

VT-1A IP-65 TERMINAL

# **BT-1A-65-П**

## **ИНДИКАТОР**

**РУКОВОДСТВО ПО ЭКСПЛУАТАЦИИ**

**Редакция 7**

**ЭК 1102.00.00.000.РЭ**

## content

Introduction	2
1 Description and operation	2
1.1 Purpose of the product	2
1.2 Technical characteristics	2
1.3 Composition, structure and	3
operation 1.4 Scope of delivery	4
1.5 Marking and sealing	5 5
1.6 Packaging	5
2 Preparation for operation 2.1	5
Unpacking the device 2.2 Indication	5
of safety measures 2.3 Preparation	6
for operation 3 Operating	6
procedure 3.1 Description	6
of buttons and indicators	8
<b>3.2 Operation of the device</b> in special modes	9
3.4 Quick change of pre-programmed settings	14
3.5 Programming and configuration	14
4 Maintenance	17
4.1 Indication of safety measures	17
4.2 Maintenance	17
4.3 Storage	18
5 Certificate of acceptance	18
6 Warranty obligations	18
7 Possible malfunctions and methods of their elimination	19
9 Recording of malfunctions during operation	19
Warranty card	21
Certificate of performance of warranty repair	23
works Manufacturer's address	25
Appendix 1 Geo-reference codes	26
Appendix 2 Table measuring range selection	28
Appendix 3 Interface cable diagram	29
Appendix 4 Connection diagram	30
of actuators and characteristics	31
of the external device management interface	
Appendix 5 Two-speed dosing mode	33
Appendix 6 Frequency	
converter control mode	

Dear customer,

Thank you for purchasing a custom-made indicator.

our by an enterprise, and we recommend it, before than get started to  
please read this document carefully.

Separate ones changes  
caused by the indicator design that do not require special explanations  
may not be described in the operating manual until it is reissued.

Present guide (hereinafter referred to as  
the manual) the operation manual is intended to familiarize you with the operating principle,  
device and operating rules of the VT-1A-65 indicator (hereinafter referred to as the device).

Guide contains intelligence about destination, technical issues  
characteristics, composition, operation, maintenance, and  
safety instructions.

Please refer to this document when  
using the indicator . Service personnel should read these  
operating instructions and be aware of the safety  
regulations applicable at the facility that operates the indicator.

1 DESCRIPTION AND OPERATION

1.1 Purpose of the product

The device destined for data processing signal strength,  
generated a load strain gage platforms by sensors included in the in structure  
-receiving mass or others devices, intended users for  
measurement.

The device can be mounted on a rack or mounted separately on a  
table.

The device is equipped with an RS-232 interface for  
(for example, communication with an external electronic device (personal computer,  
printer), a built -in autonomous power source (battery), relay inputs  
and outputs.

1.2 Technical specifications

1.2.1 Display LED seven-segment

1.2.2 Number of display digits 6

1.2.3 Number of operating mode indicators 9

1.2.4 Keyboard (function and numeric buttons) membrane

1.2.5 Number of simultaneously supported platforms, pcs 1

. 1. 2. 6 Scale accuracy class that uses indicator III

1.2.7 External resolution of the ADC 1/10000

1.2.8 Internal resolution of the ADC 1/250000

1.2.9 Overall dimensions, mm, max 150x170x150

1.2.10 Weight, kg	0.65, no more
1.2.11 Operating temperature range, With	than from minus 10 to +40
1.2.12 Electrical supply parameters:	
- from AC mains:	
Voltage, V	from 187 to 242
frequency, Hz	from 49 to 51
- from the built-in DC power supply:	
Voltage, V	6
1.2.13 Input voltage range, mV	10, 20, 40, 80
1.2.14 Supply voltage of strain gage sensors, V	5
1.2.15 Permissible total resistance of connected strain gage sensors, ohms	80, not less
1.2.16 Level of protection against electrostatic potential at the sensor and communication channel connection inputs, kV	2, not less than
1.2.17 Battery life, h	14, not less than

### 1.3 Composition, structure and operation

1.3.1 The device consists of a measuring transmitter, a display and an input device in the form of a keyboard, and a mains power adapter. The appearance of the device is shown in Fig. 1.



Figure 1 - Indicator VT-1A-65. Appearance

1.3.2 The operating principle is based on the processing of the information signal generated by strain-gage sensors.

The device is equipped with the following devices::

- initial zero setting;

- semi-automatic zero
- setting; - automatic zero
- setting; - zero tracking; -
- indication of deviation from
- zero; - price changes  
automatic

verification process                      divisions                      and

discreteness of mass reference in multi-band operation mode;

- sampling of the tare weight; - signaling about

overloading of scales and diagnostics of

failures that occur during their operation.

1.3.3 Device functionality:

- introduction of an amendment related to the local                      acceleration value

free fall (Correction of latitudinal deviation of readings);

- programming of weighing limits and sampling
- discreteness; - work in one, two and three-band weighing
- modes; - memorization of weighing results;
- performing mathematical operations with

the results of weighing or counting the number of

items;

- data exchange with an external

device is carried out using exchange protocols;

- automatic summation of the mass of weighings performed.

Along with the main mode of measuring the mass of the

weighed cargo , special modes are additionally supported:

- mass comparisons;
- manage external devices when loading scales;
- counting the number of items of the same type (counting mode is enabled

by default, unless otherwise specified when ordering).

1.4 Scope of delivery

Table

Nz/Nz	Name	Quantity	1 Note
1	Indicator VT-1A-65	1 piece	
2	Mating part of the connector for connecting force sensors	1 set	
3	External connection cable devices	1 piece	
4	Yandex. Disk with software	1 piece	by order
5	AC adapter	1 piece	
6	User manual	1 copy	
7	Packaging	1 piece	

## 1.5 Marking and sealing

1.5.1 On the front panel of the device, using the method determined by the manufacturer's technology, apply the manufacturer's trademark .

1.5.2 A label is affixed to the back of the appliance, which contains the following information::

- name or trademark of the manufacturer;
- indicator model;
- factory number according to the numbering system of the manufacturer; - year of production.

## 1.6 Packaging

1.6.1 The device must be placed in a plastic film case before being packed in a transport container.

1.6.2 The operating documentation is packed separately in a plastic bag and placed in the container together with the device.

1.6.3 The device, power supply, and operating instructions are placed in a cardboard transport package.

Spontaneous moving of the device in packaging by it is not allowed for transportation.

## 2 PREPARING FOR WORK

### 2.1 Unpacking the device

2.1.1 Upon receipt of pribora the consumer is obliged to check the condition of the package and if damage to the package is found, draw up a report and submit claims to the transport organization.

2.1.2 Before unpacking, the appliance must be kept at a normal temperature for at least 6 hours. After transportation and storage, the appliance must be kept at a normal temperature.

