

Operating Instructions for

Digital Indicating Unit

Standard signals 0/4-20 mA, 0-10 VDC

Model: DAG-S4V..., 96 x 48 mm



We don't accept warranty and liability claims neither upon this publication nor in case of improper treatment of the described products.

The document may contain technical inaccuracies and typographical errors. The content will be revised on a regular basis. These changes will be implemented in later versions. The described products can be improved and changed at any time without prior notice.

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2. Note

Please read these operating instructions before unpacking and putting the unit into operation. Follow the instructions precisely as described herein.

The instruction manuals on our website www.kobold.com are always for currently manufactured version of our products. Due to technical changes, the instruction manuals available online may not always correspond to the product version you have purchased. If you need an instruction manual that corresponds to the purchased product version, you can request it from us free of charge by email (info.de@kobold.com) in PDF format, specifying the relevant invoice number and serial number. If you wish, the operating instructions can also be sent to you by post in paper form against an applicable postage fee.

Operating instructions, data sheet, approvals and further information via the QR code on the device or via www.kobold.com

The devices are only to be used, maintained and serviced by persons familiar with these operating instructions and in accordance with local regulations applying to Health & Safety and prevention of accidents.

When used in machines, the measuring unit should be used only when the machines fulfil the EC machinery directive.

3. Instrument Inspection

Instruments are inspected before shipping and sent out in perfect condition.

Should damage to a device be visible, we recommend a thorough inspection of the delivery packaging. In case of damage, please inform your parcel service / forwarding agent immediately, since they are responsible for damages during transit.

Scope of delivery:

The standard delivery includes:

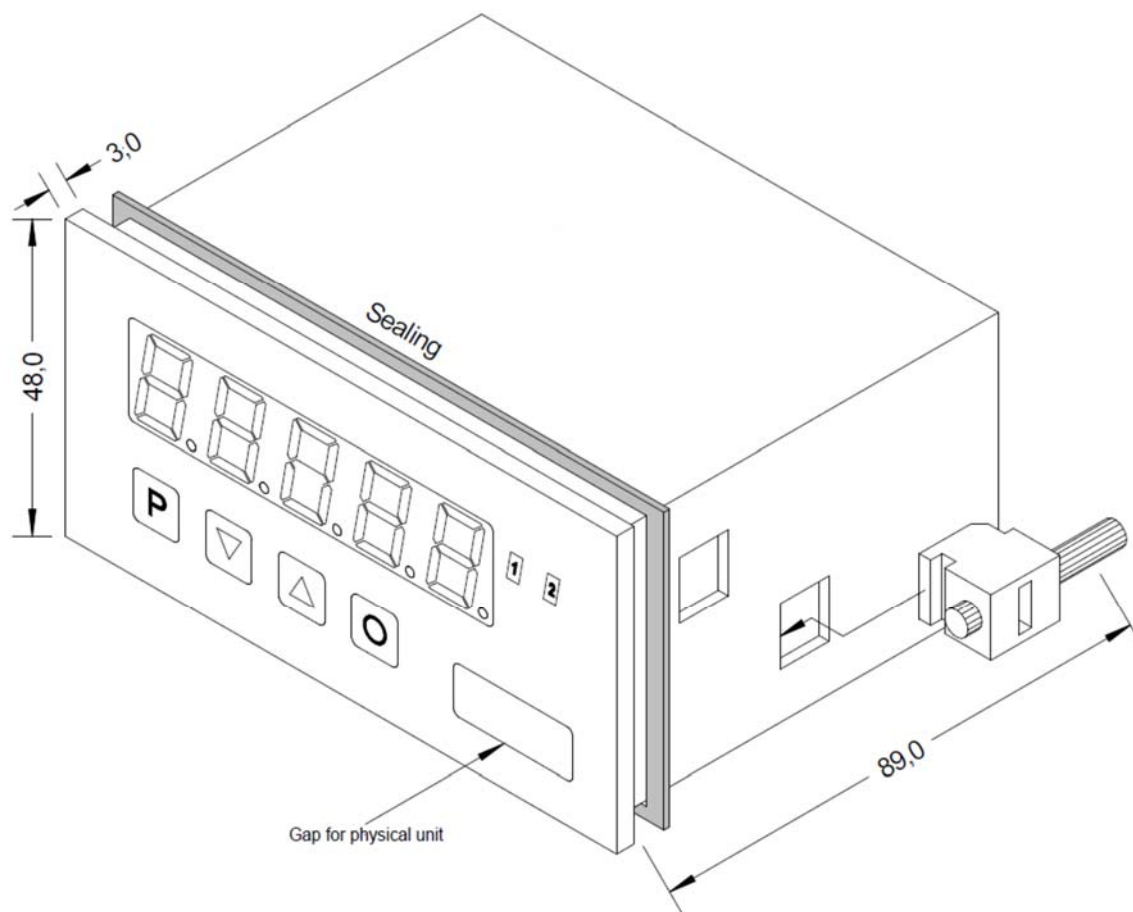
- Digital Indicating Unit model: DAG-S4V

4. Regulation Use

Any use of the device, which exceeds the manufacturer's specification, may invalidate its warranty. Therefore, any resulting damage is not the responsibility of the manufacturer. The user assumes all risk for such usage.

5. Assembly

Please read the Safety advices on page 41 before installation and keep this user manual for future reference.



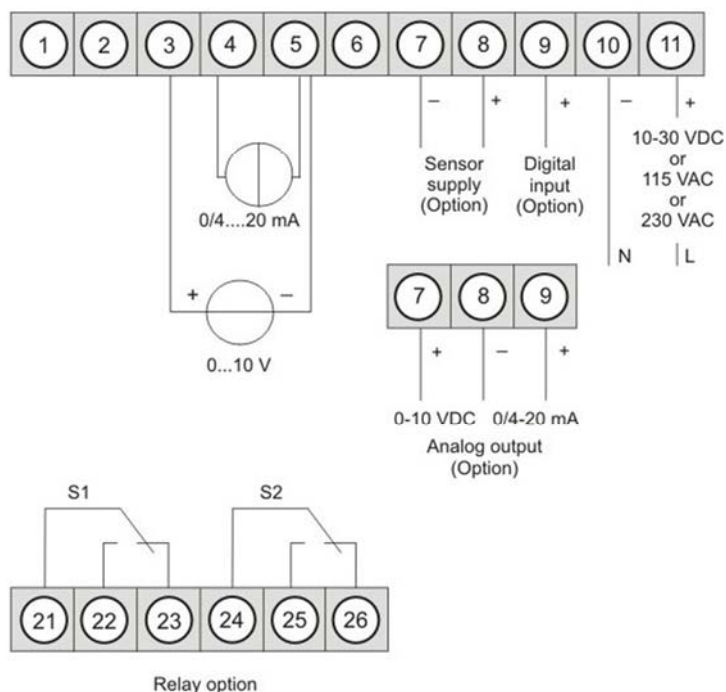
1. After removing the fixing elements, insert the device.
2. Check the seal to make sure it fits securely.
3. Click the fixing elements back into place and tighten the clamping screws by hand. Then use a screwdriver to tighten them another half a turn.

CAUTION! The torque should not exceed 0.1 Nm!

The dimension symbols can be exchanged before installation via a channel on the side!

6. Electrical connection

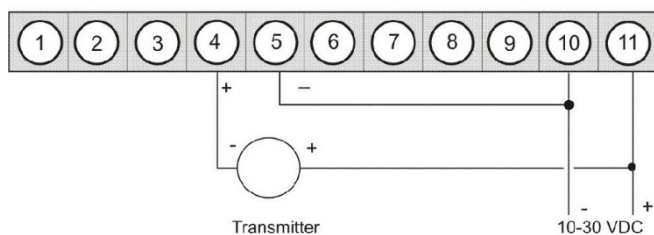
DAG-S4V0 ... with power supply 230 VAC
 DAG-S4V4 ... with power supply 115 VAC
 DAG-S4V3 ... with power supply 10-30 VDC



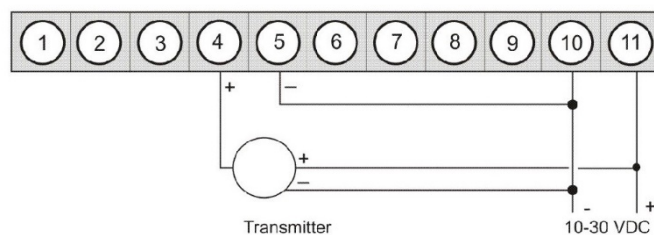
Connection examples

Below you find some connection examples, which demonstrate some practical applications:

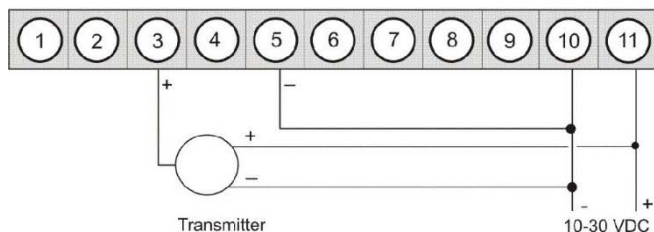
DAG-S4V ... in combination with a 2-wire-sensor 4-20 mA



DAG-S4V ... in combination with a 3-wire-sensor 0(4)-20 mA



DAG-S4V ... in combination with a 3-wire-sensor 0...10 V

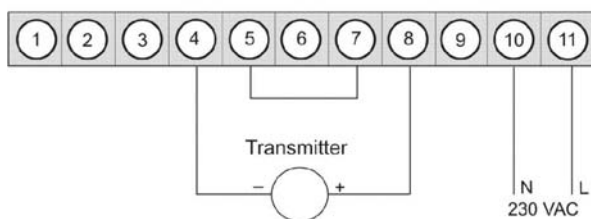
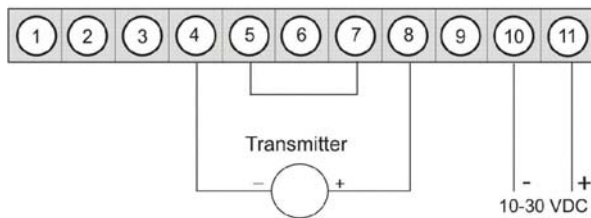


DAG-S4V

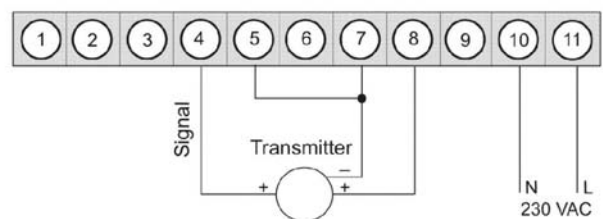
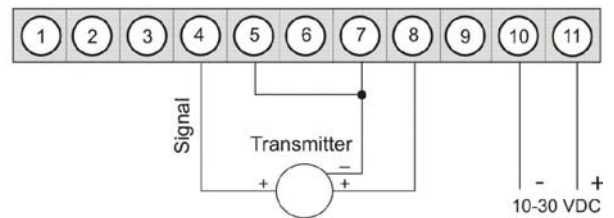
DAG-S4... devices

With current / voltage input connection with a 10-30 VDC sensor supply.

