State Sanitary Epidemiological Supervision Authority and Ministry of Home Affairs that are confirmed by appropriate documents.

EPT offered devices are free from the main disadvantage of traditional radioisotope analogs, i.e. necessity to use a powerful radionuclide source as we have a high resolution patented detector to work at such a low radioactivity, an algorithm not achieved yet and hence the device by EPT

Due to the absence of a radiation source or its small dimensions (there is no radiation protection) the devices of "EPT" can be mounted in the places where it is impossible to install conventional devices. The non-contact density meter do not contain moving parts and do not require maintenance . You really can "plug and forget".

Please find enclosed herewith few details on the EPT Nucleonic Density Meter

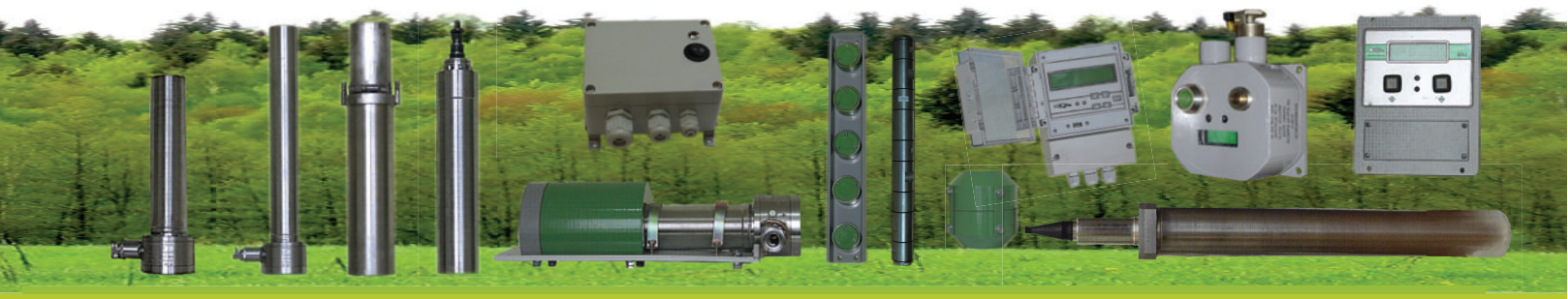
We shall be grateful if you kindly consider the same for your various applications. Thanking you in anticipation of above assuring you of our best services at all times.

Yours faithfully,
For EIP ENVIRO LEVEL CONTROLS PVT LTD

RAJNI KAUL
MANAGER- CORDN.

ECOPHYSPRYBOR

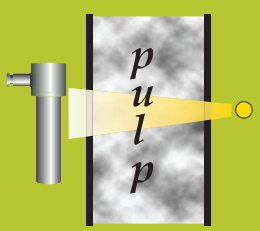
Devices for Non-Contact Control and Measurement of the Technological Process parameters in the Industry



"NTC Ecophyspribor" is a pioneer in the development of new environmentally-friendly radio isotopic methods of control and measurement of process parameters and is engaged in the manufacture of process control devices for non-contact process control and measurement (density meters, level gauges, continuous level gauges, thickness meters, concentration, media interface etc).

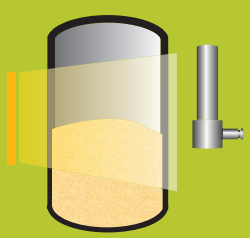
Founded in 1997, our enterprise applies for the non-contact process control and measurement the environmentally-free radio isotopic technology using "micro-active" sources of ionizing radiation with the activity of less than the minimum significant activity level pursuant to the existing IAEA radiation safety standards and regulations.

The products of Ecophyspribor are patented.



Density measurement

of liquid media and slurries in pipelines, channels and reservoirs



Alarm indication

of level and boundary surface of liquid and loose media

Continuous measurement

of level and boundary surface of liquid and loose media

Environmentally-free *isotopic technologies Ltd.*

"EPT Ltd."

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ADVANTAGES OF OUR DEVICES

- completely non-contact;
- compact design;
- no motion parts;
- maintenance-free;
- indispensable when operating with various media such as:

• Toxic, aggressive and biologically hazardous;
• Corrosive and abrasive;
• Molten and cryogenic;
• Radioactive, with high or variable level of radioactivity;
• Foams, suspensions and slurry;
• Powders and other highly dispersed loose substances;
• Slurry, ore, fusion mixtures and alike;
• Without limitation of pressure and temperature inside a controlled object.

In contrast to its conventional radio isotopic analogues, our devices use natural and artificial gamma radiation sources which activities do not exceed the minimum significant activity levels pursuant to the applicable IAEA radiation safety standards and regulations. Therefore, they are not subject to the supervision by the State Nuclear Supervision Authority, State Sanitary Epidemiological Supervision Authority and Ministry of Home Affairs that are confirmed by appropriate documents.

Our devices:

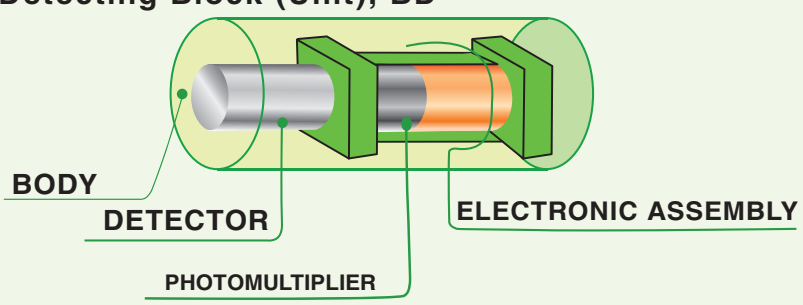
• do not generate a radiation background;
• do not require a special radiation shield;
• do not pollute the environment;
• do not require specially prepared and certified premises and personnel;
• do not create problems during dismantling of the equipment.

