AMR WinControl the software for all ALMEMO® measuring instruments

Software Description:

- The AMR WinControl software package has been specially developed for data acquisition and measured data processing with ALMEMO® equipment.
- This software makes it very easy and convenient for the user to program and operate ALMEMO® devices.
- The acquired measured values can be displayed, arithmetically processed, stored, printed and for further data processing (also ONLINE) can be exported to other software packages.
- It is possible to derive alarm conditions from the acquired or calculated variables and perform control measures.
- The Windows desktop and the context-sensitive online help ensure a quick familiarisation and a safe handling of the software.
- At our site (www.akrobit.de) you can find all the latest information regarding software versions and updates and also download the most recent trial version of the software.

Software Versions:	**Order no.**
For 20 measuring points and one instrument	**SW5600WC1**
For any number of measuring points and instruments	**SW5600WC2**
For any number of measuring points and instruments, all options included (except Data server, Web server and additional modules)	**SW5600WC3**
For any number of measuring points and devices, all options included (except add-on modules), with an integrated data server (simultaneous access by several RMT WinControl clients).	**SW5600WC4**
Update of the latest software version for older versions	**SW5600WCU3**
Update of the latest software version for newer versions	**SW5600WCU4**

Options:	**Order no.**
Network capability (for addressing several ALMEMO® devices)	SW5600WCO1
Automatic generation of measured data files (daily files / weekly files)	SW5600WCO2
Modem support	SW5600WCO3
Alarm function (alarm record, output to ALMEMO® relays, starting other applications)	SW5600WCO5
Data server see 05.13	SW5600WCO8
Web server see 05.14	SW5600WCO9
New Extended evaluation functions see page 05.11	SW5600WCO10
Additional modules	
Thermal comfort and air-conditioning calculations (as per DIN 1946, EN ISO 7730); (see 05.12)	SW 5600 WCZM1
Password protection (see 05.12)	SW 5600 WCZM2
Test bench manager (prerequisite : WC3 / WC4 or WC1 / WC2 + WCO2) (see 05.15)	SW 5600 WCZM3
Thermal transmittance (U) wizard (see 06.11)	SW 5600 WCZM4
Thermal quantity wizard (see 05.12 and chapter Building physics)	SW 5600 WCZM5
OPC export (see 05.12)	SW 5600 WCZM6
Additional protocol (selectable, requires WC3 / WC4) (see system integration, page 05.13)	SW 5600WCZM7
Security package (requires WC3 / WC4) (see 05.15) including watchdog card	SW 5600 WCZM8
The memory is read out automatically (see 05.13 connecting options)	SW 5600 WCZM9
Complete packages (see 05.13 - 05.14)	
Long-term / continuous monitoring	SW 5600 WCV
PIMEX - combined measured value recording, video recording, and evaluation functions	SW 5600 WCP
Hardware copy protection (see 05.15)	
USB dongle	SW 5600 HL
USB network dongle	SW5600NHL

Minimum system requirements :

Components :	Minimum configuration	Recommended configuration
Computer	IBM-compatible PC	IBM-compatible PC
Operating system	Windows XP, 2003, Vista, 2008, 7, 8 (32 and 64 bit)	Windows 7
Memory	256 MB	1024 MB
Free hard-disk capacity	25 MB	100 MB
Interfaces	USB	COM (RS232), USB,network card Modem or ISDN

