



BATCH CONTROLLER

MODEL EL 1810

GENERAL SPECIFICATION
GS.No.GEB308E-6

■ GENERAL

Containing all the necessary functions required for batch operations to meet today's increasingly diversified needs, the compact, lightweight Batch Controller Model EL1810 is built around a single-chip microprocessor.

When combined with a flowmeter and shutoff valve, it offers the application engineer a design flexibility to build a highly sophisticated automated flowmetering system, which will save time and effort in blending, preparing, and shipping processes in the food, paint, and chemical industries, or in many other production lines.

■ FEATURES

1. Easy to operate:

Touch select buttons in the front ensures easy and positive operation.

2. Precise batch control:

With 2-step open/close valve outputs, ideal batch operation is attainable.

3. Simple system design:

Simplified batch control system provides batch end output for interlocking of another system.

4. Increased process safety

- 1) The valve opens and closes in two steps (controlled initial and final flow velocity). This arrangement prevents static electricity buildup in the piping assembly or in the tank at startup of operation and eliminates water hammer that could otherwise give



shocks to the piping assembly

- .2) A missing pulse detection circuit incorporated signals an alarm when the absence of pulse generation is detected.

5. High reliability and easy maintenance

- 1) All major circuits are modularized on the printed circuit board for increased dependability and accessibility.
- 2) Photodiodes isolate input and output circuits to eliminate problems associated with noise pickup.
- 3) Safeguards against power cycling: an EEPROM retains variables and parameters.

