

Explanation of symbols used in the manual:



- This symbol denotes especially important guidelines concerning the installation and operation of the device. Not complying with the guidelines denoted by this symbol may cause an accident, damage or equipment destruction.

IF THE DEVICE IS NOT USED ACCORDING TO THE MANUAL THE USER IS RESPONSIBLE FOR POSSIBLE DAMAGES.



- This symbol denotes especially important characteristics of the unit. Read any information regarding this symbol carefully

1. BASIC REQUIREMENTS AND USER SAFETY



- **The manufacturer is not responsible for any damages caused by inappropriate installation, not maintaining the proper environmental conditions and using the unit contrary to its assignment.**
- Installation should be conducted by qualified personnel . During installation all available safety requirements should be considered. The fitter is responsible for executing the installation according to this manual, local safety and EMC regulations.
- GND input of device should be connected to PE wire;
- The unit must be properly set-up, according to the application. Incorrect configuration can cause defective operation, which can lead to unit damage or an accident.
- **If in the case of a unit malfunction there is a risk of a serious threat to the safety of people or property additional, independent systems and solutions to prevent such a threat must be used.**
- **The unit uses dangerous voltage that can cause a lethal accident. The unit must be switched off and disconnected from the power supply prior to starting installation of troubleshooting (in the case of malfunction).**
- Neighbouring and connected equipment must meet the appropriate standards and regulations concerning safety and be equipped with adequate overvoltage and interference filters.
- **Do not attempt to disassemble, repair or modify the unit yourself. The unit has no user serviceable parts. Defective units must be disconnected and submitted for repairs at an authorized service centre.**



- In order to minimize fire or electric shock hazard, the unit must be protected against atmospheric precipitation and excessive humidity.



- Do not use the unit in areas threatened with excessive shocks, vibrations, dust, humidity, corrosive gasses and oils.
- Do not use the unit in areas where there is risk of explosions.
- Do not use the unit in areas with significant temperature variations, exposure to condensation or ice.
- Do not use the unit in areas exposed to direct sunlight.
- Make sure that the ambient temperature (e.g. inside the control box) does not exceed the recommended values. In such cases forced cooling of the unit must be considered (e.g. by using a ventilator).



The unit is designed for operation in an industrial environment and must not be used in a household environment or similar.

2. GENERAL CHARACTERISTICS

The **SRT-77** meter is equipped with Pt 100/Pt 500/Pt 1000 type input, with automatic connection recognition (three or four wire sensor). The measurement range spans from -100 °C to +600 °C, and input is fully linearised accordingly to PN-EN60751+A2:1999 standard. Result is showed on 4-digit LED display.

The device can be equipped with one or two relay (or OC type) outputs. Device **SRT-77** is equipped with RS-485 / Modbus RTU communication interface and sensor supply output. The meter can be ordered in two power supply versions.

SRT-77 can be used for controlling and regulation of processes need proportional and threshold control like: temperature processes (heating or cooling), valves controlling or other.

3. TECHNICAL DATA

Power supply voltage (depending on version)	85... 230 ...260V AC/DC; 50 ÷ 60 Hz (separated)
External fuse (required)	or 19... 24 ...50V DC and 16... 24 ...35V AC (separated)
Power consumption	T - type, max. 2 A max. 4.5 VA @ 85 ÷ 260V AC/DC max. 4.5 VA @ 16V ÷ 35V AC max. 4.5 W @ 19V ÷ 50V DC
Measurement input	Pt 100/ Pt 500/Pt 1000 type with automatic connection recognition (3 or 4-wires)
Measurement range	-100°C ÷ +600°C
Measurement accuracy	± 0,1% @ 25°C; ± one digit
Measurement wires resistance	max. 20 Ω (every wire)
Temperature stability	50 ppm / °C

Outputs	relay: 0, 1 or 2 NO, 1A/250V AC ($\cos \varphi = 1$) or OC-type: 0, 1 or 2; 30mA / 30VDC / 100mW sensor power supply: 24V +5%, -10% / max. 100 mA, stabilized
Communication interface	RS 485, 8N1 and 8N2, Modbus RTU, not separated
Baud rate	1200 bit/s ÷ 115200 bit/s
Display (double)	LED, first: 4 digit, 13mm height, red second: 4 digit, 10mm height, green
Data memory	non-volatile memory, EEPROM type
Front panel protection	IP 65 optional version with panel cut-out sealing available
Terminals protection	IP 20
Housing type	panel
Housing material	NORYL - GFN2S E1
Housing dimensions	72 x 72 x 100 mm
Mounting hole	66.5 x 66.5 mm
Assembly depth	min. 102 mm
Panel thickness	max. 5 mm
Operating temperature (depending on version)	0°C to +50°C or -20°C to +50°C
Storage temperature (depending on version)	-10°C to +70°C or -20°C to +70°C
Humidity	5 to 90% no condensation
Altitude	up to 2000 meters above sea level
Screws tightening max. torque	0,5 Nm
Max. connection leads diameter	2,5 mm ²
Safety requirements	according to: PN-EN 61010-1 installation category: II pollution degree: 2 voltage in relation to ground: 300V AC insulation resistance: >20MΩ insulation strength between power supply and input/output terminal: 1min. @ 2300V insulation strength between relays terminal: 1min. @ 1350V
EMC	according to: PN-EN 61326-1



This is a class A unit. In a residential or a similar area it can cause radio frequency interference. In such cases the user can be requested to use appropriate preventive measures.