Function overviewy	WC1	WC2	WC3	WC4	WCV
Measured values - scanning					
Number of measuring points supported	20	unlimited.	unlimited.	unlimited.	unlimited.
Number of connections supported	1	unlimited.	unlimited.	unlimited.	unlimited.
Support for ALMEMO® network		✓	✓	✓	✓
Connection types					
Serial (COM), TCP/IP	✓	✓	✓	✓	✓
Modem, GSM, and wireless modem support			✓	✓	✓
Schedule-controlled connection setup			✓	✓	✓
Measured values - display					
Display of measured values (numeric, bar chart, wind rose, round gauges)	✓	✓	✓	✓	✓
Line graph (YT), XY graph	✓	✓	✓	✓	✓
Save / load presentation characteristics as format type	✓	✓	✓	✓	✓
Table, overview	✓	✓	✓	✓	✓
Zoom functions	✓	✓	✓	✓	✓
Project icons	✓	✓	✓	✓	✓
Work surfaces			✓	✓	✓
Measured values - saving					
Saving to hard disk - manual	✓	✓	✓	✓	✓
Saving to hard disk - automatic	✓	✓	✓	✓	✓
Automatic generation of daily, weekly, monthly files			✓	✓	✓
Automatic saving on an event-controlled basis			✓	✓	✓
Automatically saved files - sent by e-mail			✓	✓	✓
Automatically saved files - backed up automatically					✓
Fail-safe (only devices with failsafe mode and internal memory)					✓
Measured values - analysis					
Two measuring cursors with statistics function	✓	✓	✓	✓	✓
Displaying local maximum and minimum values in a line graph			✓	✓	✓
Loading comparative characteristics in a line graph			✓	✓	✓
Measured values - processing					
Global arithmetic channels	✓	✓	✓	✓	✓
Local arithmetic channels for files already saved	✓	✓	✓	✓	✓
Calculations based on external table values	✓	✓	✓	✓	✓
Linking /splitting of files	✓	✓	✓	✓	✓
Grouping measured value files in a particular folder (wild card search)			✓	✓	✓
Grouping measured value files over a particular period of time			✓	✓	✓
Exporting measured values					
Clipboard	✓	✓	✓	✓	✓
File formats (MS-Excel XLS / XLSX, TXT / CSV, FAMOS, QS-STAT, DIAdem, binary)	✓	✓	✓	✓	✓
Dynamic data exchange (DDE, OLE)	✓	✓	✓	✓	✓
ONLINE data transmission to MS-Excel	✓	✓	✓	✓	✓
ODBC export (e.g. SQL databases)			✓	✓	✓
Measured values - import					
ASCII (list, columns, table formats)	✓	✓	✓	✓	✓
ALMEMO® View files	✓	✓	✓	✓	✓
ODBC import (e.g. SQL databases)			✓	✓	✓
Programming of measuring points and devices					
Programming the characteristics of measuring points and devices	✓	✓	✓	✓	✓
Automated scaling of third-party sensors	✓	✓	✓	✓	✓
Measuring points programming - save to file / load from file	✓	✓	✓	✓	✓
Editing the programmed file (similar to Excel tables)	✓	✓	✓	✓	✓

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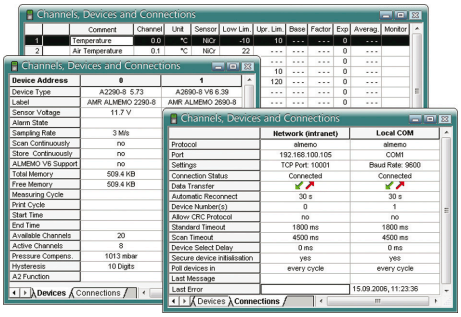
Data reduction					
Averaging function (ONLINE and OFFLINE)	✓	✓	✓	✓	✓
Smoothing (over time / over number of values, ONLINE and OFFLINE)	✓	✓	✓	✓	✓
Data logger functions					
Programming the data logger (including averaging functions)	✓	✓	✓	✓	✓
Read out from device memory (all / selective measured values)	✓	✓	✓	✓	✓
Display of memory occupancy status	✓	✓	✓	✓	✓
Alarm functions					
Alarm value display in measuring points list and in all measured value displays	✓	✓	✓	✓	✓
Alarm report with confirmation and comments text			✓	✓	✓
Events list (audit trail)			✓	✓	✓
Start a program in the event of a particular fault			✓	✓	✓
Send e-mail / SMS in the event of an alarm			✓	✓	✓
Switch ALMEMO® output relays (specific to measuring point).			✓	✓	✓
Control commands dependent on measured values (KwikScript)			✓	✓	✓
Advance warning alarm					✓
Alarm log printout					✓
Schedules for alarm processing					✓
Automatic checking of system configuration					✓
Password protection					
Protection against unauthorized access					✓
Protection against operator error by assigning individual access rights					✓
Traceability of activities by means of an events list					✓
Alarm confirmation with user identification					✓
Control and regulation					
Two-point controller with ALMEMO® output relay?*?s			✓	✓	✓
Proportional controller with ALMEMO® analog output modules			✓	✓	✓
PID controller with ALMEMO® analog output modules and arithmetic channels			✓	✓	✓
User-definable command buttons					
Keys and buttons in project icons and as a toolbar	✓	✓	✓	✓	✓
Setting constants	✓	✓	✓	✓	✓
Starting / stopping a measuring operation	✓	✓	✓	✓	✓
Switching relays			✓	✓	✓
Setting analog output values			✓	✓	✓
Configuration management					
Save / load program configuration		✓	✓	✓	✓
Printout					
Diagrams, meas. value tables, meas. point list, file overview including comments	✓	✓	✓	✓	✓
Network server functions					
Displaying measured values and diagrams on Intranet or Internet				✓	✓
Embedding diagrams and project icons on your own Internet pages				✓	✓
Accessing the integrated web server via any browser				✓	✓
Accessing measured data and history data via TCP/IP (open text protocol)				✓	✓
Forwarding measured data to RMT WinControl				✓	✓
Availability of already acquired measured data even after program restart				✓	✓
Alarm confirmation via web server					✓

