OPERATOR'S MANUAL 67161-( )

INCLUDING: OPERATION, INSTALLATION & MAINTENANCE

RELEASED: 1-23-98
REVISED: 1-6-11
(REV. B)

BATCH CONTROLLER
(FOR DIAPHRAGM PUMPS)

SYSTEM DESCRIPTION

Batching

The Aro Mini-Batcher opens a valve when the "start" button is pressed, allowing fluid to flow through a measuring device. The unit reads the pulses from the measuring device and closes the valve when the predetermined amount of fluid has passed.

Prewarn

Relay "B" may be used for a prewarn signal to indicate when the end of the batch is approaching. Relay "A" may control a low flow valve and relay "B" a high flow valve to dispense fluid rapidly until a certain point where the high flow valve closes and allows the batch to finish slowly, assuring accuracy.

Ratemeter and Totalizer

At any time during the batching process, the transfer rate of the fluid, the total amount of fluid dispensed or the total number of batches delivered may be viewed. The rate may be displayed in units per hour, minute or second. The totalizer may be reset at any time using the "reset / stop" key.

Lock

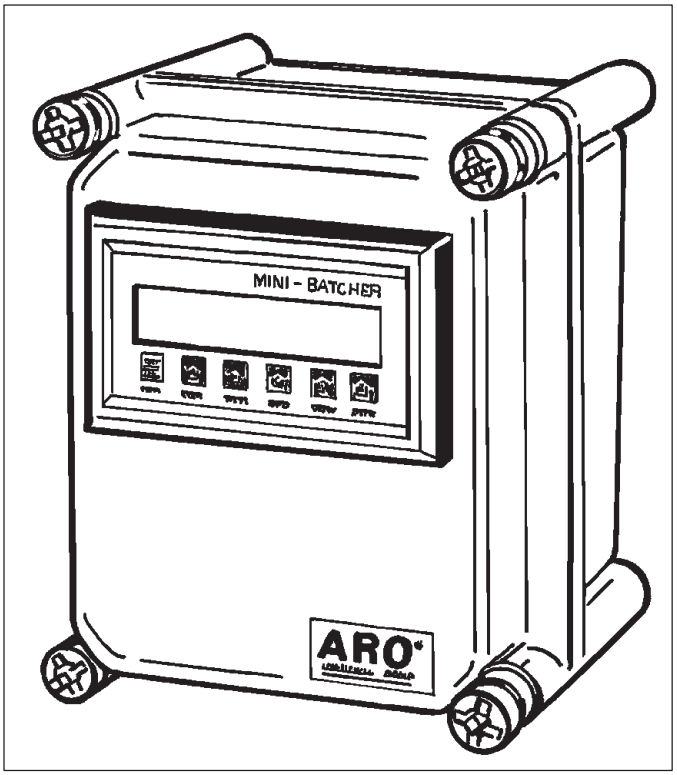
The program for the Mini-Batcher may be locked by code in two different modes. "LOCK PROG" mode allows only the preset value to be changed during operation, while the "start" and "stop" buttons function normally. The "LOCK ALL" mode does not allow any changes to the program to be made, though the preset value may be viewed and the "start" and "stop" buttons function normally.

Counting

Pulses to the Mini-Batcher for recording the amount of fluid dispensed may be generated several ways. If a commercial flowmeter is used, it must have a pulse output and the "high cycles" setting must be used on the meter. An Aro diaphragm or piston pump with a cycle counter may also be used with the meter on the "low cycles" setting. Discharge volumes per cycle for various Aro pumps can be found later in this document. Any type of proximity switch may also be used to generate the pulsed output required by the unit.

Power Requirements

The standard Mini-Batcher may be powered by either 110 VAC or 12 – 15 VDC for maximum installation flexibility. Other voltages are also available.



SPECIFICATIONS

Model Number	67161-1	standard
	67161-2	front panel pushbuttons
Input Power		110 VAC @ 6.5 VA
	or	12 - 15 VDC @ 3.75 W
Output Power		12 VDC @ 50 mA①
Input Levels	ON:	4 - 30 VDC
	OFF:	0 - 1 VDC
Relays		(2) Normally Open 10 A @ 240 VAC
Display		6 Digit, .55" LED
Operating Temperature		32° - 130°F (0° - 54°C)
Maximum Humidity		90% Noncondensing
Enclosure		U.L. Listed Type 4

① This output power should only be used for counters, meters or other minimal current draw devices.

