1. Installation

Before startup make sure that the slide switch (Fig. 1) for setting the mains voltage is in the right position depending on the country where the device is used (230 V / 115 V).

Carefully check the delivery scope for completeness. Accessories might be included. Only skilled persons are allowed to work on the open device or the terminals. The device must then be voltage-free.

For installation, observe the rules and instructions effective on site. The fitting position is arbitrary. The ambient temperature may be between -5°C and +50°C but should be constant. Do not expose the device to direct heat or sunlight. Connect the controller to the enclosed wiring diagram.

2. Wiring

2.1 General

The supply voltage must be connected according to the technical regulations effective on site. Besides, it must be ensured that the voltage supply lines are not run directly near or in the same channel parallel to the measurement lines. Interferences from other electrical sources would adulterate the measurement. Mains lines and measurement lines may only cross rectangularly when close to each other.

Besides the admissible line length depending on the given sensor must be ovserved. It is of decisive importance if the lines are used for high-impedance (e.g. pH value) or low-impedance (e.g. chlorine sensor) measurements. In the case of high-impedance measurements, it must be ensured in particular that the (plug) connections are dry and clean and that brittle lines due to extreme bending do not occur. The screened lines normally used for this purpose must meet the quality requirements.

Important!

The screening may only be connected to ground at one cable end (preferably at amplifier/controller). For high-impedance measurements, use through cables from the sensor to the measurement input, if possible. Cable extensions by means of plugs or terminal sockets increase the risk of interferences due to contamination, humidity or excessive transfer resistance.

2.2 Remote switchoff

The controller functions and output of the TOPAX® Pool can be switched off by an external contact (e.g. flow monitor, circulating pump, etc.). If this external contact is not connected, the display will show "Remote switchoff", and the corresponding controller output of both automatic control systems will be 0 %, i.e.: the relays are not working.

If no external contactor is used, terminals 18 and 42 must be connected.

3. General operating instructions

Before opening the TOPAX® Pool, the mains voltage must be disconnected. Only then may the measuring amplifiers be installed or removed and all connections be made. Violation of this instruction may result in the failure of the TOPAX® Pool and the loss of warranty.

The TOPAX® Pool are protected internally by a 0.125 A quick-action fuse. After closing and starting the TOPAX® Pool, it carries out a self-test and should be ready for use after about 5 seconds. If not, the device is faulty and must be checked.

The TOPAX® Pool have three slots for measuring amplifiers. Slots 1 and 2 can be programmed with controller functions. When fitting the measuring modules, make sure that at least channel 1 (slot 1) is used. For additional measuring modules, any slot can be used.

If slot 1 is free, the display shows "Equip slot 1!!" The TOPAX® Pool is not working.

Slot 1 (channel 1) always accommodates controller 1. Relay K11 ist control output for this slot. Remote channel 1 is the current output for remote transmission of the measured value. Slot 2 (channel 2) always accommodates controller 2. Relay K21 is the control output for this slot, and the current output is remote channel 2.

Slot 4 for measurement amplifier 4 can be fitted only with an amplifier for temperature measurement and/or for temperature compensation during pH measurement.

The temperature can be transmitted as 0/4...20 mA signal. If temperature compensation is required, it must be programmed during calibration of the pH combination electrode.
The measuring amplifiers will be identified automatically by the TOPAX® Pool, i.e.: after the mains voltage has been switched on, the device checks to which slots the amplifiers are allocated.
Attention:
The measuring amplifier is not identified if - on startup of the TOPAX® Pool - the final value of the measuring range has been exceeded!
The sensors must be calibrated during first startup. If the calibration has not been carried out, measuring is not possible.
Use the instructions (see measuring amplifiers) for calibration.

4. Technical description

The TOPAX® Pool are equipped with two displays and four keys.

4.1. Displays

The TOPAX® Pool has a 13 mm numerical LC display and a 5 mm two-line alphanumerical display.

Display 1:
LC display, 13 mm, numerical
- to indicate the measured value of the input amplifier of slot 1

Display 2:
LC display, 5 mm, alphanumerical, 2-line
- to indicate the measured values of input amplifiers of slots 2, 3 and 4
- to indicate the programming steps
- to show the settings

Programming of the TOPAX® Pool is carried out in plain language. Seven different codes are available for programming.

Code 51: Two-point calibration (e.g. pH value); set-points
Code 52: Single-point calibration (e.g. chlorine measurement with potentiostat); set-points
Code 53: Set-points
Code 54: Controller parameters
Code 55: Controller characteristics
Code 56: Types of controller outputs
Code 95: Service menu

For a detailed description of the individual codes, refer to the functional diagrams.

4.2.1. Key functions

The TOPAX® Pool has four keys for operation and programming.

Key	Function
ESC	- Return to initial position - Reset the cursor to the first digit of the number during calibration The function is carried out after releasing the key.
▲ bzw. ▼	- Setting of numerical values - Setting of the controller type - Setting of controller characteristics - Setting of the measuring range, free chlorine only - Setting of the language - Setting of pH increase or pH reduction - Safety switchoff ON/OFF The function is carried out on pressing the key. Fast adjustment of the numerical values is possible by keeping the keys for increasing value or for reducing value pressed.
↵	- Changing to the other menu items without storing the values in the main memory of the TOPAX® Pool The function is carried out after releasing the key.

4.2.2. Storage

For the confirmation of all values and functions, first press key ↵ and then additionally key ▲. Release simultaneously. A star (*) on the right of the programming display shows that the data have been stored.

5. Startup

Before startup make sure that an external switch possibly connected is closed. If not, terminal strips 42 and 18 in the TOPAX® Pool must be bridged!

5.1. Sensor connection

On delivery, the TOPAX® Pool are equipped with the measuring modules ordered. Depending on these measuring modules, the sensors must be connected.

Attention!
For measuring amplifiers for free chlorine, the measuring range must selected by means of the DIL switch.
One switch may be activated only !
For connection of the chlorine measurement with potentiostat or diaphragm-covered sensor, please adhere to the corresponding separate wiring diagrams!

5.2 Calibration and adjustment of set-points (Code 52 and Code 51)
-Code 52:
single-point calibration, only slope
input of set-points
-Code 51:
two-point calibration, zero-point and slope
input of set-points
Note:
After the TOPAX® Pool has been calibrated once, you are not asked anymore in the display for calibration. In the case of a voltage failure, the calibrated values are not lost but are reused!
A new calibration is necessary only if :
- the measurement must be checked.
- a new measuring module has been fitted, (in this case, "PLEASE CALIBRATE!" is shown in the display).
- the sensor has been replaced.

Connect the relevant sensors for calibration. The external switch at terminals 18 and 42 must be closed. If the connection between these terminals is open, the controller output signal is set to 0 % (switched off) and display 2 shows "Remote switchoff". Then calibration is not possible!

5.2.1. Example of calibration (initial calibration)
Calibration of the sensors with the following allocation:
slot 1 - free chlorine
slot 2 - pH value
Note: Changing numbers with keys or confirmation with both keys. Here please adhere to the following order:
-Press ▲ key, keep it pressed and
-press ↵ key additionally.
After releasing both keys, a star (*) on the right of display 2 confirms the entry.

How to proceed
Permanent display “PLEASE CALIBRATE”
Press ↵ key

To calibrate channel 1 :
Display 2 - “Channel 1,
free chlorine”
Press ↵ key,
Code display "52"
Enter code 51
Two-point calibration for chlorine measurement with open measuring cell
-Confirm code 51 with ↵
-> Display 2: “Zero-point calibration”
- Let dechlorinated water flow through the measuring cell.

Depending on the water, the current value of the chlorine sensor will adjust to 5 – 10 µA. The current value displayed must not change anymore.

-> Confirm with keys ▲ and ↵
Press ↵ key.
-> Display 2: "Slope calibration”
- Let sampling water flow through the measuring cell until the physical value does not change anymore.
- Determine chlorine contents manually by means of the DPD method.

For this purpose the water must be taken from the water sampling station!!
- Enter the determined value using keys ▲ or ▼.
- Confirm this value by pressing the keys ▲ and ↵ simultaneously.
- Display 2: “Slope ..... µA/mg/l”

Press ↵ key.
- Display 2: “Set-point”
  Enter set-point using keys ▼ or ▲.
- Store set-point by pressing keys ▲ and ↵.
- Press ESC key.

To calibrate channel 2 :
Display 2 - “Channel 1,
free chlorine”
- "Channel 2,
pH value"

Set by pressing keys ▼ or ▲.
Press ↵ key.
- Code display "52" -> change to code "51" two-point calibration.
- Confirm code "51" with ↵ key

->display 2:
"Zero-point calibration"
(preset value of buffer solution pH 6.80).

Immerse pH combination electrode in buffer solution pH 6.80 and keep it there until the physical value does not change anymore. Confirm with keys ▲ and ↵ , (symbol for confirmation: * in display 2).
The value is stored as zero-point.
- Press ↵ key several times until "Slope calibration" is shown in display 2.

