

ALEXYS AC 100

Acquisition controller

user manual





DECLARATION OF CONFORMITY

The manufacturer hereby declares that the product

ALEXYS AC 100 acquisition controller type 183

to which this declaration relates, is in conformity with the following directives:

Safety (73/23/EEC)

Safety requirements for laboratory equipment EN61010-1
(Class I, Installation cat. II, Pollution degree 2)

EMC (89/336/EEC)

Electromagnetic compatibility, generic emission standard	EN50081-1/2
Electromagnetic compatibility, generic immunity standard	EN50082-2
Emission standard- Information Technology Equipment (ITE)	EN 55022, Class B (CISPR22)
Harmonic current emissions	EN 61000-3-2
Voltage fluctuations and flicker	EN 61000-3-3

Attention

Use manufacturer-supplied cable(s) only to connect all I/O's with other devices. Thoroughly connect the shielding to common. Manufacturer will not accept any liability for damage, direct or indirect, caused by connecting this instrument to devices, which do not meet relevant safety standards.

February 21, 2007

Intended use

For research purposes only. While clinical applications may be shown, this instrument is not tested by the manufacturer to comply with the In Vitro Diagnostics Directive.

WEEE directive

All equipment of Antec Leyden which are subjected to the WEEE directive shipped after August 13, 2005 are compliant with the WEEE marking requirements. Such products are labelled with the “crossed out wheelie”, depicted on the left site.



The symbol on the product indicates that the product **must not** be disposed as unsorted municipality waste.

Collection & recycling information

Please ship the instrument back to the manufacturer (Antec Leyden, the Netherlands) at the end-of-life time of the product. The manufacturer will take care of the proper disposal and recycling of the instrument at its facilities.

Shipping address for the end-of-life products:

Antec Leyden
Industrieweg 12
2382NV Zoeterwoude
The Netherlands

In case of questions, or if further information is required about the collection & recycling procedure, please contact your local distributor.

ROHS directive

Our instruments are currently exempt from the RoHS directive because they fall under WEEE Annex IA categories 8 and 9, which includes medical devices and monitoring and control instruments. Nevertheless, we have taken steps to eliminate all restricted substances from our products.



Antec Leyden is an ISO 9001:2000 certified company.

Symbols

The following symbols are used on the rear panel and oven compartment of the AC 100:



Consult the manual for further safety instructions



Frame or chassis ground terminal

The following pictograms are used in the AC 100 manual:



Caution



Caution, risk of electric shock or other electrical hazard (high voltage)

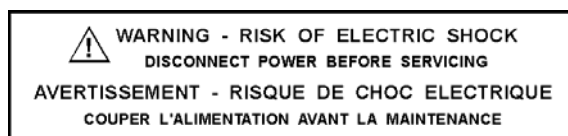
Safety practices

The following safety practices are intended to insure safe operation of the equipment.

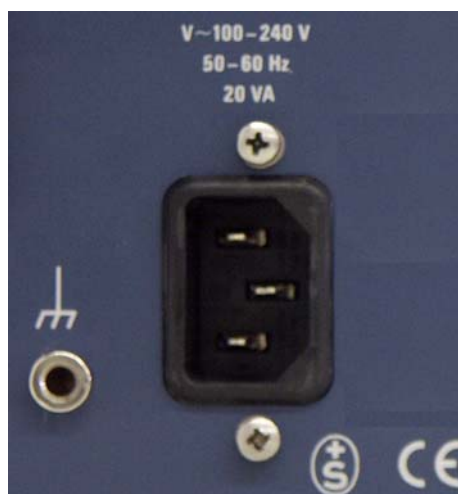
Electrical hazards



The removal of protective panels on the AC 100 can result in exposure to potentially dangerous voltages. Therefore, disconnect the instrument from all power sources before disassembly. Untrained personnel should not open the instrument.



Place the AC 100 on a flat and smooth surface or stack it on top of the LC 100 pump. Connect the detector to a grounded AC power source, line voltage 100 – 240 VAC, frequency 50/60 Hz. The instrument should be connected to a protective earth via a grounded socket.



