



**Operating Instructions**  
**for**  
**Ultrasonic Flowmeter/ -Monitor/**  
**-Counter/ -Dosing Unit**

**Model: DUK**



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## 2. Note

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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.koboldusa.com](http://www.koboldusa.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@koboldusa.com](mailto:info@koboldusa.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.

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-machine guidelines.

**as per PED 2014/68/EU**

In acc. with Article 4, Paragraph (3), "Sound Engineering Practice", of the PED 2014/68/EU no CE mark.

## 3. Instrument Inspection

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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:

- Ultrasonic Flowmeter/ -Monitor/ -Counter/ -Dosing Unit      model: DUK

## 4. Regulation Use

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

## 5. Operating Principle

### 5.1 General

The new KOBOLD type DUK flow meters are used for the measurement, monitoring, metering and dosing of low viscosity aqueous fluids.

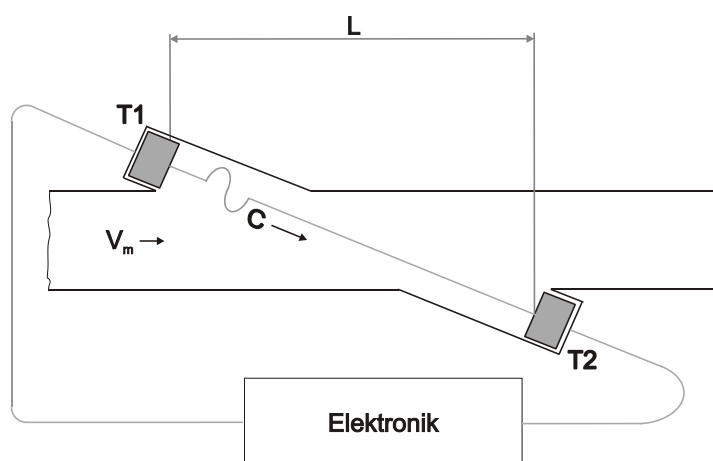
The devices work on the principle of the difference in running times.

This is based on the fact that ultrasonic waves in a medium are influenced by the speed of flow.

Two sensors mounted opposite one another in the pipeline function simultaneously as transmitter and receiver of ultrasound signals.

If there is no flow, then the running times of both signals are identical. If the medium is flowing, then the running time of the signal against the flow is longer than that with the flow.

The running time difference, which is determined by a microprocessor, is proportional to the speed of flow.



The devices can be equipped with a switching output, a frequency output or an analogue output. In addition, a compact circuit can be selected that features a digital display, a switching output and an analogue output.

The device series is rounded off by an optionally available dosing and meter circuit. The meter circuit indicates the momentary flow rate in the first line of the display and the partial or total quantity in the second line. A dosing circuit controls simple filling tasks and similarly measures flow rates, total amounts and filling amounts. The analogue output and two relay outputs can be used for further processing of the signals.

## 6. Mechanical Connection

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### 6.1 Check operating conditions

- flow rate
- max. operating pressure
- max. operating temperature

In general, the DUK is subjected to the same loads as the piping into which it is installed. The DUK should therefore be kept free from extreme loads, such as pressure surges with strong, dynamic pipe movements, vibrations in the proximity of centrifugal pumps, high temperature media, flooding etc.

### 6.2 Installation

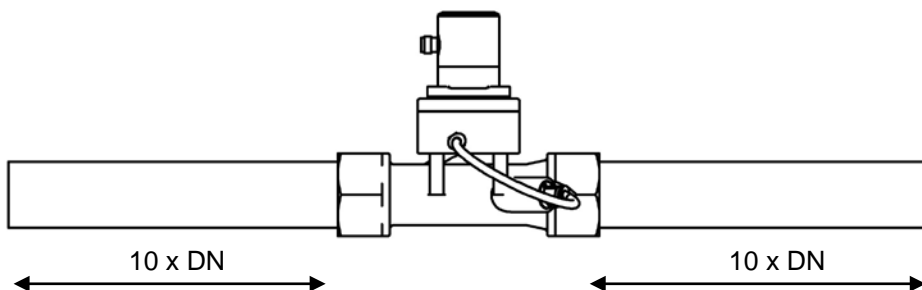
- Remove all packing materials and transport retainers and ensure that no such materials remain in the device.
- It can be installed in vertical, horizontal or rising pipes. Flow in direction of the arrow.
- Avoid pressure and tensile load.
- Mounting the inlet and outlet pipe in a distance of 50 mm from the connections.



**Attention! The sensor may be damaged if it is tightened above the tightening torque range. Also, if it is tightened below the tightening torque range, the connecting thread section may loosen.**

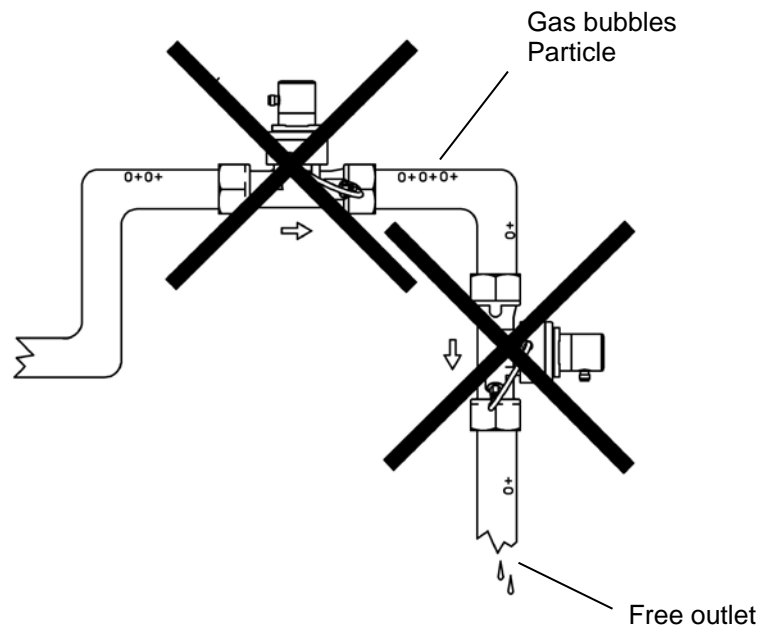
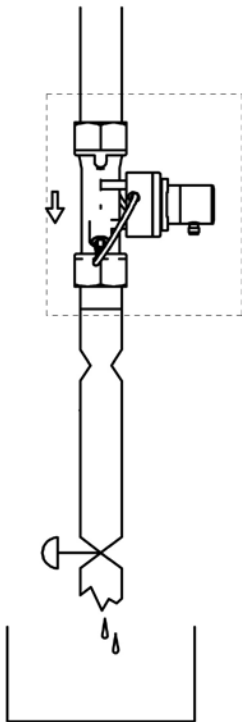
- Avoid valves or large reduction on the inlet section (this increases the inaccuracy of measurements).
- Check the leak tightness of the connections.

#### In-/Outlet



Mounting from top to bottom

avoid these installation areas



## 7. Electrical Connection

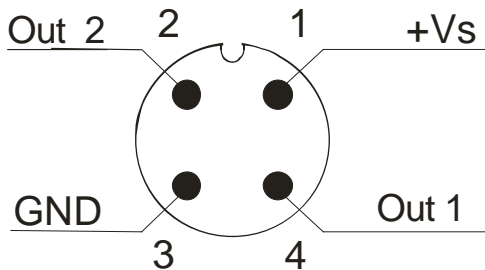
### 7.1 General



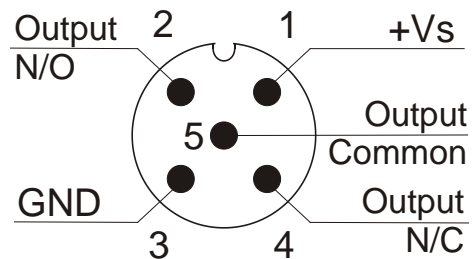
**Attention! Make sure that the voltage values of your system correspond with the voltage values of the measuring unit.**

- Make sure that the supply wires are de-energised.
- Connect the supply voltage and the output signal to the plug PIN's as stated below.
- We recommend the use of wires with cross sectional area of min. 0,25 mm<sup>2</sup>.

