Operating Instructions

for

Compact Vortex Flow Meter

Model: DVZ

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Manufactured and sold by:

Kobold Messring GmbH
Nordring 22-24
65719 Hofheim
Tel.: +49(0)6192-2990
Fax: +49(0)6192-23398
E-Mail: info.de@kobold.com
Internet: www.kobold.com

2. Note

2.1 General

Before unpacking and commissioning the device, the operating instructions and the “General Safety Instructions” document must be read and followed carefully. The general safety instructions, the operating instructions, the data sheet as well as approvals and further information can be downloaded via the QR code on the device or under the respective product on www.kobold.com.

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 device should be used only when the entire machine fulfils the EU machinery directive.

2.2 Validity and version of the operating instructions

Due to technical changes, the device documentation 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.

2.3 Hazard warnings

The following instructions are intended to ensure your personal safety and to prevent damage to the product described or connected devices. Safety instructions and warnings to prevent danger to the life and health of users or maintenance personnel, or to prevent damage to property, are highlighted in this documentation using the symbols defined here. *The symbols and terms used have the following meaning in the documentation itself:*

Symbol	Explanation	Symbol	Explanation
Note	Is important information about the product, the handling of the product or the respective part of the documentation to which particular attention should be drawn.	Caution	Means that minor personal injury or minor property damage may occur if proper precautions are not taken.

Symbol	Explanation	Symbol	Explanation
Warning	Indicates that serious personal injury or substantial property damage may occur if proper precautions are not taken.	Danger	Means that death can occur if proper precautions are not taken.
Warning	Attention: Hot surface!	Warning	Warning: Dangerous electrical voltage

2.4 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.
Diagram 8, Pipelines, Group 1, dangerous fluids

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:

- Compact Vortex Flow Meter model: DVZ

4. Intended Use

Any use of the Compact Vortex flow meter, model: DVZ, 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.

4.1 Requirements and Restrictions under the CSA Logo

For equipment intended for the installation and operation in North America, marked with the cCSAus logo, the following restrictions apply:

1. The equipment is only certified for indoor installation and operation, and must be protected against environmental influences such as:
   a. Rain and high humidity
   b. UV radiation
2. The equipment may be used for applications where hazardous mediums are present inside the measuring chambers of the equipment, however the installation in a hazardous location is strictly forbidden.
   It is the responsibility of the operator to ensure that the wetted parts of the equipment are suitable for the media to be measured.
3. DVZ with Ceramic storage bodies (versions DVZ-2 and DVZ-4) are not available with the CSA Marking.

Use with flammable liquids
Flammable liquids used within the equipment shall have a fire point/flash point at least 25 °C higher than the maximum rated media temperature of the Process Medium to be measured. (Conditions of Acceptability in Test Report).

Power Supply
When installed and operated under the CSA Label, the equipment shall be supplied with an external power supply, which shall provide at least reinforced or double insulation in accordance with the requirements of Cl. 6.3.1, 6.3.2, 9.4 of IEC/CSA/UL 61010-1 and shall also meet all applicable national authority requirements. For example, by the use of a Class 2 Limited Power Source (LPS).

Output Signal Connections
When connecting to the devices output signal interfaces, only SELV/PELV isolated circuits which satisfies the requirements of IEC/EN 61010-1 may be used. Non-isolated circuits are not to be connected to the device.

5. Operating Principle

The compact KOBOLD Vortex flow meter, model DVZ, is used for measuring, counting and monitoring smaller and medium-sized flow of low viscosity, water-like fluids in pipes.
The device works using the vortex process, making it virtually maintenance-free. This involves the installation of a sharp-edged object (the vortex generator) in the flow duct. A vortex is created behind the object whose frequency is proportional to the flow velocity of the fluid.
The flow volume can be determined with a very great degree of accuracy by measuring the vortex frequency. This achieves a very high linearity across the whole measuring range.
The device can be fitted with switching, frequency or analogue outputs. There is also an optional compact electronics package that includes a digital display, and both a switching and analogue output.

6. Mechanical Connection

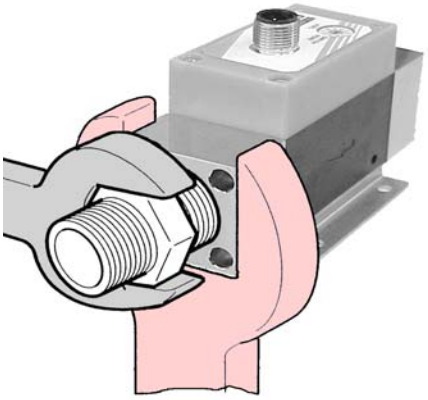
6.1 Check operating conditions:

- Flow rate
- max. operating pressure
- max. operating temperature

Danger	Physical factors, such as elevated temperature or reduced pressure, can lead to cavitation at the edges of the vortex generator and thus significantly alter the expected vortex frequency. Increasing the pressure within the DVZ counteracts cavitation; therefore, the specified minimum system back pressure must be adjusted if the DVZ is used under conditions that deviate from the reference conditions.

6.2 Installation

- Remove all packing materials and transport retainers and ensure that no such materials remain in the device.
- Install with flow in direction of arrow (universal mounting)
- Avoid pressure and radial tension
- Fasten the pipe at up stream and down stream at a distance of 50 mm from the connections



NOTE Note	Attention! Retransfer the unit on the metal bolting (not on the plastic housing!) Mount switches using the proper tightening torque according the following table!

Nominal size of threads	Proper tightening torque
3/8”	22 to 24 Nm
1/2”	28 to 30 Nm
3/4”	28 to 30 Nm
1”	36 to 38 Nm

Caution	Note! The switch 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.

- Ensure inlet section of 10xDN and outlet section of 10xDN
- Avoid valves or large reduction on the inlet section (this increases the inaccuracy of measurements)
- Check the seals of the connections

Caution	Attention! When used with an open output side, there is a danger of cavitation.

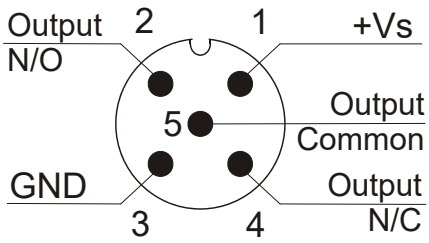
7. Electrical Connection

7.1 General

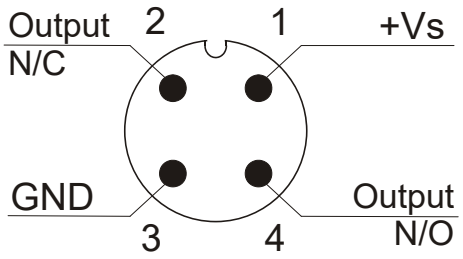
Warning	Attention! Make sure that the voltage values of your system correspond with the voltage values of the measuring unit.

- 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 mm².

