HAMEG®
Instruments

DUAL-INTERFACE HO720

Installation guidelines

English

HO720 Dual-Interface

HAMEG®
Instruments   USB   RS-232
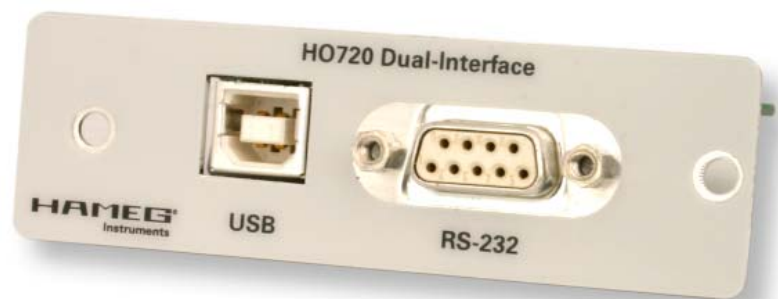
Issued: September 2006

$\mathsf{C}\,\mathsf{\epsilon}$ **HAMEG®**
Instruments

**KONFORMITÄTSERKLÄRUNG
DECLARATION OF CONFORMITY
DECLARATION DE CONFORMITE
DECLARACIÓN DE CONFORMIDAD**

Hersteller / Manufacturer / Fabricant / Fabricante:
HAMEG Instruments GmbH · Industriestraße 6 · D-63533 Mainhausen

Die HAMEG Instruments GmbH bescheinigt die Konformität für das Produkt
The HAMEG Instruments GmbH herewith declares conformity of the product
HAMEG Instruments GmbH déclare la conformite du produit
HAMEG Instruments GmbH certifica la conformidad para el producto

Bezeichnung:	Dual-Interface
Product name:	Dual Interface
Designation:	Interface dual
Descripción:	Interfaz dual

Typ / Type / Type / Tipo:	HO720

mit / with / avec / con:	HM1008, HM1508, HM5530
Optionen / Options /	
Options / Opciónes:	–

mit den folgenden Bestimmungen / with applicable regulations /
avec les directives suivantes / con las siguientes directivas:

EMV Richtlinie 89/336/EWG ergänzt durch 91/263/EWG, 92/31/EWG
EMC Directive 89/336/EEC amended by 91/263/EWG, 92/31/EEC
Directive EMC 89/336/CEE amendée par 91/263/EWG, 92/31/CEE
Directiva EMC 89/336/CEE enmendada por 91/263/CEE, 92/31/CEE

Niederspannungsrichtlinie 73/23/EWG ergänzt durch 93/68/EWG
Low-Voltage Equipment Directive 73/23/EEC amended by 93/68/EEC
Directive des equipements basse tension 73/23/CEE amendée par 93/68/CEE
Directiva de equipos de baja tensión 73/23/CEE enmendada por 93/68/EWG

Angewendete harmonisierte Normen / Harmonized standards applied /
Normes harmonisées utilisées / Normas armonizadas utilizadas:

Sicherheit / Safety / Sécurité / Seguridad:

EN 61010-1:2001 / IEC (CEI) 1010-1:2001
Überspannungskategorie / Overvoltage category / Catégorie de surtension /
Categoría de sobretensión: II

Verschmutzungsgrad / Degree of pollution / Degré de pollution / Nivel de
polución: 2

Elektromagnetische Verträglichkeit / Electromagnetic compatibility /
Compatibilité électromagnétique / Compatibilidad electromagnética:

EN 61326-1/A1: Störaussendung / Radiation / Emission: Tabelle / table /
tableau 4; Klasse / Class / Classe / classe B.

Störfestigkeit / Immunity / Imunitee / inmunidad:
Tabelle / table / tableau / tabla A1.

EN 61000-3-2/A14: Oberschwingungsströme / Harmonic current emissions
/ Émissions de courant harmonique / emisión de corrientes armónicas:
Klasse / Class / Classe / clase D.

EN 61000-3-3: Spannungsschwankungen u. Flicker / Voltage fluctuations
and flicker / Fluctuations de tension et du flicker / fluctuaciones de tensión
y flicker.

