

RLI-05



MANUAL HANDBOOK

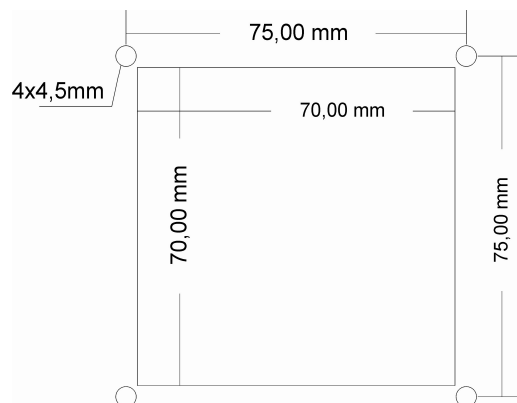
RLI-05 electronic thickness gage is intended for measuring linear movement (distance) with the resolution of 0.1 mm.

RLI-05 is performed as a panel for board assembly in a machine control panel.

The gage is compatible with the MSK-320 linear magnetic encoder and the MB-3200 magnetic tape.

Gage panel assembly

Before assembly, a 70x70 mm square should be cut in a machine's control panel. Possible edge roughness remained after cutting should be smoothen with a fine grinder and protected from corrosion by painting with a with a good-quality paint or varnish. An assembly opening of 4.5 mm should be performed at every edge, in accordance with picture 1.



Pic.1

After making assembly openings, four edge screws should be taken off from the gage panel, metal washers and plastic tubes should be taken off and then the panel should be fixed in place. Then the panel should be screwed to the table with the screws taken off before, with a bush and a washer and then screwing with an assembly screw.

Electric gage assembly:



ATTENTION !

Due to the risk of electric shock, all the connections should only be performed with the machine power supply switched off. It is best to turn off the main machine switch!!

TSS-4/002 feeding transformer assembly

The cable endings should be cleaned and fed with bush endings similar to those applied in the rotating encoder or tin coated before screwing. It is important for a correct and faultless work of the gage in the future.

The feeding transformer should be assembled in the feeding case of the machine, supplied in the set (TSS-4/002).

The transformer is provided for a typical TSS-35 fixing rail, commonly used in electric machines. The place for the transformer assembly should be selected in such a way that it is located as far as possible from other electric equipment (frequency modulators, contactors and other transformers), it is important due to a possibility of penetration of electromagnetic disturbances through the transformer to the adjuster electronic system).

Cables for the feeding voltage of 230 V should be connected to the transformer clamps, marked as **PRI 230V**. The transformer should be fed with this phase of a machine power system, which is not connected with the coil power circuit and the inverter.

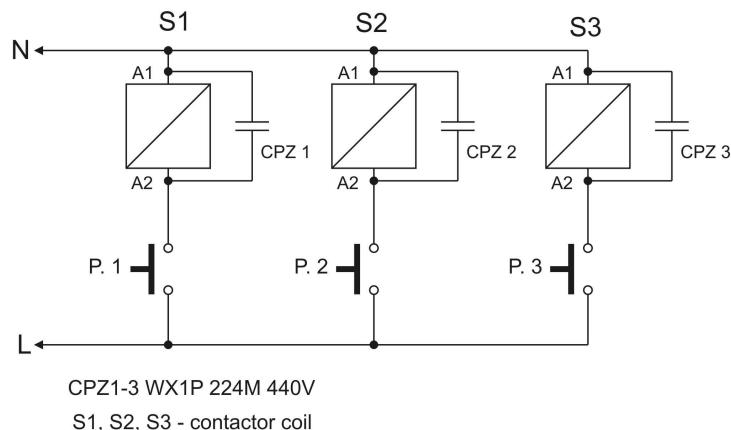
The feeding 230 V cables should be carried as far as possible from other cables in the case.

Transformer clamps marked as **SEC 12V** should be connected with cables to the electronic board of the RLI-05 gage. As in case of the previous connection, it should be carried as far as possible from the remaining cables, including 230 V cables the transformer is fed with. The length of the 12 V feeding cable should be adapted to the place, where the gage is fixed.

