

## LMS2, Installation, Attachment Transmitter


This document covers the installation of attachment transmitters for the LMS2 system on MERLO machines.


### Further Information


Please visit <http://www.sil3.com.au/lms2/> for more information regarding this product.


### Cautions and Warnings

This section contains general safety warnings and cautions which must be observed during install or maintenance of the LMS.

	<table><tr><th data-bbox="750 947 1431 1023">CAUTION</th></tr><tr><td data-bbox="750 1023 1431 1330"><p>This manual contains procedures which can modify the calibration of the LMS and affect its accuracy. These procedures must only be carried out by a suitably trained person.</p><p>Typically these procedures must not be disclosed to the operator of the machine, nor any other third party.</p></td></tr></table>	CAUTION	<p>This manual contains procedures which can modify the calibration of the LMS and affect its accuracy. These procedures must only be carried out by a suitably trained person.</p> <p>Typically these procedures must not be disclosed to the operator of the machine, nor any other third party.</p>
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	<div data-bbox="914 241 1106 280"><b>WARNING</b></div> <p>The LMS installation and maintenance actions may require accessing the load holding (lock) valve ports. Accessing these ports can cause the boom to drop if it is not supported correctly.</p> <p>Always use a boom support whenever any work is carried out on the machine.</p>
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	<div data-bbox="906 672 1098 710"><b>WARNING</b></div> <p><b>Take Note:</b> The Telehandler's hydraulic systems operate at very high pressures. The stored energy in these systems is potentially dangerous, and can cause injury or death during the sudden release of pressure.</p> <p>The trained personnel performing the LMS install or maintenance on the LMS should ensure the hydraulic systems are relieved of pressure before attempting to service any part of the hydraulic (or related) systems.</p> <p>Pressure should be relieved by cycling the relevant controls, or carefully opening the affected system if cycling of the controls will not likely reduce the pressure (such as when an accumulator is fitted).</p>
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## Setup


Before fitting an attachment transmitter to an attachment, the following steps should be taken.


Step	Details
1	<p>Unpack the attachment transmitter kit and ensure that the kit is complete and undamaged.</p> <p>Your kit should contain at least:</p> <ul style="list-style-type: none"><li>• An attachment transmitter</li><li>• A set of guide rails</li><li>• M5 Socket Head Cap Screws</li></ul> <p>You will require</p> <ul style="list-style-type: none"><li>• Silicon Adhesive or sealant</li></ul>
2	<p>Check the voltage on the attachment transmitter's battery pack.</p> <p>The voltage check can be performed using a multi meter on the female end of the battery pack connections. The transmitter should have at-least 5.2V of battery power.</p> <p>If the battery voltage is lower than this, charge the battery.</p>

## Battery Maintenance

The attachment transmitters are fitted with a 4.8V rechargeable battery pack. The batteries are designed to provide about 3 years of operation under normal conditions.


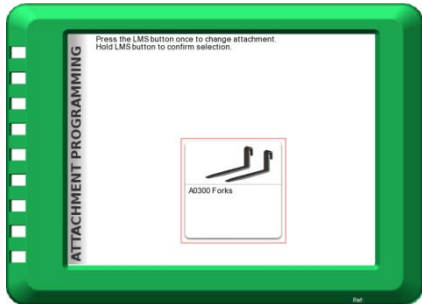
It is a requirement that the batteries are recharged every 12-18 months using a 4.8V receiver battery pack charger available from most hobby shops or by ordering part number LMS2-LTL004.

	CAUTION
	NEVER allow the batteries to run completely flat. Always recharge the batteries ever 12-18 months.

	CAUTION
	NEVER charge the batteries using a fast charger. Always use a slow charger at a charge rate of about 50mA, but less than 100mA.

## Programming

All attachments require programming before use. The following procedure relates to the programming of the attachments to a specific model number.

Step	Details
3	Disconnect the battery connector from the attachment transmitter.
4	Go to the cab of the machine and sit in the operator's seat, make sure the LMS is switched off.
5	Enter the factory setup menu, and go to the attachment settings menu.  
6	Enter the Attachment programming menu and select the desired attachment.  

- 7** Connect the power to the attachment transmitter and begin the programming sequence.

