bürkert
FLUID CONTROL SYSTEMS

Positive displacement batch controller

- Compact version for DN15 to DN100
- Dosing
- On site calibration by Teach-In
- Check of input/output signals
- Total and daily totalizers for batch quantity and number of batches, volume or mass totalizers displayed

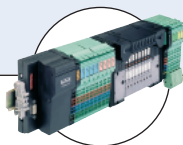Type 8075 can be combined with...

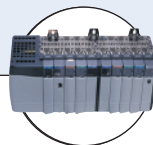

Type 2100 (8692)
Control valve with TopControl

Type 8792
Continuous SideControl

Type 8644-P AirLINE
Valve island with electronic I/O

PLC

This positive displacement flow batch controller with display is designed for use in slightly viscous fluid like glue, honey or oil.

The batch controller is made up of a compact sensor fitting (S070) and an electronic module (SE35) quickly and easily connected together by a Quarter-Turn.

Technical data	
General data	
Compatibility	with fittings S070 (see corresponding data sheet)
Materials Housing, cover, lid, nut Front panel foil / Screws Cable glands Wetted parts materials Sensor fitting Rotor Shaft / Seal	 PC Polyester / Stainless steel PA Aluminium, stainless steel (316F/1.4401) PPS, Aluminium, stainless steel (316F/1.4401) Stainless steel / FKM or FEP/PTFE
Display	15 x 60 mm, 8-digit LCD, alphanumeric, 15 segments, 9 mm high
Electrical connections	Cable glands M20 x 1.5
Recommended cable	max. 50 m, shielded, 1.5 mm² max. cross-section

Device data (Fitting S070 + Electronics)	
Pipe diameter	DN15 to DN100
Measuring range	2 to 1200 l/min (0.26 to 320 gpm) for viscosity > 5 mPa.s 3 to 616 l/min (0.78 to 320 gpm) for viscosity < 5 mPa.s
Fluid temperature Aluminium body Stainless steel body	 0 to 80°C (32°F to 176°F) 0 to 100°C (32°F to 212°F)
Fluid pressure max. DN15 DN25 DN40, DN50 / DN80 / DN100	 55 bar (798 PSI) (threaded process connection) 55 bar (798 PSI) [1] 18 bar (261 PSI) / 12 bar (174 PSI) / 10 bar (145 PSI)
Viscosity	1 Pa.s max. (higher on request)
Accuracy	± 0.5% of Reading
Programming mode	Threshold, window or hysteresis
Repeatability	≤ 0.03% of Reading

[1] or in accordance to the value of the used flanges

Electrical data	
Power supply (V+)	12 - 36 V DC (max tolerance: -5% or +10% at 12 V DC; ±10% at 36 V DC), filtered and regulated, SELV (safety extra low voltage), circuit with a non dangerous energy level or 115/230 V AC 50/60 Hz (see technical specifications 115/230 V AC)
Reversed polarity of DC	protected
Current consumption with sensor (without consumption of digital input and pulse output)	with relays ≤ 90 mA at 12 V DC; ≤ 45 mA at 36 V DC
Inputs DI (1 to 4)	Switching threshold Von: 5... 36 V DC; Switching threshold Voff max: 2 V DC; Input impedance: 9.4 KOhms; Galvanic insulation, protected against polarity reversals and voltage spike
Outputs Transistors (DO1 and DO4)	NPN or PNP (wiring dependent), potential free; function: pulse output (by default for DO1), batch state (by default for DO4), configurable and parameterizable 0.6 - 2200 Hz, 5 - 36 V DC, 100 mA max., line drop 2.7 V DC at 100 mA duty cycle: ■ > 0.45 if 0.6 < frequency < 300 Hz ■ > 0.4 if 300 < frequency < 1500 Hz ■ < 0.4 if 1500 < frequency < 2200 Hz Galvanic insulation, protected against overvoltage, polarity reversals and short-circuits
Relays (DO2 and DO3)	2 relays (normally open), parameterizable (by default: DO2 always configured to control the valve, parameterized of 100% of the batch quantity and DO3 configured as alarm), 230 V AC/3 A or 40 V DC/3 A (resistive load), max. cutting power of 750 VA (resistive load)

| Technical specifications 115/230 V AC	
Voltage supply available inside the device	27 V DC regulated max. current: 125 mA integrated protection: fuse 125 mA temporised power: 3 VA

