

## AMS42/84-LAN16f

### 5B amplifier measurement system (LAN)

#### All-In-One Measurement System. Compact or 19 inch.

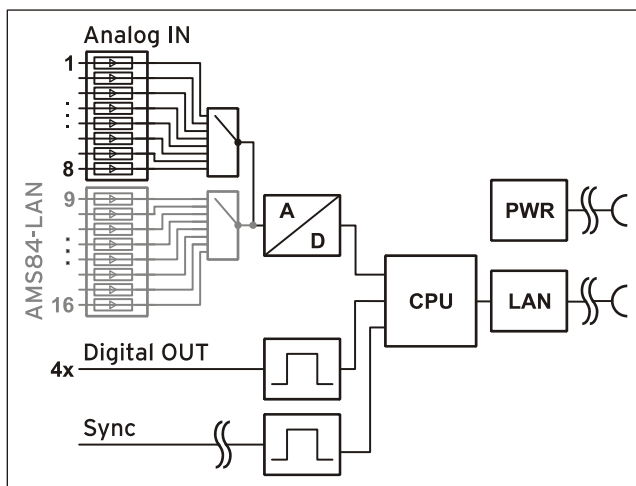
The AMS42/84-LAN16f, a complete solution: amplifier technology and data acquisition. A network data acquisition system is already integrated. Available in a robust aluminum housing as a mobile tabletop unit (AMS42-LAN16f) with skid-proof, tip-up feet or as a stationary version (AMS84-LAN16f) for 19" rack systems.

#### Modular concept. Equip individually. Be flexible.

The AMS device is equipped with cassettes, on which the required 5B measuring amplifiers are mounted. The variety of available 5B modules allows for the optimum adaptation of the AMS42/84-LAN16f to any special measuring task.

#### Choose connector. Mount 5B amplifier. Done.

The available plug-in cassettes have different connectors at the front panel. The suitable cassette can be chosen depending on the sensor or signal to be connected. Now the 5B module only has to be fixed on the cassette and be integrated in the AMS.



Functional diagram



#### Clearly safe.

The galvanic isolation provided by the 5B modules allows interference-free operation and protects DAQ system and PC against high potentials.

#### 8/16 analog inputs. 250kHz. 16 digital inputs/outputs each.

Signals are connected at 8/16 analog inputs with 16 bit resolution and 250kHz total sampling rate. Digital states are recorded or set at 16 digital inputs and outputs each. The integrated 19-bit counter allows the acquisition of counting pulses or the connection of an incremental encoder.

#### DAQ via network. Remote. Synchronized, if you like.

The LAN technology of the AMS42/84-LAN16f allows for measurement applications across great distances. The recorded data are transmitted via network from arbitrarily many measuring points to a server PC. The signals of several devices can be synchronized with each other.

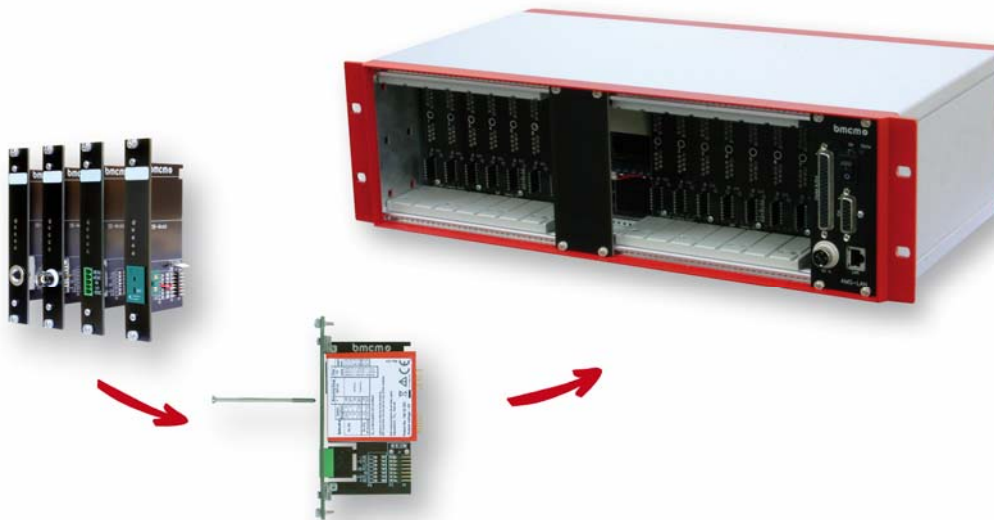
#### TCP/IP. Guaranteed reliable.

The TCP/IP protocol stands for reliable data transmission - even via the internet.

#### Open for everyone.

The amplifier measurement system is supported by Windows® 7/XP as well as MAC OS X, Free BSD and Linux. The complete software for installation and programming of the AMS42/84-LAN16f is included. The device is supported by the DAQ and analysis software NextView® 4.

