



Product Application Note

NUMBER: 901-0122-000 **DATE:** September 24, 2010
PRODUCT: LoadMaxx Scale **CATEGORY:** Information
SUMMARY: Installing and Programming Overweight Alarms
REFERENCE: 901-0109-000 Application Note, LoadMaxx, Using Alarm 2 For Steer Axle Underweight
901-0114-000 Manual, LoadMaxx, Operations, Truck, Air Drive
901-0116-000 Manual, LoadMaxx, Operations, Truck, Deflection Sensor
901-0119-000 Manual, LoadMaxx, Installation, Air Drive
901-0120-000 Manual, LoadMaxx Install on Hendrickson Suspensions
901-0125-000 Manual, LoadMaxx Install on Volvo T-Ride

Detailed Description

I. Introduction

The LoadMaxx scale system offers two individually programmable alarm outputs, Alarm 1 and Alarm 2. The user may program them to activate either at line power, nominally 12V or 24V, or at 0V (ground). Alarms are rated to 1.0 amps each. The load may be resistive or inductive. For higher current, a relay is required. AW recommends using a suppressed relay.

The alarms can be permanently disarmed by using the Alarms menu TURN ON/OFF function. All user-settable changes to alarm functions, with the sole exception of diagnostic testing, are PIN-protected.

Each alarm can be programmed in two modes: warning mode, which slowly pulses, and alarm mode, which is on steadily. The same alarm can be programmed to exhibit both behaviors at different weights, e.g., pulsing at 31,000 lbs and then on steady at 33,000 lbs.

The warning mode weight can be heavier than the alarm mode weight. Thus, the same alarm can be programmed to turn on steadily at 31,000 lbs and then pulse at 33,000 lbs.

The warnings and alarms are available for each axle group: Steer, Drive and Trailer (or for each one of multiple trailers), as well as for Net Payload and GVW. Thus, Alarm 1 may begin pulsing when the drive axle group exceeds 31,000 lbs and turn on steadily when the Trailer axle group exceeds 33,000 lbs, according to programming.

All warnings and alarms respond to the weight being heavier than the programmed trigger, except for the Net Payload. For the Net Payload, the warnings or alarms respond to its absolute value being greater than the programmed value. Thus, both loading 5,000 lbs and also unloading 5,000 lbs can trigger an alarm, according to programming, as the Net Payload exceeds 5,000 lbs, or drops below -5,000 lbs.

II. Wiring and Activation

Alarm activation and ground connections are provided on the LoadMaxx power harness, (p/n) 016-0500-036. The alarm activation wires are respectively gray, marked WARN 1, and brown, marked WARN 2. The alarm ground wires are both black, and both are marked WARN RETURN.

To install your alarm device such as a lamp or buzzer, connect its hot side to the desired alarm activation wire, and its ground to either alarm ground wire.

The factory setting for indicating an overweight alarm condition is that WARN 1 or WARN 2, depending on programming, are at the nominal line voltage, 12V or 24V. The user can change this, so that in an alarm condition, WARN 1 or WARN 2 will go to ground, and then return to 12V or 24V when the overweight alarm condition has concluded, or the driver has turned it off. See Section V, "Programming Alarm Activation 12/24V or Ground," for details.

Alarm activation and deactivation can be delayed by a programmable number of seconds. This can be useful when the pressure exerted by the load oscillates above and below the programmed alarm weight, for instance during travel. See Section VI, "Programming Alarm Delays," for details.

III. 5800A Menu Instructions

Note the following:

1. When the 5800 backlight is off, the first button push turns on the backlight, with no other effect.
2. Depressing the **ESC** key (with the backlight lit) changes the display to the previous screen.
3. The cursor location on the 5800 is indicated by the blinking line.
4. To change the cursor location, depress the up or down arrow keys **▲** or **▼**.
5. To select a menu item, depress the **ENTER** key after setting the cursor to the specified line.

IV. Testing Alarm Installation

To activate the alarm as a test of its installation, follow these steps on the LoadMaxx display. Note that alarms must first be turned on using the TURN ON/OFF function of the ALARMS menu (section VIII, below).

1. Press **<ESC>** one or more times until the Main Menu appears, with VIEW WEIGHTS blinking.
2. Select PRINT , SETUP, leading to the next menu.
3. Select DIAGNOSTICS, leading to the next menu.

4. Select ALARMS, leading to the next menu.
 - a. For software versions up to v1.03 for 5800A/5800B and v2.08 for LoadMaxx, select TEST ALARM. Both alarms will activate for a few seconds and then return to their normal steady state.
 - b. For software versions 1.04 for 5800A/5800B and v2.09 for LoadMaxx and after, select either TEST ALARM 1 or TEST ALARM 2. The selected alarm will activate for a few seconds and then return to its normal steady state.

