

# Compact Ultrasonic Flowmeter



measuring  
•  
monitoring  
•  
analyzing

DUK



## IO-Link

- Measuring Ranges:  
0.02...5 GPM to 0.6...160 GPM
- Accuracy:  $\pm 0.7\%$  of Reading +  $\pm 0.7\%$  of F.S.
- Turndown Ratio: 250:1
- $P_{max}$ : 230 PSI;  $T_{max}$ : 194° F
- Connections: 1/2"...3" NPT or G Thread
- Material: Brass or 316 Stainless Steel
- Outputs: Analog, Frequency, Switching, Compact Electronics with Configurable Outputs



Display rotatable in 90° Increments



KofiCom Interface Set



KOBOLD companies worldwide:

AUSTRALIA, AUSTRIA, BELGIUM, BULGARIA, CANADA, CHINA, CZECHIA, FRANCE, GERMANY, GREAT BRITAIN, HUNGARY, INDIA, INDONESIA, ITALY, MALAYSIA, MEXICO, NETHERLANDS, PERU, POLAND, REPUBLIC OF KOREA, RUSSIA, SPAIN, SWITZERLAND, THAILAND, TUNISIA, TURKEY, USA, VIETNAM

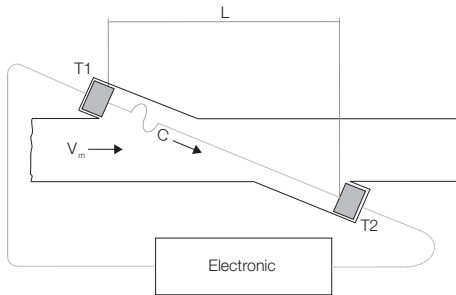
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**Description**

The KOBOLD model DUK flow meters are used for measuring, monitoring, metering, and batching of various liquids. They are highly repeatable, feature a small pressure loss, and offer measurement independent of density and temperature changes. The devices work on the principle of run time difference. Ultrasonic waves in the media are influenced by the rate of flow. Two sensors mounted opposite one another in the pipeline function simultaneously as transmitter and receiver of the ultrasonic signals. If there is no flow, the run times of both signals are identical. If the media is flowing, then the run time of the signal against the flow is longer than the signal with flow. The run time difference, which is determined by a microprocessor, is proportional to the rate of flow.

The devices can be equipped with a switching output, a frequency output, or an analog output. In addition, an electronic can be selected that features a bar graph, a 5-digit digital display, a switching output, and an analog output. The device series is rounded off by a universal compact-type electronic which features two configurable outputs and a rotatable display. The meter electronic indicates the momentary flow rate in the first line of the display and the partial or total flow in the second line. The analog output and two relay outputs can be used for further processing of the signals. Common applications include: machine building, automotive, robotics, cooling, and hot water.



**Features**

- Flow and Temperature Measurement
- Switching, Transmitting, and Batching Functions
- Batching Function with External Control Input
- Colored, Multi-Parameter Configurable TFT-display, rotatable in 90° steps
- Bi-Directional Flow Measurement
- Intuitive Setup Menu via 4 Optical Touch Keys
- 2 Configurable Outputs (Pulse/Frequency/Alarm/Analog Output)
- Grand and Resettable Totalizer
- IO Link Function

**Advantages**

- High Turndown Ratio of 250:1
- Small Pressure Loss
- High Repeatability of ±0.1% of Full Scale
- Independent from Density and Temperature