4. DEVICE INSTALLATION

The unit has been designed and manufactured in a way assuring a high level of user safety and resistance to interference occurring in a typical industrial environment. In order to take full advantage of these characteristics installation of the unit must be conducted correctly and according to the local regulations.



- Read the basic safety requirements on page 3 prior to starting the installation.
- Ensure that the power supply network voltage corresponds to the nominal voltage stated on the unit's identification label.
- The load must correspond to the requirements listed in the technical data.
- All installation works must be conducted with a disconnected power supply.
- Protecting the power supply connections against unauthorized persons must be taken into consideration.

4.1. UNPACKING

After removing the unit from the protective packaging, check for transportation damage. Any transportation damage must be immediately reported to the carrier. Also, write down the unit serial number located on the housing and report the damage to the manufacturer.

Attached with the unit please find:

- user's manual,
- warranty,
- assembly brackets - 2 pieces.

4.2. ASSEMBLY



- The unit is designed for mounting inside housings (control panel, switchboard) insuring appropriate protection against surges and interference. Metal housings must be connected to ground in a way that complies with the governing regulations.
- Disconnect the power supply prior to starting assembly.
- Check the connections are wired correctly prior to switching the unit on.



In order to install the unit, a 66.5 x 66.5 mm mounting hole (Figure 4.1) must be prepared. The thickness of the material of which the panel is made must not exceed 5mm. When preparing the mounting hole take the grooves for catches located on both sides of the housing into consideration (Figure 4.1). Place the unit in the mounting hole inserting it from the front side of the panel, and then fix it using the brackets (Figure 4.2). The minimum distances between the centre points of multiple units - due to the thermal and mechanical conditions of operation - are 91mm x 91mm (Figure 4.3).

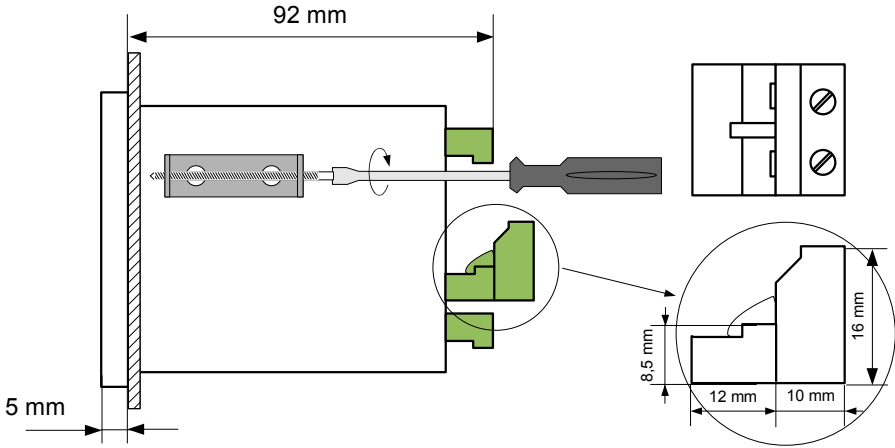


Figure 4.2. Installing of brackets, and dimensions of connectors.

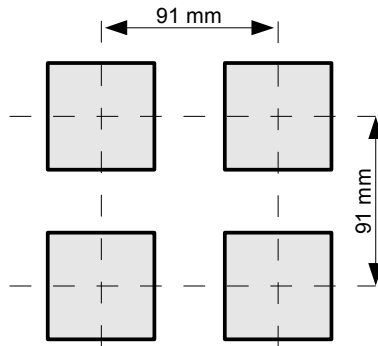


Figure 4.3. Minimum distances when assembly of a number of units

4.3. CONNECTION METHOD

Caution



- Installation should be conducted by qualified personnel . During installation all available safety requirements should be considered. The fitter is responsible for executing the installation according to this manual, local safety and EMC regulations.
- The unit is not equipped with an internal fuse or power supply circuit breaker. Because of this an external time-delay cut-out fuse with a small nominal current value must be used (recommended bipolar, max. 2A) and a power supply circuit-breaker located near the unit. In the case of using a monopolar fuse it must be mounted on the phase cable (L).



- The power supply network cable diameter must be selected in such a way that in the case of a short circuit of the cable from the side of the unit the cable shall be protected against destruction with an electrical installation fuse.

- Wiring must meet appropriate standards and local regulations and laws.

- In order to secure against accidental short circuit the connection cables must be terminated with appropriate insulated cable tips.

- Tighten the clamping screws. The recommended tightening torque is 0.5 Nm. Loose screws can cause fire or defective operation. Over tightening can lead to damaging the connections inside the units and breaking the thread.

- In the case of the unit being fitted with separable clamps they should be inserted into appropriate connectors in the unit, even if they are not used for any connections.