V. Programming Alarm Activation 12/24V or Ground

To program your alarm activation voltage, follow these steps on the LoadMaxx display.

1. Press <**ESC**> one or more times until the Main Menu appears, with VIEW WEIGHTS blinking.
2. Select ALARMS, leading to next menu.
 - a. It may be necessary to enter a PIN number at this point. If so, enter the PIN. The Scale Display will automatically lead to the next menu.
3. Select ALARM CNTRLS, leading to next menu.
4. Select ALARM LOGIC, leading to next menu. The bottom line will then indicate the current setting: either (Now 12/24V) or (Now LOW).
5. Select ALARM 1 or ALARM 2, depending on which alarm's logic level you wish to set; leading to next menu. The bottom line will then indicate the current setting: either (Now 12/24V) or (Now LOW).
6. Select the desired setting, ACTIV 12/24V or ACTIVE LOW, and depress the **ENTER** key.
7. The display briefly shows Accepted at the bottom of the screen, followed by the selected setting, either (Now 12/24V) or (Now LOW).

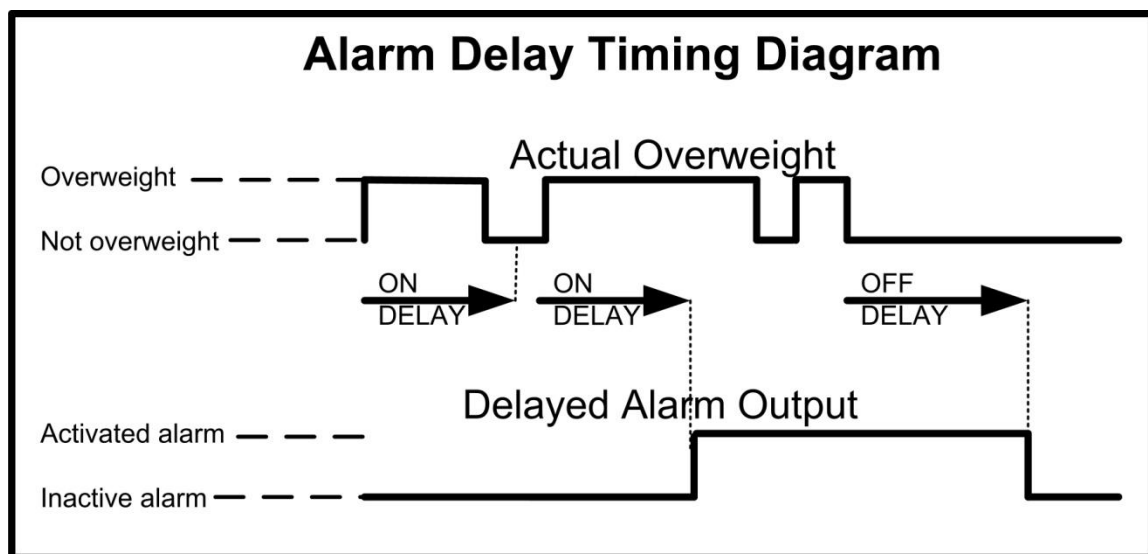
VI. Programming Alarm Delays

Alarm activation and deactivation can be delayed by a programmable number of seconds. This can be useful in some situations:

1. When a full or nearly full vehicle is traveling on the highway, and LoadMaxx does not have a connection to the J1708 or J1939 data bus. Such a connection allows the LoadMaxx to deactivate alarms when the vehicle is in motion. Otherwise, the alarms may oscillate between on and off during motion, as the pressure the load exerts on the suspension may vary during travel. Causing the alarm's toggling to be postponed by some seconds will allow it to ride out such a variation without changing state.
2. When a heavy load is placed on a vehicle, the momentum of the load may temporarily cause the suspension to appear to be bearing more than the alarm weight. Causing the alarm's activation to be postponed by some seconds will allow the suspension to return to equilibrium without having temporarily activated the alarm.

The following timing diagram illustrates the operation of the alarm delays. The upper line shows vehicle weight changing rapidly between being overweight and not overweight. The lower line shows how the alarm on delay and off delay slow the alarm output's reflecting these rapid changes. The arrows show the programmable duration of these delays. (The diagram omits an Off Delay arrow, which would appear between the middle and rightmost arrows.)

In the diagram, the first overweight does not persist long enough to change the alarm output to active, while the second one does last long enough to activate the alarm output. Then, after the alarm output is active, the first "not overweight," shown without an arrow, is too short to change the alarm output back to inactive, while the second "not overweight" lasts long enough, and the alarm again becomes inactive.



These delays are programmed in seconds, from 0 to 60. A delay of 0 means that the alarm output state reflects the overweight state, with no delay. This is the factory setting.

To program the alarm delays, follow these steps on the LoadMaxx display.