2.1.3 If the appliance is found to be incomplete or defective or during unpacking, the appliance is returned to the manufacturer for replacement it is restored by specialists on the spot, and an act is drawn up, which, properly executed, is sent to the manufacturer.

### 2.2 Specifying security measures

2.2.1. In with the device must be observed the requirements case of safety, , installed on the at the enterprise, on which of which it is used it is operated.

2.2.2 When working with the indicator , the "Inter-industry rules on labor protection ( safety rules) for the operation of electrical installations up to 1000 V" approved by Gosenergonadzor must be observed.

2.2.3 Dangerous production facilities by a factor by working hours is  
damaging effect of electric current with a voltage of 220 V.

2.2.4 Connect the communication cable between the device and the cargo  
receiver or other external devices only when  
the power supply is switched off.

2.3 Preparing for work

2.3.1 Connection of weighing sensors  
is made according to the scheme in  
accordance with Table 2: Table 2

Разъем F018-T1K		Наименование цепи	Маркировка клемм в блоке коррекции датчиков	Датчик
Конкт.	Цель			
1	АС-	Сигнал -	Ж	
2	АС+	Сигнал +	З	
3	REF+	Контроль питания+	К	
4	EXC+	Питание моста+		
5	EXC-	Питание моста-	Б	
6	REF-	Контроль питания-		
7	GND	Корпус	Э	

2.3.2 When when using it four-wire schemes inclusions  
it is necessary to close the REF+ EXE+ and REF - EXE pins in pairs-

2.3.3 Connection sequential port number produced by in  
in accordance with Appendix 3.

3 WORKING PROCEDURE

3.1 Description of buttons and pointers located on the  
front panel of the device (Figure 2), and their functional purpose



Figure 2-Front panel VT-1A-65. Outsideexternal view

### 3.1.1 On the front panel of the device

there are buttons that have

the following designations and functional purpose::



- turns the device on and off while holding down the

in a state of at least 2 seconds.;



- fixing the indicated mass on the display;

">0<"

- setting of zero readings (adjustment range 4 % from

Max);

"MRC"

- extracting information from the indicator's memory, double

clicking erases the contents of the memory;

"M+"

- add to memory; - subtract

"M-"

from memory;



- transfer of information to a computer or printer;

">T<"

- entering containers by weighing;



- entering data;



- entering the tare weight value from the keyboard;

"C"

- data erasure;

"P1"

- selection of modes (control of external

devices when loading the cargo receiving device;

mass comparison or counting mode);

"P2" - start of the external device management

mode when loading the cargo receiving platform;

"▲" - entering the reference number of items in

counting mode. "0"... "9" - entering numbers 0...9;

"I"

- selection of the operating mode in the range from Min<sub>1</sub> up to Max<sub>1</sub> with price

divisions of d<sub>1</sub> ;

"II"

- select the operating mode in the range from Min to Max with<sub>2</sub> by price

2

divisions of d<sub>2</sub> ;

"III"

- select the operating mode in the range from Min to Max

3

3 with price

divisions of d<sub>3</sub> ;

"AUTO"

- automatic maximum load selection mode and

division prices depending on the weight of the cargo being weighed.

### 3.1.2 On the front panel of the device there

are pointers with the following designations: :



- power is turned on from the AC network;



- mass readings are recorded;

"M"

- the indicator's memory contains



non-zero data; - stable mass

"NET"

readings; - tare weight value

">0<"

entered. - stable zero readings;

"I", "II", "III" - indicator of the selected measurement range.



## 3.2 Working with the device

MUST PAY

ATTENTION: ALL OPERATIONS WITH THE DEVICE CAN ONLY BE PERFORMED WHEN THE CARGO RECEIVING DEVICE IS CONNECTED

ATTENTION: DELIVERY OF THE DEVICE IN THE RUNNING MODE  
TRUNCATED WHEN USING THE KEYBOARD (the buttons work used by item 3.2.4).  
and INCOMPLETE INSTRUMENT KEYBOARDS for necessary ENABLING THE MODE perform

- turn off the device by pressing and holding the button for two seconds "
- click the button "5" and, while holding down, briefly press the button "1";
- release the button "5";
- press the buttons sequentially "1", "

TO RESTORE THE FACTORY SETTINGS, PERFORM THE ABOVE OPERATIONS, but instead of the button "1" click the button "0".

### 3.2.1 Switching

Connect the communication cable between the device and the external device (if this mode is used).

Insert the power supply plug into an AC outlet. The plug must fit snugly into the wall outlet.

### 3.2.2 Turning on the device

To turn on the device, press and hold the button for more than 2 seconds "

in this case, the power supply is turned on and the indicator enters the operating mode of operation.

At the moment of switching on, the software version number briefly lights up on the display, and then zero readings (when the cargo receiver is unloaded). At the same time, the instrument's operating range indicator lights up.

-in DC power supply is low, an error is displayed E04 within 3-5 seconds and the device automatically shuts down. mains supply, if

### 3.2.3 Mode of operation of the device with a truncated keyboard

(buttons work " ", ">0<", ">T<", the rest are not used).

#### 3.2.3.1 Perform operations:

- If the display reading is different from zero, press the button ">0<".
- If the zero reading is stable, the indicator lights up ">0<";

- place the weight to be weighed on the load receiving device, and when a stable reading is reached, the indicator lights up "**MASS**" the measured weight of the load is displayed.




", and on the display

### 3.2.3.2 Entering the tare weight by weighing

Install the container on the cargo receiving device. Wait for stable readings and press the button "**T<**". At the same time, the tare weight value is recorded in memory, data on the value of the tare weight value is displayed on the display for 1 second, and if the tare weight value is not zero, the indicator lights up "**NET**".

### 3.2.4 Switching off the device

To turn off the device, press and hold the button for more than two seconds "". Remove the power supply plug from the mains socket.

### 3.2.5 Operation of the device from the built-in DC power source

for 3.2.5.1,

The device with a built-in DC power source, reducing power consumption, after stopping the weighing process, operates in the following mode::

- after 5 minutes, the display shows the lowest-order number. **0**.

Return to normal operation mode it occurs automatically after the load is placed on the cargo receiver or after pressing any button on the instrument keyboard.

- after 30 minutes, the device turns off.

#### 3.2.5.2 If the built-in DC

power supply voltage drops below the permissible level, the display shows the following message: **E04**, mass measurements are blocked, and after 3-5 seconds the device turns off.

To continue working, you must switch to the external AC operation mode.

The built-in DC power supply charges automatically when AC power is applied.

## 3.3 Operation of the device in special modes

The device, along with the main mode of measuring the mass of the weighed cargo, additionally supports one of four special modes::

**0** - mass comparison mode;

1-control of external devices when loading the cargo receiving device without automatic tare weight sampling;

2-control of external devices when loading a cargo receiving device with automatic tare weight selection;




3-counting the number of items of the same type.

