INSTALLATION AND OPERATING INSTRUCTIONS

MATCH robot module
LWR50F

DDOC01074

THE KNOW-HOW FACTORY

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1 Introduction

1.1 Supporting documents

NOTICE

Read through the instructions before installing or working with the product.

The instructions contain important notes for your personal safety. They must be read and understood by all persons who work with or handle the product during any phase of the product lifetime.

The documents listed below are available for download on our website www.zimmer-group.com.

- Instructions
- Catalogs, drawings, CAD data, performance data
- Information on accessories
- Technical data sheets
- General Terms and Conditions, including warranty information.

⇨ Only those documents currently available on the website are valid.

In these instructions, "product" refers to the product designation on the title page!

1.2 Notices and graphics in the instructions

DANGER

This notice warns of an imminent danger to the life and health of people. Ignoring these notices can lead to serious injury or even death.

► You absolutely must comply with the described measures for avoiding these dangers!

⇨ The warning symbols are assigned according to the type of danger.

WARNING

This notice warns of a situation that is potentially hazardous to personal health. Ignoring these notices can cause serious injury or damage to health.

► You absolutely must comply with the described measures for avoiding these dangers!

⇨ The warning symbols are assigned according to the type of danger.

CAUTION

This notice warns of a situation that is potentially hazardous to persons. Ignoring these notices can cause minor, reversible injuries.

► You absolutely must comply with the described measures for avoiding these dangers!

⇨ The warning symbols are assigned according to the type of danger.

NOTICE

This notice warns of possible material and environmental damage. Ignoring these notices can result in damage to the product or the environment.

► You absolutely must comply with the described measures for avoiding these dangers!

⇨ The warning symbols are assigned according to the type of danger.

INFORMATION

This category contains useful tips for handling the product efficiently. Failure to observe these tips will not result in damage to the product. This information does not include any information relevant to health or workplace safety.

2 Safety notices

CAUTION

Risk of injury and material damage in case of non-compliance

The product is state-of-the-art.

The following are examples of situations in which the product may cause a hazard:

- The product is not properly installed, used or maintained.
- The product is not used for its designated purpose.
- The locally applicable regulations, laws, directives or guidelines are not observed.

▶ The product may only be used in accordance with these instructions and the product's technical data. Any changes or additions to the intended use of the product, as well as modifications to the product, such as those in the following examples, require the written permission of the manufacturer:

- Use of the product under extreme conditions, such as aggressive fluids or abrasive dusts
- Additional drilled holes or threads

⇨ Zimmer Group GmbH shall accept no liability for any damage caused by improper use. The operator bears sole responsibility.

▶ Make sure that the power supply is disconnected before you mount, adjust, modify, maintain or repair the product.

▶ Whenever work is carried out on the product, make sure that the product cannot be actuated by mistake.

▶ Perform maintenance tasks, renovation work or attachment work outside of the machine's danger zone when possible.

▶ Always adhere to the required maintenance intervals.

▶ When using the product under extreme conditions, adjust the maintenance interval according to the degree of contamination.

▶ Check the completeness and tightening torques of all mounting screws.

CAUTION

Notes and handling regulations for electrostatically sensitive components

Electrostatically sensitive components are individual components, integrated circuits or assemblies that can be damaged by electrostatic fields or electrostatic discharge.

- ▶ When handling electrostatic components, make sure that persons, the work area and packaging are all fully grounded.
- ▶ Touch electronic components only in appropriately identified areas with conductive flooring and only if:
  - You are grounded by means of special bracelets.
  - You wear shoes that are suitable and approved for the discharge of electrostatic charges.
- ▶ Do not bring electronic assemblies into contact with plastics and parts of clothing that have plastic content.
- ▶ Store electronic assemblies on conductive underlays only.
- ▶ Do not install electronic assemblies in the vicinity of data back-up devices or monitors (monitor distance > 100 mm).
- ▶ Perform measurements on electronic assemblies only if:
  - The measuring instrument is grounded (e.g. via a ground conductor).
  - The measuring head is momentarily discharged before measuring with a floating measuring instrument.

3 Proper use

NOTICE

Material damage and malfunction in case of non-compliance

The product is only to be used in its original state with its original accessories, with no unauthorized changes and within the stipulated parameter limits and operating conditions.

Any other or secondary use is deemed improper.

- ▶ Operate the product only in compliance with the associated instructions.
- ▶ Operate the product only when it is in a technical condition that corresponds to the guaranteed parameters and operating conditions.
- ⇨ Zimmer Group GmbH shall accept no liability for any damage caused by improper use. The operator bears sole responsibility.

- The product is designated for use in closed facilities.
- The product is intended for industrial use.
- The product is not suited for use in a potentially explosive atmosphere.
- Direct contact with perishable goods/food is not permitted.
- The product must always be mounted on materials that dissipate heat.
- The product is designed exclusively for electric operation using a 24 V DC power supply.
- The product is designed specifically for use on robot systems in combination with other products from the MATCH tool-changing system.

4 Personnel qualification

WARNING

Inadequate qualification can cause injury and material damage

If inadequately qualified personnel perform work on the product, this can cause serious injuries and significant material damage.

- ▶ All work on the product must be performed by qualified personnel.
- ▶ Before working with the product, read the document in its entirety and make sure that you have understood everything.
- ▶ Observe country-specific accident prevention regulations and the general safety notices.

The following qualifications are a prerequisite for performing various work on the product.

4.1 Electricians

Electricians are able to perform work on electrical systems, can recognize and avoid possible dangers and know the relevant standards and provisions due to their technical training, knowledge and experience.

4.2 Specialists

Specialists are able to perform the assigned work, can recognize and avoid possible dangers and know the relevant standards and provisions due to their technical training, knowledge and experience.

4.3 Instructed personnel

Instructed personnel have been trained by the operating company on the tasks and possible dangers of improper behavior.

4.4 Service personnel

Service personnel are able to perform the assigned work and can recognize and avoid possible dangers due to their technical training, knowledge and experience.

4.5 Additional qualifications

Persons who work with the product must be familiar with the valid safety regulations and laws as well as the standards, guidelines and laws listed in this document.

Personnel who work with the product must have facility-issued authorization to commission, program, configure, operate, maintain and also decommission this product.