CPZ gland assembly

The CPZ anti-disturbance gage in the set prevents excessive emission of electromagnetic disturbance produced during the work of electric contactors assembled in the machine. Its correct assembly is very important for the gage's correct work.

Pic.2



Particular CPZ should be connected one by one to the coils of other contactors.

Linear magnetic encoder assembly.

Magnetic tape consists of two parts fed with a self-adhesive layer.

The first, thicker part is stuck as the first one on the smooth, even and stright surface (after precise cleaning or degreasing with acetone or spirit).

While sticking, only a part of the tape protecting the adhesive layer should be removed and then the first section should be stuck starting from the top. Then the film from the further part should be taken off, adhering the tape to the surface.

A rubber roller may be used at sticking for a better pressure. The tape should be stuck carefully to prevent bumpings and stucked straight. After sticking the first part, we stick the protective steel tape on it, keeping recommendations as in case of the first sticking. Both tapes should be stucked evenly one on another. The MSK 320 sensor with the cable should be assembled on the fixed part of the machine (in relation to the controller) to prevent cable movements, which could impair it. In case of assembling the sensor as a movable part, its cable should be protected in movable rails, preventing its uncontrolled crash.

The sensor should be screwed with two screws, running through the casing so its is carried over the tape within 1 to 1.5 mm. Paralelly.

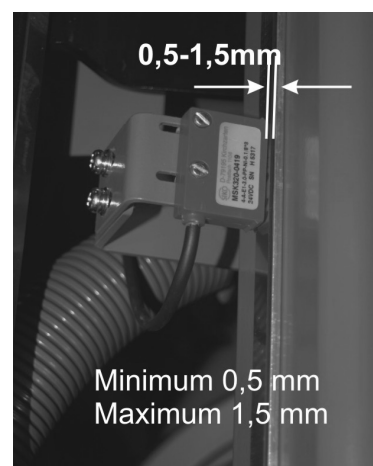
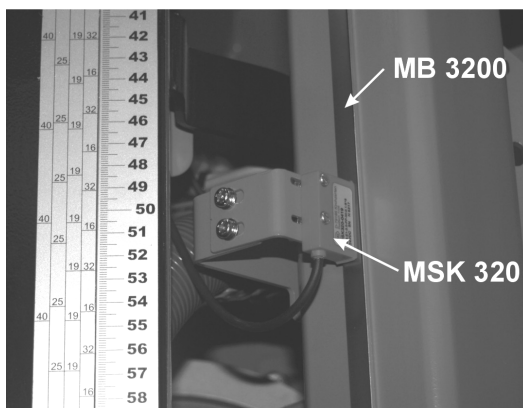
After laying the cable from the sensor, make sure that it is as far as possible from other cables and electric equipment. The tape, above which the sensor is moving may not approach the sources of magnetic field before, during and after assembly (permanent magnets, electric magnets) under the risk of damage.

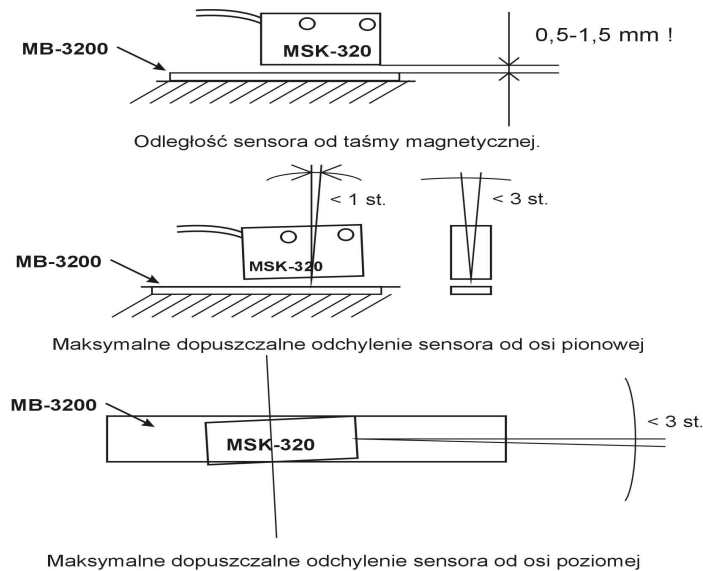
The tape surface should be cleaned from dust and dirt with a soft brush from time to time. You must not hit the tape or the sensor. The sensor needs a sticker with SCALE SIDE towards the magnetic tape.

