

# DUAL-INTERFACE H0720

## Installation guidelines

English



Release: June 2011



**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 conformité 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:  
Optionen / Options /  
Options / Opciones: -

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 équipements 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 remarks regarding the CE marking**

HAMEG measuring instruments comply with the EMI norms. Our tests for conformity are based upon the relevant norms. Whenever different maximum limits are optional HAMEG will select the most stringent ones. As regards emissions class 1B limits for small business will be applied. As regards susceptibility the limits for industrial environments will be applied.

All connecting cables will influence emissions as well as susceptibility considerably. The cables used will differ substantially depending on the application. During practical operation the following guidelines should be absolutely observed in order to minimize EMI:

**1. Data connections**

Measuring instruments may only be connected to external associated equipment (printers, computers etc.) by using well shielded cables. Unless shorter lengths are prescribed a maximum length of 3 m must not be exceeded for all data interconnections (input, output, signals, control). In case an instrument interface would allow connecting several cables only one may be connected.

In general, data connections should be made using double-shielded cables. For IEEE-bus purposes the double screened cable HZ72 from HAMEG is suitable.

**2. Signal connections**

In general, all connections between a measuring instrument and the device under test should be made as short as possible. Unless a shorter length is prescribed a maximum length of 3 m must not be exceeded, also, such connections must not leave the premises.

All signal connections must be shielded (e.g. coax such as RG58/U). With signal generators double-shielded cables are mandatory. It is especially important to establish good ground connections.

**3. External influences**

In the vicinity of strong magnetic or/and electric fields even a careful measuring set-up may not be sufficient to guard against the intrusion of undesired signals. This will not cause destruction or malfunction of HAMEG instruments, however, small deviations from the guaranteed specifications may occur under such conditions.

HAMEG Instruments GmbH

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## 1 General information

### 1.1 Safety hints

**Attention!**  
Fitting or exchanging of an interface must not be made unless the HAMEG instrument 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 HAMEG instrument.

**Attention!**  
Measurement at high potentials is prohibited and endangers the HAMEG instrument, the interface and all equipment connected to the interface.

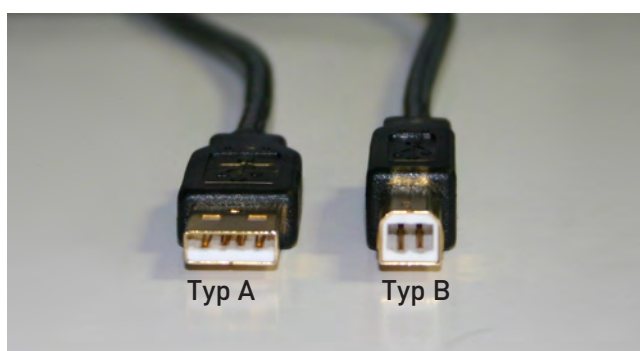
If the safety rules are disregarded, any damage to HAMEG Instruments GmbH products will void the warranty. Consequently HAMEG Instruments GmbH will not take any responsibility for damage to people or equipment of other make.

### 1.2 Interface Description

H0720 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(-2), HM1508(-2), HM2008, the Digital Storage Oscilloscopes of the HMO series, the Arbitrary Function Generators of the HMF series, the Power Supplies of the HMP series, as well as the HAMEG spectrum analyzer HM5530 and the HMS series for data transfer and remote control. Only one function (USB or RS-232) – not both at the same time – can be activated (see item 2 "Interface Selection"). It is also possible to establish a physical USB connection and to control the instrument via a virtual COM port. Both interfaces enable serial data transfer.

#### 1.2.1 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.



#### 1.2.2 RS-232

The RS232 interface has the usual 9 pole SubD connector. Via this bidirectional interface the scope can be controlled remotely or its settings may be transferred. In digital mode also the digitized and stored signals can be read out. The connection to a pc requires a 9 pole screened cable (1:1) of 3 m maximum length. The pinout is as follows:

##### Pin

##### no. Function

- |   |   |
|---|---|
| 2 | Tx data from scope to external device                         |
| 3 | Rx data from external device to scope                         |
| 7 | CTS ready to transmit   |
| 8 | RTS ready to receive  |
| 5 | ground (scope is connected to safety ground, safety class II) |
| 9 | + 5 V, max. 400 mA  |

The maximum signal on Tx, Rx, RTS and CTS is  $\pm 12$  V.