Environment	
Ambient temperature (operation and storage)	-10 to +60°C (14 to 140°F) (version 12 - 36 V DC) -10 to +50°C (14 to 122°F) (version 115/230 V AC)
Height above sea level	max. 2000 m
Relative humidity	≤ 80 %, without condensation

Standards, directives and approvals	
Protection class (according to EN60529)	IP65 with cable gland mounted and tightened or with obturator locked if not used.
Standard and directives EMC Security Pressure (Fitting S030, DN06 to DN65, in PVC, PP, PVDF, stainless steel or brass) Vibration Shock	EN 61000-6-2, EN 61000-6-3 EN 61010-1 Complying with article 3 of chap. 3 from 97/23/CE directive.* EN 60068-2-6 EN 60068-2-27
Approvals	CE; UL-Recognized for US and Canada (61010-1 + CAN/CSA-C22 No.61010-1)

Specific technical data of UL-recognized products for US and Canada	
Relay output	30 V AC and 42 V peak max. or 60 V DC max.
Ambient temperature	-10 to +60°C (14 to 140°F)
Relative humidity	max. 80 %, without condensation
Intended for an inner pollution	Grade of pollution 2, according to EN61010-1
Installation category	Category I, according to UL61010-1

* For the 97/23/CE pressure directive, the device can only be used under following conditions (depend on max. pressure, pipe diameter and fluid).

| Type of fluid	Conditions
Fluid group 1,chap. 1.3.a	Forbidden
Fluid group 2,chap. 1.3.a	DN ≤ 32, or DN > 32 and PN*DN ≤ 1000
Fluid group 1,chap. 1.3.b	PN*DN ≤ 2000
Fluid group 2,chap. 1.3.b	DN ≤ 200

Design and principle of operation
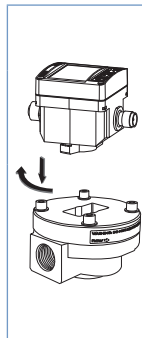
The 8075 batch controller is built up with an SE35 electronic module associated to a sensor fitting S070 with integrated measurement oval rotor. The connection is made by means of a Quarter-Turn. The output signals are provided via two cable glands.

If liquid flows through the pipe the rotor turns. This rotation produces a measuring signal in the transducer. The frequency is proportional to the flow of the fluid.

A conversion coefficient (K factor, available in the instruction manual of the sensor fitting S070), specific to each pipe (size and material) enables the conversion of this frequency into a volume or a mass.

The electronic component converts the measured signal and displays the actual value of the volume or mass.
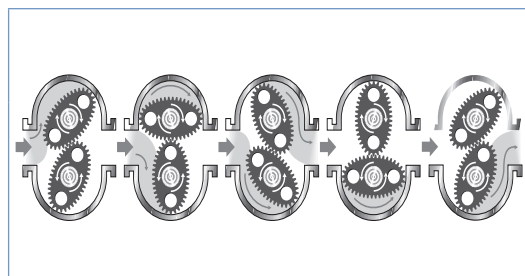
Operation and display

When mounted in a pipe in series with one or two valves, the 8075 batch controller makes it possible to carry out a dosing of one or several quantities of liquids. The unit controls the opening of the valves and measures the quantity of the fluid which flows. The unit also closes the valves when the pre-set quantity has been delivered.
The electronic component needs a voltage supply of 12 - 36 V DC or 115/230 V AC.
The device is equipped with 4 digital inputs (DI1 up to DI4), 2 transistor outputs (DO1 configured as a pulse output and DO4 configured as state output, by default), 2 relay outputs (DO2 always configured to control the valve and by default parameterize of 100% of the batch quantity and DO3 configured as alarm output by default), two volume or mass totalizers and two batch totalizers.
The second relay output can be used to activate another valve, to initiate alarms or to generate warnings.

The following dosing modes are possible:

- **Locally started dosing of free quantity:**
  the user enters the quantity to be filled and starts the dosing from the keypad.
- **Locally started dosing of preset quantity**:
  the user selects a quantity which has been preset and starts the dosing from the keypad.
- **Locally started dosing of free/preset quantity**
  the user enters the quantity to be filled or selects a quantity which has been preset and starts the dosing from the keypad.
- **Dosing controlled by a PLC unit**
  the user selects a quantity which has been preset and starts the dosing using binary inputs.
- **Locally/remote selection of preset quantity and dosing controlled by a PLC unit**:
  the user selects a quantity which has been preset from the keypad or using binary inputs and starts the dosing using binary inputs.
- **Automatic dosing controlled by variation of pulse duration:**
  the quantity of the dosing is directly proportional to the duration of a pulse.
- **Remote dosing determined by Teach-In:**
  Teach-In of the dosing quantity using binary inputs.
- **Local dosing determined by Teach-In:**
  Teach-In of the dosing quantity from the keypads.

