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 rangerepresenting leading technologies & brands:

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

Temperature: Temperature Probes & Thermowells, Temperature ransmitters,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

A rotork Brand FAIRCHILD

bürkert

SIEMENS

alcon SOLENOID VALVES

A rotork Brand

MIDLAND-ACS

A rotork Brand

Honeywell

Bourdon Baumer Group

SOLDO CONTROLS

A rotork Brand

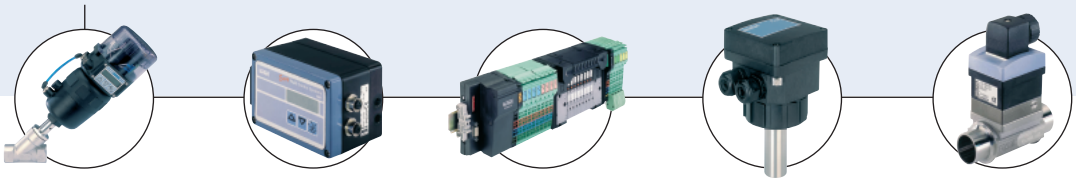
Fine Controls (UK) LTD, Bassendale Road, Croft Business Park,
Bromborough, Wirral, CH62 3QL UK
Tel: 0151 343 9966
Email: sales@finecontrols.com

burkert
FLUID CONTROL SYSTEMS

Paddle-wheel flow controller for On/Off control

- Indication, monitoring, transmitting and On/Off control in one device
- Programmable outputs (transistor or relay)
- Automatic-calibration: Teach-In
- Communication - external setpoints and process value (4-20 mA)

Type 8032 can be combined with...



Type 2702 (8630)
Control valve with TopControl

Type 1067
Continuous SideControl

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

Type 8041
Flow sensor only with 8032 remote

Type 8030
Flow sensor only with 8032 remote

This intelligent controller with display is designed for use in clear, neutral or aggressive liquids and specially to switch a valve and to establish a monitoring system or an On/Off control loop. The switching points can be programmed with the 3-key keypad under the display or optionally, for the compact 8032 only, from an external source over a 4-20 mA loop. The compact 8032 is proposed with On/Off output, or with external setpoints and process value outputs. The remote 8032 has a transistor output. The connection to the process in the piping is done with standard INLINE fittings.

General data	
Compatibility	With fittings S030 (see corresp. data sheet)
Materials	
Housing, cover	PC, +20% glass fibre
Front panel folio / Screws	Polyester / Stainless steel
Cable plug, gland	PA
Materials wetted parts	
Fitting, sensor armature / Seal	Brass, stainless steel, PVC, PP or PVDF / FKM (EPDM option)
Paddle-wheel / Axis, bearings	PVDF / Ceramics
Wall-mounted holder	PVC
Display	8-digit LCD
Electrical connections	Cable plug acc. to EN 175301-803 Multipin: swivel M12, 5-pin or M12, 8-pin
Voltage supply cable	0.5 mm² max. cross section; max. 100 m length, shielded
Remote sensor connection	0.5 mm² max. cross section; max. 50 m length, shielded
Complete device data (fitting + electronic module)	
Pipe diameter	DN 06 to 65
Measuring range	0.3 to 10 m/s
Medium temperature	0 up to 50°C *(32 to 122°F)* (with PVC fitting) / 0 up to 80°C *(32 to 176°F)* (with PP fitting) / -15 up to 100°C *(5 to 212°F)* (with St. st., brass or PVDF fitting)
Fluid pressure max.	PN10 *(145.1 PSI)* (with plastic fitting) PN16 *(232.16 PSI)* (with metal fitting)
Viscosity	300 cSt. max.
Accuracy[1]	
Teach-In	≤ ± 1% of F.S.* (at 10 m/s)
Standard K-factor	≤ ± (1% of F.S.* + 3% o. Reading)
Programming mode	Threshold, window or hysteresis
Linearity[1]	≤ ± 0.5% of F.S.* (at 10 m/s)
Repeatability[1]	≤ 0.4% of Reading

* F.S. = Full scale (10 m/s)
1) Under reference conditions i.e. measuring fluid = water, ambient and water temperature = 20°C, applying the minimum inlet and outlet pipe straights, matched inside pipe dimensions.

