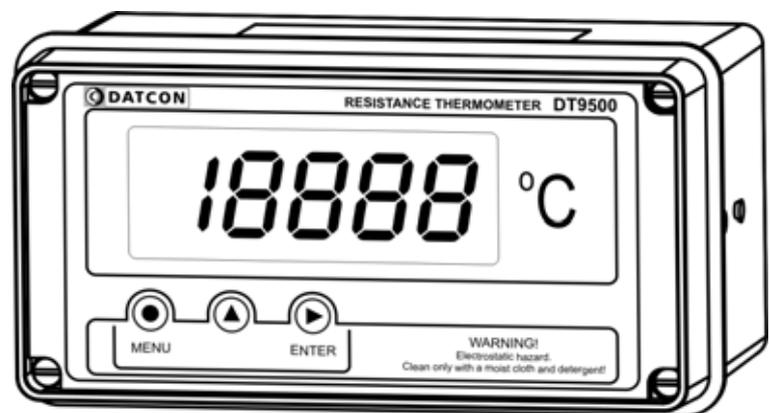


DT9500

Intrinsically Safe Temperature Meter / Transmitter

Operating Instructions



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1. About this document

1.1. Function

This operating instructions manual has all the information you need for quick set-up and safe operation of DT9500. Please read this manual before you start setup.

1.2. Target group

This operating instructions manual is directed to trained personnel. The contents of this manual should be made available to these personnel and put into practice by them.

1.3. Symbolism used



Information, tip, note

This symbol indicates helpful additional information.



Caution, warning, danger

This symbol informs you of a dangerous situation that could occur. Ignoring this cautionary note can impair the person and/or the instrument.



Ex applications

This symbol indicates special instructions for Ex applications.



List

The dot set in front indicates a list with no implied sequence.



Action

This arrow indicates a single action.



Sequence

Numbers set in front indicate successive steps in a procedure.

2. For your safety

2.1. Authorised personnel



All operations described in this operating instructions manual must be carried out only by trained and authorised specialist personnel. For safety and warranty reasons, any internal work on the instruments must be carried out only by DATCON personnel.

2.2. Appropriate use



The apparatus DT9500 is a loop-powered intrinsically safe temperature meter and transmitter, that can be used in the explosive zones of „1” or „2”, as well as in the safe area. Its input is suitable for the connection of standard Pt 100 measuring probes, which can be connected by four wires and by three wires too. The sensor can be in zone 0 too. The instrument presents the temperature measurement results in digital format with an accuracy of decimals of degrees, in its LCD display. Between two settable temperature values it takes a linear 4-20 mA current signal from the power supply unit (transmitter function). Detailed information on the application range of the DT9500 is available in chapter "Product description".

2.3. Warning about misuse



Inappropriate or incorrect use of the instrument can give rise to application-specific hazards, or damage to system components through incorrect mounting or adjustment.

2.4. General safety instructions



The DT9500 is a high-tech instrument requiring the strict observance of standard regulations and guidelines. The user must take note of the safety instructions in this operating instructions manual, the country-specific installation standard as well as all prevailing safety regulations and accident prevention rules.

2.5. CE conformity

The DT9500 is in conformity with the provisions of the following standards:

MSZ EN IEC 60079-0:2018 (ATEX)

MSZ EN 60079-11:2012 (ATEX)

MSZ EN IEC 61326-1:2021 (EMC)

MSZ EN 55011:2016 (EMC)

MSZ EN 55011:2016/A1:2017 (EMC)

MSZ EN 55011:2016/A2:2021 (EMC)

MSZ EN IEC 63000:2019 (RoHS 2)



2.6. Safety information for Ex areas

Please note the Ex-specific safety information for installation and operation in Ex areas. These safety instructions are part of the operating instructions manual and come with the Ex-approved instruments.



2.7. Environmental instructions

Protection of the environment is one of our most important duties.

Please take note of the instructions written in the following chapters:

- Chapter **3.4. Storage and transport**
- Chapter **9.2. Disposal**

3. Product description

3.1. Delivery configuration

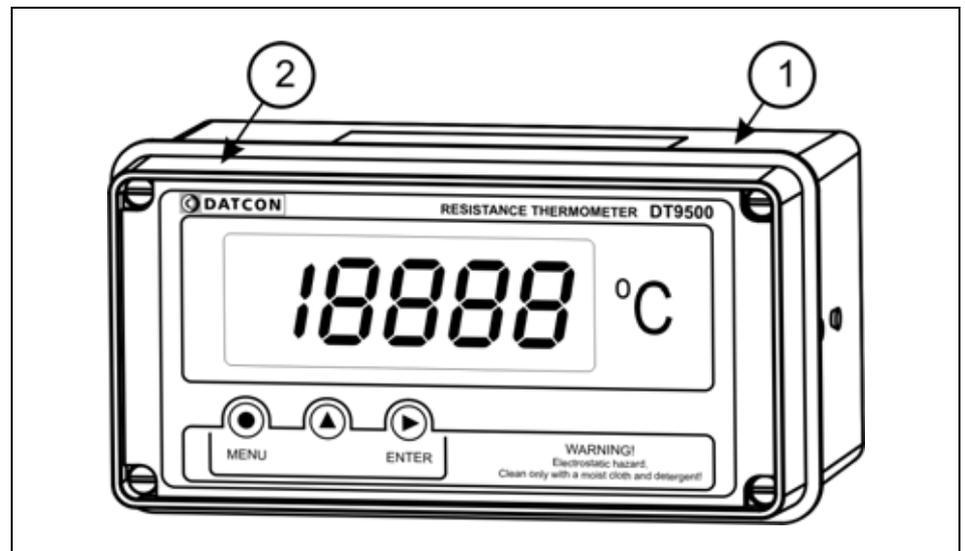
Delivered items

The scope of delivery encompasses:

- DT9500
- 2 pcs. of screw clamps (only panel mounting version)
- 1 pcs. M16x1,5 cable entries
- instrument sealing (only panel mounting version)
- documentation:
this operating instructions manual
certification
warranty

Main parts

The instrument is built from the following main parts:



1. instrument case
2. front panel with 3 membrane push buttons

3.2. Principle of operation

Application fields

The apparatus DT9500 is a loop-powered intrinsically safe temperature meter and transmitter instrument, fed by 4–20 mA loop current. It works with a standard Pt100 measuring probe, which is not an accessory of the instrument. The device presents the temperature measurement values in digital format with an accuracy of decimals of degrees, in its LCD display. Between two settable temperatures values it takes a 4 – 20 mA linear current signal from the power supply unit. (Transmitter function).

It contains two limit outputs with selectable operating modes, therefore it is suitable for simple control operations too (e.g. temperature regulation).

Due to the function of DT9500 it can be placed in zone 1 or zone 2. The temperature sensor can be in zone 0 too.

Operating principles

A current generator (800 μA) is connected to the terminal pair PI+ and PI-.

In the case of four-wire measurements, the instrument measures the voltage appearing in the terminal pair Pt+ and Pt-. This solution ensures that the resistances of the lines and contacts do not influence the measurement.

In the case of three-wire measurements, the line Pt+ is not in use. The voltage between Pt- and PI- is deducted from the voltage between PI+ and Pt-. This way when the resistances of PI- and PI+ lines are identical with each other, the voltage dropping in these lines does not influence the accuracy of the measurement.



A built-in microprocessor is used to calculate the temperature values. The results are presented on a 4-and-half-digit LCD display. The limit outputs work in accordance with the displayed temperature values.

The 4–20 mA current of the transmitter output could be assigned to any temperature range. This way the best possible settings could be achieved for a given application. By press-buttons located on the front panel, the temperature values assigned to the 4 mA transmitter current and to the 20 mA current could be selected separately.

The apparatus has a „sink” type output, requiring external power supply. This current ensures, at the same time, the power supply for the apparatus too, and thus the device connects to the receiving unit by two wires (+I, -I).

Power supply

There should be minimum 12 V voltage on the terminals of the apparatus.

3.3. Settings

DT9500 can be adjusted through the 3 button front panel keypad. All configuration parameters are stored in the instrument EEPROM for unlimited period of time, even when the power supply being switched off.



According to the default factory setting, the probe Pt100 is connected in 4-wire mode. For the transmitter -200 °C is assigned to 4 mA, and +600 °C is assigned to 20 mA. The number of averaged samples is 8, the display refreshing time is 0.5 sec

After the apparatus has been installed, it is functionable immediately, without any further settings.

Re-scaling the transmitter, or changing other factory default settings (e.g. setting the device to 3-wire operating mode) could be performed simply and easily by using the press-buttons on the front panel. The instrument doesn't need any internal adjustment.

3.4. Storing and transporting

This instrument should be stored and transport in places whose climatic conditions are in accordance with Chapter **10.1. Technical specifications**, as described under the title: Environmental conditions.



The packaging of DT9500 consist of enviroment-friendly, recyclable cardboard is used to protect the instrument against the impacts of normal stresses occurring during transportation. The corrugated cardboard box is made from environment-friendly, recyclable paper. The inner protective material is polyfoam and nylon, which should be disposed of via specialised recycling companies.

4. Mounting

4.1. General instructions



Use the enclosed seal when mounting DT9500 on panel to assure IP 65 protection between the instrument and the panel from the front side (only panel mounting version).



Electrostatic hazard! Clean only a moist cloth and detergent.

Mounting positions



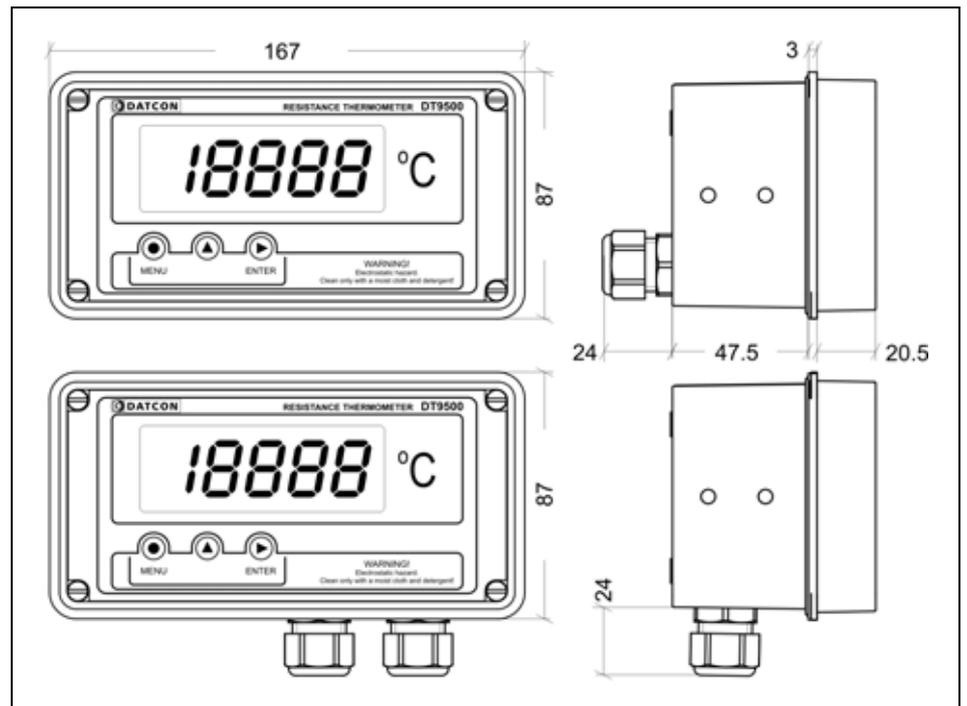
Select a mounting position you can easily read the display reach for mounting and connecting the instrument and that minimises the hazard of water, dust or dump getting into the instrument.

Mounting cable entries



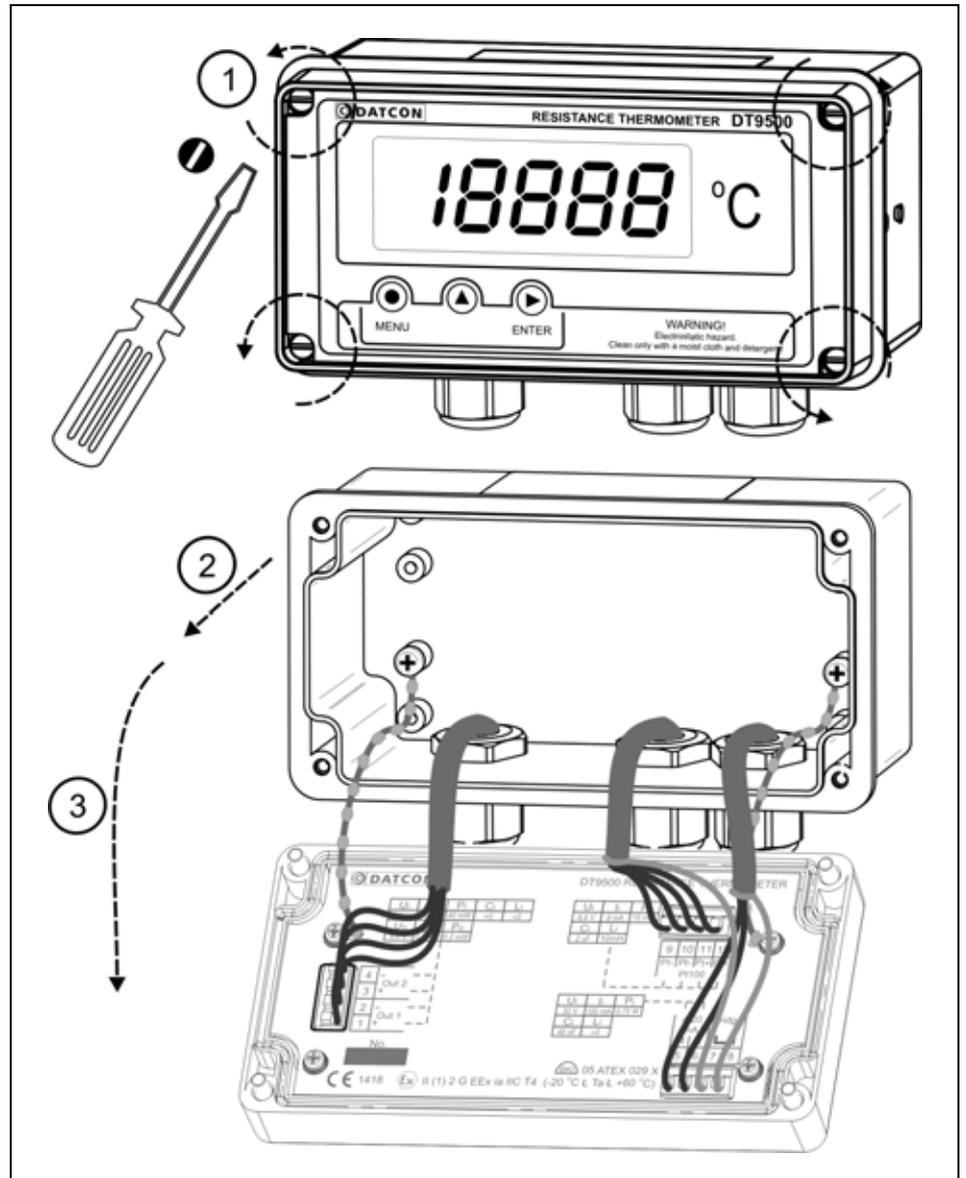
The instrument is equipped with two PG11 cable entry and one additional hole equipped with sealing plug. One PG11 cable entry is accessory. If required more than two cable entry (see chapter 5.) put out the sealing plug turning it in anticlockwise direction. To put in the cable entry use the sealing turn it in clockwise direction. Tighten the screws so much that ensures the desired sealing. Use only appropriate tools.

4.2. Main dimensions of the instrument.



4.3. Mounting as a wall-instrument

Removing the front cover

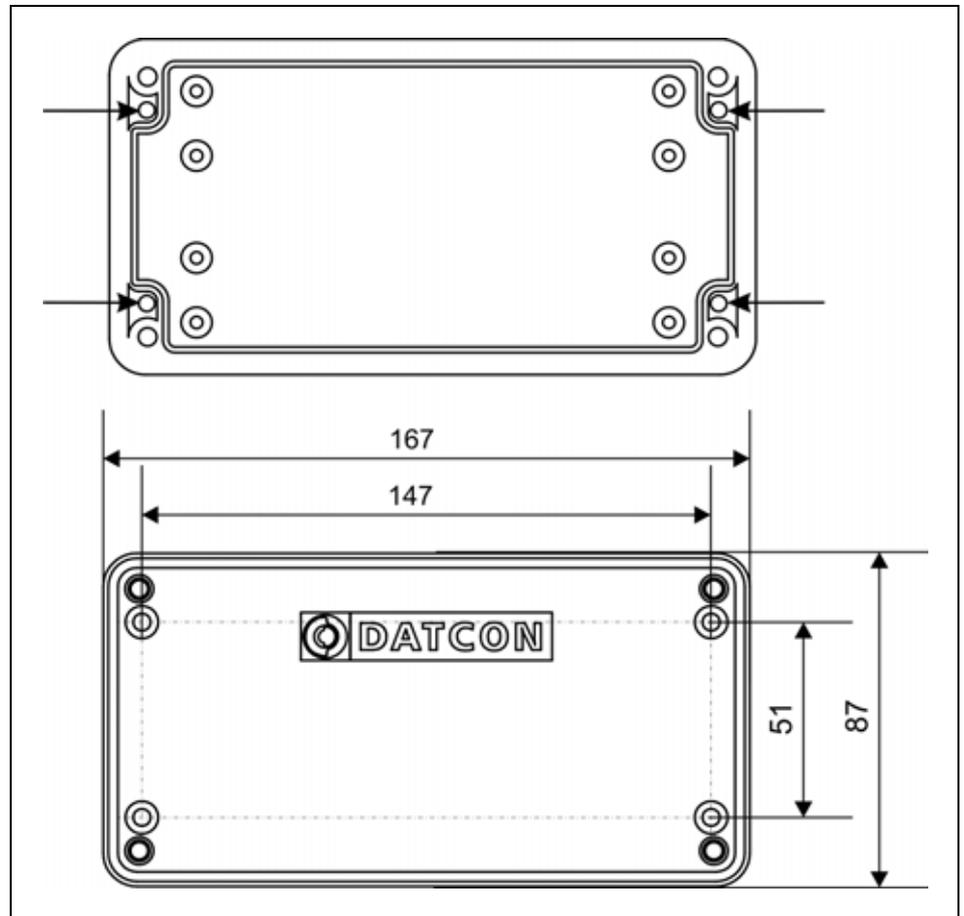


In order to remove the front cover, first remove the four fixing screws as shown in the drawing. A **screwdriver** of appropriate head-size only should be used. Using screwdrivers with inappropriate head-size may cause a damage in the screws' heads or in the instrument front panel.

Remove the screws by turning them in anticlockwise direction as shown in the drawing **Step (1)**. The screws are secured against falling out. After this you can simply take away the front cover from the housing **(2)** and you can open it by turning it downwards **(3)**. Plastic ties are used to fasten the front cover to the housing, preventing it from falling.

Preparatory steps

There are four through-holes, shown by arrows in the following drawing, for the fastening of the housing. The diameters of the holes are made for M3 screws.

Holes for mounting

1. Mark the places of the holes in accordance with the drawing.
2. Make the holes for mounting ready.
3. Remove any burrs from the ready-made holes.



Please observe the safety rules throughout the operation.

Mounting the instrument Four M3 threaded screws are needed for mounting the instrument (these are not accessories). The type of the screws depends on the wall-material, while the dimensions depend on the wall-thickness. The use of cross recessed pan head screws is recommended to make the mounting easier. The minimum screw-length should be the wall-thickness + 10 mm.



During mounting, please observe all safety rules, and use only appropriate tools.

Secure the screws against getting loose. For this purpose you may use spring lock or serrated lock washers.



Depending on the material of the wall, and in order to ensure the most practicable mounting method, it is not mandatory, of course, to use the above-described threaded joints. Depending on the situation, special screw types for wood or for metal sheets can also be used, or the joint can be riveted too.

Mounting the front cover back to its place 1. Check if there are alien materials left in the housing, like small tools, wire or metal pieces, plastic chips, etc. If there are, remove them.



2. Put back the front cover of the apparatus, taking care that the sealing should get to its place. There should be no gap, nor cables caught between the housing and the front cover.

3. Tighten the front cover.
Turn the screws in clockwise direction. Tighten the screws so much that ensures the desired sealing.

