TISSUSE
Emulating Human Biology

HUMIMIC Starter Quick Guide

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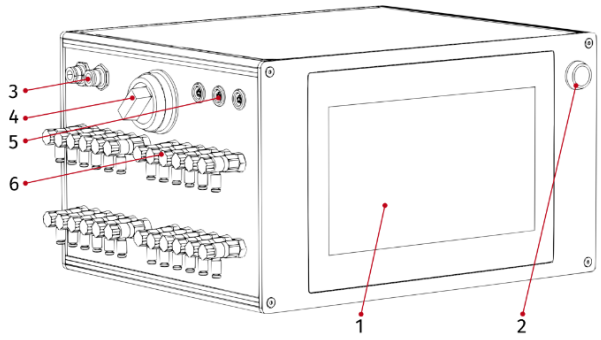
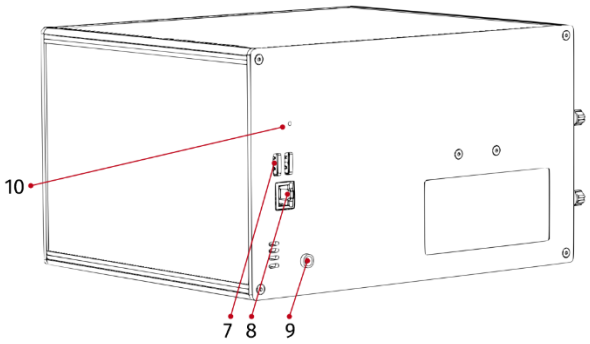
1 Technical specifications & requirements





1 Display
2 Power button
3 Compressed air (P) / Vacuum connection (V)
4 Selector switch int./ext. vacuum
5 Connection external periphery
6 HUMIMIC Chip connections

7 USB connection
8 Ethernet port
9 Power supply connection 24VDC
10 Reset button

GENERAL	**Model**	**HUMIMIC** Starter
	From serial number	68XXX
	Year of construction	Since 2019
	Dimensions	251.2 mm x 206 mm x 150.2 mm
	Weight	4.8 kg
OPERATING REQUIREMENTS	**Input voltage**	90–264 VAC, 50–60 Hz
	Input pressure	+600 kPa +/− 100 kPa at 25 l/min
	External vacuum	−100 kpa *(optional)*
ENVIRONMENTAL CONDITIONS	**Operating temperature**	0°C to +50 °C
	Compressed air	dry and oil-free in accordance with ISO 8573 - 1:2010 [7:4:4]
	Operating medium	inert gases
	Relative air humidity	No condensation
	Storage temperature	−10°C to +60°C
	Supply connection	suitable for 6 mm / 8 mm Ø tube by external standards
TECHNICAL PARAMETERS	**Number of HUMIMIC Chips**	Connect up to 4 **HUMIMIC** Chip2, 8 **HUMIMIC** Chip3 or 4 **HUMIMIC** Chip4
	Sound power level	<45 dB(A)
	Pump frequency	0 to 120 BPM or 0 to 2.0 Hz

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2 Installing the HUMIMIC Starter

2.1 Connecting compressed air to the HUMIMIC Starter

Connect air pressure outlet with air filter

Set air pressure outlet to 5-6 bar (outlet closed)

Connect stop cock with HUMIMIC Starter

Connect the tube to **[3]** compressed air connection labeled with “P”

2.2 Connecting the power supply to the HUMIMIC Starter

[9] Power supply connection 24VDC

+

Power supply 24VDC with power supply plug

+

Power cord

+

Power supply socket

2.3 Switch power on and off

Every time the device is connected to a power source, it turns on automatically.

To **turn on** the unit manually just press the power button.
To **turn off** or **restart** the unit just press the power button again.

