2. Paddle Flow Meter Burkert

Model 8025 Insert Flow Transmitter

Compact or Remote Version for DN 06 to 400 PN 10
Show Both Flow rate and Volume (With Totalizers)

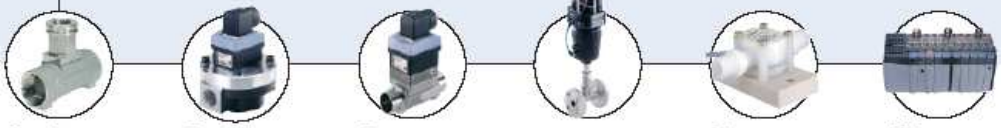
Datasheet

bürkert
FLUID CONTROL SYSTEMS

Digital flow transmitter for continuous flow measurement

- Compact or remote version for DN 06 to 400, PN10
- Shows both flow rate and volume (with two totalizers)
- Automatic-calibration: TEACH-IN
- Simulation: all output signals provided without the need for real flow

Type 8025 can be combined with..



Type S020
INSERTION fitting

Type 8070
Positive displacement flow sensor

Type 8030
INLINE flow sensor

Type 2712 (8630)
Continuous TopControl system

Type 8031
Flow sensor

PLC

The flow transmitter is specially designed for use in neutral and slightly aggressive, solid-free liquids.

The device is available in different models:

- Compact transmitter with paddle-wheel sensor: standard signal output or battery powered indicator version.
- Remote universal transmitter for panel or wall mounting for connection to a flow sensor from the market; sensors with open collector output, relay reed output, TTL, CMOS or coil can be operated by this transmitter.
- Remote transmitter, for panel or wall mounting: standard signal output for connection to the Bürkert 8020 / 8030 sensor „Low Power" version.

Technical data (common to the various versions)	
General data	
Display	15 x 60 mm, 8-digit LCD, alphanumeric, 15 segments, 9 mm high
Electrical connections	shielded cable with 1.5 mm² max. cross-section
Environment	
Ambient temperature	0 up to +60°C *(32 to 140°F)* (operation and storage)
Relative humidity	≤ 80 %, without condensation
Standards and approvals	
Standard	
EMC	EN 61000-6-2, EN 61000-6-3
Security	EN 61010-1
Pressure	Complying with article 3 of §3 from 2006/95/CE directive.*
Vibration	EN 60068-2-6
Shock	EN 60068-2-27

* For the 2006/95/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, §1.3.a	DN 25 only
Fluid group 2, §1.3.a	DN ≤ 32, or DN > 32 and PN*DN ≤ 1000
Fluid group 1, §1.3.b	PN*DN ≤ 2000
Fluid group 2, §1.3.b	DN ≤ 200

System versions

The compact version

combines a paddle-wheel flow sensor and an electronic module with a display in an IP65 enclosure.

The output signals are provided via a cable plug EN175301-803 or two cable glands.

Bürkert designed fitting ensures simple installation of the Bürkert sensor into pipes from DN 15 to DN 400.

The panel-mounted version

consists of an electronic module 8025 integrated in a front-cover. The associated separate flow sensor is an 8020, an 8030 with pulse signal, or another flow sensor available from Bürkert or the market.

The output signals are provided on a terminal strip.

The wall-mounted version

consists of an electronic module 8025 in an IP65 enclosure. The associated flow sensor is an 8020, an 8030 with pulse signal, or another flow sensor available from Bürkert or the market.

The output signals are provided on a terminal strip via cable glands.

Operation and display

The device can be calibrated by means of the K-factor, or via the TEACH-IN function.
Customized adjustments, such as measuring range, engineering units, pulse output and filtering level are carried out on site.

The operation is specified according to two or three levels, depending on the transmitter version:

Flow transmitter (compact or remote)

Indication in operating mode / Display
- flow rate
- output current
- main totalizer
- daily totalizer with reset function

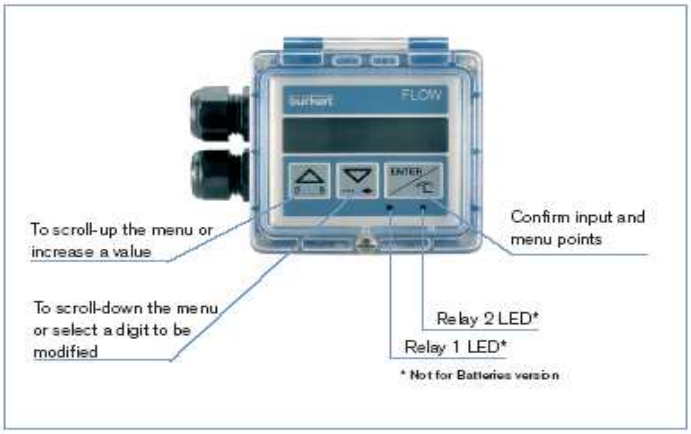
Parameter definition
- language
- engineering units
- K-factor / TEACH-IN function
- measuring range 4-20 mA
- pulse output
- relay (option)
- filter
- reset main totalizer