INGERSOLL RAND COMPANY LTD
209 NORTH MAIN STREET – BRYAN, OHIO 43506
(800) 495-0276 • FAX(800) 892-6276

www.ingersollrandproducts.com

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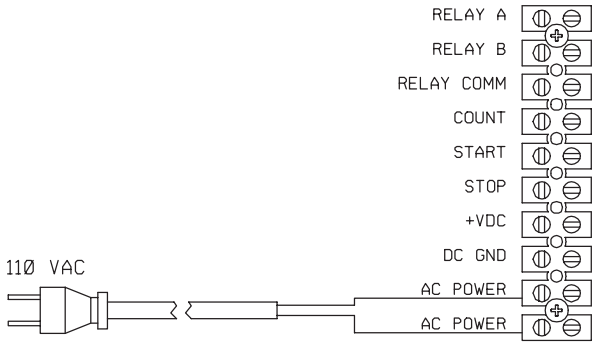
WIRING

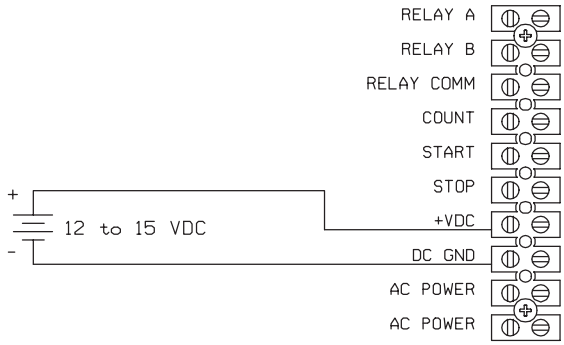
All of the wiring connections in the Mini–Batcher are made at the terminal strip located at the back of the unit.

Power to the unit

AC POWER

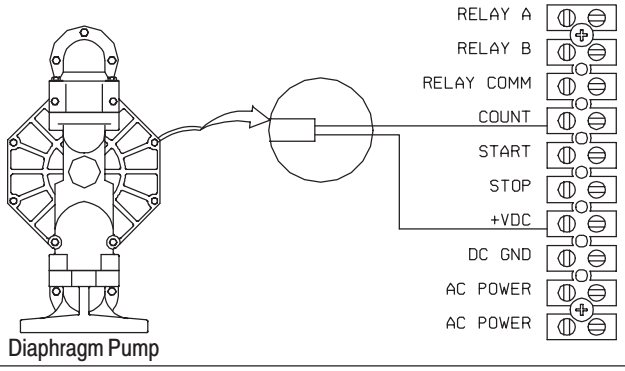


DC POWER

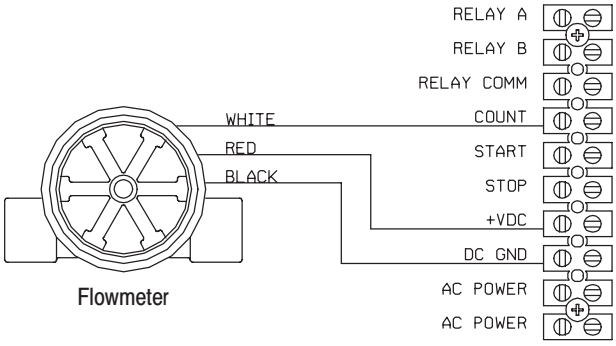


Wiring the Count Input

DIAPHRAGM PUMP WITH CYCLE COUNTER

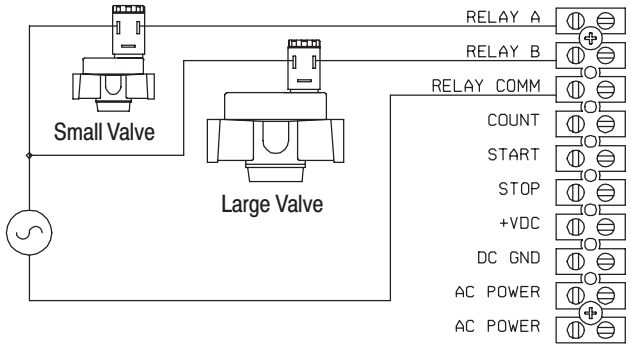


3 - WIRE DEVICES (FLOWMETERS, ETC.)