### 7.2 DUK-...C3T0



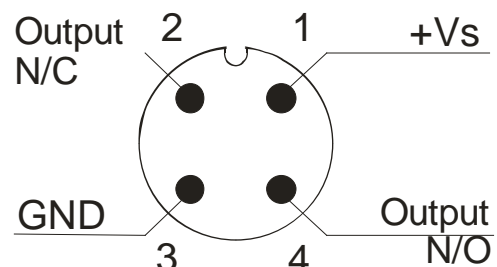
### 7.3 DUK-...S300



Configuration of Outputs (C3T0)

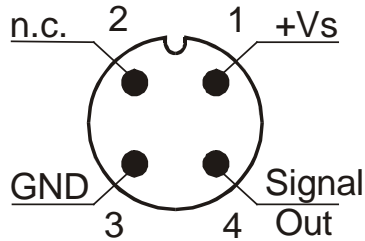
Output 1 (OUT1, PIN 4)	Output 2 (OUT2, PIN 2)
Analog Output 0-10 V <sub>DC</sub>	Analog Output 0-10 V <sub>DC</sub>
Analog Output 4-20 mA	Analog Output 4-20 mA
Switching Output NPN/PNP/PP	Switching Output NPN/PNP/PP
Pulse Output PP	Pulse Output PP
Frequency Output PP	Frequency Output PP
Communication Mode KofiCom	
Communication Mode IO-Link	
Control Input	
Control Input Dosing Function	Dosing Output

### 7.4 DUK-...S30D

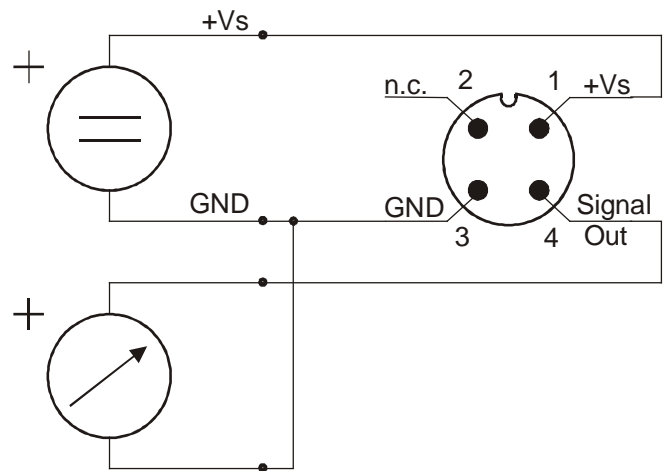




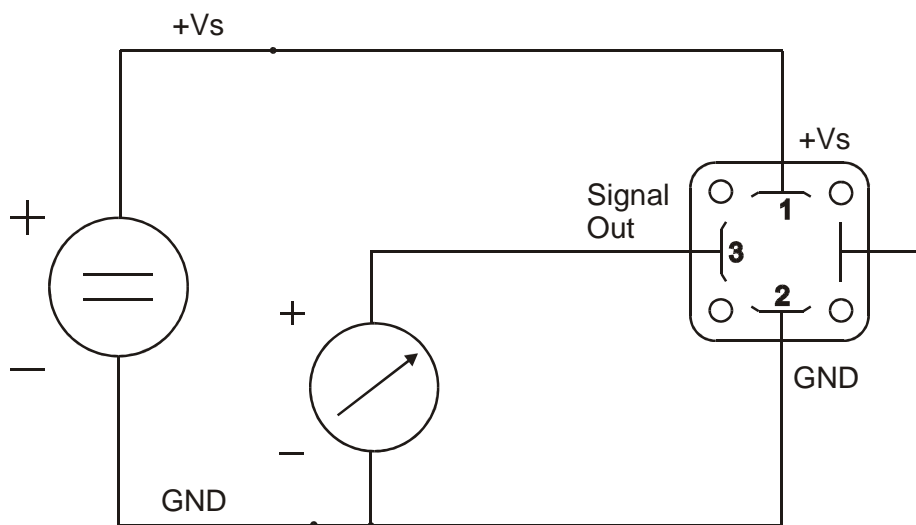
7.5 DUK-...F3x0; DUK-...L3x3



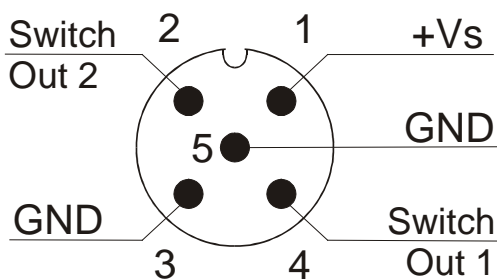
Connection example DUK-...L3x3



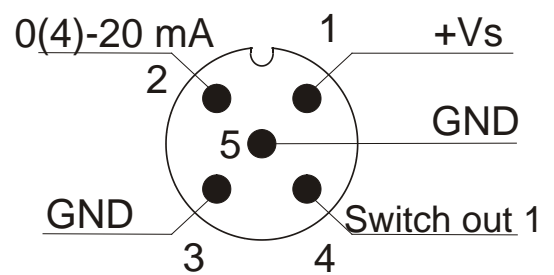
7.6 DUK-...L443



7.7 DUK-...C30..




7.8 DUK-...C34..




## 7.9 DUK-...Ex4R, DUK-...Gx4R

### Cable connection

Wire number	DUK-...E14R Counter electronics
1	+24 V <sub>DC</sub>
2	GND
3	(0) 4-20 mA
4	GND
5	n. c.
6	Reset part quantity
7	Relay S1
8	Relay S1
9	Relay S2
10	Relay S2



Wire number	DUK-...G14R Dosing electronics
1	+24 V <sub>DC</sub>
2	GND
3	(0) 4-20 mA
4	GND
5	Control 1*
6	Control 2*
7	Relay S1
8	Relay S1
9	Relay S2
10	Relay S2



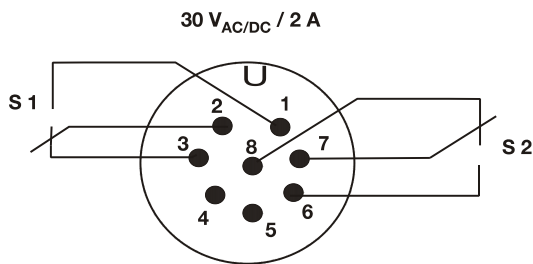
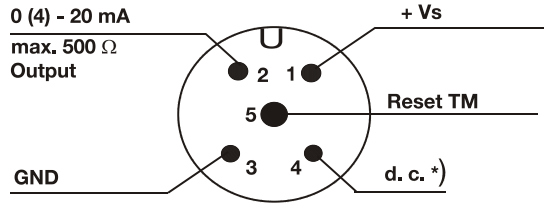
\*Control 1<->GND: Start-dosing

Control 2<->GND: Stop-dosing

Control 1 <-> Control 2 <-> GND: Reset-dosing

Plug connection

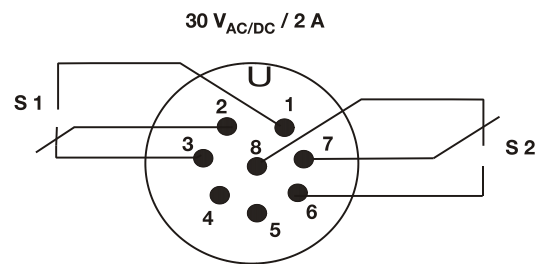
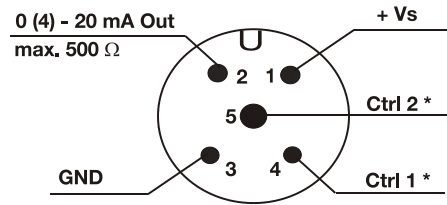
**-E34 R**



\*) Do not connect!