DTS 1000011084 EN Version: L Status: RL (released I freigegeben I validé) printed: 02.06.2009

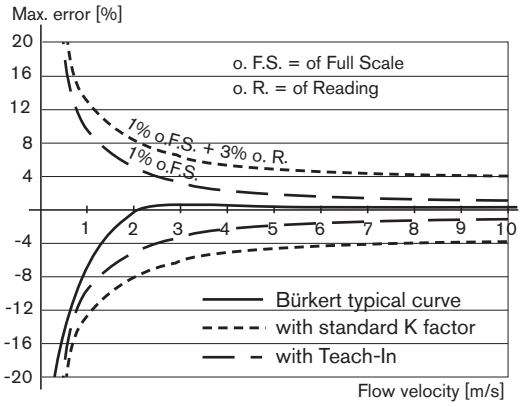
Electrical data	
Power supply	Filtered and regulated
Compact version	12-30 V DC
Remote version	Depends on the remote sensor: 8041: 18-30 V DC 8020, 8030: 12-30 V DC other: min. 12 V DC, max. 30 V DC
Current consumption	
Compact version	≤ 80 mA (without load)
Remote version	≤ 50 mA (without load) + consumption of remote sensor
Input	
External setpoint	4-20 mA, galvanic insulation max. input impedance: 250 Ω
Frequency (remote version)	Pulse signal: 2 to 400 Hz input impedance: 10 kΩ
Outputs	
Transistor (programmable)	NPN and PNP, open collector, 5-30 V DC, max. 700 mA, 0 to 300 Hz protect against short circuit.
Relay (programmable) (compact version)	3A/250 V AC or 3A/30 V DC. 3A/48 V AC or 3A/30 V DC[2].
Process value (option) (compact version)	4-20 mA, galvanic insulation Loop resistance: 1000 Ω at 30 V DC, 800 Ω at 24 V DC, 500 Ω at 18 V DC
Reversed polarity of DC	Protected
Environment	
Ambient temperature	0 up to + 60°C *(32 to 140°F)* (operating and storage)
Relative humidity	≤ 80%, without condensation
Standards, directives and approvals	
Protection class	IP65
Standard, directives	
EMC	EN 610006-2, 610006-3
Security	EN 61010-1
Pressure	Complying with article 3 of §3 from 97/23/CE directive.*
Vibration	EN 60068-2-6
Shock	EN 60068-2-27

2) Valid for: external setpoint input, process value output

* 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, §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

Accuracy diagram



DTS 1000011084 EN Version: L Status: RL (released I freigegeben I validé) printed: 02.06.2009

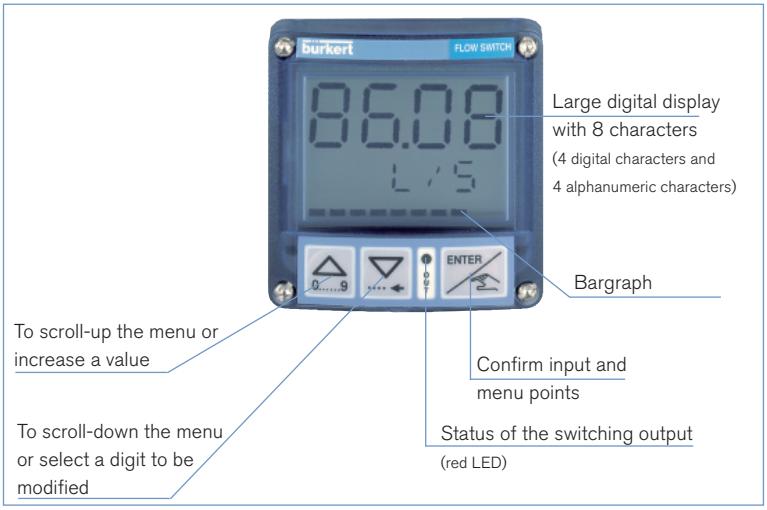
Operation and display

The device can be calibrated by means of the K-factor, or via the Teach-In function.
Customized adjustments, such as engineering units, output, filter, bargraph are carried out on site.