Remove pH combination electrode from buffer solution pH 6.80, clean with distilled water and immerse in buffer solution pH 9.27. If the physical value does not change anymore, confirm the slope value with keys ▲ and ↵ .
(Symbol for confirmation: * in display 2.)
The value is stored as slope value. Press key several times until the slope of the combination electrode is shown in display 2 (value between 45 mV and 59 mV).

Note:

The values for the pH buffer solutions are preset. If other buffer solutions are preferred for calibration, the settings can be made under menu item "Zero-point calibration" or "Slope calibration" using keys ▲ or ▼ .
After completing calibration the set-value can be entered.
- Press ↵ key -> Display 2 "Set-point input".
- Enter set-point using keys ▼ or ▲ and store with keys ▲ and ↵ .
- Press ESC key.

5.3 Controller output type (Code 56)

The controller output type must be set separately for slot 1 and slot 2. For peristaltic pumps, pulse duration output is set as a standard.
The following control variable outputs can be chosen as relay output:

- Pulse duration:

10...60 sec cycle duration,
Depending on the deviation and the set controller parameters, the relay pulls up or drops over the set cycle duration. Example: If the cycle duration is 30 seconds, and the controller output is 40 %, the relay pulls up for 12 seconds and it does not for 18 seconds.

- ON/OFF:

If the set value is exceeded the relay switches either to open or to close (selectable).

- Pulse frequency:

10...100 pulses per minute (e.g. for solenoid metering pumps).
The pulse frequency depends on the deviation and the set controller parameters, i.e.: at a controller output of e.g. Y=25 % and a pulse frequency of 100 pulses/min., the controller sends 25 pulses/min.
Furthermore the measuring range for the input amplifier to measure the free chlorine concentration can be set with code 56. **Three-point step and two-side control is not possible with TOPAX® Pool.**

- Measuring range	0...1.00 mg/l	(preset)
	0...2.00 mg/l	
	0...5.00 mg/l	
	0...9.99 mg/l	

The set measuring range must correspond to the switch position at the measuring module.

5.4 Setting of controller characteristics (Code 55)

The controller characteristic must be set separately for slot 1 and slot 2.
It is possible to choose between:
- Proportional Controller (P)
- Proportional-Integral Controller (PI)
- Proportional-Integral-Derivative Controller (PID)

Attention: The alarm settable under this menu does not apply for TOPAX® Pool. The alarm must always be deactived.

5.5 Setting of controller parameters (Code 54)

Setting can only be carried out for those parameters which have been defined with code 55.
The following controller parameters are preset in the TOPAX® Pool: Xp 50 %
Tn 15 min
Furthermore it is possible spreading (zoom function) of the current outputs is possible for remote transmission of the measured values.

5.6 Adjustment of set-points (Code 53)

The setting must be carried out separately for slot 1 and slot 2.

5.7 Service code - Code 95

How to proceed
TOPAX® Pool in automatic operation
Press key ↵.
Press key ▲.
To select maintenance menu
Press key ↵.
Enter code 95 using keys ▼ or ▲,
press key ↵.

To switch from one program item to another. pres ↵ key.
Program version:
Program which is stored in the EPROM
Date:
Date of manufacture of the device
Ser.No. .....:
Serial number of the device
Chan 1:
Physical value of the input amplifier
Slot 1
Chan 2:
Physical value of the input amplifier
Slot 2
Chan 3:
not available
Chan 4:
Physical value of the input amplifier
Slot 4
Working time:
Operating time of the device
Safety shutdown :
Saftey switchoff **ON < = OFF**
can be activated or deactivated by pressing ▼ or ▲ .
Device No.:
The input of the device number is required if the TOPAX® Pool is part of a data network and is connected to a printer or a PC.
Type of current input
For this version this function must always be in the "OFF" position.
Alarm delay time
Only applies for safety switchoff, can be set between 0 and 60 minutes.
The delay time is active for slots 1 and 2 at the same time.
Oper. language
Setting of the language for programming and operation of the TOPAX® Pool. Available language combinations are *English/ German or Englisch/ French or English/Spanish*.
Resetting system (Code "2293")
Note: All values must be programmed again after a reset.
A reset should only be carried out by a specialist. A reset becomes necessary if the TOPAX® Pool does not work properly or after exchanging the EPROM. All programmed values are then set back to the condition as supplied.

6. Safety switchoff

The TOPAX® Pool are equipped with a safety switchoff function which can be deactivated with service code 95 and which is active during automatic operation.

Mode of action:
If, due to a defective sensor or another unforeseen function, the controller output is more than 95 % over a settable time period (alarm delay time), an alarm is released for this channel and the corresponding controller output is set to 0 %. It can be between 0 and 60 minutes. After safety switchoff, the error must be eliminated. Then the displayed alarm can be confirmed by pressing the "ESC" key.

7. pH value controller

Increase or reduce pH value
The pH value controller function in the TOPAX® Pool allows to increase or reduce the pH value. The setting is performed with code 54 (control direction -pH or +pH).
-pH means that the control output is increasing if the actual value exceeds the set-value (reduce pH), +pH means that the control output is increasing if the actual value falls below the set-value (increase pH).
With this controller also temperature compensation is possible. For this purpose the temperature measuring module must be integrated in slot 4 and the temperature sensor (Pt 100) must be connected. The temperature of the buffer solution has to be entered during calibration of the pH value. The Pt 100 must be connected when commissioning the TOPAX® Pool.

8. Manual operation

The controllers of slots 1 and 2 can be adjusted manually. To activate this feature, go to the display of the relevant slot and press ▲ and ↵ simultaneously. It is then possible to adjust the controller output manually to 0% **or** 100%.
Press **“ESC”** key to return to automatic operation.

9. Serial computer interface

To connect the TOPAX® Pool to PC or SPC it can be equipped with serial computer interface.

9.1 Required PC system configuration

Computer: 386 or higher (IBM or 100% compatible)
RAM: memory: min. 4 MB
Graphic support: VGA or better
Free serial interface COM 1 or COM 2
Software: DOS 5.0 or higher Windows 3.1 or 3.11,
Win 95/98 or Windows NT
1 TOPAX® Pool with RS 232 interface (max. data line length 10m)
1 to 15 TOPAX® Pool with RS 485 interface and interface converter RS 485 <=> RS 232

9.2 General

The TOPAX® Pool are available with RS 232 or RS 485 serial interface. The installation location of this interface is shown on the drawing of the main board. Terminals 9 (GND), 34 (TxD) and 33 (RxD) at the TOPAX® Pool are used for connection. Under menu 'Service' (code 95) a number between 1 and 15 must be entered for each connected device.

9. 3 Serial interface RS 232

With the RS 232 interface data transmission of max. 10 m can be ensured. A single TOPAX® Pool can be connected to a PC via this interface. For allocation of the cables and plugs please refer to the drawing on page BW 4 50 02 / 20. For installation use a three-wire shielded control cable.

9. 4 Serial interface RS 485

The additional circuit board of the RS 232 computer interface is replaced by the RS 485 one. The TOPAX® Pool identifies automatically which computer interface has been inserted. With the RS 485 interface data transmission over a distance of max. 1,000 m is possible. Up to 15 device can be connected to a network via one PC. For installation use a two-wire, shielded control cable. The data line is connected directly to the terminals of the TOPAX® Pool. Intermediate connections might affect the data transmission. The data line must be terminated with 120 Ohm resistors on both sides.

In most cases PCs are fitted with a RS 232 interface. Therefore the data must be "translated" using a RS 232 <=> RS 485 interface converter. If the interface converter Part No. 78106 is used, the 120 Ohm terminating resistor is already integrated. For connection and setting of the interface converter please refer to drawing on page BW 4 50 02 / 21. Connect the jumpers on the circuit board of the RS 485 according to drawing on page BW 4 50 02 / 22. The jumpers on the RS 485 circuit board of the last TOPAX® Pool switch the 120 Ohm terminating resistor and provide the voltage supply of the data line.
If the last TOPAX® Pool is set voltage-free, the jumpers on the RS 485 circuit board of another TOPAX® Pool must be connected correspondingly, as otherwise the data transmission cannot ensured anymore!

9.5 Visualization software "TopView"

TopView allows to control and graphically display the measured values of networked TOPAX® Pool via a PC under Windows 3.1 or Windows 95/98 or NT. Different versions are available which can be used according to the user's requirements. With TopView Mini a remote display of all important parameters, their temporal course (24h) as well as internal and external alarms. TopView Mini is free of charge for all TOPAX® Pool. The standard version additionally allows to manage measurement records, to export data for Excel applications and remotely adjust controller parameters.

