

Installation of AMIQ Firmware Versions 4.00

AMIQ PROGRAM Disk Firmware Version 4.00

The new AMIQ firmware version 4.00 (Part No. 1110.3322.00) is the successor version to 3.05.

- The **new feature multisegment waveform** is available. This is a new waveform which can contain up to 30 partial traces (segments). Once this waveform is loaded into the output RAM of the AMIQ, the partial traces are changed solely by modifying a start address in the output RAM, and thus in the millisecond range.
- **New option AMIQK16**, Digital Standard 802.11b Wireless LAN for interpreting a waveform file created by **WinIQSIM™** version 3.80 or higher. WinIQSIM generates signals to the Wireless LAN Standard IEEE 802.11b, which can be output by the AMIQ if option AMIQK16 is enabled.
- **Improvement:** In some circumstances problems on the IEC bus (GPIB) may occur: Because of a special feature of the bus – called "High-speed-mode" – which is used on the AMIQ until now, the transmission of the SCPI commands via the IEEE bus may be disturbed (duplicated or missing characters) if the connection cable is long (approx. 5 meter or more) and many units are connected to the bus (approx. 8 units or more).
This difficulty will be solved with the next firmware release V. 4.00 of the AMIQ. Then this feature of the IEC bus is not used any more. With the normal mode of the IEC bus, which is then used, the slowdown is negligible .
- **Bugfix:** there was a problem controlling the AMIQ via the WinIQSIM RS232 interface in conjunction with Windows 98 and specific controllers.
In WinIQSIM, the automatic search for the baud rate set in the AMIQ was sometimes performed only once, after the AMIQ was switched on. Error eliminated!

If an AMIQ with firmware ≤ 3.00 is updated with the AMIQ PROGRAM disk 4.00, a new S.OUT configuration file for the FPGA chip sequencer is loaded for models 02, 03 and 04 of AMIQ.

Firmware update from ≥ 2.11 to 4.00	Firmware update from ≤ 2.10 to 4.00
The AMIQ PREPARE DISK is not required for this purpose!	<p>Use PREPARE DISK Version 1.4 under all circumstances! All AMIQs using firmware version ≤ 2.10 contain a data record for the FPGA chip D2 that is unsuitable for the new firmware.</p> <p>No problems occurred with the previous firmware version and the previous FPGA data record because the hardware activities and the timing of the previous firmware were different.</p> <p>The request ...</p> <p>The install program will initialize the Controller's memory. It has no way to determine ...</p> <p>Press 'y' to download CONTROL.SVF to controller, otherwise press 'n'.</p> <p>... in the PREPARE program must be answered with 'y'.</p>
Insert AMIQ PROGRAM disk version 4.00 and switch AMIQ off and on again. If the green disk drive LED goes out, AMIQ is ready for use.	

AMIQ PREPARE DISK Version 1.4

The AMIQ PREPARE DISK is only necessary for a

- first-time installation of the AMIQ operating system or to
- make changes on the AMIQ operating system and possibly for a
- firmware update from version ≤ 2.10 to 4.00 (see table above) to replace an unsuitable CONTROL.SVF! It is not required for a
- firmware update from version ≥ 2.11 to 4.00 – this update is performed with the AMIQ PROGRAM disk.

AMIQ firmware 4.00 and AMIQ PREPARE DISK 1.4 (Part No: 1110.3300.00) belong together. For a first-time installation, the AMIQ PREPARE DISK 1.4 is thus required for AMIQ firmware 3.01 till 4.00. This disk contains new configuration files for the FPGA chips. If the FPGA sequencer is loaded with an old S.OUT file, AMIQ firmware 4.00 signals an error during the internal plausibility check.

First-time Installation or Change of AMIQ Operating System

Procedure:

1. Switch off AMIQ.
2. Open AMIQ and insert a VGA card into the appropriate motherboard slot (at the rear cutout) and connect a monitor.
3. Connect a – preferably English – keyboard to the connector labelled X12K. If only a German keyboard is available, observe the instructions in the menu of the installation program.
4. Switch on AMIQ and go into the BIOS by pressing the DELETE button during the memory test. Select "Floppy" as 1st boot device in the mainboard setup.
5. Insert AMIQ PREPARE DISK version 1.4.
6. Complete change in mainboard setup. After you store the new setting in the BIOS the boot program starts again and now it boot from the preparation disk.
7. The installation program starts automatically and guides the user through the menu, indicating the following options:
 - a) Refragment hard disk. In the case you install only a new IQ board say no.
 - b) Reformat hard disk. In the case you install only a new IQ board say no.
 - c) Enter AMIQ model 03 or 04.
 - d) Enter IQ analog/digital board version 03 or 04 (observe information on the bar code label provided in the menu). The configuration programs (CONTROL.SVF, S.OUT and B.OUT) matching the IQ analog/digital board version are loaded into the AMIQ hardware automatically.
 - e) Enter serial number.
8. Switch AMIQ off and on again and go into the BIOS by pressing the DELETE button during the memory test. Select "IDE-0" as 1st boot device in the mainboard setup. Remove the preparation disk and insert the AMIQ PROGRAM disk FW version 4.00. After you store the new setting in the BIOS the boot program starts again and now it boot from the hard disk.
9. The AMIQ firmware will now be installed from the AMIQ PROGRAM disk.

Plausibility Check on Program Start

With AMIQ firmware 3.00 and higher, a check is made upon program start using the board ID whether the configuration program for the AMIQ hardware (CONTROL.SVF and S.OUT) matches the built-in IQ analog/digital board. If this is not the case, the error message 243 "AMIQ variant check failed;Board-ID bid Bit:b1/b2 Vers:v1/v2" is placed in the error queue and the green LED on the AMIQ front panel flashes. After this error message, hardware settings are not expedient and cannot therefore be made. It is however possible to address the instrument via the IEC/IEEE bus or RS232 interface.

Meaning of parameters bid,b1,b2,v1,v2 in the error message 243

"AMIQ variant check failed;Board-ID bid Bit:b1/b2 Vers:v1/v2"

Parameter	Description	Error source
bid	Decimal equivalent of the board ID of the built-in IQ analog/digital board. Valid board IDs: 145, 137, 153 or 155	
b1	Denotes the required bit width of the memory for the board ID named under bid. 22 bits allow waveform files with maximum 4 000 000 samples, 24 bits with 16 000 000 samples. Board ID 145 (0x91): 22 bits Board ID 137 (0x89): 22 bits Board ID 153 (0x99): 22 bits Board ID 155 (0x9B): 24 bits	If parameters b1 and b2 differ, CONTROL.SVF stored in D2 does not match the AMIQ model number.
b2	Denotes the bit width for which the control electronics of AMIQ is designed.	
v1	Denotes the sequencer version number matching the board ID named under bid. Board ID 145 (0x91): SEQ Vers. No. 02 Board ID 137 (0x89): SEQ Vers. No. 02 Board ID 153 (0x99): SEQ Vers. No. 06 !!! Board ID 155 (0x9B): SEQ-Vers. No. 05 !!!	If parameters v1 and v2 differ, S.OUT stored in D7 does not match the AMIQ firmware 4.00 or the AMIQ model number.
v2	Denotes the current SEQ version number	

!!!: Note: The sequencer version number has been changed!

Cautionary note on downgrading AMIQ firmware 4.00 to ≤ 3.00

The downgrade of AMIQ firmware 4.00 to 3.00 should be avoided!

If such a downgrade is unavoidable, the error message 243, "AMIQ variant check failed;Board-ID bid Bit:b1/b2 **Vers:4/6**" or "...**Vers:3/5**" occurs after the installation of firmware 3.00 and the AMIQ will not respond.

The reason for this is the new sequencer configuration file S.OUT that is updated during the AMIQ 4.00 installation and, depending on the model, AMIQ signals with the version numbers **05** or **06**. These version numbers are unknown to firmware 3.00 and are therefore rejected.

A new installation of firmware 3.00 does **not** change the S.OUT file back to its previous state. The AMIQ must be loaded with the AMIQ PREPARE DISK version **1.3** to downgrade the S.OUT file to firmware 3.00.

After a downgrade of AMIQ firmware 4.00 to ≤ 2.14 , error message 243 does not appear but the AMIQ must be made functional by using the corresponding AMIQ PREPARE DISK with the associated S.OUT file.

Make sure that the CONTROL.SVF of AMIQs using firmware version ≤ 2.10 is under no circumstances loaded in an AMIQ with firmware version 4.00, see table in section "AMIQ PROGRAM Disk Firmware Version 4.00".