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Smart Communication Module (SCM)

Operating instructions

WWW.SCHMALZ.COM

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Note

The Operating instructions were originally written in German. Store in a safe place for future reference. Subject to technical changes without notice. No responsibility is taken for printing or other types of errors.

Published by

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www.schmalz.com/salesnetwork

Contents

1 Important Information

1.1 Note on Using this Document

J. Schmalz GmbH is generally referred to as Schmalz in these Operating instructions.

These Operating instructions contain important notes and information about the different operating phases of the product:

- Transport, storage, start of operations and decommissioning
- Safe operation, required maintenance, rectification of any faults

The Operating instructions describe the product at the time of delivery by Schmalz.

1.2 The technical documentation is part of the product

1. For problem-free and safe operation, follow the instructions in the documents.
2. Keep the technical documentation in close proximity to the product. The documentation must be accessible to personnel at all times.
3. Pass on the technical documentation to subsequent users.

⇨ Failure to follow the instructions in these Operating instructions may result in injuries!

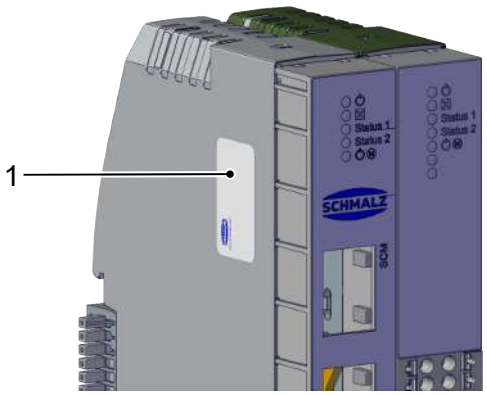
⇨ Schmalz is not liable for damage or malfunctions that result from failure to heed these instructions.

If you still have questions after reading the technical documentation, contact Schmalz Service at:

www.schmalz.com/services

1.3 Type Plate

The type plate (1) is permanently attached to the product at the location shown and must always be clearly legible.



It contains important information about the product:

- Part sales designation/type
- Part number
- Serial number
- Coded date of manufacture
- CE label
- QR code

Please specify all the information above when ordering replacement parts, making warranty claims or for any other inquiries.

1.4 Warnings in This Document

Warnings warn against hazards that may occur when handling the product. The signal word indicates the level of danger.

Signal word	Meaning
WARNING	Indicates a medium-risk hazard that could result in death or serious injury if not avoided.
CAUTION	Indicates a low-risk hazard that could result in minor or moderate injury if not avoided.
NOTE	Indicates a danger that leads to property damage.

1.5 Symbol

This symbol indicates useful and important information.

✓ This symbol represents a prerequisite that must be met prior to an operational step.

▸ This symbol represents an action to be performed.

⇨ This symbol represents the result of an action.

Actions that consist of more than one step are numbered:

1. First action to be performed.
2. Second action to be performed.

2 Fundamental Safety Instructions

2.1 Intended Use

The SCM module is used on industrial machines for communication between a maximum of two IO-Link handling devices and one control. Communication with the control takes place via digital IO with a 24 V level.

The SCM module is intended for installation in control cabinets or similar and corresponds to degree of protection IP20. The device is mounted using a DIN rail.

Unauthorized electrical or mechanical changes must not be made. The SCM module is designed solely for electrical operation with a supply voltage of 24 V DC.

The product is built in accordance with the latest standards of technology and is delivered in a safe operating condition; however, hazards may arise during use.

The product is intended for industrial use.

Intended use includes observing the technical data and the installation and operating instructions in this manual.

2.2 Non-Intended Use

Schmalz does not accept any liability for any direct or indirect losses or damages that result from using the product. This applies, in particular, to any use of the product that is not in accordance with the intended purpose and to any use that is not described or mentioned in this documentation.

The use of the product under extreme conditions (for example, with abrasive fluids or dusts) requires the prior approval of Schmalz.

In particular, the following are considered non-intended use:

1. Use in potentially explosive atmospheres
2. Direct contact with perishable goods/food products

2.3 Personnel Qualifications

Unqualified personnel cannot recognize dangers and are therefore exposed to higher risks!

1. Task only qualified personnel to perform the tasks described in these Operating instructions.
2. The product must be operated only by persons who have undergone appropriate training.

These Operating instructions are intended for fitters who are trained in handling the product and who can operate and install it.

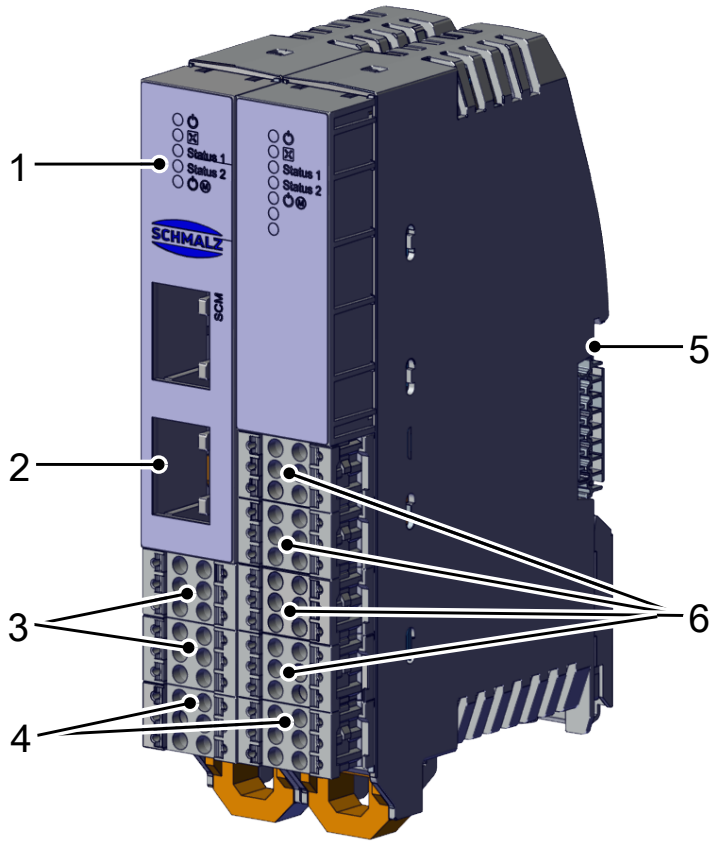
2.4 Modifications to the Product

Schmalz assumes no liability for consequences of modifications over which it has no control:

1. The product must be operated only in its original condition as delivered.
2. Use only original spare parts from Schmalz.
3. The product must be operated only in perfect condition.

3 Product description

3.1 Product Design



1	Status display	2	Ethernet connection for configuration or diagnostics, 2x
3	Terminal strip for electrical connection of quick-change module RMQC…UNI (IO-Link)	4	Terminal strip for voltage supply
5	Compact housing for control cabinet installation via DIN rail mounting	6	Terminal strips for electrical connections of robot controllers (digital I/O)