# 1 Installation



## 1.1 Assembly

- Equip the AMS42/84-LAN16f with the plug-in cassettes (see chapter 8.2) carrying the required 5B modules.
- Carefully push the cassette along the guide bars of the relevant slot until the 7-pole pin connector of the cassette and the pins of the 5B module are plugged into the corresponding connectors on the AMS backplane.
- If using the option *AMS42-EXT8* for the AMS42-LAN16f (see chapter 8.4), the additional cassettes 9-16 are mounted on the back of the device.
- For a tight installation, fix the front panel at both ends with screws to the housing. Bridge unneeded slots by a blank panel (*AMS-K-BLANK*) to protect the device against outside influences.
- If the AMS84-LAN16f is mounted to a 19" rack system, the relevant input wiring should be prepared first before attaching the device to the rack system with screws.

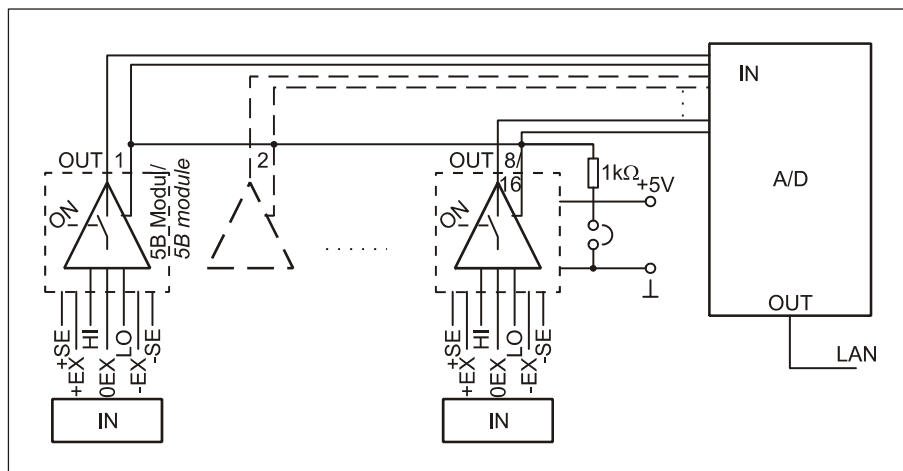
## 1.2 Software installation and start-up procedure

- Connect an external power unit to the 3-pole DIN coupling for 9-40V power supply (use a supply cable with a cross sectional area  $>1\text{mm}^2$ ) and turn on the AMS42/84-LAN16f by pressing the switch to "1" (ON) (see chapter 3.1 and 3.4).
- Connect the AMS device to the network (LAN) which is intended to communicate with a PC or data acquisition server (see chapter 3.3).
- If necessary, further software components to be used with the device can be installed now, as described in chapter 6.
- Signals are connected at the specific female connector of the respective AMS cassette panel.



- **To change the cassettes, the power of the AMS device must be turned off!**
  - **If the AMS system is operated standalone, additional grounding to enhance shielding is recommended but not mandatory.**
-

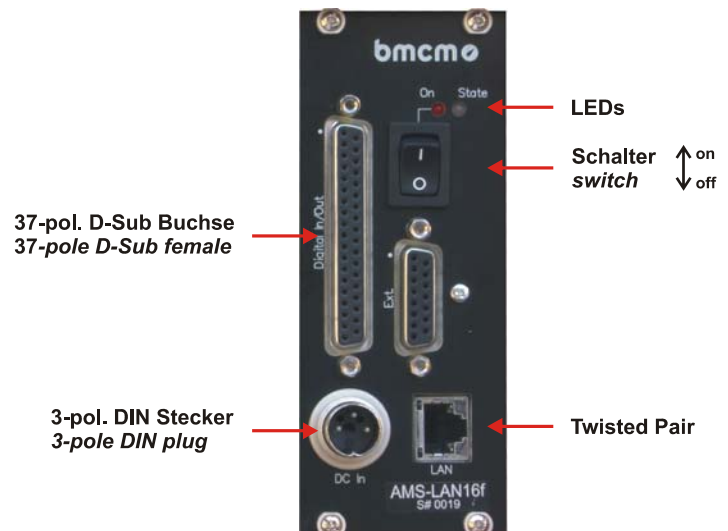
## 2 Block diagram



## 3 Connections and assignments

All available connectors and operating elements of the AMS42/84-LAN16f are accessible on the right-hand side of the device front.

The 15-pole D-Sub female connector "Ext." is a service interface. As it is only for internal use, make sure there is nothing connected.



### 3.1 Switch

The AMS42/84-LAN16f is turned on (press "1") and off (press "0") with the switch.

### 3.2 LEDs

Die "ON" LED indicates the operation of the device, the "State"-LED is turned on for a short time during boot-up. Afterwards the device is ready for use.

### 3.3 Network

The PC/data acquisition server and the AMS42/84-LAN16f communicate via network, which is realized with a Twisted Pair connection (100Mbit). If directly connecting the AMS42/84-LAN16f to the PC, a crosslink cable must be used. Both cables are available as accessories (*ZUKA10T* or *ZUKA-CL10T*).

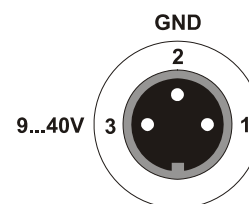


**A firewall software installed on the PC might interfere with the operation of the AMS42/84-LAN16f. In this case, please contact your network administrator.**

### 3.4 Power supply

The AMS device is supplied with power (9..40V) via the 3-pole DIN plug. A power supply unit *ZU-PW70W* (24V, 2.92A DC) is optionally available.

