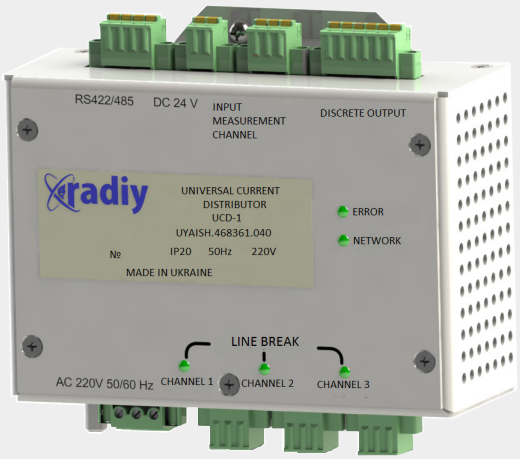
UNIVERSAL CURRENT DISTRIBUTOR

Universal current distributor (UCD) is intended for distribution of a current signal as well as conversion from one current standard into another. It can be used at nuclear power plants and other industrial facilities.

UCD are designed for using at NPPs, belongs to to Safety Class 3, elements of normal operation, control and safety systems elements. UCD are used as additional stationary hardware and have Class identification 3Н, 3НК, 3НКО, 3НКОД according to Regulations 306.2.245-2024. According to Regulations 306.2.202-2015, SOU NAEK 100, UCD can perform functions B and C. Accordng to Regulations 306.2.237-2022, UCD comply with requirements of cybersecurity level K2.

UCD can distribute the input current signal of standards: 0..5, 4..20, 0..20 mA into three galvanically isolated channels with the conversion of one standard into another in any random order determined by the task.

