Data collection and transmission controllers measuring "PUMA-30"

Modification: “PUMA-30.02”

USER MANUAL

Content

Introduction

The PUMA-30 data acquisition and transmission controllers (hereinafter referred to as controllers) are available in various versions, depending on the number of inputs, outputs, and interfaces. This operating manual (hereinafter referred to as the OM) applies to the PUMA-30.02 version of the controller.

This operating manual is intended for personnel involved in the design of automated information and control systems for commercial metering, installation, commissioning, operation, repair, and maintenance of Jcom-IoT controllers.

Personnel authorized to work independently with the equipment must:

- be certified to carry out installation and commissioning work of automated information and control system for commercial metering;
- have a qualification group in electrical safety of at least III;
- know the operating principle and technical characteristics of the controller;
- have skills in working with computers.

Personnel carrying out repairs must additionally:

- be trained in fault detection and troubleshooting techniques for specific devices that are eligible for on-site repair;
- have practical skills in working with soldering equipment and assembly tools;
- have experience in repairing electronic components.

Jcom-IoT is the copyright holder for the PUMA-30 measuring data collection and transmission controllers, as well as the embedded software in the controllers.

1. Purpose

The PUMA-30 measuring data collection and transmission controllers are designed to collect and transmit energy consumption data from primary converters – energy meters – as well as to monitor the status and control the modes of equipment at a remote facility.

Controllers are used to build automated information and measurement systems for commercial metering of electricity (AIMS KUE) and other energy resources, as well as to build systems for monitoring, dispatching, monitoring the condition and controlling the modes of equipment at a remote facility.

2. Technical and metrological characteristics

It is possible to manufacture a controller on special order with an extended operating temperature range (from minus 20 ºC to plus 55 ºC).

Main technical And metrological characteristics controllers are given in Table No. 2.

Table No. 2. Basic technical and metrological characteristics

Name of the characteristic	Meaning
Operating temperature range	from - 20 to + 55 °C
Operating range of air humidity at a temperature of +25 °C	from 30 to 80%
Powered by a DC voltage source	from 18 to 72 V
Maximum power consumption, no more than	10 W
Limits of permissible absolute error of watch movement controller in the operating temperature range	± 1 sec/day.
Maximum non-volatile memory capacity	4 GB
Maximum number of digital metering channels	256
Maximum number of relay inputs	4
Maximum number of SPI interfaces	1
Maximum number of RS232 interfaces	2
Maximum number of RS485 interfaces	2
Maximum number of CAN interfaces	1
Maximum number of 10/100BaseT interfaces	1
Built-in modem type	GPRS
Data retention time when power is off	20 years
Overall dimensions (height, width, depth), mm	106×157×61
Controller weight, no more than	0.8 kg
Mean time between failures, not less than	150,000 hours
Body design	IP30
Controller service life, not less than	20 years

4. Completeness

The controller kit is shown in Table 3.

Table 3. Controller completeness

Name	Quantity, pcs.
1. Data collection and transmission controller "PUMA-30.02"	1
2. Operation manual	1
3.Form	1
4. Packaging	1
5. Software "KSPDI Configurator "PUMA-30"	1

5. Appearance of the device

The controller is a device housed in a durable plastic case. Inside the case is a circuit board with a microcontroller, memory, GPRS modem, RS485, Ethernet, USB, SPI interface node, and a power supply.

The outside of the case contains connectors for interface cables. LED indicators indicate power to the controller, its operation, and GPRS data transfer.

Setting up and monitoring the controller's operation is possible using a personal computer connected via the RS485 interface.

The controller collects data from meters and sensors and controls the GSM modem. A power supply provides DC power to the device. The controller communicates with the CPU via the GPRS modem over a cellular channel (SMS, CSD, GPRS).

Data exchange between the CPU and external equipment connected to the device is carried out via serial interfaces RS485, Ethernet, GPRS modem.

The controller's internal clock records the times of critical events and meter readings. Clock accuracy is ensured by adaptive correction when synchronizing with the server.

Synchronization of the controller clock is carried out automatically from the server with the period specified during the controller parameterization or can be performed by the operator upon request at any time.

The controller's clock accuracy is ensured by connecting a time synchronization device of an approved type to the server, with a clock accuracy of no worse than 0.2 seconds per day. The time synchronization interval must be set at least once per day.