Please consult the manual of the respective HAMEG instrument for the RS-232 parameters and their settings for the interface.

### 1.3 Firmware CombiScope

- It is absolutely necessary to check the oscilloscope firmware version before fitting the Interface H0720. 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."
- 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, H0720 will not be recognised and a firmware update is required as described under item 3.3.
- In case of a firmware version below 03.000-yy.yyy, please download the current firmware at [www.hameg.com](http://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 H0710. If the current firmware is installed, future updates can be made by aid of H0720 too.

### 1.4 Firmware for other instruments

With all other instruments (Digital Storage Oscilloscopes of the HMO series, Spectrum Analyzers of the HMS series and the HM5530, Arbitrary Function Generators of the HMF series and Power Supplies of the HMP series) the interface will be recognized by the firmware.

## 2 Interface Selection

Please consult the manual of the HAMEG instrument for information about activating the desired interface (USB / RS-232) and which parameters, if any, have to be set.

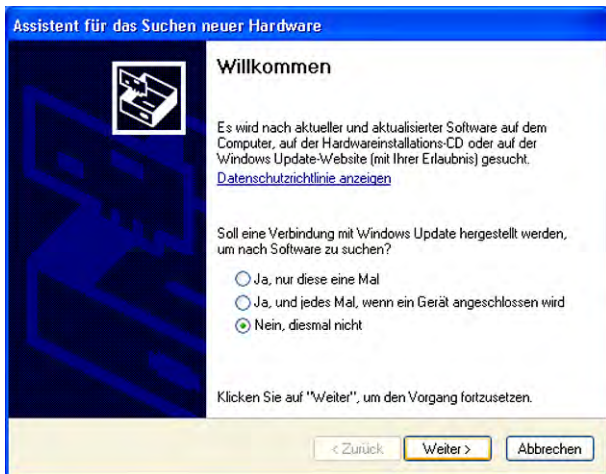
## 3 USB-Driver Installation

**Attention!**  
The basic requirement for installation of the USB-Driver for Dual Interface HO720 on your PC is a Instrument with built in HO720 whose USB-Interface is activated. The PC operating system must be Windows 2000, XP, VISTA or Win 7 (32 or 64Bit).

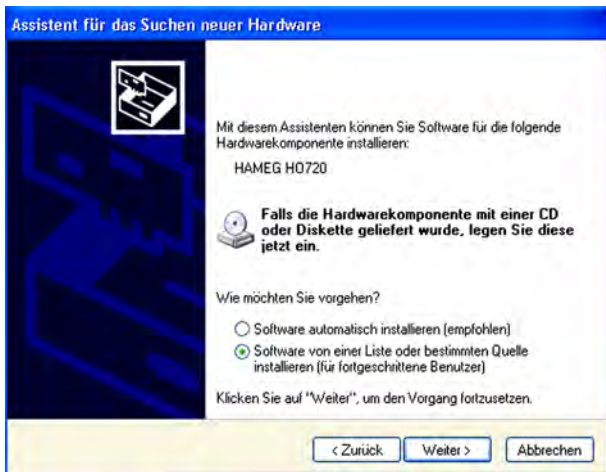
Provided a connection between PC and oscilloscope has been established and there is no HO720 driver installed, the operating system answers "Found New Hardware". In addition the "Found New Hardware Wizard" is displayed. Only in this case the USB-Driver must be installed.

### 3.1 Installation under Windows XP

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



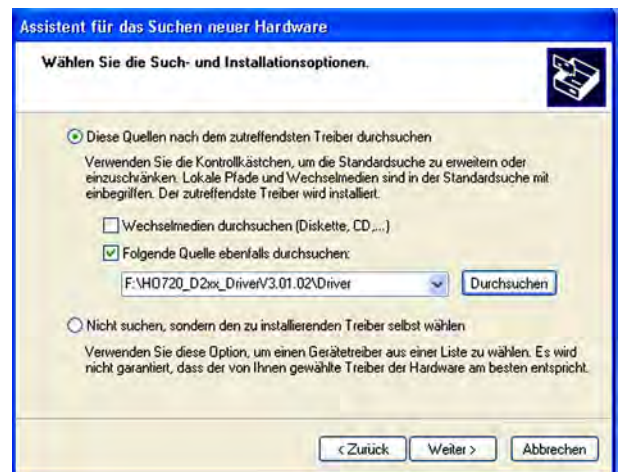
3.1.2 Select "Install from a list or specific location (Advanced)" and click "Next".



