
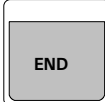
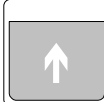
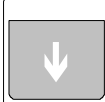
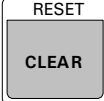
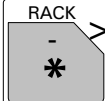
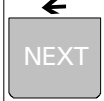

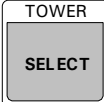



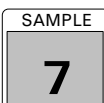
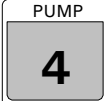


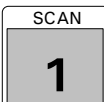



Manual Operation		Normal state	
 	Lift position Raises or lowers the lift of the active tower to rest position (HOME) or work position (END).	  Lift control Raises or lowers the lift of the active tower.	
 	Initialize sample changer Initializes sample processor and dosing drives (RESET) or sets the rack to initial position (RACK).	  Shifting the rack Shifts the rack by one position back or forth.	
	Changing the active tower Changes the active tower. The active tower is displayed by the 'TOWER 1' and 'TOWER 2' LEDs.	 Stop Stops all current changer functions. See manual stop options for exceptions.	
Key	Display	Entry range	Function
	LIFT : 1 : rest mm rest, work, rinse, shift, special, 0...325 mm		Lift control Raises or lowers the lift of the active tower to the specified position.
	MOVE 1 : sample sample, ext.1...4, spec.1...16, 1...999, +/-1...999 prev., next		Moving a beaker or the Swing Head Shifts the rack to place the specified beaker to the active tower or moves the Swing Head to an external position (ext1...4).
	SAMPLE: = 1 1...999		Definition of the first sample position of a series Defines the rack position of the first sample beaker of a series.
	PUMP on/off no. ? 1...2		Pump control Switches on/off the selected pump of the active tower.
	STIR: T1 : 1 s T1, T2, T*, MSB1...3, MSB*, * On, OFF, 1...9999 s		Stirrer control Switches on/off one or more stirrer(s).
	DOS: 1.# : 1 ml drive . port 1...3, * / 1...4, # volume/function +/-0.001...999.999 ml, fill, release, prepar., empty, eject, port, compen.		Dosimat/Dosino steuern Controls a connected dosing drive. Enter a volume to be dispensed or select a function to execute (only 'fill' with Dosimats). With the Dosino, also negative volumes can be dispensed i.e. the liquid can be aspirated.
	SCN:Rm : 00000000 interface signal/pattern Rm 14 x 1,0 or * RS 14 ASCII chars		Interface scan Displays the state of the remote control lines (Input0...7) or the received data of the serial interface (RS232).
	CTL:Rm : INIT interface signal/pattern Rm 14 x 1,0 or * RS 14 ASCII chars		Interface control Sends the specified signal via remote control lines (Output0...13) in order to control (e.g. start) peripheral devices or transmits data via serial interface (RS232). <SELECT>-options see Sample processor commands.

Method Memory

USER METHOD	Recall a method Store a method Delete a method	User method menu
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Display	Default value	Entry range	Function
>recall method			Recalling a method
method:	XXXXXXXX	8 ASCII-characters, *****	Selection of a method to recall (<SELECT> or enter text) ***** = blank method (<CLEAR>)
>store method			Storing a method
method:	XXXXXXXX	8 ASCII-characters	Name of a method to store (<SELECT> or enter text)
XXXXXXXX overwrite ?			Overwriting confirmation <ENTER>, cancel with <QUIT>
>delete method			Deleting a method
method:	XXXXXXXX	8 ASCII-characters	Selection of a method to delete (<SELECT> or enter text)
delete XXXXXXXX ?			Confirmation with <ENTER>, cancel with <QUIT>

