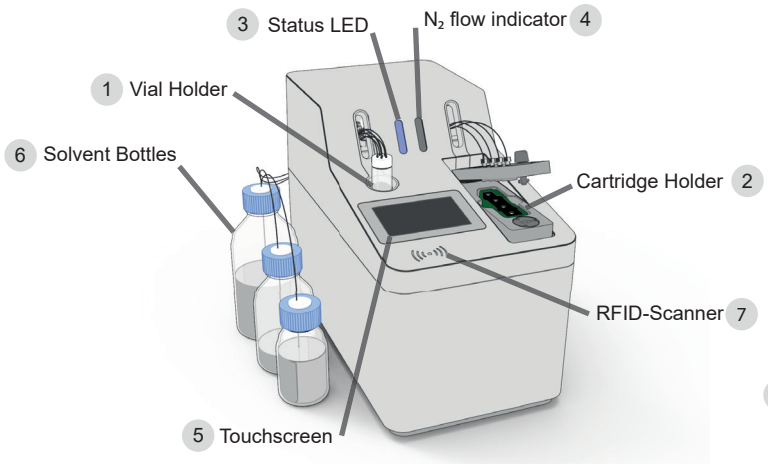
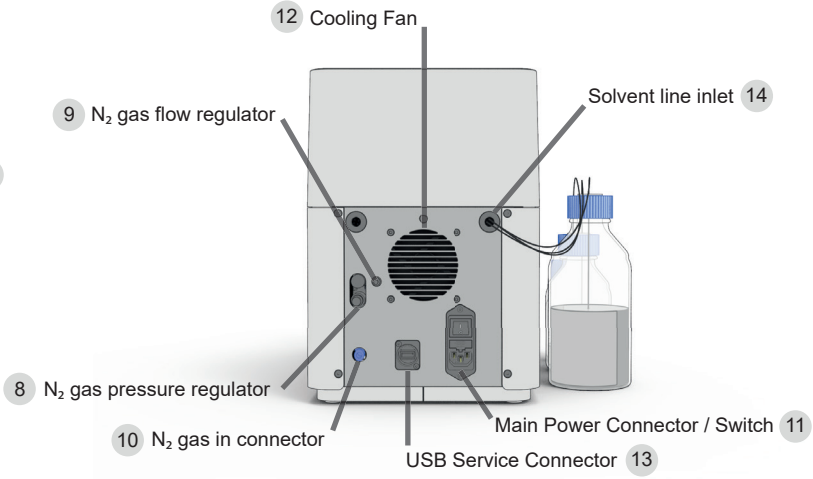
SYNPLE

Quick Start Guide





General Setup

See here for detailed setup video:

1) Unpacking

Before opening the crate, check the drop-tip indicators on the side of the box.

In case one or both has been activated during transport, please take a photograph and contact us via e-mail (info@synplechem.com).

Identify a suitable area with sufficient space to house the machine (W x D x H: 26 cm x 49 cm x 36 cm) and up to 6 solvent bottles. This space could be in a fume hood or ventilated cabinet and should include access to power and an optional nitrogen supply.

Lift the machine with caution (Weight: 13 kg) out of the crate and cardbox and place in the designated space.

2) Inventory

Remove the contents of the crate, which should the following items:

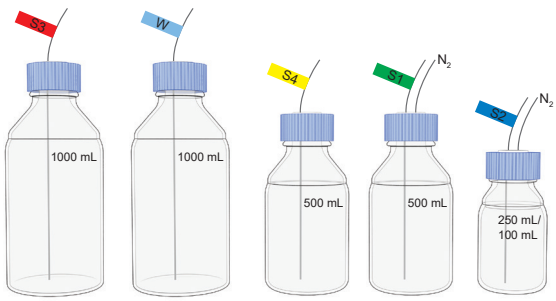
- Machine
- Power cord
- User manual
- Reaction setup cards
- N_2 line (blue) for push-in fittings
- Adapter for fume hood nitrogen outlet to “push-in fitting”
- 5 Glass laboratory bottles (1 x 100 mL, 2 x 500 mL, 2 x 1000 mL)
- 8 Vials
- 2 Reusable washing cartridges

3) Fluidic Setup

Connect the solvent bottles to the correct lines, according to the diagram on the right, by feeding the solvent line until the white luer connector through one holes in the bottle cap. The solvent line might need to be adjusted to ensure that the line reaches the bottom of the bottle. The two unlabelled lines are connected internally to the optional N_2 supply and can be inserted into the second hole of the bottle cap to keep two of the solvents under a dry intert atmosphere. We suggest using the following intial bottle configuration:

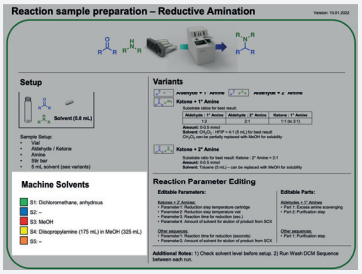
- S1: 500 mL bottle
- S2: 100 mL bottle
- S3: 1000 mL bottle
- S4: 500 mL bottle
- S5: -
- Waste: 1000 mL bottle

Alternatively these supplied bottles can be replaced by other sizes of laboratory bottles.