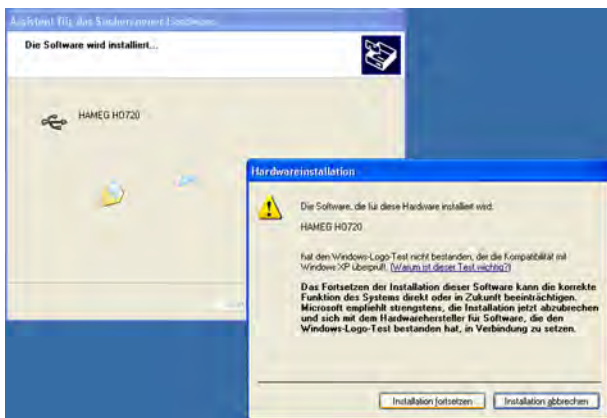
3.1.3 „Browse“ for the selected drive and select the folder containing the driver. Confirm with "OK".



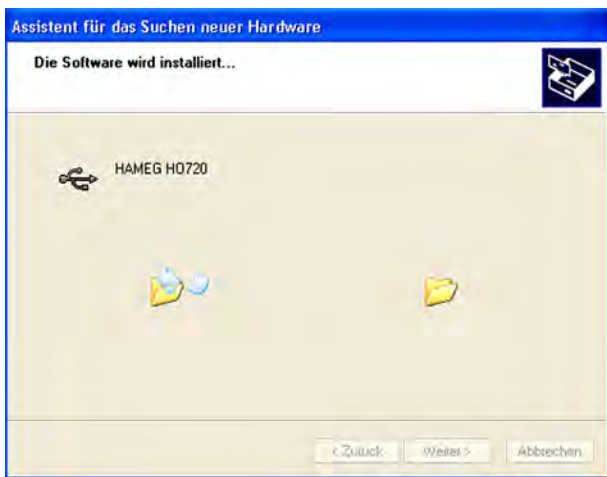
3.1.4 After the selected path is displayed click "Next".



3.1.5 Thereafter the "Hardware Installation" window may displayed, showing a warning to continue the installation procedure. As this warning is irrelevant in case of H0720 driver software, click „Continue Anyway“. If this warning does not occur, the installation starts and you can go ahead with 3.1.7



3.1.6 The wizard installs the driver software.



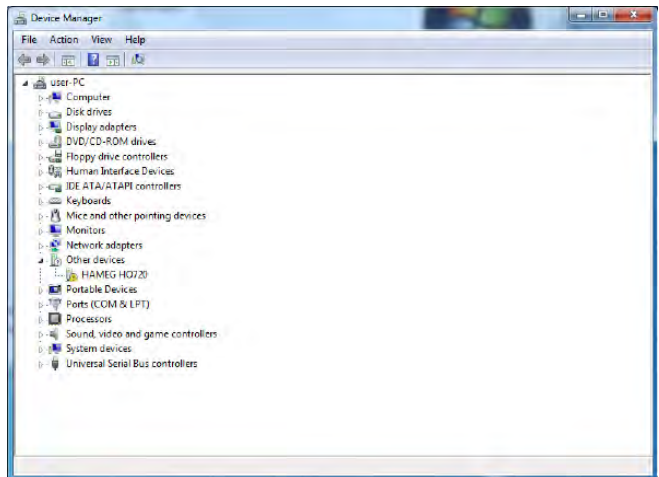
3.1.7 Please click "Finish" to complete the installation.