Editing

<div style="border: 1px solid black; padding: 2px; display: inline-block;">TOWER SELECT</div> <div style="border: 1px solid black; padding: 2px; display: inline-block; margin-left: 10px;">RESET CLEAR</div>	<p><SELECT> and <CLEAR> <SELECT> lets you choose entries from a selection list. <CLEAR> sets the default value.</p>	<div style="border: 1px solid black; padding: 2px; display: inline-block;">PRINT + <</div> <div style="border: 1px solid black; padding: 2px; display: inline-block; margin-left: 10px;">RACK - > *</div>	<p>Text edit mode Enters text edit mode. Places text cursor at start (<) or end (>) of the text string.</p>
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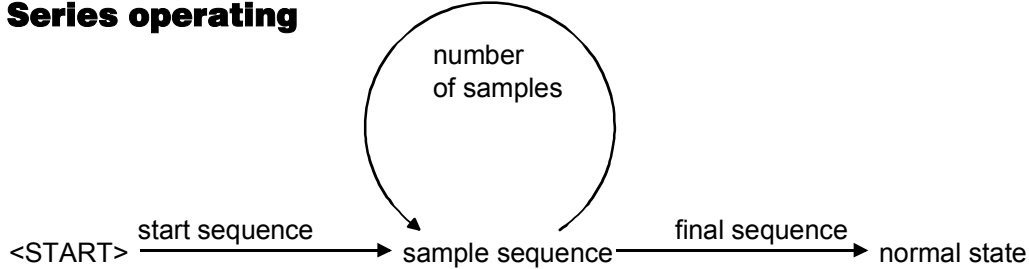
Series Operating

Preparation

Key	Display	Entry range	Function
SAMPLE 7	SAMPLE:	= XXX 1...999	Definition of the first sample beaker of a series. (optional, if undefined SAMPLE=1) Definitions in sequences are dominant e.g. : 01 SAMPLE = rack (optional; if undefined in sequence, manual setting is valid)
PARAM	>parameters number of samples:	rack rack, *, 1...999	Number of samples (will be saved with the method).

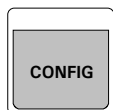
<div style="border: 1px solid black; padding: 2px; display: inline-block; margin-bottom: 10px;">START</div> <ul style="list-style-type: none"> Starts a method Restarts a method from 'hold' state 	<ul style="list-style-type: none"> Stops a method (Final sequence will not be executed) See >manual stop options also. <div style="border: 1px solid black; padding: 2px; display: inline-block; float: right; margin-top: 10px;">STOP</div>
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Series operating



<div style="border: 1px solid black; padding: 2px; display: inline-block; margin-bottom: 10px;">LEARN HOLD</div> <ul style="list-style-type: none"> Holds a running method May be continued with <START> 	<div style="border: 1px solid black; padding: 2px; display: inline-block; margin-bottom: 10px;">QUIT</div> <ul style="list-style-type: none"> Quits a running command Quits error messages 	<div style="border: 1px solid black; padding: 2px; display: inline-block; margin-bottom: 10px;">RESET CLEAR</div> <ul style="list-style-type: none"> Stops a series after the current sequence
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Basic Configuration



General settings
Tower configuration
Rack configuration
Dosing unit settings
RS232 interface settings

Configuration menu

Display	Default value	Entry range	Function
>auxiliaries			
dialog:	english	english, deutsch, francais, espanol	General settings Selection of dialog language
display contrast	3	0...7	Adjust display contrast
beeper:	ON	ON, OFF	Switch on/off acoustic warning signal
external start:	OFF	ON, OFF	Switch on/off remote controlled start
>auxiliaries >>running time meter			
elapsed time	0.0 h	0..99999 h	Current value of the running time meter (read only)
warning	OFF	OFF, 0..99999 h	Warning limit for service message
device label	*****	8 ASCII-Zeichen	Entry of device label
program	5.778.0010	read only	Program version
>tower 1			
max. stroke path	235 mm	0..235 mm	Basic settings for lift 1 Maximum stroke path of lift 1. Defines lowest lift position possible. Press <LEARN> to move lift. RESET required to effect.
min. beak. radius	* mm	1.0...100.0 mm, *	Minimum beaker radius required for lowering the lift.
>tower 1 >>swing head 1			
rinse position	0 mm	0...325 mm	Rinsing height for all external positions of swing head 1
shift position	0 mm	0...325 mm	Shifting height for all external positions of swing head 1
external pos.1	85.00°	0...270°	Swing angle of external position 1
work position1	0 mm	0...325 mm	Working height for external position 1
external pos.2	85.00°	0...270°	Swing angle of external position 2
... external pos.4			
>tower 2			
... see tower 1			
>rack definitions			
Rack configuration			
>rack definitions >>recall rack			
name:	6.2041.310	read only	Editing rack definitions Name of rack to be edited
code	000001	000001...111111	Binary ID code for rack identification
work position T1	0 mm	0...325 mm	Working height of lift 1. Press <LEARN> to move lift.
work position T2	0 mm	0...325 mm	Working height of lift 2. Press <LEARN> to move lift.
rinse position T1	0 mm	0...325 mm	Rinsing height of lift 1. Press <LEARN> to move lift.
rinse position T2	0 mm	0...325 mm	Rinsing height of lift 2. Press <LEARN> to move lift.
shift position T1	0 mm	0...325 mm	Shifting height of lift 1. Press <LEARN> to move lift.
shift position T2	0 mm	0...325 mm	Shifting height of lift 2. Press <LEARN> to move lift.
special pos. T1	0 mm	0...325 mm	Special height of lift 1. Press <LEARN> to move lift.
special pos. T2	0 mm	0...325 mm	Special height of lift 2. Press <LEARN> to move lift.