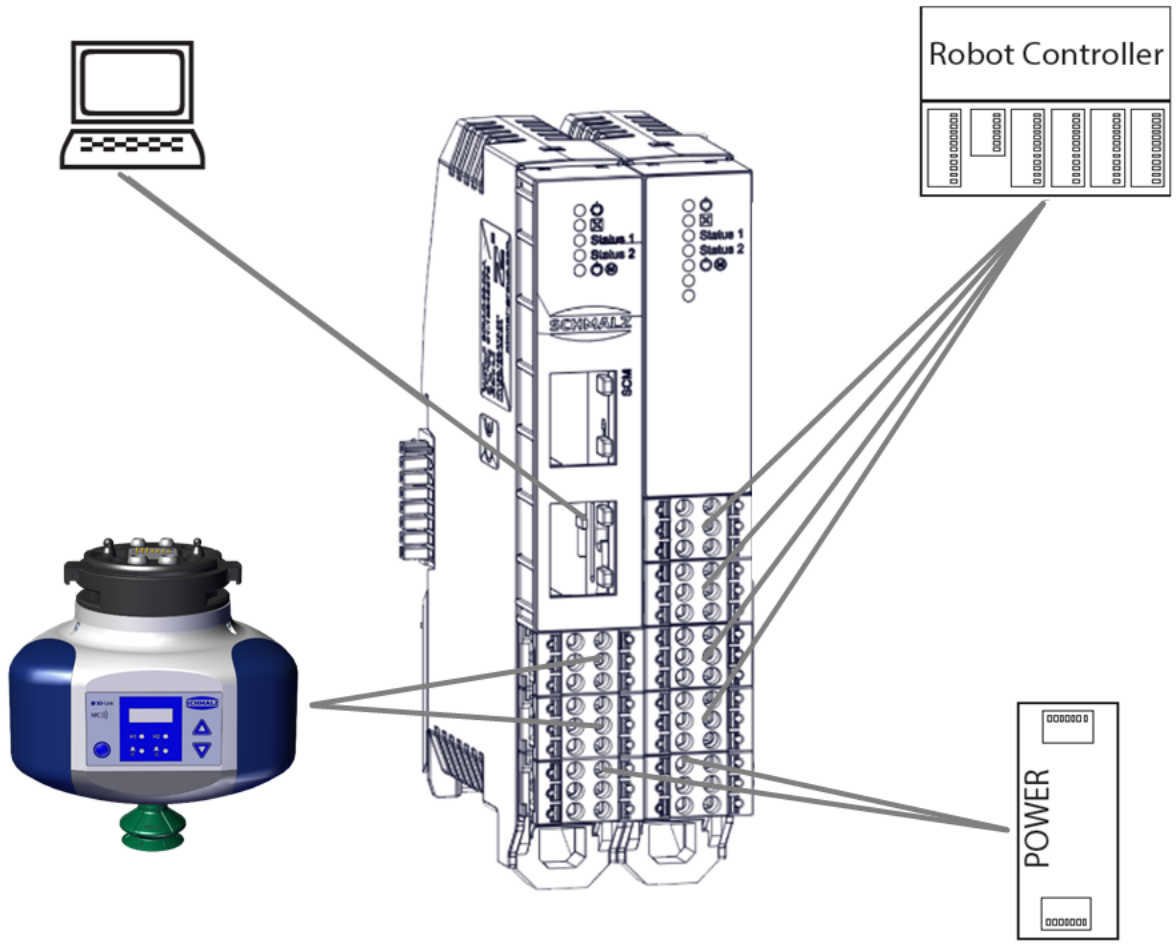
3.2 Description of Functions

The SCM module enables simple control of up to two IO-Link grippers, with control via 12 digital inputs and outputs from the perspective of the higher-level controller.

The SCM module is an IO-Link to a digital IO gateway that makes the IO-Link grippers easier to use.

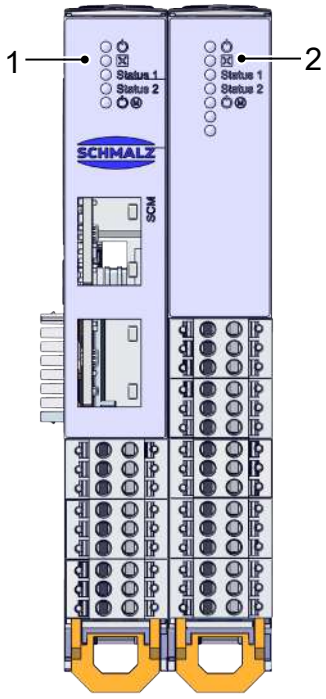
For this purpose, the SCM module is configured with PC-based software and can then be operated without the PC.

The PC is connected to the lower RJ45 socket using a conventional network cable for configuration or diagnostics via an Ethernet connection.

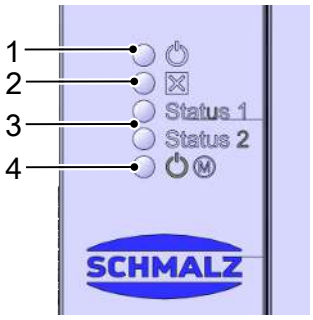


3.3 LED Status Displays

Each of the two sub-modules (basic module and IO module) is equipped with an LED status display. The left-hand module with the network sockets is the basic module (1) and the right-hand module with the digital IO is the IO module (2).



The colors of the LED displays indicate the respective system states:



Basic module

LED		LED color		Behavior	Description
1	Power		Green	Continuous light	Operating voltage okay
				Flashing	Devices currently training a gripper / HMI is connected
			Orange	Flashing	HMI takes over control (all LEDs from the IO module are OFF)
		—	None	—	Operating voltage not okay
2	ERROR		Red	Continuous light	Device has an error on the SCM
3	Status of gripper 1/2	—	None	—	HMI is connected – status is then not displayed
			Red	Continuous light	HMI disconnected – gripper has an error
				Flashing	Gripper is disconnected from the SCM
			Blue	Continuous light	HMI is disconnected – gripper open or completely closed when at a standstill
			Green	Continuous light	HMI is disconnected – gripper in motion or on workpiece
4	P 24 V		Green	Continuous light	Actuator voltage okay
		—	None	—	Actuator voltage not okay

IO module

LED		LED color		Behavior	Description
1	Power		Green	Continuous light	Operating voltage okay
		—	None	—	Operating voltage not okay if HMI is disconnected If HMI is connected = okay
2	ERROR		Red	Continuous light	IO module has an error
3	Status of gripper 1/2	—	None	—	HMI is connected – IO module deactivated
			Blue	Continuous light	Gripper travel order in release direction
			Green	Continuous light	Gripper travel order in grasp direction
-		—	None	—	No function

4 Technical Data

Voltage [V]	24 V ± 10%
Current consumption [A]	SCM without gripper typ. 0.075 A SCM with gripper ECBPi MATCH typ. 0.675 A
Degree of protection in accordance with IEC60529	IP20
Operating temperature [°C]	+5 ... 50
Configuration	Ethernet with RJ45
Gripper control	2 channels with IO-Link port class B
Interface to the higher-level controller	12 x digital inputs, 24 V, PNP logic 12 x digital outputs, 24 V, PNP logic

5 Transport and Storage

5.1 Checking the Delivery

The scope of delivery can be found in the order confirmation. The weights and dimensions are listed in the delivery notes.

1. Compare the entire delivery with the supplied delivery notes to make sure nothing is missing.
2. Damage caused by defective packaging or occurring in transit must be reported immediately to the carrier and J. Schmalz GmbH.

5.2 Transport / Storage / Preservation

NOTE

Dropping the product or subjecting it to impacts

Damage to the product and/or malfunctions

- ▸ Do not drop the product or subject it to impacts.

- The product must always be transported and stored in its original packaging.
- During transport, make sure that no damage can occur if the product is already mounted on the higher-level machine unit or in the control cabinet.
- Following transport, all power and communication connections must be checked before the start of operations.
- Visually inspect all components.

6 Installation

6.1 Installation Instructions

⚠ WARNING

Risk of injury due to the unexpected movement of the plant or machine in which the product is to be installed.

Risk of injury

- Switch off the machine's power supply before performing any work.
- Secure the machine against unintentional activation.
- Check the machine for possible residual energy.

You must switch off the power supply for the electronics before assembly, installation and maintenance work.

6.2 Mechanical Assembly

The SCM module is intended to be mounted on a conventional DIN rail with a width of 35 mm. The mounting position can be upright on the DIN rail or suspended (DIN rail installed in the control cabinet).

Maintain a clearance of 5 cm for air circulation on the side of the SCM module ventilation slots.

6.3 Electrical Connection

We recommend that you protect the device with a suitable miniature circuit breaker based on the expected current consumption and the cable cross-sections used.