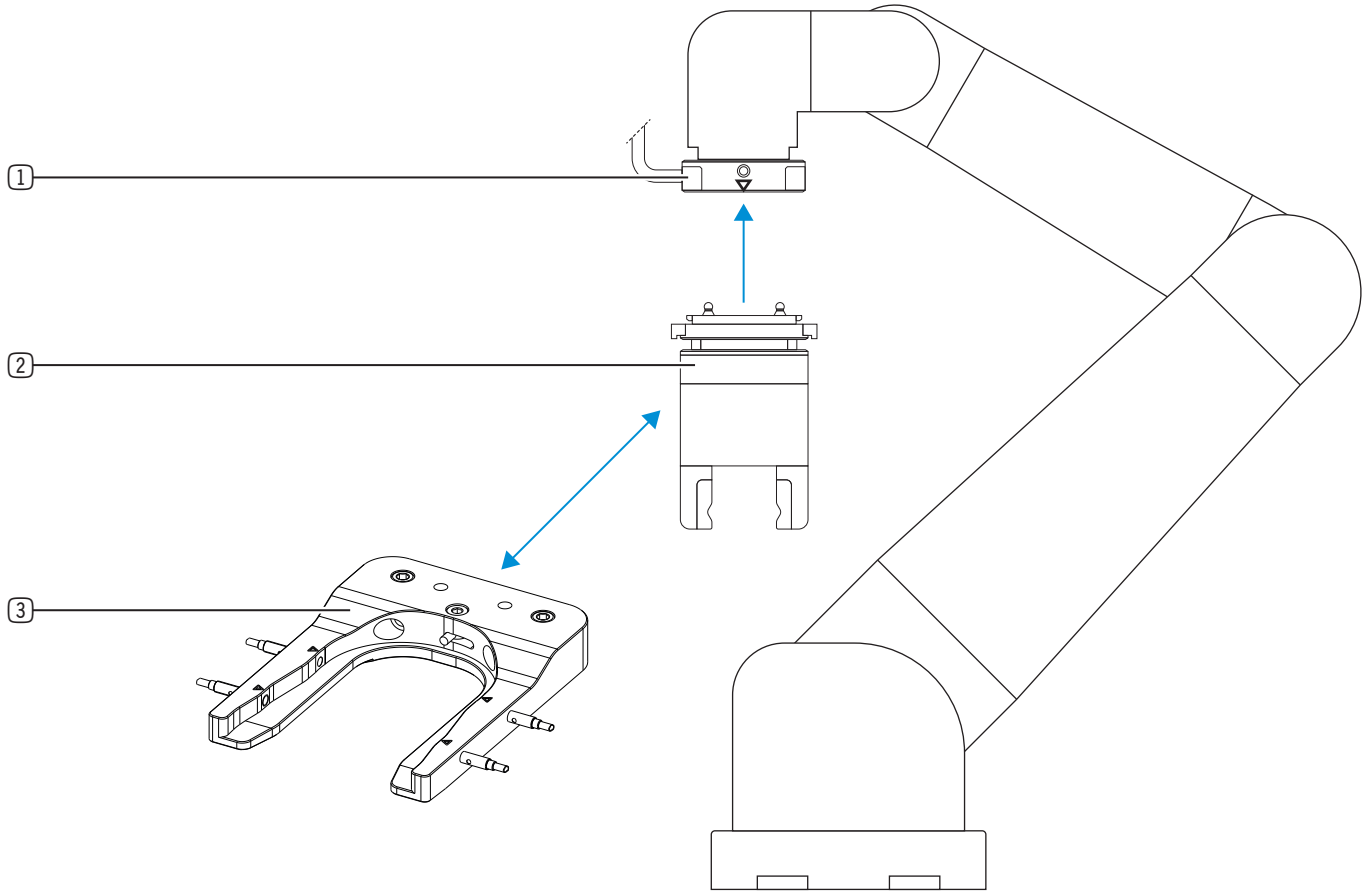
5 Product description

The MATCH End-of-Arm Ecosystem is equipped with an extensive range of functions and universal communication interfaces. MATCH is compatible with all common lightweight robots. The system can be mounted on the robot flange and set up with a few manual adjustments.

The product is a robot module.

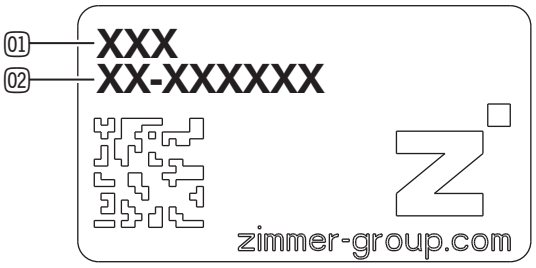
The original parts from Zimmer Group GmbH required for the safety principles are:

1. MATCH robot module (LWR50F-xx)
2. MATCH gripper (LWR50L-xx)
3. MATCH storage station (ALWR1-50-A)



5.1 Type plate

A type plate is attached to the product.



01 Article number

02 Confirmation number

5.2 Product variants and compatibility

INFORMATION

- ▶ You can find information about product variants and their compatibility on our website.
- ▶ Please contact Customer Service if you have any questions.

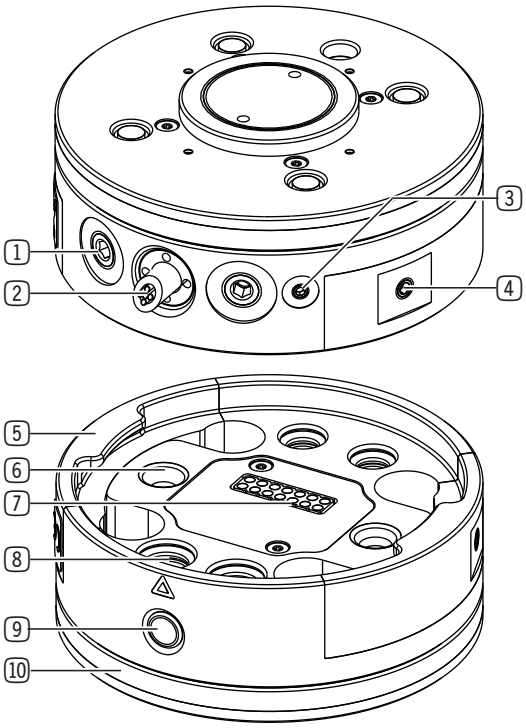
6 Functional description

The robot module and gripper are coupled manually or automatically via a storage station. When moving out of the storage station, the gripper automatically locks with the robot module.

When they are coupled, the internal spring contacts are contacted for signal transmission.

Then, the Connect LED changes color from red to green and, depending on the variant, a Connect signal is passed to the higher-level control system.

The hot-plug function enables coupling and decoupling while electrified.



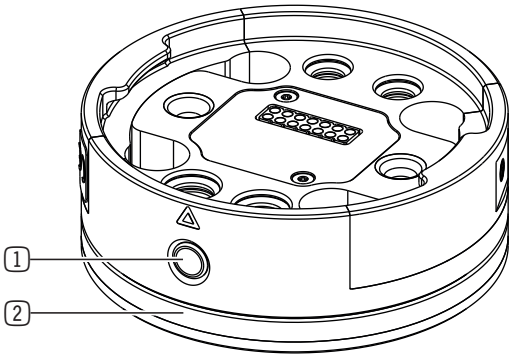
1. Pneumatic connection
2. Energy supply from the robot
3. Grounding
4. Strain relief
5. Locking
6. Bracket for centering pin
7. Spring contacts
8. Pneumatic feedthrough
9. Connect LED, Freedrive (robot-specific)
10. Status display (optional)

6.1 LED status display

The Connect LED indicates whether the robot module and gripper are coupled.

The product variants LWR50F-xx-05-A have a status display.

The colors of the status display indicate the status of the coupled IO-Link product.



1 Connect LED, Freedrive

2 Status display

6.1.1 Connect LED

Status		Meaning	Measure
	LED does not light up.	• Supply voltage is not OK	▶ Connect the supply voltage.
🔴	LED lights up continuously red.	• Robot module not coupled.	▶ Couple the robot module.
🟢	LED lights up continuously green.	• Robot module coupled.	-

6.1.2 Status display

Status		Meaning Zimmer Group GmbH	Meaning for Schmalz GmbH
	LED does not light up.	• Supply voltage is not OK	• Supply voltage is not OK
	LED flashes red.	• No connection to the IO-Link device	• No connection to the IO-Link device
🔴	LED lights up continuously red.	Error	Error
	LED flashes white.	• Unknown IO-Link device	• Unknown IO-Link device
🟠	LED lights up continuously orange.	• -	• Warning
🟢	LED lights up continuously green.	• Taught-in workpiece gripped	• Workpiece vacuumed (vacuum > H2)
🔵	LED lights up continuously blue.	• Gripper in end position or no workpiece gripped.	• Neutral state (vacuum > H2)

6.2 Functional safety

NOTICE

Malfunction in case of non-compliance

Extending out of the storage station can lead to high-frequency vibrations of the robot depending on the robot being used.