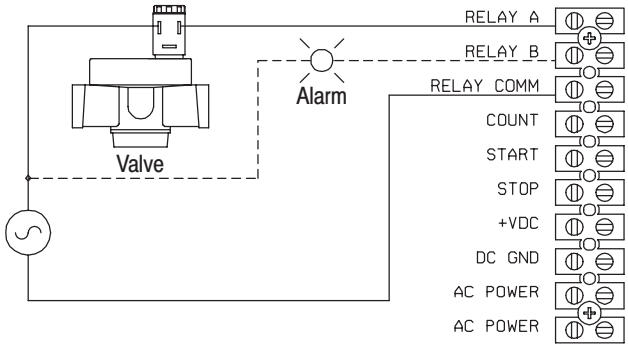


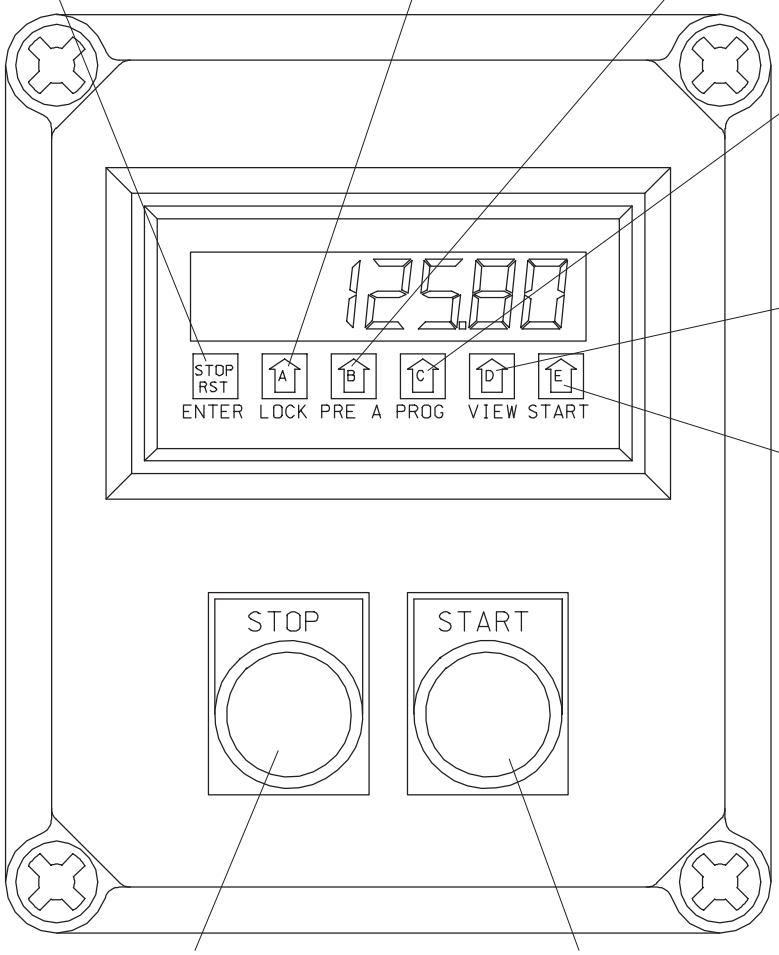
Using Outputs

2 - STAGE FLOW



STANDARD FLOW WITH OPTIONAL ALARM





Press to enter a value in programming mode. (May also be used to "stop" or "reset" in run mode)

Press to enter lock code to toggle "on" or "off".

Press to view or change "preset A".

Press to cycle through "program" choices.

Press to view " A" total, "B" total, or "rate".

May be used to "start" in run mode.

Press once if batch is running to "pause" and again to "reset".

Press once if batch is not running to "reset".

Press to "start" a batching operation if unit is "reset".