Basic Configuration

continued

beaker radius * mm	*,1.0...10.0 mm	Radius of sample beakers (* = not specified)
beaker sensor: tower	Tower, SwingH, OFF	Select beaker sensor for sample beakers
rack offset 0.00°	0.00...5.00°	Rotation offset of rack
>>recall rack >>>special positions		Submenu special beakers
special beaker 1	1...16	Selection of special beaker
rack position 0	0...max.Pos.	Rack position of special beaker
work position T1 0 mm	0...325 mm	Working height for tower 1
work position T2 0 mm	0...325 mm	Working height for tower 2
beaker radius * mm	*,1.0...10.0 mm	Radius of special beaker (* = not specified)
beaker sensor: tower	Tower, SwingH, OFF	Select beaker sensor for special beaker
>rack definitions >>store rack		Storing rack definitions
name: 6.2041.310	6.2041.310...rack name	Rack name may consist of 10 ASCII characters
>rack definitions >>delete rack		Deleting rack definitions
name: 6.2041.310	6.2041.310...rack name	Choose rack name by pressing <SELECT>.
delete ***** ?	<QUIT>, <ENTER>	Press <ENTER> to proceed or <QUIT> to abort.
>dosing units		Dosing unit settings
dosing unit 1	1...12	Dosing unit number
max. rate 1 160 ml/min	0.01...160 ml/min	Maximum flow rate at Dosino port 1
tube length 1 1000 mm	0...30000 mm	Length of tube connected to Dosino port 1
tube diameter 1 2 mm	0.1...20 mm	Inner diameter of tube connected to Dosino port 1
max. rate 2 160 ml/min	0.01...160 ml/min	Maximum flow rate at Dosino port 2
tube length 2 250 mm	0...30000 mm	Length of tube connected to Dosino port 2
... up to port 4
>RS232-settings		RS 232 interface settings
baud rate: 9600	300,600,1200,2400, 4800,9600, 19200	Data transmission rate
data bit: 8	7, 8	Data bits
stop bit: 1	1, 2	Stop bits
parity: none	none, odd, even	Parity
handshake: Hws	Hws, SWchar, SWline, none	Handshake
character set: IBM	IBM, Epson, Seiko, Citizen, HP	Character set for printer or PC
RS control: ON	ON, OFF	Switch on/off data receiving via serial Interface (RS 232)