The device is calibrated by means of the K-factor which is either entered or determined via the Teach-In functions.
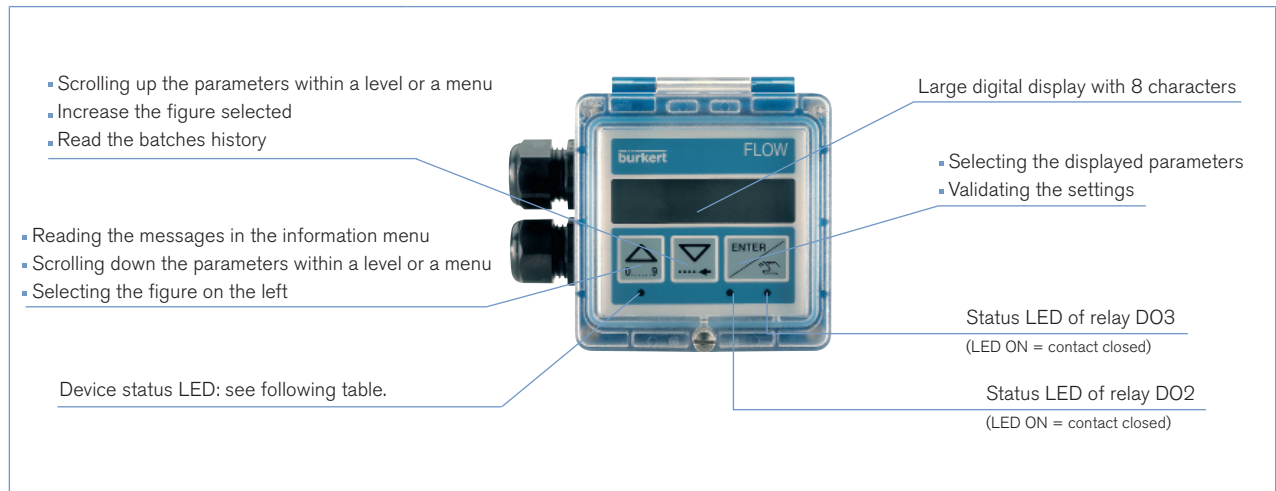User adjustments, such as measuring range, engineering units, pulse output, etc. are carried out via the device operators interface.

The operation is specified according to five levels:

Indication in operating mode/display	Parameter definition	Test	Information	History
▪ dosing amount ▪ dosing mode ▪ main quantity totalizer ▪ daily quantity totalizer with reset function ▪ main batch totalizer ▪ daily batch totalizer with reset function	▪ language ▪ engineering units ▪ K-factor/Teach-In function ▪ selection of dosing mode ▪ over run correction ▪ alarm ▪ outputs configuration ▪ reset both quantity/batch totalizers (main and daily) ▪ Brightness of the display (backlight)	▪ input test ▪ output test ▪ frequency test ▪ warning and fault messages generating ▪ configuration mode	▪ Display of error, alarm and/or warning messages	▪ Display of the 10 latest batches

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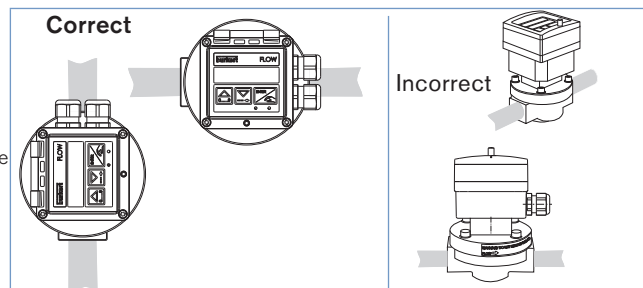## Description of the navigation keys and the status LEDs

- Scrolling up the parameters within a level or a menu
- Increase the figure selected
- Read the batches history

- Reading the messages in the information menu
- Scrolling down the parameters within a level or a menu
- Selecting the figure on the left

Device status LED: see following table.