Since 1998 thousands of conventional radio isotopic devices in non-contact measurement and control systems in various industries have been replaced by our products. Sanitary-epidemiological certificates are available for all manufactured devices.

OPERATION PRINCIPLE: It is based on the registration of a change in the flux of ionizing radiation caused by a change in the level, thickness or density of a controlled material.

BASIC COMPONENTS:

Detecting Block (Unit), BD



BD-7
(PB Exdl/1 ExdIICT6)

A series of Detecting Unit (BD) versions with varying sensitivity and designs are offered.

• Data Processing Block (Monitor Unit), BOI

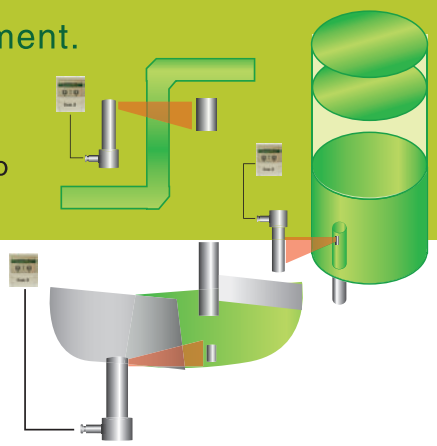
It converts a sequence of pulses in coming to its input into standart current or relay output signals associated with the input average pulse frequency via functional dependences determined electronically. It is fitted with an energy-dependent timer and a galvanically isolated interface. It is manufactured as a dust/water /fire/explosion-proof version (IP65).

Emitter/Radiation Source:

In various applications the gamma radiation of the radiation-free source of Na-22, the natural background or the gamma radiation of chemical potassium compounds with the natural concentration of the isotope Potassium-40 are used. The commonly used point source of Na-22, when installed externally, is located in the mounting assembly with a maximum size of 140 mm and when installed inside a vessel, an embedded pipe with a diameter of 40 mm is used. The extended source is assembled of several point sources.

Density measurement

Non-contact density gauge (density meter) IPB-1K, No. 23816-08 in the state register of measurement equipment.



Our devices are indispensable for non-contact measurement of density of liquid media and slurry in industrial pipelines, channels and reservoirs and are easy to install and maintain.
Standard current signal (0-5 mA) or (4-20 mA) enables to connect the equipment to the I&C System (Automatic Control System) of the enterprises.
The lack of contact between the components of the device and controlled material enables to use a density meter to control the pipelines filled with:

- Corrosive, abrasive, aggressive, toxic, biologically hazardous materials;
- Molten and cryogenic substances;
- Foams, suspensions, slurry, powders, sludge, fusion mixtures.

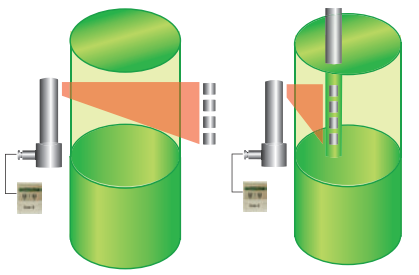
Power consumption, VA	max. 10
Allowable range of ambient air temperature, ^{o}C	
- for the Detecting Unit	- 40 to + 70
- for the Data Processing Unit	0 to + 50
Version of the Detecting Units are: • Dust/water-proof • Fire/explosion-proof (**PB ExdI/IExdIICT6**) • mechanical protection – **IP65**	

Range of density measurement, kg/m^3	from 300 to 2,500
External pipeline diameter, m	0.05 to 0.5
Limit of the basic absolute measurement error, kg/m^3	6 to 20
Standard current output signal	0-5 mA or 4-20 mA
Digital information of the average controlled density is indicated on LCD monitor	

Media level and boundary surface measurement

Non-contact Level gauge (Level meter) IUB-1K, No. 26117-09 in the state register of measurement equipment

For continuous level measurement tasks different solutions depending on specific conditions (material properties, dimensions, capacity, wall thickness, ease of instalment of equipment, etc) are used and media boundary surface measurement tasks are solved similarly with a procedure of density calculation by addition of the procedure of calculation of density in the course of processing of results of measurement.



Range of level measurement, m	up to 2.0
Limit of the basic absolute error, m	0.05
Standard current output signal	0-5 mA or 4-20 mA
Digital information of the average controlled level is indicated on LCD monitor	
Diameter of process vessel, m	
- the source is outside the vessel	0.5 to 3.0
- the source is inside the vessel	any

Power consumption, VA	max. 10
Allowable range of ambient air temperature, ^{0}C	
- for the Detecting Unit	- 40 to + 70
- for the Data Processing Unit	0 to + 50
Version of the Detecting Units are: • Dust/water-proof • Fire/explosion-proof (**PB ExdI/ExdIICT6**) • mechanical protection – **IP65**	

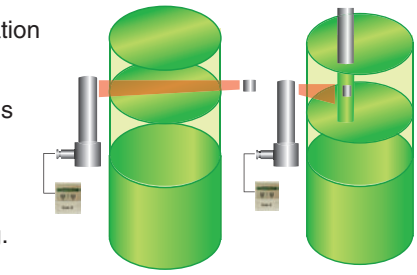
Non-contact Level indicator/switch (position level gauge) BPU-1KM

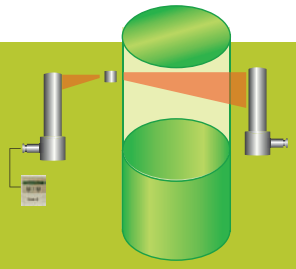
The following solutions for the tasks of indication of levels of filled vessels and loaded tanks are available:

• Classical version:
An emitter and a Detecting Unit are placed on the opposite (by diameter and chord) sides of a controlled vessel. When the level of a controlled material is changed, the flow of registered radiation is changed due to screening.

