

**S 430/433**  
**Amino Acid Analyzer**  
**System Installation**  
**Manual**

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# 1. INSTRUMENT SETUP

## **AMINO ACID ANALYZER S 433**

The Amino Acid Analyzer S 433 includes the Autosampler S 5200, the Quaternary Gradient Pump S 2100, the Reagent Organizer S 7130 and the Amino Acid Reaction Module S 4300. This instrument is designed for a multitude of applications in routine operation.

## **AMINO ACID ANALYZER S 430**

The manual variant of the S 433 consists of the Quaternary Gradient Pump S 2100, the Reagent Organizer S 7131 the Amino Acid Reaction Module S 4300 and a manual injection valve. This reduced system is designed for laboratories with a low amount of samples.

## 1.1 S 433 SETUP

The Amino Acid Analyzer S 433 consists of 4 single units arranged together.

Place the Autosampler S 5200 on the left side; on its right place first the Quaternary Gradient Pump S 2100 and then place the Amino Acid Reaction Module S 4300 on top of the pump. Now place the Reagent Organizer S 7130 on top of Autosampler and Amino Acid Reaction Module.

Keep about 2 cm between the instruments for good air circulation of the cooling fans.

### 1.1.1 CABLE CONNECTIONS

All cables needed for operation are delivered with the respective instruments.

#### REMOTE CONTROL

All instruments run their respective programs individually. The Autosampler S 5200 can be started externally with the REMOTE interface, while all other instruments are started by the autosampler via the AUX. FUNCTIONS interface.

#### AUX. FUNCTIONS

As stated above, the autosampler controls the operation of the other instruments. The autosampler has five relays to control external devices.

The relays 1 and 2 are used for controlling the Amino Acid Reaction Module and the Quaternary Gradient Pump.

The AUX. FUNCTIONS cable is connected with the 15pin plug with the autosampler at the AUX. FUNCTIONS connector, while the two 9pin SUB-D plugs are connected with the Quaternary Gradient Pump and the Amino Acid Reaction Module respectively at the REMOTE connector.

