

Appendix F  
(Obligatory)

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

The list of pages (tabs) available for configuring:

- Common;
- *Special*;
- Measurement options;
- Measurements;
- *Special options of measurements*;
- Alarms;
- *Calibration*;
- Spectra;
- Network;

Note – Tabs “Service”, “Calibration” and “Special measurement settings” 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 device.

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

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

**Device version** – hardware platform version of the connected device.

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

**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.

**Work mode** – service parameter that describes current state of the device. In the normal working mode the “0” is displayed in the field for this parameter.

**“Special” tab**

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

**Project build mode** – service parameter describing the method of compilation of the built-in software of the device.

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

**Send spectra via UDP** – service parameter controlling the transfer of spectral information from the device to the external information network and its interpretation bit-by-bit.

**“Measurement options” tab**

This tab allows controlling of the measurement process and setting up working modes and indication of the device. The tab includes the following parameters:

**Monitored nuclides** – in this field radionuclides ( $^{131}\text{I}$ ,  $^{132}\text{I}$ ,  $^{133}\text{I}$ ,  $^{135}\text{I}$  and  $^{123}\text{I}$ ) are to be selected (checked), for which the device have to perform measurements of volumetric activity or activity on the sorbent trap.

The volumetric activity and activity on the sorbent trap for radionuclides, which were not selected as measured nuclides are equated to zero by the device.

In the expanded access mode the decimal equivalent of this bit set is shown in separate string.

**Priority Nuclide** – in this field the priority nuclide have to be selected (checked), which means the nuclide, which uncertainty minimization criterion determines the moment of starting calculation for all selected radionuclides.

In the expanded access mode the decimal equivalent of this bit set is shown in separate line.

**Displayed nuclide. First line** – in this field the parameter has to be selected, which will be indicated in the first information line on the LCD of the device.

Note – On the four-line LCD of the device the first and the second lines are assigned for indication of working mode and the state of the device, the third and the fourth lines – for displaying of the measured values. The third and the fourth lines are called “information lines”.

In the expanded access mode the integer decimal equivalent of this bit set is shown in separate line.

**Displayed nuclide. Second line** – in this field the parameter has to be selected, which will be indicated in the second information line on the LCD of the device.

In the expanded access mode the integer decimal equivalent of this bit set is shown in separate line.

**Minimal measurement time for monitoring method (20s..600s)** – in this field the minimum time interval can be specified for measurement duration and updating of readings on the LCD of the device.

#### **“Measurements” tab**

This tab displays the results of measurements performed by the device. The tab includes the following parameters:

**Volumetric activities, Bq/m<sup>3</sup>** – in this group of parameters the values of volumetric activity of radionuclides (<sup>131</sup>I, <sup>132</sup>I, <sup>133</sup>I, <sup>135</sup>I, <sup>123</sup>I) are displayed, as measured by the device using “observation” method, as well as total volumetric activity of radioiodine nuclides, measured using the same method.

**Filter Activities, Bq** – in this group of parameters values of radionuclide activity are displayed (<sup>131</sup>I, <sup>132</sup>I, <sup>133</sup>I, <sup>135</sup>I, <sup>123</sup>I), measured on the sorbent trap of the device using the “observation” method, as well as total volumetric activity of radioiodine nuclides, measured on the sorbent trap using the same method.

**Volumetric Storage Activities, Bq/m<sup>3</sup>** – in this group of parameters the values of volumetric activity of radionuclides (<sup>131</sup>I, <sup>132</sup>I, <sup>133</sup>I, <sup>135</sup>I, <sup>123</sup>I) are displayed, as measured by the device using “accumulation” method.

**Filter Storage Activities, Bq** – in this group of parameters values of radionuclide activity are displayed (<sup>131</sup>I, <sup>132</sup>I, <sup>133</sup>I, <sup>135</sup>I, <sup>123</sup>I), measured on the sorbent trap of the device using the “accumulation” method.