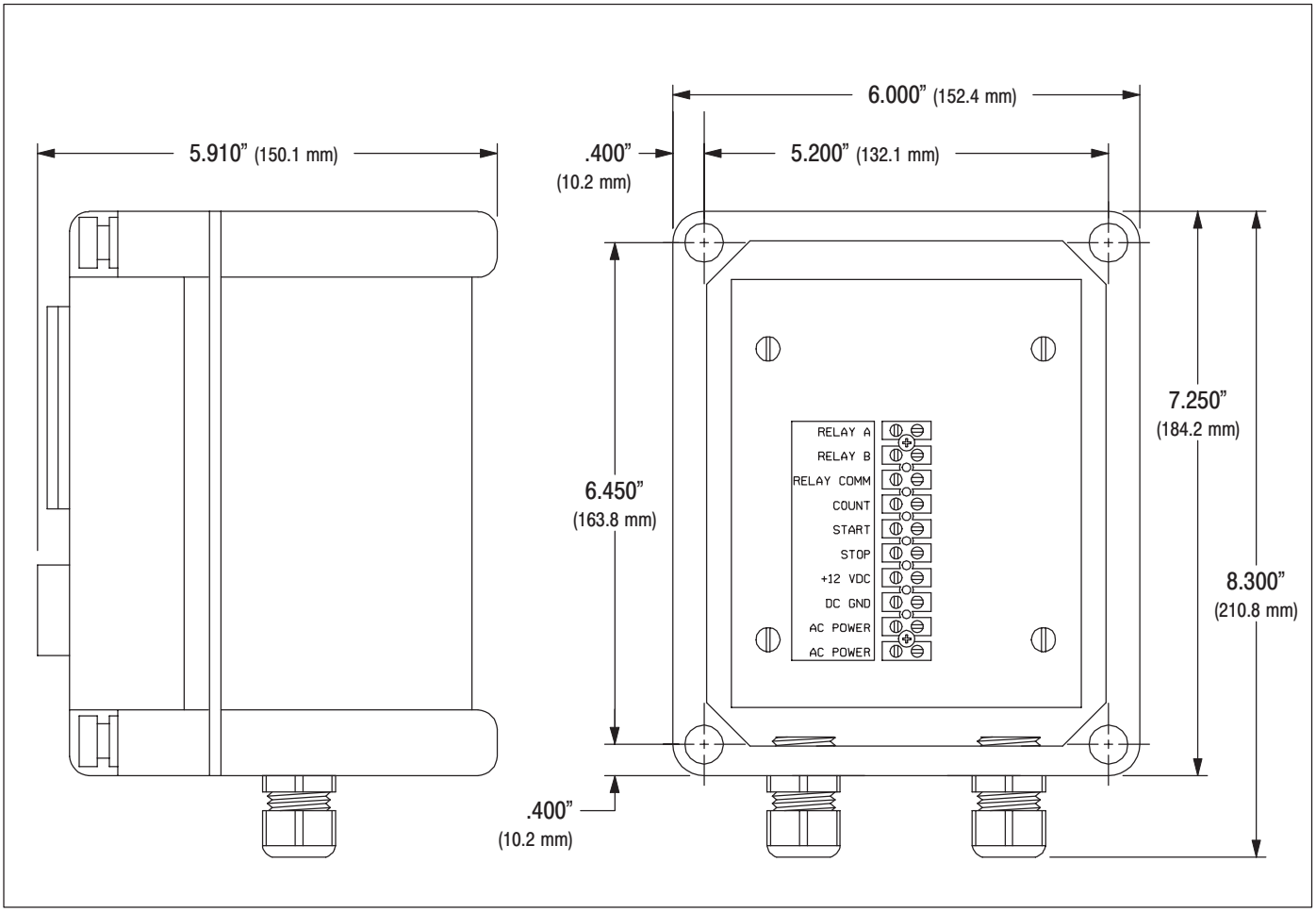
Press to "resume" a batching operation if one is "paused".

	PRESS	DISPLAY	REMARKS
STEP 1 SETTING PRESET B		PrEb	This section of the menu is used to set Preset B value.
	PROG		
		#####	This is Preset B. To change, press the arrow key under the digit(s) to change. Press "enter" to enter the displayed value.
	ENTER		
STEP 2 SETTING SCALING FACTOR		PrEb	
	PROG		
		FACtor	This section of the menu is used to set up the scaling factor for the count input.
	PROG		
		dP FAC	This sets the decimal for factor A. Press the arrow key under the digit where the decimal is desired. To clear the decimal, press the arrow key furthest to the right.
	ENTER		
		#####	This is the scaling factor for the count input. To change, press the arrow key under the digit(s) to change. Press "enter" to enter the displayed value.
	ENTER		
STEP 3 SETTING THE COUNTER		PrEb	
	PROG		
		FACtor	
	PROG		
		Count	This section of the menu sets up the counter information.
	PROG		
		rSt0 or SEtPr	Press the "PROG" key to choose "RST 0" (reset to 0, count up) or "SET PR" (set to preset, count down), press the "enter" key to enter the displayed choice.
	ENTER		
		dPLoC	This sets the decimal location for the "A" and "B" counters. Press the arrow key under the desired digit location. To clear the decimal, press the arrow key furthest to the right. Press the "enter" key to enter the displayed location.
	ENTER		
		grtot or batot	This section sets the second counter operation. Press the program key to choose "GR TOT" (grand total) or "BA TOT" (batch total). Press the "enter" key to enter the displayed choice.
	ENTER		
		Hi CPS or LoCPS	Press the "PROG" key to choose "HIGH CPS" (0 - 9.99 KHz) or "LOW CPS" (0 - 40 Hz). Press the "enter" key to enter the displayed choice.
	ENTER		