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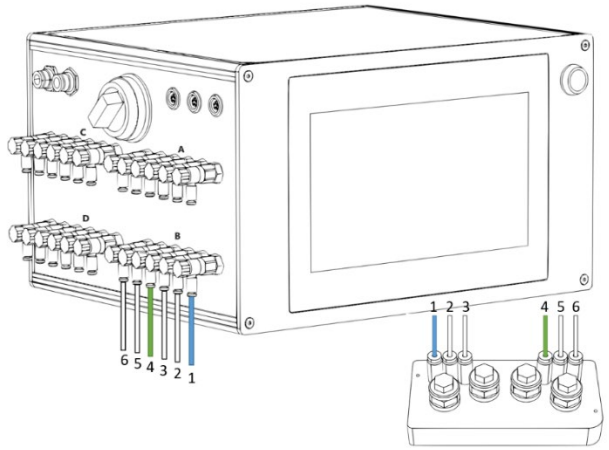
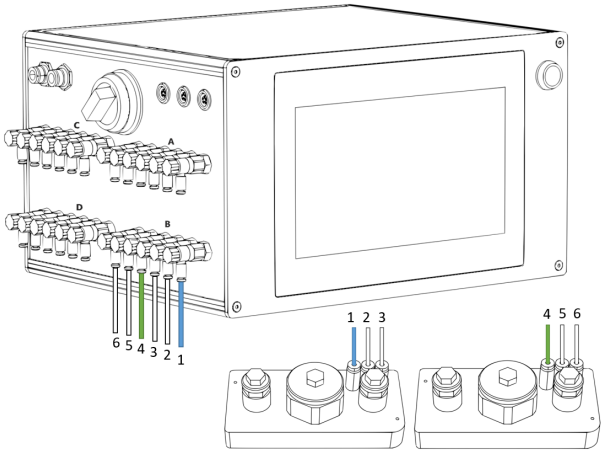
2.4 Connecting HUMIMIC Chips to the HUMIMIC Starter

The **HUMIMIC** Starter has 4x6 (2m long) connecting tubes on the left side for the respective **HUMIMIC** Chips. The tubes are color coded and glued together in a certain order. The order to connect the **HUMIMIC** Chips with the tubes can be seen in the following figure:



Connecting one **HUMIMIC** Chip2 …



… or two **HUMIMIC** Chip3 to the **HUMIMIC** Starter

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3 Working with the HUMIMIC Starter

3.1 HOME screen

FUNCTIONS

	HOME	Get back to the HOME screen
	CHIP-EDITOR → 3.2	Add new HUMIMIC Chip2, Chip3, or Chip4; link them together; share the parameters like pump speed or direction; delete the HUMIMIC Chips
	CHIP → 3.3	Start/pause pumping of the respective Chip; change pumping direction and frequency
	SETUP → 3.4	Change the pressure, vacuum or time; see the software version; make a software update; change frequency from BPM to Hz; activate the expert or service mode
	MONITORING → 3.6	Monitor the live pressure and vacuum; retrace deviations from the set values for a period of your choice
	LOCK	Lock the screen so that no unwanted inputs are made

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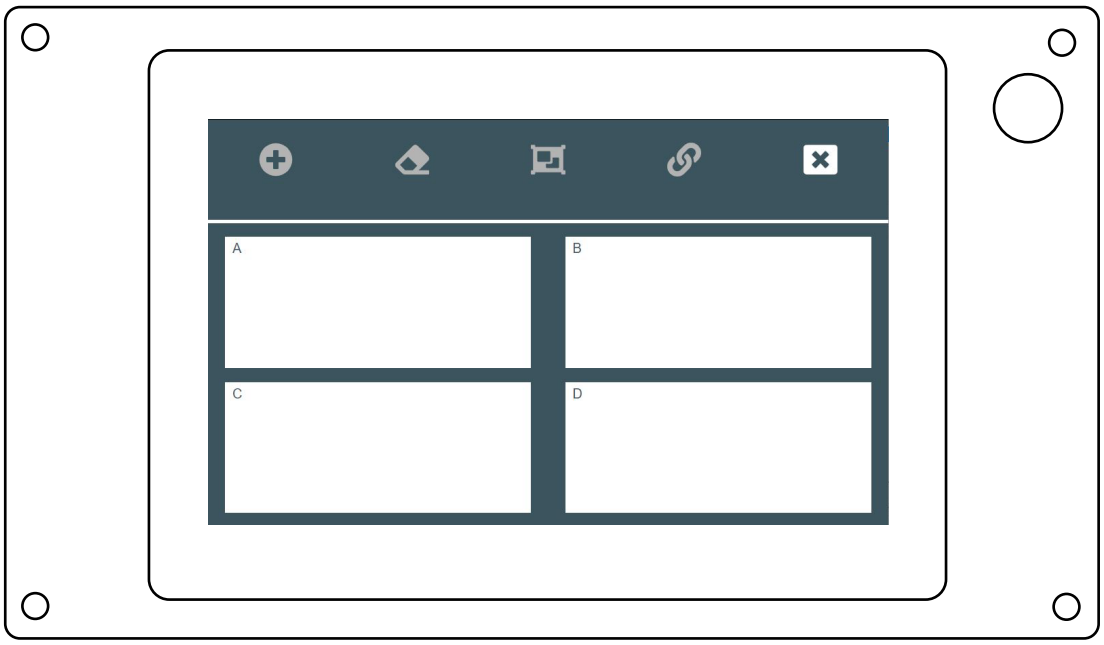
3.2 CHIP-EDITOR menu