The power source should exhibit minimal power transients and fluctuations. Replace faulty or frayed power cords.

General precautions

This instrument has a lithium battery inside. Replacement of the battery should be performed by qualified service personnel. Dispose the battery according to chemical waste only.



Use of this product outside the scope of this manual may present a hazard.

Spare parts and service availability

Manufacturer provides operational spare parts of the instrument and current accessories for a period of five years after shipment of the final production run of the instrument. Spare parts will be available after this five years period on an 'as available' basis.

Manufacturer provides a variety of services to support her customers after warranty expiration. Repair service can be provided on a time and material basis. Contact your local supplier for servicing. Technical support and training can be provided by qualified chemists on both contractual or as-needed basis.

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CHAPTER 1

AC 100 acquisition controller

Congratulations on your purchase of the AC 100 acquisition controller.

The AC 100 is an interface for data acquisition and instrument control for Antec Leyden's ALEXYS 100 LC-EC system. Up to two independent LC systems can be controlled. The AC 100 has 4 analog inputs (24-bits ADC) for data acquisition. Up to 16 devices can be connected through RS232 to control chromatographic equipment and collect digital data. Furthermore, 2 inputs and 14 outputs are provided to control external events.

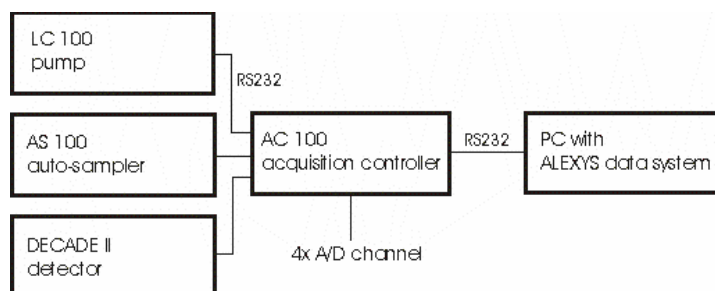


Fig. 1. Example of a typical ALEXYS HPLC system.



CHAPTER 2

Installation guide

Unpacking

Inspect the *transport box* for possible damage as it arrives. Immediately inform the transport company in case of damage, otherwise she may not accept any responsibility. Keep the transport box as it is designed for optimum protection during transport and it may be needed again. Carefully unpack the instrument and inspect it for completeness and possible damage. Contact your supplier in case of damage or if not all marked items on the checklist are included. Prior to shipment, your AC 100 has been inspected and tested to ensure the best possible performance. The results of these tests are included in the ship kit.

Installation

To unpack the ALEXYS AC 100, lift it from its box by both hands. Install in an area which meets the environmental conditions listed in Table I. Place the AC 100 on a flat and smooth surface or stack it onto the ALEXYS LC 100 pump. Ensure that the power (on/off) and power cords are always accessible.

Table I. Environmental conditions. button

Parameter	Requirement
Storage temperature	-10 – 50 °C
Storage humidity	0 – 90%, non-condensing
Operating temperature	10 – 40 °C
Operating humidity	20 – 80%, non-condensing

Rear panel connectors

1. Connect the power cord of the AC 100 to the OR 100 mains power outlet.
2. Connect the RS232 cables of detector, autosampler and pump in D - A - P order as shown in Fig. 2.
3. Connect PC RS232 cable as shown in Fig. 2.