To select the required operating mode, press the buttons sequentially "**P1**", a numeric button corresponding to the mode number (except for counting mode, which is always enabled if not selected

non-volatile memory and does not change after the mains power is turned off.

3.3.1 Programming an area code to introduce a correction related to the local gravity acceleration value

Switch the write protection switch to the write allowed position

Turn on the device by briefly pressing the button "". This setting is saved to one of the first three) and the enter button "". When it appears on the display of the recording device **GEO XX** click the buttons sequentially "**S**". Enter the required area code in accordance with Appendix 1 and click "", after which the device will switch to operating mode.



"

" and

3.3.2 Programming the weighing limit and division price

The device can operate in four modes of setting the weighing limit and the division price (if this function is programmed.). Changing the mode is only possible when the platform is unloaded and the display shows zero values.

3.3.2.1 Selection of measurement mode weigh-ins with automatic by switching between rangesrenya

When the load receiver is loaded in the automatic measurement range selection mode, if the measured mass value exceeds the set value of the measurement range, the device will change the value of the measurement range and the price of dividing up to one of the following allowed values. When the load receiver is unloaded in this mode, the Max values are not switched until the measured mass is completely reset. If the reading is set to zero, the device will automatically switch to the minimum allowed operating mode.

Max and the corresponding sampling rate.

To select the mode of automatic switching of the measuring range, press the button "**AUTO**".

The number of the range in which the measurement is performed is displayed on the instrument display.

Return to the first range occurs automatically when the display shows zero values.

3.3.2.2 Selecting the operating mode in the range I with Max and, by dividing  $d_1$

To select the operating mode, press the button "**I**", the pointer lights up "**I**". If the weight of the load to be weighed exceeds the Max value, the device will indicate an overload.



3.3.2.3 Selection of band II operation mode with NIP and, by dividing  $d_2$

To select the operating mode, press the button "**II**", the pointer lights up "**II**". If the weight of the load to be weighed exceeds the Max value, the device will indicate an overload.

### 3.3.2.4 Selection of operating mode in range III with NIP and<sub>3</sub> by dividing d<sub>3</sub>


To select the operating mode, press the button "III", the pointer lights up "III". If the weight of the load to be weighed exceeds the Max value<sub>3</sub>, the device will indicate an overload.


3.3.3 indications masses or quantities weighed items  
Fixiadding items

When you click on the button "  " the mass or number of objects to be weighed indicated at the time of pressing this button is recorded ,and the indicator lights up "  " .

### 3.3.4 Entering the tare weight via the keyboard (Pre-setting

the tare weight)

Click the button "  ". At the same time, the device enters the waiting mode for entering the tare weight value, the display shows the value of the previously entered tare weight. Indicator "NET" at this time, it flashes. If the display value is not zero , delete the previously entered tare weight value by pressing the button "S".

Using the numeric buttons from "0" before "9", enter the required tare weight value. To confirm the input, press the button again "  " or

you can enter the tare weight value automatically after 10 seconds. If non-zero tare weight values are entered, the indicator lights up "NET".

### 3.3.5 Working with memory

To use the internal memory capabilities, perform the following operations: to add information to the memory content, click "M+", for subtraction "M-". At the same time,

the display shows the contents recorded in memory for 1 second. If

the display bit depth is too large , the highest digit is displayed on the display 9 and

no summation is performed. If the memory content is not zero

, the pointer lights up "M". To display data from memory, press

the button "MRC". To reset the memory contents, double-click


the button "MRC". To exit the memory operation mode without erasing,

press any other button.

### 3.3.6 Working in counting mode

attention: IF THE MASS READING IS NEGATIVE,  
THERE IS NO INDICATION OF THE NUMBER OF ITEMS!

3.3.6.1 If known,about items in the control batch, but their total mass is not known, you need to perform the following operations::

- install a control batch of items on the cargo receiving device, wait for the indicator to light up "  " and the measured mass of objects appears on the display;

- click the button "▲";

- use the keyboard to enter the correct text.

number

of entries

vpredmetov

by indications


batch,

control group.

If


the input is incorrect, click "S" and re-enter the number of items in

the control batch;

- click the button "", the symbol lights up on the display **with** in the senior category and the entered number of items in the control batch is displayed;
  - remove the control batch of items from the cargo receiving device;
  - when items are further weighed, the symbol will appear on the display.
- with** in the highest category and the calculated value of the number of items;
- to enter the mass display mode, press the button "**P2**".

3.3.6.2 If you know the number of items in the control batch and their total mass or the mass of one item, you must perform the following operations::

- click the button "**▲**";
- use the keyboard to enter the number of items in the control batch, checking the correct input according to the display, if the input is incorrect, press the button "**S**" and re-enter the number of items in the control batch.
- click the button "**P1**", the display shows the previous mass value of the reference batch of items and the decimal dot flashes.
- enter the weight value of the control batch of items. If the input is incorrect, press the button "**S**" and repeat the operations. If the mass value of the control batch of items does not match the accuracy of entering the mass from the keyboard, you must change the control number of items in this way, so that the accuracy of entering the mass from the keyboard and the true mass value of the control batch of items match;

- click the button "", the symbol lights up on the display **with** in the senior category and it is displayed **0**;
- during further weighing of items, the calculated value of the number of items is displayed on the display;
- to enter the mass display mode, press "**P2**".

3.3.7 cargo comparisons destined dimensions mass  
Weighing mode and for earlier  
programmed in the device. after comparing it with the reference mass,

Enter the mode by pressing the buttons one after the other "**P1**", "**0**" and the button "



To enter the reference mass, press "**P2**", the display shows the previously entered reference weight and the decimal dot flashes. If the display is not zero, erase the previously entered reference mass value by pressing the button "**S**". Use the keyboard to enter the value of the reference mass (the mass to be compared with). Confirm the input by clicking "



". After entering the reference

mass, the measured mass value will be constantly compared with the reference value and when this value is reached or exceeded, a continuous sound signal is generated, and the contacts of "Optorel 1" are also closed, if it is set.

### 3.3.8 External device control mode when loading the cargo

receiver

The device with an external device control mode is designed for mass measurement and output of sound and control signals when the measured mass reaches a preset value.

The device can operate in two control modes: with automatic tare weight sampling and without automatic sampling.

The modes differ in the following ways: that when starting the mode with automatic tare weight sampling, the command to reset the reading to zero is issued beforehand, and in the mode without automatic sampling, the command is not issued.

To enter the external device control mode

press the buttons one by one **"P1"**, **"P1"**, **"P2"** and the button **"←"**.