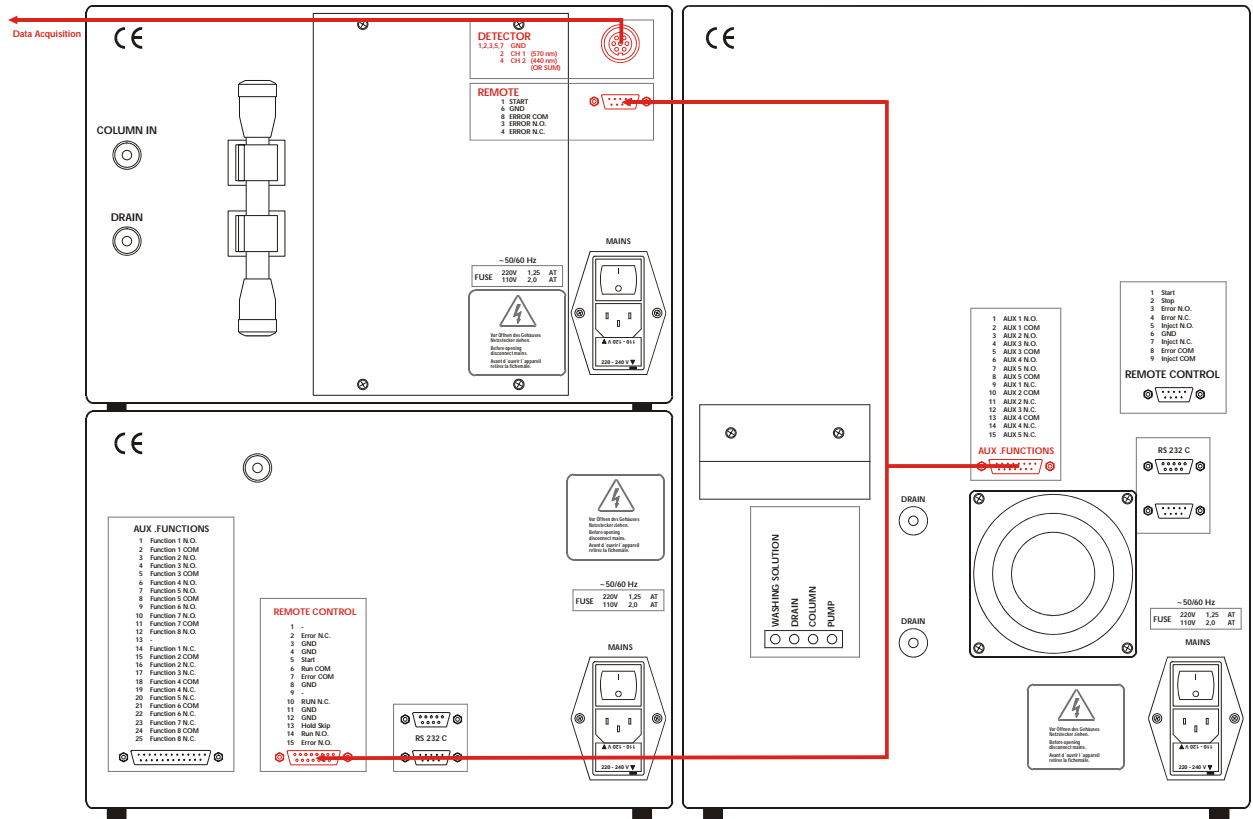
#### INJECT SIGNAL

When the autosampler injects a sample into the system, two contact of the REMOTE CONTROL connector are closed. This signal, also called Inject Signal, is used by an Integrator or computer data system to start the data acquisition.

The Inject Signal is located on PIN 5 and 6 or PIN 6 and 7 of the REMOTE CONTROL connector of the autosampler. A cable with open ends is provided with the instrument ready to use.

#### DETECTOR SIGNAL

The detector signal of Channel A (570 nm) and Channel B (440 nm) is provided by a 7pin connector with a shielded cable. Connect this cable to the respective connector on the backside of the Amino Acid Reaction Module. The open ends of the cable are then connected to the data acquisition system.



Picture 1: S 433 Cable Connections

### 1.1.2 CAPILLARY CONNECTIONS

All capillaries and tubing needed for the connections are shipped with the instrument. In case you need to exchange single capillaries, check the inner diameters of the capillaries in use.