- ► Please note that in rare cases these vibrations can lead to communication setup malfunctions with the gripper.
- ► In these situations, make sure that the actuator power supply, signal power supply and communication are disconnected when the device is extended out of the storage station.
  - ► Only switch on the power supply at all contacts after the device is completely extended from the storage station (cold plug).

For the overall safety of the function, all three components (robot module, gripper and storage station) must be taken into account.

The safety function of the product that ensures secure locking between the robot module and gripper is implemented via a pneumatic action channel that consists of a mechanical locking and springs.

Technical supplementary safety measures (sensors) provide a high degree of diagnostic coverage.

Fault elimination in accordance with DIN EN ISO 13849-2, Annex A, Table A2 and A3 for the helical compression springs used can be given.

7 Technical data

INFORMATION

- ► You can find the information in the technical data sheet on our website.

This data varies within the series, depending on the specific design.

8 Accessories/scope of delivery

INFORMATION

If any accessories not sold or authorized by Zimmer Group GmbH are used, the function of the product cannot be guaranteed. Zimmer Group GmbH accessories are specifically tailored to the individual products.

- ► For optional accessories and those included in the scope of delivery, refer to our website.

9 Transportation/storage/preservation

- ► Transport and storage of the product must be done only with the original packaging.
- ► If the product has already been installed on the superordinate machine unit, care must be taken during transport to ensure that no unexpected movements can occur.
  - ► Before commissioning the product and after transport, check all power and communication connections as well as all mechanical connections.
- ► If the product is stored for an extended period, the following points are to be observed:
  - ► Keep the storage location as dust-free and dry as possible.
  - ► Avoid temperature fluctuations.
  - ► Avoid wind/drafts/water condensation formation.
  - ► Pack the product and do not expose it to direct sunlight during storage.
- ► Clean all components. There must be no soiling left on the components.
- ► Visually inspect all components.
- ► Remove all foreign substances.
- ► Properly remove potential corrosion spots.
- ► Close electrical connections using suitable covers.

10 Installation

WARNING

Risk of injury due to uncontrolled movements

Risk of injury in case of unexpected movement of the machine or system into which the product is to be installed.

- ▶ Switch off the energy supply of the machine before any work.
- ▶ Secure the power supply against being switched on unintentionally.
- ▶ Check the machine for any residual energy that may be present.

Assembly requirements	
Permissible flatness tolerance [mm]	0,03
Strength class of the mounting screws	8.8

INFORMATION

Further installation information:

- The mounting screws are not included in the scope of delivery.

- ▶ Install the product on an appropriate mounting surface in accordance with the flatness specifications.
- ▶ Make sure that the mounting piece is sufficiently rigid.
- ▶ Ensure the cleanliness of the connection surfaces.
- ▶ Please note the permitted tightening torques of the mounting screws at www.zimmer-group.com/en/td.

10.1 Installing the product

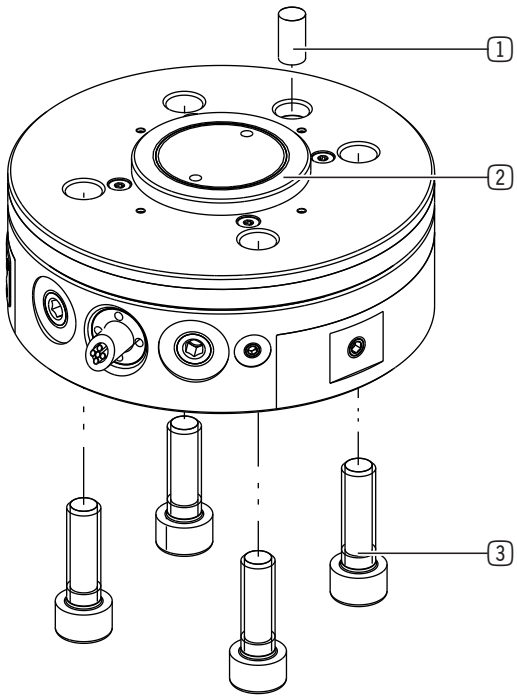
NOTICE

Non-compliance may result in material damage.

A camera can be mounted on installation size LWR50F-08-01-A. There must be sufficient clearance between the camera and the robot module to prevent collisions. The needed adapter plate is enclosed with the robot module.

- ▶ Mount an adapter plate between the camera and the robot module.

- ▶ Position the product on the robot using the straight pin.
- ▶ Insert the centering collar into the robot arm.
- ▶ Mount the product using the mounting screws.



1 Straight pins

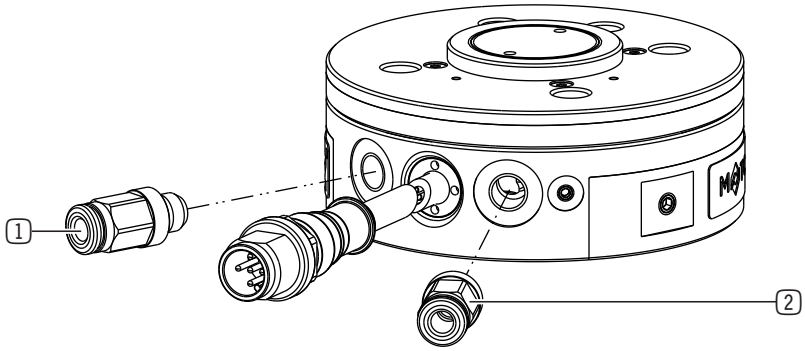
2 Centering collar

3 Mounting screw

10.2 Installing the energy supply

10.2.1 Installing the pneumatic system

- ► Unscrew the grub screws.
- ► Mount the screw fittings in the provided connections.



1 Close gripper

2 Open gripper

10.2.2 Installing the electrical system

CAUTION

Risk of injury from getting caught in the connecting cable

While the robot is moving, hair or limbs can be caught in the connecting cable.

- ► Route the connecting cable as close as possible to the robot arm.
- ► Avoid the danger zone.

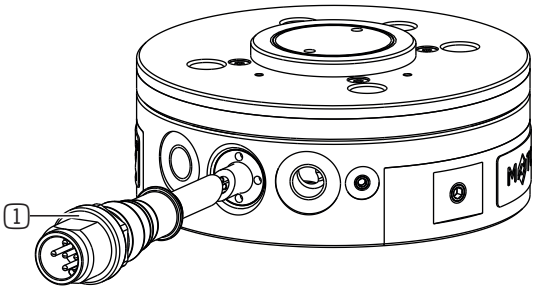
NOTICE

Material damage and malfunction in case of non-compliance

The cable mounted on the product can be subjected to a torsional angle of +50°.

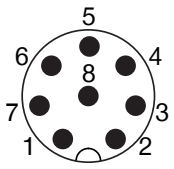
- ► Do not route the cable so that it is strained.
- ► You must meet the minimum bending radius of 10x the outer diameter.
- ► Secure free-hanging cables to prevent excessive motion loads or pinching.
- ► The contacts of the energy supply must be dry, clean and undamaged at all times.

