AutoCell



Digital Calibration Load Cells

Toledo Integrated Systems

Toledo Transducers, Inc

Operation Manual

AUTOCELL
Operations Manual

Revision: F

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GENERAL

The AutoCell is equipped with a digital display for easy and accurate force measurement. No additional external instrumentation or cables are needed. It is powered by a 9V alkaline battery, which can provide about 30 hours of operation.

PEAK AND TRACK MODES

The AutoCell can operate in either peak or track mode according to different jumper settings (See Figure 2). The factory setting is for peak mode. In peak mode the AutoCell captures and displays the peak tonnage of a stroke. It automatically resets when the next load cycle occurs. (See Figure 3).

START UP

The AutoCell can be started easily by pushing the "START" switch on the front panel (See Figure 1). The display will then light up and a fast auto-zeroing procedure will start. The reading is changed to zero within 2 seconds. When the circuit is auto-zeroed, the decimal point will light which indicates that the AutoCell is now ready to function, (See Figure 1).

OPERATION TIME

Every time the "START" switch is pushed the AutoCell turns on for 5 minutes and starts the fast auto-zeroing procedure. You must wait for the decimal point to light up before the AutoCell can be operated.

Operation time will be updated and another 5 minutes of operation time will be given when there is a load greater than 3% of the AutoCell's capacity (See Figure 3). Therefore, the AutoCell will remain activated if there is at least one load cycle every 5 minutes.

THRESHOLD

Threshold is the minimum load required before the AutoCell will start measurement. The threshold is set at 3% of the capacity (See Figure 3).

AUTO-ZEROING

In either mode of operation (Peak or Track), the AutoCell always auto-zeroes itself slowly when the load is below threshold and stops auto-zeroing when it is above threshold. For very slowly increasing loads such as hydraulic presses, the auto-zero may follow the signal unless the load passes through threshold quickly. If this happens, the readings may be inaccurate. Therefore, try to develop at least 3% of the Autocell's capacity quickly to activate the unit and disable the auto-zero before a steady load is achieved (See Figure 3).

AUTOMATIC SHUT OFF

The AutoCell will automatically shut itself off when no load greater than threshold has been detected for 5 minutes (See Figure 3).

If the load stays above threshold for more than 5 minutes, the AutoCell will shut itself off automatically (See Figure 3).

TRACK MODE INDICATOR

When the AutoCell is operated in track mode, the LED in the upper left corner of the display will turn on (See Figure 1).

LOW-BATTERY INDICATOR

When the two LEDs as shown in Figure 1 are lit, it means that it is time to replace the battery. Measurement may not be accurate at this time.

DISPLAY TEST

To test the display, move jumper, J5 to the “B” position (See Figure 2). If all LED segments are working properly the display will show "188.8" for an AC100 and “1888.” for all larger capacity AutoCells,.

TROUBLESHOOTING

If the AutoCell does not function properly, check the battery, jumpers and connectors for good connections. Use compressed air to clean the circuit board of any foreign material. If this does not help, consult the factory.

IMPORTANT!
Never change the potentiometer setting, which has been precisely trimmed and sealed for accurate measurement.

AC50 SPECIFICATIONS

Capacity:	50 tons
Threshold setting:	Reading begins at 3% of capacity (1.5 ton)
Resolution:	0.1 ton
Inaccuracy:	+/-0.5 % of Full Scale (F.S.)
Non-linearity:	+/-0.3% F.S.
Non-repeatability:	+/-0.l% F.S.
Temperature Range:	32 DEG. F. to 158 DEG. F. (0 DEG. C. to 70 DEG. C.)
Temperature Effect on F.S. output: on no-load output:	 +/-0.001% F.S./DEG. F. No effect (has auto- zero balance circuit)
Overload:	150% of capacity (75 tons)
Sampling rate:	Three measurements per second
Operation mode:	Peak or Track
Strokes per minute:	Single stroke device. Automatic reset on each stroke
Power:	Standard 9V alkaline battery Approx. 30 hours of continuous use Has low battery indicator
Tons Display:	3 1/2 digit LED (0.56" high)
Loading surface-.	3 inches diameter
Dimensions:	5.25"L x 5.21"W. Height ground in matching sets to 4.0000" +/- 0.0002".
Weight:	9 lb.

