

Balcrank[®]

In-Line Electronic Control Handle

Model # 3330-142
Rigid Extension

Model # 3330-144
Flex 90 Extension

Model # 3330-143
Flex Extension
(shown)


Model # 3120-067
In-Line Meter
(shown)




Thoroughly read and understand this manual before
installing, operating or servicing this equipment.


Operation, Installation,
Maintenance and Repair Guide


GENERAL SAFETY


 **Caution:**
 1) Always read and follow the fluid manufacturers's recommendations regarding the use of protective eye wear, clothing, gloves, and other personal equipment.
 2) Never alter or modify any parts of this product; doing so may cause damage and/or personal injury.

 **IMPORTANT**
 Read these safety warnings and instructions in this manual completely, before installation and start up of the control handle. It is the responsibility of the purchaser to retain this manual for reference. Failure to comply with the recommendations stated in this manual will damage the control handle and void factory warranty.

 **WARNING**
DANGER: Not for use with fluids that have a flash point below 100°F (38°C, examples: gasoline, alcohol). Sparking could result in an explosion which could result in death.

 **WARNING**
 Always use the following Pressure Relief Procedure whenever shutting off, cleaning, or in any way checking or servicing the control handle:
 1) Disconnect compressed air line or turn off power supply at the fluid pump.
 2) Point the control handle outlet into a waste container and open trigger to relieve pressure.
 3) Open any bleed-type supply air valves and fluid drain valves in the system.
 4) Leave the drain valves open until you are ready to re-pressurize the system.

 **WARNING**
 Do not place your hand or fingers over the dispensing nozzle and/or aim the nozzle at a person at any time. Personal injury may result.

 **WARNING**
 Airborne particles and loud noise hazards.
 Wear ear and eye protection.


 **CAUTION**
Maximum Fluid Pressure 1000 PSI. Under no circumstances should the control handle be aimed at any person or your own body at anytime. Personal injury may result.

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PRODUCT DESCRIPTION

The In-Line Electronic Control Handle is designed specifically to dispense motor oils, automatic transmission fluid, antifreeze (Glycol) and antifreeze/water solution. Perfect balance, lightweight, ruggedness, and comfortable grip make it the best choice for overhead reel systems.

The electronic register module can be programmed to dispense in pints, quarts, liters, or gallons and will totalize in liters or gallons. A calibration factor and unit of measure are programmed during factory test. A 5-digit liquid crystal display, accurate to the third decimal place, shows the exact amount of fluid dispensed.

TECHNICAL SPECIFICATIONS

Accuracy (after field calibration).....	+/- 0.5%
Flow range.....	0.25 - 7 Gal/min.
Max operating pressure.....	1000 psi
Weight (meter only).....	1.55 lbs
Inlet.....	1/2" NPT compatible
Outlet.....	1/2" NPT compatible
Operating Temp. Range.....	32°F - 140°F
Fluid compatibility.....	Oils (up to SAE 240), ATF, Antifreeze (Glycol), Antifreeze/ water solution

OPERATION

Depressing the Reset to zero button before each use resets the batch totalizer to zero. Squeeze the trigger handle to dispense the fluid. The re-settable totalizer is displayed when the reset to zero button is pressed. After approximately 5 seconds the non-resettable totalizer is displayed in the lower right. If the units dispensed are pints, quarts, or gallons, the totalizers will read in gallons. If the units dispensed are liters, the totalizers will read in liters.

DISPLAY FUNCTIONS

Calibr. Button

The Calibr. button is used to enter calibration mode as well as other functions described in the configuration and calibration sections of this service bulletin.

Reset to zero Button

The Reset to zero button is used to reset the Batch Total and to reset the re-settable total as well as other functions described in the configuration and calibration sections of this service bulletin.



MODES OF OPERATION

Normal mode is the standard dispensing mode. While the meter is counting, the batch and resettable totals are displayed at the same time (see Figure 3 below).

If one of the keys is accidentally pressed it has no effect on dispensing or the batch or resettable totals. A few seconds after dispensing is complete, the lower totalizer will switch from the resettable total to the non-resettable total. The word reset above the word total disappears, and the resettable total is replaced by the non-resettable total in the display (See Figure 4 below). This is called standby mode and remains on the display while the meter is not in use.