FUNCTIONS

	ADD CHIPS	Push the ADD CHIPS button, choose the field (A, B, C or D) and choose a HUMIMIC Chip (Chip2 96-well, Chip2 24-well, Chip3, Chip3 plus, Chip4). Confirm with .
	DELETE CHIPS	Push the DELETE CHIPS button and choose the fields (A, B, C and/or D) with the Chips you want to delete. Confirm with .
	SHARE PARAMETER	Push the SHARE PARAMETER button, choose your master Chip who will transfer its parameters to the other Chips and choose the Chips (A, B, C and/or D) who will get the master Chips parameters. Confirm with .
	LINK CHIPS	Push the LINK CHIPS button to synchronize the pumping of one master Chip with other Chips. Confirm with . The master Chip will be marked with , the linked Chips with .
	SAVE / CONFIRM	After a change in ADD CHIPS, DELETE CHIPS, SHARE PARAMETER or LINK CHIPS the symbol will convert into the SAVE / CONFIRM button.
	CLOSE	Close menu.

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3.3 CHIP menu

FUNCTIONS

	START / PAUSE PUMPING	Start or pause the pumps of the respective circuit
	CHANGE PUMP DIRECTION	Change the pump direction clockwise or counterclockwise; the arrow shows you the current direction
30 BPM	**CHANGE FREQUENCY**	Change the pumping frequency of the Chip
	LINKED / MASTER CHIP	See if the Chip is chosen as a master Chip or linked to another master Chip.
	ANIMATION FLUIDIC	Activate or deactivate the animation of the fluidic in the Chip
	CLOSE	Close menu.

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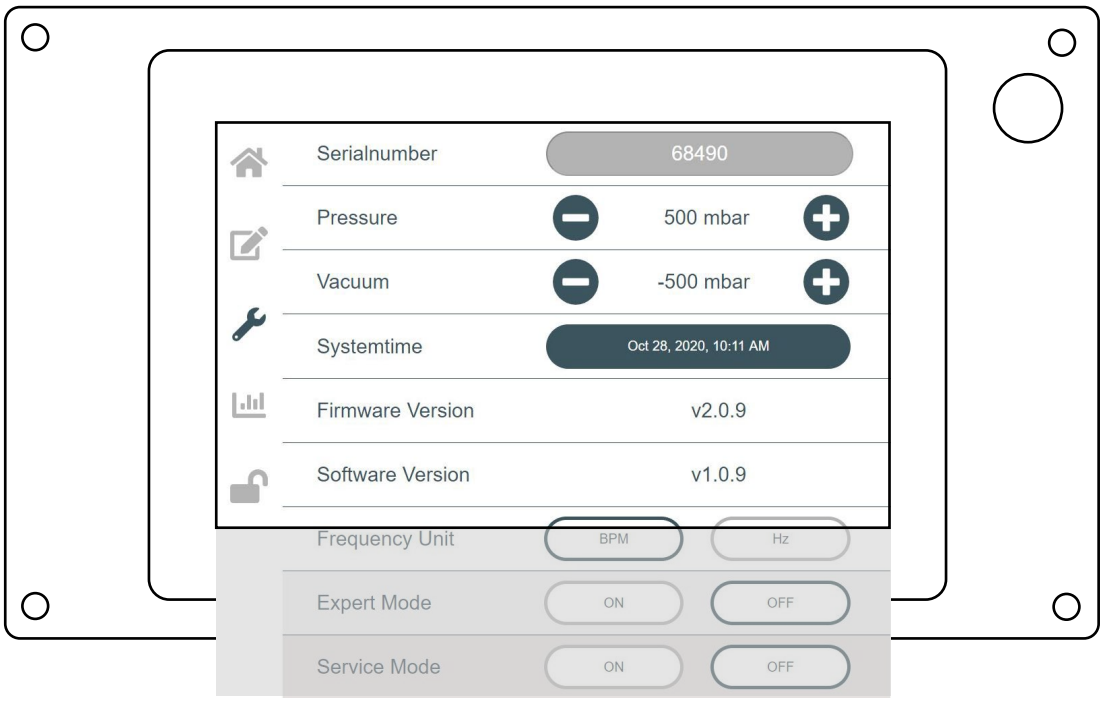
3.4 SETUP menu



