

Getting started with ProSimPlus®

Case 9: Information stream

There are two types of stream used in ProSimPlus: material streams and information streams. This Getting Started document introduces the use of **information stream**, which is a key functionality that enhances the robustness and flexibility of simulation models. Information streams have four essential purposes:

Context

Introduction

Data transfer

1

"SPEC"

2

"MANI"

3

Calculation sequence

4

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1

Transferring data
between unit
operations

2

Defining process
specifications through
the constraints and
recycles module ("SPEC")

3

Manipulate data and results
through arithmetic operations,
using the information stream
operator ("MANI")

4

Imposing a specific
Calculation sequence
to control the order of
the units calculation

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Together, these features support the development of consistent, flexible, and realistic simulations, particularly in complex or highly integrated flowsheets.

Summary of this Getting Started:

- Overview of the example

- Implementation of following applications:

1

Configuration of the information stream for data transfer between two process units

2

Configuration of process specifications (using the "SPEC" module)

3

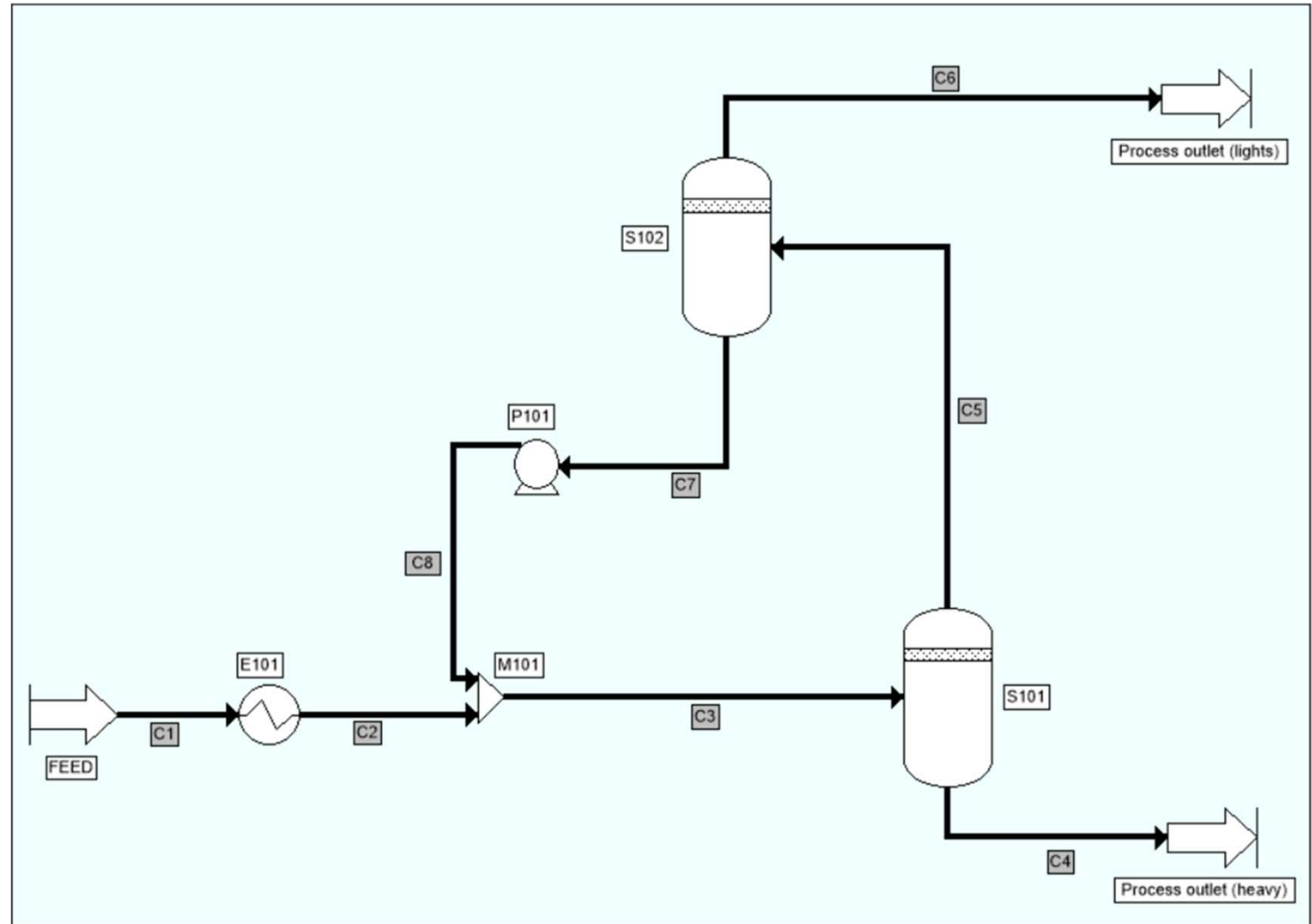
Setting up stream calculations (using the "MANI" module)

4

Imposing a calculation sequence between two process units

Presentation of Example

The example used in this Getting Started involves separating a hydrocarbon mixture into light and heavy components.



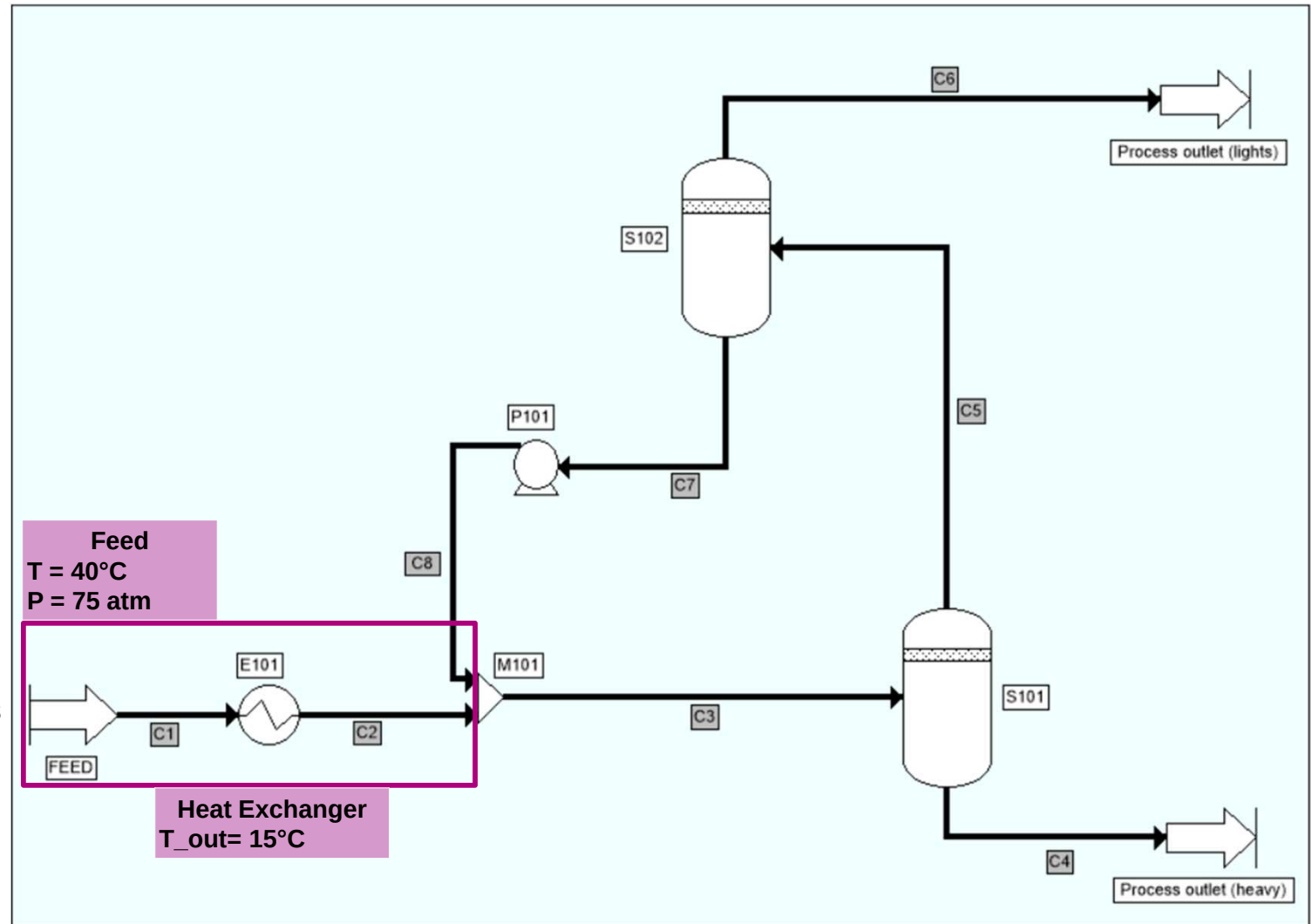
Presentation of Example

The example used in this Getting Started involves separating a hydrocarbon mixture into light and heavy components.



It is located in the ProSimPlus examples directory under the file name '*PSPS_EX_EN-Simple-Example*'

Initial feeding & cooling:
Hydrocarbon mixture (C1) is cooled to 15°C (C2).

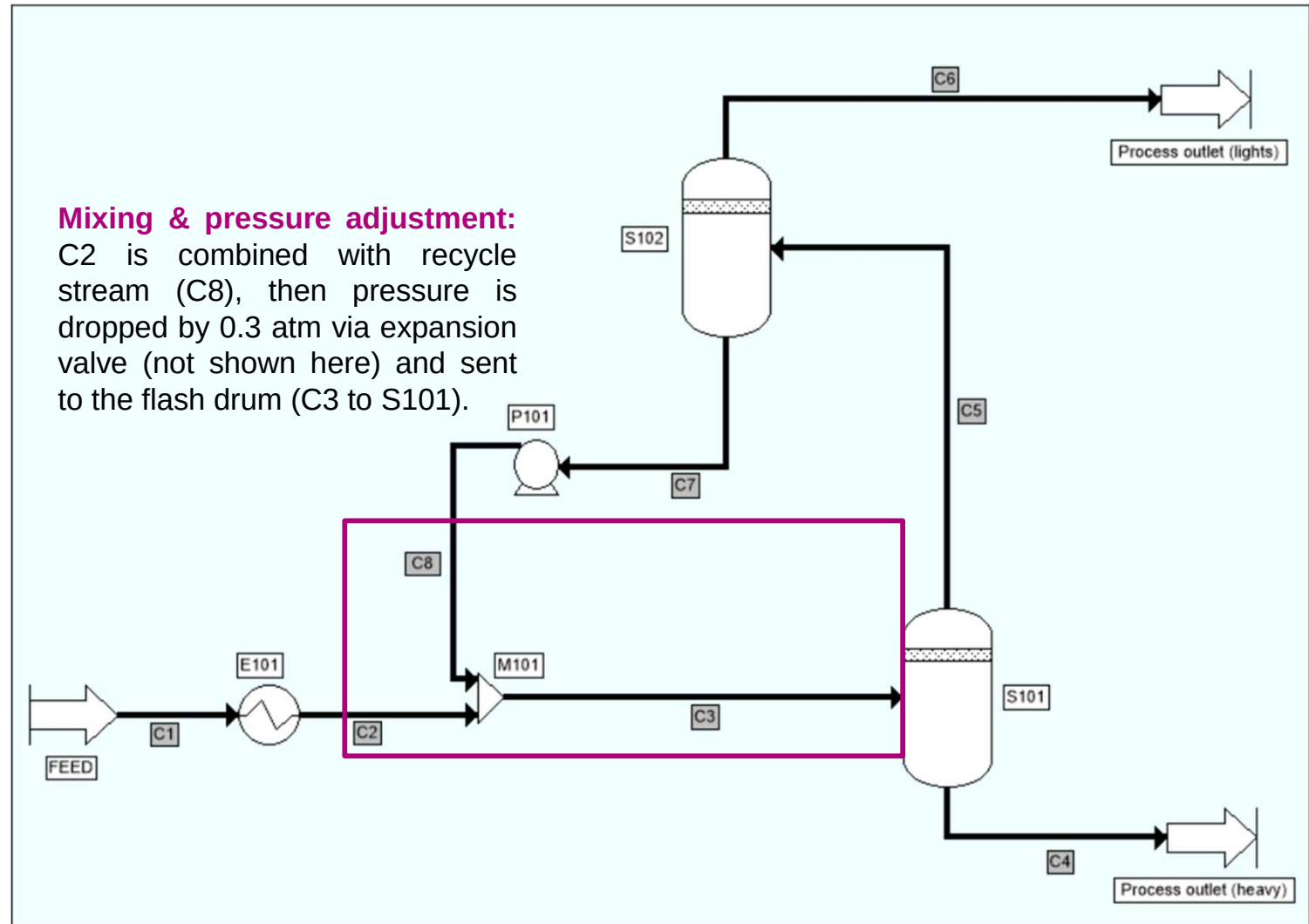


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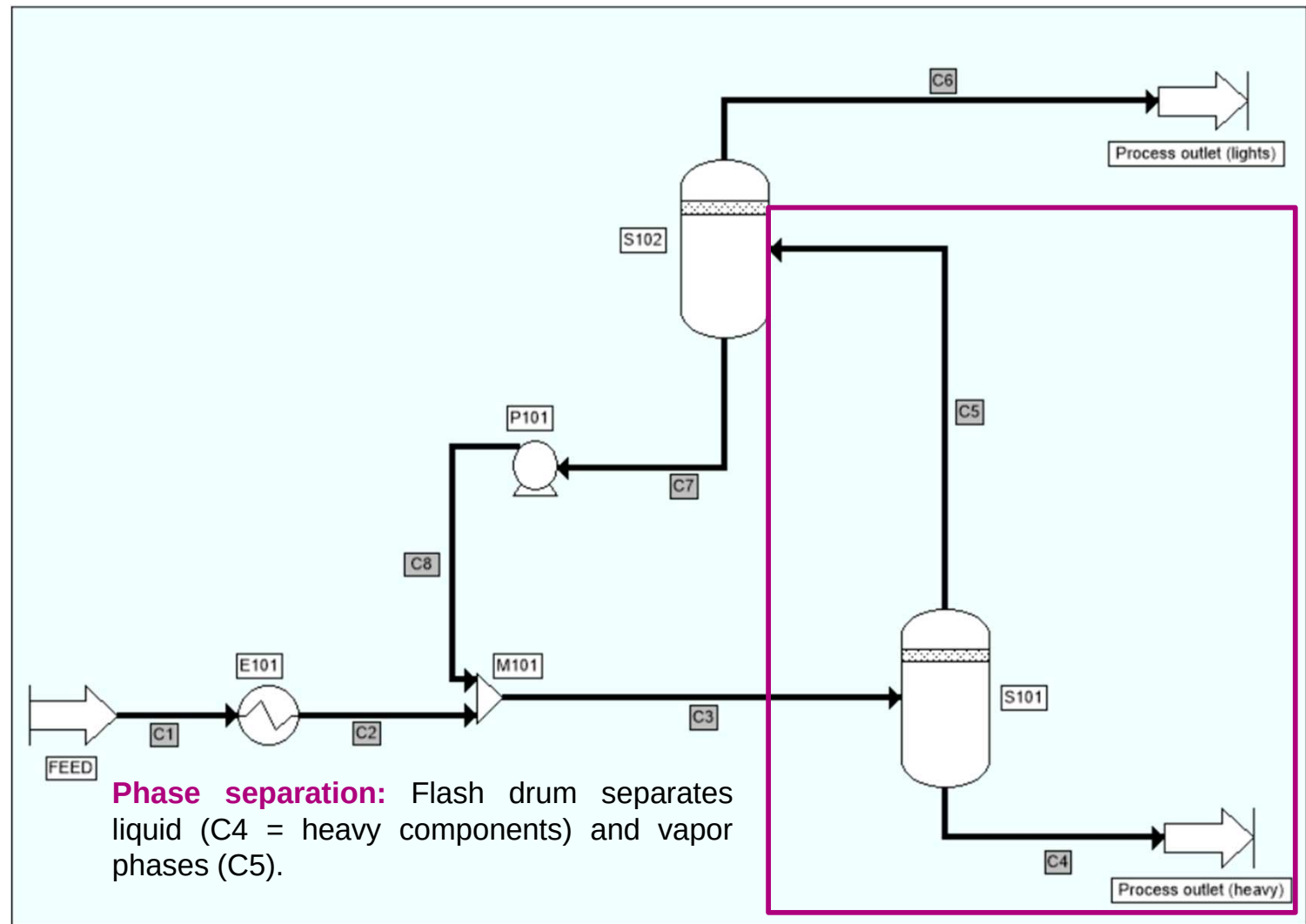


Presentation of Example

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Presentation of Example

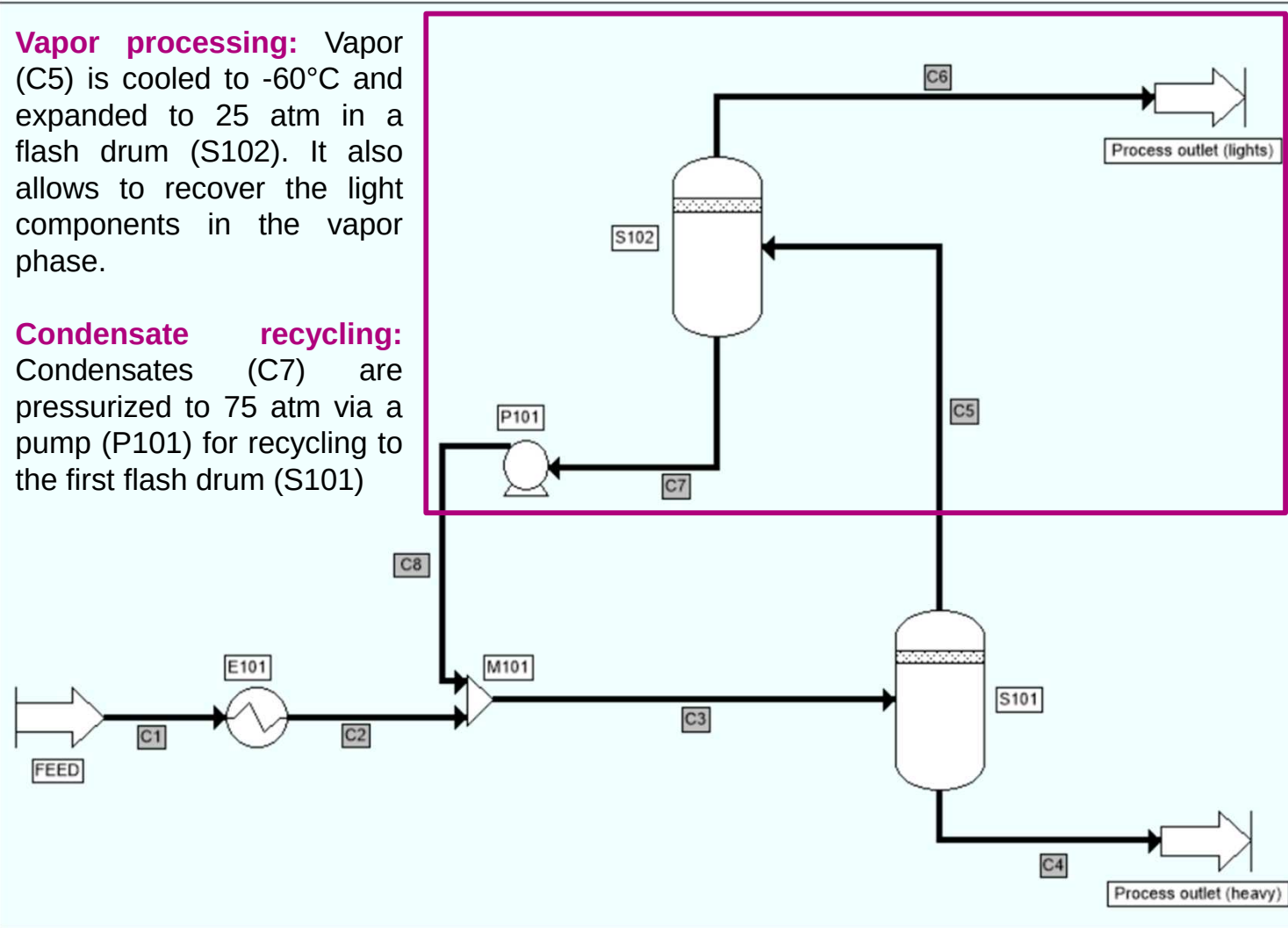
The example used in this Getting Started involves separating a hydrocarbon mixture into light and heavy components.



It is located in the ProSimPlus examples directory under the file name '*PSPS_EX_EN-Simple-Example*'

Vapor processing: Vapor (C5) is cooled to -60°C and expanded to 25 atm in a flash drum (S102). It also allows to recover the light components in the vapor phase.

Condensate recycling: Condensates (C7) are pressurized to 75 atm via a pump (P101) for recycling to the first flash drum (S101)



Presentation of Example

The example used in this Getting Started involves separating a hydrocarbon mixture into light and heavy components.

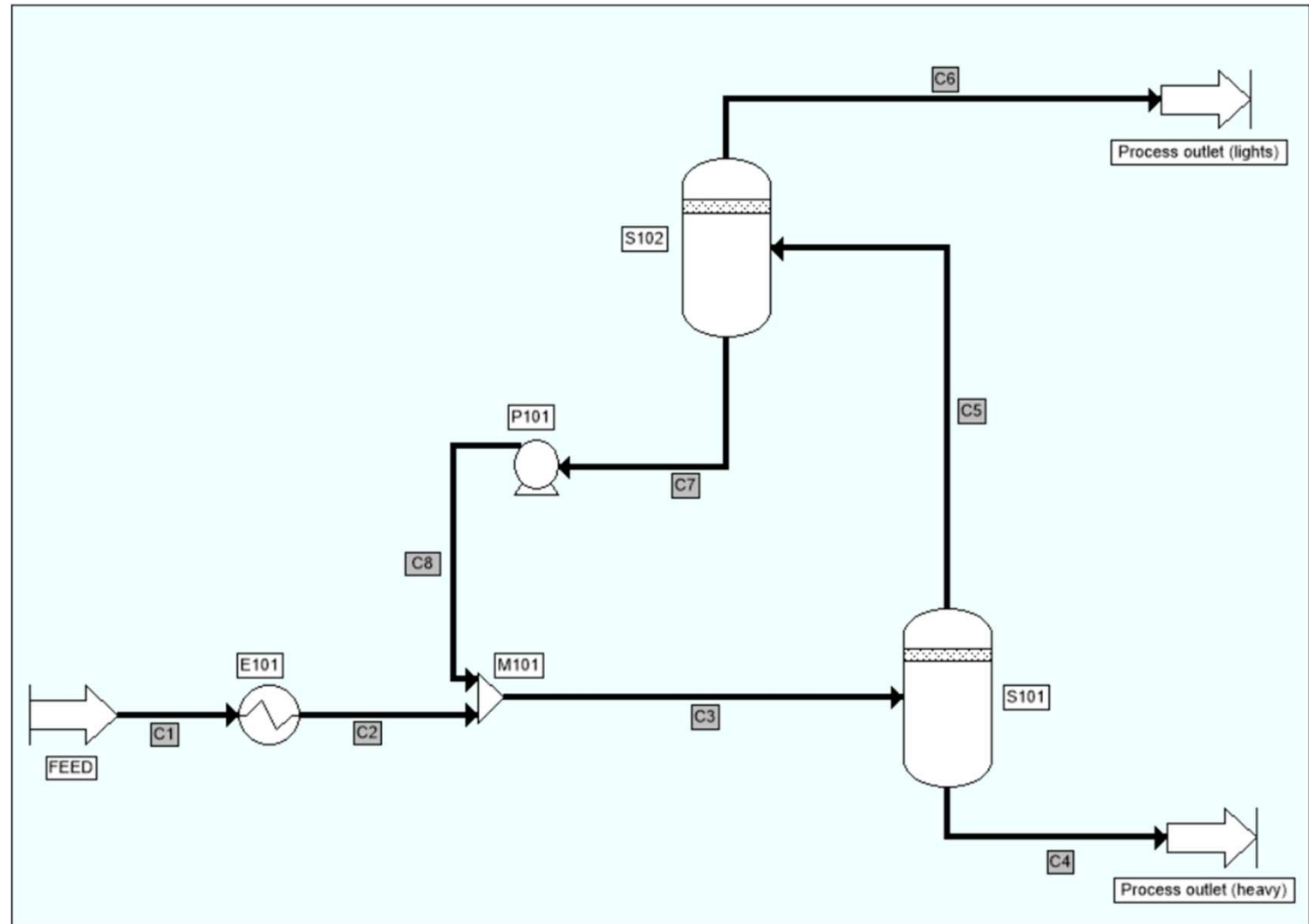


It is located in the ProSimPlus examples directory under the file name '*PSPS_EX_EN-Simple-Example*'

All the details for the *Simple-Example* have been provided, so at this point no additional input is required from the user



Before making any modifications, the simulation can be run to analyze the results



Presentation of Example

The example used in this Getting Started involves separating a hydrocarbon mixture into light and heavy components.



It is located in the ProSimPlus examples directory under the file name '*PSPS_EX_EN-Simple-Example*'

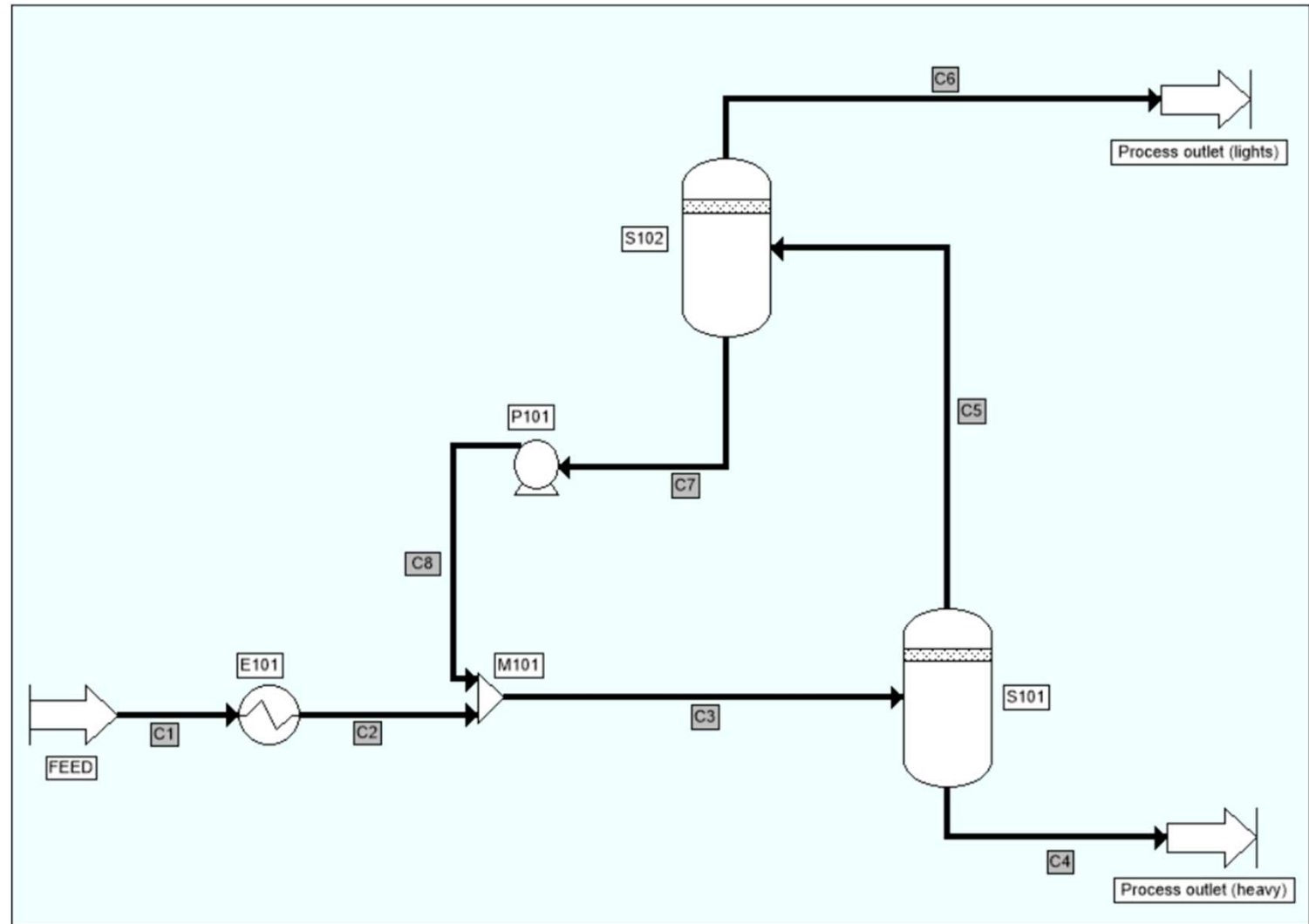
! IMPORTANT

Streams notation

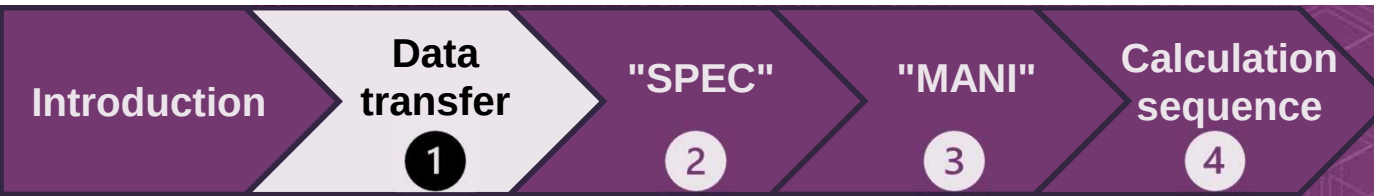
Information stream



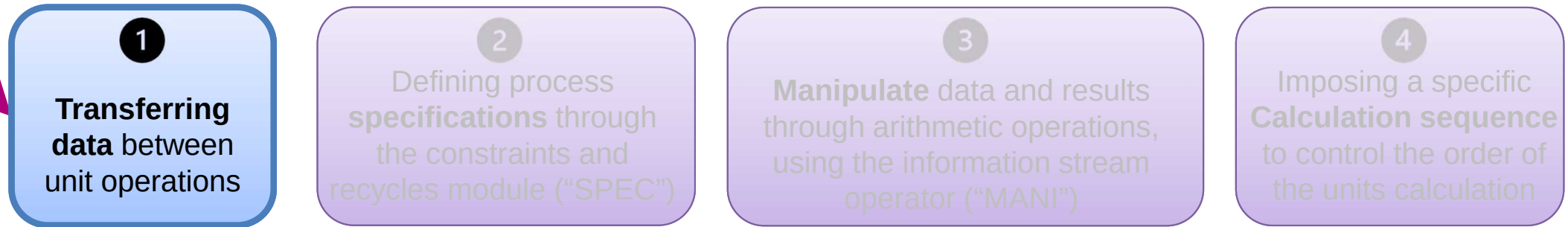
Material stream



Concept



Transferring data: Let's do it!



**This feature allows to transfer data
(input data or results)
between unit operations**

Concept

Introduction

Data transfer

1

"SPEC"

2

"MANI"

3

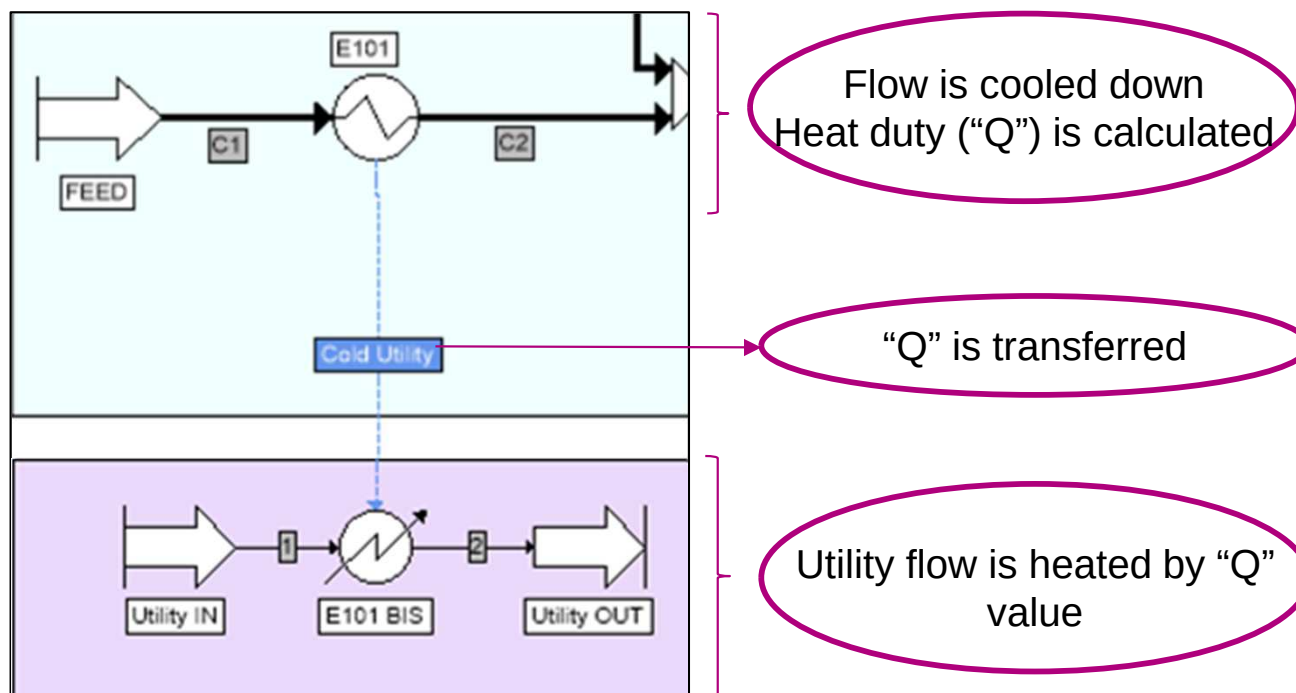
Calculation sequence

4

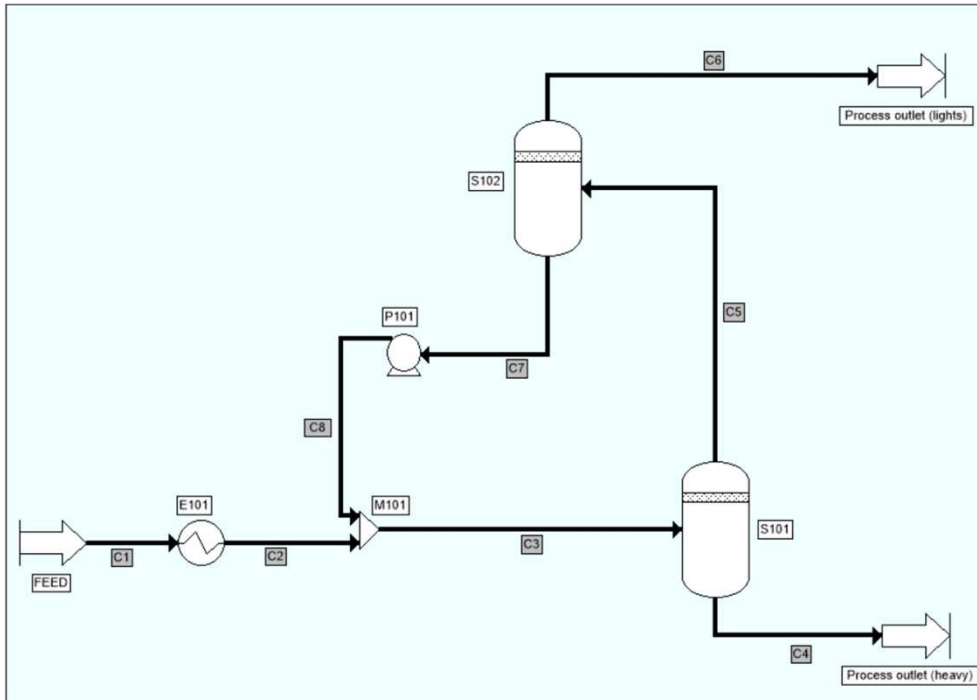
Objectives of the application example:

When simulating utilities, it is convenient to distinguish the process and utility sections. This approach allows to facilitate the understanding and convergence of the simulation model.

The information stream allows to transfer the heat duty value (Q), from the process section to the utility section.



Let's apply this on our simple example!