Large digital display with 8 characters

- Selecting the displayed parameters
- Validating the settings

Status LED of relay DO3
(LED ON = contact closed)

Status LED of relay DO2
(LED ON = contact closed)

| Device status LED	Status of the device
Green	The device operates correctly.
Orange	A dosing related alarm and/or a warning messages is generated in the information menu.
Red	A fault message is generated in the information menu.
Blinking, whatever the colour	• **Slow blinking**: The dosing is interrupted. • **Fast blinking:** - during a dosing: a dosing related alarm is generated. - dosing not active: the information menu has been remote-consulted or a check for the correct behaviour of the inputs/outputs is running.

Installation

The sensor fitting can be installed in any orientation as long as **the rotor shafts are always in a horizontal plane** (see figures to the right) and **the flow of the fluid is in the direction of the arrow marked on the body.**

The pipe must be filled with liquid and free from air bubbles. Avoid air purge of the system which would cause damages and to prevent damage from dirt or foreign matter, we strongly recommend the installation of a 250 µm flow straightener as close as possible to the inlet side of the meter.

Correct

Incorrect

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Dimensions [mm]

Electronics SE35

180

91

21

88

116

88

105

75

104

114
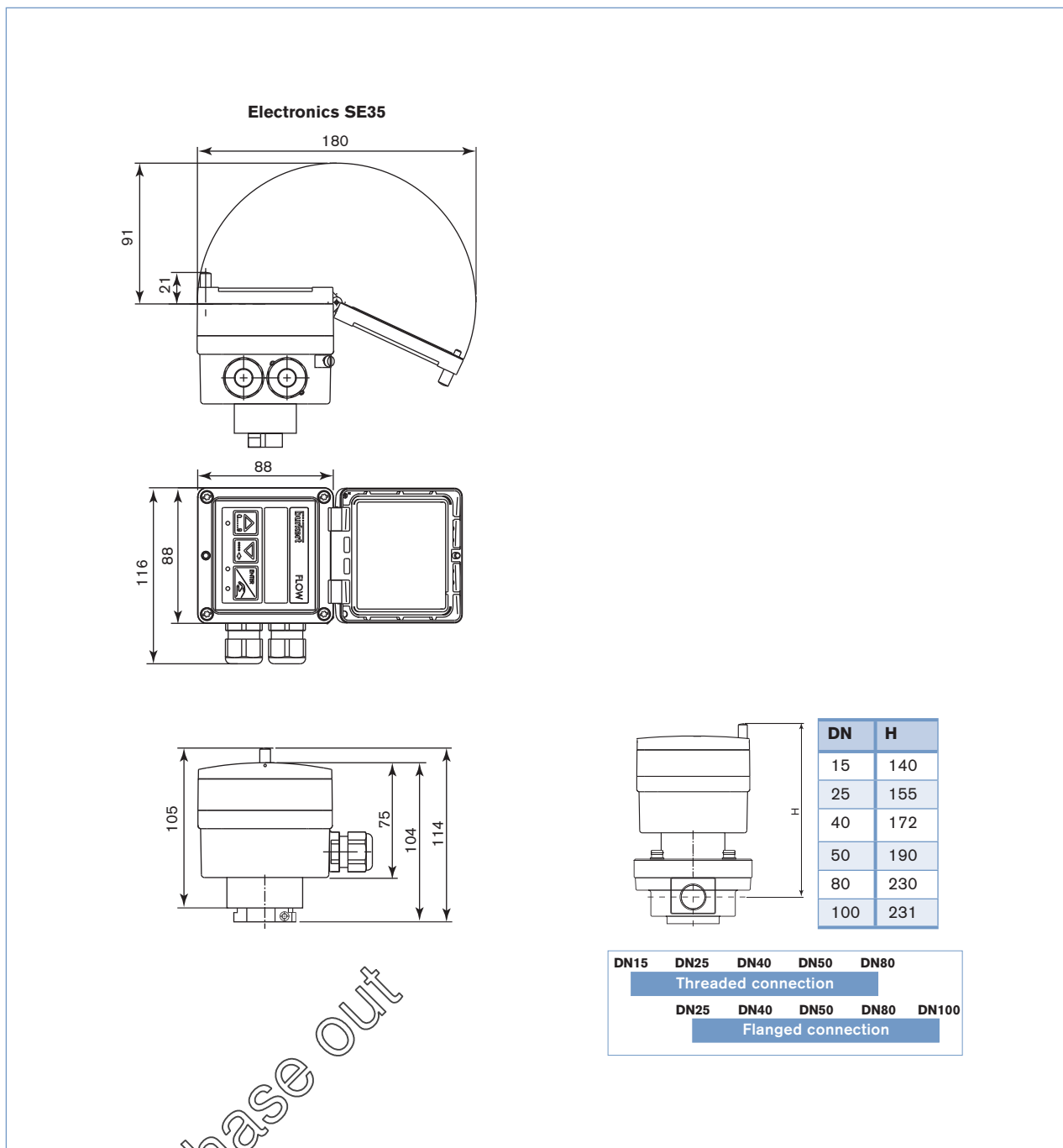
DN	H
15	140
25	155
40	172
50	190
80	230
100	231