- ► Connect the product to the robot control system or route the connecting line along the robot to the IO-Link master.



1 Connecting line

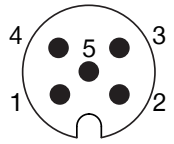
10.2.2.1 LWR50F-00-01-A

Pin	Color	Function	Explanation	Male connector, M8
1	White	Analog output	Jaw position 0–10 V DC	
2	Brown	Digital output 3	Connect signal: 24 V DC, if gripper is coupled with robot module.	
3	Green	Digital output 2	WorkPosition (jaws inward)	
4	Yellow	Digital output 1	BasePosition (jaws outward)	
5	Gray	PWR	24 V DC supply voltage	
6	Pink	Digital input 1	Inward move command: Jaws move inward	
7	Blue	Digital input 2	Outward move command: Jaws move outward	
8	Red	GND	0 V DC supply voltage	

The product inputs are designed for PNP outputs of the control system with a supply voltage of 24 V DC.

10.2.2.2 LWR50F-00-04-A, LWR50F-00-05-A

Control is via an SCM or a commercially available IO-Link master with Port Class B.

Pin	Color	Function	Explanation	Male connector, M12
1	Brown	24 V DC sensor	24 V DC supply voltage for IO-Link communication	
2	White	PWR actuator	24 V DC supply voltage for actuator	
3	Blue	GND sensor	0 V DC supply voltage for IO-Link communication	
4	Black	C/Q	IO-Link communication	
5	Gray	GND actuator	0 V DC supply voltage for actuator	

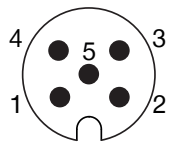
10.2.2.3 LWR50F-00-06-A

Control is via an SCM or a commercially available IO-Link master with Port Class B.

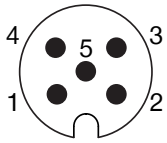
INFORMATION

Pins 1, 2, 3 and 5 of cables 1 and 2 are each connected in the product.

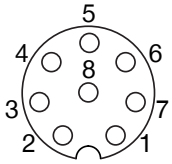
Cable 1

Pin	Color	Function	Explanation	Male connector, M12
1	Brown	24 V DC sensor	24 V DC supply voltage for IO-Link communication	
2	White	PWR actuator	24 V DC supply voltage for actuator	
3	Blue	GND sensor	0 V DC supply voltage for IO-Link communication	
4	Black	C/Q 1	IO-Link communication 1	
5	Gray	GND actuator	0 V DC supply voltage for actuator	

Cable 2

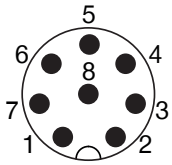
Pin	Color	Function	Explanation	Male connector, M12
1	Brown	24 V DC sensor	24 V DC supply voltage for IO-Link communication	
2	White	PWR actuator	24 V DC supply voltage for actuator	
3	Blue	GND sensor	0 V DC supply voltage for IO-Link communication	
4	Black	C/Q 2	IO-Link communication 2	
5	Gray	GND actuator	0 V DC supply voltage for actuator	

10.2.2.4 LWR50F-01-02-A

Pin	Color	Function	Explanation	Female connector, M8
1	White	Analog output	Jaw position 0–10 V DC	
2	Brown	Digital output 3	Connect signal: 24 V DC, if gripper is coupled with robot module.	
3	Green	Digital output 2	WorkPosition (jaws inward)	
4	Yellow	Digital output 1	BasePosition (jaws outward)/Freedrive: Either a digital output or the Freedrive signal can be evaluated. Freedrive signal: 24 V DC, if Freedrive button is pressed.	
5	Gray	PWR	24 V DC supply voltage	
6	Pink	Digital input 1	Inward move command: Jaws move inward	
7	Blue	Digital input 2	Outward move command: Jaws move outward	
8	Red	GND	0 V DC supply voltage	

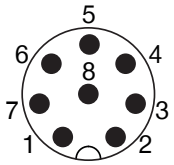
The inputs of the product are configured for NPN outputs of the control system.

10.2.2.5 LWR50F-04-01-A

Pin	Color	Function	Explanation	Male connector, M8
1	White	PWR	24 V DC supply voltage	
2	Brown	Digital output 2	WorkPosition (jaws inward)	
3	Green	Digital output 1	BasePosition (jaws outward)	
4	Yellow	Digital output 3	Connect signal: 24 V DC, if gripper is coupled with robot module.	
5	Gray	Digital input 1	Inward move command: Jaws move inward	
6	Pink	Digital input 2	Outward move command: Jaws move outward	
7	-	-	-	
8	Red	GND	0 V DC supply voltage	

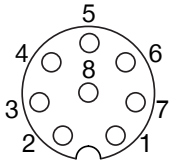
The inputs of the product are configured for NPN outputs of the control system.

10.2.2.6 LWR50F-06-01-A

Pin	Color	Function	Explanation	Male connector, M8
1	White	PWR	24 V DC supply voltage	
2	Brown	Digital output 1	BasePosition (jaws outward)	
3	Green	Digital output 2	WorkPosition (jaws inward)	
4	Yellow	Digital input 1	Inward move command: Jaws move inward	
5	Gray	Digital input 2	Outward move command: Jaws move outward	
6	Pink	Analog output	Jaw position 0–10 V DC	
7	Blue	GND	Analog GND	
8	Red	GND	0 V DC supply voltage	

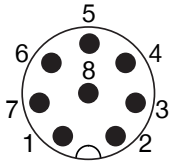
The inputs of the product are configured for NPN outputs of the control system.

10.2.2.7 LWR50F-07-01-A

Pin	Color	Function	Explanation	Female connector, M8
1	White	Analog output	Jaw position 0–10 V DC	
2	Brown	Digital output 3	Connect signal: 24 V DC, if gripper is coupled with robot module.	
3	Green	Digital output 2	WorkPosition (jaws inward)	
4	Yellow	Digital output 1	BasePosition (jaws outward)	
5	Gray	PWR	24 V DC supply voltage	
6	Pink	Digital input 1	Inward move command: Jaws move inward	
7	Blue	Digital input 2	Outward move command: Jaws move outward	
8	Red	GND	0 V DC supply voltage	

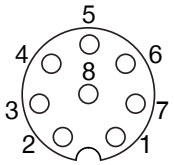
The inputs of the product are configured for NPN outputs of the control system.

10.2.2.8 LWR50F-08-01-A

Pin	Color	Function	Explanation	Male connector, M12
1	White	GND	0 V DC supply voltage	
2	Brown	PWR	24 V DC supply voltage	
3	Green	Digital input 2	Outward move command: Jaws move outward	
4	Yellow	Digital input 1	Inward move command: Jaws move inward	
5	-	-	-	
6	-	-	-	
7	Blue	Digital output 2	WorkPosition (jaws inward)	
8	Red	Digital output 1	BasePosition (jaws outward)	

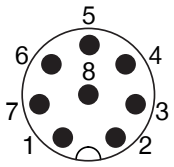
The product inputs are designed for PNP outputs of the control system with a supply voltage of 24 V DC.

10.2.2.9 LWR50F-09-01-A

Pin	Color	Function	Explanation	Female connector, M8
1	White	Analog output	Jaw position 0–10 V DC	
2	-	-	-	
3	Green	Digital output 2	WorkPosition (jaws inward)	
4	Yellow	Digital output 1	BasePosition (jaws outward)	
5	Gray	PWR	24 V DC supply voltage	
6	Pink	Digital input 1	Inward move command: Jaws move inward	
7	Blue	Digital input 2	Outward move command: Jaws move outward	
8	Red	GND	0 V DC supply voltage	

The product inputs are designed for PNP outputs of the control system with a supply voltage of 24 V DC.