Operating Sequences and Method Parameters

PARAM		Number of samples Start sequence Sample sequence Final sequence	Sample changer settings Stirring rates Dosing unit definitions Manual stop options	Parameter menu Method
Display	Default value	Entry range	Function	
number of samples:	rack	rack, *, 1...999	Number of samples in a series	
>start sequence			Start sequence of a series	
>sample sequence			Sample sequence of a series	
>final sequence			Final sequence of a series	
>changer settings			Sample changer settings	
rack name	*	*...rack name	Name of rack for current method (* = any rack)	
lift rate T1	25 mm/s	3...25 mm/s	Lift rate tower 1	
lift rate T2	25 mm/s	3...25 mm/s	Lift rate tower 2	
shift rate	20°/s	3...20°/s	Rack shift rate (in degree/sec)	
shift direction:	auto.	auto., +, -	Shift direction of the rack	
rotat. increment	5.00°	0.00...270.00°	Increment angle (rack) for MOVE +/-rotate command	
swing rate T1	55°/s	10...55°/s	Swing rate of the robotic arm at tower 1(in degree/sec)	
swing rate T2	55°/s	10...55°/s	Swing rate of the robotic arm at tower 2 (in degree/sec)	
swing increment	10.00°	0.00...180.00°	Increment angle (robotic arm) for MOVE +/-swing command	
on beaker error:	MOVE	MOVE, display	Action on missing beaker	
>stirring rates			Stirring rates	
stirrer tower 1	3	1...15	Stirring speed of stirrer at tower 1	
stirrer tower 2	3	1...15	Stirring speed of stirrer at tower 2	
stirrer MSB1	3	1...15	Stirring speed of stirrer at MSB port 1	
stirrer MSB2	3	1...15	Stirring speed of stirrer at MSB port 2	
stirrer MSB3	3	1...15	Stirring speed of stirrer at MSB port 3	
>dosing unit def.			Dosing unit definitions	
dosing drive	1	1...3	Dosing drive address	
Settings for dosing drives				
>timeout settings			Settings of the SCAN command	
SCAN timeout:	OFF min	0...999, OFF	Max. timeout of the SCAN command (Remote and RS 232)	
on SCAN timeout:	error	error, cont.	Reaction after timeout has elapsed	
>manual stop			Behaviour on manual stop command	
CTL Rmt: *****		STOP device1, STOP device2, STOP device*, 14 Bit (1, 0 or *)	Remote output signal on manual stop command	
CTL RS232:		&M;\$S, 14 ASCII chars	Data output via serial interface (RS232) on manual stop command	
PUMP:	OFF	OFF, ON, cont.	Pump state on manual stop command	
STIR xx:	OFF	OFF, ON, cont.	Stirrer state on manual stop command	

Sample Processor Commands

Command	Default value	1. Param.	2. Parameter	Function
SAMPLE: = 1		Function =, +, -	Value 1...999	Definition of the first sample beaker of a series
MOVE 1 : Probe		Tower 1, 2	Beaker or swing position sample, ext.1...4, next, prev., spec.1...16, +swing, -swing, +rotate, -rotate, +/-1...999	Move a beaker to the specified tower or move the robotic arm to an external swing position
LIFT: 1 : rest mm		Tower 1,2, *	Position work, rinse, shift, special, rest, 0...325 mm	Run lift to specified position
PUMP 1.1 : 1 s		Pump 1.1...2.*	Duration/status 1...999 s, ON,OFF	Pump control (1. param.: tower.pump)
STIR: T1 : 1 s		Stirrer T1, T2, ...	Duration/Status 1...9999 s, ON,OFF	Stirrer control
DOS: 1.* : 1 ml		Address / Port 1...3, */ 1...4, *	Function/Volume fill, release, prepar., empty, eject, endVol, compen., port ±0.001...999.999 ml	Dosimat / Dosino control (* = all drives or default port resp.)
SCN:Rm : Ready1		Interface Rm, RS	Input signal/data Ready1...*, Cond ok, End1...EndMeter, 8 bit (1,0 or *) 'clear' value: *R", 14 ASCII-chars(*= any chars)	Interface scan Scans the 'remote' interface until the specified signal is received. Scans the serial interface (RS 232) until the specified data are received.
CTL:Rm: INIT		Interface Rm, RS	Output signal/data START device1...*, SAMPLE ready, START dos1...*, INIT, METER ..., ... 14 x 1,0 or * clear value: &M;\$G 14 ASCII-chars	Interface control Sets the specified remote output signal. May be defined as binary pattern. Transmits the specified data via serial interface (RS232). Use text edit mode.
WAIT: pause 1 s		Mode pause, runtime	Time 0...999999 s	Waiting time in series operation Pause mode: Pause method for xxx s. Runtime mode: Wait for runtime xxx s.
RACK				Reset rack
DEF - Commands		Definition of various settings		
STIRRATE T1 3		Stirrer T1... MSB*, *	Stirring rate 1...15	Stirring rate
DOSRATE 1 160		Address 1...3	Dosing rate 0.01...160 ml/min	Dosing rate
FILLRATE 1 160		Address 1...3	Filling rate 0.01...160 ml/min	Filling rate
COCKMOVE: 1 : auto		Address 1...3	Direction auto, asc., desc., not over	Shift direction of Dosino stop-cock
LIFRATE 1 25 mm/s		Tower 1,2	Lift rate 3...25 mm/s	Lift rate
SHIFRATE: auto. 20		Direction auto., +, -	Shift rate 3...20 w/s	Rack shift direction and shift rate
SWINGRATE 1 55		Tower 1,2	Swing rate 10...55° /s	Swing rate of Swing head