**Areas of Application**

- Machine Building
- Automotive
- Robotics
- Cooling
- Hot Water

**Technical Details**

<b>Measuring Principle:</b>	Ultrasonic
<b>Range:</b>	See Table
<b>Media:</b>	Water, Various Media
<b>Viscosity:</b>	Max. 3 cSt (Max. 68 cSt C3T0)
<b>Accuracy<sup>1)</sup>:</b>	±0.7% of Reading + ±0.7% of F.S. (Water/Water-Glycol < 10 cSt) ±1.5% of Reading + ±0.7% of F.S. (>10 cSt)
<b>Repeatability:</b>	±0.1% of F.S.
<b>Mounting Position:</b>	Universal: Flow in Direction of the Arrow (Horizontal: Electronic on Top or Below)
<b>Straight Piping:</b>	10x Pipe Diameter In/Out
<b>Media Temperature:</b>	-4...194 °F
<b>Ambient Temperature:</b>	-4...158 °F
<b>Response Time:</b>	Approx. 0.5...1 s (Depending on Electronic Version)
<b>Max Pressure:</b>	230 PSI
<b>Pressure Loss:</b>	Max. 2.2 PSI at F.S.
<b>Protection:</b>	IP65
<b>Wetted Parts</b>	
<b>Sensor Housing:</b>	Brass or 316 Stainless Steel
<b>Sensors:</b>	PEEK
<b>Seal:</b>	NBR, FKM, EPDM (Others upon Request)

**Temperature Measurement (C3T0)**

<b>Sensor:</b>	PT1000
<b>Accuracy:</b>	< ± 1.8 °F (Depending on Ambient Temperature)
<b>Measuring Range:</b>	Temperature Range of the Media
<b>Response Time Temp. t<sub>90</sub> (Signal Output):</b>	Max. 30 s (Flow > 1 m/s)

<sup>1)</sup> Reference Cond.: Media: 60...85 °F, 14.5 PSI, Pipe Connection Internal Diameter ≥ Connection Size

### 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

### Electrical Specifications

#### DUK-..S300, DUK-..S30D (Switching Output)

<b>Display:</b>	Bi-color LED for Switch Status
<b>Switching Output (..S300):</b>	SPDT Relay, max. 1 A/30 V <sub>DC</sub>
<b>Switching Output (..S30D):</b>	Active 24 V <sub>DC</sub> , N/C and N/O
<b>Switch Point:</b>	10...90% of f.s. in 10% Steps, Configurable by the Customer Using a Rotary Switch
<b>Power Supply:</b>	24 V <sub>DC</sub> ± 20%
<b>Power Consumption:</b>	30 mA
<b>Electrical Connection:</b>	Plug M 12x1, 5-Pin
<b>Max Range Overflow:</b>	Flashing Bi-color LED from 105% of full scale

#### DUK-..F300, DUK-..F390 (Frequency Output)

<b>Pulse Output:</b>	PNP, Open Collector, max. 200 mA
<b>Frequency at F.S.:</b>	500 Hz (..F300) 50 to 1000 Hz (..F390) User Specified
<b>Power Supply:</b>	24 V <sub>DC</sub> ± 20%
<b>Power Consumption:</b>	25 mA
<b>Electrical Connection:</b>	Plug M 12x1, 4-Pin
<b>Max Range Overflow:</b>	Frequency output approx 2k from 105% of full scale

#### DUK-..L343 (Analog Output)

<b>Analog Output:</b>	4-20 mA, 3-wire
<b>Load:</b>	Max. 500 Ω
<b>Power Supply:</b>	24 V <sub>DC</sub> ± 20%
<b>Power Consumption:</b>	Max. 45 mA
<b>Electrical Connection:</b>	Plug M 12x1, 4-Pin

#### DUK-..L443 (Analog Output)

<b>Output:</b>	4-20 mA, 3-wire
<b>Load:</b>	Max. 500 Ω
<b>Power Supply:</b>	24 V <sub>DC</sub> ± 20%
<b>Power Consumption:</b>	Max. 45 mA
<b>Electrical Connection:</b>	Plug DIN 43650

#### DUK-..Kxx2 (ADI-1 Electronic)

<b>Display:</b>	Bar Graph and 5-Digit Digital Combination Display; Batch System
<b>Analog Output:</b>	4-20 mA, 0-10 V
<b>Switching Output:</b>	2x Relays/SPDT Max. 250 V <sub>AC</sub> , 5A Resistive Load Max. 30 V <sub>DC</sub> /5 A
<b>Settings:</b>	Via 4 Buttons
<b>Power Supply:</b>	100-240 V <sub>AC</sub> , ±10% or 18-30 V <sub>AC</sub> /10-40 V <sub>DC</sub>
<b>Electrical Connection:</b>	Terminal Block via Cable Gland