The controller's design allows it to be placed in electrical cabinets.

The following inscriptions are printed on the front panel of the controller: device type, modification, marking of power connectors and ports, designation of LED indicators.

The appearance of the PUMA-30 controller is shown in Fig. 1.

Figure 1 - Controller appearance

6. Preparation for use, connecting external devices

ATTENTION: Alternating voltages above 36V are life-threatening! All installation work must be performed with the power disconnected.

6.1. Preparing the controller for installation on site

Before installing the controller, perform a visual inspection to detect any mechanical damage to the device's housing. If the controller has been exposed to conditions other than its intended operating conditions, allow it to soak for 2 hours under these conditions before connecting power.

When selecting an installation location, the following criteria should be followed: do not install the controller in places where dust or aggressive gases may be present, place it near powerful sources of electromagnetic and thermal radiation, or in places subject to shaking, vibration, or exposure to water.

The mounting points on the rear of the controller allow it to be mounted on a 35mm DIN rail.

6.2. Getting ready for work

As designed, interface cables are connected to the connectors located on the side of the device's housing (Fig. 1) when the device is turned off. The device is turned on after power is applied through the power connector located on the side of the housing.

After turning on the power, the settings are loaded and the device is prepared for operation.

Note:*Connection to the power source should be made using a wire with a cross-section of at least 0.5 mm2 through an external 2A fuse or a category A circuit breaker.*

7. Maintenance

Maintenance must be carried out by persons who have read this operating manual.

Periodic maintenance includes inspecting the device's appearance, taking measurement data, checking the system time, and checking communications via RS485, SPI, USB, and Ethernet interfaces.

Inspection should be carried out at least once a year, during which the reliability of fastening of devices at the place of operation, the condition of cable lines and the integrity of seals are checked.

The controller's clock must be synchronized at least once per day. Synchronization must be performed from a server connected to an approved time synchronization device.

8. Marking

The controller marking must correspond to the manufacturer's drawings.

One of the screws securing the bottom cover of the controller is sealed by applying an imprint from the quality control department of the manufacturer or the service that verifies the controller.

9. Storage and transportation rules

Climate conditions transportation controller:

– ambient air temperature from minus 40°C to plus 70°C;
– the upper limit of relative air humidity is up to 95% at plus 45°C;
– atmospheric pressure from 84.0 to 106.0 kPa (from 630 to 800 mmHg).

Transportation on aircraft must be carried out in accordance with the rules for the carriage of baggage and cargo by air.

The controller must be stored in its packaging in the consumer's warehouse premises that meet the following conditions:

– ambient air temperature from plus 5°C to plus 40°C;

– relative air humidity from 5% to 80%;
– solar radiation, 700 W/m2;
– There is no condensation of moisture, frost formation, or wind-driven precipitation.

A short-term increase in humidity up to 98% at a temperature of no more than +25°C, without moisture condensation, is permitted, but in total, no more than 1 month per year.

10. Disposal

The controller does not contain any hazardous or toxic substances that could harm human health or the environment, so disposal of the controller can be carried out in accordance with the rules for the disposal of general industrial waste.

When disposed of, the controller housing, which is made of plastic, can be recycled.

The remaining components of the controller (electronic boards, connectors, etc.) contain extremely small amounts of precious metals and therefore, their recycling is not practical.

11. Warranty obligations

The controller's warranty period is 12 months from the date of operation of the device.

During the warranty period, the manufacturer will replace or repair the controller free of charge. The warranty does not cover defects resulting from improper handling, maintenance, storage, or transportation.