10.2.2.10 LWR50F-10-01-A

Pin	Color	Function	Explanation	Male connector, M8
1	White	Digital output 1	BasePosition (jaws outward)	
2	Brown	Digital input 1	Inward move command: Jaws move inward	
3	Green	Digital input 2	Outward move command: Jaws move outward	
4	-	-	-	
5	Gray	PWR	24 V DC supply voltage	
6	-	-	-	
7	Blue	Digital output 2	WorkPosition (jaws inward)	
8	Red	GND	0 V DC supply voltage	

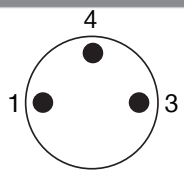
The product inputs are designed for PNP outputs of the control system with a supply voltage of 24 V DC.

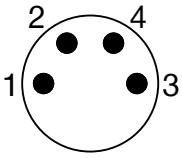
10.2.2.11 LWR50F-13-01-A

INFORMATION

Optionally, the ZUB000034 connecting cable is available as a connecting line for the ABB GoFa for OmniCore C30 control system.

▶ You can find information on our website.

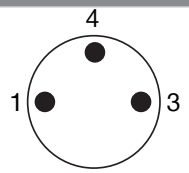
Pin	Color	Function	Explanation	Male connector, M8
1	Brown	PWR	24 V DC supply voltage	
3	Blue	GND	0 V DC supply voltage	
4	-	-	-	

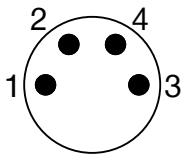
Pin	Color	Function	Explanation	Male connector, M8
1	Brown	Digital input 2	Outward move command: Jaws move outward	
2	White	Digital output 1	BasePosition (jaws outward)	
3	Blue	Digital output 2	WorkPosition (jaws inward)	
4	Black	Digital input 1	Inward move command: Jaws move inward	

The product inputs are designed for PNP outputs of the control system with a supply voltage of 24 V DC.

10.2.2.12 LWR50F-13-04-A, LWR50F-13-05-A

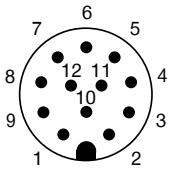
Control is via an SCM or a commercially available IO-Link master with Port Class B.

Pin	Color	Function	Explanation	Male connector, M8
1	Brown	PWR actuator	24 V DC supply voltage for actuator	
3	Blue	GND actuator	0 V DC supply voltage for actuator	
4	-	-	-	

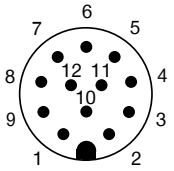
Pin	Color	Function	Explanation	Male connector, M8
1	Brown	24 V DC sensor	24 V DC supply voltage for IO-Link communication	
2	White	C/Q 2	IO-Link communication 2	
3	Blue	GND sensor	0 V DC supply voltage for IO-Link communication	
4	Black	C/Q 1	IO-Link communication 1	

10.2.2.13 LWR50F-14-04-A, LWR50F-14-05-A

Control is via an SCM or a commercially available IO-Link master with Port Class B.

Pin	Color	Function	Explanation	Male connector, M12
1	-	-	-	
2	-	-	-	
3	-	-	-	
4	-	-	-	
5	Pink	24 V DC sensor	24 V DC supply voltage for IO-Link communication	
6	Yellow	PWR actuator	24 V DC supply voltage for actuator	
7	Black	C/Q	IO-Link communication	
8	Gray	GND sensor and actuator	0 V DC supply voltage for sensor and actuator	
9	-	-	-	
10	-	-	-	
11	-	-	-	
12	-	-	-	

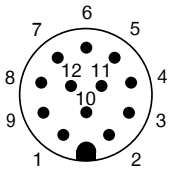
10.2.2.14 LWR50F-15-01-A

Pin	Color	Function	Explanation	Male connector, M12
1	Brown	PWR	24 V DC supply voltage	
2	Blue	Digital input 2	Outward move command: Jaws move outward	
3	White	GND	0 V DC supply voltage	
4	Green	Digital input 1	Inward move command: Jaws move inward	
5	Pink	Analog output	Jaw position 0–10 V DC	
6	Yellow	Digital output 3	Connect signal: 24 V DC, if gripper is coupled with robot module.	
7	Black	Digital output 1	BasePosition (jaws outward)	
8	Gray	Digital output 2	WorkPosition (jaws inward)	
9	-	-	-	
10	-	-	-	
11	-	-	-	
12	-	-	-	

The product inputs are designed for PNP outputs of the control system with a supply voltage of 24 V DC.

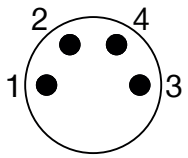
10.2.2.15 LWR50F-15-04-A, LWR50F-15-05-A

Control is via an SCM or a commercially available IO-Link master with Port Class B.

Pin	Color	Function	Explanation	Male connector, M12
1	Brown	24 V DC sensor	24 V DC supply voltage for IO-Link communication	
2	Blue	PWR actuator	24 V DC supply voltage for actuator	
3	White	GND sensor	0 V DC supply voltage for IO-Link communication	
4	Green	C/Q	IO-Link communication	
5	-	-	-	
6	-	-	-	
7	-	-	-	
8	Gray	GND actuator	0 V DC supply voltage for actuator	
9	-	-	-	
10	-	-	-	
11	-	-	-	
12	-	-	-	

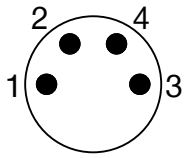
10.2.2.16 LWR50F-16-01-A

User 1

Pin	Color	Function	Explanation	Male connector, M8
1	Brown	PWR	24 V DC supply voltage	
2	White	Digital input 1	Inward move command: Jaws move inward	
3	Blue	GND	0 V DC supply voltage	
4	Black	Digital input 2	Outward move command: Jaws move outward	

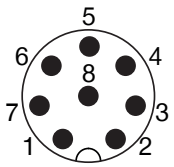
The product inputs are designed for PNP outputs of the control system with a supply voltage of 24 V DC.

User 2

Pin	Color	Function	Explanation	Male connector, M8
1	-	-	-	
2	White	Digital output 2	WorkPosition (jaws inward)	
3	-	-	-	
4	Black	Digital output 1	BasePosition (jaws outward)	

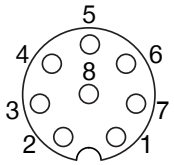
The product inputs are designed for PNP outputs of the control system with a supply voltage of 24 V DC.

10.2.2.17 LWR50F-17-01-A

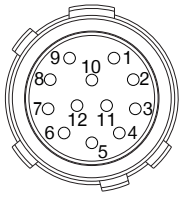
Pin	Color	Function	Explanation	Male connector, M8
1	-	-	-	
2	Brown	Digital output 3	Connect signal: 24 V DC, if gripper is coupled with robot module.	
3	Green	Digital output 2	WorkPosition (jaws inward)	
4	Yellow	Digital output 1	BasePosition (jaws outward)	
5	Gray	PWR	24 V DC supply voltage	
6	Pink	Digital input 1	Inward move command: Jaws move inward	
7	Blue	Digital input 2	Outward move command: Jaws move outward	
8	Red	GND	0 V DC supply voltage	

The product inputs are designed for PNP outputs of the control system with a supply voltage of 24 V DC.