Indication in operating mode / Display
- measured flow
- high threshold value
- low threshold value

Parameter definition
- engineering units (International measuring units)
- K-factor / Teach-In function
- selection of switching mode (window, hysteresis) (see main features)
- selection of threshold value (see main features)
- delay
- filter
- 10-segment bargraph (select min. and max. value)

Test
- switching threshold test with flow simulation (dry-run test operation)

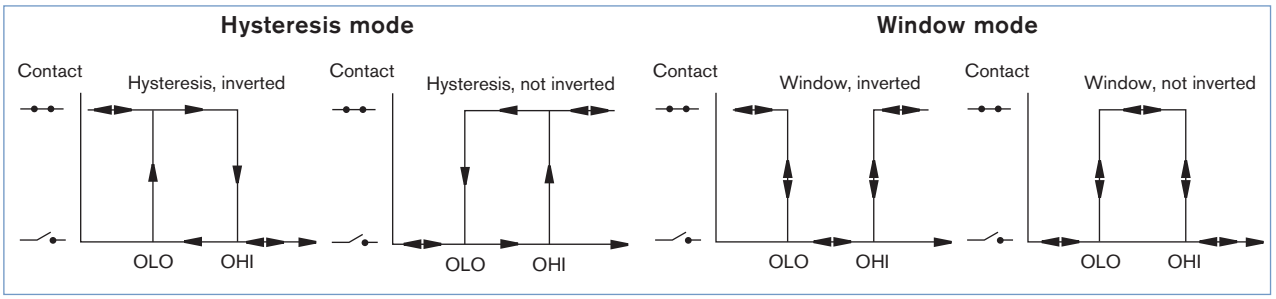


Main features

8032 with external setpoint option.

The switching points are automatically adjusted by the 4-20 mA input signal originating from a PLC.
- Power supplied by the PLC
- On/Off relay output

8032 with standard On/Off output
- 2 switching modes for the output, either hysteresis or window, inverted or not

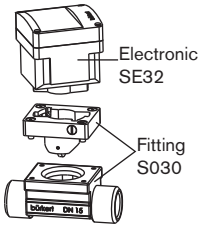


- Programmable delay before switching
- Possible outputs depending on the version: relay, transistor NPN, transistor PNP, frequency

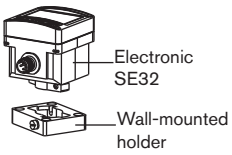
8032 with process value option.
This version delivers an electric signal whose value is the image of the measured quantity.
- On/Off relay output
- 4-20 mA output
- external setpoint (4-20 mA input)

DTS 1000011084 EN Version: L Status: RL (released | freigegeben | validé) printed: 02.06.2009

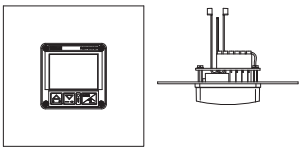
Design and principle of operation



The compact flow controller 8032 is built up with an electronic module SE32 associated to a fitting S030 with integrated measurement paddle-wheel. The output signal is provided via cable plug according to EN 175301-803 and/or a M12 multipin connector.



The wall-mounted flow controller 8032 is built up with an electronic module SE32 associated to a wall-mounted holder. The output signal is provided via two M12 multipin connector.



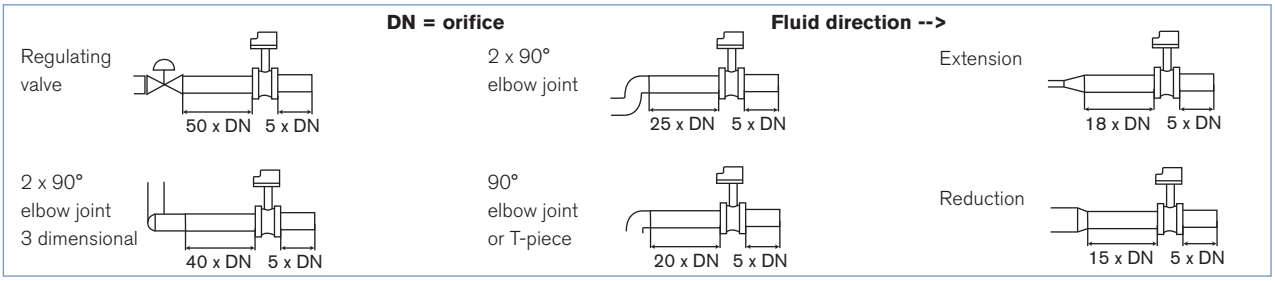
The panel-mounted flow controller 8032 is made up of an electronic module SE32 and a protection plate. The output signal is provided via a terminal strip located on the protection plate.