Pin	Assignment
1	n. c.
2	ground (GND)
3	9-40V DC

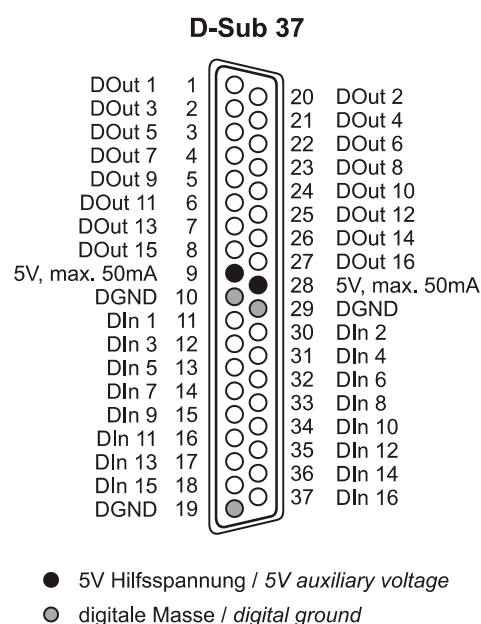


### 3.5 Digital channels

The AMS42/84-LAN16f features 16 digital inputs and outputs each (*low*: 0V..0.7V; *high*: 3.0V..5V). The digital lines are hard-wired.

All lines are led to the 37-pole D-Sub female connector at the device front. The pin assignment is as follows:

Pin	AMS42/84-LAN16f	Pin	AMS42/84-LAN16f
1	DOut 1	11	DIn 1
20	DOut 2	30	DIn 2
2	DOut 3	12	DIn 3
21	DOut 4	31	DIn 4
3	DOut 5	13	DIn 5
22	DOut 6	32	DIn 6
4	DOut 7	14	DIn 7
23	DOut 8	33	DIn 8
5	DOut 9	15	DIn 9
24	DOut 10	34	DIn 10
6	DOut 11	16	DIn 11
25	DOut 12	35	DIn 12
7	DOut 13	17	DIn 13
26	DOut 14	36	DIn 14
8	DOut 15	18	DIn 15
27	DOut 16	37	DIn 16
9, 28	5V, max. 50mA	10, 19, 29	DGND

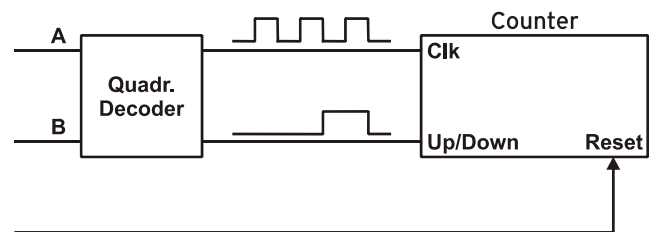


The digital inputs and outputs are protected by serial resistors. Input voltages beyond the permitted voltage range of 0V..5V can damage the device.

### 3.6 Counter

The AMS42/84-LAN16f features a 19-bit counter (quadrature decoder) allowing the connection of an incremental encoder. The counter or incremental encoder and the external counter reset, if required, are attached at the first digital input lines of the D-Sub 37 female (also see chapter 3.5).

Pin	Counter input	Digital input
11	Signal A	DIn 1
30	Signal B	DIn 2
12	Reset	DIn 3



The counter of the AMS42/84-LAN16f counts the number of incoming pulses (max. 8MHz) sampled at the connection of signal A. If the maximum counting range is reached, the counter will be reset to the minimum value of the counting range. If the external counter reset is connected, the counter can be reset at any time.

Compared to a counter, incremental encoders and the up/down counter consider the counting direction by decoding a second phase-shifted signal.

The operation mode of the counter (counter, up/down counter, incremental encoder) is set via software.

Function	Description	Max. pulse frequ.	Connection	Dig. pins used	Counting range
Counter	count ↑	8MHz	Signal A	1	$0..2^{19}-1$
Up/Down counter	count ↑↓	8MHz	Signal A, Signal B	2	$2^{18}..2^{18}-1$
Incremental encoder	count ↑↓	2MHz	Signal A, Signal B	2	$2^{18}..2^{18}-1$



**Please refer to the relevant documentation of your product for further information about connecting your incremental encoder.**

### 3.7 Analog channels

8 (AMS42-LAN16f) or 16 (AMS84-LAN16f or AMS42-LAN16f with option *AMS42-EXT8*) analog signals can be connected to the amplifier inputs available at the respective connectors of the cassette panels. Their assignment is illustrated in the data sheet of the *AMS-K-xxx* cassettes.

Depending on the application, the shield of the analog input cables can be applied to ground or 0V. Be sure to connect at one end of the cable only. Run the signal ground separately if possible. Lay input cable separately if possible.



**Measurements can be effected on various potentials. The potential deviations, however, should not exceed 60V DC (according to VDE Association of German Electrical Engineers).**

## 4 Interfacing examples for digital channels

The following basic connection examples demonstrate the use of the digital inputs and outputs and the connection of a counter to the AMS42/84-LAN16f. The pin assignment of the 37-pole D-Sub female connector is described in chapter 3.5 and 3.6.