- Unused terminals (marked as n.c.) must not be used for connecting any connecting cables (e.g. as bridges), because this can cause damage to the equipment or electric shock.

- If the unit is equipped with housing, covers and sealing to, protecting against water intrusion, pay special attention to their correct tightening or clamping. In the case of any doubt consider using additional preventive measures (covers, roofing, seals, etc.). Carelessly executed assembly can increase the risk of electric shock.

- After the installation is completed do not touch the unit's connections when it is switched on, because it carries the risk of electrical shock.

Due to possible significant interference in industrial installations appropriate measures assuring correct operation of the unit must be applied. To avoid the unit of improper indications keep recommendations listed below.

- Avoid running signal cables and transmission cables together with power supply cables and cables controlling inductive loads (e.g. contactors). Such cables should cross at a right angle.
- Contactor coils and inductive loads should be equipped with interference protection systems, e.g. RC-type.
- Use of screened signal cables is recommended. Signal cable screens should be connected to the earthing only at one of the ends of the screened cable.
- In the case of magnetically induced interference the use of twisted pair of signal cables is recommended. Twisted pair (best if shielded) must be used with RS-485 serial transmission connections.
- In the case of measurement or control signals are longer than 30m or go outside of the building then additional safety circuits are required.
- In the case of interference from the power supply side the use of appropriate interference filters is recommended. Bear in mind that the connection between the filter and the unit should be as short as possible and the metal housing of the filter must be connected to the earth with the largest possible surface. The cables connected to the filter output must not be run with cables with interference (e.g. circuits controlling relays or contactors).

Connections of power supply voltage and measurement signals are executed using the screw connections on the back of the unit's housing.

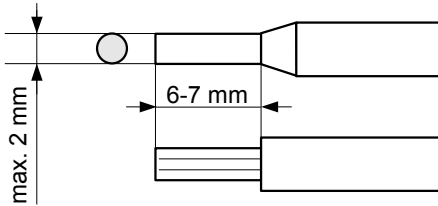


Figure 4.4. Method of cable insulation replacing and cable terminals

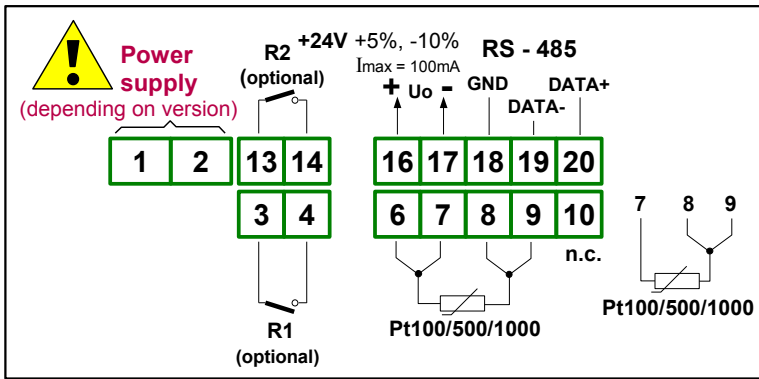


Figure 4.5. Terminals description (relay outputs)

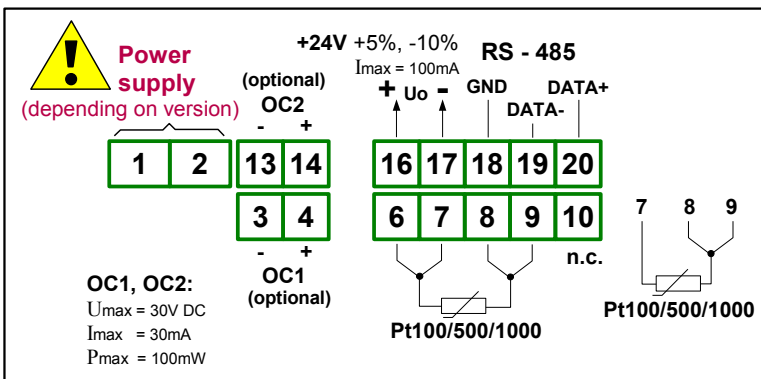


Figure 4.6. Terminals description (OC-type outputs)



All connections must be made while power supply is disconnected !

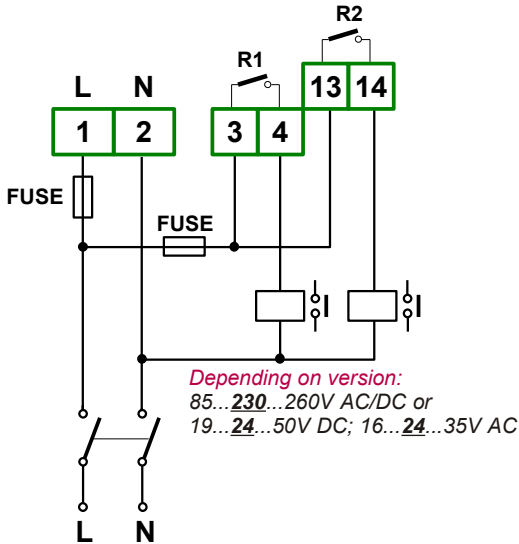


Figure 4.7. Connection of power supply and relays



Contacts of relay outputs are not equipped with spark suppressors. While use the relay outputs for switching of inductive loads (coils, contactors, power relays, electromagnets, motors etc.) it is required to use additional suppression circuit (typically capacitor 47nF/ min. 250VAC in series with 100R/5W resistor), connected in parallel to relay terminals or (better) directly on the load. In consequence of using the suppression circuit, the level of generated electromagnetic disturbances is lower, and the life of relay contacts rises.