Datum / Date / Date / Fecha
26. 01. 2006

Unterschrift / Signature / Signatur / Signatura

Manuel Roth
Manager

General information regarding the CE marking

HAMEG instruments fulfill the regulations of the EMC directive. The conformity test made by HAMEG is based on the actual generic- and product standards. In cases where different limit values are applicable, HAMEG applies the severer standard. For emission the limits for residential, commercial and light industry are applied. Regarding the immunity (susceptibility) the limits for industrial environment have been used.

The measuring- and data lines of the instrument have much influence on emmission and immunity and therefore on meeting the acceptance limits. For different applications the lines and/or cables used may be different. For measurement operation the following hints and conditions regarding emission and immunity should be observed:

1. Data cables
For the connection between instruments resp. their interfaces and external devices, (computer, printer etc.) sufficiently screened cables must be used. Without a special instruction in the manual for a reduced cable length, the maximum cable length of a dataline must be less than 3 meters and not be used outside buildings. If an interface has several connectors only one connector must have a connection to a cable. Basically interconnections must have a double screening. For IEEE-bus purposes the double screened cables HZ72S and HZ72L from HAMEG are suitable.

2. Signal cables
Basically test leads for signal interconnection between test point and instrument should be as short as possible. Without instruction in the manual for a shorter length, signal lines must be less than 3 meters and not be used outside buildings.
Signal lines must screened (coaxial cable - RG58/U). A proper ground connection is required. In combination with signal generators double screened cables (RG223/U, RG214/U) must be used.

3. Influence on measuring instruments.
Under the presence of strong high frequency electric or magnetic fields, even with careful setup of the measuring equipment an influence of such signals is unavoidable.
This will not cause damage or put the instrument out of operation. Small deviations of the measuring value (reading) exceeding the instruments specifications may result from such conditions in individual cases.

HAMEG Instruments GmbH

English

1. Safety Hints

☞ **Attention!**
Fitting or exchanging of an interface must not be made unless the oscilloscope or the spectrum analyzer is switched off and not connected to line (mains).

☞ **Attention!**
During operation the interface opening must be closed.

☞ **Attention!**
All interface connections are galvanically connected to the scope / to the spectrum analyzer.

☞ **Measurement at high potentials is prohibited and endangers the scope / spectrum analyzer, the interface and all equipment connected to the interface.**

If the safety rules are disregarded, any damage to HAMEG Instruments GmbH products will void the warranty. Consequently HAMEG Instruments GmbH will not take any responsibility for damage to people or equipment of other make.

2. Interface Description

HO720 is a DUAL Interface that can be used alternatively as a USB 2.0 or as a RS-232 Interface in connection with the HAMEG CombiScopes HM1008 and HM1508 as well as the HAMEG spectrum analyzer HM5530 for data transfer and oscilloscope/spectrum analyzer control. Only one function (USB or RS-232) – not both at the same time – can be activated (see item 5 "Interface Selection"). Both interfaces enable serial data transfer.

2.1 USB

The interface is equipped with a Type A USB female connector. For direct connection with a host controller or an indirect connection via a USB hub, a USB cable is required, equipped with Type B male connector one end and a Type A male connector at the other.

Type A   Type B
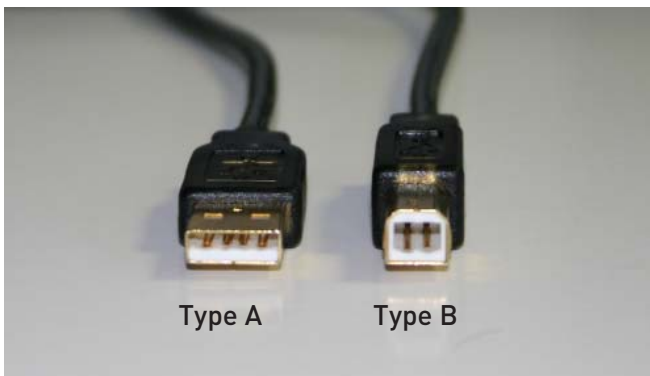
2.2 RS-232

The RS-232 connector and its specification comply with the interface HO710 that is described in the oscilloscope / spectrum analyzer manual.