### 4.1 Connecting an optocoupler

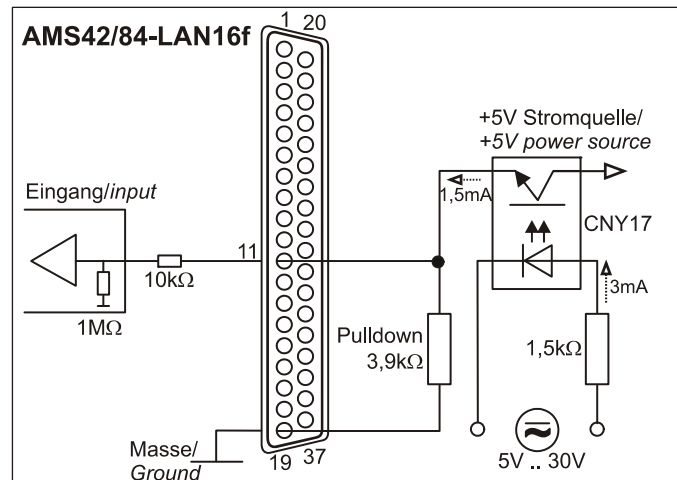
Optocouplers provide optimum protection at each input line. With them, it is possible to connect higher voltages and to protect the hardware from being destroyed.

The 3.9k $\Omega$  pull-down resistor sets the input to *low* if no voltage is applied there.

In this regard, please also see application examples of the optocoupler you use.



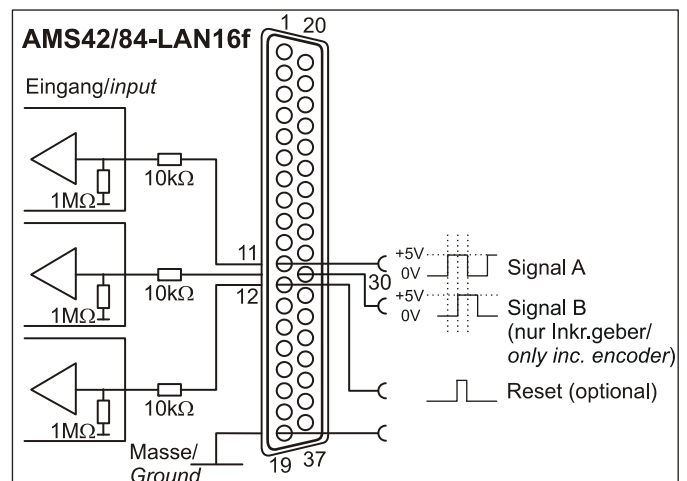
**Optocoupler boards with 8 or 16 inputs are available at bmcm.**



### 4.2 Connecting a counter or incremental encoder

The connection of "Signal A", "Signal B" and "Reset" is possible at any digital line.

At maximum performance ( $2^{19}-1$ ), the counter is reset and starts from zero again.



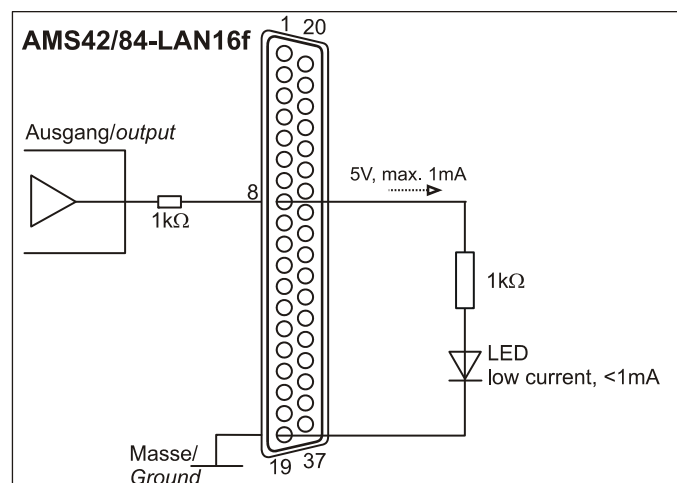
### 4.3 Connecting an LED

Only so-called low-current LEDs can be used, because they already work with 1mA current.

Serial resistors in the output lines limit the current and protect the hardware from being destroyed.