AC100 SPECIFICATIONS

Capacity:	100 tons
Threshold setting:	Reading begins at 3% of capacity (3 ton)
Resolution:	0.1 ton
Inaccuracy:	+/-0.5 % of Full Scale (F.S.)
Non-linearity:	+/-0.3% F.S.
Non-repeatability:	+/-0.l% F.S.
Temperature Range:	32 DEG. F. to 158 DEG. F. (0 DEG. C. to 70 DEG. C.)
Temperature Effect on F.S. output: on no-load output:	 +/-0.001% F.S./DEG. F. No effect (has auto- zero balance circuit)
Overload:	150% of capacity (150 tons)
Sampling rate:	Three measurements per second
Operation mode:	Peak or Track
Strokes per minute:	Single stroke device. Automatic reset on each stroke
Power:	Standard 9V alkaline battery Approx. 30 hours of continuous use Has low battery indicator
Tons Display:	3 1/2 digit LED (0.56" high)
Loading surface-.	3 inches diameter
Dimensions:	5.25"L x 5.21"W. Height ground in matching sets to 4.0000" +/- 0.0002".
Weight:	9 lb.

AC250 SPECIFICATIONS

Capacity:	250 tons
Threshold setting:	Reading begins at 3% of capacity (7.5 tons)
Resolution:	1 ton
Inaccuracy:	+/-0.5 % of Full Scale (F.S.)
Non-linearity:	+/-0.3% F.S.
Non-repeatability:	+/-0.l% F.S.
Temperature Range:	32 DEG. F. to 158 DEG. F. (0 DEG. C. to 70 DEG. C.)
Temperature Effect on F.S. output: on no-load output:	 +/-0.001% F.S./DEG. F. No effect (has auto- zero balance circuit)
Overload:	150% of capacity (375 tons)
Sampling rate:	Three measurements per second
Operation mode:	Peak or Track
Strokes per minute:	Single stroke device. Automatic reset on each stroke
Power:	Standard 9V alkaline battery Approx. 30 hours of continuous use Has low battery indicator
Tons Display:	3 1/2 digit LED (0.56" high)
Loading surface-.	4.93 inches diameter
Dimensions:	7.19"L x 7.75"W. Height ground in matching sets to 5.0000" +/- 0.0002".
Weight:	26 lb.

AC500 SPECIFICATIONS

Capacity:	500 tons
Threshold setting:	Reading begins at 3% of capacity (15 tons)
Resolution:	1 ton
Inaccuracy:	+/-0.5 % of Full Scale (F.S.)
Non-linearity:	+/-0.3% F.S.
Non-repeatability:	+/-0.l% F.S.
Temperature Range:	32 DEG. F. to 158 DEG. F. (0 DEG. C. to 70 DEG. C.)
Temperature Effect on F.S. output: on no-load output:	 +/-0.001% F.S./DEG. F. No effect (has auto- zero balance circuit)
Overload:	150% of capacity (750 tons)
Sampling rate:	Three measurements per second
Operation mode:	Peak or Track
Strokes per minute:	Single stroke device. Automatic reset on each stroke
Power:	Standard 9V alkaline battery Approx. 30 hours of continuous use Has low battery indicator
Tons Display:	3 1/2 digit LED (0.56" high)
Loading surface-.	6.93 inches diameter
Dimensions:	9"L x 7.4"W. Height ground in matching sets to 7.0000" +/- 0.0005".
Weight:	70 lb.

TT500 SPECIFICATIONS

Capacity:	500 metric tons
Threshold setting:	Reading begins at 1% of capacity (5 tons)
Resolution:	1 ton
Inaccuracy:	+/-0.4 % of Full Scale (F.S.)
Non-linearity:	+/-0.4% F.S.
Non-repeatability:	+/-0.4% F.S.
Temperature Range:	50 DEG. F. to 150 DEG. F. (10 DEG. C. to 65 DEG. C.)
Temperature Effect on F.S. output: on no-load output:	 +/-0.0005% F.S./DEG. F. No effect (has auto- zero balance circuit)
Overload:	125% of capacity (625 tons)
Sampling rate:	Three measurements per second
Operation mode:	Peak or Track
Strokes per minute:	Single stroke device. Automatic reset on each stroke
Power:	Standard 9V alkaline battery Approx. 30 hours of continuous use Has low battery indicator
Tons Display:	3 1/2 digit LED (0.56" high)
Loading surface-.	4.93 inches diameter
Dimensions:	7.19"L x 7.75"W. Height ground in matching sets to 5.0000" +/- 0.0005".
Weight:	35 lb.