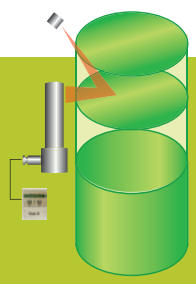
• Version with two Detecting Units:
It is used for reservoirs of larger diameters (if the distance between Detecting Units and Emitter is more than 5 m) or in case of variable radiation properties of a controlled material or background radiation.

• Reflection version
Emitter and Detecting Unit are placed on one side of a controlled vessel. When the level of a controlled material is changed, the flow of registered radiation is changed due to back scattering.





Design of Detecting Units: - dust/water/fire/explosion-proof (**PB ExdI/IExdIICT6**), **IP65**	
Max. indication error, mm	± 25
Main output signal	dry relay contacts
Power consumption, VA	max. 10
Allowable range of ambient air temperature, ^{0}C	
- for the Detecting Unit	- 40 to + 70
- for the Data Processing Unit	0 to + 50



NEW DEVICES AND APPLICATIONS

Non-contact surface density gauge (thickness gauge) IPP-1K

It is used for continuous non-contact measurement of surface density (thickness) of sheet material at a flow line production on the various technological facilities used in chemical, metallurgical, pulp-and-paper and other industries

Range of measurement of surface density, g/m^2	20 to 800
Limit of the basic error with averaging time 100 s	3.0 + 0.03P*$_{mes}$
Range of ambient air temperature, ^{0}C	5 to 50
Power consumption , VA	6

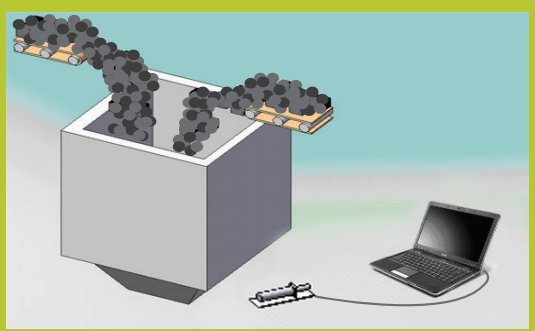
* P mes - measured value of surface density

Surface density gauges of soil, aggregate, concrete, and full depth asphalt, IPPG-1KM

It is a portable device with an autonomous power supply from a charged battery. The operation principle of the device is based on the registration of changes in the flux of gamma radiation back scattered by a controlled medium. The range of density measurement is 1,000-2,800 kg/m3 . The limit of absolute measurement error is 50 kg/m3

Non-contact Level gauge (Level meter) for the large vessels/tanks, IUB-1K-M

The operation principle of the device is based on the registration of changes in the flux of the muonic component of the cosmic radiation when passing through a controlled material. It is preferable to install the detector outside under a controlled vessel. It is allowed to install it externally sideways or in vicinity of a bottom of a controlled vessel.
Metrological characteristics of the device are specified at carrying out of tests on various facilities.



Data Processing Unit of dust/water/fire/explosion-proof (mine) design

It is intended for installation directly in dust/water/fire/explosion premises, including in mines.
The dust/water/fire/explosion protection class of this device is PB ExdIICT6.

ECOPHYSPRYBOR
Environmentally Physical Technologies LTD.
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Web-site: www.ecophyspribor.com

EIP ENVIRO CONTROLS
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ISO 9001-2008

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No.CH/AERB/OPSD/25125/2010/953 November 26, 2010

AERB Directive No.01/2010

[Under Rule 3, 5 and 6 of the Atomic Energy (Radiation Protection) Rules 2004]

Sub: Exclusion, Exemption and Clearance of Radionuclides in Solid Materials

Radioactive practices in India are governed by the Atomic Energy (Radiation Protection) Rules 2004. As per sections 5 and 6 of the rules and the current IAEA strategy, some of the radioactive practices and sources within practices need not be subjected to regulatory control based on the principle of exclusion, exemption and clearance.

The terms exclusion, exemption and clearance are defined as;

(a) Exclusion means the deliberate exclusion of a particular category of exposure from the scope of an instrument of regulatory control on the grounds that it is not considered amenable to control through the regulatory instrument in question.

(b) Exemption is the determination by the regulatory body that a source or practice need not be subject to some or all aspects of regulatory control on the basis that the exposure (including potential exposure) due to the source or practice is too small to warrant the application of those aspects.

(c) Clearance is the removal of radioactive materials or radioactive objects within authorized practices from any further regulatory control by the regulatory body.

The criteria for exclusion, exemption and clearance of radionuclides in solid materials within radioactive practices have been examined by AERB from the consideration of regulatory control. Accordingly, the following directives are hereby issued:

1. Solid materials containing unmodified concentrations of naturally occurring radionuclides in raw materials, except the radioactive materials / waste generated from operation of Uranium and Thorium mining and milling facilities,

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are excluded from the regulatory requirements. ^{40}K in the human body and cosmic radiation on the surface of the earth also come under exclusion.