After initial installation AMR WinControl will run in demo mode - comprising the full functionality of the professional version (WC3) - for a trial period of 30 days, after which time it will have to be registered. All the functions incorporated in the professional version can be tried without restriction and without engagement. If further functions (additional modules) are needed for test purposes, these can also be enabled on a temporary basis. Users can thus try the software for the duration of the trial period with the full range of functions normally needed and then place an order after the system has been running to their complete satisfaction. Registration does not need reinstallation.

Main Window/General View

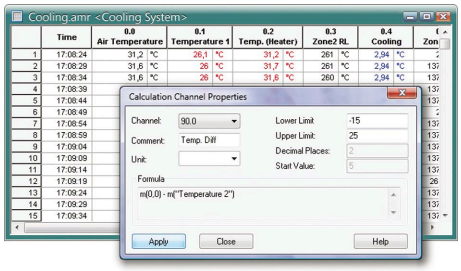
- The main window is the platform for all operations with AMR WinControl. All actions run within this window and can be minimised to a symbol, within the window or together with the window, and run in the background.
- The measuring data can be presented as follows: Numeric presentation of measured values, bar diagram, wind rose, round instruments, line diagram, XY diagram, table, file overview.
- Windows can be distributed over various work surfaces between which it is possible to switch by means of tabs.
- The program can be operated by means of menu commands. Only those commands, which can be executed in the corresponding situation, will be available. For a faster operation context-sensitive menus, keyboard commands and symbols in the tool bar are available.
- Comprehensive help information is available via the function descriptions in the status line, notes in the tool bar and a context-sensitive help system.

List of Measuring Points, devices and connections



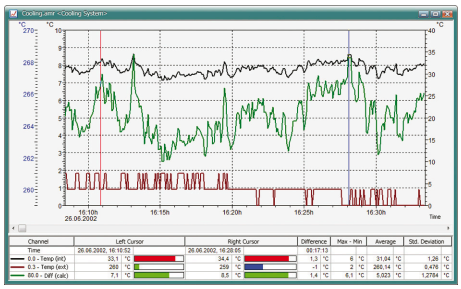
- As soon as the program is started and the serial interface is assigned, all sensors that are programmed and connected to the measuring instrument(s) will be recognized automatically and displayed in the list of measuring points.
- Apart from sensor specific data regarding the measuring range, comment, limit values, correction values the list also contains symbols for limit value exceeding, sensor breakage and online storage.
- Device-specific information, e.g. device type, memory occupancy, and settings for operating the data logger are also displayed.
- Measuring instruments can be connected via various interfaces (COM, TCP, modem) simultaneously; mixed-mode operation over various connections is possible. Information regarding the current status of connections is displayed here.

ONLINE and OFFLINE Arithmetical Operations



- The arithmetical functions of the program allow to calculate physical variables from the measured data.
- The required variables can be defined via a formula editor and can be set as an arithmetic channel (virtual measuring point).
- Data acquired through these arithmetic channels can be, ONLINE and OFFLINE, further processed and presented.
- Depending on its definition an arithmetic channel can be globally available in the whole program or only locally within a data record (line or XY diagram, table).
- Even data records that have already been stored can be extended by arithmetic channels, as required.

