
KREIT

USP-78 Configuration Software

User Manual

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INTRODUCTION

Configuration software **prusp78.exe** for USP-78 protocol converter (hereinafter referred to as 'USP') operates only in Windows 95/98/XP environment on IBM PC equipped with a 'mouse' and one vacant COM port for USP connection. After the software is executed a new or corrected USP programming file is created with a name set by the user and extension **.usp**. It may be recorded into USP memory immediately using the 'record' mode of the program **prusp78.exe**, and saved in an arbitrary catalogue on the disk for further correction. The software allows to configure USP for the following variants: Magistral-1, Magistral-2 and 'Inkomsystem' Automated Control System, Kazan, (Modbus protocol), UNK TM (Superflow imitation), dispatch system of Metran group, Chelyabinsk (HART protocol), 'Energiya'.

1 USP configuration for Magistral-1

1.1 In order to prepare the USP configuration file, run **prusp78.exe**. Choose 'file' in main menu, and select it. Load the existing configuration file or create a new one by choosing 'Magistral-1' option. Go back to main menu level, please note that after the file opening, additional sections 'DB path' and 'USP settings' will appear in the menu. In 'DB path' section specify a path to the database of Tekon-20 controllers. The 'USP settings' menu includes the following options: 'General settings', 'List of controllers', 'Group parameters', 'Common RS', 'Intelligent RS.'

1.2 USP general features, described in section 2.3.2 'TEKON-20 parameters' in 'Protocol converter USP-78. Operating manual', are set in 'General settings'. The settings procedure is clear from the image on the screen.

1.3 The 'List of controllers' option opens a window where controllers incorporated into specific remote stations (RS) are set. Right-click to open the menu with the following options: 'Add controller', 'Remove controller' and 'Enter task queue'. In 'Add controller', the required controller is set by selection of the task queue related to this controller (a file with **.tsk** extension). The controller's network number is taken from the set file; if required, it can be manually changed.

'Enter task queue' may be used if USP settings parameters have been read from the device, and it is necessary to connect these parameters and controller with its task queue.

1.4 'Group parameters' opens a window where the required group parameters (see item 2.3.2.16 of 'Protocol Converter USP-78. Operation Manual') are chosen from the set list of controllers. Controllers' parameters are represented in the form of a window displaying a tree of task queues and their parameters. Left-click on the selected parameter, place it into one of the four group parameters by clicking the arrow button.

1.5 'Intelligent RS' initially opens a window with subunit numbers in the form of buttons. Some of them already having at least one configured telemetry parameter in the selected file are marked as 'yes', and the others are marked as 'no.' In order to select the required RS, left-click on it. A window containing 4 possible telemetry op-

erations appears. Left-click on the operation you need. Select 'parameter' if there was no data in the field earlier. Choose the required parameter from the window containing the tree of parameters, and click 'place' button. After this, go to the next operation. When RS is configured, close the window.

1.6 Initially 'Common RS' opens a window with subunit numbers. Distribute the subunits by types, to do that, chose it from a drop-down list in the window located to the right from the subunit number, in order to display the drop-down list of types. Choose the required type, and left click on it. To view or correct it, choose a subunit from those set on TC or TS. Left-click on the subunit number, a setting window appears.

1.6.1 For TC subunit, choose one of 6 possible operations by clicking the respective radio button. If this operation was not chosen earlier, click 'signal' radio button. Choose the required signal from the window containing the tree of possible supervisory control signals, and click 'place' button. After this, go to the next operations.

1.6.2 For TS subunit, choose the required teleoperation by clicking the respective radio button with numbers from 1 to 4, and the required position, by clicking on the radio button with position numbers from 1 to 8. If this operation was not chosen earlier, click 'signal' radio button. Choose the required signal from the window containing the tree of possible signals, and click the 'place' button. After this, go to the next operations.

1.7 When file is correct, save it under the required name through 'save' or 'save as...' operation of 'file' section in main menu, and start to input the information into USP memory.