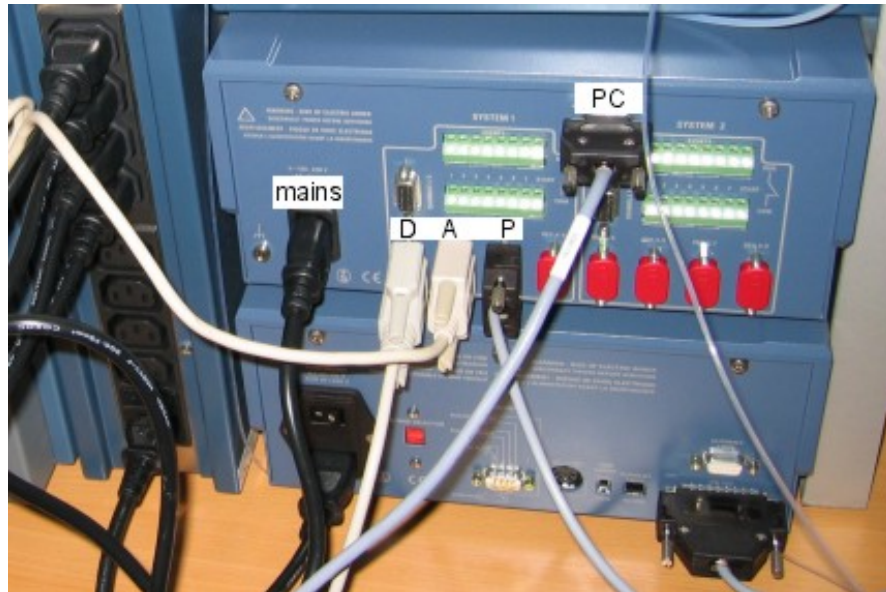


Fig. 2. Rear panel connectors AC 100. D - A - P refers to detector , auto sampler and pump. 'PC' is connection with computer, 'mains' is connected to OR 100.

4. After connecting all cables, switch on the AC 100. Both green LED's on the front panel will blink for a second and system is ready for use. When data acquisition is active after starting a run the green LED blinks.

The AC 100 is designed to connect up to 16 instruments communicating with 9600 baud. If some instruments transfer data with a higher speed, this reduces the number of connectable instruments. It is not possible to run instruments with data transfer rates higher than 57600 baud via AC 100. Such instruments need direct PC connection.

For further installation instructions see user manual of the OR 100 organiser rack, p/n 184.0010 and ALEXYS data system user manual, p/n 185.0010.

CHAPTER 3

Description of instrument

Front panel



Fig. 3. front panel AC 100.

Fig. 3 shows the elements on the front panel, the functions of which are indicated below.

Element	Description
System 1	Run/stop key that starts or stops System 1. When data acquisition is active, green LED blinks.
System 2	Run/stop key that starts or stops System 2. When data acquisition is active, green LED blinks.
On/off	On/Off button

Back panel

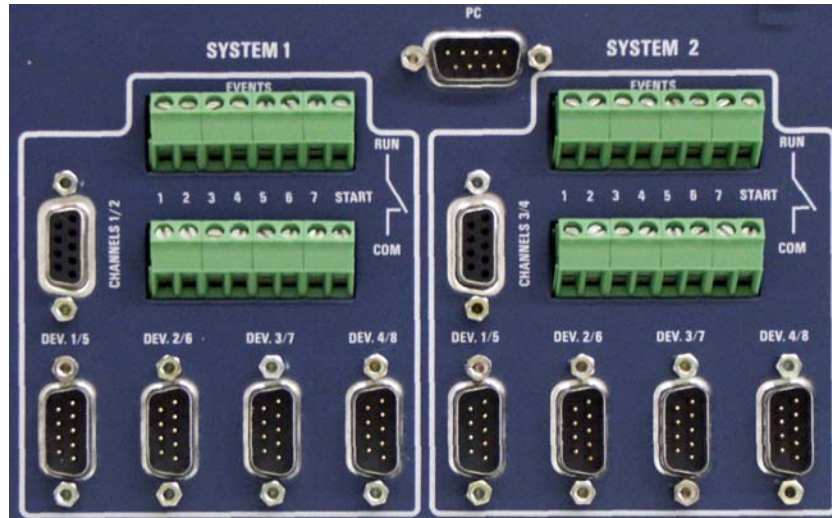


Fig. 4. back panel AC 100.

Element	Description
PC	One single RS232 cable is used to connect the AC 100 to a PC.
System 1 or 2	All system specific connectors are grouped in system 1 or system 2. Both systems are completely independent (independent time base).
Events	Each system has 7 outputs for event programming. These switching contacts are default open.
Channels 1, 2	Each system has a connector for analogue signal input. One connector can handle 2 channels using special dual channel cable. These 2 channels use the same time base.
Start	Start trigger input for each system
Dev. 1..4 / 5..8	Each system has 4 serial ports that handle up to 8 devices using a special dual port serial cable.