Figure 3

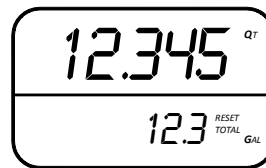
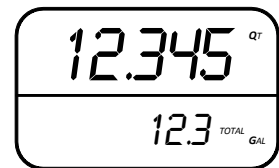


Figure 4



Batch Totalizer Reset

The batch totalizer can be reset by pressing the RESET to zero button when the meter is in standby mode, meaning when the the word "TOTAL" is in the display (See Figure 5 below).

Once the reset button has been pressed, all digits in the display will momentarily light up (See Figure 6 below) and then the display will blank out momentarily. When the display comes back on, the batch total and the resettable totals will be shown in the display (See Figure 7). After approximately 5 seconds the resettable total will revert to standby mode (See Figure 8).

Figure 5

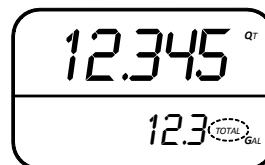


Figure 6

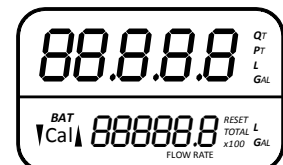


Figure 7



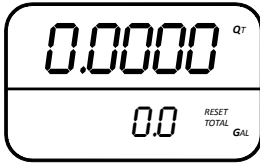
Figure 8



Resetting the Resettable Total

The resettable total can only be reset after resetting the batch totalizer. To reset the resettable total, press the RESET button once to reset the batch total. When the display comes back on (See Figure 7 above), press and hold the RESET button until all digits in the display light up then blank out momentarily. When the display re-illuminates, the resettable total will read 0.0 (See Figure 9).

Figure 9



CONFIGURATION - Unit of Measure

The meter has four possible combinations of units of measure that can be set based on the table below.

Batch Totalizer	Totals Register
Liters (L)	Liters (L)
Gallons (Gal)	Gallons (Gal)
Quarts (Qt)	Gallons (Gal)
Pints (Pt)	Gallons (Gal)

To change between these combinations, the meter must be in standby mode (See Figure 5). With the meter in standby mode, press and hold the RESET and CAL buttons simultaneously. The word "Unit" will appear in the display. You can then change the unit of measure by pressing the RESET button until the desired combination of units of measure is displayed. To save the new unit of measure, press and hold the CAL button. The meter will momentarily show all of the display digits lit up (See Figure 6), will go through its startup cycle then will go to standby mode.

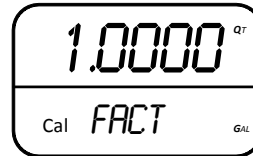


CALIBRATION

It is highly recommended to perform meter calibration before the first use of the meter. The meter allows for precise calibration by modifying the calibration factor (k factor).

To display the current k factor, press and hold the CAL button when the display is in standby mode and the current k factor will be displayed. If the k factor has never been modified, the factory k factor is displayed. If you are using the meter with the "factory k factor", the display will appear as shown (See Figure 11 below).

Figure 11



If the k factor has been modified, the word "USER" will appear in the display below the k factor (See Figure 12 below).

Figure 12



There are two ways to perform calibration of the meter:

- **Field** calibration, performed by dispensing while in "Field" calibration mode.
- **Direct** calibration, performed by directly modifying the calibration factor.




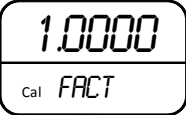


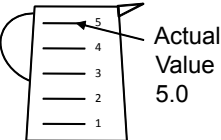
NOTE



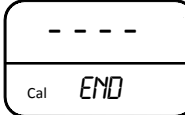
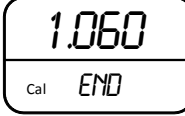
For proper calibration it is important to:

- completely eliminate air from the system
- use an accurate sample container not less than 5 quarts
- during calibration, ensure dispensing is done at a constant flow rate equivalent to normal dispensing until the container reaches the 5 quart mark. You may start and stop the flow but do not "trickle" flow
- after dispensing wait a short period to ensure any air bubbles have dissipated

Field Calibration

The table below lists the steps for Field calibration.

