

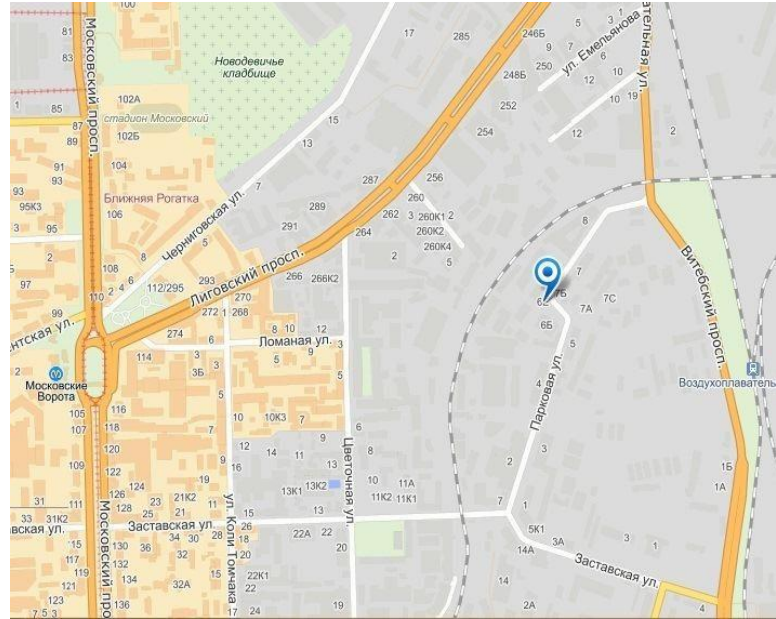
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Position LLC "Megaves" on the map:



GUIDE OPERATION
405017.018 GO
ELECTRONIC CRANE SCALES
RADIO-CHANNEL
FOR STATIC WEIGHING

models: MK-2000D (BT), MK-3000D (BT),
MK-5000D (BT), MK-10000D (BT), MK-15000D (BT),
MK-20000D (BT), MK-30000D (BT), MK-50000D (BT)
with output on smartphone



Correspond to GOST R 53228-2008.
Included in the State register of measuring instruments under the number
50301-12.

St. Petersburg

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1. Purpose

Radio channel electronic scales for static weighing are used for weighing cargo transported by cranes in industrial premises and in the open air.

Besides, the software (software) of scales allows to conduct protocols of weighings and their storing in the semi-automatic mode. The software allows you to transfer weighing protocols via Wi-Fi (if there is an appropriate network) or GPRS (with a SIM card installed in a smartphone and mobile network coverage is available) to any network terminal, server, accounting computer. In addition, integration with programs is possible.

“1C: Accounting”, “1C: Warehouse”, “1C: Logistics”, “1C: Transport”.

Scales consist of two main parts connected by a radio telemetric channel:

- the load receiving part suspended on the crane;
- a smartphone that is located at the operator and displays the results of weighing.

Crane scales of the MK-D series (BT) are delivered, as a rule, with the smartphone in shock-resistant execution. As agreed with the customer, the smartphone may not be included. In addition, as agreed with the customer, other devices (for example, tablets) running the Android operating system (OS) may also be included in the package. In the case of delivery of scales without a smartphone, you need to install the necessary applications on your device with Android OS.

The scales provide for the selection of tare weight in the whole weighing range and the possibility of outputting the weighing results to a recording computer.

Scales are equipped with a charging system and operational control of the state of charge of the batteries.

Section I

Basic information for working with scales

2. Preparation of scales for work

2.1. Turn on the weigh-in part of the scales with a toggle switch located on the side wall of the hull in a protective fence. At the same time, the blue LED next to the toggle switch should start flashing. When the battery is low, the LED will not flash.



Fig.1 Control elements of the weigh-in part of the scales

2.2. Turn on the smartphone. Wait until the desktop appears on your smartphone, which contains the launch icon for the work with weights, which has the name btkr with a digital index.



Fig.2 View of the application icon for working with weights

Click on the icon and wait until the main screen of the application appears.