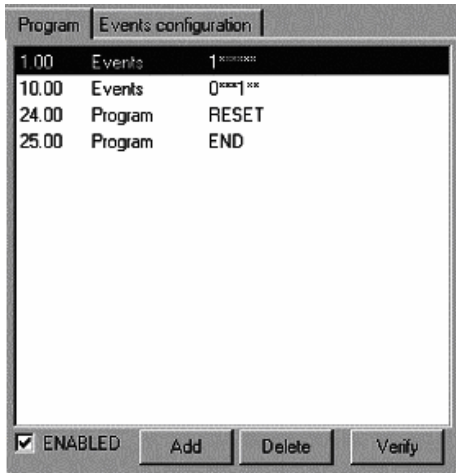
CHAPTER 4

Operation

Almost all of the functionality of the AC 100 is controlled by ALEXYS data system. Except for the Start/Stop button on the front panel which has the same result as closing/opening trigger 8 on the rear panel of the AC 100. It starts the chromatographic run with an injection, or it stops the run. In ALEXYS data system the external events for AC 100 can be programmed. The two pages for AC 100 I/O control are 'Program' and 'Events configuration'.

Program

Each of two systems on the AC 100 rear panel has a pair of 8-contact connectors for external events programming. Output 1-7 are programmable, contact 8 is a start trigger for AC 100 and ALEXYS data system.



Time	Event	Contact State
1.00	Events	1
10.00	Events	0
24.00	Program	RESET
25.00	Program	END

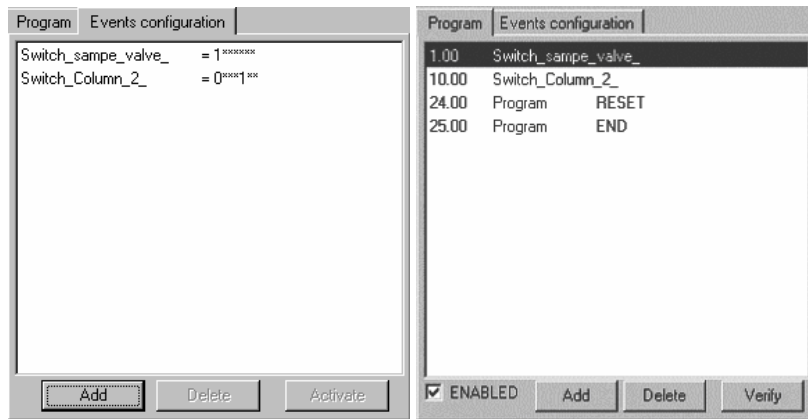
Event program is a list of commands that open or close definite contacts at a pre-defined moment. The first column is time of the command activation (time is counted from the beginning of the analysis, i.e. from the *Inject event*). The second column is a description of the event. The third column is a state of the contacts: "1" - close the contact, "0" - open the contact, "*" - stay the contact state unchanged.

- <Add>** Adds a new line to the list of events
- <Delete>** Deletes the current line from the list
- <Verify>** Performs a verification if the event set is allowed

- Enabled* Enables the event program when checked.
- Program reset* This command resets contacts state to a positions described in the «Event setup» page

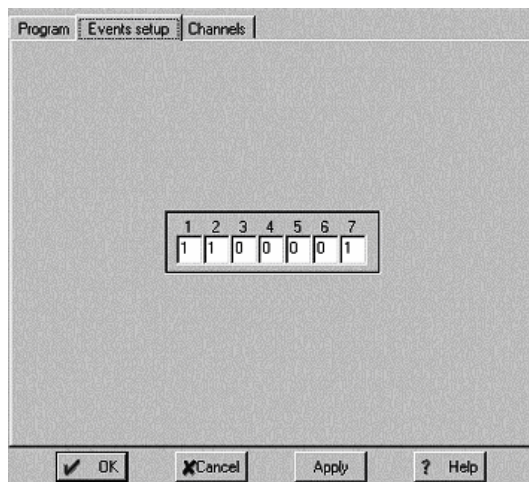
Event configuration

This page enables to designate a user-defined name to a certain contacts state, according to its function. The above events can be presented as follows:



Events setup

This page allows to define initial state of the external events socket contacts. Set "1" value for pins that should be closed after the *System* initialisation, and "0" to these that should be opened.



