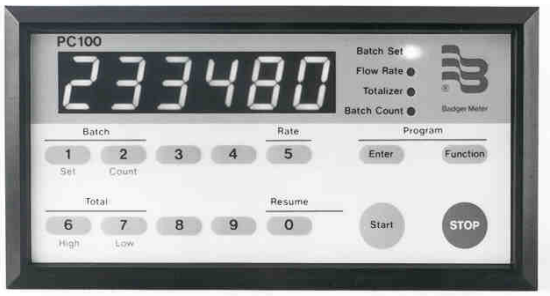
Badger Meter Europa

PC 100 / PX 100 / PD 100
Flow and Batching Control System

Automation of fluid handling, flow meter with control functions,
batch controller with flow monitoring, stand alone or computer guided process control,
explosion proof models EExd



System description

The models PC 100, PX 100 and PD 100 are user programmable controlling systems for the evaluation of flow mea-rements. They are determined for use in combination with pulse transmitting flow meters and flow transmitters.

The PC 100 supplies the pulse generator with the nessecary operating power and processes pulses. While the PX 100 generates intrinsically safe transmitter supply, it is not explosion proof itself (mounting in safe area). The PD 100 is additionally explosion proof and due to this can therefore be mounted in zone 1.

Incoming pulses are scaled (i.e. multiplied by a factor corresponding to the flow meter) and counted. Both a resettable totalizer and a preset counter are available. Additionally, the system provides a highly accurate time base, which allows instantaneous calculation and display of the flow in any desired measuring unit. A time fail safe controls for signal loss as well as flow is controlled for min/max alarm.

The preset counter controls connected units (pumps, valves) accordingly (one-stage, two-stage, time-delay). In case of repeated batches, an auto-adjust feature will compensate automatically for possible over or under batching, as for instance possible during valve shut down overruns.

The preset counter counts at choice up or down. The batch cycle can be repeated automatically – included fixed or remote controled breaks. A third counter records the numbers of batches, which can also be preselected. Different signal outputs (relays, transistors) and a computer interface are also available. Remote control is possible for several key parameters.
It is possible to install the PC 100 either directly on the measuring unit, or panel or wall mounted. The PX 100 can only be panel or wall mounted. The PX 110 is wall mounted in its explosion proof housing.
An analog output is optional. Badger Meter offers pulse transmitters with an additional 4 - 20 mA output. This results in higher accuracy.

Badger Meter Europa GmbH - Nürtinger Strasse 76 - 72639 Neuffen (Germany)
Tel. +49-7025-9208-0 Fax +49-7025-9208-15 www.badgermeter.de E-mail:badger@badgermeter.de

Application

The systems PC 100, PX 100 and 110 are best suited for comfortable batching systems, flow control units and flow indicators. In very complex applications, it is possible to cascade several separate units or to connect them all to one central computer. A typical application example would be computer controlled dispensing.

One unit alone can not only facilitate manual batching, but also repeat batch jobs automatically. Example: 12 container need to be filled with 280 l of a liquid. The flow is between 70 and 90 l/min, depending on the pump. The PC 100 can now either be programmed to repeat batching of 280 l 12 times, with a fixed break in between, or so that each batching cycle is started via remote control after the containers have been changed. After filling of the 12th container, the PC 100 will either give an acoustic or optical signal. In addition, signal loss and flow range are controlled. You will find further application examples in our operating instruction manual.

Programming

Approx. 50 functions are field programmable. Details are included in the comprehensive instruction manual, (approx. 50 pages). Shipment is made with standard program or already programmed to users specifications. A program disable (key lockable) feature helps to avoid unwanted manipulations.