2 USP configuration for Modbus

2.1 In order to prepare USP configuration file, run **prusp78.exe**. Choose 'file' section in main menu and enter it. Load the existing configuration file or create a new one by choosing 'Modbus' option. Go back to main menu level, please note that after the file opening, additional sections 'DB path' and 'USP settings' will appear in the menu. In 'DB path' section, it is required to specify a path to the database of Tekon-20 controllers. 'USP settings' menu includes the following options: 'General settings', 'List of controllers', 'Group parameters', 'TC', 'TS', 'Float-point TM.'

2.2 'General settings', 'List of controllers' and 'Group parameters' are described in items 1.2, 1.3, 1.4 hereof.

2.3 In any other menu option, the main window is opened, the left part of which contains a table with the list of all possible parameters of this type. The table rows are numbered from 1 to the maximum possible number. Empty rows containing no links to the Modbus addresses contain the word 'no'; the other rows contain the Modbus addresses assigned to them in decimal form. The tree of parameters of the set controllers is located in the right part of the window.

In order to place the parameter into the required table cell, place the cursor onto this cell by left-clicking on it. Then, choose the parameter by left-clicking on it, and click 'place' button.

In order to remove the unnecessary address, place the cursor onto the table cell containing it by left-clicking on it. Right-click on it, a menu with 'Delete' will appear. The program will request confirmation, and if the user agrees, it will remove the parameter.

2.4 When configuring TC, always assign oddly even **Coil** numbers, it is controlled by the software. For configuration of TS and telemetry with float-point parameters, register numbers are arbitrary.

2.5 When file is correct, save it under the required name through 'save' or 'save as...' operation of 'file' section in main menu, and start to input the information into USP memory.

3 USP configuration for UNK TM

3.1 In order to prepare the USP configuration file, run **prusp78.exe**. Choose 'file' section in the main menu and enter it. Load the existing configuration file, or create a new one by choosing 'UNK TM' option. After going back to the main menu level, please note that after the file opening, additional sections 'DB path' and 'USP settings' will appear in the menu. In the 'DB path' section, it is required to specify a path to the database of Tekon-20 controllers. The 'USP settings' menu includes the following options: 'General settings', 'List of controllers', 'Calculator.'

3.2 'General settings' and 'List of controllers' are described in items 1.2, 1.3 hereof.

3.3 'Calculator' opens a window, the left part of which contains a table with a list of parameters for three pipelines. When choosing a controller for any pipeline, or left-clicking any parameter (if they are already set), the tree of controller parameters is opened in the right part of the window.

In order to select a controller, left-click on the respective table cell, and a drop-down list of the set controllers will appear.

In order to place the parameter into the required table cell, place the cursor onto this cell by left-clicking on it. Then, choose the parameter by left-clicking on it, and click 'place' button.

In order to remove a parameter from the table, place the cursor on the table cell containing it by left-clicking on it. Right-click, a menu with 'Delete parameter' and 'Delete pipeline' options will appear. It is possible to delete a separate parameter and an entire pipeline. The program will request confirmation, and if the user agrees, it will delete either the parameter or the entire pipeline. The user does not set the depth of hour archives; it shall be defined by the archive parameter set.

3.4 When file is correct, save it under the required name through 'save' or 'save as...' operation of 'file' section in main menu, and start to input the information into USP memory.

4 USP configuration for HART

4.1 In order to prepare the USP configuration file, run **prusp78.exe**. Choose the 'file' section in the main menu and enter it. Load the existing configuration file or create a new one by choosing 'HART.' After going back to the main menu level,

please note that after the file opening, additional sections ‘DB path’ and ‘USP settings’ will appear in the menu. In ‘DB path’, it is necessary to specify a path to the database of Tekon-20 controllers. The ‘USP settings’ menu includes the following options: ‘General settings’, ‘List of controllers’, ‘Parameters setting.’

4.2 ‘General settings’ and ‘List of controllers’ are described in items 1.2, 1.3 hereof.