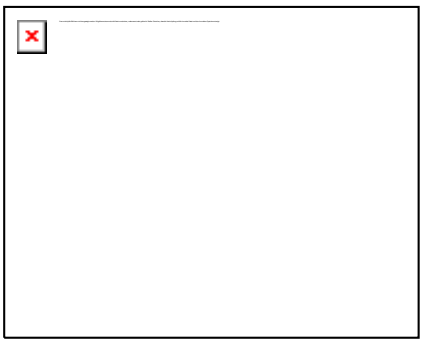
7.2 DVZ-...S300



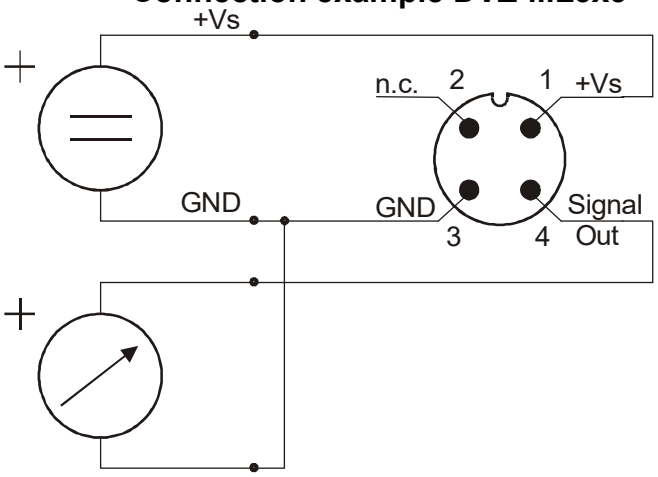
7.3 DVZ-...S30D



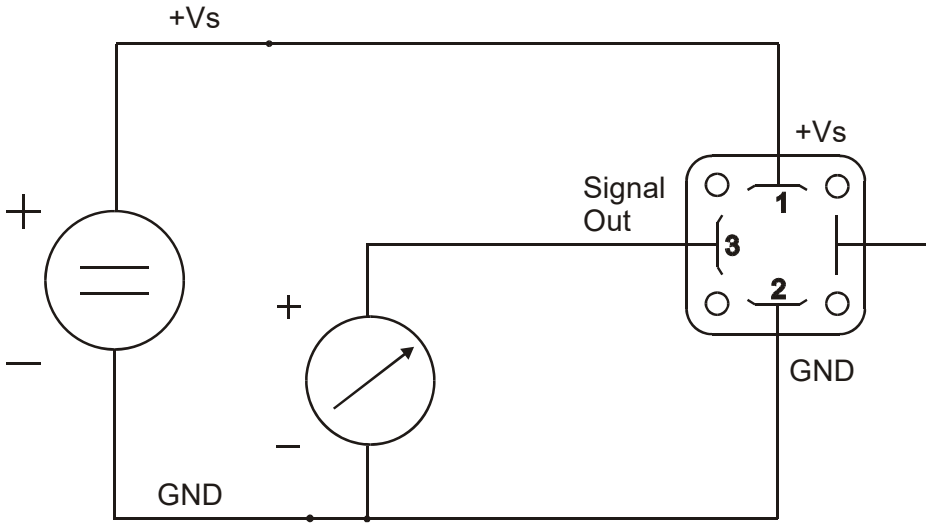
7.4 DVZ-...F300; DVZ-...L3x3



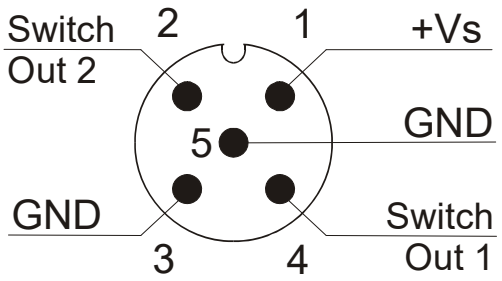
Connection example DVZ-...L3x3



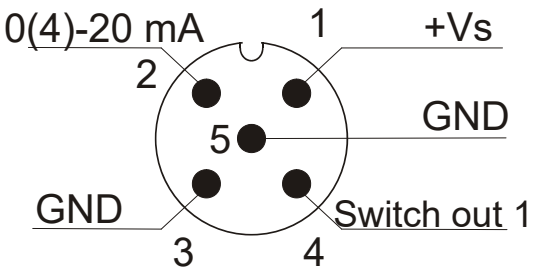
7.5 DVZ-...L443



7.6 DVZ-...C30



7.7 DVZ-...C34



7.8 DVZ-...Ex4R, DVZ-...Gx4R

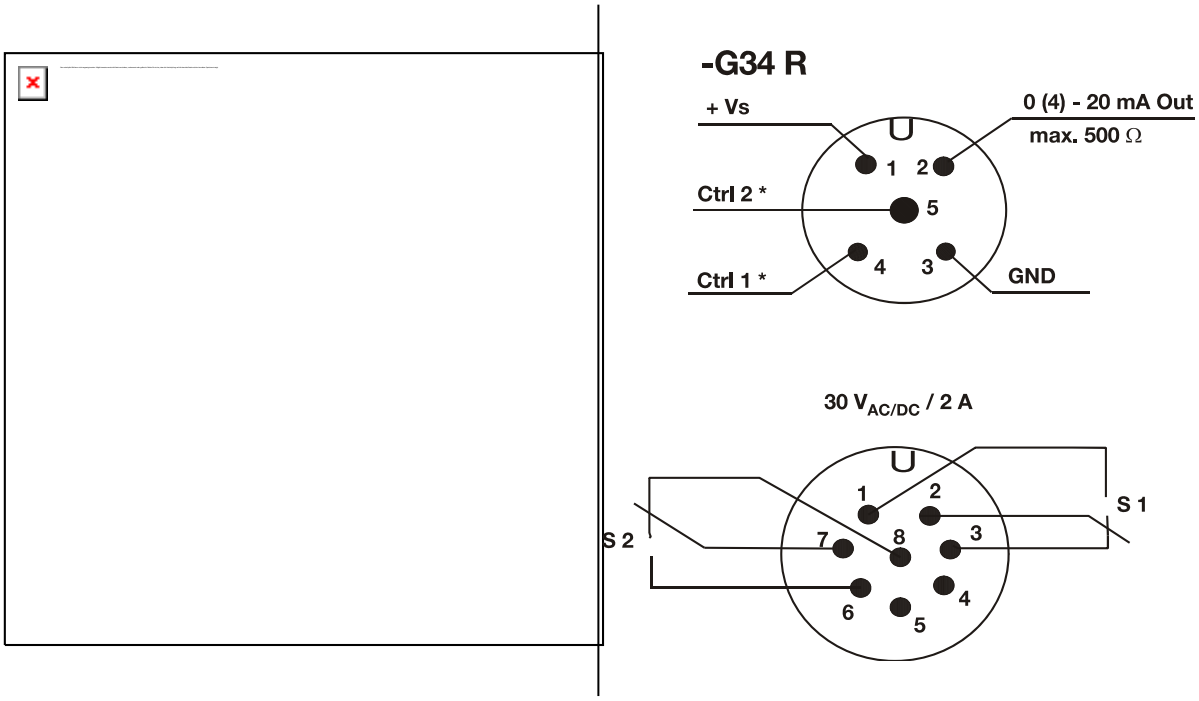
Cable connection

Wire number	DVZ-...E14R Counter electronics	DVZ-...G14R Dosing electronics
1	+24 V_{DC}	+24 V_{DC}
2	GND	GND
3	4-20 mA	4-20 mA
4	GND	GND
5	n. c.	control 2*
6	reset part quantity	control 1*
7	relay S1	relay S1
8	normally open	normally open
9	relay S2	relay S2
10	normally open	normally open

*Start-dosing: Control 1 connect with GND
Stop-dosing: Control 2 connect with GND
Reset-dosing: Control 1 and Control 2 at the same time with GND

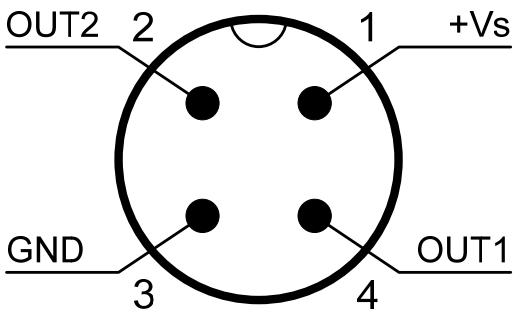
NOTE Note	Do not connect any external voltage to the control units!

Plug connection



d.c.*) Don't connect!

7.9 DVZ-…C3T0..



8. Operation

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

8.1 Switch point setting DVZ-...S300, DVZ-…S30D

Switch setting	Switch point
0	switch function deactivated
1	start of measuring range
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.

Flow above switch point: DUO-LED green
Flow below switch point: DUO-LED red
Measuring range overflow: DUO-LED orange flashing

8.2 Counter electronics DVZ-…Ex4R

Operating please see Operating Instructions ZED-Z

8.3 Dosing electronics DVZ-…Gx4R

Operating please see Operating Instructions ZED-D

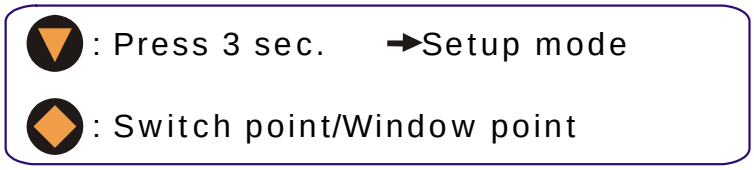
9. Adjustments – Compact Electronic DVZ-...C3..

The operation and configuration of the -C3T0 electronics option is described in the supplementary operating manual for C3T0.

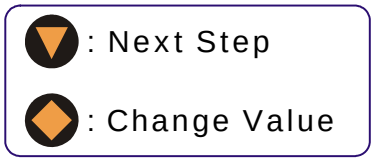
Connect the compact electronic according to previous connection diagram.
After power on, the measuring range (end current) will be shown for 3 seconds.

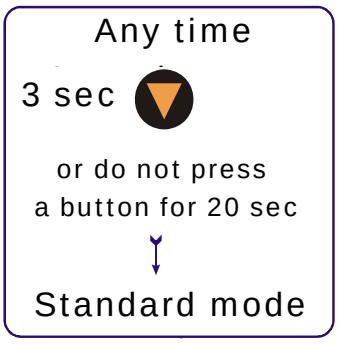
9.1 Button function

In the normal mode (measuring mode)



In the set-up mode





9.2 Settings

The following values can be changed in the compact electronics:

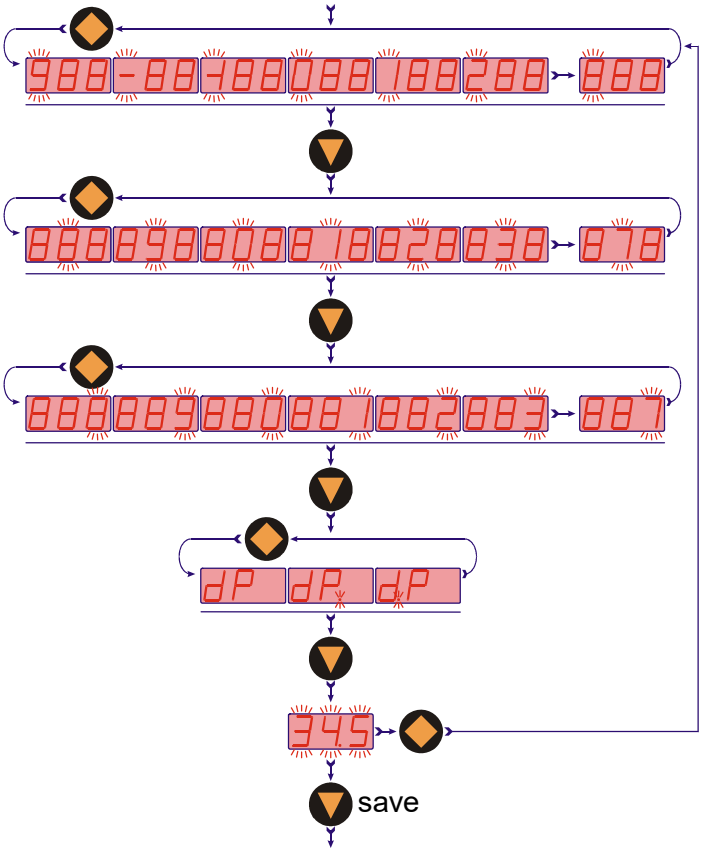
	Scale range	Factory setting
Switch point (**SPo, SP1**, **SP2**)	0...999	0,00
Hysteresis (**HYS**)	-199...0	-0,00
Window point (duo point) (**duo**)	Switch point ...999	--- (inactive)
contact-type (**Con**, **Co1, Co2**)	N/O, N/C or Frequency (**Fr**)**	**N/O**
Start current (**S-C**)*	000...999	000
End current (**E-C**)*	000...999	f.s.
Start current selection (**SCS**)	0-- (0 mA), 4-- (4 mA)	4 mA
Change Code (**CCo**)	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

