INSTRUCTION MANUAL

IMB-pc1
IMBus Measuring Computer
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1. Introduction

1.1 General information about IMBus

The IBR - Measuring Bus [ IMBus ] is a new series of measuring and interface modules with great flexibility and for high demands in industrial environment.

The specially developed module case is very robust and can be mounted without tools. The modules can be placed onto a table or can be clicked onto mounting rails. The electronics satisfies all demands from practice regarding flexibility, speed and resolution at maximum measuring accuracy. The address setting on IMBus occurs automatically (Plug & Play). The modular structure of 1 to 512 connections and the possibility to connect the modules via cables with a maximum length of 1200 m (4000 ft) allow an universal use.

A complete range of software for simple applications up to complex measuring applications with control sequences completes the new IMBus series to an universal tool for measuring data collection, analysis and displaying.

1.2 IMB-pc1 features

- Measuring computer integrated in IMBus case
- XScale PXA320 806MHz CPU (fanless)
- 128 MB RAM
- 1024 MB Flash Disk
- VGA Connector (1024 x 768 Pixel)
- 2 x USB- / 1 x PS2- Connector (for mouse, keyboard, USB-Stick as mobile disk, ...)
- 1 x 10/100 Mbit Ethernet connector for connection of IMB-pc1 to a computer network
- Windows CE 5.0

Advantages:
- Small boot time of PC
- No shutting down of PC necessary
- Operator cannot install any additional software
- No moving parts ➔ Resistant against vibrations
- Water- and dust proofed
### 1.3 Overview over IMBus module types

**IMBus Measuring and Interface modules**

<table>
<thead>
<tr>
<th>Module Type</th>
<th>Reference</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMB-im1</td>
<td>F122 061</td>
<td>Measuring modules for the connection of 1, 2, 4 or 8 inductive probes</td>
</tr>
<tr>
<td>IMB-im2</td>
<td>F122 062</td>
<td>Measuring modules for the connection of 1, 2, 4 or 8 inductive probes</td>
</tr>
<tr>
<td>IMB-im3</td>
<td>F122 064</td>
<td>Measuring modules for the connection of 1, 2, 4 or 8 inductive probes</td>
</tr>
<tr>
<td>IMB-im4</td>
<td>F122 068</td>
<td>Measuring modules for the connection of 1, 2, 4 or 8 inductive probes</td>
</tr>
<tr>
<td>IMB-dm1</td>
<td>F122 071</td>
<td>Measuring modules for the connection of 1, 2, 4 or 8 incremental measuring probes,</td>
</tr>
<tr>
<td>IMB-dm2</td>
<td>F122 072</td>
<td>rotary encoders and linear scales with 1Vpp - output</td>
</tr>
<tr>
<td>IMB-dm3</td>
<td>F122 074</td>
<td>Measuring modules for the connection of 1, 2 or 4 incremental measuring probes,</td>
</tr>
<tr>
<td>IMB-dm4</td>
<td>F122 075</td>
<td>rotary encoders and linear scales with TTL - output</td>
</tr>
<tr>
<td>IMB-tc1</td>
<td>F122 111</td>
<td>Measuring modules for the connection of 1, 2 or 4 incremental measuring probes,</td>
</tr>
<tr>
<td>IMB-tc2</td>
<td>F122 112</td>
<td>rotary encoders and linear scales with TTL - output</td>
</tr>
<tr>
<td>IMB-tc3</td>
<td>F122 114</td>
<td>Measuring modules for the connection of pneumatic gauge heads</td>
</tr>
<tr>
<td>IMB-a1</td>
<td>F122 041</td>
<td>Measuring modules with 1, 2, 4 or 8 analogue inputs</td>
</tr>
<tr>
<td>IMB-a2</td>
<td>F122 042</td>
<td>Measuring modules with 1, 2, 4 or 8 analogue inputs</td>
</tr>
<tr>
<td>IMB-mi2</td>
<td>F122 022</td>
<td>Interface modules for the connection of 2, 4 or 8 measuring gauges with Mitutoyo Digimatic output</td>
</tr>
<tr>
<td>IMB-mi4</td>
<td>F122 024</td>
<td>Interface modules for the connection of 2, 4 or 8 measuring gauges with Mitutoyo Digimatic output</td>
</tr>
<tr>
<td>IMB-sm1</td>
<td>F122 011</td>
<td>Interface modules for the connection of 1, 2 or 4 measuring gauges with RS232 output</td>
</tr>
<tr>
<td>IMB-sm2</td>
<td>F122 012</td>
<td>Interface modules for the connection of 1, 2 or 4 measuring gauges with RS232 output</td>
</tr>
<tr>
<td>IMB-sm4</td>
<td>F122 014</td>
<td>Interface modules for the connection of 1, 2 or 4 measuring gauges with RS232 output</td>
</tr>
<tr>
<td>IMB-pm1</td>
<td>F122 031</td>
<td>Interface module with parallel input</td>
</tr>
</tbody>
</table>