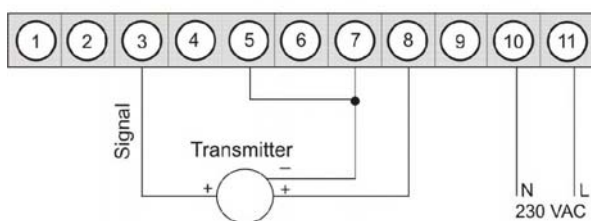
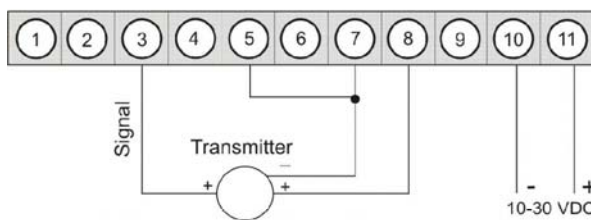
2-wire-sensor: 4-20 mA



3-wire-sensor: 0-20 mA



3-wire-sensor: 0-10 V



7. Functions and operation description

Operation

The operation is divided into three different levels.

Menu level (delivery status)













This level is for the standard settings of the device. Only menu items which are sufficient to set the device into operation are displayed. To get into the professional level, run through the menu level and parameterize “**prof**” under menu item **RUN**.

Menu group level (complete function volume)

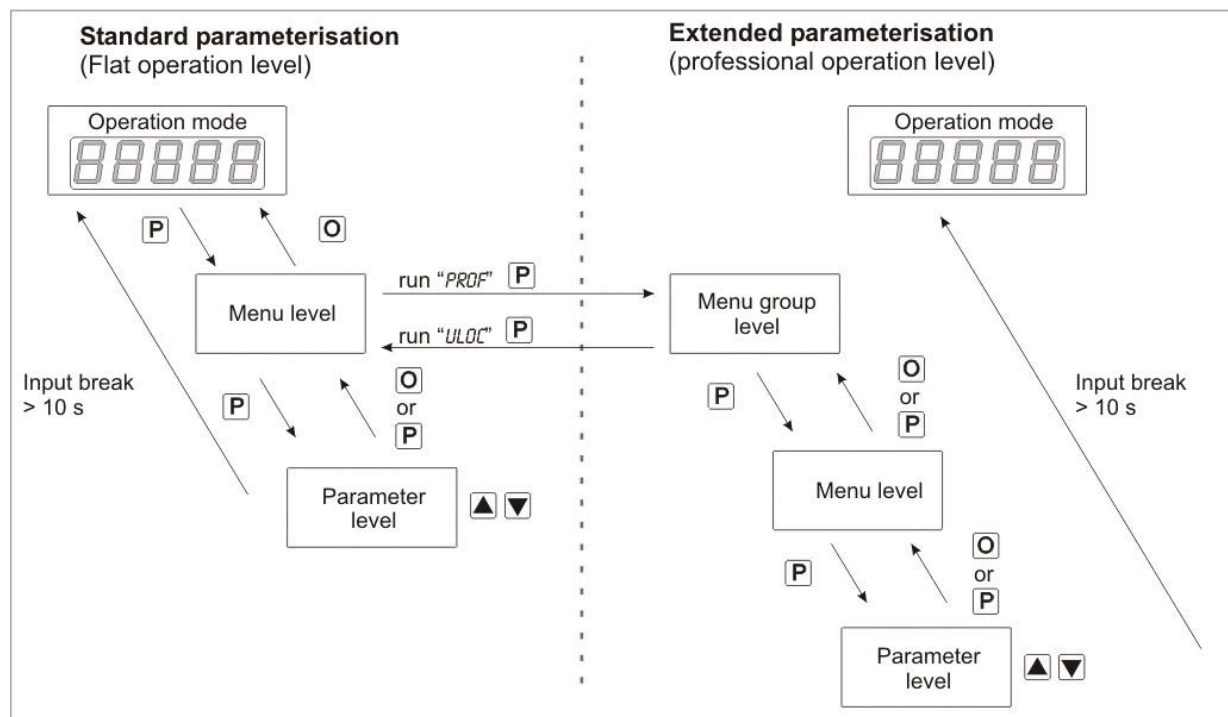
Suited for complex applications as e.g. linkage of alarms, setpoint treatment, totalizer function etc. In this level function groups which allow an extended parameterization of the standard settings are available. To leave the menu group level, run through this level and parameterize “**uloc**” under menu item **RUN**.

Parameterization level

Parameter deposited in the menu item can here be parameterized. Functions, that can be changed or adjusted, are always signaled by a flashing of the display. Settings that are made in the parameterization level are confirmed with **[P]** and thus saved. By pressing the **[0]-key** (zero-key) it leads to a break-off of the value input and to a change into the menu level. All adjustments are saved automatically by the device and it changes into operating mode, if no further key operation is done within the next 10 seconds.

Level	Key	Description
Menu level		Change to parameterisation level and deposited values.
	 	Keys for up and down navigation in the menu level.
		Change into operation mode.
Parameterisation level		To confirm the changes made at the parameterization level.
	 	Adjustment of the value / the setting.
		Change into menu level or break-off in value input.
Menu group level		Change to menu level.
	 	Keys for up and down navigation in the menu group level.
		Change into operation mode or back into menu level.

Function chart:



Underline:

- P** Takeover
- O** Stop
- ▲** Value selection (+)
- ▼** Value selection (-)

8. Setting up the device

8.1 Switching-on




Once, the installation is complete, you can start the device by applying the voltage supply. Before, check once again that all electrical connections are correct.






Starting sequence

For 1 second during the switching-on process, the segment test (**8 8 8 8 8**) is displayed followed by an indication of the software type and after that, also for 1 second the software version. After the starting sequence, the device switches to operation / display mode.







8.2 Standard parameterization (flat operation level)

To parameterize the display, press the **[P]** key in operating mode for 1 second. The display then changes to the menu level with the first menu item **TYPE**.

Menu level	Parameterisation level
	<p>Selection of the input signal, TYPE:</p> <p>TYPE P 0-10 ▲ ▼ 0-20 ▲ ▼ 4-20 ▲ ▼ SenSU ▲ ▼ SenSA P</p> <p>There are several measuring input options: 0/4-20 mA or 0-10 VDC signals as works calibration (without application of the sensor signal) and SenSU (voltage) or SenSA (current) as sensor calibration (with the sensor applied). Confirm the selection with [P] and the display switches back to menu level.</p>
	<p>Setting the measuring range end value, END:</p> <p>End P 8 P 8 P 8 P 8 P 8 ▲ ▼ nOCA ▲ ▼ CAL ▼ P</p> <p>Set the end value from the smallest to the highest digit with [▲] [▼] and confirm each digit with [P]. A minus sign can only be parametrized on the highest value digit. After the last digit, the display switches back to the menu level. If Sens was selected as input option, you can only select between noca and cal. With noca, only the previously set display value is taken over, and with cal, the device takes over both the display value and the analogue input value.</p>
	<p>Setting up the measuring range start/offset value, offs:</p> <p>OFFS P 8 P 8 P 8 P 8 P 8 ▲ ▼ nOCA ▲ ▼ CAL ▼ P</p> <p>Enter the start/offset value from the smallest to the highest digit with [▲] [▼] and confirm each digit with [P]. After the last digit the display switches back to the menu level. If Sens was selected as input option, you can only select between noca and cal. With noca, only the previously set display value is taken over, and with cal, the device takes over both the display value and the analogue input value.</p>

Menu level	Parameterisation level
	Setting the decimal point, dot:  <p>The decimal point on the display can be moved with [▲] [▼] and confirmed with [P]. The display then switches back to the menu level again.</p>
	Setting up the display time, SEC:  <p>The display time is set with [▲] [▼]. The display moves up in increments of 0.1 sec up to 1 sec and in increments of 1.0 sec up to 10.0 sec. Confirm the selection by pressing the [P] button. The display then switches back to the menu level again.</p>
	Selection of analog output, Out.rA:  <p>Three output signals are available: 0-10 VDC, 0-20 mA and 4-20 mA, with this function, the demanded signal is selected.</p>
	Setting up the final value of the analog output, Out.En:  <p>The final value is adjusted from the smallest digit to the highest digit with [▲] [▼] and digit by digit confirmed with [P]. A minus sign can only be parametrised on the highest digit. After the last digit, the device changes back into menu level.</p>
	Setting up the initial value of the analog output, Out.OF:  <p>The final value is adjusted from the smallest digit to the highest digit with [▲] [▼] and digit by digit confirmed with [P]. A minus sign can only be parametrised on the highest digit. After the last digit, the device changes back into menu level.</p>