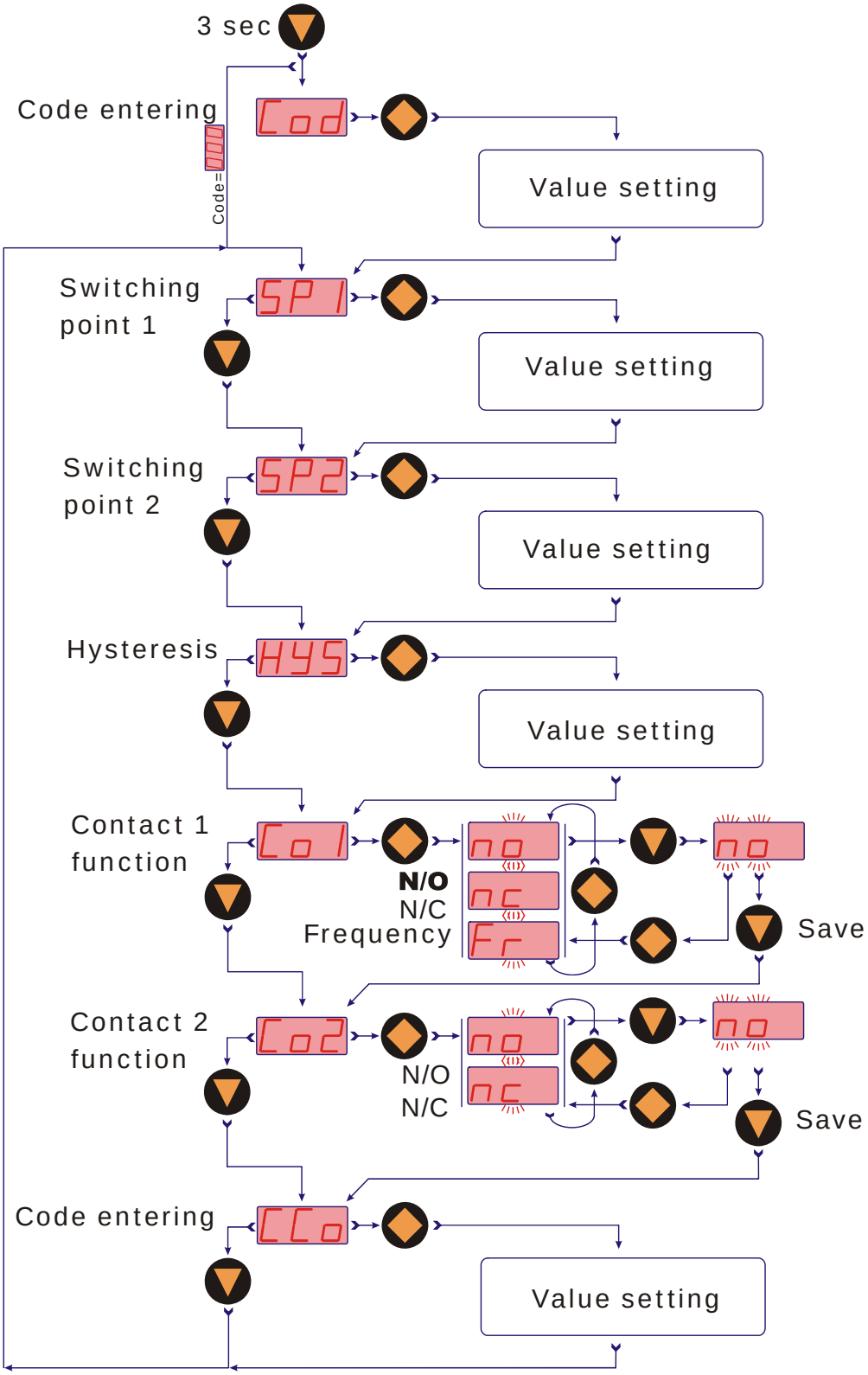
Adjust decimal point

Save selected value
or
enter new value.

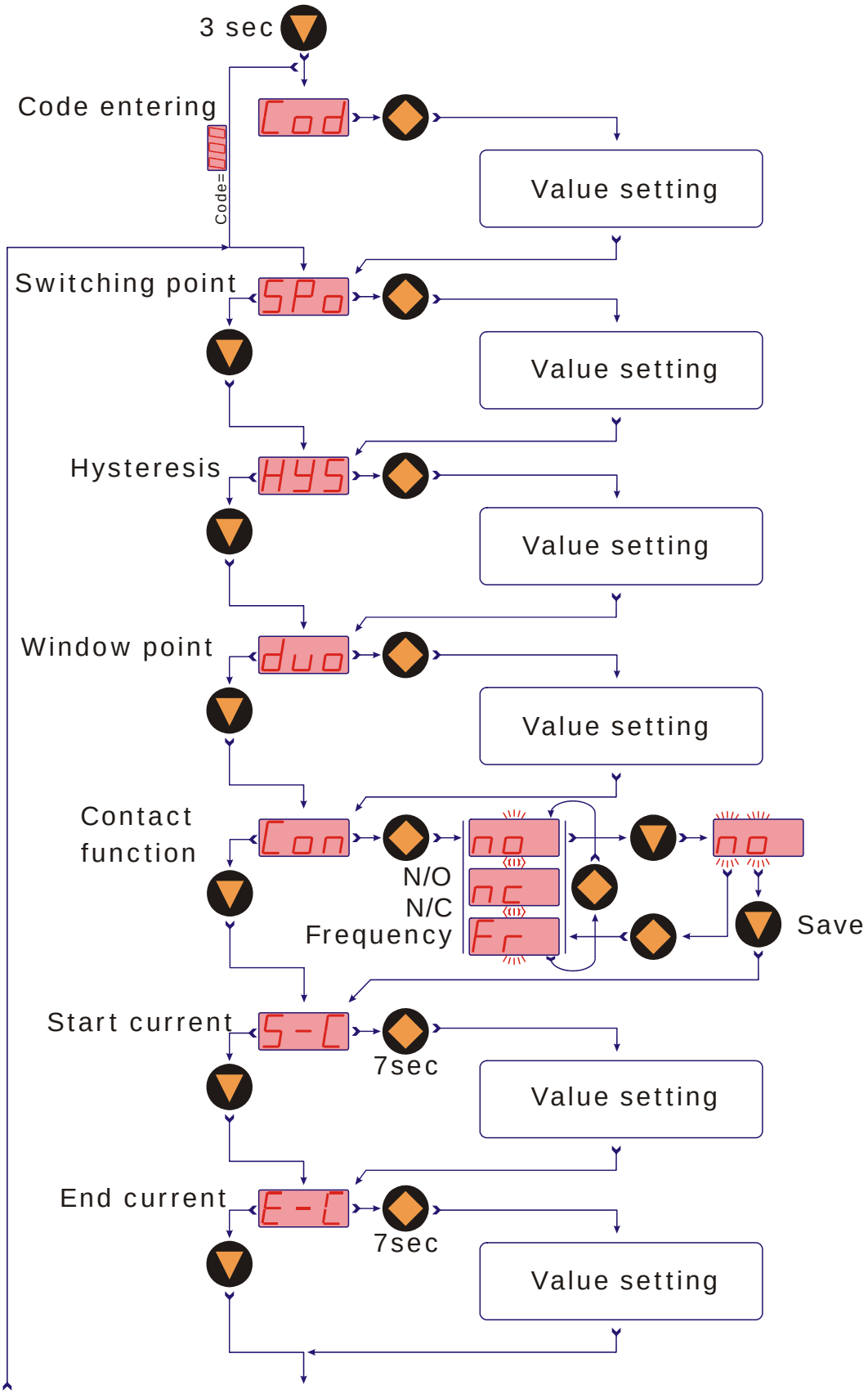
[To the next main menu item]

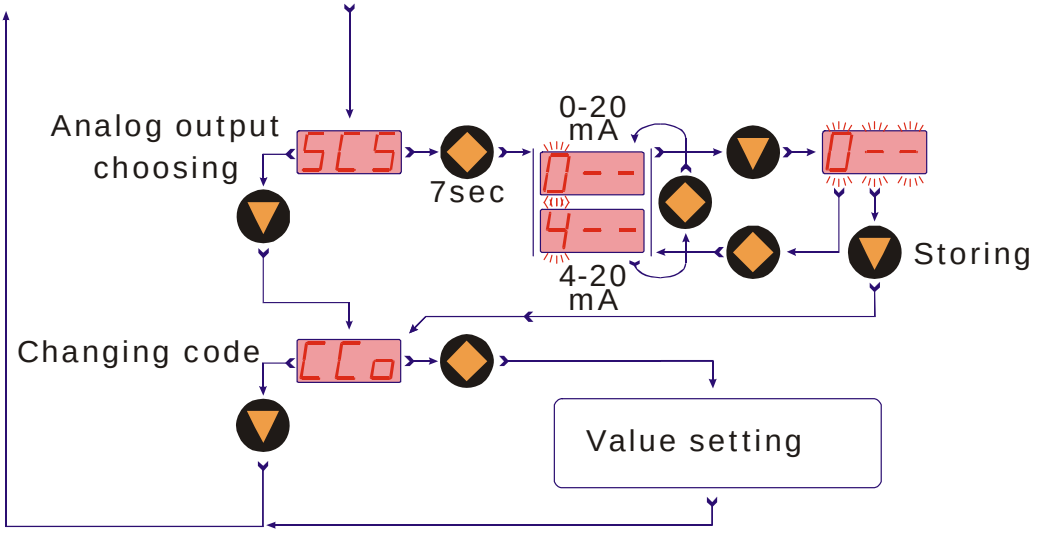
9.4 Set-up mode

Compact electronic DVZ-...C30..



Compact electronic DVZ-...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 signalised 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: Switching point 100 l/min; Hysteresis: -2.5 l/min
The electronic switches when 100 l/min is exceeded and switches back when the reading drops below 97.5 l/min.

9.5.3 Window point (duo-point)

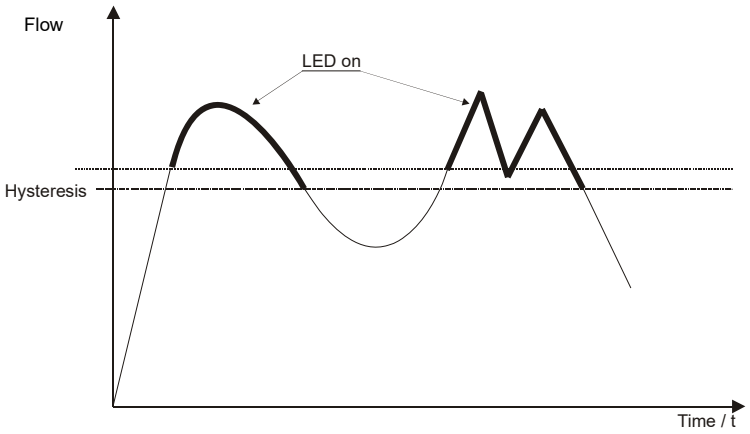
As well as the switching point, it is also to define a "**duo**" (duo-point), the window point. This must be higher than the switching point. By using the window point and the switching point it is possible to monitor the measurement value in a certain range. The switching point limits the measurement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

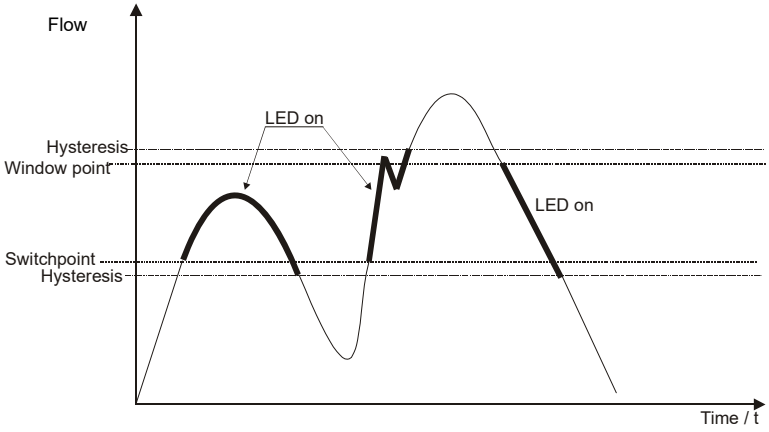
NOTE Note	If the window point (duo-point) is less than or equal to the switching point, an error report (Er4) will be indicated on the display and its value is deleted and its function is invalid (in the case that the window point and switching point out of adjustment).