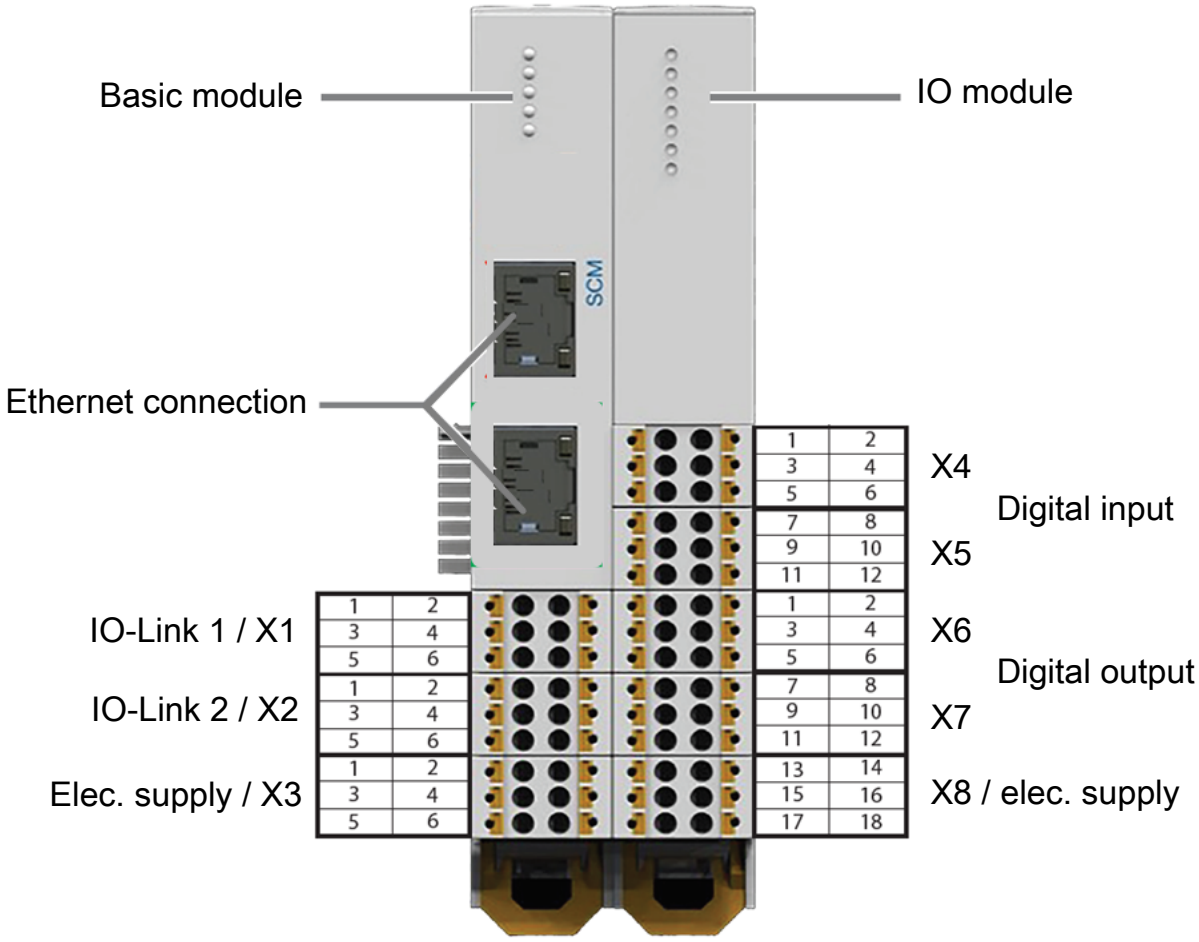
NOTE

PINs 5/6 are subject to currents higher than 10 A.

Damage to the device

- Provide adequate fusing to ensure that the device is subjected to a maximum of 10 A.

The supply voltage for the sensors (U_S) and the supply voltage for the actuators (U_A) are electrically isolated and can come from different sources.



6.3.1 Voltage Supply for the Basic Module

PIN	Function	Explanation
X3 - 1	24 V actuator voltage	Actuator voltage of the grippers
X3 - 2	GND actuator voltage	Ground for the actuator voltage of the grippers
X3 - 3	24 V signal IN	Voltage supply for the SCM module and the signal voltage of the grippers
X3 - 4	GND signal IN	Ground for the SCM module and the signal voltage of the grippers
X3 - 5	24 V signal OUT	“Signal voltage output” to supply the IO module
X3 - 6	GND signal OUT	“GND output” to supply the IO module

6.3.2 Voltage Supply for the IO Module

PIN	Function	Explanation
X8 - 13	Free	Currently no function
X8 - 14	Free	Currently no function
X8 - 15	Free	Currently no function
X8 - 16	Free	Currently no function
X8 - 17	24 V	Signal voltage for IO module supply
X8 - 18	GND	GND for IO module supply

6.3.3 IO-Link Connection

The PIN assignments listed in the table apply to both IO-Link channels (X1 and X2).

PIN	Function	Explanation
1	C/Q	IO-Link communication
2	DI	Not currently in use
3	P-24 V	Actuator voltage of the gripper
4	P-GND	Ground for the actuator voltage of the gripper
5	S-24 V	Signal voltage for the gripper
6	S-GND	Ground for signal voltage

6.3.4 Ethernet Connection

The Ethernet connections *(> See ch. Electrical Connection, Page 12)* are connected to a PC to configure the SCM module.

Factory setting:

- IP: 10.0.0.5
- Net mask: 255.0.0.0

Adjust your network card and check whether your firewall supports communication with the SCM module.

6.3.5 IO Assignment when a Gripper is Connected

A Schmalz Gripper

	Schmalz gripper	Info
PIN Inputs X4 and X5		
1	drop-off	= deposit
2	vacuum	= pick up
3	Freedrive enable	= Freedrive was enabled on the robot. This status is communicated to the device. Device displays the status via LED, if necessary.
4	Error Or Warning/Error	Switching between output 5 or 12 = “Error”, whether output is activated in the event of an error or an error or warning.
5	—	
6	—	
7	—	
8	—	
9	Cmd_Workpiece_Bit_0	Bit 0 for desired recipe selection
10	Cmd_Workpiece_Bit_1	Bit 1 for desired recipe selection
11	Cmd_Workpiece_Bit_2	Bit 2 for desired recipe selection
12	Cmd_Workpiece_Bit_3	Bit 3 for desired recipe selection
PIN Outputs X6 and X7		
1	signal h3 (part detached)	Workpiece deposited
2	signal h2 (part present)	Workpiece check
3	Freedrive desired	Freedrive request from the gripper
4	isReady	Active if connected device was successfully detected and adapted on the flange
5	Error	Active if errors or errors/warnings occur (depending on the status of input 4 or 10 (“Error Or Warning/Error”)
6	—	
7	—	
8	—	
9	Act_Workpiece_Bit_0	Bit 0 for recipe selection that is currently valid
10	Act_Workpiece_Bit_1	Bit 1 for recipe selection that is currently valid
11	Act_Workpiece_Bit_2	Bit 2 for recipe selection that is currently valid
12	Act_Workpiece_Bit_3	Bit 3 for recipe selection that is currently valid

A Zimmer-Group Gripper

Various classes of grippers from Zimmer GmbH are designated as “Advanced” and “Basic”.

The following gripper series are currently included under “Advanced”: GEH6000IL, GED6000IL, HRC-01, HRC-02

The following gripper series are currently included under “Basic”: GEP2000IL, GEP5000IL, GED5000IL, GP-P5000IL, GPD5000IL, HRC-03, HRC-04, HRC-05

	“Advanced_Gripping”	**“Basic_Gripping”**
PIN Inputs X4 and X5		
1	Cmd_Release	
2	Cmd-Grasp	
3	Cmd_Reset	
4	Cmd_Motor_ON/Motor_OFF	—
5	Cmd_Homing	—
6	—	
7	—	
8	—	
9	Cmd_Workpiece_Bit_0	
10	Cmd_Workpiece_Bit_1	
11	Cmd_Workpiece_Bit_2	
12	Cmd_Workpiece_Bit_3	
PIN Outputs X6 and X7		
1	isReleased	
2	isGrasped	
3	isClosed	
4	undefined Position	
5	Error	
6	Motor ON	—
7	Homing OK	—
8	—	
9	Act_Workpiece_Bit_0	
10	Act_Workpiece_Bit_1	
11	Act_Workpiece_Bit_2	
12	Act_Workpiece_Bit_3	

6.3.6 IO Assignment when Two Grippers are Connected

IO Assignment when Two Grippers are Connected: at Least 1x Schmalz Gripper

Port 1	Schmalz gripper	Schmalz gripper	Schmalz gripper	
Port 2	**Advanced gripping**	**Schmalz gripper**	**Basic gripping**	
PIN Input				
1	drop-off			X4
2	vacuum			
3	Freedrive enable			
4	Error Or Warning/Error			
5	—			
6	—			
7	Cmd_Release	drop-off	Cmd_Release	X5
8	Cmd-Grasp	vacuum	Cmd-Grasp	
9	Cmd_Reset	Freedrive enable	Cmd_Reset	
10	Cmd_Motor_ON/Motor_OFF	Error Or Warning/Error	—	
11	Cmd_Homing	—	—	
12	—	—	—	
PIN Output				
1	signal h3 (part detached)			X6
2	signal h2 (part present)			
3	Freedrive desired			
4	isReady			
5	Error			
6	Motor ON	—		
7	Homing OK	—		X7
8	isReleased	signal h3 (part detached)	isReleased	
9	isGrasped	signal h2 (part present)	isGrasped	
10	isClosed	Freedrive desired	isClosed	
11	undefined Position	isReady	undefined Position	
12	Error	Error	Error	

IO Assignment when Two Grippers are Connected: 2x Zimmer Group Grippers

Port 1	**Advanced_Gripping**	**Advanced_Gripping**	**Basic_Gripping**	
Port 2	**Advanced_Gripping**	**Basic_Gripping**	**Basic_Gripping**	
PIN Input				
1	Cmd_Release			X4
2	Cmd-Grasp			
3	Cmd_Reset			
4	Cmd_Motor_ON/Motor_OFF		—	
5	Cmd_Homing		—	
6	—			
7	Cmd_Release			X5
8	Cmd-Grasp			
9	Cmd_Reset			
10	Cmd_Motor_ON/Motor_OFF	—		
11	Cmd_Homing	—		
12	—			
PIN Output				
1	isReleased			X6
2	isGrasped			
3	isClosed			
4	undefined Position			
5	Error			
6	(Motor ON 1) & (Motor ON 2)	Motor ON	—	
7	(Homing OK 1) & (Homing OK2)	Homing OK	—	X7
8	isReleased			
9	isGrasped			
10	isClosed			
11	undefined Position			
12	Error			

7 Start of Operations

If the SCM module is wired correctly, the desired grippers are connected and the voltage supply is switched on, the device starts up.

