

PERFORMING CALIBRATION ON A MODEL 350

Calibration always begins by establishing a zero (no-load) reference. A complete calibration also requires establishing a span (test load) reference. This section details various methods for obtaining zero and span references.



Press **[CLR]** during calibration to back up one step in the procedure.

ESTABLISHING ZERO

The M350 provides five methods for obtaining a zero (no load) calibration reference, First Zero, Last Zero, False Zero, Only Zero, and Cal Reset. Press **[SELECT]** to scroll through the five selections. Press **[TARE]** to establish zero using the displayed method.

To select a calibration method:

1. Press **[ZERO]** + **[SELECT]** to display the calibration prompt.
2. Press **[ZERO]** **[PRINT]** **[UNITS]** **[TARE]** to access the Calibration Mode.
3. Press **[SELECT]** to scroll through the five selections.
4. Press **[TARE]** to establish zero.

FIRST ZERO?

The most common zeroing procedure, First Zero is used to establish a new zero (no load) calibration reference before proceeding to span the M350. Use this method for first-time calibration and complete recalibration.

First Zero Calibration Method Example:

1. From the Weigh Mode, press **[ZERO]** + **[SELECT]**.

Setup

2. Press **[ZERO]** **[PRINT]** **[UNITS]** **[TARE]**.

Fast ~ Cal

First ~ Zero? ~ -0.26

3. Remove any load on the scale.

First ~ Zero? ~ -0.42

4. Press **[TARE]** to establish zero.

0.00

5. Pause for motion delay.

Enter ~ Load ~ 0.00

6. Place a 100lb test weight on scale.

Enter ~ Load ~ 99.66

7. Enter 100.

100

8. Press **[TARE]** to establish span.

100.00

9. Pause for motion delay.

Cal ~ Good? ~ 100.00

10. Press **[TARE]** to accept calibration.

Enter ~ = Stor

11. Press **[TARE]** to save calibration.

Enter ~ = End

12. Press **[TARE]** to exit calibration.

100.00

13. Remove the calibration weight.

0.00

LAST ZERO?

The Last Zero procedure allows recalibration of the weighing device using an existing test load. This is especially beneficial when checking high capacity applications such as tank weighing to minimize the task of placing and removing test weights.



Establish gross zero *before* entering setup or calibration!

Last Zero Calibration With Weight Already Applied Example:

1. Remove any load on the scale.

10.

2. Press **[ZERO]** to zero the scale.

00.

3. Apply a 10000 lb test weight to verify calibration.

9970.

4. Press **[ZERO] + [SELECT]**.

Setup

5. Press **[ZERO] [PRINT] [UNITS] [TARE]**.

Fast ~ Cal

First ~ Zero? ~ 9930.

6. Press **[SELECT]**.

Last ~ Zero? ~ 9930.

7. Press **[TARE]** to use last zero.

Enter ~ Load? ~ 9970.

8. Enter 10000.

10000

9. Press **[TARE]** to establish span.

10000.

10. Pause for motion delay.

Cal ~ Good? ~ 10000.

11. Press **[TARE]** to accept calibration.

Enter ~ = Stor

12. Press **[TARE]** to save calibration.

Enter ~ =End

13. Press **[TARE]** to exit calibration.
10000.

14. Remove the calibration weight.
00.

FALSE ZERO?

False Zero calibrates the M350 without removing the current gross weight. This is particularly useful in tank weighing applications where it may be both time consuming and costly to completely empty the tank. This operation is achieved by establishing a false (temporary zero) zero reference. Test weights may then be added to verify calibration. The zero reference determined during the last calibration is not affected.

False Zero Calibration Without Removing Existing Load Example:

1. Press **[ZERO] + [SELECT]**.
Setup
2. Press **[ZERO] [PRINT] [UNITS] [TARE]**.
Fast ~ Cal
First ~ Zero? ~ 5075.
3. Press **[SELECT] [SELECT]**.
False ~ Zero? ~5075.
4. Press **[TARE]** to establish false (temporary) zero.
Units ~ =lb
5. Pause to display calibration units.
Enter ~ Load? ~ 00.
6. Place a 2500lb test weight on scale.
Enter ~ Load? ~ 2510.
7. Enter 2500.
2500
8. Press **[TARE]** to establish span.
2500.
9. Pause for motion delay.
Cal ~ Good? ~ 2500.
10. Press **[TARE]** to accept calibration.
Enter ~ =Stor
11. Press **[TARE]** to save calibration.
Enter ~ =End
12. Press **[TARE]** to exit calibration.
5055.
15. Remove the calibration weight.
00.