10. Displays during automatic operation

During automatic operation, various values can be displayed by pressing keys ▲ or ▼ . The value shown at last remains in the second line of display 2. By pressing the "ESC" key, the measured value of slot 3 appears again.
The following values can be displayed :

- Set-point of slot 1
  W1 = ...
- Controller output of slot 1
  Y1= .....
- Deviation of slot 1
  X1-W1 = ...
- Relay switching conditions of slot 1
  K11 = K12 =
- Set-point of slot 2
  W2 = ...
- Controller output of slot 2
  Y2 = ...

- Deviation of slot 2
  W2-Y2 = ...
- Relay switching conditions of slot 2
  K21= K22=
- Illustration of relay switching conditions
  Relay ON = ■
  Relay OFF = (nothing)

11. Technical data

Supply voltage:	230/115V / 50-60 Hz
Power consumption:	8 W
Ambient temperature:	-5°C to + 55 °C
Relay rating :	230 V /50 Hz; 3 A voltage-free contacts
Enclosure:	240 X 160 X 90 mm (WxHxD)
	with mounting frame suited to be installed in a switch cabinet
Protection class:	IP 65 with closed PG screwings

2 slots for input amplifiers with control function

Controller characteristics:	Set-value control	
	P, PI, PID	
	Proportional band Xp	1...500 %
	Reset time Tn	0...200 min
	Derivative action time Tv	max. 20 % of Tn
Control output:	Relay output	
	- ON/OFF	
	- Pulse frequency	10...100 pulses/min
	- Pulse duration	10.....60 seconds

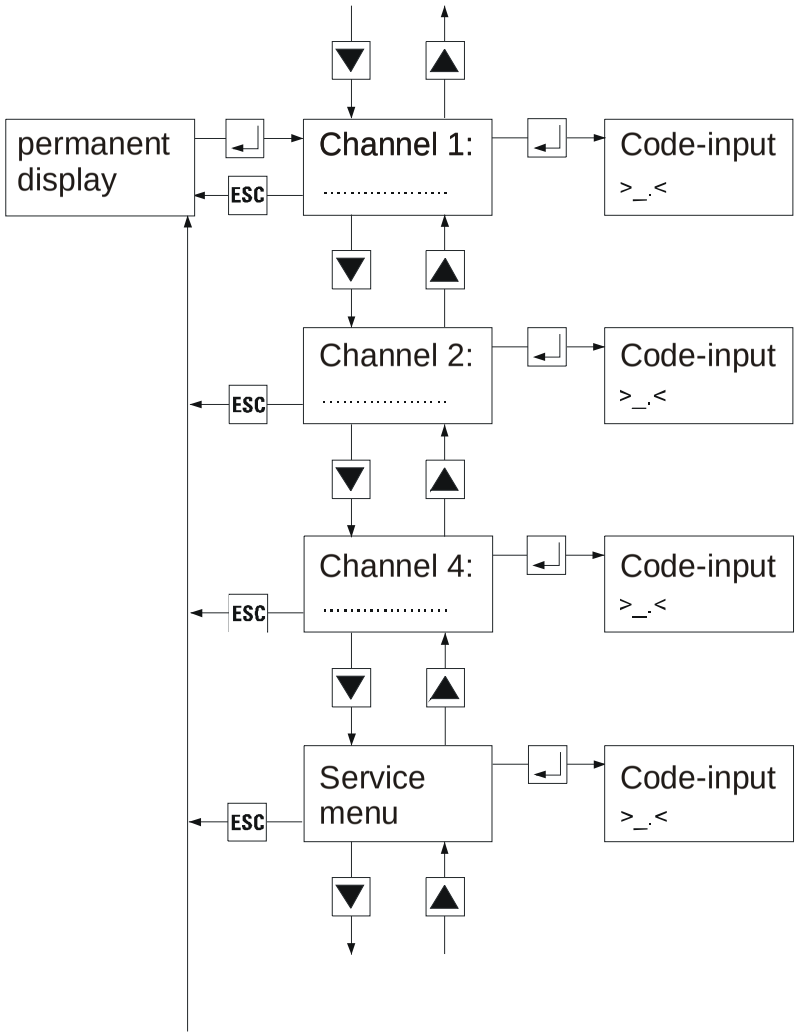
for all measuring input slots

Current output	0/4...20 mA	
	max. load	500 Ohm (not voltage-free)
Computer interface (OPTION):		RS 232 C or RS 485
- PG screwings		4 x PG 11; 4 x PG 9; 6 x PG 7

Cables recommended for the connection of the TOPAX® Pool

- Mains voltage	(PG 11)	NYM-I 3 x 1.5 mm (i 9.1 mm)
- Relay output (ATE motor)	(PG 11)	NYM-I 4 x 1.5 mm (i 9.8 mm)
- Relay output (pulse frequency)	(PG 11)	NYM-O 2x 1.5 mm (i 8.7 mm)
- Relay output (alarm)	(PG 11)	NYM-O 2x 1.5 mm (i 8.7 mm)
- PC or printer connection: computer cable	(PG 7)	J-2 (St) Y St III Bd LAN (i 5.7 mm) 2 x 2 x 0.6 Bd
- Current output connection communication line	(PG 9)	J-Y (St) Y 4 x2x0.6 mm (i 6.5 mm)
- Position repeating signal of ATE motor communication line	(PG 7)	J-Y (St) Y 2x2x0.6 mm (i 5.0 mm)
- Continuous control output communication line	(PG 7)	J-Y (St) Y 2x2x0.6 mm (i 5.0 mm)
- Chlorine sensor input	(PG7)	LIYY 2x 0.25 mm (i 4.6 mm)
- Remote switchoff input communication line	(PG7)	J-Y (St) Y 2x2 0.6 mm (i 5.0 mm)

Menu Description

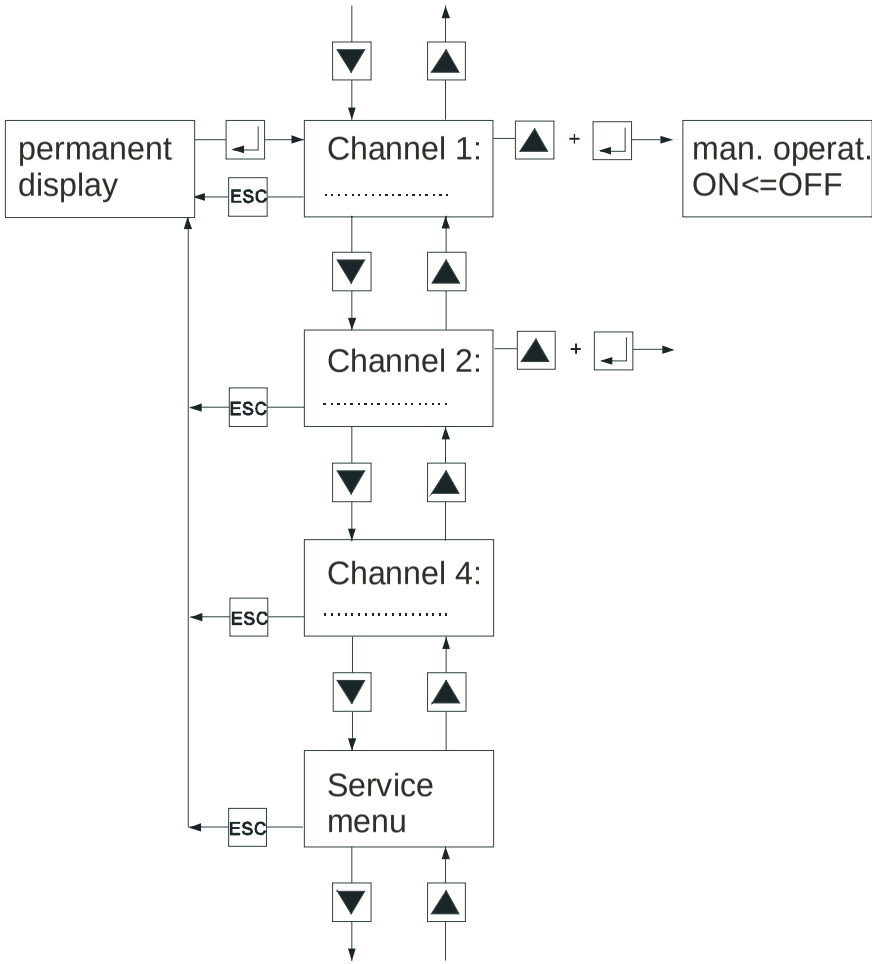


Code 51:	Two-point calibration Input of set-points	- zero point and slope	
Code 52:	Single-point calibration Input of set-points	- slope	
Code 53:	Input of set-points		
Code 54:	Setting	- controller parameters	Xp: 1 - 500 % Tn: 0-200 min Tv: max 20% of Tn
		- spreading, current output (remote channel parameter)	
Code 55:	Setting	- controller characteristics	P, PI, PID,
		- alarm type	cannot not be activated, must always be set to "no alarm"
Code 56:	Setting	- output type pulse duration frequency	 10-60 sec. 10-100 l/min
		ON/OFF	
		- type of remote channel	0...20 mA 4...20 mA 20...4 mA
		- measuring range	(only free chlorine)
Code 95:	Service menu		