1. Press <ESC> one or more times until the Main Menu appears, with VIEW WEIGHTS blinking.
2. Select ALARMS, leading to next menu.
 - a. It may be necessary to enter a PIN number at this point. If so, enter the PIN. The Scale Display will automatically lead to the next menu.
3. Select ALARM CNTRLS, leading to next menu.
4. Select ALARM DELAYS, leading to next menu.
5. Select the desired setting:
 - a. ON 1 for the Alarm 1 On Delay,
 - b. OFF 1 for the Alarm 1 Off Delay,
 - c. ON 2 for the Alarm 2 On Delay, or
 - d. OFF 2 for the Alarm 2 Off Delay; and depress <ENTER>.

6. Using the up/down arrows <▲ ▼>, scroll to the desired delay setting, then depress <ENTER>.
7. Press <ESC> to start setting any additional desired alarm delays. Press <ESC> repeatedly to return to previous menu or the main menu.

VII. Programming Alarm and Warning Weights

To program your alarm weights, follow these steps on the LoadMaxx display.

1. Press <ESC> one or more times until the Main Menu appears, with VIEW WEIGHTS blinking.
2. Select ALARMS, leading to the next menu.
 - a. It may be necessary to enter a PIN number at this point. If so, enter the PIN. The Scale Display will automatically lead to the next menu.
3. Select SET ALARMS, leading to the next menu.
4. Select ALARM 1, leading to the next menu.
5. Select one of GVW, NET ALM1, TRCTR ALRMS1, or TRLER ALRMS1, leading to the next menu.
6. Depending on the previous step,
 - select from GVW ALARM and NET ALARM;
 - or from STEER ALARM and DRIVE ALARM;
 - or from TRLR WARN 1 and TRLR ALARM 1. (If there are multiple trailers, it will be necessary to select from TRAILER A, TRAILER B, TRAILER C, etc.)
7. Select WARN WT 1 or ALARM WT 1 for the chosen alarm.
8. Using the up/down arrows <▲ ▼> scroll to the desired warning or alarm weight, then depress <ENTER>.
9. Press <ESC> as needed to start setting any additional desired alarms. Press <ESC> repeatedly to return to previous menu or the main menu. Repeat this procedure for ALARM 2, selected in (4) above, if used. If ALARM 2 is not present, consult (p/n) 901-0109-000, **Application Note, LoadMaxx, Using Alarm 2 For Steer Axle Underweight**.

VIII. Reviewing Alarm Overweight Programming

To inspect current alarm programming, follow these steps on the LoadMaxx display.

1. Press <ESC> one or more times until the Main Menu appears, with VIEW WEIGHTS blinking.
2. Select PRINT, SETUP, leading to the next menu.
3. Select DIAGNOSTICS, leading to the next menu.
4. Select ALARMS, leading to the next menu.
5. Select ALRM WEIGHTS, leading to the steer axle Alarm 1 weights.
6. Push the down arrow <▼> to scroll first through all the Alarm 1 weights, then through all the Alarm 2 weights.

IX. Turning the Alarm Feature On or Off

To turn the alarm feature on or off, follow these steps on the LoadMaxx display.

1. Press <**ESC**> one or more times until the Main Menu appears, with VIEW WEIGHTS blinking.
2. Select ALARMS, leading to the next menu.
 - a. It may be necessary to enter a PIN number at this point. If so, enter the PIN. The Scale Display will automatically lead to the next menu.
3. The bottom line gives the state of the alarm feature, “(Now ON)” or “(Now OFF).” Select TURN ON/OFF to change this state to its opposite.

X. Alarm Operation

To deactivate and reset an active warning or alarm weight alarm, simply press <**ENTER**> once while the LoadMaxx display is showing one of the weight displays, including Steer / Drive, Trailers, or GVW/NET.

If the scale is not PIN-protected, this will stop power from flowing to the alarm output wire. Once the displayed weight readings fall below the programmed alarm settings, the alarm function resets. The alarm feature is now ready for the next load.

XI. Features, Software Revisions and Release Dates

Feature	Revision and Release Date per Scale Type		
	5800	5800A/5800B	5901/ 5801A
Alarm 2 triggered if the steer axle weight is less than 20% of the GVW	r1.06 h1.22 (11/12/2008)	v1.01 (11/3/2009)	v1.10 (11/5/2008)
Prohibits temporary alarm shut-off by ENTER if PIN protected	r1.06 h1.22 (11/12/2008)	v1.01 (11/3/2009)	N/A
Programmable alarm logic level	—	v1.03 (4/21/2010)	v2.08 (4/21/2010)
Programmable alarm logic level, per alarm	—	v1.04, v1.05 (5/10/2010)	v2.09 (5/10/2010)
Programmable alarm delay, per alarm	—	v1.06 (9/16/10)	v2.10 (9/16/10)