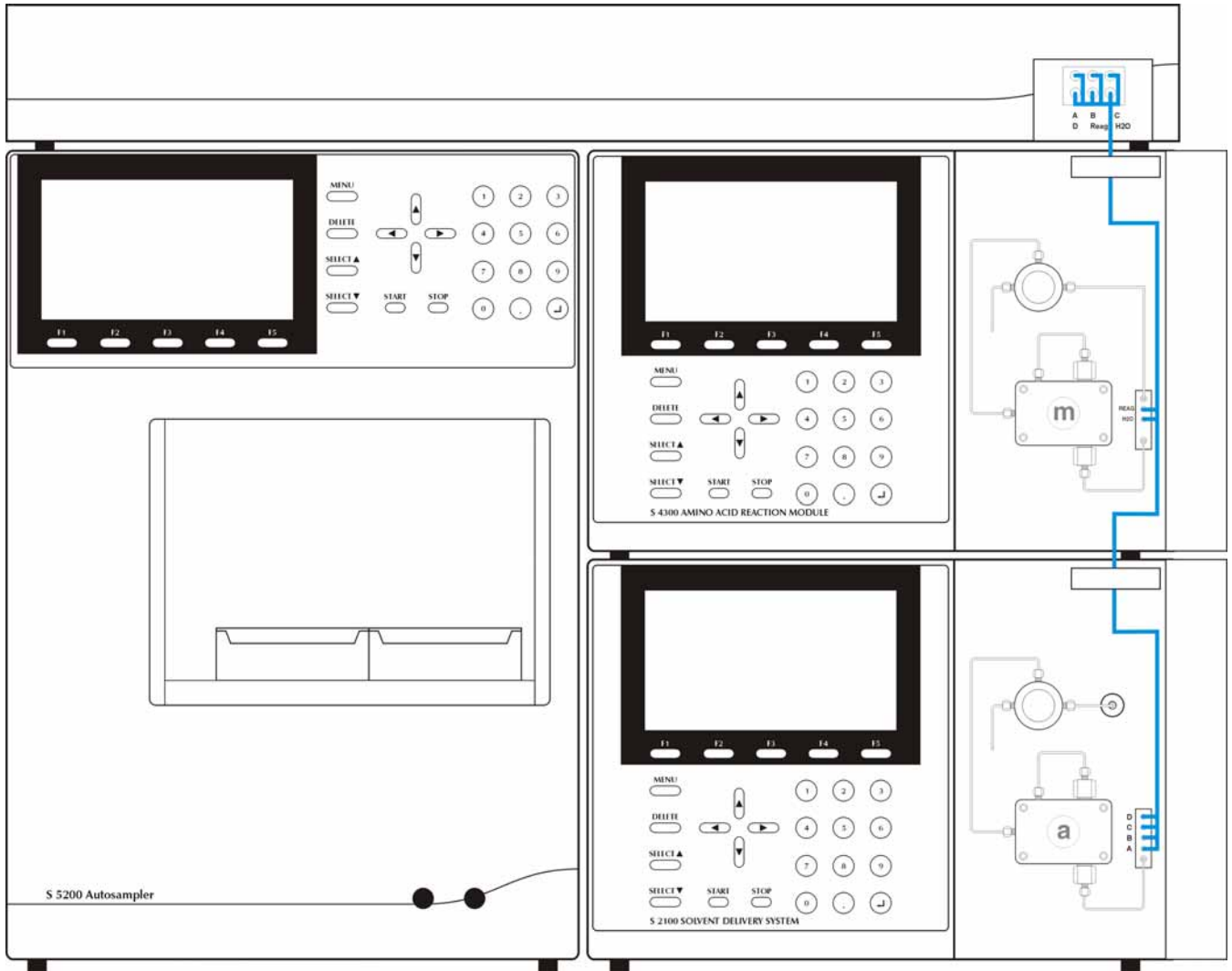
### FRONTSIDE CONNECTIONS

All bottles shipped with the instrument are placed inside the reagent organizer and closed with the respective cap.

On the front side of the Reagent Organizer S 7130 are 6 connections for Buffer A, D, C, and D, the Reagent (Ninhydrine) and H<sub>2</sub>O (Washing Solution).

- Connect the Buffer A to D to the respective connectors on the Quaternary Gradient Pump S 2100.
- Connect the Reagent and H<sub>2</sub>O connections to the respective connectors on the Amino Acid Reaction Module S 4300.

All tubings for these connections are marked as appropriate.