**Electrical Specifications** (continued)

**DUK...C3T0 (Compact Electronic)**

**Supply Voltage:** 19-30 V<sub>DC</sub>; Internal Power Consumption max. 200 mA

**Display:** TFT Display, 128x128 Pixels, 1.4" Display, Orientation Adjustable in 90° Increments

**Display Repetition Rate:** 0.5... 10 s, Adjustable

**Pulse Output:** Push-Pull, Freely Scalable, Configurable for Partial and Accumulated Totalizer

**Frequency Output:** Push-Pull, Fully Scalable, 2 kHz at Overflow  
50... 1000 Hz at Full Scale, User Programmable

**Alarm Output:** NPN, PNP, Push-Pull. Configurable Max 30 V<sub>DC</sub>, Max. 200 mA Short-Circuit Proof

**Analog Output:** Active, 3-wire, 4-20 mA, Max. Load 500 Ω or 0-10 V<sub>DC</sub>, (R<sub>i</sub> = 500 Ω)

**Control Input:** Active Signal U<sub>high</sub> Max. 30 V<sub>DC</sub>, 0<Low<10 V<sub>DC</sub>, 15 V<sub>DC</sub><High<V<sub>S</sub>

**Batching Function:** Batching Output OUT2: Push-Pull, High Active Control  
Input OUT1: START/STOP  
0.5s < t<sub>high</sub> < 4s, RESET t<sub>high</sub> > 5s

**Electrical Connection:** Plug M12x1, 4-Pin

**Shock Resistance:** DIN EN 60068-2-27:2010: 20 g (11 ms)

**Vibration Resistance:** DIN EN 60068-2-6:2008: 5 g (10... 2000 Hz)

**Environmental Testing:** DIN EN 60068-2-30:2006: Severity Level b

**IO-Link Specification**

**Manufacturer ID:** 1105 (Decimal), 0 x 0451 (Hex)

**Manufacturer Name:** Kobold Messring GmbH

**IO-Link Specification:** V1.1

**Bitrate:** COM3

**Minimal Cycle Time:** 1.1 ms

**SIO-Mode:** Yes (OUT1 in Configuration IO-Link)

**Block Parameterization:** Yes

**Operational Readiness:** 10 s

**Max. Cable Length:** 20 m

**Protection:** IP67

**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



**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 2

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>DUK-51..</b> = Brass Housing, EPDM Seals  <b>DUK-52..</b> = SS Housing, EPDM 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" style="width: 100%; border-collapse: collapse;"> <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>..0</b> = without  <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

**Order Details for C3T0 Electronic Accessories**

Model	Description	Image
KOFICOM-IFMU	PC-Interface Set (necessary for the use of „Software Mediator Tools“) comprising: <ul style="list-style-type: none"> <li>• KofiCom Interface</li> <li>• USB cable (length: 3 ft) for connection PC &lt;-&gt; KofiCom Interface</li> <li>• M12 cable with plug + socket (length: 3 ft each) for connecting of device</li> </ul>	
Software MEDIATOR Tool	Windows software for exchanging of media tables when using viscous media except water (free download under <a href="https://www.kobold.com/qr/DUK">https://www.kobold.com/qr/DUK</a> )	-



## Compact Ultrasonic Flowmeter Model DUK

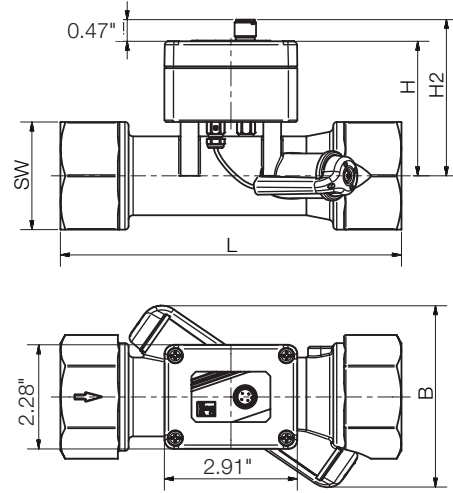
### Media Data Base

(excerpt only. Detailed media table is available in "MEDIATOR Tool" at <https://www.kobold.com/qr/DUK>)