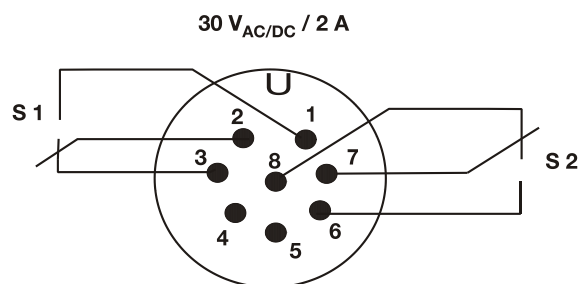
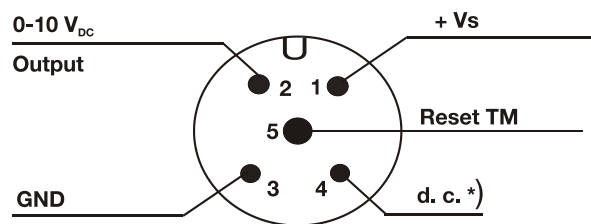
TM : subset

**-G34 R**

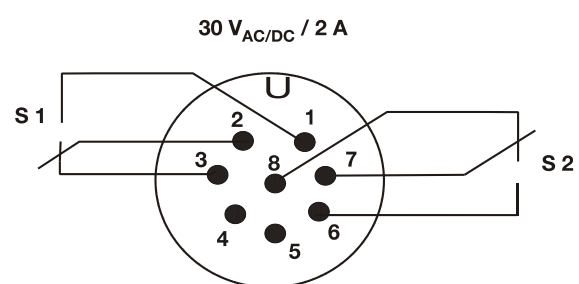
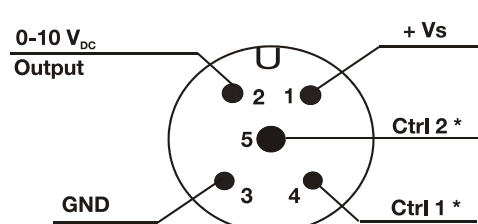


\*Control 1 <-> GND: Start-Dosing  
Control 2 <-> GND: Stop-Dosing  
Control 1 <-> Control 2 <-> GND: Reset-Dosing

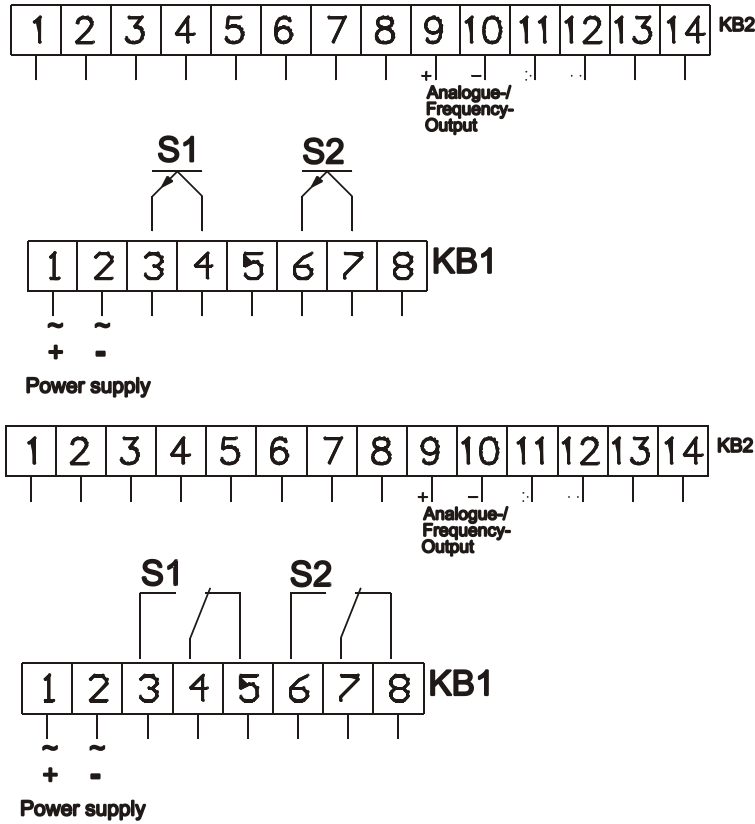
**-E31 R**



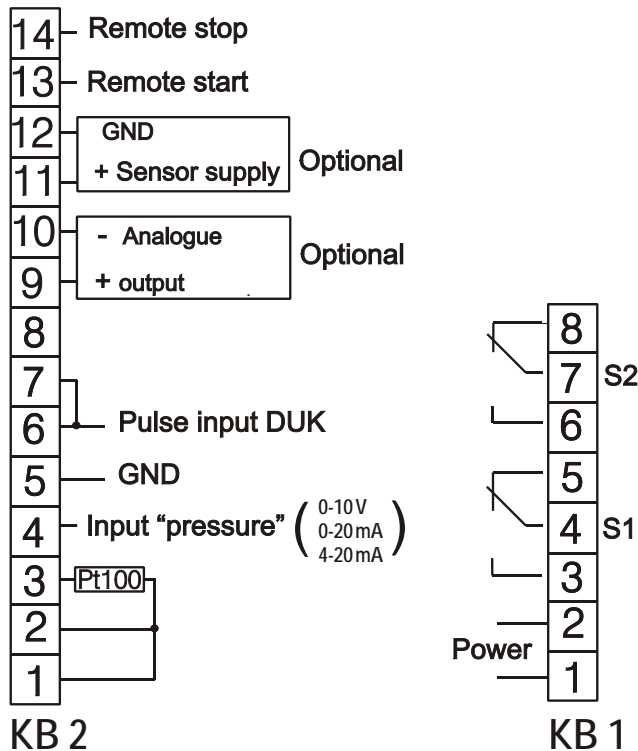
**-G31 R**



## 7.10 DUK-...Bxxx, DUK-...Dxxx, DUK-...Kxxx



## 7.11 DUK-...Axxx



## 8. Operation

The units are preset and after electrical connection ready for operation.

### 8.1 Switch point setting DUK-...S300, DUK-...S30D

Switch setting	Switch point
0	Switch function deactivated
1	10 % of f.s.
2	20 % of f.s.
3	30 % of f.s.
4	40 % of f.s.
5	50 % of f.s.
6	60 % of f.s.
7	70 % of f.s.
8	80 % of f.s.
9	90 % of f.s.

### 8.2 Compact Electronic DUK-...C3T0

Operating please see Operating Instructions C3T0

### 8.3 Counter electronic DUK-...Ex4R

Operating please see Operating Instructions ZED-Z

### 8.4 Dosing electronic DUK-...Gx4R

Operating please see Operating Instructions ZED-D

### 8.5 ADI electronic

**DUK-...Bxxx, DUK-...Dxxx, DUK-...Kxxx**

Operating please see Operating Instructions ADI-B/-D/-K

### 8.6 ADI Dosing Electronic DUK-...Axxx

Operating please see Operating Instructions ADI-Z


## 9. Adjustment – Compact Electronics DUK-...C3..


Connect the compact electronics according to previous connection diagram and supply with the indicated power supply.

**After power on, the measuring range (end value) will be shown for 3 seconds.**


### 9.1 Button function


In the standard mode (measuring mode)

 : Press 3 sec. → Setup mode


 : Switch point/Window point

In the set-up mode

 : Next Step

 : Change Value

Any time

3 sec 

or do not press  
a button for 20 sec

↓

Standard mode

### 9.2 Settings

The following values can be changed in the compact electronic:

	Scale range	Factory setting
Switch point ( <b>SPo</b> , <b>SP1</b> , <b>SP2</b> )	0...999	0,00
Hysteresis ( <b>HYS</b> )	-199...0	-0,00
Window point (duo point) ( <b>duo</b> )	Switch point ...999	--- (inactive)
Contact-type ( <b>Con</b> , <b>Co1</b> , <b>Co2</b> )	( <b>no</b> ),( <b>nc</b> ) or frequency ( <b>Fr</b> )**	<b>no</b>
Start current ( <b>S-C</b> )*	000...999	000
End current ( <b>E-C</b> )*	000...999	FS
Start current selection ( <b>SCS</b> )	0-- (0 mA), 4-- (4 mA)	4 mA
Change Code ( <b>CCo</b> )	000...999	000

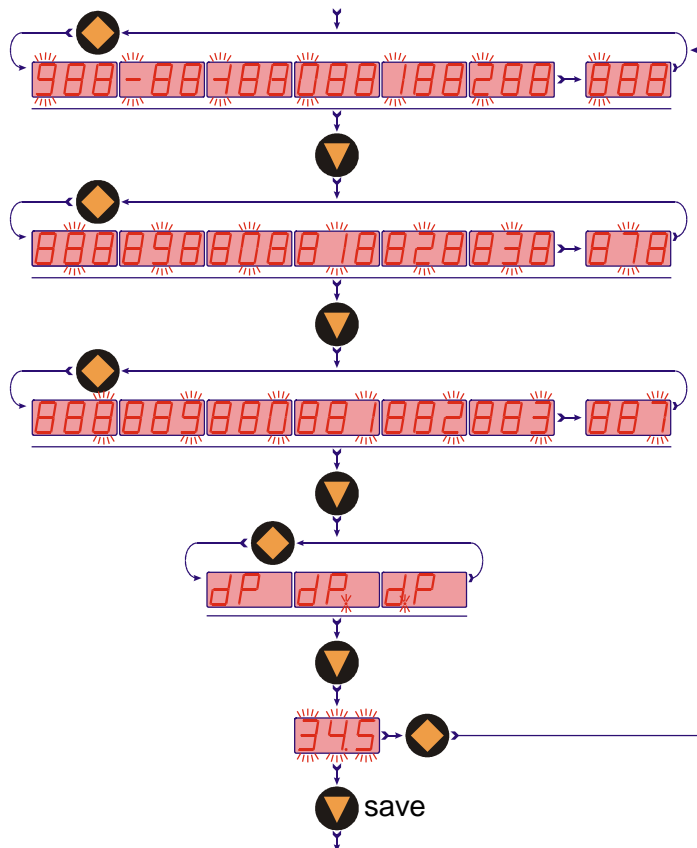
\* Start- and end value of flow relating to 0/4-20 mA

\*\* **not calibrated**, frequency at f.s. approx. 500 -600Hz

### 9.3 Value setting

From the main menu item (for example: switch point, "SPo"), press the "◆" button to set the value. The flow chart below illustrates the universal routine for changing individual parameters.