The value is set in the same way as the switching point.
The window point is needed for process, in which monitoring of a certain temperature 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 switching 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 electronic switch. The contact closes (contact type: no) when it drops below the switching point or 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 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 switching point is exceeded
N/C contact: contact opens when switching point is exceeded
Frequency: frequency output synchronised with the vane frequency

9.5.5 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.

9.5.6 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. Device Status – Compact Electronics DVZ-…C3T0

The vortex flowmeter can detect and display various device or application errors.

If a status or error message is present, the STATUS icon on the display will flash alternately orange and red. To retrieve status or error information, the Status button must be pressed; the status window that subsequently appears displays all messages accumulated up to that point. By pressing the ⮜⮜⮜ button, the user acknowledges the displayed errors; the status memory is cleared, and the status window closes. If any of the displayed errors persist, this is signalled again by the flashing of the Status icon.
The following status and error messages are generated:

Display text	**Description**	**Troubleshooting**
Temp Sens Error	Temperature measurement circuit error	Repair by KOBOLD Service required
No Subslave	Internal hardware error	Repair by KOBOLD Service required
Simulation	Simulation function active	-
NVM Error	Device error	Repair by KOBOLD Service required

11. Maintenance

The measurement device requires no maintenance if the measurement medium does not cause deposits or include fibre parts, which wrap around the sensor or the gate. In order to avoid problems, we recommend the installation of a filter, such as the magnetic filter, type MFR.
If it is necessary to clean the sensor, the sensor can be rinsed with a suitable liquid. Fiber parts or large particles can be carefully removed with tweezers, etc.

Note	Ensure that the sensor is not damaged.

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

12. Technical Information

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

13. Order Codes

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

14. Dimensions

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

15. Disposal

See “General Safety Instructions” - via the QR code on the device or via www.kobold.com

16. IO-Link (DVZ- XXXXXXC3T electronics only)

16.1 IO-Link Function

The DVZ-XXXXXXC3T flow meter features an IO-Link communication interface as standard. This interface allows for direct access to process and diagnostic data, as well as device configuration.

Output 1 is factory-configured for IO-Link functionality. When IO-Link communication mode is active, the "IOLINK" symbol appears in green within the output status display. While IO-Link mode is active, the configuration menu remains locked and inaccessible.
To ensure proper operation of the IO-Link device with a connected IO-Link master, it is necessary to install the corresponding device description file.

The device description files (IODDs) are available in the IODDfinder database at ioddfinder.io-link.com.

Product-Typ	Device-ID [hex]	Device-ID [dec]
DVZ- XXXXXXC3T	HEX 040400	DEC 263168

If the device is operated on an IO-Link Master with Port Class A, a maximum output current of only 50 mA may be drawn from Output 2 (OUT2) (current or binary output); otherwise, the IO-Link Master will be overloaded, and malfunctions may occur.

Note	If a measured value is invalid (NAN) due to an error status, the corresponding process value is output as "0". In this case, the Device Status and Events should also be observed.

16.2 Specification

Manufacturer ID	1105 (decimal), 0x0451 (hex)
Manufacturer Name	Kobold Messring GmbH
IO-Link Specification	V1.1
Bit Rate	COM3
Minimum Cycle Time	1.1 ms
SIO-Mode	Yes (OUT1 in IO-Link configuration)
Block Parameterization	Yes
Ready for Operation	10 s
Max. Cable Length	20 m
IO-Link Master Port Class	A

17. Appendix

17.1 IO-Link Process Data Structure

Process data length: 10 bytes

Byte number	Data	Bit counter	Format	Factor	Range	Value
0 - 3	Flow	32 Bit	FloatT		+/-1,4E-45 ... +/-3,4E+38	L/min
4 - 7	Volume	32 Bit	FloatT		+/-1,4E-45 ... +/-3,4E+38	L
8 - 9	Temperature	12 Bit	IntegerT	1/10	+/-204,8	°C
	reserved	1 Bit	BooleanT			
	reserved	1 Bit	BooleanT			
	Status OUT1	1 Bit	BooleanT			
	Status OUT2	1 Bit	BooleanT			

Flow (32 Bit, FloatT)																													
0	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7
Byte 0								Byte 1								Byte 2								Byte 3							

Volume (32 Bit, FloatT)																													
0	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7
Byte 4								Byte 5								Byte 6								Byte 7							

Temperature (12 Bit, IntegerT)															
0	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7
Byte 8								Byte 9							

As long as a diagnostic status of type "Error" is active for the process values of flow or temperature, the corresponding transmitted process values are invalid. The process values are valid only when the corresponding diagnostic status is inactive.

17.2 IO-Link diagnostic information

Event Code [hex]	Event Code [dec]	Name	Device Status	Type	Definition
0x7710	30480	Short Circuit		Error	check installation
0x8C10	35856	Process Variable Range Overrun		Warning	process data uncertain
0x8C20	35872	Measurement Range Overrun		Error	check application
0x8C30	35888	Process Variable Range Underrun		Warning	process data uncertain
0x1838	6200	1. Test Event For Protocol Testing		Error	first test event
0x1839	6201	2. Test Event For Protocol Testing		Error	secont test event
0x183A	6202	NVM Error	4	Error	non-volatile memory is corrupt
0x183B	6203	Subslave Lost		Error	communication to subslave interrupted
0x183C	6204	Subslave Not Found	4	Error	cummunication to subslave couldn`t be astablished
0x183D	6205	Counter Overflow	2	Error	volume or partvolume counter overflowed
0x183E	6206	Simulation Active		Warning	indicades that one of the simulations is running
0x183F	6207	Flow MRE Overrun		Warning	measuring range overrun
0x1840	6208	Flow MRS Underrun		Warning	measuring range underrun
0x1841	6209	Flow Overflow Overrun	2	Warning	overflow range overrun
0x1842	6210	Flow Underflow Underrun	2	Warning	underflow range underrun
0x1847	6215	Temperature MRE Overrun		Warning	measuring range overrun
0x1848	6216	Temperature MRS Underrun		Warning	measuring range underrun
0x1849	6217	Temperature Overflow Overrun	2	Warning	overflow range overrun
0x184A	6218	Temperature Underflow Underrun	2	Warning	underflow range underrun
0x1860	6240	Temp Sensor Error	4	Error	no temperature sensor attached

17.3 IO-Link System Command Table

Command (hex)	Command (hex)	Command name
82	130	Restore factory settings
A0	160	Reset MinMax Flow
A1	161	unused
A2	162	Reset MinMax Temperature
A3	163	Reset Part Volume Counter
A4	164	unused
A5	165	unused
A6	166	unused
A7	167	unused
A8	168	Start Simulation Flow
A9	169	unused
AA	170	Start Simulation Temperature
AB	171	Start Simulation Part Volume
AC	172	unused
AD	173	unused
AE	174	unused
AF	175	unused
B0	176	Stop Simulation Flow
B1	177	unused
B2	178	Stop Simulation Temperature
B3	179	Stop Simulation Part Volume
B4	180	unused
B5	181	unused
B6	182	unused
B7	183	unused
B8	184	Events Handling ON
B9	185	Events Handling OFF

17.4 IO-Link ISDU Parameter Table

Parameters relating to flow, temperature, or volume readings must be entered in the base units and, if necessary, converted beforehand. The base units are:

Flow: **L/min**

Temperature: **°C**

Volume: **Liters**

Unit Conversion Table

Category: **Flow**		
Unit	Description	Conversion
L/m	liters per minute (basic unit)	-
L/h	liters per hour	1 L/h = 0.0167 L/m
mL/m	milliliters per minute	1 mL/m = 0.001 L/m
m^3/h	Cubic meters per hour	1 m^3/h = 16.667 L/m
gal/m	US gallons per minute	1 gal/m = 3.7854 L/m
gal/h	US gallons per hour	1 gal/h = 0.06309 L/m
galk/m	UK gallons per minute	1 galk/m = 4.54609 L/m
galk/h	UK gallons per hour	1 galk/h = 0.07577 L/m
L/s	Liters per second	1 L/s = 60 L/m
mL/s	Milliliters per second	1 mL/s = 0.0000167 L/m
USER	User unit	1 User unit = USER * L/m

Category: **Temperature**		
Unit	Description	Conversion
°C	Degrees Celsius (basic unit)	-
°F	Degrees Fahrenheit	x °C = (32 + x *1.8) °F
USER	User unit	1 User unit = USER * °C

Category: **Volume**		
Unit	Description	Conversion
L	Liter (basic unit)	-
mL	Milliliter	1 mL = 0.001 L
m^3	Cubic meter	1 m^3 = 1000 L
galUS	US Gallon	1 galUS = 3.7854 L
galUK	UK Gallon	1 galk = 4.54609 L
barrel	Barrel (US)	1 barrel = 158.99 L
USER	User unit	1 User unit = USER * L

Index [hex]	Object Name	Definition	Default value	Max Value	Min Value	Length [Bytes]	Data Type	Access
System								
0x0002	SystemCommand	See Table "Comand Codes"				1	UIntegerT	W
Product Identification (Vendor specific parameters)								
0x0010	VendorName		Kobold Messring			max. 20	StringT	R
0x0011	VendorText		www.kobold.com			max. 32	StringT	R
0x0012	ProductName		DVZ-XXXXXXC3T			max. 16	StringT	R
0x0013	ProductID		DVZ-XXXXXXC3T			max. 16	StringT	R
0x0014	ProductText		vortex flow meter			max. 32	StringT	R
0x0015	Serialnumber	only read parameter	only read parameter			max. 8	StringT	R
0x0016	HardwareRevision					max. 8	StringT	R
0x0017	FirmwareRevision	Firmware Revision is constant in FW	Firmware Revision is constant in FW			max. 8	StringT	R
0x0018	ApplicationDeviceTag	tag name is from user configurable	tag name is from user configurable			32	StringT	R/W
0x0019	FunctionTag	function tag is from user configurable	function tag is from user configurable			32	StringT	R/W
0x0020	LocationTag	location tag is from user configurable	location tag is from user configurable			32	StringT	R/W
Device Status Information								
0x0024	DeviceStatus	0 - Device OK 1 - Maintenance required 2 - Out of specification 3 - Functional check 4 - Failure				1	UIntegerT	R
0x0025	DetaildDeviceStatus					max. 20	ArrayT of OctetStringT3	R
Display Configuration								
0x0100	DisplayOrientation	Orientation of display	1	(1) - Landscape (2) - Portrait Flip (3) - Landscape Flip (4) - Portrait		1	UIntegerT	R/W
0x0103	DisplayLayout	Single or dual layout	1	(1) - single (2) - dual		1	UIntegerT	R/W
0x0104	UpperDisplay	Source for the upper display	0	(1) - Flow (2) - Volume (3) - Temperature (4) - Part Volume		1	UIntegerT	R/W