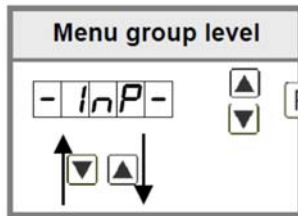
Menu level	Parameterisation level
	Threshold values / limit values, LI-1:
	<p>For both limit values, two different values can be parameterized. With this, the parameters for each limit value are called up one after another.</p>
	Hysteresis for limit values, HY-1:
	<p>For all limit values exists a hysteresis function, that reacts according to the settings (threshold exceedance / threshold undercut).</p>
	Function if display falls below / exceeds limit value, FU-1:
	<p>The limit value undercut can be selected with Low (LOW = lower limit value) and limit value exceedance can be selected with high (HIGH = upper limit value). If e.g. limit value 1 is on a switching threshold of 100 and occupied with function „high“, the alarm will be activated by reaching the threshold. If the limit value is allocated to „Low“, an alarm will be activated by undercut of the threshold.</p>
	Threshold values / limit values, LI-2:
	<p>For both limit values, two different values can be parameterized. With this, the parameters for each limit value are called up one after another.</p>
	Hysteresis for limit values, HY-2:
	<p>For all limit values exists a hysteresis function, that reacts according to the settings (threshold exceedance / threshold undercut).</p>

Menu level	Parameterisation level
	<p>Function if display falls below / exceeds limit value, FU-2:</p> <p></p> <p>A limit value undercut is selected with Low (for LOW = lower limit value), a limit value exceedance with High (for HIGH = higher limit value). If e.g. limit value 1 is on a threshold level of 100 and allocated with function High, an alarm is activated by reaching of the threshold level. By allocation of limit value Low, an alarm is activated by falling below the threshold value.</p>
	<p>User code (4-digit number-combination, free available), U.Code:</p> <p></p> <p>If this code is set, the user can only choose from a reduced number of parameter sets. He has e.g. no access to the scale of the measuring inputs. Still, a changing of the limit values and the allocation of the analog output are allowed. This reduced parameterisation is activated by selecting LOC in menu item run. The device confirms the setting with „- - - -“, and changes into operation mode. By pressing [P] for 3 seconds in operation mode, the display shows Code and thus confirms the change into the reduced parameterisation. It stays activated as long as the standard parameterisation is re-activated by the input of A.Code (master code).</p>
	<p>Master code (4-digit number-combination free available), A.Code:</p> <p></p> <p>No parameterisation is allowed if this code is set. This function is activated by selecting LOC in menu item run. The device confirms the setting with „- - - -“, and changes into operation mode. By pressing [P] for 3 seconds in operation mode, the display shows Code and thus confirms the activation of the master code. The user can only come to the parameterisation by the correct input of the number-combination. It stays activated as long as ULOC is entered in menu group run, this sets the device back into standard parameterisation.</p>

Menu level	Parameterisation level
<div data-bbox="300 421 496 465"> <div>run</div> <div>P</div> </div> <div data-bbox="300 562 427 658"> <div> <div> <div>▲</div> <div>▼</div> </div> <div> <div>▲</div> <div>▼</div> </div> </div> </div>	<p data-bbox="491 300 1471 389">Activation / deactivation of the programming lock or completion of the standard parameterization with change into menu group level (complete function range), run:</p> <div data-bbox="528 409 1187 477"> <div>ULOC</div> <div>▲</div> <div>▼</div> <div>LOC</div> <div>▲</div> <div>▼</div> <div>ProF</div> <div>P</div> </div> <p data-bbox="491 506 1471 730">With the navigation keys [▲] [▼], one can choose between the deactivated key lock Uloc (works setting) and the activated key lock Loc, or the menu group level ProF. Confirm the selection with [P]. After this, the display confirms the settings with "- - - -", and automatically switches to operating mode. If Loc was selected, the keyboard is locked. To get back into the menu level, press [P] for 3 seconds in operating mode. Now enter the CODE (works setting 1 2 3 4) that appears using [▲] [▼] plus [P] to unlock the keyboard. FAIL appears if the input is wrong.</p> <p data-bbox="491 734 1471 920">To parametrise further functions, ProF needs to be set. The device confirms this setting with „- - - -“, and changes automatically into operation mode. By pressing [P] for approx. 3 seconds in operation mode, the first menu group InP is shown in the display and thus confirms the change into the extended parameterisation. It stays activated as long as ULOC is entered in menu group RUN, thus the display is set back in standard parameterisation again.</p>












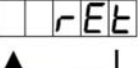
8.3 Extended parameterization (professional operation level)

8.3.1 Signal input parameters

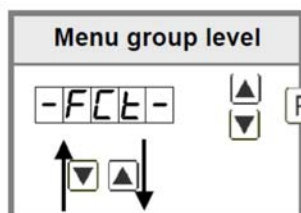


Menu level	Parameterisation level
	Selection of input signal tYPE: <div>TYPE P 0-10 0-20 4-20 SenSU SenSA P</div> <p>There are several measuring input options: 0/4-20 mA or 0-10 VDC signals as works calibration (without application of the sensor signal) and SensU (voltage) or SensA (current) as sensor calibration (with the sensor applied). Confirm the selection with [P] and the display switches back to menu level.</p>
	Setting the measuring range final value, END: <div>End P 8 P 8 P 8 P 8 P 8 nOCA CAL P</div> <p>Set the final value from the smallest to the highest digit with [▲] [▼] and confirm each digit with [P]. A minus sign can only be parametrized on the highest value digit. After the last digit, the display switches back to the menu level. If Sens was selected as input option, you can only select between noca and cal. With noca, only the previously set display value is taken over, and with cal, the device takes over both the display value and the analogue input value.</p>
	Setting the measuring range start/offset value, offs: <div>OFFS P 8 P 8 P 8 P 8 P 8 nOCA CAL P</div> <p>Enter the start/offset value from the smallest to the highest digit [▲] [▼] and confirm each digit with [P]. After the last digit the display switches back to the menu level. If Sens was selected as the input option, you can only select between noca and cal. With noca, only the previously set display value is taken over, and with cal, the device takes over both the display value and the analogue input value.</p>







Menu level	Parameterisation level
<div> <div>dot</div> <div>P</div> <div> <div>0</div> <div>00</div> <div>000</div> <div>0000</div> <div>00000</div> </div> <div> <div>▲</div> <div>▼</div> </div> </div> <div> <div>▲</div> <div>▼</div> </div>	<p>Setting the decimal point, dot:</p> <p>The decimal point on the display can be moved with [▲] [▼] and confirmed with [P]. The display then switches back to the menu level again.</p>
<div> <div>SEC</div> <div>P</div> <div> <div>00.1</div> <div>00.9</div> </div> <div>then</div> <div> <div>0.10</div> <div>10.0</div> </div> <div> <div>▲</div> <div>▼</div> </div> </div> <div> <div>▲</div> <div>▼</div> </div>	<p>Setting up the display time, SEC:</p> <p>The display time is set with [▲] [▼]. The display moves up in increments of 0.1 sec up to 1 sec and in increments of 1.0 sec up to 10.0 sec. Confirm the selection by pressing the [P] button. The display then switches back to the menu level again.</p>
<div> <div>EndA</div> <div>P</div> <div> <div>8</div> <div>8</div> <div>8</div> <div>8</div> <div>8</div> </div> <div> <div>▲</div> <div>▼</div> </div> </div> <div> <div>▲</div> <div>▼</div> </div>	<p>Rescaling the measuring input values, EndA:</p> <p>With this function, you can rescale the input value of e.g. 19.5 mA (works setting) without applying a measuring signal. If sensor calibration has been selected, these parameters are not available.</p>
<div> <div>OFFSA</div> <div>P</div> <div> <div>8</div> <div>8</div> <div>8</div> <div>8</div> <div>8</div> </div> <div> <div>▲</div> <div>▼</div> </div> </div> <div> <div>▲</div> <div>▼</div> </div>	<p>Rescaling the measuring input values, OFFSA:</p> <p>With this function, you can rescale the input value of e.g. 3.5 mA (works setting) without applying a measuring signal. If sensor calibration has been selected, these parameters are not available.</p>
<div> <div>tArA</div> <div>P</div> <div> <div>0</div> <div>0</div> <div>0</div> <div>0</div> <div>0</div> </div> <div> <div>▲</div> <div>▼</div> </div> </div> <div> <div>▲</div> <div>▼</div> </div>	<p>Setting up the tare/offset value, tArA:</p> <p>The given value is added to the linearized value. In this way, the characteristic line can be shifted by the selected amount.</p>
<div> <div>Unit</div> <div>P</div> <div> <div>°C</div> <div>F</div> <div>L</div> <div>A</div> <div>U</div> <div>t</div> </div> <div> <div>▲</div> <div>▼</div> </div> </div> <div> <div>▲</div> <div>▼</div> </div>	<p>Setting up the physical unit, Unit:</p> <p>One can choose between the above shown physical units. It will be displayed on the 5th digit of the display.</p>

Menu level	Parameterisation level
	Number of additional setpoints, SPct:  <p>8 additional setpoints can be defined to the initial- and final value, so linear sensor values are not linearised. Only activated setpoint parameters are displayed.</p>
	Display values for setpoints, dIS.01 ... dIS.30:  <p>Under this parameter setpoints are defined according to their value. At the sensor calibration, like at Endwert/Offset, one is asked at the end if a calibration shall be activated.</p>
	Analog values for setpoints, InP.01 ... InP.30:  <p>These setpoints are displayed at works setting (4-20 mA) only. Here, demanded analog values can be chosen freely. The input of steadily rising analog values needs to be done self-contained.</p>
	Device undercut, dI.Und:  <p>With this function the device undercut (_ _ _ _) can be defined on a definite value. Exception is input type 4-20 mA, it already shows undercut at a signal <1 mA, so a sensor failure is marked.</p>
	Display overflow, dI.OUE:  <p>With this function the display overflow (_ _ _ _) can be defined on a definite value.</p>
	Back to menu group level, rEt:  <p>With [P] the selection is confirmed and the device changes into menu group level „-INP-“.</p>

