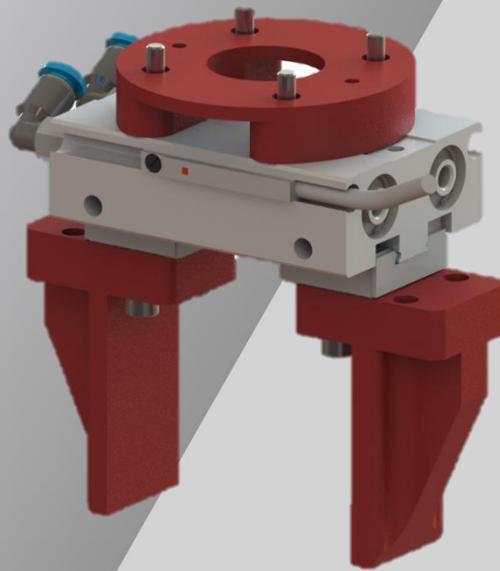


# ASTORINO

## Pneumatic Gripper Operation Manual



## **INTRODUCTION**

---

This manual describes the pneumatic gripper for the "Kawasaki Robotics Astorino" educational robot.

ASTORINO is an educational robot that has been specially developed for training establishments and institutions. Pupils and students can use ASTORINO to learn the automation and robotization of industrial processes in practice.

If you have any further questions, please contact local Kawasaki Support.

- 
1. The "astorino" software included with the ASTORINO is licensed for use with this robot only and may not be used, copied or distributed in any other environment.
  2. Kawasaki shall not be liable for any accidents, damages, and/or problems caused by improper use of the ASTORINO robot.
  3. Kawasaki reserves the right to change, revise, or update this manual without prior notice.
  4. This manual may not be reprinted or copied in whole or in part without prior written permission from Kawasaki.
  5. Keep this manual in a safe place and within easy reach so that it can be used at any time. If the manual is lost or seriously damaged, contact Kawasaki.

---

Copyright © 2024 by KAWASAKI Robotics GmbH.

All rights reserved.

## SYMBOLS

Items that require special attention in this manual are marked with the following symbols.

Ensure proper operation of the robot and prevent injury or property damage by following the safety instructions in the boxes with these symbols.



**WARNING**

**Failure to observe the specified contents could possibly result in injury or, in the worst case, death.**

[ATTENTION]

Identifies precautions regarding robot specifications, handling, teaching, operation,



**WARNING**

- 1. The accuracy and effectiveness of the diagrams, procedures and explanations in this manual cannot be confirmed with absolute certainty. Should any unexplained problems occur, contact Kawasaki Robotics GmbH at the above address.**
- 2. To ensure that all work is performed safely, read and understand this manual. In addition, refer to all applicable laws, regulations, and related materials, as well as the safety statements described in each chapter.**

## PARAPHRASES

---

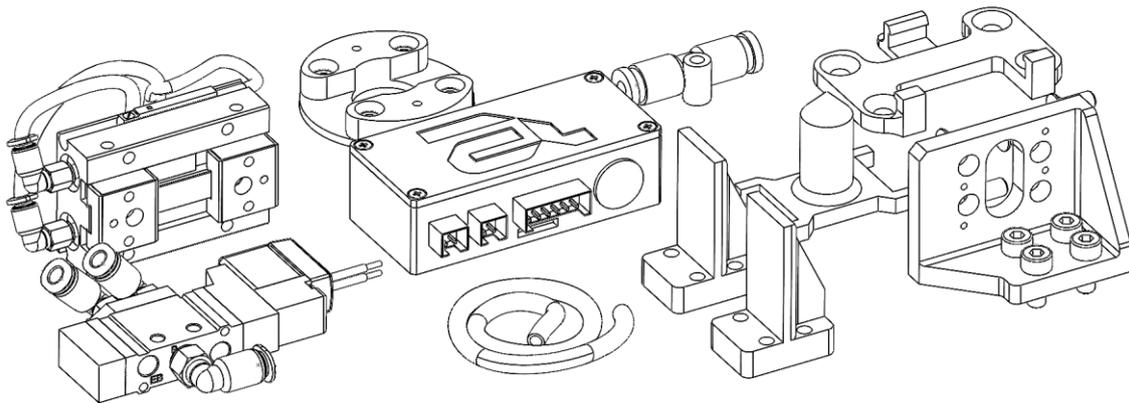
The following formatting rules are used in this manual:

- For a particular keystroke, the respective key is enclosed in angle brackets, e.g. <F1> or <Enter>.
- For the button of a dialog box or the toolbar, the button name is enclosed in square brackets, e.g. [Ok] or [Reset].
- Selectable fields are marked with a square box . If selected a check mark is shown inside the symbol .