4.4. Mounting as a panel-instrument

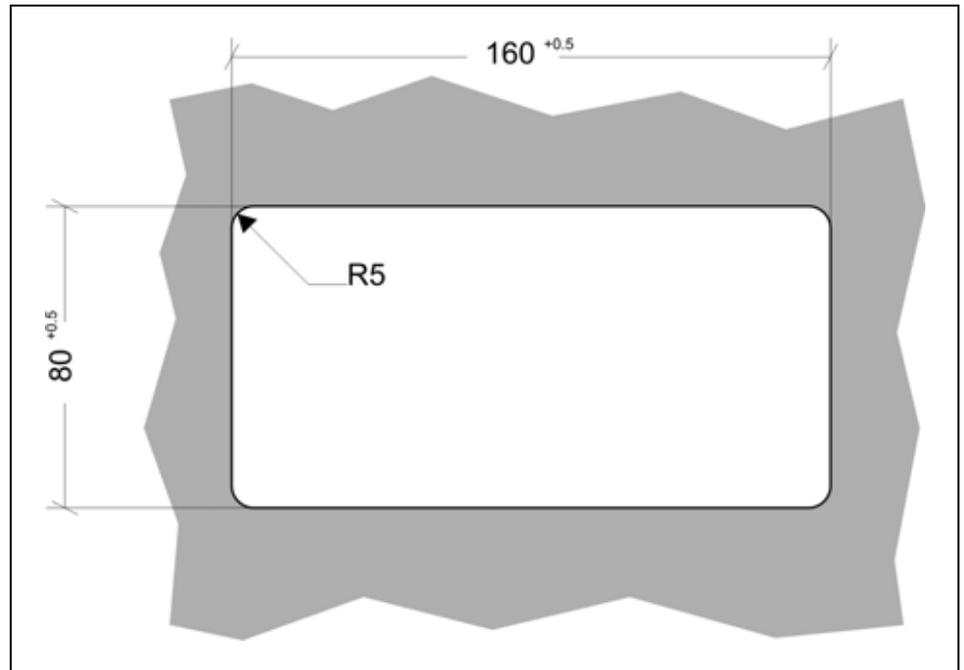
Preparatory steps



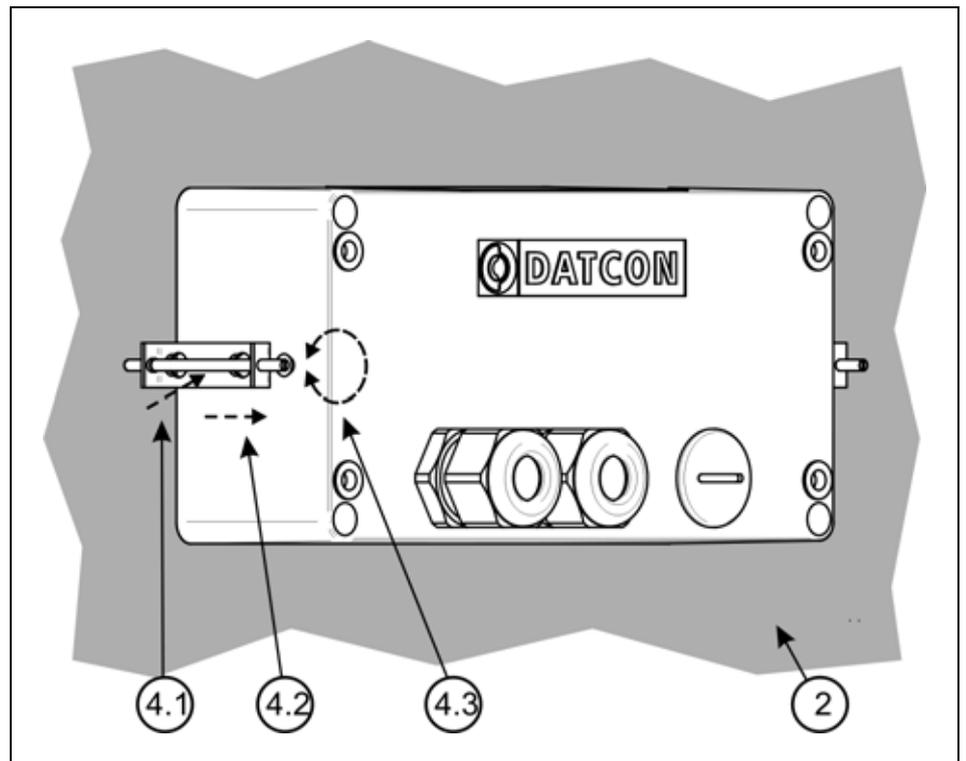
1. Cut-out the panel according to the figure shows below.

The cut-out needs special tools, it must be carried out by trained specialist personnel.

Cut-out dimensions



Mounting by the screw clamps



2. Put on the enclosed seal onto the instrument case from the rear side and fit it to the instrument holding frame (Figure step 2).

3. Put the instrument into the prepared cut-out until it possible and check the fitting of the seal between case and mounting surface.

4. Put on the enclosed screw clamps onto the sides of the instrument case (Figure step 4.1, 4.2). Fix the instrument by turning the screws in clockwise direction (Figure step 4.3).



Pay attention not to let pointed, sharp metal parts cause accidents.

5. Connecting

5.1. Connecting into the current loop



In hazardous areas you should take note of the appropriate regulations, conformity and type approval certificates of the DT9500 and other instruments are connecting in the current loop (e.g. power supply, transmitter, etc.).

The connection must be carried out by trained and authorised personnel only!

Select connection cable A four-wire, twisted pair, shielded cable should be used for connecting the measuring probe Pt100 to the apparatus. It is also possible to use three-wire cables, but the measurement accuracy will deteriorate due to the asymmetry of the resistances of wires, and due to the uncertainty of contact resistances.



For connecting the loop-feeding, a two-wire, twisted pair, shielded cable must be used.



For connecting the limit-value outputs, two-wire, twisted pair cable with 500 V insulation may be used.

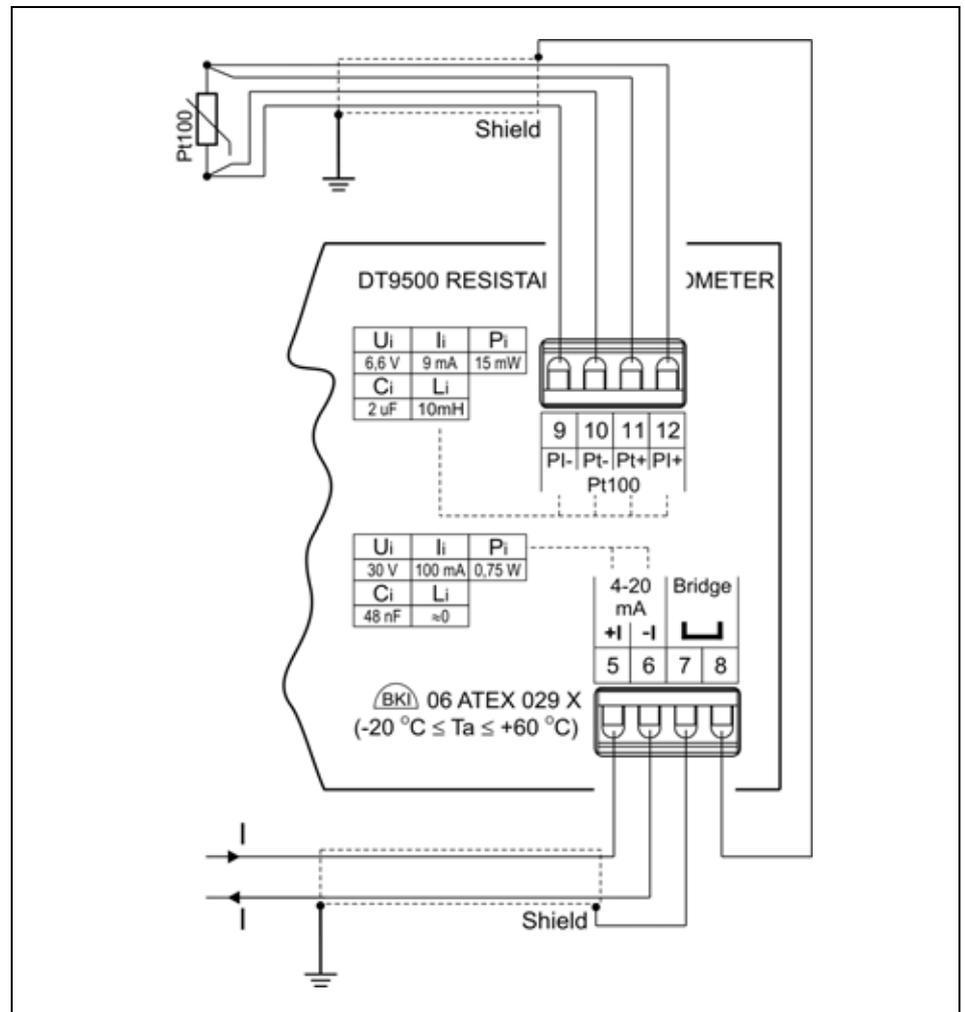
The internal cable diameter is 0,25–1,5 mm, the external cable diameter is 5–10 mm.

Connection

4-wire mode

(see also “Application example”)

- The shieldings of the cables connected to Pt100 and to the current loop must be connected with each other.



Be careful the polarity of the cables.



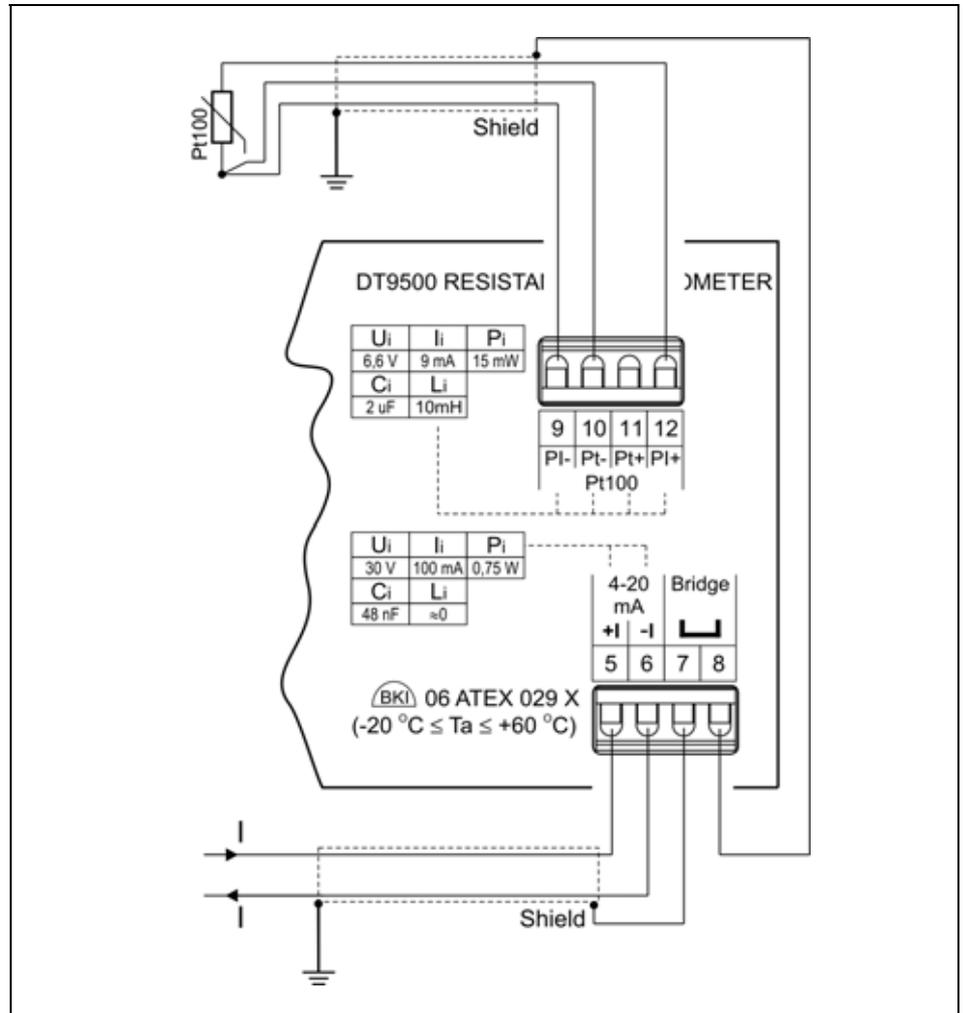
The most accurate measurement can be achieved by the 4-wire operating mode, as the cable resistances and their possible asymmetry will not cause measuring errors. In order to ensure accurate measurement its usage is absolutely recommended.

Connection

3-wire mode

(see also “Application example”)

- The shieldings of the cables connected to Pt100 and to the current loop must be connected with each other.



Be careful the polarity of the cables.

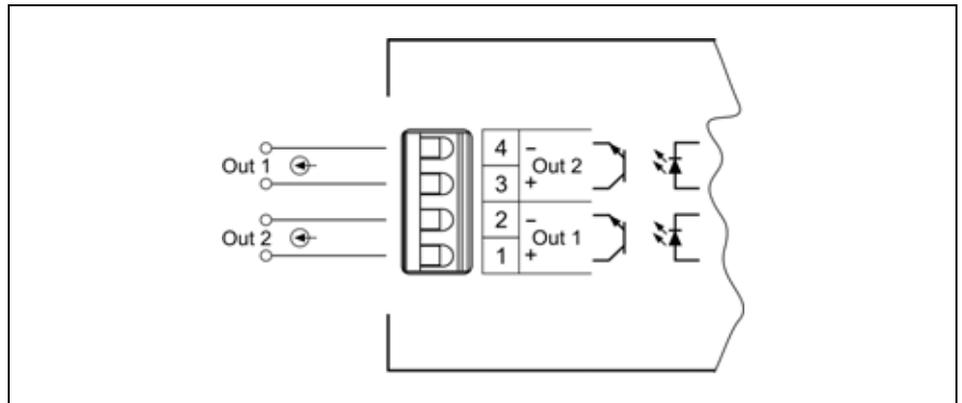


The 3-wire operating mode results in less accurate measurement than the 4-wire operating mode, as the different resistances of the cable wires, their asymmetry, and the various temporary resistance values of contacts cause additional measurement errors. The use of this mode is recommended only for those cases that are satisfied by less accuracy.

In all other cases it is practicable to use the 4-wire operating mode (according to the connection depicted in the previous page).

Wiring plan, connecting the limit outputs

(see also “Application example”)



Be careful the polarity of the cables.

Select connection cable Take note the suitability of the connecting cable. We recommend the use of screened twisted pair cable. The wire cross-section should be 0.25-1.5 mm².

Select connection cable for Ex applications Take note of the corresponding installation regulations for Ex applications. In particular, make sure that no potential equalisation currents flow over the cable screen. In case of grounding on both sides (for suppress the influence of high frequency interference signals) this can be achieved by use of a capacitor (e.g. ceramic capacitor 1 nF, 1500 V) or separate potential equalisation. The low frequency potential equalisation currents are thus suppressed, but the protective effect against high frequency interference signals remains.



Inserting the cable into the instrument



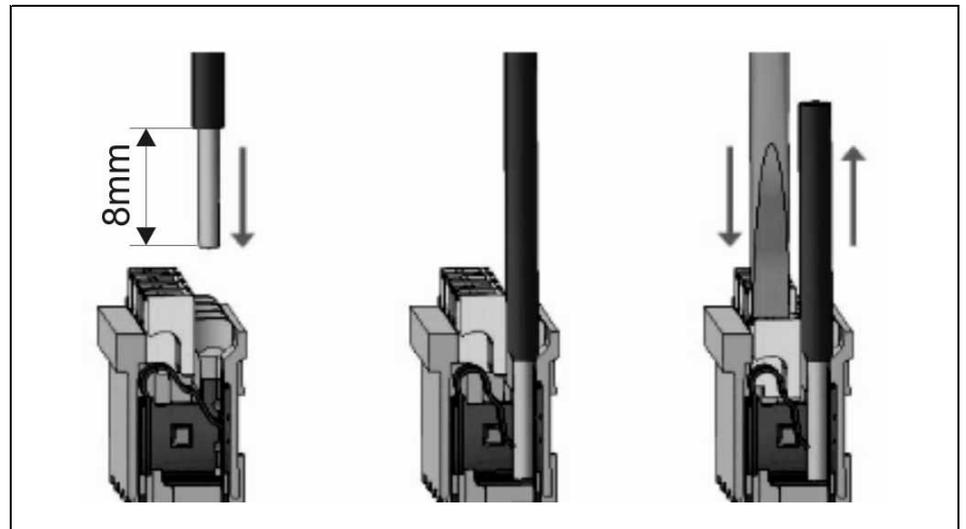
1. Prepare the cable for the connection. Remove approx. 30 mm of cable mantle, strip approx. 8 mm insulation.
2. Remove the instrument front cover (see chapter 4.3.).
3. Loosen compression nut of the cable entry.
4. Insert the cable into the instrument through the cable entry.

Connecting the cables into the terminal assemblies

Make sure before connection that the power supply is switched off.

The push-in direct connector assemblies used allow a fast connection of the cables.

Their proper usage is shown by the following figure:



1. Push the stripped cable-end until it possible into the terminal assembly. In the case of flexible cable-ends, you can facilitate opening the connection part by pushing down the white button.

2. By pushing the wire in, the self-closing connection is being established. Check it by pulling it outwards slightly.

(3. When you disassemble the cable, push down the white button by a screwdriver, and pull the cable-end out.)



There is no need to use great force for pushing the cable in, neither for removal. The button can be pushed down easily. Please do not exercise forces higher than necessary, as it may cause damages to the terminal assembly.

Finishing step

1. Check if the cables are connected properly (have you connected all the cables; have you connected them to the right place; is the connection stable; do not the cable-ends touch each other).
2. Pull out the cable slightly through the cable entry to leave only the proper cable-length in the instrument inside.
3. Tighten the compression nut of the cable entry, the seal ring must completely encircle the cable.

Checking the connection After you have completed the connections, put the measurement loop (the measuring transformer) under voltage, if possible.
If the connection is perfect, some numbers or a text appear on the display.

If nothing appears on the display, most probably the apparatus does not get supply power. With a voltage meter instrument check if there is voltage between +I and -I connection points. If the measurement shows that the voltage value is higher than 12 V, then this error-possibility can be excluded.



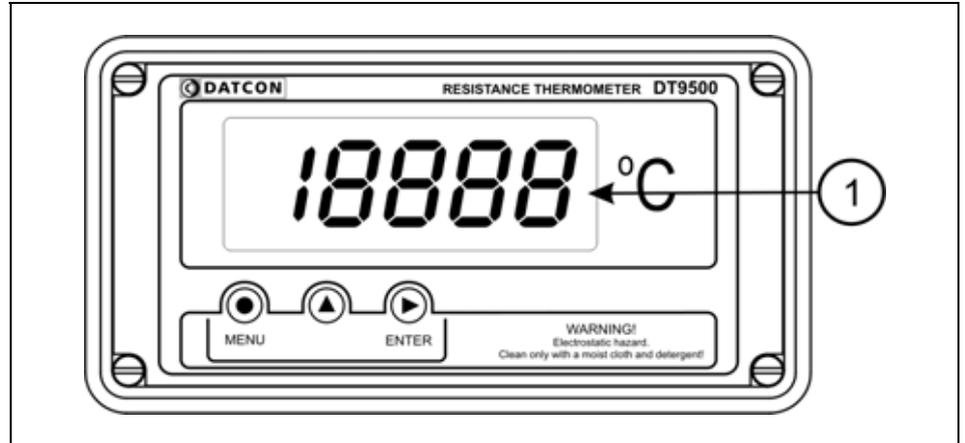
In the next step, you may suspect that the cables are connected to the apparatus with reverse polarity (the two wires of the cable are interchanged), or they are connected not to the specified terminal-assembly points. Check if everything has been done in accordance with chapter 5.1. Connection to the measurement loop.

With this you have completed the connection of DT9500.

6. The display and the operating devices

6.1. The first start-up

The display



The display is shown by the arrow (1).

After the apparatus has been installed to its place, the probe Pt100 has been connected in accordance with the specified mode, and the connection to the measurement loop has been established, then the display of the apparatus shows the measured temperature values with an accuracy of the decimal of the degree. Accordingly, if the temperature is 24.2 degrees centigrade, the following is visible on the display: **024.2**.

If it is 123.7 °C, then: **123.7**.