3. Firmware

Oscilloscope

3.1 It is absolutely necessary to check the oscilloscope firmware version before fitting the Interface HO720. The firmware version already on the scope is displayed after switching on if "Quick Start" is off. The "Quick Start" function can be changed after pressing the SETTINGS pushbutton and calling "Misc.".

3.2 If the firmware version is 03.000-yy.yyy or higher, continue the interface fitting as described under item 4 (Interface Fitting Instruction). In the case of firmware versions below 03.000-yy.yyy, HO720 will not be recognised and a firmware update is required as described under item 3.3.

3.3 In case of a firmware version below 03.000-yy.yyy, please download the current firmware at www.hameg.com from the Internet and update the oscilloscope. The firmware can be found and downloaded under: Products > Oscilloscopes > (oscilloscope type) > Software/Firmware (below the oscilloscope picture) > Firmware_HMxxx_Vxxx.zip.

After receiving the current firmware and its installation instruction, the firmware installation must be done via the RS-232 interface HO710. If the current firmware is installed, future updates can be made by aid of HO720 too.

Spectrum analyzer

With spectrum analyzers the interface will be recognized by each firmware version.

4. Fitting of the HO720

Precondition!
The installation of the interface HO720 is meaningful only if, as described under point 3 (Firmware), the oscilloscope has firmware version 03.000-yy.yyy or higher. Otherwise the interface is not recognized by the oscilloscope. With spectrum analyzers the interface will be recognized by each firmware version.

☞ **Safety!**
The following procedures must only be carried out on condition that the mains (line) power cable is not connected to the oscilloscope and/or the spectrum analyzer and no connection is made at the measurement inputs.

☞ **Attention!**
To avoid damage of the interface during removing and fitting by electrostatic discharge, please link a metal part of the oscilloscope / spectrum analyzer to equalise potentials between oscilloscope / spectrum analyzer and your body. Maintain this connection during the fitting/removing!

Only touch the interface at its mounting panel!

4.1 Removing the existing interface

4.1.1 Remove both fastening screws.

4.1.2 Pull out the interface.

4.2 Fitting the interface HO720

4.2.1 Insert the interface HO720 in the opening in such a way, that the PCB will be inserted in the guides – visible on both sides – and push it in completely.
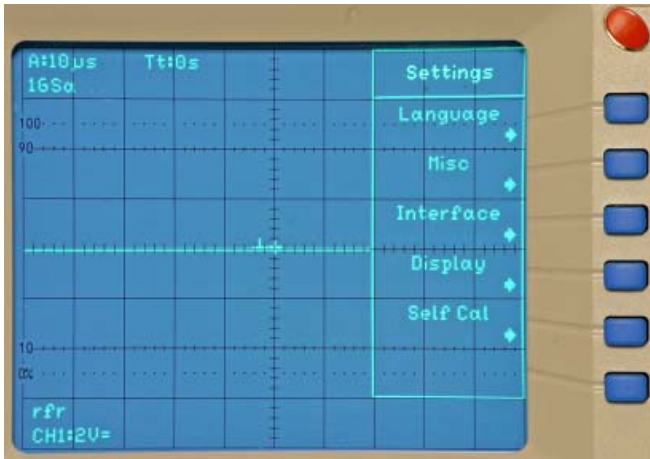

4.2.2 Fit the interface with the fastening screws previously (item 4.1.1) removed.

5. Interface Selection

5.1 Oscilloscopes

The choice of the interface is only possible, if as described the oscilloscope works with the firmware version 03.000-yy.yyy under item 3 (Firmware), or more highly and the interface HO720 (described as under item 4) is inserted.