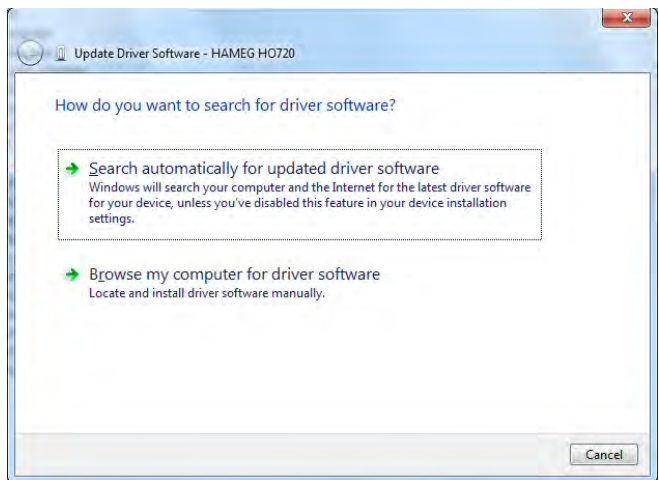
## 3.2 Installation under Windows 7

3.2.1 If the window „New Hardware found“ appears, please click on „Skip downloading the driver with Windows Update“ and go to 3.2.2.

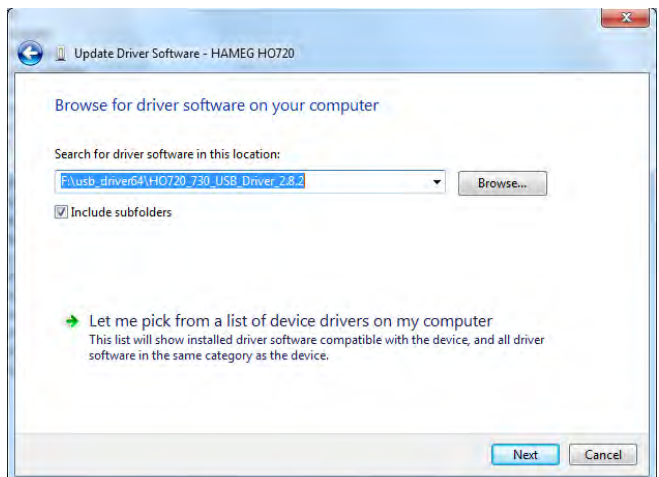
If the window is already disappeared please use the device manager. (System control --> System and safety --> Device manager) Choose the „HAMEG H0720“ under „Other device“ and with the right click on the mouse select „update driver“.



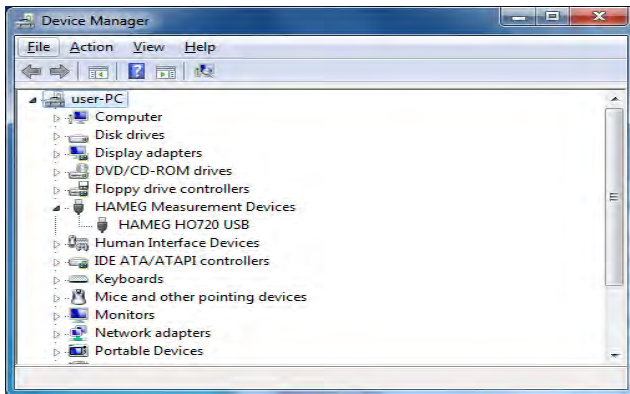
3.2.2 Choose „Browse my computer for driver software“



3.2.3 Please select the folder using the „Browse“ button where the driver was unzipped and saved and then press „Next“.



3.2.4 After successful installation the H0720 will be displayed under „HAMEG Measurement Devices“ as „Hameg H0720 USB“.



## 4 Guide to Installation and Settings of the Virtual COM Ports

### 4.1 Introduction

Download the H0720/H0730 drivers from the HAMEG homepage.