To view or enter the reference mass, click **"P2"**, the display

shows the value of the previously entered reference mass and the decimal dot flashes. If not

previously entered

value on the display, erase the reference mass by pressing the button **"S"**. Use the keyboard to enter the value of the required control mass (dose mass). Confirm the input by clicking **"←"**.



In this mode, the concept of "displacement"

value is introduced - this is the value of the mass of the falling product flow after the command to stop its supply. The displacement value is determined experimentally. To enter or view the entered offset value, press the buttons one by one **"P2"**, **"P1"**. The display shows the value of the previously entered offset. If the display is non-zero, erase the previously entered offset value by pressing the button **"S"**. Then, using the instrument keyboard, enter the value of the selected offset and confirm the input by pressing the button **"←"**.



**ATTENTION: THE DEVICE AUTOMATICALLY EXITS DATA ENTRY MODE WITHOUT STORING VALUES IF NONE OF THE BUTTONS IS PRESSED FOR 5 SECONDS!**

You can start the work by pressing the button **"▲"**.

**attention: IF THE OFFSET VALUE IS EQUAL TO OR EXCEEDS THE VALUE OF THE CONTROL MASS (DOSE), THE MODE START IS BLOCKED!**

When the measured mass of the product reaches or exceeds the value of the control mass (dose) minus the value of the setpoint an audible signal is generated, and the contacts of "Optorel 1" are opened, if it is installed.

After the product is served, the indicator waits for the weight to stabilize within 5.5 seconds. If the weight is stable or the waiting time has expired, the measured mass is added to the total mass value.

previously

performed plumb lines and this value is stored in non-volatile memory. When the data is saved, a beep sounds. In case

of overflow

non-volatile

memory card

in

senior level

category

display



the number is displayed **9**.

To view the total weight of plumb lines, click **"MRC"**. To erase data, if necessary, double-click the button **"MRC"**. To switch to normal mode without erasing the total mass, press any button except **"MRC"**.

### 3.4 Quick change of pre-programmed settings

#### 3.4.1 Selecting a protocol

By pressing and holding the button "5", briefly



press the button "". Using the keyboard, press the button "4" and then the enter button "". If the action is performed correctly, the setup mode will be activated and the number will be displayed. 9 in the lowest category (mode "9").

Press the buttons sequentially "1" and "4" and enter the code number of the required protocol (Table 3).

By pressing the button "9" fix the result.

#### 3.4.2 Selecting the filter type

By pressing and holding the button "5", briefly

press the button "". Using the keyboard, click "4" and then the button input data "". If the action is performed correctly, the setup mode will be activated and the number will be displayed. 9 in the junior category.

Questselect the desired filter type by pressing one of the numeric buttons "0", "1" or "2" (where "0" - universal; "1" - optimized for external device management mode when loading the cargo receiving platform; "2" - for weighing animals). After entering the filter type, the device will automatically return to the filter mode. "9".

By pressing the button "9" fix the result.

### 3.5 Programming and configuration

Metrological All data

on the device configuration that affects the characteristics are stored in non-volatile memory in two independent banks, hardware-protected by a microswitch. Information can only be changed when recording is enabled (unprotected mode of operation). This mode is displayed after the device is turned on. After displaying the version number of the installed software:

- in unprotected mode, the following line is displayed: -----;
- in protected mode, the device immediately switches to weighing mode.

Before

to unprotected mode of operation. To do this, switch the micro-switch of the operating mode, which is accessed through the hole on the back of the case under the sealing label. after setting up the device, you need to switch the device over

switch

#### 3.5.1 Activating the programming and configuration mode


Turn off the device if it is turned on. By pressing and holding the button

"5", briefly press the button "". The device will enter

the standby mode for entering the access code. Using the numeric buttons from "0" before "9"

enter the access code 39654 and click "". The device switches to

service mode. In this case, the number is displayed **9** in the lowest category and the device is ready for programming. Exit from

Can I use the programming mode?about double-clicking the button **"9"**, or by pressing and holding the button for at least 2 seconds . In both cases, the device turns it off.

For a description of the functions available in service mode, see Section 3.7.

3.5.2 Initializing non-volatile memory


Click the button **"0"**, wait for the beep and then press the button again **"0"**. If the action is performed correctly, the number is displayed again **9**.

After initializations non-volatile memory card in the device the following modes are set:

- 1. Truncated keyboard - enabled;
- 2. Mass comparison mode-enabled;
- 3. Mass comparison setpoint - **0**;
- 4. amendments Function introduction related with local content by value gravity acceleration (geo-correction) - disabled;
- 5. Permissible tare weight - **0**;
- 6. Sensitivity-10 mV;
- 7. The type of scale is not defined;
- 8. Filter type-standard;
- 9. Protocol - "9 bytes".

3.5.3 Activating geo-references

Without leaving the programming mode, press the buttons sequentially **"1"** and **"2"**. The display shows the number **2**. When you click on the button **"0"** the geo-referencing feature will be disabled. When the button is clicked **"1"** the function is activated and the display shows **GEO XX** (where **XX** - the zone code from Appendix 1). When the gravity correction is indicated, press the button **"** the display will start flashing. Enter the gravity correction code

 ". Indications on by

pressing the numeric keys. If you enter an incorrect code, click **"S"** and repeat entering the code. Confirm the input by pressing the button **"**

 ".

If the code is entered successfully, the display stops blinking and the device automatically switches to standby mode after 4-5 seconds. **"9"**.

3.5.4 Programming Max

Without leaving the programming mode, press the buttons sequentially **"1"** and **"3"**. The display shows **"-"**. Use the keyboard to enter the value of the Mach measurement range (in kilograms, see Appendix 2) and press **"**. If the action is performed correctly, the device will automatically return to the operating mode. **"9"**.

3.5.5 Selecting a protocol

Without leaving the programming mode, press the buttons sequentially **"1"** and **"4"** and enter the code number of the required protocol from the code table (Table 3) by pressing one of the numeric buttons from **"0"** before **"9"**.



Table 3

Protocol code	Name of the protocol
0	"9 bytes" - technological protocol
1	"OKA" - protocol
2	"CAS MW" - protocol
3	"TERM" - protocol for connecting an external display device
5	"Merauto" - protocol
9	-

If the action is performed correctly, the device will automatically return to the operating mode. "9".

### 3.5.6 Selecting the conversion factor

Without leaving the programming mode, press the buttons sequentially "1" and "6" and enter the value of the required conversion factor by pressing one of the numeric buttons "0", "1", "2" or "3" corresponding to the values of 10 mV/V, 20 mV/V, 40 mV/V, 80 mV/V. The standard version is 10 mV/V. If the action is performed correctly, the device will automatically return to the operating mode. "9".