Nr.	Filename	Infotext Display	Description
001	DUK_Water.para	001 DUK WATER	Water 100 %
002	DUK_Water-Glycol-20.para	002 DUK H2OGLY20	Water Glycol mixture 20 %
003	DUK_Water-Glycol-34.para	003 DUK H2OGLY34	Water Glycol mixture 34 %
004	DUK_Water-Glycol-39.para	004 DUK H2OGLY39	Water Glycol mixture 39 %
005	DUK_Water-Glycol-52.para	005 DUK H2OGLY52	Water Glycol mixture 52 %
006	DUK_Alkan_Solvent.para	006 DUK ALKAN	Solvent/Alkan comparable to Exxsol D120, 4 cSt at 77 °F
007	DUK_Oil ISO VG 10-4.para	007 DUK OIL VG10	Mineral transmission oil Shell ISO VG 10, 10 cSt at 104 °F, for DUK connection code ...4... only
008	DUK_Oil ISO VG10-5+.para	008 DUK OILVG10+	Mineral transmission oil Shell ISO VG 10, 10 cSt at 104 °F, for DUK connection code ...5... and greater only
009	DUK_Oil ISO VG 22-4.para	009 DUK OIL VG22	Mineral machine oil Shell ISO VG 22, 22 cSt at 104 °F, for DUK connection code ...4... only
010	DUK_Oil ISO VG 22-5+.para	010 DUK OILVG22+	Mineral machine oil Shell ISO VG 22, 22 cSt at 104 °F, for DUK connection code ...5... and greater only
011	DUK_Oil ISO VG 32-4.para	011 DUK OIL VG32	Mineral machine oil Shell ISO VG 32, 32 cSt at 104 °F, for DUK connection code ...4... only
012	DUK_Oil ISO VG 32-5+.para	012 DUK OILVG32+	Mineral machine oil Shell ISO VG 32, 32 cSt at 104 °F, for DUK connection code ...5... and greater only
013	DUK_Oil ISO VG 46-4.para	013 DUK OIL VG46	Mineral machine oil Shell ISO VG 46, 46 cSt at 104 °F, for DUK connection code ...4... only
014	DUK_Oil ISO VG 46-5+.para	014 DUK MOR46 5+	Mineral machine oil Shell ISO VG 46, 46 cSt at 104 °F, for DUK connection code ...5... and greater only
015	DUK_Oil ISO VG 68-4.para	015 DUK MOR68 4	Mineral machine oil Shell ISO VG 68, 68 cSt at 104 °F, for DUK connection code ...4... only
016	DUK_Oil ISO VG 68-5+.para	016 DUK MOR68 5+	Mineral machine oil Shell ISO VG 68, 68 cSt at 104 °F, for DUK connection code ...5... and greater only
017	DUK_Ethanol.para	017 DUK Ethanol	Ethanol
018	DUK_Fuel 100LL.para	018 DUK FUEL100L	Fuel (airplanes) 100LL
019	DUK_Chloroform.para	019 DUK CHLOFORM	Chloroform
020	DUK_Aceton.para	020 DUK ACETON	Aceton
021	DUK_Anilin.para	021 DUK ANILIN	Anilin
022	DUK_Chlorobenzene.para	022 DUK CHLOBENZ	Chlorobenzene
023	DUK_Cyclohexane.para	023 DUK CYCLOHEX	Cyclohexane
024	DUK_Diesel EN590.para	024 DUK DIESEL	Diesel EN590
025	DUK_Acetic_Acid 5%.para	025 DUK ACACID 5	Acetic Acid 5 %
026	DUK_Acetic Acid 10%.para	026 DUK ACACID10	Acetic Acid 10 %
027	DUK_Acetic Acid 20%.para	027 DUK ACACID20	Acetic Acid 20 %
028	DUK_Ethylene Glycol.para	028 DUK ETHGLYC	Ethylene Glycol 100 %
029	DUK_Glyzerine-4.para	029 DUK GLYCERIN	Glycerine, for DUK connection code ...4... only
030	DUK_Glyzerine-5+.para	030 DUK GLYCERIN	Glycerine, for DUK connection code ...5... and greater only
031	DUK_Methylacetate.para	031 DUK METHACET	Methylacetate
032	DUK_Hexane.para	032 DUK HEXANE	Hexane
033	DUK_n-Pentane.para	033 DUK PENTANE	n-Pentane
034	DUK_n-Octane.para	034 DUK OCTANE	n-Octane
035	DUK_O-Xylene.para	035 DUK OXYLENE	O-Xylene; O-Xylo; 1,2 Dimethylbenzol
036	DUK_Petroleum.para	036 DUK PETROLEU	Petroleum
037	DUK_Seawater.para	037 DUK SEAWAT	Seawater
038	DUK_Triglycerid.para	038 DUK TRIGLYC	Triglyceride
039	DUK_Corn Oil 4.para	039 DUK CORNOIL	Cornoil, for DUK connection code ...4... only
040	DUK_Corn Oil 5+.para	040 DUK CORNOIL	Cornoil for DUK connection code ...5... and greater only
041	DUK_Palm Oil 4.para	041 DUK PALMOIL	Palmoil, for DUK connection code ...4... only
042	DUK_Palm Oil 5+.para	042 DUK PALMOIL	Palmoil, for DUK connection code ...5... and greater only
043	DUK_Rapeseed Oil.para	043 DUK RAPEOIL	Rapeseedoil
044	DUK_Olive Oil 4.para	044 DUK OLIVEOIL	Oliveoil, for DUK connection code ...4... only
045	DUK_Olive Oil 5+.para	045 DUK OLIVEOIL	Oliveoil, for DUK connection code ...5... and greater only
...	...	...	... more media in "MEDIATOR Tool"