When liquid flows through the pipe, the 4 magnets, inserted in the paddle-wheel set in rotation, produce a measuring signal in the transducer. The frequency 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.

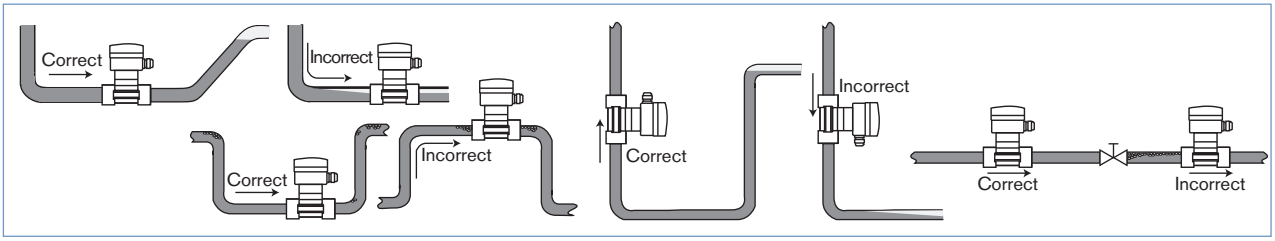
Installation

The 8032 flow controller can easily be installed into any Bürkert INLINE fitting system Type S030 by means of a Quarter-Turn. Minimum straight upstream and downstream distances must be observed. According to the pipe's design, necessary distances can be bigger or use a flow conditioner to obtain the best accuracy. For more information, please refer to EN ISO 5167-1.

EN ISO 5167-1 prescribes the straight inlet and outlet distances that must be complied with when installing fittings in pipe lines in order to achieve calm flow conditions. The most important layouts that could lead to turbulence in the flow are shown below, together with the associated prescribed minimum inlet and outlet distances. These ensure calm, problem-free measurement conditions at the measurement point.



The flow controller can be installed into either horizontal or vertical pipes.

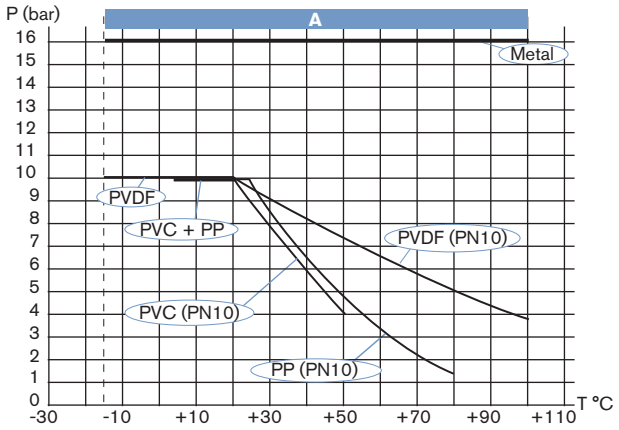


Pressure and temperature ratings must be respected according to the selected fitting material.
The suitable pipe size is selected using the diagram Flow / Velocity / DN.

The controller is not designed for gas flow control.

DTS 1000011084 EN Version: L Status: RL (released I freigegeben I validé) printed: 02.06.2009

Pressure / temperature chart



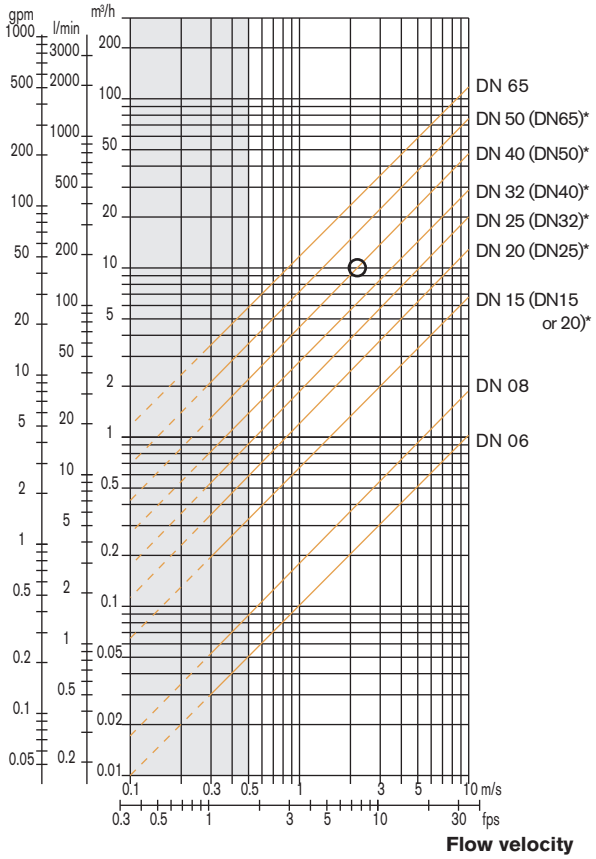
A: Application range for complete device (fitting + controller)