Test
- alteration of basic adjustment (offset, span)
- frequency test of sensor
- flow simulation (dry-run test operation)

Battery indicator / totalizer (compact)

Indication in operating mode / Display
- flow rate
- main totalizer
- daily totalizer with reset function

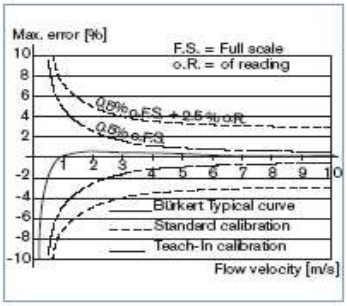
Parameter definition
- language
- engineering units
- K-factor / TEACH-IN function
- filter
- reset main totalizer



Compact transmitter

The compact transmitter
is available in two versions:
- standard signal (4-20 mA, frequency)
- battery indicator / totalizer

Accuracy diagram



Design

When liquid flows through the pipe, the paddle-wheel with 4 inserted magnets is set in rotation, producing a measuring signal in the sensor (coil or Hall transducer).
The frequency modulated induced voltage is proportional to the flow velocity of the fluid.

A conversion coefficient (K-factor, available in the instruction manual of the fitting), specific to each pipe (size and material) enables the conversion of this frequency into flow rate.

The electronic component converts the measured signal into several outputs (according to the transmitter version) and displays the actual value.

General data	
Compatibility	with fittings S020 (see corresp. data sheet)
Materials	
Housing, cover, lid, nut	PC
Front panel foil	Polyester
Screws	Stainless steel
Cable plug / glands	PA
Wetted parts materials	
Fitting	Brass, stainless steel 1.4435/316L, PVC, PP or PVDF
Sensor finger, paddle-wheel	PVDF
Axis and bearing / Seal	Ceramics / FKM (EPDM option)
Electrical connections	Cable plug EN 175301-803 or cable glands M20 x 1.5 or none (for battery version).

Complete device data (Fitting S030 + Electronics)	
Pipe diameter	DN 15 to 400
Measuring range	0.5 to 10 m/s (Battery version - Coil transducer) 0.3 to 10 m/s (Hall transducer version)
Fluid temperature with fitting in	
PVC	0 up to 50°C (32 to 122°F)
PP	0 up to 80°C (32 to 176°F)
PVDF, brass or stainless steel	-15 up to 80°C[1] (32 to 176°F)
Fluid pressure max.	PN10 (145.1 PSI) (see pressure/temperature diagram)
Viscosity / Particles rate	300 cSt. max. / 1% max.
Accuracy	
Teach-In	≤ ±0.5% of F.S.* (at 10 m/s)[2]
Standard K-factor	≤ ±(0.5% of F.S.* + 2.5% of Reading)[2]
Linearity	≤ ±0.5% of F.S.* (at 10 m/s)[2]
Repeatability	≤ 0.4% of Reading[2]

Electrical data	
Power supply	
Standard signal version	12-30 V DC (V+) ± 10%, filtered and regulated or 115/230 V AC 50/60 Hz (see technical specifications 115/230 VAC)
Battery indicator / totalizer version	2 x 9 V DC batteries, autonomy min. 1 years at 20°C (68°F)
Reversed polarity of DC	protected
Current consumption with sensor (without consumption of pulse output)	≤ 70 mA - transmitter with relays ≤ 20 mA - transmitter without relay
Output	
Standard signal version	
Signal current	4-20 mA (3-wire with relays; 2-wire without relay) max. loop impedance: 900 Ω at 30 V DC; 600 Ω at 24 V DC; 50 Ω at 12 V DC; 800 Ω with a 115/230 V AC voltage supply
Pulse	Polarized, potential free, 5...30 V DC; 100 mA, protected, line drop at 100 mA: 1.5 VDC
Relay	2 relays, freely programmable, 3A, 230 V AC
Battery indicator / totalizer version	None

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

Standard	
Protection class	IP65 with cable plug or gland mounted and tightened or with obturator locked if not used.

[1] with Battery version = 100°C (212°F)
[2] Under reference conditions i.e. measuring fluid=water, ambient and water temperature=20°C (68°F), applying the minimum inlet and outlet pipe straights, matched inside pipe dimensions.

* F.S.=Full scale (10 m/s)