AC750 SPECIFICATIONS

Capacity:	750 tons
Threshold setting:	Reading begins at 3% of capacity (22.5 tons)
Resolution:	1 ton
Inaccuracy:	+/-0.5 % of Full Scale (F.S.)
Non-linearity:	+/-0.3% F.S.
Non-repeatability:	+/-0.l% F.S.
Temperature Range:	32 DEG. F. to 158 DEG. F. (0 DEG. C. to 70 DEG. C.)
Temperature Effect on F.S. output: on no-load output:	 +/-0.001% F.S./DEG. F. No effect (has auto- zero balance circuit)
Overload:	150% of capacity (1125 tons)
Sampling rate:	Three measurements per second
Operation mode:	Peak or Track
Strokes per minute:	Single stroke device. Automatic reset on each stroke
Power:	Standard 9V alkaline battery Approx. 30 hours of continuous use Has low battery indicator
Tons Display:	3 1/2 digit LED (0.56" high)
Loading surface-.	6.93 inches diameter
Dimensions:	9"L x 7.4"W. Height ground in matching sets to 7.0000" +/- 0.0005".
Weight:	80 lb.

AC1000 SPECIFICATIONS

Capacity:	1000 tons
Threshold setting:	Reading begins at 3% of capacity (30 tons)
Resolution:	1 ton
Inaccuracy:	+/-0.5 % of Full Scale (F.S.)
Non-linearity:	+/-0.3% F.S.
Non-repeatability:	+/-0.l% F.S.
Temperature Range:	32 DEG. F. to 158 DEG. F. (0 DEG. C. to 70 DEG. C.)
Temperature Effect on F.S. output: on no-load output:	 +/-0.001% F.S./DEG. F. No effect (has auto- zero balance circuit)
Overload:	150% of capacity (1500 tons)
Sampling rate:	Three measurements per second
Operation mode:	Peak or Track
Strokes per minute:	Single stroke device. Automatic reset on each stroke
Power:	Standard 9V alkaline battery Approx. 30 hours of continuous use Has low battery indicator
Tons Display:	3 1/2 digit LED (0.56" high)
Loading surface-.	9.00 inches diameter
Dimensions:	11.3"L x 9.72"W. Height ground in matching sets to 9.0000" +/- 0.0005".
Weight:	150 lb.

AC2KLB SPECIFICATIONS

Capacity:	2,000 pounds
Threshold setting:	Reading begins at 3% of capacity (60 lbs)
Resolution:	1 lbs
Inaccuracy:	+/-0.1 % of Full Scale (F.S.)
Non-linearity:	+/-0.05% F.S.
Non-repeatability:	+/-0.l% F.S.
Temperature Range:	32 DEG. F. to 158 DEG. F. (0 DEG. C. to 70 DEG. C.)
Temperature Effect on F.S. output: on no-load output:	 +/-0.001% F.S./DEG. F. No effect (has auto- zero balance circuit)
Overload:	150% of capacity (3,000 lbs)
Sampling rate:	Three measurements per second
Operation mode:	Peak or Track
Strokes per minute:	Single stroke device. Automatic reset on each stroke
Power:	Standard 9V alkaline battery Approx. 30 hours of continuous use Has low battery indicator
Tons Display:	3 1/2 digit LED (0.56" high)
Loading surface-.	3 inches diameter
Dimensions:	5.25"L x 5.21"W. Height ground in matching sets to 4.0000" +/- 0.0005".
Weight:	8 lb.