Practical Example

Introduction

Data transfer

1

"SPEC"

2

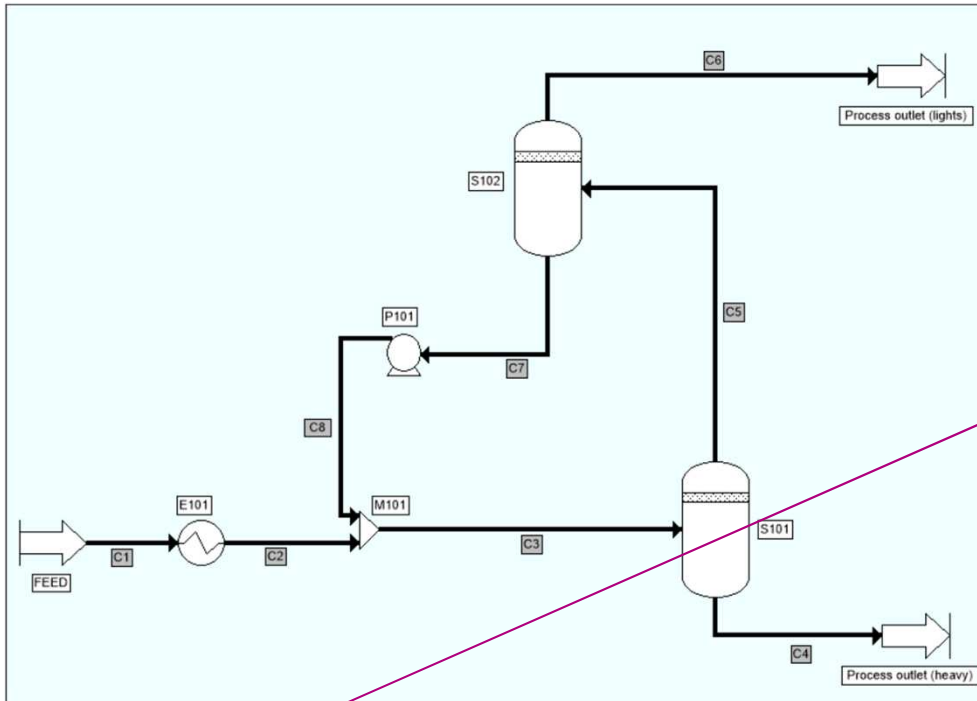
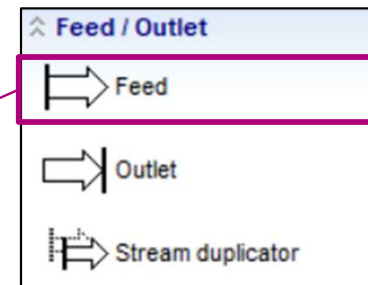
"MANI"

3

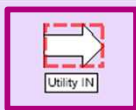
Calculation sequence

4

- ① Insertion of feed ("Utility IN"), outlet ("Utility OUT") and the Heat duty controller ("E101 BIS") in the flowsheet



A



Practical Example

Introduction

Data transfer

1

"SPEC"

2

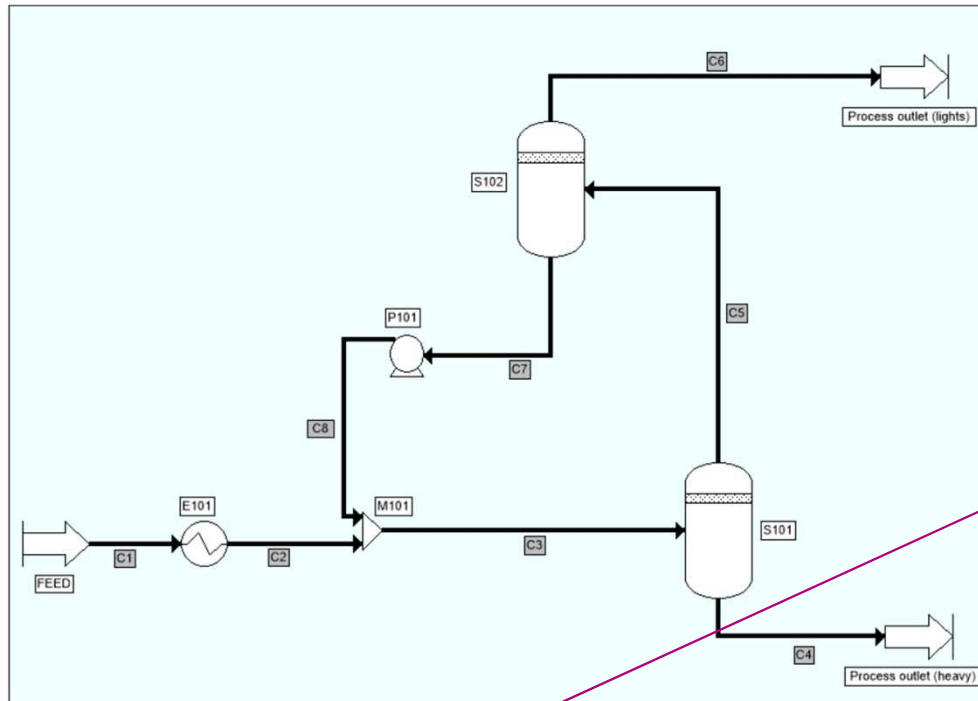
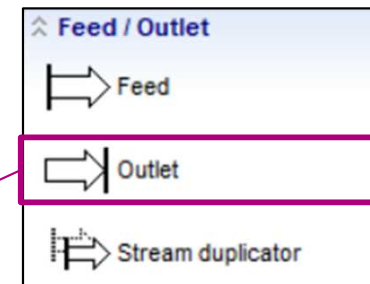
"MANI"

3

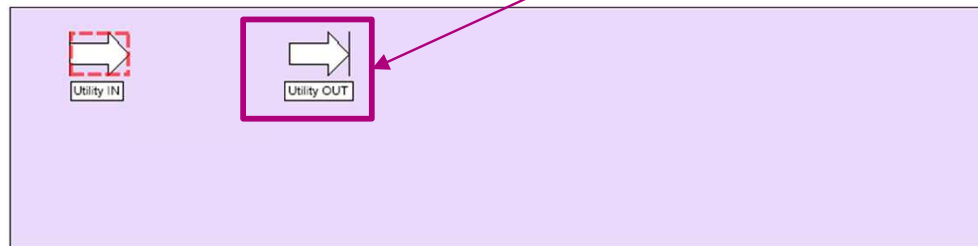
Calculation sequence

4

- ① Insertion of feed ("Utility IN"), outlet ("Utility OUT") and the Heat duty controller ("E101 BIS") in the flowsheet



B



Practical Example

Introduction

Data transfer

1

"SPEC"

2

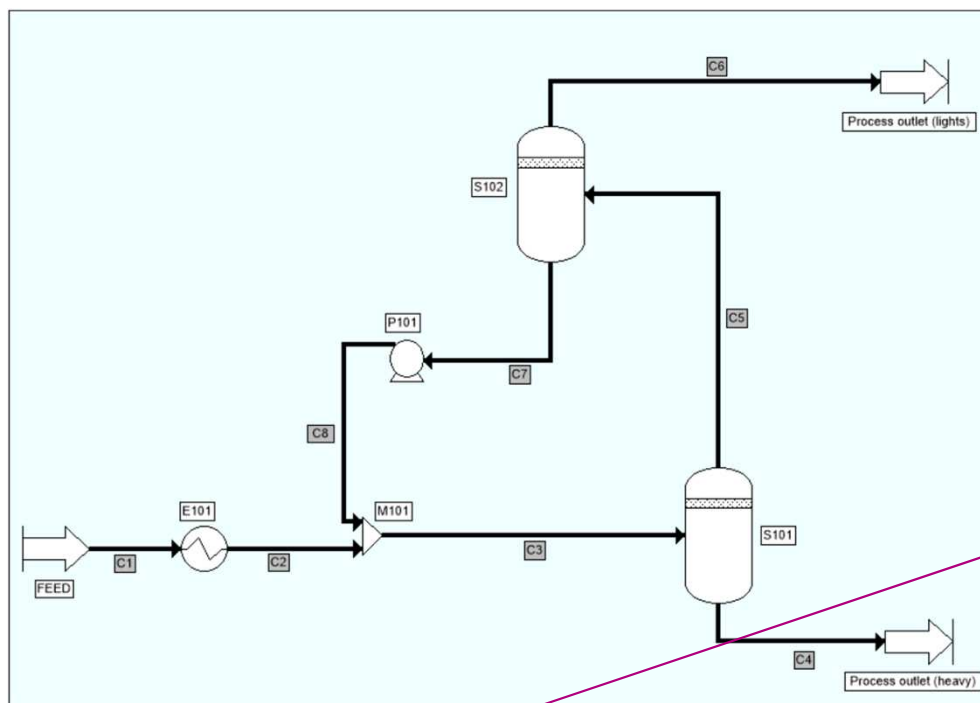
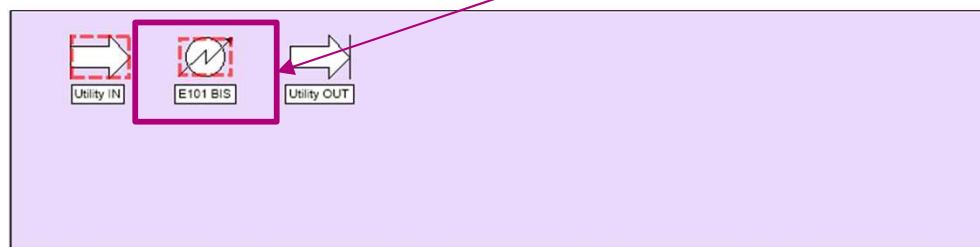
"MANI"

3

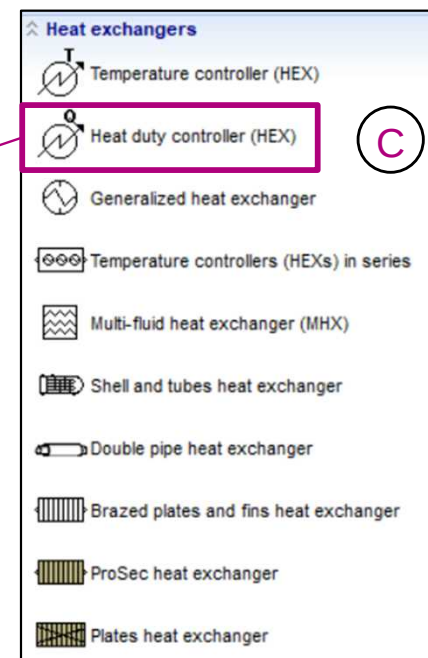
Calculation sequence

4

- ① Insertion of feed ("Utility IN"), outlet ("Utility OUT") and the Heat duty controller ("E101 BIS") in the flowsheet



The visuals of the E101 and E101 bis heat exchangers have been modified via the "Visuals" functionality accessible with a right click on the unit operation



Practical Example

Introduction

Data transfer

1

"SPEC"

2

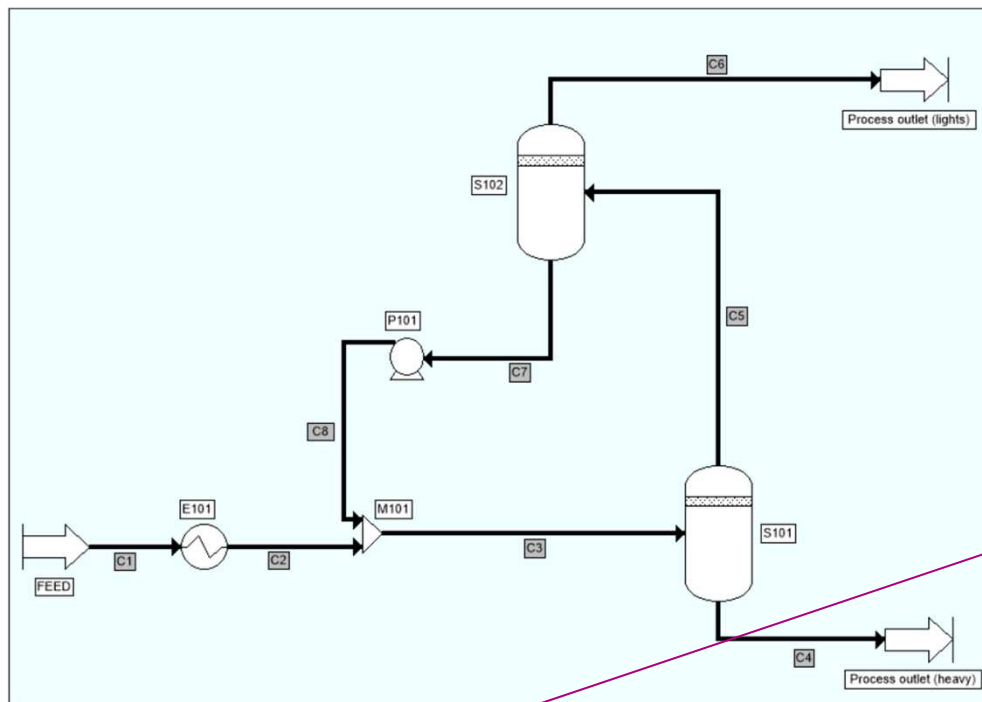
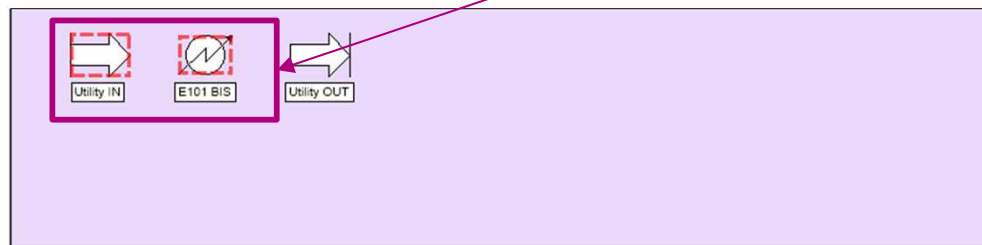
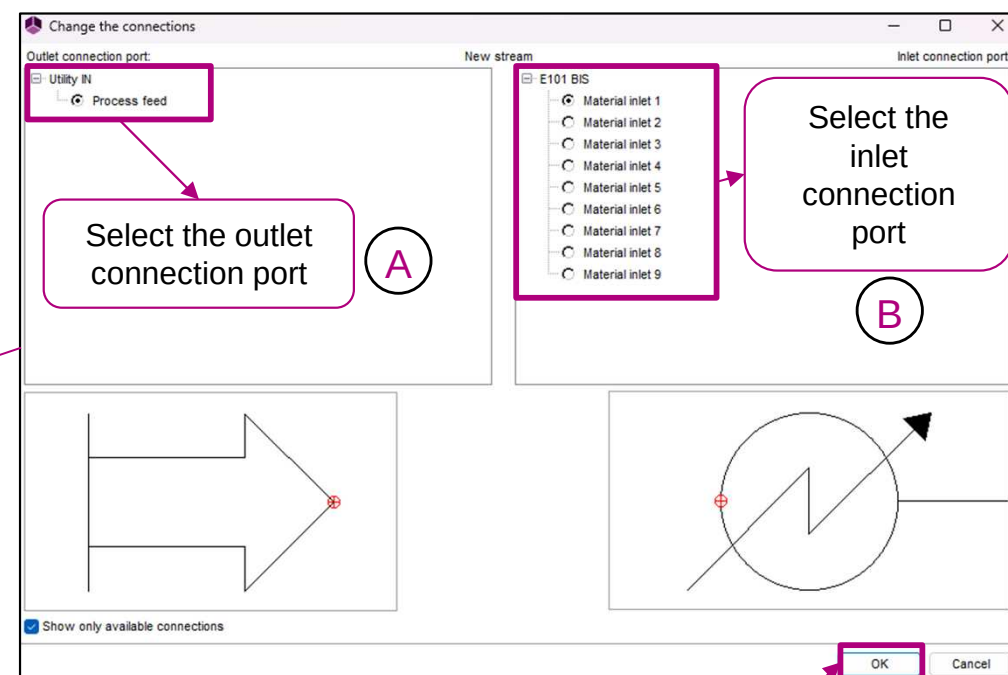
"MANI"

3

Calculation sequence

4

2 Connect the feed ("Utility IN") to the Heat duty controller ("E101 BIS")



Select the outlet connection port

A

Select the inlet connection port

B

Click on "OK" to save the data

C

Practical Example

Introduction

Data transfer

1

"SPEC"

2

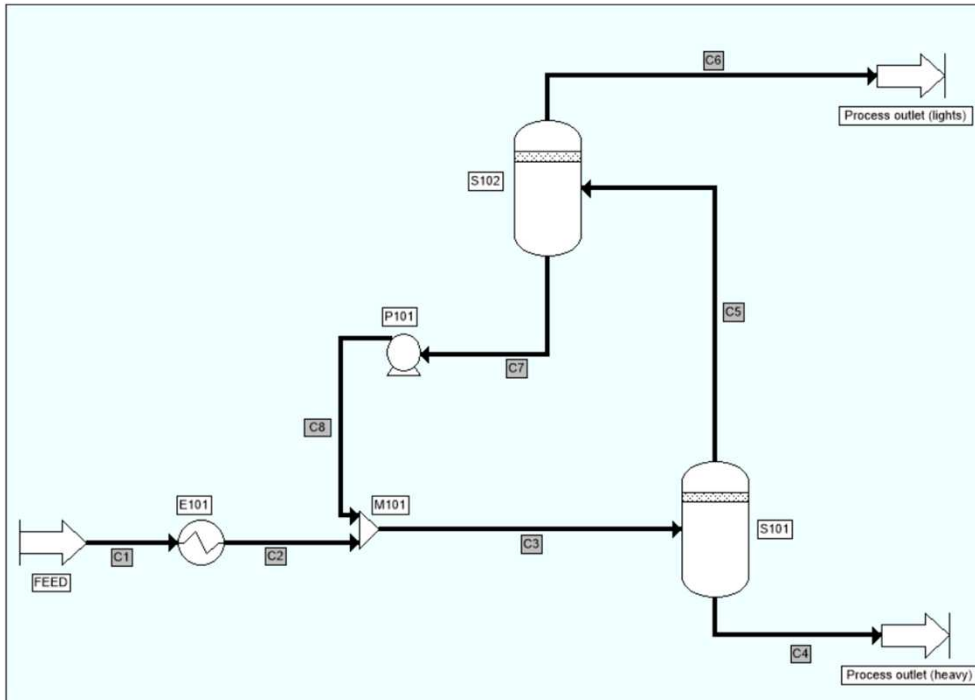
"MANI"

3

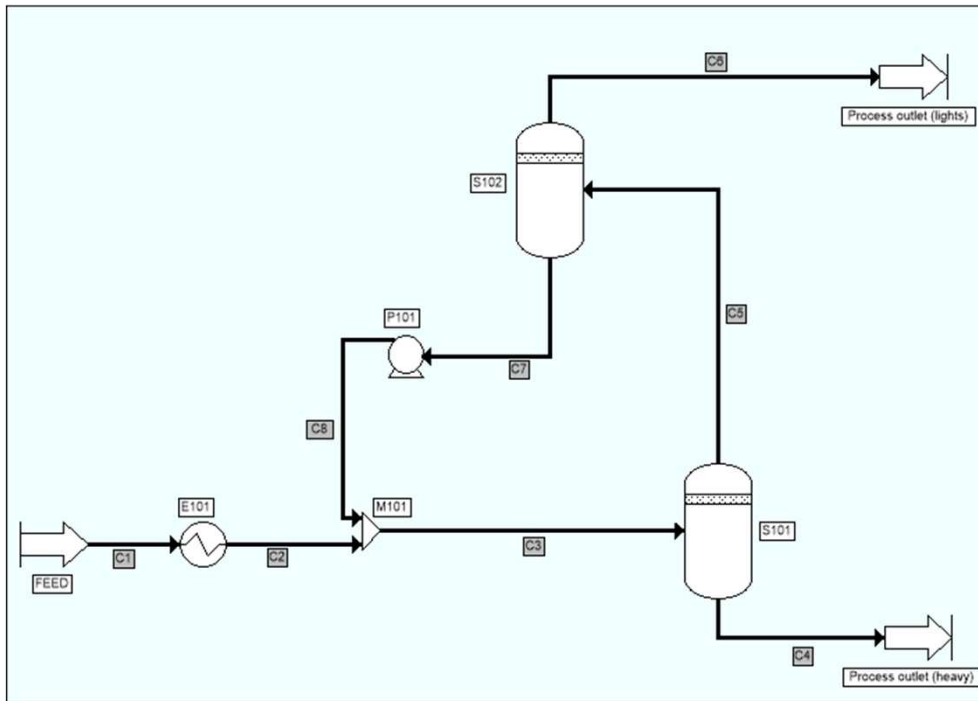
Calculation sequence

4

- 3 Connect the Heat duty controller ("E101 BIS") to the outlet ("Utility OUT")



4 Specify feed ("Utility IN") parameters



A

Create a new calculator  dedicated to the utility fluid (water+ ethylene glycol)

For more detailed steps [click here](#)

Practical Example

Introduction

Data transfer

1

"SPEC"

2

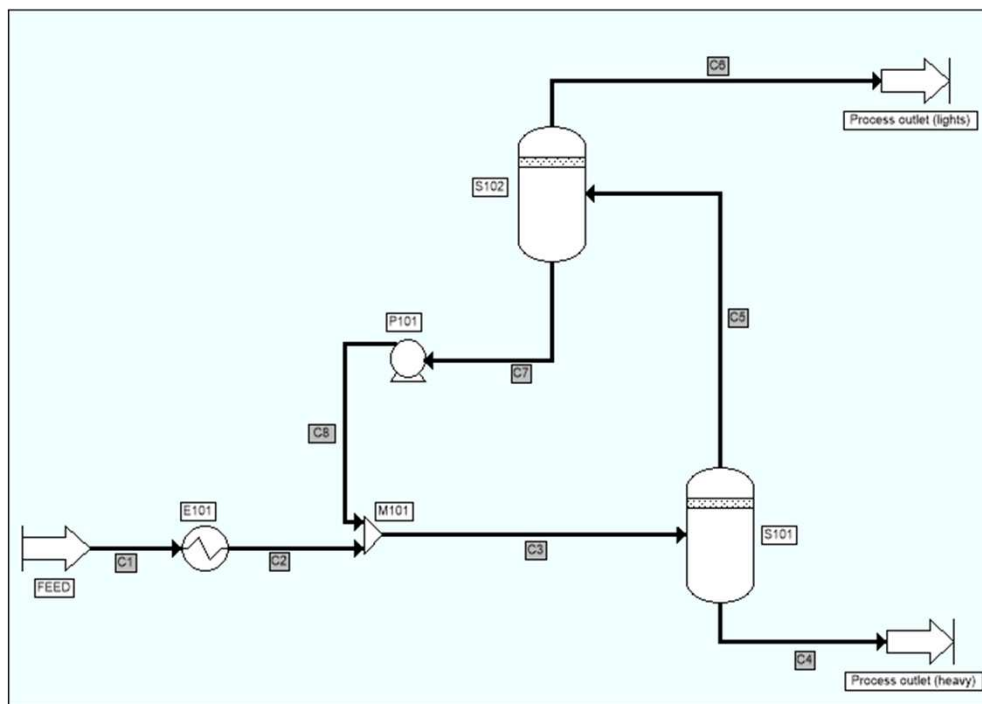
"MANI"

3

Calculation sequence

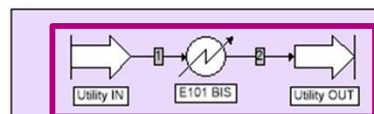
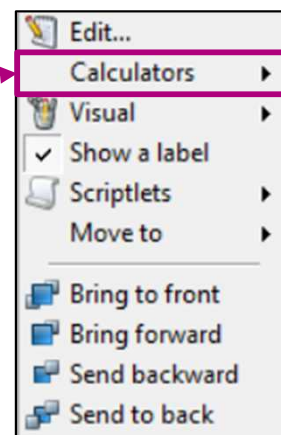
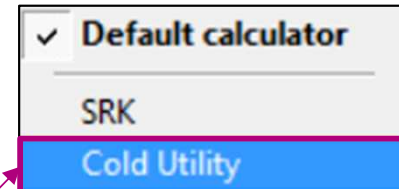
4

4 Specify feed ("Utility IN") parameters



Select all the modules included in the utility section, right-click, and then select the "cold utility" calculator

B



Practical Example

Introduction

Data transfer

1

"SPEC"

2

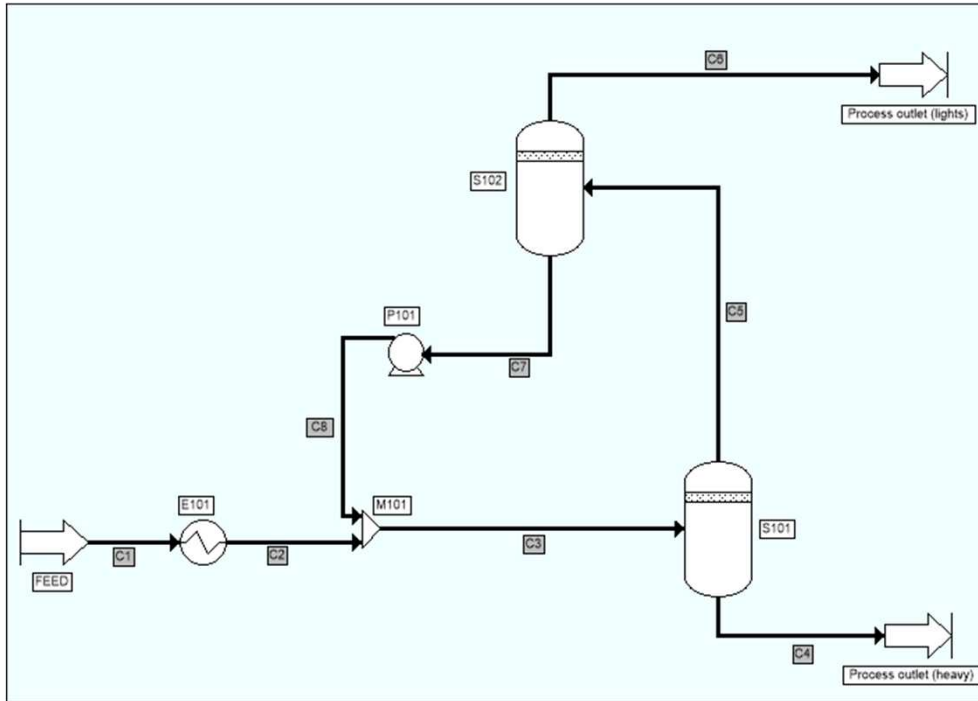
"MANI"

3

Calculation sequence

4

4 Specify feed ("Utility IN") parameters



Feed (\$ALIM3)

Name: Utility IN

Desc:

Identification Parameters Scripts Report Streams Notes Advanced parameters

Copy Paste

Flowrates and fractions Thermal state Options

Flowrate specification

Mass fractions

Partial mass flowrates

Mass fractions

Partial molar flowrates

Mole fractions

#	Components	
8	n-HEPTANE	
9	n-OCTANE	0
10	WATER	0,7
11	ETHYLENE GLYCOL	0,3

Sum: 1,0000 1 - sum: 0,0000

Total flowrate Mass flowrate

Total mass flowrate 10 t/h

Humidity Not specified

Data link:

OK Cancel

Double click on the feed ("Utility IN")

Select mass fraction as the flowrate specification

Practical Example

Introduction

Data transfer

1

"SPEC"

2

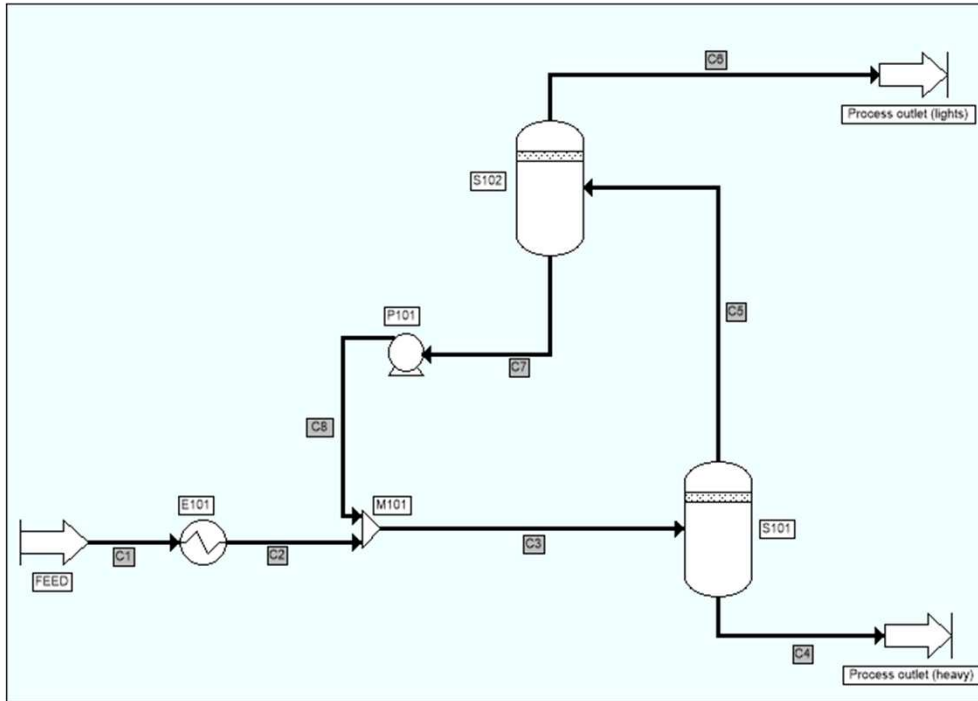
"MANI"

3

Calculation sequence

4

4 Specify feed ("Utility IN") parameters



Feed (\$ALIM3)

Name: Utility IN

Desc:

Identification Parameters Scripts Report Streams Notes Advanced parameters

Copy Paste

Flowrates and fractions Thermal state Options

Flowrate specification Mass fractions

#	Components	Mass fractions
8	n-HEPTANE	0
9	n-OCTANE	0
10	WATER	0,7
11	ETHYLENE GLYCOL	0,3

Sum: 1,0000 1 - sum: 0,0000

Total flowrate Mass flowrate

Total mass flowrate 10 t/h

Humidity Not specified

Data link:

OK Cancel

E

Provide the mass fraction:

- Water: 0.7
- Ethylene glycol: 0.3

Practical Example

Introduction

Data transfer

1

"SPEC"

2

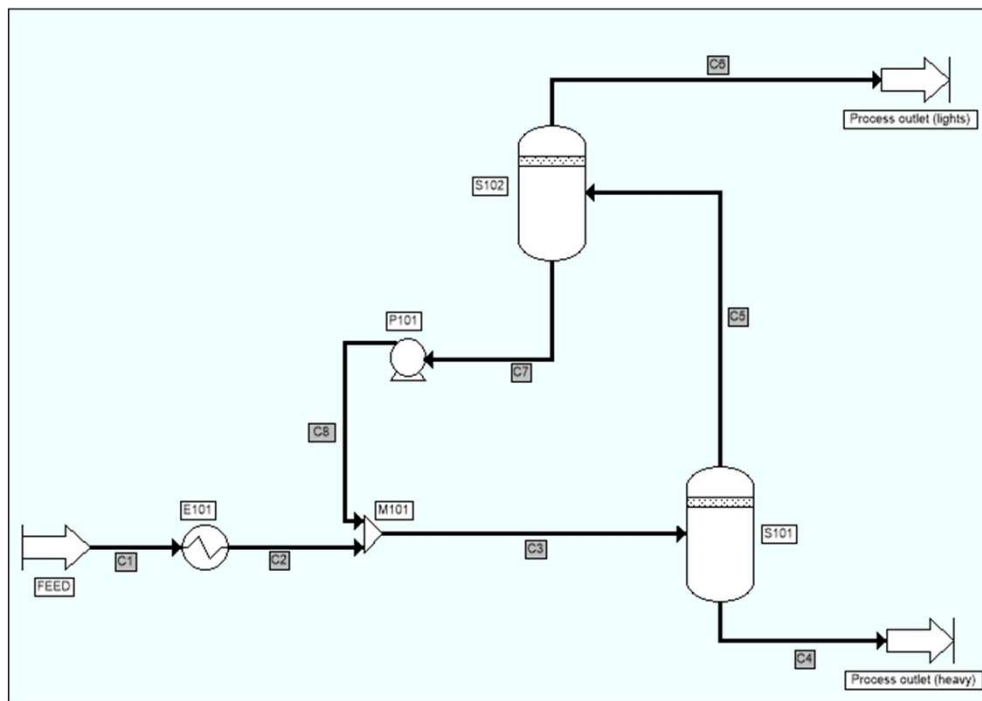
"MANI"

3

Calculation sequence

4

4 Specify feed ("Utility IN") parameters



Feed (\$ALIM3)

Name: Utility IN

Desc:

Identification Parameters Scripts Report Streams Notes Advanced parameters

Copy Paste

Flowrates and fractions Thermal state Options

Flowrate specification Mass fractions

#	Components	Mass fractions
8	n-HEPTANE	0
9	n-OCTANE	0
10	WATER	0,7
11	ETHYLENE GLYCOL	0,3

Sum: 1,0000 1 - sum: 0,0000

Total flowrate

Total mass flowrate

Humidity

Data link:

OK Cancel

F

Select total flowrate as mass flowrate

Practical Example

Introduction

Data transfer

1

"SPEC"

2

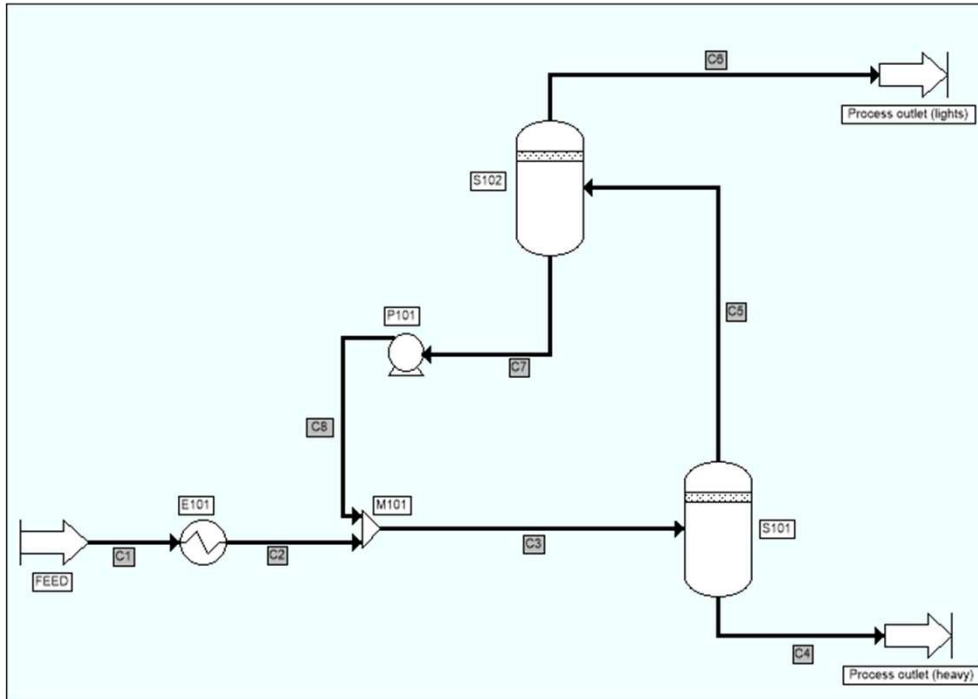
"MANI"

3

Calculation sequence

4

4 Specify feed ("Utility IN") parameters



Feed (\$ALIM3)

Name: Utility IN

Desc:

Identification Parameters Scripts Report Streams Notes Advanced parameters

Copy Paste

Flowrates and fractions Thermal state Options

Flowrate specification Mass fractions

#	Components	Mass fractions
8	n-HEPTANE	0
9	n-OCTANE	0
10	WATER	0,7
11	ETHYLENE GLYCOL	0,3

Sum: 1,0000 1 - sum: 0,0000

Total flowrate Mass flowrate

Total mass flowrate 10 t/h

Humidity Not specified

Data link:

OK Cancel

Specify the total mass flowrate: 10 t/h

Practical Example

Introduction

Data transfer

1

"SPEC"

2

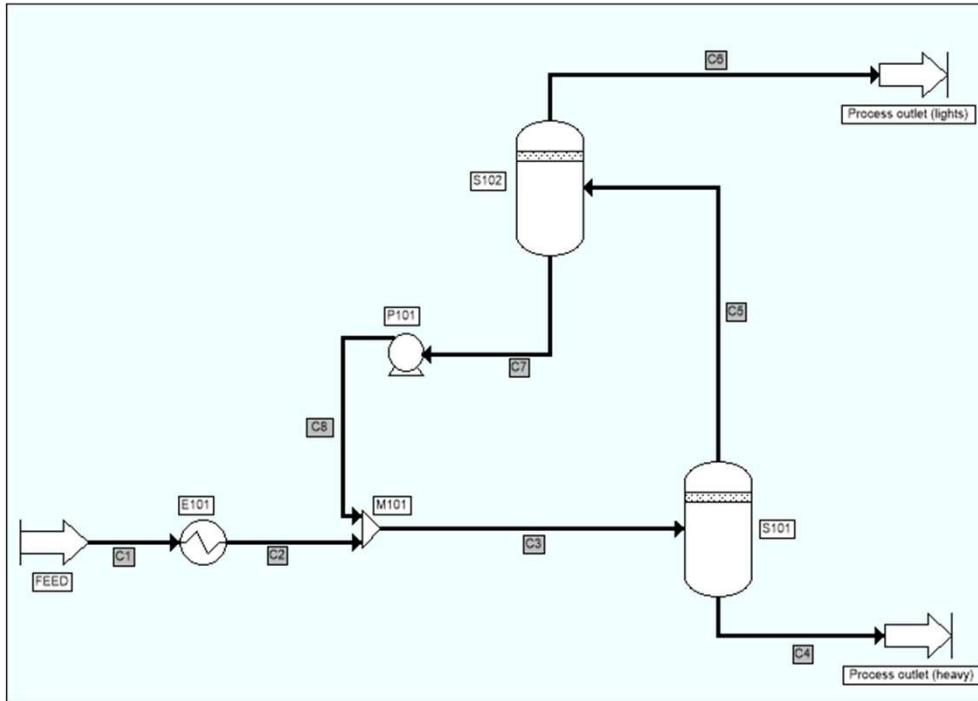
"MANI"