Appendix No. 1. List of commands

Team	Description	Explanation, example
Setting up general and network settings		
&ifconfig	= Sets all IP parameters of the device =<host>,<netmask>,<gateway> <host> - ip address, <netmask> - mask, <gateway> - gateway ? View the IP parameters of the device.	Example: &ifconfig=192.168.1.7,255.255.255.0,192.168.1.1 &ifconfig?
&mac	= Specifies the MAC address of the device =<XX:XX:XX:XX:XX:XX> View the device's MAC address	Example:&mac=10:20:30:A 2:40:60 &mac?
&apn	= setting the access point APN =<APN> <APN>-access point Viewing the access point's APN	Example: &apn=internet &apn?
&id	= setting the USPD identifier =<ID> <ID>-identifier of the type XXXXXXXX ? View the USPD identifier	Example: &id=12345678 &id?
&about	View all USPD settings	Example : &about
&srv	= Server installation. =<N>,<IP>:<port> <N> - server number 1-3 <IP> - server ip-address <port> - server port ? View USPD servers	N=1 — collection server N=2 — transit server N=3 — update server Example: &srv=2,192.168.1.123:2541 &srv?
&plink	= Selecting a connection interface =<P> <P> interface: eth,1, gprs,0. 1 - eth, 0 - gprs. ? View the current status of plink	Example: &plink=eth &plink?
&env	? viewing environment variables	Example : &env?
ðtcpsegmentsize	=<SIZE> is used to specify the TCP packet fragment size. <SIZE> can take values from 128 to 1024 bytes. The default is 1024. To view the current value, use the ðtcpsegmentsize? command.	Example:ðtcpsegmen tsize?
ðtcptimeout	=<TIME> is used to set the timeout for acknowledgment when transmitting a TCP packet. <TIME> is specified in multiples of 10 ms and can take values from 50 (500 ms) to 500 (5 sec). The default value is 120 (1.2 sec). To view the current value, use ðtcptimeout?	Example:ðtcpsegmen tsize?
Update and reboot		
&upgrade	= Firmware update =<IP>:<port> file=<file> <IP> - IP address of the update server <port> - update server port <file> - firmware file name	Example: &upgrade=192.168.1.5:2541 file=puma_V3_47.hex
&eraseupgrade	Erases the flash memory area for new firmware	Used when a firmware update fails and the next firmware version is different. Example:&eraseupgrade
&reset, &res, &reboot, &restart	Used for software reboot of the USPD	These commands are equivalent
&lockresettimerelay	Used for hardware reset of the USPD.	

	The command works with time relay version 2	
&get.ver	Viewing the current version of the USPD firmware	Example: &get.ver

Installation and synchronization of time of the USPD

&date	= Setting the date of the USPD =<DDMMYY> <DDMMYY> - day, month, year ? View the USPD date	Example: &date=030514 &date?
&time	= Setting the time of the USPD =<HHMMSS> <HHMMSS> - hour, minute, second ? View the USPD date	Example: &time=112554 &time?
&systime	= Setting the date and time of the USPD = <DD.MM.YY> <HH:MM:SS> <DD.MM.YY> - day, month, year <HH:MM:SS> - hour, minute, second ? View the USPD date	Example:&systime=03.05.1 4 11:25:54 &systime?
&echo	= Determining the channel delay =<ARRAY> <ARRAY> - array of values sent to the USPD	Example: &echo=proba The output of this program is: ECHO: proba 07/09/14 10:50:26 AM OK

Setting interface parameters

&defi	= Setting interface parameters =<port>,<bound>,<Bit>,<Stop>,<P>,<timeout>,<ADRKI> <port> - interface number:1-RS232.1, 2–RS232.2, 3–RS485, 4–CAN. <bound> - speed: 1200, 2400, 4800, 9600, 19200, 38400, 115200 <Bit> – number of bits (7, 8) <Stop> – number of stop bits (1, 2) <P> – parity: NO, OD (Odd), EV (Even), F1 (Mark), F0 (Space) <timeout> — intercharacter interval timeout, parameter in ms. <ADRKI> - KI232/485 address in decimal form ? View interface parameters	Example: no CI:&defi=4,9600,8,1,NO,5 KI with address 97 or 61h: &defi=4,9600,8,1,NO,5,97 Example output from the &defi?:DEFI command: 1 115200,8,1,NO,10,0,5 2 9600,8,1,NO,10,0,10 3 9600,8,1,F1,10,0,10,97 4 9600,8,1,NO,10,0,5 OK

Preprocessor operation

&set	= Sets the value of an environment variable =<Name>,<Value> <Name> - variable name <Value> - the value of the variable	Example: &set=Name,10
&unset	= removes the environment variable =<Name> <Name> - variable name	Example: &unset=Name

Temperature sensor query

&termdef	= Definition of temperature sensor =<N> <N> - temperature sensor number from 1 to 4.	Example: &termdef=1
&temp	= Temperature sensor query =<N> <N> - temperature sensor number from 1 to 4. ? is used to display temperature information from all four sensors and the temperature inside the Puma (read from the clock chip).	Example: &temp=1 In the following example, no sensors are connected: &temp? TEMP: ----. ----- ----.