AC10K SPECIFICATIONS

Capacity:	10,000 pounds
Threshold setting:	Reading begins at 3% of capacity (300 lbs)
Resolution:	10 lbs
Inaccuracy:	+/-0.5 % of Full Scale (F.S.)
Non-linearity:	+/-0.3% F.S.
Non-repeatability:	+/-0.l% F.S.
Temperature Range:	32 DEG. F. to 158 DEG. F. (0 DEG. C. to 70 DEG. C.)
Temperature Effect on F.S. output: on no-load output:	 +/-0.001% F.S./DEG. F. No effect (has auto- zero balance circuit)
Overload:	150% of capacity (15,000 lbs)
Sampling rate:	Three measurements per second
Operation mode:	Peak or Track
Strokes per minute:	Single stroke device. Automatic reset on each stroke
Power:	Standard 9V alkaline battery Approx. 30 hours of continuous use Has low battery indicator
Tons Display:	3 1/2 digit LED (0.56" high)
Loading surface-.	3 inches diameter
Dimensions:	5.25"L x 5.21"W. Height ground in matching sets to 4.0000" +/- 0.0005".
Weight:	9 lb.

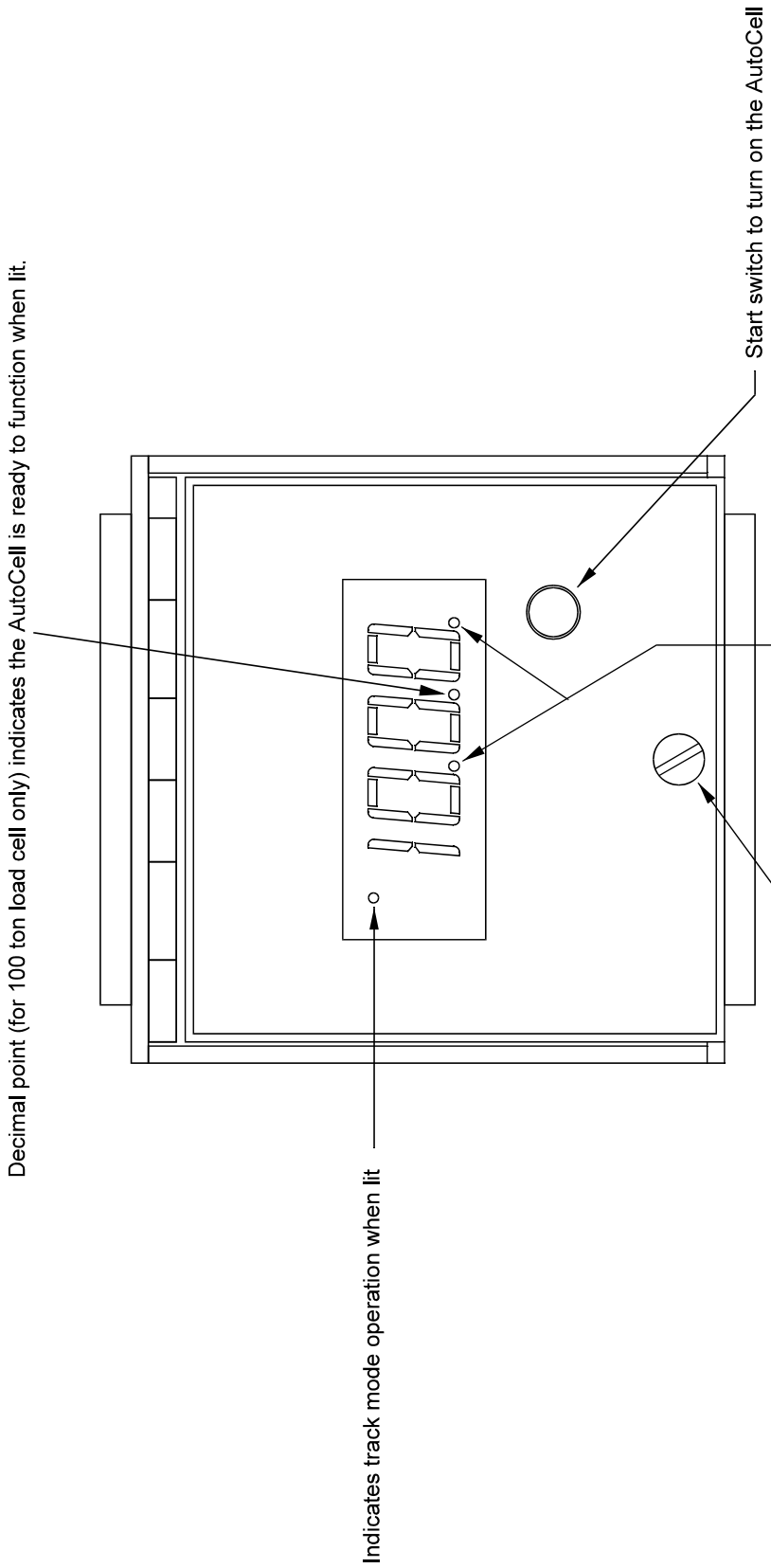
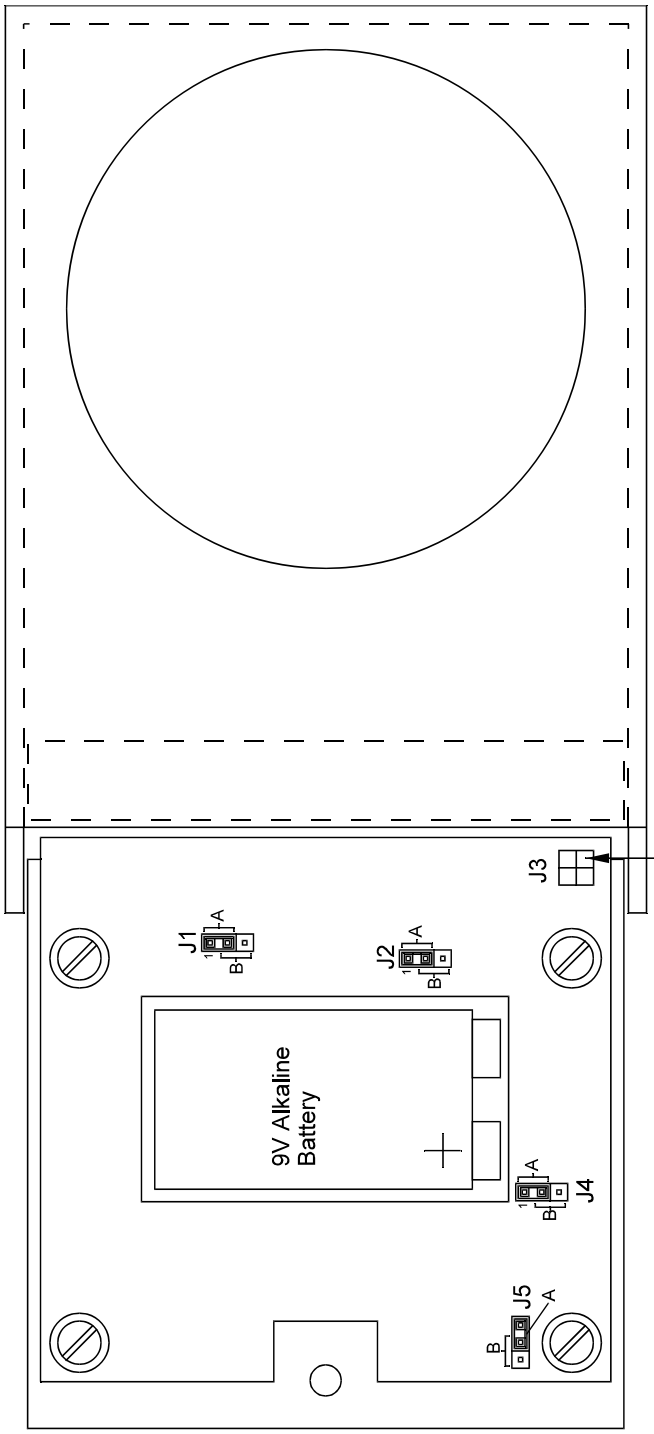

Start switch to turn on the AutoCell
Decimal point (for 100 ton load cell only) indicates the AutoCell is ready to function when lit.
Indicates low-battery when both lit
Indicates track mode operation when lit
Thumbscrew to secure the door

Figure 1



Peak mode operation: J1, J2 & J4 in position A (shown)
Track mode operation: J1, J2 & J4 in position B
Display test off: J5 in position A (shown)
Display test on: J5 in position B