0x0105	LowerDisplay	Source for the lower display	2	(1) - Flow (2) - Volume (3) - Temperature (4) - Part Volume		1	UInteg erT	R/W
0x0106	DisplayRefreshTime	Refresh intervall for the display [s]	0,5	(1) - Off (2) - Value (3) - MinMax		4	FloatT	R/W
0x010A	LeftHotkeyFunction	Function for left hotkey	0	(1) - Off (2) - Value (3) - MinMax		1	UInteg erT	R/W
0x010B	RightHotkeyFunction	Function for right hotkey	0	(1) - Flow (2) - Volume (3) - Temperature (4) - Part Volume		1	UInteg erT	R/W
0x010C	LeftHotkeySource	Source for the left hotkey	0	(1) - Flow (2) - Volume (3) - Temperature (4) - Part Volume		1	UInteg erT	R/W
0x010D	RightHotkeySource	Source for the right hotkey	0	(1) - low (2) - middle (3) - high		1	UInteg erT	R/W
0x010E	SensitivityOpticalKeys	Sensitivity for the optical keys	0			1	UInteg erT	R/W
0x010F	AutomaticMenuLeave	Automatic menu leave if the timeout [s] is hit. 0 = timeout not active	0	60	0	1	UInteg erT	R/W
Output 1 (In IO-Link mode output 1 can be parameterized individual, operating mode can only be changed manually)								
0x0112	OUT2AlarmFunction	Limit or window function for the alarm output	0	(1) - Limit (2) - Window		1	UInteg erT	R/W
0x0113	OUT2AlarmOutputTyp e	Alarmoutput NPN, PNP or Pushpull	0	(1) - NPN (2) - PNP (3) - PushPull		1	UInteg erT	R/W
0x0114	OUT2AlarmSwitchFunc tion	Alarmoutput normally opened or closed	0	(1) - normally opened (2) - normally closed		1	UInteg erT	R/W
0x0115	OUT2AlarmThreshold [LPM/°C]	Threshold for the alarmoutput	1,0	MRE	MRS	4	FloatT	R/W
0x0119	OUT2AlarmLowerThre shold [LPM/°C]	Threshold for the alarmoutput used by the windowfunction	1,0	OUT2Alarm Threshold	MRS	4	FloatT	R/W
0x011D	OUT2AlarmHysteresis [LPM/°C]	Switching hysteresis for the alarmoutput	1,0	(MRE-MRS)	0,0	4	FloatT	R/W
0x0121	OUT2AlarmSuppressio nFactor	How many times the threshold must be hit in order to switch the alarm output	0	60	0	1	UInteg erT	R/W
0x0122	OUT2AlarmSuppressio nDirection	for which direction the suppression factor is used	0	(1) - Up (2) - Down (3) - Both		1	UInteg erT	R/W

0x0124	OUT2AnalogNamurStandard	If enabled (1) the analogoutput conforms with the NAMUR Standard NE42. If disabled (0) the analogoutput stays in his equivalent range (e.g. 4-20mA)	1	(1) - NAMUR disabled (2) - NAMUR enabled		1	UIntegerT	R/W
0x0125	OUT2AnalogValue0mA	The value from the slot used for the 0mA scaling point [LPM/°C]	0,0	OUT2Analog Value20mA	MRS	4	FloatT	R/W
0x0129	OUT2AnalogValue4mA	The value from the slot used for the 4mA scaling point [LPM/°C]	0,0	OUT2Analog Value20mA	MRS	4	FloatT	R/W
0x012D	OUT2AnalogValue20mA	The value from the slot used for the 20mA scaling point [LPM/°C]	100,0	MRE	OUT2Analog Value0mA	4	FloatT	R/W
0x0131	OUT2AnalogValue0V	The value from the slot used for the 0V scaling point [LPM/°C]	0,0	OUT2Analog Value10V	MRS	4	FloatT	R/W
0x0135	OUT2AnalogValue2V	The value from the slot used for the 2V scaling point [LPM/°C]	0,0	OUT2Analog Value10V	MRS	4	FloatT	R/W
0x0139	OUT2AnalogValue10V	The value from the slot used for the 10V scaling point [LPM/°C]	100,0	MRE	OUT2Analog Value0V	4	FloatT	R/W
0x0150	OUT2PulseVolume	The volume represented by one pulse [L]	1,0	999,9	0,000001	4	FloatT	R/W
0x0154	OUT2PulseVolumeUnit	Unit used for the pulse output	1	(1) - USER (2) - L (3) - mL (3) - m3 (4) - galUS (5) - galUK (6) - Barrel		1	UIntegerT	R/W
0x0155	OUT2PulseVolumeUnitUser	User Unit used for the pulse output	1,0	9999,9	0,001	4	FloatT	R/W
0x0159	OUT2PulseWidth	The width of each pulse [ms]	1	20000	1	2	UIntegerT	R/W
0x015B	OUT2FrequencyatFS	The max. frequency for the output [Hz]	500	1000	50	2	UIntegerT	R/W
0x015D	OUT2FrequencyOverflow	The overflow frequency of the max frequency [%]	1	100	0	1	UIntegerT	R/W
0x015E	OUT2FrequencyValue0Hz	The value from the slot used for the 0Hz scaling point [LPM/°C]	0,0	OUT2FrequencyValueMaxHz	MRS	4	FloatT	R/W
0x0162	OUT2FrequencyValueMaxHz	The value from the slot used for the max Hz scaling point [LPM/°C]	100,0	MRE	OUT2FrequencyValue0Hz	4	FloatT	R/W

0x0166	OUT1CtrlFunction	Controlinputfunction -> Off or Memoryreset	0	1	0	1	UIntegerT	R/W
Output 2								
0x0177	OUT2Source	Source for the output	0	(1) - Flow (2) - Volume (3) - Temperature (4) - Part Volume		1	UIntegerT	R/W
0x0178	OUT2Type	Configuration of the output -> 0-20mA, Pulse, Frequency, etc.	0	(1) - disabled (2) - Alarm Output (2) - 4-20mA (3) - 0-20mA (4) - 2-10V (5) - 0-10V (6) - Pulse Output (7) - Frequency Output		1	UIntegerT	R/W
0x0179	OUT2AlarmFunction	Limit or window function for the alarm output	0	(1) - Limit (2) - Window		1	UIntegerT	R/W
0x017A	OUT2AlarmOutputType	Alarmoutput NPN, PNP or Pushpull	0	(1) - NPN (2) - PNP (3) - PushPull		1	UIntegerT	R/W
0x017B	OUT2AlarmSwitchFunction	Alarmoutput normally opened or closed	0	(1) - normally opened (2) - normally closed		1	UIntegerT	R/W
0x017C	OUT2AlarmThreshold [LPM/°C]	Threshold for the alarmoutput	1,0	MRE	MRS	4	FloatT	R/W
0x0180	OUT2AlarmLowerThreshold [LPM/°C]	Threshold for the alarmoutput used by the windowfunction	1,0	OUT2AlarmThreshold	MRS	4	FloatT	R/W
0x0184	OUT2AlarmHysteresis [LPM/°C]	Switching hysteresis for the alarmoutput	1,0	(MRE-MRS)	0,0	4	FloatT	R/W
0x0188	OUT2AlarmSuppressionFactor	How many times the threshold must be hit in order to switch the alarm output	0	60	0	1	UIntegerT	R/W
0x0189	OUT2AlarmSuppressionDirection	for which direction the suppression factor is used	0	(1) - Up (2) - Down (3) - Both		1	UIntegerT	R/W
0x018B	OUT2AnalogNamurStandard	If enabled (1) the analogoutput conforms with the NAMUR Standard NE42. If disabled (0) the analogoutput stays in his equivalent range (e.g. 4-20mA)	1	(1) - NAMUR disabled (2) - NAMUR enabled		1	UIntegerT	R/W
0x018C	OUT2AnalogValue0mA	The value from the slot used for the 0mA scaling point [LPM/°C]	0,0	OUT2Analog Value20mA	MRS	4	FloatT	R/W
0x0190	OUT2AnalogValue4mA	The value from the slot used for the 4mA scaling point [LPM/°C]	0,0	OUT2Analog Value20mA	MRS	4	FloatT	R/W

0x0194	OUT2AnalogValue20mA	The value from the slot used for the 20mA scaling point [LPM/°C]	100,0	MRE	OUT2Analog Value0mA	4	FloatT	R/W
0x0198	OUT2AnalogValue0V	The value from the slot used for the 0V scaling point [LPM/°C]	0,0	OUT2Analog Value10V	MRS	4	FloatT	R/W
0x019C	OUT2AnalogValue2V	The value from the slot used for the 2V scaling point [LPM/°C]	0,0	OUT2Analog Value10V	MRS	4	FloatT	R/W
0x01A0	OUT2AnalogValue10V	The value from the slot used for the 10V scaling point [LPM/°C]	100,0	MRE	OUT2Analog Value0V	4	FloatT	R/W
0x01B7	OUT2PulseVolume	The volume represented by one pulse [L]	1,0	999,9	0,000001	4	FloatT	R/W
0x01BB	OUT2PulseVolumeUnit	Unit used for the pulse output	1	(1) - USER (2) - L (3) - mL (3) - m3 (4) - galUS (5) - galUK (6) - Barrel		1	UIntegerT	R/W
0x01BC	OUT2PulseVolumeUnitUser	User Unit used for the pulse output	1,0	9999,9	0,001	4	FloatT	R/W
0x01C0	OUT2PulseWidth	The width of each pulse [ms]	1	20000	1	2	UIntegerT	R/W
0x01C2	OUT2FrequencyatFS	The max. frequency for the output [Hz]	500	1000	50	2	UIntegerT	R/W
0x01C4	OUT2FrequencyOverflow	The overflow frequency of the max frequency [%]	1	100	0	1	UIntegerT	R/W
0x01C5	OUT2FrequencyValue0Hz	The value from the slot used for the 0Hz scaling point [LPM/°C]	0,0	OUT2FrequencyValue MaxHz	MRS	4	FloatT	R/W
0x01C9	OUT2FrequencyValue MaxHz	The value from the slot used for the max Hz scaling point [LPM/°C]	100,0	MRE	OUT2Frequ encyValue0 Hz	4	FloatT	R/W
Dosing								
0x01DE	DosingValue	Dosingvalue [L]	0,0	9999,9	0,0	4	FloatT	R/W
0x01E2	DosingCorrectionValue	Correction value which is added to the dosing value for the complete dosing counter [L]	0,0	Dosing Value	minus Dosing Value	4	FloatT	R/W
0x01E6	DosingUnit	Unit used for the dosing function	1	(1) - USER (2) - L (3) - mL (3) - m3 (4) - galUS (5) - galUK (6) - Barrel		1	UIntegerT	R/W
0x01E7	DosingUnitUser	User Unit used for the dosing function	1,0	9999,9	0,001	4	FloatT	R/W