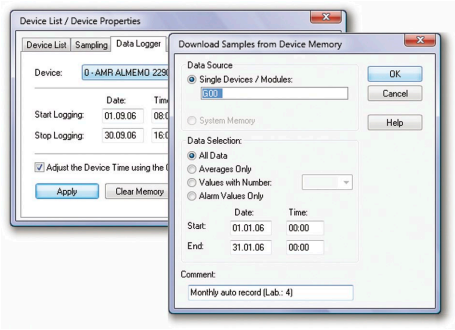
Measuring Cursors/Statistic Function



- In the „Line Diagram“ view, the acquired data can be analysed using two measuring cursors (ONLINE and OFFLINE).
- The movement of the cursors can be performed in any area within the line diagram.
- Corresponding to the position of the measuring cursors, the measured values of all displayed lines located below the cursors will be displayed in a table.
- Through the integrated statistic function the difference of the values under the cursors, the minimum and maximum value and the average value of the area defined by the cursor positions will be calculated and also provided within the table.
- It is possible to perform a printout of the diagram and of the table displayed in the window, together or individually, or to copy them to the clipboard.

Software

Data Logger Functions

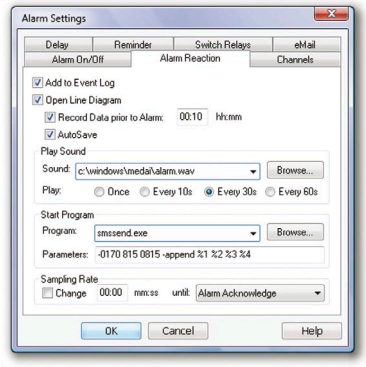


- The settings required for data logger operation can be programmed within a dialogue.
- In the dialogue „Program Data Logger“ the current settings of the device, e.g. memory occupancy, start and end time, measuring cycle and print cycle will be displayed.
- The read-out of the device memory can be, individually or together, performed for all data loggers within the measuring network.
- An optional setting allows to define that not all measured values but only a selection of the stored data should be read out of the device memories. The selection criteria available include „Average Values Only“, „Alarm Values Only“, „Meas. Values with Number Only“ and „Only Values Within A Time Frame“.

The memory is read out automatically

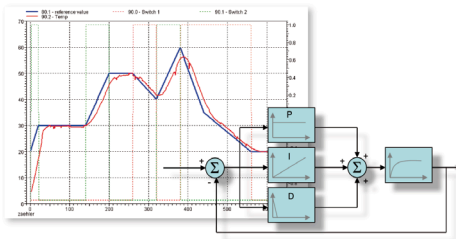
- This module greatly facilitates the task of reading out from the device memory of an autonomous data logger.
- Saving data to the data logger is interrupted, its memory is read out, and, if this is successful, the memory content is deleted. The time-of-day is synchronized and saving data to the data logger is resumed.
- Reading out from memory can be completely automated in the form of schedules.
- All steps and possible errors are documented in the events list..

Monitoring Functions



- An alarm can be triggered by a component failure or a limit value infringement.
- Alarm processing can be activated individually for each measuring point.
- Alarms are reported visually and / or acoustically.
- The cause and the duration of events responsible for triggering the alarm are documented in an events list.
- Alarm reports can be confirmed either individually or all together.
- If the cause of an alarm persists uncorrected an alarm reminder is issued to ensure that the alarm is not forgotten after it has been confirmed.
- A line graph with settable history can be generated for the variable triggering an alarm.
- In the event of an alarm being triggered e-mails can be sent, ALMEMO® output relays can be switched, and programs or scripts can be executed.
- Alarm reports can be forwarded via the network.
- In the event of a limit value being infringed program control commands can be executed (KwikScript).

Control and regulation



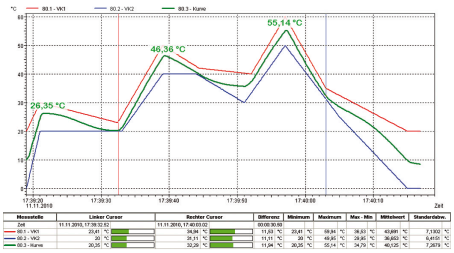
- Two-point controllers, proportional controllers, and time-based controls are available.
- It is also possible, using arithmetic channels, to define PID controllers.
- Setpoint curves und process sequences can be specified by means of files with coordinates pairs.
- Values can be specified and process sequences can be modified - all via command buttons in project icons or the toolbar.