**IMBus Power supply modules**

<table>
<thead>
<tr>
<th>Module Type</th>
<th>Reference</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMB-ps2</td>
<td>F121 020</td>
<td>Switching power supply module (Input 85...260V / AC)</td>
</tr>
<tr>
<td>IMB-dc1</td>
<td>F121 040</td>
<td>Power supply module (Input 24V / DC)</td>
</tr>
<tr>
<td>IMB-acc</td>
<td>F121 030</td>
<td>Battery module for portable applications</td>
</tr>
</tbody>
</table>

**IMBus Computer - Connections**

<table>
<thead>
<tr>
<th>Module Type</th>
<th>Reference</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMB-usb</td>
<td>F120 010</td>
<td>Connection cable for USB-Ports</td>
</tr>
<tr>
<td>IMB-232</td>
<td>F120 020</td>
<td>Connection cable for serial ports (COM 1...8)</td>
</tr>
<tr>
<td>IMB-lan</td>
<td>F120 030</td>
<td>Connection module for Ethernet (Computer networks)</td>
</tr>
<tr>
<td>IMB-pb</td>
<td>F120 040</td>
<td>Connection module for Profinbus</td>
</tr>
<tr>
<td>IMB-wla</td>
<td>F120 050</td>
<td>Connection module for Wireless Lan</td>
</tr>
</tbody>
</table>
2. Initial operation

2.1 Mounting

1. Mounting of measuring modules
   - Push the red levers of the first module out and turn them up.
   - Connect the modules together.
   - Turn red levers down to lock the modules.

- The power supply module, the measuring PC and the measuring modules must be plugged together in the following order, but there are no rules for the order of the measuring modules between each other:

2. Mounting on DIN rail mount

Click modules onto DIN rail mount. (Modules will be automatically secured on the rail by springs)

3. Connection of the gauges and sensors to IMBus

- Connect and secure gauge and sensor cables.
- The addresses are automatically set by IMB-pc1 in following order:

4. Connect Monitor, Mouse and Keyboard to IMB-pc1

5. Switch power supply module on
2.2 System settings Windows CE

In the Windows CE Control panel time & date, IP-address of measuring computer, colour profiles, … can be set.

**Most important menus**:
- Time, date and time zone ➔ Menu „Start / Settings / Control Panel / Date & Time“
- IP-Address, DNS-Server, … ➔ Menu „Start / Settings / Control Panel / Network“
- Switch Taskbar on/off ➔ Menu „Start / Settings / Start menu & Taskbar“

**Saving of settings**:
The changed settings must be afterwards saved, otherwise they are lost on switching the Mecc off:
1. Start „Start / Programs / ColibriTools / SaveReg“.
2. The settings will be saved.

2.3 Save data on USB-Sticks

An USB-Stick will become visible as directory „\USB HD\“ on IMB-pc1.
By Windows CE Explorer the data can be copied onto USB-Stick or from USB-stick to IMB-pc1.

2.4 Printouts from ComGage

- In printer menu the folder of a network printer can be inserted.
- For printing on an USB printer „LPT1:“ must be selected.

2.5 Configuration of ComGage

- ComGage is automatically started on booting of IMB-pc1.
- ComGage is stored in directory „\hard disk\ComGage“.
  ††† Only files in „\hard disk\“ (incl. subdirectories) may be created, deleted, changed, … on IMB-pc1. For example the directory „\hard disks\“ can be used for storing the test schemes.
- In ComGage menu „Options / Data directories“ the directories for saving the data are selected. A subdirectory of „\hard disk\“, a subdirectory of „\USB HD\“ (USB-Stick) or a network directory can be used.
- In the example the data are stored in directory CE of the computer ibrxxx. ibrxxx can be a server or a workplace PC:

- The further basic settings of ComGage are explained in ComGage manual.
2.6 Configuration of Windows NT / 2000 / XP – PC for connecting IMB-pc1 via LAN

1. Log in as an user with administrator rights

2. Go to the menu : “Start / Settings / Control Panel” and select in the new window the menu : “User and passwords”

3. Select the folder “Advanced” in the dialog window and press the button “Advanced” in the section “Advanced User Administration”

4. Open the folder “User” in the left column and click two times on the user “Gast” in the right column
5. Deactivate the menu point: “Account is deactivated”

6. Confirm with the OK-Button and close all windows

7. Go to the menu: “Start / Settings / Network connections / LAN-Connection”

8. Select the menu point: “Internet protocol (TCP / IP)” and press the Button “Properties”
9. Input the IP – address: 169.254.19.252 and the Subnetmask: 255.255.0.0

10. Close all windows by pressing the OK-Button

11. Open the Windows Explorer

12. Create a new directory or select a directory

13. Press with the right mouse key on this directory and select the menu point “Sharing”

14. Select in the folder “Sharing” the point: “Share this folder”
15. Press the button: “Authorization”

16. Press in the new menu on the button “Add” and add the user “Gast”

17. Close all Windows by pressing the OK-button

18. At last you must define your computer name. Go to the menu “Start / Settings / Control Panel” and select in the new window the menu: “System”