8.3.2 General device parameters

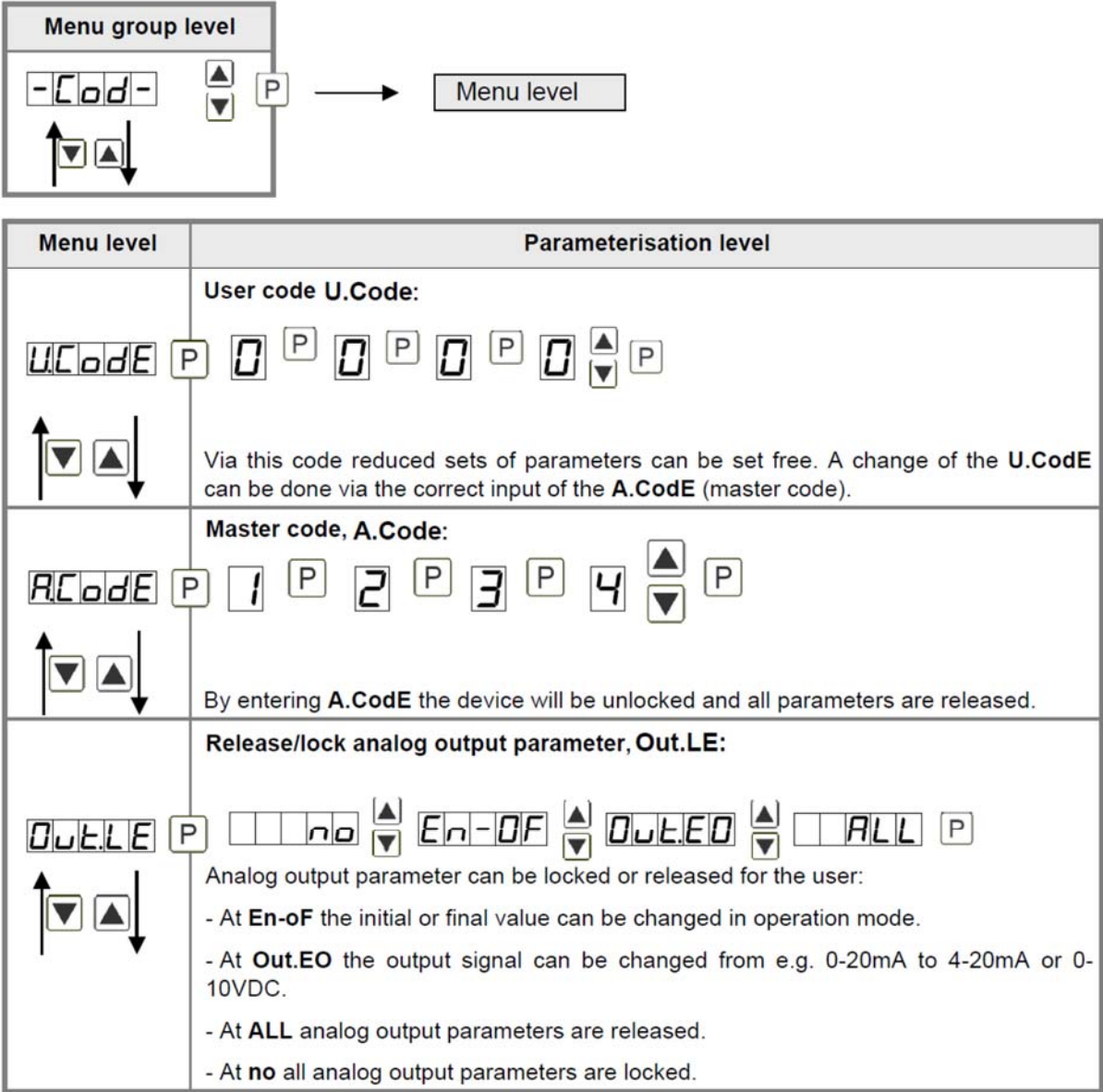





Menu level	Parameterisation level
<p>Display time, DISEC:</p> <p>d1.5EC P</p> <p>00.1 00.9 then 0.10 100 P</p> <p>The display is set up with [▲] [▼]. Thereby you jump until 1 second in increments of 0.1 and until 10.0 seconds in increments of 1.0. With [P] the selection is confirmed and the device changes into menu level.</p>	
<p>Rounding of display values, round:</p> <p>round P</p> <p>00001 00005 00010 00050 P</p> <p>This function is for instable display values, where the display value is changed in 1-, 5-, 10- or 50-steps. This does not affect the resolution of the optional outputs. With [P] the selection is confirmed and the device changes into menu level.</p>	
<p>Arithmetic, Arlth:</p> <p>Arlth P</p> <p>no RE21P rAdIC SQUAr P</p> <p>Reciprocal Root extraction Square</p> <p>With this function the calculated value, not the measuring value, is shown in the display. With no, no calculation is deposited. With [P] the selection is confirmed and the device changes into menu level.</p>	
<p>Zero point tranquilisation, ZER0:</p> <p>ZER0 P</p> <p>0 P 0 P</p> <p>At the zero point tranquilisation, a value range around the zero point can be preset, so the display shows a zero. If e.g. a 10 is set, the display would show a zero in the value range from -10 to +10; below continue with -11 and beyond with +11.</p>	

Menu level	Parameterisation level
	<p>Display, diSPL:</p> <p>  </p> <p>  </p> <p>With this function the current measuring value, Min-/Max value, totaliser value or the process-controlled Hold-value can be allocated to the display. With [P] the selection is confirmed and the device changes into menu level.</p>
	<p>Display flashing, FLASH:</p> <p>  </p> <p>  </p> <p>A display flashing can be added as additional alarm function either to single or to a combination of off-limit condition. With no, no flashing is allocated.</p>
	<p>Assignment (deposit) of key functions, tASt:</p> <p>  </p> <p>  </p> <p>For the operation mode, special functions can be deposited on the navigation keys [▲] [▼], in particular this function is made for devices in housing size 48x24 which do not have a fourth key ([O] key). If the MIN-/MAX-memory is activated with EHtr, all measured MIN-/MAX-values are safed during operation and can be recalled via the navigation keys. The values get lost by re-start of the device. If the threshold value correction LI.12 or LI.34 is choosen, the values of the threshold can be changed during operation without disturbing the operating procedure. With tArA the device is set temporarily on a parametrised value. The device acknowledges the correct taring with oo0oo in the display. Set.tA adds a defined value on to the currently displayed value. Via totAL the current value of the totaliser can be displayed for approx.7 seconds, after this the device jumps back on the parametrised display value. If tot.rE is deposited, the totaliser can be set back by pressing of the navigation keys [▲] [▼], the device acknowledges this with ooooo in the display. By allocation on EHt.rE the MIN-/MAX-memory is deleted. At ActuA the measuring value is shown for approx. 7 seconds, after this the device jumps back on the parametrised display value. If no is selected, the navigation keys are without any function in the operation mode.</p>

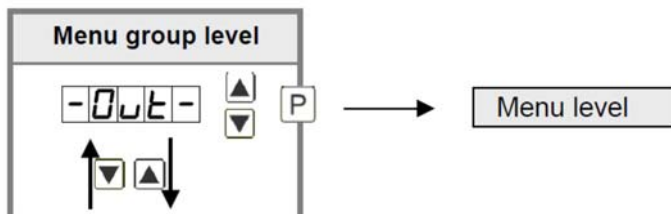
Menu level	Parameterisation level
<div> <div>tARSt.4</div> <div>P</div> <div> <div>↑</div> <div>▼</div> <div>▲</div> <div>▼</div> </div> </div>	<p>Special function [O]-key, tARSt.4:</p> <div> <div>tARrA</div> <div>▲</div> <div>▼</div> <div>SEt.tA</div> <div>▲</div> <div>▼</div> <div>to.tAL</div> <div>▲</div> <div>▼</div> </div> <div> <div>to.t.rE</div> <div>▲</div> <div>▼</div> <div>EHT.rE</div> <div>▲</div> <div>▼</div> <div>Act.uA</div> <div>▲</div> <div>▼</div> </div> <div> <div>HoLD</div> <div>▲</div> <div>▼</div> <div>AL-1 ...</div> <div>AL-4</div> <div>▲</div> <div>▼</div> <div>no</div> <div>P</div> </div> <p>For the operation mode, special functions can be deposited on the [O]-Taste. This function is activated by pressing the key. With tArA the device is set temporarily on a parametrised value. The device acknowledges the correct taring with oo0oo in the display. Set.tA adds a defined value on to the currently displayed value. Via totAL the current value of the totaliser can be displayed for approx. 7 seconds, after this the device jumps back on the parametrised display value. If tot.rE is deposited, the totaliser can be set back by pressing of the navigation keys [▲] [▼], the device acknowledges this with oooo in the display. EHT.rE deletes the MIN/MAX-memory. If HOLD has been selected, the moment can be hold constant by pressing the [O]-key, and is updated by releasing the key. Advice: Hold is activated only, if HOLD is selected under parameter DISPL. Act.uA shows the measuring value for approx. 7 seconds, after this the device jumps back on the parametrised display value. At AL-1 ...AL-4 there can be set an output and therewith e.g. a setpoint adjustment can be done. If no is selected, the [O]-key is without any function in the operation mode.</p>
<div> <div>dI GIn</div> <div>P</div> <div> <div>↑</div> <div>▼</div> <div>▲</div> <div>▼</div> </div> </div>	<p>Special function digital input, dIG.In:</p> <div> <div>tARrA</div> <div>▲</div> <div>▼</div> <div>SEt.tA</div> <div>▲</div> <div>▼</div> <div>to.tAL</div> <div>▲</div> <div>▼</div> </div> <div> <div>to.t.rE</div> <div>▲</div> <div>▼</div> <div>EHT.rE</div> <div>▲</div> <div>▼</div> <div>Act.uA</div> <div>▲</div> <div>▼</div> </div> <div> <div>HoLD</div> <div>▲</div> <div>▼</div> <div>AL-1 ...</div> <div>AL-4</div> <div>▲</div> <div>▼</div> <div>no</div> <div>P</div> </div> <p>In operation mode, the above shown parameter can be laid on the optional digital input, too. Function description see tARSt.4.</p>
<div> <div>rEt</div> <div> <div>↑</div> <div>▼</div> <div>▲</div> <div>▼</div> </div> </div>	<p>Back to menu group level, rEt:</p> <p>With [P] the selection is confirmed and the device changes into menu group level „- fct -“.</p>