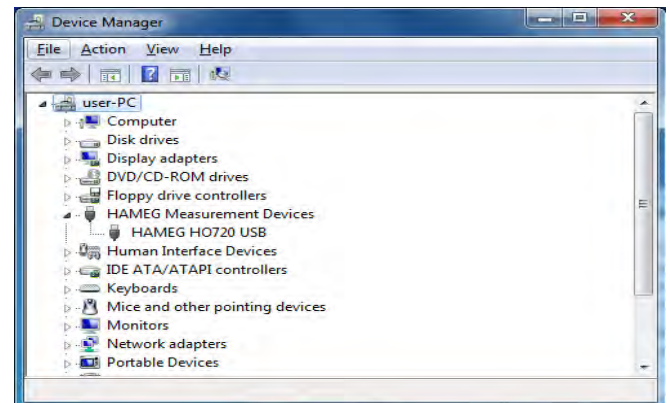
<http://www.hameg.com>

- Connect your HAMEG instrument to the pc via USB.
- Please check the settings of your HAMEG measuring instrument and make sure that the USB port of the interface is selected.
- Please make sure you have the latest USB driver installed.

### 4.2 Installation

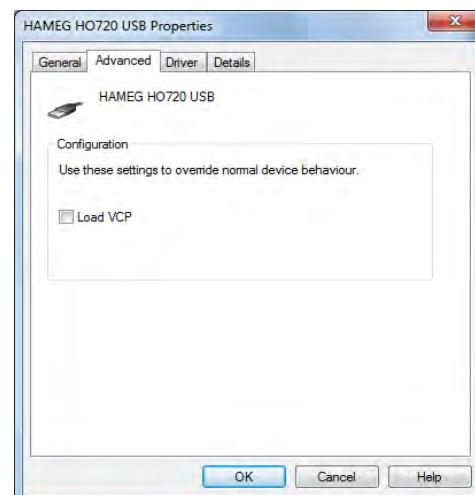
The following screenshots are from Windows 7, other Windows versions are similar.

**4.2.1.** Open the Windows Device manager. You will find the entry of the H0720/H0730 driver below the entry „HAMEG Measurement Devices“



The Properties window will open upon a double click on the entry „HAMEG HO720“ resp. „HAMEG HO730“.

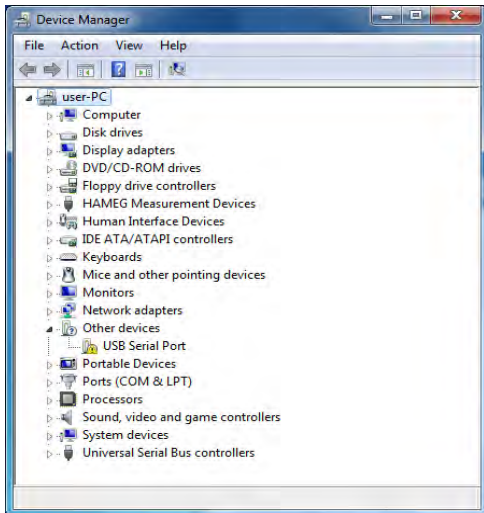
**4.2.2** Activate loading of the VCP (Virtual COM Port) in the „Advanced“ menu and close the window by clicking on the „OK“ button.



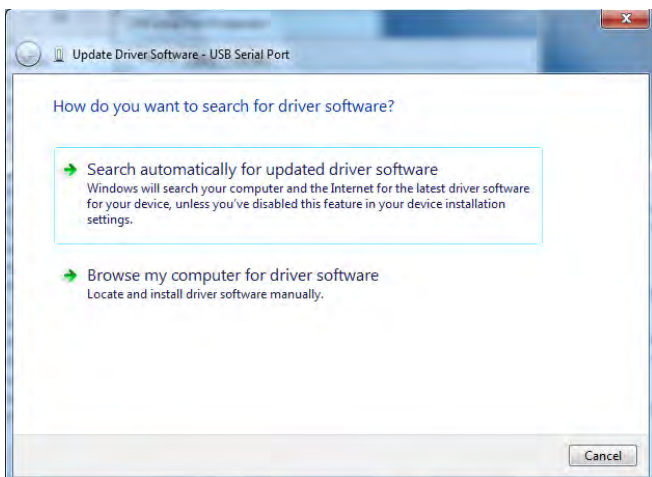
**4.2.3** Disconnect the USB cable from your HAMEG instrument for a short moment.

After reconnection of the cable Windows will start searching for the drivers of virtual COM ports.

