

# Model 7124 DSP Lock-in Amplifier Firmware History since Rev 1.85

## Purpose

This document summarizes the changes made to the **SIGNAL RECOVERY** Model 7124 Precision Lock-in Amplifier's operating firmware since revision 1.85

## 7124 Firmware History

The table below lists the major firmware revisions. Revision numbers missing from the sequence were not formally released.

Revision	Date	Changes Included
2.22	24 September 2018	Line filter corrections not applied if unit is a 7230K (param[88] = 1)
2.21	4 July 2017	Fixed overload indicator error introduced in version 2.20, whereby ADF command was causing front panel overload indicator to come on.
2.20	20 January 2017	Further updates to reference channel to make dual external reference work reliably. Maximum frequency of this second external reference (TTL input) is 3.1 kHz
2.181	23 August 2016	Added CP command to duplicate DCCOUPLE command. Corrected TC. command as it was giving TC one below the correct one
2.14	14 August 2015	Added change of FET, FLOAT, or DCCOUPLE to list of items that force filter reset
2.13	27 April 2015	Fixed bug with operation of 18dB/octave output filters that was introduced in error in version 2.06.6 or 2.06.7
2.12	9 December 2014	Fixed lock problem for reference frequencies below 2Hz
2.11	12 November 2013	Added support for dual external reference channel, Required addition commands FRQ1 and FRQ2 to read external reference frequencies, IE1 and IE2 to select source of reference. INT command removed as it was superseded by IE1 and IE2
2.10	7 May 2013	Changed correction factor for noise. Noise mode extended to allow 200 ms TC
2.09	8 April 2013	Fixed daisy chain RS232 port. Fixed X and Y offsets on DAC outputs when in FAST mode (was OK in normal mode)
2.08	4 January 2013	Fixed problem in fast curve buffer mode of incorrect data sent via DC command
2.07	10 October 2012	USBTERM command added with parameter values of f 0=NULL, 1=Status bytes. Changing sensitivity no longer causes TC filters to null and then charge up
2.06.8	3 October 2012	Fixed problem with SYNC not working below 10Hz on internal reference mode
2.06.1	2 December 2011	Added ADF 2 that set oscillator amplitude to zero. Limited fast curve buffer to LEN>=300
2.04	30 August 2011	Fixed phase relationship between reference and signal to be same as 7265 and 7280, adding PHASEPOL command to switch between new and old phase relationship. Added CONFIG MENU 2 so that the phase polarity can be changed from the front panel. Removes CR from commands sent to Ethernet ports 50000 and 50001.
2.03	24 August 2011	Fixed phase inversion on external TTL reference. Fixed external trigger modes on curve buffer that didn't work correctly when the oscillator sweep was linked to the curve buffer. Updated Ethernet stack.

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Revision	Date	Changes Included
2.00	25 January 2011	Fixed a problem that caused the output values X, Y, MAG, and PHASE to stop updating under the following conditions: Frequency between 1Hz and 10Hz; fast time constant mode; synchronous time constants; time constant of 100ms, 200ms, or 500ms. The outputs will now continue updating but the time constant will not be synchronous. For synchronous time constants between 1Hz and 10Hz select either normal time constant mode or a time constant greater than 500ms.
1.97	17 January 2011	Added SOA command to set the synchronous oscillator amplitude when selected as an output on DAC4. The parameter for the command is in units of millivolts. Fixed a problem with the synchronous oscillator that caused erratic results when the filter mode was set to normal and the time constant was greater than 10ms.
1.95	9 November 2010	Improvements to virtual reference mode. Time per step can be set faster than one second when searching for signal. Time constant can be increased without losing lock. Added commands to allow setup of static IP address. Cosmetic change to static interface web page.
1.94	12 October 2010	In tandem demodulation mode it is now possible to choose which demodulator uses the internal reference. Added INT command to set which demodulator in tandem mode is connected to the internal reference. Frequency sweep updated to work in dual reference mode. Improved calibration of ADC1 when used as source for the second demodulator. Added NAME command so that unit can be given an identity to differentiate between multiple units on the same network.
1.88	17 June 2010	Corrected amplitude sweep to allow amplitudes greater than 5mV. The time constant filter is no longer cleared when the oscillator amplitude or frequency is changed. Updated the output displays web page to prevent Internet Explorer using cached values.
1.87	26 February 2010	Corrected calibration of current mode that was causing numerical overflow when ac gain set above 12dB.
1.86	19 February 2010	Changed maximum input limits from rms values to peak values so that they are shown in the same units as the 7265. Corrected the output of PHA2 in the "?" command.
1.85	11 February 2010	Corrected calibration of 2 <sup>nd</sup> demodulator when in tandem demodulation mode. AC gain calibration was incorrectly being applied twice, once to the output of the 1 <sup>st</sup> demodulator, which is also the input to the 2 <sup>nd</sup> demodulator, and to the output of the 2 <sup>nd</sup> demodulator.

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