3

Calculation sequence

4

4 Specify feed ("Utility IN") parameters



Feed (\$ALIM3)

Name: Utility IN

Desc:

Identification Parameters Scripts Report Streams Notes Advanced parameters

Copy Paste

Flowrates and fractions Thermal state Options

Data type

- Temperature and pressure
- Temperature and pressure
- Temperature and vapor fraction
- Pressure and vapor fraction
- Pressure and enthalpy
- Dew point temperature at specified pressure

Temperature 5 °C

Pressure specification

- Supplied
- Bubble point pressure at specified temperature
- Dew point pressure at specified temperature

Pressure 1 atm

Data link:

OK Cancel

H

Select the data type:
temperature and
pressure

Practical Example

Introduction

Data transfer

1

"SPEC"

2

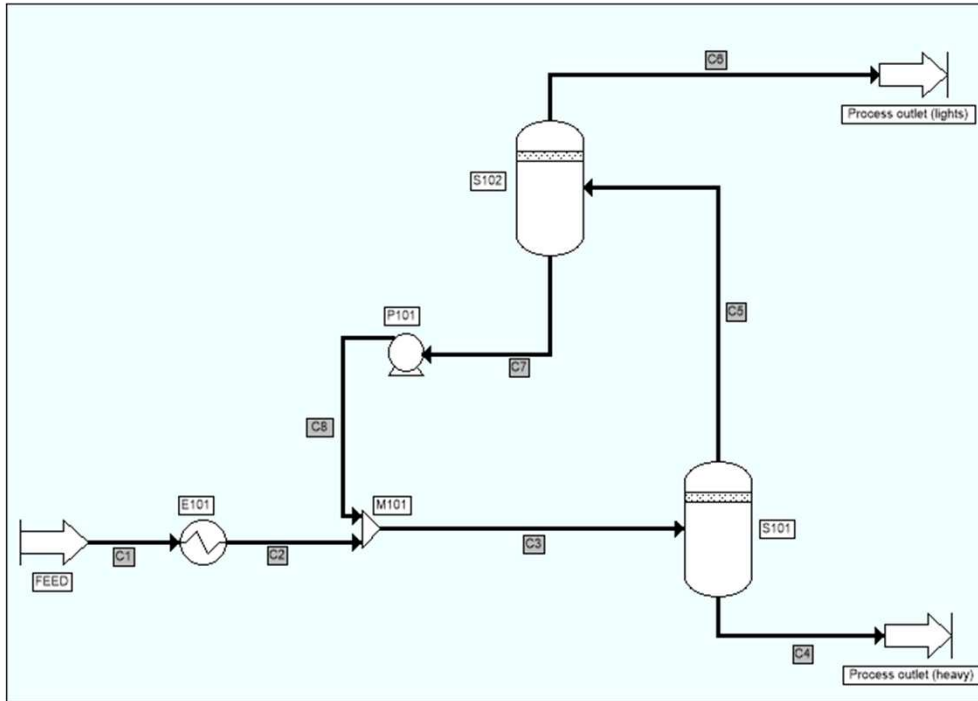
"MANI"

3

Calculation sequence

4

4 Specify feed ("Utility IN") parameters



Feed (\$ALIM3)

Name: Utility IN

Desc:

Identification Parameters Scripts Report Streams Notes Advanced parameters

Copy Paste

Flowrates and fractions Thermal state Options

Data type
Temperature and pressure

Temperature specification

- ☒ Supplied
- ☐ Bubble point temperature at specified pressure
- ☐ Dew point temperature at specified pressure

Temperature 5 °C

Pressure specification

- ☒ Supplied
- ☐ Bubble point pressure at specified temperature
- ☐ Dew point pressure at specified temperature

Pressure 1 atm

Data link:

OK Cancel

I
Supply the temperature: 5°C

J
Supply the pressure: 1 atm

K
Click on "OK" to save the information

Practical Example

Introduction

Data transfer

1

"SPEC"

2

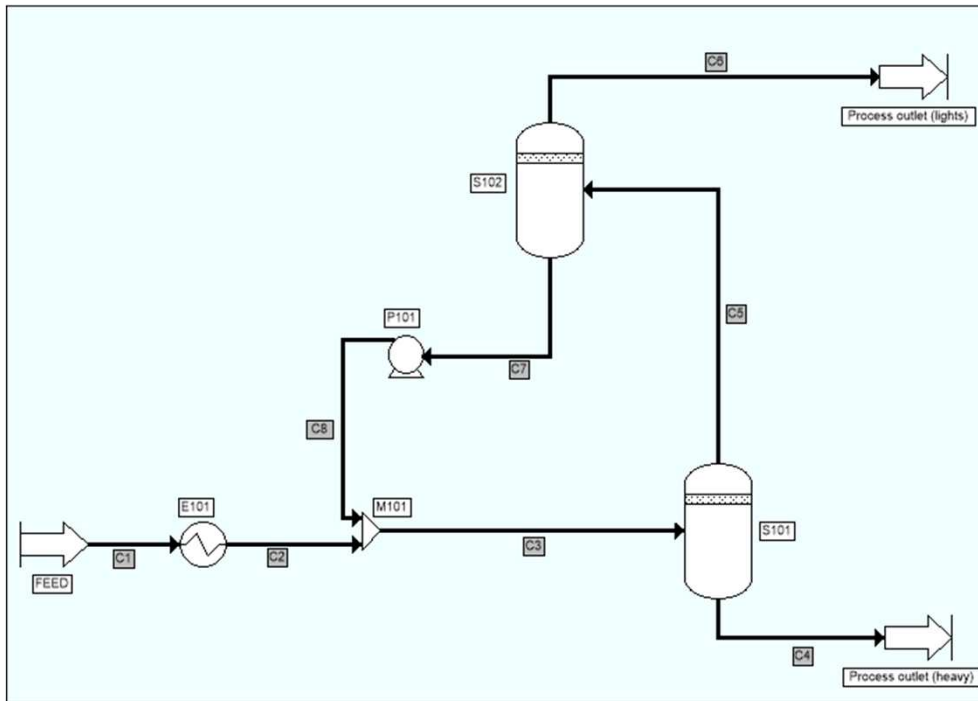
"MANI"

3

Calculation sequence

4

5 Specify Heat duty controller ("E101 BIS") parameters



Simple heat exchanger (\$SECH)

Name: E101 BIS

Desc:

Identification Parameters Scripts Report Streams Notes Ac

Specifications

Heat duty 0 kcal/h
(Negative value for heating, positive for cooling)

Pressure drop 0 atm

☐ Tabulation $T = f(Q)$

Number of points to be calculated 10

Flash type T - P

☐ Utility

Edit the utility

OK Cancel

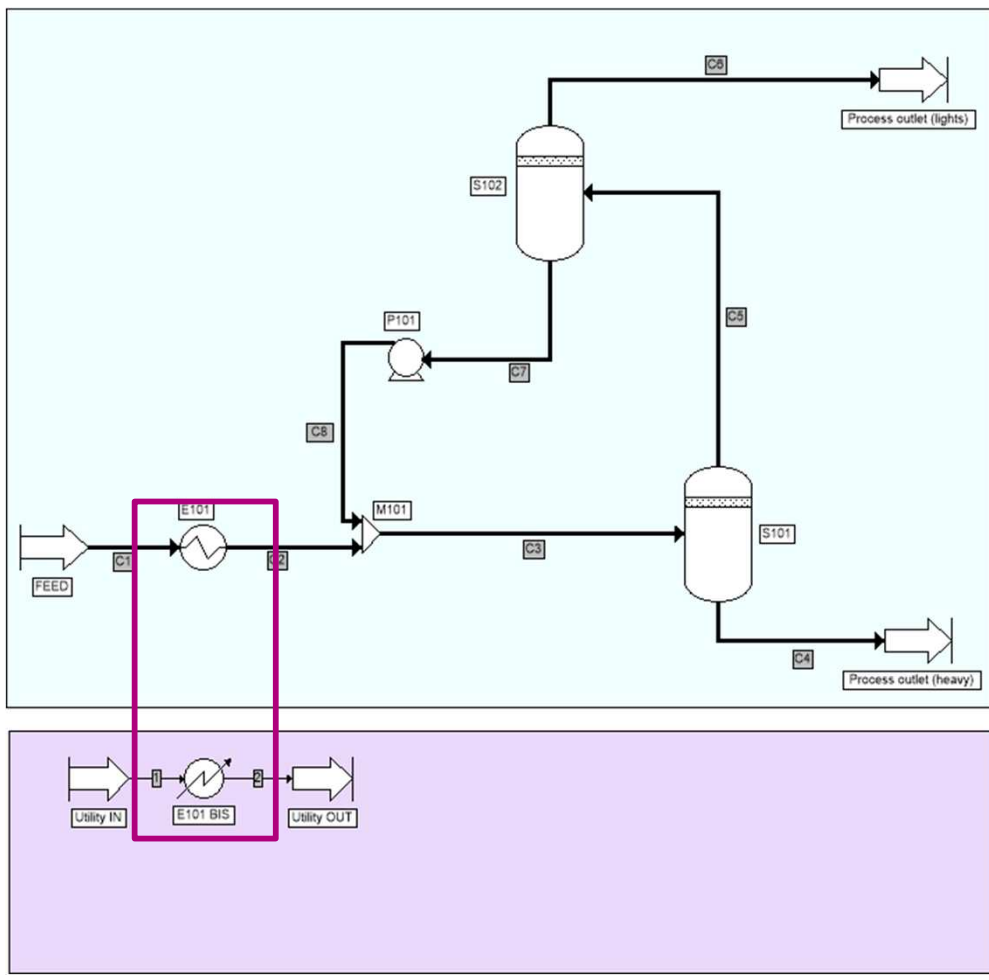
No input from the user is needed in this case, the **heat duty** will be provided by the **information stream**.



Practical Example

6 Insertion of the information stream ("Cold Utility") from the temperature controller ("E101") to the Heat duty controller ("E101 BIS")

The order in which unit operations are connected determines the direction of the information stream. For example, if you click on unit operation A first and then unit operation B, the information will go from A to B.



Change the connections

Outlet connection port:

E101

- Information input/output 01
- Information input/output 02
- Information input/output 03
- Information input/output 04
- Information input/output 05
- Information input/output 06

New stream

Inlet connection port:

E101 BIS

- Information inlet/outlet 1
- Information inlet/outlet 2

Select the outlet connection port A

Select the inlet connection port B

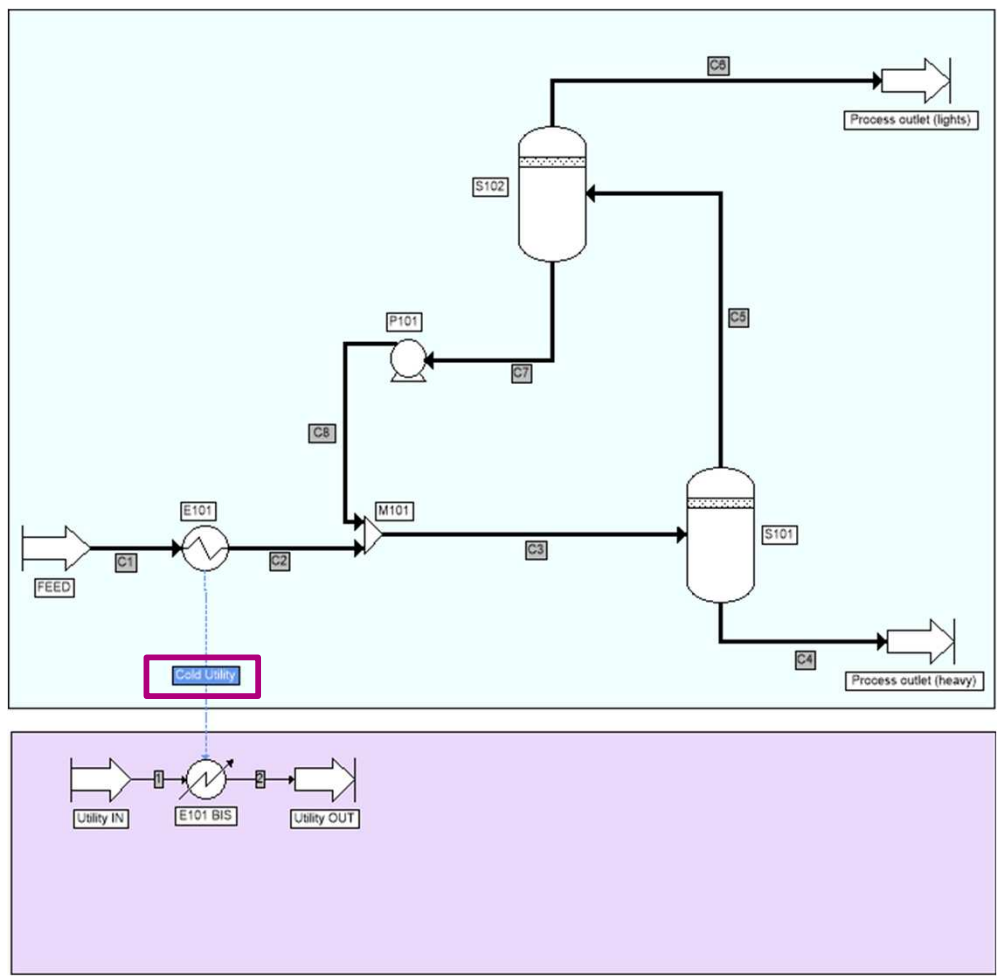
☒ Show only available connections

OK Cancel

C Click on "OK" to save the data

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7 Specify the information stream ("Cold Utility") information stream parameters



Information stream (\$ISTR)

Name: Cold Utility

Desc:

IdentificationParametersNotes

☐ Impose the calculation sequence

Information type to be emitted:

☒ Heat necessary to reach the specified temperature

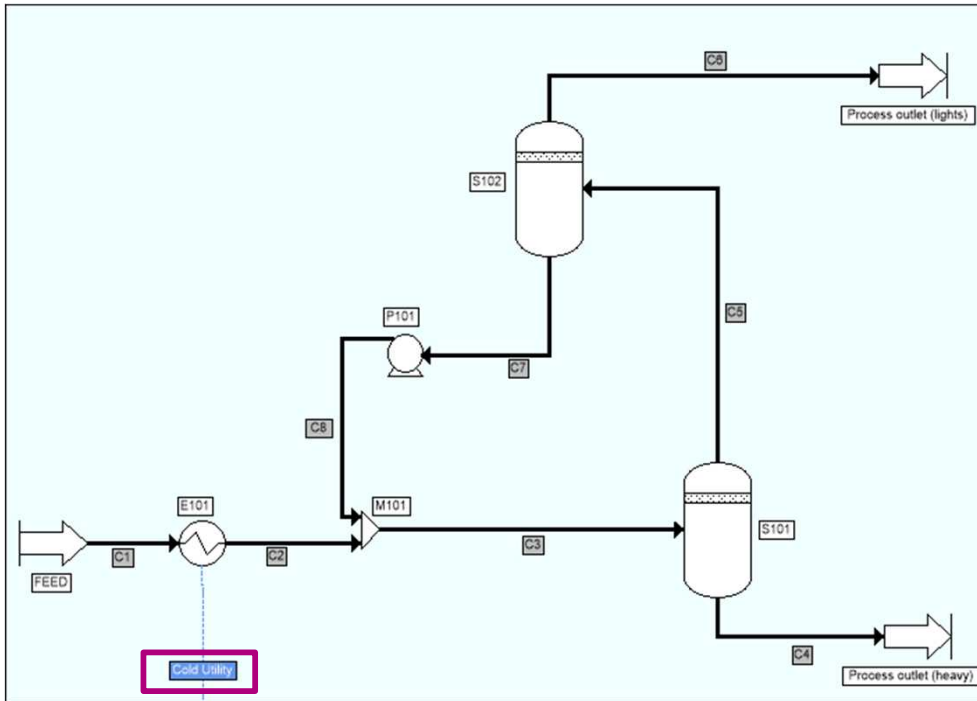
- Defined by its position in the unit block's parameter zone
 - Heat necessary to reach the specified temperature
 - Temperature value
 - Pressure drop inside the heat exchanger
 - Heat duty set point value
 - Relative deviation between the heat duty and the set point
 - Temperature increment
 - Utility= Efficiency
 - Utility (with phase change)= Saturation pressure
 - Utility (with phase change)= Saturation temperature
 - Utility (heat exchanger properties)= LMTD
 - Utility (heat exchanger properties)= UA factor
 - Utility= Molar flowrate
 - No information transmitted

OKCancel

A

Select:
Heat necessary to reach the specified temperature as the information to be emitted from temperature controller ("E101")

7 Specify the information stream (“Cold Utility”) information stream parameters



Information stream (\$ISTR)

Name: Cold Utility

Desc:

Identification: Parameters Notes

☐ Impose the calculation sequence

Information type to be emitted:

☒ Heat necessary to reach the specified temperature

Information vector to be emitted will be automatically determined depending on the parameters of "E101"

Start: 0 End: 0

Information type to be received:

☒ Heat duty

- Heat duty
- Pressure drop inside the heat exchanger
- Utility= Efficiency
- Utility (monophasic)= Inlet temperature
- Utility (monophasic)= Outlet temperature
- Utility (monophasic)= Pressure
- Utility (with phase change)= Saturation pressure
- Utility (with phase change)= Saturation temperature
- No information transmitted

B

Select:
Heat duty
as the information to be
received by the
Heat duty controller
("E101 BIS")

Practical Example

Introduction

Data transfer

1

"SPEC"

2

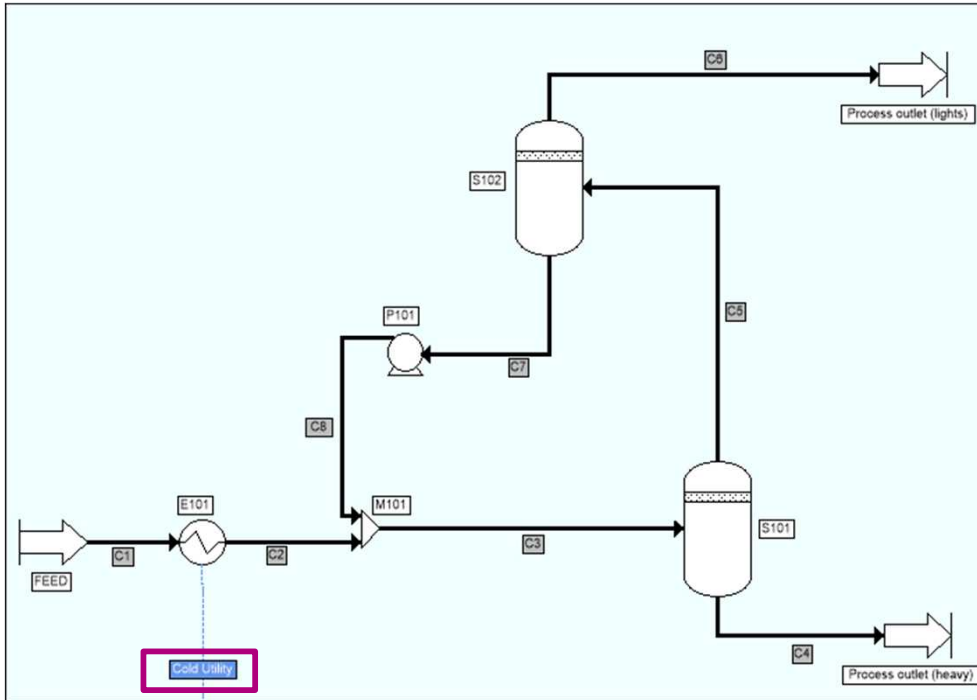
"MANI"

3

Calculation sequence

4

7 Specify the information stream ("Cold Utility")
information stream parameters



Information stream (\$ISTR)

Name: Cold Utility

Desc:

Identification Parameters Notes

☐ Impose the calculation sequence

Information type to be emitted:

☒ Heat necessary to reach the specified temperature

Information vector to be emitted will be automatically determined depending on the parameters of "E101"

Start: 0 End: 0

Information type to be received:

☒ Heat duty

Information vector to be emitted will be automatically determined depending on the parameters of "E101 BIS"

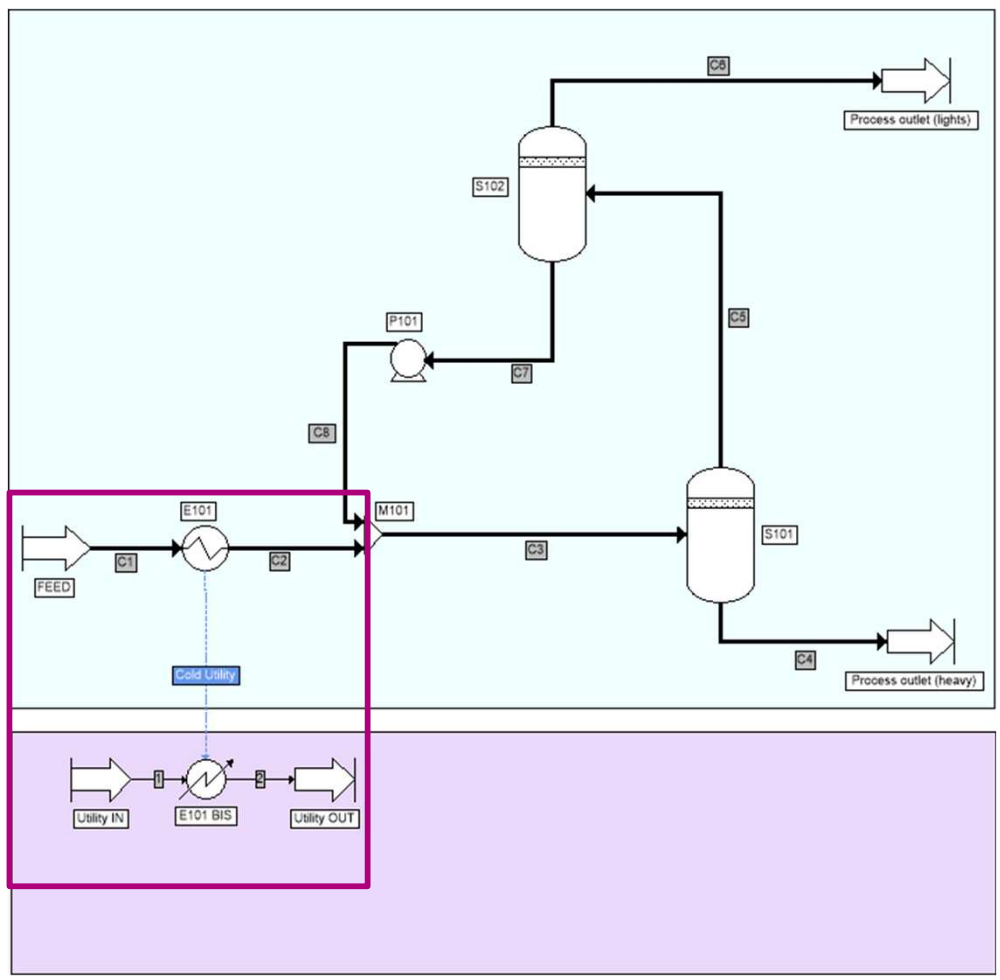
Start: 0 End: 0

OK Cancel

C

Click on "OK" to save the data

8 Run the simulation



Simulation progress

Time: 00:00:01,953 ☐ Display simulation times

☒ Visual update Opacity:

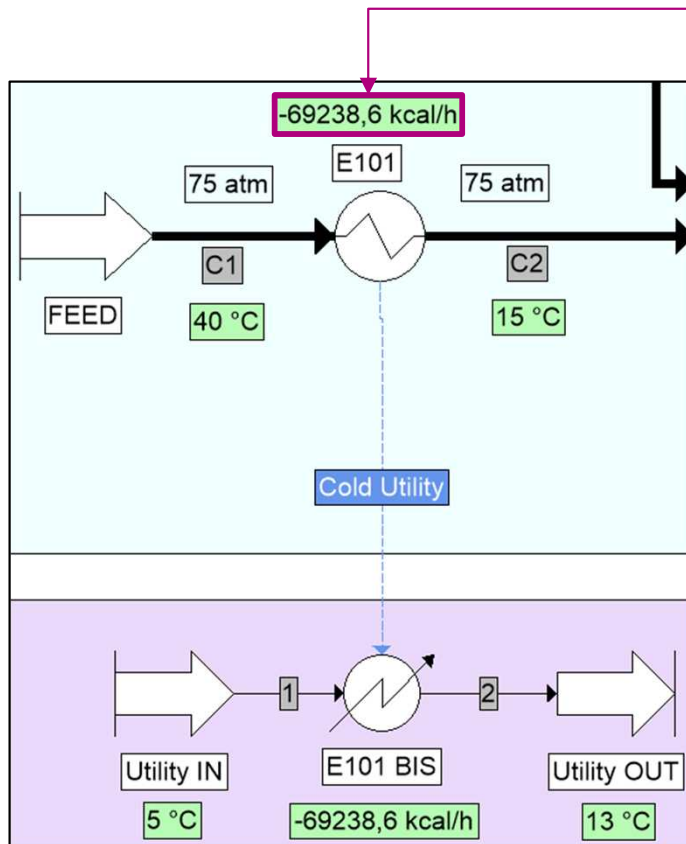
Complete simulation

- ☒ FEED
- ☒ Utility IN
- ☒ E101
- ☒ S_01
 - Iteration: 5
 - Runs in the MCN: 7
 - Convergence criterion: 1.333118E-11
 - Damping factor: 1.00000
- ☒ M101
- ☒ S101
- ☒ S102
- ☒ P101
- ☒ E101 BIS

- P101
- E101 BIS
Preparing the report
End of simulation

Simulation ended

9 Results analysis



A

Add tags to display the key results

123

In report unit system

B

Hover the mouse on the information stream to display the transferred value: heat duty (Q)

In ProSim unit system: kcal/h

Cold Utility	
Information stream	
Source	Target
Heat necessary to reach the specified temperature	Heat duty
Value(s)	
-69238,6	

The results show:

1. Temperature controller ("E101"):

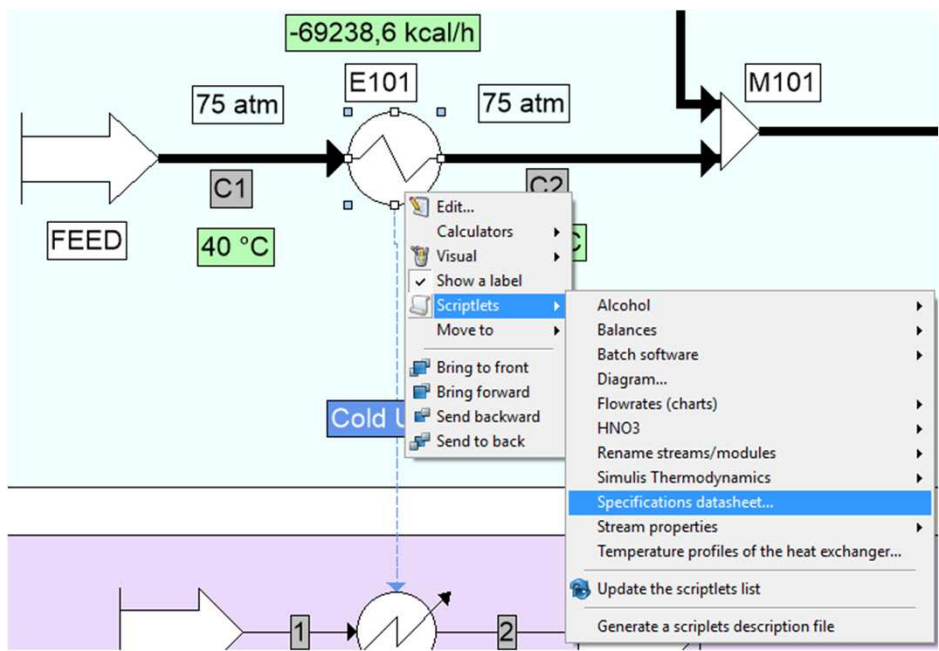
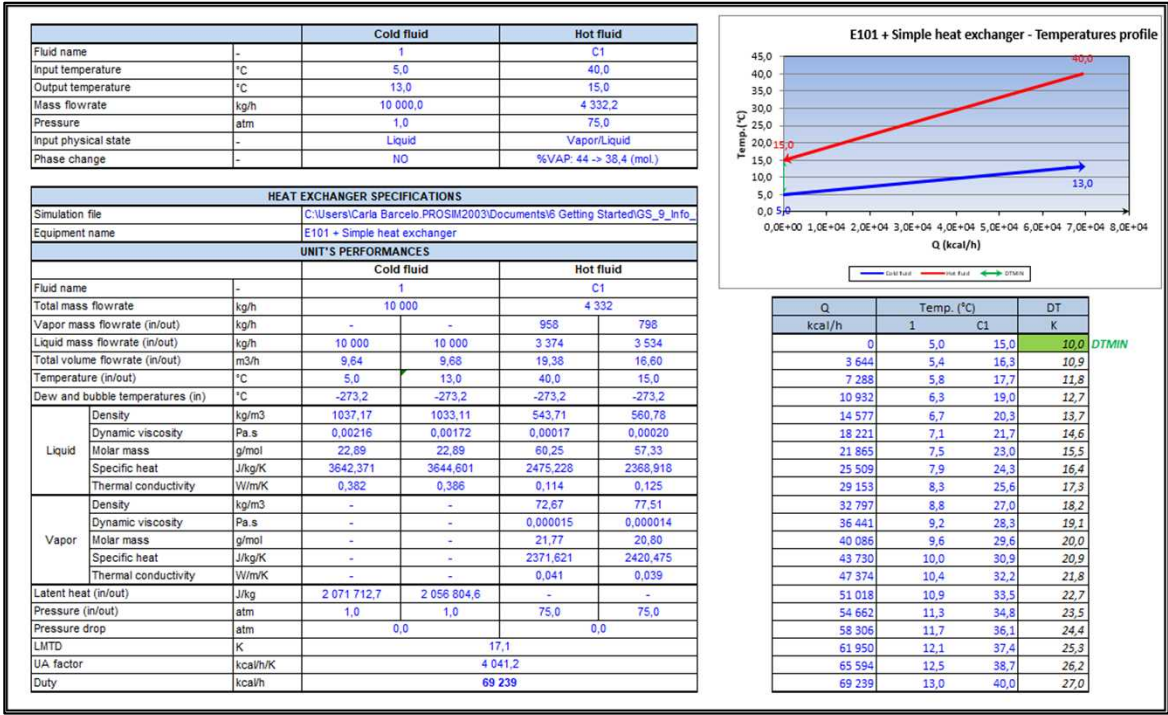
1. The process feed is cooled from 40°C to 15°C.

2. Heat duty controller ("E101 BIS"):

1. The utility feed is heated from 5°C to 13°C.

→ It corresponds to heat duty value of 69239 kcal/h

10 BONUS: you can generate the specifications datasheet for the corresponding heat exchanger



- A Right-click on one of the heat exchanger composing the utility section
- B Select "Scriptlets"
- C Select "Specifications datasheet"
- D Select the "exchange configuration" type

Choice

Please select the exchange configuration for the following coupled unit operations:
- Simple heat exchanger
- E101

Exchange configuration

☒ Counter-current

☐ Co-current

Ok

Annuler

Generation of an Excel spreadsheet

Concept

Introduction

Data transfer

1

"SPEC"

2

"MANI"

3

Calculation sequence

4

Defining process specifications: Let's do it!

1

Transferring data between unit operations

2

Defining process **specifications** through the constraints and recycles module ("SPEC")

3

Manipulate data and results through arithmetic operations, using the information stream operator ("MANI")

4

Imposing a specific **Calculation sequence** to control the order of the units calculation

This feature allows to define a **set point** (such as temperature, composition, or flow rate) and automatically adjust **action variables** to meet the **specified objectives**.

Concept

Introduction

Data transfer

1

"SPEC"

2

"MANI"

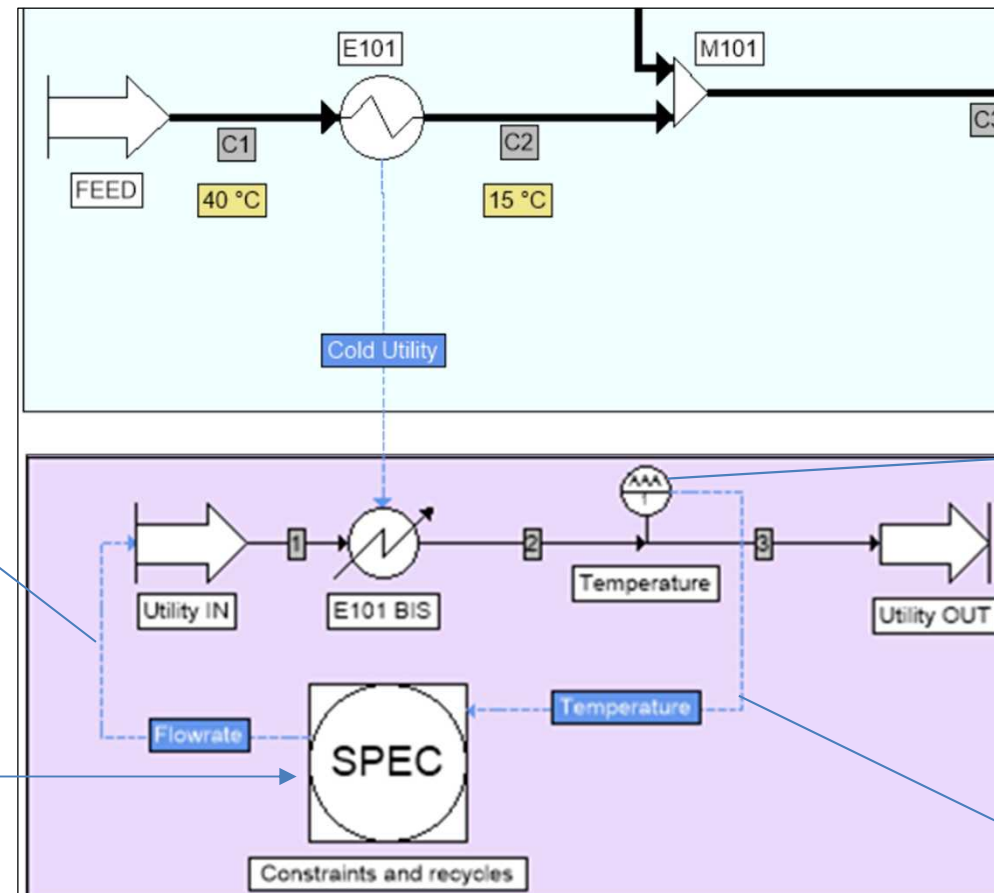
3

Calculation sequence

4

Objectives of the application example:

Adjustment of the feed "Utility IN" flowrate to meet the specification of the heat exchanger output temperature, by using the "SPEC" module.



4

Adjusted flowrate value to meet "T" specification

3

SPEC module: adjust "Utility IN" flowrate to meet "T" target value

1

Measure the outlet temperature of the heat exchanger

2

The "Temperature" information stream sends the temperature difference between the measured value and the set point: ΔT

Concept

Introduction

Data transfer

1

"SPEC"

2

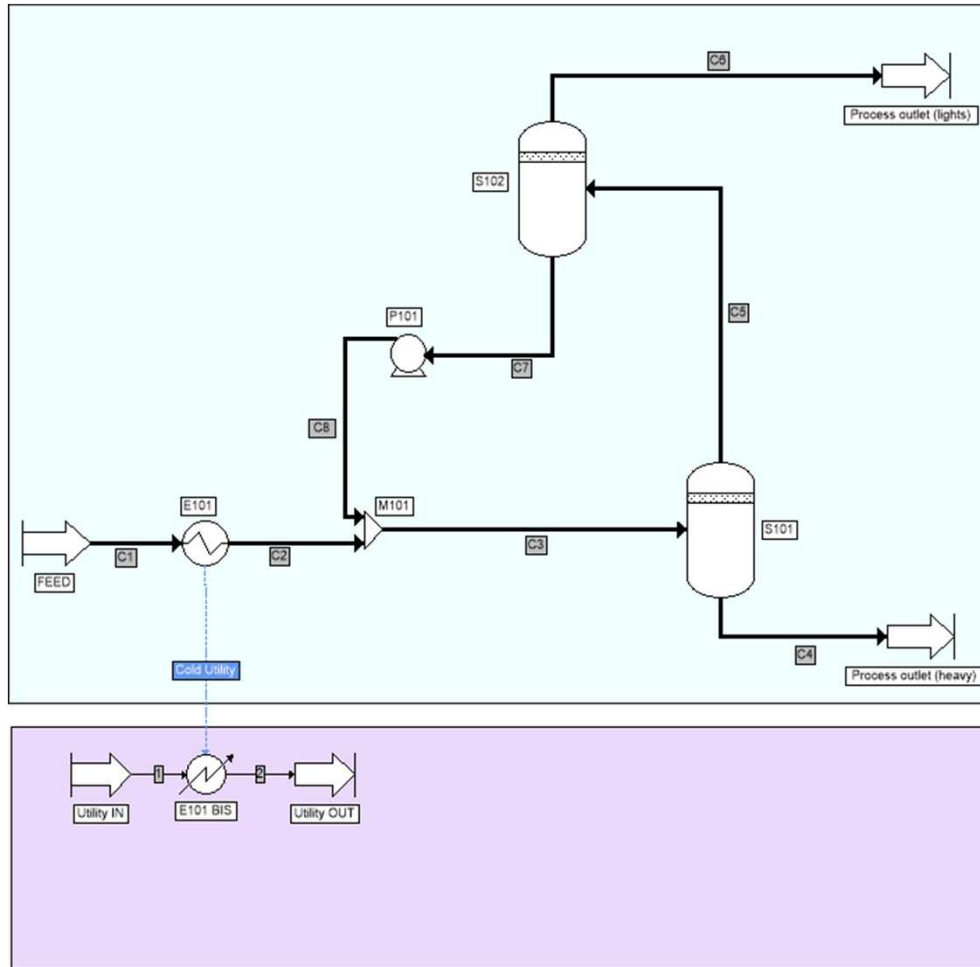
"MANI"

3

Calculation sequence

4

Let's apply this on our simple example!