## 1 TECHNICAL SPECIFICATIONS

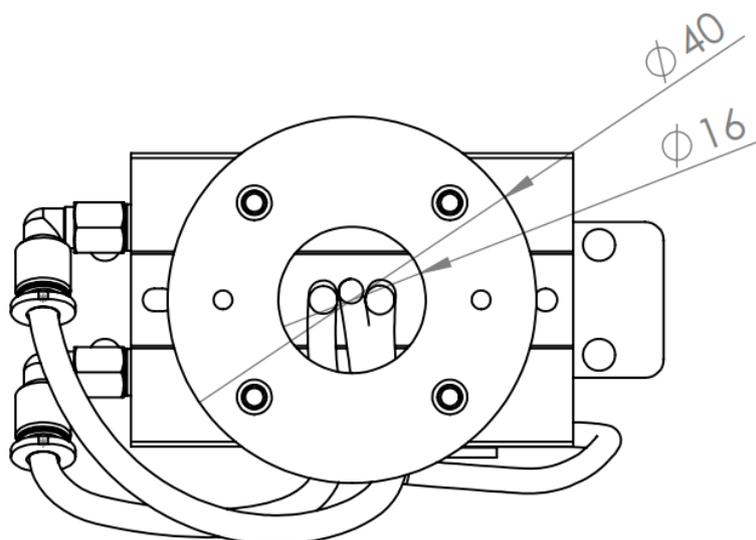
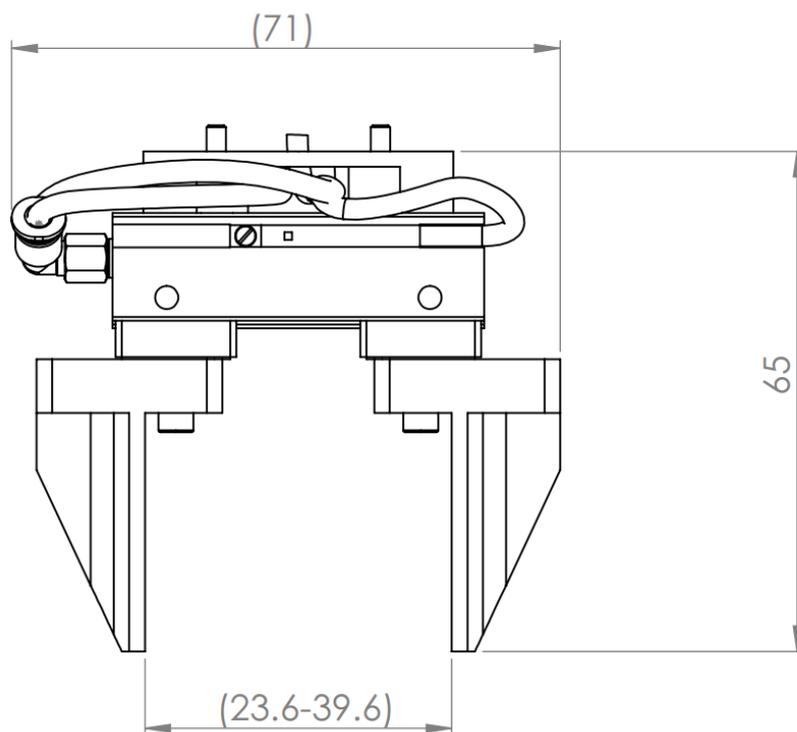
Characteristics	Astorino Pneumatic gripper	
Working environment	Temperature	0–40°C
	Humidity	35–80%
Max. pressure	8 Bar	
Size	40x71x65mm	
Total stroke	16 mm	
Piston position sensor	Sensor power supply	24V
	Sensor output type	PNP
Weight	100 g	
Material	Aluminium, PET-G, Steel	
Colour	Silver/Red/Black	
Valve	Valve type	5/2
	Valve power supply	24V
	Valve max current	100 mA

## 2 PNEUMATIC GRIPPER PACKAGE CONTENTS



Part	Qt
Valve 5/2	1
Connector box with holder	1
Gripper fingers	2
Calibration cone	1
Valve holder	1
Gripper	1
Mouting hub	1
Pistion position sensor	1
Pressure pipe 3mm	2
Pressure pipe 4mm	1
Screws	20