0x01EB	DosingTimeout	Timeout [s] for no flow	0,5	10,0	0,5	4	FloatT	R/W
0x01EF	DosingCounter	Saved dosing volume counter stats	0,0	999999,0	-999999,0	4	FloatT	R
Service								
0x01F3	ServiceUserPassword	Password for user service menu and main menu	0	99999	0	4	UIntegerT	R/W
0x01F7	ServiceUserMenuLocked	Whether main menu is locked or not	0	(1) - not locked (2) - locked		1	UIntegerT	R/W
0x01F8	SimulationAutoStop	Auto stop for Simulation after time [min]	10	31	1	1	UIntegerT	R/W
Misc								
0x01FA	LanguageSelection	Language selection	0	(1) - English (2) - German (3) - French (4) - Spanish		1	UIntegerT	R/W
0x028A	OperatingHoursCount	Operating hours counter	0	4294967296	0	4	UIntegerT	R
0x028F	ProductionProductVariantName	Product Variant Name	DVZ			16	StringT	R
0x029F	ProductionProductTypeKey	Product Type Key	DVZ-XXXXXXC3T0			16	StringT	R
Flow								
0x02F5	CutOff	Cut off for flow value [LPM]	0,0	MRE	0.0	4	FloatT	R/W
0x02F9	Unit	Unit used for flow	1	(1) - USER (2) - L/m (3) - mL/m (4) - L/h (4)- m3/h (5) - galUS/m (6) - galUS/h (7) - galUK/m (8) - galUK/h (9) - L/s (10) - mL/s		1	UIntegerT	R/W
0x02FA	UserUnit	User Unit used for flow	1,0	9999,9	0,001	4	FloatT	R/W
0x0313	SimMode	Mode of the Simulation: Static, Triangle or Monotonic	0	(1) - Static (2) - Triangle (3) - Monotonic		1	UIntegerT	R/W
0x0314	SimStartValue	Value to start with the simulation [LPM]	0,0	99999,99	-99999,99	4	FloatT	R/W
0x0318	SimIncrementValue	Incrementation value of the simulation [LPM]	10,0	99999,99	-99999,99	4	FloatT	R/W
0x031C	SimNumberIntervals	Number of intervals to simulation	20	65000	1	2	UIntegerT	R/W
0x031E	SimTimingIntervals	Timinig in ms between intervals	50	50000	10	2	UIntegerT	R/W
0x0320	ValueInSiUnit	Saved flow value in SI unit [LPM]	0,0	999999,0	-999999,0	4	FloatT	R
0x0324	MinValueInSiUnit	Saved min flow value in SI unit [LPM]	0,0	999999,0	-999999,0	4	FloatT	R

0x0328	MaxValueInSiUnit	Saved max flow value in SI unit [LPM]	0,0	999999,0	-999999,0	4	FloatT	R
Volume								
0x0358	CountingType	counting type for a volume slot -> absolute or bidirectional	0	(1) - absolute (2) - bidirectional		1	UIntegerT	R/W
0x035D	Unit	Unit used for volume	1	(1) - USER (2) - L (3) - mL (3)- m3 (4) - galUS (5) - galUK (6) - Barrel		1	UIntegerT	R/W
0x035E	UserUnit	User Unit used for volume	1,0	9999,9	0,001	4	FloatT	R/W
0x0384	ValueInSiUnit	Saved volume value in SI unit	0,0	999999,0	-999999,0	4	FloatT	R
Temperature								
0x03C1	Unit	Unit used for temperature	1	(0) - USER (1) - °C (2) - °F		1	UIntegerT	R/W
0x03C2	UserUnit	User Unit used for temperature [°C]	1,0	9999,9	0,001	4	FloatT	R/W
0x03DB	SimMode	Mode of the Simulation: Static, Triangle or Monotonic	0	(1) - Static (2) - Triangle (3) - Monotonic		1	UIntegerT	R/W
0x03DC	SimStartValue	Value to start with the simulation [°C]	0,0	99999,99	-99999,99	4	FloatT	R/W
0x03E0	SimIncrementValue	Incrementation value of the simulation [°C]	10,0	99999,99	-99999,99	4	FloatT	R/W
0x03E4	SimNumberIntervals	Number of intervals to simulation	20	65000	1	2	UIntegerT	R/W
0x03E6	SimTimingIntervals	Timinig in ms between intervals [ms]	50	50000	10	2	UIntegerT	R/W
0x03E8	ValueInSiUnit	Saved temperature value in SI unit [°C]	0,0	999999,0	-999999,0	4	FloatT	R
0x03EC	MinValueInSiUnit	Saved min temperature value in SI unit [°C]	0,0	999999,0	-999999,0	4	FloatT	R
0x03F0	MaxValueInSiUnit	Saved max temperature value in SI unit [°C]	0,0	999999,0	-999999,0	4	FloatT	R
Part Volume								
0x0420	CountingType	counting type for a volume slot -> absolute or bidirectional	0	(1) - absolute (2) - bidirectional		1	UIntegerT	R/W
0x0425	Unit	Unit used for part volume	1	(1) - USER (2) - L (3) - mL (3)- m3 (4) - galUS (5) - galUK (6) - Barrel		1	UIntegerT	R/W

0x0426	UserUnit	User Unit used for part volume	1,0	9999,9	0,001	4	FloatT	R/W
0x043F	SimMode	Mode of the Simulation: Static, Triangle or Monotonic	0	(1) - Static (2) - Triangle (3) - Monotonic		1	UInteg erT	R/W
0x0440	SimStartValue	Value to start with the simulation	0,0	99999,99	-99999,99	4	FloatT	R/W
0x0444	SimIncrementValue	Incrementation value of the simulation	10,0	99999,99	-99999,99	4	FloatT	R/W
0x0448	SimNumberIntervals	Number of intervals to simulation	20	65000	1	2	UInteg erT	R/W
0x044A	SimTimingIntervals	Timinig in ms between intervals	50	50000	10	2	UInteg erT	R/W
0x044C	ValueInSiUnit	Saved part volume value in SI unit	0,0	999999,0	-999999,0	4	FloatT	R

Legend:

MRE - Measuring Range End
MRS - Measuring Range Start

18. IO-Link Manufacturer's Declaration

IO-Link

MANUFACTURER'S DECLARATION OF CONFORMITY

We:

Kobold Messring GmbH
Nordring 22-24
65719 Hofheim
Germany

declare under our own responsibility that the product(s):

DVZ-XXXXXXC3T0 IO-Link Device

to which this declaration refers conform to:

☒ IO-Link Interface and System Specification, V1.1.3, June 2019
(NOTE 1,2)

☒ IO Device Description, V1.1.3, January 2021

☒ Additional conformance to Device Profiles
(If checked refer to Part A on page 2)

☐ Conformance exceptions
(If checked refer to Part B on page 2)

The conformity tests are documented in the test report(s):

IO-Link Device Test Report_DVZ_2025-06-03.pdf

Issued at Hofheim, 03.06.2025

Authorized signatory

Name:	Hans Volz	**Name:**	Joseph Burke
Title:	*General Manager*	**Title:**	*Compliance Manager*
Signature:		**Signature:**	

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NOTE 1 Relevant Test specification is V1.1.3, January 2021
NOTE 2 Additional validity in Package 2020 and Corrigendum

MD-Version: V1.1.3 / 2022-01

IO-Link Manufacturer Declaration Kobold-040400-20250527-MD1.1.3 Page 1/2

Part A - Additional conformance to Device Profiles

	Specification
☒	IO-Link Common Profile Specification, V1.1, Dec. 2021
☐	IO-Link Profile BLOB Transfer & Firmware Update Specification, V1.1, Sept. 2019
☐	IO-Link Smart Sensors 2nd Edition Specification, V1.1, Sept. 2021

Part B - Conformance exceptions

We herewith declare the following deviations to the related specifications	Reason
none	-

19. EU Declaration of Conformity (DVZ)

We, KOBOLD Messring GmbH, Nordring 22-24, 65719 Hofheim, Germany, declare under our sole responsibility that the product:

Compact Vortex Flow Meter **Model: DVZ-xxxxxxxxxx**
(excluding DVZ-xxxxxxC3T0)

to which this declaration relates is in conformity with the following EU directives stated below:

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

Also, the following standards are fulfilled:

EN IEC 61326-1:2021
Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements, Industrial area

Restriction: measurement of immunity to HF field with electronics options L/F/S/K/E/G up to 1 GHz

EN 60529:2014
Degrees of protection provided by enclosures (IP Code)

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

Hofheim, 28 May 2026

H. Volz
General Manager

J. Burke
Compliance Manager

20. EU Declaration of Conformity (DVZ-xxxxxxC3T0)

We, KOBOLD Messring GmbH, Nordring 22-24, 65719 Hofheim, Germany, declare under our sole responsibility that the product:

Compact Vortex Flow Meter **Model: DVZ-xxxxxxC3T0**

to which this declaration relates is in conformity with the following EU directives stated below:

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

Also, the following standards are fulfilled:

EN IEC 61326-1:2021
Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements, Industrial area

EN 60529:2014
Degrees of protection provided by enclosures (IP Code)

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

Hofheim, 28 May 2026

H. Volz
General Manager

J. Burke
Compliance Manager

21. UK Declaration of Conformity (DVZ)

We, KOBOLD Messring GmbH, Nordring 22-24, 65719 Hofheim, Germany, declare under our sole responsibility that the product:

Compact Vortex Flow Meter **Model: DVZ -xxxxxxxxxx**
(excluding DVZ-xxxxxxC3T0)

to which this declaration relates is in conformity with the following UK directives stated below:

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

Also, the following standards are fulfilled:

BS EN IEC 61326-1:2021
Electrical equipment for measurement, control and laboratory use. EMC requirements. General requirements, Industrial area

Restriction: measurement of immunity to HF field with electronics options L/F/S/K/E/G up to 1 GHz

BS EN 60529:1992+A2:2013
Degrees of protection provided by enclosures (IP Code)

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

Hofheim, 28 May 2026

H. Volz
General Manager

J. Burke
Compliance Manager

22. UK Declaration of Conformity (DVZ-xxxxxxC3T0)

We, KOBOLD Messring GmbH, Nordring 22-24, 65719 Hofheim, Germany, declare under our sole responsibility that the product:

Compact Vortex Flow Meter **Model: DVZ-xxxxxxC3T0**

to which this declaration relates is in conformity with the following UK directives stated below:

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

Also, the following standards are fulfilled:

BS EN IEC 61326-1:2021
Electrical equipment for measurement, control and laboratory use. EMC requirements. General requirements, Industrial area

BS EN 60529:1992+A2:2013
Degrees of protection provided by enclosures (IP Code)

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

Hofheim, 28 May 2026

H. Volz
General Manager

J. Burke
Compliance Manager

23. CSA ORDLOC (Ordinary Locations) Zertifikat

CSA GROUP

Certificate of Compliance

Certificate:	80190658	**Master Contract:**	173350
Project:	80299519	**Date Issued:**	2026-04-29
Issued to:	**Kobold Messring GmbH** **Nordring 22 - 24** **Hofheim am Taunus, Hesse** **65719** **Germany** **Attention:** Joseph Burke	**Issued by:**	*Mehtap Tankül* Mehtap Tankül

The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US or with adjacent indicator 'US' for US only or without either indicator for Canada only.