### 3.5.7 Selecting the number of measurement ranges

Without leaving the programming mode, press the buttons sequentially "1" and "7" and enter the required number of measuring ranges of the device by pressing one of the numeric buttons "1", "2" or "3" (the button number corresponds to the number of measurement ranges). After that, the device will automatically return to the operating mode. "9".

### 3.5.8 Selecting the filter type

Without leaving the programming mode, press the buttons sequentially "1" and "8", enter the required filter type by pressing one of the numeric buttons "0", "1" or "2" (where "0" - universal; "1" - optimized for external device management mode when loading the cargo receiving device; "2" - for weighing animals). After that, the device will automatically return to the operating mode. "9".

### 3.5.9 Configuration

Enter the configuration mode by clicking "2". Using the instrument keyboard, enter the weight of the control load in kilograms (at least  $0.2 \cdot \text{Max}$ ) and press the button "Enter". Press the button "1" to switch to the mass display mode. Enter the permissible limits for sampling the tare weight (see the values specified in the RE of scales of the corresponding type), and then press "←", enter the tare weight with keyboard size in kilograms and press the key again "←". Make

sure that the load receiver is not loaded, and press the button "0". Set the reference load and press the button "3", the device display will display corrected value of the weight of the load. if you need to click again the button "3". If the reading corresponds to the reference mass value, press the button "9" enter the mode "9".

### 3.5.10 Saving programming results

by pressing buttons sequentially "8", "3",  
programming results.

"2", "9"

save

### 3.5.11 Exiting programming mode

You can exit the programming mode either by double-pressing the button

"9", or by pressing and holding the button for at least 2 seconds "



". In both cases

In this case, the device switches off.

### 3.5.12 For

security features settings

from random

changes

switch it over

switch the microswitch to protected mode of operation.

## 4 MAINTENANCE

### 4.1 Specifying security measures

4.1.1 The device is manufactured in accordance with the requirements adopted for

this type of equipment, which ensure the safety of life and  
health of consumers.

4.1.2 Electrical insulation strength of the AC adapter circuits

relative to the instrument body can withstand a voltage of 1500 V at a frequency  
of 50 Hz for 1 min.

Electrical insulation resistance-not less than 20 MΩ under normal

conditions.

4.1.3 The device

has additional isolation over communication

is not external

circuits with devices (computer, cash registers) and

executive mechanisms.

4.1.4 Do not leave the appliance connected to the mains unattended.

### 4.2 Maintenance

4.2.1 During daily operation of the

device, the consumer must: -

perform external inspection; - monitor the

integrity of cables; - keep it clean.

4.2.2 Charge the built-in DC power

supply (if available) at least once every 5 days (if  
the device was not operated on AC power).

### 4.3 Storage

4.3.1 The device must be stored in closed, dry rooms, not unpacked, in the position indicated by the sign **"TOP DON'T TURN OVER"**. Storage temperature from minus 20 to +50 ° C.

## 5 CERTIFICATE OF ACCEPTANCE

**Indicator VT-1A-65** factory number

\_\_\_\_\_ they comply with the documentation  
\_\_\_\_\_ technical information  
and are considered serviceable.

for

Release Date \_\_\_\_\_ 201 \_\_\_\_.

Made the acceptance process \_\_\_\_\_  
(date, signature, full name)

MP

## 6 WARRANTY OBLIGATIONS

6.1 The device must be approved by the manufacturer's OTC.

6.2 The warranty period of operation is 12 months from

the date of sale. 6.3 During the product's warranty period,

the manufacturer guarantees the elimination of detected manufacturing defects upon presentation of the warranty card.

9.4 Date

warranty service.

If there is no mark of sale on the ticket, the warranty period is calculated from the moment the device is released by the manufacturer. product sale to be marked on the ticket

6.5 Repairs

they are performed

by the manufacturer or by service companies authorized by the manufacturer  
. and warranty service of the device

6.6 The Consumer loses the right to warranty repairs if:

- violation of the rules of transportation, storage and operation of the device;  
- detection of mechanical damage caused by improper operation, and traces of exposure to aggressive liquids;

- detection by specialists of the service company of malfunctions caused by violation of sanitary standards of use (unnatural pollution, exposure to household insects, etc.);

- absence or violation of seals;

- there is no Operating Manual or necessary entries in it.

Table 4

Fault indication	Cause of malfunction	Troubleshooting
When enabled on the display screen of the device not the following symbols are displayed	There is no mains voltage The keyboard is flooded with liquid There is no contact in the connection of the plug of the power supply connector with the return socket of the device The built in	method Check for mains voltage and dry the keyboard  Paste before stops power supply connector Charge the built in
When the device is turned on, the display shows <b>E04</b>	DC power supply is discharged	DC power source into the instrument's return socket
By enabling it on display of the device displayed <b>E77</b>	Mistake ADC. Disabled weight measuring sensor	Plug weight measuring sensor

## 8 TROUBLESHOOTING DURING OPERATION

[illegible]



Warranty card stub

(patent) at (potrebitel)

Name: Indicator VT-1A-65

Factory number Release Date 201

Signature of the manufacturer's OTC representative and seal

MP

Sold out Date of sale 201 g.

naimenovanieprodavca

Seller's representative's signature and seal

MP

Warranty service is provided by

naimenovaniepredpriitii-TTO

Address

Phone number Date of acceptance for warranty service 201 city of

Signature of the CTO representative and seal

MP

.....

(in) about t per but

Warranty card

(napravilats) (agotovitely)

Name: Indicator VT-1A-65

Factory number Release Date 201

Signature of the manufacturer's OTC representative and seal

MP

Sold out Date of sale 201 city of

naimenovanieprodavca

Seller's representative's signature and seal

MP

Warranty service is provided  
by

naimenovaniepredpriitii-TTO

Address

Phone number Date of acceptance for warranty service 201 city of

Signature of the CTO representative and seal

MP

Manufacturer's address: 17G Krasnokazarmennaya str., building 3, Moscow, 111250

Mera-TSP LLC



act

**about performing warranty repair work**

g. \_\_\_\_\_

Date of compilation " \_\_\_\_ " \_\_\_\_\_ 201\_\_ city of

Name of the Maintenance Center that performed the warranty repair:

\_\_\_\_\_

Address: \_\_\_\_\_

Telephone: \_\_\_\_\_

Name of the product Consumer: \_\_\_\_\_

Address: \_\_\_\_\_

Telephone: \_\_\_\_\_

This act is drawn up in the fact that the Technical Service Center has carried out work on the warranty repair of the terminal that is in operation with the Consumer.