10.2.2.18 LWR50F-17-04-A, LWR50F-17-05-A

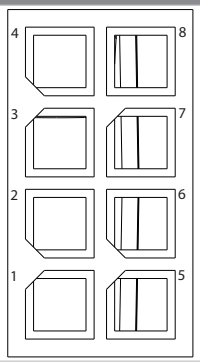
Pin	Color	Function	Explanation	Female connector, M8
1	White	STO2	Torque off input 2	
2	Brown	STO GND	Torque off GND	
3	Green	C/Q	IO-Link communication	
4	Yellow	STO1	Torque off input 1	
5	Gray	24 V DC sensor	24 V DC supply voltage for IO-Link communication	
6	Pink	PWR actuator	24 V DC supply voltage for actuator	
7	Blue	GND actuator	0 V DC supply voltage for actuator	
8	Red	GND sensor	0 V DC supply voltage for IO-Link communication	

10.2.2.19 LWR50F-18-01-A

Pin	Color	Function	Explanation	Female connector, HR10A-10P-12S
1	Red	GND	0 V DC supply voltage	
2	Brown	Digital input 1	Inward move command: Jaws move inward	
3	Green	Digital input 2	Outward move command: Jaws move outward	
4	Yellow	Digital output 1	BasePosition (jaws outward)	
5	Gray	Digital output 2	WorkPosition (jaws inward)	
6	Pink	Analog output	Jaw position 0–10 V DC	
7	-	-	-	
8	-	-	-	
9	-	-	-	
10	Blue	PWR	24 V DC supply voltage	
11	-	-	-	
12	-	-	-	

The inputs of the product are configured for NPN outputs of the control system.

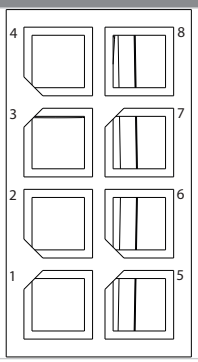
10.2.2.20 LWR50F-20-01-A

Pin	Color	Function	Explanation	Female connector, 0430200801
1	White	Digital input 2	Outward move command: Jaws move outward	
2	Brown	Digital input 1	Inward move command: Jaws move inward	
3	Green	Digital output 3	Connect signal: 24 V DC, if gripper is coupled with robot module.	
4	-	-	-	
5	Gray	Digital output 1	BasePosition (jaws outward)	
6	Pink	Digital output 2	WorkPosition (jaws inward)	
7	Blue	PWR	24 V DC supply voltage	
8	Red	GND	0 V DC supply voltage	

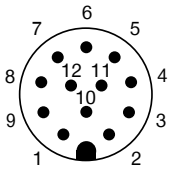
The product inputs are designed for PNP outputs of the control system with a supply voltage of 24 V DC.

10.2.2.21 LWR50F-20-04-A, LWR50F-20-05-A

Control is via an SCM or a commercially available IO-Link master with Port Class B.

Pin	Color	Function	Explanation	Female connector, 0430200801
1	White	24 V DC sensor	24 V DC supply voltage for IO-Link communication	
2	Brown	GND sensor	0 V DC supply voltage for IO-Link communication	
3	Green	C/Q	IO-Link communication	
4	-	-	-	
5	-	-	-	
6	-	-	-	
7	Blue	PWR actuator	24 V DC supply voltage for actuator	
8	Red	GND actuator	0 V DC supply voltage for actuator	

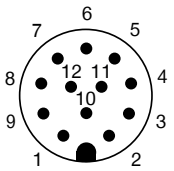
10.2.2.22 LWR50F-21-01-A

Pin	Color	Function	Explanation	Male connector, M12
1	Brown	PWR	24 V DC supply voltage	
2	Blue	Digital input 2	Outward move command: Jaws move outward	
3	White	GND	0 V DC supply voltage	
4	Green	Digital input 1	Inward move command: Jaws move inward	
5	Pink	Analog output	Jaw position 0–10 V DC	
6	Yellow	Digital output 3	Connect signal: 24 V DC, if gripper is coupled with robot module.	
7	Black	Digital output 1	BasePosition (jaws outward)	
8	Gray	Digital output 2	WorkPosition (jaws inward)	
9	-	-	-	
10	-	-	-	
11	-	-	-	
12	-	-	-	

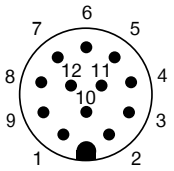
The product inputs are designed for PNP outputs of the control system with a supply voltage of 24 V DC.

10.2.2.23 LWR50F-21-04-A, LWR50F-21-05-A

Control is via an SCM or a commercially available IO-Link master with Port Class B.

Pin	Color	Function	Explanation	Male connector, M12
1	Brown	PWR actuator	24 V DC supply voltage for actuator	
2	Blue	24 V DC sensor	24 V DC supply voltage for IO-Link communication	
3	White	GND actuator	0 V DC supply voltage for actuator	
4	Green	C/Q	IO-Link communication	
5	Pink	GND sensor	0 V DC supply voltage for IO-Link communication	
6	-	-	-	
7	-	-	-	
8	-	-	-	
9	-	-	-	
10	-	-	-	
11	-	-	-	
12	-	-	-	

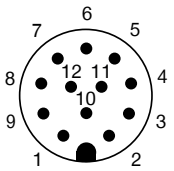
10.2.2.24 LWR50F-22-01-A

Pin	Color	Function	Explanation	Male connector, M12
1	-	-	-	
2	-	-	-	
3	-	-	-	
4	-	-	-	
5	Pink	PWR	24 V DC supply voltage	
6	Yellow	GND	0 V DC supply voltage	
7	Black	Digital input 1	Inward move command: Jaws move inward	
8	Gray	Digital input 2	Outward move command: Jaws move outward	
9	Red	Digital output 1	BasePosition (jaws outward)	
10	Violet	Digital output 2	WorkPosition (jaws inward)	
11	Gray/pink	Analog output	Jaw position 0–10 V DC	
12	Red/blue	Digital output 3	Connect signal: 24 V DC, if gripper is coupled with robot module.	

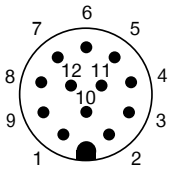
The product inputs are designed for PNP outputs of the control system with a supply voltage of 24 V DC.

10.2.2.25 LWR50F-22-04-A, LWR50F-22-05-A

Control is via an SCM or a commercially available IO-Link master with Port Class B.

Pin	Color	Function	Explanation	Male connector, M12
1	-	-	-	
2	-	-	-	
3	-	-	-	
4	-	-	-	
5	Pink	PWR actuator	24 V DC supply voltage for actuator	
6	Yellow	GND actuator	0 V DC supply voltage for actuator	
7	Black	C/Q 1	IO-Link communication 1	
8	Gray	24 V DC sensor	24 V DC supply voltage for IO-Link communication	
9	Red	GND sensor	0 V DC supply voltage for IO-Link communication	
10	Violet	C/Q 2	IO-Link communication 2	
11	-	-	-	
12	-	-	-	

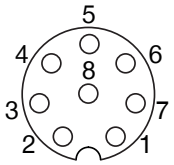
10.2.2.26 LWR50F-23-01-A

Pin	Color	Function	Explanation	Male connector, M12
1	Brown	Digital output 1	BasePosition (jaws outward)	
2	Blue	Digital output 2	WorkPosition (jaws inward)	
3	White	Digital output 3	Connect signal: 24 V DC, if gripper is coupled with robot module.	
4	Green	Digital input 1	Inward move command: Jaws move inward	
5	Pink	Digital input 2	Outward move command: Jaws move outward	
6	-	-	-	
7	-	-	-	
8	-	-	-	
9	Red	Analog output	Jaw position 0–10 V DC	
10	-	-	-	
11	Gray/pink	PWR	24 V DC supply voltage	
12	Red/blue	GND	0 V DC supply voltage	

The product inputs are designed for PNP outputs of the control system with a supply voltage of 24 V DC.