The POWER LEDs light up green, then status 1 and 2 on the basic module flash while the grippers are searched for (depending on the last saved configuration for the SCM module).

7.1 Connecting to the SCM Module

Connect the PC to the installed Schmalz HMI software JSG_IO_Link_HMI version 2.0.1.3 or higher. The three control levels are located in the top left corner of the software window:

- **[GUIDED SETUP]** is a configuration level where the gripper is taught-in for the workpiece
- **[EXPERT MODE]** is a level where you can access all the gripper data
- **[MONITOR OF DEVICE]** is a diagnostics and monitoring level for monitoring the grippers during operation

(1) You can click the **[MAGNIFYING GLASS]** (search) button to search for **connected** devices.

(2) You can click the**[PORT]** button to switch the two-port operating mode on the SCM module.

7.2 Selecting the Gripper in the “Guided Setup”

All the found devices are displayed as tiles.

Click your required gripper to start the guided setup function and, in this example, teach in the ECBPMi gripper for the workpiece.

7.3 Configuration

The vacuum suction cup must be correctly positioned (in the ideal position) for the configuration to be successful:

- It is positioned on a clean surface.
- It is resting fully on the workpiece.
- There is no leakage.

The configuration window initially displays important product information, such as the part number.

Now follow the instructions on the screen.

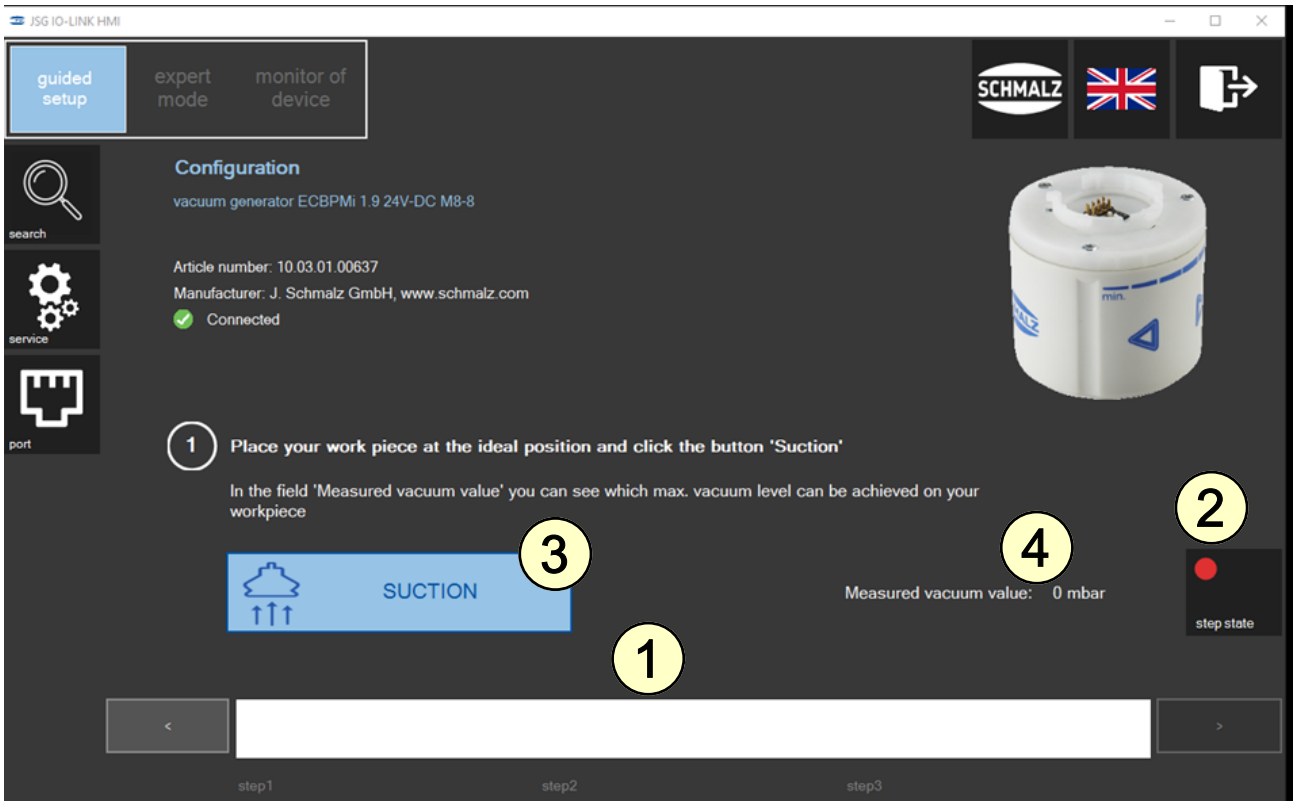
In the "guided setup," progress is displayed via the white bar (1) in the lower area of the window.

In the left-hand side of the window, the green "Connected" checkmark shows whether the actuator voltage is connected.

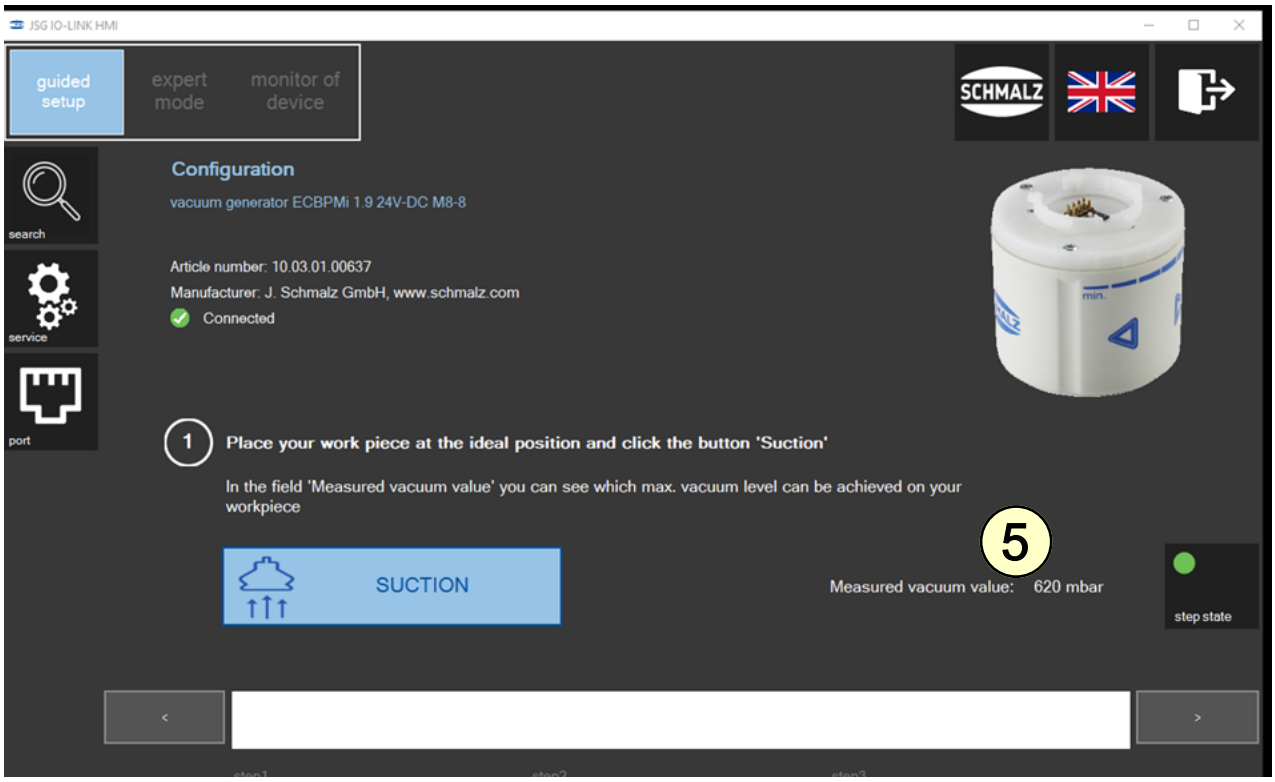
1. Place your workpiece in the ideal position and click the "**[SUCTION]**" button (3).

(4) At this point, the vacuum value measured by the product is displayed on the workpiece.

If the value is 100 mbar or more, the indicator in the bottom right corner of the window (2) turns green and there is a holding force. You cannot click the > button to proceed to the next step until the indicator (2) lights up green.