5.1.1 Interface Selection with oscilloscopes
Pressing the SETTINGS pushbutton calls the "Settings" menu. The function key "Interface" opens the submenu "Settings Interface" consisting of the menu items USB and RS-232.
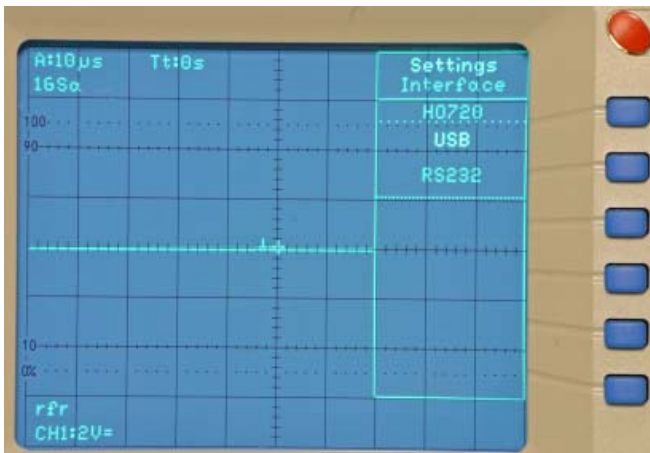
5.1.1.1 USB
USB is selected when being displayed with higher intensity. Further settings are not required.

5.1.1.2 RS-232
When "RS232" is activated the submenu "Parameter" is also displayed. It enables RS-232 interface parameter settings that must correspond with the RS-232 settings in a terminal program or the HMLab settings.
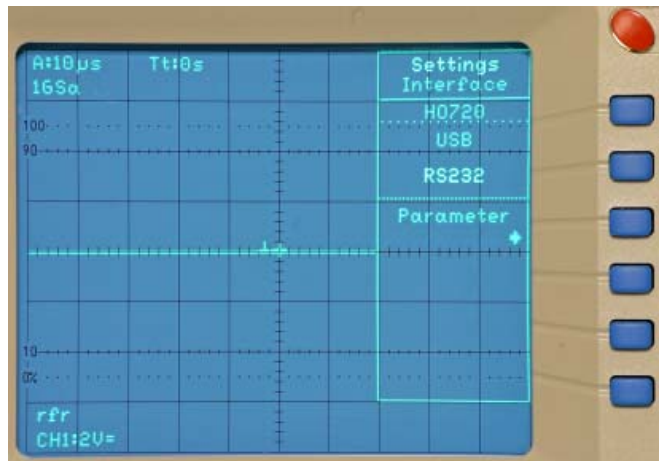
5.2 Spectrum analyzers

5.2.1 Interface selection by spectrum analyzers
With a long press of the DISPLAY MODE key, the desired interface is called and the spectrum analyzer displays the selected interface „RS232" or „USB" for approx.. 1 second in the Readout, in place of the Sweep time.

5.2.1.1 USB
If activated, this interface is indicated by "USB" in the Readout. Further action is not necessary.

5.2.1.2 RS-232
If activated this interface is indicated by "RS-232" in the Readout. Further action is not necessary. The RS-232 interface parameter is controlled by the software AS300E. The port preset in the software AS300E must be selected according to the COM port, where the spectrum analyzer is attached.

6. USB-Driver Installation

☞ **Attention!**
The basic requirement for installation of the USB-Driver for Dual Interface HO720 on your PC is a Combiscope with built in HO720 whose USB-Interface is activated. The PC operating system must be Windows 2000 or XP.

Providing a connection between PC and oscilloscope has been established and there is no HO720 driver installed, the operating system answers "Found New Hardware". In addition the "Found New Hardware Wizard" is displayed. Only in this case the USB-Driver must be installed.

The USB Driver is located in the directory "HO720_D2xx_Driver ...." subdirectory "Driver".