[From the main menu item]



1. Adjust position

2. Adjust position

3. Adjust position

Adjust decimal point

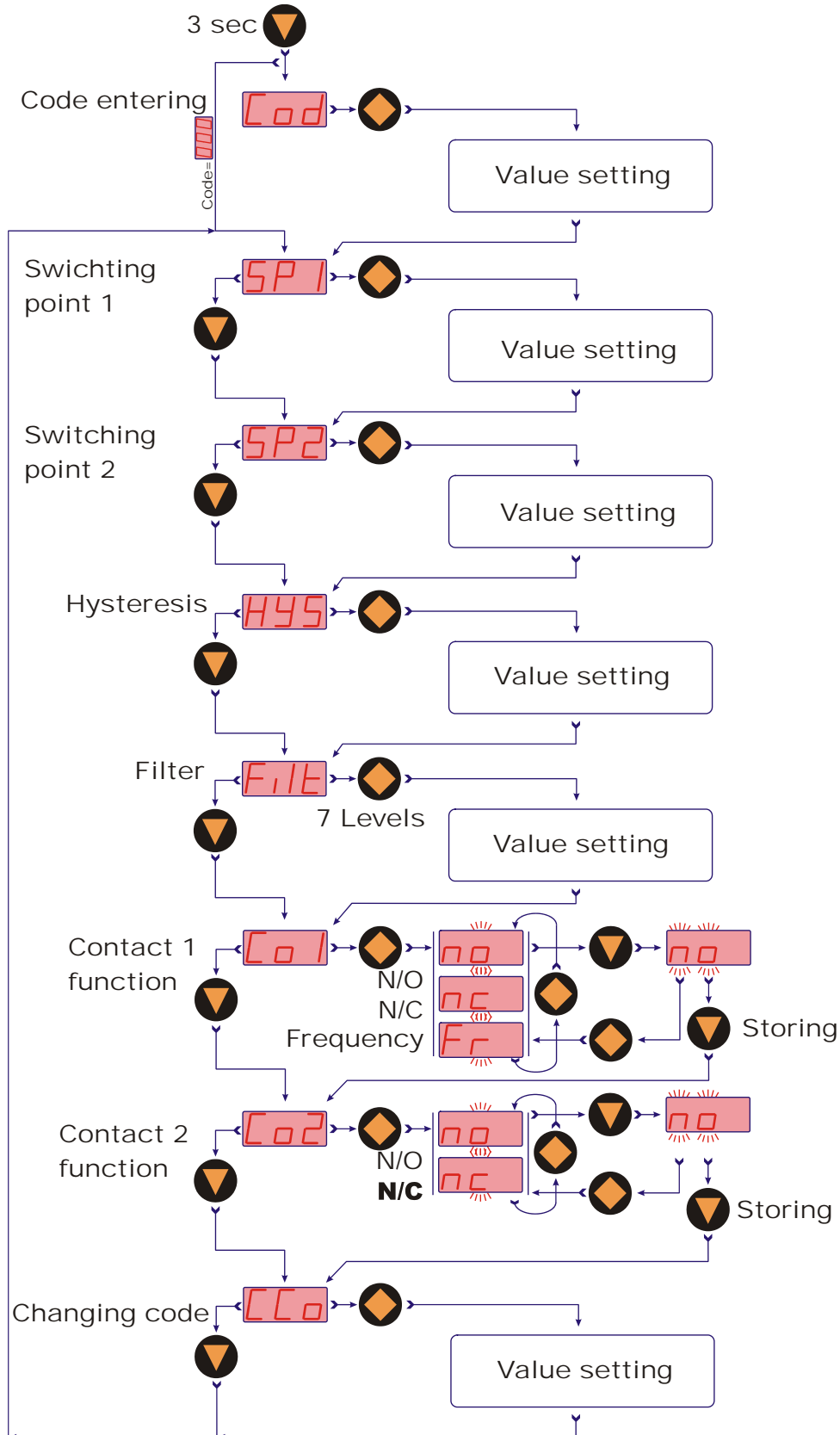
Save selected value  
or  
enter new value.

[To the next main menu

item]