6.2. DETECTION OF THE PEAK VALUES

The **SRT-77** controller is equipped with peaks detection function. It can detect a peaks of the input signal and display their values. Presets connected with this function are placed in **"HOLd"** menu (see description of **"HOLd" menu**). The detection of the peak can be done if the measured signal raises and drops of value at least equal to parameter **"PEA"**. Detected peaks are displayed during the time defined by parameter **"timE"**. If a new peak will be detected while one is displayed, this new peak will be displayed and display time counter will be cleared (Figure 6.1). If no peaks are detected while time **"timE"** elapses, device starts to show the current value of input signal again. If „HdiS”=**"HOLD"** then setting parameter **"timE"=0.0** causes holding peak value until **[ESC]** button is pressed. If „HdiS”=**"rEAL"** then value **"timE"=0.0** means no holding. Displaying peak value is signalized by flashing most right decimal point.

The relays/LEDs can be controlled depend on the current value of input signal or the peak value (see **"HOLd" menu**).

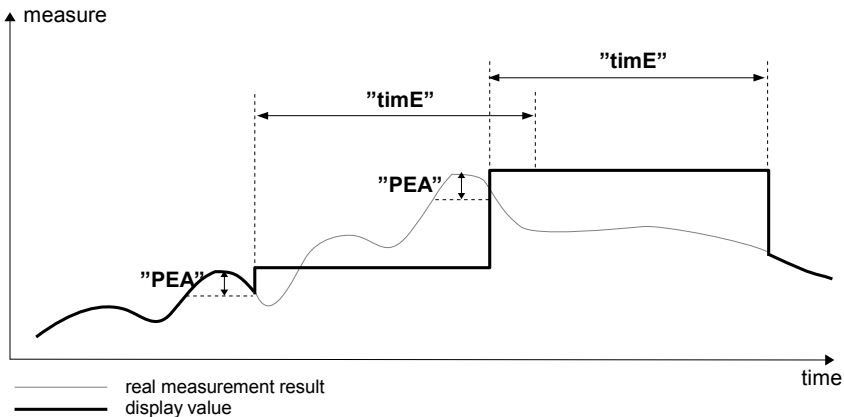


Figure 6.1. Process of peaks detection

6.3. CONTROL OF THE RELAY OUTPUTS

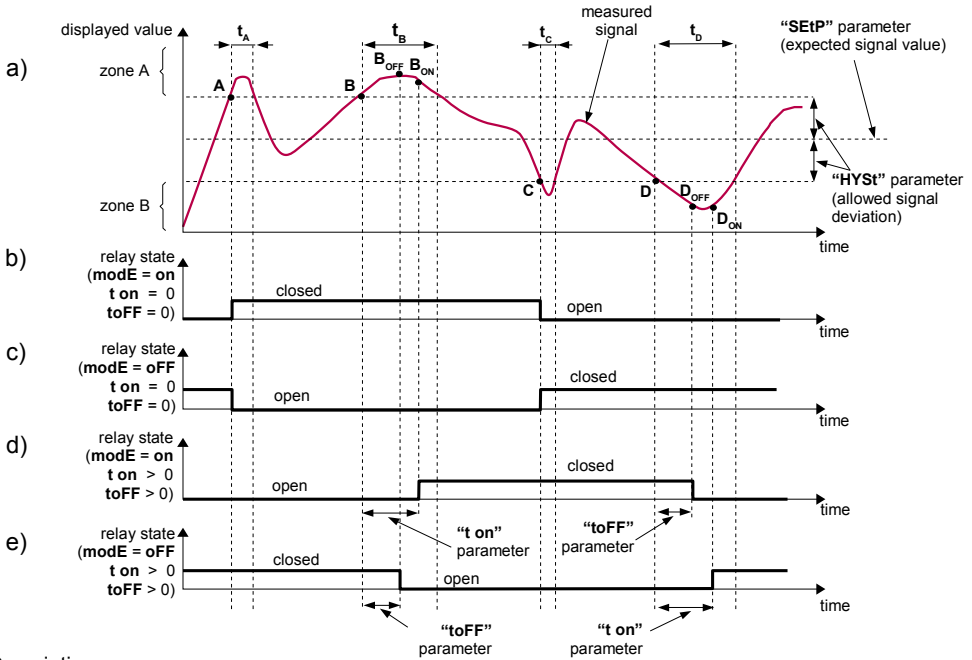
The control of the object (measured signal) is realized via relay outputs. Front panel LEDs named „**R**” indicates the state of particular relay output.



If device is not equipped with one or more relay outputs, menus refer to this relays are available, but apply to LED indicators only. In such case LEDs indicates exceeding of particular thresholds.