Name: Terminal VT-1A-65

Serial number: \_\_\_\_\_

Release Date: " \_\_\_\_ " \_\_\_\_\_ 201\_\_ city of

Date when the Center was contacted for repairs: " \_\_\_\_ " \_\_\_\_\_ 201\_\_ city of

Description of the problem: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Cause of the malfunction: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Description and result of the work performed: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

End date of work: " \_\_\_\_ " \_\_\_\_\_ 201\_\_ city of

Signature of the Center's representative

technical maintenance

\_\_\_\_\_ ( \_\_\_\_\_ )

M. P

Signature of the representative

The consumer

\_\_\_\_\_ ( \_\_\_\_\_ )





**Manufacturer's address:**

Mera-TSP LLC

Legal address: 2 Ugreshskaya str., building 83, Moscow, 111250, Russia

Postal address: 2 Ugreshskaya str., building 83, Moscow, 115088

Phone / Fax (495) 411-99-28

E-mail: [info@mera-device.ru](mailto:info@mera-device.ru)

[www.mera-device.ru](http://www.mera-device.ru)

Appendix 1

Geo-reference codes

North and south latitude in degrees and minutes			Height above sea level in meters													
			0	325	650	975	1300	1625	1975	2275			2600	2926	3250	3575
			325	650	975	1300	1625	1975	2275	2600			2926	3250	3575	
0	0' 5	46'	5	4	4	3	3	2	2	1	1	0	0			
5	46' 9		52'	5	5	4	4	3	2	2	1	1	0			
9	52' 12		44'	6	5	5	4	4	3	3	2	2	1	1		
12	44'	15	6	6	5	5	4	4	3	3	2	2	1			
15	6'		17	10'	7	6	6	5	5	4	4	3	2	2		
17	10'		19	2'	7	7	6	6	5	5	5	4	4	3	2	
19	2'	20	45'	8	7	7	6	6	6	5	4	4	3	3		
20	45'		22	22'	8	8	7	7	6	6	5	4	3	3		
22	22'		23	54'	9	8	8	7	7	6	5	5	4	4	3	
23	54'	25	21'	9	9	8	8	7	7	6	6	5	4	4		
25	21'		26	45'	10	9	9	8	8	7	6	5	5	5	4	
26	45'		28	6'	10	10	9	9	8	8	7	6	6	5	5	
28	6'	29	25'	10	10	10	9	9	8	7	7	6	6	6		
29	6'		30	41'	11	11	10	10	9	9	8	7	7	6		
30	25'		31	56'	11	11	11	10	10	9	8	8	7	7	7	
31	41'	33	9'	12	12	11	11	10	10	9	9	8	8	7		
33	56'		34	21'	12	12	12	11	11	10	9	9	8	8	8	
34	9'		35	31'	13	13	12	12	11	11	10	10	9	9	8	
35	21'	36	41'	13	13	13	12	12	11	10	10	9	9	9		
36	31'		37	50'	14	14	13	13	12	12	11	11	10	10	9	
37	41'		38	58'	14	14	14	13	13	12	11	11	10	10	10	
38	50'	40	5'	15	15	14	14	13	12	11	11	10	10	10		
40	58'		41	12'	15	15	15	14	14	13	12	12	11	11	10	
41	5'		42	19'	16	16	15	15	14	13	12	12	11	11	11	
42	12'	43	26'	16	16	16	15	15	14	13	13	12	12	11		
43	19'		44	32'	16	17	16	16	15	14	13	13	12	12	12	
44	26'		45	38'	17	17	17	16	16	15	14	14	13	13	12	
45	32'	46	45'	17	18	17	17	16	15	14	14	13	13	13		
46	38'		47	51'	18	18	18	17	17	16	15	15	14	14	13	
47	45'		48	58'	18	19	18	18	17	16	15	15	14	14	14	
48	51'	50	6'	19	19	19	18	18	17	16	16	15	15	14		
50	58'		51	13'	19	20	19	19	18	17	16	16	15	15	15	
51	6'		52	22'	20	20	20	19	19	18	17	17	16	16	15	
52	13'	53	31'	20	21	20	20	19	18	17	17	16	16	16		
53	22'		54	41'	21	21	21	20	20	19	18	18	17	17	16	
54	31'		55	52'	21	22	21	21	20	19	18	18	17	17	17	
55	41'	57	4'	22	22	22	21	21	19	18	18	17	17	17		
57	52'		58	17'	22	23	22	22	21	20	19	19	18	18	17	
58	4'		59	32'	23	23	23	22	22	20	19	19	18	18	18	
59	17'	60	49'	23	24	23	23	22	21	20	20	19	19	18		
60	32'		62	9'	23	24	24	23	23	21	20	20	19	19	19	
62	49'		63	30'	24	25	24	24	23	22	21	21	20	20	19	
63	9'	66	24'	24	25	25	24	24	22	21	21	20	20	20		
66	30'		67	57'	25	26	25	25	24	23	22	22	21	21	20	
67	55'		69	35'	26	26	26	25	25	23	22	22	21	21	21	
69	24'	71	21'	26	27	27	26	26	24	23	23	22	22	21		
71	57'		73	16'	27	28	27	27	26	25	24	24	23	23	22	
73	35'		75	24'	27	28	28	27	27	25	24	24	23	23	23	
75	21'	77	52'	28	29	28	28	27	26	25	25	24	24	23		
77	16'		80	56'	28	29	29	28	28	26	25	25	24	24	24	
80	24'		85	45'	29	30	29	29	28	26	25	25	24	24	24	
85	52'	90	0'	29	30	30	29	29	27	26	26	25	25	24		
56'			29							27	26	26	25	25	25	
45'			30							28	27	27	26	26	25	
									28	27	27	26	26	26		
									28	27	27	26	26	26		