### 3 DIMENSIONS

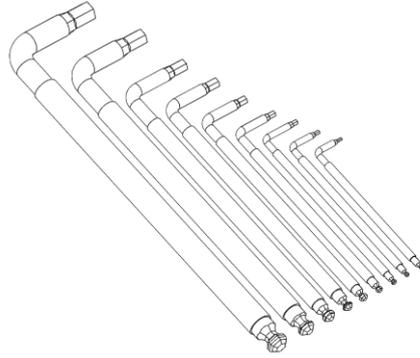


## 4 INSTALLATION

---

### 4.1 TOOLS REQUIRED

Allen wrenches



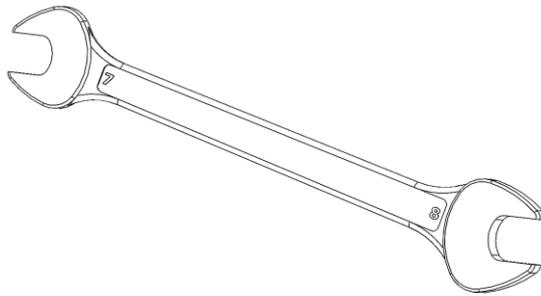
1,5 mm

2 mm

2,5 mm

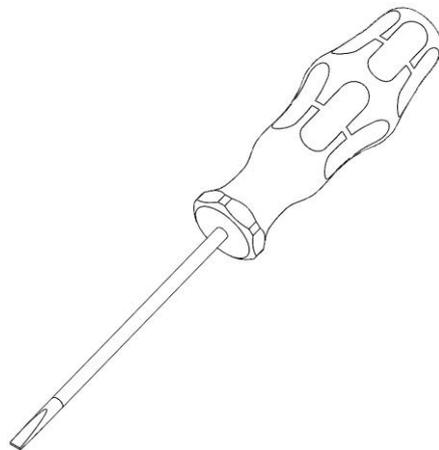
3 mm

Wrench



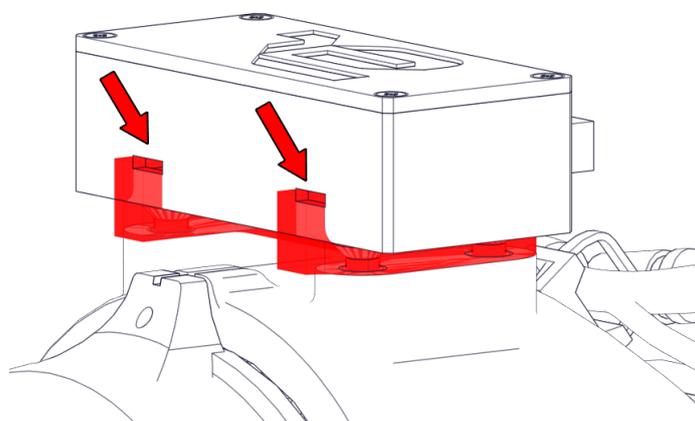
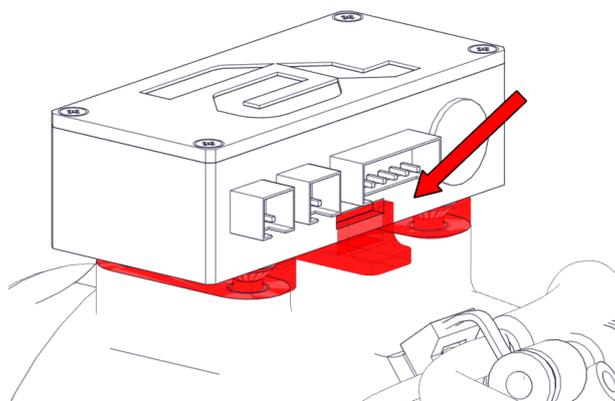
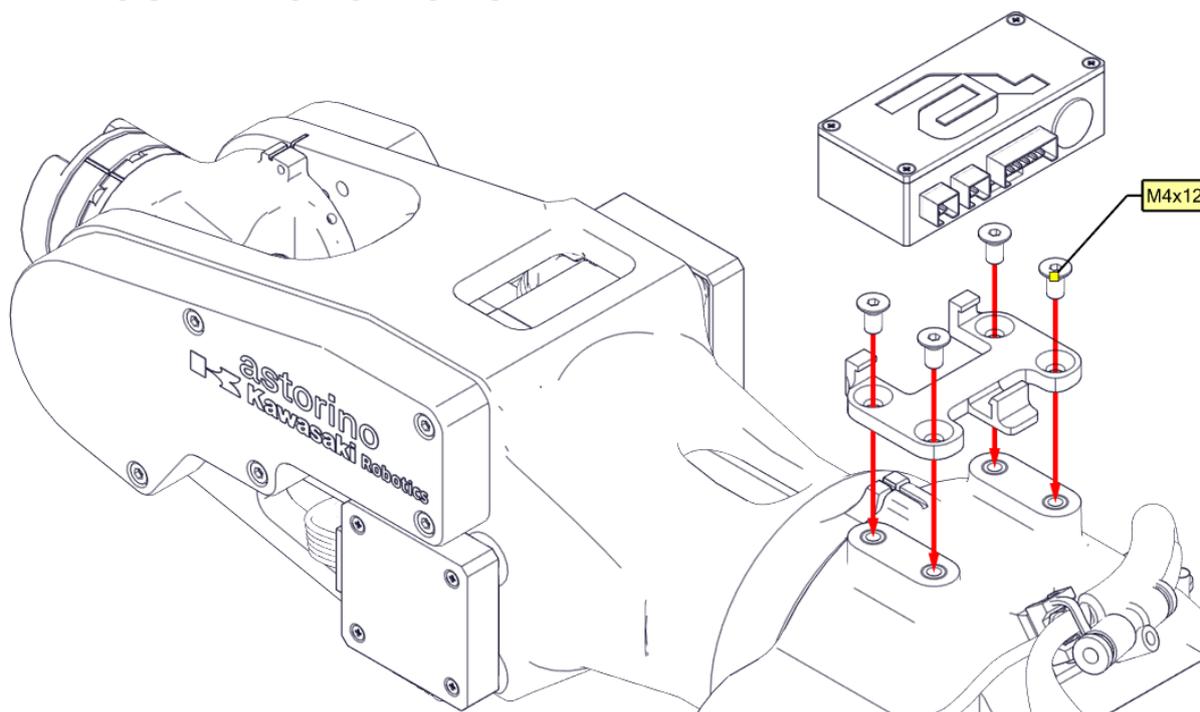
8 mm