Action	Meter Display
1 Meter in standby mode	
2 Press & hold CAL button, current k factor is displayed. The words "FACT" and "USER" indicate which of the two factors is currently in use.	
3 Press & hold RESET button. Meter enters FIELD calibration mode.	
4 Dispense into sample container. Dispensing can be interrupted and started again at will. Continue dispensing until the level of the fluid in the sample container has reached the graduated area. There is no need to reach a preset quantity.	 Indicated value 

5	Press the RESET until an "up" arrow appears in the bottom left of the display. In the example, the meter value is below the actual value. Press the CAL button to adjust the meter value to match the actual value. You may either press & release the CAL button which will advance the meter value by one or press & hold the CAL button for more rapid adjustment.	
5	If the meter value is higher than the actual value, press & release the RESET button again and the "up" arrow will change to a "down" arrow. You can then use the CAL button to lower the meter value. If you go over (or under) the desired value while adjusting the meters k factor, press and release the RESET button again to change the arrow direction.	
6	Once the k factor has been adjusted to match the actual value, press and hold the RESET button to end calibration. This stores the new k factor, which will be displayed momentarily after which the meter will return to standby mode.	 

Direct Modification of k factor

Direct modification of the k factor is useful to correct a "mean error" based on several dispenses. If normal meter operation shows a mean percentage error, this can be corrected by applying a percentage correction factor to the current k factor. The percentage correction of the k factor must be calculated using the formula below:

$$\text{New k factor} = \text{Old k factor} \times \left(\frac{100 - E\%}{100} \right)$$

Example:

Error percentage found E% -0.9%

Current k factor 1,000

New User k factor $1,000 \times [(100 - (0.9))/100] =$

$1,000 \times [(100 + 0.9)/100] = 1,009$

If the meter indicates less than the actual amount dispensed (negative error), the new k factor must be higher than the old k factor as shown in the example. The opposite applies if the meter shows more than the actual amount dispensed (positive error).

The table below lists the steps for Direct modification of the k factor.

Action	Meter Display
1 Meter in standby mode	
2 Press & hold CAL button, current k factor is displayed	
3 Press & hold RESET button. Meter enters FIELD calibration mode.	
4 Press & hold the RESET button a second time. Meter enters DIRECT calibration mode. The current k factor is displayed & an "up" arrow appears in the lower left of the display. Press & release the CAL button to increase the k factor (negative error). If the k factor needs to be decreased (positive error), press & release the RESET button to change to the "down" arrow.	
5 Once the k factor has been adjusted to match the actual value, press and hold the RESET button to end calibration. This stores the new k factor, which will be displayed momentarily after which the meter will return to standby mode.	

NOTE: Replacing the batteries will not affect the k factor.

MAINTENANCE

The meter is designed to be virtually maintenance free. The only maintenance required is periodic battery replacement and cleaning of the fluid chamber if a reduction in flow is observed.

The meter comes complete with two 1.5 V size AAA alkaline batteries. The function of the low-battery alarm is shown in the table below.

Alarm	Meter Display
1 When the battery voltage falls below the operational level, "BAT" appears on the display. In this condition, the meter will continue to operate correctly but it is advisable to replace the batteries as soon as possible.	

BATTERY REPLACEMENT

To change the batteries:

- Press the RESET button to update all totals
- Remove the screws on from the battery cover
- Remove the cover
- Remove the old batteries
- Place new batteries in the meter (2 x AAA Alkaline)
 - * Always replace both batteries at the same time
 - * Confirm that the batteries are in the correct position
- Replace the cover and screws
- Press the Reset to zero button and the meter will switch on, normal operation can now be resumed

The meter will display the same Resettable Total, the same Total and the same Batch indicated before the batteries were changed. After changing the batteries the meter **does not** need to be recalibrated.