		25.25 OK
&termdefclr	= clearing information about temperature sensors =<N> <N> - temperature sensor number from 1 to 4 or all	Example:&termdefc lr=1
&termdefset	= Defining the UID of the temperature sensor =<N>,<UID> <N> - temperature sensor number from 1 to 4 <UID> - uid number	Example&termdefset=3.28364B8C4200005 C

Equipment management via HTTP

&cmdhttp	= Generates an HTTP request =<IP>:<port>, <formatstrhttp> <IP> - IP address <port> - port <formatstrhttp> - HTTP format string	Example:&cmdhttp=192.168.1.10:80,G ET /axis- cgi/jpg/image.cgi HTTP/1.1\r\nHost: %d.%d. %d.%d\r\nConnection: Close\r\nAuthorization: Basic cm9vdDoxMjM\r\n\r\
&cmdurl	= Generates an HTTP request based on the given URL =<IP>:<port><URL>,<Authorization> <IP> - IP address <port> - port <URL> - the specified URL <Authorization> - authorization string.	Example: &cmdurl=192.168.1.10:80/axis- cgi/jpg/image.cgi,Basic cm9vdDoxMjM

Nicknames

&alias	= Enter nickname =<NEWNAME>:<COMM> <NEWNAME> - the name of the command alias <COMM> - USPD command ? Returns a list of aliases	Example:&alias=&resdev: &rel=8,1,3 &alias?
&delalias	= Delete command alias &delalias=<N> <N> - alias number from the list of aliases	Example: &delalias=1

Simplified scheduler

&log	= Sets the simplified scheduler period value =<T> <T> - the value of the simplified scheduler period, sec. (0-1800) When <T>=0, the simplified scheduler is disabled. ? Viewing the simplified scheduler period	Example: &log=300 &log=?

CRON Task Scheduler

&cron	= Creates a task scheduler =<N>,<M> <H> <d> <m> <w>; <command> <N> - scheduler line number (selected from free) <M> - Minute of the hour to start (0 - 59) <H> - Hour of day of launch (0 - 23) <d> - Day of the month (1 - 31) <m> - Month of the year (1 - 12) <w> - Day of the week (0 - 6) (Sunday=0) <command> - the command to run The values of M, H, d, m, w can be a number, as well as range. Values can be separated by commas. To run a script once every n (minutes, hours, ..) the slash "/" is used. All five time fields are valid. the asterisk symbol - "*", which means "use any valid value" for this field.	Example: &cron=1.10 * * * *;&runscript=0 Run script #0 every hour at 10 minutes. In the following examples, only <M> <H> <d> <m> <w> are used. Example: * * * * 1-5 The entry "1-5" in the <w> field will mean "Monday through Friday". Example: * * 1,15,31 * * Entering "1,15,31" in the <d> field will run the specified command on the 1st, 15th, and 31st of every month. Example: */10 * * * * writing */10 in the <M> field will mean once every 10 minutes Example : &cron?

	? View the list of schedules	The result of executing this program:CRON: 0: * * * 5 *;&runscript=0 ON 1: 2: 3: * 5,6,8 * * *;&runscript=1 OFF 4: 5: 6: */10 * * * *;&rel=F,1 ON 7: OK
&startcron	= Start schedule =<N> <N> - schedule number in the list, or all (run the entire list of schedules)	Example: &startcron=4 &startcron=all
&stopcron	= Stop schedule =<N> <N> - schedule number in the list, or all (stop the entire list of schedules)	Example: &stopcron=5 &stopcron=all
&clrcron	= Delete schedule =<N> <N> - schedule number in the list, or all (delete the entire list of schedules)	Example: &clrcron=7 &clrcron=all

One-time task scheduler

&at	= Executes the given command at the given time =<DATE>,<TIME>;<COMAND> <DATE> - date in DDMMYY format day, month, year <TIME> - time in HHMMSS format (hour, minute, second) <COMAND> - USPD command ? View a list of one-time tasks	Example: &at=300515,154000;&rel=F,1 &at?
&do	= Deletes a one-time task =<N> <N> - number from the list of one-time tasks	Example:&delat= 1
&after	= Executes a command that is delayed for a specified time =<SECUND>;<COMAND> <SECUND> - time, in seconds <COMAND> - USPD command	Example: &after=60;&rel=F,1

Relay output control

&rel	= Relay output control =<M>,<S>,<T> <M> - output mask (1..F) <S> - the state in which the relay must be set (1 - apply voltage to the winding, 0 - remove voltage from the winding) <T> - time in minutes for which the relay state is set (may not be specified) ? View relay status	Example:&rel= F,1 &rel=8,0,10 &rel?