Automatic saving-to-memory

- Measured data can be saved to memory - manually or on a time-controlled or event-driven basis.
- Not only daily / weekly / monthly files can be specified but also files with any random periods of time.
- Data is saved to memory automatically in the background - irrespective of any opened diagrams, tables, or displays.
- Measured value files can be exported automatically on completion of a save-to-memory cycle and be sent by e-mail (as an option with the events list).

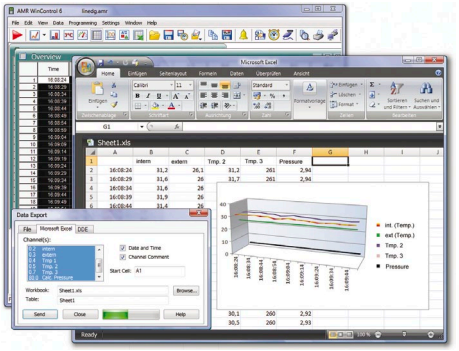
Extended evaluation functions

- Measured value files can be incorporated in new or already existing line charts in the form of comparative characteristics.
- Folders containing a large number of measured value files can be conveniently grouped using various patterns based on file names and filters according to time and measuring point.
- Local maximum and minimum values can be shown in a line chart as any measured value curve required. The search radius between maximum and minimum can be freely set.



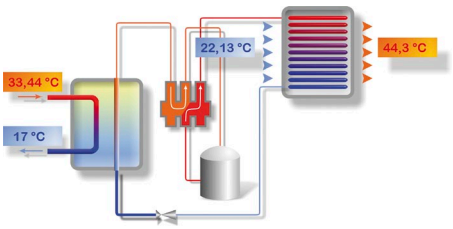
Data Export:

- The data files can be, ONLINE and/or at any later point in time, stored in the following formats Excel (XLS / XLSX), ASCII (TXT / CSV), WK1, FAMOS, QS-STAT, DIAdem, binary.
- With ODBC measured data can be exported in SQL databases (structured query language). This supports all data sources for which an ODBC driver is installed and set up on the system.
- The line and XY diagrams and the tables can be copied to the clipboard and, for example, be inserted into a protocol text.
- Via dynamic data exchange (DDE) it is possible to transfer measured values ONLINE to other applications, for example MS-EXCEL.
- Furthermore, line diagrams can be embedded into text documents (e.g. a MS Word document) via the OLE function.



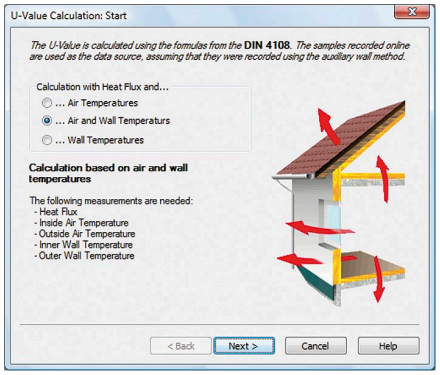
Project Illustrations

- Project illustrations allow for visualising the setups of measurements and processes by using individually designed graphics and/or photographs (bitmaps).
- The presentation of the acquired data is provided in data fields that can be freely positioned; size and colours can be freely selected.
- Text fields can be filled with legend information and descriptions and can be freely positioned.
- Command buttons (keys and switches) can be freely positioned in the project icon and allow changes to values for performing calculations or controlling processes (switching of relays or valves, etc.).
- The design of the command buttons can be changed in any way in the form of icons; the measurement setup can thus be visualized in a completely integrated way.
- Any number of project illustrations can be opened at the same time, allowing, for example, to have a presentation of the total view and detailed views of a project.



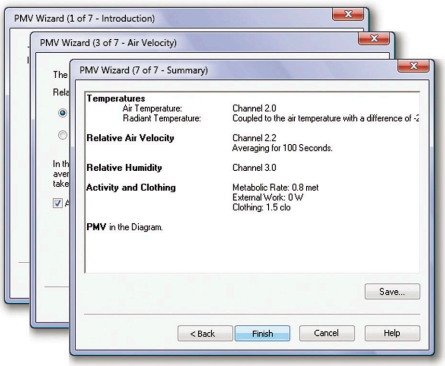
Thermal transmittance (U) wizard

- The thermal transmittance (U) wizard is available for ONLINE and OFFLINE calculations; it guides the user through all the required steps.
- The user can choose from a selection of calculation methods - for the experimental thermal transmittance value, for the thermal transmittance value according to DIN 4108, and for the official calculated value.
- Determination of the currently calculated value and the sliding average value.
- The calculation methods will be described and the allocation of the corresponding measuring variables will be provided.
- After completing all steps a line diagram will be created, which will then be filled with the measuring data and the calculated variables.
- The cursor function can be used to open the statistic table, which provides further evaluation options (see above).