Manual operation of controller 1	- press key	
	- press keys first ↵ and additionally ▲	↵ + ▲
Manual operation of controller 2	- press key	↵
	- press key	▼
	- press keys first ↵ and additionally ▲	↵ + ▲

TOPAX® Pool

Manual operation setting

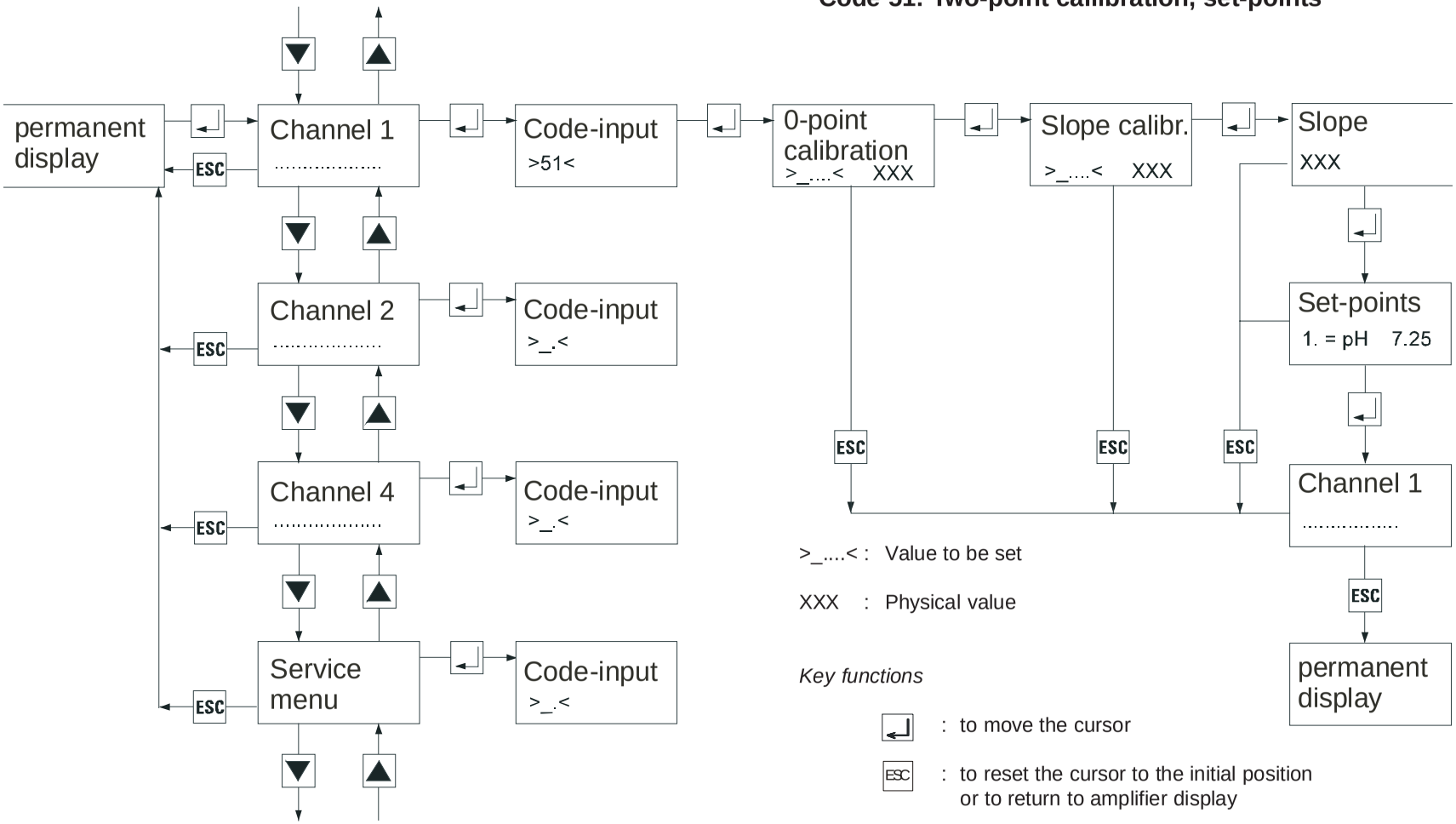


Manual operation ON → controller output 100%
Manual operation OFF → controller output 0%

Manual operation of controller 1	- Press key	↵
	- Press keys	↵ + ▲
	first ↵ and additionally ▲	
Manual operation of controller 2	- Press key	↵
	- Press key	▼
	- Press keys	↵ + ▲
	first ↵ and additionally ▲	