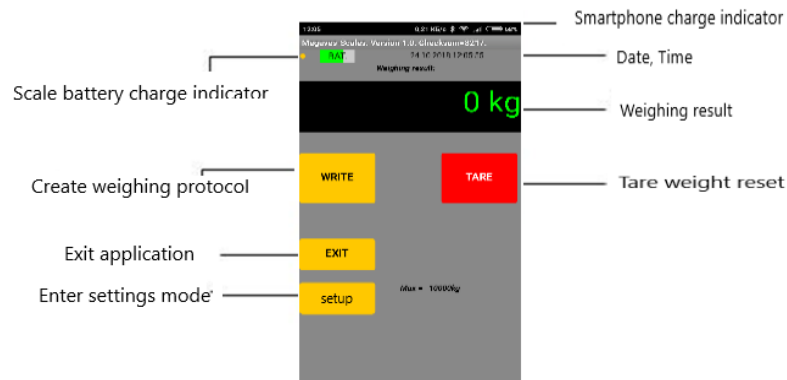


Fig.3 Main screen of the application

Check the degree of the batteries of the load-receiving part of the scales and the smartphone using indicators (Fig. 3).

2.3. In the event that the batteries are in a discharged state, charge them in accordance with clause 3.7.

2.3.1. Note.

It is allowed to operate the scales when batteries are not fully charged, however, the time of continuous operation specified in Table 1 of the “Passport” is not guaranteed.

3. Working order

3.1. Hang the weighing part of the balance on the crane hook.

3.2. Turn on the weighing part of the scales.

3.3. Turn on the smartphone and run the application to work with weights. After the smartphone automatically establishes communication with the load receiving part, the first digital countdown will appear on the screen.

3.4. Set on the “zero” screen by pressing the “TARA” button on the main screen of the application.

3.5. Suspend the load to the lower link of the load-receiving part and, after calming down the load oscillations, read the result of weighing from the screen. The selection of tare weight during weighing, as well as the setting of “zero” is made by pressing the “TARA” button.

If the connection between the smartphone and the load-receiving part is broken, which may be caused by the excessively long distance of the smartphone from the place of load suspension, strong electromagnetic interference or the presence of massive screening obstacles, the message “no connection” appears on the screen and the program exits.

When the scale is overloaded, “OVERLOAD” appears on the screen. In case of an overload, unload the scales immediately.

3.5.1. In the process of operation, the monitoring of the resource of the batteries of the load-receiving part of the scales and the smartphone is carried out by the indicators located on the screen.

When the battery of the load-receiving part is discharged below the maximum possible level, the inscription “Charge the battery” appears on the reading device.

3.6. When you have finished working with weights, exit the program by pressing the “EXIT” button. Switch off the load receiver and smartphone.

3.7 Charging the batteries of the load-receiving part of the scales and the smartphone is as follows.

When the scales are off:

- Remove the plugs from the charging connectors.
- Connect the appropriate chargers to the connectors supplied with the scale.
- Turn on the chargers in the 220V outlet. At the same time, the control LED on the charger of the balance should turn on red, located on the body of the charger.
- When the scales are charged on the charger, the color of the LED changes from red to green. When the smartphone is charged, a message appears on the screen.
- The charge time of the weighing unit and the smartphone is 3 hours (with fully discharged batteries) or less time (with partially discharged batteries).
- After charging is finished, unplug the chargers from the mains and disconnect them from the charging connectors.
- Install plugs on the connectors.

4. Maintenance and repair

4.1. Working with scales is allowed only with strict observance of safety measures given in this section.

4.2. Do not exceed the maximum permissible load equal to 150% of the maximum weighing limit.

4.3. The load receiving part of the balance should be periodically inspected, cleaned of dirt, monitor the suspension components for wear and lubricate moving parts with grease (for example, lithol).

It is not allowed to use weights when worn suspension parts exceeding 10% of the original diameter.

4.4. Verification is carried out in accordance with Appendix H "Methods of verification scales" GOST R 53228-2008. The main means of verification: reference weights of the 4th category in accordance with GOST 8.021-2005.

4.5. If a malfunction is found, it is necessary to contact the manufacturer or the warranty workshop.

5. Storage information

5.1. Scales should be stored in warehouses at air temperature from -30°C to +70°C and relative air humidity up to 98%.

5.2. In warehouses where the scales are stored, there should be no vapors of acids, alkalis, or other chemically active substances whose vapor or gases can be corrosive.

6. Transportation

6.1. Transportation of scales should be carried out in packing by automobile, railway, river and sea types of transport according to the rules of transportation of goods operating on transport of the corresponding look.

