

Appendix G (Obligatory)

LIST OF PARAMETERS ACCESSIBLE FOR DISPLAYING AND EDITING USING THE “Configurator” SOFTWARE

The list of pages (tabs) available for configuring:

- Common;
- Measure;
- Pumping;
- *Graduation*;
- *Service*;
- Network;
- Archive;
- Spectra.

Note – Tabs “Service” and “Graduation” are displayed only when the program is switched into expanded access mode. Those tabs are hidden by default.

“Common” tab

This tab contains general information about the monitor and includes the following parameters:

Serial number – serial number (works number) of the connected monitor.

Current time – date, month, year and time, minutes and seconds of the reading.

Device status – number, which represents the operability or failure of the device and its interpretation bit-by-bit. The revealed malfunctions are automatically checked by “ticks” and highlighted by yellow colour.

Life, h – total operating time of the device (in hours) from putting into operation.

Sirene state – checking of the state of device’s audible alarm.

The “tick” is automatically set when the audible alarm is turned on in case the last reading of the device exceeds the first or the second threshold.

For testing of proper operation of the alarm it is necessary to set the “tick” manually and click on the button “Transfer to the device”. The alarm then should turn on and sound until the end of the current measurement cycle. In this case the state of the alarm will be determined by measured value of the volumetric activity and by thresholds.

To stop testing one should to remove the “tick” and click on the button “Transfer to the device”.

Indicator state – checking of the state of device’s colour indicator. The state of the colour indicator at the time of reading is represented by “dot” and by colour of the field. The state of the colour indicator is determined by the last reading (measured value). The yellow signal and audible alarm are turned on in case the first alarm threshold is exceeded, and the red signal and audible alarm - in case the second alarm threshold is exceeded.

For testing of proper operation of the light signal it is necessary to select the colour manually by setting a “dot” next to the desired colour and click on the button “Transfer to the device”. The indicator with selected colour will be lit.

To stop testing one should to set the “dot” in the original position next to the green indicator and click on the button “Transfer to the device”.

In case the alarm unit (BAS) is connected to the device, its operability is tested concurrently with testing of the operability of device’s colour indicator.

Warning threshold on Alpha exceeded – in this field a “tick” automatically appears after updating of data in case the last reading (measured value) of the activity of alpha-emitting nuclides in the air exceeds corresponding threshold 1 (Warning).

Alarm threshold on Alpha exceeded – in this field a “tick” automatically appears after updating of data in case the last reading (measured value) of the activity of alpha-emitting nuclides in the air exceeds corresponding threshold 2 (Alarm).

Warning threshold on Beta exceeded – in this field a “tick” automatically appears after updating of data in case the last reading (measured value) of the activity of beta-emitting nuclides in the air exceeds corresponding threshold 1 (Warning).

Alarm threshold on Beta exceeded – in this field a “tick” automatically appears after updating of data in case the last reading (measured value) of the activity of beta-emitting nuclides in the air exceeds corresponding threshold 2 (Alarm).

Firmware version – version of the device’s built-in software.

Device version – hardware platform version of the connected device.

“Measure” tab

This tab displays the device’s measurement results, the thresholds settings and the state of dry contacts. The tab includes the following parameters:

Volumetric Alpha activity, Bq/m³ – the last measured value of the activity of alpha-emitting nuclides in the air.

Volumetric Beta activity, Bq/m³ – the last measured value of the activity of beta-emitting nuclides in the air.

Volumetric Radon activity, Bq/m³ – effective equivalent concentration of radon-222 as indicated by the device.

Measure times, s:

- **Measurement time** – period of regular updating of the readings of the measured quantity.
- **Maximal allowed measure time** – the device’s maximum exposure period of one filter tape window.

Alpha thresholds, Bq/m³:

- **Warning threshold** – the value of volumetric activity of alpha-emitting nuclides that corresponds to the first threshold (Warning).
- **Alarm threshold** – the value of volumetric activity of alpha-emitting nuclides that corresponds to the second threshold (Alarm).
- **Dry contact threshold** – the threshold value of the volumetric activity of alpha-emitting nuclides that corresponds to the dry contact closing/opening.

Beta thresholds, Bq/m³:

- **Warning threshold** – the value of volumetric activity of beta-emitting nuclides that corresponds to the first threshold (Warning).
- **Alarm threshold** – the value of volumetric activity of beta-emitting nuclides that corresponds to the second threshold (Alarm).
- **Dry contact threshold** – the threshold value of volumetric activity of beta-emitting nuclides that corresponds to the dry contact closing/opening.