Flathead screwdriver

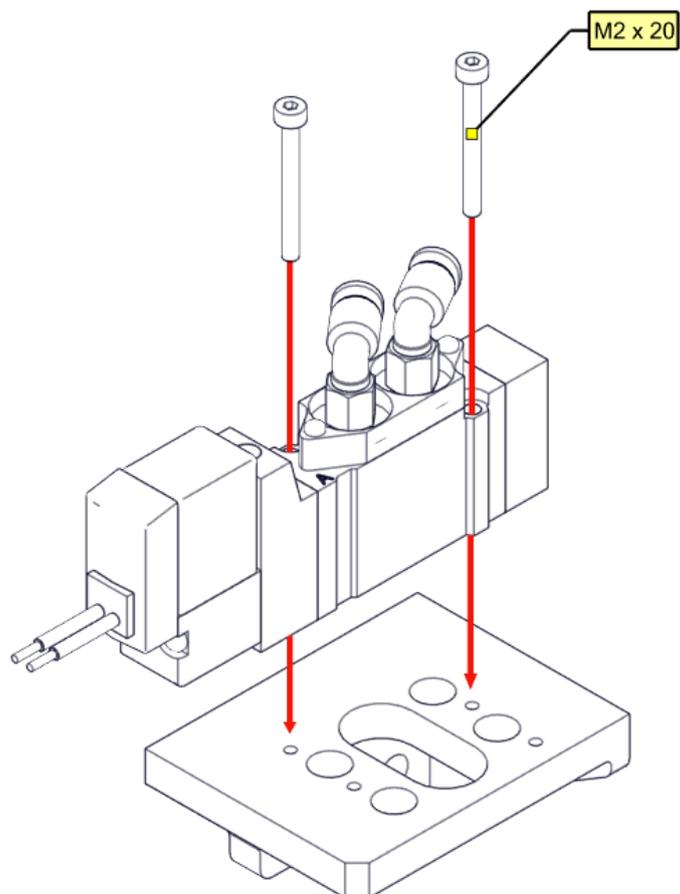
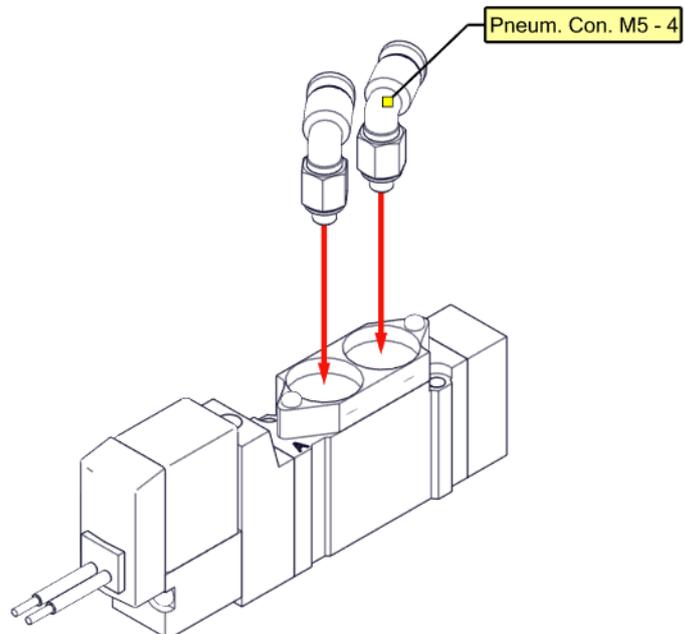