Modes of the control can be changed depend on the values of parameters **"SEtP"**, **"SEt2"**, **"HYSt"**, **"modE"**, **"t on"**, **"toFF"**, **"unit"** and **"AL"**. Depend on **"modE"** parameter, relays can be not used or controlled over one or two thresholds values.

If one threshold is used (Figure 6.2) the relay can be turned on (**"modE" = "on"**) or off (**"modE" = "oFF"**) when the input signal value is contained in **zone A**. If two thresholds are used (Figure 6.3) the relay will be turned on when value of input signal is contained in **zone A** (**"modE" = "in"**) or **zone B** (**"modE" = "out"**) and turned off if the signal is contained in the second one.



Description:

- A, B, C, D** - points where measured signal exceeds border values (expected value \pm allowed deviation)
- B_{ON}, B_{OFF}, D_{ON}, D_{OFF}** - relays state changes moments: (for "t on" > 0, "toFF" > 0)
- t_A, t_B, t_C, t_D** - time periods while input signal is in zone A or zone B

Figure 6.4. Principle of LED/relay output operation for one threshold mode

Parameter "SEtP" sets a **threshold** of the relay, and parameter "HYSt" sets a **hysteresis** of the relay (Figure 6.4 a). The relay can change his state **only** when input value exceeds (over or under) **border value** and t_A, t_B, t_C, t_D times (Figure 6.4) are bigger than the time defined by parameters "t on", "toFF" and "unit". **Border values** means values equal **threshold+hysteresis** and **threshold-hysteresis** respectively.

If "t on" and "toFF" parameters are set to "0", then the relay state will be changed **as soon** as input value exceeds any of the **border values** (see points A and C, Figure 6.4 a, b, c).

If values of "t on" or/and "toFF" are positive, then relay state will be turned on if the input value exceeds the **border values** and stay bigger (or lower) during at least "t on" (see points B_{ON}, D_{ON}, Figure 6.4 a, d, e). Similarly, the relay will be turned off if time "toFF" elapse since the input signal value exceeds any of the **border values** (see points B_{OFF}, D_{OFF}, Figure 6.4 a, d, e).

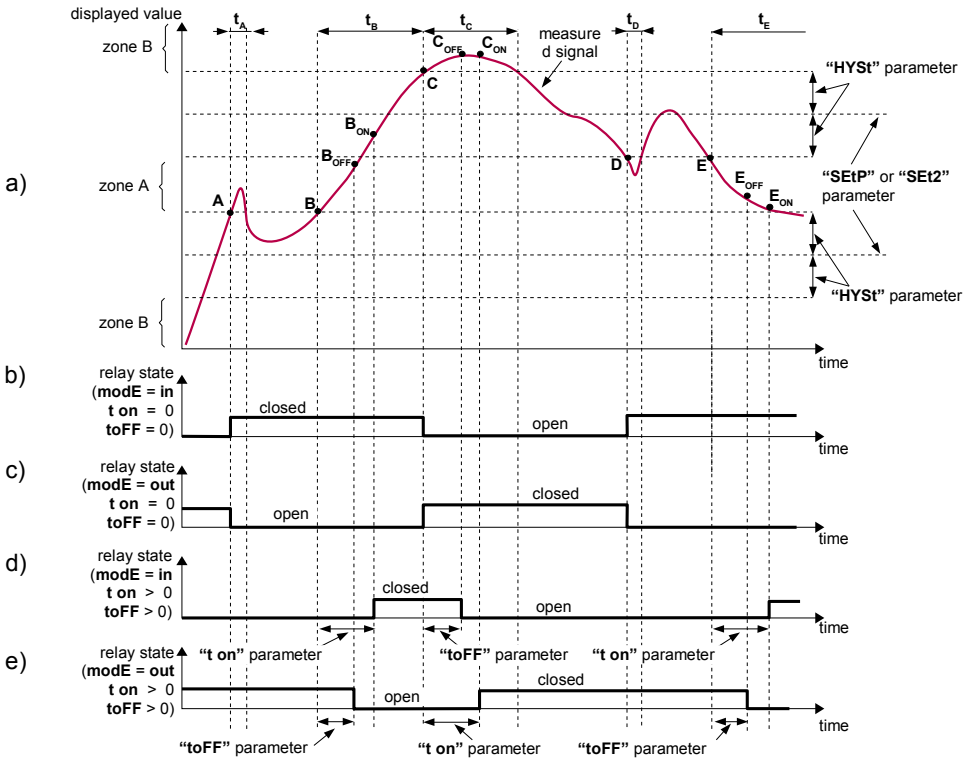
If t_A , t_B , t_C or t_D (when input signal stay in **zone A** or **zone B**) are lower than parameters “**t on**” or “**toFF**”, the relay will not change his state (see points A and C, Figure 6.4 a, d, e).

The state of relay output while the input value exceeds the **border values** (points A, B, C, D) is described by parameter “**mode**”. The relay can be turned on (“**mode**” = “**on**”), or turned off (“**mode**” = “**oFF**”) when input signal value is contained in **zone A** (Figure 6.4 a).