As the factory default setting of the apparatus is 4 wires for Pt100 connection, the displayed value will be accurate in that case only if actually 4 wires are used for the connection. If a 3-wire physical connection is used, the setting of the apparatus must also be changed to this mode, in order to ensure accurate measurement (Chapter 7.2, menu 04)

In the case of error messages

If something else appears on the display instead of the measured temperature values (a message written by blinking letters), then it is an error message of the apparatus DT9500.

In order to identify the fault, go to the Appendix at the end of this Operating Instructions, and see chapter **10.3 Error messages** or **10.4. Messages of critical errors**.

6.2. Characters and mnemonics appearing on the display

DT9500 has a 7-segment type display. It means that maximum 7 bars are used to form each characters. The numbers can be read easily, some of the letters, marks however, looks unusual:



\bar{A} = A, \bar{b} = B, \bar{c} = C, \bar{d} = D, \bar{E} = E, \bar{F} = F, $\bar{9}$ = G,
 \bar{h} = H, \bar{i} = I, \bar{J} = J, \bar{H} = K, \bar{L} = L, \bar{i} = M, \bar{n} = N,
 \bar{o} = O, \bar{P} = P, $\bar{9}$ = Q, \bar{r} = R, \bar{S} = S, \bar{t} = T, \bar{U} = U,
 \bar{u} = V, $\bar{'}'$ = W, \bar{H} = X, \bar{Y} = Y, \bar{Z} = Z

All mnemonics (code words) presented on the display comes from English expressions in abbreviated form. The following part gives a list of the possible mnemonics and their meaning. The left-side column shows the characters appearing on the display. The right-side column gives first the meaning, then the full English word in brackets and, after the hyphen, and explanation may be given.

Login text

$\bar{d}\bar{t}$

DT — Datcon instrument

$\bar{9}\bar{5}\bar{0}\bar{2}$

9502 — Type of the instrument

$\bar{i}\bar{n}$ $\bar{i}\bar{t}$

The device is preparing for the measurement.

Error messages

$\bar{E}:\bar{A}\bar{d}\bar{o}$

A/D overflow (Error: **AD Overflow**)

$\bar{E}:\bar{i}\bar{t}\bar{S}\bar{t}$

Measurement missing (Error: **MeaSuremenT**)

$\bar{E}:\bar{U}\bar{F}\bar{}$

Underflow (Error: **Underflow**)

$\bar{E}:\bar{o}\bar{F}\bar{}$

Overflow (Error: **Overflow**)

$\bar{E}:\bar{i}\bar{t}\bar{i}\bar{t}$

Missing Minimum-Maximum (Error: **Missing Minimum-Maximum**)

$\bar{E}:\bar{i}\bar{t}\bar{S}\bar{t}$

Measurement (Error: **MeaSuremenT**)

Messages of critical errors

S:Adh	A/D failure (Service: AD Hardware)
S:EEh	EEPROM failure (Service: EEPROM Hardware)
S:EEP	EEPROM write error (Service: EEPROM Protected)
S:cAL	Calibration error (Service: Calibration)
S:dFS	Default factory settings (Service: Default Factory Settings)
E:LSE	The last saving was not successful (Error: Last Save)

During code writing

codE	Code? (Code)
bAd.c	Bad Code (Bad Code)
USEr	A User login took place (User)
SUPr	A Supervisor login took place (Supervisor)

During setting up

LO.L I	The typed number is lower than allowed (Low Limit)
h i.L I	The typed number is higher than allowed (High Limit)
----	Low numeric value not possible to display
----	High numeric value not possible to display
r.tYPE	Re-type it please. (Re-type)
A.ESc	Automatic escaping (Auto Escape) — after 1 minute
EH it	Exit from the setting (Exit)
bUSY	The instrument is making calculations, please wait (Busy)
rEdY	The requested operation has been completed (Ready)
SAvE	The saving of the settings is being done (Save)
no	No, I don't want this menu (No)
YES	Yes, the menu can be started (Yes)

**Minimum-maximum
values on the display**

(▲ button)

MIN

Minimum value (MINimum)

MAX

Maximum value (MAXimum)

FwE

Firmware version (FiRMwareE)

Low numeric value not possible to display

High numeric value not possible to display
**Limit values on the
display**

--:--

Both limit outputs are switched off

L 1:--

The limit output No.1 is switched on (Limit 1)

--:L 2

The limit output No.2 is switched on (Limit 2)

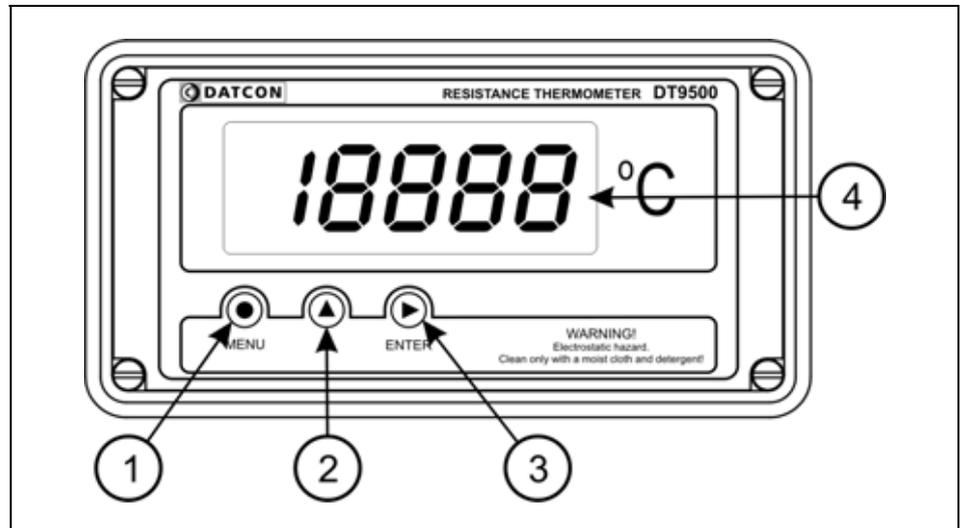
L 1:L 2

Both limit outputs are switched on

6.3. Manual controls

DT9500 can be adjusted by the membrane push-buttons indicated by (1), (2), and (3) in the drawing.

Functions of the push-buttons during measurement



(1) MENU button: Entering the menu

When you push this button, the device will ask for a password (code) in accordance with Chapter 7.1. **Typing the code (password) in**, when the right code has been given, it enters into the menu. **During this time the measurement is suspended, and the limit outputs don't change.** If no keys are pressed for a period of one minute, the instrument restarts and the measurement goes on.

(2) ▲ button: displaying minimum value, maximum value, firmware version. The above values and the firmware version remains on the display as long as the button is being pressed. **During this time the measurement is suspended, and the limit outputs don't change.**

Using this function:

1. Press the ▲ button as long as you see this: $\bar{m} \bar{m}$.

This mnemonic indicates that it will be displayed the minimum value measured after the last clear.

2. Keeping the button pressed down, after 1.5 sec the minimum value will be displayed as long as the button is pressed down.

3. Press the ▲ button second time as long as

you see this: $\bar{M} \bar{A} \bar{H} \bar{}$.

The mnemonic indicates that it will be displayed the maximum value measured after the last clear.

4. Keeping the button pressed down, after 1.5 sec the maximum value will be displayed as long as the button is pressed down.

5. Press the ▲ button third time as long as you see this:

$F \bar{r} \bar{i} \bar{E}$. The mnemonic indicates that it will be displayed the firmware version.

6. Keeping the button pressed down, after 1,5 sec the firmware version will be displayed as long as the button is pressed down.

Format: Y, M, DD, where Y=year, H=month, and NN=day).

Comments:

- Pressing the ▲ button repeatedly, the above process starts from operation „1.“, enable to display the three values sequentially.
- When you release the ▲ button more than 5 sec. and you press down the button ▲ again the minimum value will be displayed independently of which value would be the next one. The reason of this operation mode is to get used this sequence: minimum value, maximum value, firmware version.
- To clear minimum and maximum values is possible as written in 14. Menu item, after log in as a supervisor **(Clear Minimum and maximum values)**.

3) ENTER button: displaying the status of the limit output and clearing the alarm (alarm acknowledgement).
It's functionality depends on the operating mode of displaying the limits. In default factory setting this function is switched off, therefore pushing the button does not cause any changes. Detailed description is in Chapter **7.3. Display modes of limit output status.**

Other function: in „Alarm Mode” it switches the limit output off.

7. Setting-up

7.1. Typing the code (password) in

The importance of the code

You may enter the menu only after you have typed your code in. The code is made from 3 numeric characters. This solution prevents unauthorised persons from changing the settings of the instrument.

Levels of authorisation

- **User level:** allows the modification of the most necessary parameters only. The rest of the menu is not even shown for users. The user code default factory setting is: **000**.
- **Supervisor level:** allows the modification of all parameters for the authorised person. The supervisor code default factory setting is: **100**.

Typing the code in

1. Press the **MENU** button. The blinking *codE* mnemonic shows that the device is asking for the code.

2. Three zeros appear: *000*. The zero at the left side is blinking.

- Pressing the ▲ button you can increase the value of the blinking number:

1, 2, 3, 4, 5, 6, 7, 8, 9, 0, etc.

- Pressing the ► button to select the next digit.

3. Pressing the ▲ and the ► buttons, type in either the user code or the supervisor code.

4. Press the **MENU** button. If a correct code has been type in, the mnemonic *USEr* (login as a user) or the

mnemonic *SUPr* (login as a supervisor) is displayed and stays there for 2.5 seconds; then the first menu item is

shown on the display: *0 l.Ld*.

5. If an incorrect code has been typing in, the mnemonic *bAd.c* (**BAD Code**) is shown on the display and stays there for 2.5 seconds; then the instrument exits from the menu, and goes on with the measurement.

Start typing the code in again from Point 1.

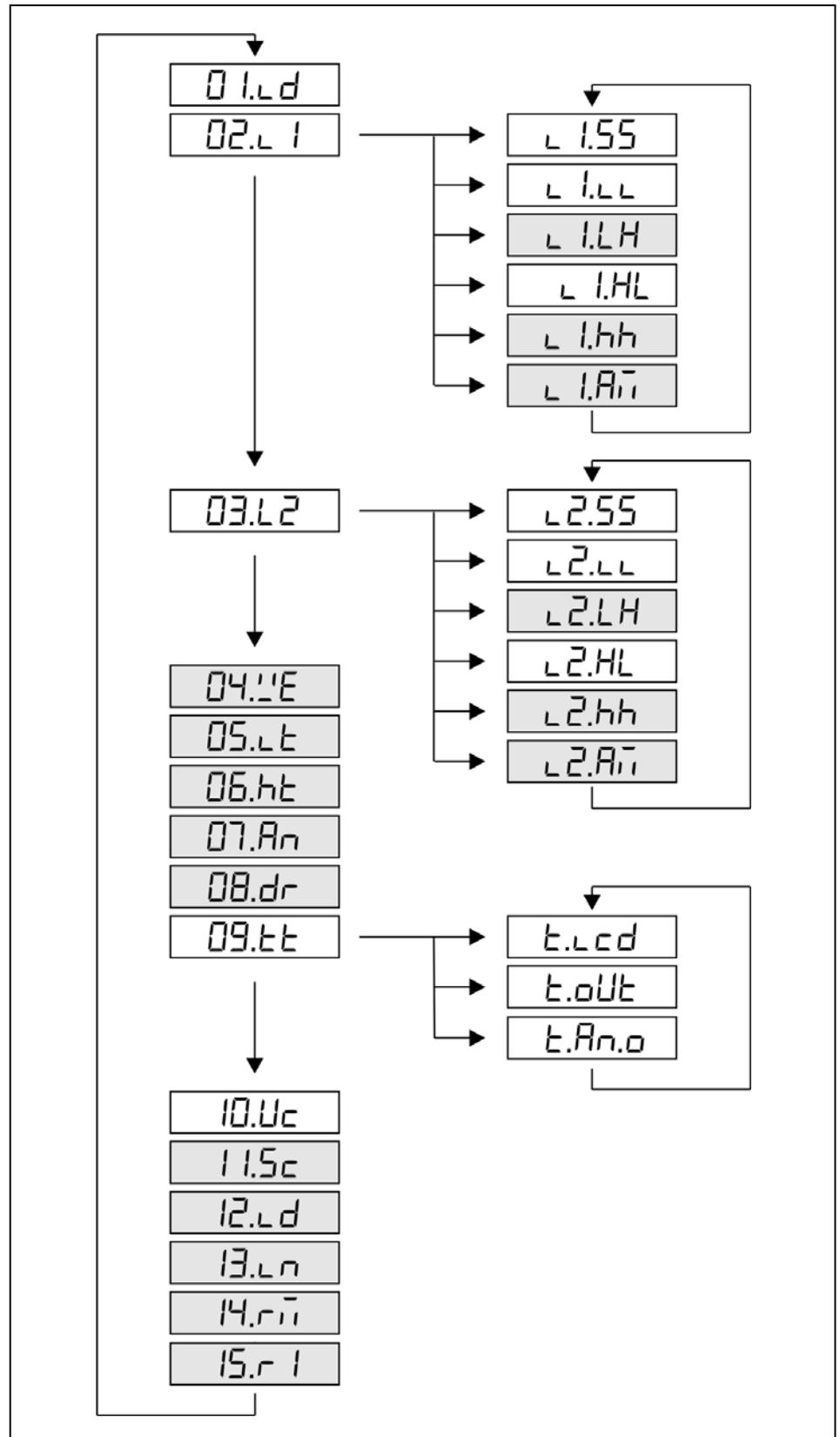
**Automatic exit from
the request for the code**

If no buttons are pressed, the instrument displays the mnemonic **A.ESc** (Auto **E**scape) after 1 minute has passed from the last pressing of a button, and it **RESTARTS**, i. e. goes back to the measuring mode. This solution is due to security: unauthorised persons, after 1 minute, will not be able to change the settings of the instrument, should it be left alone for some reason.

7.2. The menu

The menu structure

- 01: Limit-value display
- 32. page
- 02: Limit value 1
- 03: Limit value 2
- 33. page
- 04: 4 wire / 3 wire
- 42. page
- 05: Temperature 4 mA
- 43. page
- 06: Temperature 20 mA
- 45. page
- 07: Averaging number
- 47. page
- 08: Display refresh time
- 49. page
- 09: Tests
- 51. page
- 10: User code
- 54. page
- 11: Supervisor code
- 56. page
- 12: Display mode
- 58. page
- 13: Leader zeros
- 60. page
- 14: Min. and max. erase
- 62. page
- 15: Default
- 63. page



Comment:

The menu items shown in grey appear only in the case of a supervisor-level login.

7.3. Display modes of limit output status (01. menu item)

Function

The state of the limit outputs (whether they are switched on or off) can be displayed. Here you can define the conditions, on which displaying should depend.
[Default factory setting: OFF]

Sequence of operations

1. Enter the menu by the user or the supervisor code. Chapter 7.1. **Typing the code in** describes how you can type the code in. You see on the display: **0 l.l d.**

2. Enter the given menu item by pressing the **ENTER** button.

3. You can read the mnemonic **oFF** on the display. The mnemonic is blinking.

4. Pressing the **▲** button, select the desired display mode.

oFF: switched off

The instrument never displays the state of limit outputs [default factory setting]

- **d.b.t.n: Dynamic button (Dynamic Button)**

It displays the state of limit outputs as long as the **ENTER** button is kept pressed.

- **t.b.t.n: Timed button (Timed Button)**

It displays the state of limit outputs for a period as long as the **ENTER** button is kept pressed + for 2.5 seconds.

- **S.b.t.n: Static button (Static Button)**

Displaying the state of limit outputs can be switched on/off by pressing the **ENTER** button.

- **AU.cE: Automatic: when changed (Auto: Change)**

After a change has taken place in the state of limit outputs (switching off or on) it displays for a period of 2.5 seconds. If you keep the **ENTER** button pressed down, the measurement results are displayed.

- **AU.P.L: Automatic: periodical (Auto: Periodical)**

In every 2.5 seconds it displays the states of limit outputs automatically for 2.5 seconds.

If you keep the **ENTER** button pressed down, the measurement results are displayed.

Sequence of operations**• ON: Always on (ON)**

It always displays the states of limit outputs.

If you keep the **ENTER** button pressed down, the measurement results are displayed.

(This operating mode is useful when the states of limit outputs is more important than the measured value.)

Exit from the menu item

1. After finishing the settings, press the **MENU** button to exit from the given menu item, and you see: **0 l.Ld.**

(2. If you want to change the settings you have done just now, or if you just want to check what you have typed in, go on with the operation from point 2 of the **Sequence of operations.**)

(3. If you don't want to exit the menu (you want to do further settings), then you may select the desired menu items by pressing the **▲** button.)

Exit from the menu

1. Press the **MENU** button. First the mnemonic **SAVE**

(**Save**), then the mnemonic **EXIT** (**Exit**) are shown on the display. With this the storing of the settings is completed. The instrument has exited the menu and goes on with the measurement.

7.4. Setting up the limit outputs (02. & 03. menu items)

Function

The instrument has two limit outputs. They are identical with each other, and work independently.

Operation: the instrument keeps comparing the displayed physical value with the (adjustable) limit value. It switches the output ON depending whether the displayed value is higher than the limit value. (There are other operating modes too, in which it operates if the displayed value is between or out of the two (adjustable) limit values.)

In Chapter **10.8. Limit outputs** in the Appendix you find a detailed training material on the limit outputs.

Setting the operating mode

1. Enter the menu with the supervisor code.

Sequence of operations

The way the code should be type in can be found in

Chapter **7.1. Typing the code in**. You see on the display:

0 1.Ld.

2. Keep stepping by pressing the **▲** button as long as you

see this menu item: **02.L 1.**

3. Enter the menu item by pressing the **ENTER** button.

4. You see the mnemonic **L 1.55** on the display.

L1 (**L**imit 1) means: limit output No. 1.

SS (**S**ettings) means: settings. Here you can define the operating mode for the limit output. Enter by pressing the **ENTER** button.

- **oFF**: the output is always in switched off condition.
[default factory setting]
- **≥L**: (**≥L**) The output gets switched on, when the displayed physical value is higher than or equal with the low limit value (LL).
- **<L**: (**<L**) The output gets switched on, when the displayed physical value is lower than the low limit value (LL).
- **≥L.≤H**: (**≥L** and **≤H**) The output gets switched on, when the displayed physical value is between the low limit value (LL) and the higher limit value (HL).
- **<L.>H**: (**<L** or **>H**) The output gets switched on, when the displayed physical value isn't between the low limit value (LL) and the high limit value (HL).
- **oN**: the output is always in switched on condition

Setting the operating mode

Sequence of operations

6. After you have selected the desired operating mode for the limit output, press the **MENU** button. This takes you out from the given sub-menu item, and you see this: **L 1.55**.

7. If you had selected the **OFF** or the **ON** mode, there is no need to do any further settings. For finishing the operation, please go on from the point **Exit from the menu item**.

Low limit value

Sequence of operations

8. Keep stepping by pressing the **▲** button as long as you see this sub-menu item: **L 1.LL.LL** (Low Limit) means: the low limit value. Here you can define the numerical value by which the device will compare the measured physical values.

9. Enter by pressing the **ENTER** button.

10. You see this **000.0** on the display and the arrow (←) is blinking in the upper left corner. The arrow indicates that the uppermost digit (the „half” digit) is being selected from the 4 and half digits, and now it can be modified by pressing the **▲** button.

11. Pressing the **▶** button you can select the next digit.

12. Pressing the **▲** button you can increase the value of the blinking digit:

1, 2, 3, 4, 5, 6, 7, 8, 9, 0, etc.

13. When the last digit (right-side) is being selected, and you press the button **▶**, a blinking colon appears on the

left side: **: 000.0**. The colon indicates that the plus/minus sign is being selected, and it can be modified by pressing the **▲** button.