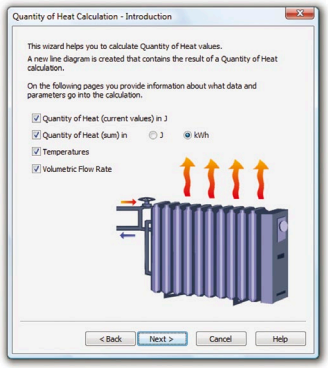
Software

PPD / PMV wizard (comfort index measurement)



- Calculation of thermal comfort as per DIN 1946 Part 2 and ISO 7730
- User guidance by means of a wizard and easy-to-understand evaluation
- Output in the form of “predicted mean vote” (PMV) and “predicted percent of dissatisfied“ (PPD)
- Online and offline calculation of PMV and PPD in real time or on the basis of measured values already existing
- Graphical representation of measured data and calculated values in a format suitable for export (e.g. ASCII, MS Excel, DiaDEM, etc.)
- Calculation parameters can be saved as a model for subsequent calculations.
- Additional PMV / PPD functions are available for use in arithmetic channels.

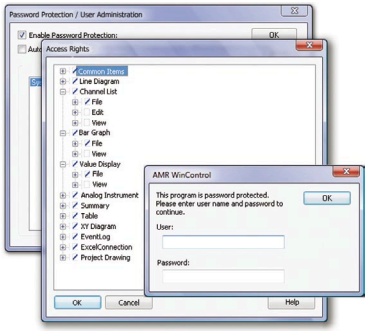
Thermal quantity wizard



- The thermal quantity is calculated automatically from the volume flow and the temperature difference.
- You can enter settings easily and conveniently using the wizard.
- Data tables for water are included in delivery; users can define their own extensions for other media themselves.
- The thermal quantity can be calculated in real time or on the basis of existing measured value files.

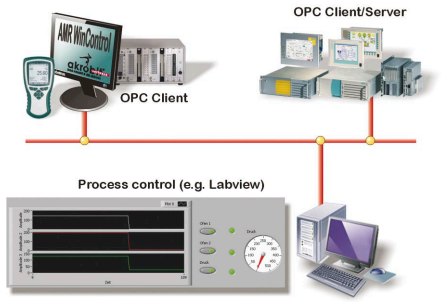
$$\delta Q = c_v \cdot m \cdot dT$$

Password protection



- Integrated user management system protects AMR WinControl against unauthorized access. This policy reduces security risks to a minimum.
- Each change of user is logged in the events list for subsequent evaluation if this becomes necessary.
- Rights of access can be defined individually per user.
- Alarm confirmations can be assigned unequivocally to a particular user.

OPC export



- „Openness, Productivity, and Collaboration”
- OPC is an established industrial standard for access procedures on a multi-vendor basis irrespective of manufacturer.
- AMR WinControl operates as an OPC client; it writes current measured values to the global variables provided by an OPC server.
- Data can be transferred in parallel to several OPC servers.
- Data from AMR WinControl can, with the aid of OPC, be visualized online in LabView™.

ODBC

- Open database connectivity
- ODBC is a standardized database interface used by SQL as its database language.
- Recorded measured values can thus be transferred to a database.
- Current measured values can be interrogated from a database per measuring cycle.
- A suitable ODBC driver for the database must be installed and set up on the system.