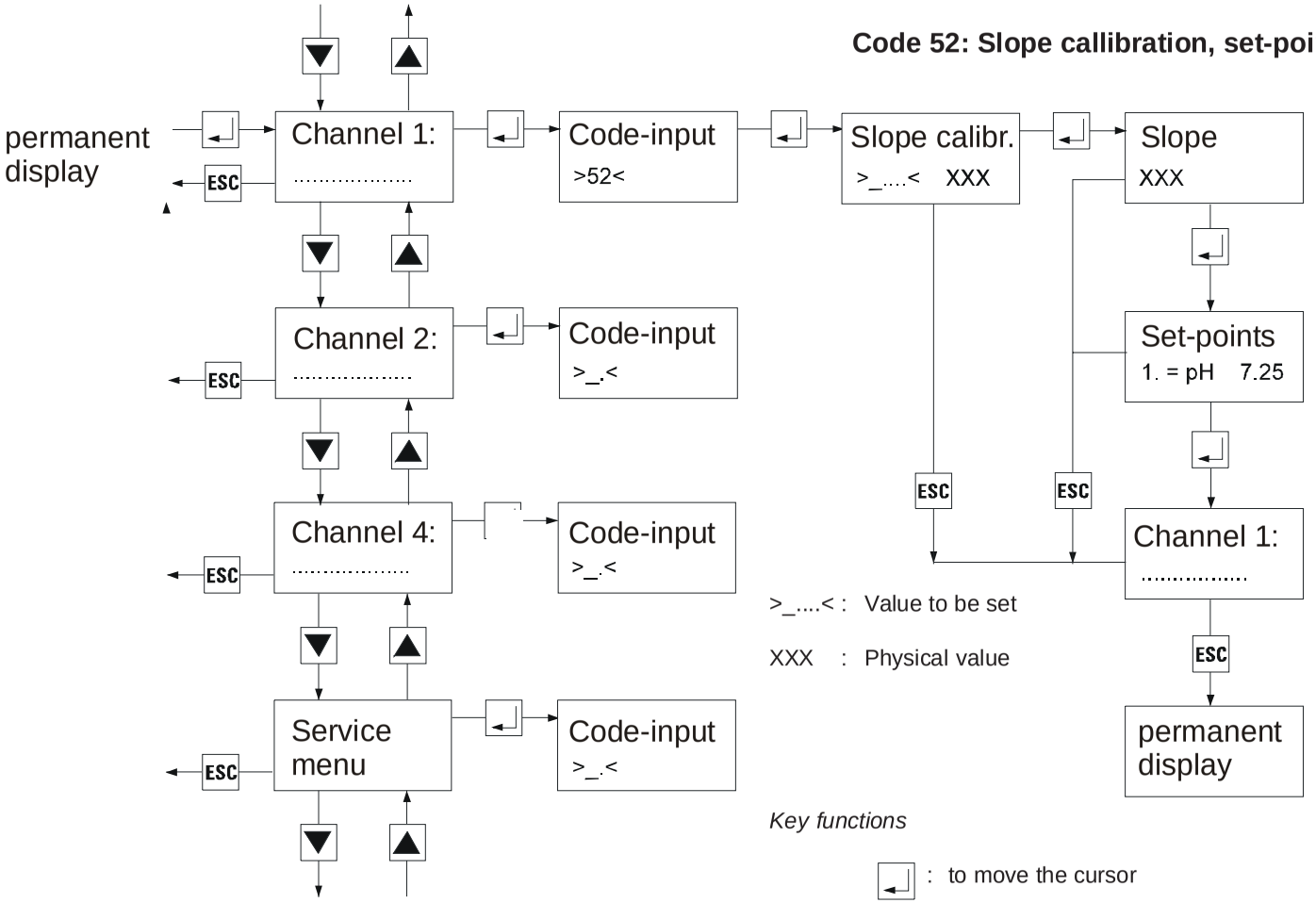
TOPAX® Pool

Code 51: Two-point callibration, set-points



TOPAX® Pool

Code 52: Slope callibration, set-points



>_....< : Value to be set

XXX : Physical value

Key functions

: to move the cursor

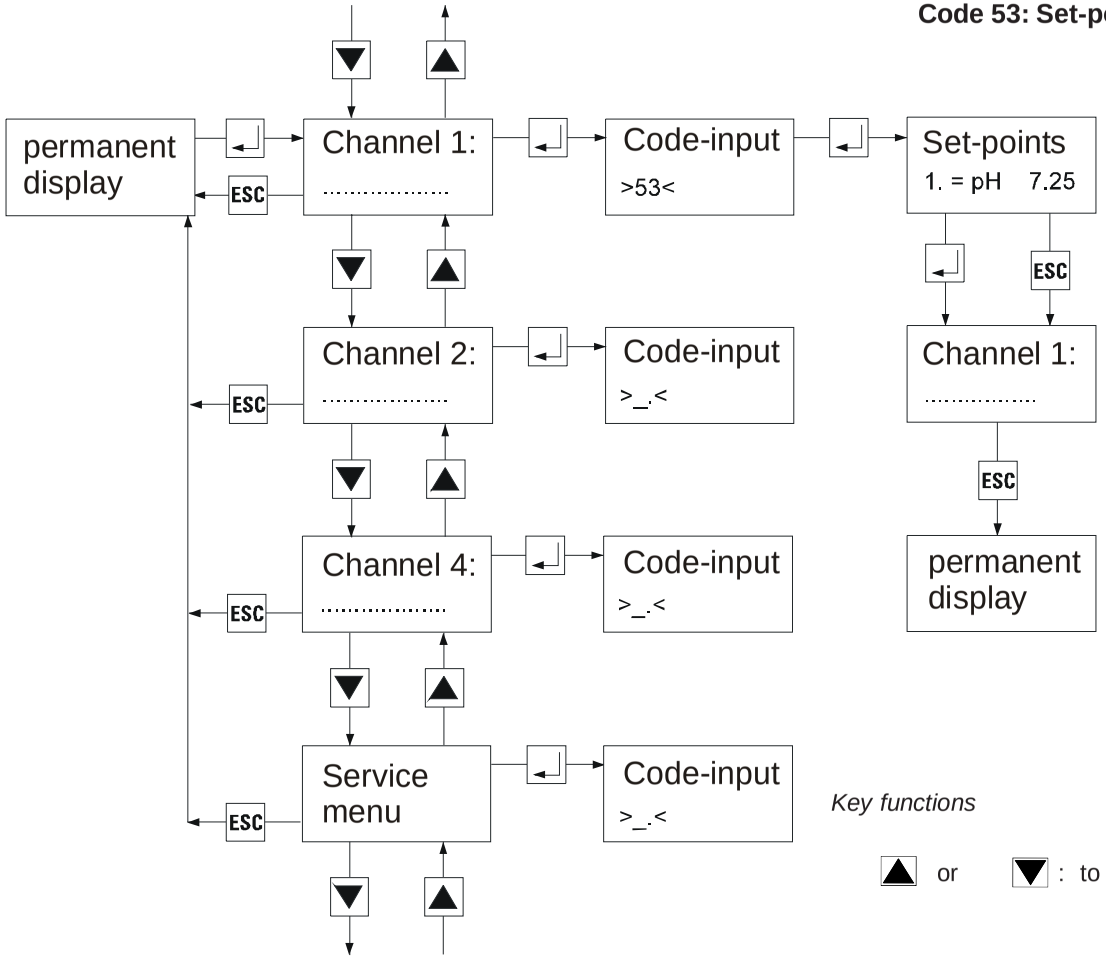
ESC : to reset the cursor to the initial position or to return to amplifier display

▼ or ▲ : to change the numerical values

first ↵ and additionally ▲ : to store the set values; will be confirmed by * in the display

TOPAX® Pool

Code 53: Set-points



Key functions

▲ or ▼ : to change the numerical values

: to store the numerical values

first ↵ will be confirmed by * in the display

plus ▼

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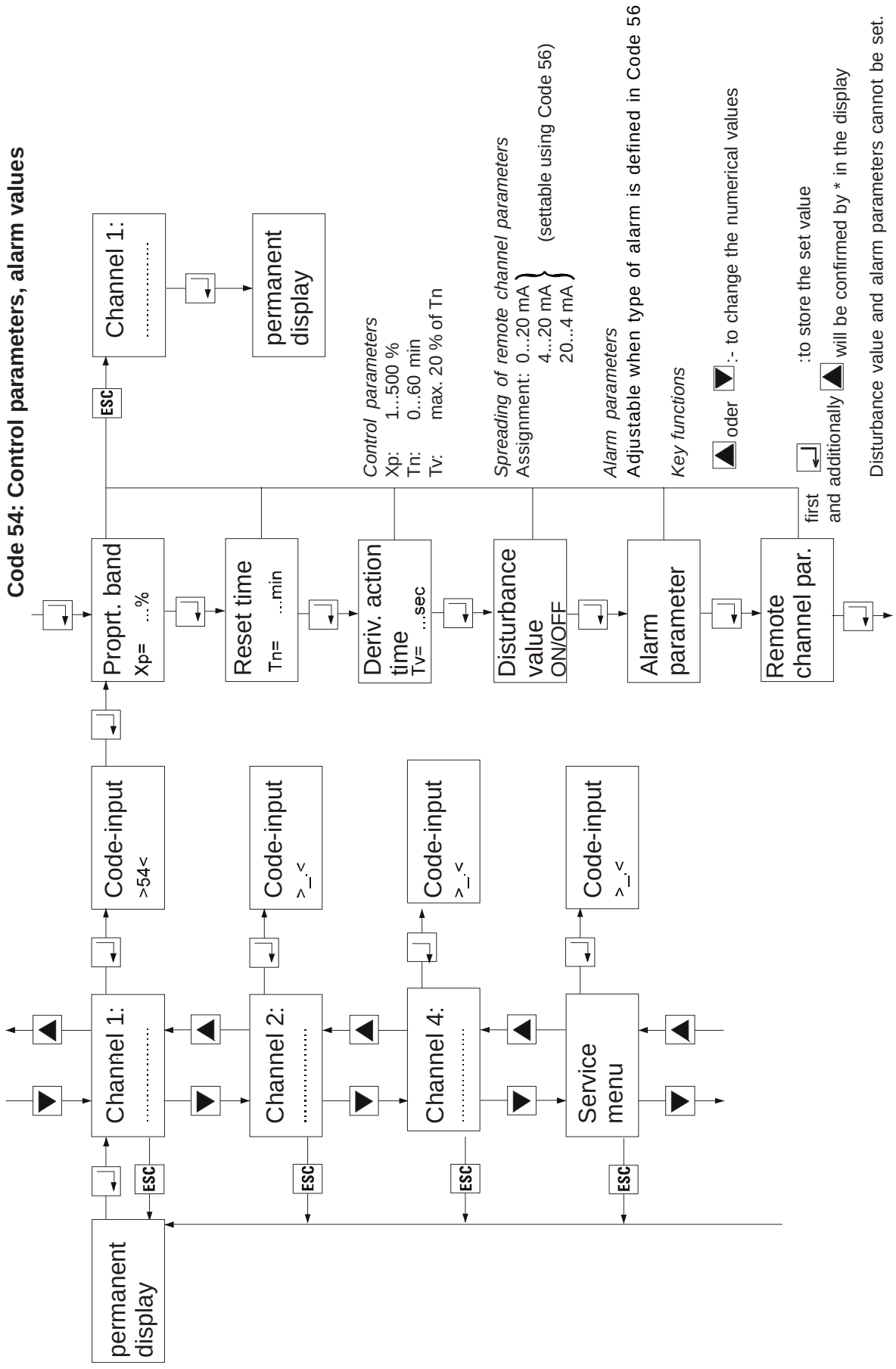
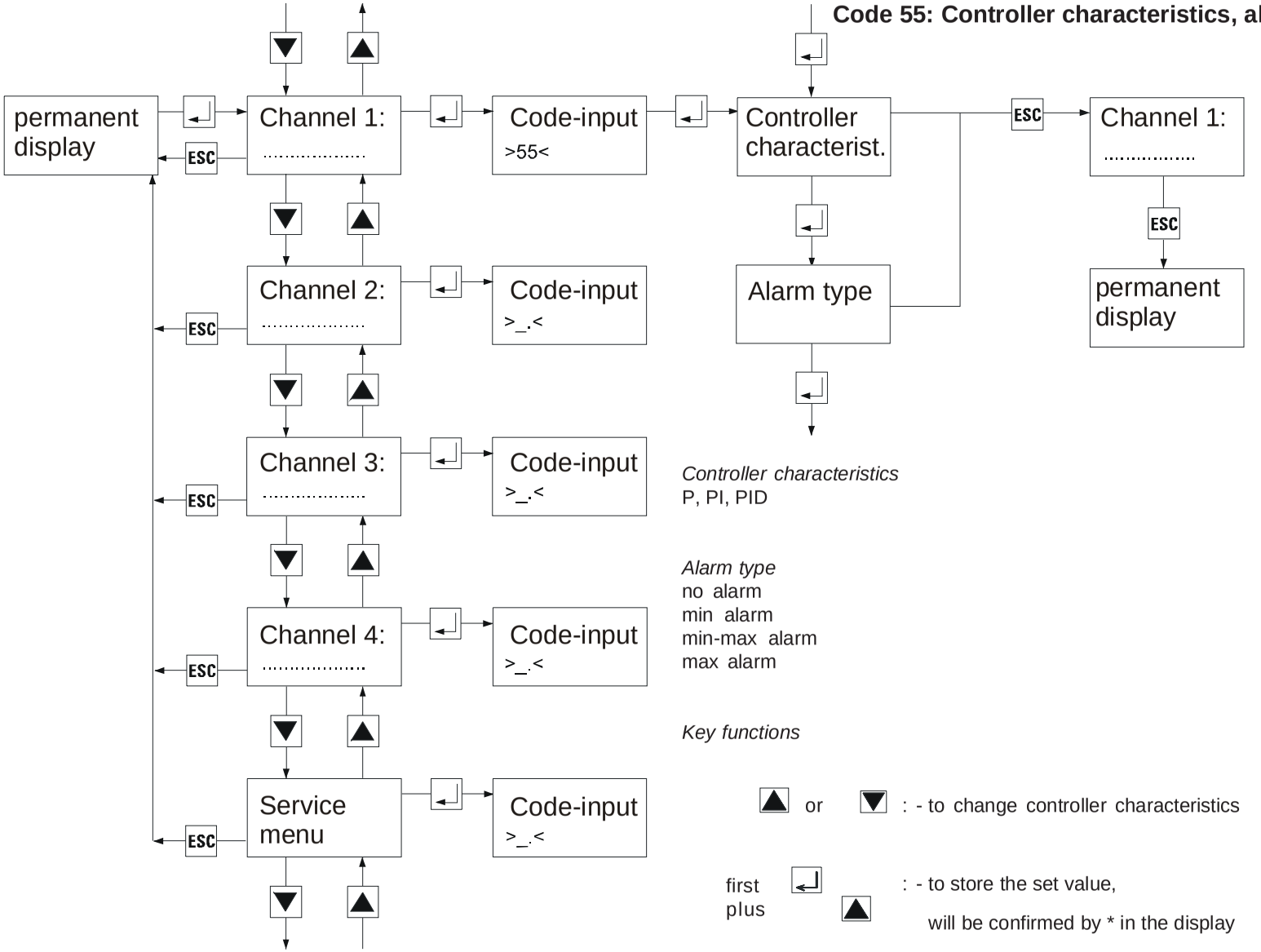
TOPAX® Pool