Selection of fitting / pipe size

Example:

- Specification of nominal flow: 10 m^3/h
- Ideal flow velocity: 2...3 m/s
- For these specifications, the diagram indicates a pipe size of DN40 [or DN50 for (*) mentioned fittings]

Flow rate



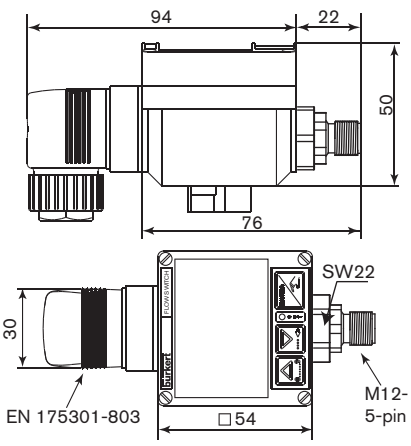
Flow velocity

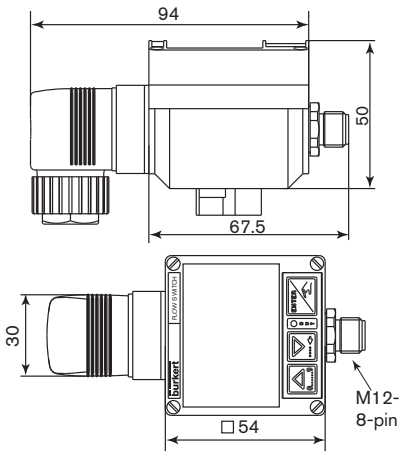
*** for following fittings:**
- with external threads acc. to SMS 1145
- with weld-ends acc. to SMS 3008, BS 4825 / ASME BPE or DIN 11850 Series 2
- Clamp acc. to SMS 3017 / ISO 2852, BS 4825 / ASME BPE or DIN 32676

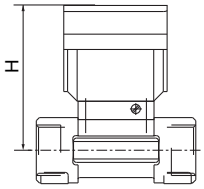
DTS 1000011084 EN Version: L Status: RL (released | freigegeben | validé) printed: 02.06.2009

Dimensions

8032 compact

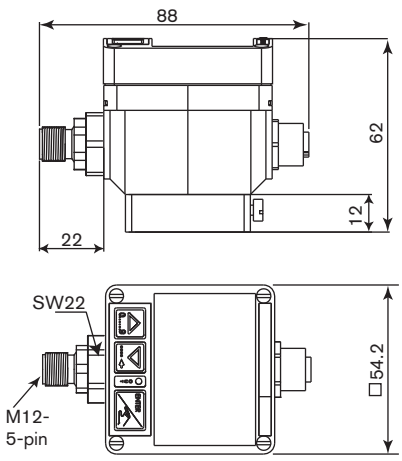




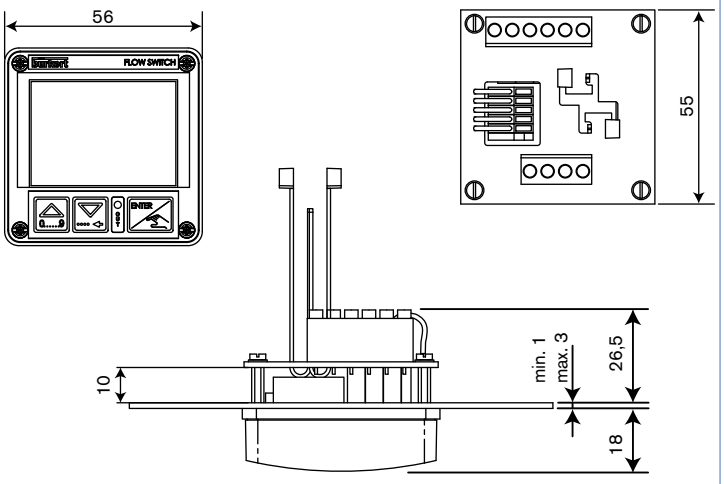


DN [mm]	H [mm]
06	79.5
08	79.5
15	84.5
20	82.0
25	82.2
32	85.8
40	89.6
50	95.7
65	95.7