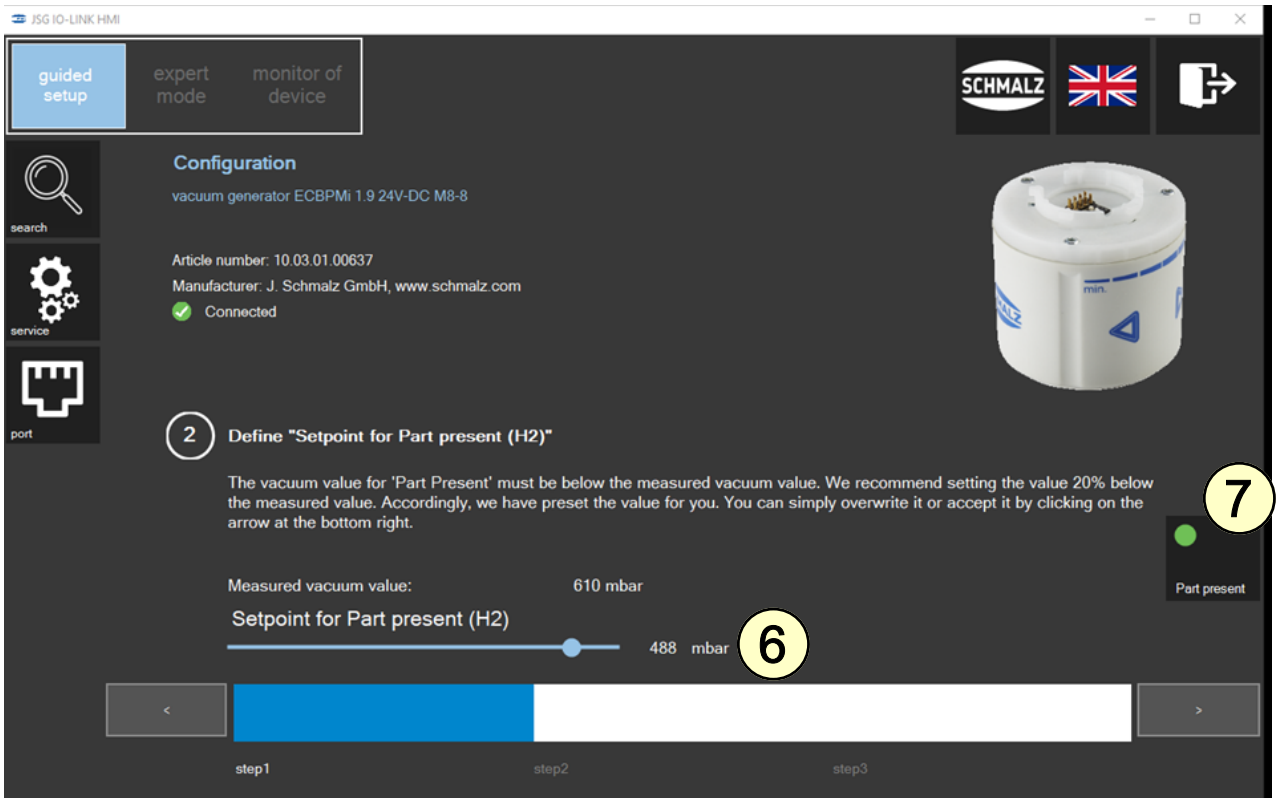
The current measured vacuum value (live) is displayed here (5).



2. Define the vacuum value for the “Setpoint for Part present (H2)” (6).

The vacuum value H2 can be changed by overwriting it, using the slider or using the arrow keys on the keyboard.

As soon as the “Part present” indicator (7) lights up green, the workpiece is detected as picked up. When you click the > button to go to the next step, the set vacuum value H2 is applied.



Suction is deactivated following the switch to step 3.

Pressing "**[RELEASE]**" opens the vacuum circuit from the gripper to the atmosphere and the workpiece is put down. The indicator (8) switches to green below 10 mbar.

3. Click the "**[RELEASE]**" button to release the workpiece from your gripper and complete the configuration by clicking the arrow in the bottom right corner 

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JSG IO-LINK HMI
guided setup
expert mode
monitor of device
SCHMALZ
search
service
port
Configuration
vacuum generator ECBPMi 1.9 24V-DC M8-8
Article number: 10.03.01.00637
Manufacturer: J. Schmalz GmbH, www.schmalz.com
Connected
3
Detach the workpiece from your gripper with 'Release' and complete configuration at the bottom right.
RELEASE
step state
<
>
step1
step2
step3

7.4 Checking the Settings

The set parameters are not yet saved in the relevant recipe at this point.

The workpiece training for the gripper is finished when the data is stored in the relevant recipe.

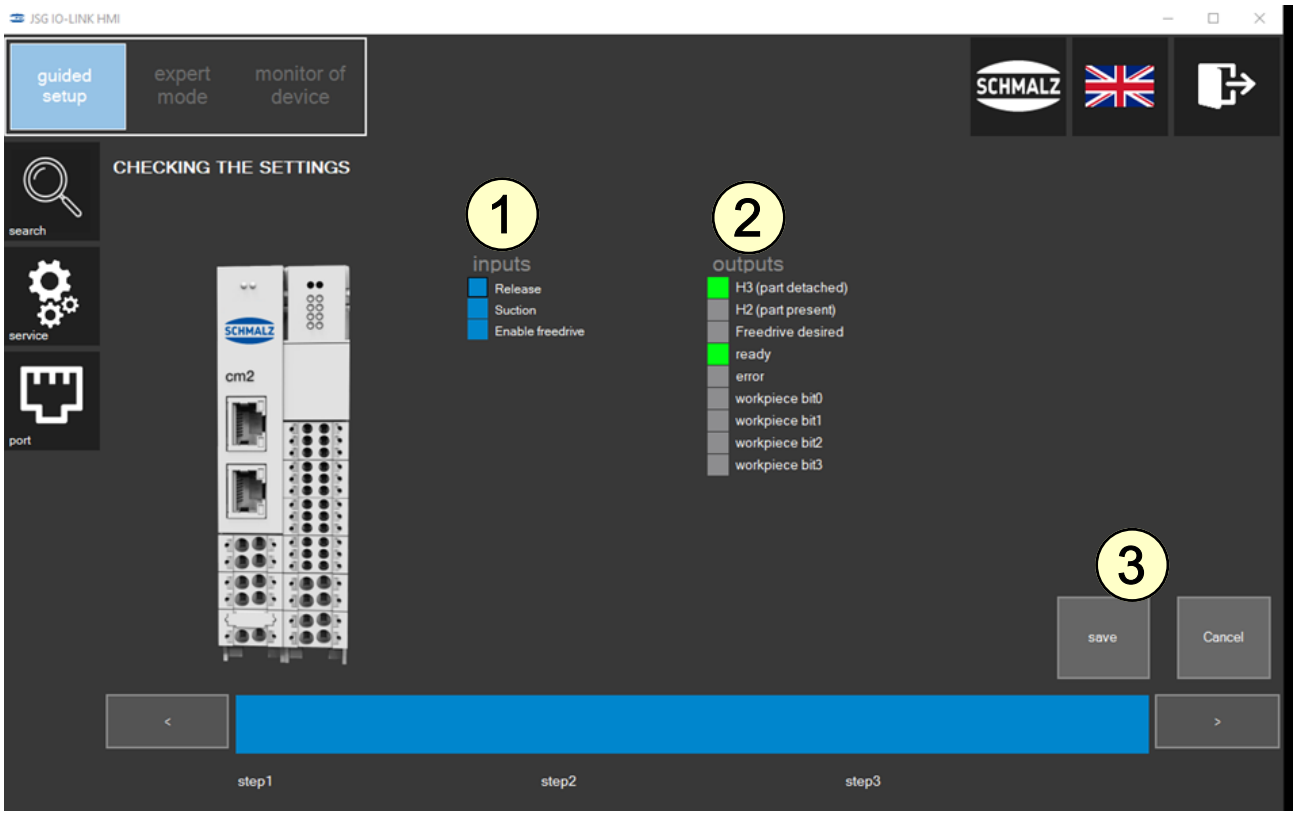
The settings can also be checked without the actual controller I/Os.

Input field (1):

- Click the blue fields to set a command.

Output field (2):

- The fields show the relevant gripper status.
- You can click **"[SAVE]"** (3) to open the recipe window.



7.5 Saving

The recipe can now be saved in the SCM module.

- Select the required workpiece number (1) and click the "**[SAVE WP]**" button (2) to save the data.