Discrete digital inputs

&din	The relay state can be obtained using the command &din &din=<MASK> sets the inversion mask for digital inputs <MASK> - max digital inputs of type XXXX &din? returns the inversion mask of digital inputs in the format XXXX	Example : &din &din=0101&din ?

Processing state changes on digital inputs

&alarm	= Adds a change handler on the digital	Below is an example of a configuration in which, upon opening D16, an SMS is generated.

	at the entrance =<A>,<YYYY>,<XXXX>,<timeout>;<command1>, <command2>;<command3> <A> - alarm number, if 0, then the alarm is silent - is not signaled to the upper level by a line $ALARM№ <YYYY> - digital inputs <XXXX> - digital input mask <timeout> - hysteresis before clearing the alarm (sec) <command1> - executed when an accident starts <command2> - executed during an accident continuously <command3> - executed when the alarm is cleared ? view the list of digital input handlers	Alarm message and sent to the number +79379992871 once at the beginning. Periodically, with the maximum possible frequency, a packet with headers is sent, this packet is sent to server 89.188.115.18:2725. When the alarm is cleared, script #0 is executed. &delcmd[3] &cmd[3]=exec {&insplio} &cmd[3]=exec {&insrend} &cmd[3]=exec {&sendpocket=89.188.115.18:3725} &delalarm &alarm=1,8000,8000,120;&sendsms=+79379992871,alarm;&runscript=3;&runscript=0 Example of accessing digital inputs - <XXXX> and the digital input mask - <YYYY> 0000 - not selected 0001 — D1 0002 — D2 0003 — D1 and D2 0004 — D3 0008 — D4 0009 — D4 and D1 0010 — D5 … 8004 — D16 and D3 … FFFF — all &alarm?
&insalarm	= Inserts a handler into the list =<N>,<A>,<YYYY>,<XXXX>,<timeout>;<command1>,<command2>;<command3> <N> is the line number starting from 0. The remaining parameters are identical to &alarm	Example: &insalarm=4,1,8000,8000,120;&sendsms=+79379992871,alarm;&runscript=3;&runscript=0
&delalarm	= Removes a handler from the list =<N> <N> is the handler line number, or all removes all handlers.	Example:&del alarm=4 &delalarm=all
&lockalarm	= Temporarily blocks digital inputs using a mask =<XXXX> <XXXX> - digital input mask	Example:&lockalarm=8 008 Blocking D4 and D16
&unlockalarm	= Unlocks digital inputs by mask =<XXXX> <XXXX> - digital input mask	Example:&lockalarm=25 00 Unlocking D9, D11 and D14

Transmitting and receiving data via SMS

&sendsms	= Sending an SMS message to a number =<Num>,<TEXT> <Num> - number in the format +79XXXXXXXXXX <TEXT> - message text, must contain only English characters.	Example: &sendsms=+79879011881,textmessage
&sendpocketsms	= Transferring data stored in the buffer via SMS =<Num> <Num> - number in the format +79XXXXXXXXXX	Example: &delcmd[5] &cmd[5]=... &cmd[5]=exec {&sendpocketsms=+79879011881}
&us	= Add a number to receive SMS from: =<Num> <Num> - number in the format 79XXXXXXXXX ? View the list of numbers from which receive SMS	Example: &us=79879011881 &us? Example of a response from USPD: US: 1:79899022084 2:79859052086
&delus	= Removing a phone number from the list from which to receive SMS	Example: &delus=1

	=<N> <N> is a serial number from the list of phone numbers from which to receive SMS	