8.3.3 Safety parameters












Menu level	Parameterisation level
	Release/lock alarm parameters, AL.LEU:  <p>This parameter describes the user relase/user lock of the alarm.</p> <ul style="list-style-type: none"> - LIMIt, here only the range of value of the threshold values 1-4 can be changed. - ALrM.L, here the range of value and the alarm trigger can be changed. - ALL, all alarm parameters are released. - no, all alarm parameters are locked.
	Back to menu group level, rEt: <p>With [P] the selection is confirmed and the device changes into menu group level „- COD -“.</p>

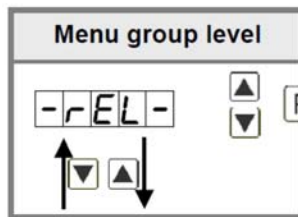
8.3.4 Analogue output parameters



Menu level	Parameterisation level
	Selection reference analog output, OutPt:  <p>The analog output signal can refer to different functions, in detail this are the current measuring value, Min-value, Max-value or totaliser-/sum-function. If HoLd is selected the signal of the analog output will be hold and processed just after deactivation of HOLD. With [P] the selection is confirmed and the device changes into menu level.</p>


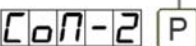


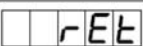
Menu level	Parameterisation level
	Selection analog output, Out.rA:  <p>There are 3 output signals available: 0-10 VDC, 0-20 mA and 4-20 mA. With this function the demanded signal can be selected.</p>
	Setting up the final value of the analog output, Out.En:  <p>The final value can be adjusted from the smallest to the largest digit with [▲] [▼]. Confirm each digit with [P]. A minus sign can only be parametrized on the highest value digit. After the last digit, the display switches back to the menu level.</p>
	Setting up the initial value of the analog output, Out.OF:  <p>The initial value can be adjusted from the smallest to the largest digit with [▲] [▼]. Confirm each digit with [P]. A minus sign can only be parametrized on the highest value digit. After the last digit, the display switches back to the menu level.</p>
	Overflow behavior, O.FLoU:  <p>To recognise and evaluate faulty signals, e.g. by a controller, the overflow behavior of the analog output can be defined. As overflow can be seen either EdGE, that means the analog output runs on the set limits e.g. 4 and 20 mA, or to.OFF (input value smaller than initial value, analog output jumps on e.g. 4 mA), to.End (higher than final value, analog output jumps on e.g. 20 mA). If to.Min or to.MAX is set, the analog output jumps on the smallest or highest possible binary value. This means that values of e.g. 0 mA, 0 VDC or values higher than 20 mA or 10 VDC can be reached. With [P] the selection is confirmed and the device changes into menu level.</p>
	Back to menu group level, rEt: <p>With [P] the selection is confirmed and the device changes into menu group level „-out-“.</p>

8.3.5 Relay functions

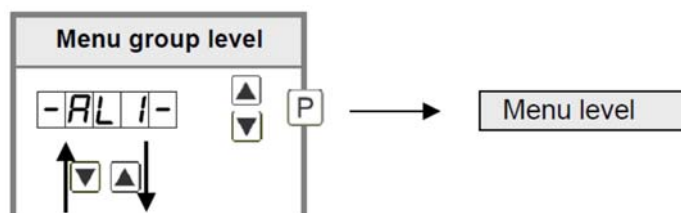



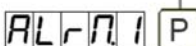

Menu level	Parameterisation level												
	<p>Alarm relay 1, rEL-1:</p> <div><div><div>↑</div><div>▼</div><div>▲</div><div>↓</div></div><div><div>rEL-1</div><div>P</div><div><div>AL-1</div><div>....</div><div>AL-4</div><div>▲</div><div>▼</div></div><div><div>AL-n1</div><div>....</div><div>AL-n4</div><div>▲</div><div>▼</div></div><div><div>LoGIC</div><div>▲</div><div>▼</div><div><div>OFF</div><div>▲</div><div>▼</div><div><div>On</div><div>P</div></div></div></div><p>Each setpoint (optional) can be linked up via 4 alarms (by default). This can either be inserted at activated alarms AL1/4 or de-activated alarms ALN1/4. If LOGIC is selected, logical links are available in the menu level LoG-1 and CoM-1. One can only get to these two menu levels via LOGIC, at all other selected functions, these two parameters are overleaped. Via On/OFF the setpoints can be activated/de-activated, in this case the output and the setpoint display are set/not set on the front of the device. With [P] the selection is confirmed and the device changes into menu level.</p></div></div>												
	<p>Logic relay 1, Log-1</p> <div><div><div>↑</div><div>▼</div><div>▲</div><div>↓</div></div><div><div>LoG-1</div><div>P</div><div><div><div>or</div><div>▲</div><div>▼</div></div><div><div>nor</div><div>▲</div><div>▼</div></div><div><div>And</div><div>▲</div><div>▼</div></div><div><div>nAnd</div><div>P</div></div></div></div><p>Here, the switching behavior of the relay is defined via a logic link, the following schema describes these functions with inclusion of AL-1 and AL-2:</p><table><tr><td><div><div>or</div></div></td><td>$A1 \vee A2$</td><td>As soon as a selected alarm is activated, the relay operates. Equates to operating current principle.</td></tr><tr><td><div><div>nor</div></div></td><td>$\overline{A1 \vee A2} = \overline{A1} \wedge \overline{A2}$</td><td>The relay operates only, if no selected alarm is active. Equates to quiescent current principle.</td></tr><tr><td><div><div>And</div></div></td><td>$A1 \wedge A2$</td><td>The relay operates only, if all selected alarms are active.</td></tr><tr><td><div><div>nAnd</div></div></td><td>$\overline{A1 \wedge A2} = \overline{A1} \vee \overline{A2}$</td><td>As soon as a selected alarm is not activated, the relay operates.</td></tr></table><p>With [P] the selection is confirmed and the device changes into menu level.</p></div>	<div><div>or</div></div>	$A1 \vee A2$	As soon as a selected alarm is activated, the relay operates. Equates to operating current principle.	<div><div>nor</div></div>	$\overline{A1 \vee A2} = \overline{A1} \wedge \overline{A2}$	The relay operates only, if no selected alarm is active. Equates to quiescent current principle.	<div><div>And</div></div>	$A1 \wedge A2$	The relay operates only, if all selected alarms are active.	<div><div>nAnd</div></div>	$\overline{A1 \wedge A2} = \overline{A1} \vee \overline{A2}$	As soon as a selected alarm is not activated, the relay operates.
<div><div>or</div></div>	$A1 \vee A2$	As soon as a selected alarm is activated, the relay operates. Equates to operating current principle.											
<div><div>nor</div></div>	$\overline{A1 \vee A2} = \overline{A1} \wedge \overline{A2}$	The relay operates only, if no selected alarm is active. Equates to quiescent current principle.											
<div><div>And</div></div>	$A1 \wedge A2$	The relay operates only, if all selected alarms are active.											
<div><div>nAnd</div></div>	$\overline{A1 \wedge A2} = \overline{A1} \vee \overline{A2}$	As soon as a selected alarm is not activated, the relay operates.											

Menu level	Parameterisation level												
	Alarms for relay 1, CoM-1: <div><div>CoM-1</div><div>P</div><div><div>AL1</div><div>▲▼</div><div>AL2</div><div>▲▼</div><div>....</div><div>AL1234</div><div>P</div></div></div> <div><div>▲▼</div><div>▲▼</div></div> <p>The allocation of the alarms to relay 1 happens via this parameter, one alarm or a group of alarms can be chosen. With [P] the selection is confirmed and the device changes into menu level.</p>												
	Alerting relay 2, reL-2: <div><div>reL-2</div><div>P</div><div><div>AL-1</div><div>....</div><div>AL-4</div><div>▲▼</div></div><div><div>AL-n1</div><div>....</div><div>AL-n4</div><div>▲▼</div></div><div><div>LOGIC</div><div>▲▼</div><div><div>OFF</div><div>▲▼</div><div><div>On</div><div>P</div></div></div></div><div><div>▲▼</div><div>▲▼</div></div><p>Each setpoint (optional) can be linked up via 4 alarms (by default). This can either be inserted at activated alarms AL1/4 or de-activated alarms ALN1/4. If LOGIC is selected, logical links are available in the menu level LoG-1 and CoM-1. One can only get to these two menu levels via LOGIC, at all other selected functions, these two parameters are overleaped. Via On/OFF the setpoints can be activated/de-activated, in this case the output and the setpoint display are set/not set on the front of the device. With [P] the selection is confirmed and the device changes into menu level.</p></div>												
	Logic relay 2, LoG-2: <div><div>LoG-2</div><div>P</div><div><div><div>or</div><div>▲▼</div><div><div>nor</div><div>▲▼</div><div><div>And</div><div>▲▼</div><div><div>nAnd</div><div>P</div></div></div></div></div><div><div>▲▼</div><div>▲▼</div></div><p>Here, the switching behavior of the relay is defined via a logic link, the following schema describes these functions with inclusion of AL-1 and AL-2:</p><table><tr><td><div><div>or</div></div></td><td>$A1 \vee A2$</td><td>As soon as a selected alarm is activated, the relay operates. Equates to operating current principle.</td></tr><tr><td><div><div>nor</div></div></td><td>$\overline{A1 \vee A2} = \overline{A1} \wedge \overline{A2}$</td><td>The relay operates only, if no selected alarm is active. Equates to quiescent current principle.</td></tr><tr><td><div><div>And</div></div></td><td>$A1 \wedge A2$</td><td>The relay operates only, if all selected alarms are active.</td></tr><tr><td><div><div>nAnd</div></div></td><td>$\overline{A1 \wedge A2} = \overline{A1} \vee \overline{A2}$</td><td>As soon as a selected alarm is not activated, the relay operates.</td></tr></table><p>With [P] the selection is confirmed and the device changes into menu level.</p></div></div>	<div><div>or</div></div>	$A1 \vee A2$	As soon as a selected alarm is activated, the relay operates. Equates to operating current principle.	<div><div>nor</div></div>	$\overline{A1 \vee A2} = \overline{A1} \wedge \overline{A2}$	The relay operates only, if no selected alarm is active. Equates to quiescent current principle.	<div><div>And</div></div>	$A1 \wedge A2$	The relay operates only, if all selected alarms are active.	<div><div>nAnd</div></div>	$\overline{A1 \wedge A2} = \overline{A1} \vee \overline{A2}$	As soon as a selected alarm is not activated, the relay operates.
<div><div>or</div></div>	$A1 \vee A2$	As soon as a selected alarm is activated, the relay operates. Equates to operating current principle.											
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<div><div>And</div></div>	$A1 \wedge A2$	The relay operates only, if all selected alarms are active.											
<div><div>nAnd</div></div>	$\overline{A1 \wedge A2} = \overline{A1} \vee \overline{A2}$	As soon as a selected alarm is not activated, the relay operates.											