7. Protection of software and calibration constants against unintended and deliberate changes

In the scales there is embedded software (software), which provides control of the scales and the calculation of the result of weighing using calibration constants formed during the calibration procedure of the balance. To control the reliability of the software used, as well as to exclude the possibility of unauthorized re-calibrations, it is possible to check the software version and software checksum.

The identification data of the software is displayed in the upper part of the main screen of the application (Fig. 4).

Software checksum: 8217. Software version number: 1.0.



Fig.4 Upper part of the main application screen

Section II

Using weights to guide and memorize weighing protocols, as well as to communicate with external networks, devices and programs.

8. Preparation and installation of parameters

While on the main screen (Fig. 3), click the “setup” button.

The program settings screen will open (Fig.5).

In the field titled “Setting the name of the scales” enter the name of the scales, which will appear in the weighing protocol. This operation is not mandatory, but useful. allows you to subsequently simplify the analysis of the data stream. To do this, briefly touch the input field and use the keyboard that appears to enter a name that is convenient for you. In the example shown in Figure 5, the record was used as the name of the balance: “shop No. 4, shipment section, scale No. 3”. Enter by pressing the “Enter” symbol on the keyboard.

In the field with the heading "Setting an email address", enter the email address to which the weighing protocol will be sent. The address is entered in the same way as the name of the scale.

Check the box (tick) in the "Allow transfer by mail" and click "Exit". Exit the program and save the entered parameters. Restart the application.

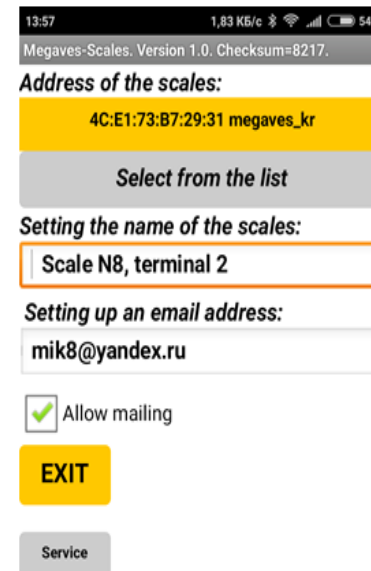


Fig.5 Program settings screen

9. Creating weighing protocol

To enter the weighing protocol creation mode, click the button. "WRITE"



Fig.5 Fragment of the main screen. Button "WRITE".

After pressing the "WRITE" button, the transition to the screen fill weighing protocol.

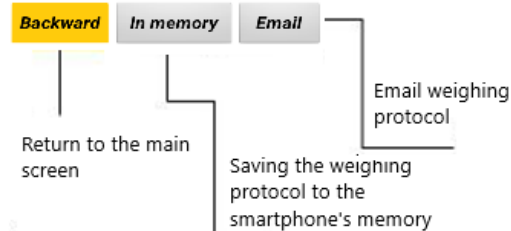


Fig.6 Screen filling protocol weighing.

Fill in the weighing protocol fields using a standard smartphone keyboard (see the operating manual that came with your smartphone).

10. Saving weighing protocol to smartphone memory

After filling in the weighing protocol, you can save it to your smartphone. To do this, in the protocol creation mode, press the "In memory" button.



Fig.7 Fragment of the weighing protocol filling screen. Buttons "In memory" and "Email".

After pressing the button, the protocol file and the file with the QR code corresponding to the protocol are saved in the "MEGAVES" folder in the memory of the smartphone. Both files have the format .jpg.

To view the weighing protocol, use the preinstalled program "ES Explorer".



Fig.8. Screen sequence when viewing weighing protocols in memory.

11. Sending weighing protocol to e-mail via Wi-Fi and GPRS

To send a weighing protocol by email, you need to connect to the Internet via Wi-Fi or GPRS and have a mailbox on Gmail.com.

For each crane scales series MK-D (BT) manufacturer registers standard mailboxes.

Gmail.com email account login details:

(In Table 1, the X symbol indicates the serial number of the scale.)

Table 1.

Adress	mkbtX@gmail.com
Name	Crane Scale
Surname	X
Login	mkbtX
Password	mk111111
Secret Question Google security services	The answer to any secret question: 1

You can use the default mailbox, as well as personal, previously registered. To send the weighing protocol by e-mail, click the "Email" button at the bottom of the protocol creation screen (Fig. 6, Fig. 7). After that you get to the protocol sending screen. Click the "SEND" button located in the upper right corner of the screen.