8032 wall-mounted



8032 panel-mounted



DTS 1000011084 EN Version: L Status: RL (released I freigegeben I validé) printed: 02.06.2009

Ordering chart for Controller Type 8032

A compact flow controller Type 8032 consists of:

- a compact electronic module SE32
- an INLINE fitting S030 (DN 06 - DN 65) (Refer to corresponding data sheet - has to be ordered separately)

Voltage supply	Input	Output	Electrical connection	Item no.
12-30 V DC	---	NPN	Cable plug EN 175301-803*	436 474
		PNP	Cable plug EN 175301-803*	434 871
		NPN and PNP	Swivel 5-pin M12 plug	436 473
		Relay	Swivel 5-pin M12 plug and cable plug EN 175301-803*	436 475
	4-20 mA[1)]	4-20 mA[2)] +Relay	8-pin M12 plug and cable plug EN 175301-803*	444 699

1) External setpoint 2) Process value

* Europe / Asia (G / Rc): M16 x 1.5 mm cable plug
USA / CDN (NPT): NPT 1/2 cable plug

A wall- or panel- mounted a flow controller Type 8032 consists of:

- a wall- or a panel- mounted electronic module SE32
- a flow sensor Type 8020, 8030, 8030-HT, 8041 or 8070 - frequency output with pulse signal (Refer to corresponding data sheet - has to be ordered separately)

Description	Voltage supply	Input	Output	Electrical connection	Item no.
Wall-mounted	12-30 V DC	Frequency	NPN and PNP	Swivel 5-pin M12 male and 4-pin M12 female	448 861
Panel-mounted	12-30 V DC	Frequency	NPN and PNP	Terminal strips	558 181

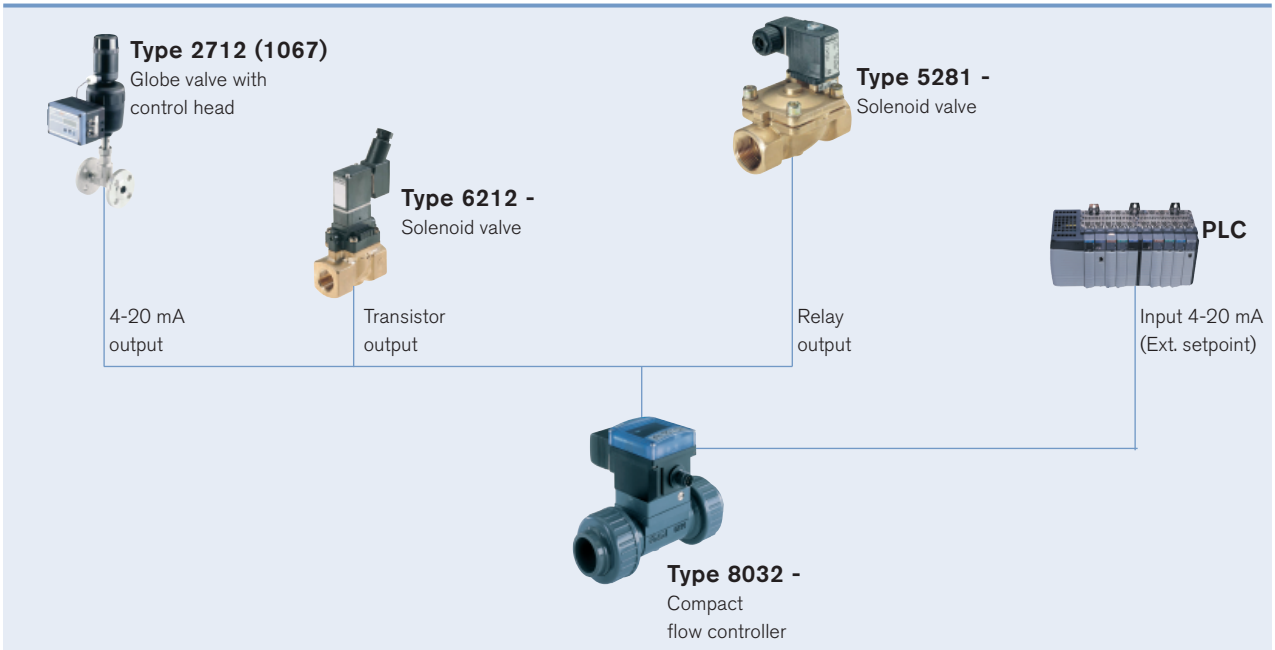
Ordering chart for accessories (to be ordered separately)