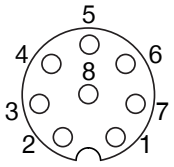
10.2.2.27 LWR50F-24-01-A

► Connect the plug-in connector to the connection port 2 on the robot.

Pin	Color	Function	Explanation	Female connector, M8
1	White	Digital output 1	BasePosition (jaws outward)	
2	Brown	Digital output 2	WorkPosition (jaws inward)	
3	Green	Digital input 1	Inward move command: Jaws move inward	
4	Yellow	Digital input 2	Outward move command: Jaws move outward	
5	Gray	PWR	24 V DC supply voltage	
6	Pink	Analog output	Jaw position 0–10 V DC	
7	-	-	-	
8	Red	GND	0 V DC supply voltage	

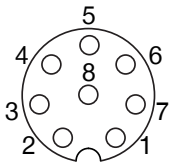
The product inputs are designed for PNP outputs of the control system with a supply voltage of 24 V DC.

10.2.2.28 LWR50F-25-01-A

Pin	Color	Function	Explanation	Female connector, M8
1	White	Analog output	Jaw position 0–10 V DC	
2	-	-	-	
3	Green	Digital output 2	WorkPosition (jaws inward)	
4	Yellow	Digital output 1	BasePosition (jaws outward)	
5	Gray	PWR	24 V DC supply voltage	
6	Pink	Digital input 1	Inward move command: Jaws move inward	
7	Blue	Digital input 2	Outward move command: Jaws move outward	
8	Red	GND	0 V DC supply voltage	

The product inputs are designed for PNP outputs of the control system with a supply voltage of 24 V DC.

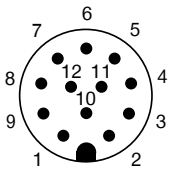
10.2.2.29 LWR50F-26-01-A

Pin	Color	Function	Explanation	Female connector, M8
1	-	-	-	
2	-	-	-	
3	-	-	-	
4	Yellow	Analog output	Jaw position 0–10 V DC	
5	Gray	PWR	24 V DC supply voltage	
6	Pink	Digital input 1	Inward move command: Jaws move inward	
7	Blue	Digital input 2	Outward move command: Jaws move outward	
8	Red	GND	0 V DC supply voltage	

The product inputs are designed for PNP outputs of the control system with a supply voltage of 24 V DC.

10.2.2.30 LWR50F-29-01-A

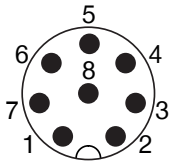
► Connect the plug-in connector to the connection port A on the robot.

Pin	Color	Function	Explanation	Male connector, M12
1	Brown	Digital input 2	Outward move command: Jaws move outward	
2	-	-	-	
3	-	-	-	
4	-	-	-	
5	-	-	-	
6	Yellow	Analog output	Jaw position 0–10 V DC	
7	Black	Digital output 1	BasePosition (jaws outward)	
8	Gray	Digital output 2	WorkPosition (jaws inward)	
9	Red	Digital input 1	Inward move command: Jaws move inward	
10	Violet	PWR	24 V DC supply voltage	
11	-	-	-	
12	Red/blue	GND	0 V DC supply voltage	

The product inputs are designed for PNP outputs of the control system with a supply voltage of 24 V DC.

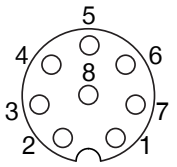
10.2.2.31 LWR50F-30-01-A

► Connect the plug-in connector to connection port C1 on the robot.

Pin	Color	Function	Explanation	Male connector, M8
1	White	Analog output	Jaw position 0–10 V DC	
2	Brown	Digital output 3	Connect signal: 24 V DC, if gripper is coupled with robot module.	
3	Green	Digital output 2	WorkPosition (jaws inward)	
4	Yellow	Digital output 1	BasePosition (jaws outward)	
5	Gray	PWR	24 V DC supply voltage	
6	Pink	Digital input 1	Inward move command: Jaws move inward	
7	Blue	Digital input 2	Outward move command: Jaws move outward	
8	Red	GND	0 V DC supply voltage	

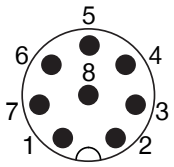
The product inputs are designed for PNP outputs of the control system with a supply voltage of 24 V DC.

10.2.2.32 LWR50F-31-01-A

Pin	Color	Function	Explanation	Female connector, M8
1	White	Digital output 1	BasePosition (jaws outward)	
2	Brown	Digital output 2	WorkPosition (jaws inward)	
3	Green	Digital input 1	Inward move command: Jaws move inward	
4	Yellow	Digital input 2	Outward move command: Jaws move outward	
5	Gray	PWR	24 V DC supply voltage	
-	-	-	-	
-	-	-	-	
8	Red	GND	0 V DC supply voltage	

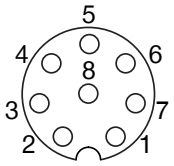
The product inputs are designed for PNP outputs of the control system with a supply voltage of 24 V DC.

10.2.2.33 LWR50F-31-02-A

Pin	Color	Function	Explanation	Male connector, M8
1	White	Digital output 3	Connect signal: 24 V DC, if gripper is coupled with robot module.	
2	Brown	Analog output	Jaw position 0–10 V DC	
3	Green	Digital input 2	Outward move command: Jaws move outward	
4	Yellow	Digital input 1	Inward move command: Jaws move inward	
5	Gray	PWR	24 V DC supply voltage	
6	Pink	Digital output 1	BasePosition (jaws outward)/Freedrive: Either a digital output or the Freedrive signal can be evaluated. Freedrive signal: 24 V DC, if Freedrive button is pressed.	
7	Blue	Digital output 2	WorkPosition (jaws inward)	
8	Red	GND	0 V DC supply voltage	

The inputs of the product are configured for NPN outputs of the control system.

10.2.2.34 LWR50F-32-01-A

Pin	Color	Function	Explanation	Female connector, M8
1	-	-	-	
2	-	-	-	
3	Green	Digital output 2	WorkPosition (jaws inward)	
4	Yellow	Digital output 1	BasePosition (jaws outward)	
5	Gray	PWR	24 V DC supply voltage	
6	Pink	Digital input 1	Inward move command: Jaws move inward	
7	Blue	Digital input 2	Outward move command: Jaws move outward	
8	Red	GND	0 V DC supply voltage	

The product inputs are designed for PNP outputs of the control system with a supply voltage of 24 V DC.

10.3 Static charge

NOTICE

Material damage from static charge

Electrostatic voltages can occur if the product is mounted on insulating surfaces and no effective dissipation of static charges is possible.

- ▶ Please note that ESD-sensitive parts can be damaged if they come into contact with the product.
- ▶ Ground the product for applications that require high EMC resistance.