4.3 ‘Parameters setting’ opens a window, the upper part of which contains a window ‘Device reference number’ which changes from 1 to 16 in a drop-down list.

A table with a list of parameters is located in the left part of the window. During controller selection or if the controller is already set, a tree of this controller parameters opens in the right part of the window.

Enter hexadecimal numbers reflecting the required device type, number and code in three table cells.

In order to select a controller, left-click on the respective table cell and a drop-down list of the set controllers will appear.

In order to place the parameter into the required table cell, place the cursor onto this cell by left-clicking on it. Then, choose the parameter by left-clicking on it and click ‘place’ button.

In order to delete a parameter from the table, place the cursor on the table cell containing it by left-clicking. Right-click on it, a menu with ‘Delete’ will appear. The program will request confirmation, and if the user agrees, it will delete the parameter. If ‘CAN address of HART device module’ parameter is deleted, all parameters for this device are deleted as well. The user does not set the depth of hourly archives; it shall be defined by the archive parameter set.

4.4 When file is correct, save it under the required name through the ‘save’ or ‘save as...’ operation of the ‘file’ section of the main menu, and start to input the information into USP memory.

5 USP configuration for ‘Energiya’

5.1 In order to prepare USP configuration file, run **prusp78.exe**. Choose ‘file’ section in main menu and enter it. Load the existing settings file or create a new one by choosing ‘Energiya’. After going back to the main menu level, please note that after the file opening, additional sections ‘DB path’ and ‘USP settings’ will appear in the menu. In the ‘DB path’ section, it is necessary to specify a path to the database of Tekon-20 controllers. The ‘USP settings’ menu includes the following options: ‘General settings’, ‘List of controllers’, ‘Group parameters’, ‘Comb busbar’, ‘TS.’

5.2 ‘General settings’, ‘List of controllers’, ‘Group parameters’ are described in items 1.2, 1.3, 1.4 hereof.

5.3 ‘Comb busbar’ opens a window, the left part of which contains a table with a list of comb busbar parameters. During controller selection or if the controller is already set, a tree of this controller parameters opens in the right part of the window.

In order to select a controller, left-click on the respective table cell and a drop-down list of the set controllers will appear.

In order to place the parameter into the required table cell, place the cursor onto this cell and left-click. Then, choose the parameter by left-clicking on it, and click the 'place' button.

In order to remove a parameter from the table, place the cursor on the table cell containing it by left-clicking. Right-click on it and a menu with 'Delete' option will appear. All data in the row containing the parameter are deleted. The program will request confirmation, and if the user agrees, it will delete the row.

5.4 When file is correct, save it under the required name through the 'save' or 'save as...' operation of the 'file' section of the main menu, and start to input the information into USP memory.

6 Configuration of exchange with USP

In 'Configuration of exchange' in main menu select the type of connection with USP, COM port number, exchange rate; set known network numbers of USP and the adapter (if connected via the adapter).

7 Exchange with USP

7.1 Connect USP to the computer as it is described in 'Protocol Converter USP-78. Operation Manual'.

In 'Exchange with USP' in main menu, select one of three modes: 'Search', 'Recording into USP', 'Reading from USP.'

In 'Search' set two limit network numbers within which USP is searched. If it is connected via adapter, set also the range for search of the adapter network number. The table with the found USP is formed as the search result.

7.2 'Reading' allows reading of all settings from USP. Click 'Read' button. The settings are read from USP, the reading process is indicated on the screen. When the reading is successfully completed, the message 'Reading completed' will be displayed. Further, the data may be saved into a file with the required name by 'save' or 'save as...' in 'file' in main menu.

7.3 'Recording' mode is available if the configuration file has been loaded or data from USP have been read. Click 'Record' button. The process of programming the configuration file into USP will start, the process will be displayed on the screen. If the programming is successfully completed, the message 'Recording complete' will be displayed.

If the recording or reading process was interrupted due to any failures, it may be repeated.