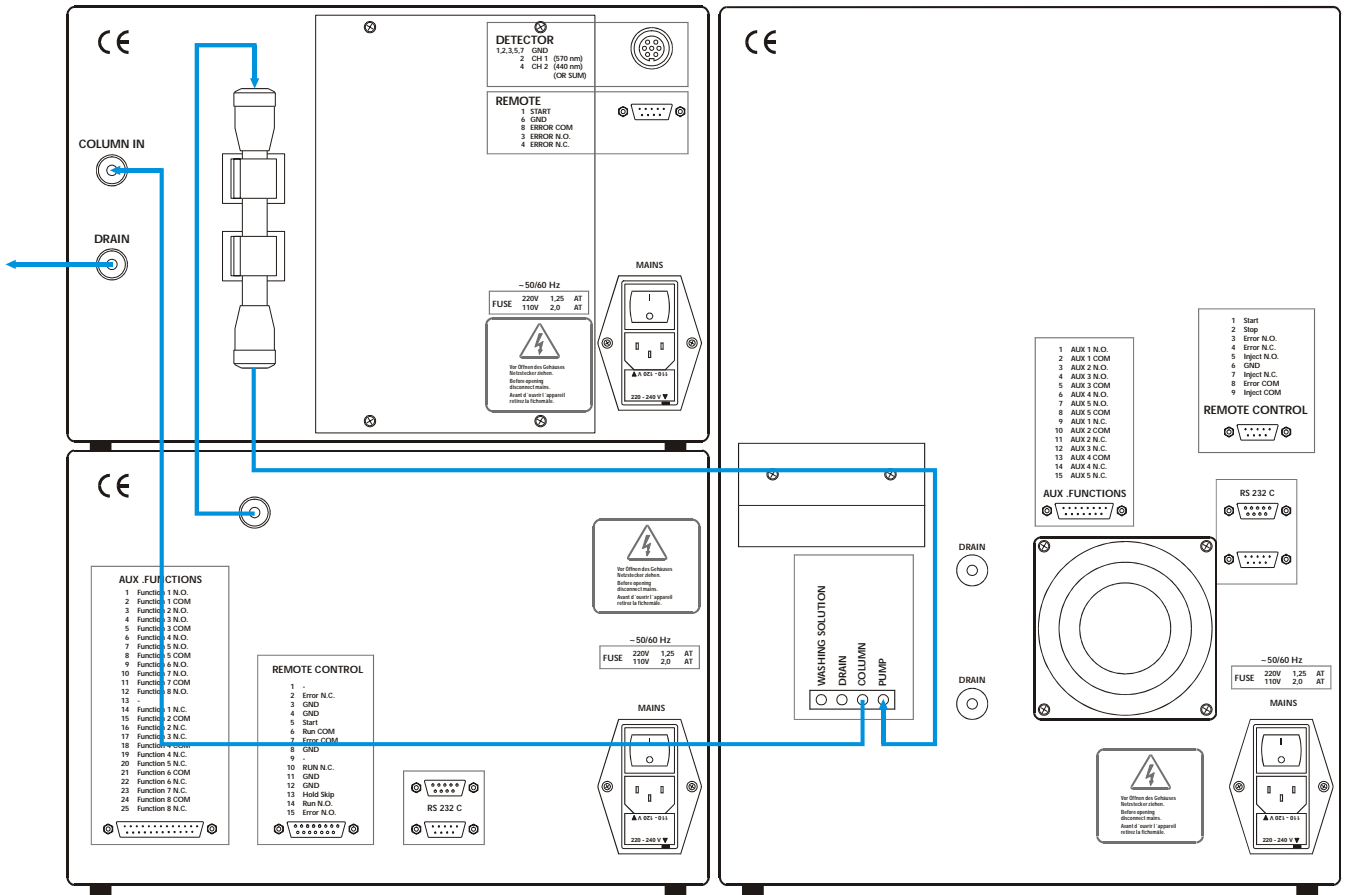


Picture 2: S433 Capillary Connections (Frontside)

## BACKSIDE CONNECTIONS

Further capillary connections have to be made on the backside of the instruments. All connections are shown on the picture below.

- connect the PUMP OUT connector of the Quaternary Gradient Pump S 2100 with the Ammonia Washing Column. This cation exchange column filters ammonia from the buffers solutions. The column can be fixed to the back of the Amino Acid Reaction Module by 2 plastic holdings clamps.
- connect the Ammonia Washing Column with the autosampler's PUMP connector.
- connect the autosampler's COLUMN connector with the Amino Acid Reaction Module's COLUMN IN connector.
- lastly, connect the drain tubing with the attached back pressure regulator to the DRAIN connector on the Amino Acid Reaction module. Make sure that the back pressure regulator is horizontally fixed for proper operation.



Picture 3: S 433 Capillary Connections (Backside)

## 1.2 S 430 SETUP

The Manual Amino Acid Analyzer S 430 is designed for laboratories with small quantities of samples. The sample injection is conducted with a manual injection valve instead of an autosampler.

All units of the S 430 are put on top of each other, with the Amino Acid Reaction Module S 4300 on the bottom, the Quaternary Gradient Pump S 2100 on top of it and lastly the Reagent Organizer S 7131 on top of the S 2100.

### 1.2.1 CABLE CONNECTIONS

All cables needed for operation are delivered with the respective instruments.

#### REMOTE CONTROL

All instruments run their respective programs individually. The Quaternary Gradient Pump S 2100 is started externally by the injection valve's inject signal, while the Amino Acid Reaction Module is started by the pump.

#### AUX. FUNCTIONS

As stated above, the pump controls the operation of the Amino Acid Reaction Module.