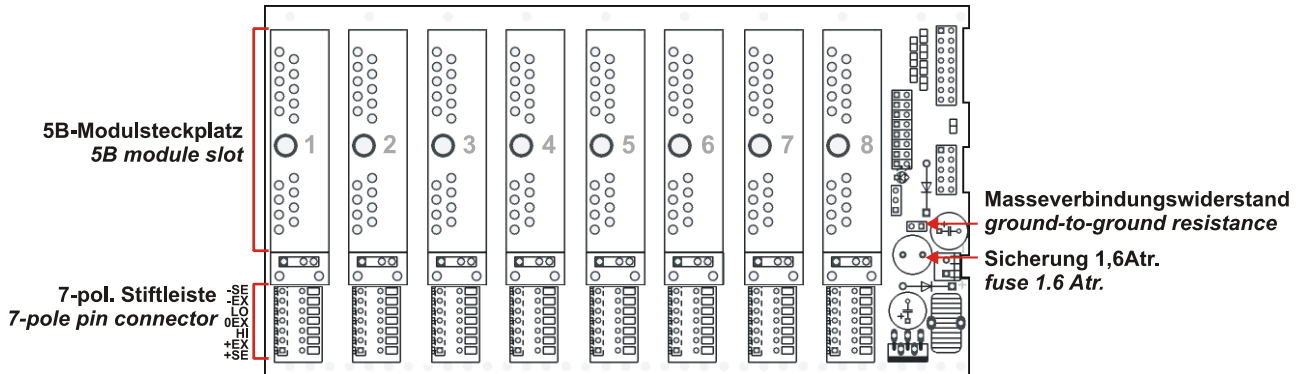


**Please also observe the total current listed in the technical data (see chapter 10).**



## 5 AMS backplane

The AMS -backplane provides 8 slots for 5B modules and the AMS-K-xxx plug-in cassettes (see chapter 8.2) carrying the 5B modules. In the AMS84-LAN16f, two backplanes are integrated. If the AMS42-LAN16f is used with the optional add-on AMS42-EXT8 (see chapter 8.4), eight slots each are available at the front and at the back of the device.



### 5.1 Ground-to-ground resistance

The ground-to-ground resistance is required when the output ground is not electrically connected with the power supply ground. If the jumper (see fig. above) on the analog backplane is closed, the output switches of the modules are switched through.

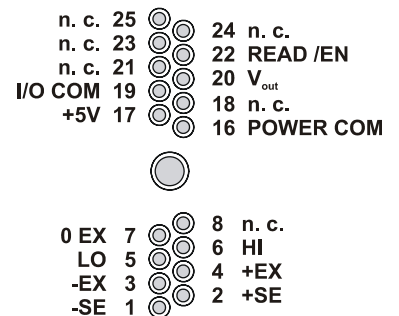


**In the case of electrically connected systems (e.g. PC), this jumper represents a high-resistance bridge (1kΩ) and may generate a hum loop!**

### 5.2 Module pin assignment

The pin assignment on the right shows the top view of the module backplane (see chapter 5).

The pin assignment corresponds to the 5B modules of Analog Devices®, BURR BROWN® etc. However, an additional 0EX pin has been introduced, which is particularly suitable for ungrounded shielding. This is a specific assignment of BMC Messsysteme GmbH. This pin is not connected in modules of other manufacturers.

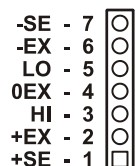


### 5.3 Fuse

The fusing of the AMS backplane (see chapter 5) is effected on the backplane with one reversible semiconductor fuse. In case of overload it turns off. To make the fuse work effectively again, first remove the cause for overload before disconnecting the power supply of the AMS42/84-LAN16f.

### 5.4 Connection for AMS cassettes

The cassettes are connected to the AMS backplane (see chapter 5) via 7-pole pin connectors leading the input signals connected at the cassette panel to the backplane. The assignment of the 7-pole female connector on the board is illustrated in the figure on the right-hand side.





## 6 Software installation and configuration



All software and documentation available for the AMS42/84-LAN16f are integrated on the "Software Collection" CD included with delivery. When inserting the CD, a CD starter opens automatically (otherwise: start **openhtml.exe**).



AMS42-LAN16f

Change to the product page of the AMS42/84-LAN16f by selecting the entry "Products" in the CD starter and then the hardware ("AMS42-LAN16f" or "AMS84-LAN16f") listed under the interface "LAN".



For detailed information about installing or operating the software, please see the corresponding manuals. The Adobe Acrobat Reader is required to open the documentation in PDF format.



**You can run the installation directly from CD. If your browser prevents this, first save the setup program to hard disc before running it separately.**

Software	Software product	Notes	Documentation
Configura- tion	<a href="#">LAN-ADMIN</a>	free software for the configuration of bmc LAN data acquisition systems	<a href="#">UM-LAN-ADMIN</a> (user manual)
Program- ming	<a href="#">STR-LIBADX</a>	ActiveX control for hardware independent pro- gramming	<a href="#">IG-LIBADX</a> (installation / programming manual)
	<a href="#">STR-LIBADX-EX</a>	example programs for LIBADX ActiveX control	-
	<a href="#">SDK-LIBAD</a>	SDK with example programs for C/C++ on Windows®, MAC OS X, FreeBSD, Linux	<a href="#">UM-LIBAD4</a> (installation / programming manual)
Operating program	<a href="#">NV4.5</a>	measuring software NextView®4 available in the Standalone versions: <ul style="list-style-type: none"> <li>• <b>Lite:</b> "slim" version with basic functions</li> <li>• <b>Pro:</b> full version with complete functional range</li> <li>• <b>Analysis:</b> version for the analysis of stored measuring data</li> </ul> <p>NextView®4 can be used for free as a fully func- tional 30-day trial version. After purchasing the software, all projects, measurement files, and settings can still be used.</p>	<a href="#">DS-NV4</a> (data sheet) <a href="#">UM-NV4</a> (user manual) "First steps" in the NextView®4 demo project (displayed when first starting the software)

### 6.1 Configuration with LAN-AD16f Administration Utility



Network settings, firmware version and connection quality of the AMS42/84-LAN16f can be tested or changed with the configuration software "LAN-AD16f Administration Utility".