Menu level	Parameterisation level
 	Alarms for relay 2, CoM-2:  <p>The allocation of the alarms to relay 2 happens via this parameter, one alarm or a group of alarms can be chosen. With [P] the selection is confirmed and the device changes into menu level.</p>
 	Back to menu group level, rEt: <p>With [P] the selection is confirmed and the device changes into menu group level „- rel -“.</p>

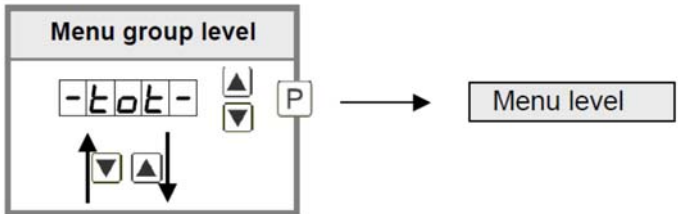
8.3.6 Alarm parameters


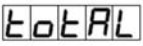

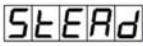
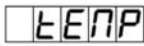



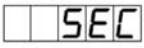
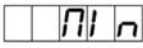
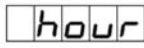


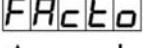
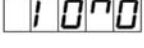
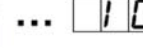


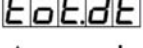
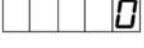
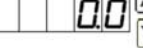





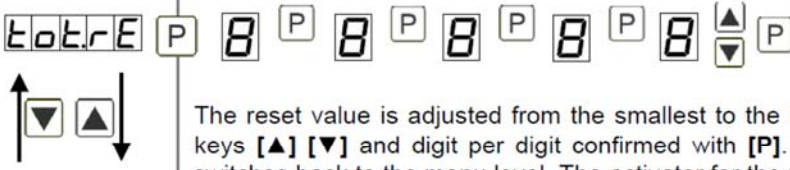

Menu level	Parameterisation level
 	Dependency alarm1, ALrM.1:  <p>The dependency of alarm 1 can be related to special functions, in detail these are the current measuring value, the MIN-value, the MAX-value or the totaliser-/sum-value. Is Hold selected, then the alarm is hold and processed just after deactivation of HOLD. EHtEr causes the dependency either by pressing the [O]-key on the front of the housing or by an external signal via the digital input. With [P] the selection is confirmed and the device changes into menu level.</p>

Menu level	Parameterisation level
	Threshold values / limit values, LI-1: <div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">LI-1</div> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">P</div> <div style="margin-right: 5px;">0</div> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">P</div> <div style="margin-right: 5px;">0</div> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">P</div> <div style="margin-right: 5px;">0</div> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">P</div> <div style="margin-right: 5px;">0</div> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">P</div> <div style="margin-right: 5px;">0</div> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">P</div> <div style="margin-right: 5px;"><div style="text-align: center;">▲ ▼</div></div> <div style="border: 1px solid black; padding: 2px;">P</div> </div> <p>For both limit values, two different values can be parameterized. With this, the parameters for each limit value are called up one after another.</p>
	Hysteresis for limit values, HY-1: <div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">HY-1</div> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">P</div> <div style="margin-right: 5px;">0</div> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">P</div> <div style="margin-right: 5px;">0</div> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">P</div> <div style="margin-right: 5px;">0</div> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">P</div> <div style="margin-right: 5px;">0</div> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">P</div> <div style="margin-right: 5px;">0</div> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">P</div> <div style="margin-right: 5px;"><div style="text-align: center;">▲ ▼</div></div> <div style="border: 1px solid black; padding: 2px;">P</div> </div> <p>For all limit values exists a hysteresis function, that reacts according to the settings (threshold exceedance / threshold undercut).</p>
	Function if display falls below / exceeds limit value, FU-1: <div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">FU-1</div> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">P</div> <div style="margin-right: 5px;">HIGH</div> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;"><div style="text-align: center;">▲ ▼</div></div> <div style="margin-right: 5px;">LOW</div> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;"><div style="text-align: center;">▲ ▼</div></div> <div style="border: 1px solid black; padding: 2px;">P</div> </div> <p>The limit value undercut can be selected with Low (LOW = lower limit value) and limit value exceedance can be selected with high (HIGH = upper limit value). If e.g. limit value 1 is on a switching threshold of 100 and occupied with function „high“, the alarm will be activated when reaching the threshold. If the limit value is allocated to „Low“, an alarm will be activated by undercut of the threshold.</p>
	Switching-on delay, ton-1: <div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">ton-1</div> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">P</div> <div style="margin-right: 5px;">0</div> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">P</div> <div style="margin-right: 5px;">0</div> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;"><div style="text-align: center;">▲ ▼</div></div> <div style="border: 1px solid black; padding: 2px;">P</div> </div> <p>For limit value 1 one can preset a delayed switching-on of 0-100 seconds.</p>
	Switching-off delay, toF-1: <div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">toF-1</div> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">P</div> <div style="margin-right: 5px;">0</div> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">P</div> <div style="margin-right: 5px;">0</div> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;"><div style="text-align: center;">▲ ▼</div></div> <div style="border: 1px solid black; padding: 2px;">P</div> </div> <p>For limit value 1 one can preset a delayed switching-off of 0-100 seconds.</p>
	Back to menu group level, rEt: <div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">rEt</div> </div> <p>With [P] the selection is confirmed and the device changes into menu group level „- Ali -“.</p>

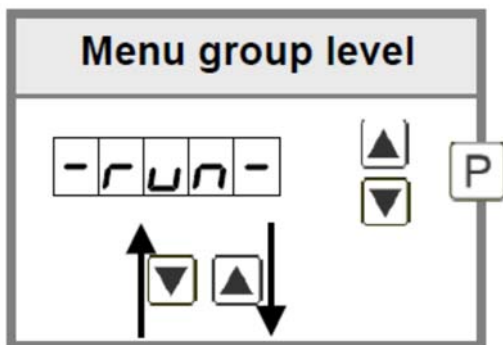
8.3.7 Totalizer (volume measurement)



Menu level	Parameterisation level
	<p>Totaliser state, total:</p> <p>      </p> <p>The totaliser makes measurements on a time base of e.g. l/h possible, at this the scaled input signal is integrated by a time and steadily (select Stead) or temporarily (select temp) saved. If Off is selected, the function is de-activated. With [P] the selection is confirmed and the device changes into menu level.</p>
	<p>Time base, t.base:</p> <p>      </p> <p>Under this parameter the time base of the measurement can be preset in seconds, minutes or hours.</p>
	<p>Totaliser factor, Facto:</p> <p>     </p> <p>At this the factor ($10^0 \dots 10^6$) respectively the divisor for the internal calculation of the measuring value is assigned.</p>
	<p>Setting up the decimal point for the totaliser, tot.dt:</p> <p>       </p> <p>The decimal point of the device can be adjusted with the navigation keys [▲] [▼]. With [P] the selection is confirmed and the device changes into menu level.</p>

Menu level	Parameterisation level
	Totaliser reset, tot.re: The reset value is adjusted from the smallest to the highest digit with the navigation keys [▲] [▼] and digit per digit confirmed with [P]. After the last digit, the display switches back to the menu level. The activator for the reset is parameter driven via the 4 th key or via the optional digital input.
	Back to menu group level, rEt: With [P] the selection is confirmed and the device changes into menu group level „- tot -“.

8.3.8 Programming interlock RUN

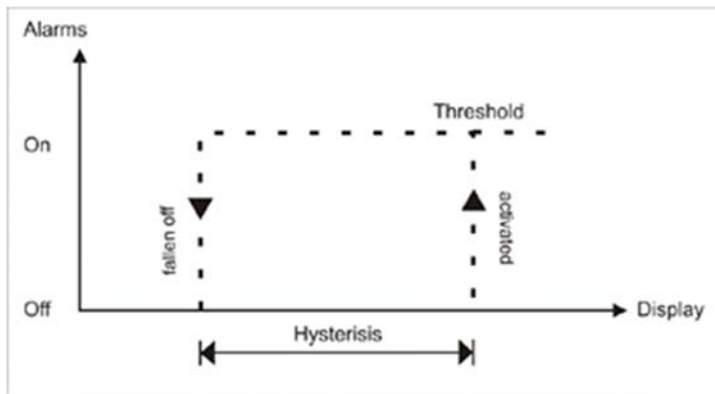


Description see page 13, menu level run

9. Alarms / Relays

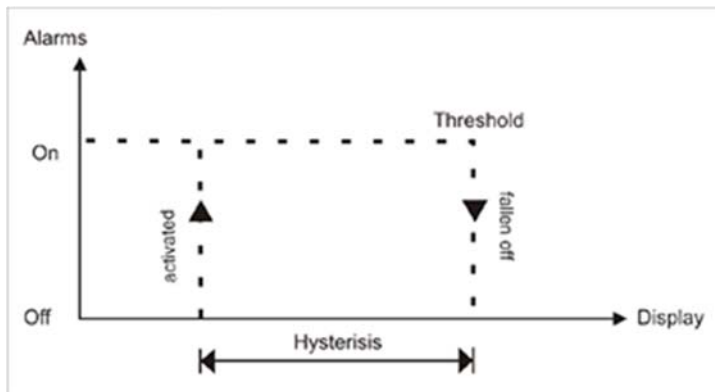
This device has 4 virtual alarms that can monitor one limit value in regard of an undercut or exceedance. Each alarm can be allocated to an optional relay output S1-S2; furthermore, alarms can be controlled by events like e.g. Hold or Min-/Max. value.