**Geo Reference Code Reference Table**

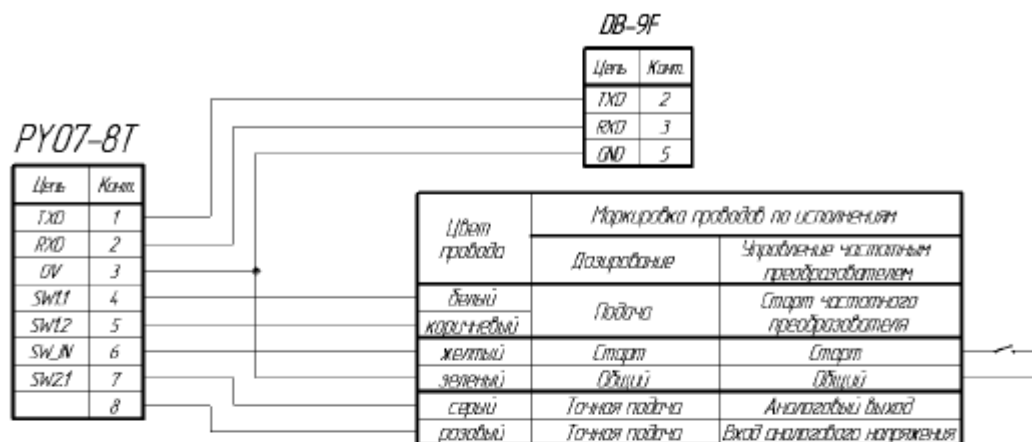
<b>№</b>	<b>Name of the locality</b>	<b>GEO Code</b>	<b>№</b>	<b>Name of the locality</b>	<b>GEO Code</b>
1	Abakan	21	41	Nazran	22
2	Anadyr	22	42	Nalchik	21
3	Arkhangelsk	26	43	Naryan-Mar	27
4	Astrakhan	18	44	Nizhny Novgorod	23
5	Barnaul	22	45	Omsk	22
6	Belgorod,	20	46	Orel	21
7	Birobidzhan	20	47	Orenburg	21
8	Blagoveshchensk	22	48	Penza	20
9	Bryansk	21	49	Perm	23
10	Veliky Novgorod	22	50	Petrozavodsk	25
				Petropavlovsk-	
11	Vladivostok	17	51	Kamchatsky	21
12	Vladikavkaz	15	52	Pskov	23
13	Vladimir	22	53	Rostov-on-Don	19
14	Volgograd	19	54	Ryazan	22
15	Vologda	24	55	Salekhard	27
16	Voronezh	21	56	Samara	22
17	Grozny	17	57	Saint Petersburg	24
18	Dudinka	22	58	Saransk	22
19	Yekaterinburg	23	59	Saratov	21
20	Ivanovo	22	60	Smolensk,	22
21	Izhevsk	22	61	Stavropol	17
22	Irkutsk	21	62	Syktvykar	25
23	Yoshkar-Ola	23	63	Tambov	21
24	Kazan	23	64	Tver	23
25	Kaliningrad	22	65	Tomsk	23
26	Kaluga	22	66	Tula	22
27	Kemerovo	22	67	Tyumen	23
				Uglich, Yaroslavl	
28	Kirov	22	68	region	23
29	Kostroma	23	69	Ulan-Ude	20
30	Krasnodar	18	70	Ulyanovsk	22
31	Krasnoyarsk	23	71	Ufa	22
32	Kurgan	23	72	Khabarovsk	19
33	Kursk	21	73	Khanty-Mansiysk	25
34	Kyzyl	20	74	Cheboksary	23
35	Lipetsk	21	75	Chelyabinsk	22
36	Magadan	24	76	Cherkessk,	21
37	Maikop	17	77	Chita	21
38	Makhachkala	16	78	Elista	18
39	Moscow	22	79	Yuzhno-Sakhalinsk	19
40	Murmansk	27	80	Yakutsk	25
			81	Yaroslavl	23

Measurement range selection table

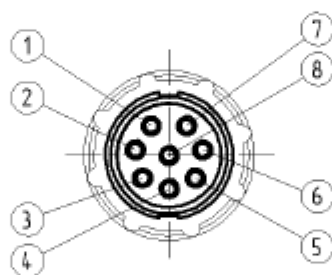
NIR kg	Tri-band mode						Dual-band mode					Single -band LmPV	
	NmPV	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	NIP <sub>1</sub>	NIP <sub>2</sub>	NmPV	d <sub>1</sub>	d <sub>2</sub>	NIP <sub>1</sub>	container	mode d	
	g	g	g	g	g	g	g	g	g	g	g	g	g
6	10		1	2	1,5	3	20	1	2	3	3	5	2
15	20	0,5	2	5	3	5	40	2	5	5	3	20	5
30	20	1 1	5	10	3	15	20	5	10	15	5	20	10
60	100	5 10	10	20	15	30	200	10	20	30	20	400	20
150	200	20	20	50	30	60	200	20	50	60	20	200	50
300	400	50	50	100	60	150	1000	50	100	150	40	2000	100
600	1000	100	100	200	150	300	2000	100	200	300	600	4000	200
1500	2000	200	200	500	300	600	4000	200	500	600	1500	10000	500
3000	4000	500	500	1000	600	1500	10000	500	1000	1500	3000	20000	1000
6000	10000		1000	2000	1500	3000	20000	1000	2000	3000	6000	40000	2000

NIR kg	NmPV	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	NIP <sub>1</sub>	NIP <sub>2</sub>	NmPV	d <sub>1</sub>	d <sub>2</sub>	NIP <sub>1</sub>	container	NmPV	d
	kg	kg	kg	kg	kg	kg	kg	kg	kg	kg		kg	kg
10000	20	1	2	5	3000	6000	40	2	5	6000		40	2
15000	20	1	2	5	3000	6000	40	2	5	6000		100	5
20000	20	1	2	5	3000	6000	40	2	5	6000		100	5
30000	20	1	2	10	3000	6000	40	2	10	6000		200	10
40000	20	1	2	10	3000	6000	40	2	10	6000		200	10
50000	40	2		20	6000	30000	200	10	20	30000		400	20
60000	40	2	10	20	6000	30000	200	10	20	30000		400	20
80000	40	2	10	20	6000	30000	200	10	20	30000 30000		400	20
100000	40	2	10	20	6000	30000	200	10	20			400	20
			10							30000	30000		

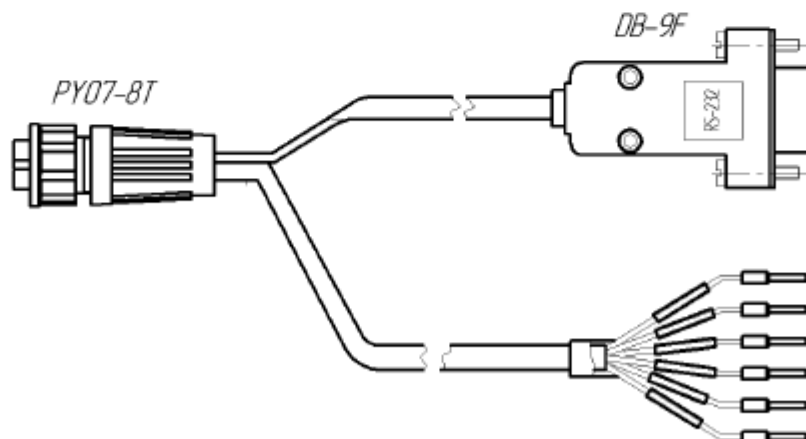
# Interface cable diagram



Pin location of the PY07-8T connector



Interface cable type



Connection diagram of actuators and characteristics  
Interface for managing external devices.