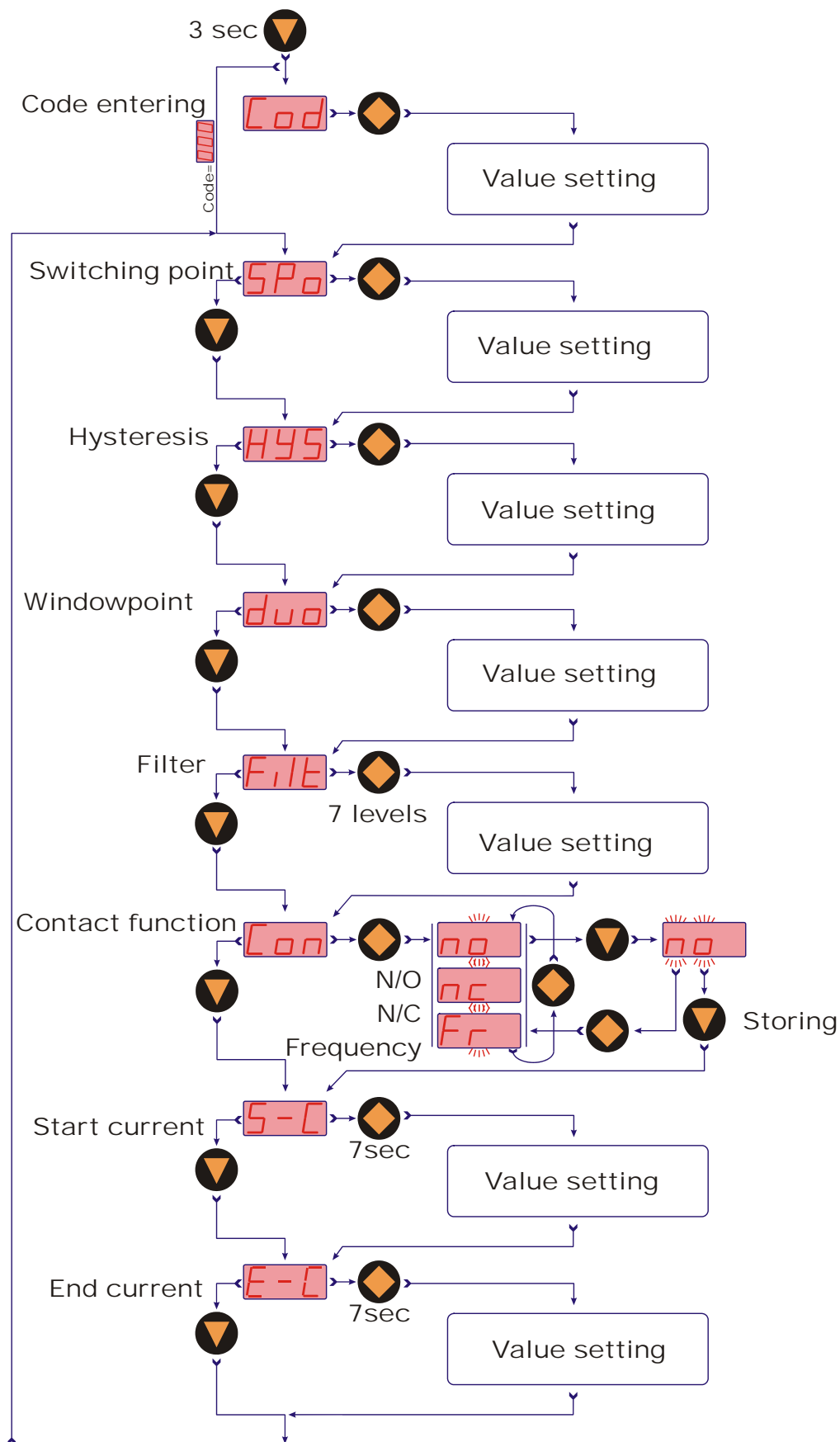
## 9.4 Set-up mode

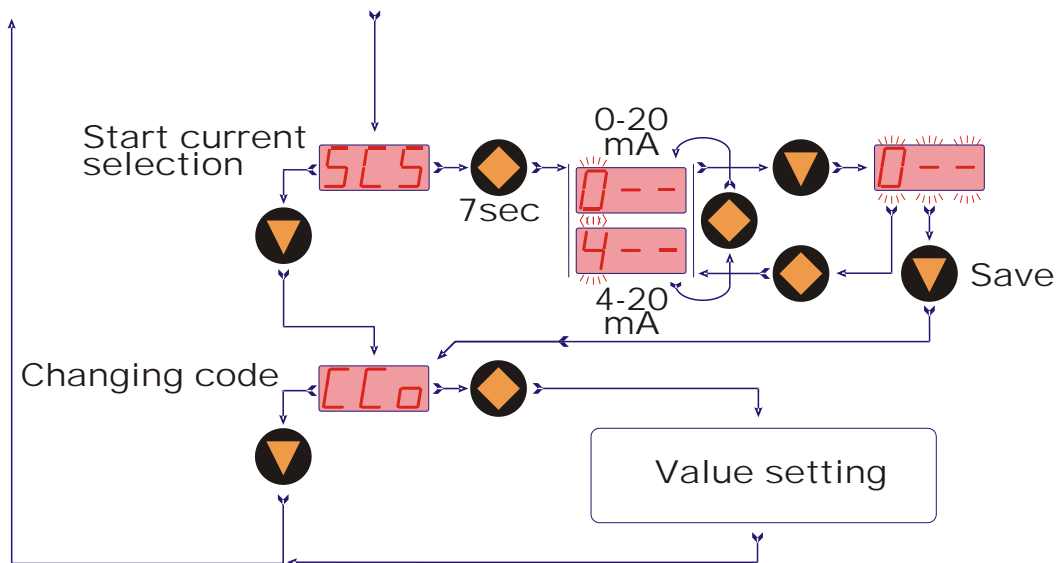
Compact electronics DUK-...C30..





Compact electronics DUK-...C34





## 9.5 Main menu items

### 9.5.1 Switching point

The switching point is entered in the menu item "**Spo, SP1, SP2**". A setting value between 000 and 999 can be selected. This value can also include a decimal point. The decimal point can be set at two points (e.g. 10.0 or 1.00). If the display value exceeds the set switch point, the electronic is activated and is signalled by a lightning LED.

If the hysteresis is equal to zero and the window point is de-activated, the electronic switches back whenever the indicated value falls below the switching point.

### 9.5.2 Hysteresis

After the setting of the switching point, the hysteresis can be entered as a negative value in the "**HYS**" menu. The standard hysteresis value is zero. In operation condition this can lead to ambiguous switching behaviour, if the reading fluctuates around the switching point or window point. In this case, increasing the hysteresis can put things right. The hysteresis relates to the switching point and the window point (switching point minus hysteresis; window point plus hysteresis).

**Example:** Switch point 100 L/min; Hysteresis: -2.5 L/min

The electronics switches when 100 L/min is exceeded and switches back when the reading under-runs below 97.5 L/min.

### 9.5.3 Window point (duo-point)

As well as the switching point, it is also to define a "**duo**" (duo-point), the window point. This must be higher than the switching point. By using the window point and the switching point it is possible to monitor the measurement value in a certain range. The switching point limits the measurement range to smaller values and the window point to larger values.



**If the window point (duo-point) is less than or equal to the switching point, an error report (Er4) will be indicated on the display and its value is deleted and its function is invalid (in the case that the window point and switching point out of adjustment).**

The value is set in the same way as the switch point.

The window point is needed for process, in which monitoring of a certain measurement range is necessary.

**Example:** Switching point: 100 L/min; window point: 150 L/min;  
hysteresis: -1 L/min

The electronic switches when 100 L/min is exceeded. If the measured value remains between 99 L/min (100-1) and 151 L/min (150+1), the contact will also remain in active switching condition (LED on). If it exceeds 151 L/min or is below 99 L/min the electronic switches back.

#### Switching behaviour

The following diagram clarifies the switching behaviour of the electronics. The contact closes (contact type: no) when exceeding below the switching point or when it under-runs the window point. It only opens again if the window point plus hysteresis is exceeded or if it drops below the switching point minus hysteresis. An **LED** indicates the switching condition of the switching point.

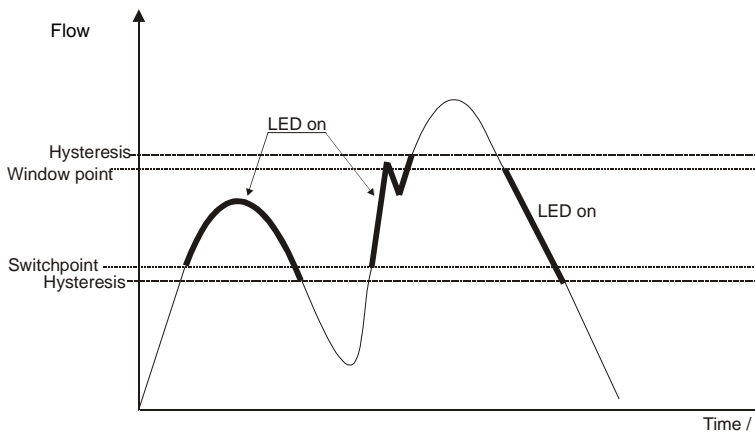
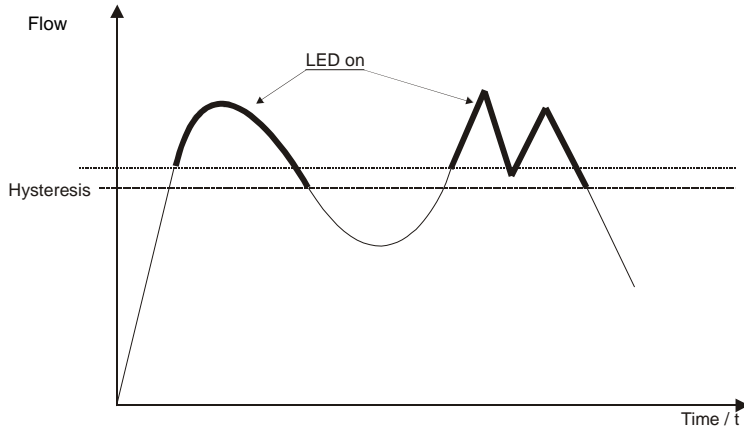
### 9.5.4 Filter

The filter function "**Filt**" forms a running average from the measured values. The following values can be set (see section 8; set up):

1 / 2 / 4 / 8 / 16 / 32 / 64

They correspond to the number of samples used in the running average. The filter value determines the dynamic behaviour of the display value. The larger the adjusted value, the slower the display response. With a filter value of "1" the filter is switched off, i.e. the display value is equal to the unfiltered measured value.

The integrated step function detector reacts to a change of value corresponding to approx. 6.25% of the full scale value. As soon as a step function signal is detected, the instantaneous measured value is directly indicated in the display.



## 9.5.5 Contact type

The function of the transistor switching output is set in menu item "Con, Co1 or Co2". The switching function switches from

**no - N/O contact** to

**nc - N/C** to

**Fr – frequency** (only Con and Co1)

and back.

N/O contact: contact closes when switch point is exceeded

N/C contact: contact opens when switch point is exceeded

Frequency: frequency output is proportional to flow value

## 9.5.6 Current output

The current output is selected in menu items

"S-C"      **Start current**      **indicated value < > 0(4) mA**

"E-C"      **End current**      **indicated value < > 20 mA**

"SCS"      **Start current selection (0-20 mA or 4-20 mA).**

The indicated value at which 0(4) mA flow is entered in menu item start current.

The indicated value at which 20 mA flow is entered in menu item end current.