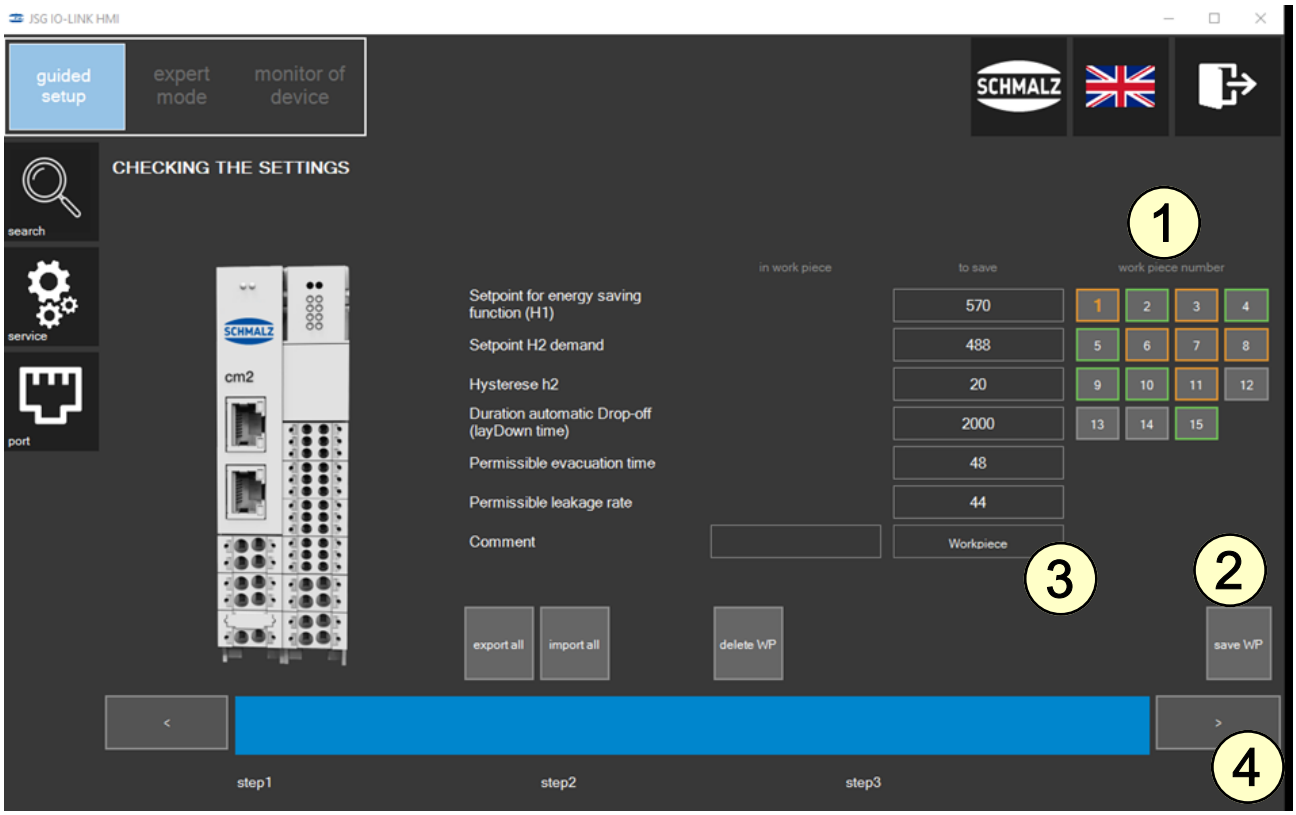
The selected workpiece number is highlighted in color and in bold.

Workpiece numbers that are highlighted in green are assigned with configurations from the device that is currently connected. Workpiece numbers that are highlighted in orange are assigned with the configurations of a device that is not currently connected. Numbers highlighted in white are free. Each recipe can be overwritten at any time.

With Schmalz devices (e.g. ECBPi, ECBPMi, RECB), workpiece recipes are generally saved in the IO-Link parameters of section P0.

In the comment field (3), you can provide a name for the recipe.

You can click the > button (4) to start the Guided Setup from the beginning and teach in another workpiece.

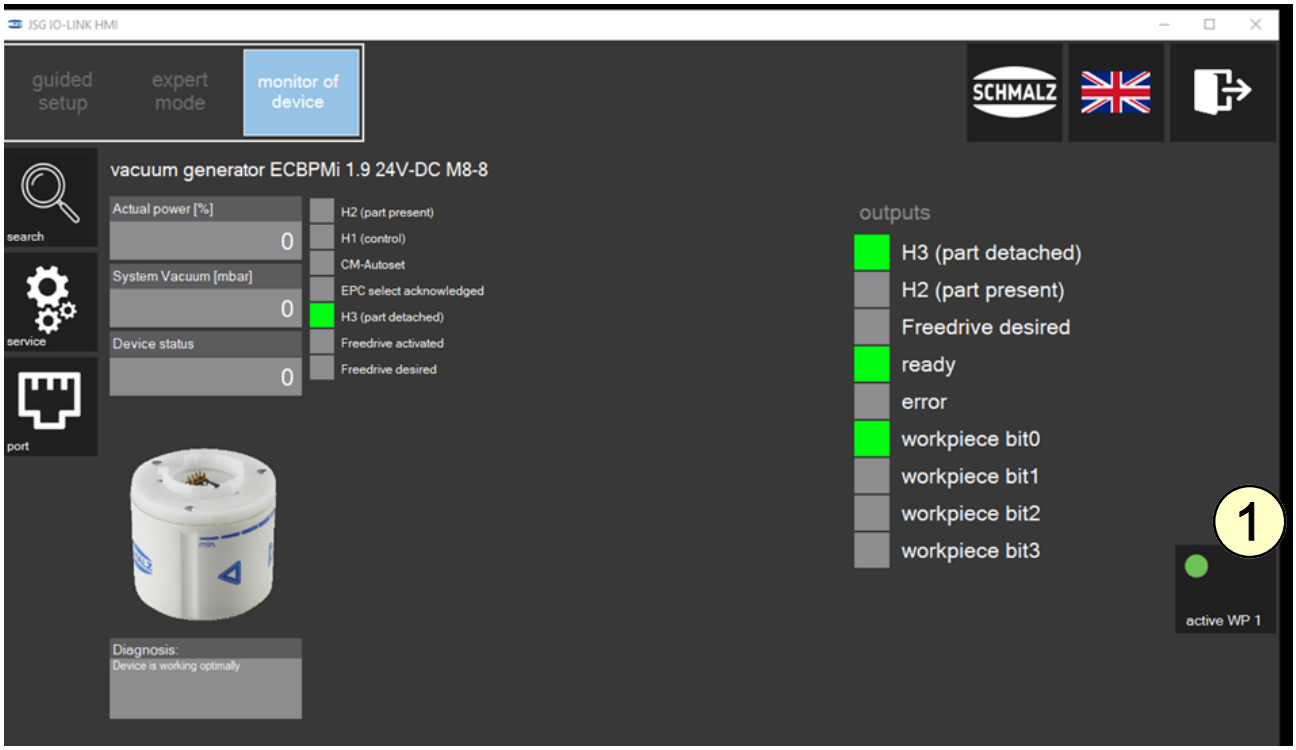


7.6 Monitor of Device

This mode lets you view the outputs and therefore the state information for the gripper. The control priority for the IO signals is provided via an external controller. Control via the HMI software is not possible in this mode.

- The gripper can be moved using the external controller and the saved settings.

The indicator (1) provides information about whether a recipe is activated and which recipe is activated for the selected gripper. If no valid recipe is activated, the indicator (1) changes to red and the settings must be checked.



7.7 Expert_PDU

Click the blue field (1) to activate or deactivate the applicable input.