Figure 2

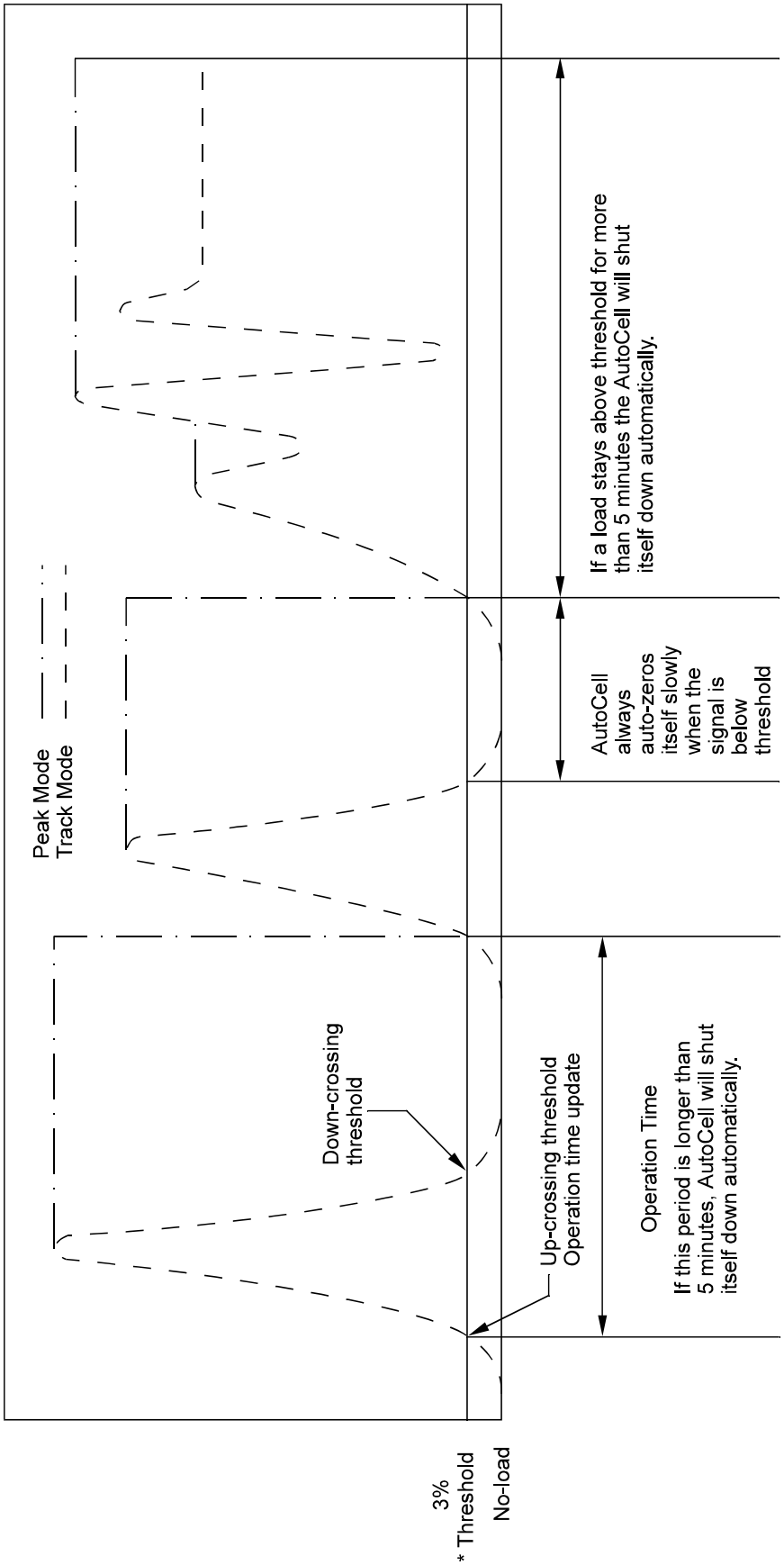


Figure 3

* Threshold is the minimum load necessary for the AutoCell to start measurement. Threshold is set at 3% of capacity.