

LENGTH METER

DELK2131

measuring range –999.999 až 9,999.999m



www.aterm.cz

1. General description

Length meter of the type DELK2131 is an electronic device which allows measuring length of continually produced or measured material. The meter consists of a sensor and a numerical measuring unit. Both these parts of the meter are integrated in one compact unit. A precise wheel with circumference of 500 mm which rolls on the surface of the material being measured is used to measure length. The measuring wheel is mounted on a shaft which passes through a couple of bearings installed in a steel arm. The casing of the meter is also mounted on the sensor arm and the shaft of the measuring wheel passes in the casing of the meter where the measuring system is positioned. The arm is provided with a hole with diameter of 12 mm in its other end which serves for mounting on production equipment.

The principle of the measuring system is based on contact less optoelectronic sensing impulses. 500 impulses are generated during one revolution of the sensing wheel. Output signals of the measuring system allow measuring in both directions, i.e. both addition and subtraction of measured impulses.

The front panel of the length meter is provided with an LCD display with two lines, each of them with eight characters (character height 10mm) to display measured lengths and two Reset pushbuttons for resetting measured values. Resolution of the measuring unit is fixed to 1 mm, i.e. measuring range is from -999.999 to 9,999.999 m. Two values of the measured length are displayed simultaneously. Each of them can be reset separately.

The meter is powered with five AA batteries of the type Ni-MH with voltage of 5 x 1.2 V. The batteries can be recharged using a power pack 12V/500mA which is included in the delivery of the meter. The power pack allows also independent powering of the meter when the batteries are removed.

Turning on/off pushbutton, direction switch, display light switch and power supply connector for connection of the power pack and an indication LED for signalling battery recharging are positioned on the side of the meter.

2. Description of operation

After **turning the meter on** using the *Měření* (Measuring) pushbutton, the text "*Delk2131*" (specification of the type of the meter) and "*aterm.cz*" (reference to the website of the manufacturer of the meter) will appear on the upper and lower lines of the display respectively. The meter is reset and zero length value is displayed after two seconds. Next data on the display depend on the value of the measured length which can be reset anytime by depressing the pushbutton *Nula 1* (Reset 1) or *Nula 2* (Reset 2). The value of 500 impulses which represents the length of 0.5 m is either added or subtracted to the display data for one revolution of the sensing wheel.

One of the display lines can be used e.g. for measuring of the total sum of lengths for a working shift using the other line which is reset always after individual sections. LCD display light can be switched on by depressing the *Displej* (Display) switch. The *Směr* (*Vpřed/Vzad*) (Direction (Forward/Reverse)) switch allows selecting the direction of addition/subtraction of length.

To **turn the meter off**, it is necessary to depress the *Měření* (Measuring) pushbutton and hold it depressed for more than 1 s. Introduction text will appear on the display at first and, after one second, the message *Vypínání* (Turning off) and then dashes are displayed. The meter will be turned off after releasing the *Měření* (Measuring) pushbutton.

Operational time of the meter for one batteries recharging is approximately 40 hours. Discharging of the batteries is signalled by flashing light of the LED by the *Nula 2* (Reset 2). The meter will be able to operate for several more minutes before the capacity of the batteries is fully out and the meter will then be turned off automatically. The text *!Vybito!* (Discharged) will appear on the display in the upper line just before switching off.

If you need to measure even if the batteries are discharged, you can connect the power pack during operation of the meter. Insert the power supply connector of the power pack in the meter at first and then connect it to the mains. The batteries are charged with low (maintaining) current in this case and you can use the meter in this mode even permanently. The meter cannot be turned off if the power pack is connected. It is necessary to disconnect the power pack at first and then to turn the meter off using the *Měření* (Measuring) pushbutton.

The meter is provided with an **automatic turning off** system which turns it off after 14 minutes of its inactivity (no change of the measured value). Automatic turning off feature can be blocked by removal of a configuration bridge positioned on the printed-circuit board of the meter. If the power pack is connected, the automatic turning off system is out of operation.

To **recharge the batteries**, you must connect the power pack when the meter is turned off. The text *Nabíjení* (Recharging) and the current value of voltage of the batteries will be displayed on the display on the upper and lower lines respectively. The indication LED *Dobíjení* (Recharging) is lit up. The text *DELK2131/ Nabíjení* flashes on the upper line in ten-second intervals during recharging. Recharging is automatic and there is no risk of overcharging of the batteries. As soon as the nominal value of voltage of the batteries is reached, recharging current is reduced to the maintaining value. The text *!Nabito!* (Recharging completed) is displayed on lower line. Recharging time is 12 hours. If power supply failure occurs during recharging, the text *Nenabíjí* (No charging) is displayed on the upper line of the display. (If you depress the *Měření* (Measuring) pushbutton now, the meter will be turned off.) Recharging continues after power supply recovery.

If you need to use the meter for measuring during recharging, depress the *Měření* (Measuring) pushbutton. Recharging of batteries continues in this case, however, voltage is not monitored. For that reason, it is necessary to stop recharging after 12 hours at the latest.

3. Power supply batteries

The meter is powered with five AA batteries of the type Ni-MH with voltage of 5×1.2 V. The capacity of the batteries is 2,100 mAh. Recharging circuits of the meter are dimensioned for this capacity of the batteries so that it is necessary to observe the nominal capacity in case of potential replacement of batteries.

Service life of the batteries depends above all on their correct recharging. The batteries may be recharged only after their complete discharging – i.e. after the indication LED starts flashing. It is also necessary to let the batteries to be recharged completely for the complete period of 12 hours. Maintaining recharging which takes place when the power pack is connected to the meter during its operation does not substitute normal recharging.

The automatic turning off system of the meter in case of batteries discharging prevents in complete discharging and damage of the batteries. If the batteries are defective, the meter cannot be turned on and it is necessary to remove the top guard of the meter and perform check and/or replacement of the batteries if necessary.

When replacing the batteries, you must remove the top cover of the meter. It is necessary to comply with the correct type and value the capacity of the rechargeable batteries.

4. Safety precautions

The device has been designed with the class of security III where protection against electric shock is ensured through save low voltage. The power pack complies with the safety requirements of ČSN 35 1330 standard.

5. Technical specification

Power supply:	Batteries NiMH 5 x 1,2V
Current consumption:	50mA
Display:	LCD 2 x 8 characters (10mm)
Box dimensions:	115 x 115 x 90 mm (w x h x d)
Device protection:	IP55
Class of security:	III
Operation temperature:	0 až 40 °C
Measuring range:	-999.999 až 9,999.999m
Maximal measuring speed:	120m/min

Production and repairs:

Ing.Radomír Matulík

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ES DECLARATION OF CONFORMITY

Producer: Ing. Radomír Matulík
Náves 7, 763 61 Pohořelice, ČR
IČO: 1 3 0 9 2 7 5 8

Product: Length meter type DELK2131.

The manufacturer declares under its sole responsibility that the product meets the above requirements of technical regulations and under the conditions specified by the manufacturer using safe.

Evaluation of conformity: Conformity assessment was carried out in accordance with §12, para. 3a) of the Act No.22/1997 Coll. as amended.

In accordance with Government Regulations:
č.17/2003 Sb., č.616/2006 Sb. a č.481/2012 Sb.

In accordance with the directives of the European Parliament and the Council: 2004/108/ES, 2006/95/ES a 2011/65/EU.

Harmonised standards: ČSN EN 61010-1, ČSN EN 61326-1.

CE marking: the year of first marking CE: 16

Technical documents: are deposited at producer.

Name: Ing. Radomír Matulík

Position: OSVČ

In: *Pohořelice*

day: 30.4.2007