Working with a modem

&modemcmd	Viewing the modem initialization script	
&modemdelcmd	Forced modem search procedure	
&modemno	Disabling modem type search	
&modeminit	Forced modem initialization	
&modemctrl=AT+IPR=9600;&W\r	Commands the modem to switch to 9600 speed. Needed for manipulation with V2 software.	
&uart1baudrate	= Sets the modem interface speed =<Bound> <Bound> - modem interface speed: 9600, 115200	Example: &uart1baudrate=115200
&modemtransit=on	Switches the USPD to the direct RS232- 2<>modem connection mode	
&modemtxwaitbyte	= Sets the transmission delay between packets. =<T> <T> - the set value in ms multiplied by the number of bytes. The default value for SIM300 and SIM900 is 20. The maximum value is 20. ? View the current transmission delay between packets	Example: &modemtxwaitbyte=10 &modemtxwaitbyte?
&sizetx	= Sets the volume of the GPRS data transfer package =<Num> <Num> - number of bytes in a Puma 2G packet: 64-512 Puma 3G: 64-1024 ? View the current sizetx parameter	Example: &sizetx=512

Working with Ethernet

ðinit	Remote Ethernet Reinitialization	There is no need to use this command in normal operation.
ðstate	Remote Ethernet and Link Testing	Example: ðstate USPD response: ETHSTATE: $ETH_OK OK
&ping	= Checking the connection to a remote host via the Ethernet interface =<IP> <IP> - ip address of the remote host	Example: &ping=192.168.1.123 USPD response: PING: 64 bytes from 192.168.1.123: ttl=128 time=10 ms OK Example: &ping=192.168.1.100 USPD response: PING: Destination Host Unavailable OK

Single transit teams

&trcmd	= Pdelivery from the server of single commands to remote device &trcmd={<port>,$,<data>,<crc>,<qlen>,<alen>,<offs	An example for the Mercury 230 meter looks like this: query: &trcmd={4,OPEN,00010101010101010101,1,9,4,1,4,5}

	>,<len>,<tout>,<conv>},{}... the syntax corresponds to the syntax of external teams &cmd	,{4,$PLTR,00050000,1,4,19,1,16,5},{4,$PLTY,00051000,1,4,19,1,16,5},{4,CLOSE,0002,1,2,4,1,4,5} answer: TRCMD: \r\n $PLTR,33335556,80,*3D\r\n $PLTY,33335556,80,*36\r\n \r\n OK

Transit mode

&tr	= setting the transit mode, in which the interface number is defined in the command itself =<n>,<s>,<a>,<f>,<blc200> <n> - device interface (1 … 4) 1 – RS232 - 1 2 - RS232 – 2 3 – RS485 4 – CAN <s> - mode state 0 – set 1 – not installed <a> - address for working with the KI-485/232 converter, (0 – 99), if we work without KI, then we skip this parameter. <f> - flag for substituting two data lengths in the device's response to the server; if this flag is set to 2, then the transit mode begins to operate according to a protocol that, in addition to transmitting size headers in both directions, allows for the transmission of USPD commands and switching the transit mode. <blc200> - parameter required for operation with the blc200 diesel generator.	Example: &tr=4,1,,2 Transition to transit mode for CAN without using KI-485/232 Example: &tr=3,1,10,1 Transition to transit mode for RS-485 using KI-485/232 with address 10 (0Ah)
&etr	= setting the transit mode, similar to &tr, with interface parameters specified =<n>,<setting> <n> - device interface (1 … 4) 1 – RS232 - 1 2 - RS232 – 2 3 – RS485 4 – CAN <setting> - interface parameters, similar to defi: <bound>, <Bit>, <Stop>, <P>, <timeout>, <ADRKI>	&etr=3,115200,7,1,EV,10 — starting the transit mode &tr=3,1,,2 with the corresponding RS-485 interface parameters.
&trtimeout	= Setting the transit mode timeout =<T> <T> - timeout in seconds from 60 to 600, default 300 ? View the current transit mode timeout	Example: &trtimeout=60 &trtimeout?
&trconsole	= Setting the transit mode for USPD control. Used to configure and download the USPD configuration when connected via TCP/IP. =<IP>:<Port> <IP> - server IP <Port> - server port	Example: &trconsole=192.168.1.123:2541
&permanentconnection	= setting the transit mode, in which the transmission interface number is determined by the server =<IP>:<Port> <IP> - server IP <Port> - server port =off — disables transit mode	Example: &permanentconnection=192.168.1.123:2541 &permanentconnection=off