FUNCTIONS

PRESSURE	500 mbar	Change the pressure.
VACUUM	-500 mbar	Change the vacuum.
SYSTEMTIME	Oct 28, 2020, 10:11 AM	Set a new date and time for the system
UPDATE		This button only appears if you connect a USB Stick **[7 USB connection]** with a newer software/firmware version to the HUMIMIC Starter. Push the button and confirm in the pop-up window if you want to update.
FREQUENCY UNIT	BPM Hz	Change the frequency unit.
EXPERT MODE	ON OFF	Turn Expert mode on/off. Among other things this mode allows you to remove air bubbles from the Chip. → 3.5
SERVICE MODE	ON OFF	Turn Service mode on/off. This mode is only accessible with a pin code and intended for maintenance by TissUse.

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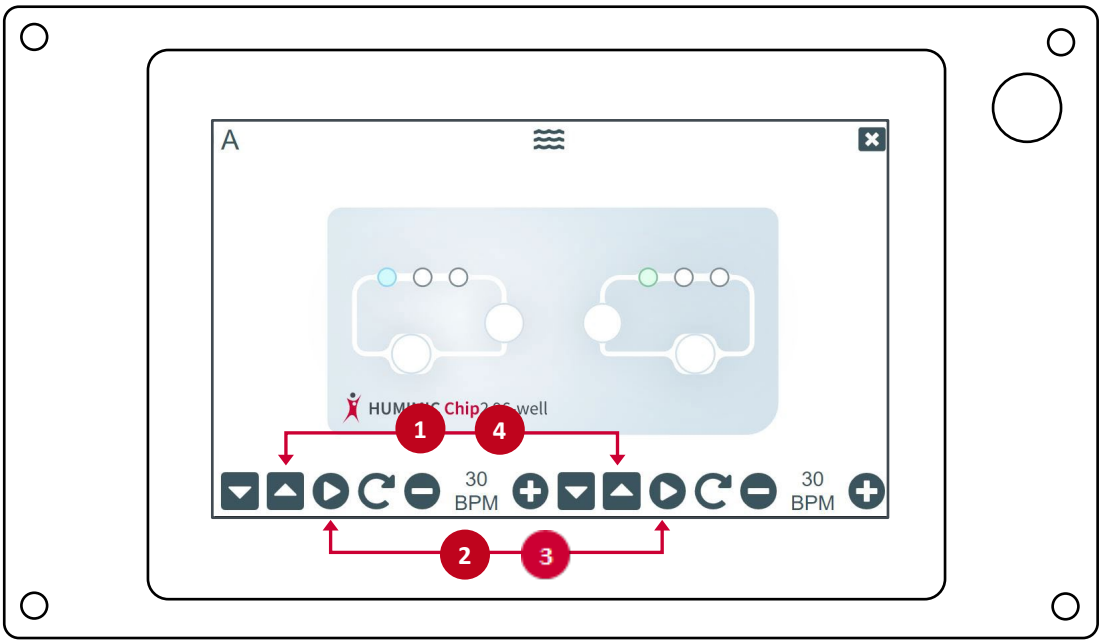
3.5 Expert Mode CHIP menu

After turning on the Expert mode the **CHIP menu** should look like this:



ADDITIONAL FUNCTIONS

	APPLY VACUUM TO ALL TUBES OF THE CIRCUIT	If this function is activated, the pumping sequence is interrupted and vacuum will be applied to all tubes as soon as the Start Pumping button is pushed.
	APPLY PRESSURE TO ALL TUBES OF THE CIRCUIT	If this function is activated, the pumping sequence is interrupted and pressure will be applied to all tubes as soon as the Start Pumping button is pushed.