Practical Example

Introduction

Data transfer

1

"SPEC"

2

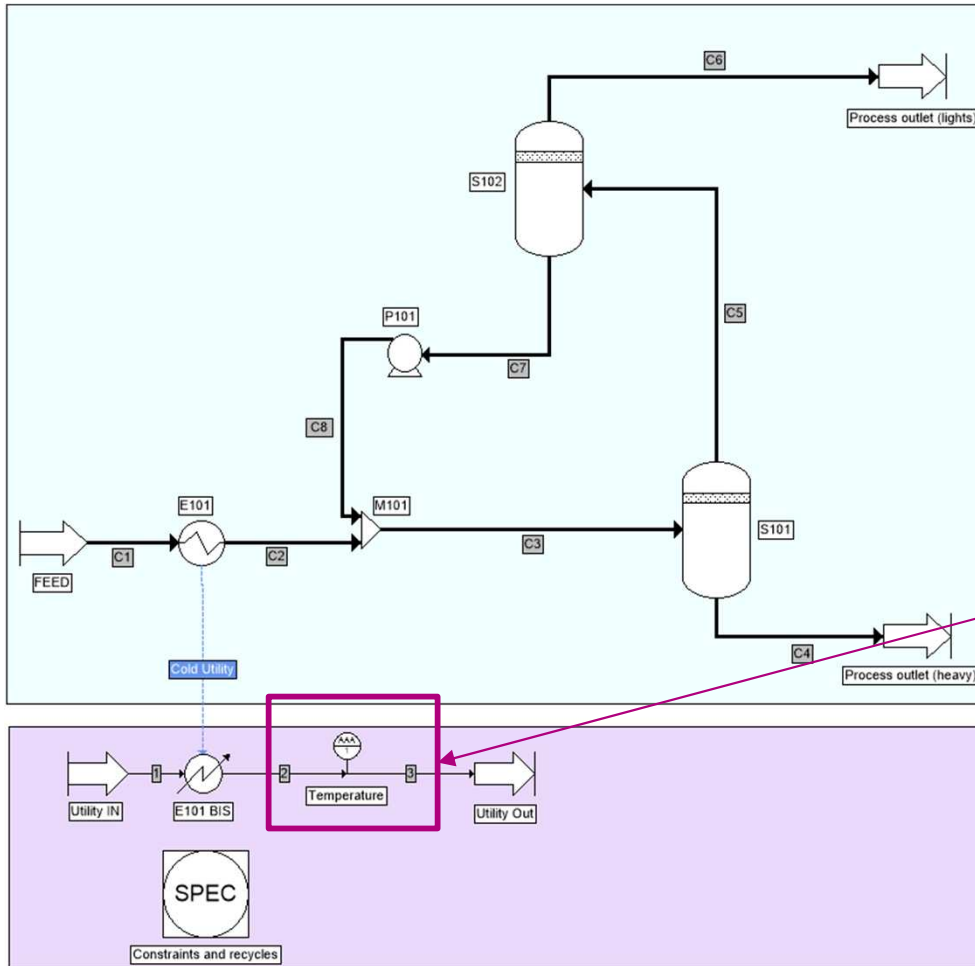
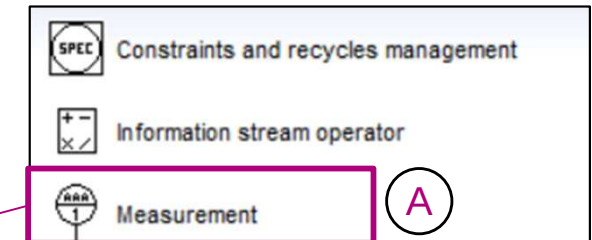
"MANI"

3

Calculation sequence

4

1 Set up of the measurement module ("Temperature") and "SPEC" module



For more information about the measurement and "SPEC" modules, please consult « Getting Started with ProSimPlus: use case 8 »



Practical Example

Introduction

Data transfer

1

SPEC

2

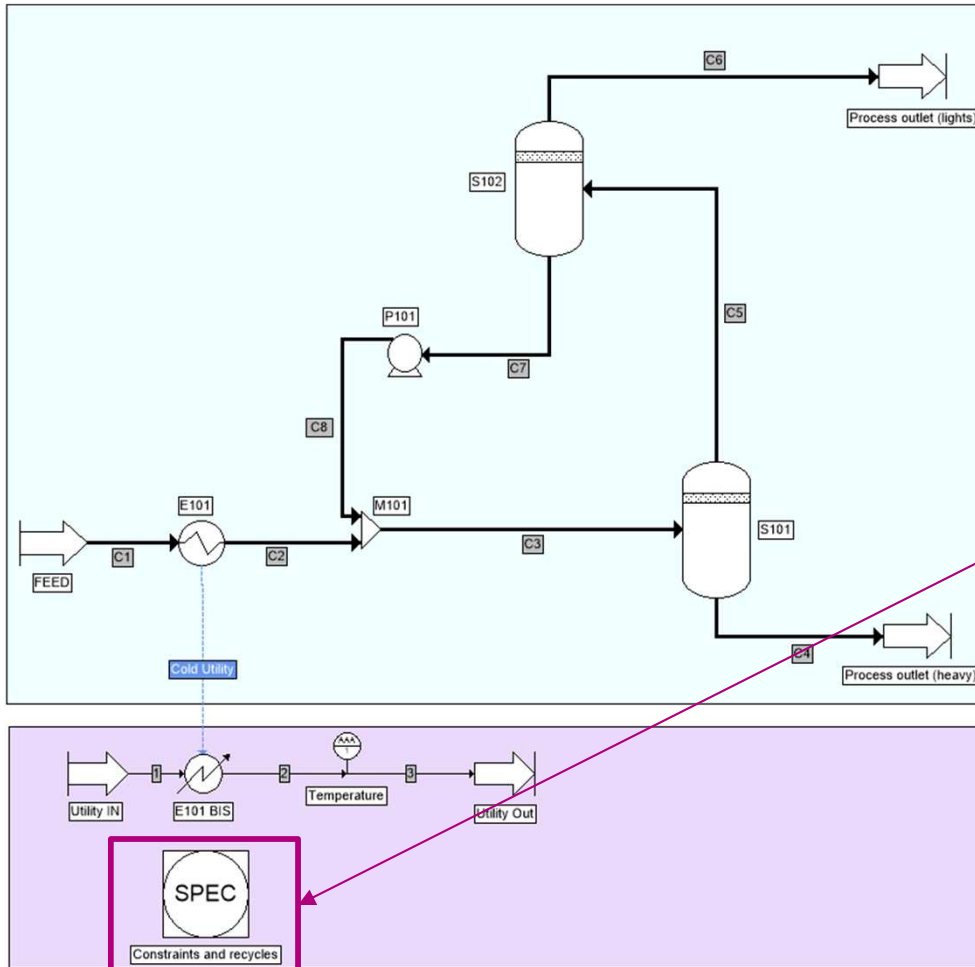
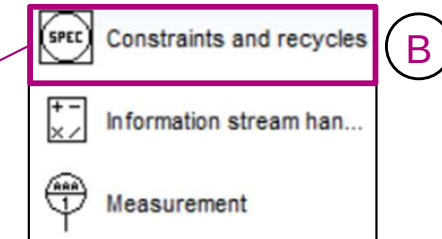
"MANI"

3

Calculation sequence

4

① Set up of the measurement module ("Temperature") and "SPEC" module



For more information about the "SPEC" and measurement module, please consult « Getting Started with ProSimPlus: use case 8 »



Practical Example

Introduction

Data transfer

1

"SPEC"

2

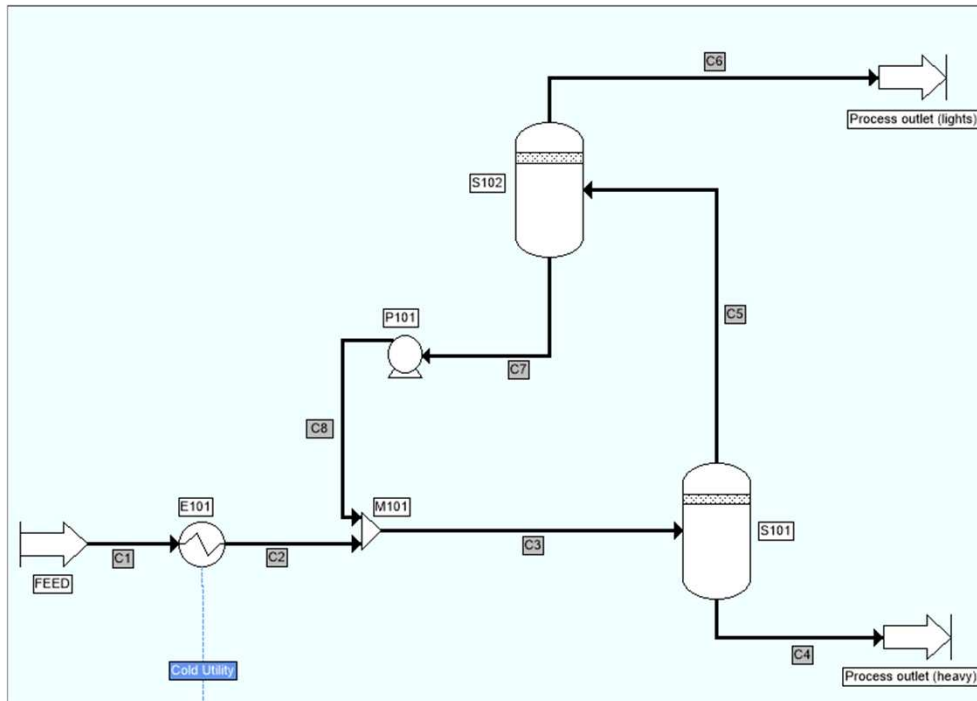
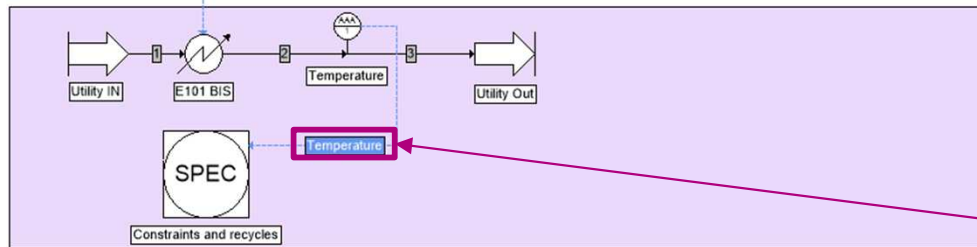
"MANI"

3

Calculation sequence

4

2 Insert the information streams



A

"Temperature" Information stream: connect the measurement module ("Temperature") to the "SPEC" module



Practical Example

Introduction

Data transfer

1

"SPEC"

2

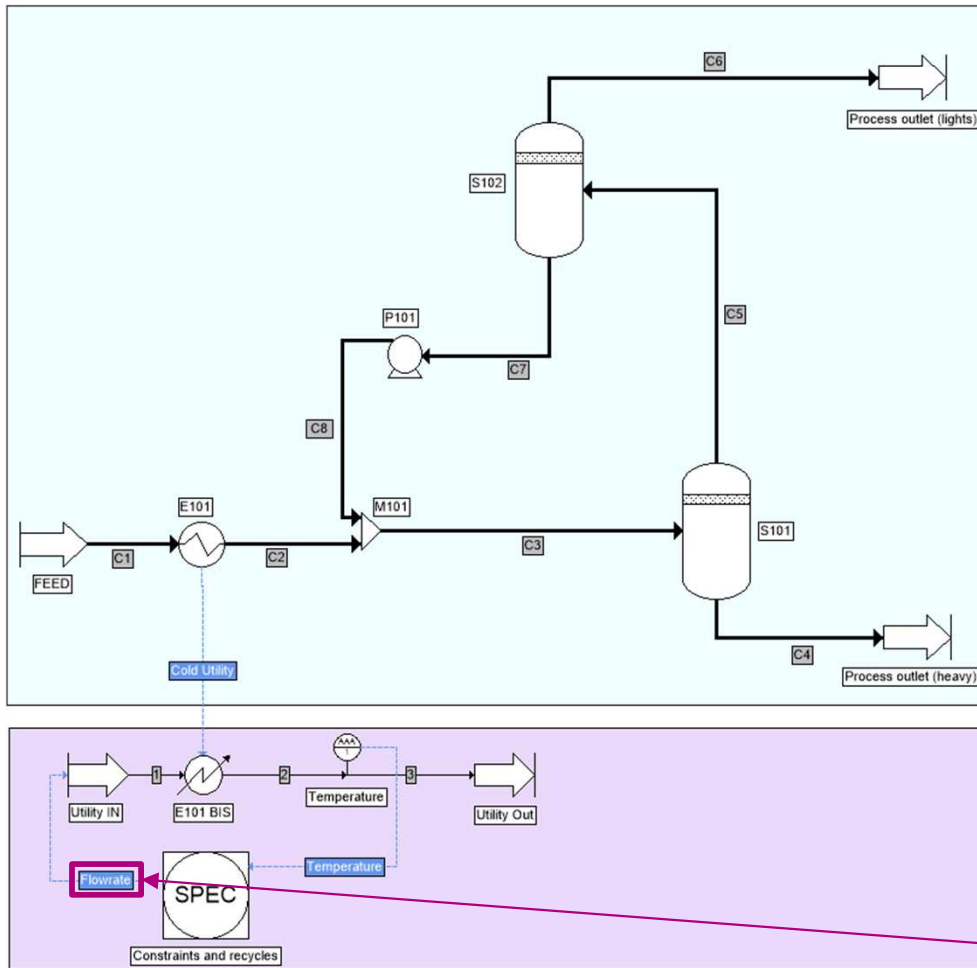
"MANI"

3

Calculation sequence

4

2 Insert the information streams

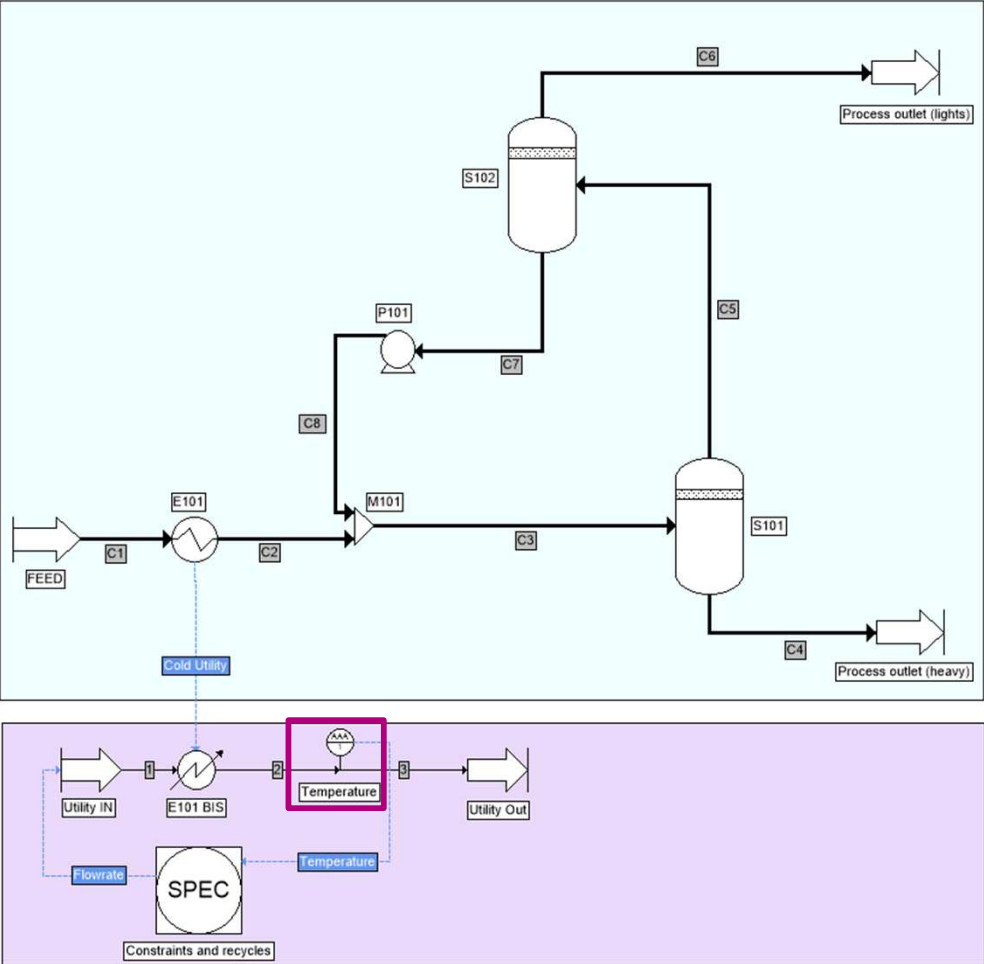


B

"Flowrate" Information stream: connect the "SPEC" module to the feed ("Utility IN")



3 Specify the measurement module ("Temperature") parameters



Measurement (\$MESU)

Name: Temperature

Desc:

IdentificationParametersScriptsReportStreamsNotesAc

Measurement

Temperature

Temperature

Pressure

Total flowrate

Partial flowrate

Fraction

Partial flowrate ratio

Fraction ratio

NOx content

NO oxidation degree

Humidity

Concentration

pH

Temperature increment0°C

OKCancel

A Double click on the measurement module ("Temperature")

B Select the parameter to measure: "Temperature"

Practical Example

Introduction

Data transfer

1

"SPEC"

2

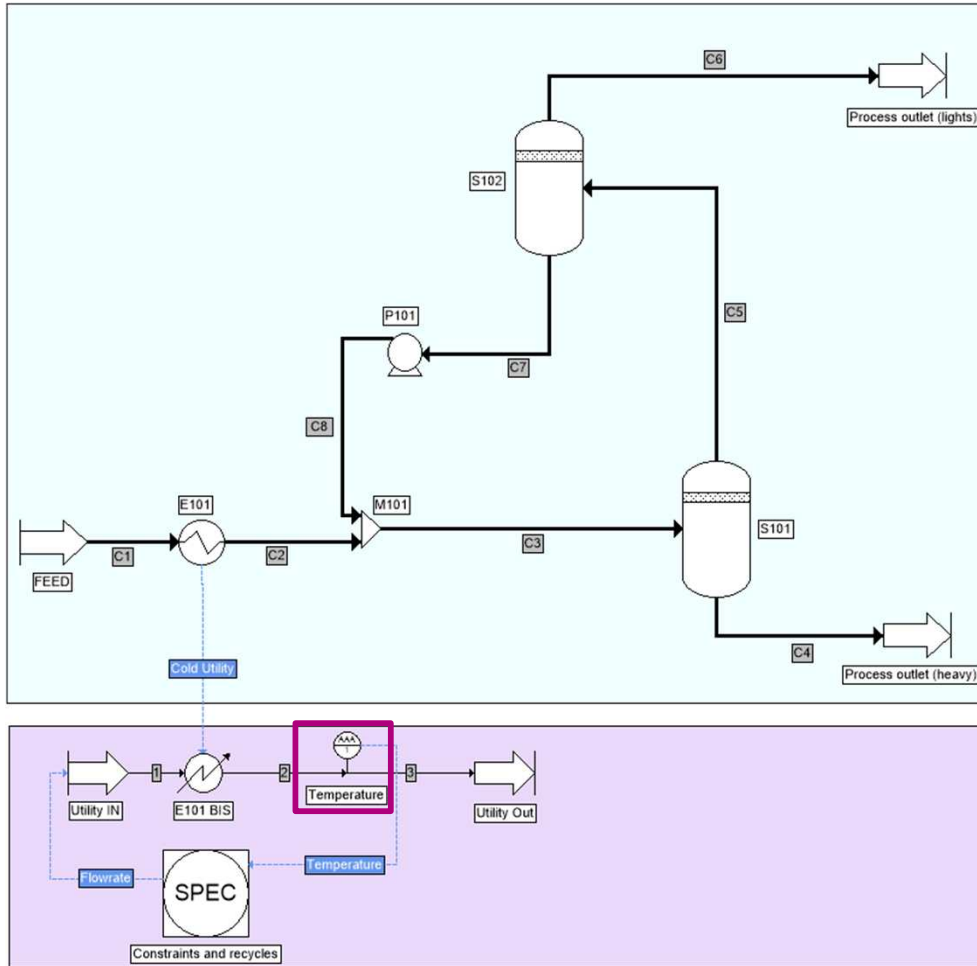
"MANI"

3

Calculation sequence

4

3 Specify the measurement module ("Temperature") parameters



Measurement (\$MESU)

Name: Temperature

Desc:

Identification Parameters Scripts Report Streams Notes Ac < >

Measurement

Temperature

Set point for temperature

☒ Supplied

☐ Bubble point temperature at specified pressure

☐ Dew point temperature at specified pressure

☐ Bubble point temperature at measured pressure

☐ Dew point temperature at measured pressure

Temperature 10 °C

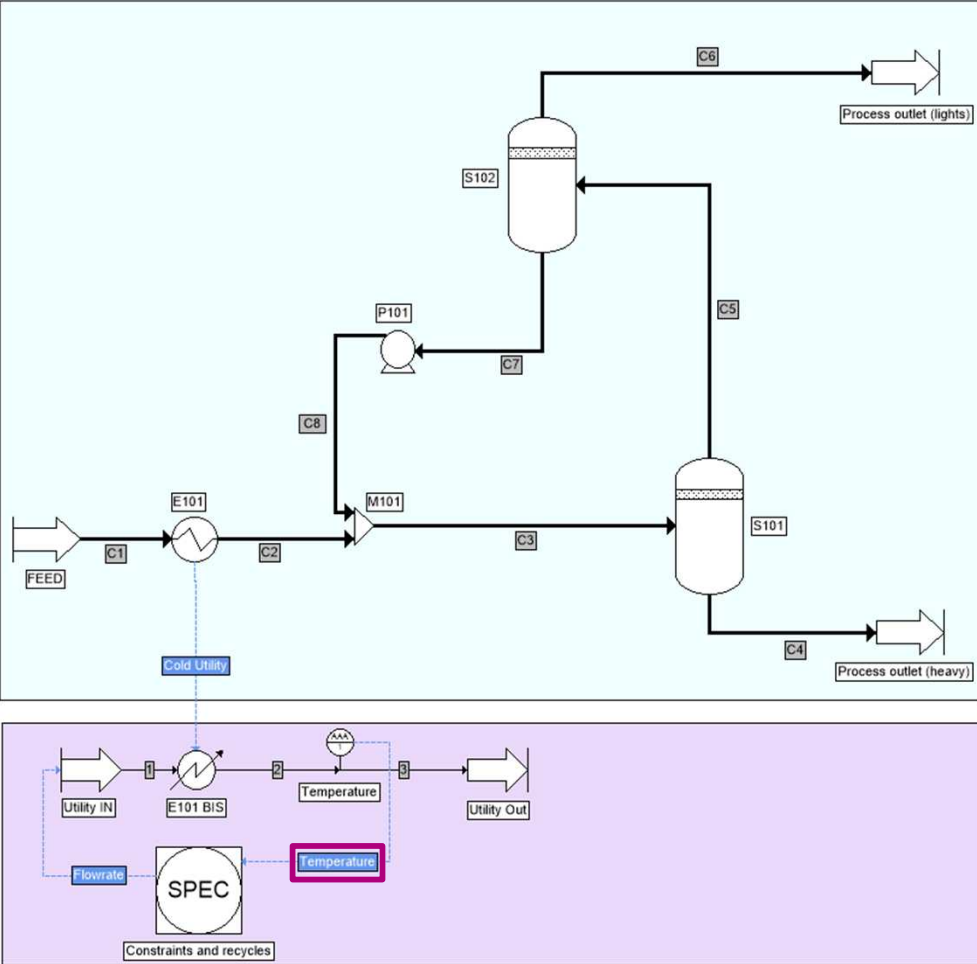
Temperature increment 0 °C

OK Cancel

Select the "supplied" option and give the temperature specification for the output of cold utility: 10°C

Click "OK" to save the data

4 Specify the "Temperature" information stream parameters



Information stream (\$ISTR1)

Name: Temperature

Desc:

IdentificationParametersNotes

☐ Impose the calculation sequence

Information type to be emitted:

☒ Deviation between the measured value and the set ...

Defined by its position in the unit block's parameter zone

• Deviation between the measured value and the set point value

Set point value

Measured value

No information transmitted

Information type to be received:

☒ Automatic

Information vector to be emitted will be automatically determined depending on the parameters of "Constraints and recycles"

Start: 0End: 0

OKCancel

A

Double click on the "Temperature" information stream

B

Select the data to be sent from the measurement module: "Deviation between the measured value and the set point value" (ΔT)

Selecting « Deviation between the measured value and the set point value » aims to satisfy the condition $F(x) = 0$

Practical Example

Introduction

Data transfer

1

"SPEC"

2

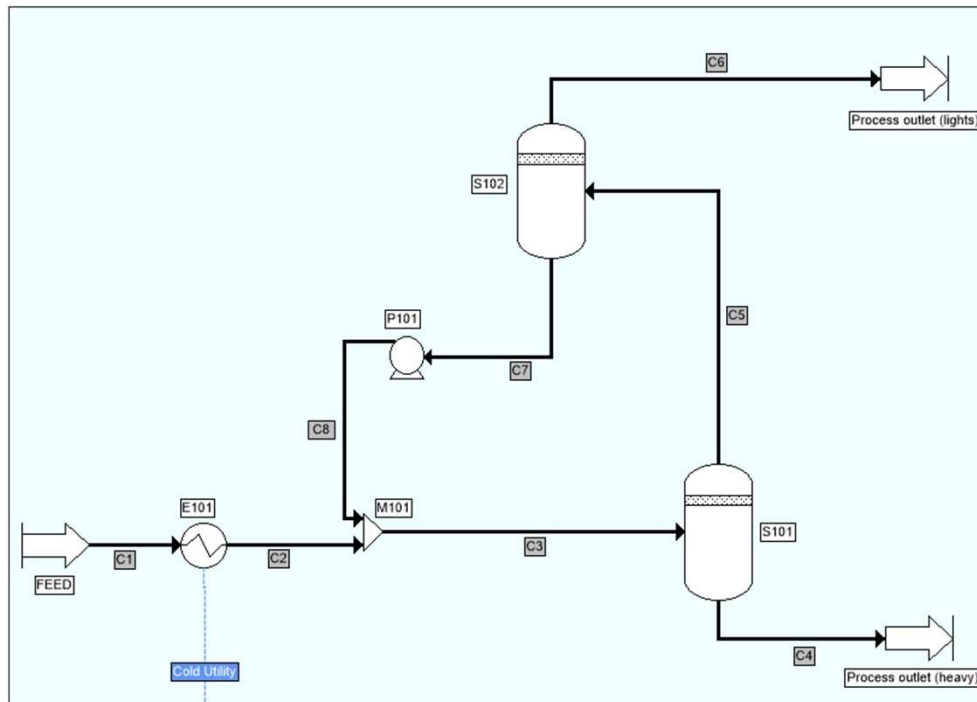
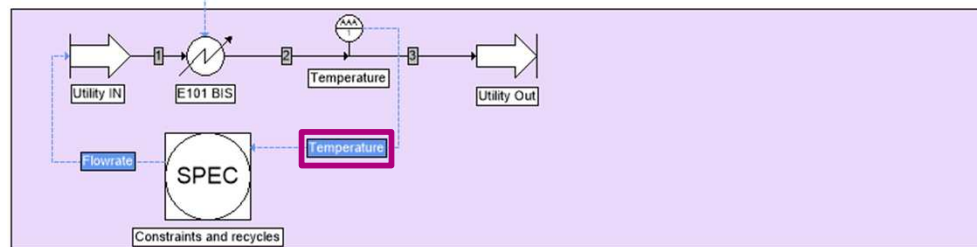
"MANI"

3

Calculation sequence

4

4 Specify the "Temperature" information stream parameters



Information stream (\$ISTR1)

Name: Temperature

Desc:

Identification Parameters Notes

☐ Impose the calculation sequence

Information type to be emitted:

☒ Deviation between the measured value and the set ...

Information vector to be emitted will be automatically determined depending on the parameters of "Temperature"

Start: 0 End: 0

Information type to be received:

☒ Automatic

Defined by its position in the unit block's parameter zone

- Automatic
- No information transmitted

Start: 0 End: 0

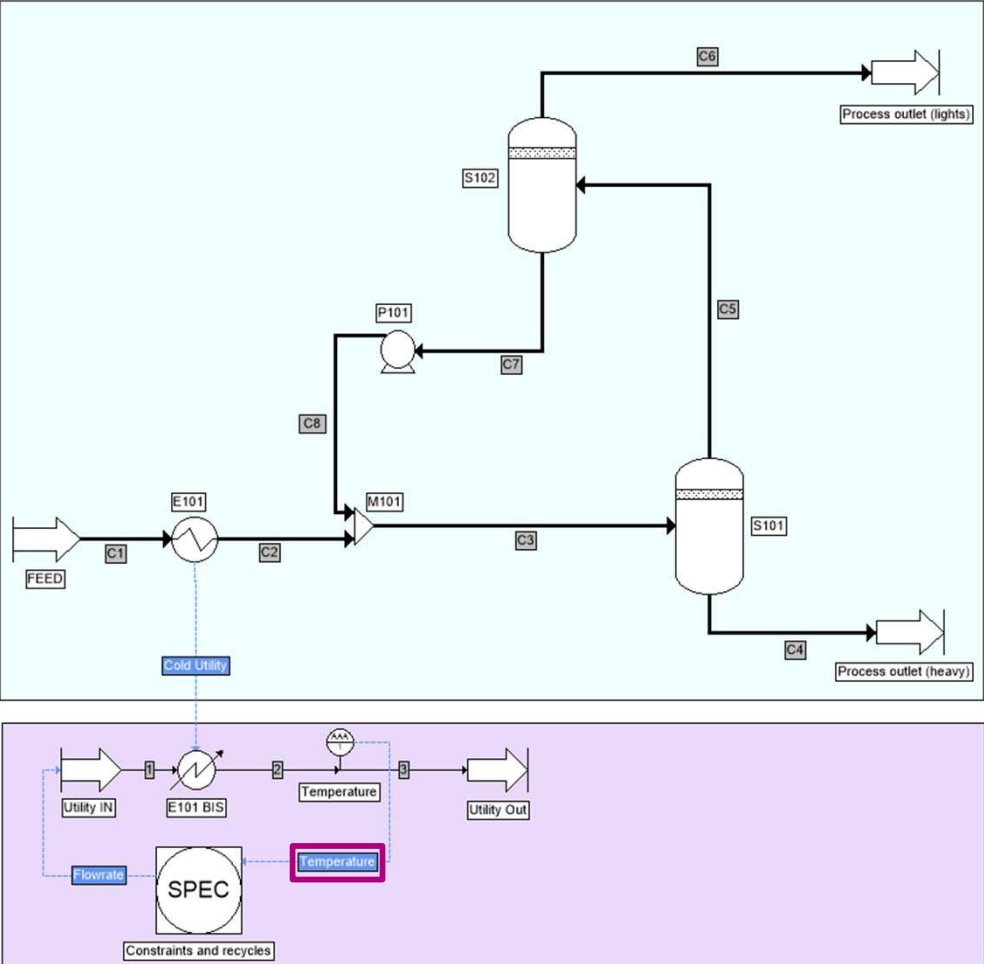
OK Cancel

Select the type of information to be received by the "SPEC" module

Always select **"Automatic"** for information received by the "SPEC" module



4 Specify the "Temperature" information stream parameters



Information stream (\$ISTR1)

Name: Temperature

Desc:

IdentificationParametersNotes

☐ Impose the calculation sequence

Information type to be emitted:

☒ Deviation between the measured value and the set ...

Information vector to be emitted will be automatically determined depending on the parameters of "Temperature"

Start: 0End: 0

Information type to be received:

☒ Automatic

Information vector to be emitted will be automatically determined depending on the parameters of "Constraints and recycles"

Start: 0End: 0

OKCancel

D

Click "OK" to save the data

Practical Example

Introduction

Data transfer

1

"SPEC"

2

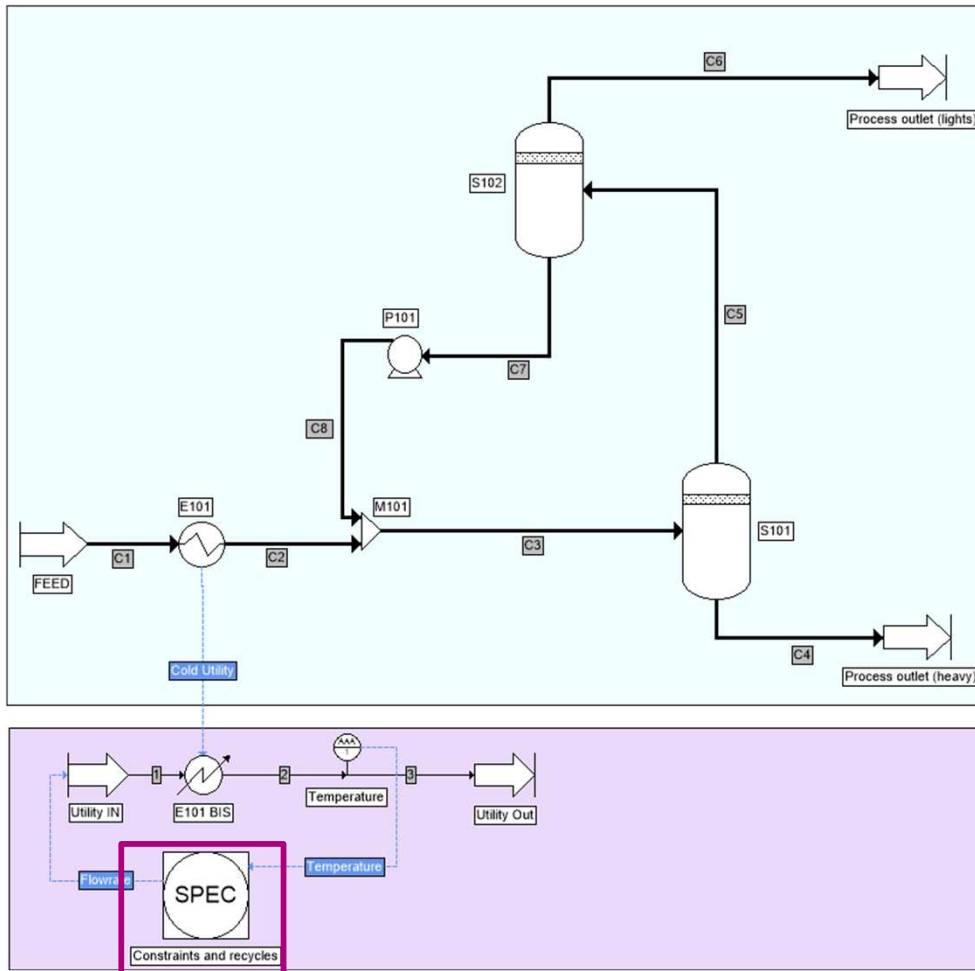
"MANI"

3

Calculation sequence

4

5 Specify the "SPEC" module parameters



The screenshot shows the 'Constraints and recycles (\$SPEC)' dialog box. The 'Parameters' tab is selected. The 'Module enabled' checkbox is checked. The 'Numerical methods' dropdown is set to 'Default'. The 'Stop tests' section includes:

- Convergence criterion: 1E-8
- Non evolution of criterion: 1E-7
- Non evolution of variables: 1E-6
- Maximum number of passages in the MCN: 100
- Maximum number of iterations: 20

 The 'Print' section shows 'Print every' set to 10 iterations. The 'Tear streams iterative variables' section has 'Temperatures' checked. The 'Resume' section has 'Use of values obtained at convergence of the previous problem' checked. The 'Constraints' and 'Tear streams' sections have 'Parameters...' buttons. The 'OK' and 'Cancel' buttons are at the bottom right.

The "SPEC" module parameters are set to default values and do not require modification, but users can adjust them if needed.