Description	Item no.
4-pin M12 male cable connector with plastic threaded locking ring, for remote version	448 856
4-pin M12 male connector moulded on cable (2 m, shielded), for remote version	448 857
5-pin M12 female cable connector with plastic threaded locking ring	917 116
5-pin M12 female connector moulded on cable (2 m, shielded)	438 680
8-pin M12 female cable connector with plastic threaded locking ring	444 799
8-pin M12 female connector moulded on cable (2 m, shielded)	444 800
Cable plug EN 175301-803 with cable gland (Type 2508)	438 811
Cable plug EN 175301-803 with NPT1/2 " reduction without cable gland (Type 2509)	162 673

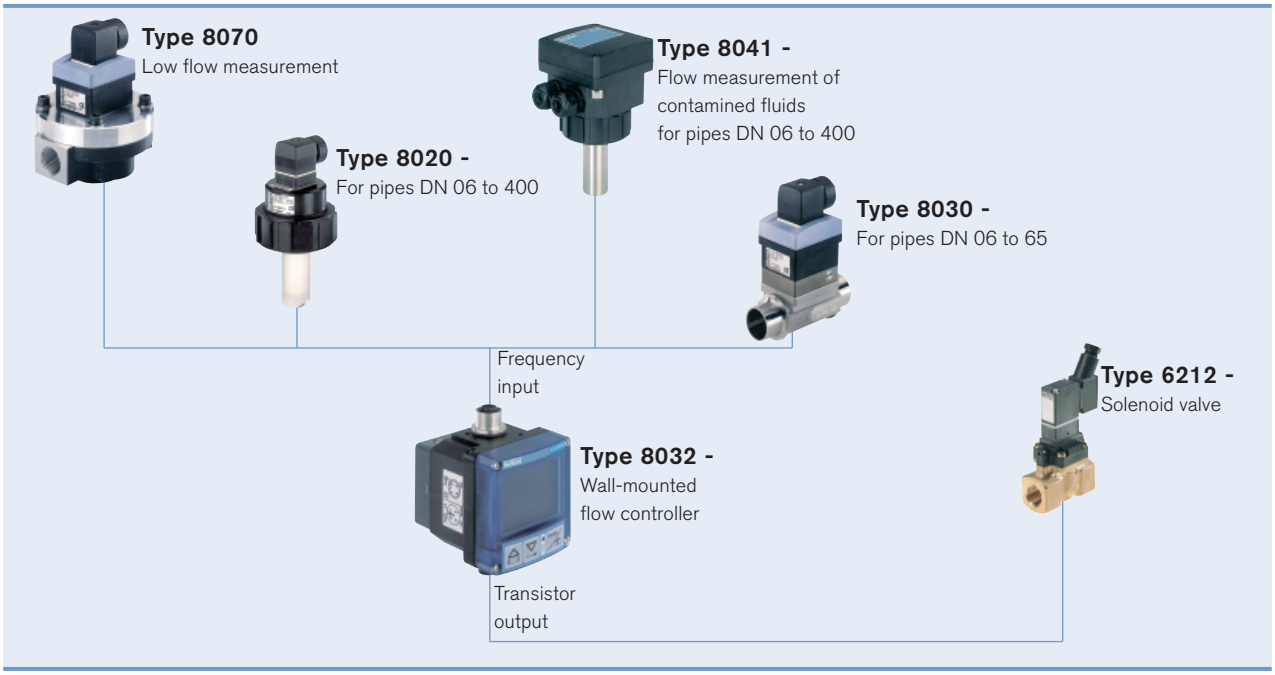
DTS 1000011084 EN Version: L Status: RL (released I freigegeben I validé) printed: 02.06.2009

Interconnection possibilities with other Bürkert products

Compact flow controller



Wall-mounted flow controller



DTS 1000011084 EN Version: L Status: RL (released I freigegeben I validé) printed: 02.06.2009