2. Exemption of artificial radionuclides in moderate amount of solid materials (upto one tonne) shall be based on the radionuclide levels prescribed in Table-1. For radionuclides of natural origin Table-1 applies if these radionuclides are incorporated into consumer products, or used either as a radioactive source (e.g. ^{226}Ra, ^{210}Po) or for their elemental properties (e.g. thorium, **uranium).**

3. Exemption / clearance of artificial radionuclides in bulk amount of solid materials shall be based on the radionuclide levels prescribed in Table-2.

4. Clearance of naturally occurring radionuclides in bulk amount of solid materials from any authorized practice shall be based on the radionuclide levels prescribed in Table-3.

5. For exemption / clearance of a mixture of radionuclides in solid materials, the sum of the ratios of the concentration of individual radionuclides present in the solid material to the levels prescribed for the corresponding radionuclide in the respective table shall be less than unity.

6. Exemption / clearance of radionuclides in solid materials in excess of the levels prescribed in the respective tables or those not prescribed shall be subject to the specific approval of AERB.

(S.S. Bajaj)
Chairman
Atomic Energy Regulatory Board

TABLE-1: EXEMPT CONCENTRATION AND ACTIVITIES FOR NATURAL AND ARTIFICAL RADIONUCLIDES IN MODERATE AMOUNTS (1 TONNE) OF MATERIAL

Radionuclide	Activity concentration (Bq/g)	Activity (Bq)	Radionuclide	Activity concentration (Bq/g)	Activity (Bq)
H-3	$1x10^{6}$	$1x10^{9}$	Ag-110m	$1x10^{1}$	$1x10^{6}$
Be-7	$1x10^{3}$	$1x10^{7}$	In-115m	$1x10^{2}$	$1x10^{6}$
C-14	$1x10^{4}$	$1x10^{7}$	Sb-122	$1x10^{2}$	$1x10^{4}$
Na-22	$1x10^{1}$	$1x10^{6}$	Sb-124	$1x10^{1}$	$1x10^{6}$
Na-24	$1x10^{1}$	$1x10^{5}$	Te-129	$1x10^{2}$	$1x10^{6}$
P-32	$1x10^{3}$	$1x10^{5}$	Te-131	$1x10^{2}$	$1x10^{5}$
S-35	$1x10^{5}$	$1x10^{8}$	I-129	$1x10^{2}$	$1x10^{5}$
Cl-36	$1x10^{4}$	$1x10^{6}$	I-131	$1x10^{2}$	$1x10^{6}$
Ar-41	$1x10^{2}$	$1x10^{9}$	Cs-134	$1x10^{1}$	$1x10^{4}$
K-40*	$1x10^{2}$	$1x10^{6}$	Cs-137	$1x10^{1}$	$1x10^{4}$
V-48	$1x10^{1}$	$1x10^{5}$	Ba-140	$1x10^{1}$	$1x10^{5}$
Cr-51	$1x10^{3}$	$1x10^{7}$	La-140	$1x10^{1}$	$1x10^{5}$
Mn-51	$1x10^{1}$	$1x10^{5}$	Ce-141	$1x10^{2}$	$1x10^{7}$
Mn-52	$1x10^{1}$	$1x10^{5}$	Ce-144	$1x10^{2}$	$1x10^{5}$
Mn-54	$1x10^{1}$	$1x10^{6}$	Pm-147	$1x10^{4}$	$1x10^{7}$
Fe-59	$1x10^{1}$	$1x10^{6}$	Eu-154	$1x10^{1}$	$1x10^{6}$
Co-57	$1x10^{2}$	$1x10^{6}$	Ir-192	$1x10^{1}$	$1x10^{4}$
Co-58	$1x10^{1}$	$1x10^{6}$	Hg-203	$1x10^{2}$	$1x10^{5}$
Co-60	$1x10^{1}$	$1x10^{5}$	Po-210*	$1x10^{1}$	$1x10^{4}$
Ni-63	$1x10^{5}$	$1x10^{8}$	Ra-226*	$1x10^{1}$	$1x10^{4}$
Cu-64	$1x10^{2}$	$1x10^{6}$	Th-230*	$1x10^{0}$	$1x10^{4}$
Zn-65	$1x10^{1}$	$1x10^{6}$	Th-nat* (incl.Th-232)	$1x10^{0}$	$1x10^{3}$
Ga-72	$1x10^{1}$	$1x10^{5}$	U-233	$1x10^{1}$	$1x10^{4}$
Br-82	$1x10^{1}$	$1x10^{6}$	U-234*	$1x10^{1}$	$1x10^{4}$
Kr-87	$1x10^{2}$	$1x10^{9}$	U-235*	$1x10^{1}$	$1x10^{4}$
Kr-88	$1x10^{2}$	$1x10^{9}$	U-238*	$1x10^{1}$	$1x10^{4}$
Sr-89	$1x10^{3}$	$1x10^{6}$	U-nat*	$1x10^{0}$	$1x10^{3}$
Sr-90	$1x10^{2}$	$1x10^{4}$	Np-239	$1x10^{2}$	$1x10^{7}$
Y-90	$1x10^{3}$	$1x10^{5}$	Pu-239	$1x10^{0}$	$1x10^{4}$
Zr-95	$1x10^{1}$	$1x10^{6}$	Am-241	$1x10^{0}$	$1x10^{4}$
Nb-94	$1x10^{1}$	$1x10^{6}$	Cm-242	$1x10^{2}$	$1x10^{5}$
Nb-95	$1x10^{1}$	$1x10^{6}$	Cf-252	$1x10^{1}$	$1x10^{4}$
Mo-99	$1x10^{2}$	$1x10^{6}$			
Tc-99	$1x10^{4}$	$1x10^{7}$			
Ru-103	$1x10^{2}$	$1x10^{6}$			
Ru-106	$1x10^{2}$	$1x10^{5}$			
Rh-105	$1x10^{2}$	$1x10^{7}$			

** Naturally Occurring Radionuclides*

Note: For radionuclides of natural origin the Table-1 applies only to their incorporation into consumer products or for their use either as a radioactive source (e.g. ^{226}Ra, ^{210}Po) or for their properties as chemical elements (e.g. thorium, uranium).