Connecting Options

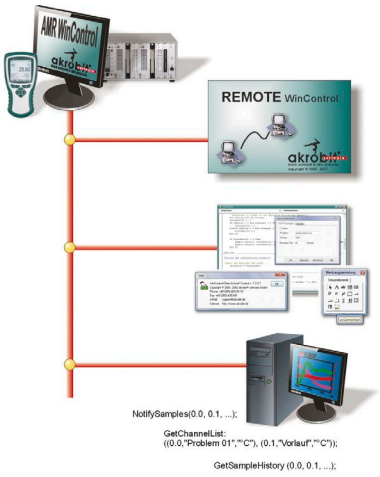
- AMR WinControl can handle single measuring instruments as well as a network of measuring instruments of the ALMEMO® series.
- The connection to the measuring instrument(s) can be established via serial interface, USB, Bluetooth, or (GSM) modem.
- In a similar way, the measuring instruments can be addressed via a computer network (TCP/IP address) and VPN.
- Connections can be set up on a time-controlled basis. Reading out from the memory on ALMEMO® devices can be automated. The memory can on request be cleared and saving to memory can be resumed automatically. Any problems encountered are noted in the events list.

System Integration

- AMR WinControl also provides optional support for protocols used by devices from other manufacturers for measured value scanning in parallel for any number of connections.
- "SimpleASCII" is an open text protocol that can be used for the simple and straightforward integration of various measuring instruments in AMR WinControl.
- With the "OPC-Import-Protocol" data from an OPC server (e.g. Labview) can be read into AMR WinControl and processed by it.
- Data from the climate chambers (Feutron und Weiss Umwelttechnik) can be acquired and recorded in much the same way as e.g. gas analysis data from Emerson devices "XStream" and "NGA" or the "MRU Nova H8" device .
- Using the highly flexible Modbus protocol means that many other devices that support this protocol can be addressed.
- For the purposes of measuring and recording electrical variables (current, voltage, output, power factor, energy, etc) various protocols for "Simeas-T" and "Yokogawa" devices are available.
- Communication with a PLC can also be established via a further serial interface or TCP/IP connection.
- This provides an open design for implementing automated test processes.

Measured value server

- With the measured value server up to 200 users simultaneously can access current measured values and the measured values history via a TCP network (Intranet / Internet).
- Interface to any data acquisition and process control system
- Online transmission of measured data to other operating systems (e.g. LINUX, WINDOWS CE, UNIX, etc.)
- Data distribution according to any specified criteria
- Customized solutions can be implemented using straightforward ASCII commands issued via the TCP protocol; all these commands are fully documented.
- Open "read-only" interface for any user-defined connection software
- "REMOTE WinControl" and "WinControl Client OCX" provide powerful standard solutions for the measured value clients.

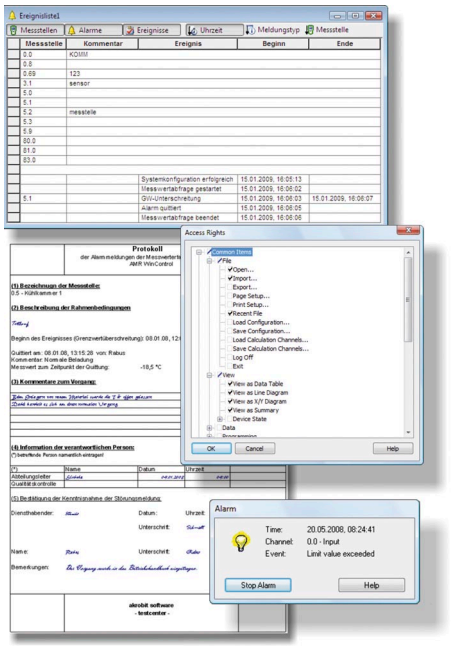


Software

Web server

- AMR WinControl provides a full range of web server functions for publishing web pages (HTML) in the Intranet / Internet. It also incorporates additional functions that can be used to output the contents of AMR WinControl windows directly onto web pages.
- Current measured values and measured value histories can be displayed in a variety of ways (line diagrams, XY diagrams, project illustrations) in the Intranet / Internet.
- Visualization of processes and systems
- Visual remote monitoring
- Confirmation of alarms via the browser (only with alarm function and password protection)
- Linking presentation and real-time data on web pages
- The way in which measured values are displayed does not depend on the operating system; only a browser is needed (MS Internet Explorer, Firefox, Chrome, Opera, etc.).
- Diagrams and measured values can also be displayed on smartphones and tablet PCs.
- Security provided by SSL / TLS and user authentication
- Very easy to use : Images generated from the contents of a window can be transmitted as soon as the program starts - without needing any further settings. For particularly demanding tasks the HTML pages must first be adapted and connected to the web server.
- The wide variety of image formats and special parameters make for transparency and loss-free scaling and permit automatic updating. Powerful real-time compression algorithms minimize the volume of data to be transmitted.
- All the layout facilities available in HTML, DHTML, and CSS can be exploited; combining with JavaScript is also possible.
- Graphics, text, and measured value displays can be combined and merged completely seamlessly.
- The web designer is free to specify, more or less independently of AMR WinControl, how the measured value displays are to appear.
- The user receives current measured data without being exposed to any sort of security risk - because there is no need for Java or special plug-ins.