### **9.5.7 Change code**

The change code option "**CCo**" secures the unit against unauthorised tampering. If the code is different from 000, the user must input the code immediately after entering the adjustment mode.

## **10. Maintenance**

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The measurement device requires no maintenance if the measurement medium does not cause deposits. In order to avoid problems, we recommend the installation of a filter, such as the magnetic filter, e.g. model MFR.

If it is necessary to clean the sensor, the sensor can be rinsed with a suitable liquid. Fibre parts or large particles can be carefully removed with a cleaning cloth or similar.

Work on the electronics can only be performed by the factory, or the warranty is otherwise voided.

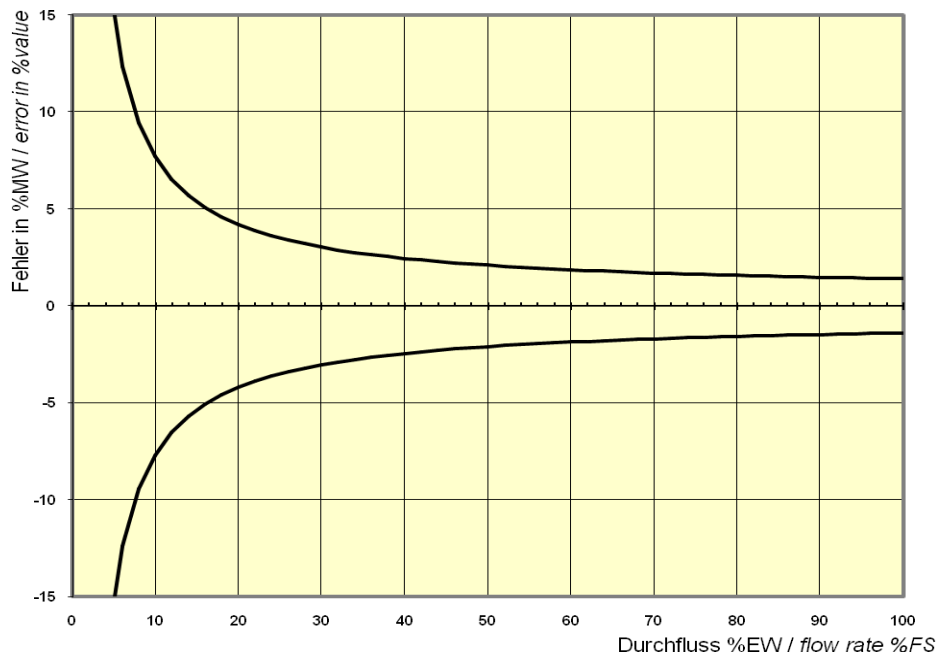
## 11. Technical Information

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Measuring principle:	ultrasonic
Range:	see table
Medium:	water with max. 1% solid
Viscosity:	max. 5 mm <sup>2</sup> /s
Accuracy:	0.7 % of reading + 0.7 % full scale
Repeat accuracy:	±0.1 % of F.S.
Mounting position:	in all directions, flow in direction of the arrow (horizontal: electronic on top or below)
In-/Outlet:	10 x DN
Media temperature:	-20...+90 °C
Ambient temperature:	-20...+70 °C
Response time $t_{90}$ :	approx. 0.5...1 s (depends on electronic version) at flow changes > 10 % f.s.
Pressure:	0...16 bar
Pressure loss:	max. 150 mbar at f.s.
Protection:	IP 65

### Wetted parts

Sensor housing:	brass or st. st. 1.4408
Sensors:	PEEK
Seal:	NBR, other on request high temp. version FPM



## Measuring Ranges and Weights

Model	Measuring Range "G" (GPM)	Measuring Range "H" (LPM)	Size (NPT/G)	DUK-...S30x DUK-...F3x0 DUK-...Lx43	DUK-...C3T0	DUK with ADI 24 V <sub>DC</sub>	DUK with ADI 230/115 V <sub>AC</sub>
DUK-xxx4	0.02...5	0.08...20	½	1.87 LB	2.31 LB	4.74 LB	5.95 LB
DUK-xxx5	0.04...10	0.16...40	¾	2.31 LB	2.76 LB	5.18 LB	6.39 LB
DUK-xxx6	0.06...16	0.25...63	1	3.20 LB	3.64 LB	6.06 LB	7.28 LB
DUK-xxx8	0.16...40	0.6...150	1½	5.18 LB	5.62 LB	8.05 LB	9.26 LB
DUK-xxx9	0.25...65	1...250	2	8.38 LB	8.81 LB	11.24 LB	12.46 LB
DUK-xxxB	0.6...160	2.5...630	3	15.65 LB	16.09 LB	18.52 LB	19.73 LB

### DUK-...S300, DUK-...S30D

Display:

Switching output (...S300):

Switching output (...S30D):

Switch point:

Power supply:

Power consumption:

Electrical connection:

Meas. range overflow:

DUO-LED for switch status relay SPDT, max. 1 A/30 V<sub>DC</sub> active 24 V<sub>DC</sub>, , N/C or N/O 10...90 % f.s. in 10 %-steps that can be configured by the customer using a rotary encoder switch 24 V<sub>DC</sub> ± 20 % 12 mA plug M12x1, 5-pin flash of the DUO-LED (red/green from 105 % of f.s.)

### DUK-...F300, DUK-...F390

Impulse output:

Frequency at f.s.:

Power supply:

Power consumption:

Electrical connection:

Meas. range overflow:

PNP, Open Collector, max. 200 mA 500 Hz (...F300) 50...1000 Hz (...F390) proportional to flowrate 24 V<sub>DC</sub> ±20 % 5 mA plug M12x1, 4-pin F<sub>out</sub> approx. 2 kHz flash from 105 % of f.s.

### DUK-...L303; DUK-...L343

Output:

Load:

Power supply:

Electrical connection:

Meas. range overflow:

0(4)-20 mA, 3-wire max. 500 Ω 24 V<sub>DC</sub> ± 20 % plug M12x1, 4-pin I<sub>out</sub> approx. 20.5 mA from 103 % of f.s.

### DUK-...L443 (usage with AUF-3000)

Output:

Load:

Power supply:

Electrical connection:

Meas. range overflow:

4-20 mA, 3-wire max. 500 Ω 24 V<sub>DC</sub> ± 20 % plug DIN 43650 I<sub>out</sub> approx. 20.5 mA from 103 % of f.s.

## **DUK-...C3xx (Compact electronic)**

Display:	3-digit LED
Analogue output	0(4)...20 mA adjustable (only DUK-...C34x)
Load:	max. 500 $\Omega$
Switching output:	1(2) semiconductor PNP or NPN, set at factory,
Contact function:	N/C-N/O-frequency programmable (frequency output not calibrated, frequency at f.s. approx. 1400 Hz)
Settings:	via 2 buttons
Power supply:	24 V <sub>DC</sub> $\pm$ 20 %
Power consumption:	ca. 100 mA
Electrical connection:	plug M12x1, 5-pin

## **DUK-...Exxx (Counter electronics)**

Display:	LCD, 2 x 8 digit, illuminated total, part and flow quantities, units selectable
Analogue output:	(0)4...20 mA adjustable
Load:	max. 500 $\Omega$
Switching output:	2 relays, max. 30 V <sub>AC/DC</sub> / 2 A / 60 VA
Settings:	via 4 buttons
Functions:	reset, MIN/MAX memory, flow monitor, monitoring for part and total quantity, language
Power supply:	24 V <sub>DC</sub> $\pm$ 20 %, 3-wire
Power consumption:	approx. 150 mA
Electrical connection:	cable connection or 2x plug M12x1 5/8 pin
<i>more technical details see data sheet ZED in the brochure Z2</i>	

## **DUK-...Gxxx (Dosing electronics)**

Display:	LCD, 2 x 8 digit, illuminated, dosing, total and flow quantity, units selectable
Analogue output:	(0)4...20 mA adjustable
Load:	max. 500 $\Omega$
Switching output:	2 relays, max. 30 V <sub>AC/DC</sub> / 2 A / 60 VA
Settings:	via 4 buttons
Functions:	dosing (relay S2), start, stop, reset, fine dosing, correction amount, flow switch, total quantity, language
Power supply:	24 V <sub>DC</sub> $\pm$ 20 %, 3-wire
Power consumption:	approx. 150 mA
Electrical connection:	cable connection or 2x plug M12x1 5/8-pin
<i>more technical details see data sheet ZED in the brochure Z2</i>	



## DUK with ADI electronic

Display:	bar graph and 5-digit digital display
Analogue output:	(0) 4...20 mA, 0...10 V <sub>DC</sub>
Load:	max. 500 Ω
2 Switching outputs:	relay/changeover contact max. 250 V <sub>AC</sub> , 5 A resistive load max. 30 V <sub>DC</sub> /5 A
Settings:	via 4 buttons
Power supply:	100...240V <sub>AC</sub> ±10% or 18...30 V <sub>AC</sub> /10...40V <sub>DC</sub>
Electrical connection:	pluggable terminal block cable gland

See brochure Z2 for more technical details on ADI evaluating electronics.