DN15	DN25	DN40	DN50	DN80	
	Threaded connection				
	DN25	DN40	DN50	DN80	DN100
		Flanged connection			

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## Ordering information for compact batch controller Type 8075

A batch controller Type 8075 consists of an electronics Type SE35 and a Bürkert INLINE sensor fitting Type S070

The following information is necessary for the selection of a complete device:
▪**Item no.** of the desired electronics **Type SE35** (see Ordering chart, below)

▪**Item no.** of the selected INLINE sensor fitting **Type S070** (see separate data sheet- has to be ordered separately)

You have to order two components.

When you click on the orange box "More info." below, you will come to our website for the resp. product where you can download the data sheet.

Example

Electronics Type SE35

Complete batch controller Type 8075

INLINE sensor fitting Type S070

More info.
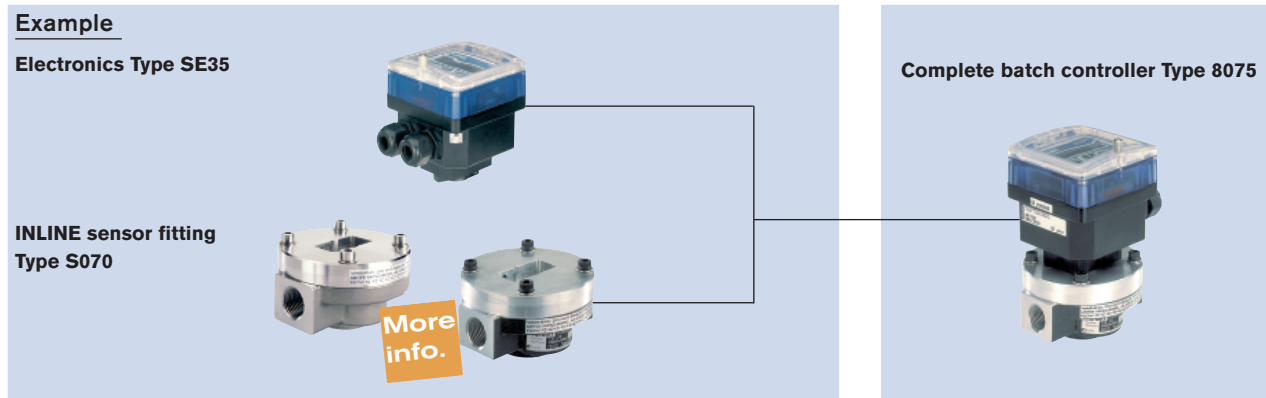
Ordering chart for electronics Type SE35

All these versions have as minimum:
- 2 transistor outputs (DO1 and DO4)
- 2 relay outputs (DO2 and DO3)
- 4 digital inputs (DI1… DI4)
- 2 quantity totalizers
- 2 batch totalizers

Specifica-tions	Voltage supply	Sensor version	Electrical connection	Item no.
Batch controller, compact version	12 - 36 V DC	Hall	2 cable glands	443 360
Batch controller, compact version, UL-Recognized for US and Canada ᴿᵁ	12 - 36 V DC	Hall	2 cable glands	564 398
Batch controller, compact version	115/230 V AC	Hall	2 cable glands	423 926

NOTE: For remote version, please refer to data sheet Type 8025 Batch controller

Ordering chart - accessories for batch controller Type 8075 (has to be ordered separately)

Specifica-tions	Item no.
Set with 2 cable glands M20 x 1.5 + 2 neoprene flat seals for cable gland or plug + 2 screw-plugs M20 x 1.5 + 2 multiway seals 2 x 6 mm	449 755
Set with 2 reductions M20 x 1.5 /NPT1/2" + 2 neoprene flat seals for cable gland or plug + 2 screw-plugs M20 x 1.5	551 782
Set with 1 stopper for unused cable gland M20 x 1.5 + 1 multiway seal 2 x 6 mm for cable gland + 1 black EPDM seal for the sensor + 1 mounting instruction sheet	551 775
Set with 8 FLOW foils	553 191

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