10.4 Heat dissipation

NOTICE

Material damage from overheating of the product

If the product is operated under a very high ambient temperature or with fast clock cycles on an ongoing basis, this can reduce its service life.

- ▶ If the product is exposed to high ambient temperatures, always install it on heat-conducting materials.
- ▶ Reduce the load with increasing temperature.

10.5 Installing accessories

NOTICE

Non-compliance may result in material damage.

- ▶ Before installing an accessory, make sure it is suitable for use with the selected variant.
- ▶ You can find information on our website.
- ▶ Please contact Customer Service if you have any questions.

11 Operation

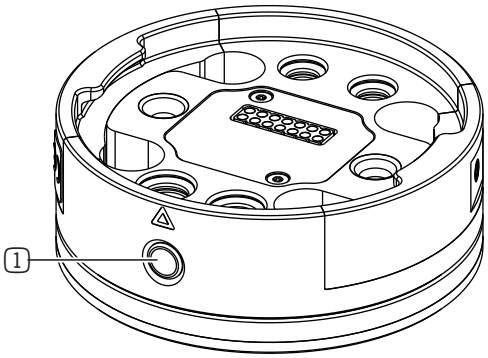
11.1 Operating Freedrive

INFORMATION

- ▶ Details about activation can be found in the information from the robot manufacturer.

The product is equipped with a Freedrive button to soft-switch the robot and move it manually.

- ▶ Press and hold the Freedrive button.
- ⇨ The robot can be moved manually.
- ▶ Move the robot to the desired position.
- ▶ Release the Freedrive Button again as soon as you have reached the desired position.
- ⇨ The robot and product stop at this position.



1 Connect LED, Freedrive

12 Maintenance

NOTICE

Material damage resulting from blowing out with compressed air

Blowing out the product with compressed air can cause malfunctions.

▶ Never purge the product with compressed air.

NOTICE

Material damage caused by unsuitable cleaning materials

Seals, insulation, coatings and other surfaces may be damaged by solvent-based cleaning agents.

▶ Make sure that no liquids penetrate the product.

▶ Use chemically and biologically neutral cleaning agents.

▶ Use cleaning agents that are categorized as being nonhazardous to health.

▶ Use soft, lint-free cloths for cleaning the surface.

The use of the following cleaning agents is strictly prohibited:

- Acetone
- Cleaning solvent
- Nitrocellulose thinner/turpentine oil (solvents)

Operation of the product is maintenance-free.

▶ Note that the product could become damaged under the following circumstances:

- Dirty environment
- Improper use and use that does not comply with the performance data
- Permissible temperature range not observed

▶ Even though the product is maintenance-free as mentioned above, perform a regular visual inspection to check for any damage or contamination.

▶ Have maintenance work that requires disassembly of the product performed by customer service only.

⇨ Dismantling and reassembling the product without authorization may result in complications, as special installation equipment is required in some cases. Zimmer Group GmbH accepts no liability for any resulting malfunctions or damage.

13 Decommissioning/disposal

INFORMATION

When the product reaches the end of its operational phase, it can be disposed of.

▶ Disconnect the product completely from the power supply.

▶ Comply with the locally applicable environmental and disposal regulations.

14 RoHS declaration

in terms of the EU Regulation 2011/65/EU

Name and address of the manufacturer:

Zimmer Group GmbH

Am Glockenloch 2
77866 Rheinau, Germany
+49 7844 9138 0
info@zimmer-group.com
www.zimmer-group.com

We hereby declare that the incomplete machine described below

Product designation:	MATCH robot module
Type designation:	LWR50F

conforms to the requirements of the directive in its design and the version we put on the market.

Michael Hoch	Rheinau, Germany, 2021-04-01	
Authorized representative for compiling the relevant technical documents	(Place and date of issuance)	Martin Zimmer (Legally binding signature) Managing Partner

15 Declaration of Incorporation (Machinery Directive)

In terms of the EU Machinery Directive 2006/42/EC (Annex II 1 B)

Name and address of the manufacturer:

Zimmer Group GmbH

Am Glockenloch 2
77866 Rheinau, Germany
+49 7844 9138 0
info@zimmer-group.com
www.zimmer-group.com

We hereby declare that the incomplete machine described below

Product designation:	MATCH robot module
Type designation:	LWR50F

conforms to the requirements of the Machinery Directive, 2006/42/EC, Article 2g, Annex VII, b – Annex II, b, in its design and the version we put on the market.

We hereby confirm that all the relevant basic health and safety requirements for the product have been observed and implemented.

A full list of applied standards can be obtained from the manufacturer.

We also declare that the specific technical documents were produced in accordance with Annex VII Part B of this Directive. We undertake to provide the market supervisory bodies with electronic versions of special documents for the incomplete machine through our documentation department, should they have reason to request them.

The incomplete machine may only be commissioned if it has been ascertained, if applicable, that the machine or system in which the incomplete machine is to be installed satisfies the requirements of Directive 2006/42/EC on Machinery and an EC Declaration of Conformity has been drawn up in accordance with Annex II 1 A.

Kurt Ross	Rheinau, Germany, 2021-04-01	
Authorized representative for compiling the relevant technical documents	(Place and date of issuance)	Martin Zimmer (Legally binding signature) Managing Partner

16 Declaration of Incorporation

In terms of the EU Machinery Regulation 2023/1230, Annex V, Part B

Name and address of the manufacturer:

Zimmer Group GmbH

Am Glockenloch 2
77866 Rheinau, Germany
+49 7844 9138 0
info@zimmer-group.com
www.zimmer-group.com

We hereby declare that the incomplete machine described below

Product designation:	MATCH robot module
Type designation:	LWR50F

in their design and in the version we have placed on the market comply with the requirements of Regulation 2023/1230, Article 3.10, Annex III, Annex IV, Part B and Annex V, Part B.

A complete list of the standards applied and the essential health and safety requirements is available from the manufacturer.

The incomplete machine must not be commissioned until it has been determined that - where applicable - the machine into which the incomplete machine is to be incorporated complies with the provisions of EU Machinery Regulation 2023/1230 and the EC Declaration of Conformity has been issued in accordance with Annex V, Part A.

Kurt Ross	Rheinau, Germany, 2027-01-20	
Authorized representative for compiling the relevant technical documents	(Place and date of issuance)	Martin Zimmer (Legally binding signature) Managing Partner

17 Declaration of Conformity

As defined by the EC Directive 2014/30/EU on electromagnetic compatibility

Name and address of the manufacturer:

Zimmer Group GmbH
Am Glockenloch 2
77866 Rheinau, Germany
+49 7844 9138 0
info@zimmer-group.com
www.zimmer-group.com

We hereby declare that the product described below

Product designation:	MATCH robot module
Type designation:	LWR50F

conforms to the requirements of the Electromagnetic Compatibility Directive 2014/30/EU in its design and the version we put on the market.

The following harmonized standards have been used:

DIN EN ISO 12100	Safety of machinery - General principles for design - Risk assessment and risk reduction
DIN EN 61000-6-3	EMC Generic standard, Emission standard for residential, commercial and light-industrial
DIN EN 61000-6-2	EMC Generic standard, Emission standard for industrial environments
DIN EN 61000-6-4	EMC Generic standard, Immunity for industrial environments

A full list of applied standards can be obtained from the manufacturer.

Kurt Ross	Rheinau, Germany, 2021-04-01	
Authorized representative for compiling the relevant technical documents	(Place and date of issuance)	Martin Zimmer (Legally binding signature) Managing Partner