## 12. Order Codes

**Order Details** (Example: **DUK-11 N4 G S300 L**) Note: Flow range determined by fitting size and can be referenced on the measuring range and weight table located on page 23

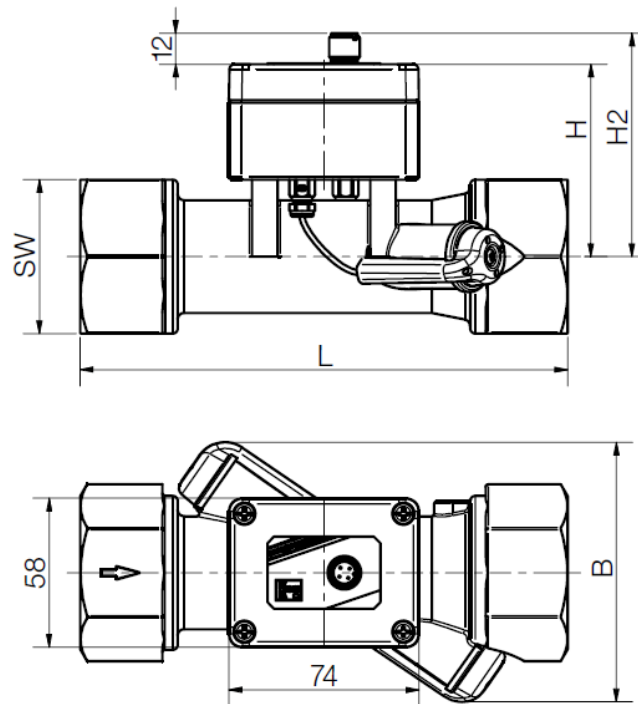
Housing/Sealing Material	Connection/ GPM <sup>1)</sup>	Output / Electronic	Flow Direction	Options								
<b>DUK-11..</b> = Brass Housing, NBR Seals  <b>DUK-12..</b> = SS Housing, NBR Seals  <b>DUK-31..</b> = Brass Housing, FKM Seals  <b>DUK-32..</b> = SS Housing, FKM Seals	<b>..N4G..</b> = ½" NPT <b>..N5G..</b> = ¾" NPT <b>..N6G..</b> = 1" NPT <b>..N8G..</b> = 1½" NPT <b>..N9G..</b> = 2" NPT <b>..NBG..</b> = 3" NPT <b>..G4G..</b> = G ½ <b>..G5G..</b> = G ¾ <b>..G6G..</b> = G 1 <b>..G8G..</b> = G 1½ <b>..G9G..</b> = G 2 <b>..GBG..</b> = G 3	<b>Switching Output</b> <b>..S300..</b> = Relay, M12-Plug <b>..S30D..</b> = Active 24 V <sub>DC</sub> , M12-Plug  <b>Frequency Output</b> <b>..F300..</b> = M12-Plug, 500 Hz <b>..F390..</b> = M12-Plug, 50 to 1000 Hz (User Specified)  <b>Analog Output</b> <b>..L343..</b> = M12-Plug, 4-20 mA <b>..L443..</b> = DIN-Plug, 4-20 mA  <b>ADI-1 Electronic</b> <table border="1"> <thead> <tr> <th>Display</th> <th>Power Supply</th> <th>Output</th> <th>Contacts</th> </tr> </thead> <tbody> <tr> <td><b>K</b> = Bar Graph/digital display</td> <td><b>0</b> = 100-230 V<sub>AC/DC</sub> <b>3</b> = 18-30 V<sub>AC</sub> 10-40 V<sub>DC</sub></td> <td><b>0</b> = without <b>4</b> = 4-20 mA, 0-10 V<sub>DC</sub></td> <td><b>2</b> = (2x) Relay SPDT</td> </tr> </tbody> </table>	Display	Power Supply	Output	Contacts	<b>K</b> = Bar Graph/digital display	<b>0</b> = 100-230 V <sub>AC/DC</sub> <b>3</b> = 18-30 V <sub>AC</sub> 10-40 V <sub>DC</sub>	<b>0</b> = without <b>4</b> = 4-20 mA, 0-10 V <sub>DC</sub>	<b>2</b> = (2x) Relay SPDT	<b>..L</b> = from Left to Right  <b>..R</b> = from Right to Left  <b>..T</b> = from Top to Bottom  <b>..B</b> = from Bottom to Top	<b>..M</b> = Pressure Compensation Filter for Reducing Condensation  <b>..Y</b> = Special Option (Specify in Clear Text)
		Display	Power Supply	Output	Contacts							
<b>K</b> = Bar Graph/digital display	<b>0</b> = 100-230 V <sub>AC/DC</sub> <b>3</b> = 18-30 V <sub>AC</sub> 10-40 V <sub>DC</sub>	<b>0</b> = without <b>4</b> = 4-20 mA, 0-10 V <sub>DC</sub>	<b>2</b> = (2x) Relay SPDT									
<b>Compact Electronic</b> <b>..C3T0..</b> = Compact TFT Display 2x Configurable Outputs (Current/Voltage/Pulse/Frequency/Alarm) M12x1 Electrical Connection	<b>..A<sup>2)</sup></b> = Include Medium Configuration											
<b>Accessories:</b> P/N 807.037 = 4-Pin Micro-DC Connector with 6-foot Cable for Output Types F300, F390, L343, S30D, & C3T0 P/N 807.007 = 5-Pin Micro-DC Connector with 6-foot Cable for Output Types S300												

<sup>1)</sup> Standard display in G/min, optional display L/min (code H instead of G)

<sup>2)</sup> Medium Configuration based on Media Database (see following page). **Ordering Code ABG-DUK**

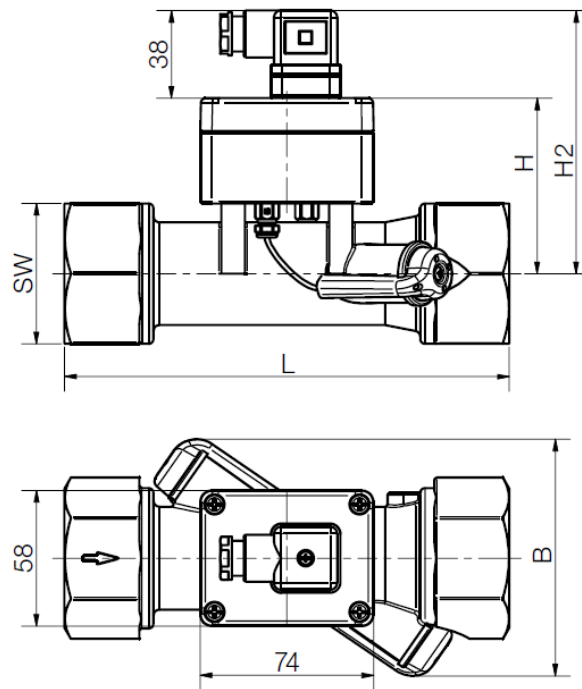
Note: The standard factory configuration for the DUK is always water