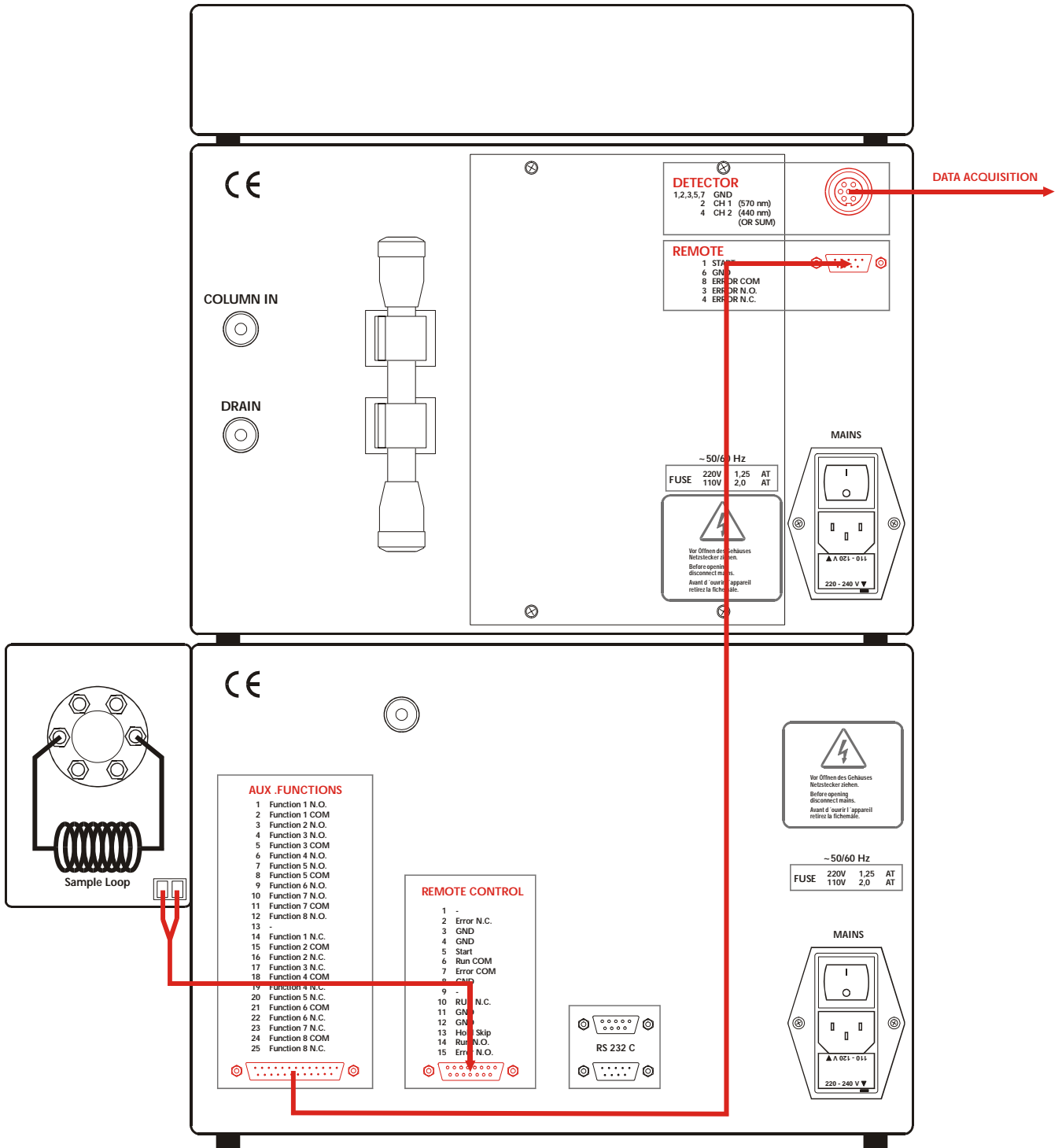
Through the delivered SUB-D cable the Amino Acid Reaction Module is started by the programmed pump's AUX functions.

#### INJECT SIGNAL

When the injection valve is switched from the LOAD to INJECT position a switch is closed. This injection signal is used to start the instruments and the data acquisition software.

#### DETECTOR SIGNAL

The detector signal of Channel A (570 nm) and Channel B (440 nm) is provided by a 7pin connector with a shielded cable. Connect this cable to the respective connector on the backside of the Amino Acid Reaction Module. The open ends of the cable are then connected to the data acquisition system.



Picture 4: S 430 Cable Connections

## 1.2.2 CAPILLARY CONNECTIONS

All capillaries and tubing needed for the connections are shipped with the instrument. In case you need to exchange single capillaries, check the inner diameters of the capillaries in use.

### FRONTSIDE CONNECTIONS

All bottles shipped with the instrument are placed inside the reagent organizer and closed with the respective cap.

On the front side of the Reagent Organizer S 7131 are 6 connections for Buffer A, B, C, and D, the Reagent (Ninhydrine) and H<sub>2</sub>O (Washing Solution).