The parameter “**AL**” allow user to set the relay output behaviour in critical situations (e.g. Input values exceeds **permissible measurement range**). User can select that the relays will be turned on, turned off, or not changed in critical situations.

All parameters connected with relay outputs are described in paragraph “**rEL1**” menu.

6.3.2. Two thresholds mode



Objasnienie:

- A, B, C, D, E** - points where measured signal exceeds border values (expected value \pm allowed deviation)
- B_{ON}, B_{OFF}, C_{ON}, C_{OFF}, E_{ON}, E_{OFF}** - relays state changes moments: (for “**t on**” > 0, “**toFF**” > 0)
- t_A, t_B, t_C, t_D, t_E** - time periods while input signal is in zone A or zone B

Figure 6.5. Principle of LED/relay output operation for two thresholds mode

Figure 6.5 presents the principle of relay outputs operation for two thresholds mode, and an example values of other parameters. In this mode parameter “**SEt2**” is accessible in common with “**SEtP**”, this parameter describes a second threshold of the relay output. The parameters “**HYSt**”, “**modE**”, “**t on**”, “**toFF**”, “**unit**” and “**AL**” are connected with both “**SEtP**” and “**SEt2**” thresholds. While the controlling process, the relay output changes his state depends of both “**SEtP**” and “**SEt2**” thresholds in similar way as it was described in one threshold mode.

If two threshold mode is used, “**modE**” parameter defines state of the relay output when the input value occurs in a particular zone defined by **border values** of both **thresholds**. The relay can be turned on if the input value is contained in **zone A** (“**modE**” = “**in**”) or **zone B** (“**modE**” = “**out**”) and turned off if it is contained in the second one (Figure 6.5).



The sequence of thresholds “**SEtP**” and “**SEt2**” can be set in any order, due to the control of relay outputs is done depend on difference between thresholds values (**zone A**) and outside of threshold values (**zone B**).

7. DEVICE PROGRAMMING

The device menu allow user to set all parameters connected to operation of measurement input, control modes, critical situations behaviour, communication via RS-485 and access settings. The meaning of the particular parameters is described in paragraph **MENU DESCRIPTION**.

Some of the parameters can be accessed without menu entering (quick view mode). If the measurement result is in the allowed range, second display is dimmed or shows one of the relay thresholds (selected threshold is signalized by LEDs marked **S1** and **S2**). To select other threshold use [**^**] and [**v**] buttons. If a **free access** is enabled (parameter “**AcCE**” = on), user can change the value of particular threshold pressing [**ENTER**] button (see: **PARAMETERS EDITION**).

7.1. PROGRAMMING MENU

To enter main menu (being in the measurement mode) operator must to press and hold at least 2 sec. [**ESC/MENU**] button.

If the user password is defined (see parameter “**Scod**“, menu “**SECU**”), operator have to enter correct one before proceeding to menu options . Entering of the passwords is similar to the edition of numeric parameters (see: **PARAMETERS EDITION**), however presently editing digit is showed only on the display, other digits are replaced by “-” sign.

After entering of last digit of the password first menu position will be displayed (if the password is correct) or warning “**Err**” in other case.



Pay attention when device parameters are being changed. If it is possible, turn off controlled installation (machine).

- "rEAL"** - current value is displayed,
- "HOLd"** - peak (drop) value is displayed,

"H r1", "H r2" - relay/LED outputs (R1, R2) operation mode:

- "rEAL"** - relay/LED operates depend on the current value,
- "HOLd"** - relay/LED operates depend on the peak (drop) value.

7.3.5. "SECu" menu

This menu contains presets connected with availability of other parameters:

"Scod" - user password (4-digits number). If this parameter is set at value **"0000"**, user password is turned off.

If the user do not remember his password, the access to the menu is possible by the "one-use password". To get this password please contact with Marketing Division. "Single use password" can be used only one time, after that it is destroyed. Entering this password causes in clearing of user password, it means sets the user password to „0000".



The "one-use password" can be used **ONE TIME ONLY**, it is impossible to use it again! The "one-use password" can be restored by Service Division only.

"A r1, A r2"- this option permits user (**"on"**) or prohibits (**"oFF"**) to modify the thresholds of the relays/LEDs R1, R2 without knowledge about user password.

7.3.6. "rS" menu

This menu is connected with RS-485 interface, and sets his properties:

"Addr" - this parameter defines the address of the device, accordingly to Modbus protocol. It can be set in range from 0 to 199. If the value 0 is set then device, responds to frames with address 255 (FFh).

"bAud" - this parameter determines RS-485 interface baud rate. It can be set to one of 8 possible values: **"1.2"**, **"2.4"**, **"4.8"**, **"9.6"**, **"19.2"**, **"38.4"**, **"57.6"**, **"115.2"**, which respond to the baud rates of 1200, 2400, 4800, 9600, 19200, 38400, 57600 and 115200 bit/s respectively.