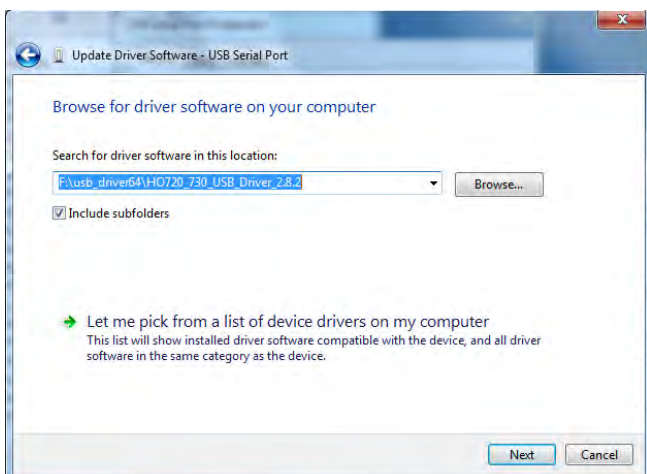
**4.2.4** Choose the „USB Serial Port“ under „Other device“ and with the right click on the mouse select „update driver“.



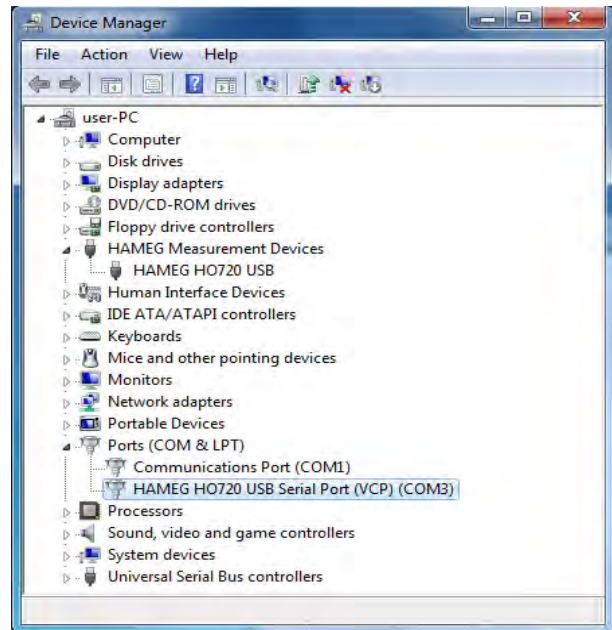
**4.2.5** Choose „Browse my computer for driver software“



**4.2.6** Please select the folder using the „Browse“ button where the driver was unzipped and saved and then press „Next“.

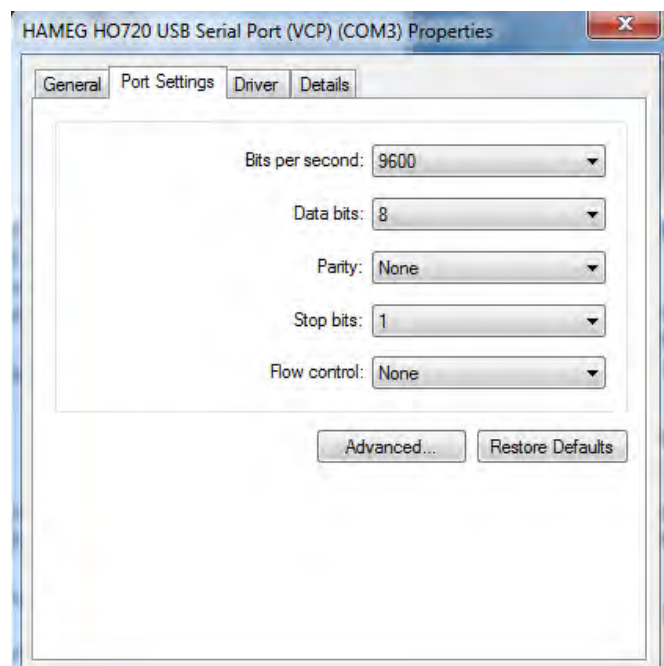


You will find the entry of the HO720/HO730 driver below the entry „Ports (COM & LPT)“.