12. Connecting the crane scale to the local network

The crane scale smartphone can be connected to the local network as a node with a file structure accessible to other devices on the network.

Accordingly, weighing protocol files can be available for transportation and processing to network nodes that have competencies defined by the structure and method of local network organization.

Consideration of methods and tools for building local networks in this guide is not given. Information on this subject can be obtained from a large number of other sources.

13. Technical support

The manufacturer provides technical support and technical advice daily, both by telephone and through the site.

Ways of integration with IC products, the connection procedure and the necessary software are available upon request to the e-mail of the scales manufacturer Megaves LLC at megavesmk@yandex.ru

Answers to the most frequently asked questions are presented on the website by explanatory videos.

Section III

Additional information on service functions. The procedure for connecting a new smartphone / additional smartphones.

14. Additional service function of addition of hinge plates (optional)

In some cases, in the process of weighing the same type of cargo, the function of summing up individual weights may be useful, allowing you to calculate the total mass of the consignment. Access to this function appears when pulling the main screen of the program upwards (Fig. 10).

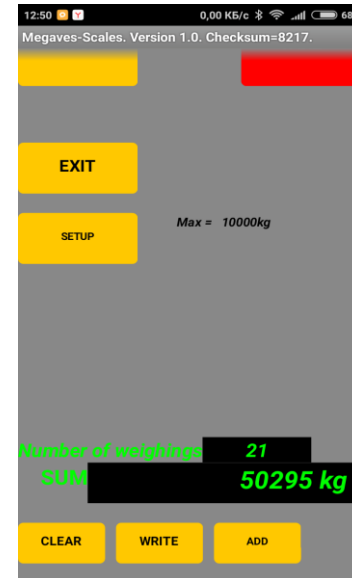


Fig.10 The lower part of the main screen contains a block summation hinge.

With a long press of the "ADD" button, the value of the mass of the load, displayed on the indicator of the weighing result (Fig. 1), is added to the value of the "SUM" indicator. In addition, the value of the indicator "Number of weights" increases by one. The "CLEAR" button clears the linkage calculator. After pressing the "WRITE" button, a transition to the screen for filling the weighing protocol occurs (Fig.7).

15. The procedure for connecting a new smartphone

15.1 Preparation of the smartphone and software installation

The need to carry out the procedure for connecting a new smartphone to the scales may arise in the following cases:

- when buying scales without a smartphone,
- at loss of the smartphone (breakage, loss),
- if necessary, have several connected to the same scales

smartphones. For example, one smartphone at the crane operator, one at the weigher, one at the foreman.

The maximum number of simultaneously connected smartphones is 5.

1. Download the scales software to the smartphone, consisting of two program files (btkr ____ .Apk and savetosd3.2.apk) and install them). Drag the resulting btkr____ icon onto the desktop.
2. If you encounter difficulties, the method of downloading and installing software on a smartphone can be studied using numerous videos presented on YouTube.
3. Create a new account with Google or specify an existing one. We recommend creating an account in accordance with Table 1 and using Gmail with the address specified in the first row of Table 1.
4. From the auxiliary software should install the program ES-Explorer from the Play Market app store.

15.2 Tying the smartphone and scales

1. Turn on the scale.
2. Go to the smartphone settings. Turn on the Bluetooth of the smartphone.
3. Search for available bluetooth devices by clicking the Refresh button.
4. Wait for a while (up to a minute). The smartphone should detect a device named megaves_kr (this is the name of the scale).
5. Click on the line with the name megaves_kr. A "Connection" message will appear and, a little later, a smartphone request "Connect to megaves_kr?". In response to the request, click the "Accept" button.
6. Exit the smartphone settings. Run the previously installed application for working with btkr____ scales.
7. On the main screen of the application appears "no connection". Click "Settings". The program settings screen will appear (Fig.5).
8. Click on the line that says: "Choose from the list of paired devices." A list of paired devices will appear on the screen (Fig.11).



Fig.11 List of paired devices.

1. Click on the line that says "megaves_kr". The program settings screen will appear (Fig. 5), and the selected address will be entered in the column with the heading "Scale Address:".
2. Press the "EXIT" button to save the parameters and exit the program.
3. Run the btkr____ application. The smartphone should start receiving data from the scales.

