

# FINE CONTROLS (UK) LTD



Fine Controls have been supplying process controls & instrumentation equipment since 1994, & now serves an ever expanding customer base, both in the UK & globally.

We offer a full range of valve & instrumentation products & services, with our product range representing leading technologies & brands:

**Flow:** Flow Meters & Transmitters, Flow Switches, Flow Control Valves & Batch Control Systems

**Temperature:** Temperature Probes & Thermowells, Temperature transmitters, Temperature Regulators & Temperature Displays

**Level:** Level Transmitters & Switches

**Pressure:** Pressure Gauges & Transmitters, Precision & High Pressure Regulators & I-P Converters, Volume boosters.

**Precision Pneumatics:** Pressure Regulators, I-P Converters, Volume Boosters, Vacuum Regulators

**Valves:** Solenoid & Pneumatic Valves, Control Valves & Positioners, Actuated Ball, Globe or Diaphragm Valves & Isolation Valves

**Services:** Repair, Calibration, Panel Build, System Design & Commissioning

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**SIEMENS**



**alcon**  
SOLENOID VALVES

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**Honeywell**



**Bourdon**  
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**SOLDO**  
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## LFC Liquid Flow Controller



- High dynamic control through fast flow measurement
- Applicable for liquid dosing up to 600 ml/min (36 l/h)
- No moving parts in medium
- Fieldbus optional

Type 8719 can be combined with...



**Type 1150**

Multi-channel  
program controller



**Type 6606**

2/2-way  
Solenoid Valve



**Type 6011**

2/2-way  
Solenoid Valve



**MassFlowCommunicator**

Communications  
Software

Type 8719 is an instrument for liquid flow control in process technology. The measured value provided by the sensor will be compared in the digital control electronics with the predefined set point according to the signal; if a control difference is present, the control value output to the proportional valve will be modified using a PI-control algorithm. In this way, the flow can be maintained at a fixed value or a predefined profile can be followed, regardless of pressure changes or other disturbances in the system.

As a control element, a proportional valve working at low friction guarantees the high sensitivity and good control characteristics of the unit. Typical application areas of liquid dosing are:

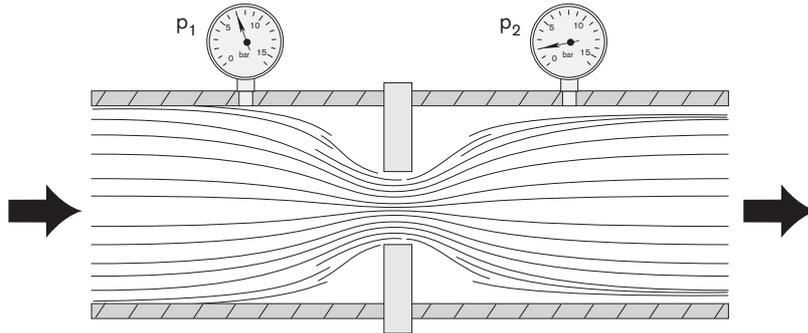
- Heat treatment,
- Machine tools,
- Fuel cell technology,
- Packaging technology,
- Material coating,
- Bio reactors.

In particular, the Type 8719 meets the requirement of IP65.