TOPAX® Pool



Code 55: Controller characteristics, alarm type



Controller characteristics
P, PI, PID

Alarm type
no alarm
min alarm
min-max alarm
max alarm

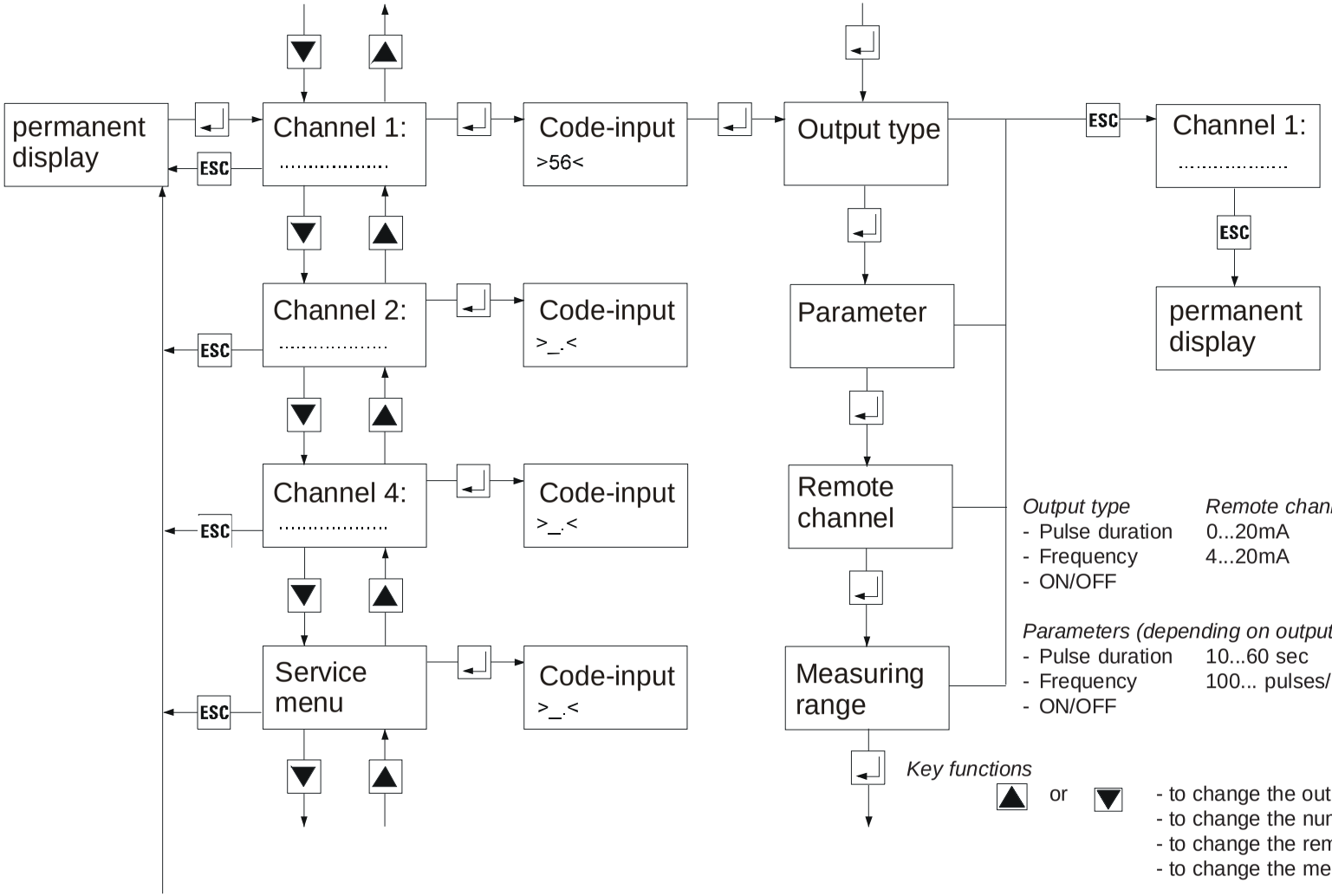
Key functions

▲ or ▼ : - to change controller characteristics

first ↵ plus ▲ : - to store the set value,
will be confirmed by * in the display

TOPAX® Pool

Code 56:Controller output type, remote channel parameter (current output)



Output type — *Remote channel*
- Pulse duration — 0...20mA
- Frequency — 4...20mA
- ON/OFF

Parameters (depending on output type set)
- Pulse duration — 10...60 sec
- Frequency — 100... pulses/min
- ON/OFF

Key functions

▲ or ▼ - to change the output types
- to change the numerical values
- to change the remote channel output
- to change the measuring range

first ↵ plus ▲ - to store the set functions, will be confirmed by * in the display