For more information about the "SPEC" module, please consult
« Getting Started with ProSimPlus: use case 8 »



A

Double click on the "SPEC" module

Practical Example

Introduction

Data transfer

1

"SPEC"

2

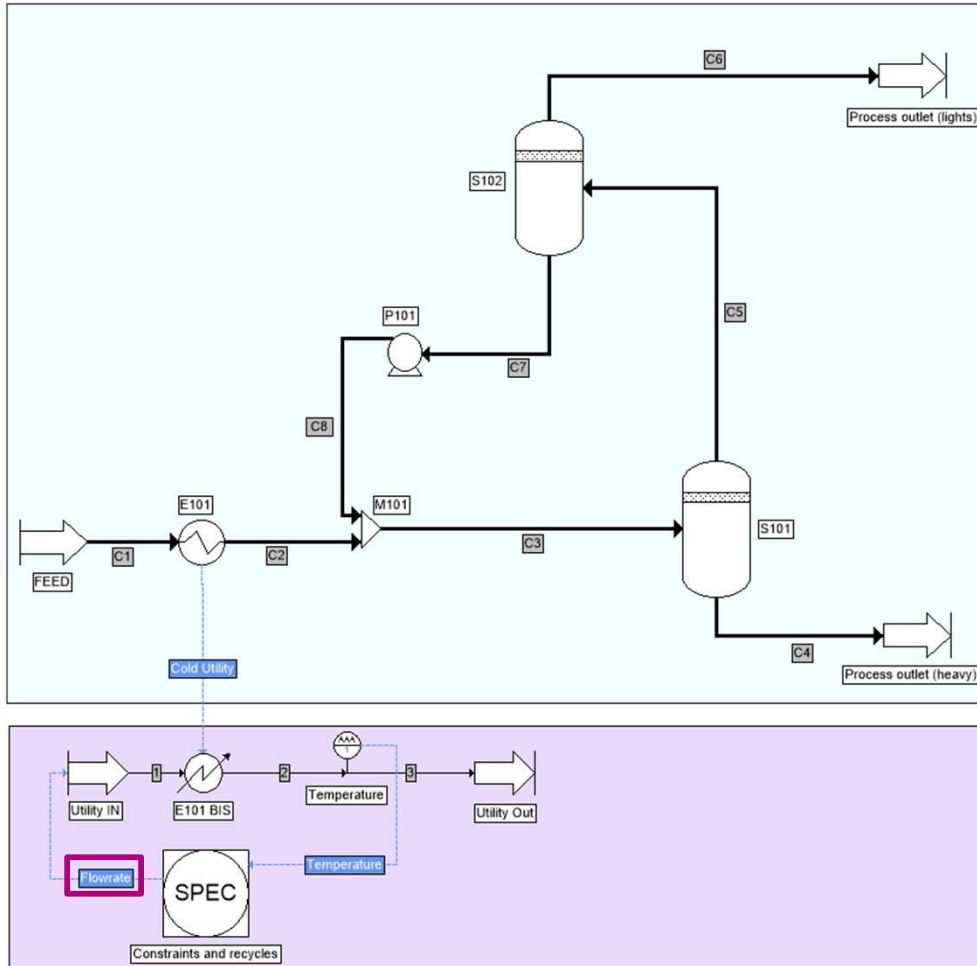
"MANI"

3

Calculation sequence

4

6 Specify the "Flowrate" information stream parameters



Information stream (\$ISTR2)

Name: Flowrate

Desc:

Identification: **Parameters** Notes

☐ Impose the calculation sequence

Information type to be emitted:

☒ Automatic

Defined by its position in the unit block's parameter zone

- Automatic
- No information transmitted

Start: 0 End: 0

Information type to be received:

☒ Stream total flowrate

Information vector to be emitted will be automatically determined depending on the parameters of "Utility IN"

Start: 0 End: 0

OK Cancel

A

Double click on
"Flowrate" information
stream

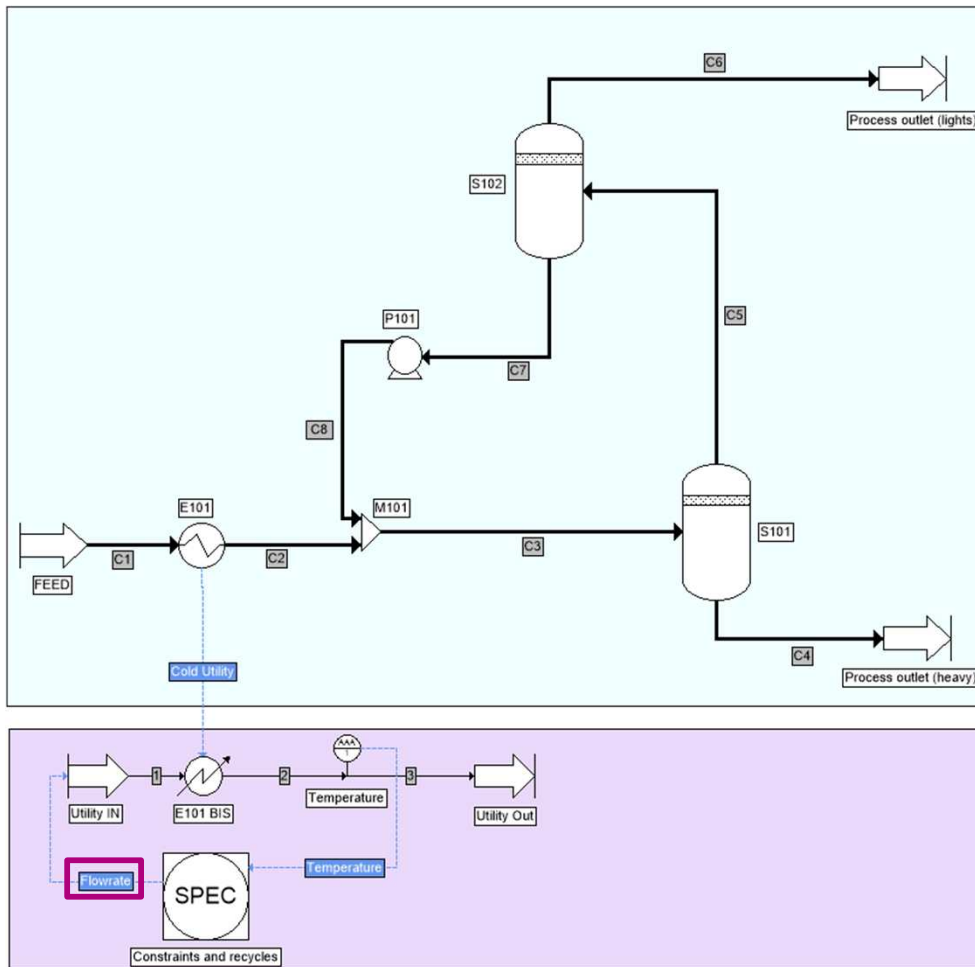
B

Select the type of information to be sent by the
"SPEC" module: "Automatic"

Practical Example

Introduction Data transfer **1** **"SPEC"** **2** **"MANI"** **3** Calculation sequence **4**

6 Specify the "Flowrate" information stream parameters



Information stream (\$ISTR2)

Name: Flowrate

Desc:

Identification Parameters Notes

☐ Impose the calculation sequence

Information type to be emitted:

☒ Automatic

Information vector to be emitted will be automatically determined depending on the parameters of "Constraints and recycles"

Start: 0 End: 0

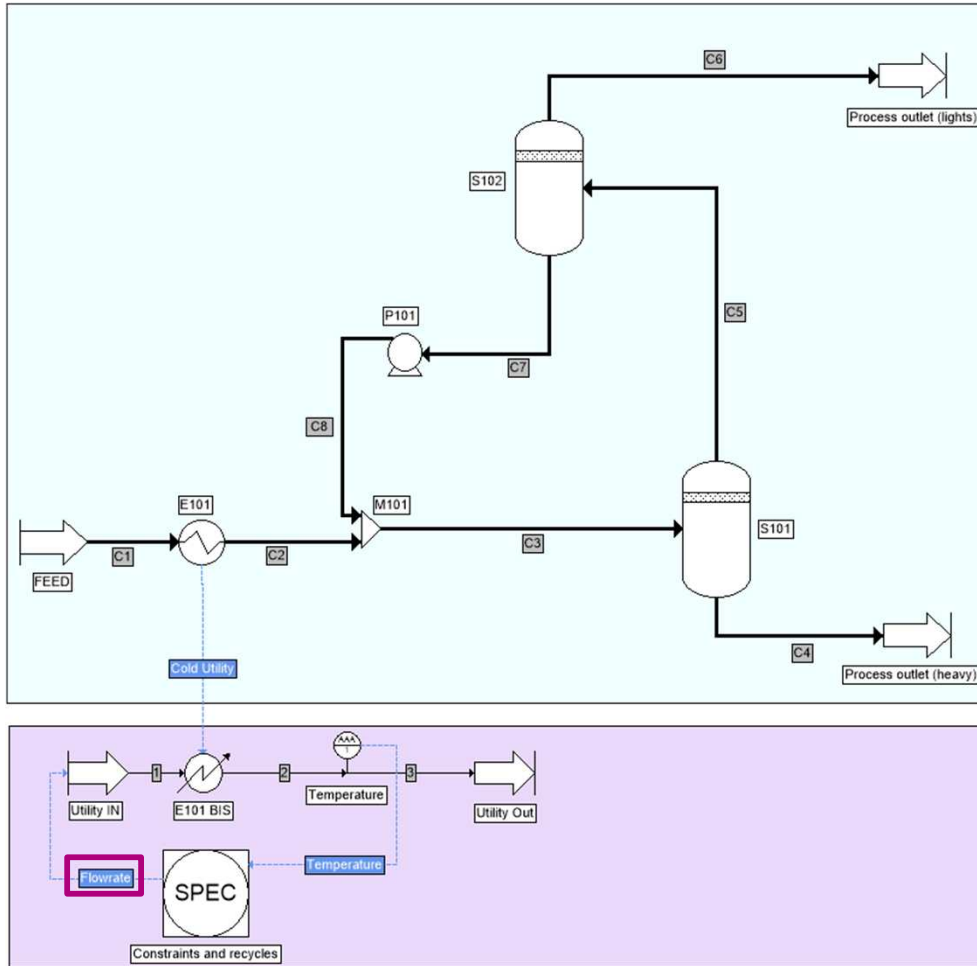
Information type to be received:

☒ Stream total flowrate

- Defined by its position in the unit block's parameter zone
- Stream total flowrate
- Temperature value
- Pressure value
- Vapor fraction
- Values of partial flowrates or fractions
- No information transmitted

Select the input parameter **stream total flowrate** from the list of adjustable parameters to **satisfy the specification** defined in the **temperature measurement module**

⑥ Specify the “Flowrate” information stream parameters



Information stream (\$ISTR2)

Name: Flowrate

Desc:

Identification Parameters Notes

☐ Impose the calculation sequence

Information type to be emitted:

☒ Automatic

Information vector to be emitted will be automatically determined depending on the parameters of "Constraints and recycles"

Start: 0 End: 0

Information type to be received:

☒ Stream total flowrate

Information vector to be emitted will be automatically determined depending on the parameters of "Utility IN"

Start: 0 End: 0

OK Cancel

Click “OK” to save the data

Practical Example

Introduction

Data transfer

1

"SPEC"

2

"MANI"

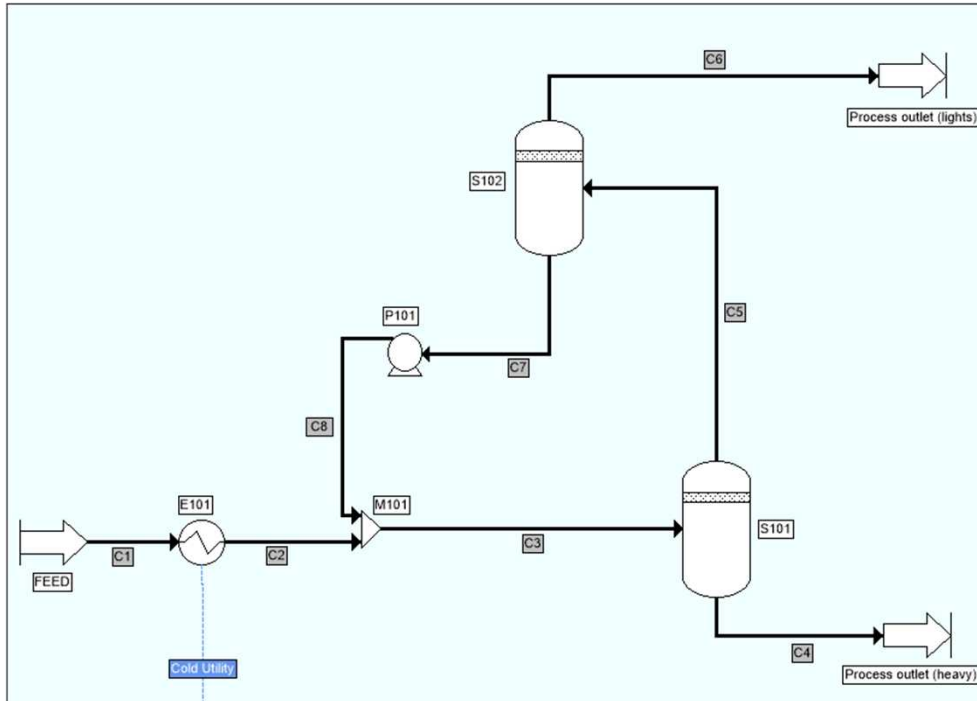
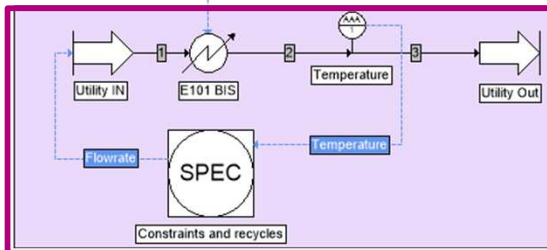
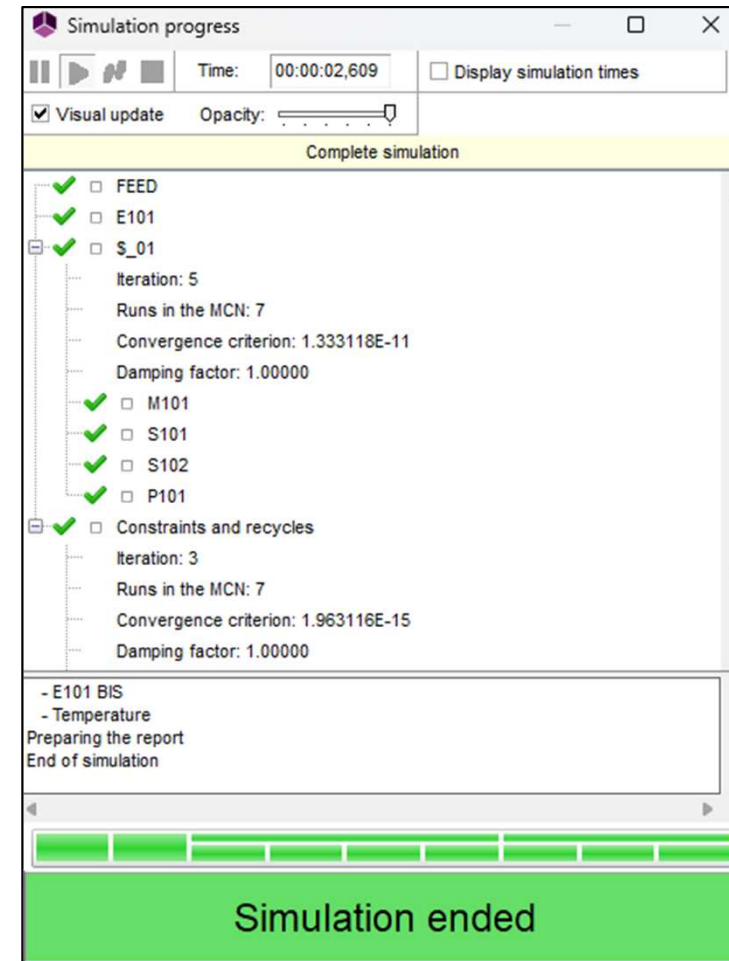
3

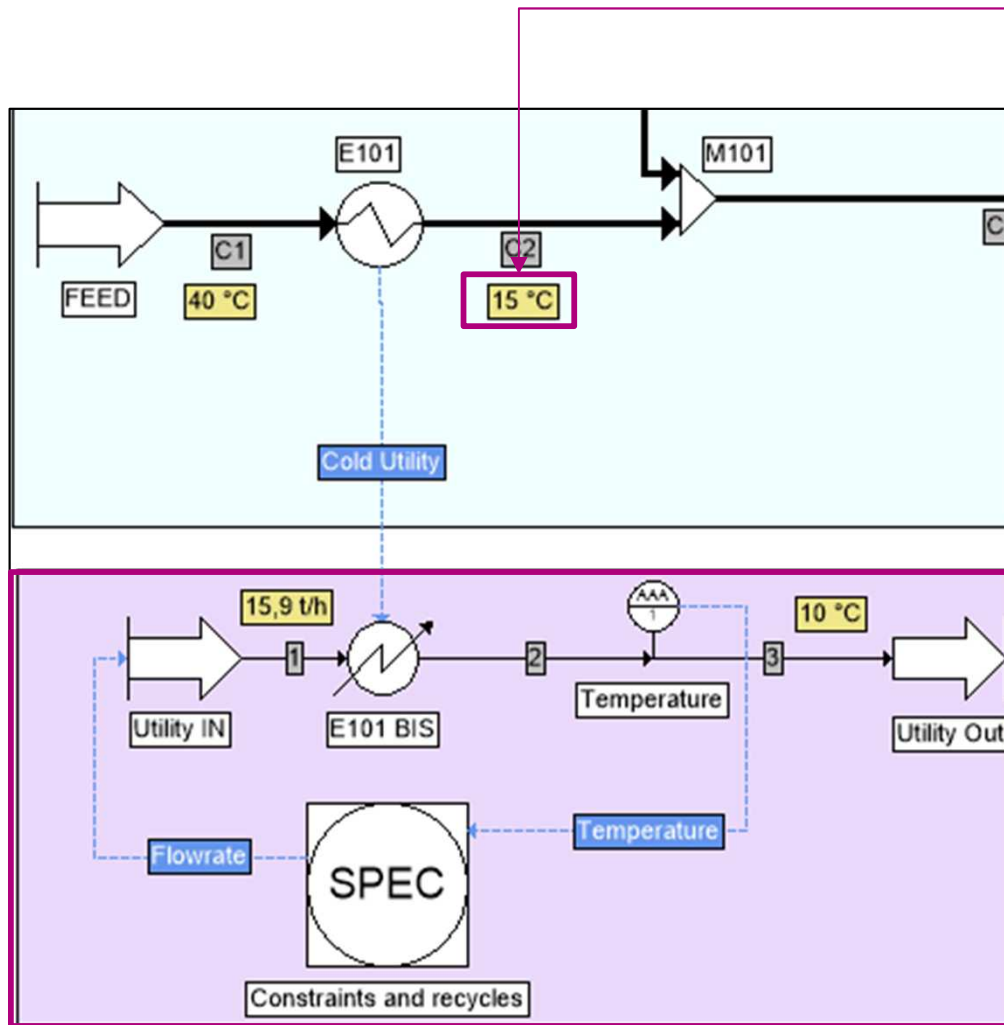
Calculation sequence

4

7

Run the simulation





A

Add tags to display the key results

123

In report unit system

B

Hover the mouse on the information stream to display the transferred value

In ProSimPlus unit system

The results show:

To achieve a **target outlet temperature** of 10 °C for the utility → a **flowrate** of 15.9 t/h is necessary

Introduction

Data transfer

1

"SPEC"

2

"MANI"

3

Calculation sequence

4

Manipulation of data and results: Let's do it!

1

Transferring
data between
unit operations

2

Defining process
specifications through
the constraints and
recycles module ("SPEC")

3

Manipulate data and results
through arithmetic operations,
using the information stream
operator ("MANI")

4

Imposing a specific
Calculation sequence
to control the order of
the units calculation

The "MANI" module allows to execute **arithmetic operations** on data and results that are transferred using **information streams**

Equation used for **information streams** calculations

$$\mathbf{Out} = A(\mathbf{In})^P + B - C$$

Where:

Out = Output information stream (*the result*)

In = Input information stream (*mandatory value*)

A, B, C and P = values provided by the user or additional information streams

Possible configurations

Arithmetic operation	Parameters values	Final Equation
Addition	$ \begin{array}{c} In \rightarrow \\ B \rightarrow \end{array} \begin{array}{ c } \hline A = 1 \\ P = 1 \\ \hline \end{array} \rightarrow Out $ $C = 0$	$Out = (In) + B$
Substraction	$ \begin{array}{c} In \rightarrow \\ C \rightarrow \end{array} \begin{array}{ c } \hline A = 1 \\ P = 1 \\ \hline \end{array} \rightarrow Out $ $B = 0$	$Out = (In) - C$
Multiplication	$ In \rightarrow \begin{array}{ c } \hline A = \text{multiplication factor} \\ P = 1 \\ \hline \end{array} \rightarrow Out $ $ \begin{array}{l} B = 0 \\ C = 0 \end{array} $	$Out = A(In)$
Division	$ In \rightarrow \begin{array}{ c } \hline A = \text{division factor} \\ P = -1 \\ \hline \end{array} \rightarrow Out $ $ \begin{array}{l} B = 0 \\ C = 0 \end{array} $	$Out = \frac{A}{(In)}$

Each parameter (A, B, C, or P) can be left blank to use the value of a selected information stream instead of entering a number manually, as shown in the following slides.



Objectives

Objectives of the application example:

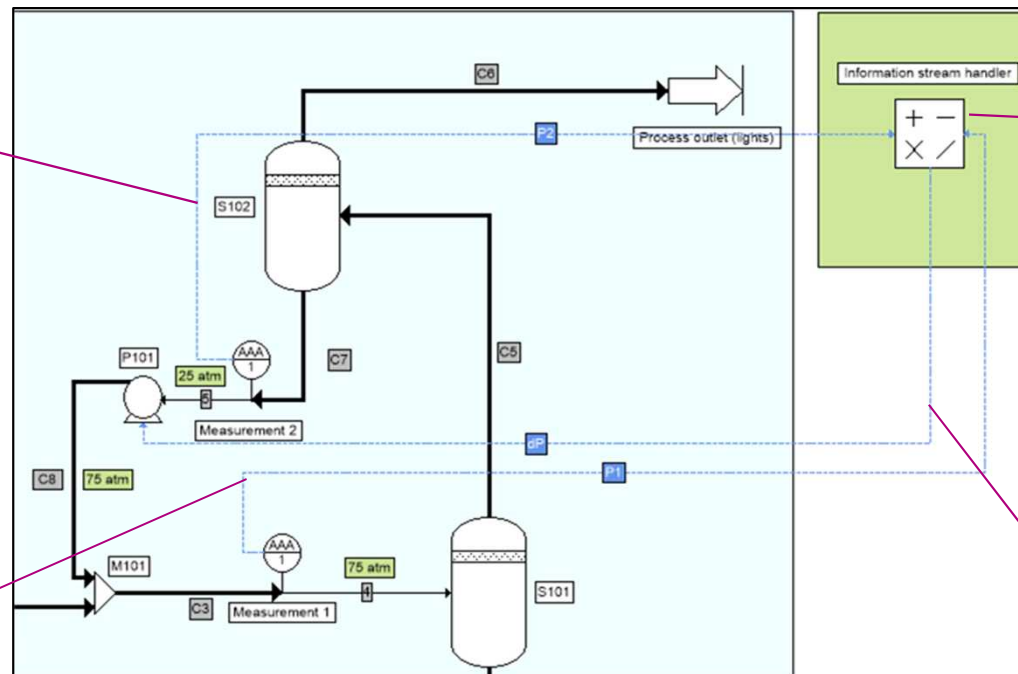
Calculate the pressure difference ($\Delta P = P1 (75 \text{ atm}) - P2 (25 \text{ atm})$) between the inlet and outlet streams of Flash S101 and Flash S102 respectively by performing an information stream subtraction. This ΔP (50 atm) is sent to Pump P101 as a pressure increase specification, serving as the starting point to reach the desired outlet pressure of 75 atm.

2

Transfer of measured pressure value : "P2"

1

Transfer of measured pressure value : "P1"



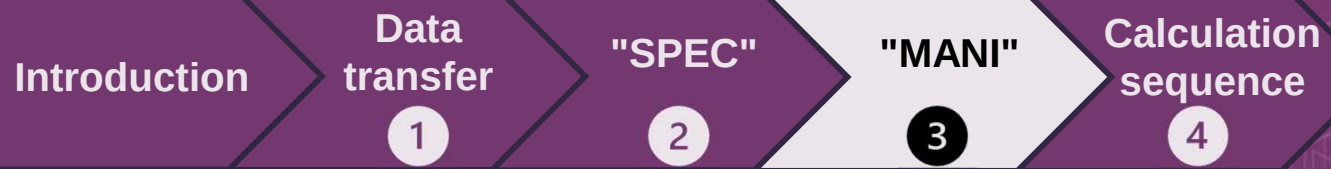
3

Pressure drop calculation:
 $\Delta P = P1 (75 \text{ atm}) - P2 (25 \text{ atm})$

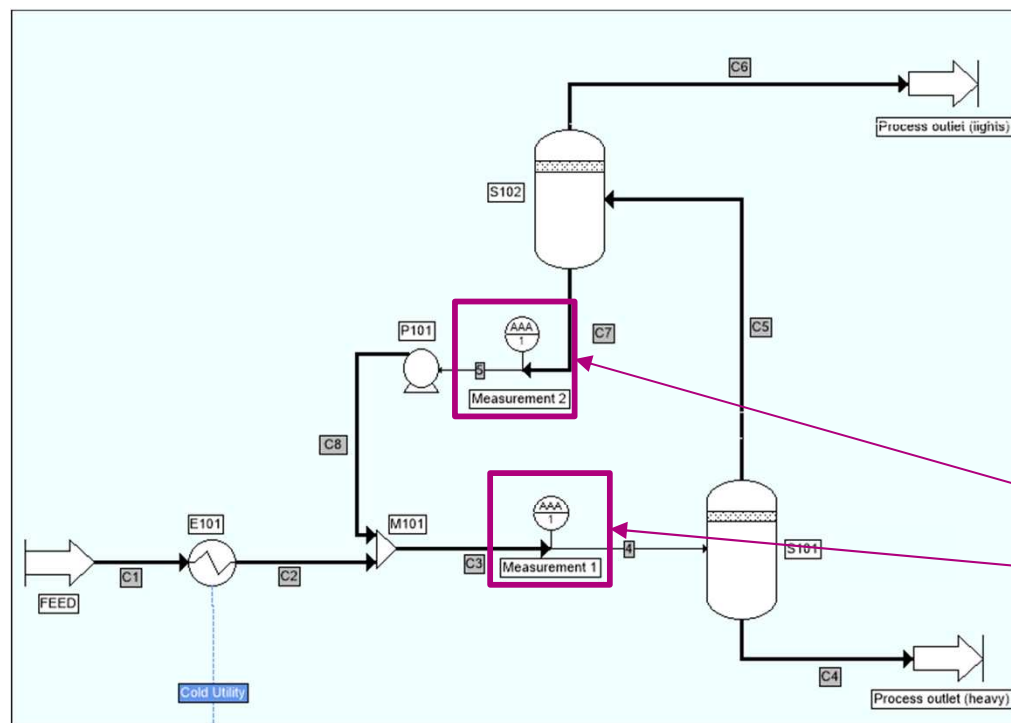
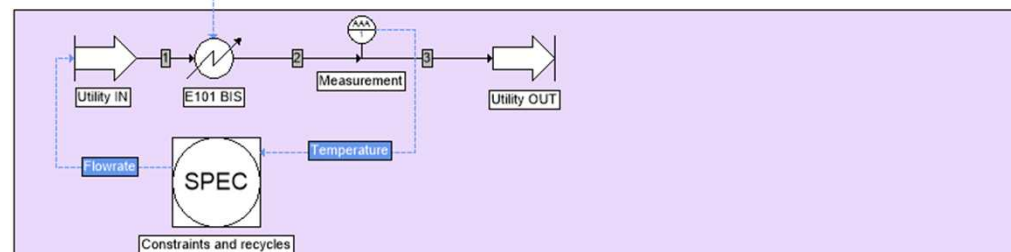
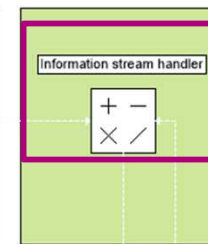
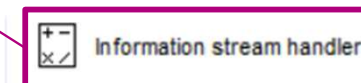
4

This ΔP (50 atm) is sent to Pump P101 as a pressure increase specification

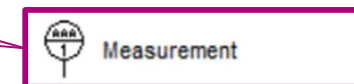
Practical Example



- ① Set up the information stream operator module ("MANI"), and the measurement modules (1 & 2) on streams C3 and C7



A

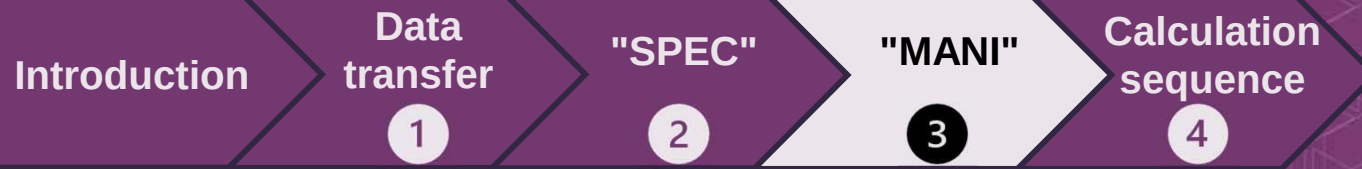


B

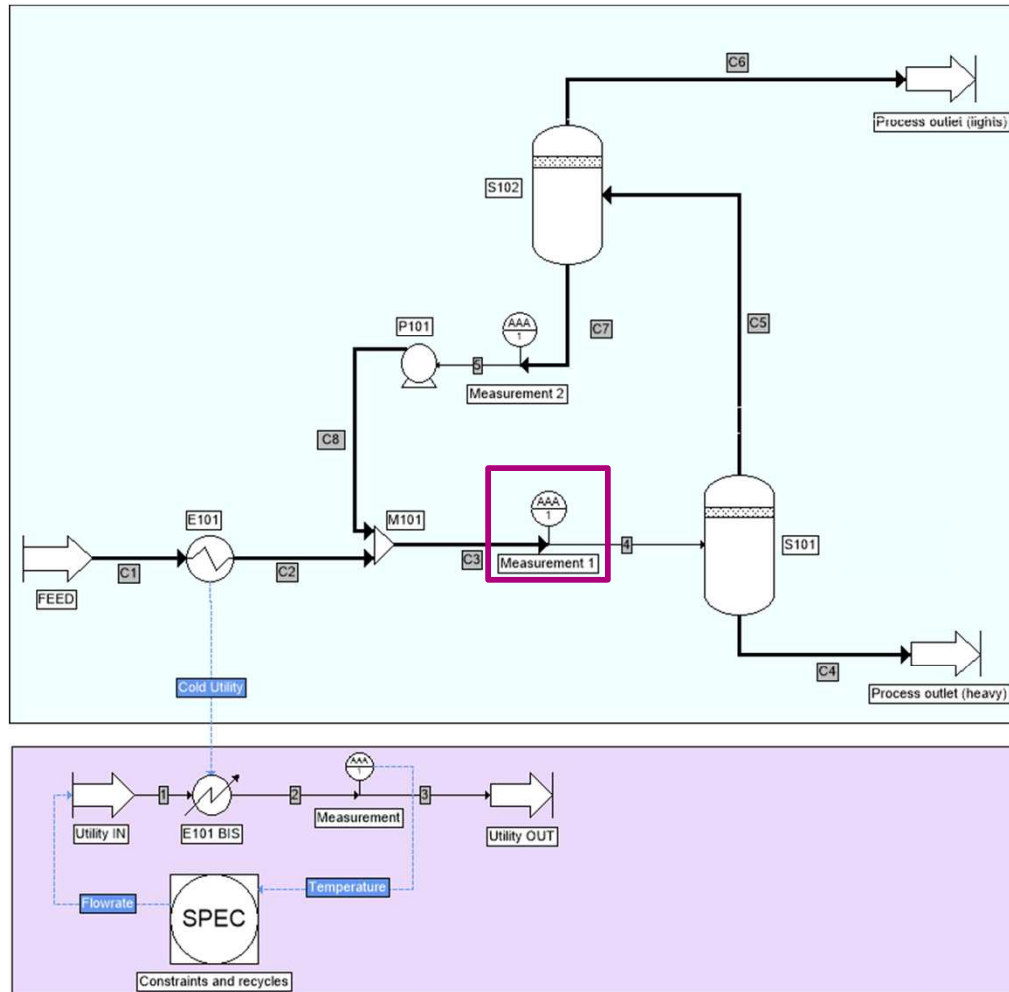
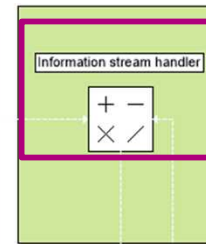
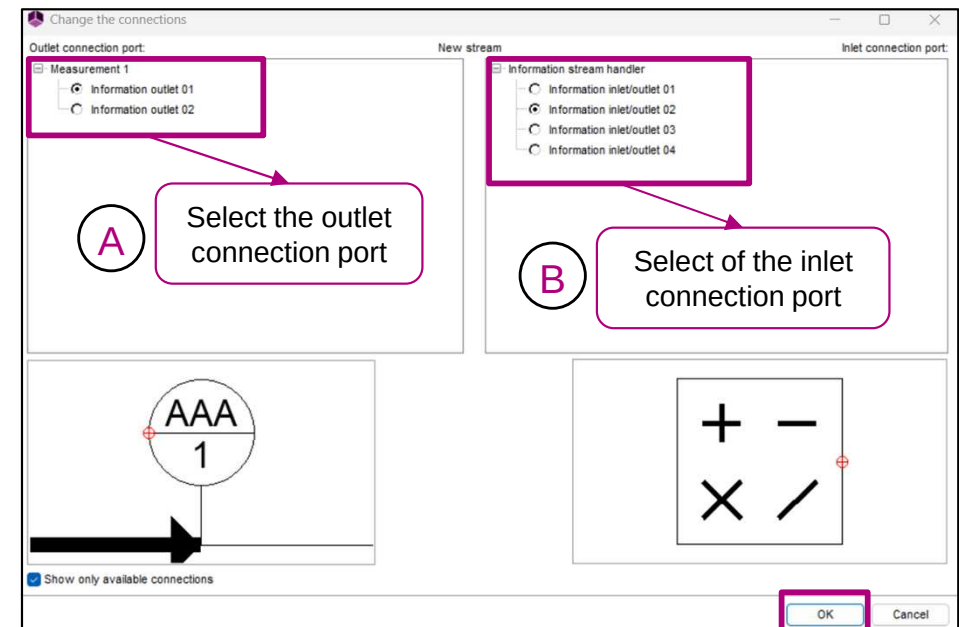
For more information about measurement modules, please consult
« Getting Started with ProSimPlus: use case 8 »



Practical Example

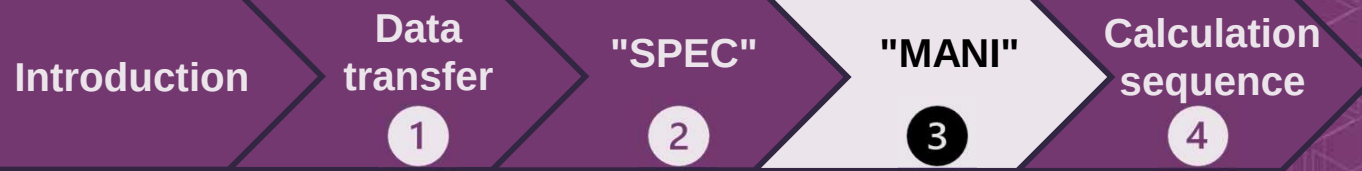


② Insert the "P1" information stream linking measurement module 1 with the "MANI" module