SW5600WCV Package for long-term / continuous monitoring



This package, based on the AMR WinControl “professional” version, contains all the options and modules needed to implement long-term and continuous monitoring of critical measurable variables.

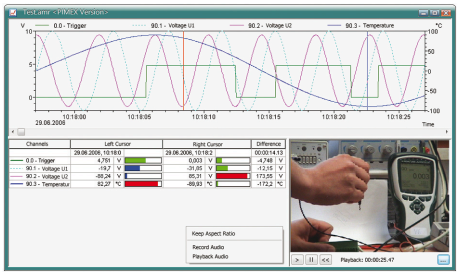
- Integrated user management with individually settable access rights and password protection
- Tamper-proof event list with sort and filter functions
- Trend monitoring - pre-alarm for signaling trend developments
- Signaling of alarms and events with user-specific confirmation and comments
- Alarm confirmation per web server (authentication and SSL / TLS available)
- Schedules : Automatic switching ON / OFF of alarm treatment for each measuring point, e.g. alarm treatment on working days between 06 and 18 o’clock only.
- Temporarily withdrawing certain measuring points from alarm treatment, e.g. for defrosting a cold room
- In the event of alarm an MS-Excel log can be printed out automatically. Users can modify the log provided or create their own.
- Failsafe : Automatic reading out of the device memory after loss of connection to the device
- Requirements: ALMEMO® device with failsafe mode and internal memory
- System configuration
- Integrity check on all measuring points and measuring instruments after program start
- Processing of measured and calculated variables in control and regulation functions
- Automatic printout and / or e-mail with daily files and event lists
- Including security package.

Security package

- Data security : Automatic backup of all automatically recorded data (daily and weekly files, measured values recorded on an event-controlled basis, event lists, etc.)
- Fail-safe : In the event of failure a watchdog is triggered for PC restart and / or signaling via relay.
- Including watchdog card

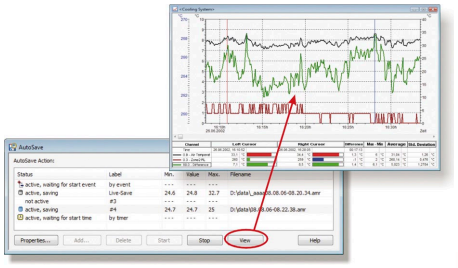
SW5600WCP: PIMEX

- Simultaneous acquisition of measured values from ALMEMO® devices together with video data from a digital source
- The measured data and video signal are synchronized and displayed together.
- The modes available are preview, record, and playback.
- It is also possible as an option to generate presentation videos from the acquired data.
- Possible applications : Documentation / visualization of the process environment (e.g. for safety in the workplace, quality management, etc.)



Test bench manager

- Several autosave managers can be operated and organized via a convenient, easy-to-use graphical user interface.
- Measured data can thus be saved simultaneously to different files.
- Autosave managers can be started and stopped independently of one another and according to various criteria (time-driven or event-driven).
- Different measuring locations (operating in parallel) can thus be treated separately.
- Measured value files can be indicated as write-protected already during recording.
- Including 10 autosave managers (optionally more available)



Copy protection

- AMR WinControl incorporates a copy protection system which requires a PC-dependent code to enable it. To receive this code the user must first register the software by telephone, fax, or e-mail. Per licence purchased the software may be installed and operated on one computer.
- It is also possible as an option to request a hardware copy protection mechanism, a dongle; with this the software can be installed on any number of computers but will only run on that PC into which the dongle is currently plugged.
- A network dongle may contain more than one licence; with this it is possible - without the inconvenience of moving the dongle - to run the software simultaneously on as many computers in a company network as there are licences encoded in the dongle.