Technical data			
<b>Full scale range (Q<sub>nom</sub>)</b>	0.6 to 36 l/h (10 to 600 ml/min) re. water	<b>Input impedance</b>	>20 kΩ (voltage), <300 Ω (current)
<b>Operating medium</b>	Clean and low viscous liquids	<b>Output signal</b> (actual value)	0-5 V, 0-10 V, 0-20 mA or 4-20 mA
<b>Viscosity</b>	0.4 to 4 cSt	<b>Max. voltage current output</b>	10 mA
<b>Max. operating pressure</b> (at inlet)	Measurement range: up to max. 10 barg; typical max. 2 barg	<b>Max. burden current output</b>	600 Ω
<b>Calibration medium</b>	Water (conversion to operating medium with correcting function)	<b>Alternative Input and output signal</b>	Digital with fieldbus: ▪ PROFIBUS DP ▪ DeviceNet ▪ CANopen
<b>Medium temperature</b>	10 to + 40 °C	<b>Protection class</b>	IP65
<b>Ambient temperature</b>	0 to + 55 °C	<b>Dimensions [mm]</b> (without compression fittings)	115 x 137.5 x 37 (WxHxD)
<b>Accuracy</b>	±1.5 % o.R. ±0.5 % F.S.	<b>Total weight</b>	Approx. 1200 g
<b>Repeatability</b>	±0.5 % F.S.	<b>Mounting position</b>	Horizontal or vertical
<b>Turn-down ratio</b>	1:10	<b>Light emitting diodes</b> (default functions, other functions programmable)	Indication for: 1. Power 2. Communication 3. Limit 4. Error
<b>Settling time(t<sub>95%</sub>)</b>	< 500 ms	<b>Binary inputs</b> (default functions, other functions programmable)	Three: 1. Start Autotune 2. Open valve (for purging) 3. Not assigned
<b>Body material</b>	Stainless steel	<b>Binary outputs</b> (default functions, other functions programmable)	Two relay outputs for : 1. Limit (desired value can not be achieved) 2. Error (e.g. sensor failure) Capacity: max. 60 V, 1 A, 60 VA
<b>Housing</b>	PBT		
<b>Sealing material</b>	FKM, EPDM, FFKM		
<b>Port connection</b>	G 1/8, NPT 1/8, G 1/4, NPT 1/4		
<b>Control valve</b> Valve orifices	Proportional valve; normally closed; depending on flow range and pressure		
<b>Electrical Connection</b>	Round socket, 8-pin, Sub-HD socket, 15-pin, M12 plug or socket, 5-pin (with fieldbus)		
<b>Operating voltage</b>	24 V DC ± 10 %		
<b>Residual ripple</b>	< 2 %		
<b>Power consumption</b>	Max. 7.5 W (10 W with fieldbus version)		
<b>Input signal</b> (set point)	0-5 V, 0-10 V, 0-20 mA or 4-20 mA		

## Measurement principle

The sensor measures the flow by means of differential pressure. An orifice in the main channel causes pressure loss at liquid flow which is measured by the differential pressure sensor. The sensor feedbacks a precise and temperature compensated signal from which the electronics calculate the corresponding flow.



To avoid a blockage of the aperture by contaminated mediums an upstream filter is recommended.

### Notes regarding the selection of the unit

For the proper choice of the actuator orifice and differential pressure sensor within the LFC, not only is the maximum flow rate  $Q_{nom}$  required, but also the pressure values directly before and after the LFC ( $p_1$ ,  $p_2$ ) at this flow rate  $Q_{nom}$  should be known. In general, these pressures are not the same as the overall inlet and outlet pressures of the whole plant, because usually there are additional flow resistors (tubing, additional shut-off valves, nozzles etc.) present both before and after the controller. Please use the specification sheet (p. 5) to indicate the pressures directly before and after the LFC. If these should be unknown or not accessible to a measurement, estimates are to be made by taking into account the approximate pressure drops over the flow resistors before and after the LFC, respectively, at a flow rate of  $Q_{nom}$ .