6.1 Installation under Windows XP:

**6.1.1** Please choose "No, not this time" and click "Next".

6.1.2 Thereafter select "Install the software automatically (Recommended)" and click „Next".
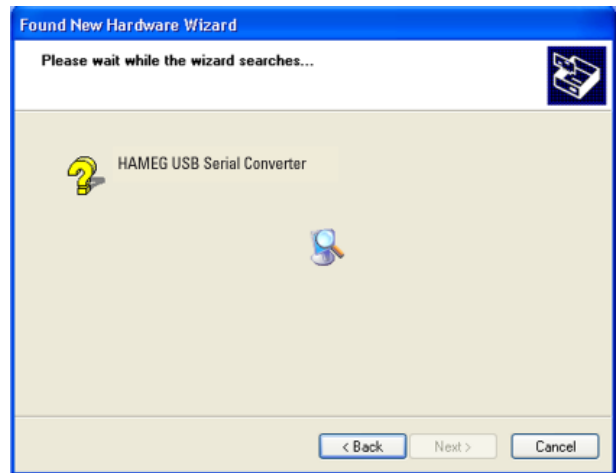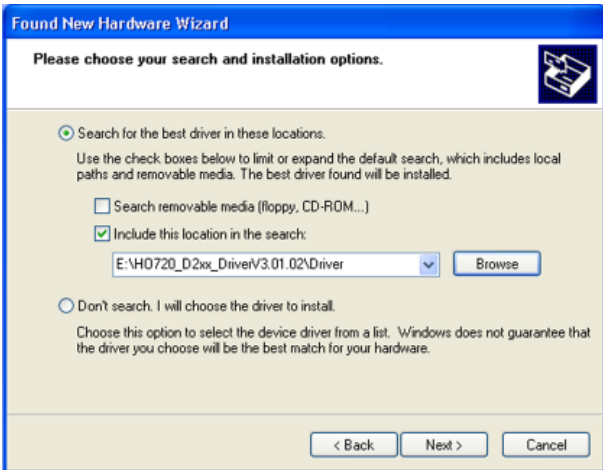

6.1.3 The wizard now searches for HAMEG HO720. If the driver software has been found, please continue with item 6.1.4.
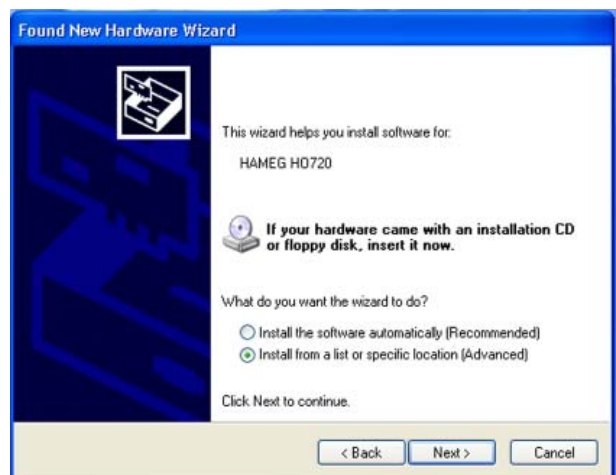
6.1.3.1 If the driver software has not been found, the message „The wizard could not find the software for ... ? HAMEG HO720" is displayed. Please click "Back" until item 6.1.2 is displayed.
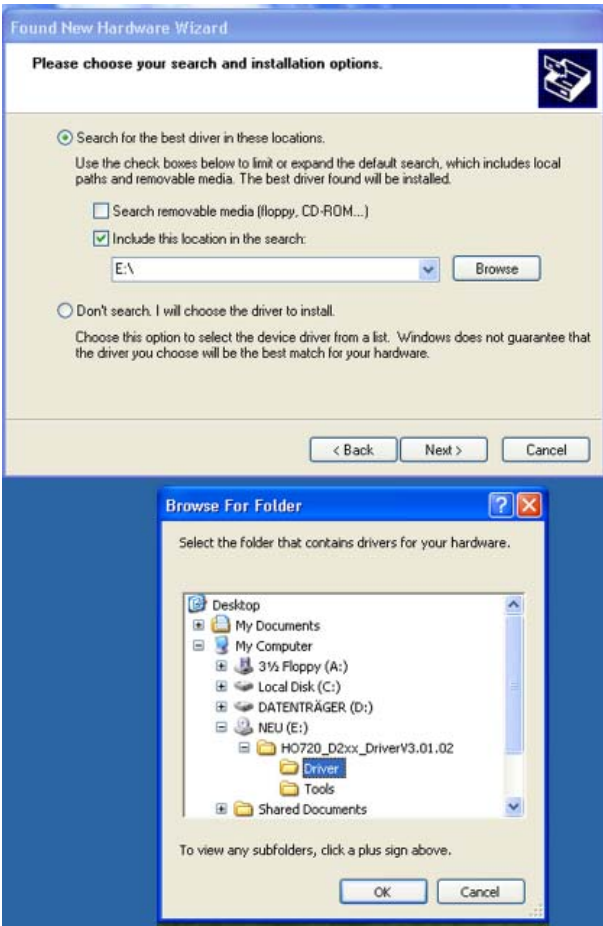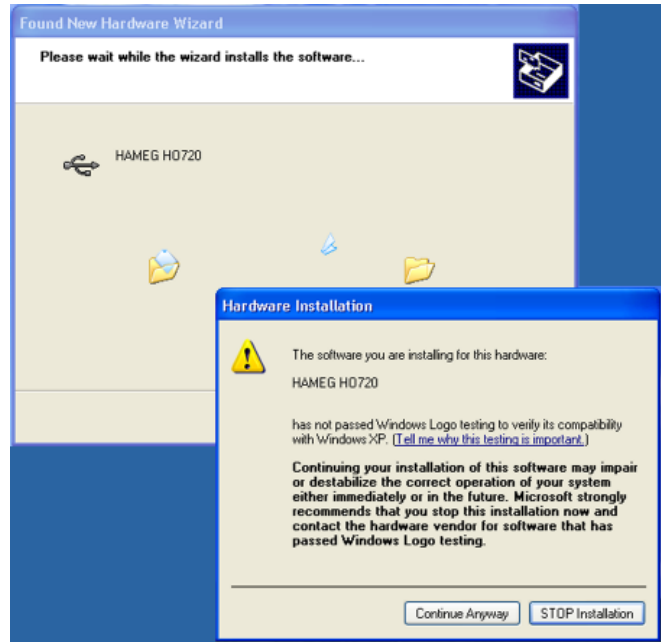
**6.1.3.2** Select "Install from a list or specific location (Advanced)" and click "Next".