How to remove air bubbles from the Chip

To remove air bubbles from the **HUMIMIC** Chip connect it to the **HUMIMIC** Starter, turn on the Expert mode and switch to the belonging **CHIP menu**.

1	→	Activate this button to apply vacuum to the tubes of the circuit where the air bubbles are. The button will change its colour to red.
2		Push the Start Pumping button for evacuating the air in the **HUMIMIC** Chip for **at least 10 minutes up to several hours** until the air bubbles are away.
3		Push the Stop Pumping button.
4	→	Unlock the Apply Vacuum function, so that the pumping sequence can be carried out again as usual.

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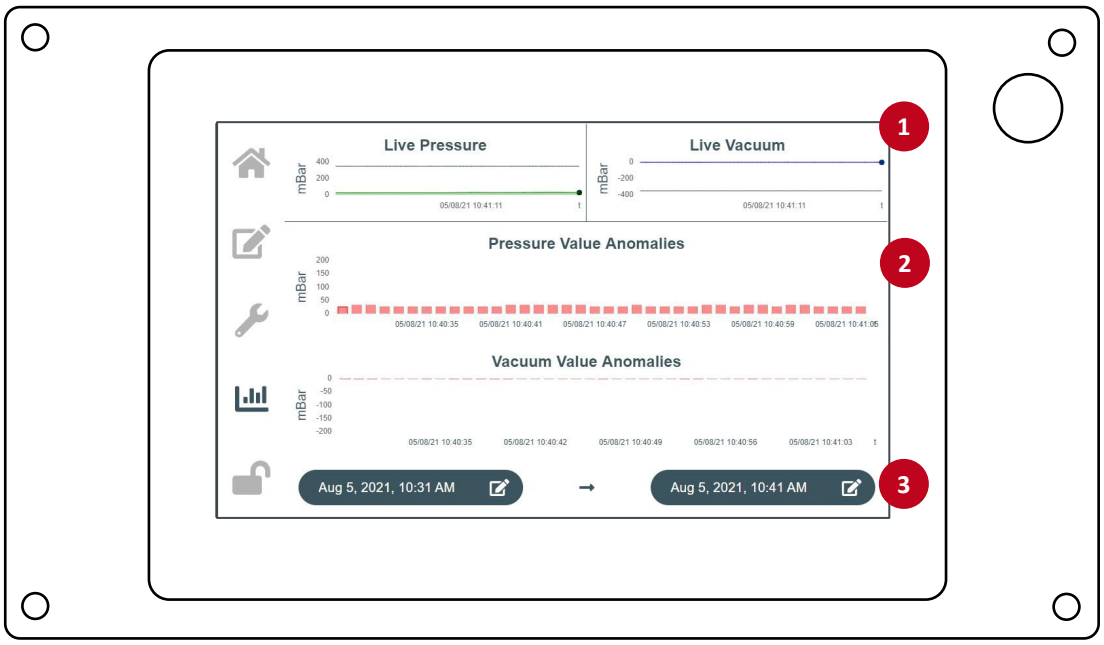
3.6 MONITORING menu



FUNCTIONS

1	**LIVE PRESSURE / LIVE VACUUM**	Displays the ten most recently measrued pressure values. The most recent value is indicated by a circle on the right side.
2	**PRESSURE VALUE ANOMALIES / VACUUM VALUE ANOMALIES**	Displays those values that deviate from the target value by more than a certain threshold. ❗ This diagram shows the measured values, not the deviation.
3	**TIME PERIOD**	Any time period can be selected to display the deviations. ❗ If a very large time period is selected, delays may occur in the software.

Warranty/Disclaimer

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