## 13. Dimensions



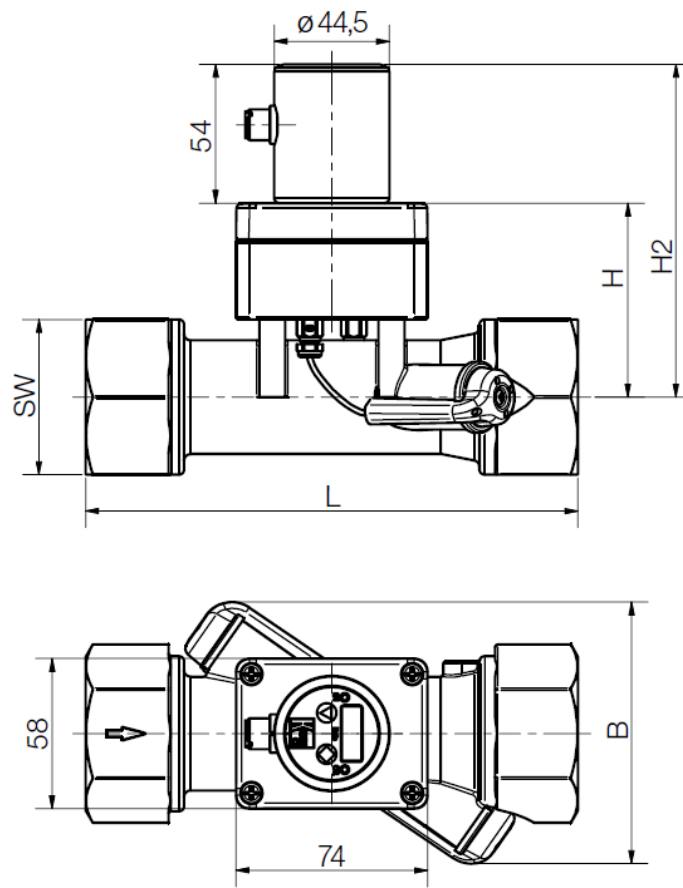
DUK-...S30x, DUK-...F3x0, DUK-...L3x3

Typ	G / NPT	SW [mm]	H [mm]	H2	L [mm]	B [mm]
DUK-xxx4	1/2"	30	57.5	75	114	85
DUK-xxx5	3/4"	36	59.5	77	126.5	89
DUK-xxx6	1"	46	63.5	81	146	93
DUK-xxx8	1 1/2"	60	69.5	87	190	103
DUK-xxx9	2"	76	74.5	92	238	114
DUK-xxxB	3"	105	84.5	102	306	135



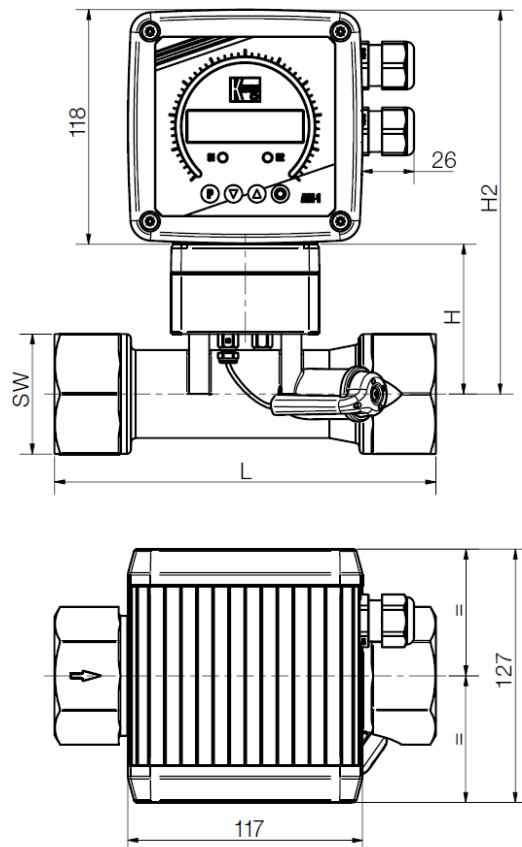
## DUK-...L443

Typ	G / NPT	SW [mm]	H [mm]	H2	L [mm]	B [mm]
DUK-xxx4	1/2"	30	63	101	114	85
DUK-xxx5	3/4"	36	65	103	126.5	89
DUK-xxx6	1"	46	69	107	146	93
DUK-xxx8	1 1/2"	60	75	113	190	103
DUK-xxx9	2"	76	80	118	238	114
DUK-xxxB	3"	105	90	128	306	135



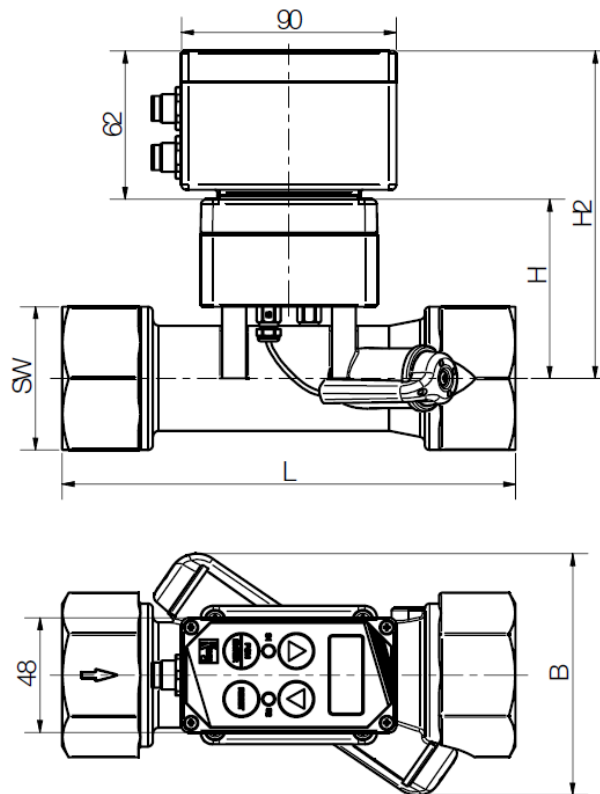
## DUK-...C3xx

Typ	G / NPT	SW [mm]	H [mm]	H2	L [mm]	B [mm]
DUK-xxx4	1/2"	30	63	117	114	85
DUK-xxx5	3/4"	36	65	119	126.5	89
DUK-xxx6	1"	46	69	123	146	93
DUK-xxx8	1 1/2"	60	75	129	190	103
DUK-xxx9	2"	76	80	134	238	114
DUK-xxxB	3"	105	90	144	306	135



## DUK-...Kxx2

Typ	G / NPT	SW [mm]	H [mm]	H2	L [mm]	B [mm]
DUK-xxx4	1/2"	30	63	181	114	85
DUK-xxx5	3/4"	36	65	183	126.5	89
DUK-xxx6	1"	46	69	187	146	93
DUK-xxx8	1 1/2"	60	75	193	190	103
DUK-xxx9	2"	76	80	196	238	114
DUK-xxxB	3"	105	90	208	306	135



## DUK-...ExxR, DUK-...GxxR

Typ	G / NPT	SW [mm]	H [mm]	H2	L [mm]	B [mm]
DUK-xxx4	1/2"	30	63	125	114	85
DUK-xxx5	3/4"	36	65	127	126.5	89
DUK-xxx6	1"	46	69	131	146	93
DUK-xxx8	1 1/2"	60	75	137	190	103
DUK-xxx9	2"	76	80	142	238	114
DUK-xxxB	3"	105	90	152	306	135

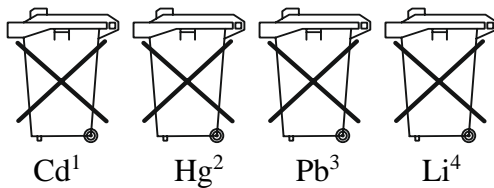
## 14. Disposal

### 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



## 15. EU Declaration of Conformance

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

**Ultrasonic Flowmeter/ -Monitor/ -Counter/ -Dosing Unit    Model: DUK-...**

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

**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

Additionally for ADI evaluation electronics:

**EN 61010-1:2011**

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

Also, the following EEC guidelines are fulfilled:

<b>2014/30/EU</b>	<b>EMC Directive</b>
<b>2011/65/EU</b>	<b>RoHS (category 9)</b>
<b>2015/863/EU</b>	<b>Delegated Directive (RoHS III)</b>

Additionally for ADI evaluation electronics:

<b>2014/35/EU</b>	<b>Low Voltage Directive</b>
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H. Peters  
General Manager



M. Wenzel  
Proxy Holder

Hofheim, 02 Febr. 2021



## 16. UK Declaration of Conformity

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

**Ultrasonic Flowmeter/ -Monitor/ -Counter/ -Dosing Unit    Model: DUK-...**

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

**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.

Additionally for ADI evaluation electronics:

**BS EN 61010-1:2010+A1:2019**

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

Also, the following UK guidelines are fulfilled:

**S.I. 2016/1091**

**Electromagnetic Compatibility Regulations 2016**

**S.I. 2012/3032**

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

Additionally for ADI evaluation electronics:

**S.I. 2016/1101**

**Electrical Equipment (Safety) Regulations 2016**




Hofheim, 02 Febr. 2021

H. Peters  
General Manager

M. Wenzel  
Proxy Holder