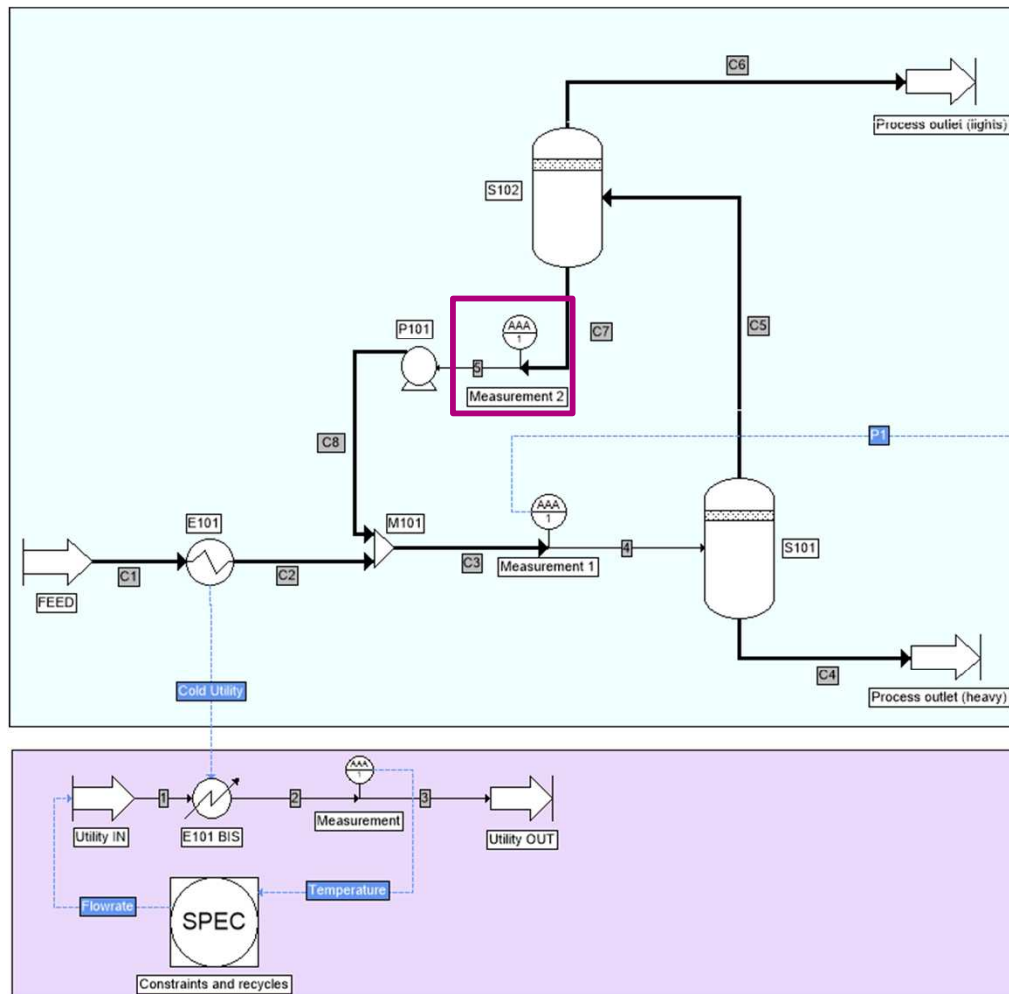
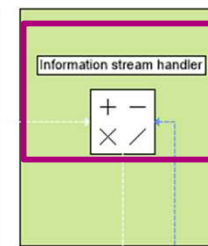
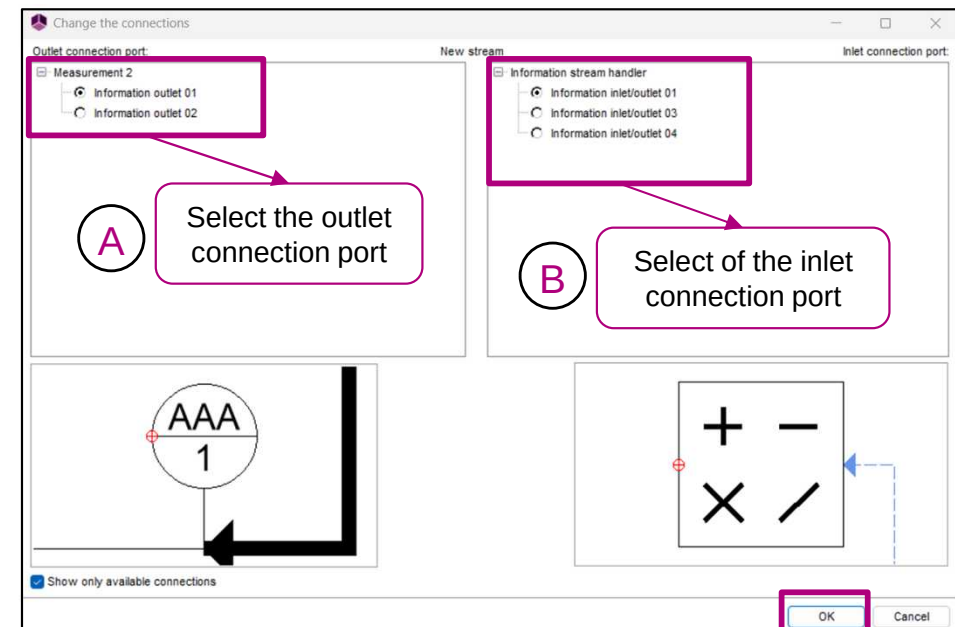


③ Click "OK" to save the data

Practical Example

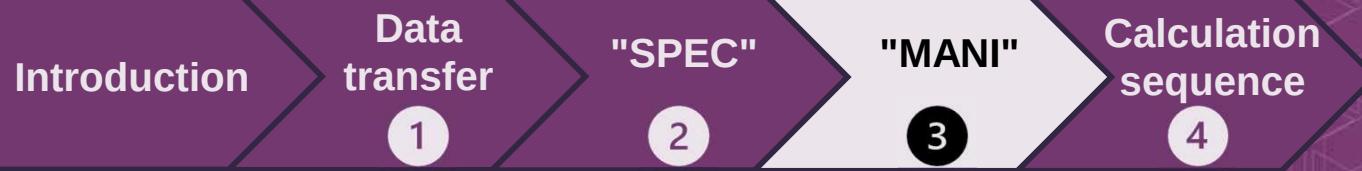


③ Insert the "P2" information stream linking the measurement module 2 with the "MANI" module

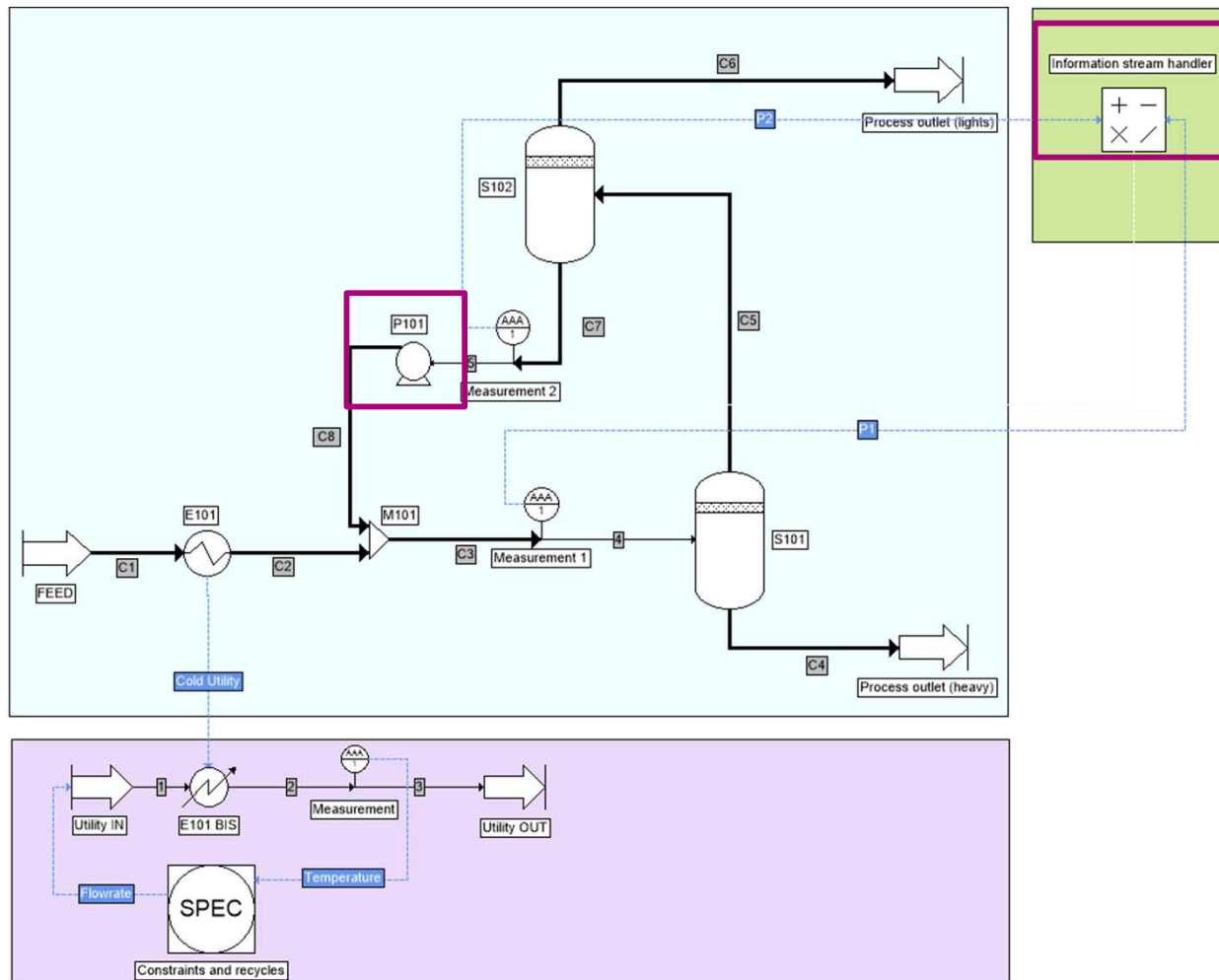
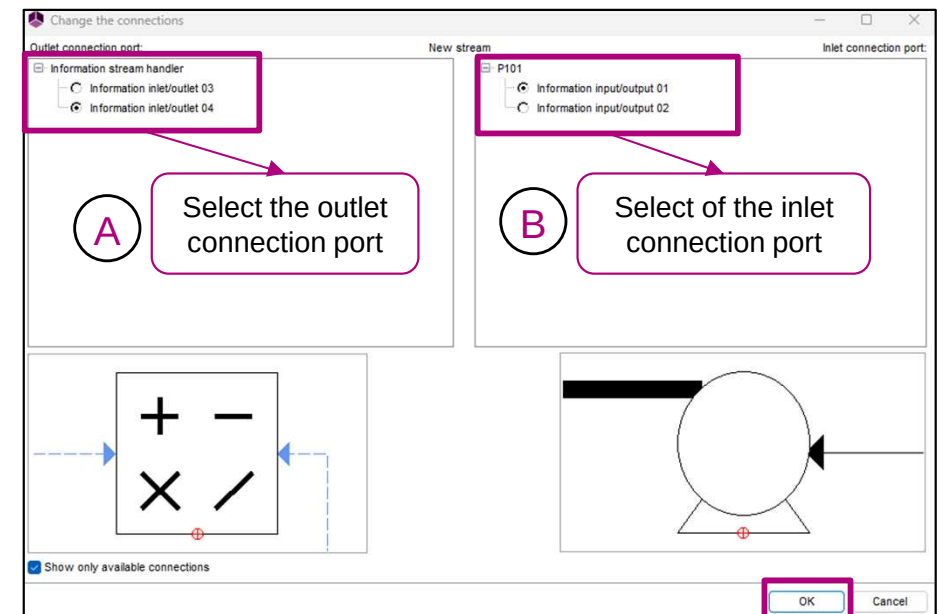


③ Click "OK" to save the data

Practical Example



- ④ Insert the "dP" information stream linking the "MANI" module with the "P101" Pump



- ③ Click "OK" to save the data

Practical Example

Introduction

Data transfer

1

"SPEC"

2

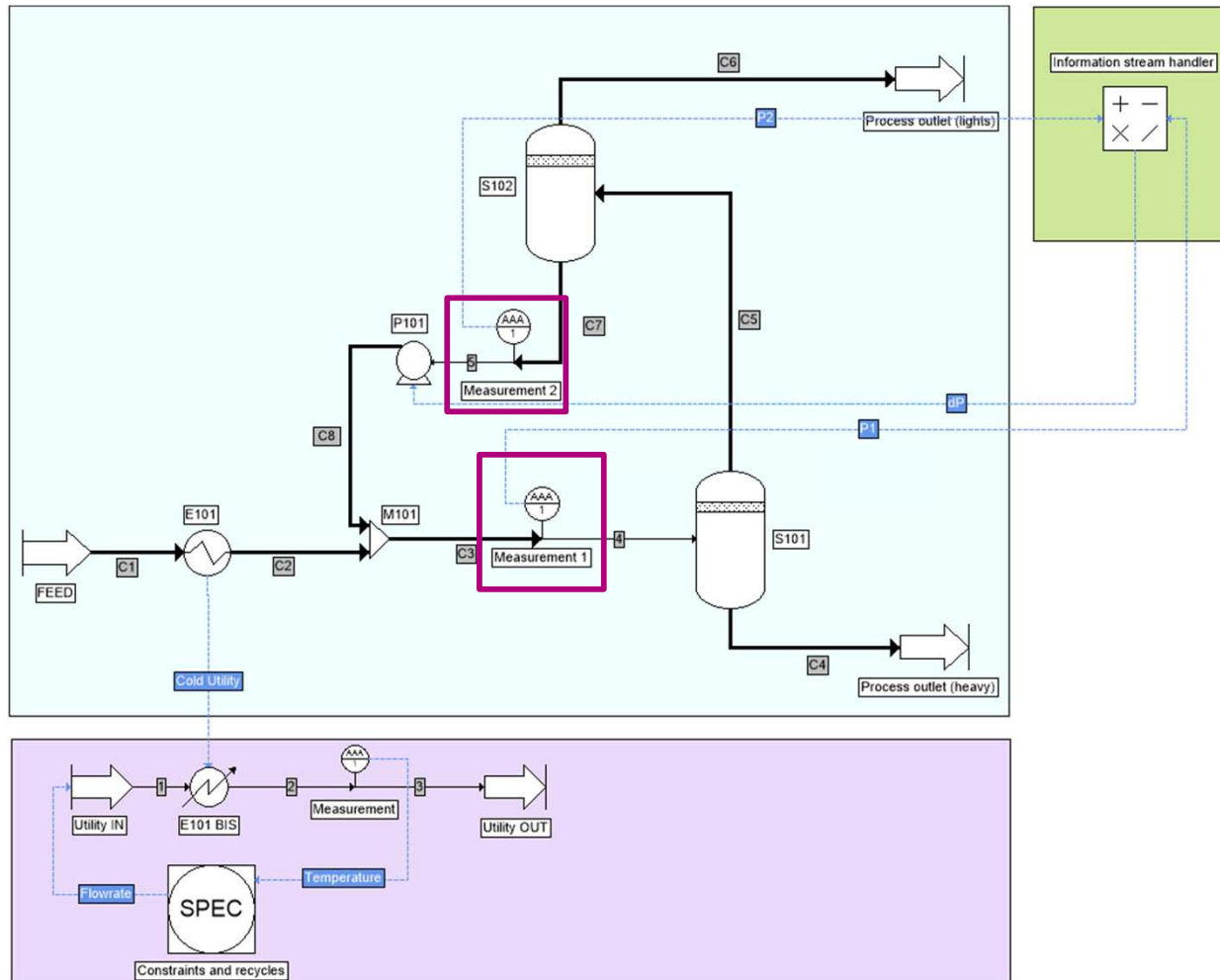
"MANI"

3

Calculation sequence

4

5 Set up the measurement modules 1 and 2



Double click on each of the **Measurement** modules

A

Select on each the measurement parameter: **Pressure**

B

Measurement (\$MESU2)

Name: Measurement 1

Desc:

Identification Parameters Scripts Report Streams Notes Ar < >

Measurement

Pressure

Temperature

Pressure

Total flowrate

Partial flowrate

Fraction

Partial flowrate ratio

Fraction ratio

NOx content

NO oxidation degree

Humidity

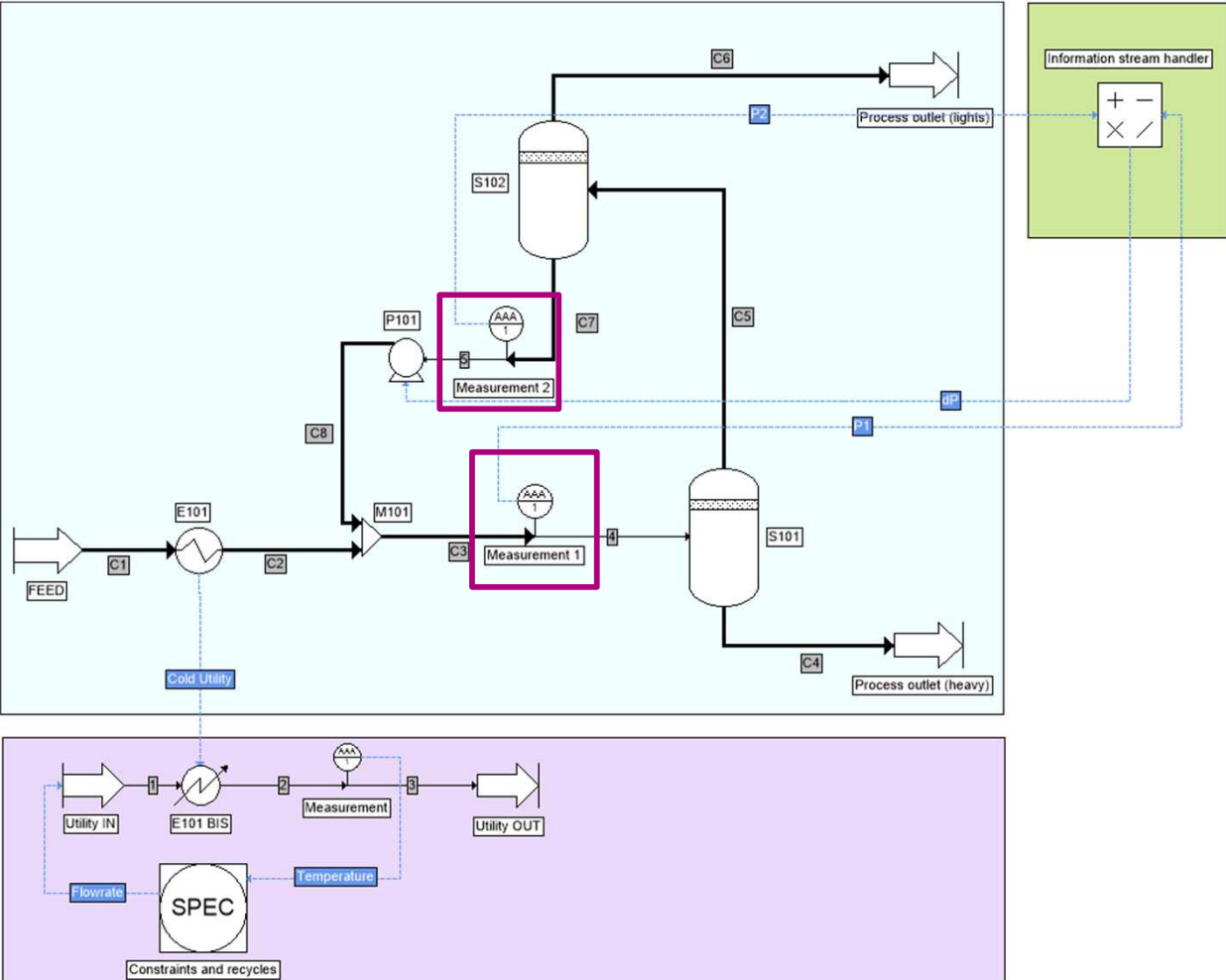
Concentration

pH

Pressure increment 0 atm

OK Cancel

5 Set up the measurement modules 1 and 2



C

Select the set point for the pressure value as: **supplied**

Measurement (\$MESU2)

Name: Measurement 1

Desc:

Identification Parameters Scripts Report Streams Notes Ar

Measurement

Pressure

Set point for pressure

- ☒ Supplied
- ☐ Bubble point pressure at specified temperature
- ☐ Dew point pressure at specified temperature
- ☐ Bubble point pressure at measured temperature
- ☐ Dew point pressure at measured temperature

Pressure atm

Pressure increment 0 atm

OK Cancel

Practical Example

Introduction

Data transfer

1

"SPEC"

2

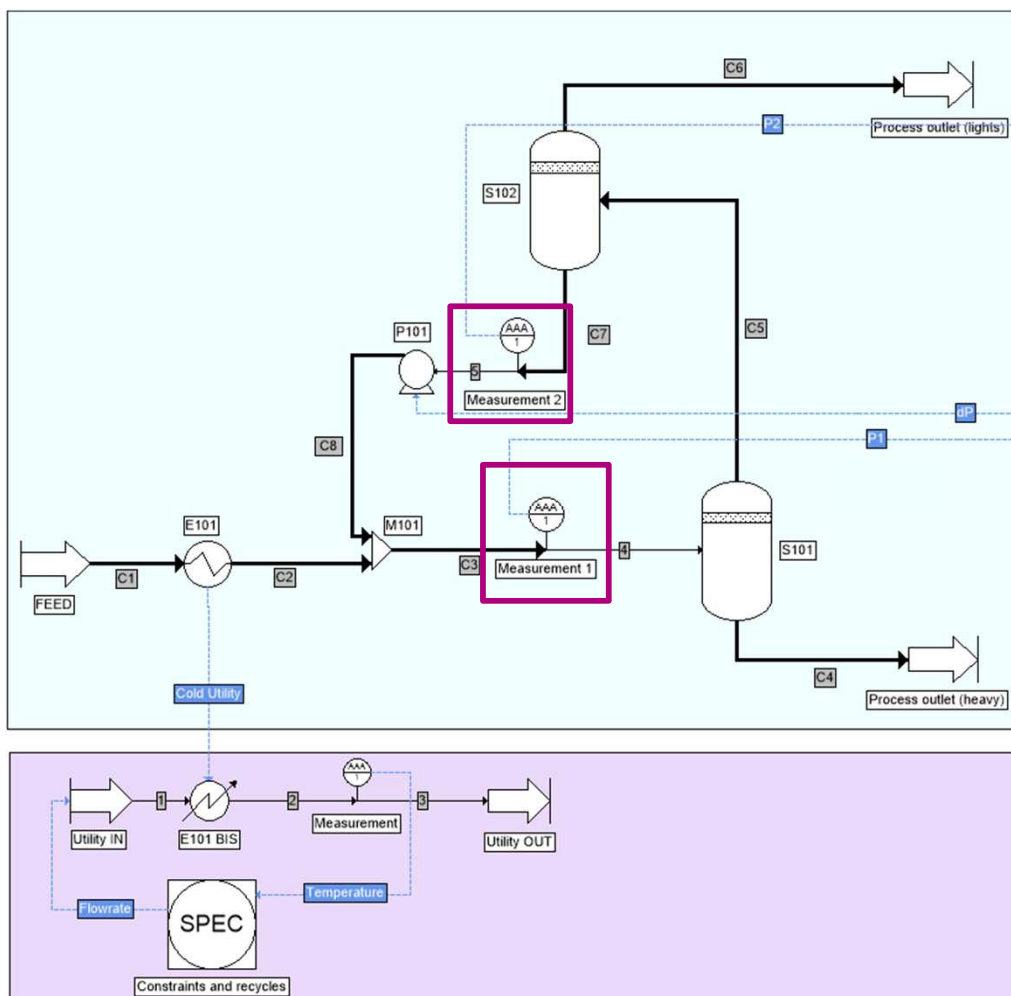
"MANI"

3

Calculation sequence

4

5 Set up the measurement modules 1 and 2



The supplied pressure must be a value higher than 0

D

Measurement (SMESU2)

Name: Measurement 1

Desc:

Identification Parameters Scripts Report Streams Notes Ac

Measurement

Pressure

Set point for pressure

☒ Supplied

☐ Bubble point pressure at specified temperature

☐ Dew point pressure at specified temperature

☐ Bubble point pressure at measured temperature

☐ Dew point pressure at measured temperature

Pressure 1 atm

Pressure increment 0 atm

OK Cancel

Measurement (SMESU1)

Name: Measurement 2

Desc:

Identification Parameters Scripts Report Streams Notes Ac

Measurement

Pressure

Set point for pressure

☒ Supplied

☐ Bubble point pressure at specified temperature

☐ Dew point pressure at specified temperature

☐ Bubble point pressure at measured temperature

☐ Dew point pressure at measured temperature

Pressure 1 atm

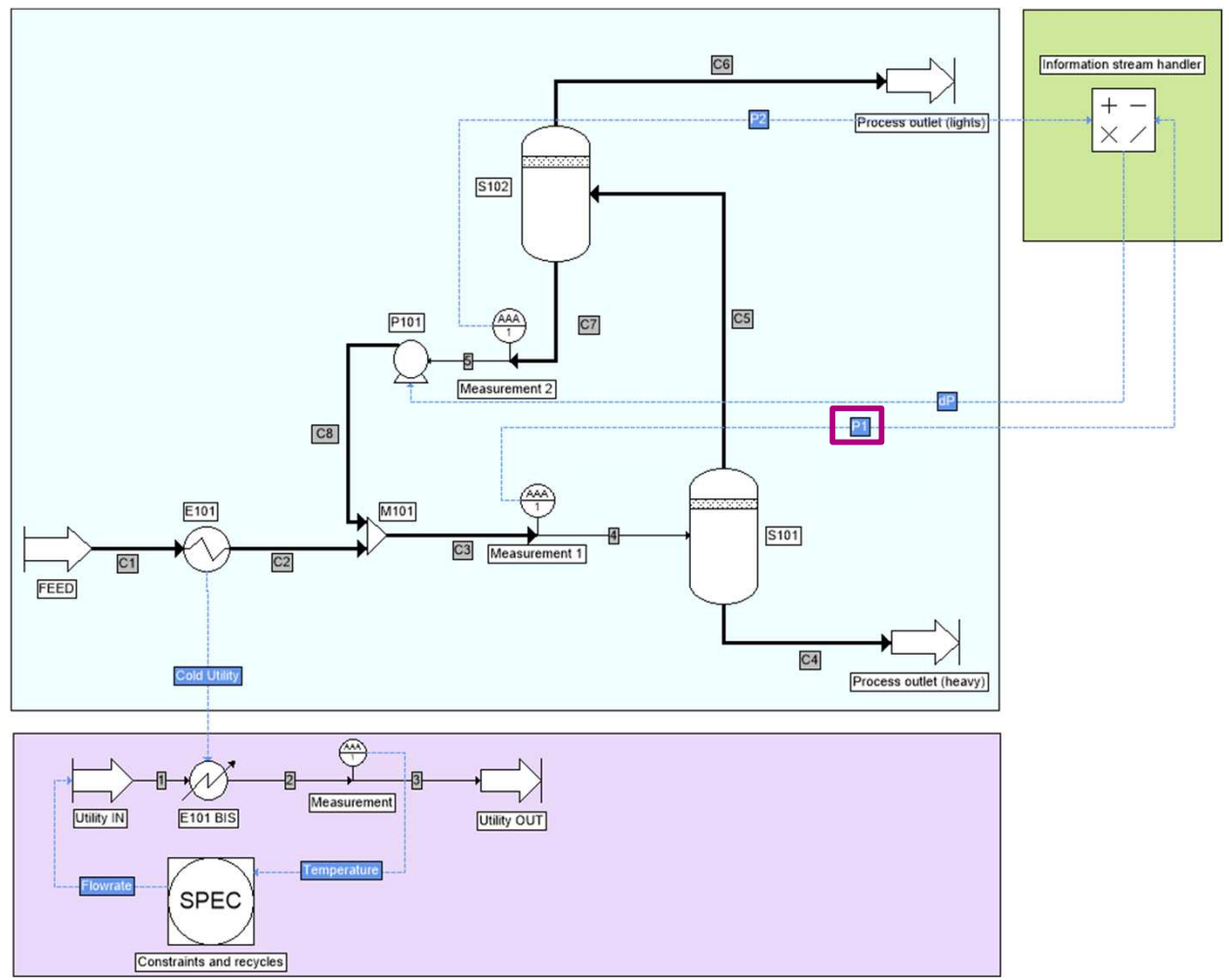
Pressure increment 0 atm

OK Cancel

E

Click "OK" to save the data

6 Specify "P1" information stream parameters



A

Double click on the "P1" information stream

B

Select "Measured value" as the data to be sent from the measurement module 1 to the "MANI" module

Information stream (\$ISTR3)

Name: P1

Desc:

IdentificationParametersNotes

☐ Impose the calculation sequence

Information type to be emitted:

☒ Measured value

Defined by its position in the unit block's parameter zone

Deviation between the measured value and the set point value

Set point value

• Measured value

No information transmitted

Information type to be received:

☒ Input information stream value (In)

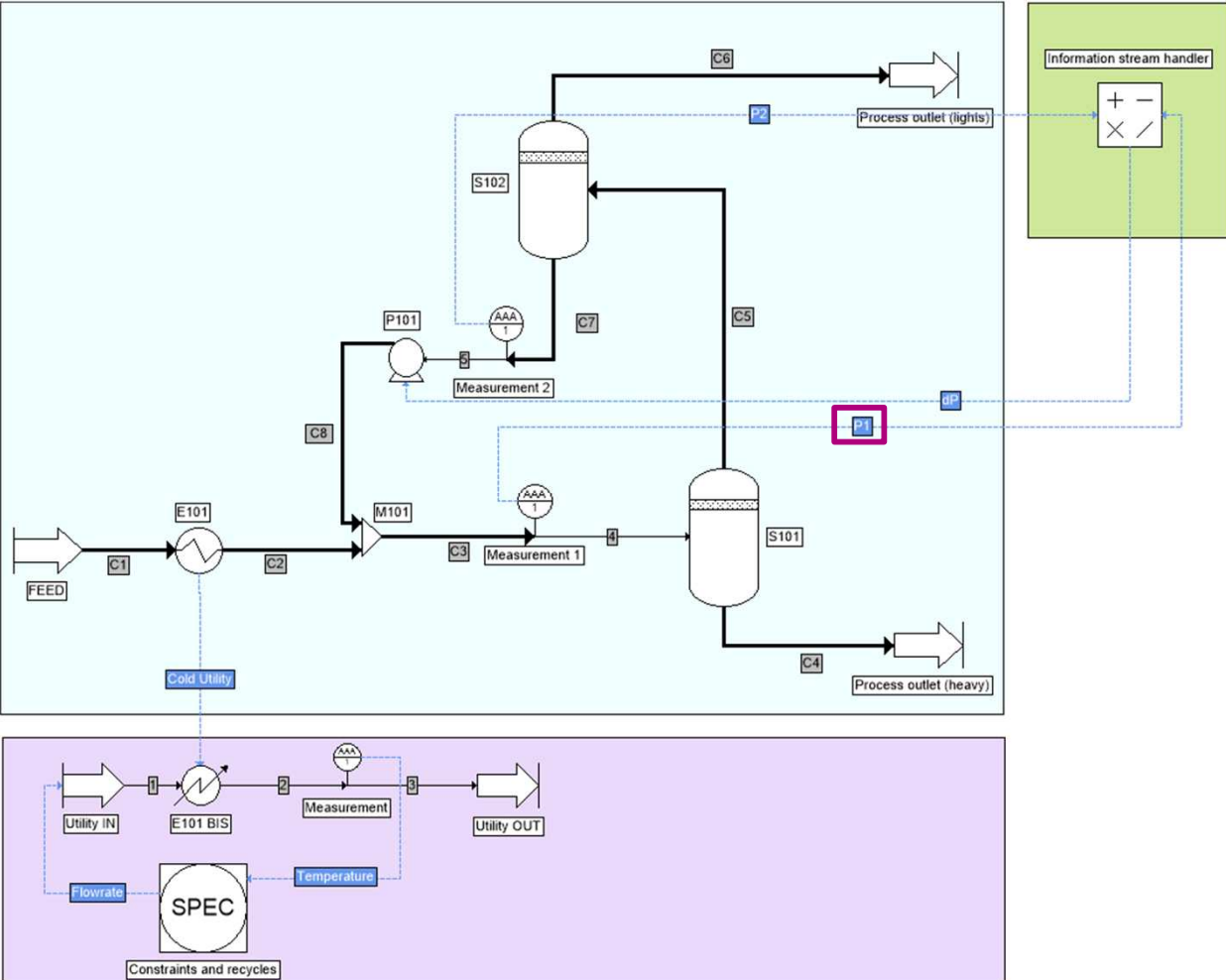
Information vector to be emitted will be automatically determined depending on the parameters of "Information stream handler"

Start: 0End: 0

OKCancel

6 Specify "P1" information stream parameters

C



Select the parameter that the "P1" information stream will represent in the equation $Out = A * In^P + B - C$ within the "MANI" module, which will be the parameter "In"

Information stream (\$ISTR3)

Name: P1

Desc:

Identification Parameters Notes

☐ Impose the calculation sequence

Information type to be emitted:

☒ Measured value

Information vector to be emitted will be automatically determined depending on the parameters of "Measurement 1"

Start: 0 End: 0

Information type to be received:

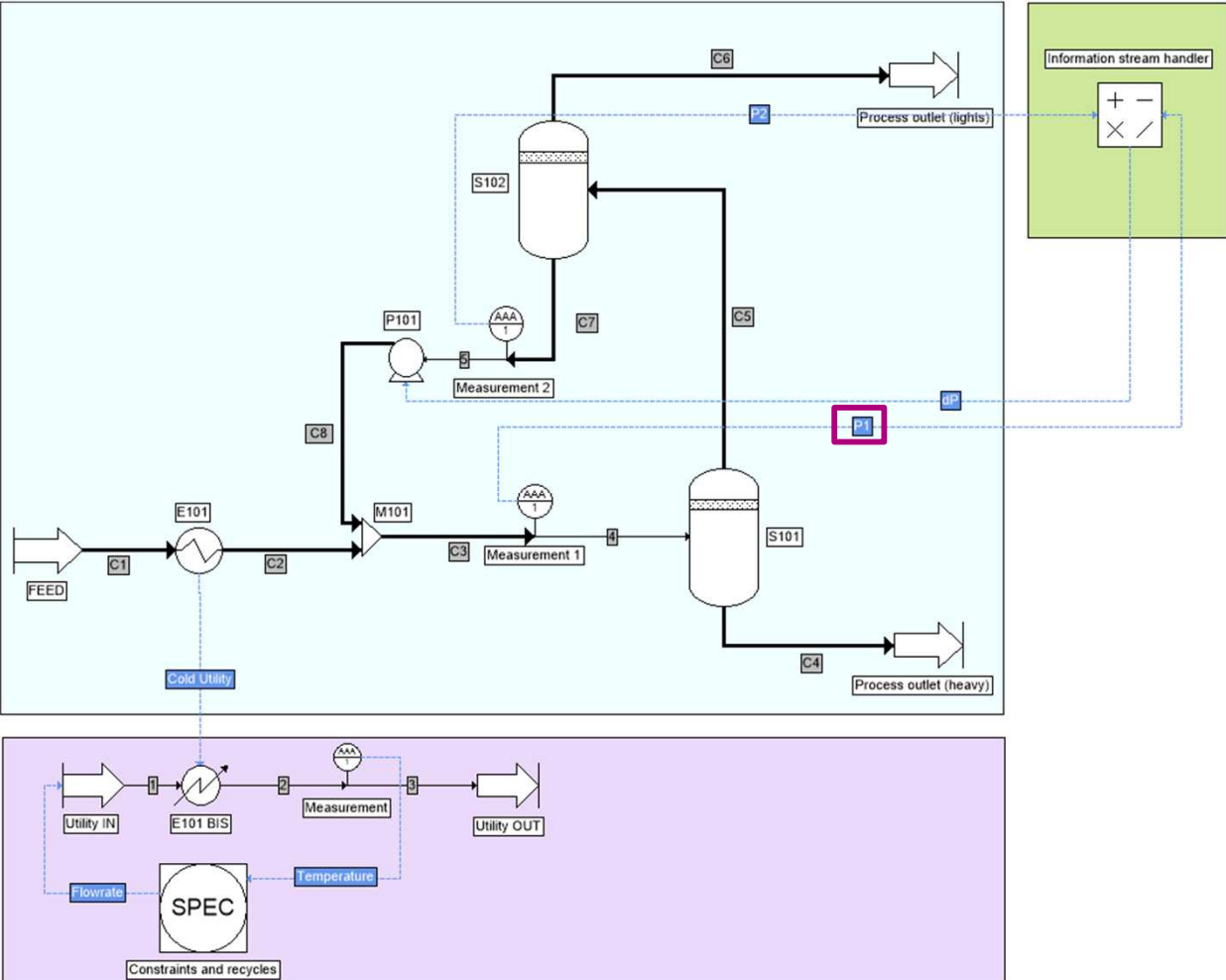
☒ Input information stream value (In)

Defined by its position in the unit block's parameter zone

- Input information stream value (In)
- Value of the real exponent (P)
- Value of the integer exponent (P)
- Value of the multiplicative factor (A)
- Value of the additive factor (B)
- Set point value or subtractive factor value (C)
- No information transmitted

Pressure from measurement module 1 will be the parameter Specify value ("In")

6 Specify "P1" information stream parameters



Information stream (\$ISTR3)

Name: P1

Desc:

IdentificationParametersNotes

☐ Impose the calculation sequence

Information type to be emitted:

☒ Measured value

Information vector to be emitted will be automatically determined depending on the parameters of "Measurement 1"

Start: 0End: 0

Information type to be received:

☒ Input information stream value (In)

Information vector to be emitted will be automatically determined depending on the parameters of "Information stream handler"

Start: 0End: 0

OKCancel

D Click "OK" to save the data

Practical Example

Introduction

Data transfer

1

"SPEC"