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■ GENERAL SPECIFICATIONS

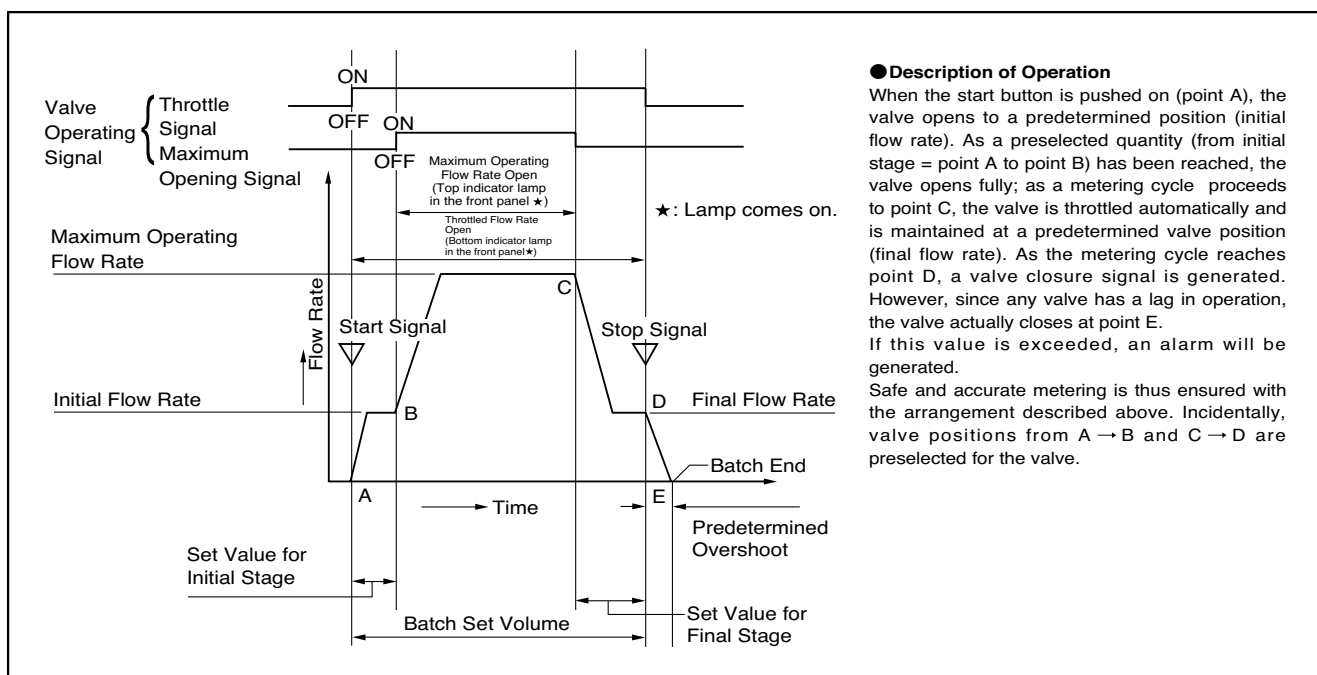
Item			Description				
Principle of Operation			Pulse addition				
Display			7 segment, 8-digit LCD ×2 (alphanumerics LCD 1:7mm high, LCD 2:12.7mm high)				
Batch Total Reading			LCD 2 shows a max. of 8digits (resettable with RESET button) Batch setting up to 6 digits				
Grand Total Flow Reading			LCD 1 shows 8 digit				
Operating Status Indicators			RUN, SV, MV, END, TC, ALM : LCD Segments light. OPE(Green) , SET(Orange) , STOP(Red) : LED light.				
Input Signal	Flowrate Input	Pulse Generator		Power to Generator		Signal Levels	Freq. Response
		Contact-Closure Pulse	PG20	13.5VDC	Short-current current 55mA	13.5VDC ON/OFF (Input load resistance)	50Hz max.
		2-wire Open Collector pulse	Coliolis Flowmeter				Input pulse frequency reduction 1/10 2kHz 1/100 3kHz
		3-wire Open Collector pulse	Flowpet-5G, NPG60A(E3)			[1] : 5VDC min. [0] : 1.5VDC max.	
		Voltage Pulse	PG30, NPG60A(F) Coliolis Flowmeter	[1] : 20mADC [0] : 4mADC (Input load resistance)			
	Remote	Current Pulse	PA14, 15, 25, ULTRA OVAL NPG60A(E)		24VDC		
		Start	Instantaneous make, Form “a” contact		Contact-closure signal or open collector signal Contact current : 10mA max. at 15VDC Instant. signal width : 1sec. Note: Provide at least 2 seconds between individual signals.		
		Stop	Instantaneous make, Form “a” contact				
	Reset	Instantaneous break, Form “b” contact					
	Parameter Setting	Batch Setting		Any setting from 0 to 999999 counts Established by front-panel keys (in the batch setup mode “RUN”)			
Grand Total Count		Any setting from 00000000 to 99999999 counts Established by front-panel keys (in the setup mode “SET”)					
Initial- and Final-count		Any setting from 0 to 999 counts (default:80) Established by front-panel keys When set at “0” the valve opens and closes in a single step (in the setup mode “SET”).					
Missing Pulse		Any setting from 0 to 15 sec. (default 10 sec.) Established by front-panel keys When set at “0” no alarm will be indicated (in the setup mode “SET”).					
Overshoot		Any setting from 0 to 99 counts (default 10) Established by front-panel keys When set at “0” no alarm will be indicated (in the setup mode “SET”).					
Scaler		Any setting from 0.0001 to 1.9999 counts (default 10000) Established by front-panel keys (in the setup mode “RUN”)					
Frequency Division		Software frequency division ; 0: 1/1, 1: 1/10, 2: 1/100 One chosen with front-panel keys (in the setup mode “SET”) Hardware frequency division ; 1/1, 1/10, 1/100 One chosen with internal jumper (in the setup mode “SET”)					
Output Signal	Valve Operate Signal	Partial flow signal (SV)	Holds from a batch start to a batch stop. “SV” area in the LCD lights.		Relay contact output (Form “c” contact) Contact capacity: 250V AC 1A one set each		
		Upper-limit flow signal (MV)	Holds from the end of initial partial flow to the start of final partial flow. · “MV” area in the LCD lights.				
	End-of-Batch Output		Holds when the target batch setpoint is reached. “END” area in the LCD lights. (Resettable with RESET key.)		Non-contact relay output (Form “a” contact) Contact capacity: 250V AC/DC 0.15A one set each		
	Output to Remote Totalizer		Pulse width: 1ms (default) or 50ms “TC” area in the LCD blinks in response to the output.				
	Alarm Output	① Missing pulse	Operates when no pulse is accepted within preset time. “ALM” area in the LCD lights. (Resettable with STOP key.)		Relay contact output (Form “a” contact) Contact capacity: 250V AC 1A An alarm output is produced when any of alarms ①,②,or ③ has occurred.		
		② Overshoot	Operates when both target batch and this setting are exceeded “ALM” area in the LCD lights. (Resettable with RESET button.)				
		③ Parameter error	Operates when an error in parameter settings is found. A message “DATA Err” appears. (Resettable with RESET key.)				
Power Failure Backup			Parameters and variables retained in EEPROM when power is interrupted.				
Power Supply			85 to 264VAC 50/60Hz				
Power Consumption			18VA Max. 25VA 10W Max.				
Ambient Temperature			-10 to +50℃				
Installation			Panel mount				
Finish			Munsell N1.5 (Std.)				
Outline Dimensions			96×96×170 (mm)				
Mass			1.0 kg approx.				

