

Model 300 Electronic Batch Controller/Totalizer

- Microprocessor based
- Totalizer
- Batch counter
- Moisture resistant sealed front panel
- 8 characters, 0.55 inch alphanumeric LED display
- Unscaled and factored outputs
- 2 set-points, PRESET and PREWARN
- Count rates to 20 kHz
- Panel lock out/enable
- Nonvolatile memory

DESCRIPTION

The Brodie Model 300 two-stage electronic Batch Controller is a microprocessor based panel mounted instrument designed to be used in conjunction with primary flow sensors which have a pulse or contact closure output. The main function of the unit is to provide indication and control of process batch size.

The Model 300 factors input pulses into engineering units and provides two control outputs at adjustable set-points. Both local and remote start-stop-reset functions are provided.

Selection of counter configurations (reset to zero, set to preset, and inventory totalization), as well as input scaling, preset levels, decimal locations, software selectable debounce settings and special security numbers are all entered on the sealed front key pad by following the displayed instructions.

PRINCIPLE OF OPERATION

The two-stage batch controller will accept a pulse-type signal or a contact closure as input. The control output consists of 2 DPDT, 115/230 Vac, 5 amp relay contacts. One relay actuates at prewarn (first stage). The second relay actuates at preset complete or end of batch. In addition to the control outputs, the Model 300 also provides a scaled output and a buffered (unfactored) output to drive other remote devices. Output voltages of 12 volts grounded and 12 volts isolated are provided to power external sensors and other peripheral devices.



SPECIFICATIONS

WARNING

Do not operate this instrument in excess of the specifications listed below. Failure to heed this warning can result in serious personal injury and/or damage to the equipment.

Accuracy

±1 count

Mode of Operation

Single or two-stage controller and/or totalizer

Temperature

Operating Temperature: +32°F to 131°F (0°C to +55°C)
Storage Temperature: -40°F to +158°F (-40°C to +70°C)

Power Requirements

Model 300-00-000-00: 115 Vac ±15% 50/60 Hz or 12 to 24 Vdc ±10%
Model 300-00-000-01: 230 Vac ±15% 50/60 Hz or 12 to 24 Vdc ±10%

Note: When DC power is used, no DC outputs are available.

Materials of Construction

Housing - High impact plastic case with moisture resistant front panel.

Dimensions

See Figure 2

Front Panel Controls (See Figure 1)

Indication - 8 character, alphanumeric LED's
Programmable decimal point location
Data Entry - 12 button numeric keypad

Controls - 4 multifunction push buttons. In the run mode, includes separate buttons for start, stop, reset and menu.

Scaling - K-factor is a four digit number entered in by scientific notation. The incoming pulses are divided by this K-factor to obtain the scaled quantity for display or output.

Range of K-factor selection:
0.100 E0 to (E0 equaling 10^0)
9.999 E5 inclusive (E5 equaling 10^5)
Total K-factor range: 0.100 to 999900.

Entry of K-factor is accomplished as illustrated in the following example:

Meter K-factor is 386.3
Enter: 3.863 E2 ($E2 = 10^2$)

Input Signals

Pulse - 0 to 20 kHz (For K-factors greater than 1.0); minimum pulse width 3 microseconds.

V_L 0 to 1.0 Vdc; V_h 3.0 to 30.0 Vdc

Contact Closure - 0 to 400 Hz internal switch, debounce keypad selectable

Output Signals

Power - 12 Vdc $\pm 5\%$ regulated, 100 mA (not available when operated with dc power)

Isolated 12 Vdc, 100 mA (not available when operated with dc power)

Relays - 2DPDT - one for PRESET and one for PREWARN. (115/230 Vac 5A contact ratings)

Open Collector

One each scaled (frequency same as indicator batch count)

One each unscaled (same as input frequency)

Both outputs sink up to 100 mA at 30V

Remote reset, start and stop

Rear terminal connections (active high)

External Connections

All power, input and output connections are rear panel terminals. See Figure 3.

Shipping Weights

3.0 lbs. (1.36 kg.)