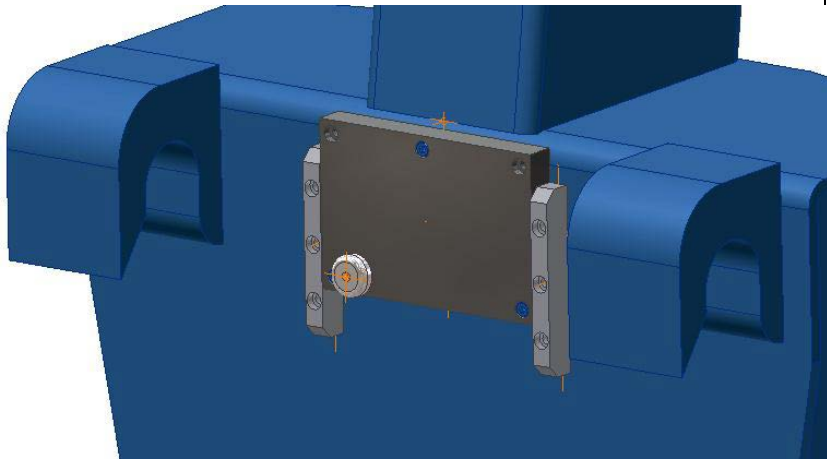


At this point connect the power to your radio transmitter while sitting in front of the LMS display. If the power is already connected, disconnect the power, wait 5 seconds and re-connect it.

Within a few seconds of connecting the power, select the “begin radio transmission” option and observe the on-screen prompts.

Please note, that the radio transmitter will enter normal mode 30 seconds after it has first been powered up. All programming must be done within this 30 second window.

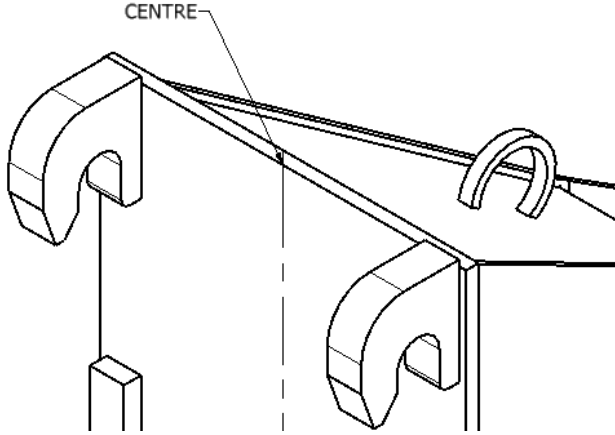
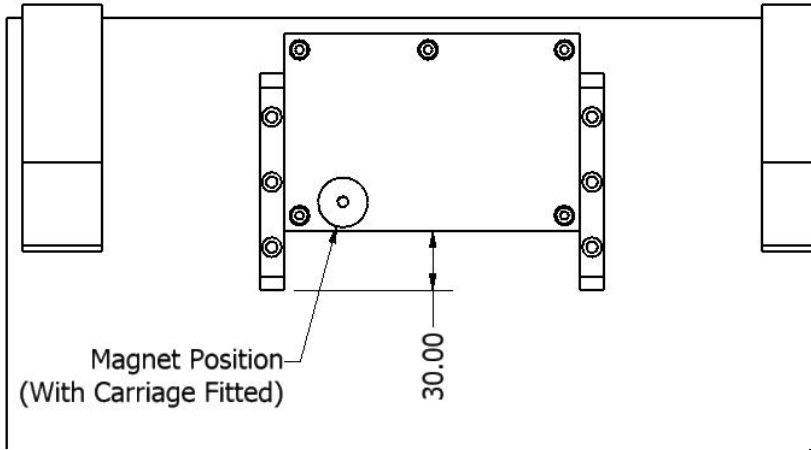
## Installation – A111x Crane Boom

Step	Details
1	Mark the centre of the A111x by measuring the centre between the attachment points.
2	<p>The attachment transmitter should be at-least 25mm above the top of the carriage bar (when installed). The approximate location for an A1110 is with the attachment transmitter flush with the top of the attachment.</p> <p>Mark out ONLY 3 of the 5 holes and drill to 4.2mm. Tap the holes to M5 x 0.8. Drill the top centre hole and the two bottom holes only.</p> <p><b>NOTE:</b></p> <p>It is recommended to install one screw and check the alignment of the magnet with the attachment transmitter. Experience has shown that the location of the carriage hooks on the attachment varies considerable and this will affect the position of the attachment transmitter.</p>  A 3D CAD model showing a blue crane boom structure. A grey rectangular attachment transmitter is mounted on the front face of the boom. The transmitter has several mounting holes and a central circular feature. The model illustrates the placement of the transmitter relative to the boom's structure.