Function principle of alarms / relays	
Alarm / Relay x	Deactivated, instantaneous value, Min-/Max-value, Hold-value, totaliser value
Switching threshold	Threshold / limit value of the change-over
Hysteresis	Broadness of the window between the switching thresholds
Working principle	Operating strom / Quiescent current



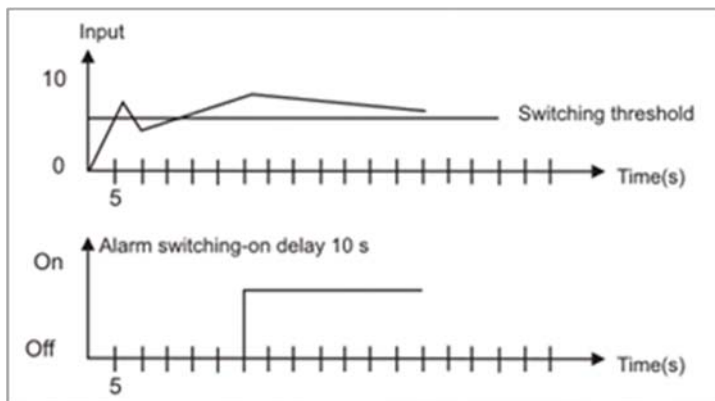
Operating current

By operating current the alarm S1-S2 is off below the threshold and on on reaching the threshold.



Quiescent current

By quiescent current the alarm S1-S2 is on below the threshold and switched off on reaching the threshold.



Switching-on delay

The switching-on delay is activated via an alarm and e.g. switched for 10 seconds after reaching the switching threshold. A short-term exceedance of the switching value does not cause an alarm, respectively does not cause a switching operation of the relay. The switching-off delay operates in the same way, keeps the alarm / the relay switched longer for the parameterized time.

10. Factory settings

10.1 Default values

Standard parameterization (flat operation level)

Parameter	Menu items						Default values
TYPE Type of input	0-10 0...10 V	0-20 0...20 mA	4-20 4...20 mA	SENSU Sensor calibration V	SENSA Sensor calibration A	SENSU Sensor calibration V	
End Final value	19999	to	99999			10000	
OFFS Offset	19999	to	99999			00000	
dot Decimal point	00000	to	00000			00000	
SEC Measuring time	0.1 0.1 second	to	10.0 10.0 seconds			1.0 1.0 seconds	
OUT.RA Analog output range	0-10 0...10 V	0-20 0...20 mA	4-20 4...20 mA			4-20 4...20 mA	
OUT.En Analog output final value	19999	to	99999			10000	
OUT.OF Analog output initial value	19999	to	99999			00000	
L1-1 Limit value 1	19999	to	99999			2000	
HY-1 Hysteresis 1	00000	to	99999			00000	
FU-1 Operation type 1	LOW Undercut	HIGH Exceedance				HIGH Exceedance	
L1-2 Limit value 2	19999	to	99999			3000	

Parameter	Menu items					Default values
HY-2 Hysteresis 2	00000	to	99999			00000
Fu-2 Operation type 2	LOW Undercut	HIGH Exceedance				HIGH Exceedance
UCode User code	0000	to	9999			0000
RCode Master code	0000	to	9999			1234
run run	ULOC Standard operation	LOC Parameter lock	PrOF Professional operation			ULOC Standard operation

Extended parameterization (professional operation level)

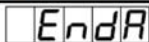



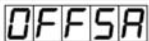



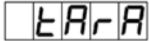




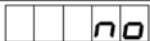

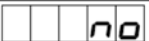




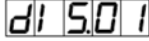
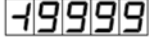
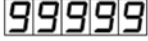
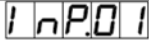


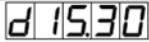


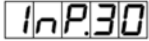




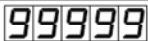


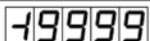
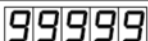
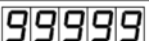
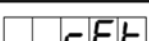
Signal input parameters

Signal input parameters

-InP-

Parameter	Menu items					Default values
TYPE Type of input	0-10 0...10 V	0-20 0...20 mA	4-20 4...20 mA	SEnSU Sensor calibration V	SEnSA Sensor calibration A	SEnSU Sensor calibration V
End Final value	19999	to	99999			10000
OFFS Offset	19999	to	99999			0
dot Decimal point	0	to	0.0000			0
SEC Measuring time	0.1 0.1 seconds	to	10.0 10.0 Seconds			1.0 1.0 seconds

DAG-S4V

Parameter	Menu items					Default values
 Analog final value		to				
 Analog final value		to				
 Display offset		to				 Exceedance
 Display unit	 none	 °C °F L A U t				 none
 Number of setpoints		to				
 Display value 1		to				
 Analog value 1		to				
...						
 Display value 30		to				
 Analog value 30		to				
 Display underflow		to				
 Display overflow		to				
						

General device parameters

-Fct-

Parameter	Menu items					Default values
diSEC Display time	0.1 seconds	to	10 seconds			1 second
round Round a value	no rounding	in steps of 5	in steps of 10	in steps of 50		no rounding
ArITH Arithmetic	none	reciprocal value	root extraction	squaring down		none
Zero point tranquilisation	no tranquilisation	to	at x-digit display = zero			no tranquilisation
diSPL Default display	ActuAR Current measurand	NI nUR Minimum	MAxUR Maximum	toTAL Totaliser	HoLD Hold	ActuAR Current measurand
FLASH Flashing at	no	Alarm 1	Alarm 2	Alarm 1 + 2	Alarm 3	no
	Alarm 4	Alarm 3 + 4	Alarm 1...4			
Up-/Down-functions	no	Extremum (min/max)	Alarm limit 1+2	Alarm limit 3+4	Tara function	no
	SEt.tA Set Tara value	toTAL Totalisator value	toT.rE Totalisator reset	EHt.rE Extremum reset	ActuAR Display measurand	

Parameter	Menu items						Default values
ERSE4 Special function 4. key	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> no	TAra Tara function	SEtTA Set Tara value	toTAL Totaliser value	toT.rE Totaliser reset	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> no	no
	EXt.rE Extremum reset	ActuA Display measurand	HoLD Hold	AL-1 Alarm 1	AL-2 Alarm 2		
	AL-3 Alarm 3	AL-4 Alarm 4					
dIG.In Digital input	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> no	TAra Tara function	SEtTA Set Tara value	toTAL Totaliser value	toT.rE Totaliser reset	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> no	no
	EXt.rE Extremum reset	ActuA Display measurand	HoLD Hold	AL-1 Alarm 1	AL-2 Alarm 2		
	AL-3 Alarm 3	AL-4 Alarm 4					
<input type="checkbox"/> <input type="checkbox"/> rEt							

Safety parameters

-Cod-

Parameter	Menu items						Default values
UCodE User code	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0000	to	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 9999			<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0000	
ACodE Administrator code	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0000	to	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 9999			<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1234	
OUTLE Analog output level	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> no	En-OF Range of value	OUT.EO Range of value & source	<input type="checkbox"/> <input type="checkbox"/> ALL All parameters		<input type="checkbox"/> <input type="checkbox"/> ALL All parameters	
ALLEU Alarm level	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> no	LIMITE Limit value	ALrNL Range of value & source	<input type="checkbox"/> <input type="checkbox"/> ALL All parameters		<input type="checkbox"/> <input type="checkbox"/> ALL All parameters	
<input type="checkbox"/> <input type="checkbox"/> rEt							

Analogue output parameters

-OUT-

Parameter	Menu items					Default values
OUTPt	ACTUA	NI nUA	NAHUA	to tAL	HoLD	ACTUA
Source	Current measurand	Minimum	Maximum	Totaliser	Hold	Current measurand
OUT.rA	0-10	0-20	4-20	x seconds no traffic		4-20
Output range	0...10 mA	0...20 mA	4...20 mA			4...20 mA
OUT.En	19999	to	99999			10000
Final value						
OUT.OF	19999	to	99999			00000
Initial value						
OFLou	EDGE	to End	to OFF	to NI n	to NAH	EDGE
Overflow behavior	Run to limit value	Jump to final value	Jump to initial value	Jump to smallest value	Jump to highest value	Run on limit value
ret						

Relay functions

-REL-

Parameter	Menu items					Default values
REL-1	AL-1	to	AL-4			AL-1
Relay function1	at alarm 1		at alarm 4			at alarm 1
	AL-n1	to	AL-n4			
	not alarm 1		not alarm 4			
	LoGIC	OFF	on			
	via logic	declined	activated			
LoG-1	or	nor	And	nAnd		or
Logic relay 1	active if at least 1 alarm	active if no alarm	active if all alarms	active if not at least 1 alarm		active if at least 1 alarm

Parameter	Menu items					Default values
CoN-1 Alarm combination relay 1	A.1 Alarm 1 etc. up to	A.2 Alarm 2 A.1234 Alarm 1+2+3+4	A.12 Alarm 1 + 2	A.3 Alarm 3	A.13 Alarm 1 + 3	A.1 Alarm 1
rEL-2 Relay function 2	AL-1 at alarm 1 AL-n1 not alarm 1 LoGIC via logic	to to OFF declined	AL-4 at alarm 4 AL-n4 not alarm 4 on activated			AL-2 at alarm 2
LoG-2 Logic relay 2	or active if at least 1 alarm	nor active if no alarm	And active if all alarms	nAnd active if at least 1 alarm not		or active if at least 1 alarm
CoN-2 Alarm combination relay 2	A.1 Alarm 1 to	A.2 Alarm 2 A.1234 Alarm 1+2+3+4	A.12 Alarm 1+2	A.3 Alarm 3	A.13 Alarm 1+3	A.2 aktive if at least 1 alarm
rEt						