14. Pressing the ▲ button you can switch on or off the minus sign.

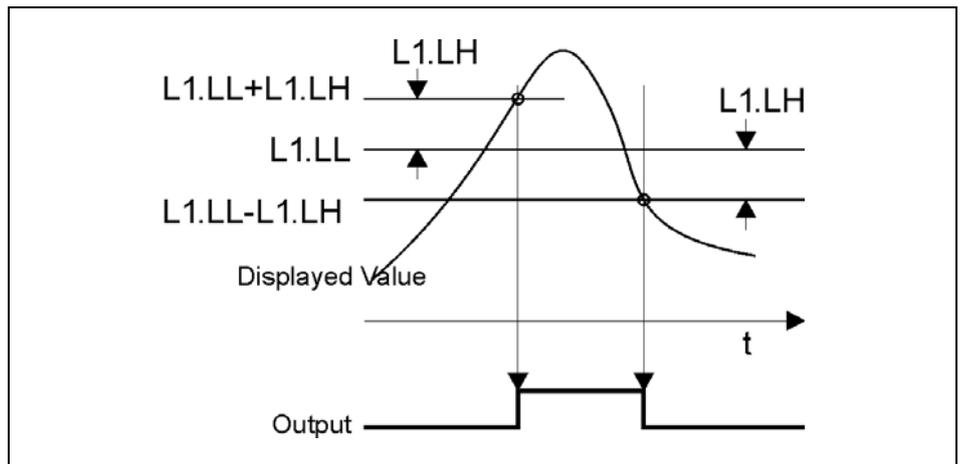
- $123.4 = 123.4\text{ °C}$
- $- 123.4 = -123.4\text{ °C}$

15. After you have defined the value for the limit, press the **MENU** button to exit from the sub-menu item, and you see this: **L 1.LL**.

Hysteresis of the low limit
Sequence of operations

16. Keep stepping by pressing the ▲ button as long as you see this sub-menu item: **L 1.Lh**. LH (**L**ow **H**ysteresis) means: the hysteresis of the low limit value. Here you can define a numerical value which provides the hysteresis of the low limit value (LL) by having **added to and subtracted from** it. Consequently, the actual hysteresis is twice the value defined here.

View of the used terms



Comment: according to this drawing, the limit output is in the **L** operating mode.

Hysteresis of the low limit

Sequence of operations

17. Enter by pressing the **ENTER** button.

18. You see this

00.0 on the display. This is the value of L1.LH. It can be changed between 000 and 999. The digit at the left side is blinking.

19. Pressing **▶** button you can select the next digit.

20. Pressing **▲** button you can increase the value of the blinking digit:

1, 2, 3, 4, 5, 6, 7, 8, 9, 0, etc.

21. After you have set the value of the hysteresis, press the **MENU** button to exit from the sub-menu item, and you see this: **L 1.Lh**.

22. If you had selected the **≥L** or the **CL** limit-value operating mode, there is no need to do further settings. For finishing the operation, go on with the steps from the part: **Exit from the menu item**.

High limit value

Sequence of operations

Setting the high limit value and It's hysteresis is necessary

in that case only, if you had selected the **≥L.Hh** or the **CL.Hh** operating mode.

23. Pressing the **▲** button keep stepping as long as you

see this sub-menu item: **L 1.HL**. HL (High Limit) means: the high limit value. Here you can define the higher numerical value, to which the instrument compares the measured physical values.

24. Enter by pressing the **ENTER** button.

25. You see this **000.0** on the display, and the arrow (←) is blinking in the upper left corner. The arrow indicates that the uppermost digit (the „half” digit) is being selected from the 4 and half digits, and now it can be modified by pressing the **▲** button.

26. Pressing the ► button you can select the next digit.
27. Pressing the ▲ button you can increase the value of the blinking digit:

1, 2, 3, 4, 5, 6, 7, 8, 9, 0, etc.

28. When the last digit (right-side) is being selected, and you press the ► button, a blinking colon appears on the left side: *: 000.0*. The colon indicates that the plus/minus sign is being selected, and it can be modified by pressing the ▲ button.

29. Pressing the ▲ button you can switch the minus sign on or off.

• *123.4* = 123.4; • *- 123.4* = -123.4

30. After you have set the value for the limit, press the **MENU** button to exit from the sub-menu item, and you see this: *L 1.hL*.

31. L1.HL must not be lower than L1.LL. Should the case be this, the instrument call attention you by a blinking mnemonic *L 0.L* , and exchanges the wrong value to the lowest permissible value.

Hysteresis of the high limit
Sequence of operations

32. Keep stepping by pressing the ▲ button as long as you see this sub-menu item: *L 1.hh*. HH (**H**igh **H**ysteresis) means: the hysteresis of the high limit value. Here you can define a numerical value which provides the hysteresis of the high limit value (HL) by having **added to and subtracted from** it. Consequently, the actual hysteresis is twice the value defined here.

33. Enter by pressing the **ENTER** button.

34. You see this **.00.0** on the display. This is the value of L1.HH. It can be changed to any values between 00.0 and 99.9. The digit at the left side is blinking.

35. Pressing the ► button you can select the next digit.

36. Pressing the ▲ button you can increase the value of the blinking digit:

1, 2, 3, 4, 5, 6, 7, 8, 9, 0, etc.

37. After you have set the value of the hysteresis, press the **MENU** button to exit from this sub-menu item, and you see this: **L 1.hh**.

- Exit from the menu item**
1. After finishing the settings, press the **MENU** button to exit from the given menu item, and you see this: **02.L 1**.
 - (2. If you want to change the setting you have done just now, or if you just want to check what you have typed in, go on with the operation from point 2 of the **Sequence of operations**.)
 - (3. If you don't want to exit the menu (you want to do further settings), then you may select the desired menu items by pressing the ▲ button.)

Exit from the menu

1. Press the **MENU** button. First the mnemonic **SAVE** (**Save**), then the mnemonic **EXIT** (**Exit**) are shown on the display. With this the storing of the settings is completed. The instrument has exited the menu and goes on with the measurement.



You find a detailed training material on the limit outputs in the Appendix, in Chapter **10.8 Limit outputs**.

7.5. Limit output alarm mode

Function

In alarm mode, the limit output is switching on when the limit condition exist. But the output stays switched on (independent from the limit condition) until the **ENTER** button is pressed (alarm acknowledge). (All these information are described in detail in Chapter 7.4. **Setting up the limit output No. 1.**)

Sequence of operations

1. Enter the menu by the supervisor code. Chapter 7.1. **Typing the code in** describes how you can type the code in. You see on the display: **0 l.l d.**
2. Keep stepping by pressing the **▲** button as long as you see this menu item: **02.L 1.**
3. Enter the menu item by pressing the **ENTER** button.
4. Keep stepping by pressing the **▲** button as you see this sub-menu item: **L 1.Ai** (**Alarm Mode**).
5. Enter by pressing the **ENTER** button.
6. You see this **oFF** on the display. The mnemonic is blinking.
7. You can switch the alarm mode on by pressing the **▲** button.
 - **oFF** = the limit output will switch off automatically when the condition that had caused it to switch on ceases to exist [default factory setting].
 - **oN** = switching the limit output off is possible only by pressing the **ENTER** button. It stays switched on, no matter if the condition that had caused it to switch on ceases to exist.

Exit from the menu item

1. After finishing the settings, press the **MENU** button to exit from the menu item, and you see this: **L 1.Ai**.
2. Press the **MENU** button to exit from the menu item, and you see this: **02.L 1.**
(3. If you don't want to exit the menu, as you want to do further settings, then you may select the desired menu items by pressing the **▲** button.)

Exit from the menu

1. Press the **MENU** button. First the mnemonic **SAVE** (**Save**), then the mnemonic **EXIT** (**Exit**) are shown on the display. With this the storing of the settings is completed. The instrument has exited the menu and goes on with the measurement.

7.6. 4-wire / 3-wire operating modes (04 menu item)

Function

In this menu item you should select either 4 wires or 3 wires for connecting the probe Pt100 to the apparatus. (Factory default setting: 4 wires)

Sequence of operations

1. Enter the menu with the supervisor code. Read chapter 7.1. **Writing the code in** to see how the code should be written in. On the display you see this:
0 l.d.
2. Keep stepping with the **▲** button as long as you see this menu item: **04.2E**.
3. With the **ENTER** button, enter this menu item.
4. The text **4.2E** is visible on the display. The digit 4 is blinking.
5. You can use the **▲** button to select the 4-wire or the 3-wire operating mode.
 - **4.2E** = measuring with 4 wires [default setting]
 - **3.2E** = measuring with 3 wires (it results in less accurate measurement, therefore it is strongly recommended to use 4 wires for connecting the probe Pt100 to the apparatus and use the 4-wire measuring mode).

Exit from the menu item

1. After you have completed the setting, press the **MENU** button. With this you leave the menu item, and you see this: **04.2E**.
(2. If you want to change the setting you have just completed, or if you just want to check what you have written in, go on with the operations from point 3 of the **Sequence of operations**.)
(3. If you do not want to exit the menu as you want to do other settings too, you may use the **▲** button to select the desired menu items.)

Exit from the menu

Press the **MENU** button. First you see the script **SAVE** (**Save**) and then the script **EXIT** (**Exit**). With this the saving of the settings is ready. The apparatus has left the menu and goes on with the measurement.

7.7. The temperature value belonging to the 4 mA value (05 menu item)

Function

The apparatus regulates the loop current between 4 and 20 mA in proportion with the measured temperature. In this menu item any °C values between -200,0 °C and 600,0 °C could be assigned to the 4 mA loop current. [Factory default setting: -200,0 °C]
Attention! In addition to selecting the temperature value assigned to 4 mA, also the temperature value to be assigned to 20 mA must be selected (The next menu item).

Sequence of operations

1. Enter the menu with the supervisor code. Read chapter 7.1. **Writing the code in** to see how the code should be written in. On the display you see this:
0 l.l d.
2. Keep stepping with the ▲ button as long as you see this menu item: **05.l t.**
3. Enter the menu item by using the **ENTER** button.
4. The number **- 200.0** is visible on the display. Digit 2 is blinking. The blinking digit indicates which of the digits is selected. The selection can be modified by using the ▲ button.
6. Using the ► button you can go to the next digit.
7. By using the ▲ button, you can increase the value of the blinking digit:
1, 2, 3, 4, 5, 6, 7, 8, 9, 0, etc.
8. If you have selected the last digit (the digit on the right side), and you press the ► button, a blinking colon will appear on the left side: **: 200.0**. This colon indicates, that the positive or negative sign is being selected, and you can now change it by the ▲ button.
9. With the ▲ button you can switch the negative sign on or off.
 - **200.0** = 200,0 °C
 - **- 200.0** = -200,0 °C

Exit from the menu item 1. After you have completed the setting, press the **MENU** button. With this you leave the menu itemt, and you see this: **05.Lt**.
(2. If you want to change the setting you have just completed, or if you just want to check what you have written in, go on with the operations from point 3 of the **Sequence of operations**.)
(3. If you do not want to exit the menu as you want to do other settings too, you may use the **▲** button to select the desired menu items.)

Exit from the menu Press the **MENU** button. First you see the script **SAvE** (**Save**) and then the script **EH iE** (**Exit**). With this the saving of the settings is ready. The apparatus has left the menu and goes on with the measurement.

7.8. The temperature value belonging to the 20 mA value (06 menu item)

Function

The apparatus regulates the loop current between 4 and 20 mA in proportion with the measured temperature. In this menu item any °C values between -200,0 °C and 600,0 °C could be assigned to the 20 mA loop current. [Factory default setting: 600,0 °C]
Attention! In addition to selecting the temperature value assigned to 20 mA, also the temperature value to be assigned to 4 mA must be selected (The previous menu point).

Sequence of operations

1. Enter the menu with the supervisor code. Read chapter 7.1. **Writing the code in** to see how the code should be written in. On the display you see this:
0 l.Ld.
2. Keep stepping with the ▲ button as long as you see this menu item: **06.ht**.
3. Enter the menu item by using the **ENTER** button.
4. The number **600.0** is visible on the display. Digit 4 is blinking. The blinking digit indicates which of the digits is selected. The selection can be modified by using the ▲ button.
6. Using the ► button you can go to the next digit.
7. By using the ▲ button, you can increase the value of the blinking digit:
1, 2, 3, 4, 5, 6, 7, 8, 9, 0, etc.
8. If you have selected the last digit (the digit on the right side), and you press the ► button, a blinking colon will appear on the left side: **: 123.4**. This colon indicates, that the positive or negative sign is being selected, and you can now change it by the ▲ button.
9. With the ▲ button you can switch the negative sign on or off.
 - **123.4** = 123.4 °C
 - **- 123.4** = -123.4 °C

Exit from the menu item 1. After finishing the setting, press the **MENU** button to exit from the menu item, and you see this: *06.ht*.
(2. If you want to change the setting you have done just now, or if you just want to check what you have typed in, go on with the operation from point 3 of the **Sequence of operations**.)
(3. If you don't want to exit the menu, as you want to do further settings, then you may select the desired menu items by pressing the **▲** button.)

Exit from the menu

1. Press the **MENU** button. First the mnemonic *SAVE* (**Save**), then the mnemonic *EXIT* (**Exit**) are shown on the display. With this the storing of the settings is completed. The instrument has exited the menu and goes on with the measurement.

7.9. The number of averaged measurements (07. menu item)

Function

The instrument performs cca. 15 measurements in each seconds. The displayed measurement result is generated as the average of several measurements.

Here you can define the number of measurements that should be used for calculating the averaged numerical value. By increasing this number the display stability increases, but the signal settling time becomes lower.

[Default factory setting: 8]

Sequence of operations

1. Enter the menu by typing the supervisor code.
The way the code should be type in is described in Chapter

7.1. Typing the code in. You see on the display: **0 I.L.d.**

2. Keep stepping by pressing the **▲** button as long as you see this menu item: **07.An.**

3. Enter the menu item by pressing the **ENTER** button.

4. You see this **8** on the display. The number is blinking.

5. Pressing the **▲** button select the number of measurements to be averaged for the displayed numerical value.

- **8** : The displayed value is the average of the last 8 measurements.

[Default factory setting]

(The display settling time after the stabilisation of the input signal: 0.5 seconds.)

- **16** : The displayed value is the average of the last 16 measurements.

(The display settling time after the stabilisation of the input signal: 1 second.)

- **32** : The displayed value is the average of the last 32 measurements.

(The display settling time after the stabilisation of the input signal: 2 seconds.)

Sequence of operations

- **1** : The displayed value is the same as the last measurement result; the previous measurements do not influence this value.
(The display settling time after the stabilisation of the input signal: 0.1 second.)
- **2** : The displayed value is the average of the last 2 measurements.
(The display settling time after the stabilisation of the input signal: 0.1 second.)
- **4** : The displayed value is the average of the last 4 measurements.
(The display settling time after the stabilisation of the input signal: 0.3 seconds.)

Exit from the menu item

1. After finishing the setting, press the **MENU** button, to exit from the menu item, and you see this: **07.An**.
- (2. If you want to change the setting you have done just now, or if you just want to check what you have typed in, go on with the operation from point 3 of the **Sequence of operations**.)
- (3. If you don't want to exit the menu, as you want to do further settings, then you may select the desired menu items by pressing the **▲** button.)

Exit from the menu

1. Press the **MENU** button. First the mnemonic **SAVE** (**Save**), then the mnemonic **EXIT** (**Exit**) are shown on the display. With this the storing of the settings is completed. The instrument has exited the menu and goes on with the measurement.

7.10. Display refresh time (08. menu item)

Function

The instrument performs cca. 15 measurements in each seconds. It's too fast to see the changing of the measurement value.

Here you can define the time periods by which the instrument displays the new measurement values.
[Default factory setting: 0.5 second]

Sequence of operations

1. Enter the menu by pressing a supervisor code.
The way the code should be type in is described in Chapter

7.1. Type the code in. You see on the display: **0 l.Ld.**

2. Keep stepping by pressing the **▲** button as long as you see this menu item: **08.dr**.

3. Enter the menu item by pressing the **ENTER** button.

4. You see this **0.5 5** on the display. It's meaning: 0.5 seconds) The 0.5 numerical value is blinking.

5. Pressing the **▲** button select the time periods by which the instrument should display the new measurement values.

- **0.5 5** = once in each 0.5 seconds [Default factory setting].
- **1.0 5** = once in each 1 second.
- **1.5 5** = once in each 1.5 seconds.
- **2.0 5** = once in each 2 seconds.
- **0.1 5** = once in each 0.1 seconds.
- **0.3 5** = once in each 0.3 seconds.

Exit from the menu item 1. After finishing the setting, press the **MENU** button, to exit the menu item, and you see this: *00.dr*.
(2. If you want to change the setting you have done just now, or if you just want to check what you have typed in, go on with the operation from point 3 of the **Sequence of operations**.)
(3. If you don't want to exit the menu, as you want to do further settings, then you may select the desired menu items by pressing the **▲** button.)

Exit from the menu 1. Press the **MENU** button. First the mnemonic *SAVE* (**Save**), then the mnemonic *EXIT* (**Exit**) are shown on the display. With this the storing of the settings is completed. The instrument has exited the menu and goes on with the measurement.

7.11. Tests (09. menu item)

Function

Checking the display and the limit outputs.

Sequence of operations

1. Enter the menu by typing either the user code or the supervisor code.
The way the code should be type in is described in Chapter 7.1. **Typing the code in.** You see this: **0 l.Ld**.
2. Keep stepping by pressing **▲** button as long as you see this menu item: **09.tt**.
3. Enter the menu item by pressing the **ENTER** button.
4. You see this **t.Lcd** on the display. (It's meaning: Display test). The mnemonic **Lcd** is blinking.
5. If you want to test the display, press the **ENTER** button. In this case all the segments on the display get switched on. By pressing the **▲** button several times you can select from several test patterns by which you can decide whether the display is good or not. You may exit from the display test by pressing the **MENU** button. You see this **t.Lcd** again.
6. If you want to test the limit outputs, press the **▲** button to switch to the **t.out** mnemonic from the **t.Lcd** mnemonic. (It's meaning: Output test).
7. Press the **ENTER** button.
8. You see this: **1.2.**. The blinking sign after 1 indicates the status of the first limit output, the blinking sign after 2 indicates the status of the second limit output. In this present case both of them are switched off. This is why the blinking sign is in the lower position.
9. Pressing the **▲** button, you can switch the outputs on.
 - **1.2.** = both are switched OFF.
 - **1.2.** = 1. ON; 2. OFF.
 - **1.2.** = 1. OFF; 2. ON.
 - **1.2.** = both are switched ON.

Comment: the status you have selected here remains unchanged as long as you exit the menu, and the instrument starts measuring.

10. You can exit from the display test by pressing the **MENU** button. You see the blinking **t.OUt** mnemonic.

Current transmitter test

11. If you want to perform a test of the current transmitter, use the **▲** button to switch from the text **t.OUt** to the text **t.An.o** (its meaning is: analogue output test.).

12. Press the **ENTER** button.

13. Now this is visible on the display: **tAD4**. Now the apparatus sets the loop current to 4 mA (irrelevant to the measured temperature value, as this is a test function).

14. By using the **▲** button, you can set any current values between 4 mA and 20 mA, in 1 mA steps.

15. By pressing the **▶** button again, you may select from among the following operating modes:

- 4 mA
- 12 mA
- 20 mA

- Stepping the current automatically (fast):

It decreases the current value from 20 mA to 4 mA (in 1 mA steps), then increases it from 4 mA to 20 mA (in 1-mA steps), then decreases again, and so on. A complete sequence of stepping up and down takes 1.6 seconds.

- Stepping the current automatically (slow)

The same like the previous mode, but in this case the apparatus waits for 5 seconds between each steps.

Exit from the menu item 1. Press the **MENU** button, to exit from the Tests menu

item, and you see this: **09.tt**.

(2. If you want to return to the tests, go on from **point 3 of the Sequence of operations.**)

(3. If you don't want to exit the menu because you want to perform further settings, you can select the desired menu items by pressing the **▲** button.)

Exit from the menu

1. Press the **MENU** button. First the mnemonic **SAVE** (**Save**), then the mnemonic **EXIT** (**Exit**) are shown on the display. With this the storing of the settings is completed. The instrument has exited the menu and goes on with the measurement.

7.12. Changing the user code (10. menu item)

Function

You can define new codes instead of the factory-defined user code. The code is an optional number within the range between 000 and 999.

[Default factory setting: 000]

Sequence of operations

1. Enter the menu by typing either the user code or the supervisor code.

The way the code should be type in is described in Chapter

7.1. Typing the code in. You see this: *0 l.L d*.

2. Keep stepping by pressing the **▲** button as long as you see this menu item: *10.Uc*.

3. Enter the menu item by pressing the **ENTER** button.

4. You see on the display: *000*.

The digit on the left side is blinking.

- Pressing the **▲** button you can increase the value of the blinking digit:

1, 2, 3, 4, 5, 6, 7, 8, 9, 0, etc.

- Pressing the **▶** button you can select the next digit.