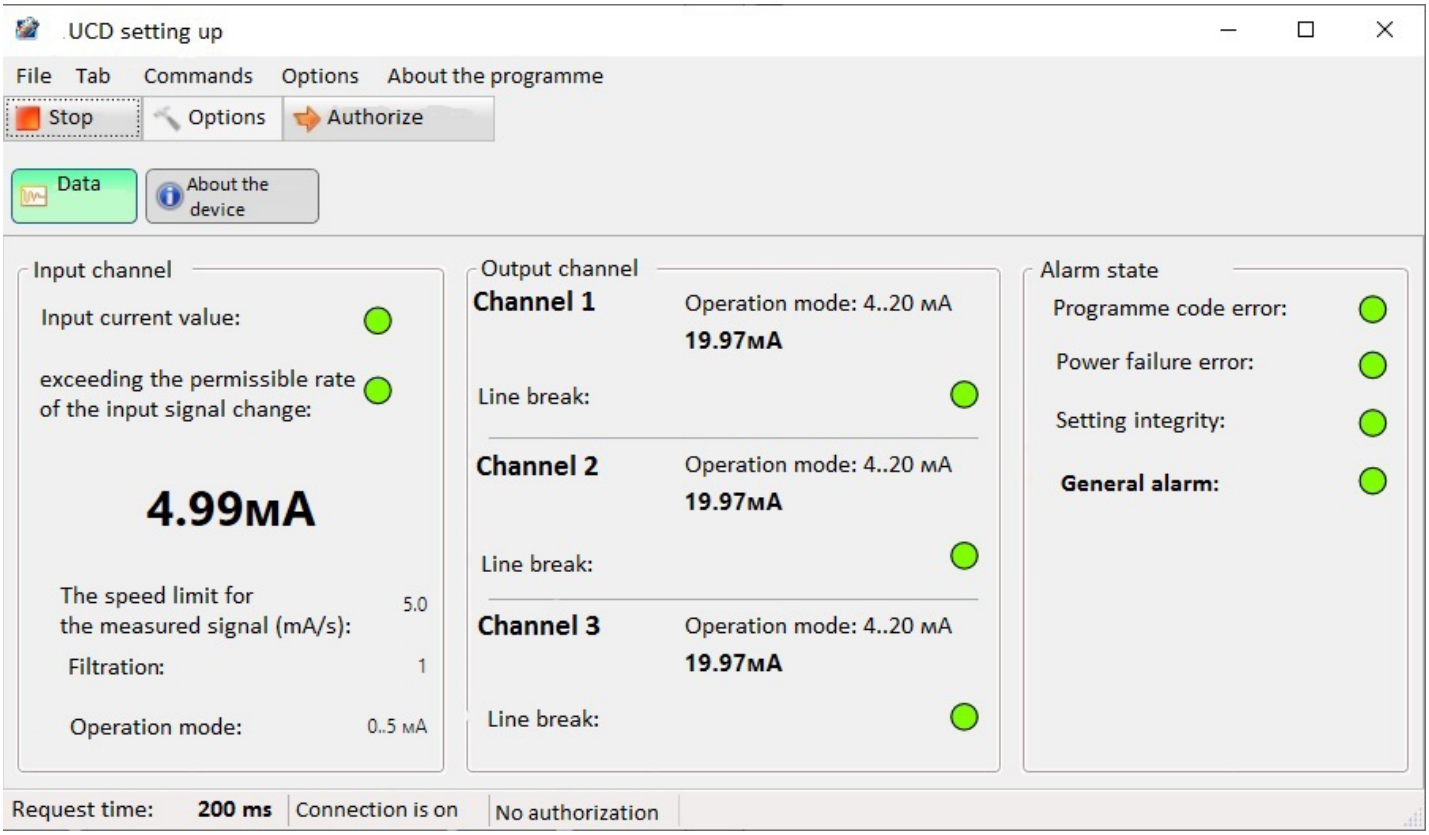


UCD technical characteristics

Number of the channels for measuring a current signal	1
Number of current signal output channels	3
Input resistance of the measurement channel: not more than	51 Ohm
Ranges of current signal measurements	- from 0 to 5 мА; - from 0 to 20 мА; - from 4 to 20 мА.
Ranges of output current signals for each output interface	- from 0 to 5 мА (Rn < 2 kOhm) - from 0 to 20 мА(Rn < 500Ohm) - from 4 to 20 мА(Rn < 500Ohm)
Settling time for the output signal when the input signal changes in the range from 0 to 100%: not more than	0,5 s.
Limits for the reduced basic conversion error: not more than	± 1 %
Limits for the reduced complementary error for converting the input signal into the output signal when the supply voltage changes in the range from 0,8Un to 1,2Un (Un – nominal voltage): not more than	± 0,1%
Ripple of output signals depending on the maximum value of the output signal in the active output current range: not more than	± 0,25 %
Digital communication interface	RS 485/422
Supply voltage	220 $^{+10\%}_{-15\%}$ V
UCD consumed power: not more than	12 W
Overall dimensions	130x110x90 mm
Weight: not more than	1,5 kg

29 Akademika Tamma Street,
25009 Kropyvnytskyi, Ukraine
inter.project@radiy.com I www.radiy.com

Screenshot of the main window of the program for setting up and displaying UCD operating modes:



UCD distinctive features

- There is a digital communication interface RS 485/422 for setting operation parameters, as well as for interfacing with upper level equipment.
- Discrete “Alarm” signal activates in the case of:
  - output of the measured input current outside the specified range;
  - break of the output analog channel line (“current loop”);
  - exceeding the rate of change (set) of the input measured current;
  - violation of the internal performance diagnostics parameters.
- Full galvanic isolation between the input analog measurement channel, output channels, power interface, and digital interface.

Design Solutions of Physical Process Analysis Design Bureau

Physical Process Analysis Design Bureau of RPC Radiy is set up for development of seismic protection systems, calibration equipment and qualification of product data at NPP. The bureau designs and implements the Seismic Sensor that is the source of seismic data for the seismic protection equipment. Other successfully designed and implemented product is the vibration measuring system for periodic calibration of seismic sensors in semi-automatic mode. Besides nuclear products the design bureau has developed the Information Acquisition and Display Unit that is the basic item in any monitoring system design including the Automatic System for Early Diagnostics of Emergencies. Additionally, the design bureau develops the angel precision gages for the wide scope of measurement.