Alarm parameters

-AL1-

Parameter	Menu items					Default values
ALrN1 Alarm source 1	Ac <u>t</u> uA Current measurand EH <u>E</u> r External input (DigIn/Tast4)	MI <u>n</u> uA Minimal measurand	MA <u>x</u> uA Maximal measurand	to <u>T</u> AL Totaliser	Ho <u>L</u> d Hold	Ac <u>t</u> uA Current measurand
L1-1 Limit value 1	49999	to	99999			2000
HY-1 Hysteresis 1	00000	to	99999			00000
Fu-1 Function 1	Lo <u>u</u> Undercut	HI <u>G</u> H Exceedance				HI <u>G</u> H Exceedance
to <u>n</u> -1 Activation delay 1	000 no	to	100 100 seconds			000 no
to <u>F</u> -1 De-activation delay 1	000 no	to	100 100 seconds			000 no
r <u>E</u> t						

-AL2-

Parameter	Menu items					Default values
ALrN2 Alarm source 2	ActuA Current measuring value EHtEr External digital input (DigIn/Tast4)	NI nUA Minimal measuring value	NAHUA Maximal measuring value	toTAL Totaliser	HoLd Hold	ActuA Current measuring value
LI-2 Limit value 2	19999	to	99999			3000
HY-2 Hysteresis 2	00000	to	99999			00000
Fu-2 Function 2	LowU Undercut	HIGH Exceedance				HIGH Exceedance
ton-2 Activation delay 2	000 no	to	100 100 seconds			000 no
toF-2 De-activation delay 2	000 no	to	100 100 seconds			000 no
reE						

-AL3-

Parameter	Menu items					Default values
ALrN3 Alarm source 3	ActuA Current measurand EHtEr External digital input (DigIn/Tast4)	NI nUA minimal measurand	NAHUA maximal measurand	toTAL Totaliser	HoLd Hold	ActuA Current measurand
LI-3 Limit value 3	19999	to	99999			4000

Parameter	Menu items					Default values
HY-3 Hysteresis 3	00000	to	99999			00000
FU-3 Function 3	LoUu Undercut	HIGH Exceedance				HIGH Exceedance
ton-3 Activation delay 3	000 no	to	100 100 seconds			000 no
toF-3 De-activation delay 3	000 no	to	100 100 seconds			000 no
REt						

-AL4-

Parameter	Menu items					Default values
ALrN4 Alarm source 4	ActuA Current measurand EHtEr external digital input (DigIn/Tast4)	MIrUA Minimal measurand	MArUA Maximal measurand	toAL Totaliser	HoLD Hold	ActuA Current measurand
LI-4 Limit value 4	19999	to	99999			5000
HY-4 Hysteresis 4	00000	to	99999			00000
FU-4 Function 4	LoUu Undercut	HIGH Exceedance				HIGH Exceedance
ton-4 Activation delay 4	000 no	to	100 100 seconds			000 no
toF-4 De-activation delay 4	000 no	to	100 100 seconds			000 no
REt						

Totalizer (Volume measurement)

- tot -

Parameter	Menu items					Default values
total Totaliser state	OFF Off	STEAD Permanent saving	TEMP Quick saving			OFF Off
base Time base	SEC Seconds	min Minutes	hour Hours			SEC Seconds
facto Divisor	10^0 10^0=1	to	10^6 10^6			10^0 10^0=1
total.de Internal decimal places	0	to	00000			0
total.re Totaliser reset	00000	to	99999			00000
ret						

10.2 Reset to default values

To return the unit to a **defined basic state**, a reset can be carried out to the default values.

The following procedure should be used:

- Switch off the power supply.
- Press button **[P]**
- Switch on voltage supply and press button **[P]** until “- - - -” is shown in the display.

With reset, the default values of the program table are loaded and used for subsequent operation. This puts the unit back to the state in which it was supplied.

CAUTION! All application-related data are lost.

11. Technical Information

Operating instructions, data sheet, approvals and further information via the QR code on the device or via www.kobold.com

12. Order Codes

Operating instructions, data sheet, approvals and further information via the QR code on the device or via www.kobold.com

13. Dimensions

Operating instructions, data sheet, approvals and further information via the QR code on the device or via www.kobold.com

14. Safety advices

Please read the following safety advices and the assembly *chapter 5* before installation and keep it for future reference.

Proper use

The **DAG-S4...device** is designed for the evaluation and display of sensor signals.



Danger! Careless use or improper operation can result in personal injury and / or damage to the equipment.

Control of the device

The panel meters are checked before dispatch and sent out in perfect condition. Should there be any visible damage, we recommend close examination of the packaging. Please inform the supplier immediately of any damage.



Installation

The **DAG-S4...device** must be installed by a suitably **qualified specialist** (e.g. with a qualification in industrial electronics).

Notes on installation

- There must be no magnetic or electric fields in the vicinity of the device, e.g. due to transformers, mobile phones or electrostatic discharge.
- The **fuse rating** of the supply voltage should not exceed a value of **0.5 A N.B. fuse**.
- Do not install **inductive consumers** (relays, solenoid valves etc.) near the device and **suppress** any interference with the aid of RC spark extinguishing combinations or free-wheeling diodes.
- Keep input, output and supply lines separate from one another and do not lay them parallel with each other. Position “go” and “return” lines next to one another. Where possible use twisted pair. So, you receive best measuring results.
- Screen off and twist sensor lines. Do not lay current-carrying lines in the vicinity. Connect the **screening on one side** on a suitable potential equalizer (normally signal ground).
- The device is not suitable for installation in areas where there is a risk of explosion.
- Any electrical connection deviating from the connection diagram can endanger human life and / or can destroy the equipment.
- The terminal area of the devices is part of the service. Here electrostatic discharge needs to be avoided. Attention! High voltages can cause dangerous body currents.
- Galvanic insulated potentials within one complex need to be placed on an appropriate point (normally earth or machines ground). So, a lower disturbance sensibility against impacted energy can be reached and dangerous potentials, that can occur on long lines or due to faulty wiring, can be avoided.

15. Error elimination

	Error description	Measures
1.	<p>The unit permanently indicates overflow.</p> 	<ul style="list-style-type: none"> • The input has a very high measurement, check the measuring circuit. • With a selected input with a low voltage signal, it is only connected on one side or the input is open. • Not all of the activated setpoints are parameterised. Check if the relevant parameters are adjusted correctly.
2.	<p>The unit permanently shows underflow.</p> 	<ul style="list-style-type: none"> • The input has a very low measurement, check the measuring circuit . • With a selected input with a low voltage signal, it is only connected on one side or the input is open. • Not all of the activated setpoints are parameterised. Check if the relevant parameters are adjusted correctly.
3.	<p>The word "HELP " lights up in the 7-segment display.</p>	<ul style="list-style-type: none"> • The unit has found an error in the configuration memory. Perform a reset on the default values and re-configure the unit according to your application.
4.	<p>Program numbers for parameterising of the input are not accessible.</p>	<ul style="list-style-type: none"> • Programming lock is activated • Enter correct code
5.	<p>"Err1" lights up in the 7-segment display</p>	<ul style="list-style-type: none"> • Please contact the manufacturer if errors of this kind occur.
6.	<p>The device does not react as expected.</p>	<ul style="list-style-type: none"> • If you are not sure that the device has been parameterised before, then follow the steps as written in <i>chapter 5.2.</i> and set it back to its delivery status.

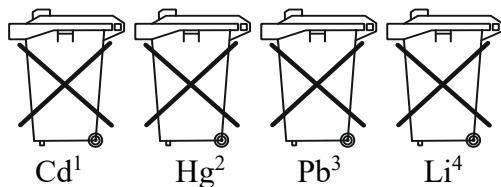
16. Disposal

Note!

- Avoid environmental damage caused by media-contaminated parts
- Dispose of the device and packaging in an environmentally friendly manner
- Comply with applicable national and international disposal regulations and environmental regulations.

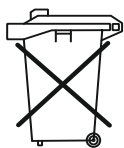
Batteries

Batteries containing pollutants are marked with a sign consisting of a crossed-out garbage can and the chemical symbol (Cd, Hg, Li or Pb) of the heavy metal that is decisive for the classification as containing pollutants:



1. „Cd" stands for cadmium
2. „Hg" stands for mercury
3. „Pb" stands for lead
4. „Li" stands for lithium

Electrical and electronic equipment



17. EU Declaration of Conformance

We, KOBOLD Messring GmbH, Hofheim-Ts, Germany, declare under our sole responsibility that the product:

Digital Indicating Unit Model: DAG-S4V

to which this declaration relates is in conformity with the standards noted below:

EN 61010-1:2010+A1:2019+A1:2019/AC:2019

Safety requirements for electrical equipment for measurement, control and laboratory use - Part 1: General requirements

EN 61326-1:2013

Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements

EN IEC 63000:2018 Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

Also, the following EC guidelines are fulfilled:

2014/30/EU

EMC Directive

2014/35/EU

Low Voltage Directive

2011/65/EU

RoHS (category 9)

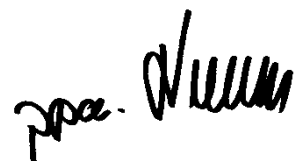
2015/863/EU

Delegated Directive (RoHS III)

Hofheim, 27 April 2023



H. Volz
General Manager



M. Wenzel
Proxy Holder

18. UK Declaration of Conformity

We, KOBOLD Messring GmbH, Hofheim-Ts, Germany, declare under our sole responsibility that the product:

Digital Indicating Unit for Panel Mounting

Model: DAG-S4V

to which this declaration relates is in conformity with the standards noted below:

BS EN 61010-1:2010+A1:2019

Safety requirements for electrical equipment for measurement, control, and laboratory use. General requirements

BS EN 61326-1:2013

Electrical equipment for measurement, control and laboratory use. EMC requirements. General requirements

BS EN IEC 63000:2018

Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances.

Also, the following UK guidelines are fulfilled:

S.I. 2016/1091

Electromagnetic Compatibility Regulations 2016

S.I. 2016/1101

Electrical Equipment (Safety) Regulations 2016

S.I. 2012/3032

The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012

Hofheim, 06 June 2023

H. Volz
General Manager

M. Wenzel
Proxy Holder