ORDERING INFORMATION

To order, please specify:

1. Model 300-00-000-00 (115 Vac $\pm 15\%$ 50/60 Hz) or 12 to 24 Vdc $\pm 10\%$
2. Model 300-00-000-01 (230 Vac $\pm 15\%$ 50/60 Hz) or 12 to 24 Vdc $\pm 10\%$

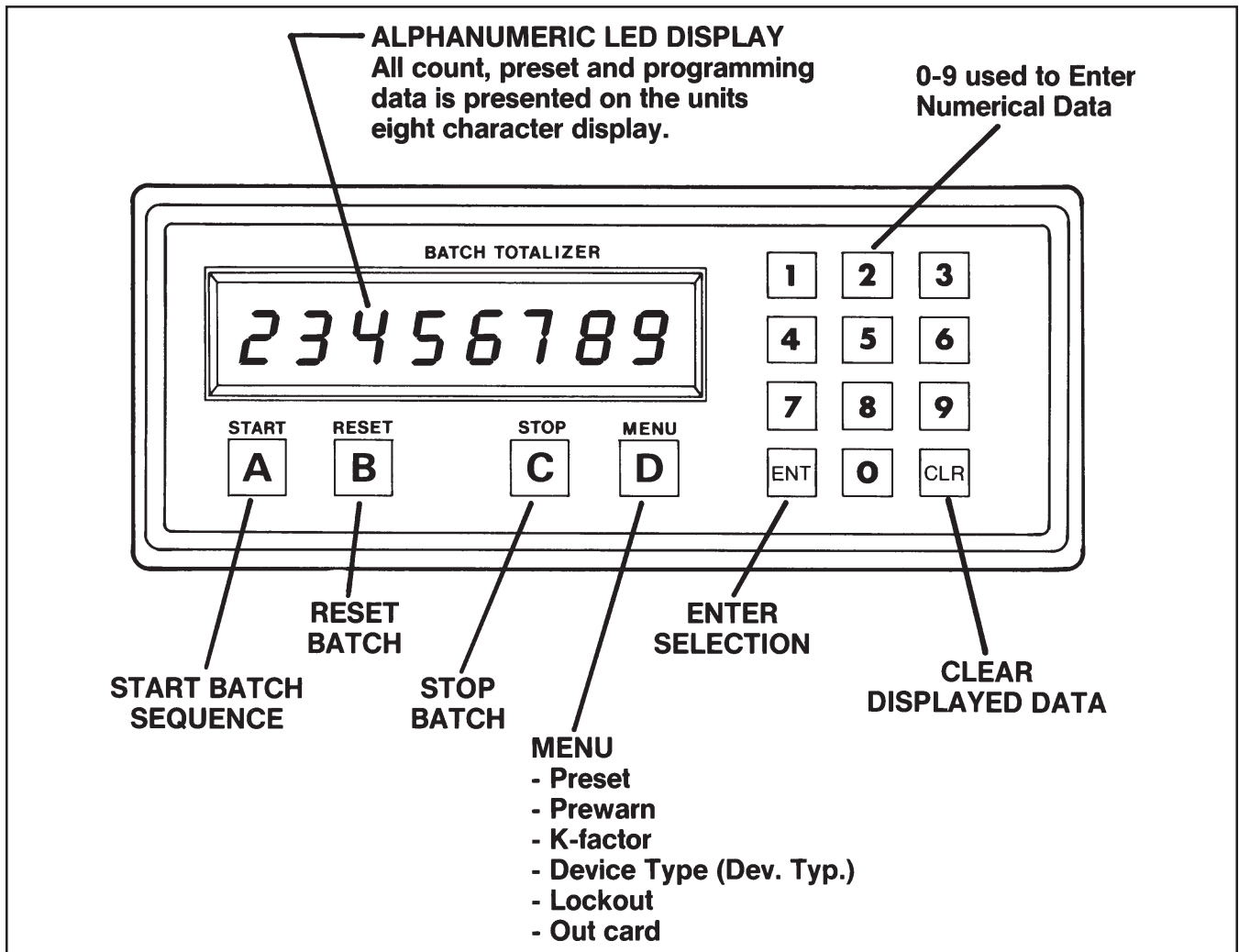


Figure 1 Keypad and Front Panel Functions

Dimensions are in inches (mm)