6.1.3.3 "Browse" for the selected drive and select the folder containing the driver. Confirm with "OK".

6.1.3.4 After the selected path is displayed click "Next".

6.1.4 Thereafter the "Hardware Installation" window is displayed, showing a warning to continue the installation procedure. As this warning is irrelevant in case of HO720 driver software, click „Continue Anyway".
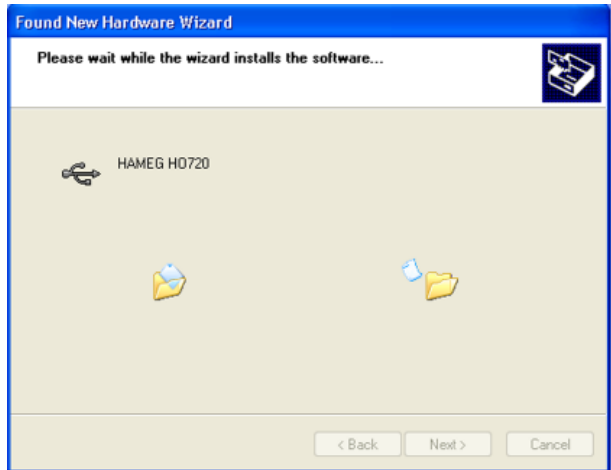
6.1.5 The wizard installs the driver software.

6.1.6 Please click "Finish" to complete the installation.

7. Application

7.1 Oscilloscopes

In combination with HMLab 0.60 or higher, the interface HO720 can be used via USB as well as RS-232. The HMLab ˝Settings˝ must coincide with the interface settings.

If the present HMLab version is below 0.60 the current version can be found in the Internet (www.hameg.com) for downloading and updating your PC. The path is: Products > Oscilloscopes > (oscilloscope type) > Software/Firmware (below the oscilloscope picture) > Software/Firmware (below the oscilloscope picture) > HMLab.zip.

Programming commands

The programming commands list will be provided in the Internet under www.hameg.com.

7.2 Spectrum analyzers

The interface HO720 can be used both over RS-232 and over USB in connection with the user software AS300E. The „Settings˝ preset in AS300E have to correspond to the interface used in each case. You can load the current user software from www.hameg.com from the Internet. They find the software under: Products > Spekrumanalysatoren > (Spekrumanalysatortyp) > software/firmware (under the illustration of the Spectrum analyzers) > AS300E.zip.

Mainhausen, Germany

September 2006

HAMEG®
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Oscilloscopes

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8000 Series

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