**4.2.7** Double click on the entry of the newly installed COM port will open the „Properties“ window. Please select the Tab „Port Settings“

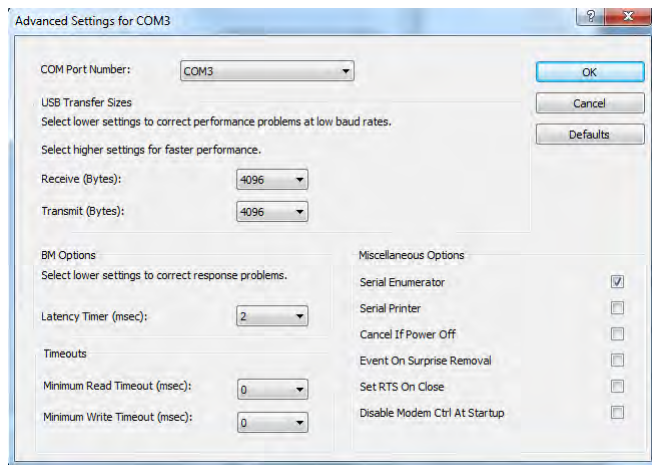
Here, you can select the usual RS-232 settings for the virtual COM port (including hardware/software handshake)





**4.2.8** Further settings may be performed by double clicking on the button „Advanced “ such as assigning a number to the virtual COM port from COM1 to COM 256.

COM ports already used will be displayed in the list with an extension „in use“



In order to disable the Virtual Com Port you need to open the „properties“ of the H0720/730 and deselect the „load VCP“ and click OK.

## 5 Application

### 5.1 Combiscopes

The interface H0720 can be used either via USB or via RS-232 in conjunction with the application software HM Explorer in order to transfer data, setups and screenshots (in digital mode of the combiscopes only).

It also supports the older software HMLab, provided the version 0.60 or higher is available. The SETTINGS within HMLab must correspond to the settings of the interface.

In case your available application software HMLab is a version below 0.60, please download the actual application software at [www.hameg.com](http://www.hameg.com) from the Internet and thus update your pc. You find the software at: Products > Oscilloscopes > (oscilloscope type) > Software/Firmware (below the picture of the oscilloscope) > HMLab.zip.

### 5.2 HMO Oscilloscopes and Combiscopes

For the HMO series of oscilloscopes the HM Explorer software is available as a free download from the HAMEG website. Please consult the help of this software for the necessary settings and the features offered. (transfer of settings, data and screenshots, command line for sending remote commands)

**Programming commands:** A listing of the programming commands is available at [www.hameg.com](http://www.hameg.com).

### 5.3 Spectrum Analyzer HM5530

The interface H0720 may be used either via RS-232 or via USB in conjunction with the application software AS300E and the HM 5030. The SETTINGS in AS300E must correspond to the interface used.

The actual version of the application software is available for downloading at [www.hameg.com](http://www.hameg.com) from the Internet. You will find the software at: Products > Spectrum Analyzers > (Type of Spectrum Analyzer) > Software/Firmware (below the picture of the Spectrum Analyzer) > AS300E.zip.

### 5.4 HMS series Spectrum Analyzers

At the HAMEG website there is the HM Explorer software for pre-compliance EMI measurements available as a free download.

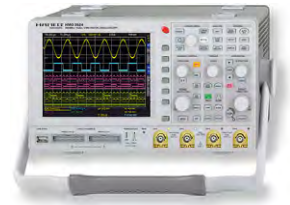
Please consult the help of this software for the necessary settings and the features offered. (EMC Pre compliance test, transfer of settings, data and screenshots, command line for sending remote commands)

### 5.5 Arbitrary generators of HMF series and power supplies of HMP series

For the HMF and HMP series the HM Explorer software is available as a free download from the HAMEG website. Please consult the help of this software for the necessary settings and the features offered. (generate and transfer arbitrary waveforms, transfer of settings, data and screenshots, command line for sending remote commands)

Mainhausen, June 2011

Oscilloscopes



Spectrum Analyzer



Power Supplies



Modular System  
Series 8000



Programmable Instruments  
Series 8100



authorized dealer

[www.hameg.com](http://www.hameg.com)

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Reg.-Nr.: 071040 QM

HAMEG Instruments GmbH  
Industriestraße 6  
D-63533 Mainhausen  
Tel +49 (0) 61 82 800-0  
Fax +49 (0) 61 82 800-100  
sales@hameg.de