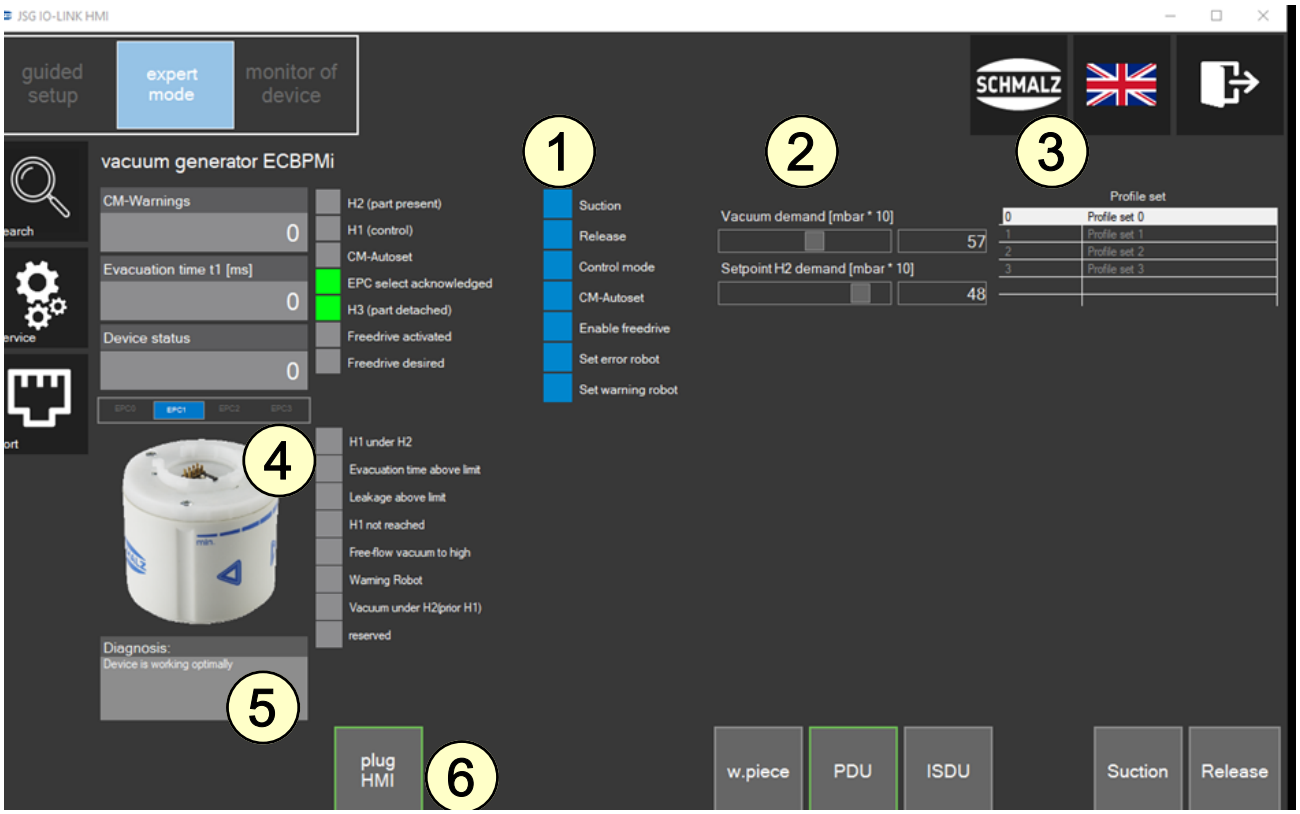
The vacuum limit values H1 and H2 can be set using the slider (2).

Regardless of the loaded recipe, four profiles with different parameter sets are available. They can be activated by clicking the relevant line (3).

In area (4), additional outputs can be displayed by selecting various EPC values (EPC = energy and process control). This provides additional information about the current status of the gripper.

The detailed word message regarding the device status is displayed in the diagnostics window (5). The system can detect whether there are warnings or errors on the pump.

You can click the **"[ACTIVE HMI]"** button (6) to transfer the control priority to the HMI via IO-Link. The gripper can be controlled via the HMI.



7.8 Expert_ISDU

In “expert mode,” the “**[ISDU]**” button opens a table overview of all the acyclical ISDU parameters (2) that are available with the connected device. Parameters with write access can be edited with an entry in the “value” column (3). Press “Enter” to confirm your entry. If the entry is valid, the new value is displayed in green. Individual drop-down lists for selecting the possible input values are provided.

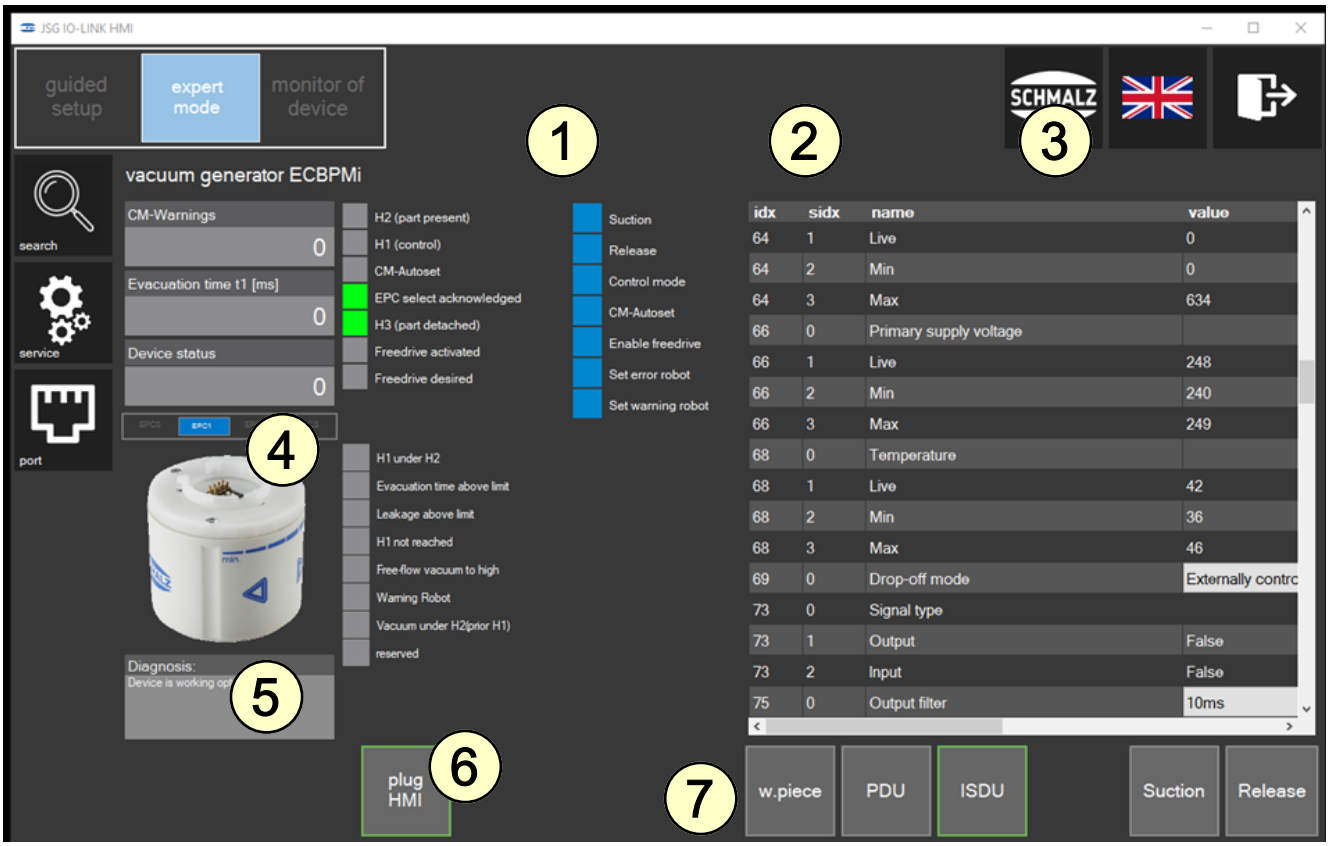
The IO-Link parameters of sections P1–Px are not used for the workpiece recipes. With Schmalz devices (e.g. ECBPi, ECBPMi, RECB), workpiece recipes are generally saved in the IO-Link parameters of section P0. If the parameters of section P0 are configured manually in the ISDU table, they must then be saved in a workpiece recipe using the “Expert_Workpiece (w.piece)” button (7) [Chapter 7.9]. Otherwise the written values will be lost when another workpiece recipe is called up.

Click the blue field (1) to activate or deactivate the applicable input.

In area (4), additional outputs can be displayed by selecting various EPC values (EPC = energy and process control). This provides additional information about the current status of the gripper.

The detailed word message regarding the device status is displayed in the diagnostics window (5). The system can detect whether there are warnings or errors on the pump.

You can click the “**[ACTIVE HMI]**” button (6) to transfer the control priority to the HMI via IO-Link. The gripper can be controlled via the HMI.



7.9 Expert_Workpiece (w.piece)

Click the “**[W.PIECE]**” button in “expert mode” to manage and activate the recipes as required.

The “in workpiece” column (1) displays the parameters defined in the selected workpiece number.