4) Fill solvents

Fill the solvent bottles with the required solvent for the first planned reaction according the the reaction setup cards. We recommend running the validation kit (reductive amination cartridge including two substrates) after the installation to validate the performance of the instrument.



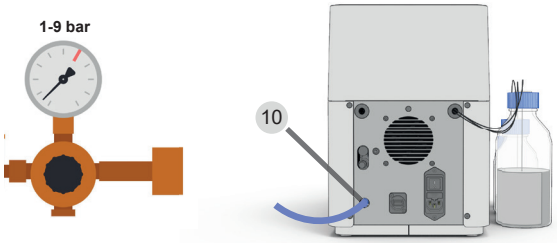
5) N_2 Gas Supply

An external dry nitrogen source can be connected to be keep the solvents and reactions under a dry nitrogen athmosphere. To obtain best results from the reactions, we recommend to always maintain a supply of nitrogen to the machine. (essential for Heterocycle Formation).

Skip to step 7 if you wish to proceed **without N_2** gas supply.

To connect the instrument make sure the external nitrogen supply is turned off. Connect one end of the blue tubing to the nitrogen supply and the other end to the instrument. If required, use the adapter to connect a standard tubing nitrogen outlet to the blue tubing.

The main intake pressure into the instrument can be 1.0-9.0 bar (recommended 1.5 bar). Now turn on the the nitrogen supply.

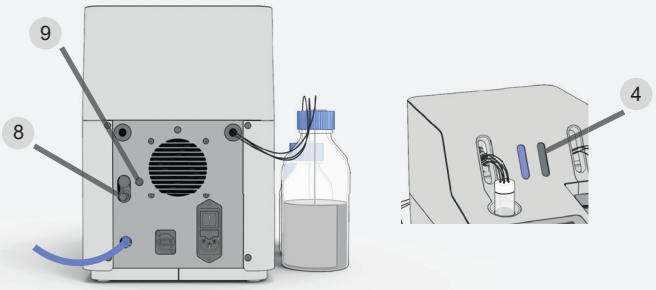


6) Flow Rate Setup

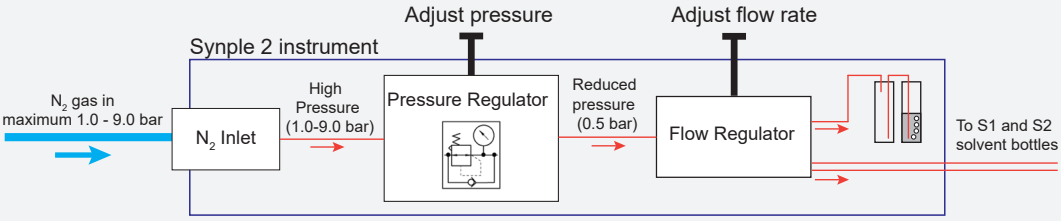
The nitrogen flow can be observed in the flow indicator (Nr 4) and is regulated by an internal pressure regulator (Nr 8) and flow regulator (Nr 9).

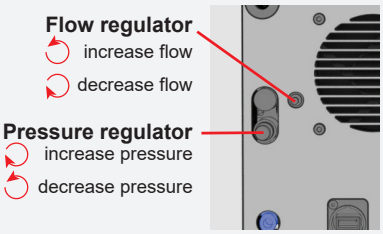
Set the correct flow rate:

a) Fully open the Synple 2 flow regulator (counter-clockwise, max. 3 revolutions).
b) Reduce the pressure on the Synple 2 pressure regulator (counter-clockwise).
c) The flow of nitrogen bubbles should stop (observable in the flow indicator window)
d) Slowly turn the Synple 2 pressure regulator clockwise until bubbles start appearing in the flow indicator.
e) The bubbling rate can now be reduced to the desired steady nitrogen stream by slowly closing the flow regulator (clockwise).



N_2 setting diagram





7) Powering up

Plug the power cord provided into the main power connector (Nr. 11) and connect to a utility power source (110-240V / 40/60Hz).

Turn on the machine with the power switch found above the main power connector (Nr 11), wait for the initialization process to be completed.

8) Run Preparation

The machine is now set up and ready to go.

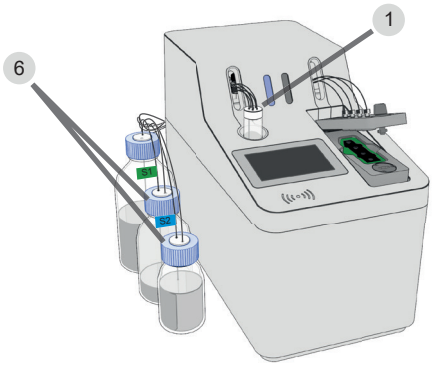
We recommoned running a washing sequence as described in the following section and running the supplied performance validation kit prior to starting a custom reaction.