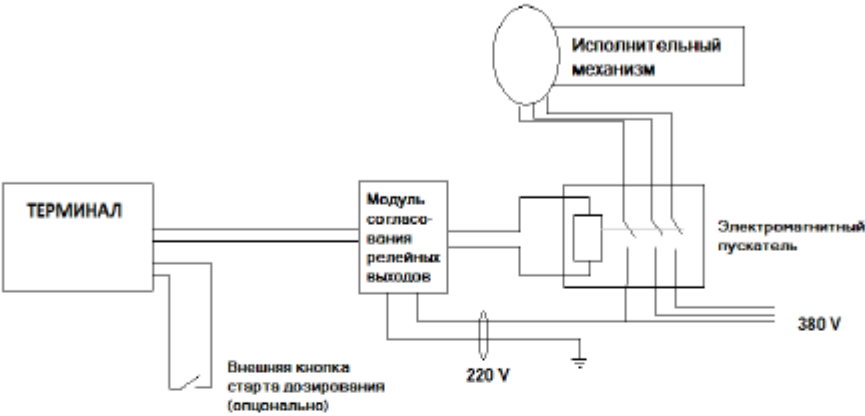


Figure 1 Connection diagram

Technical specifications of  
the interface

Presence of optical isolation	yes	
Permissible voltage max, V		100
Current max, mA		20

## Two-speed dosing mode.

When ordering, the device is equipped with a two-speed dosing function.

This function can only be enabled at the factory.

### Technical specifications of the interface

Availability of optichyes

Permissible voltage no more, V 100

Current no more, mA 20

When connecting external devices, please follow the cable diagram Appendix 3.

#### 1. Enabling the dosage mode

In accordance with the operating instructions (see point 3.3), set the device operation mode 1 or 2 (operation with or without tare weight reset). This setting is stored in non-volatile memory and does not change after the device is turned off.

#### 2. Working in the dosing mode

2.1 Before starting work, it is necessary to enter the mass of the product to be dosed. To do this, press the "P2" button, the display shows the value of the previously entered mass and the decimal point flashes. If the display is not zero, erase the previously entered value by pressing the "C" button. Use the keyboard to enter the mass value (dose mass). Confirm the input by clicking "←". In this mode, there is a concept of the "displacement" value - this is the value of the mass, when it is reached, the fast (rough) product feed channel is turned off and the feed is carried out only through the precise feed channel until the product mass reaches the set value. The displacement value is determined experimentally. To enter or view the entered offset value, press the "P2" and "P1" buttons one after the other. The display shows the value of the previously entered offset. If the display is not zero, erase the previously entered offset value by pressing the "C" button. Then, using the instrument keyboard, enter the value of the selected offset. **ATTENTION! THE DEVICE AUTOMATICALLY EXITS DATA ENTRY MODE WITHOUT STORING VALUES IF NONE OF THE BUTTONS IS PRESSED FOR 5 SECONDS!**

2.2 The operation is started by pressing the "UP" button. If itself you have an external start button, then you must press and hold the button for at least 0.5 seconds (a long beep will sound) and release it, only after that the process will start. To interrupt the dosing process, briefly press the button.



### 2.3 Example of work

The dose mass value (according to P2) of 5 kg is entered. The displacement value (sequentially P2 and P1) is set to 1 kg.

The device in full feed mode (coarse and fine dosing relays are turned on) dispenses the product until it reaches a mass of 4 kg (i.e.  $5-1=4$ ), and then switches to precise dosing mode (the coarse feed relay turns off, but the fine feed relay remains on). The remaining the exact  
~~passage the product through the~~ weight reaches or exceeds the value of 5 kg,  
be served when the product is stopped.

Frequency converter control mode

When ordering, the device can be equipped with a frequency converter control function. This function is used when creating dispensers using feed mechanisms with smooth speed control. This function can only be enabled at the factory. When starting, the device initially generates a start pulse the frequency converter, closing the lines SW1.1 and SW1. 2 for 0.25 s between each other(Appendix 3) and supplies the maximum voltage to pin 7, the signal from which is the control signal for the frequency converter.

of

When the mass of the product reaches the set value of the dose mass, taking into account the voltage on contact 7, it is reduced to the value corresponding to the exact dosage mode.

When the mass of the product reaches or exceeds the set dose mass value, the voltage from contact 7 is removed.

Tensethe ie generated by the device and applied to pin 7 of the PY07-8T connector is formed by dividing the voltage applied from converter to pins 8 (positive polarity) and 3 of the PY07-8T connector, the value of which is set by the user when setting the voltage in the precise metering mode.

frequency

Technical specifications

Frequency converter start output

Availability of optical isolation	yes
Permissible voltage max,	100
V Current max, mA	20

Analog output

Availability of optical isolation	yes
Permissible voltage max,	25
V Current max, mA Reference	1
voltage source	external

1. Enabling the mode

in accordance with the operating instructions (see point 3.3) 1.1 B set the device operation mode 1 or 2 (operation with or without tare weight reset). This setting is stored in non-volatile memory and does not change after the terminal is turned off.

1.2 Setting the voltage level in precise metering mode

For programming languages voltage levels, submitted by on frequency range converter in precise dosing mode, perform operations:

- turn off the device; - hold down the "5" button to turn on the device;
- press the "4" and "T" buttons sequentially, the display will display

the number 9 in the lowest digit;

- press the "1" and "8" buttons one after the other. The display shows the previous value of the voltage level (a number from 0 to 9) applied to pin 7.;

- set the output voltage level from the range 1..9, where 1 is the minimum voltage corresponding to 1/10 of the voltage between pins 8 and 3 of the PY07-8T connector. When you enter the value 0-the voltage on pin 7 of the connector is not present. Once entered, the device will return to menu mode and the number 9 will appear on the display.

- press the "9" button to return to normal operation mode.

## 2. Working in the dosing mode

### 2.1 Setting the mass of the dosed product

Before starting work, you must enter the mass of the dosed product. To

do this, press the "P2" button, the display shows the value of the previously entered mass and the decimal point flashes. If the display is not zero, erase the previously entered value by pressing the "C" button.

the keyboard to enter the mass value (dose mass). Confirm the input by clicking "←". In this mode, there is a concept of the "displacement" value - this is the value of the mass, when it is reached, the fast (rough) channel is turned off

the product is fed and fed only through the precision feed channel until the product weight reaches the set value. The displacement value

is determined experimentally. To enter or view the entered offset value, press the "P2" and "P1" buttons one after the other.

The display shows the value of the previously entered offset. If the display is not zero, erase the previously entered offset value by pressing the "C" button. Then, using the instrument keyboard, enter the value of the selected offset and confirm the input by pressing the "←".

**ATTENTION: THE DEVICE AUTOMATICALLY EXITS**

**DATA ENTRY MODE WITHOUT STORING VALUES IF NONE OF THE BUTTONS IS PRESSED FOR 5 SECONDS!**

an external start button is used, then you must press and

hold the button for at least 0.5 seconds (a long beep will sound) and release it, only after the operation is started by pressing the "up" button. after that, the process starts. To interrupt the dosing process, briefly press the button.

Use

If