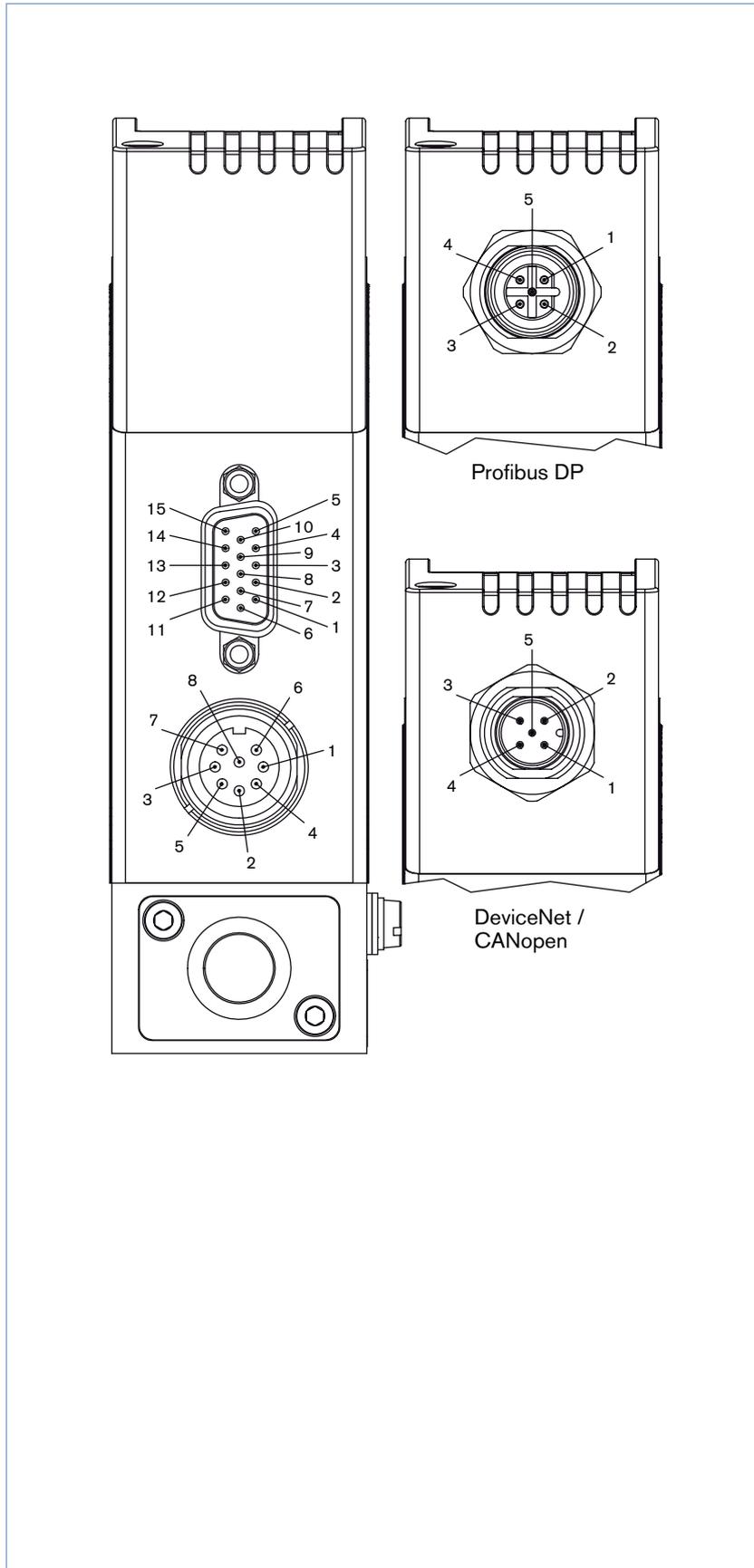
In addition, please quote the maximum inlet pressure  $p_{1max}$  to be encountered. This data is needed to make sure the actuator is able to provide a close-tight function within all the specified modes of operation. The knowledge of the maximum inlet pressure is also necessary to select an adequate differential pressure sensor

▶ **The request form on page 5 contains the relevant fluid specification. Please use the experience of Bürkert engineers already in the design phase and provide us with a copy of your request containing the necessary data together with your inquiry or order.**

### Ordering chart for accessories (Connectors are not included in the delivery)

Article	Item no.
<b>Electrical. Connection</b>	
Round 8-pin binder plug (solder connection)	918 299
Round 8-pin plug with prefabricated 5m cable on one side	787 733
Round 8-pin plug with prefabricated 10m cable on one side	787 734
SUB-HD 15-pin plug with prefabricated 5m cable on one side	787 735
SUB-HD 15-pin plug with prefabricated 10m cable on one side	787 736
<b>PROFIBUS DP</b>	
M12 plug	918 198
M12 socket (coupling)	918 447
PROFIBUS Y-Connector	902 098
<b>Adapter</b>	
RS232 adapter with extension cable to connect to PC (Item no. 917039)	654 757
RS485 adapter	658 499
PC extension cable for RS232, 9-pin socket/plug 2m	917 039
USB adapter	670 696
Communications software, MassFlowCommunicator	Download at <a href="http://www.burkert.com">www.burkert.com</a>

## Pin Assignment



## Fieldbus version

**PROFIBUS DP - M12 socket , B-coded (DPV1 max. 12 Mbaud)**

Pin	Connection
1	VDD
2	RxD/ TxD - N (A-circuit)
3	DGND
4	RxD/ TxD - P (B-circuit)
5	not configured