C US

US

PRODUCTS

Class 2252 06 PROCESS CONTROL EQUIPMENT - Process Control Equipment
Class 2252 86 PROCESS CONTROL EQUIPMENT - Certified to US Standards

Flowmeter,

DON, DON-H, DON-S, DUK, MIK, DVZ, MIM, and MIS series

DON series: 19 – 30 V DC, 3 W	MIK series: 19 – 30 V DC, 3 W
DON-H series: 19 – 30 V DC, 3 W	DVZ series: 19 – 30 V DC, 3 W

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Certificate: 80190658 **Master Contract:** 173350

Project: 80299519 **Date Issued:** 2026-04-29

DON-S series: 19 – 30 V DC, 3 W	MIM series: 19 – 30 V DC, 3 W
DUK series: 19 – 30 V DC, 3 W	MIS series: 19 – 30 V DC, 3 W

The devices are not mains connected and supplied from secondary non-hazardous live source (Overvoltage Category II), Pollution Degree 2. They are designed for continuous operation under the following environmental conditions: DON: -20°C … +60°C, DON-H: -20°C … +60°C, DON-S: -20°C … +60°C, DUK: -20°C … +70°C, MIK: -10°C … +60°C, DVZ: -10°C … +60°C, MIM: -20°C … +60°C, MIS: -10°C … +60°C, humidity up to 95% RH, non-condensing, and up to 2000 m altitude.

Model DON series

Available Model-Code Selection: **DON - ABCD EF G HI J K**

Oval-Gear Flow-Meter DON

Model-Code

Pos.:	A	B	C	D	E	F	G	H	I	J	K
Example: DON -	1	2	0	H	R	4	1	C	T	M	0

Pos.	Remarks
Housing / Rotor Material	
A	1, 2, 3, 4, 8, 9
B	0, 1, 2, 3, 4, 5, 6
Measuring Units	
C	0, 4, 5
D	G, H
Process Connection Type	
EF	Alphanumeric Positions 0-9 or A-Z possible
Gasket Meterial	
G	Alphanumeric Positions 0-9 or A-Z possible
Electronic Options	
HI	CT: Compact Electronics
Cable Entries	
J	Alphanumeric Positions 0-9 or A-Z possible
Special Customer requests	
K	Alphanumeric Positions 0-9 or A-Z possible

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CSA GROUP

Certificate: 80190658 **Master Contract:** 173350

Project: 80299519 **Date Issued:** 2026-04-29

Model DON-H series

Available Model-Code Selection for CSA devices: **DON-H ABC DE F GH I J**

Oval-Gear Flow-Meter DON-H

Model-Code

Pos.:	A	B	C	D	E	F	G	H	I	J	K
Example: DON -	H	2	0	H	R	4	1	C	T	0	0

Pos.	Remarks
Housing / Rotor Material Measuring Units	**B** 0,1,2 **C** 0,5 **D** H,G
Process Connection Type	**EF** Alphanumeric Positions 0-9 or A-Z possible
Gasket Meterial	**G** Alphanumeric Positions 0-9 or A-Z possible
Electronic Options	**HI** **CT**: Compact Electronics
Cable Entries	**J** Alphanumeric Positions 0-9 or A-Z possible
Special Customer requests	**K** Alphanumeric Positions 0-9 or A-Z possible

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Certificate: 80190658 Master Contract: 173350

Project: 80299519 Date Issued: 2026-04-29

Model DON-S series

Available Model-Code Selection for CSA devices: **DON-S ABC DE F GH I J**

The DON-S is identical to the DON-H, but with a reduced number of toothing on the gear wheels for measurements with high-Viscose media.

Oval-Gear Flow-Meter DON-S (DON-H for high-Viscose Media)

Model-Code

Pos.:		A	B	C	D	E	F	G	H	I	J	K
Example:	DON -	S	2	0	H	R	4	1	C	T	0	0

Pos.	Remarks
Housing / Rotor Material Measuring Units	B 0,1,2 C 0,5 D H,G
Process Connection Type	EF Alphanumeric Positions 0-9 or A-Z possible
Gasket Meterial	G Alphanumeric Positions 0-9 or A-Z possible
Electronic Options	HI CT: Compact Electronics
Cable Entries	J Alphanumeric Positions 0-9 or A-Z possible
Special Customer requests	K Alphanumeric Positions 0-9 or A-Z possible

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CSA GROUP

Certificate: 80190658 **Master Contract:** 173350

Project: 80299519 **Date Issued:** 2026-04-29

Model DUK series

Available Model-Code Selection for CSA devices: **DUK – AB CDE FGHI K**

Ultra-Sonic Flow-Meter DUK

Model-Code											
Pos.:		A	B	C	D	E	F	G	H	I	K
Example:	DUK -	1	1	N	6	G	C	3	T	0	0

Pos.	Remarks
AB	11, 12, 31, 32, 51, 52
CDE	Alphanumeric Positions 0-9 or A-Z possible
FGHI	**C3T0**: Compact Electronics
K	Alphanumeric Positions 0-9 or A-Z possible

Model MIK series

The largest 2 ¾" MIK is only available with the reduced pressure rating of 6.5 bar. See Footnote.
Available Model-Code Selection: **MIK - ABC DE F GHIJ**

Magnetic Inductive Flow-Meter MIK

Model-Code											
Pos.:		A	B	C	D	E	F	G	H	I	J
Example:	MIK -	5	N	A	1	0	A	C	3	T	0

Pos.	Remarks
A	5, 6
B	Alphanumeric Positions 0-9 or A-Z possible
C	Alphanumeric Positions 0-9 or A-Z possible
DE	Alphanumeric Positions 0-9 or A-Z possible
F	Alphanumeric Positions 0-9 or A-Z possible
GHIJ	**C3T0**: Compact Electronics

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Certificate: 80190658 Master Contract: 173350

Project: 80299519 Date Issued: 2026-04-29

Model DVZ series

Available Model-Code Selection for CSA devices: **DVZ - A B CD EF GHIJ**

Vortex Flow-Meter DVZ

Model-Code

Pos.:		A	B	C	D	E	F	G	H	I	J
Example:	**DVZ -**	1	2	3	2	G	6	C	3	T	0
Bluff Body Material / Version											
Connection Material / Gasket											
Measuring Range											
Process Connections											
Electronic Options											

Pos.	Remarks
A	1, 3
B	Alphanumeric Positions 0-9 or A-Z possible
CD	Alphanumeric Positions 0-9 or A-Z possible
EF	Alphanumeric Positions 0-9 or A-Z possible
GHIJ	**C3T0**: Compact Electronics

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CSA GROUP

Certificate: 80190658 **Master Contract:** 173350

Project: 80299519 **Date Issued:** 2026-04-29

Model MIM series

Available Model-Code Selection: **MIM-AB CDE FG HIJ K**

Magnetic Inductive Flow-Meter MIM

Model-Code

Pos.:		A	B	C	D	E	F	G	H	I	J	K
Example:	**MIM -**	1	2	0	1	H	G	2	C	3	T	0
Enclosure / Gasket Type												
Measuring Range												
Process Connection												
Electronic Options												
Special Customer requests / Options												

Pos.	Remarks
AB	12, 13
CDE	Alphanumeric Positions 0-9 or A-Z possible
FG	Alphanumeric Positions 0-9 or A-Z possible
HIJ	**C3T**: Compact Electronics Pxx: Remote Electronics for Medium Temperature ≤ 85 °C Exx: Remote Electronics for Medium Temperature ≤ 140 °C *Where xx determins the length of the connecting cable (numeric Positions 0-9)*
K	Alphanumeric Positions 0-9 or A-Z possible

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Certificate: 80190658 Master Contract: 173350

Project: 80299519 Date Issued: 2026-04-29

Model MIS series

The MIS only offers the U-PACE Elektronik which is integrated into the device
Available Model-Code Selection: **MIS – A BCDE F GH IJK**

Magnetic Inductive Flow-Meter MIS

Model-Code *All Versions use C3T0 Electronics*

Pos.:		A	B	C	D	E	F	G	H	I	J	K
Example:	MIS -	H	3	2	0	B	1	H	H	1	0	C

Pos.	Remarks
A	Alphanumeric Positions 0-9 or A-Z possible
BCDE	Alphanumeric Positions 0-9 or A-Z possible
F	Alphanumeric Positions 0-9 or A-Z possible
GH	Alphanumeric Positions 0-9 or A-Z possible
IJ	Alphanumeric Positions 0-9 or A-Z possible
K	C: With CSA / CB Approval

Conditions of Acceptability

1. The devices shall be supplied by an external power supply which shall provide at least double or reinforced insulation in accordance with Cl. 6.3.1, 6.3.2, 9.4 of IEC/CSA/UL 61010-1.
2. The devices are not intended for use with toxic or hazardous liquids or gases.
3. The requirements for use in explosive atmospheres (hazardous locations) are not part of this evaluation and shall be evaluated in the end use application.
4. Flammable liquids used within the equipment shall have a fire point/flash point at least 25 °C higher than the maximum rated media temperature.

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Certificate: 80190658 Master Contract: 173350

Project: 80299519 Date Issued: 2026-04-29

5. The devices provide no direct mains connection and include no integral means of disconnection from the supply source. Disconnection from mains shall be provided by the external power supply or the end-use installation. The requirement of Cl. 6.10 and 6.11 shall be evaluated in the end use application.

APPLICABLE REQUIREMENTS

Standards Used	Description
CAN/CSA C22.2 No. 61010-1-12 - Third Edition - UPD1:2015, UPD2:2016, AMD1:2018 UPD3:2023	Safety requirements for electrical equipment for measurement, control, and laboratory use — Part 1: General requirements
UL 61010-1:2012 - Third Edition - Including revisions through June 6, 2023	Electrical Equipment For Measurement, Control, and Laboratory Use; Part 1: General Requirements

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Certificate: 80190658 **Master Contract:** 173350

Project: 80299519 **Date Issued:** 2026-04-29

Notes:

Products certified under Class(es) C225206, C225286 have been certified under CSA's ISO/IEC 17065 accreditation with the Standards Council of Canada (SCC). www.scc.ca

SCC Accredited CB-P/S OCPS Accrédité CCN TM

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Supplement to Certificate of Compliance

Certificate: 80190658 **Master Contract:** 173350

The products listed, including the latest revision described below, are eligible to be marked in accordance with the referenced Certificate.

Product Certification History

Project	Date	Description
80299519	2026-04-29	Update of cCSAus Certificate 80190658 of flow meter series DON, DON-H, DUK, MIK, DVZ, MIM, and MIS to add missing model DON-S. It is assumed that no additional testing is necessary.
80190658	2026-03-19	Original cCSAus certification of flow meter series DON, DON-H, DUK, MIK, DVZ, MIM, and MIS.