Output dry contact – indicator of the relay circuit state at the moment of reading. The “tick” is set automatically in case that last read measured value exceeds the dry contact threshold.

For testing of the operability of the relay circuit it is necessary to set or remove the “tick” manually. After that click on the button “Transfer to the device”.

The state of the dry contact in the device is updated after completion of each measurement interval.

“Pumping” tab

This tab represents the air pumping parameters of the device and includes the following parameters:

Flow rate, l/min – instantaneous value of the air flow rate.

Pressure drop, Pa – instantaneous value of the depression behind the filter.

Volume of the pumped air, l – air volume pumped through the filter since the moment when the device was turned on.

Pumping limits:

- **Minimal flow rate, l/min** – minimum allowable air flow rate necessary for operation of the device in the normal mode.

- **Maximal flow rate, l/min** – maximum allowable air flow rate necessary for operation of the device in the normal mode.

Vacuum next filter, Pa:

- **Minimal allowed** – minimum pressure behind the filter tape necessary for correct functioning of the filter.

- **Maximal allowed** – maximum pressure behind the filter tape; after reaching this value the device rewinds the filter tape.

“Graduation” tab

This tab appears only after the program is switched into expanded access mode. The tab includes the following parameters:

Graduation factors:

- **EnergyA (main detector)** – value of the coefficient A of the “energy – channel” function for the main detector.

- **EnergyB (main detector)** – value of the coefficient B of the “energy – channel” function for the main detector.

- **EnergyA (background detector)** – value of the coefficient A of the “energy – channel” function for the background detector.

- **EnergyB (background detector)** – value of the coefficient B of the “energy – channel” function for the background detector.

Efficiencies:

- **Alpha** – calculated detection efficiency for alpha radiation of ^{210}Po .

- **Beta** – calculated detection efficiency for beta radiation of ^{210}Pb (^{210}Bi).

- **Alpha-beta** – detection coefficient for beta radiation of ^{214}Bi .

- **Pb** – detection coefficient for beta radiation of ^{214}Pb .

Additional settings:

- **Transport factor** – coefficient, which refer to the contribution of alpha radiation of ^{218}Po – ^{222}Rn daughter product that present in the air, into the energy range from 5000 to 5500 keV.

- **Rough discriminator threshold (background channel)** – service parameter necessary for controlling the threshold of digital discriminator of the ADC.

- **Fine discriminator threshold (basic channel)** – service parameter necessary for controlling the threshold of digital discriminator of the ADC.

Intrinsic background of device:

- **Beta, imp./s.** – intrinsic background of the device by beta radiation.
- **Alpha, imp./s.** – intrinsic background of the device by alpha radiation.

“Service” tab

This tab appears only after the program is switched into expanded access mode. The tab includes the following parameters:

Service functions – service parameter, which characterizes the service functions used and their interpretation bit-by-bit.

Mandatory parameters net send – when necessary, this field is used for setting of the compelled sending of technological parameters (checked with «ticks») to server via Ethernet. Sending of parameters will take place then during the next recording of the measured value.

“Network” tab

This tab represents network parameters of the device and contains the following:

MODBUS RTU/RS-485:

- **Address** – net address, provided that the device supports the MODBUS protocol.
- **Rate** – data exchange rate (bps), provided that the device supports the MODBUS protocol.

Ethernet support – control of the support of the communication channel Ethernet. Ticking this check box is NOT recommended in case the device uses the MODBUS communication channel.

“Archive” tab

This tab represents the list of parameters available for review in the achieve mode (principles of working with achieve are described in the User Manual for the “Configurator” software):

- Time;
- Serial number (in the expanded access mode);
- Status;
- Light signal (in the expanded access mode);
- Audible alarm (in the expanded access mode);
- Output dry contact (in the expanded access mode);
- Excess of the Warning threshold by Alpha (in the expanded access mode);
- Excess of the Alarm threshold by Alpha (in the expanded access mode);
- Excess of the Warning threshold by Beta (in the expanded access mode);
- Excess of the Alarm threshold by Beta (in the expanded access mode);
- Volumetric activity, Bq/m³;
- Volumetric activity Beta, Bq/m³;
- Volumetric activity of Radon, Bq/m³;
- Flow rate, l/min;
- Volume of the pumped air, litres.

“Spectra” tab

This tab represents energy spectra of the main and background channels, as well as values of principal parameters of the energy calibration. Principles of working with spectra are described in the User Manual for the “Configurator” software.