3. Pressing the buttons **▲** and **▶**, type in the new user code.

4. Press the **MENU** button.

5. You have to type the new code in twice. This prevents an error in defining the new code due to typing mistakes.

This is indicated by the mnemonic *r.tYP* (re-type).

6. Pressing the buttons **▲** and **▶** type in the new user code again.

7. Press the **MENU** button.

8. When the code you wrote in for the first time is not identical with the code written in for the second time, a

blinking mnemonic *r.bAd.c* warns you on the error, and

the device exits from the menu item. You see this *10.Uc* on the display. (The user code has not changed, the old one is valid.) Restart the operation from Point 3.

Sequence of operations 9. If the codes written in for the first and second time are identical with each other, the device exits from the menu item. You see this **10.Uc** on the display.



Do not forget the user code you have specified. If you forget it, defining another one is possible only by using a supervisor code for entering into the menu.

Returning into the menu item Changing the user code

1. As you have already left the menu item **Changing the user code**, you see this: **10.Uc**.

(2. If you want to change the setting you have performed just now, or if you just want to check what you have typed in, continue the operation from **Point 3 of the Sequence of operations.**)

(3. If you do not want to exit from the menu, as you want to perform further settings, you may press the **▲** button to select the desired menu items.)

Exit from the menu

1. Press the **MENU** button. First the mnemonic **SAVE** (**Save**), then the mnemonic **EXIT** (**Exit**) are shown on the display. With this the storing of the settings is completed. The instrument has exited the menu and goes on with the measurement.

7.13. Changing the supervisor code (11. menu item)

Function

You can define new codes instead of the factory-defined supervisor code. The code is an optional number within the range between 000 and 999.

[Default factory setting: 100]

Sequence of operations

1. Enter the menu by typing the supervisor code. The way the code should be type in is described in Chapter

7.1. Typing the code in. You see this: *0 1.Ld*.

2. Keep stepping by pressing the **▲** button as long as you see this menu item: *1 1.5c*.

3. Enter the menu item by pressing the **ENTER** button.

4. You see on the display: *100*. The digit on the left side is blinking.

- Pressing the **▲** button you can increase the value of the blinking digit:

1, 2, 3, 4, 5, 6, 7, 8, 9, 0, etc.

- Pressing the **▶** button you can select the next digit.

3. Pressing the buttons **▲** and **▶**, type in the new supervisor code.

4. Press the **MENU** button.

5. You have to type the new code in twice. This prevents an error in defining the new code, due to typing mistakes.

This is indicated by the mnemonic *r.tYP* (re-type).

6. Pressing the buttons **▲** and **▶** type in the new supervisor code again.

7. Press the **MENU** button.

8. When the code you wrote in for the first time is not identical with the code written in for the second time, a

blinking mnemonic *r.bAd.c* warns you on the error, and the instrument exits from the menu item. You see this

1 1.5c on the display. (The supervisor code has not changed, the old one is valid.) Restart the operation from Point 3.

Sequence of operations 9. If the codes type in for the first and second time are identical with each other, the instrument exits from the menu item. You see this **11.5c** on the display.



Do not forget the supervisor code you have specified. If you forget it, defining another one is possible in the service only.

Returning into the menu item Changing the supervisor code 1. As you have already left the menu item **Changing the supervisor code**, you see this: **11.5c**.

(2. If you want to change the setting you have performed just now, or if you just want to check what you wrote in, continue the operation from **Point 3 of the Sequence of operations.**)

(3. If you do not want to exit from the menu, as you want to perform further settings, you may press the **▲** button to select the desired menu items.)

Exit from the menu

1. Press the **MENU** button. First the mnemonic **SAVE** (**Save**), then the mnemonic **EXIT** (**Exit**) are shown on the display. With this the storing of the settings is completed. The instrument has exited the menu and goes on with the measurement.

7.14. Display operating modes (12. menu item)

Function

The instrument has a 4-and-a-half-digit display. It is possible to switch it into a 3-and-a-half-digit display mode. In this case the display behaves like a 3-and-a-half-digit display during measurement. (The mnemonics are displayed in four digits).
[Default factory setting: four-and-a-half-digit operating mode.]

Sequence of operations

1. Enter the menu by typing a supervisor code. The way the code should be type in is described in Chapter 7.1. **Typing the code in.** You see on the display: **0 1.L d.**
2. Keep stepping by pressing the **▲** button as long as you see this menu item: **12.L d.**
3. Enter the menu item by pressing the **ENTER** button.
4. You see this **1.4** on the display. The mnemonic is blinking.
5. You may switch between the two operating modes by pressing **▲** button.
 - **1.4** = four-and-a-half-digit operating mode [Default factory setting]
 - **1.3** = three-and-a-half-digit operating mode



In the three-and-a-half-digit operating mode the possible range of numbers to display is reduced to the values being between -200.0 and 200.0.

Exit from the menu item

1. After finishing the setting, press the **MENU** button, to exit from the menu item, and you see this: **12.L d.**
 - (2. If you want to change the setting you have performed just now, or if you just want to check what you have typed in, continue the operation from **Point 3 of the Sequence of operations.**)
 - (3. If you do not want to exit from the menu, as you want to perform further settings, you may press the **▲** button to select the desired menu items.)

Exit from the menu

1. Press the **MENU** button. First the mnemonic **SAVE** (**Save**), then the mnemonic **EXIT** (**Exit**) are shown on the display. With this the storing of the settings is completed. The instrument has exited the menu and goes on with the measurement.

7.15. Disable displaying the leader zeros (13. menu item)

Function

Leader zero: the zeros that stand before an integer of no value. E.g. the instrument displays the value 5.2 together with the leader zeros:

005.2 (default factory setting), or without the leader zeros: **5.2**.

In this menu item you can either disable displaying of the leader zeros, or you can enable this function again.

Sequence of operations

1. Enter the menu by typing a supervisor code. The way the code should be type is described in Chapter 7.1. **Typing the code in**. You see on the display: **0 1.Ld**.
2. Keep stepping by pressing the **▲** button as long as you see this menu item: **13.Ln**.
3. Enter the menu item by pressing the **ENTER** button.
4. You see this **nULL** on the display. The text is blinking.
5. You may switch between the two operating modes by pressing **▲** button.
 - **nULL** = the leader zeros are shown on the display (default factory setting).
 - **SPcE** = the leader zeros are not shown on the display.

Comment: one zero directly before the decimal point is always shown on the display.

Exit from the menu item

1. After you have performed the setting, press the **MENU** button. This takes you out from the menu item, and you see this: **13.Ln**.
 - (2. If you want to change the setting you have done just now, or if you just want to check what you have typed in, go on with the operation from point 3 of the **Sequence of operations**.)
 - (3. If you do not want to exit from the menu because you want to perform other settings too, you may press the **▲** button to select the desired menu item.)

Exit from the menu

1. Press the **MENU** button. First the mnemonic **SAVE** (**Save**), then the mnemonic **EXIT** (**Exit**) are shown on the display. With this the storing of the settings is completed. The instrument has exited the menu and goes on with the measurement.

7.16. Clear minimum and maximum values (14. menu item)

Function	To clear the measured and stored minimum and maximum values.
Sequence of operations	<p>1. Enter the menu by typing the supervisor code. The way the code should be type in is described in Chapter 7.1. Typing the code in. You see this on the display:</p> <p><i>0 1.1 d.</i></p> <p>2. Keep stepping by pressing the ▲ button as long as you see this menu item: <i>14. r 1.</i></p> <p>3. Enter the menu item by pressing the ENTER button.</p> <p>4. The mnemonic <i>no</i> is shown on the display. The mnemonic is blinking. Now you still have the possibility to exit. If you want to exit, as you do not want to clear the minimum and maximum values after all, press the MENU button. This takes you out from this menu item, and you see this: <i>14. r 1.</i></p> <p>5. If you want to clear the minimum and maximum values, press the ▲ button to change the „NO” to „YES”.</p> <ul style="list-style-type: none"> • <i>no</i> = I do not want to clear • <i>YES</i> = I want to clear
Exit from the menu item	<p>1. After you have performed the setting, press the MENU button. This takes you out from the menu item, and you see this: <i>14. r 1.</i></p> <p>(2. If you do not want to exit from the menu because you want to perform other settings too, you may press the ▲ button to select the desired menu item.)</p>
Exit from the menu	<p>1. Press the MENU button. First the mnemonic <i>SAVE</i> (Save), then the mnemonic <i>EXIT</i> (Exit) are shown on the display. With this the storing of the settings is completed. The instrument has exited the menu and goes on with the measurement.</p>

7.17. Resetting the default settings (15. menu item)

Function

In this case **all** the settings are deleted, and the default factory setting is restored.

Using this function makes sense in that case, when the settings of the instrument have changed so much, that it is easier to start the setting-up process from the default factory setting.



It is not possible to cancel this operation once the command has been issued.

Sequence of operations

1. Enter the menu by typing the supervisor code. The way the code should be type in is described in Chapter 7.1. **Typing the code in.** You see this on the display:

0 1. L d.

2. Keep stepping by pressing the **▲** button as long as you see this menu item: *14. r 1.*

3. Enter the menu item by pressing the **ENTER** button.

4. The mnemonic *no* is shown on the display. The mnemonic is blinking.

Now you still have the possibility to exit. If you want to exit, as you do not want to reset the default settings after all, press the **MENU** button. This takes you out from this menu item, and you see this: *14. r 1.*

5. If you want to reset the default settings, press the **▲** button to change the „NO” to „YES”.

- *no* = I do not want to reset the default settings

- *YES* = I want to reset the default settings

6. Press the **MENU** button.

The instrument displays the mnemonic *busy* (busy), then the mnemonic *ready* (ready). After then it restarts: *dt* , *9502.*

According to the factory settings, it measures the loop current with a resolution of three decimals.

8. Fault rectification

8.1. Fault finding

The instrument has a sophisticated self-test function. It is able to detect and display the majority of the errors.

All the error messages are described in detail in chapters **10.3** and **10.4** of the Appendix.

In the case of an error that causes total inability of the instrument to function, nothing appears on the display.

8.2. Repairing



In accordance with Point **2.1.**: **For safety and warranty reasons, any internal work on the instrument must be carried out by DATCON personnel.**

In the case of errors, it is recommended to notice of the displayed error message, as well as of the phenomenon seen.

This information please communicate to the Datcon service personnel.

9. Dismounting

9.1. Dismounting procedure



The steps described in Chapter **4. Mounting** should be performed in reverse sequence. Upon dismounting the instrument, observing all the safety rules is mandatory, like upon mounting.

Only qualified and authorised professionals may perform the dismounting operations.

9.2. Disposal

According with the concerning EU directive, the Manufacturer undertakes the disposal of the instrument that are manufactured by it and intended to be destroyed. Please deliver it in contamination-free condition to the site of the Manufacturer or to a specialised recycling company.

10. Appendix

10.1. Technical specifications

Intrinsic safety data

Certification: BKI15ATEX0028 X
 BKI15ATEX0028 X/1
 BKI15ATEX0028 X/2

Marking:  II 1G Ex ia IIC T4 Ga -20°C ≤ Ta ≤ 60°C

Ex safety data

Supply and signal circuit	U_i	I_i		P_i		C_i	L_i	
	30 V	100 mA		0,75 W		48 nF	≈0	
Pt100 Temperature sensor	U_o	I_o		P_o		C_o	L_o	
	6,6 V	9 mA		15 mW		2 μF	10 mH	
Limit outputs	U_i	I_i	P_i	C_i	L_i	U_o	I_o	P_o
	10 V	16 mA	40 mW	≈0	≈0	6,6 V	0,2 mA	0,2 mW

Input parameters

Input signal: the resistance of the measuring probe Pt100,
 $\alpha = 0,00385$

Connecting to the sensor: 3 / 4 wires

Wire resistance: ≤50 Ω 400°C-ig, ≤10 Ω 600 °C-ig

Display range: -200 °C – +600 °C

Measuring current: 800 μA

Sampling rate: 15 measurements / second

Number of averaged samples: 1; 2; 4; **8**; 16, 32 (adjustable)

Measurement error: <0,3 °C (-200 °C – +400 °C)
 <0,4 °C (+400 °C – +600 °C)
 referring to the nominal resistance value

Display / manual controls

Display unit: LCD, 4 ½ digit, 7 segments
 decimal point and negative sign

Character height: 20,5 mm

Displayable temperature range: -200,0 °C – +600,0 °C

Resolution: 0,1 °C

Display refresh time: 0,1; 0,3; **0,5**; 1,0; 2,0 sec (adjustable)

Manual controls: 3 membrane push-buttons on the front cover

Power supply

Loop feeding:	12 V – 30 V; protection against reverse polarity
Current range (transmitter function):	4 – 20 mA
The serial resistance of the feeding:	max. $(U_t[V] - 12 V) / 0,021 A$

Output parameters**Transmitter output**

Output signal:	4–20 mA
Overdriving:	min: ~ 3,9 mA; max.:~ 21 mA
Accuracy:	0,02% ($T_a = 23^{\circ}C \pm 2/ ^{\circ}C$ a kijelzett értékre vonatkoztatva:

Limit outputs

Output type:	optically isolated passive switching transistor
Current in OFF condition:	$I < 0.1mA$ (at 9 V)
Voltage in ON condition:	$U < 1 V$ (at 10 mA)
Load rating:	10 V, 16 mA max. (Ex safety data)
Refreshing time:	same as the display's one
Hysteresis:	0 - ± 99.9

Environmental conditions:

Operating temperature range:
Storing temperature range:
Relativ humidity:
Place of installation:

Environmental conditions:

$-20^{\circ}C \leq T_a \leq +60^{\circ}C$
$-25^{\circ}C \leq T_a \leq +70^{\circ}C$
90% max., non-condensing
Zone „1”, Zone „2”, safe area

Electromagnetic compatibility (EMC)

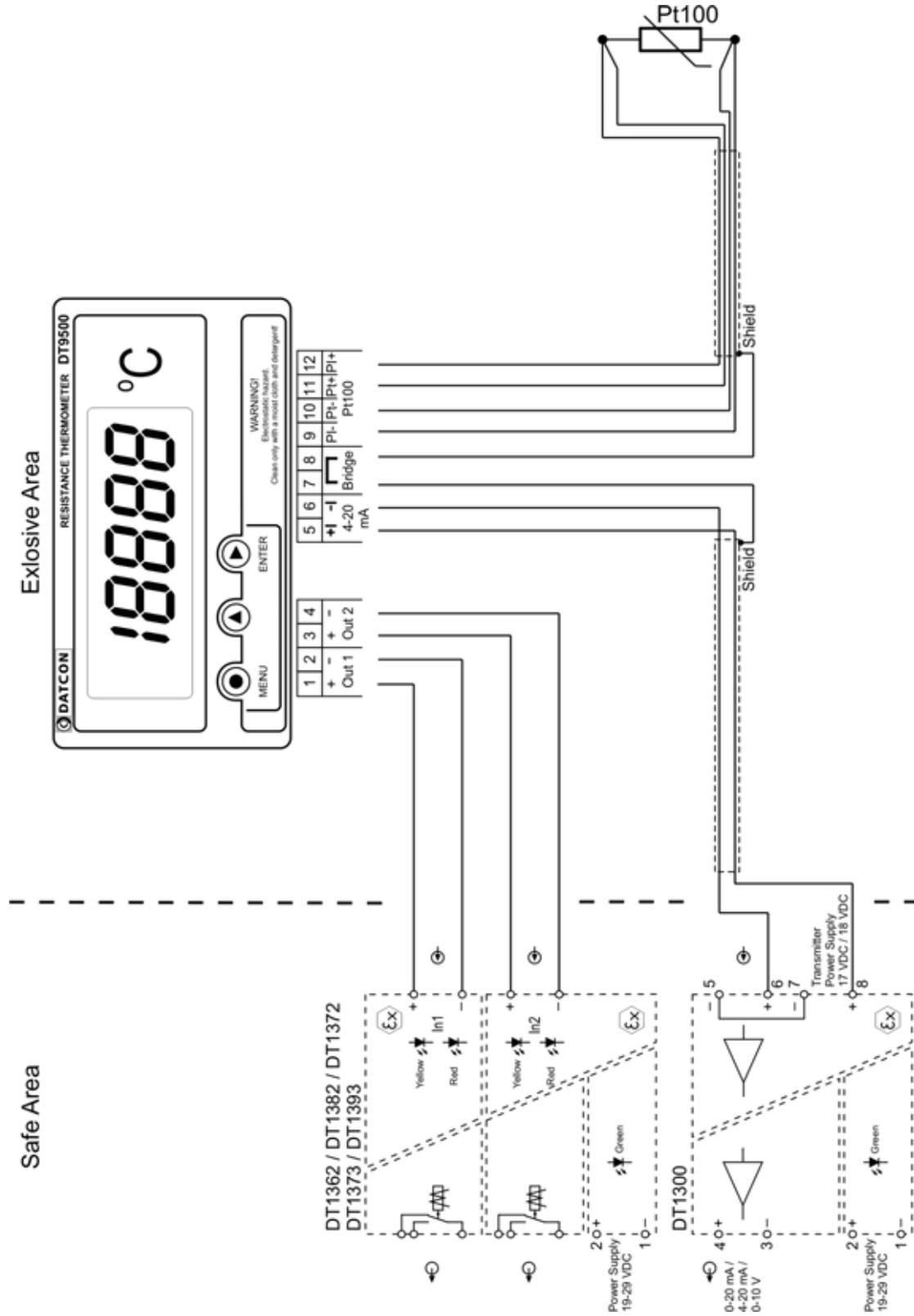
In accordance with MSZ EN IEC 61326-1:2021	
Immunity:	-A- criterion
Noise emission:	-A- class

General data:

Housing:	moulded polycarbonate case, installable as a field or panel-instrument
Dimensions:	see: figure 4.2.
Weight:	~0.8 kg
Protection:	IP 65
Mounting position:	Optional, see: figure 4.2.
Connection:	IP 65 cable entry
Connection cable:	0.25-1.5 mm ² cross-section
Electrical connection:	push-in direct connection

The manufacturer reserves the right to change specifications.

10.2. Application example



10.3. Error messages

The instrument has a sophisticated self-testing function; it is capable of detecting the majority of the errors. All mnemonics (code words) presented on the display comes from English expressions in abbreviated form.

E:Ado

A/D overflow (Error: A/D Overflow)

The loop current is too high, it cannot be measured.
The Pt100 (or wiring) is faulty.

E:~5t

Error measurement (Error: MeaSurement)

Measuring not possible.
The Pt100 is faulty (short-circuit or breaking).

E:UF_

Underflow (Error: Underflow)

Temperature is lower than -200 °C.

E:OF~

Overflow (Error: Overflow)

Overflow (Error: Overflow)
Temperature is higher than 600 °C.

E:~ ~ ~

Missing minimum - maximum value (Error: Missing Minimum-Maximum)

The minimum value and the maximum value that has been continually stored since the latest deletion has got deleted due to an operating fault.

Remedy: there is nothing to do.

10.4. Messages of critical errors

Such errors are caused normally by structural injuries or damages. Repair is done by the service of Datcon. In case of error it is recommended to notice of the displayed error message, as well as of the phenomenon seen and communicate to the Datcon service personnel.

S:Adh

A/D fault (Service: A/D Hardware)

Either the A/D converter or It's communication bus is faulty.
Repairing: by the service

S:EEh

EEPROM fault (Service: EEPROM Hardware)

The memory storing the operation parameters, or it's communication bus is faulty, therefore access to the stored parameters is not possible.

Repairing: by the service

S:EEP

EEPROM writing error (Service: EEPROM Protected)

The memory storing the operation parameters is faulty, therefore changing the stored parameters in not possible.

Repairing: by the service

S:cAL

Calibration error (Service: Calibration)

The instrument must be re-calibrated in the factory.

Repairing: by service

S:dFS

Default Factory Settings (Service: Default Factory Settings)

The instrument needs to be re-calibrated, and the operating parameters have also got damaged.

Repairing: by service

E:LSE

The last saving was not successful (Error: Last Save)

Saving of the parameters modified last time was unsuccessful. The error was caused most probably by an interruption of the current loop. The status prior to the modification was preserved.

Repairing: Enter the menu, check the parameters. Change the incorrect values to the desired values, then exit the menu in the regular way. Pay attention to ensure that the loop current should not get interrupted during the operation.

10.5. Description of the menu items

You find a description of the menu items in the following part. A description on the handling of the menu is in Chapter 7. **Settings**.