ONLY ZERO?

Only Zero is used to establish a new calibration zero without affecting the span. This is useful for correcting changes to the scale's dead load, for example adding safety rails to a truck scale platform.

Only Zero Calibration Example:

1. From the Weigh Mode, press **[ZERO] + [SELECT]**.
Setup
2. Press **[ZERO] [PRINT] [UNITS] [TARE]**.
Fast ~ Cal
First ~ Zero? ~2640.
3. Press **[SELECT] [SELECT] [SELECT]**.
Only ~ Zero? ~ 2640.
4. Remove any load on the scale.
Only ~ Zero? ~ 2620.
5. Press **[TARE]** to establish zero.
00.
6. Pause for motion delay.
Cal ~ Good? ~ 00.
7. Press **[TARE]** to accept calibration.
Enter ~ =Stor
8. Press **[TARE]** to save calibration.
Enter ~ =End
9. Press **[TARE]** to exit calibration.
00.

CAL RESET

Cal Reset may be necessary when an over-load or under-load condition exists, preventing the completion of the calibration process. Calibration Reset adjusts the zero and gain factors of the A/D amplifier to factory default values for maximum sensitivity.

After performing a calibration reset, a complete recalibration is required. The effects of a calibration reset do not take effect until the M350 is recalibrated and calibration information has been saved.



If **Code 02** (under-load) or **Code 03** (over-load) is displayed during calibration, press **[CLR]** to perform a calibration reset.

Reset Calibration Gain Factors Example:

1. Press **[ZERO] + [SELECT]**.
Setup
2. Press **[ZERO] [PRINT] [UNITS] [TARE]**.
Fast ~ Cal
First ~ Zero? ~ xx.xx
3. Remove any load on the scale.
First ~ Zero? ~ xx.xx

4. Press **[TARE]** to establish zero.
Enter ~ Load? ~ 0.00
5. Place a 100lb test weight on scale.
Code03
6. Press **[CLR]**.
First ~ Zero? ~ -0.26
7. Remove any load on the scale.
First ~ Zero? ~ -0.42
8. Press **[TARE]** to establish zero.
0.00
9. Pause for motion delay.
Enter ~ Load ~ 0.00
10. Place a 100lb test weight on scale.
Enter ~ Load ~ xx.xx
11. Enter 100.
100
12. Press **[TARE]** to establish span.
100.00
13. Pause for motion delay.
Cal ~ Good? ~ 100.00
14. Press **[TARE]** to accept calibration.
Enter ~ =Stor
15. Press **[TARE]** to save calibration.
Enter ~ =End
16. Press **[TARE]** to exit calibration.
100.00
17. Remove the calibration weight.
0.00

ESTABLISHING SPAN

Once a zero reference has been established, the M350 displays **Enter ~ Load** and awaits the entry of a span (test load) value. This value may be entered before or after the test load has been applied.

If the calibration weight value was entered before applying the test weight, **Add ~ Load** is displayed indicating that the test weight should now be applied. Apply the test weight, press **[TARE]** and proceed to *Exiting Calibration* on page 6.

If it is necessary to repeat the calibration process, press **[CLR]** at the **Cal ~ Good?** prompt and repeat the calibration process.

Establishing span with a 100lb test weight:

1. Place a 100lb test weight on scale.
Enter ~ Load ~ xx.xx
2. Enter 100.

100

3. Press **[TARE]** to establish span.

100.00

4. Pause for motion delay.

Cal ~ Good? ~ 100.00

When making a significant change to the previous calibration, or when the calibration weight is less than 5% of full scale capacity, **ReCal ~ ???** will be displayed instead of **Cal ~ Good?** In this event it is recommended that the calibration be performed a second time. Press **[TARE]** to recalibrate, or press **[CLR]** to skip recalibration.

EXITING CALIBRATION

Once zero and span have been established, the newly acquired calibration information must be saved to non-volatile memory before it will be realized in the Weigh Mode.

To exit and save calibration information:

1. Press **[TARE]** to accept calibration.

Enter ~ = Stor

2. Press **[TARE]** to save calibration.

Enter ~ = End

3. Press **[TARE]** to exit calibration.

100.00

To exit without saving calibration information:

1. Press **[TARE]** to accept calibration.

Enter ~ = Stor

2. Press **[CLR]**.

Enter ~ = Undo

3. Press **[TARE]**.

Enter ~ = End

4. Press **[TARE]** to exit calibration.

99.66



When saving calibration, parameters changed in the Setup Mode are also saved with their new selections.