Technical data

Power input	:	220 V, 50 Hz, 16 VA, 11-16 VDC
Environment conditions		
Operating temperature	:	0 °C – 55 °C
Storage temperature	:	- 40 °C – 70 °C
Humidity	:	85 % relative, non condensing
Dimensions	:	see dimensional drawings
Weight	:	approx. 1 kg
Housing material	:	High impendance plastics
Front panel	:	Polyester, IP 65 protection
Memory	:	PROM.RAM, non-volatile NVRAM with self diagnostic capability
Display	:	6-digit, 7 segment, 15 mm high red LEDs
Key pad	:	10-digits and 10 command keys

Inputs

AC power	:	HIGH state: greater than 11,5 V; LOW state: less than 2, 5 V 6,8 K ohm pull down from 15 +/-1 V, max 20 mA, 3 mA steady state. Max. frequency of 2 Khz.
With DC power	:	HIGH state greater than supply voltage less 4 V; LOW stat less than 2,5 V 6,8 K ohm pull down from DC supply, 20 m A peak, 3 mA steady state, max. frequenzy of 2 Khz.
Control inputs	:	Momentary switches to DC common or TTL compatible logic input.

Outputs

2 relays form C; max. load 120/240 VAC, 28 V DC; at 5 A resistive, 1,5 A at 80 % power factor.

5 transistors	:	open collector
Load voltage	:	30 VDC max.
Load current	:	300 mA max.

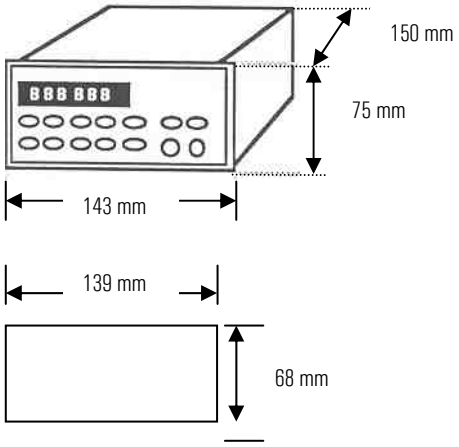
Five transistor outputs, two connected to output relays and two for external relays can be selected for batch and prewarn. Fifth transistor output can be programmed for either end of batch pulse, hi and lo alarm or scaled pulse output. Pulse output duration selectable at 1 ms or 15 ms. End of batch pulse signal 100 ms. Flow rate alarm output permanent or recoverable (selectable).

Counters/presets/controls

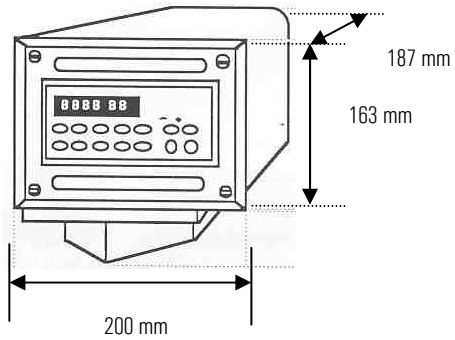
Totalizer	:	10-digits, resettable
Preset	:	Batch 6-digit programmable, batch prewarn independent of count direction, with programmable timeout of up to 99 seconds.
Cycles	:	6-digit programmable and resettable
Scale factor (pulse multiplier)	:	0.0001 to 1.9999
Rate of flow	:	6-digit time base, hi & lo output presets, 3 decimal point positions.

Computer communications

Interface	:	Dual port 20 mA-current loop
Speed	:	110, 300 or 1200 Baud rate
Data type	:	ASCII code
Format	:	Start bit, 7 ASCII data bits, even parity bit, 1 or 2 stop bits
Information transmitted	:	Batch status, batch preset, prewarn preset, flow rate, hi & lo rate preset, totalizer, scale factor, cycle preset and cycle count.
Information received	:	Batch preset, prewarn preset, cycle preset, hi & lo preset, scale factor, start, stop, resume and print.



PC 100



PC 120

PD 110

PC 120

Ordering information

	P -	.....	- 1 -	.....	-	.....
Non hazardous applications only		C		.		.
US explosion proof model - CSA		U		.		.
Intrinsically safe transmitter supply		X		.		.
(EEx (ia) II C)				.		.
Explosion proof housing		D		.		.
(EEx d II B T 6)		.		.		.
		.		.		
Panel mount housing				0		.
Wall mount enclosure		.		1		.
Meter mount housing		.		2		.
		.		.		.
Without analog output		.		.		0
Analog output 4 – 20 mA		.		.		1

P -	.....	- 1 -	.....	-	.....

A list of all possible combinations is contained in our price list.