01.Ld

Display modes of limit output status (Limit Displaying)
[Default Factory Setting: OFF]

- **oFF** Switched off (**OFF**)

It never displays the limit output status.

- **d.btn** Dynamic button (**Dynamic Button**)

As long as the **ENTER** is being pressed down.

- **t.btn** Timed button (**Timed Button**)

As long as the **ENTER** is being pressed down + for 2.5 seconds.

- **S.btn** Static button (**Static Button**)

The display can be switched ON/OFF by **ENTER**.

- **AU.cE** Automatically: when changes (**Auto: Change**)

For a period of 2.5 sec, after a change has taken place in the output. Disabling: by **ENTER**

- **AU.PL** Automatically: periodical (**Auto: Periodical**)

Periodical: ON/OFF in each 2.5 seconds. Disabling: by **ENTER**.

- **oN** Always ON (**ON**)

Disabling: by **ENTER**.

02.L1

Limit output configuration sub-menu No.1.(Limit 1)

Detailed description in the chapters 7.3., 7.4., 7.5.

03.L2

Limit output configuration sub-menu No.2. (Limit 2)

It is the same as for limit output No.1., but everything pertains to limit output No.2. Detailed description in the chapters 7.3., 7.4., 7.5.

04.WE

4 wiring / 3 wiring measuring method (WirE)

Must set to conformable with effective swathe method Pt 100. [Default factory setting: 4 wiring.]

Access is possible
by supervisor code only

05.Lt

Access is possible
by supervisor code only

The temperature value belonging to 4 mA

Any value may be assigned to it within the temperature interval displayable on the display [Default factory setting: -200,0 °C]

06.hL

Access is possible
by supervisor code only

The temperature value belonging to 20 mA

Any value may be assigned to it within the temperature interval displayable on the display [Default factory setting: 600,0 °C]

07.An

Access is possible
by supervisor code only

Averaging number (Averaging Number)

The displayed measurement result is generated as the average of several measurements. The number of measurements can be defined here.

By increasing this number the display stability increases too, but the signal settling time becomes lower.

[Default factory setting: 8]

08.dr

Access is possible
by supervisor code only

Display refresh time (Display Refresh)

The instrument performs cca. 15-16 measurements in each seconds. It's too fast to see the changing of the measurement value.

Here you can define the time periods by which the instrument displays the new measurement values.

[Default factory setting: 0.5 sec]

09.tt**The submenu that contains the test programs (Test)**

- **t.Lcd** Display test (Test: **LCD**)

Checking if the display works well.

- **t.oUt, t.An.o** Output test (Test: **Output**, Test: **AN**alog Output.)

Putting the status of the limit outputs on the display and changing them, irrelevant to their operating mode.

Checking the current output.

10.Uc**Changing the User Code (User Code)**

The new User Code must be typed in twice, in order to

avoid any typing errors. The mnemonic **r.tYP** (**Re-Type**) warns you to type the code for the second time, after you have typed it once. If the two codes are not identical with

each other, the mnemonic **bAd.C** (**Bad Code**) appears on the display, and the instrument exits the menu item.

Make sure not to forget the User Code, otherwise a new one can be defined only if you enter the menu by a

Supervisor Code [Default factory setting: 000]

11.5c

Access is possible
by supervisor code only

Changing the Supervisor Code (Supervisor Code)

The new Supervisor Code must be typed in twice, in order to avoid any typing errors. The mnemonic **r.tYP** (Re-Type) warns you to type the code for the second time, after you have typed it once. If the two codes are not identical with each other, the mnemonic **bAd.C** (Bad Code) appears on the display, and the instrument exits the menu item.

Make sure not to forget the Supervisor Code, otherwise a new one can be defined in the service only. [Default factory setting: 100]

Display mode (LCD)

- **1.4**: four-and-a-half-digit mode (-19999 - 19999).
- **1.3**: three-and-a-half-digit mode (-1999 - 1999). [Default factory setting: four-and-a-half-digit]

12.Ld

Access is possible
by supervisor code only

Disable displaying leader zeros (Leader Null)

- **nULL**: the leader zeros are displayed
- **SPCE** (Space): the leader zeros are not displayed, only one standing before the integer [Default factory setting: leader zeros are displayed]

13.Ln

Access is possible
by supervisor code only

Erase of min. / max. value (Reset Min. & max.)

YES choosing erases min. and max. values

14.rñ

Access is possible
by supervisor code only

Restoring the default settings (Reset 1)

When you select **YES**, all the parameters will be reset to the default factory setting, and the instrument restarts.

15.r l

Access is possible
by supervisor code only

It is not possible to withdraw this command subsequently!

10.6. Messages and error messages during setting up

The following mnemonics may be displayed when the settings are being performed.

L O . L I	<p>The value you have defined is lower than permissible (Low Limit) The instrument has replaced the value you have defined to the permitted lowest value.</p>
h i . L I	<p>The value you have defined is higher than permissible (High Limit) The instrument has replaced the value you have defined to the permitted highest value.</p>
E H i t	<p>Exit from the menu, returning to the normal operating mode (Exit)</p>
S A V E	<p>Saving the changed parameters is being done (Save)</p>
<p>---- (4 lines at the bottom of the display)</p>	<p>Low numerical value, not possible to display This mnemonic is displayed in that case when you have switched the display mode from four-and-a-half-digit to three-and-a-half-digit, and the numerical value of a previously defined parameter does not „fit“ to the display format.</p>
<p>---- (4 lines at the top of the display)</p>	<p>High numerical value, not possible to display This mnemonic is displayed in that case when you have switched the display mode from four-and-a-half-digit to three-and-a-half-digit, and the numerical value of a previously defined parameter does not „fit“ to the display format.</p>
b U S Y	<p>The instrument is performing internal operations (Busy)</p>
r E d Y	<p>The requested task has been successfully completed (Ready)</p>
in it	<p>The device is preparing for the measurement.</p>
n o	<p>I do not want this menu item (No)</p>
Y E S	<p>Yes, the menu item may be started (Yes)</p>

- Task**
- 10.7. Setting up the apparatus (practical exercise)**
- There is a measurement loop, in which the 4 mA current should be assigned to 100 °C, and 20 mA should be assigned to 200 °C.
- Let's have the following settings for DT9500:
- The temperature value belonging to the 4 mA current: 100.0 °C.
 - The physical value belonging to the 20 mA current: 200.0 °C.
 - The leader nulls with no value are not written on the display.
- Entering the menu**
- Use the supervisor code to enter the menu.
Read chapter 7.1. **Writing the code in** to see how the code should be written in. On the display you see this:
- 0 1.L d**
- Setting the temperature value that belongs to 4 mA**
1. Keep stepping with the ▲ button as long as you see this menu item: **05.L t**.
 2. Enter this menu item by using the **ENTER** button.
 3. By the ▲ button you may increase the value of the blinking digit.
 4. By the ► button you may step to the next digit.
 5. Set the value: **100.0**.
 6. Press the **MENU** button. With this you leave the menu item, and you see this: **05.L t**.

Setting the temperature value that belongs to 20 mA

1. Keep stepping with the ▲ button as long as you see this menu item: *06.Lt*.
2. Enter this menu item by using the **ENTER** button.
3. By the ▲ button you may increase the value of the blinking digit.
4. By the ► button you may step to the next digit.
5. Set the value: *200.0*.
6. Press the **MENU** button. With this you leave the menu item, and you see this: *06.Lt*.

Disabling the leader nulls

1. Keep stepping with the ▲ button as long as you see this menu item: *13.Ln*.
2. Enter this menu item by using the **ENTER** button.
3. The text *nULL* is visible on the display. The text is blinking.
4. Use the ▲ button to switch to the text: *SPcE*.
5. Press the **MENU** button. With this you leave the menu item, and you see this: *13.Ln*.

Exit the menu

Press the **MENU** button. First the mnemonic *SAvE* (**Save**), then the mnemonic *EH tE* (**Exit**) is displayed. With this the storing of the settings is completed. The instrument has exited the menu and goes on with the measurement.

10.8. The limit outputs (training material)

Outputs

The DT9500 has two optically isolated limit outputs that work independently from each other. The two outputs are equivalent. The following information and examples relate to output No.1. All these, however, are applicable for output No.2 too, without modification.

Limit values assigned to the output

The limit output has two possible conditions: switched OFF or switched ON.

To one output two limit values can be defined. The lower one is called: $L\ l.LL$.

$L\ l$ means a parameter to be assigned to the limit output No.1 (Limit 1).

LL (Low Limit) means that this is the lower one among the two limit values.

The high limit value is designated as $L\ l.hL$, where hL (High Limit) means that this is the higher one among the two limit values.

As the names indicate, the value of the high limit must not be lower than the value of the low limit. Therefore if you increase the value of the $L\ l.LL$ parameter, and it happens to be higher than the value of $L\ l.hL$, then $L\ l.hL$ takes automatically the value of $L\ l.LL$.

The operating mode of the output defines the way in which the measured input signal should control the limit output, depending on the above-described two definable limit values. (All this will be clear through the description and example provided in the following pages).

Limit output sub-menu

In the menu, the second menu-item (**02.L 1**) contains all the parameters that relate to the limit output No.1.

When you enter the menu, you get into a sub-menu.

The menu structure is presented by the figure **7.2. Menu structure**.

The items within the sub-menus are not numbered.

Instead, **L 1** is used showing that all the menu items that constitute the sub-menu in question belong to the limit output No.1. This prevents you from mixing it up with the main menu.

Sub-menu items

You will find a detailed description of the limit-value sub-menu items in the following text.

L 1.55

Operating mode (Settings)

It defines the conditions under which the limit output should switch ON depending on the value of the measured and displayed physical signal. [Default factory setting: OFF]

Detailed description: on the following page

L 1.LL

Low limit value (Low Limit)

It is one of the numerical values, to which the instrument compares the measured signal continuously. [Default factory setting: 0]

L 1.Lh

Lo limit value hysteresis (Hysteresis for LL)

This is the half of the hysteresis value that belongs to the low limit value. [Default factory setting: 0]

L 1.hL

High limit value (High Limit)

It is the other numerical value, to which the instrument compares the measured signal continuously. It's value

must not be lower than the value of **L 1.LL**. [Default factory setting: 0]

L 1.hh

High limit value hysteresis (Hysteresis for HL)

This is the half of the hysteresis value that belongs to the high limit value. [Default factory setting: 0]

L 1.Añ

Alarm mode (Alarm Mode)

[Default factory setting: OFF]

Detailed description in the chapter: **Alarm Mode**.

Detailed description of the operating mode
(L 1.55)

The operating modes define the conditions under which the limit output should switch ON depending on the value of the measured and displayed physical signal.

OFF

Switched OFF

The output is always switched OFF. [default factory setting]

≥L

≥ low limit

It switches ON if the measured value is ≥ low limit.

<L

< low limit

It switches ON if the measured value is < low limit.

≥L.<H

Interval between the low and the high limits

It switches ON when (measured value ≥ low limit) AND (measured value ≤ high limit).

<L.>H

A range outside the low and high limits

It switches ON when (measured value < low limit) OR (measured value > high limit).

ON

Always switched ON

Independently from the measured value, the output is always ON.

The essentials about the hysteresis

To each limit values can be assigned different hysteresis values.

To L 1.LL belongs: L 1.Lh,

To L 1.hL belongs: L 1.hh.

The essentials about the hysteresis:

It makes it possible that the output should switch off not at the same numerical value at which it had switched on.

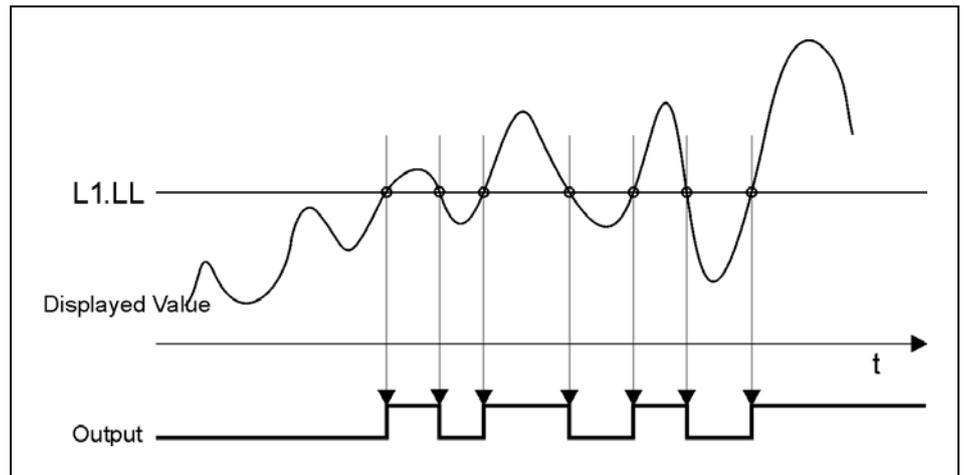
What is the benefit of that? You may avoid the undesired consequence, when the output switches on and off several times near the limit values, due to a drift of the input signal, or due to it's ripple. This is demonstrated by an example in the following pictures:

**Example:
Hysteresis = 0**

Comment: the precondition for the following examples is that the output is in ΣL mode, that is, it switches ON when the measured value $\geq L1.LL$ (low limit).

The input signal has an increasing characteristic, but rippled. $L1.LL$ value = 100.0 °C.

The value of the relevant hysteresis ($L1.LH$) = 0 °C.



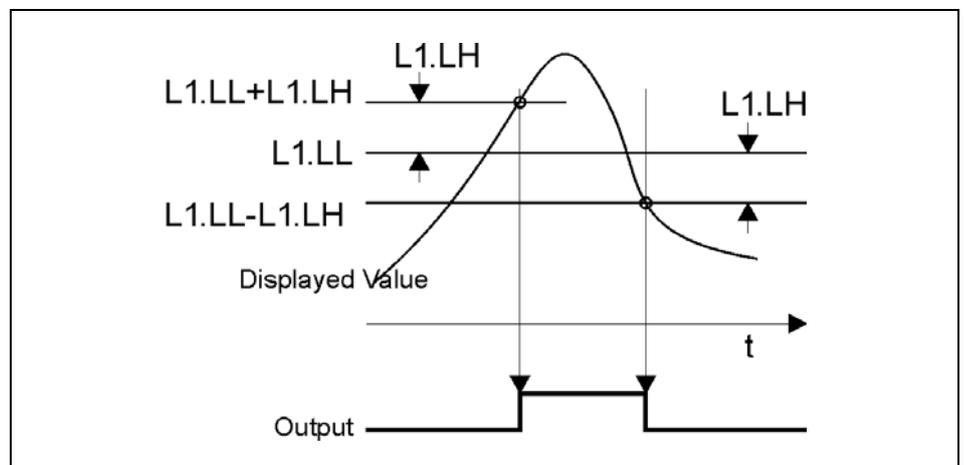
A hysteresis with a value of zero means that the limit detection has no hysteresis. The output switches ON when the value on the display reaches or is in excess of

100.0 °C, and switches OFF when it goes lower than

100.0 °C again.

**Figure:
Hysteresis > 0
Figure:
Hysteresis > 0**

The following figure shows the essentials of hysteresis, when it's value is higher than zero



The following figure shows the essentials of hysteresis, when it's value is higher than zero

**Example:
Hysteresis > 0**

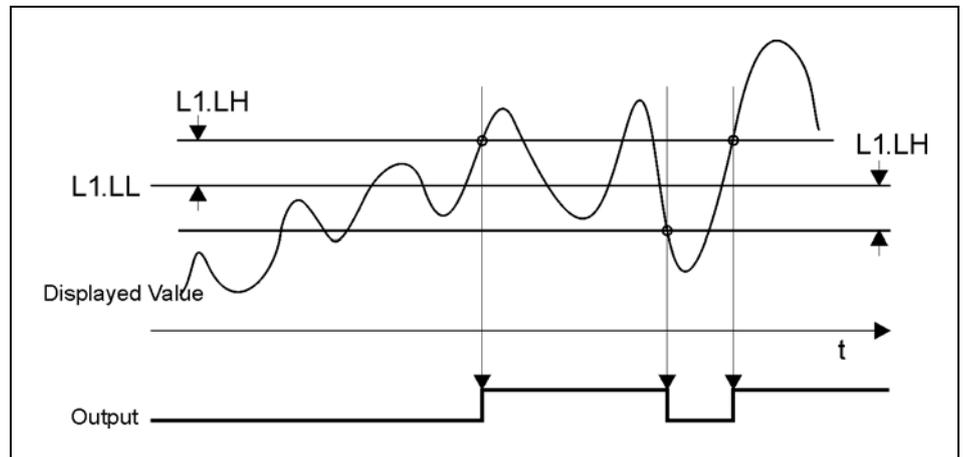
If you want the output to switch ON only once in the case of the signal presented by the previous example, then set the value of the hysteresis $L1.LH$ higher than 0.

In practice the hysteresis value could be depend from two aspects:

- amplitude of the ripple or the measure of the drift on the input signal
 - or when the user needs two different values to switch ON and switch OFF not in relation the ripple or the drift. (This is demonstrated by the example at the end of this chapter.)
- In this example the value of the hysteresis

$$(L1.LH) = 1.0 \text{ } ^\circ\text{C}$$

How does it affect the switching of the output?



When the displayed value increases, the output does not switch ON at 100.0 °C, only at the value $100.0 + 1.0 = 101.0 \text{ } ^\circ\text{C}$.

After it has switched ON, and the signal begin to decrease, it does not switch OFF as long as the value reaches the value of $99.0 \text{ } ^\circ\text{C}$ ($100.0 - 1.0$).

It can be seen, that the difference between the switching ON and OFF, that is the actual hysteresis, is equal with

twice the $L1.LH$ parameter, that is $2.0 \text{ } ^\circ\text{C}$.

It is also demonstrated that the hysteresis value of $1.0 \text{ } ^\circ\text{C}$, that is used in the example, has actually improved the situation: the former number of switches, 4, has reduced to 2. If we had selected a value twice as much, the result would have been only one switching on.

Detailed description of the limit value operating modes

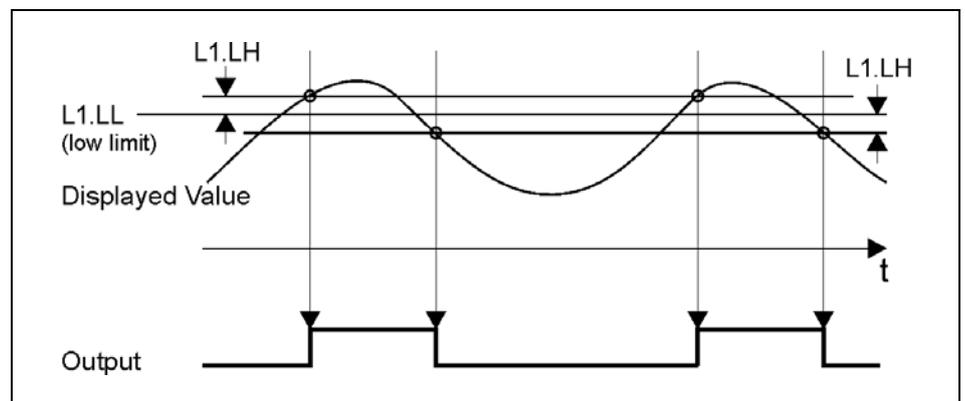
OFF

- **OFF**: Switched OFF [this is the default factory setting]

Independent of the measured temperature, the limit output is always switched OFF.

$\geq L$

- **$\geq L$** : It switches ON, when: measured temperature \geq low limit



The output switches ON, if the displayed temperature \geq numerical value defined as the **L1.LL**.

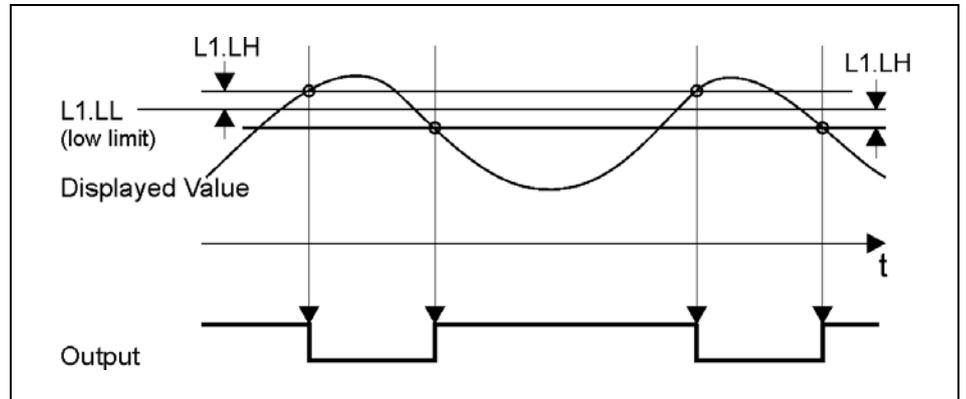
In this operating mode the value of the **L1.LH** parameter is indifferent: it does not influence the operation of the output.