	PRESS	DISPLAY	REMARKS
STEP 4 SETTING THE RATE		PrEb	
	PROG	FACtor	
	PROG	Count	
	PROG	rAtE	This section of the menu is used to set up the rate information.
	PROG	SECS mnS or HourS	Press the "PROG" key to choose SECS (rate per second), minS (rate per minute) or HourS (rate per hour). Press "enter" to enter displayed choice.
	ENTER	nor ##	This sets the normalizing (averaging) factor. Press the arrow keys under the desired digits to change. Press "enter" to enter displayed value.
	ENTER	F, gur #	This sets the number of significant figures to be displayed. Press the arrow key under the digit to change. Press "enter" to enter displayed value.
	ENTER	dLY#.#	This sets the delay time (2 - 24 sec.) that the unit will "look" for valid input data before the display falls to "0". Press the arrow key under the digits to change. Press "enter" to enter displayed value.
STEP 5 SETTING LOCK		PrEb	
	PROG	FACtor	
	PROG	Count	
	PROG	rAtE	
	PROG	LoC	This section of the menu is used to set up the lockout type and code number.
	ENTER	LCPG or LCALL	LC PG = Locks program but presets and reset are accessible (see description). LC ALL = Locks all keypad buttons except "start", "stop" and "view". Press the "PROG" button to toggle between choices. Press "enter" to enter displayed choice.
	ENTER	CodE flashes followed by: #####	After "code" flashes, the display will show the existing lock code. To change the code, press the key under each digit to be changed. Press "enter" to enter displayed value. See the following to turn lock on or off.

	PRESS	DISPLAY	REMARKS
STEP 6 SETTING THE RELAYS		PrEb	
	PROG	FACtor	
	PROG	Count	
	PROG	rAtE	
	PROG	LoC	
	PROG	rELAY	This section sets up the relay information.
	ENTER	tot **or** PrEuu	Press the "PROG" key to choose "TOT" (relay B assigned to total) or "PREW" (relay B assigned to prewarn). Press "enter" when the desired choice is displayed.
	ENTER	b ##.##	This will only appear if "TOT" is selected. This is the duration (.01 – 99.99 seconds) that relay "B" will remain energized. If 00.00 is selected, the relay will latch until reset.
SETTING THE PRESETS	PRE A	PrEA **followed by last PRE A entered**	PRE A = Preset A (batch amount). The set point at which output "A" will drop out after started. If the displayed value is not the desired preset, press the key(s) under the digit to be changed.
	PROG	PrEb	PRE B = Preset B a) tot selected — The set point at which output "B" will energize. b) PrEw selected — The number of counts before batch ends that output "B" will drop out. If the displayed value is not the desired preset, press the key(s) under the digit to be changed.
SETTING THE LOCK STATUS	LOCK	CodE **flashes followed by:** 0	Key in the lock code (see programming step 4) by pressing the keys under the digits to be changed. Press the "enter" key to enter the displayed code.
	ENTER	LoC **or** unLoC	After the code is entered, the unit will display "LOC" (unit is locked) or "UN LOC" (unit is unlocked). This message will be displayed for approximately 3 seconds before the unit returns to the run mode.

DIMENSIONAL DATA



DISPLACEMENT PER CYCLE

						Specific Gravity = 1.000	
	Gallons	**Ounces**	**in.3**	**cc**	**Liters**	**Grams**	**Kg**
1/4" Non-Metallic	0.014	1.792	3.234	53	0.053	53	0.053
1/2" Non-Metallic	0.040	5.120	9.240	151	0.151	151	0.151
1" Non-Metallic	0.170	21.760	39.270	644	0.643	644	0.644
1" Metallic	0.160	20.480	36.960	606	0.606	606	0.606
1-1/2" Non-Metallic	0.720	92.160	166.320	2725	2.725	2725	2.725
1-1/2" Metallic	0.730	93.440	168.630	2763	2.763	2763	2.763
2" Non-Metallic	0.720	92.160	166.320	2725	2.725	2725	2.725
2" Metallic Ball Valve	1.400	179.200	323.400	5300	5.299	5300	5.300
2" Metallic Flap Valve	1.400	179.200	323.400	5300	5.299	5300	5.300
3" Metallic	2.800	358.400	646.800	10,599	10.598	10,599	10.599

2 strokes per complete cycle – 1" metallic will displace 0.080 gallons per stroke.