TABLE-2: EXEMPTION /CLEARANCE LEVEL FOR RADIONUCLIDES OF ARTIFICIAL ORIGIN IN BULK QUANTITIES

Radionuclide	Activity concentration (Bq/g)	Radionuclide	Activity concentration (Bq/g)
H-3	100	Ag-110m	0.1
Be-7	10	In-115m	100
C-14	1	Sb-122	10
Na-22	0.1	Sb-124	1
Na-24	1	Te-129	100
P-32	1000	Te-131	100
S-35	100	I-129	0.01
Cl-36	1	I-131	10
V-48	1	Cs-134	0.1
Cr-51	100	Cs-137	0.1
Mn-51	10	Ba-140	1
Mn-52	1	La-140	1
Mn-54	0.1	Ce-141	100
Fe-59	1	Ce-144	10
Co-57	1	Pm-147	1000
Co-58	1	Eu-154	0.1
Co-60	0.1	Ir-192	1
Ni-63	100	Hg-203	10
Cu-64	100	U-233	1
Zn-65	0.1	U-236	10
Ga-72	10	U-237	100
Br-82	1	U-239	100
Sr-89	1000	Np-239	100
Sr-90	1	Pu-239	0.1
Y-90	1000	Am-241	0.1
Zr-95	1	Cm-242	10
Nb-94	0.1	Cf-252	1
Nb-95	1		
Mo-99	10		
Tc-99	1		
Ru-103	1		
Ru-106	0.1		
Rh-105	100		

TABLE-3. CLEARANCE LEVEL FOR RADIONUCLIDES OF NATURAL ORIGIN IN BULK QUANTITIES

Radionuclide	Activity concentration(Bq/g)
^{40}K	10
*All other radionuclides of natural origin	1

*This is valid for natural decay chains headed by ^{238}U, ^{235}U and ^{232}Th

DATA SHEET of NON-CONTACT DENSITY GAUGE IPB-1K

Radiation Source	1	Emission type	Gamma ray
	2	Radioisotope type	Na22
	3	Radio activity level (mCi)	≤27 μCu
	4	Emission angle	2 π
	5	Max Radiation Field @ distance from source holder	0,1μSv/h @ 0,3 mtrs
	6	Activity	700kBq (0.026mCi)
	7	Source holder model	CN-Type
	8	Source holder material	Fe + Pb
	9	Source holder dimension (mm)	Ø 140 x 78
	10	Shutter type	Lockable
	11	Installation	With clamps outside pipe / inside vessel as required
Detecting Block (Unit)	1	Detector type	Scintillation NaJ(Tl)
	2	Detector model	BD-6
	3	Detector Size	326mm X 64mmDia
	4	Detector / Density measuring range	300 – 2700 kg/m³
	5	Temperature compensation	Automatic (in-built)
	6	Power Supply	24 Vdc (provide thru JB 230/110VAC using convertor)
	7	Electrical connection	KVVG 4x0,75(braided cable with 4 or more core dia from 0,35-0,8 mm, common dia of cable 8-9 mm)
	8	Grounding protection	External screw on the housing
	9	Degree of protection	IP-65
	10	Detector/Monitoring Unit cable length (m)	20 meter
	11	Housing material	Stainless steel
	12	Installation	With clamps outside pipe
	13	Process Temp.	70°C
	14	Ambient Temp.	55°C
Data Processing Block (Transmitter or Monitor Unit)	1	Type	Electronic, LCD Display
	2	Model	BOI-4
	3	Location	Switchboard Room
	4	Distance from detector	20 meter
	5	Density Range / Scale	100 – 2700 kg/m³
	6	Output signal	4 – 20 mA isolated with 500 Ohm load
	7	Characteristic	linear
	8	Output signal linearization / Source decay compensation / configuration	Programmable thru key pad
	9	Accuracy	0.5% measured value (density 2000 kg and more)
	10	Response time (sec)	programmable
	11	Power supply Consumption	10 watt (max)
	12	Ambient Temp.	55°C
	13	Degree of protection	IP-65
	14	Housing material	PBT
	15	Installation	In control Panel or in DIN-Rail
Manufacturer			**ECOPHYSPRIBOR**
Supplier			**EIP Enviro, Noida**

Ecophyspribor

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REF. LIST INDIAN

INDUSTRY	Company name	Installation site	Current task	Qty	Model	MONTH/YEAI
POWER PLANT-COAL BASED	NTPC, MEJA POWER PLANT	HCSD SYSTEM	Commissioning done	7Nos	IPB-1K	Sep-2017
	SKS ISPAT POWER PLANT	HCSD SYSTEM	Comissioned and Working-Density measurement of Ash Slurry(HCSD)in the Discharge pipeline	3Nos	IPB-1K	June-2017
	NTPC Mouda – On Trial basis	HCSD SYSTEM	Comissioned and Working-Density measurement of Ash Slurry(HCSD)in the Discharge pipeline	1Nos	IPB-1K	May-2017
	RAYLSEEMA POWER PLANT	HCSD SYSTEM	Commissioning to be done	2Nos	IPB-1K	Jan-2018
MINING PLANT-ZINC	HZL LTD- SKMINES	Pb-Zn Beneficiation Plant	Comissioned and Working-Density measurement of Pb-Zn Slurry	1Nos(Trial)+ 1Nos (Order based on trial)	IPB-1K	Aug-2017
	HZL LTD- ZAWAR & RDMines	Pb-Zn Beneficiation Plant	Commissioning done	14nos	IPB-1K	Nov-2017