Example for the application:

Switching a cooling system ON above a given temperature value.

CL

- **CL** : It switches ON, when the measured temperature < low limit



The output switches ON, if the displayed temperature value is lower than the numerical value defined as the **L1.LL** parameter.

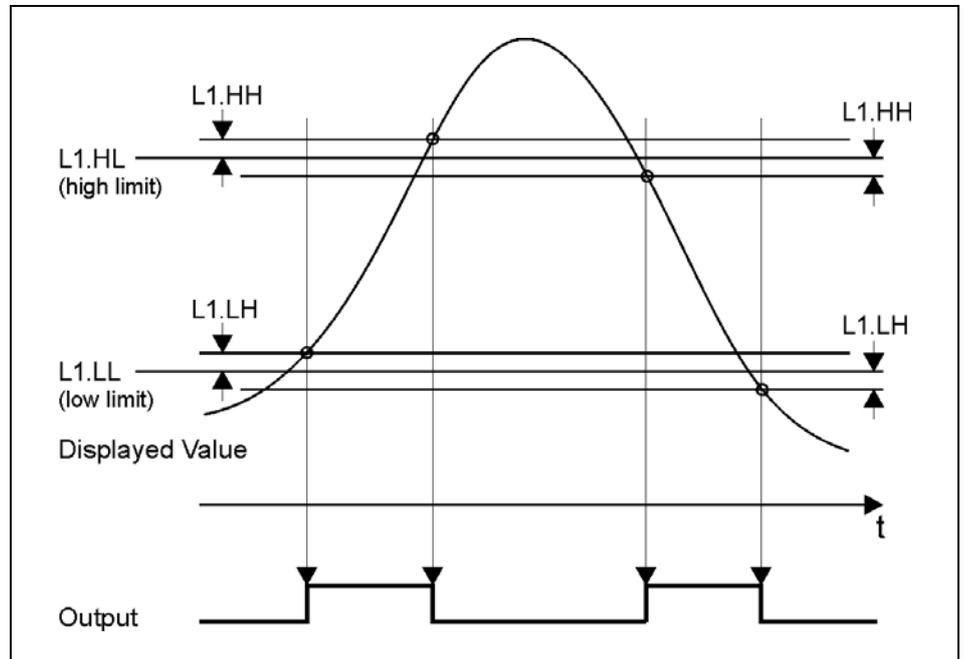
In this operating mode the value of the **L1.LH** parameter is indifferent: it does not influence the operation of the output.

Example for the application:

Switching ON a heating system below a given temperature value.

$\exists L.H$

- $\exists L.H$: It switches ON, when
(measured temperature value \geq low limit) AND
(measured value \leq high limit)



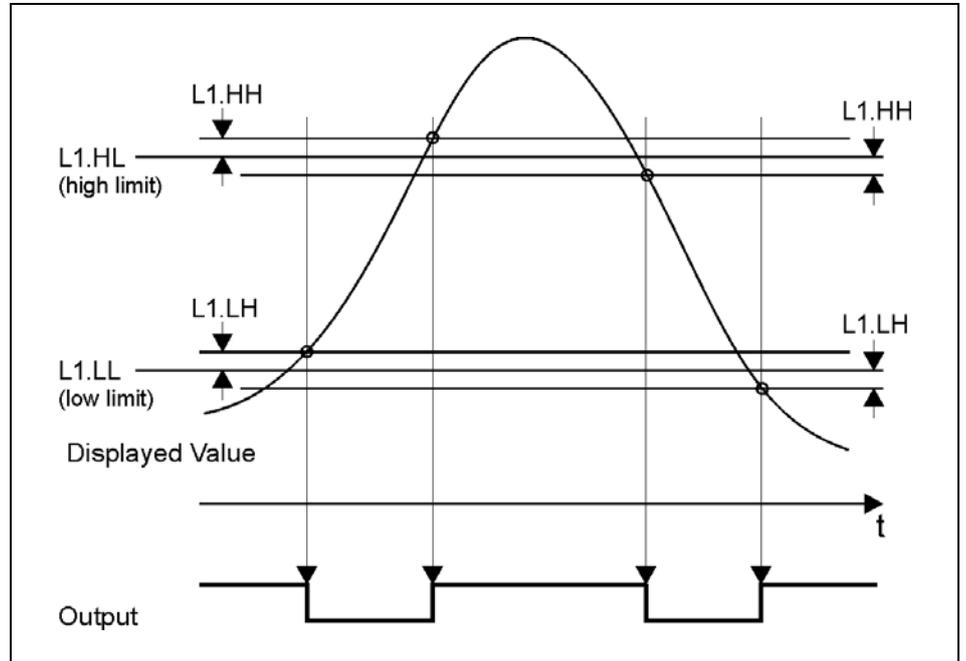
The output switches ON, when the displayed temperature value \geq numerical value defined as the $L1.LL$ parameter AND, besides, it is \leq numerical value defined as the $L1.HL$.

Example for the application:

It indicates that the measured temperature is between the desired limits.

על.כח

- **על.כח**: It switches ON, when (measured temperature < low limit) OR (measured temperature > high limit)



The output switches ON, when the displayed temperature is lower than the numerical value defined as the **L1.LL** parameter OR higher than numerical value defined as the **L1.HH**.

Example for the application:

It indicates that the measured temperature out of the desired limits.

Displaying the limit values

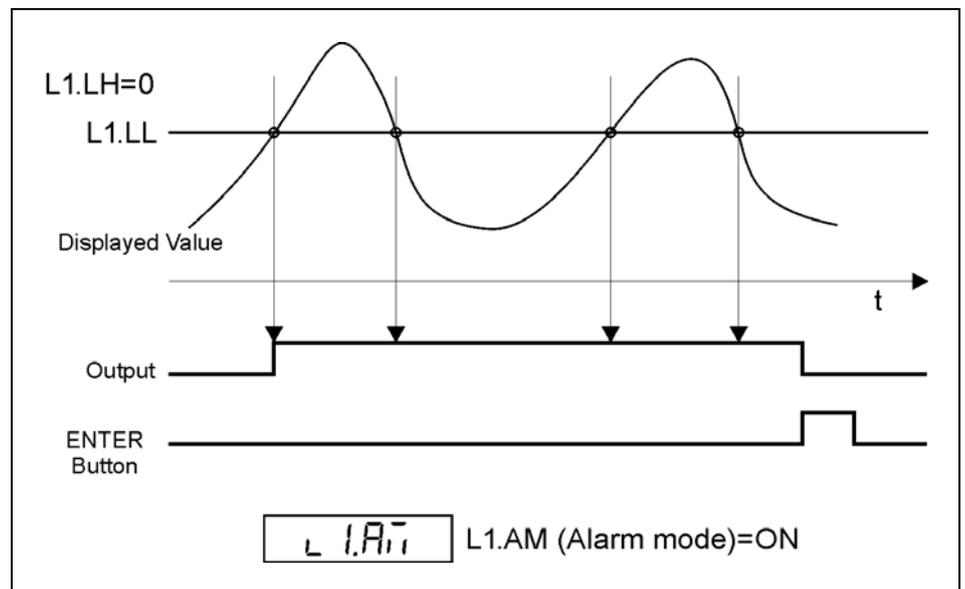
(Switching the displaying on: from the **04.LD** menu item.)

- Both outputs are OFF: **--:--**
- Output 1 is ON, output 2 is OFF: **L1:--**
- Output 1 is OFF, output 2 is ON: **--:L2**
- Both outputs are ON: **L1:L2**

If the Alarm Mode is ON, and the given output is in alarm status, the above displays appear blinking. The blinking stops only when the acknowledgement is done manually (Upon pressing the **ENTER** button.)

Alarm mode

The limit output may work in Alarm mode too. This mode is switched ON by the $L1.AM$ parameter. According to the default factory setting it is switched off (**OFF**). When the Alarm mode is ON (**ON**), the limit output switches on when it has to switch on according to the measured and displayed physical value, but it will not switch off even if the value changes so that it should cause it to switch off. The output can be switched off by pressing the **ENTER** button only (acknowledgement).



Of course, if the condition that causes the output to switch on persists, the limit output will switch on again when the **ENTER** button is released.

(Similar to working of fire-alarm gear generates fire alarm. Not suffice to definitive liquidation receipt signal alarming, but must liquidate fire, generative cause.

After switching on the instrument

After switching on the instrument the limit outputs are disabled as long as it performs at least three measurements necessary for a complete averaging. This takes a few seconds maximum. In this way can be avoid false signalling due to transients that may appear in the measuring loop.

Example for the practical usage of the limit outputs

Task:

The limit output No.1 should control a heater, that switches ON when the temperature goes lower than 70 °C, and switches OFF when it goes higher than 90 °C.

The limit output No.2 should control a buzzer. The buzzer should be signalling continuously as long as a manual acknowledgement takes place, in those cases when the temperature goes, at any time, lower than 50 °C, or when it goes higher than 95 °C

The settings of the limit outputs are as follows:

└ **1.55** operating mode= **CL** (Switches ON, when the temperature is lower than the low limit)

└ **1.LL** Low limit = **80.0** °C

└ **1.Lh** Hysteresis of the low limit = **10.0** °C

└ **1.hL** High limit = **80.0** °C (it's value is indifferent)

└ **1.hh** Hysteresis of the high limit = **0.0** °C (it's value is indifferent)

└ **1.Ai** Alarm mode = **OFF**

└ **2.55** Operating mode= **CL.ch** (Switches ON, when the temperature does not fall between the limits.)

└ **2.LL** Low limit = **50.0** °C

└ **2.Lh** Hysteresis of the low limit = **0.0** °C

└ **2.hL** High limit = **95.0** °C

└ **2.hh** Hysteresis of the high limit = **0.0** °C

└ **2.Ai** Alarm mode = **on**

10.9. ATEX Certification

  Ex	 
(1)	<p><i>EK-Típus Vizsgálati Tanúsítvány</i> <i>EC-Type Examination Certificate</i></p>
(2)	<p>A potenciálisan robbanásveszélyes környezetben történő alkalmazásra szánt berendezések, védelmi rendszerek 94/9/EK Direktíva /</p> <p>Equipment or Protective Systems Intended for use in Potentially explosive atmospheres Directive 94/9/EC.</p>
(3)	<p>EK-Típus Vizsgálati Tanúsítvány száma / EC-Type Examination Certificate Number: BKI15ATEX0028 X</p>
(4)	<p>A berendezés, vagy védelmi rendszer / Equipment or protective system:</p> <p style="text-align: center;">Gyújtószikramentes hőmérséklet mérő/távadó / Intrinsically safe temperature meter/transmitter</p> <p>Típusa / Type: DT9500, DT9502</p>
(5)	<p>Megrendelő / Applicant: DATCON Ipari Elektronikai Kft. / DATCON Industrial Electronics Ltd.</p>
(6)	<p>Cím / Address: H-1148 Budapest, Fogarasi út 5., 27. épület / Building 27 Hungary</p>
(7)	<p>A berendezés, vagy védelmi rendszer és annak változatai a jelen tanúsítvány vonatkozó pontjában vannak feltüntetve. / This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.</p>
(8)	<p>A ExVÁ Robbanásbiztos Berendezések Vizsgáló Állomása Kft., 1418 sz. kijelölt testület, az 1994. március 23-i 94/9/EK Tanácsi Direktíva 9. cikkelye szerint tanúsítja, hogy a berendezések, vagy védelmi rendszerek megfelelnek az Alapvető Egészségügyi és Biztonsági Követelményeknek a Direktíva II. számú Mellékletében a potenciálisan robbanásveszélyes térben alkalmazásra szánt berendezések és védelmi rendszerek tervezése és gyártása szerint. / ExVÁ Testing Station for Explosion Proof Equipment Company Limited, notified body number 1418 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.</p> <p>A vizsgálat eredményeit az alábbi nyilvántartási számú bizalmas vizsgálati dokumentáció tartalmazza: / The examination and test results are recorded in confidential report number: R-011-15/5</p>
<p>Ez a tanúsítvány csak a maga egészében és változatlan formában használható fel, mellékleteivel együtt. / This certificate may only be reproduced in its entirety and without any changes, schedule included.</p>	
Lapszám / Page: 1/5	



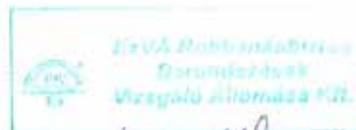
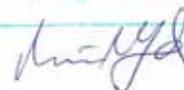
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- (9) Az alapvető egészségügyi és biztonsági követelményeknek való megfelelést a következők biztosítják: /
 Compliance with the Essential Health and Safety Requirements has been assured by compliance with:
MSZ EN 60079-0:2013, MSZ EN 60079-0:2013 / A11:2014, MSZ EN 60079-11:2012
- (10) A tanúsítvány száma után álló „X” jel azt mutatja, hogy a berendezés, vagy védelmi rendszer speciális feltételek megtartása mellett felel meg a jelen tanúsítvány vonatkozó pontjában feltüntetett biztonságos alkalmazás feltételeinek. /
 If the sign „X” is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.
- (11) Jelen EK-TÍPUS VIZSGÁLATI TANÚSÍTVÁNY csak a megjelölt berendezés vagy védelmi rendszer tervezésére és kivitelezésére vonatkozik. Ha ez alkalmazható, a jelen Direktiva további követelményei érvényesek a berendezés vagy védelmi rendszer gyártására és szállítására. /
 This EC-TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified equipment or protective system. If applicable, further requirements of this Directive apply to the manufacture and supply of this equipment or protective system.
- (12) A berendezés, vagy védelmi rendszer jele a következő /
 The marking of the equipment or protective system shall include the following:

 II 1 G Ex ia IIC T4 Ga (-20°C < T_{amb} < +60°C)

**ExVÁ Robbanásbiztos Berendezések
 Vizsgáló Állomása Kft.**
**ExVÁ Testing Station for Explosion Proof
 Equipment Ltd.**
 Hungary, 1037 Budapest, Mikoviny u. 2-4.
 tel/fax: 36 1 250 1720
 e-mail: bkiex@bki.hu

Müllner János
 Ügyvezető igazgató / Managing director

Budapest, 2015. november / November 27.



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(13) Melléklet / Schedule

(14) EK-TÍPUSVIZSGÁLATI TANÚSÍTVÁNY szám / EC-TYPE EXAMINATION CERTIFICATE N^o BKI15ATEX0028X

(15) Berendezés vagy védelmi rendszer leírása / Description of Equipment or protective system

15.1 Leírás / Description

A gyújtószikramentes hőmérséklet mérő/távadó szabványos Pt100 hőmérsékletérzékelővel működik, a mért hőmérsékletet számjegyes alakban jeleníti meg. Két határérték kimenete van. Az előlapi nyomógombokkal állítható a skálázás és a határértékek. A készülék 1-es zónába telepíthető. A csatlakozó Pt100 hőmérséklet-érzékelő a 0-s zónában is lehet (tápellátás $\text{II (1) G [Ex ia Ga]}$ IIC leválasztó tápegységgel).

A két típus elektromosan azonos, csak a tokozás és a csatlakozás különbözik.

A DT9500 rugós csatlakozói az elektronikát hordozó nyomtatott huzalozású lapon vannak elhelyezve;

a DT9502 dugaszolható csatlakozói hátoldalra szerelt segéd nyomtatott huzalozású lapra vannak szerelve./

The intrinsically safe temperature meter/transmitter operates with temperature sensor type Pt 100. The measured temperature is in the form of numbers is indicated. It has two limit outputs. Scale and limit can be set by the pushbuttons on the front panel. This device is installable in zone 1. The connected Pt100 temperature sensor may be used in zone 0 (powered by $\text{II (1) G [Ex ia Ga]}$ IIC isolator/power supply).

The two type are electrically identical, only their enclosures and terminals are different.

The DT9500 has PCB mounted screwless terminal blocks;

the DT9502 has pluggable terminal blocks mounted on the back-side auxiliary PCB.

15.2 Műszaki adatok / Technical parameters

Táp- és jeláramkör / Supply and signal circuit (5, 6)

Csatlakozás tanúsított gyújtószikramentes $\text{II (1) G [Ex ia Ga]}$ IIC védelmi jelű áramkörhöz.

A maximális adatok a következők: /

Connection to certified intrinsically safe circuit with protection mark $\text{II (1) G [Ex ia Ga]}$ IIC.

The maximal parameters of circuit are following:

U_i : 30 V

I_i : 100 mA

P_i : 0,75 W

C_i : 48 nF

L_i : elhanyagolható / negligible

Mérőérzékelő bemenet / Measuring sensor inputs (9, 10, 11, 12)

U_o : 6,6 V

I_o : 9 mA

P_o : 15 mW

C_o : 2 μ F

L_o : 10 mH

Határérték kimenetek / Limit outputs (1, 2); (3, 4)

Passzív áramkörök / Passive circuits

Csatlakozás tanúsított gyújtószikramentes $\text{II (1) G [Ex ia Ga]}$ IIC védelmi jelű áramkörhöz.

A maximális adatok a következők: /

Connection to certified intrinsically safe circuit with protection mark $\text{II (1) G [Ex ia Ga]}$ IIC.

The maximal parameters of circuit are following:

U_i : 10 V

I_i : 16 mA

P_i : 40 mW

C_i, L_i : elhanyagolható / negligible

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Az optocsatoló hibája esetén a kimeneten megjelenő gyújtószikramentes paraméterek a következők /
 In case of the error of the optocoupler, the intrinsically safe parameters on the output are following:

U_o : 6,6 V
 I_o : 0,2 mA
 P_o : 0,2 mW

- 15.3 Védettség / Ingress protection:**
- DT9500: IP65
 - DT9502: előlről / front side (from the front): IP65
 hátulról / back side (from behind): IP40
- 15.4 Érintésvédelem / Electric shock protection:** III. érintésvédelmi osztály MSZ 171/1-84 szerint, amely megfelel a MSZ HD 60364-4-41 szerinti SELV rendszernek / III e. s. p. class according to MSZ 171/1-84, conform to MSZ HD 60364-4-41 SELV system

(16) Vizsgálati dokumentáció / Report N°

16.1 Előzmények / Antecedents

- BKI 06 ATEX 029 X	EK-Típus Vizsgálati Tanúsítvány / EC-Type Examination Certificate	2006.06.21.
- R-019-06	Vizsgálati jegyzőkönyv / Test report	2006.06.20.

16.2 Vizsgálati-tanúsítási dokumentációk / Testing-certification documents

- R-011-15 / 5	ATEX Értékelő Jelentés / ATEX Assessment Report	2015.11.26.
- DT950x-58, DT950x-58 Eng	CE Megfelelőségi nyilatkozat / CE Declaration of Conformity	2015.06.26.
- DT950x-59 „A” melléklet	CE jegyzőkönyv I. – EMC /	2015.06.26.
DT950x-59 Eng. encl. A	CE Protocol I. – EMC	2015.06.26.
- DT950x-59 „B” melléklet	CE jegyzőkönyv II. – Biztonsági előírások /	2015.06.26.
DT950x-59 Eng. encl. B	CE Protocol II. – Safety requirements	2015.06.26.
- DT950x-57	rev. 2 Robbanásbiztonsági leírás /	2015.07.10.
DT950x-57 Eng	rev. 2 Description of explosion safety	2015.07.10.
- DT950x-23	Összefoglaló blokkvázlat (melléklet a robb. bizt. leíráshoz) / Comprehensive blockscheme (encl. to the Ex-description)	
- DT950x-53	rev. 2 Bemérési utasítás / Test instructions	2007.10.26.
- DT950x-53 1. melléklet	rev. 2 Bemérési utasítás melléklet /	2006.05.17.
DT950x-53 Appendix 1	rev. 2 Appendix to test instructions	2015.05.17.
- DT9500-53 2. melléklet	rev. 2 Darabvizsgálati jegyzőkönyv /	2015.07.17.
DT9500-53 Appendix 2	rev. 2 Unit test report	2015.07.17.
- DT9502-53 2. melléklet	rev. 2 Darabvizsgálati jegyzőkönyv /	2015.07.17.
DT9502-53 Appendix 2	rev. 2 Unit test report	2015.07.17.
- DT9500-62	rev. 2 Kezelési útmutató / Operating instructions	2015.07.01.
- DT9502-62	rev. 2 Kezelési útmutató / Operating instructions	2015.07.01.
- DT9500-1-25	rev. 1 Szerelt jelfeldolgozó nyomtatott áramkör szerelési rajz / Signal processing printed circuit board working drawing	2006.05.30. 2006.04.06.
- DT9500-10	rev. 1 Hőmérsékletmérő / távadó tartalomjegyzék / Temperature meter / transmitter contents	2013.11.28. 2015.07.17.
- DT9500-11	rev. 11 Hőmérsékletmérő / távadó mechanikai alkatrészjegyzék / Temperature meter / transmitter mechanical parts list	2013.11.15. 2015.07.15.
- DT9500-12	rev. 4 Hőmérsékletmérő / távadó összeállítási rajz / Temperature meter / transmitter assembly drawing	2013.11.15. 2015.07.24.
- DT9500-21	rev. 3 Jelfeldolgozó nyomtatott áramkör mechanikai alkatrészjegyzék / Signal processing printed circuit board mechanical parts list	2014.06.05. 2015.07.15.
- DT9500-23 [A,B]	rev. 1.12 Jelfeldolgozó áramkör kapcsolási rajz / Signal processing circuit schematic diagram	2015.05.12. 2015.05.12.
- DT9500-24	rev. 1 Nyomtatott áramköri rajz / Printed circuit board drawing	2015.07.15.