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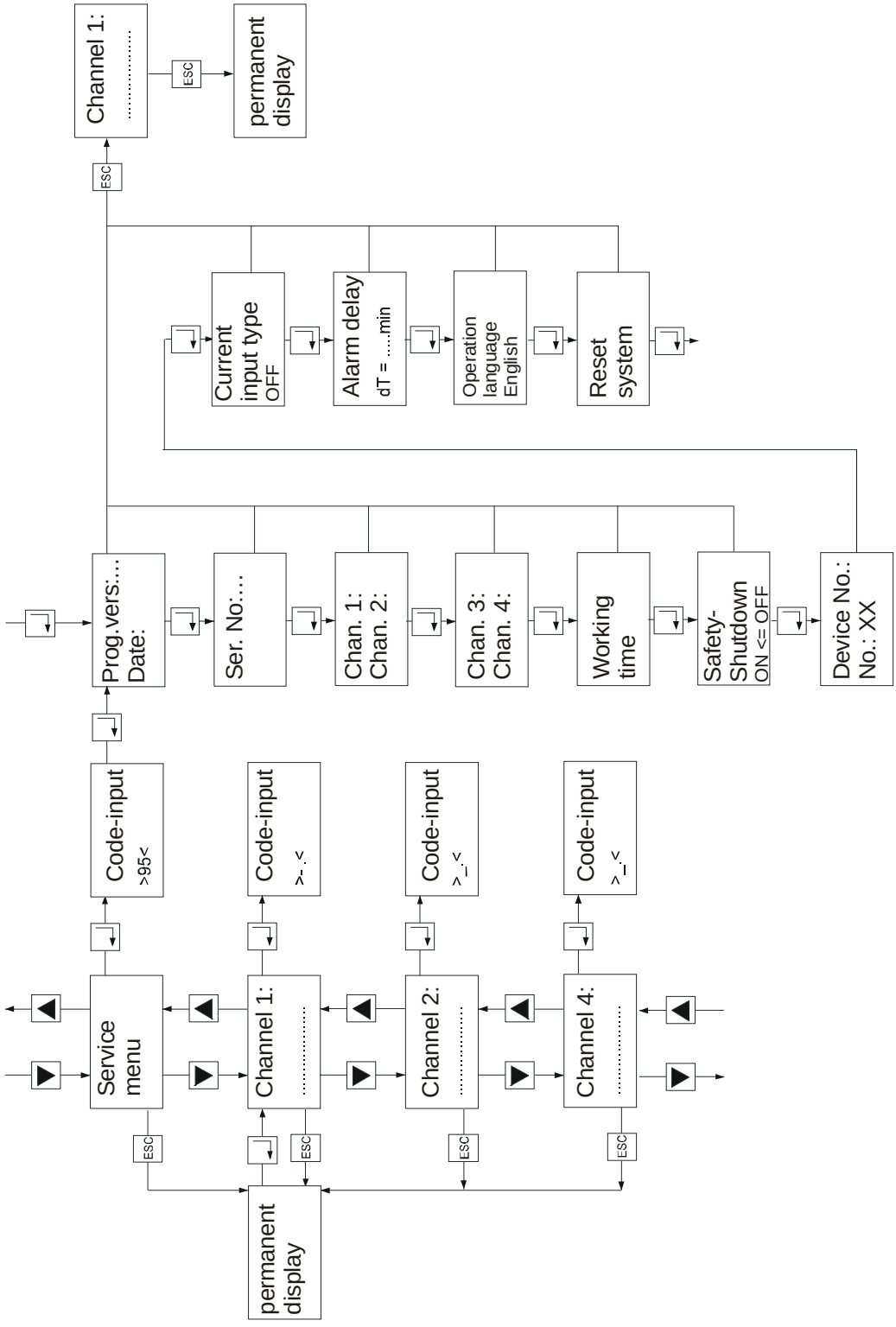
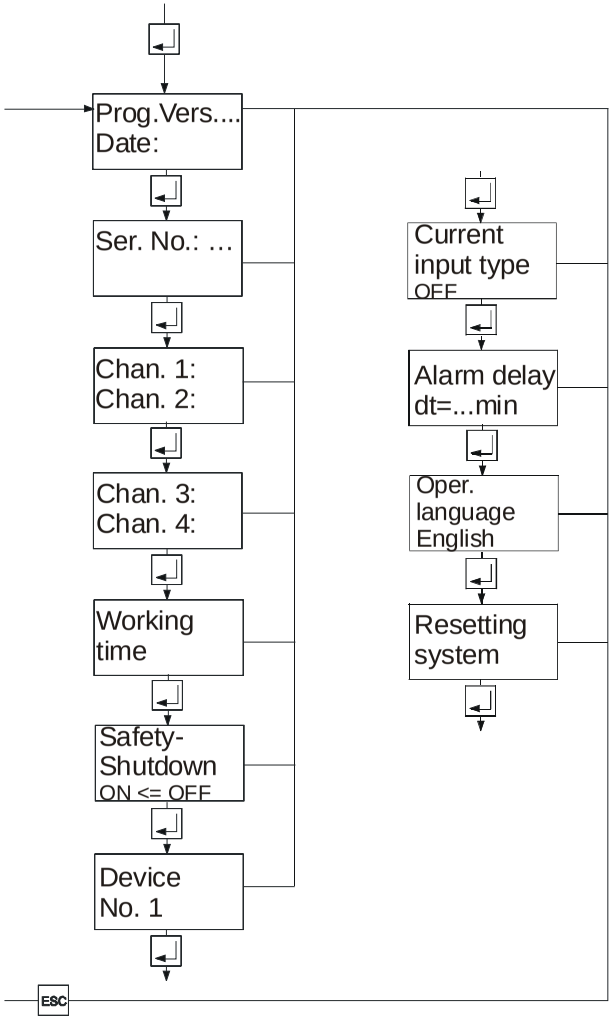
TOPAX® Pool

Code 95: Service menu



Code 95: Service menu (explanations)



* Prog. Vers.:	: software version used
* Date :	: production date of device
* Ser. No.:	: serial number of device
* Chan. 1:	: physical value of input amplifier slot 1
* Chan. 2:	: physical value of input amplifier slot 2
* Chan. 3:	: not used
* Chan. 4:	: physical value of input amplifier slot 4
* Working-Time:	: operating time of device
* Safety-Shutdown	: safety switchoff ON or OFF
* Device No.: No.: XX	: devicve number - entry required if a PC is connected required, always start with "1"
* Current input type	: always set to "OFF"
* Alarm delay. dT = ...min	: only for safety switchoff
* Operating language English	: German, English, French, Spanish available
* Resetting system	: resetting of all programmed values

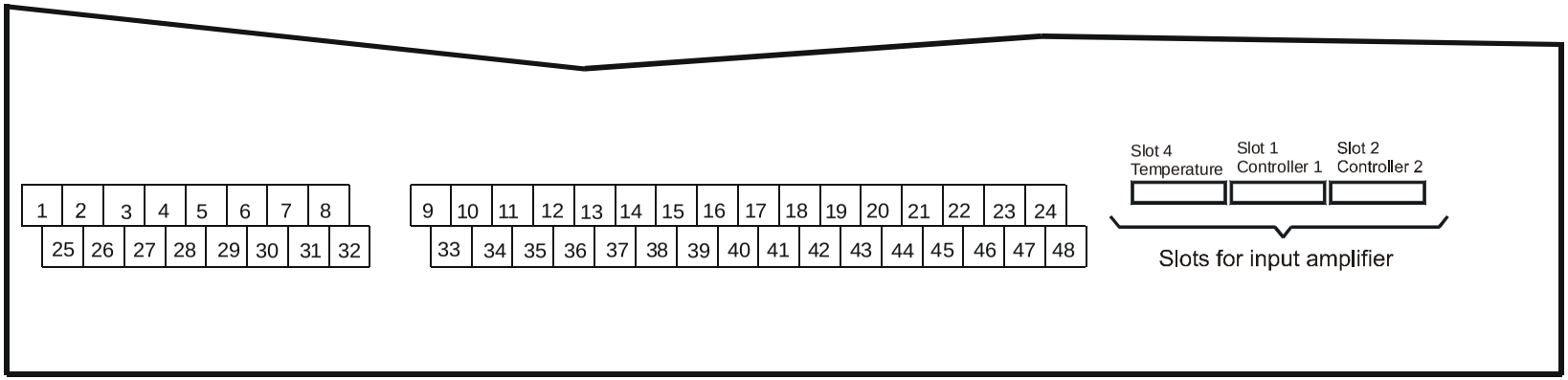
Key functions

▲ or ▼ - to change the numerical values
- to change the language

first pus ↵ ▲ - to store the values set, will be confirmed by * in the display

* only for safety switchoff

TOPAX® Pool



1 and 25	Phase 230/115 V/50-60 Hz	
2 and 26	Neutral conductor	
3 and 27	Protective conductor	
4 and 28	Relay contact	K 11 Controller 1
6 and 30	Relay contact	K 21 Controller 2
	13 (+)	