**The data acquisition unit integrated in the AMS42/84-LAN16f is a LAN-AD16f. It is displayed by software as "LAN-Base". The user manual [UM-LAN-ADMIN](#) describes in detail how to use the configuration software.**

#### 6.1.1 Installation

The installation program for the configuration software LAN-AD16f Administration Utility is included on the LAN-AD16f/AMS42/84-LAN16f product page of the "Software Collection" CD. During installation, you will be prompted to choose the desired program group, to open the LAN-AD16f Administration Utility via the Windows® Start menu, and the directory path, in which the software is to be installed.

If using default settings, the entry "LAN-AD16f Administration Utility" will be available under "Programs" in the Windows® Start menu after installation.



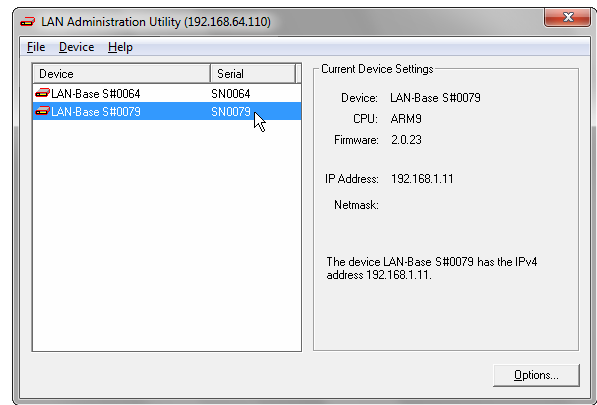
## 6.1.2 Operation

In the left window of the program screen, all DAQ systems with a working network connection to the PC are listed displaying their serial number (turn on device!). The AMS42/84-LAN16f is displayed as "LAN-Base".

When being connected to a network, the device automatically self-assigns (DHCP) a link-local address.

Select a network DAQ system to show the parameters of this device in the TABs on the right.

Settings can be modified by clicking the "Options" button.



**We strongly recommend using the automatically assigned configuration. Manual changes should only be done by a network administrator.**

## 6.1.3 Notes about TCP/IP

Each participant of the network has his own IP address consisting of four groups of numbers. To guarantee that a data package arrives at the correct address, this IP address must have been given out only once.

Each IP address contains the network number identifying the net your PC belongs to. Please make sure the PC and the AMS42/84-LAN16f are in the same net, i.e. they have the same network number, to be able to communicate with each other.

## 6.1.4 Example configuration for the manual input of the network settings

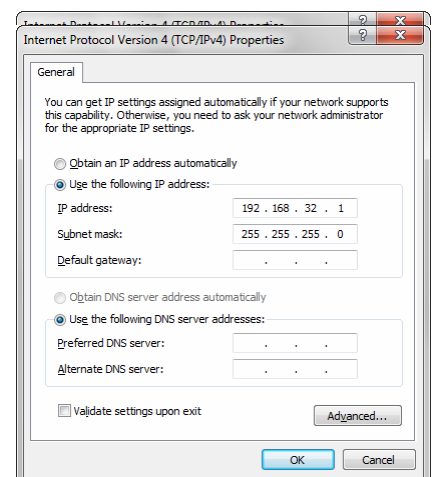
If there is only the PC and the DAQ system in your network (network number **192.168.32.0**), you can use the following configuration. The IP address currently set in the PC is shown in the title bar of the LAN-AD16f Administration Utility:

Configuration	Value
IP address PC (see chapter 6.1.5)	<b>192.168.32.1</b>
IP address AMS-LAN-16f	<b>192.168.32.2</b>
network mask	<b>255.255.255.0</b>

## 6.1.5 Assign IP address of the PC



The IP address of the PC and the netmask is entered via the Control Panel of the PC in the dialog "Internet Protocol (TCP/IP) Properties". Step by step click the following entries:



Windows® 7	Windows® XP
<ul style="list-style-type: none"> <li>✓ Start</li> <li>✓ Control Panel</li> <li>✓ Network and Internet</li> <li>✓ Network and Sharing Center</li> <li>✓ Connections: Local Area Connection</li> <li>✓ button "Properties"</li> <li>✓ item "Internet Protocol Version 4 (TCP/IPv4)"</li> <li>✓ button "Properties"</li> <li>✓ TAB "General"</li> </ul>	<ul style="list-style-type: none"> <li>✓ Start</li> <li>✓ Control Panel</li> <li>✓ dialog "Network Connections"</li> <li>✓ Local Area Connection</li> <li>✓ button "Properties" (in TAB "General")</li> <li>✓ item "Internet Protocol (TCP/IP)" (in TAB "General")</li> <li>✓ button "Properties"</li> <li>✓ TAB "General"</li> </ul>

## 6.2 Programming

Programming the AMS42/84-LAN16f (installed as "LAN-Base") with Visual Basic®, Delphi®, Visual C++™ under Windows® 7/XP is possible with the hardware independent [STR-LIBADX](#). It is available on the AMS42/84-LAN16f product page of the "Software Collection" CD. After installation, the ActiveX control must be loaded into the respective programming environment.