Ez a tanúsítvány csak a maga egészében és változatlan formában használható fel, mellékleteivel együtt. /
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Lapszám / Page: 4/5





BKI15ATEX0028 X
EK-Típus Vizsgálati Tanúsítvány/
EC-Type Examination Certificate

- DT9500-25	rev. 0	Jelfeldolgozó nyomtatott áramkör szerelési rajz / Signal processing printed circuit board working drawing	2006.03.21. 2006.03.21.
DT9500-26	rev. 1	Villamos alkatrészjegyzék / Electrical parts list	2015.05.12.
- DT9500-27	rev. 1	Jelfeldolgozó nyomtatott áramkör opcionális alkatrészjegyzék / Signal processing printed circuit board optional parts list	2013.11.28. 2015.07.15.
- DT9502-10	rev. 1	Hőmérsékletmérő / távadó tartalomjegyzék / Temperature meter / transmitter contents	2006.06.19. 2015.07.17.
- DT9502-11	rev. 8	Hőmérsékletmérő / távadó mechanikai alkatrészjegyzék / Temperature meter / transmitter mechanical parts list	2013.07.30. 2015.07.16.
- DT9502-12	rev. 3	Hőmérsékletmérő / távadó összeállítási rajz / Temperature meter / transmitter assembly drawing	2013.07.30. 2015.07.30.
- DT9502-13	rev. 1	Hőmérsékletmérő / távadó kábelezési rajz / Temperature meter / transmitter wiring drawing	2006.11.02. 2015.07.15.
- DT9502-21 SK	rev. 0	SK csatlakozó nyomtatott áramkör mechanikai alkatrészjegyzék / SK connector printed circuit board mechanical parts list	2006.06.20. 2015.07.15.
- DT9502-23 SK	rev. 0	SK nyomtatott áramkör kapcsolási rajz / SK printed circuit board schematic diagram	2009.05.25. 2009.05.25.
- DT9502-24 SK	rev. 0	Nyomtatott áramköri rajz / Printed circuit board drawing	2015.07.15.
- DT9502-25 SK	rev. 0	SK szerelt csatlakozó nyomtatott áramkör szerelési rajz / SK fitted connector printed circuit board working drawing	2006.05.12. 2006.05.12.
- DT9502-26 SK	rev. 0	Villamos alkatrészjegyzék / Electrical parts list	2013.04.11.
- DT9500-AT (AT0083)	rev. 1.1	Adattábla / Data plate	2015.07.27. 2015.09.17.
- DT9502-AT (M0065/E)	rev. 1.1	Adattábla / Data plate	2015.09.17.
- DT950x-57 R	rev. 1	Szabványváltozási jelentés (Összehasonlító kockázat értékelés) /	2015.07.01.
DT950x-57 R Eng	rev. 1	Report of standard change of device (Comparative risk assessment)	2015.07.01.

16.3 Kiegészítő dokumentációk / Additional documents

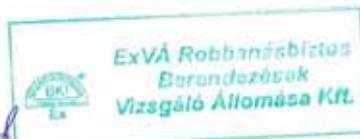
Alkatrész adatlapok (CD) / Data sheets of components (CD)

(17) Biztonságos üzemeltetés feltételei / Special conditions for safe use:

A tokozat sztatikus feltöltődésre hajlamos. Tisztítás csak nedves törülköhával és tisztítószerrel megengedett.
 The enclosure is susceptible to static charges. Cleaning only with moist cloth and detergent is allowed.

**(18) Alapvető egészségügyi és biztonsági követelmények /
 Essential Health and Safety Requirements**

Az alkalmazott szabványok és a gyártmány használati utasítása szerint. /
 Covered by the standards fulfilment and the respect of the instructions for use.




Müllner János
 Ügyvezető igazgató /
 Managing director


Molnár Edit
 Tanúsító Szervezet Vezető /
 Head of Certification Body

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Lapszám / Page: 5/5






A NAH által NAH-6-0027/2017/K számon akkreditált terméktanúsító szervezet. /
 Product certification organisation accredited by NAH under No. NAH-6-0027/2017/K




Ex

(1) *Kiegészítő EU-Típus Vizsgálati Tanúsítvány*
Supplementary EU-Type Examination Certificate

(2) A potenciálisan robbanásveszélyes környezetben történő alkalmazásra szánt berendezések, védelmi rendszerek
 2014/34/EU Direktíva /
 Equipment or Protective Systems Intended for use
 in Potentially Explosive Atmospheres
 Directive 2014/34/EU

(3) Kiegészítő EU-Típus Vizsgálati Tanúsítvány száma /
 Supplementary EU-Type Examination Certificate Number: **BKI15ATEX0028X/1**

(4) A gyártmány / Product:
**Gyújtószikramentes hőmérséklet mérő/távadó /
 Intrinsically safe temperature meter/transmitter**
 Típusa / Type:
DT9500, DT9502

(5) Gyártó / Manufacturer:
DATCON Ipari Elektronikai Kft. / DATCON Industrial Electronics Ltd.

(6) Cím / Address:
H-1148 Budapest, Fogarasi út 5., 27. épület / Building 27

(7) E kiegészítő tanúsítvány kiegészíti a BKI15ATEX0028X számú EK-Típus Vizsgálati Tanúsítványt, az abban meghatározott gyártmányok tervezésére és gyártására vonatkozóan az eredeti tanúsítvány mellékletében lévő specifikáció szerint, de kiegészítve ezen tanúsítvány mellékletében lévő specifikáció változtatásokkal és a hivatkozott dokumentációval. /
 This supplementary certificate extends EC-Type Examination Certificate No. BKI15ATEX0028X to apply to products designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

(8) A ExVÁ Robbanásbiztos Berendezések Vizsgáló Állomása Kft., 1418 sz. kijelölt testület, a 2014. február 26-i Európai Parlament és Tanács 2014/34/EU Direktívájának 17. cikkelye szerint tanúsítja, hogy a jelen kiegészítő tanúsítvány által módosított gyártmány, megfelel az Alapvető Egészségügyi és Biztonsági Követelményeknek a Direktíva II. számú Mellékletében a potenciálisan robbanásveszélyes térben alkalmazásra szánt gyártmányok tervezése és gyártása szerint. /
 ExVÁ Testing Station for Explosion Proof Equipment Company Limited, notified body number 1418 in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that the product, as modified by this supplementary certificate, has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

Ez a tanúsítvány csak a maga egészében és változatlan formában használható fel, mellékleteivel együtt. /
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Lapszám / Page: 1/3







BKI15ATEX0028X/1
Kiegészítő EU-Típus Vizsgálati Tanúsítvány /
Supplementary EU-Type Examination Certificate

A vizsgálat eredményeit az alábbi nyilvántartási számú bizalmas vizsgálati dokumentáció tartalmazza: /

The examination and test results are recorded in confidential report No.:

R - 027 - 17/ 9

- (9) A 2014/34/EU direktíva 41 cikkelye szerint, a 2014/34/EU (2016. április 20.) alkalmazása előtt a 94/9/EK szerint kiadott EK-Típus Vizsgálati Tanúsítványok meghivatkozhatóak, mintha a 2014/34/EU direktíva szerint lettek volna kiadva. Kiegészítő tanúsítványok és új kiadások az ilyen EK-Típus Vizsgálati Tanúsítványokhoz folytatódhatnak a 2016. április 20. előtt kiadott eredeti tanúsítvány számmal. /
 In accordance with Article 41 of Directive 2014/34/EU, EC-Type Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Supplementary Certificates to such EC-Type Examination Certificates, and new issues of such certificates, may continue to bear the original certificate number issued prior to 20 April 2016.
- (10) Az alapvető egészségügyi és biztonsági követelményeknek való megfelelést a következők biztosítják: /
 Compliance with the Essential Health and Safety Requirements has been assured by compliance with:
- | | |
|----------------------------------|---|
| EN 60079-0:2012 | (=MSZ EN 60079-0:2013) |
| EN 60079-0:2012/A11: 2013 | (=MSZ EN 60079-0:2013/A11: 2014) |
| EN 60079-11:2012 | (=MSZ EN 60079-11:2012) |
- kivéve a 18. pontban felsorolt követelményekre vonatkozóan.
 except in respect of those requirements listed at item 18 of the Schedule.
- (11) A tanúsítvány száma után álló „X” jel azt mutatja, hogy a gyártmány speciális feltételek megtartása mellett felel meg a jelen tanúsítvány vonatkozó pontjában feltüntetett biztonságos alkalmazás feltételeinek. /
 If the sign „X” is placed after the certificate number, it indicates that the product is subject to Specific Conditions of Use specified in the schedule to this certificate.
- (12) Jelen EU-TÍPUS VIZSGÁLATI TANÚSÍTVÁNY csak a megjelölt gyártmány tervezésére és kivitelezésére vonatkozik. A jelen Direktíva további követelményei vonatkoznak a gyártmány gyártási folyamatára és szállítására. Ezek nem tartoznak a tanúsítvány alá /
 This EU-TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified product. Further requirements of this Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.
- (13) A gyártmány jele a következő /
 The marking of the product shall include the following:

 **II 1 G Ex ia IIC T4 Ga**

T_{körny} / T_{amb} = -20°C ... +60°C

Budapest, 2017. november 22.

ExVÁ Robbanásbiztos Berendezések
Vizsgáló Állomása Kft.
ExVÁ Testing Station for Explosion Proof
Equipment Ltd.
 Hungary, 1037 Budapest, Mikoviny u. 2-4.
 Tel.: 36 1 250 1720
 E-mail: bkiex@bki.hu




Molnár Edit
 Tanúsító Szervezet Vezető /
 Head of Certification Body



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Lapszám / Page: 2/3




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BKI15ATEX0028X/1
Kiegészítő EU-Típus Vizsgálati Tanúsítvány /
Supplementary EU-Type Examination Certificate

 BKI
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14 Melléklet / Schedule

15 Tanúsítvány szám / Certificate number BKI15ATEX0028X/1

16 Gyártmány változásának leírása / Description of the variation to the Product

Az alábbi változások kerülnek bevezetésre a BKI15ATEX0028X számú EK-Típusvizsgálati tanúsítvány 1. számú kiegészítésében:

- a készülék gyártói dokumentációjának aktualizálása a 2014/34/EU irányelvnek ill. a legutolsó szabványkiadásoknak megfelelően. Lásd a tanúsítvány kiegészítés 20. pontját.

A módosítások nem befolyásolják készülék robbanásbiztonsági szempontú védetségét és tulajdonságait. Minden egyéb tekintetben (konstrukció, leírás, típusmegjelölés, műszaki adatok) a gyártmány változatlan a BKI15ATEX0028X számú EK-Típusvizsgálati tanúsítvány szerint. /

The following changes are introduced in in this amendment of the EC-Type Examination Certificate nr. BKI15ATEX0028X:

- updating the manufacturer's documentation of the device according to the Directive 2014/34/EU and the latest editions of the referring technical standards. See chapter 20 of this certificate amendment.

The modifications do not have influence on the safety values and properties of the device.

In all other aspects the product is unchanged according to the EC-Type Examination Certificate nr. BKI15ATEX0028X (construction, description, type designation, technical parameters).

17 Vizsgálati dokumentáció / Report N^o

R-027-17 / 9

ATEX Értékelő jelentés / ATEX Assessment Report

2017.11.21

18 Biztonságos üzemeltetés feltételei / Special Conditions of Use

Nincsenek továbbiak a felsoroltakon kívül / None additional to those listed previously.

19 Alapvető egészségügyi és biztonsági követelmények / Essential Health and Safety Requirements

A módosítás nem érinti az alapvető egészségügyi és biztonsági követelményeket.

Compliance with the Essential Health and Safety Requirements is not affected by this variation./

20 Rajzok és dokumentációk / Drawings and Documents

Szám / Number	Lap / Sheet	Kiadás / Issue	Dátum / Date	Leírás / Description
DT950x-58 / DT950x-58 Eng	1		2017.11.07	EU Megfelelőségi nyilatkozat / EU Declaration of Conformity
AT0083	1	2	2017.11.13	DT9500 Adattábla / DT9500 Data plate
M0065/E	1	2	2017.11.13	DT9502 Adattábla / DT9502 Data plate



Molnár Edit

 Tanúsító Szervezet Vezető /
Head of Certification Body

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Lapszám / Page: 3/3

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EXVA


EXVA
 Vizsgáló és Tanúsító Kft.

 A NAH által NAH-6-0027 X/2017/K számon
 akkreditált terméktanúsító szervezet. /
 Product certification organisation accredited
 by NAH under No. NAH-6-0027 X/2017/K.


EXVA

(1) *Kiegészítő EU-Típus Vizsgálati Tanúsítvány*
Supplementary EU-Type Examination Certificate

(2) A potenciálisan robbanásveszélyes környezetben történő alkalmazásra szánt
 berendezések, védelmi rendszerek
 2014/34/EU Direktíva /

Equipment or Protective Systems Intended for use
 in Potentially Explosive Atmospheres
 Directive 2014/34/EU

(3) Kiegészítő EU-Típus Vizsgálati Tanúsítvány száma /
 Supplementary EU-Type Examination Certificate Number: **BKI15ATEX0028 X/2**

(4) A gyártmány / Product:
**Gyújtószikramentes hőmérséklet mérő/távadó /
 Intrinsically safe temperature meter/transmitter**

Típusa / Type:

DT9500, DT9502

(5) Gyártó / Manufacturer:
DATCON Ipari Elektronikai Kft. / DATCON Industrial Electronics Ltd.

(6) Cím / Address:
**H-1148 Budapest, Fogarasi út 5., 27. épület / Building 27
 Hungary**

(7) E kiegészítő tanúsítvány kiegészíti a BKI15ATEX0028 X számú EU-Típus Vizsgálati Tanúsítványt, az abban meghatározott gyártmányok tervezésére és gyártására vonatkozóan az eredeti tanúsítvány mellékletében lévő specifikáció szerint, de kiegészítve ezen tanúsítvány mellékletében lévő specifikáció változtatásokkal és a hivatkozott dokumentációval. /

This supplementary certificate extends EC-Type Examination Certificate No. BKI15ATEX0028 X to apply to products designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

(8) A ExVA Vizsgáló és Tanúsító Kft., 1418 sz. kijelölt testület, a 2014. február 26-i Európai Parlament és Tanács 2014/34/EU Direktívájának 17. cikkelye szerint tanúsítja, hogy a jelen kiegészítő tanúsítvány által módosított gyártmány, megfelel az Alapvető Egészségügyi és Biztonsági Követelményeknek a Direktíva II. számú Mellékletében a potenciálisan robbanásveszélyes térben alkalmazásra szánt gyártmányok tervezése és gyártása szerint. /

ExVA Testing and Certification Limited Liability Company, notified body number 1418 in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that the product, as modified by this supplementary certificate, has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

A vizsgálat eredményeit az alábbi nyilvántartási számú bizalmas vizsgálati dokumentáció tartalmazza: / The examination and test results are recorded in confidential report No.:

VA-0165-21-A-07

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Lapszám / Page:1/4

EXVA

EXVA

BK115ATEX0028 X/2
 Kiegészítő EU-Típus Vizsgálati Tanúsítvány /
 Supplementary EU-Type Examination Certificate

14 Melléklet / Schedule

15 Tanúsítvány szám / Certificate number BK115ATEX0028 X/2

16 Gyártmány változásának leírása / Description of the variation to the Product

Az alábbi változások kerülnek bevezetésre a jelen BK115ATEX0028 X/2 számú kiegészítő EU-Típus Vizsgálati Tanúsítványban:

- Az alapvető egészségügyi és biztonsági követelményeknek való megfelelést biztosító szabványok legutolsó szabványkiadások szerinti aktualizálása

A változások a berendezés robbanásbiztonsági jellemzőit nem befolyásolják, a berendezés egyéb jellemzői változatlanok. /

The following changes are introduced in this supplementary EU-Type Examination Certificate nr. BK115ATEX0028 X/2 :

- Updating the referring standards according to their latest editions which assure the compliance with the Essential Health and Safety Requirements

The changes do not affect the explosion safety of the equipment, the other features of the equipment are unchanged.

17 Vizsgálati dokumentáció / Report N°

VA-0165-21-A-07 ATEX Értékelő Jelentés / ATEX Assessment Report 2021.12.07.

18 Biztonságos üzemeltetés feltételei / Special Conditions of Use

Az eredeti tanúsítványban foglaltak szerint. /
 As stated in the original certificate.

19 Alapvető egészségügyi és biztonsági követelmények / Essential Health and Safety Requirements

A módosítás nem érinti az alapvető egészségügyi és biztonsági követelményeket. /
 Compliance with the Essential Health and Safety Requirements is not affected by this variation.

Záradék / Clause	Tárgy / Subject
Nem vonatkozik / Not applicable	Nem vonatkozik / Not applicable

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BKI15ATEX0028 X/2
 Kiegészítő EU-Típus Vizsgálati Tanúsítvány /
 Supplementary EU-Type Examination Certificate

20 Rajzok és dokumentációk / Drawings and Documents

GYÁRTÓI DOKUMENTÁCIÓK / MANUFACTURER'S DOCUMENTS						
No.	Fájl név / File name	Szám / Number	Lap / Sheet	Verzió / Issue	Dátum / Date	Leírás / Description
1.	DT950x-57.doc	DT950x-57	6	3	2021.10.15.	Robbanásbiztonsági leírás / Description of Explosion Safety
2.	DT950x-57 angol.doc	DT950x-57_Eng	6	3	2021.10.15.	Robbanásbiztonsági leírás (angol) / Description of Explosion Safety (English)
3.	DT950x-57 R.doc	DT950x-57 R	3	2	2021.10.15.	Szabványváltozási jelentés / Report of Standard Change of Device
4.	DT950x-57 R angol.doc	DT950x-57 R Eng	3	2	2021.10.15.	Szabványváltozási jelentés (angol) / Report of Standard Change of Device (English)
5.	DT950x-58.doc	DT950x-58	1	-	2021.10.15.	EU Megfelelőségi Nyilatkozat / EU Declaration of Conformity
6.	DT950x-58 Eng.doc	DT950x-58 Eng	1	-	2021.10.15.	EU Megfelelőségi Nyilatkozat (angol) / EU Declaration of Conformity (English)
7.	DT9500-62.doc	DT9500	92	2	2021.10.15.	Felhasználói leírás DT9500 / User Manual DT9500
8.	DT9500-62 angol.doc	DT9500	92	2	2021.10.15.	Felhasználói leírás (angol) DT9500 / User Manual DT9500 (English)
9.	DT9502-62.doc	DT9502	88	2	2021.10.15.	Felhasználói leírás DT9502 / DT9502 User Manual
10.	DT9502-62 angol.doc	DT9502	88	2	2021.10.15.	Felhasználói leírás DT9502 (angol) / DT9502 User Manual (English)

ExVA Vizsgáló és Tanúsító Kft.
 1037 Budapest, Mikovitsy S. u. 2-4
 10925306-2-41


Nagy Botond
 Tanúsító Szervezet Vezető /
 Head of Certification Body

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