CAUTION: A surge suppressor is built in: do not make insulation resistance test and dielectric strength test across power terminals.

The instrument is designed to be installed indoors. Select an installation site where:

- (1) Mechanical vibration, shock and corrosive gases least exist.
- (2) The air is dry and at around room temperature and stable.
- (3) Free from direct sunlight.

■ OPERATION TIME CHART



■ MODEL CODE NUMBER

ITEM	Product Code						Supplementary Code							Description
	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	
Model	E	L	1	8	1	0	-							Batch Controller
Power Supply							7							85 to 264V AC 50/60Hz
Input signal							4							4/20mA DC current pulse
							7							Open-collector pulse, voltage pulse
							9							Other than above
Action mode							1							Addition: Counts up from 0
Additional Function I							1							Alarm output
Additional Function II							5							Totalizer output + End output
							9							Other than above
Finish of Frame											1			Munsell N1.5 (Std.)
Version												C		

■ TERMINAL CONNECTIONS

Terminal No.	Symbol	Description
1	SUP.	Open collector (2-wire) or Contact
2	SIG. FLOW SIG. INPUT	Current pulse (PA14, 15, 25 NPG60A(E))
3	COM.	Open collector Pulse (3 wire) Voltage pulse (PG30, NPG60A(F), 60A(E3), Flowpet-NX)
4	TOTAL COUNT OUTPUT	Non-contact relay output, set of "a" contact Capacity: 250V AC/DC, 0.15A Pulse width: 1ms (std) or 50ms
5		
6	L 1 POWER SUPPLY	85 to 264V AC 50/60Hz
7	L 2	
8	Earth	
9	BATCH END OUTPUT	Non-contact relay output, set of "a" contact Capacity: 250V AC/DC, 0.15A
10		
11	VALVE OPERATION SIGNAL(SV)	Controlled flow signal (SV): Initial flow open signal Relay contact output: One set of "C" contact Contact capacity: 250VAC 1A
12		
13		
14	VALVE OPERATION SIGNAL(MV)	Full-flow signal (MV): Full open signal Relay contact output: One set of "C" contact Contact capacity: 250VAC 1A
15		
16		
17	START	"a" contact
18	RESET	"a" contact
19	STOP	"b" contact
20	COM.	START : "a" contact RESET : "a" contact STOP : "b" contact Short out terminals 19 and 20 when unused "STOP".
21	ALARM OUTPUT	Output of pulse missing or overrun Relay contact output: One set of "a" contact Capacity: 250V AC, 1A
22		

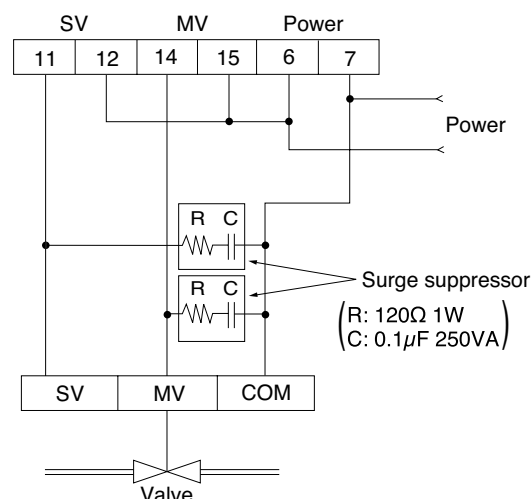
■ PLEASE SUPPLY THE FOLLOWING INFORMATION WHEN YOU INQUIRE.

- Model No. EL 181
- Companion flowmeter mod
- Type of pulse generat
Unit of pulses generated
- Companion valve type, mod
- System block diagram and a sketch of installation locati
- The setting of various set point
The case without the appointment sets it in a standard value and delivers in particular it.

■ TERMINAL IDENTIFICATION LABEL

EL1810 TERMINAL			
1 SUP.	FLOW SIG. INPUT	17 START	9 BATCH END OUTPUT
2 SIG.		18 RESET	10
3 COM.		19 STOP	11 a VALVE OPERATION SIGNAL (SV)
4 TOTAL COUNT OUTPUT	REMOTE CONTROL INPUT	20 COM.	12 c
5		21 ALARM OUTPUT	13 b
6 L 1 POWER SUPPLY		22	14 a VALVE OPERATION SIGNAL (MV)
7 L 2			15 c
8 GND			16 b

●For contact point protection, install a surge suppressor as shown in the diagram below.



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