Chemical Plant	AL GHAITH INDUSTRIES, Abudhabi	Calcium and Lime plant	Comissioned and Working-Density measurement of Calcium Chloride Slurry	2Nos	IPB-1K	Dec-2016
	TCI Sanmar Egypt	Calcium and Lime plant	Comissioned and Working-Density measurement of Calcium Chloride Slurry	3Nos+3Nos	IPB-1K+BPU-1K	Aug-2017
	Magicrete, Surat	Ash Slurry	Comissioned and Working-Density measurement of ash slurry used in making AAC blocks	1Nos	IPB-1K	Dec-2017

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REF. LIST PREVIOUS 10 YEARS ONLY

INDUSTRY	Company name	Installation site	Current task	Qty	Model	MONTH/YEAR
Metallurgy, mineral processing	“Mikhailovsky GOK” OJSC, Zheleznogorsk, Kursk Region	Processing plant of the crashing-and – processing complex (pressure manifold of the hydrocyclones battery), coking factory etc.	Water level control in receiving bunkers; clogging control of transfer conveyer units ; premolding control of burr mills of medium and fine ragging cascade; feed medium (pulp) density control of the hydrocyclones battery	13Nos	IPB-1K	Aug-2011
	"Lebedinsky GOK" OJSC, Gubkin, Belgorod Region	Processing plant etc.	Clogging control of transfer conveyer units; feed medium (pulp) density control of hydrocyclones	2Nos	IPB-1K	Nov-2012
	"UAZ-SAUL" OJSC, Kamensk-Uralsky, Sverdlovsk Region	Alumina production area	Pulp density measurement in the feed pipeline	2Nos	IPB-1K	Jan-2011

	"Novolipetsk metallurgical integrated works" OJSC, Lipetsk	Blast-furnace practice	Upper, average and lower level alarm in the blending bunkers	14Nos	IUB-1K/BPU-1K	Jan-2006
	"AVISMA titano-magnesium complex" OJSC , Berezniki, Perm Region	Carnallite shop: Bunkers of fluid bed furnaces; Air cyclones ; Product line conveyors; Belt elevator.	Upper and lower limit level alarm; Stock-level control; Clogging control of transfer groups; Peak filling blocking.	10Nos	IUB-1K/BPU-1K	Mar-2009
	"Gaisky GOK" OJSC, Gai, Orenburg Region	Processing plant: Ore receiving bunkers. Lime roasting shop: Ore and coke receiving bunkers	Ore level control. Lime and coke level control	5Nos	IUB-1K/BPU-1K	July-2013
	"Krasnoyarsk aluminum plant" OJSC, Krasnoyarsk	Cryolite production shop: thickener, mixing machines, coda production shop	Aluminate liquor limit level alarm. Media density measurement in different sections of the manufacturing chain	5Nos	IUB-1K/BPU-1K	Dec-2009
	"KMAruda plant" LLC, Gubkin, Belgorod Region	Pipeline of the tailing pulp delivered to the mine for filling	Pulp density measurement	18Nos	IPB-1K	Feb-2012
	"Severstal" OJSC, Cherepovets, Vologda Region	pulp pipeline	Pulp density measurement	1Nos	IPB-1K	April-2012
	"Boksitogorsk alumina" OJSC, Boksitogorsk, Leningrad Region		Pulp density measurement, outlet clogging control	1Nos	IPB-1K	July-2011
	"Stoylensky GOK" OJSC, Stary Oskol, Belgorod Region	Chute of mill cyclone overflow	Pulp density measurement	2Nos	IPB-1K	Jan-2015
	IUB-1K/BPU-1K		Limiting level alarm	4Nos	IUB-1K/BPU-1K	Oct-2008

	"Novokuznetsk metallurgical plant" OJSC, Novokuznetsk, Kemerovo Region		Limiting level alarm	10Nos	IUB-1K/BPU-1K	Mar-2011
	"Verkhnaya Salda metallurgical production enterprise" OJSC , Verkhnaya Salda, Sverdlovsk Region	Movable tanks with acids	Limiting level alarm	15Nos	IUB-1K/BPU-1K	Sep-2010
	“Kovdor GOK” OJSC, Kovdor, Murmansk Region	Feeding pipeline	Apatite concentrate pulp density measurement	5Nos	IPB-1K	Aug-2010
	“Chusovoy metallurgical plant” OJSC, Chusovoy, Perm Region		Pulp density measurement	8Nos	IPB-1K	June-2014
	“Uzhuralzoloto” CJSC, Plast, Chelyabinsk Region		Drilling mud density measurement	13Nos	IPB-1K	July-2013
	“Lentyazhmash” CJSC, Saint-Petersburg		Pulp density measurement	18Nos	IPB-1K	Dec-2009
	“Orenburggeophysika” LLC», Orenburg		Drilling mud density measurement at the hole inlet-outlet	13Nos	IPB-1K	Feb-2012
	“Severnaya neft” LLC, Usinsk, Komi Republic		Drilling mud density measurement	2Nos	IPB-1K	April-2012
	“Svyatogor” OJSC, Krasnouralsk (“Krasnouralsk copper plant” OJSC)	Lime kiln	Lime density measurement	2Nos	IPB-1K	Aug-2011
Chemical, petrochemical, oil-refining industry	“Novoufimsky NPZ” OJSC , Ufa	Oil thermal cracking plant, manufacturing pipeline	Measurement of raw feedstock and cracking leaving density, gasoline density control	14Nos	IPB-1K	Nov-2012
	“Novosibirsk chemical concentrates plant” OJSC, Novosibirsk		Powder limiting level alarm. Solution density measurement	10Nos	IUB-1K/BPU-1K	Jan-2011
	“Kaustik” OJSC, Volgograd	Caltrol production shop: SKIP -hoisters;	Control of the hoister lime load level;	5Nos		Aug-2010