19. In the folder “Network identification” with the button “Properties” you can define your computer name (in the example the computer name is ibrxxx)

20. Now you have done all your settings on the Windows NT / 2000 / XP PC.
2.7 Configuration of Windows 95 / 98 / ME – PC for connecting IMB-pc1 via LAN

1. Go to the menu: "Start / Settings / Control Panel" and select in the new window the menu: "Network"

2. Select the register card "Identification" and input your computer name (in the example the computer name is ibrxxx)

3. Select in the folder “Configuration” the TCP/IP protocol of your network card and press on the button “Properties”

4. Input the IP – address: 169.254.19.252 and the Subnetmask: 255.255.0.0
5. Leave the Window by OK and select by pressing the button "File- and Print Sharing" that other computers can have access to your files
6. Close all windows with the OK-Button
7. Open the Windows Explorer
8. Create a new directory or select a directory

9. Press with the right mouse key on this directory and select the menu point "Sharing"
10. Allow other computers to write and read from the directory

11. Now you have done all your settings on the Windows 95 / 98 / ME PC.
2.8 Login into network with IMB-pc1

1. Open Windows CE Explorer.
   Note: If in ComGage menu „Options / Data directories“ a Server directory is assigned, then the steps
   1. and 2. can be saved, because the login window appears automatically on first network access
   of the IMB-pc1.

2. Insert “\Computername\Directory” (i.e. \ibrxxx\ce; see 2.6 & 2.7) or “\Servername\Directory” in
   address line.

3. Input of login data:
   - PC:
     User name = Gast
     Password =
     Domain =
   - Server:
     User name = Your standard User Name in computer network
     Password = Your standard Password in computer network
     Domain = Your standard Domain in computer network
   ✔ On questions please ask your network administrator

4. After inputting the login data the following question must be answered with „YES“, otherwise the login
   data must be input again after a data transmission break.

   Note:
   - The login data can be saved permanently after first login, so that they do not need to be input again after
     new start of IMB-pc1. See chapter 2.2. - „Saving of settings“.
   - Permanently saved settings can be changed / deleted in menu „Start / Settings / Control Panel / Owner“
     behind the register card „Network ID“. After that the new settings must be stored as described in
     chapter 2.2. - „Saving of settings“.

2.9 External access on IMB-pc1 via network

- In Menu “Start / Settings / Control Panel / System” behind the register card „Device name“ the
  computer name can be programmed. (Default: „IMB-pc1“)

- The IMB-pc1 directory „\hard disk“ can be accessed by the address „\IMB-pc1 Name\Data“
  (i.e. \IMB-pc1\Data).
  On IMB-pc1 you must login by user name „admin“ and Password „admin“.
3. **ComGage (Universal Software for metrology and SPC in the production)**

ComGage is a software for the metrology and SPC in the production. The software allows the control of workpieces with different characteristics. Additional the software delivers by statistical functions information for process control. In addition to the measuring values reference information (operator, machine, batch, …) can be collected.

Additionally ComGage can control complete fixtures and so small external PLC units can be replaced by ComGage and IMBus.

### Features

- Simple and easy handling
- Low cost and modular
- Universally usable for simple hand gauge stations, multi gauging fixtures and automatic measuring sequences
- Value collection by keyboard and from measuring and interface instruments
- Support of all measuring applications like i.e. run-out, roundness, flatness, coaxiality, … measurements
- Graphical surface for creating the display windows
- Simple control of measuring sequence
- Online SPC - Elements
- Control of digital outputs and reading of digital inputs
- Printing of measured values in table form
- Converter for MS-Excel and QS-Stat
4. Declaration of conformity

Thank you very much for your confidence in purchasing this product. We herewith certify that it was manufactured and inspected in our works.

We declare under our sole responsibility that this product is in conformity with technical data as specified in this instruction manual.

On addition, we certify that the measuring equipment used to check this product refers to national master standards. The trace ability of measuring values is guaranteed by our Quality Assurance.

5. Guarantee

The quality of this instrument is guaranteed for a period of 12 months from the date of delivery. This guarantee covers all materials and manufacturing defects. Our liability is confined to repair, or should we deem it necessary, replacing or crediting the goods.

The following are not covered by the guarantee:

- **Damages due to incorrect handling,**
- **Disregard of operating instructions,**
- **Tampering by unauthorised staff,**
- **Attempts by any unauthorised person to repair the instrument.**

In no case any consequences are covered by the guarantee which are connected either directly or indirectly to the instrument or its use.

**Notice:** If returning the instrument under guarantee please use the original packaging.

Should you detect an irregularity of any kind, please contact one of our authorised distributors or our Service department.

D-36166 Haunetal, 22.05.2011

**I B R Messtechnik GmbH & Co. KG**

A. Schneider
*Quality Assurance Manager*