The sensor and the tape should be fixed in such a way that during the whole working movement of the head the MSK-320 sensor remained within the reach of the magnetic tape below, at the whole length.

Special attention should be paid at the stability of the sensor and tape assembly, to avoid vibration of these parts at work.

The method of assembly of the magnetic sensor and the tape





Connecting the MSK-320 magnetic encoder to the RLI-05 clamps:

The cable of the magnetic encoder shall be connected to the following points:

- **brown** MSK-320 cable for the gage joint marked as **+12**
- **black** MSK-320 cable for the gage joint marked as **GND**
- **red** MSK-320 cable for the gage joint marked as **In1**
- **orange** MSK-320 cable for the gage joint marked as **In2**



Attention!! Incorrect connection of cables would result in serious encoder damage!!

Connecting the cables of the RLI-05 board power supply.

After all the actions, described above, you can start connecting the feeding cables to the gage board.

12V feeding cables from the **TSS 4/002** transformer, after preparing the terminals, should be attached to the joint marked as **PWR** at the gage board.

After completing all the joints, you can switch on the gage power supply.

Horizontal lines would appear for a moment on the display, and the last recorded dimension would be displayed after a moment.

The gage direction compliance should be checked. In order to do that, the machine feed should be started with the manual control button and it should be checked if the RLI-05 counter is calculating the direction correctly.

If the calculation direction is not correct, the the red and orange cables of the MSK-320 encoder, attached to the gage board (In1 and In2 joints) should be interchanged.

Setting the dimension on the display:

In order to set the real dimension (COUNTER 1), push the button marked as **SET COUNT.1** and hold about 3s.

The first figure on the display starts blinking. Set the values with arrow buttons. In order to set the following figures, press **SET COUNT.1** again. Each use of the button shifts to the next figure.

The figure after the comma is set identically as the remaining ones.

After setting the correct height of the saw, record it in the adjuster, pressing the **SAVE button for a short time**.

The real dimension setting function is not active, when the gage is switched into the zero-setting mode (the COUNTER 2 value is displayed).

Attention!!!

The counter value is recorded automatically at every switching off of the RLI-05 counter feeding, and for this reason the power supply should not be switched off when the machine is working, which may result in a wrong dimension record!

COUNTER 2 - zero setting mode.

There is a possibility to zero the gage indications, setting the zero is done with pressing the **COUNTER 2** button for a short time. The zero-setting function is signalled with displaying a dot on the left (at the COUNTER 2 label). During setting the zero value, the gage measures the movement in relation to the point where the zero value was set (considering the minus symbol).

Going to the real counter display is done after pressing the **COUNTER 1** button for a short time.

Operational guidelines

The adjuster keyboard should not be pressed with hard objects, which might result in its permanent damage.

If the keyboard is dirty, popular cleaning agents may be used for cleaning. You should not press the membrane keys too hard. Pressing the keys too hard should result in their damage and, as the consequence, replacing the whole keyboard.

The adjuster should not be exposed to direct damping, swamping with water or other liquids.

EMC compliance

RLI-05 gage complies with the electromagnetic compliance standards (EMC), valid in this range.

The RLI-05 gage should be installed and configured in compliance with the European and national standards. Installers of the electric control system, which have to comply with the EMC directive are responsible for adaptation of the device.

RLI-05 gage should be considered as a component, it is not a machine or a ready-to-use device, in accordance with European directives (the machine directive and the EMC directive). The end user, assembling the RLI-05 gage in a machine, is responsible for satisfying these standards,

The product and the equipment, described in the documentation may be replaced and modified many times, both from the technical point of view and the operation method.

The description of them may not be considered a contract in any way.