Washing Sequence

1) Preparation

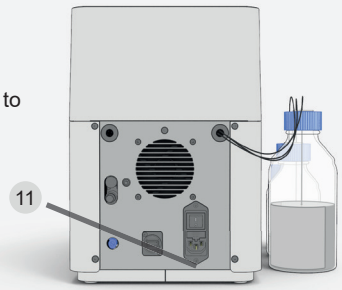
Attach an empty sample vial to the instrument (Nr. 1) and insert the vial into the sample holder. Make sure the long tubing reaches to the bottom of the vial.

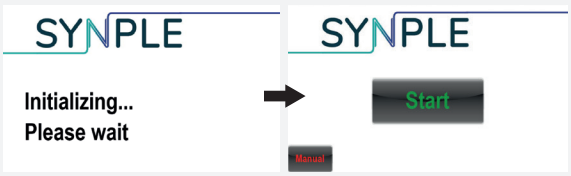
Check whether a minimum of 100 mL of solvent is available the S1 (CH_2Cl_2) or S3 (MeOH) solvent bottles depending on the planned washing sequence.



2) Powering up

Turn on the machine with the power switch found above the main power connector (Nr 11). Wait for initialization process to be completed.

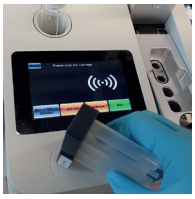




3) Setup

Scan the coloured field of the label on the reusable washing cartridge using the RFID scanner and choose the preferred washing sequence on the display's menu.

Insert the washing cartridge into the cartridge holder and turn the dial to close it.



4) Safety Check

Before the sequence can be started the machine checks, whether the cartridge is inserted and the holder is closed.

Please check, whether the solvent levels in the bottles are sufficient and press the slider. Then press "Start" to initiate the process.

5) Wash run

The washing sequence will run for approximately 15 minutes.

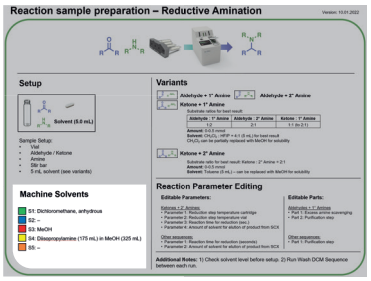
After the sequence is finished you can remove the reusable washing cartridge from the cartridge holder and start the reaction run, as described in the following section.

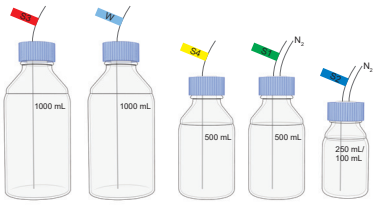
Reaction Setup

1) Solvent setup

Prepare and connect the required solvents for the selected reaction to the correct lines (minimum 100 mL for one run).

Information on what solvents are required can be found on the reactio setup card for each reaction type.

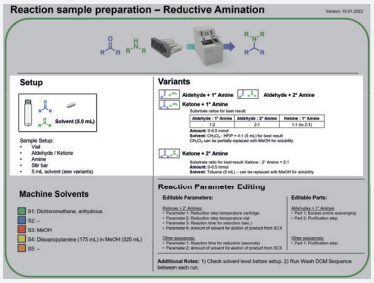


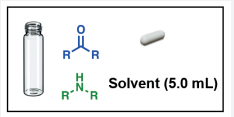


2) Prepare sample

Prepare reaction sample according to the information on the reaction setup cards.

The sample should be fully soluble in the suggested reaction solvent. Tipps for co-solvents are given in most cases.



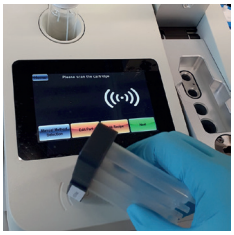


3) Prepare instrument

Attach the sample vial to the instrument and insert the vial into the sample holder. Make sure the long tubing reaches to the bottom of the vial.

On the instrument press “Start” and scan the RFID chip (on the short side of the cartridge under the label). Depending on the reaction type, the instrument might ask to select a variant of the selected reaction type.

Optional: Key parameters of the reaction can also be modified now. For information on these parameters see the setup card or application notes.



4) Insert cartrige

Insert the cartridge into the cartridge holder. Close the holder and lock it by rotating the lock 90°.

5) Safety Check

Before the reaction can be started, the machine checks whether the cartridge is inserted and the holder is closed.

Please check, whether the solvent levels in the bottles are sufficient and press the slider. Then press “Start” to initiate the reaction.

6) Reaction run

The reaction proceeds completely automated.

After the reaction, pick up the generated reaction product in solution which will be contained in the sample vial.

The instrument is now ready for the next reaction. We recommend to run a washing sequence in between runs.