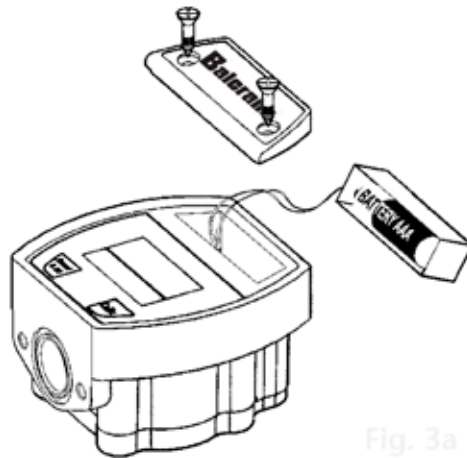


Fig. 3a

BATTERY REPLACEMENT

CLEANING THE FLUID CHAMBER



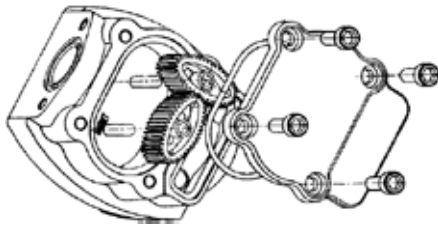
WARNING

Always use the following Pressure Relief Procedure whenever shutting off, cleaning, or in any way checking or servicing the control handle:

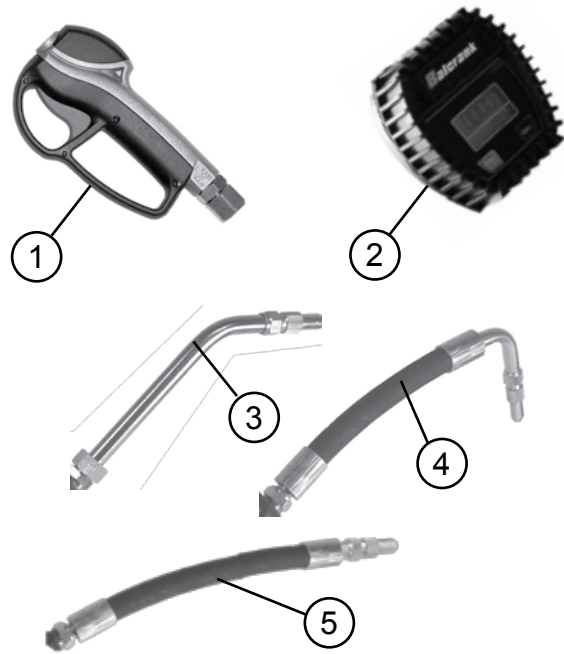
- 1) Disconnect compressed air line or turn off power supply at the fluid pump.
- 2) Point the control handle outlet into a waste container and open trigger to relieve pressure.
- 3) Open any bleed-type supply air valves and fluid drain valves in the system.
- 4) Leave the drain valves open until you are ready to re-pressurize the system.

Follow the steps below for cleaning the fluid chamber.

- Remove the four screws from the back cover.
- Remove the cover then remove the oval gears make note of the position/orientation of the oval gears.
- Clean the chamber and the gears carefully using a soft brush.
- Replace the oval gears (ensure they are re-installed in the position/orientation in which they were removed).
- Replace the cover and install the screws.



REMOVING BACK COVER & OVAL GEARS



PARTS LIST

ITEM	PART #	DESCRIPTION
1	829482	Grip
2	832863	Digital Meter
3	832190	Rigid Extension
4	831789	Flex 90 Extension
5	832199	Flex Extension

TROUBLESHOOTING GUIDE

TROUBLE	POSSIBLE CAUSE	REMEDY
Faded Display	Weak batteries	Replace batteries
No reading in display	Dead batteries	Replace batteries
	Meter has not been reset after battery replacement	Press the Reset to zero button
	Damaged meter	Replace meter
The meter is not accurate	Wrong calibration factor	Calibrate the meter
	Flow rate is above or below the operational flow range	Increase or decrease the flow rate.
Display is on but meter does not count	Gears placed incorrectly after cleaning the fluid chamber	Reposition the gears
	Damaged meter	Replace meter
Reduced or no flow	Clogged gears	Clean the fluid chamber
	Blocked strainer	Clean or replace strainer
Leaking nozzle (tip)	Damaged seals	Replace the nozzle (tip)
Oil leak from trigger area	Damaged seals	Replace the grip
Oil leak from inlet swivel	Damaged O-ring or swivel	Replace the grip

Balcrank Lubrication Equipment Warranty Statement

All Balcrank equipment sold by authorized Balcrank distributors is warranted to their original customer to be free from defects in materials and workmanship for a period of one year from the date of sale to that customer. Selected Balcrank equipment carries warranty terms for a more extended period as defined in the Balcrank Lubrication Equipment & Accessories User Price List, wherein a "lifetime" warranty represents a warranty period of thirty years. Within the initial one-year warranty period, Balcrank will repair or replace all Balcrank equipment determined by Balcrank to have defective materials or workmanship. For equipment carrying more extended warranties, Balcrank will repair or replace the product including parts and labor during the first full year and will provide parts only for the remainder of the warranty period.