If the radionuclide was not selected as “measured nuclide”, its volumetric activity and activity on filter displayed in the fields described above will be equated to zero.

**Average flow rate, l/min** – average value of the air flow rate through the sorbent trap of the device measured using “observation” method.

**Average storage flow rate, l/min** – average value of the air flow rate through the sorbent trap for measurements using “accumulation” method.

**Instantaneous flow rate, l/min** – instantaneous value of the air flow rate through the sorbent trap of the device.

**Flow, l (per measure)** – value of the air volume, pumped through the sorbent trap of the device during one measurement using the “observation” method.

**Storage Flow, l (per measure)** – value of the air volume, pumped through the sorbent trap of the device during one measurement using the “accumulation” method.

### **Special options of measurements:**

This tab appears only after the program is switched into expanded access mode. Parameters shown in this tab are internal parameters of the device. Their values can be changed only with participation of the personnel trained at the factory of manufacturer – SPC “Doza”.

#### **“Alarms” tab**

This tab represents values of the Warning and Alarm thresholds set for the device. The tab includes the following parameters:

**Volumetric activity warning thresholds** – this group of parameters includes values of volumetric activity of radionuclides ( $^{131}\text{I}$ ,  $^{132}\text{I}$ ,  $^{133}\text{I}$ ,  $^{135}\text{I}$ ,  $^{123}\text{I}$ ), as well as value of total volume activity of radioiodine nuclides corresponding to thresholds of the first level (warning).

**Volumetric activity alarm thresholds** – this group of parameters includes values of volumetric activity of radionuclides ( $^{131}\text{I}$ ,  $^{132}\text{I}$ ,  $^{133}\text{I}$ ,  $^{135}\text{I}$ ,  $^{123}\text{I}$ ), as well as value of total volume activity of radioiodine nuclides corresponding to thresholds of the first level (alarm).

**Volumetric activity alarm thresholds for dry contacts** – values of total volume activity of radioiodine nuclides, which corresponds to closing/opening of the output “dry contact”.

**Minimal allowed flow rate, l/min** – value of the minimum allowable air flow rate through sorbent trap corresponding to the range of normal operability of the device.

**Maximal allowed flow rate, l/min** – value of the maximum allowable air flow rate through the sorbent trap corresponding to the range of normal operability of the device.

#### **“Calibration” tab**

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

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

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

**Background detector energy calibration factor (EnergyA)** – value of the coefficient B of the “energy – channel” function for the background detector.

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

**Efficiency calibration factor A** – value of the coefficient A of detection efficiency for gamma-radiation of radionuclide  $^{132}\text{I}$ .

**Efficiency calibration factor B** – value of the coefficient B of detection efficiency for gamma-radiation of radionuclide  $^{132}\text{I}$ .

**Digital discriminator threshold A** – service parameter necessary for controlling the threshold of digital discriminator of the ADC.

**Digital discriminator threshold B** – service parameter necessary for controlling the threshold of digital discriminator of the ADC.

**Efficiency calibration factor for low-energy region** – service parameter used in the device adjusted for measurement of  $^{132}\text{I}$ .

**Low-energy region edge** – service parameter used in the device adjusted for measurement of  $^{132}\text{I}$ .

### **“Spectra” tab**

This tab represents energy spectra of the main and background channels in the “Observation” and “Accumulation” modes. Principles of working with spectra are described in the User Manual for the “Configurator” software.

### **“Network” tab**

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

#### **ETHERNET options:**

- **Device IP address** – IP address of the device.
- **Server IP address** – IP address of the automated distribution of data.

#### **MODBUS options:**

- **Device MODBUS address** – net address, provided that the device supports the MODBUS protocol.
- **MODBUS rate** – data exchange rate (bps), provided that the device supports the MODBUS protocol.
- **MODBUS port number (default 0)** – COM-port number to which the device is connected.