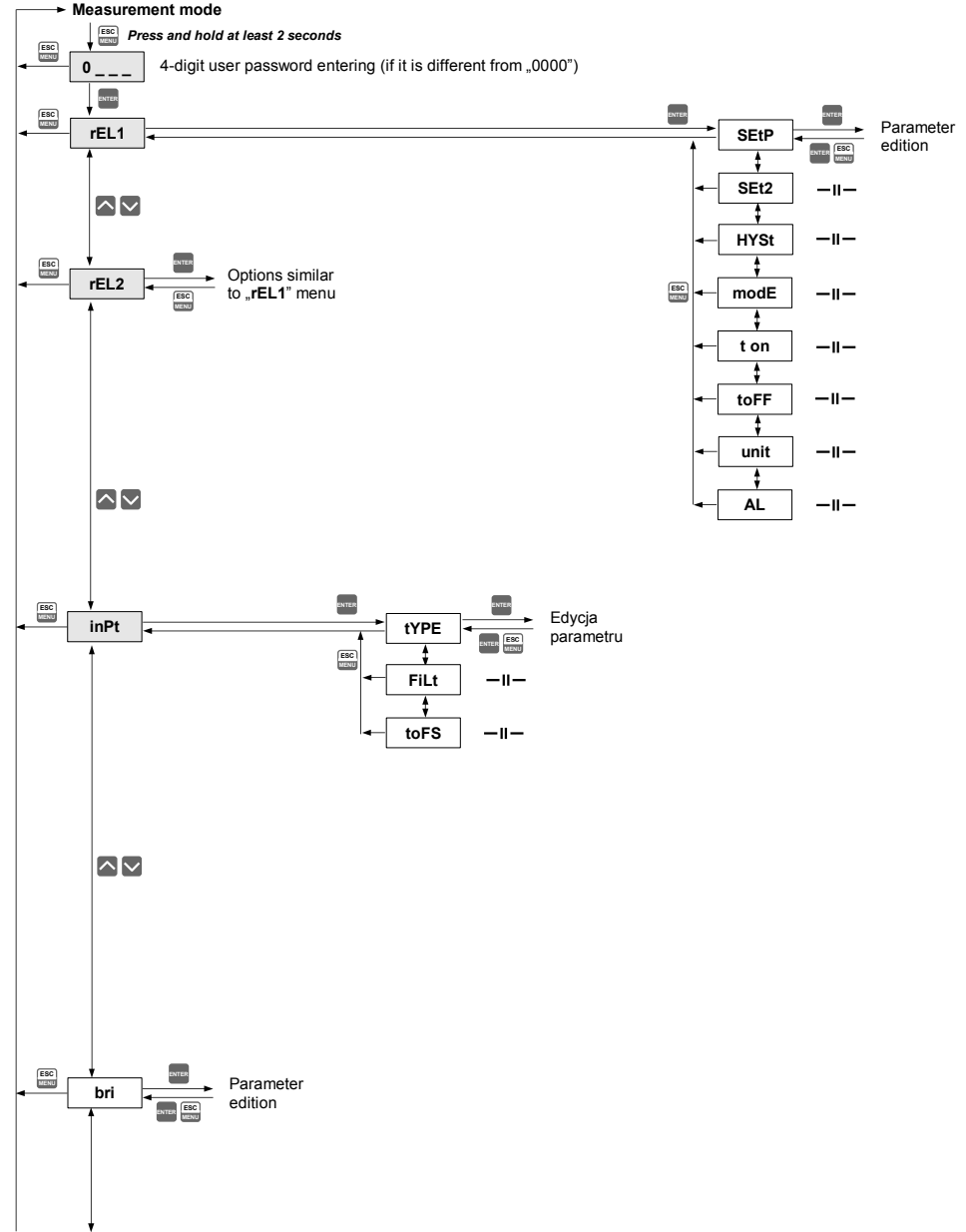
"mbAc" - this parameter sets the access to the configuration registers of the device.
Possible values:

- "on"** - configuration registers can be set via RS-485 interface,
- "oFF"** - configuration registers can not be set via RS-485 interface.



The access to registers no 04h i 05h cant be denied by **"mbAc"** parameter (see: **LIST OF REGISTERS**).

7.4. MENU STRUCTURE



See next page

Register	Write	Range	Register description
3Ch	Yes	0 ÷ 999	“toFF” parameter in “rEL2” menu, expressed in tenth of seconds or tenth of minutes depend on “unit” parameter - register no. 3Dh)
3Dh	Yes	0 ÷ 1	“unit” parameter in “rEL2” menu: 0 - seconds; 1 - minutes
3Eh	Yes	0 ÷ 2	“AL” parameter in “rEL2” menu: 0 - no changes; 1 - on; 2 - off
3Fh	Yes	-999 ÷ 9999	“SEt2” parameter in “rEL2” menu, no decimal point included
50h	Yes	0 ÷ 1	“mode” parameter in “HOLd” menu (type of detected changes): 0 - peaks; 1 - drops
51h	Yes	0 ÷ 9999	“PEA” parameter in “HOLd” menu (minimum detectable change, no decimal point included)
52h	Yes	0 ÷ 199	“timE” parameter in “HOLd” menu, maximum peaks' (or drops') display time expressed in seconds
53h	Yes	0 ÷ 1	“HdiS” parameter in “HOLd” menu: 0 - “rEAL” mode ; 1 - “HOLd” mode
54h	Yes	0 ÷ 1	“H r1” parameter in “HOLd” menu : 0 - “rEAL” mode ; 1 - “HOLd” mode
55h	Yes	0 ÷ 1	“H r2” parameter in “HOLd” menu: 0 - “rEAL” mode ; 1 - “HOLd” mode

- 2 - after writing to register no 20h the device responds with an “old” address in the message.
3 - after writing to register no 22h the device responds with the new baud rate.
4 - the value of the “mbAc” parameter is also connected to write to this register, so it is possible to block a writes, but impossible to unblock writes via RS-485 interface, The unblocking of the writes is possible from menu level only.