2

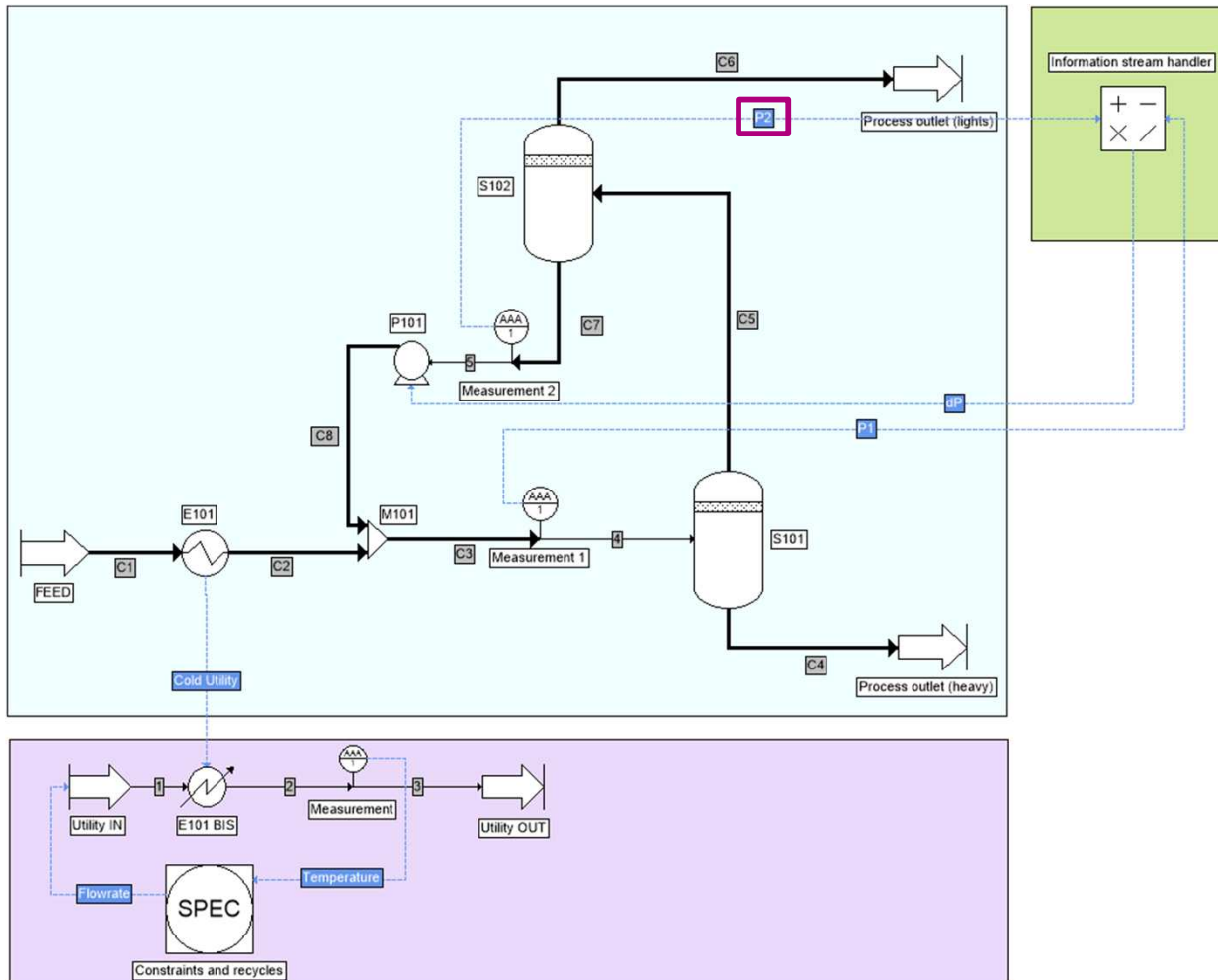
"MANI"

3

Calculation sequence

4

7 Specify "P2" information stream parameters



A

Double click on the "P2" information stream

B

Select "Measured value" as the data to be sent from the measurement module 2 to the "MANI" module

Information stream (\$ISTR4)

Name: P2

Desc:

Identification Parameters Notes

☐ Impose the calculation sequence

Information type to be emitted:

☒ Measured value

Defined by its position in the unit block's parameter zone

Deviation between the measured value and the set point value

Set point value

- Measured value
- No information transmitted

Information type to be received:

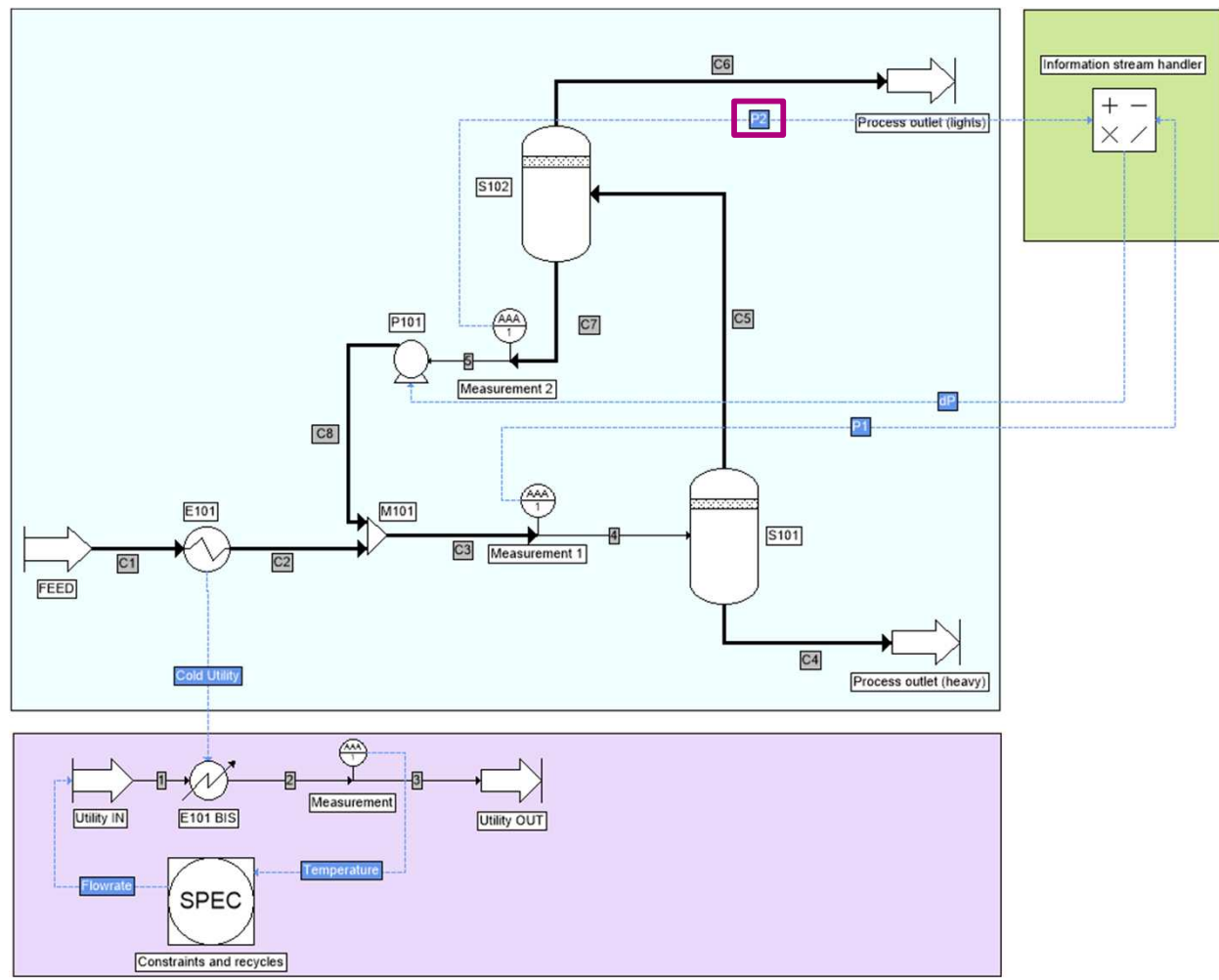
☒ Set point value or subtractive factor value (C)

Information vector to be emitted will be automatically determined depending on the parameters of "Information stream handler"

Start: 0 End: 0

OK Cancel

7 Specify "P2" information stream parameters



C

Select the parameter that the "P2" information stream will represent in the equation $Out = A * In^P + B - C$ within the "MANI" module, which will be the parameter "C"

Information stream (\$ISTR4)

Name: P2

Desc:

Identification	Parameters	Notes
☐ Impose the calculation sequence		
Information type to be emitted:		
☒ Measured value		
Information vector to be emitted will be automatically determined depending on the parameters of "Measurement 2"		
Start:	0	End: 0
Information type to be received:		
☒ Set point value or subtractive factor value (C)		
Defined by its position in the unit block's parameter zone		
Input information stream value (In)		
Value of the real exponent (P)		
Value of the integer exponent (P)		
Value of the multiplicative factor (A)		
Value of the additive factor (B)		
• Set point value or subtractive factor value (C)		
No information transmitted		

Pressure from measurement module 2 will be the subtractive factor value "C"

7 Specify "P2" information stream parameters

The diagram illustrates a process flow involving a distillation column. Streams C1 through C8 are shown, along with measurements M101 and M201. An information stream handler P2 is connected to the process. A utility section at the bottom shows a heat exchanger E101 B/S, a measurement, and a SPEC block for constraints and recycles.

Information stream (\$ISTR4)

Name: P2

Desc:

Identification Parameters Notes

☐ Impose the calculation sequence

Information type to be emitted:

☒ Measured value

Information vector to be emitted will be automatically determined depending on the parameters of "Measurement 2"

Start: 0 End: 0

Information type to be received:

☒ Set point value or subtractive factor value (C)

Information vector to be emitted will be automatically determined depending on the parameters of "Information stream handler"

Start: 0 End: 0

OK Cancel

D Click "OK" to save the data

Practical Example

Introduction

Data transfer

1

"SPEC"

2

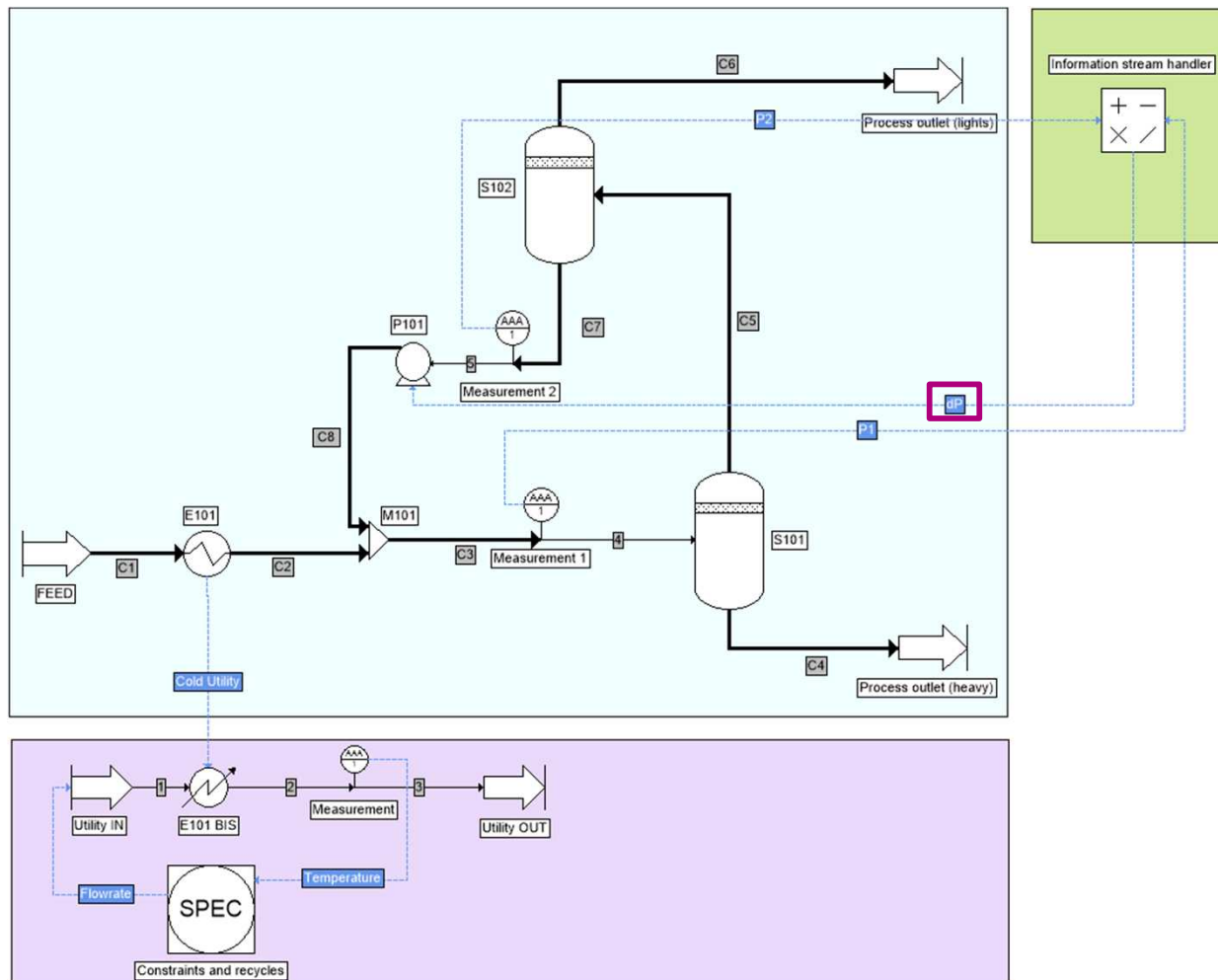
"MANI"

3

Calculation sequence

4

8 Specify "dP" information stream parameters



A

Double click on the "dP" information stream

B

Select the data to be sent from the "MANI" module: "Output information stream value (Out)"

Information stream (\$ISTR5)

Name: dP

Desc:

Identification Parameters Notes

☐ Impose the calculation sequence

Information type to be emitted:

- ☒ Output information stream value (Out)
 - Defined by its position in the unit block's parameter zone
 - Output information stream value (Out)
 - No information transmitted

Start: 0 End: 0

Information type to be received:

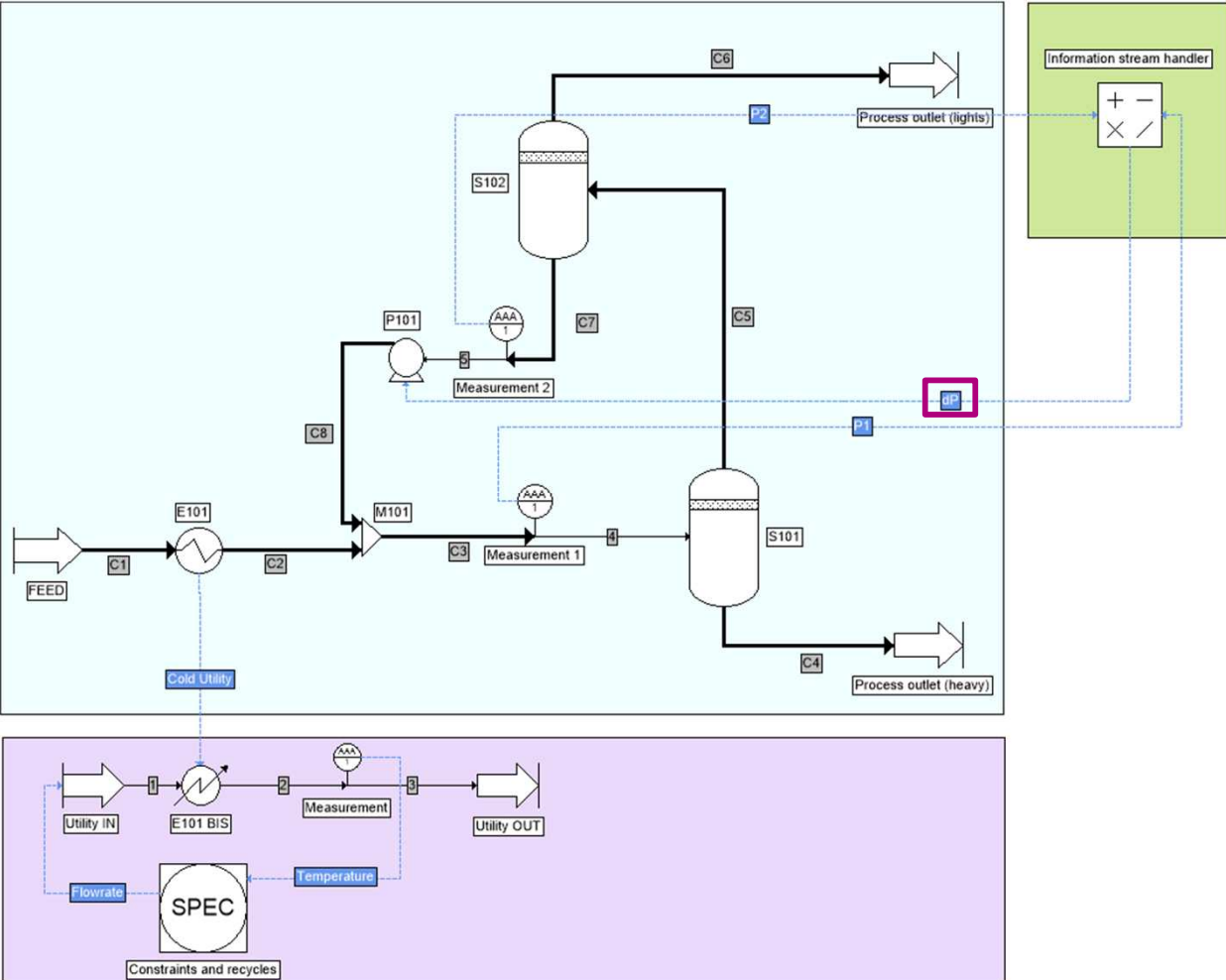
- ☒ Specification value

Information vector to be emitted will be automatically determined depending on the parameters of "P101"

Start: 0 End: 0

OK Cancel

8 Specify "dP" information stream parameters



Information stream (\$ISTR5)

Name: dP

Desc:

IdentificationParametersNotes

☐ Impose the calculation sequence

Information type to be emitted:

☒ Output information stream value (Out)

Information vector to be emitted will be automatically determined depending on the parameters of "Information stream handler"

Start: 0End: 0

Information type to be received:

☒ Specification value

Defined by its position in the unit block's parameter zone

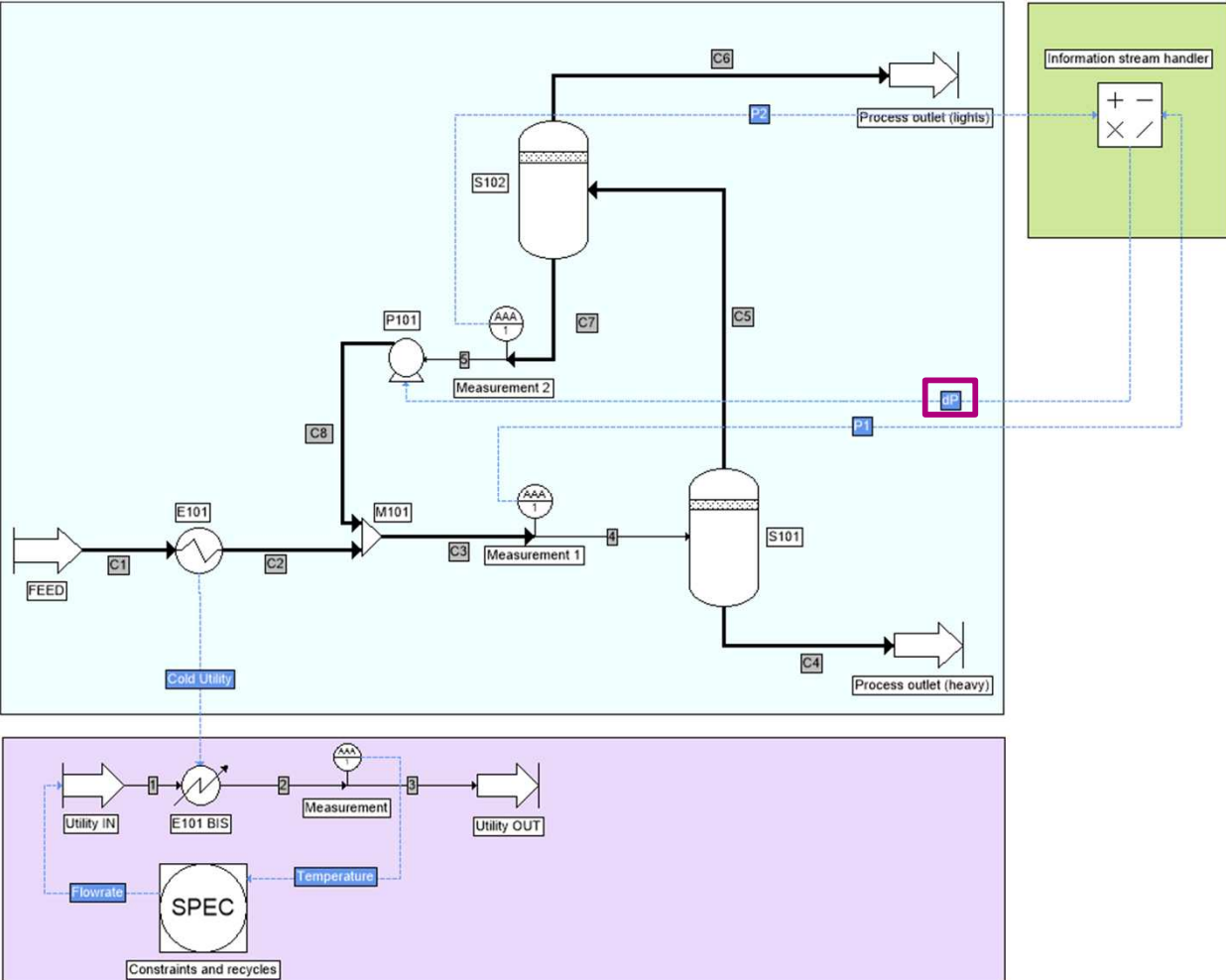
- Specification value
- Isentropic or volumetric efficiency
- Mechanical efficiency
- Electrical efficiency
- No information transmitted

OKCancel

C

Select the parameter that "P101 Pump" will receive: "Specification value"

8 Specify "dP" information stream parameters



Information stream (\$ISTR5)

Name: dP

Desc:

IdentificationParametersNotes

☐ Impose the calculation sequence

Information type to be emitted:

☒ Output information stream value (Out)

Information vector to be emitted will be automatically determined depending on the parameters of "Information stream handler"

Start: 0End: 0

Information type to be received:

☒ Specification value

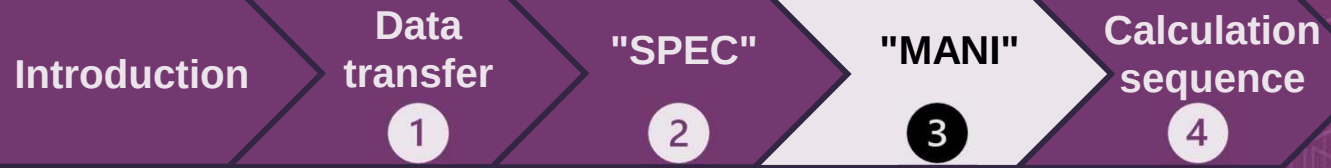
Information vector to be emitted will be automatically determined depending on the parameters of "P101"

Start: 0End: 0

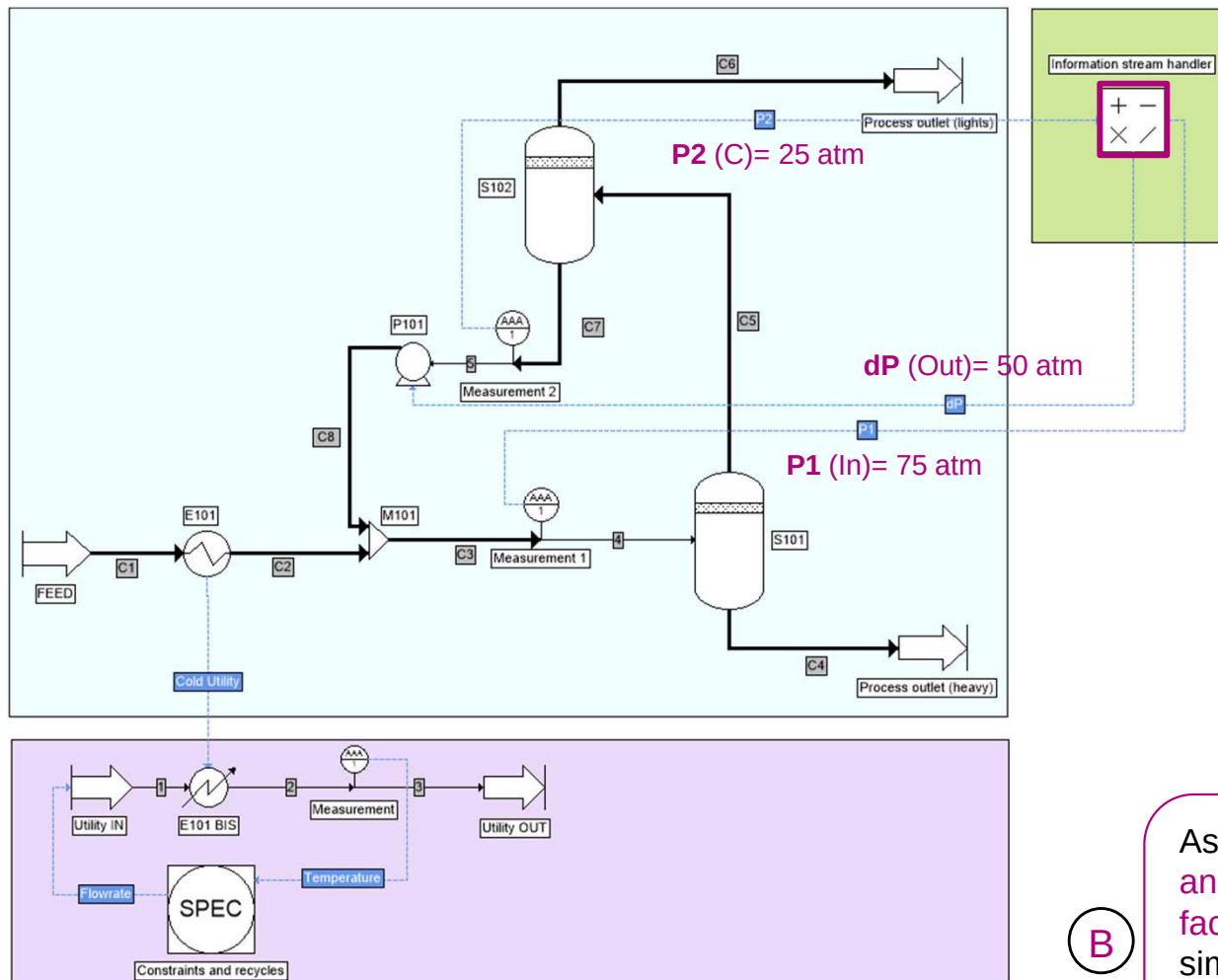
OKCancel

D Click "OK" to save the data

Practical Example



9 Specify "MANI" module equation parameters



A

Double click on the "MANI" module

Information stream handler (\$MANI)

Name: Information stream handler

Desc:

Identification Parameters Scripts Report Streams Notes Adv

$Out = A * In^P + B - C$

Value of A: 1

Value of B: 0

Value of C: 0

Power:

☒ Real value: 1

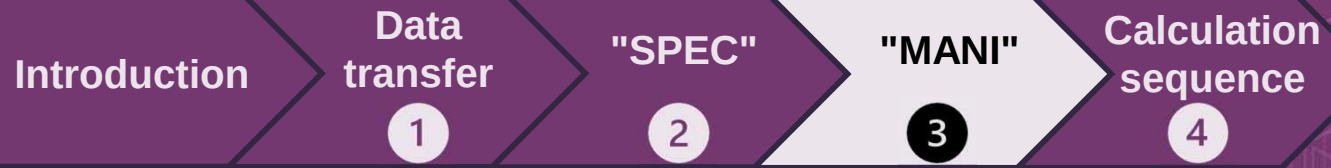
☐ Integer value: 1

OK Cancel

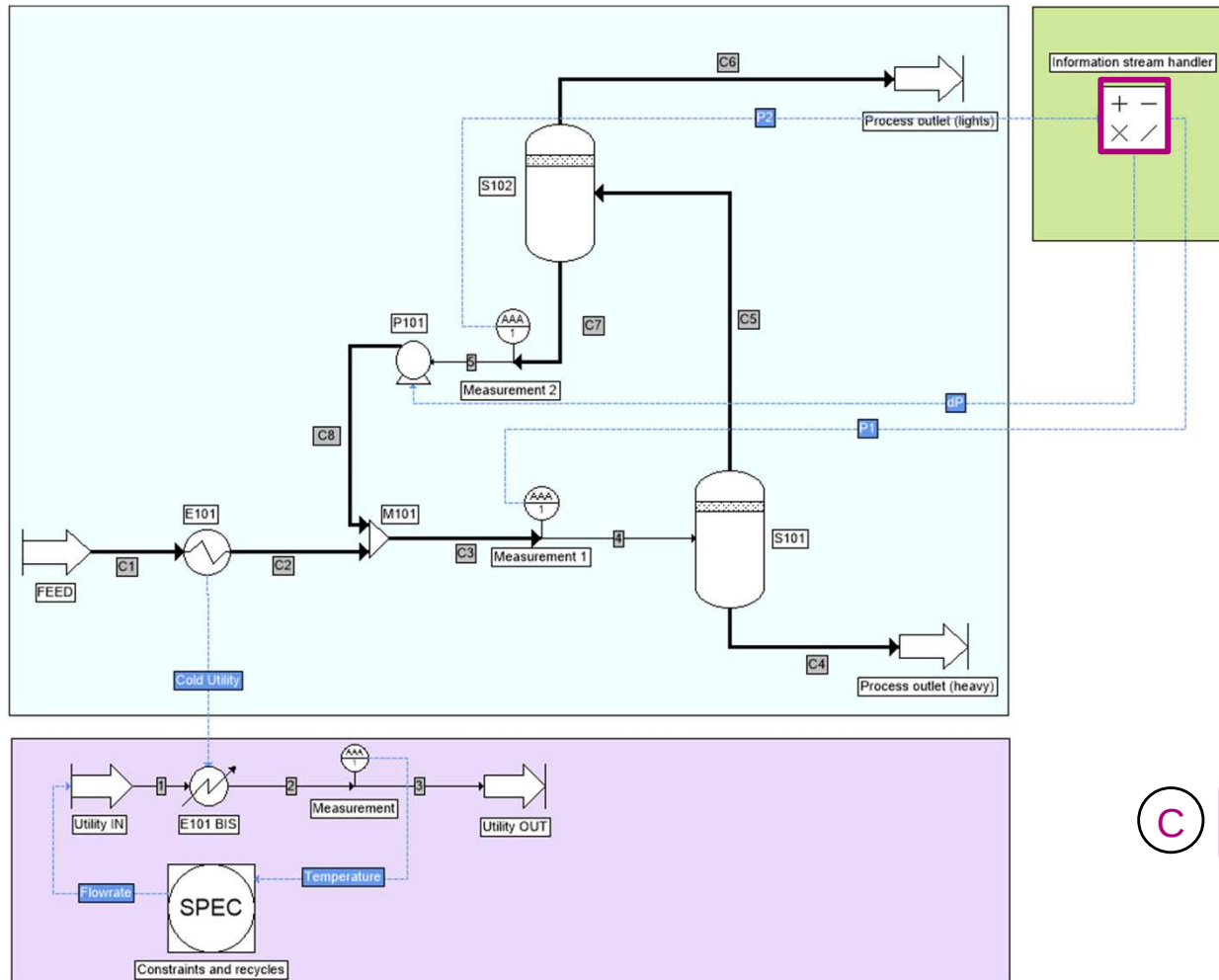
B

As previously mentioned, information streams "P1" and "P2" correspond to input ("In") and subtractive factor value "C" parameters respectively. To perform a simple subtraction, set $A=1$, $B=0$ and $P=1$. The resulting equation becomes: $Out = In - C$, or equivalently, $Out = P_1 - P_2$

Practical Example



9 Specify "MANI" module equation parameters



Information stream handler (\$MANI)

Name: Information stream handler

Desc:

Identification Parameters Scripts Report Streams Notes Adv

$Out = A * In^p + B - C$

Value of A: 1

Value of B: 0

Value of C: 0

Power:

☒ Real value: 1

☐ Integer value: 1

OK Cancel

C

Click "OK" to save the data

Practical Example

Introduction

Data transfer

1

"SPEC"

2

"MANI"

3

Calculation sequence

4

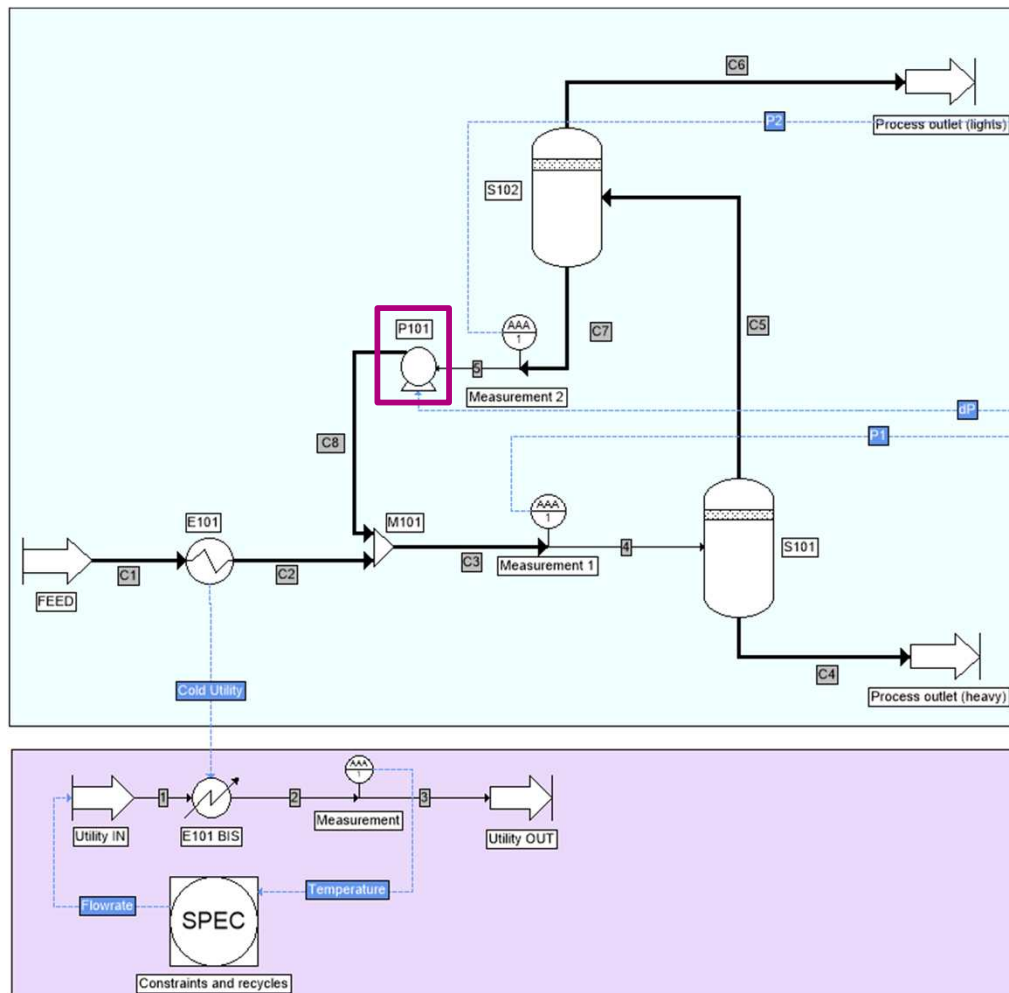
10 Specify Pump ("P101") parameters

A

Double click on the "P101" Pump

B

Select « **Pressure increase** » as the supplied specification



Pump (\$POMP)

Name: P101

Desc:

Identification Parameters Scripts Report Streams Notes Ac

Supplied specification

- ☐ Supplied
- ☐ Pressure = bubble point pressure at specified temperature
- ☐ Pressure = dew point pressure at specified temperature
- ☐ Actual supplied power
- ☒ Pressure increase
- ☐ Compression ratio

Pressure increase 0 atm

Efficiencies

- ☐ Isentropic
- ☒ Volumetric 0,65

Mechanical 1

Electrical 1

☐ Fixed liquid physical state

Numerical parameters...

OK Cancel

Practical Example

Introduction

Data transfer

1

"SPEC"

2

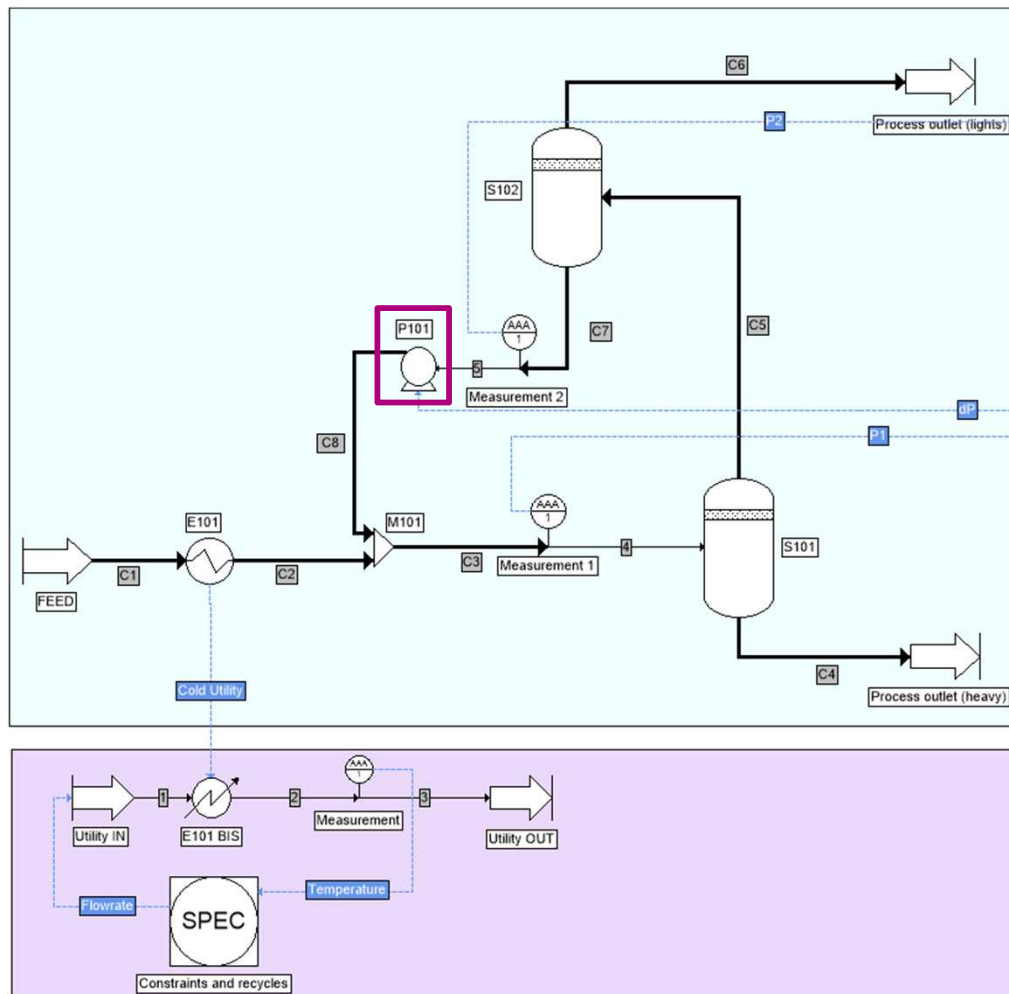
"MANI"

3

Calculation sequence

4

10 Specify Pump ("P101") parameters



Pump (\$POMP)

Name: P101

Desc:

Identification Parameters Scripts Report Streams Notes Ac

Supplied specification

- ☐ Supplied
- ☐ Pressure = bubble point pressure at specified temperature
- ☐ Pressure = dew point pressure at specified temperature
- ☐ Actual supplied power
- ☒ Pressure increase
- ☐ Compression ratio

Pressure increase 0 atm

Efficiencies

- ☐ Isentropic
- ☒ Volumetric 0,65

Mechanical 1

Electrical 1

☐ Fixed liquid physical state

Numerical parameters...