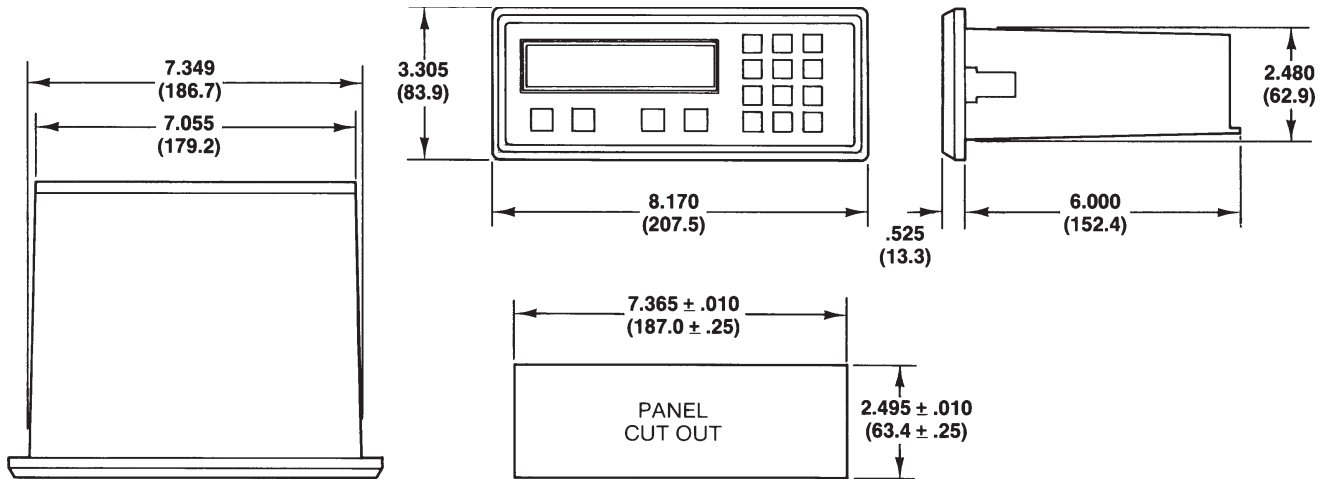
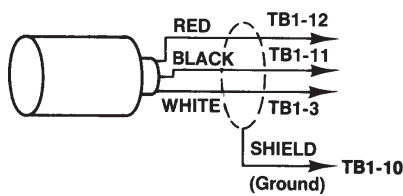
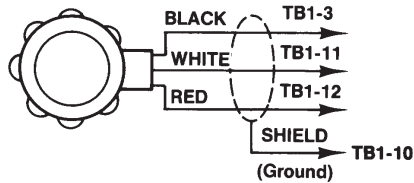


Figure 2 Dimensions (For certified dimension prints, contact factory)

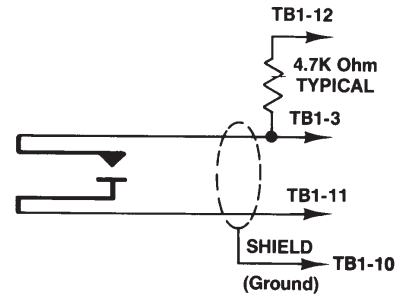
TYPICAL WIRING CONNECTIONS



HFPG
(High Frequency Pulse Generator)

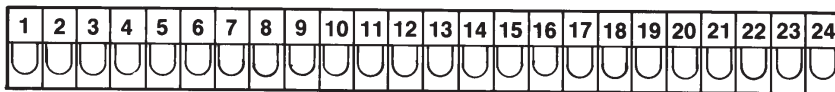


7671
Pulser



Contact Closure

UNIT TERMINAL CONNECTIONS



TB-1

- | | |
|------------------|-------------------------------|
| 1. START INPUT | 13. DC POWER IN |
| 2. GROUND | 14. ISOLATED -12 VOLTS OUT |
| 3. COUNT INPUT | 15. ISOLATED +12 VOLTS OUT |
| 4. RESET INPUT | 16. AC GROUND |
| 5. STOP INPUT | 17. AC INPUT |
| 6. SCALED OUTPUT | 18. AC INPUT |
| 7. BUFFER OUTPUT | 19. NO CONNECTION |
| 8. NOT USED | 20. PREWARN NORMALLY CLOSED 1 |
| 9. GROUND | 21. PREWARN COMMON 1 |
| 10. GROUND | 22. PREWARN NORMALLY OPEN 1 |
| 11. GROUND | 23. PREWARN NORMALLY CLOSED 2 |
| 12. 12 VOLTS OUT | 24. PREWARN COMMON 2 |



TB-2

1. PREWARN NORMALLY OPEN 2
2. PRESET NORMALLY CLOSED 1
3. PRESET COMMON 1
4. PRESET NORMALLY OPEN 1
5. PRESET NORMALLY CLOSED 2
6. PRESET COMMON 2
7. PRESET NORMALLY OPEN 2

Figure 3 Typical Wiring Connections and Unit Terminal Connections

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