9.2. TRANSMISSION ERRORS DESCRIPTION

If an error occurs while write or read of single register, then the device sends an error code according to Modbus RTU specifications (example message no 1).

Error codes:

- 01h** - illegal function (only functions 03h, 06h and 10h are available),
02h - illegal register address
03h - illegal data value
08h - no write permission (see: “mbAc” parameter)
A0h - exceed of upper border of input range
60h - exceed of lower border of input range

A0h and 60h codes can appear only during reg. 01h is reading by 03h function (read of a single register).

9.3. EXAMPLES OF QUERY/ANSWER FRAMES

Examples apply for device with address 1. All values are represent hexadecimal.

Field description:

ADDR	Device address on modbus network
FUNC	Function code
REG H,L	Starting address (address of first register to read/write, Hi and Lo byte)
COUNT H,L	No. of registers to read/write (Hi and Lo byte)
BYTE C	Data byte count in answer frame
DATA H,L	Data byte (Hi and Lo byte)
CRC L,H	CRC error check (Hi and Lo byte)

1. Read of the displayed value (measurement), SRT-77 device address = 01h:

ADDR	FUNC	REG H,L		COUNT H,L		CRC L,H	
01	03	00	01	00	01	D5	CA

a) The answer (we assume that the measure result is not out of range):

ADDR	FUNC	BYTE C	DATA H,L		CRC L,H	
01	03	02	00	FF	F8	04

DATA H, L - displayed value = 255, no decimal point.
 Decimal point position can be read from reg. 03h.

b) The answer (if an error occur):

ADDR	FUNC	ERROR	CRC L,H	
01	83	60	41	18

ERROR - error code = 60h, bottom border of the measurement range is exceeded

2. Read of device ID code

ADDR	FUNC	REG H,L		COUNT H,L		CRC L,H	
01	03	00	21	00	01	D4	00

The answer:

ADDR	FUNC	BYTE C	DATA H,L		CRC L,H	
01	03	02	22	B1	60	90

DATA - identification code (22B1h)

3. Change of the device address from 1 to 2 (write to reg. 20h)

ADDR	FUNC	REG H,L		DATA H,L		CRC L,H	
01	06	00	20	00	02	09	C1

DATA H - 0
 DATA L - new device address (2)

The answer (the same as the message):

ADDR	FUNC	REG H,L		DATA H,L		CRC L,H	
01	06	00	20	00	02	09	C1

4. Change of baud rate of all devices connected to the net (BROADCAST message).

ADDR	FUNC	REG H,L		COUNT H,L		CRC L,H	
00	06	00	22	00	04	29	D2

DATA H - 0
 DATA L - 4, new baud rate 19200 baud



Device do not reply to BROADCAST-type messages.

5. Read of the registers 1, 2 and 3 in one message (example of reading a number of registries in one frame):

ADDR	FUNC	REG H,L		COUNT H,L		CRC L,H	
01	03	00	01	00	03	54	0B

COUNT L - the count of being read registers (max.16)

The answer:

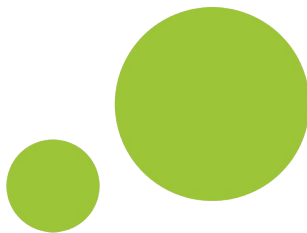
ADDR	FUNC	BYTE C	DATA H1,L1		DATA H2,L2		DATA H3,L3		CRC L,H	
01	03	06	00	0A	00	00	00	01	78	B4

DATA H1, L1 - reg. 01h (10 - displayed value "1.0"),
 DATA H2, L2 - reg. 02h (0 - no errors),,
 DATA H3, L3 - reg. 03h (1 - decimal point position " 0.0").



There is no full implementation of the Modbus Protocol in the device. The functions presented above are available only.

<i>Parameter</i>	<i>Description</i>	<i>Default value</i>	<i>User's value</i>	<i>Desc. page</i>
A r1	Permission to changes of relay R1 threshold without of the user password knowledge	on		25
A r2	Permission to changes of relay R2 threshold without of the user password knowledge	on		25
RS 485 interface configuration (menu "rS")				
Addr	Device address	0		25
bAud	Baud rate	9.6		25
mbAc	Permission to changes of configuration registers	on		25
mbtO	Maximum delay between received messages	0		26
rESP	Additional delay of answer transmission	Std		26
Configuration of numerical parameters edition				
Edit	Numerical parameters edit mode	dig		26



Microlectra bv.

Augustapolder 12. 2992 SR Barendrecht. The Netherlands.
www.microlectra.nl info@microlectra.nl