		Dissolver; Device for lime milk production	Control of medium level in the solvent. Lime milk dosing rate			
	“Orgsintez” JSC, Novomoskovsk, Tula Region	Technological tanks	Maleic anhydride limiting level control	15Nos	IUB-1K/BPU-1K	June-2014
	“Ufakhimprom” OJSC , Ufa	Chlorine and caustic soda shops : tank for liquid chlorine, rack for liquid chlorine loading into railway tanks	Control of minimum and maximum level of liquid chlorine in the tanks	8Nos	IUB-1K/BPU-1K	Feb-2012
	“Ufakhimprom” OJSC , Ufa -45	Aromatic hydrocarbon production complex: lock hopper	Limiting level alarm and catalyzator level measurement	1Nos	IUB-1K/BPU-1K	April-2012
	“Azot” OJSC, Novomoskovsk, Tula Region	Chemical storage	Sulfuric acid tank limiting level alarm	19Nos	IUB-1K/BPU-1K	July-2011
	“Voskresensk mineral fertilizers” OJSC , Voskresensk, Moscow Region	Ammophos shop: finished product storage	Ammophos tank limiting level alarm. Solvent density measurement	2Nos	IUB-1K/BPU-1K	Jan-2015
	“Machinery works” FGUP , Elektrostal	Metal powder shop: kiln unloading bins.	Level control of powder in the tank	14Nos	IUB-1K/BPU-1K	Oct-2008
	“LUKOILVolgogradneftepererabotka”, Volgograd	Delayed cocking plant	Limiting level alarm	10Nos	IUB-1K/BPU-1K	Mar-2011
	“Volgogradneftemash” OJSC “Gasprom”, Volgograd		Limiting level alarm	5Nos	IUB-1K/BPU-1K	Aug-2011
	“LUKOIL- Nizhegorodnefteorgsintez”, Kstovo, Nizhny Novgorod Region	UOP company’s technology, USA	Limiting level alarm, level measurement	5Nos	IUB-1K/BPU-1K	Nov-2012
	"Boksitogorsk alumina" OJSC, Boksitogorsk, Leningrad Region		Density measurement	8Nos	IPB-1K	Jan-2011
	Khimprom”, Novocheboksarsk,		Level alarm	10Nos	IUB-1K/BPU-1K	Nov-2012

	Chuvash Republic					
	“Ammophos” OJSC, Cherepovets, Vologda Region	Process pipeline (absorption tank)	Acid density measurement	5Nos	IPB-1K	Sep-2010
	“Silvinit” OJSC , Solikamsk, Perm Region	Process pipeline	Pulp density measurement (chlorides, sulfites)	5Nos	IPB-1K	Aug-2010
	“Tolyattikauchuk” LLC, Tolyatti	Pipeline	Batch density measurement	18Nos	IPB-1K	June-2014
	“Saratov building materials plant” CJSC, Saratov	Lime-stone pneumatic transport chamber	Lime-stone limiting level alarm	11Nos	IUB-1K/BPU-1K	July-2013
	“Kurgankhimmash” OJSC, Kurgan		Level alarm	21Nos	IUB-1K/BPU-1K	Dec-2009
	“Eskam” LLC, Dzerzhinsk, Nizhny Novgorod Region	Receiving reactor	Measurement of density of aluminum hydrate pulp and aluminum sulfate water solution	4Nos	IPB-1K	Feb-2012
	“Neftespecstroytekhnologii” LLC, Moscow		Density measurement	10Nos	IPB-1K	Feb-2012
	“Calcium silicate brick plant” LLC, St. Oskol, Belgorod Region		Level alarm	5Nos	IUB-1K/BPU-1K	April-2012
Gas industry	“Lentransgas” LLC, Nevskaya SPHG, settl. Krestsy, Novgorod Region	Gas filter separators	Residue limiting level alarm	5Nos	IUB-1K/BPU-1K	July-2011
	“Severgasprom” LLC, Vuktylskoe GPU, Vuktyl, Komi Republic	Weathering unit, Tank 7	Gas condensate lower and upper limiting level control	18Nos	IUB-1K/BPU-1K	Jan-2015
	“Shchelkovskaya SPHG” OJSC, “Mostransgas” LLC, Shchelkovo, Moscow Region	Gas filter separators	Residue limiting level alarm	10Nos	IUB-1K/BPU-1K	Oct-2008
Geologic exploration, geophysics , oil and gas production	“IMS” LLC	Drilling units	Drilling mud density measurement	45Nos	IPB-1K	Mar-2011