This warranty applies only to equipment installed and operated according to applicable Balcrank Service Bulletins and Installation Instructions.

Any equipment claimed to be defective must be returned, freight prepaid, to an Authorized Balcrank Service Center (ASC). Upon receiving candidate warranty equipment from a customer, ASC will: 1) diagnose to determine the warrantable condition of the equipment, 2) submit, prior to repair or replacement, a request to Balcrank for warranty authorization, then 3) in cooperation with Balcrank, proceed with repair locally or forward the equipment to Balcrank and obtain replacement. If the part(s) or equipment items are found defective upon inspection by Balcrank, they will be repaired or replaced, and then will be returned to the ASC. If Balcrank finds the claimed part(s) or equipment not to be defective, the ASC will receive written authorization from the original customer, and then repair them for a reasonable charge to the customer, which will include all applicable parts, labor, and return transportation costs.

Optionally, the customer may submit certain eligible products directly to Balcrank for warranty return by using Balcrank Lubrication Equipment Direct Service Warranty Procedure. Eligible products are defined in the Balcrank Lubrication Equipment & Accessories User Price List. Refer to the Balcrank web site www.balcrank.com for a copy.

Any equipment returned to Balcrank must have the Warranty Service Claim number (WSC#) clearly marked on the outside of the carton. Balcrank's sole responsibility is for defects in material and workmanship, and Buyer's sole and exclusive remedy hereunder, shall be limited to repair or replacement of the defective part or equipment.

This warranty does not cover, nor shall Balcrank be liable for repair or replacement of parts or equipment resulting from general wear and tear through use, or damage or failure caused by improper installation, abuse, misapplication, abrasion, corrosion, insufficient or improper maintenance, negligence, accident, alteration, or substitution of non-Balcrank parts.

Furthermore, the Warranty for Lubrication Equipment and Accessories does not cover the following specific conditions:

- Failure or damage to equipment caused by dirt or debris in compressed air lines and fluid lines. This includes, but is not limited to, clogged inlet filters, strainers, or regulators; fluid meters; control handles; fluid tips; and valves.
- Failure of normal wear parts including but not limited to: o-rings, packings, seals and valves unless originally improperly installed by the factory.
- Products placed in applications for which their use was not intended. Examples include but are not limited to Lubricant pump being used to pump solvents, or placing equipment intended strictly for indoor use outdoors
- Damage to equipment resulting from operation above and beyond Balcrank's recommendations.
- Leaks at air and fluid fittings and connections.
- Damage caused by thermal expansion whenever adequate pressure relief was not included in the system.
- Loose suction tubes on pumps.
- Incorrect hose reel spring tension, requiring adjustment.

THERE ARE NO OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL BALCRANK BE LIABLE FOR ANY SPECIAL, CONSEQUENTIAL, OR OTHER DAMAGES OF SIMILAR NATURE, INCLUDING BUT NOT LIMITED TO LOST PROFITS, LOST PRODUCTION, PROPERTY DAMAGE, PERSONAL INJURY, WHETHER SUFFERED BY BUYER OR ANY THIRD PARTY, IRRESPECTIVE OF WHETHER CLAIMS OR ACTIONS, LEGAL OR EQUITABLE, FOR SUCH DAMAGES ARE BASED UPON CONTRACTS, WARRANTY, NEGLIGENCE, STRICT LIABILITY, OR OTHERWISE. ANY CLAIM OR ACTION FOR BREACH OF WARRANTY MUST BE BROUGHT WITHIN TWO (2) YEARS FROM THE DATE OF SALE TO THE ORIGINAL CUSTOMER.

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