



VF NUCLEAR



NUCLEAR
POWER PLANTS



WASTE
MANAGEMENT



RESEARCH
CENTRES



INDUSTRY
& MANUFACTURING

RPU-04, RPU-06, RPU-12

RADIATION PROCESSING UNITS



KEY FEATURES

- Modular unit for signal processing and local display of measured values from radiation detectors
- A wide range of radiation detectors can be connected to the RPU unit
- Specific configurations for specific applications using plug-in rack modules
- Display aimed for continuous operation
- User-friendly graphical interface
- RPU functions can be classified according to EN 61226 standard
- Protection against unauthorized changes of parameters
- Basic optical and acoustic alarms as standard, an external alarm unit can be connected.
- Optionally, the RDU-12 Remote Display Unit can be connected
- Various interfaces for connection to host systems
- Data can be transmitted to two independent host systems (classified and/or non-classified)
- Data can be transmitted via galvanically isolated interfaces - serial interfaces, analogue interfaces and relay outputs
- Possibility of secure one-way communication when transferring data to a system with a lower classification.

DESCRIPTION

The RPU processing units are modular units that and provide acquisition, processing, archiving and local display of data, control of radiation detectors, and the transmission of processed data to host radiation monitoring systems (RMS).

There are 3 basic types of RPU units available:

- RPU-04: Basic unit without display,
- RPU-06: Basic unit with display
- RPU-12: Expanded unit with display,

In addition, RDU-12 remote display units are also available.

Each RPU unit includes a rack with slots for inserting plug-in modules (cards) that enable building the RPU configuration according to the needs of a particular radiation monitor.

The basic modules are:

- CU-01 control unit providing acquisition and archiving of measured data,
- DU-01 display unit providing a user interface
- PSM power supply module, providing secured power supply with the ability to bridge short-term outages and the possibility to have two independent power supply inputs.

Optional modules are:

- DIM detector interface module for supplying and acquiring data from radiation detectors,
- PU processing modules providing calculations and control of process radiation monitors, and connection of selected detectors
- PU-04 electrometer for data acquisition and processing from ionization chamber detectors,
- ICIM modules with digital and / or analogue input and / or output,
- ICIM instrumentation and control system interface to control radiation monitors;
- CIM interface modules for data transfer to host systems.

This concept enables effective data acquisition and control of the complete VF's portfolio of radiation detectors and monitors.

RADIATION PROCESSING UNITS

OPTIONAL MODULES

Type	Description
CIM-04 (RPU-12)	Modbus TCP gateway (Ethernet) and Modbus RTU server (RS-422 / RS-485) with optional functions. One-way communication module from "C" classified to non-classified system.
CIM-05 (RPU-12)	Modbus TCP gateway (Ethernet) and Modbus RTU server (RS-422 / RS-485) with optional functions. One-way communication module from "C" classified to non-classified system.
PU-04	Electrometer for connection of ionization chambers
PU-06	Processor unit for specialized calculations and control of radiation monitors with inputs and outputs: <ul style="list-style-type: none"> • 3 × AI 4 - 20 mA • 1 × AO 4 - 20 mA • 2 × DI + 2 × DO • 2 × UART (smart detectors) • coincidence of 2 DIM-09 modules (MCA)
DIM-05	RS-485 detector interface module (RTU modbus)
DIM-09	MCA 1024 detector interface module for connection of NaI(Tl), YAP, and other scintillation detectors
DIM-10	8 × pulse counter detector interface module, 2 – 20 V > 1μs
ICIM-01	Interface for data transmission to PAMS type safety related systems: 2 × (1 × AO 4 - 20 mA + 4 × DO)
ICIM-02	Module 8 × DI, 8 × DO
ICIM-03	Module 4 × AO 0 – 20 mA
ICIM-04	4 × AI module with switchable range 0 - 0,1 mA / 0 - 1mA / 0 - 20 mA
PSM-02 (RPU-12)	230 VAC redundant power control module
PSM-05 (RPU-12)	230 VAC power control module

RPU-12

Thanks to its larger dimensions and integrated display on the front panel (door), the RPU-12 unit is suitable for use in radiation monitors installed on skids (frames) together with air or liquid sampling and processing technology, where it is required to locally display the measurement results.



SPECIFICATIONS

Display	Monochrome 320 × 240 pixels
Max. number of measuring channels	16
Number of modules per rack	max. 10
Data archive (FIFO, per channel)	
• Instantaneous values	60
• Minute averages	120
• Hourly averages	180
• Events	1,000
Communication interface (depending on the used modules)	Ethernet RS-485, RS-422
Classification according to EN 61226	category B or C
Power supply	100 ~ 240 V / 47 ~ 63 Hz
Dimensions (w x h x d)	(450 x 650 x 330) mm
Operating conditions:	
• Temperature	0 - 55 °C
• Relative humidity	98 % at 35 °C non-condensing

RPU-04, RPU-06, RPU-12

RADIATION PROCESSING UNITS

RPU-04



The RPU-04 is suitable for use in monitors where there is no need to locally control the sampling technology and where it is not necessary to locally display the measurement results.

SPECIFICATIONS

Max. number of measuring channels	16
Number of modules per rack	max. 4
Data archive (FIFO, per channel)	
• Instantaneous values	60
• Minute averages	120
• Hourly averages	180
• Events	1,000
Communication interface	Ethernet
(depending on the used modules)	RS-485, RS-422
Classification according to EN 61226	category B or C
Power supply	24 V DC / max. 2 A
Dimensions (w x h x d)	330 x 300 x 330 mm
Ingress Protection	IP 44
Operating conditions:	
• Temperature	0 - 55 °C
• Relative humidity	98 % at 35 °C non-condensing

RPU-06



The RPU-06 unit is based on the RPU-04 unit. It is equipped with an additional display integrated in the front panel (door).

The RPU-06 is suitable for use in monitors where there is no need to locally control the sampling technology but where it is required to locally display the measurement results.

SPECIFICATIONS

(where different from RPU-04)

Display	Monochrome 320 x 240 pixels
---------	-----------------------------



RADIATION PROCESSING UNITS

RDU-12

The RDU-12 display units are used to simultaneously display values from up to 16 measurement channels, or to display a detail of one measurement channel. The RDU-12 do not contain a rack with slots for inserting plug-in modules.

Two versions of the RDU-12 are available: an independent display unit RDU-12 with its own data collector, and a remote display unit RDU-12S intended only for connection to the RPU units for remote data display and/or remote control of radiation monitors.



RELATED PRODUCTS

RDU-02	Radiation Display Unit for 4 measurement channels
RDU-22	Radiation Display Unit for 16 measurement channels
RMS	Radiation Monitoring System
ASU-50	Alarm Unit

SPECIFICATION

Display	Monochrome 320 × 240 pixels
Max. number of measuring channels	16
Communication interface	
RDU-12	RS-422, RS-485, Ethernet
RDU-12S	RS-422
Classification according to EN 61226	category B or C
Power supply	24 V DC / max. 2A 195 ~ 265 V / 47 ~ 63 Hz
Dimensions (w x h x d)	
RDU-12	(278 x 198 x 72) mm
RDU-12S	(288 x 200 x 94) mm
Weight	approx. 45 kg
Operating conditions:	
• Temperature	0 - 55°C
• Relative humidity	98 % at 35 °C non-condensing