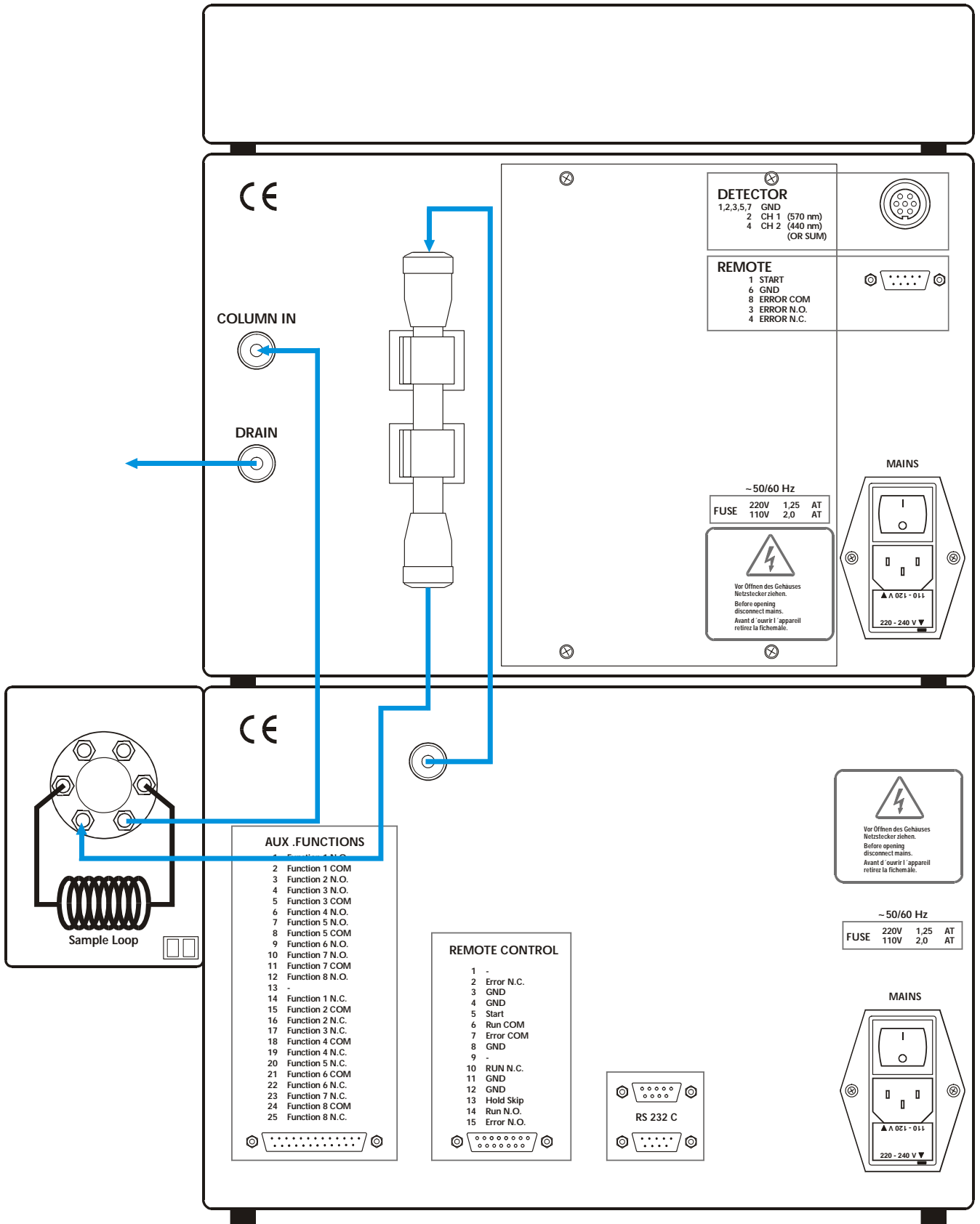
- Connect the Buffer A to D to the respective connectors on the Quaternary Gradient Pump S 2100.
- Connect the Reagent and H<sub>2</sub>O connections to the respective connectors on the Amino Acid Reaction Module S 4300.

All tubings for these connections are marked as appropriate. Please refer to *Picture 2: S433 Capillary Connections (Frontside)*.

### BACKSIDE CONNECTIONS

Further capillary connections have to be made on the backside of the instruments. All connections are shown on the picture below.

- connect the PUMP OUT connector of the Quaternary Gradient Pump S 2100 with the Ammonia Washing Column. This cation exchange column filters ammonia from the buffers solutions. The column can be fixed to the back of the Amino Acid Reaction Module by 2 plastic holdings clamps.
- connect the Ammonia Washing Column with the Amino Acid Reaction Module's COLUMN IN connector.
- lastly, connect the drain tubing with the attached back pressure regulator to the DRAIN connector on the Amino Acid Reaction module. Make sure that the back pressure regulator is horizontally fixed for proper operation.



Picture 5: S 430 Capillary Connections (Backside)