- **Visual Basic®**: menu "Project / Components", entry "LIBADX Object Library 4.0"

- **Delphi®**: menu "Components / Import ActiveX", entry "LIBADX Object Library 4.0"

If you select the entry [STR-LIBADX-EX](#) listed directly under the installation program of the corresponding ActiveX control, you can install example programs (with source code) demonstrating how to apply the ActiveX control.



Programming the AMS42/84-LAN16f (installed as "LAN-Base") under Max OS X and Unix (FreeBSD, Linux) with C/C++ is done by means of the LIBAD4 programming interface.



The [SDK-LIBAD](#) for the respective operating system (also Windows®) is included on the product page of the AMS42/84-LAN16f. For further information about how to integrate the SDK in the programming environment, please see the corresponding programming manual [UM-LIBAD4](#).



**Using the LIBAD4 requires advanced programming experience!**

## 6.3 Using AMS42/84-LAN16f with NextView®4

Install the fully functional trial of the professional software NextView®4 for data acquisition and processing to directly test the features and functions of the AMS42/84-LAN16f (installed as "LAN-Base").



The setup program [NV4.5](#) is available on the product page of the card. When first starting the software, request a license number with the option "Request 30 days free trial version" being checked and select your DAQ system (LAN-Base) in the following dialog "Device Setup".

The data sheet and the start project of NextView®4 contain first instructions about how to install and operate the program. For detailed information, an online help is provided.



**The trial is valid for 30 days after requesting the license number. If a license is not purchased within this period, the functional range of NextView®4 will be considerably cut down!**

## 7 Synchronization

In NextView®4 (see chapter 6.3), LAN-AD16f devices can do measurement time-synchronously in relation to real-time. The frequency of the sample clock is adjusted by means of a configured NTP server.

Settings for time-synchronous measurements are done in the LAN-AD16f Administration Utility (see chapter 6.1) as well as in NextView®4 and are described in the user manual [UM-LAN-ADMIN](#).

## 8 Supplementary products for the AMS42/84-LAN16f

### 8.1 5B modules (MA series)

The 5B measuring amplifiers from bmcM allow for the professional signal adjustment to a data acquisition system.

The amplifier output is  $\pm 5V$  or  $0..5V$ . Most of the modules are electrically isolating and provide sensor supply.

The following 5B modules from bmcM are available:



Product	Description
<i>MA-UNI</i>	universal amplifier with galvanic isolation for U, I, R, thermocouple, strain gauge, LVDT
<i>MA-UI</i>	multi-range amplifier with galvanic isolation for U, I
<i>MA-U</i>	voltage measuring amplifier with galvanic isolation, 50kHz bandwidth
<i>MA-FU</i>	frequency/voltage converter with galvanic isolation
<i>MA-DFI</i>	digital filter module with galvanic isolation, 60dB/oct.
<i>MA-FI</i>	filter module with galvanic isolation, 30dB/oct.

### 8.2 Plug-in cassettes (AMS-K series)

The amplifier system can be individually equipped with 8 (AMS42-LAN16f) or 16 (AMS84-LAN16f or AMS42-LAN16f with option *AMS42-EXT8*) plug-in cassettes.

Each cassette is equipped with the relevant 5B module and suitable input connector.

The suitable input connector on the front panel guarantees for the relevant connection to be available when exchanging the cassette.

The following cassettes are available:



Product	Description
<i>AMS-K-BIN5</i>	cassette with panel and 5-pole Binder female connector (712 series)
<i>AMS-K-BLANK</i>	blank panel
<i>AMS-K-BNC</i>	cassette with front panel and BNC female connector
<i>AMS-K-CO5</i>	cassette with front panel and 5-pole terminal connector
<i>AMS-K-THK</i>	cassette with front panel and thermocouple socket (type K)

### 8.3 AMS-HANDLE, AMS-HANDLE2

For mobile use, the AMS42/84-LAN16f can be equipped with a lateral, foldaway strap carrying handle (*AMS-HANDLE*) or with two stable metal handles at the housing frame (*AMS-HANDLE2*).



### 8.4 AMS42-EXT8, AMS-DIG8

With the add-on option *AMS42-EXT8*, eight additional analog channels are available for the AMS42-LAN16f, and eight opto-isolated digital inputs and eight relay outputs with the option *AMS-DIG8*. The additional channels are accessible at the back of the amplifier measurement system.