<b>3</b>	<p>Use the smallest amount of <b>silicon grease</b> on the battery connector terminals and connect the battery connector. Ensure that the wire colours align correctly.</p> <p><b>NOTE:</b></p> <p>If you use too much silicon grease the connector may not mate correctly and the attachment transmitter may fail.</p> <p><b>NOTE:</b></p> <p><b>DO NOT USE SILICON ADHESIVE ON THE ELECTRICAL CONNECTOR</b></p>
<b>4</b>	<p>Secure the transmitter to the face of the attachment using 3x M5 socket head cap screws and silicon adhesive. Ensure that the attachment transmitter is fitted in a water-tight manner.</p> <p><b>CAUTION:</b></p> <p>Never allow the attachment transmitter to become distorted. Ensure the face of the attachment is clean, and the battery connector for the transmitter tucked neatly in its hole.</p>
<b>5</b>	<p>Fit the two safety rails on either side of the transmitter and secure with at least 2x M5 x 25. The safety rails are installed so as they extend about 20-30mm from the bottom of the attachment transmitter.</p> <p>Only use 2 of the 3 bolt holes for each transmitter.</p>

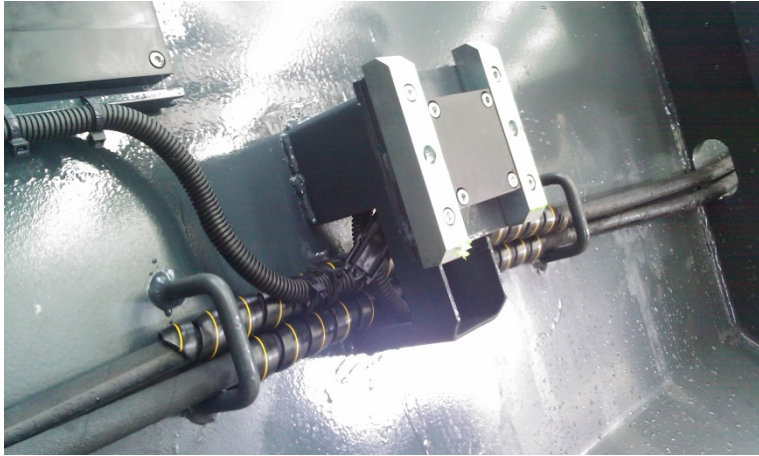



## Installation – A100x Crane Hook

Step	Details
1	<p>Mark the centre of the A1000 by measuring the centre between the attachment points.</p> 
2	<p>The attachment transmitter should be at-least 25mm above the top of the carriage bar (when installed). The approximate location for an A1000 is with the attachment transmitter flush with the top of the attachment.</p> <p><b>NOTE:</b></p> <p>It is recommended to install one screw and check the alignment of the magnet with the attachment transmitter. Experience has shown that the location of the carriage hooks on the attachment varies considerable and this will affect the position of the attachment transmitter.</p> 

<b>3</b>	<p>Use some silicon grease on the battery connector terminals and connect the battery connector. Ensure that the wire colours align correctly.</p> <p><b>NOTE:</b></p> <p>If you use too much silicon grease the connector may not mate correctly and the attachment transmitter may fail.</p> <p><b>NOTE:</b></p> <p><b>DO NOT USE SILICON ADHESIVE ON OR NEAR THE CONNECTOR</b></p>
<b>4</b>	<p>Secure the transmitter to the face of the attachment using 3x M5 socket head cap screws and silicon sealant. Ensure that the attachment transmitter is fitted in a water-tight manner.</p> <p><b>CAUTION:</b></p> <p>Never allow the attachment transmitter to become distorted. Ensure the face of the attachment is clean, and the battery connector for the transmitter tucked neatly in its hole.</p>
<b>5</b>	<p>Fit the two safety rails on either side of the transmitter and secure with at least 2x M5 x 25.</p> <p>The safety rails are installed so as they extend about 20-30mm from the bottom of the attachment transmitter.</p>
<b>6</b>	<p>Test that the attachment transmitter functions correctly and that the magnet position is approximate to the above pictures.</p>

## Installation – Bucket

Step	Details
1	<p>Use an attachment transmitter with a sensor pad.</p> <p>Mount the sensor pad on the bucket and align the sensor pad with the magnet on the carriage.</p> 
2	<p>The attachment transmitter should be mounted against the back of the bucket on a backing plate.</p> 
3	<p>Use some silicon grease on the battery connector terminals and connect the battery connector. Ensure that the wire colours align correctly.</p> <p><b>NOTE:</b></p> <p>If you use too much silicon grease the connector may not mate</p>

	correctly and the attachment transmitter may fail.
<b>4</b>	<p>Secure the transmitter to the face of the attachment using 3x M5 socket head cap screws and silicon sealant. Ensure that the attachment transmitter is fitted in a water-tight manner.</p> <p><b>CAUTION:</b></p> <p>Never allow the attachment transmitter to become distorted. Ensure the face of the attachment is clean, and the battery connector for the transmitter tucked neatly in its hole.</p>
<b>5</b>	<p>Fit the two safety rails on either side of the transmitter and secure with at least 2x M5 x 25.</p> <p>The safety rails are installed so as they extend about 20-30mm from the bottom of the attachment transmitter.</p>
<b>6</b>	<p>Test that the attachment transmitter functions correctly and that the magnet position is approximate to the above pictures.</p>