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24. IECEE Certificate acc. to CB-Scheme

Ref. Certif. No.

CA/38941/CSA

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME

CB TEST CERTIFICATE

Product	Flowmeter
Name and address of the applicant	Kobold Messring GmbH Nordring 22 – 24 Hofheim am Taunus, Hessen 65719 Germany
Name and address of the manufacturer	Kobold Messring GmbH Nordring 22 – 24 Hofheim am Taunus, Hessen 65719 Germany
Name and address of the factory *Note: When more than one factory, please report on page 2*	Kobold Messring GmbH Nordring 22 – 24 Hofheim am Taunus, Hessen 65719 Germany ☐ Additional Information on page 2 to 7
Ratings and principal characteristics	Refer to page 7 of Certificate
Trademark / Brand (if any)	KOBOLD
Customer's Testing Facility (CTF) Stage used	N/A
Model / Type Ref.	Refer to page 2 of Certificate
Additional information (if necessary may also be reported on page 2)	☐ Additional Information on page 2 to 7
A sample of the product was tested and found to be in conformity with	IEC 61010-1:2010, IEC 61010-1:2010/AMD1:2016
As shown in the Test Report Ref. No. which forms part of this Certificate	173350-80190661

This CB Test Certificate is issued by the National Certification Body

CSA GROUP

CSA Group
178 Rexdale Boulevard
Toronto, ON M9W 1R3 Canada

Date: 2026-03-30

Signature: Vegard Andersen

DQD 506.04 Rev. 2021-01-26 (IECEE CBTC Template 2020-06-03) 1/7

IEC IECEE	Ref. Certif. No.
	CA/38941/CSA

National differences are considered as per the individual report.

Model / Type Ref.

DON, DON-H, DON-S, DUK, MIK, DVZ, MIM, and MIS series

Model DON series

Available Model-Code Selection: **DON - ABCD EF G HI J K**

Oval-Gear Flow-Meter DON

Model-Code

Pos.:		A	B	C	D	E	F	G	H	I	J	K
Example:	DON -	1	2	0	H	R	4	1	C	T	M	0

Pos.	Remarks
A	1, 2, 3, 4, 8, 9
B	0, 1, 2, 3, 4, 5, 6
C	0, 4, 5
D	G, H
EF	Alphanumeric Positions 0-9 or A-Z possible
G	Alphanumeric Positions 0-9 or A-Z possible
HI	CT: Compact Electronics
J	Alphanumeric Positions 0-9 or A-Z possible
K	Alphanumeric Positions 0-9 or A-Z possible

Housing / Rotor Material

Measuring Units

Process Connection Type

Gasket Meterial

Electronic Options

Cable Entries

Special Customer requests

Additional information (if necessary)

Date: 2026-03-30 Signature: Vegard Andersen

DQD 506.04 Rev. 2021-01-26 (IECEE CBTC Template 2020-06-03) 2/7

IEC IECEE	Ref. Certif. No.
	CA/38941/CSA

Model DON-H series

Available Model-Code Selection for CSA devices: **DON-H ABC DE F GH I J**

Oval-Gear Flow-Meter DON-H

Model-Code

Pos.:		A	B	C	D	E	F	G	H	I	J	K
Example:	DON -	H	2	0	H	R	4	1	C	T	0	0

Pos.	Remarks
Housing / Rotor Material	
Measuring Units	
B	0,1,2
C	0,5
D	H,G
Process Connection Type	
EF	Alphanumeric Positions 0-9 or A-Z possible
Gasket Meterial	
G	Alphanumeric Positions 0-9 or A-Z possible
Electronic Options	
HI	CT: Compact Electronics
Cable Entries	
J	Alphanumeric Positions 0-9 or A-Z possible
Special Customer requests	
K	Alphanumeric Positions 0-9 or A-Z possible

Additional information (if necessary)

Date: 2026-03-30 Signature: Vegard Andersen

DQD 506.04 Rev. 2021-01-26 (IECEE CBTC Template 2020-06-03) 3/7

IEC IECEE	Ref. Certif. No.
	CA/38941/CSA

Model DON-S series

Available Model-Code Selection for CSA devices: **DON-S ABC DE F GH I J**
The DON-S is identical to the DON-H, but with a reduced number of toothing on the gear wheels for measurements with high-Viscose media.

Oval-Gear Flow-Meter DON-S (DON-H for high-Viscose Media)

Model-Code												
Pos.:		A	B	C	D	E	F	G	H	I	J	K
Example: DON -	S	2	0	H	R	4	1	C	T	0	0	
Housing / Rotor Material												
Measuring Units												
Process Connection Type												
Gasket Meterial												
Electronic Options												
Cable Entries												
Special Customer requests												

Pos.	Remarks
B	0,1,2
C	0,5
D	H,G
EF	Alphanumeric Positions 0-9 or A-Z possible
G	Alphanumeric Positions 0-9 or A-Z possible
HI	CT: Compact Electronics
J	Alphanumeric Positions 0-9 or A-Z possible
K	Alphanumeric Positions 0-9 or A-Z possible

Model DUK series

Available Model-Code Selection for CSA devices: **DUK – AB CDE FGHI K**

Ultra-Sonic Flow-Meter DUK

Model-Code											
Pos.:		A	B	C	D	E	F	G	H	I	K
Example: DUK -	1	1	N	6	G	C	3	T	0	0	
Housing / Sealing Material											
Process Connection / Measuring Range											
Electronic Options											
Special Customer requests / Options											

Pos.	Remarks
AB	11, 12, 31, 32, 51, 52
CDE	Alphanumeric Positions 0-9 or A-Z possible
FGHI	C3T0: Compact Electronics
K	Alphanumeric Positions 0-9 or A-Z possible

Additional information (if necessary)

Date: 2026-03-30 Signature: Vegard Andersen

DQD 506.04 Rev. 2021-01-26 (IECEE CBTC Template 2020-06-03) 4/7

IEC IECEE	Ref. Certif. No.
	CA/38941/CSA

Model MIK series

The largest 2 ¾" MIK is only available with the reduced pressure rating of 6.5 bar. See Footnote.
Available Model-Code Selection: **MIK - ABC DE F GHIJ**

Magnetic Inductive Flow-Meter MIK

Model-Code Pos.:		A	B	C	D	E	F	G	H	I	J
Example:	MIK -	5	N	A	1	0	A	C	3	T	0
Housing											
Seal											
Electrode Material											
Measuring Range											
Process Connection Sets											
Electronic Options											

Pos.	Remarks
A	5, 6
B	Alphanumeric Positions 0-9 or A-Z possible
C	Alphanumeric Positions 0-9 or A-Z possible
DE	Alphanumeric Positions 0-9 or A-Z possible
F	Alphanumeric Positions 0-9 or A-Z possible
GHIJ	**C3T0**: Compact Electronics

Model DVZ series

Available Model-Code Selection for CSA devices: **DVZ - A B CD EF GHIJ**

Vortex Flow-Meter DVZ

Model-Code Pos.:		A	B	C	D	E	F	G	H	I	J
Example:	DVZ -	1	2	3	2	G	6	C	3	T	0
Bluff Body Material / Version											
Connection Material / Gasket											
Measuring Range											
Process Connections											
Electronic Options											

Pos.	Remarks
A	1, 3
B	Alphanumeric Positions 0-9 or A-Z possible
CD	Alphanumeric Positions 0-9 or A-Z possible
EF	Alphanumeric Positions 0-9 or A-Z possible
GHIJ	**C3T0**: Compact Electronics

Additional information (if necessary)

Date: 2026-03-30 Signature: Vegard Andersen

IEC IECEE	Ref. Certif. No.
	CA/38941/CSA

Model MIM series

Available Model-Code Selection: **MIM-AB CDE FG HIJ K**

Magnetic Inductive Flow-Meter MIM

Model-Code

Pos.:	A	B	C	D	E	F	G	H	I	J	K
Example: MIM -	1	2	0	1	H	G	2	C	3	T	0

Pos.	Remarks
AB	12, 13
CDE	Alphanumeric Positions 0-9 or A-Z possible
FG	Alphanumeric Positions 0-9 or A-Z possible
HIJ	**C3T**: Compact Electronics Pxx: Remote Electronics for Medium **T**emperature ≤ 85 °C Exx: Remote Electronics for Medium **T**emperature ≤ 140 °C *Where xx determins the length of the connecting cable (numeric Positions 0-9)*
K	Alphanumeric Positions 0-9 or A-Z possible

Model MIS series

The MIS only offers the U-PACE Elektronik which is integrated into the device

Available Model-Code Selection: **MIS – A BCDE F GH IJK**

Magnetic Inductive Flow-Meter MIS

Model-Code — *All Versions use C3T0 Electronics*

Pos.:	A	B	C	D	E	F	G	H	I	J	K
Example: MIS -	H	3	2	0	B	1	H	H	1	0	C

Pos.	Remarks
A	Alphanumeric Positions 0-9 or A-Z possible
BCDE	Alphanumeric Positions 0-9 or A-Z possible
F	Alphanumeric Positions 0-9 or A-Z possible
GH	Alphanumeric Positions 0-9 or A-Z possible
IJ	Alphanumeric Positions 0-9 or A-Z possible
K	C: With CSA / CB Approval

Additional information (if necessary)

Date: 2026-03-30 Signature: Vegard Andersen

DQD 506.04 Rev. 2021-01-26 (IECEE CBTC Template 2020-06-03) 6/7

IEC IECEE	Ref. Certif. No.
	CA/38941/CSA

Ratings and principal characteristics

DON series: 19 – 30 V DC, 3 W	MIK series: 19 – 30 V DC, 3 W
DON-H series: 19 – 30 V DC, 3 W	DVZ series: 19 – 30 V DC, 3 W
DON-S series: 19 – 30 V DC, 3 W	MIM series: 19 – 30 V DC, 3 W
DUK series: 19 – 30 V DC, 3 W	MIS series: 19 – 30 V DC, 3 W

Conditions of Acceptability

1. The devices shall be supplied by an external power supply which shall provide at least double or reinforced insulation in accordance with Cl. 6.3.1, 6.3.2, 9.4 of IEC/CSA/UL 61010-1.
2. The devices are not intended for use with toxic or hazardous liquids or gases.
3. The requirements for use in explosive atmospheres (hazardous locations) are not part of this evaluation and shall be evaluated in the end use application.
4. Flammable liquids used within the equipment shall have a fire point/flash point at least 25 °C higher than the maximum rated media temperature.
5. The devices provide no direct mains connection and include no integral means of disconnection from the supply source. Disconnection from mains shall be provided by the external power supply or the end-use installation. The requirement of Cl. 6.10 and 6.11 shall be evaluated in the end use application.

Additional information (if necessary)

Date: 2026-03-30 Signature: Vegard Andersen

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