CHAPTER 5

Maintenance

AC 100 electronics are in principle maintenance free. It is advised to clean the exterior of the AC 100 surface on a regular basis. Use a cloth wetted with water only. Do not use any organic solvents for cleaning!

Reset procedure

If for any reason the AC 100 does not respond to PC commands there is a keyboard reset procedure. This is not a normal situation therefore contact your supplier if this happens.

A reset procedure for AC 100 is done as follows:

1. Switch off AC 100
2. Press 'System 1' & 'Power' button simultaneously
3. Keep pressed for 5 sec and release,
both system LED's start blinking after 2 sec
4. Press "System 1" button until blinking stops
5. Switch AC 100 off and on

C H A P T E R 5

Trouble shooting

Power status LED off

Possible cause	Remedy
No power	Plug in power cord, if OR 100 is used check power on this device
Power off	Switch on device using the on/off button at the front panel

No RS232 communication

Possible cause	Remedy
No RS232 connection	Plug in RS232 cable(s)
Wrong COM port assigned	Reconfigure AC 100 in ALEXYS data system. Please refer to the ALEXYS software manual , p/n 185.0010
AC 100 does not respond to commands	Reset AC 100 following the reset procedure described in maintenance section

When trouble shooting is not successful and problems persist please contact your local supplier for service.

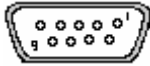
CHAPTER 6

Specifications ALEXYS AC 100 Acquisition Controller

General specifications	Power	100 – 240 VAC, 50/ 60 Hz, 20 VA
	Operating conditions	10 – 40 °C, 20 - 80% RH, non-condensing
	Storage conditions	-10 – 50 °C, 0 – 90 % RH, non-condensing
	Data acquisition & control	2 independent time bases, 4 channels for analogue data acquisition, max 16 serial devices
	Channels	4 inputs 24 bit ADC, bipolar, ± 2.5 V (down to ± 39 mV in divisions of 2)
	Inputs	2 external start inputs, 2 start/stop on keyboard
	Events	7 output relays for event programming
	Data rate	10, 20, 30, 50 or 60 Hz
	Baud rate	serial devices: 9600 - 57600 bps, high rate limits number of devices; PC port: 115200 bps
	Data buffer	2 MB
Physical specifications	Dimensions	35 (D) x 26 (W) x 13 (H) cm 13.8 " (D) x 10.1" (W) x 5.1" (H)
	Weight	3.6 kg (7.9 lbs)

Pin assignment

RS232 to PC



RS-232 to PC 9 connector (female)

1	NC
2	RxD
3	TxD
4	NC
5	Ground
6	NC
7	NC
8	NC
9	NC

Serial ports for devices



RS-232 port for instrument connection (male)

1	NC
2	RxD (Dev 1-4)
3	TxD (Dev 1-4)
4	NC
5	Ground
6	NC
7	TxD (Dev 5-8)
8	RxD (Dev 5-8)
9	NC

Analog ports for detector signal inputs

Port for analog signal inputs (female)

1	Ground
2	+ Channel 1
3	- Channel 1
4	Ground
5	Ground
6	+ Channel 2
7	- Channel 2
8	NC
9	NC

CHAPTER 7

Accessories

The following parts are available for the AC 100 acquisition controller:

Table VI. Accessories AC 100 acquisition controller.

Part no	Description
181.0596	AS 100 serial cable 9F-9M
182.0544	LC 100 serial cable 9F-25F
183.0010	AC 100 user manual
183.0502	AC 100 serial cable, 9F-9F
183.0506	AC 100 AD cable, two channels
250.0122	DECADE II serial cable 9F-9M
250.0140	OR 100 power cord 0.6m

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