

Regulating and displaying unit **TC -41**



Quick user's manual

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Introductory word

Thank you for buying our product. For its faultless usage, read these instructions so that it works correctly to your complete satisfaction.

TC – 41 is an intelligent microprocessor unit, enabling regulation of measured process values according to required parameters. It can be entirely adjusted to your demands, however, that requires detailed knowledge of its system. Every user will not apply all the available functions, that's why this instruction consists of two parts

- ***Quick user's manual***
- ***Complete instruction for the TC – 41 system***
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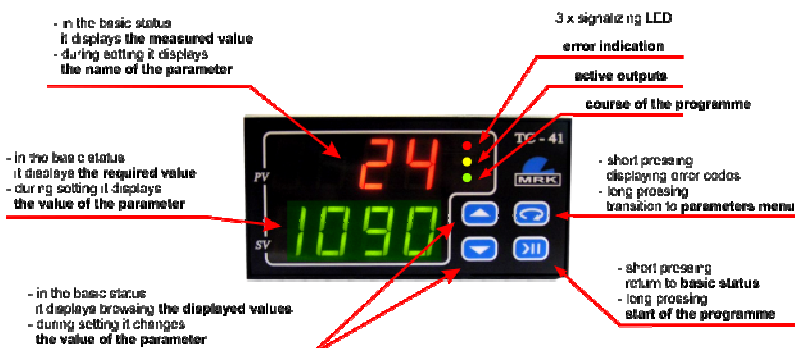
Quick manual contains basic information about TC – 41, survey and setting of the most important parameters, simple launch, stopping of the regulating process. The complete instruction will introduce you all the TC – 41 functions, enabling setting of the regulation parameters, displays, possibilities of connecting inputs and outputs, technical parameters.

We hope you'll be fully content with our product.

1. Connection

Turn on the device in accordance with an enclosed scheme (at the end of the instructions). Use a tag stuck on the upper part of the device for an aid. Power supply, inputs and outputs are marked there.

2. Controlling



obr.č. 1



- increase, decrease Set Value.



- long press entry to menu Parametre 1, short press display Error code.






- long press start program, short press back to the Basic Status.

When you turn on the device, the version number will be shown for a moment, and followingly it will go on to the basic status. The upper red display will show measured value, the lower green one will show the set value. The red display cyclically shows the value of the 1.input (the number is displayed) and the 2. input (it flickers – if it is being used). If the device had been active before (green or yellow signaling LED is displayed), it continues with the programme in course. Otherwise it waits for launching and the outputs are turned off.


3. Setting the required value

Set the value with the   keys in the Basic status. (Except for SPmod1, see **Complete instructions for the TC-41 system.**)

4. Ramp function

Go through to the user's menu (in the same way as you did when setting the required value). The  key will take you to the following parameter **rAmP**, again with   keys, set the rate of increasement within a minute. The **oFF** value is set standardly, that means: ramp turned off = maximal rate.

5. HoLd function

In the user's menu, go on to the **HoLd** parameter, where you set the required hold in terms of minutes. When the controller achieves the set value, it will starts counting down the time remaining until regulation is turned off, meanwhile it still keeps teh achieved status in required tolerance. The red display cyclically shows the inscription **tEnd** – time remaining till the end of the process, the green display shows time in terms of minutes. When the time is over, the device beeps and turns off the outputs. Standardly, the **- - -** value is set, which means infinite time, i.e. the device will be still keeping the achieved value until it is turned off manually with the  key. Setting hold is related to the following parameter **HdiF** – difference for launching hold. In fact it determines the tolerance zone, when the counting down of the rate can be started.

6. Launching and stopping of the process of regulation

When you hold the start key  for some longer time (3 sec), you'll launch the process of regulation. It can be stopped in the same way. With standard settings, the controller tries to achieve

the set value as fast as possible. When that happens, it will stay regulating on that value until you stop the regulation. Other possibilities of setting are described in the ***Complete instructions for the TC-41 system.***

3. Complete list of parameters

(Reference to the Complete instructions for the TC-41 system)

Basic status :

- **tn1** – measured value input 1
- **tn2** – measured value input 2
- **SEtP** – required value
- **trEF** – reference temperature, cold junction (see pg.15)
- **SPin** – controlling temperature, ramp function (pg.10)
- **tEnd** – time till the end of hold (pg.11)

Parameters 1 :

- **PAS1** – password of access to the part Parameters 1
- **SEtP** – required value (pg.10)
- **rAnP** – required rate - ramp (pg.10)
- **HoLd** – required hold (pg.11)
- **HdiF** – zone of tolerance for launching hold (pg.11)
- **ALAb** – absolute value alarm
- **ALrE** – relative value alarm
- **PAS2** – password of access to the part Parameters 2

Parameters 2 :

- **SErL** – menu of serial line (pg.11)
 - o **bAud** – transfer rate
 - o **SAdr** – address of the device
 - o **Scnt** – number of devices on the line
 - o **Stou** –connection timeout
- **PID1** – menu of the third output configuration (pg.12)
 - o **diF1** – difference of turning on of the output
 - o **PbA1** – proportional band
 - o **Int1** – integrating component
 - o **dEr1** – derivational component
 - o **b1** – ratio PID
 - o **SAn1** – sampling interval

- **Lin1** – limit output
- **HYS1** – hysteresis
- **PID2** – menu of the second output configuration (pg.12)
 - **diF2** – difference of the turning on of the output
 - **PbA2** – proportional band
 - **Int2** – integrating component
 - **dEr2** – derivational component
 - **b2** – ratio PID
 - **SAn2** – sampling interval
 - **Lin2** – limit output
 - **HYS2** – hysteresis
- **PID3** – menu of the first output configuration (pg.12)
 - **diF3** – difference of the turning on of the output
 - **PbA3** – proportional band
 - **Int3** – integrating component
 - **dEr3** – derivational component
 - **b3** – ratio PID
 - **SAn3** – sampling interval
 - **Lin3** – limit output
 - **HYS3** – hysteresis
- **inPS** – menu of inputs
 - **CAL1** – shift of the measure value of input 1 (pg.14)
 - **CAL2** – shift of the measure value of input 2 (pg.14)
 - **rEF1** – cold temperature of input 1 (pg.15)
 - **rEF2** – cold temperature of input 2 (pg.15)
 - **dcPt** – number of decimal spaces (pg.15)
- **SYSt** – menu of system settings
 - **OPeR** – sampling time of outputs čas (pg.15)
 - **SPLo** – minimum set value (pg.16)
 - **SPHi** – maximum set value (pg.16)
 - **Acc1** – password of access to Parameters 1 (pg.16)
 - **Acc2** – password of access to Parameters 2 (pg.16)
 - **Acc3** – reserved for the producer

Some of the parameters does not necessarily have to be displayed – it depends on the config. of the device and on the user's setting.

4. Error codes

ErrC – hexadecimal number

XXXX

1 : probe 1 error
2 : probe 2 error
4 : measuring reference temperature (Pt1000)
8 : calibration

1 0 : parameters have been rewritten
2 0 : parameters have been rewritten
3 0 : parameters have been rewritten
4 0 : parameters have been rewritten

1 0 0 : circuit 1 interrupted
2 0 0 : circuit 2 interrupted
4 0 0 : circuit 3 interrupted
8 0 0 : short circuit 1
1 0 0 0 : short circuit 2
2 0 0 0 : short circuit 3
4 0 0 0 : communication error –slave does not respond
8 0 0 0 : slave error