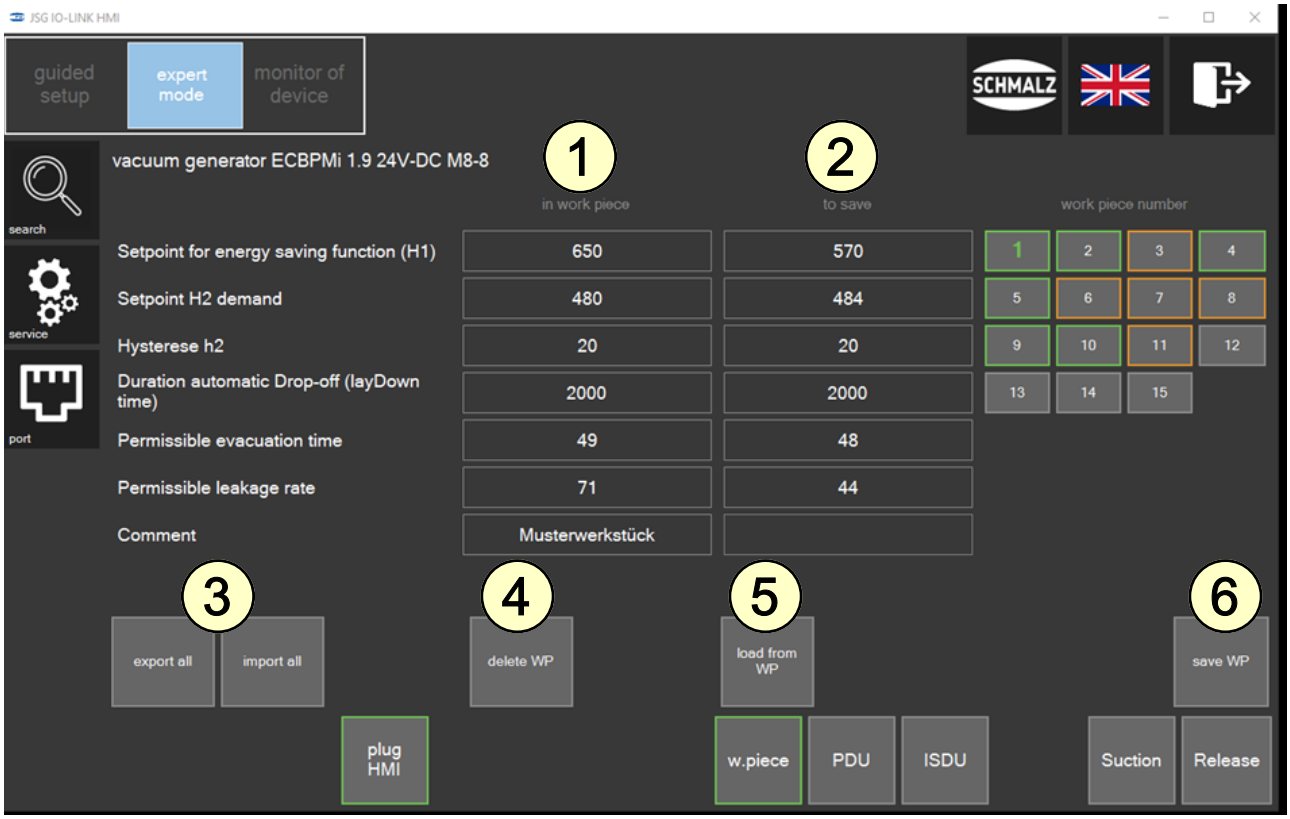
The “to save” column (2) contains the parameters, which can be checked and provided with a new comment before saving.

You can export and import the saved workpiece recipes by clicking the relevant button (3). This requires an XML file that is saved in a designated directory during the export.

Click the “**[DELETE WP]**” button (4) to delete individual recipes without overwriting them.

Click the “**[LOAD FROM WP]**” button (5) to load the “in workpiece” parameter set to the gripper and activate it. The parameters are also transferred from the “in workpiece” column to the “to save” column.

You can click the “**[SAVE WP]**” button (6) to add a new comment to the parameters from the “to save” column and save them under another workpiece number. If this workpiece number already receives a parameter set, it is overwritten.



8 Operation

The gripper is controlled via the digital IO (see section 6.3.5) of the external control.

For this purpose, the following basic commands must be followed (all signals are static signals):

- Deposit the workpiece with the “drop-off” signal
- Pick up the workpiece with the “vacuum” signal
- Manual control mode/Freedrive is enabled on the robot by the “Freedrive enable” signal
- Switch between the display of errors and errors or warnings via the “Error Or Warning/Error" signal
- The “signal h3 (part detached)” signal provides feedback about the complete deposit of a workpiece that was previously picked up
- The “signal h2 (part present)” signal is used to check whether the H2 vacuum limit value is exceeded and the workpiece has therefore been picked up correctly
- Feedback about the successful activation of the Freedrive request is provided directly on the gripper by the “Freedrive desired” signal
- Active “is Ready” signal as soon as the gripper is correctly adapted to the quick-change flange
- If you want to activate a recipe stored in the SCM module, select this recipe with the “Cmd-Workpiece_Bit_0 ... 3” with binary coding; once this recipe is activated, the corresponding “Act_Workpiece_Bit_0 ... 3” feedback signals are issued.

After a cold start, the SCM module initially starts with the priority of the IO signals and the last saved configuration when no HMI is connected.

This means that the HMI can be closed after the configuration and the PC and network cable can be removed.

The SCM module and connected grippers are now fully functional with the control alone.

If you have any questions, please contact the Schmalz customer service.

9 Taking the Product Out of Operation and Disposal

If the product reaches the end of the utilization phase, it may be fully disassembled and disposed of. Only qualified specialist staff may prepare the product for disposal.

1. Fully disconnect the product from the power supply.
2. Dispose of the components properly based on their material groups.

For proper disposal, contact a company specializing in the disposal of technical goods and instruct the company to observe the applicable disposal and environmental regulations.

10 EC Conformity

EU Declaration of Conformity

The manufacturer Schmalz confirms that the product with the name “SCM module” that is described in these operating instructions complies with the following applicable EC directives:

2011/65/EU	RoHS Directive
2014/30/EU	Electromagnetic Compatibility

The following harmonized standards were applied:

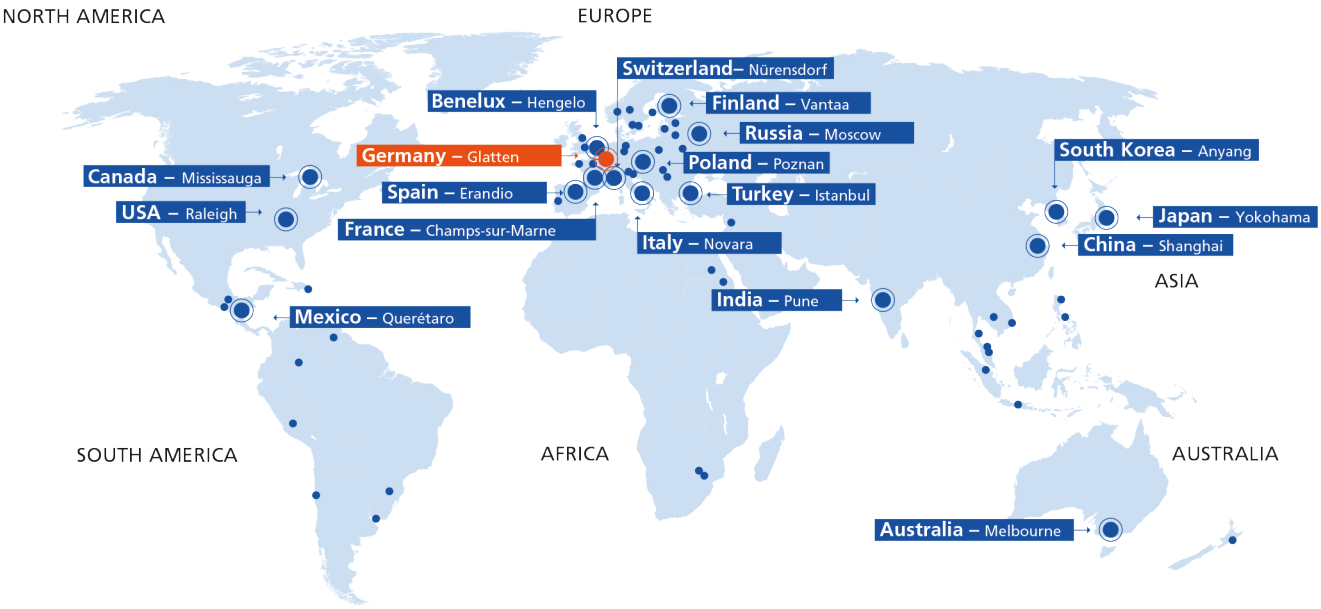
EN ISO 12100	Safety of machinery — General principles for design — Risk assessment and risk reduction
EN 61000-6-3+A1+AC	Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments
EN 61000-6-2+AC	Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments
EN 61000-6-4+A1	Electromagnetic compatibility - Part 6-4: Generic standards - Emission standard for industrial environments

Additional technical standards and specifications were applied:

DIN EN 62061:2016-05	Functional safety of safety-related electrical, electronic and programmable electronic control systems
EN ISO 10218-2	Industrial Robots – Safety Requirements – Part 2: Robot Systems and Integration
EN ISO 13849-1:2015	Safety of machinery - Safety-related parts of control systems - Part 1 General principles for design
ISO TS 15066	Human-robot collaboration
EN IEC 63000	Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

The Declaration of Incorporation valid at the time of product delivery is delivered with product or made available online. The standards and directives cited here reflect the status at the time of publication of the operating and assembly instructions.

At your side worldwide



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