**CANopen resp., DeviceNet - M12 Plug**

Pin	Connection
1	Shield
2	not configured
3	DGND
4	CAN_H
5	CAN_L

**Sub-HD socket, 15-pin**

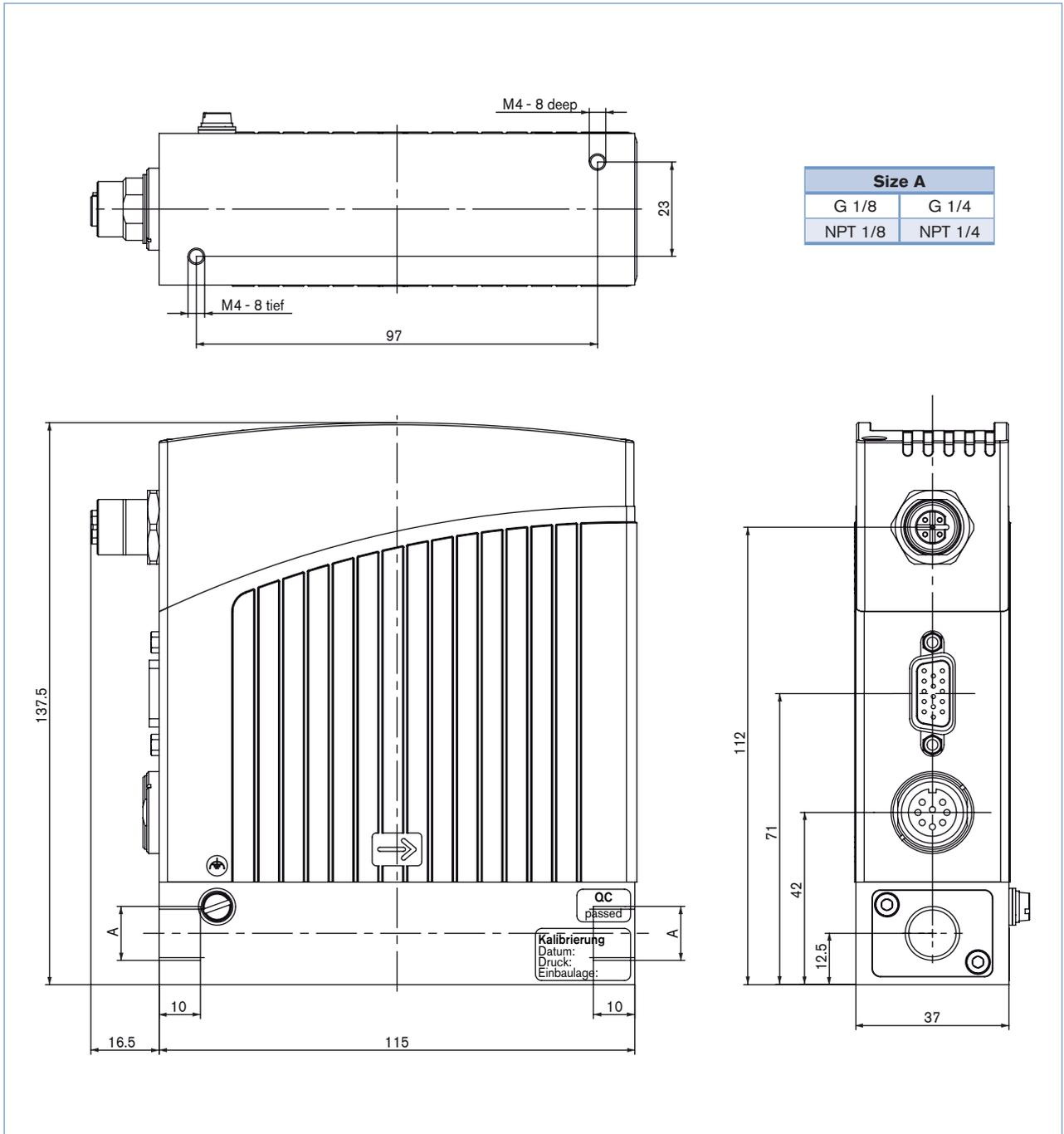
Pin	Connection
1	Set value input + <sup>1)</sup>
2	Set value input GND <sup>1)</sup>
3	Actual value output + <sup>1)</sup>
4	Binary input 2
5	12V-Output (only for internal company use)
6	RS232 TxD (direct connection to PC)
7	Binary input 1
8	DGND (for binary input)
9	only for internal company use (do not connect)
10	12V-Output (only for internal company use)
11	12V-Output (only for internal company use)
12	Binary input 3
13	Actual value output GND <sup>1)</sup>
14	RS232 RxD (direct connection to PC)
15	DGND (for RS232-interface)

<sup>1)</sup>not applicable for fieldbus version

**Round socket, 8-pin**

Pin	Connection
1	24V Supply +
2	Relay 1 - middle contact
3	Relay 2 - middle contact
4	Relay 1 - NC contact
5	Relay 1 - NO contact
6	24V Supply GND
7	Relay 2 - NO contact
8	Relay 2 - NC contact

Dimensions [mm]



In devices without fieldbus communication there is no electrical M12 connector in the upper housing part