## 9 Important notes for using the AMS42/84-LAN16f

- The device is only suitable for extra-low voltages - please observe the relevant regulations! For reasons relating to EMC, it must only be used in closed PC housings. ESD voltages at open lines may cause malfunction.
- Only use an electrical isolated power supply unit (with CE).
- For cleaning only use non-solvent detergents. The product is designed to be maintenance-free.
- For calibration purposes, the device must be returned to BMC Messsysteme GmbH.
- For reasons relating to CE use shielded cables. Connect the shield to ground at one end only. Close open inputs if possible. ESD voltages on lines may cause malfunction during operation.
- When mounting the cassettes, a connection between power supply ground and chassis of the device is made via the module screw.
- The AD converter of the data acquisition system has a code noise of up to  $\pm 4$  LSB. For 16-bit accuracy, you must average app. 10 times in order to suppress the noise.
- The Gain is adjusted to even values. Therefore only 64000 (with 16 bit) values of the full range of the converter are used. As a result, the measuring ranges are effectively slightly larger (e.g.  $\pm 5.12V$ ) than the indicated measuring ranges, providing for the advantage that overranges can be recognized.
- The device must not be used for safety-relevant tasks. With the use of the product, the customer becomes manufacturer by law and is therefore fully responsible for the proper installation and use of the product. In the case of improper use and/or unauthorized interference, our warranty ceases and any warranty claim is excluded.



Do not dispose of the product in the domestic waste or at any waste collection places. It has to be either duly disposed according to the WEEE directive or can be returned to bmcm at your own expense.

## 10 Technical data

(typical at 20°C, after 5min., +24V supply)

### • Analog inputs

Channels // Measuring range:	8 (AMS42-LAN16f) or 16 (AMS84-LAN16f) inputs (single-ended) // $\pm 5V$
Sampling rate // Noise // Resolution:	max. 250kHz total sampling rate* // $\pm 1mV$ // 16 bit
Abs. accuracy // Memory depth:	$\pm 2.5mV$ // only depending on the size of the hard disk of the server PC
Surge protection:	$\pm 35V$ (when turned on), $\pm 20V$ (when turned off), max. $\pm 20mA$ in total of all input channels!
Input resistance // Input capacity:	$1M\Omega$ (with PC turned off: $1k\Omega$ ) // $5pF$
Zero shift // Gain drop:	$\pm 50ppm/^\circ C$ // $\pm 50ppm/^\circ C$
Frequency accuracy // Frequency drift:	max. $\pm 100ppm$ // max. $\pm 50ppm/^\circ C$

\* The total sampling rate is the sum of the sampling rates of the individual used channels (e.g. if 5 channels are scanned with 1kHz, the total sampling rate adds up to 5kHz).

The values for accuracy always relate to the respective measuring range. Errors might add at worst.

### • Digital channels

Channels // Counter:	16 DigIN, 16 DigOUT // 19-bit counter, up/down counter or incremental encoder; connect at dig. pins
Level // Resistance $R_i$ // Output current:	CMOS/TTL compatible (low: 0V..0.7V; high: 3V..5V) // DigIN: $10k\Omega$ , DigOUT: $1k\Omega$ // 0.5mA

### • General data

Power supply:	+9..40V DC, $\pm 5\%$ , min 3W, max. 20W (depends on number of 5B modules used) at 3-pole DIN plug
Galvanic isolation:	depends on the 5B modules used
Analog connections:	different connectors (Phoenix, Binder, BNC, Thermo) on the front panels of the cassettes
Digital connections:	all channels at a 15-pole D-Sub female at the device front
LAN connection:	Twisted Pair RJ45 connector, 100Mbit
CE standards:	EN61000-6-1, EN61000-6-3, EN61010-1; for decl. of conformity (PDF) visit <a href="http://www.bmcm.de">www.bmcm.de</a>
ElektroG // ear registration:	RoHS and WEEE compliant // WEEE Reg.-No. DE75472248
Max. permissible potentials // Protection:	<b>60V DC acc. to VDE</b> , max. 1kV ESD on open lines // IP20
Temperature ranges // Relative humidity:	operating temp. -25..50°C, storage temp. -25..70°C // 0-90% (not condensing)
Dimensions (W x H x D):	AMS42-LAN16f: 23.5 x 13.2 x 25.6 cm <sup>3</sup> ; AMS84-LAN16f: 48.3 x 13.2 x 25.6cm <sup>3</sup> (incl. mounting brackets)
Delivery:	device, "Software Collection" CD, description
Available accessories:	plug-in cassettes with front panels and different connectors of the AMS-K series, 8-channel extension AMS42-EXT8 (AMS42-LAN16f only); extension AMS-DIG8 for 8 opto-isolated digital inputs and 8 relay outputs, D-Sub plugs, ZU37ST, 3-pole DIN socket ZU3DIN, gender changer ZU37SS, connecting cables ZUKA37SB/SS (D-Sub), ZUKA10T (Twisted Pair), ZUKA-CL10T (Crosslink), desktop power supply ZU-PW70W (24V, 2.92A DC), carrying handles AMS-HANDLE, AMS-HANDLE2
Warranty:	2 years from date of purchase at bmcm, claims for damages resulting from improper use excluded

### • Software

Software on CD (included):	ActiveX Controls LIBADX (hardware independent) for programming on Windows® 7/XP; LIBAD4 SDK for C/C++ programming on Windows® 7/XP, Mac OS X, FreeBSD, Linux; trial version of the measuring software NextView®4 to test and operate the hardware; configuration software LAN-Admin
NextView®4 (optional):	professional software (versions: Professional, Lite) for the acquisition and analysis of measurement data on Windows® 7/XP

Manufacturer: BMC Messsysteme GmbH. Subject to change due to technical improvements. Errors and printing errors excepted. Rev. 4.0 06/11/2012