9	GND	Computer interface RS or RS 485
33	RxD	
34	TxD	

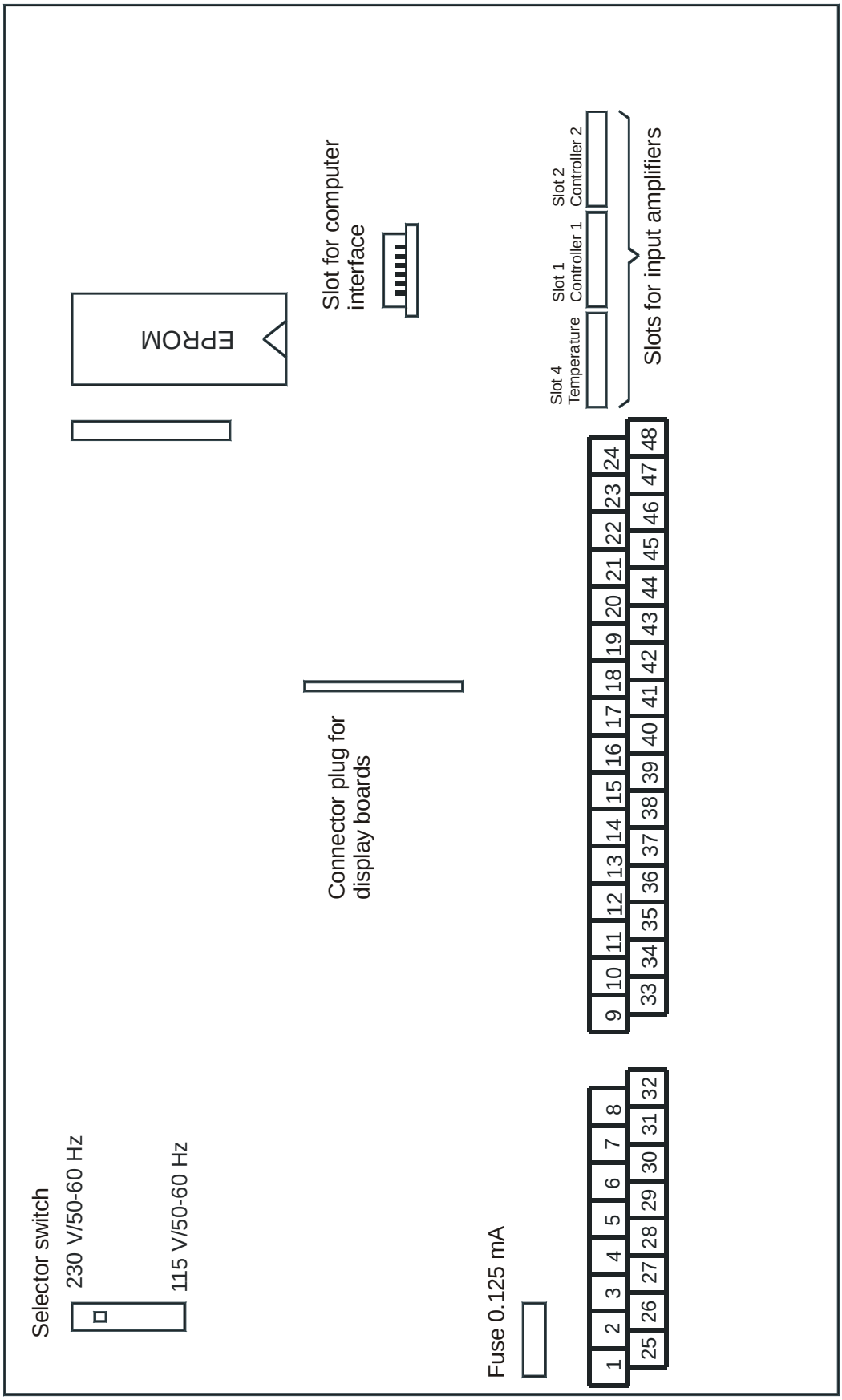
12 (+)	20 mA output slot 1	
	20 mA output slot 2	
37 (+)	not used	
38 (+)	20 mA output slot 4	value: 1...10 kOhm
14 and 36 (-)	20 mA current output	

18 and 42	external contact (e.g. flow monitor NOT-OFF) ATTENTION: If not used, jumpering is required!
19 and 43	digital input
20 and 44	digital input

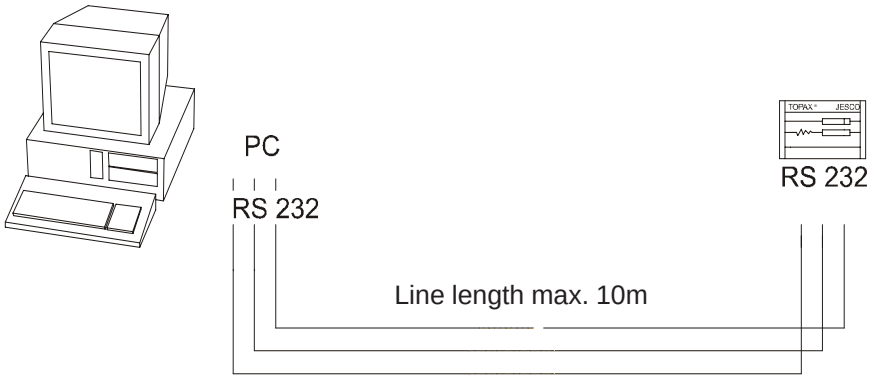
23 (+)	
47 (-)	output 12 V DC
24 (+)	
48 (-)	output 12 V DC

TOPAX® Pool

TOPAX® Pool



Connection with RS 232 - PC



9-pin
D-SUB plug connector

PIN 5	GND
PIN 2	RxD
PIN 3	TxD
PIN 7	RTS
PIN 8	CTS
PIN 6	DSR
PIN 1	DCD
PIN 4	DTR

25-pin
D-SUB plug connector

PIN 7	GND	GND	Terminal 9
PIN 3	RxD	TxD	Terminal 34
PIN 2	TxD	RxD	Terminal 33
PIN 4	RTS		
PIN 5	CTS		
PIN 6	DSR		
PIN 8	DCD		
PIN 20	DTR		

Connection and setting of the serial interface at PC

Setting of COM interface

9600 Baud

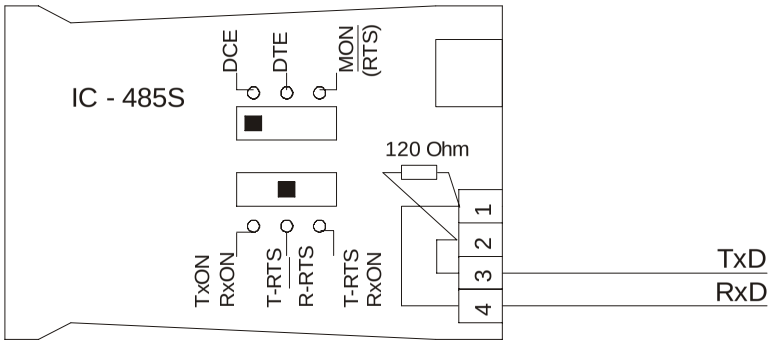
8 Bit

1 Stoppbit

PARITY : NONE

Interface converter - switch position and connection

(Part No.: 78106)



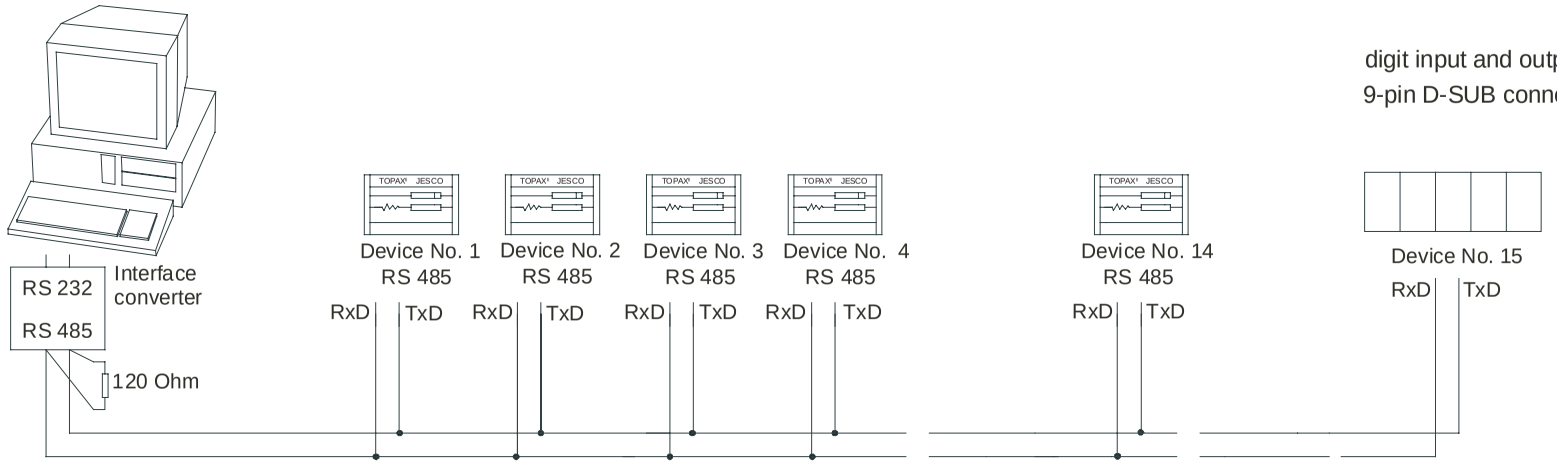
PC
RS 232
serial interface
25-pin
D-SUB plug connector

TOPAX® Pool
RS 485

The terminals and the socket are wired internally 1:1.
The bus lines of the TOPAX® Pool (RxD and TxD) are wired internally with a R=120 Ohm resistor.
Terminals 1 and 4 as well as 2 and 3 are internally bridged.

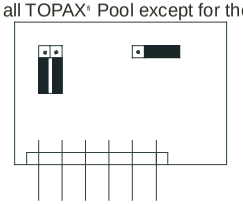
TOPAX® Pool

Networking with RS 485 - PC

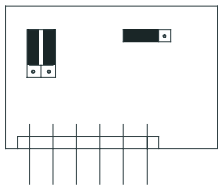


Jumper setting on the RS 485 circuit board

all TOPAX® Pool except for the last one



last TOPAX® Pool



Terminal allocation of TOPAX® Pool
TxD = Terminal 34
RxD = Terminal 33

Connecting device no. 15 (9-pin D-SUB plug connector)

TOPAX® Pool

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