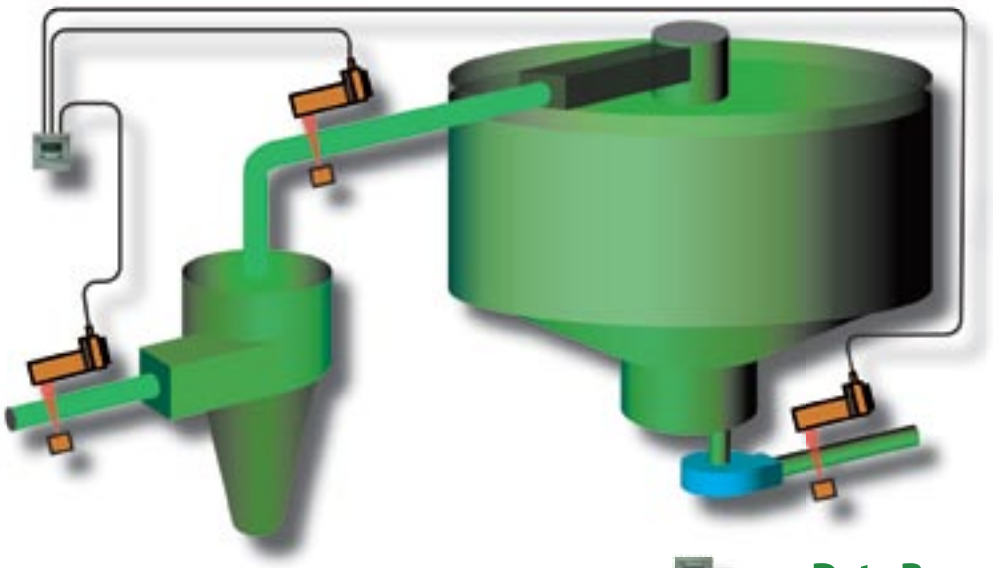
EcoPhysPribor Ltd
The Scientific and Technical Center

Tel/fax: +7(495) 797-34-74 / 64-25 / 64-26
E-mail: mail@ecophyspribor.com
http://www.ecophyspribor.com
117246, Moscow, Nauchnij pr 10

Non-contact density meter IPB-1K

The device is intended for non-contact continuous measurement of the density of fluids as well as pulps in pipes in different kinds of technological processes in mining, chemical, oil and gas, metallurgical and other branches of industry.
The operation of the device is based on detection of ionizing radiation changes that caused by density variations of tested material.

Industrial operation of the device is not the subject of control by the radiation protection services because the activity of radiation sources is so small that they do not require special registration and permission.
The device is manufactured in 5 modifications depending on type, number and version of detection blocks and radiation source.



Data Processing Block

Detection Block

Emitter

Range of measured density, kg/m3	from 600 up to 2200
Outer pipe diameter, m	from 0.1 up to 0.4
The limit of the absolute error, kg/m3:	
IPB-1K	6
IPB-1K-1	10
IPB-1K-2, IPB-1K-3	15
IPB-1K-4	30
Standart current output:	0 – 5 mA or 4 – 20 mA
Digital indication on a front panel of data processing block	

Power consumption, W:	not more than 10
Range of working temperatures, °C:	
- for a detection block	from – 40 up to + 60
-for a block of data handling	from – 10 up to + 50
Versions of detection blocks:	
- BPU-1K , BD-4 , BD-5	hermetically sealed
- BPU-1K	explosion proof (2ExsIIT4)
- BD-1	explosion proof (1ExdIICT5)

Environmentally safe radioisotope technologies

Advantages of our devices:

compact;
don't have moving parts;
don't need servicing;
irreplaceable when working with different media:

- toxic, aggressive and biologically hazard;
- corrosive and abrasive;
- molten and cryogenic;
- radioactive, with high or alternative radio activity level;
- foams, slurries and dredges;
- powders and other highly loosened substances;
- pulp, ore, charge and their analogues;
- without limitation of pressure and temperature inside of the controlled object

In contrast to conventional radioisotope analogues our devices use radiation and radiation source out of the incidence of safety-radiation services and safety-radiation standards of International Atomic Energy Agency because:

- don't create radiation background;
- don't need radiation protection;
- don't pollute the environment;
- don't require specially prepared and certified rooms;
- don't make problems when utilizing the equipment.

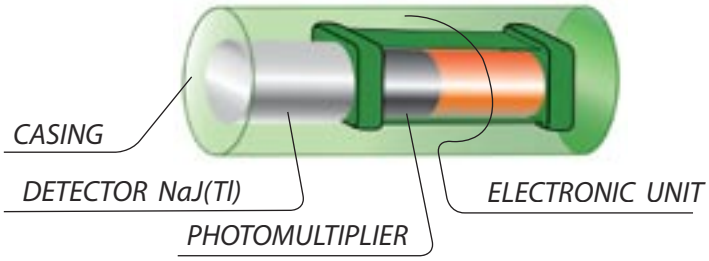
Since 1998 our products had replaced thousands of conventional radioisotope devices in systems of non-contact control in different brunches of industry.

Principle of operation

is based on registration of gamma radiation flow change, caused by the level or density change of the controlled material.

Main components

- **highly effective detection block:**



We offer a set of detection block modifications with different measuring characteristics, dimensions (from 20 to 58 cm lengthwise), weight (from 1.5 to 25 kg) and so on. The selection of detection block is determined by the operation conditions, the size of the detector crystal and electronics configuration, optimal for the solved problem.

BD-2, BD-3 BD-5 BD-1 BD-4

- **data processing block (BOI):**

converts incoming to its input average impulses recurrence frequency into the standard analog current or relay output signals. These signals are connected with the input average frequency by the functional dependences, determined by the specific technological problem and software assigned.

- **emitter:**

for different tasks such sources are used: gamma radiation of the natural background, gamma radiation of the environmentally safe Na-22, gamma radiation of the potassium chemical compounds with the natural concentration of the isotope K-40. Generally used point radiator Na-22 in a case of external installation is located in the mounting casing with the maximum size of 140 mm and if it is installed inside of the tank, put in pipe of 40 mm in diameter is used. Extensive radiator is assembled from several point ones.