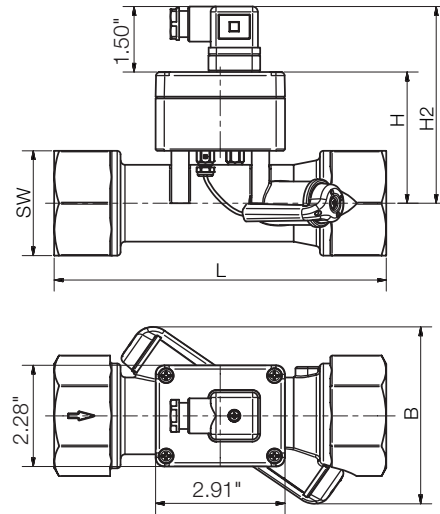
**Dimensions: DUK-...S30x, DUK-...F3x0, DUK-...L343**

Model	NPT/G	SW	H	H2	L	B
DUK-xxx4	1/2	1.18"	2.48"	2.95"	4.49"	3.35"
DUK-xxx5	3/4	1.42"	2.56"	3.03"	4.98"	3.50"
DUK-xxx6	1	1.81"	2.72"	3.19"	5.75"	3.66"
DUK-xxx8	1 1/2	2.36"	2.95"	3.43"	7.48"	4.06"
DUK-xxx9	2	2.99"	3.15"	3.62"	9.37"	4.49"
DUK-xxxB	3	4.13"	3.54"	4.02"	12.05"	5.31"