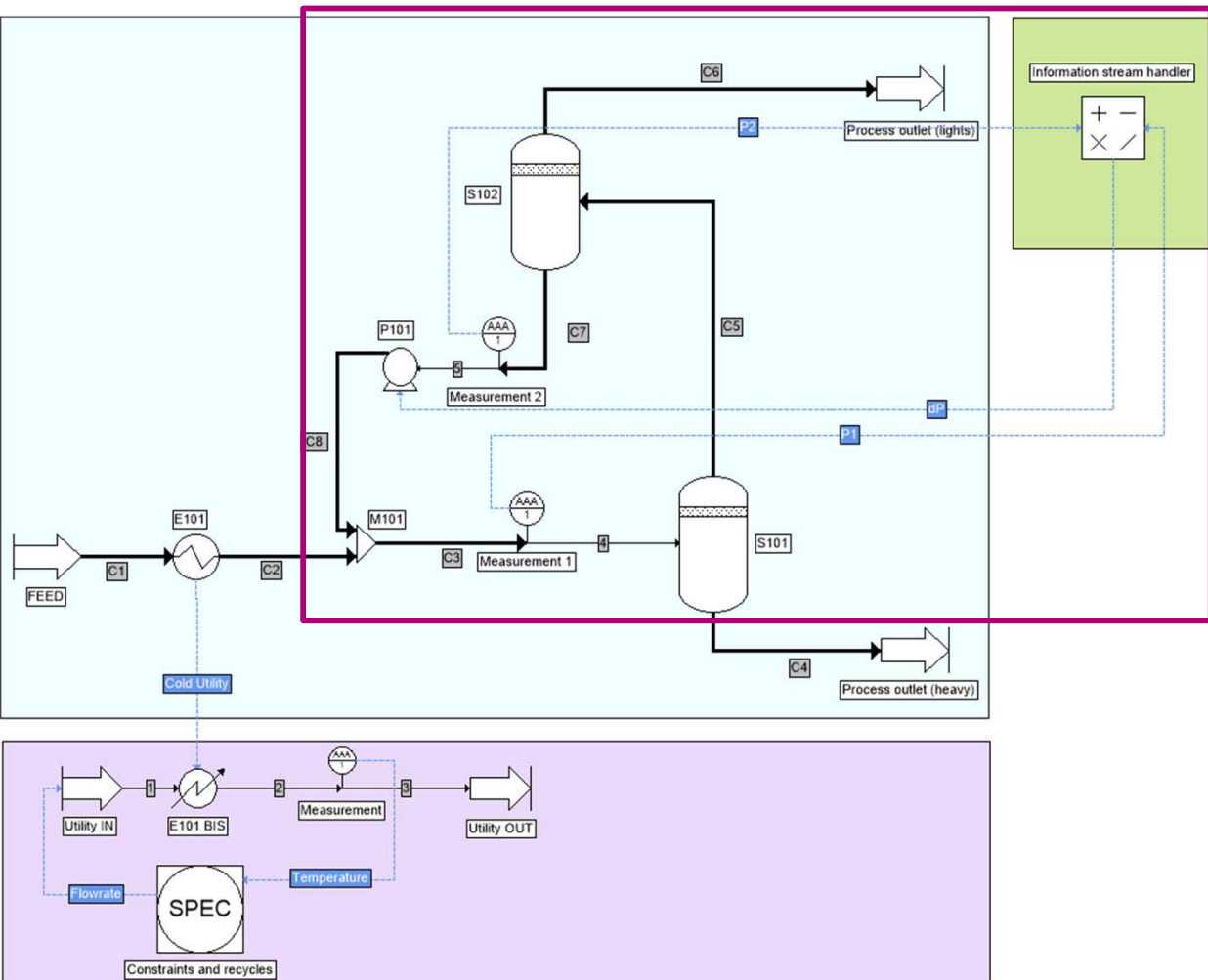
OK Cancel

C

Click "OK" to save the data

11

Run the simulation



Simulation progress

Time: 00:00:03,265 ☐ Display simulation times

☒ Visual update Opacity:

Simulation based on previous results

☒ FEED

☒ E101

☒ \$_01
Iteration: 0
Runs in the MCN: 1
Convergence criterion: 8.233127E-11
Damping factor: 1.00000

☒ M101

☒ Measurement 1

☒ S101

☒ S102

☒ Measurement 2

☒ Information stream handler

☒ P101

☒ Constraints and recycles
Iteration: 0

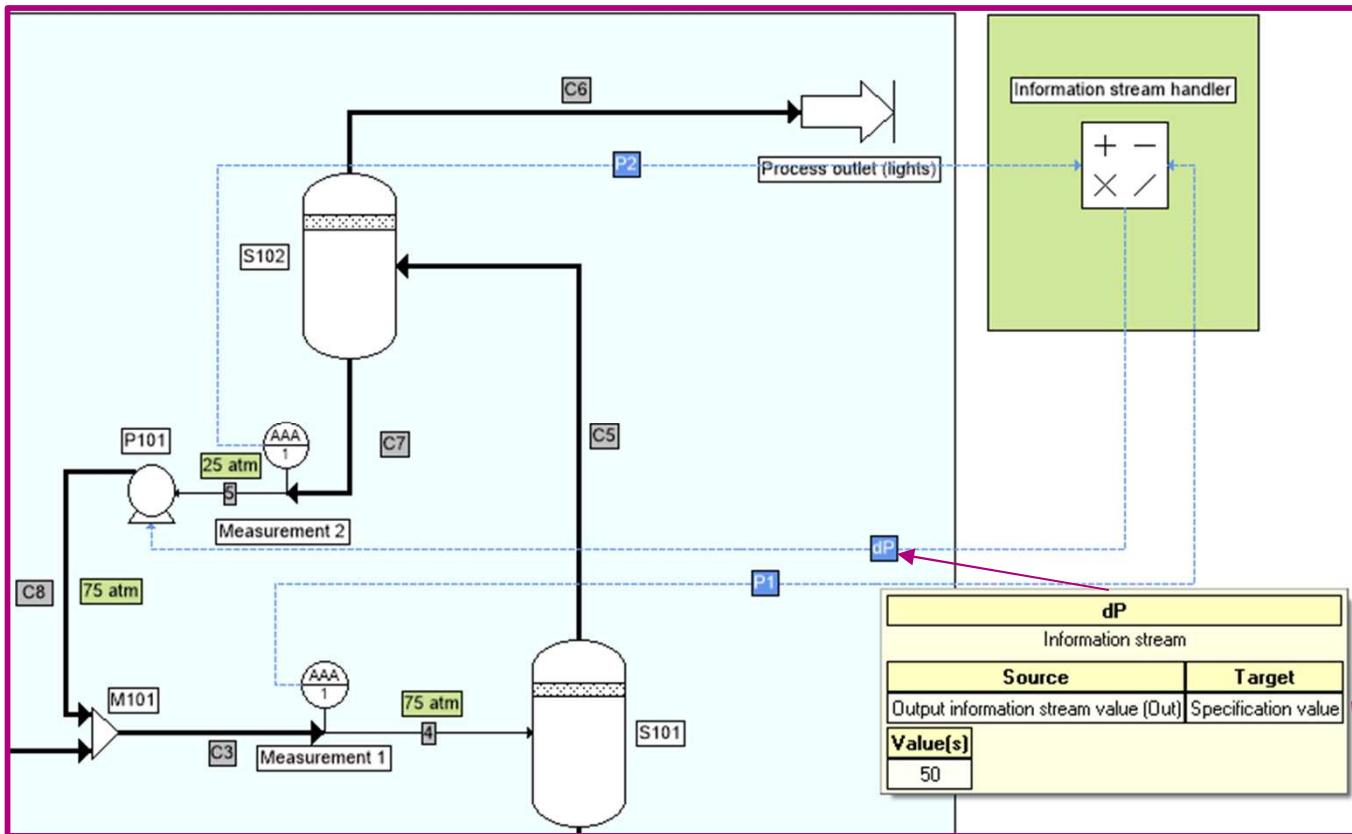
- Simple heat exchanger
- Measurement

Preparing the report

End of simulation

Simulation ended

RESULTS



- The "MANI" module with the help of the information streams was able to calculate the ΔP (50 atm) between the flash units "S101" (75 atm) and "S102" (25 atm).

- This ΔP was then successfully used to adjust the "P101" Pump pressure to 75 atm, matching the process requirement.

Placing the pointer over a stream (material or information) displays the results conveyed by that stream, in ProSim unit system



Concept

Introduction

Data transfer

1

"SPEC"

2

"MANI"

3

Calculation sequence

4

Defining a Calculation sequence: Let's do it!

1

Transferring data between unit operations

2

Defining process specifications through the constraints and recycles module ("SPEC")

3

Manipulate data and results through arithmetic operations, using the information stream operator ("MANI")

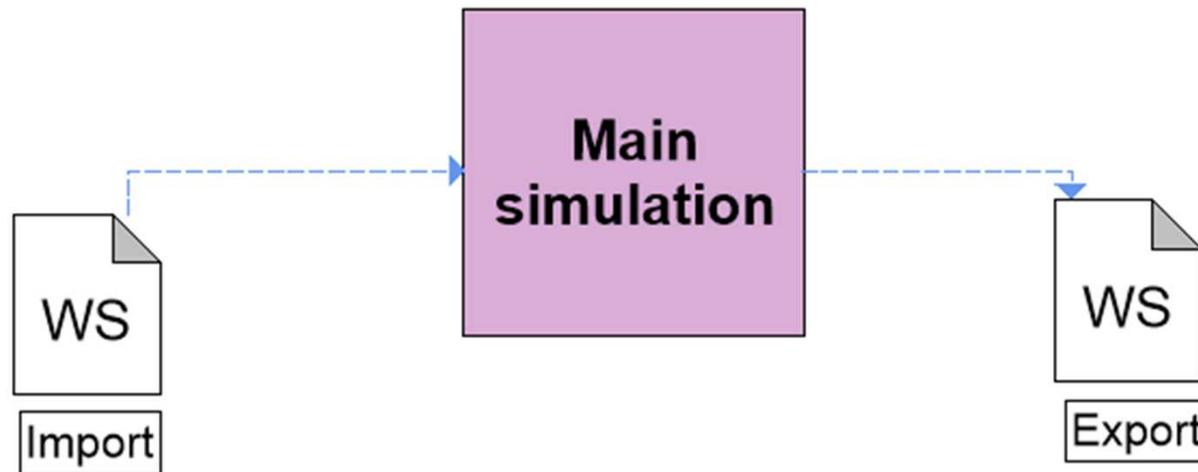
4

Imposing a specific **Calculation sequence** to control the order of the units calculation

Imposing a **Calculation sequence** ensures that unit operations are executed in the proper order when input variables depend on upstream results.

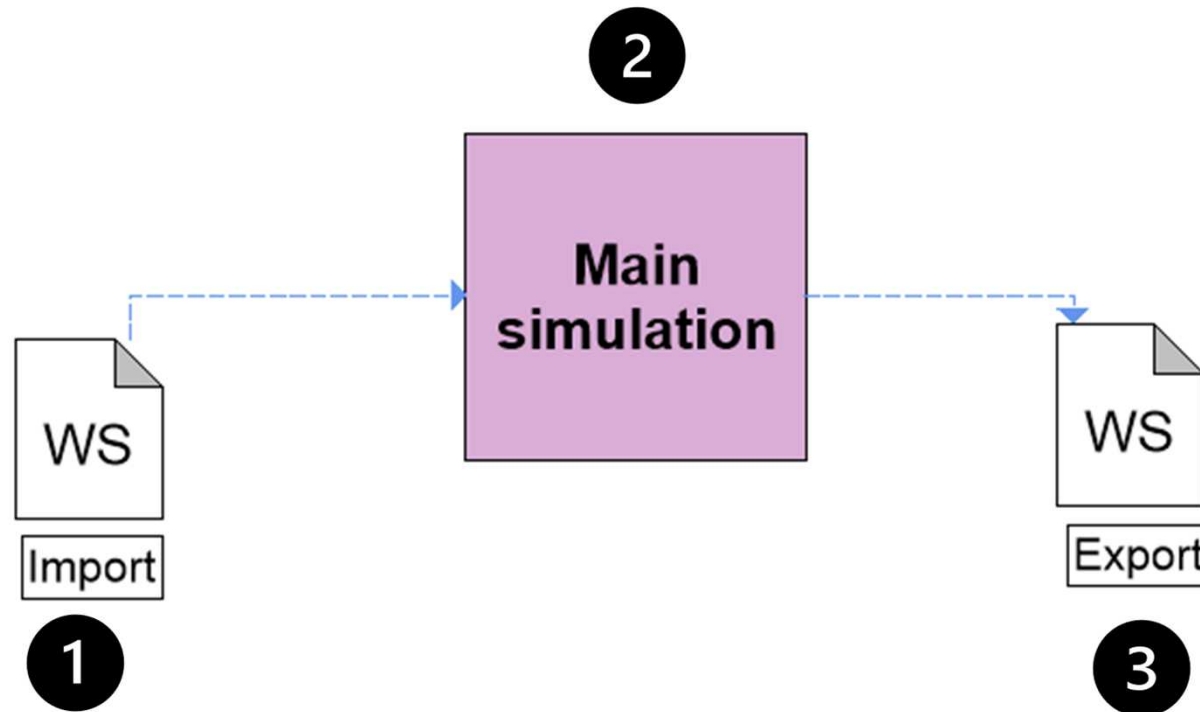
CONTEXT

In ProSimPlus, unit operations are consecutively calculated. The **Calculation sequence** is automatically determined by the program. However, in certain cases (particularly, when using a user-defined module), it may be necessary to manually impose the Calculation sequence. This can be achieved using **information streams**.



CONTEXT

In ProSimPlus, unit operations are consecutively calculated. The **Calculation sequence** is automatically determined by the program. However, in certain cases (particularly, when using a user-defined module), it may be necessary to manually impose the Calculation sequence. This can be achieved using **information streams**.



The objective of this script could be to retrieve input data from an external file, that will then be used in the main simulation

The objective of this script could be to export the results from the main simulation. These results would then be manipulated by the script (e.g., additional custom calculations, custom reports...)

Concept

Introduction

Data transfer

1

"SPEC"

2

"MANI"

3

Calculation sequence

4

CONTEXT

In ProSimPlus, unit operations are consecutively calculated. The **Calculation sequence** is automatically determined by the program. However, in certain cases (particularly, when using a user-defined module), it may be necessary to manually impose the Calculation sequence. This can be achieved using **information streams**.

A

Double click on the
information stream

B

Enable the option to
impose the Calculation
sequence



Main
simulation

Information stream (\$ISTR)

Name: Inf

Desc:

Identification	Parameters	Notes
☒ Impose the calculation sequence		

OK Cancel

Concept

Introduction

Data transfer

1

"SPEC"

2

"MANI"

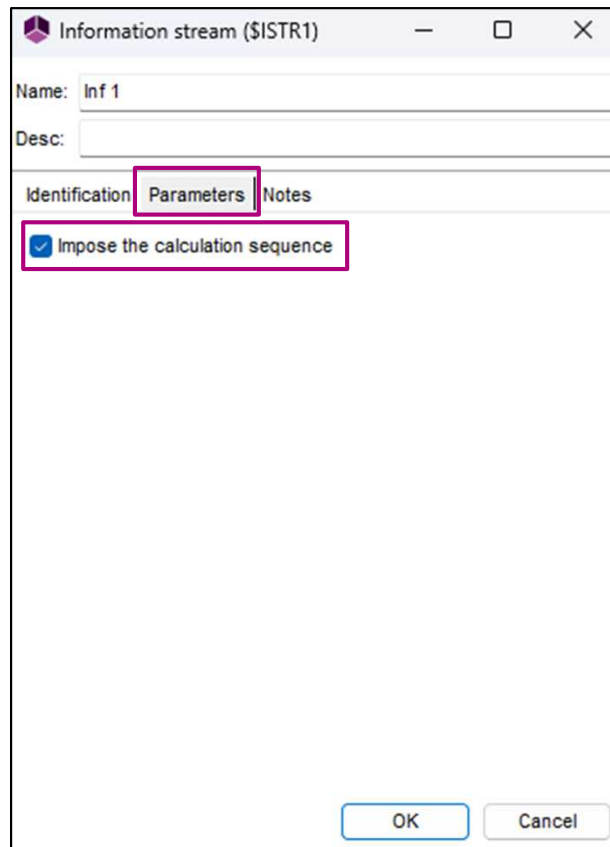
3

Calculation sequence

4

CONTEXT

In ProSimPlus, unit operations are consecutively calculated. The **Calculation sequence** is automatically determined by the program. However, in certain cases (particularly, when using a user-defined module), it may be necessary to manually impose the Calculation sequence. This can be achieved using **information streams**.



Main
simulation



C

Do the same for the other
information stream

CONCLUSION

This Getting Started shows how to fully leverage the capabilities of data manipulation in ProSimPlus through four key components:

1. **Data Transfer** - Easily share key values between unit operations.
2. **Specifications (“SPEC”)** - Set and control process targets.
3. **Information stream operator (“MANI”)** - Perform simple calculations on data and results.
4. **Calculation sequence** - Ensure scripts and modules run in the right order.

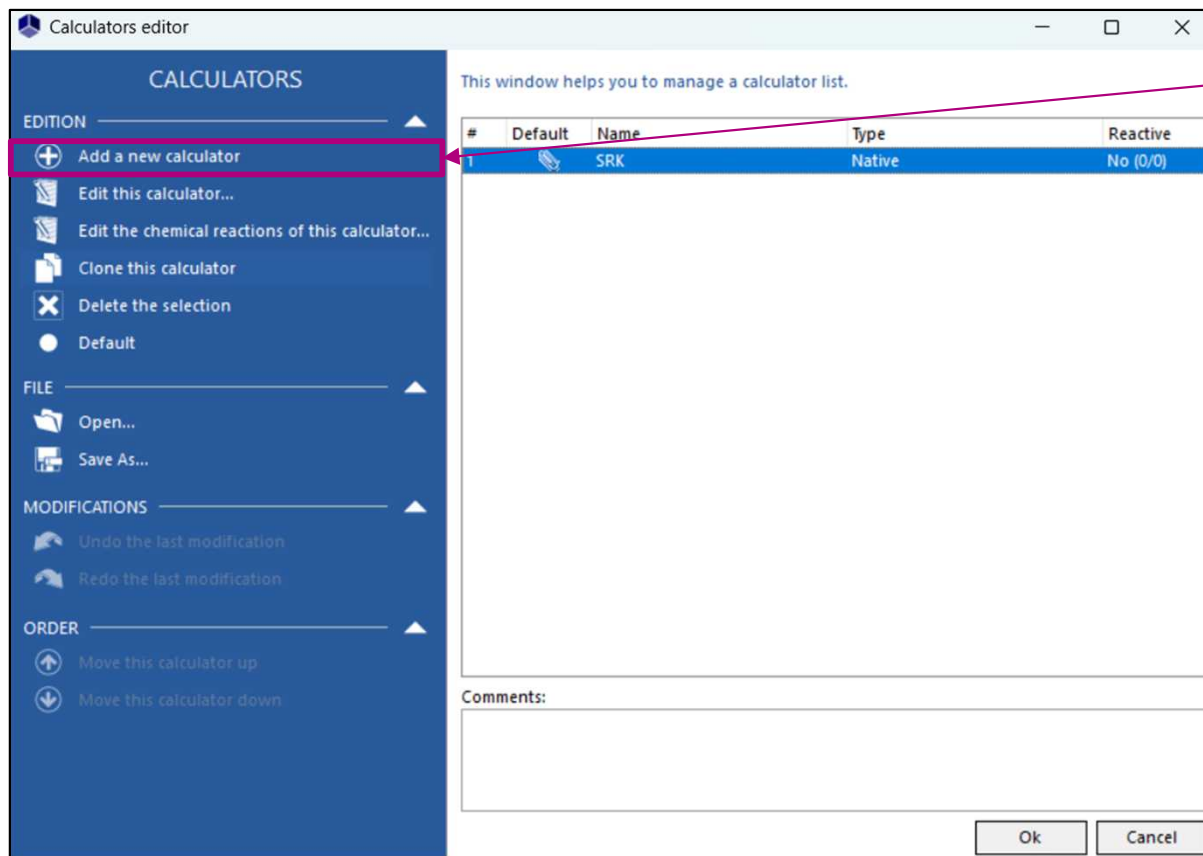
Together, these tools offer a flexible framework to enhance simulation logic and build smarter process models.

Getting started with ProSimPlus®

Case 9: APPENDIX

Creation of new calculator

Cold utility calculator: 1) Creation of new calculator



Click to add a new calculator

A

Creation of new calculator

Cold utility calculator: 1) Creation of new calculator

Click to add a new calculator (A)

Double click to modify the new calculator (B)

Calculators editor

Calculation window: This window helps you to manage a calculator list.

#	Default	Name	Type	Reactive
1		SRK	Native	No (0/0)

Calculators editor

Calculation window: This window helps you to manage a calculator list.

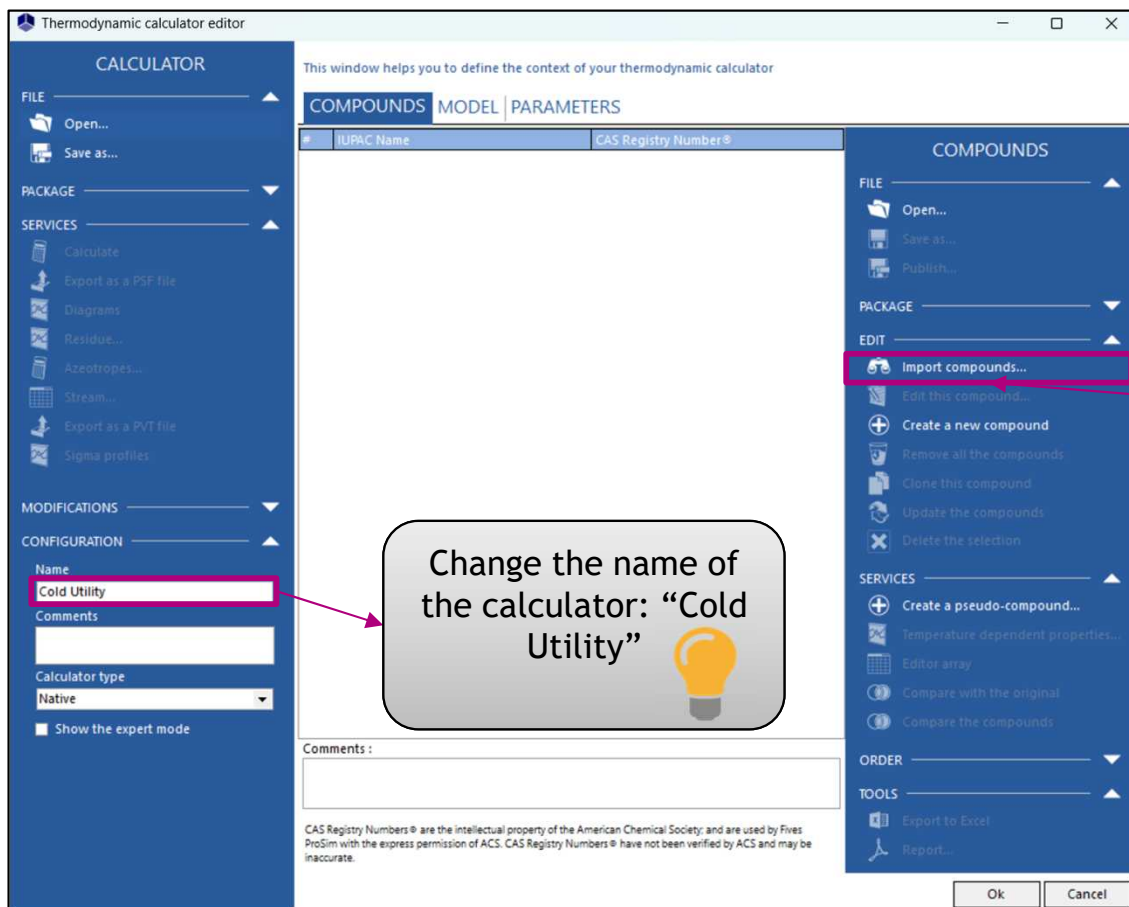
#	Default	Name	Type	Reactive
1		SRK	Native	No (0/0)
2		[New calculator]	Native	No (0/0)

Comments:

Ok Cancel

Creation of new calculator

Cold utility calculator: 2) Addition of components to the calculator



A

Click here to import the
compounds

Creation of new calculator

Cold utility calculator: 2) Addition of components to the calculator

Search results

COMPOUNDS

CRITERIA

Search

☒ Name or synonym

ethylene glycol

☒ Exact name

☐ CAS Registry Number®

☐ Chemical formula

☐ Specific ID

☐ Advanced

OPTIONS

SEARCH IN

☐ All servers

☒ Simulis® SQLite Databases

Select an item to get a description

Search results Favorites History

#	IUPAC name (or compo...	Chemical form...	CAS Regi
3	WATER	H2O	7732-18-5
4	ETHYLENE GLYCOL	C2H6O2	107-21-1

Selected compounds:

Name

2 item(s) selected

CAS Registry Numbers® are the intellectual property of the American Chemical Society; and are used by Fives ProSim with the express permission of ACS. CAS Registry Numbers® have not been verified by ACS and may be inaccurate.

Close

B

Search the desired components:
-water
-ethylene glycol

C

Double click on each of the selected components

Creation of new calculator

Cold utility calculator: 2) Addition of components to the calculator

Search results

COMPOUNDS

CRITERIA

Search

☐ Name or synonym

ethylene glycol

☒ Exact name

☐ CAS Registry Number®

☐ Chemical formula

☐ Specific ID

☐ Advanced

OPTIONS

SEARCH IN

☐ All servers

☒ Simulis® SQLite Databases

Select an item to get a description

Search results Favorites History

#	IUPAC name (or compo...	Chemical form...	CAS Regi
3	WATER	H2O	7732-18-5
4	ETHYLENE GLYCOL	C2H6O2	107-21-1

Selected compounds:

Name

WATER

ETHYLENE GLYCOL

2 item(s) selected

CAS Registry Numbers® are the intellectual property of the American Chemical Society; and are used by Fives ProSim with the express permission of ACS. CAS Registry Numbers® have not been verified by ACS and may be inaccurate.

Close

This will add them to the
selected compounds list

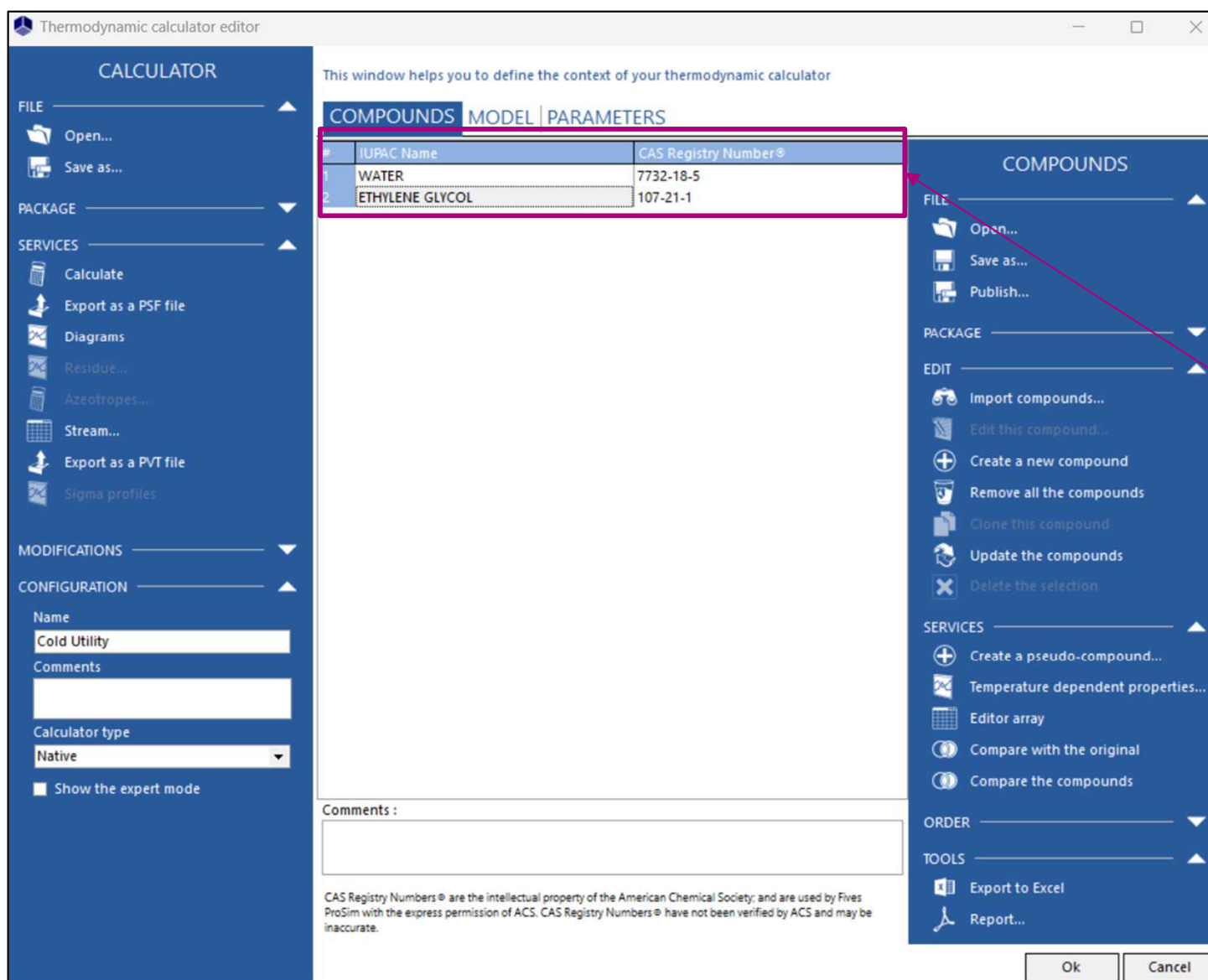


D

Click on **Close** to
save the information

Creation of new calculator

Cold utility calculator: 2) Addition of components to the calculator



The desired compounds were added to the current calculator (Cold Utility) 💡

Creation of new calculator

Cold utility calculator: 3) Selection of thermodynamic model

Thermodynamic calculator editor

Calculator

FILE

- Open...
- Save as...

PACKAGE

SERVICES

- Calculate
- Export as a PSF file
- Diagrams
- Residue...
- Azeotropes...
- Stream...
- Export as a PVT file
- Sigma profiles

MODIFICATIONS

CONFIGURATION

Name

Cold Utility

Comments

Calculator type

Native

Show the expert mode

This window helps you to define the context of your thermodynamic calculator

COMPOUNDS MODEL PARAMETERS

NAME

UNIFAC original

CATEGORY

All the profiles

PROFILE

UNIFAC original

APPROACH TYPE

From activity coefficients

EQUATION OF STATE

Perfect gas

ALPHA FUNCTION

Not defined

MIXING RULES

Not defined

ACTIVITY COEFFICIENT MODEL

UNIFAC original

PURE LIQUID FUGACITY STANDARD STATE

Vapor pressure

LIQUID MOLAR VOLUME

Ideal mixture

TRANSPORT PROPERTIES

Classic methods

ENTHALPY CALCULATION

H*=0, ideal gas, 25°C, 1 atm

COMMENTS

Comments :

THERMODYNAMIC MODEL

DOCUMENTATION

- Thermodynamic assistant
- Thermodynamic help

ADDITIONAL PARAMETERS

MODEL INFORMATION

WATER-HYDROCARBON

PURE WATER

Ok Cancel

A

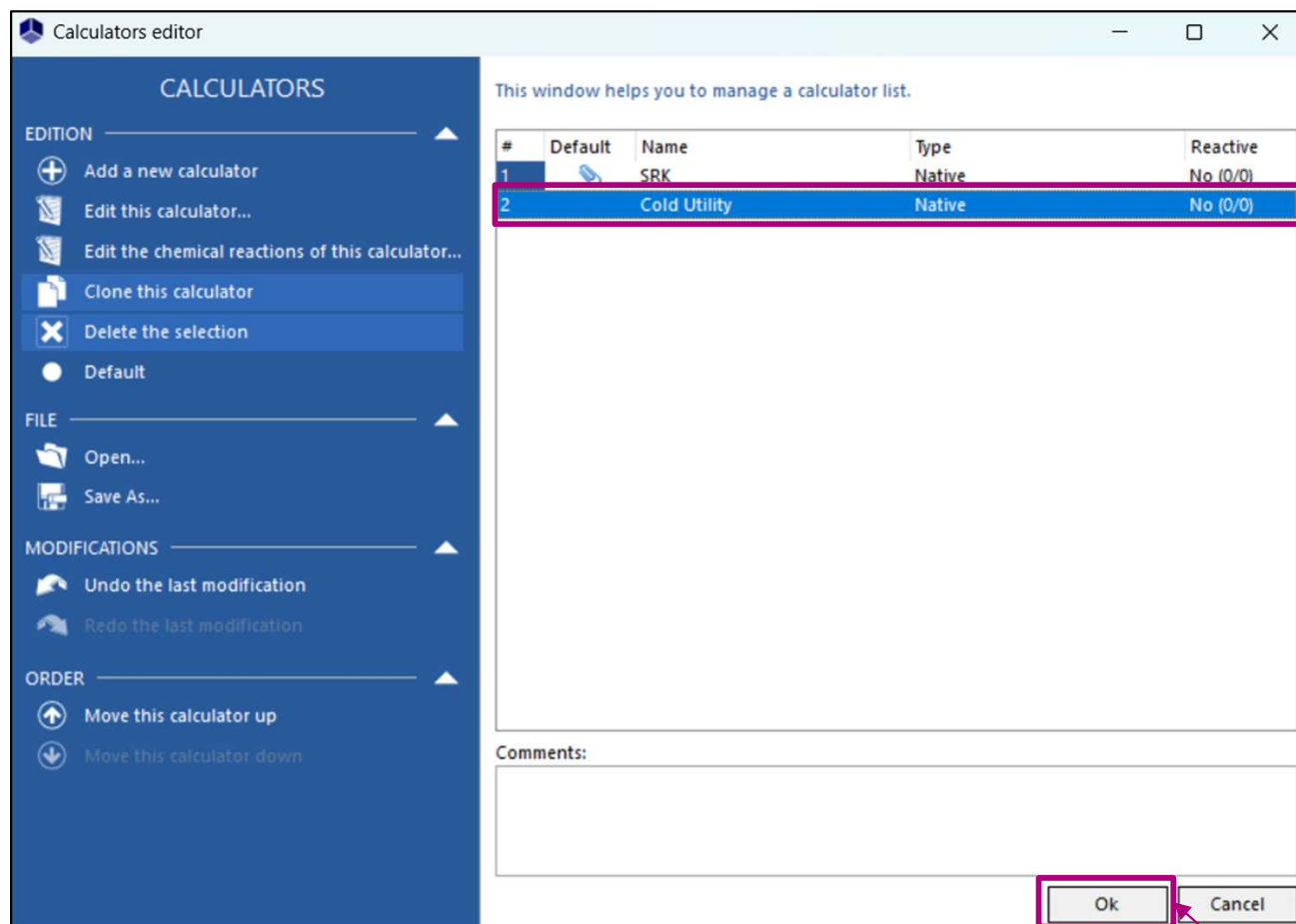
Select **UNIFAC original** as the thermodynamic profile for this calculator

B

Click on **“OK”** to save the information

Creation of new calculator

Cold utility calculator: 4) Save the calculator



The new calculator (Cold Utility) is now ready to be used

A
Click on "OK" to save the information