Extensible Command Mode (Scripting)

&cmd	= Adding a command to a script &cmd[<N>]=<CMD> <N> - script number from 0 to 7, <CMD> is the command that is added to the script. To view script commands with number <N>, use the command: &cmd[<N>]?	If <N> is not specified, the script with number 0 is accessed. Example: (same commands) &cmd=<CMD>

		&cmd[0]=<CMD> Example: &cmd[3]?
&inscmd	= Inserts a command into the poll&inscmd[N]=<№>,<CMD> <N> - script number from 0 to 7 <CMD> is the command that is added to the survey. <№> - position number in the survey	If <N> is not specified, the script with number 0 is accessed. Example: &inscmd[2]=9,<CMD>
&delcmd	= Deletes a command in a poll or the entire script (all poll commands) =&delcmd[N]=<№> <N> - script number from 0 to 7 <№> - position number in the survey If the position number <№> is not specified, the entire script is deleted.	If <N> is not specified, the script with number 0 is accessed. Example: &delcmd Example: &delcmd[4]=8 Deletes line 8 of script 4
&initcmd	=<CMD> The USPD allows you to specify an initialization script—a script that runs every time the USPD is turned on. This command is used to edit this script.	
&delinitcmd=all	Command to clear the initialization script	
&runscript	= Run the script for execution =<N> <N> - script number from 0 to 7	Example: &runscript=0
&insplio &insplta &insrend	For the information collection server to function correctly, the transmitted packet must be surrounded by special service information. For this, the &insplio, &insplta, and &insrend commands are used. The first two commands must be generated before polling the interfaces, and the &insrend command must be generated immediately before the &sendpocket command.	An example of generating a script for polling a device via the RS-485 interface and transmitting information to the server: &delcmd &cmd=exec {&insplio} &cmd=exec {&insplta} &cmd=3,DEFI,9600,8,1,NO, 5 &cmd=3,$NAME,04610D213030395354415445383034444,0,16,253,0,253,20 &cmd=exec {&insrend} &cmd=exec {&sendpocket=192.168.1.123:2541}
&setlabel	Sets the frame label	
&transmitcadr	= Transmits a frame of JPG information to the server =<IP>:<Port> <IP> - server ip address <Port> - server port	Example: &transmitcadr=192.168.1.123:2541
&setserialcadrs	= Dividing the external RAM into memory areas, each of which stores one jpg file =<N> <N> - number of memory areas	Example: &setserialcadrs=3

Mercury-m200 meter polling script

&addm200	= generates a script for polling the Mercury counter-M200 in script #0 =<Num> <Num> - the last 6 digits of the counter number	Example: &addm200=748745 (on the meter it is written: 08748745 11)

Working in interface converter mode via UDP

&portki	=changing the port number responsible for operating in interface converter mode =<Int>,<Port> <Int> - interface number:1-RS232.1, 2–RS232.2, 3–RS485, 4–CAN <Port> - port number ? PViewing the mapping of interfaces and UDP ports	Example: &portki=3,10003 &portki? PORTKI : NO RS-232.2 10002 RS-485 10003 CAN 10004 OK
&defki	= sets parameters selectedinterfaces that are valid until the moment	Example: &defki=3,115200,7,1,EV,10

	reboot of the USPD =<Int>,<setting> <Int> - interface number:1-RS232.1, 2–RS232.2, 3–RS485, 4–CAN <setting> - interface parameters, similar to defi: <bound>, <Bit>, <Stop>, <P>, <timeout>, <ADRKI> ? viewing the defki parameter	
&setupki	= configuring interfaces when working in interface converter mode by default =<Int>,<setting> <Int> - interface number:1-RS232.1, 2–RS232.2, 3–RS485, 4–CAN <setting> - interface parameters, similar to defi: <bound>, <Bit>, <Stop>, <P>, <timeout>, <ADRKI> ? viewing the defki parameter	Example: &setupki=4,9600,8,1,NO,10
&udptout	= setting the wait time before resetting the host's IP address =<T> <T> - time Waiting time in seconds from 30 to 3600. Default is 30. ? view the udptout parameter	Example: &udptout=95