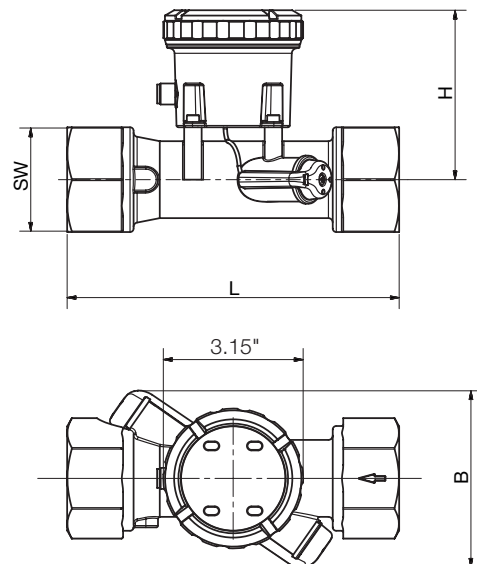
**Dimensions: DUK-...L443**

Model	NPT/G	SW	H	H2	L	B
DUK-xxx4	1/2	1.18"	2.48"	3.98"	4.49"	3.35"
DUK-xxx5	3/4	1.42"	2.56"	4.06"	4.98"	3.50"
DUK-xxx6	1	1.81"	2.72"	4.21"	5.75"	3.66"
DUK-xxx8	1 1/2	2.36"	2.95"	4.45"	7.48"	4.06"
DUK-xxx9	2	2.99"	3.15"	4.65"	9.37"	4.49"
DUK-xxxB	3	4.13"	3.54"	5.04"	12.05"	5.31"



**Dimensions: DUK-...C3T0**

Model	G/NPT	SW	H	L	B
DUK-xxx4	1/2"	1.18"	3.35"	4.49"	3.35"
DUK-xxx5	3/4"	1.42"	3.43"	4.98"	3.50"
DUK-xxx6	1"	1.81"	3.58"	5.75"	3.66"
DUK-xxx8	1 1/2"	2.36"	3.82"	7.48"	4.06"
DUK-xxx9	2"	2.99"	4.02"	9.37"	4.49"
DUK-xxxB	3"	4.13"	4.41"	12.05"	5.31"

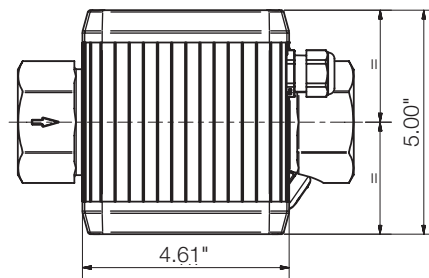
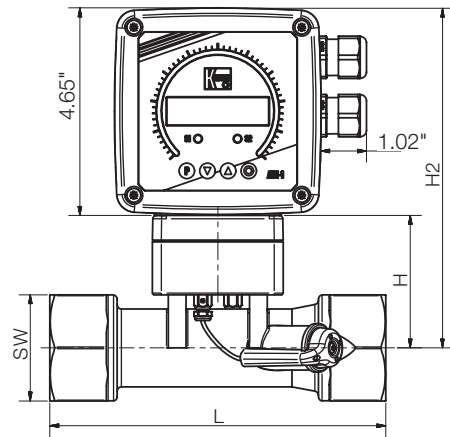




## Compact Ultrasonic Flowmeter Model DUK

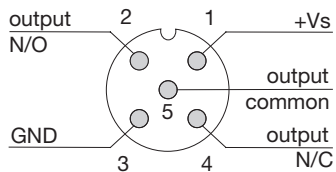
### Dimensions: DUK-...Kxx2

Model	NPT/G	SW	H	H2	L	B
DUK-xxx4	1/2	1.18"	2.48"	7.13"	4.49"	3.35"
DUK-xxx5	3/4	1.42"	2.56"	7.20"	4.98"	3.50"
DUK-xxx6	1	1.81"	2.72"	7.36"	5.75"	3.66"
DUK-xxx8	1 1/2	2.36"	2.95"	7.60"	7.48"	4.06"
DUK-xxx9	2	2.99"	3.15"	7.80"	9.37"	4.49"
DUK-xxxB	3	4.13"	3.54"	8.19"	12.05"	5.31"

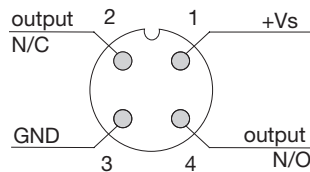


### Electrical Connection

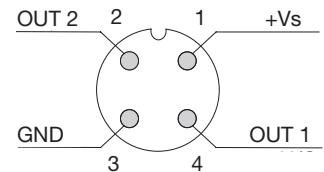
#### DUK-..S300



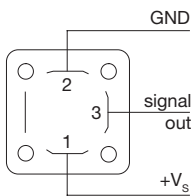
#### DUK-..S30D



#### DUK-..C3T0



#### DUK-..L443



#### DUK-..F3xD, DUK-..L343