	“REKOMGEO” LLC	Hole pipeline of Verkhne-Salatskoe deposit	Pulp density measurement	5Nos	IPB-1K	Aug-2010
	“Severnaya neft” LLC, Usinsk, Komi Republic	Drilling units	Drilling mud density measurement	8Nos	IPB-1K	June-2014
	DFGUP “Yaroslavl geophysical party”	Drilling units	Drilling mud density measurement	22Nos	IPB-1K	July-2013
	IPC “Geotest”, Ufa		Density measurement	31Nos	IPB-1K	Mar-2011
	“Geotehservis”, Pechora, Komi Republic		Drilling mud density measurement	3Nos	IPB-1K	Sep-2010
	“Orenburggeophysika” LLC, Orenburg		Drilling mud density measurement at the hole inlet-outlet	23Nos	IPB-1K	Aug-2010
	NPK “RANKO”, Moscow	Pressure pipeline of the pump unit (manifold unit)	Packing cement density measurement	12Nos	IPB-1K	June-2014
	“Pokrovsky ore mine” OJSC, Blagoveshchensk, Amur Region	Pulp pipeline	Pulp density measurement	4Nos	IPB-1K	July-2013
	Production branch “Severgasgeophysika” OJSC, “Gasprom” OJSC, Novy Urengoy, Yamalo-Nenetsky Autonomous District	Dip drilling rig	Drilling mud density measurement at the hole inlet and outlet	10Nos	IPB-1K	Dec-2009
	Irkutsky GTU, Irkutsk	Process pipeline	Pulp density measurement	5Nos	IPB-1K	Aug-2010
	PITC “Geophysika”, Perm	Process pipeline	Density control for drilling mud and cement slurry at the hole inlet	5Nos	IPB-1K	June-2014
	“Darcy Oil Engineering” LLC,	Process pulp pipeline	Pulp density	83Nos	IPB-1K	Jan-2011

	Nefteugansk, Khanty-Mansijsk Autonomous District		measurement			
Paper-pulp industry	"Lesplitinvest" OJSC, Priozersk, Leningrad Region	Cyclones	Cyclone clogging control	35Nos	IPB-1K	Aug-2011
	"Plitspitchprom" CJSC, Balabanovo, Kaluga Region	Wood-fiber board shop	Control of the wooden fiber limiting level in the air cyclones	2Nos	IUB-1K/BPU-1K	Nov-2012
	"Mariisky CBK" OJSC, Mari El Republic, Volzhsk	Main production area	Control of wooden fiber limiting level in the air cyclones	2Nos	IUB-1K/BPU-1K	Jan-2011
	"Novaya Vyatka" wooden board plant OJSC, Kirov		Level alarm	4Nos	IUB-1K/BPU-1K	Feb-2012
	"Timber company Mortka" OJSC, settl. Mortka, Tyumen Region	Technology of Finnish company "METSO AUTOMATION". Steam chamber of the refining machine	Alarm and level measurement	10Nos	IUB-1K/BPU-1K	April-2012
	"Arkhangelsky CBK" OJSC, Novodvinsk, Arkhangelsk Region	Wood chipboard production, wooden-and-exchange production	Control of waste wood level, cellulose pulp and bark in the autoclaves, drying press, curing pans	5Nos	IUB-1K/BPU-1K	Aug-2010
	"Derevoobrabotchik" OJSC, Zapadnaya Dvina, Tver Region	Curing chamber	Alarm and level measurement	5Nos	IUB-1K/BPU-1K	June-2014
Miscellaneous	MUP "Vodokanal" , Omsk	Liquid chlorine tanks	Lower and upper limiting level alarm	8Nos	IUB-1K/BPU-1K	July-2013
	LCZ "OSHA" LLC, Omsk Region	Pipeline, diameter 100 mm	Fermentation solution density measurement	15Nos	IPB-1K	July-2013
	"Shchurovsky cement" OJSC, Kolomna, Moscow Region	Expander –tube pumps. Clinker kilns	Work in the expander-tube pump	1Nos	IUB-1K/BPU-1K	Dec-2009

			automated system. Material level alarm in the kilns			
	“Volsky cement” OJSC , Volsk, Saratov Region	Expander –tube pumps. Cement bin	Work in the expander-tube pump automated system. Loading-unloading control	2Nos	IPB-1K	Feb-2012
	“Yakutugol” OJSC, Neryungry, Yakutia	Coal bin	Level control	4Nos	IUB-1K/BPU-1K	April-2012
	MUP “Istrinsky polygon TBO”, Istra	Entrance gate	Control of incoming waste radioactivity rate	10Nos	IPB-1K	July-2011
	“TSANT” LLC, Belgorod	Industry plants automation	Iron-ore slurry density measurement	5Nos	IPB-1K	Jan-2015
	“ZEIM Elinar” OJSC, settl. Ateptsevo, Moscow Region	Drier roll	Condensate presence measurement	35Nos	IPB-1K	Aug-2010
	NAK “Azot”, Novomoscovsk, Tula Region	Loading and receiving rank for liquid ammonia	Ammonia limiting level alarm	8Nos	IUB-1K/BPU-1K	June-2014
	Krasnoyarsk car-repair plant, Krasnoyarsk	Autoclave	Dipping varnish level measurement	1Nos	IUB-1K/BPU-1K	July-2013
	Stroyproject, Saint-Petersburg		Level alarm	1Nos	IUB-1K/BPU-1K	Feb-2012
	“Promelectronica” CJSC, Moscow		Density measurement	32Nos	IPB-1K	April-2012
	“Biroks” LLC, Moscow		Density measurement	24Nos	IPB-1K	July-2011
	“United Energy Group” OJSC “Petroservice”, Moscow		Density measurement	2Nos	IPB-1K	Jan-2015
	“System” LLC , Yekaterinburg		Level alarm	48Nos	IUB-1K/BPU-1K	Oct-2008