1,5 mm

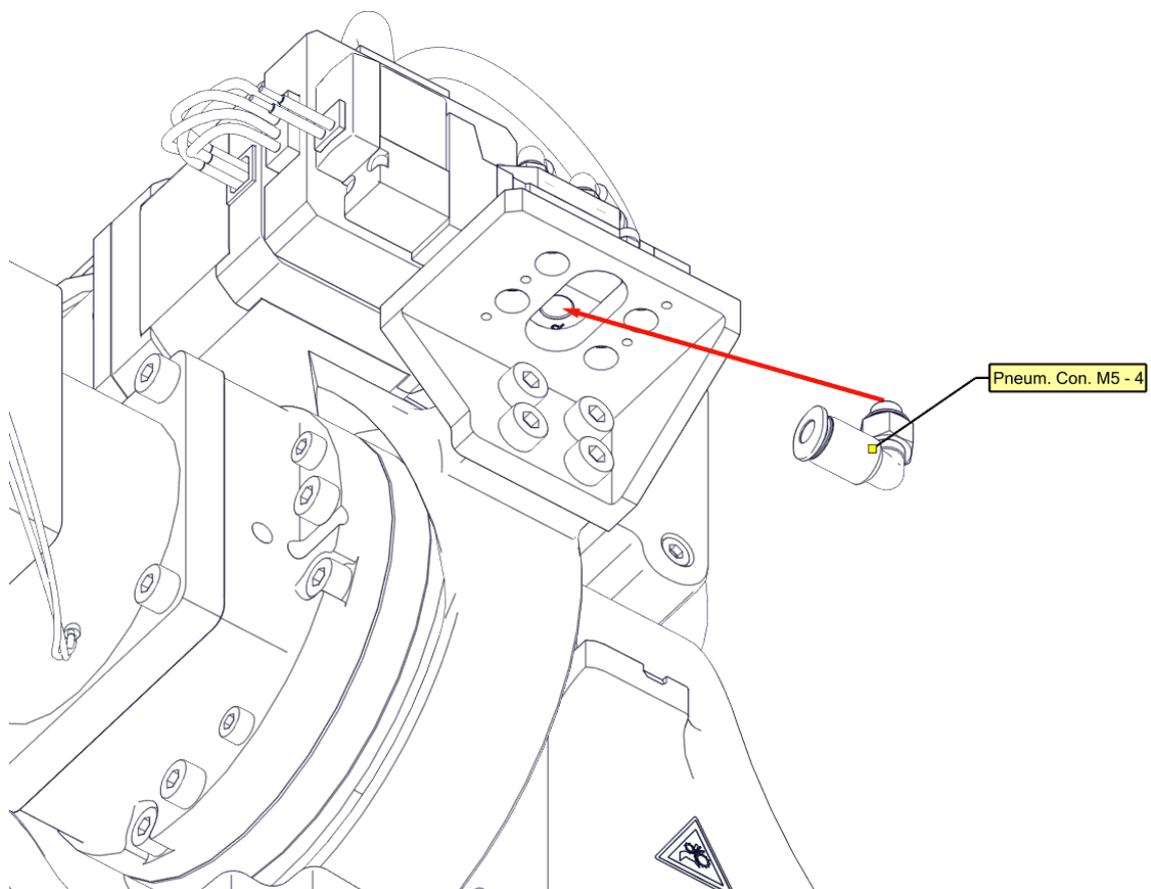
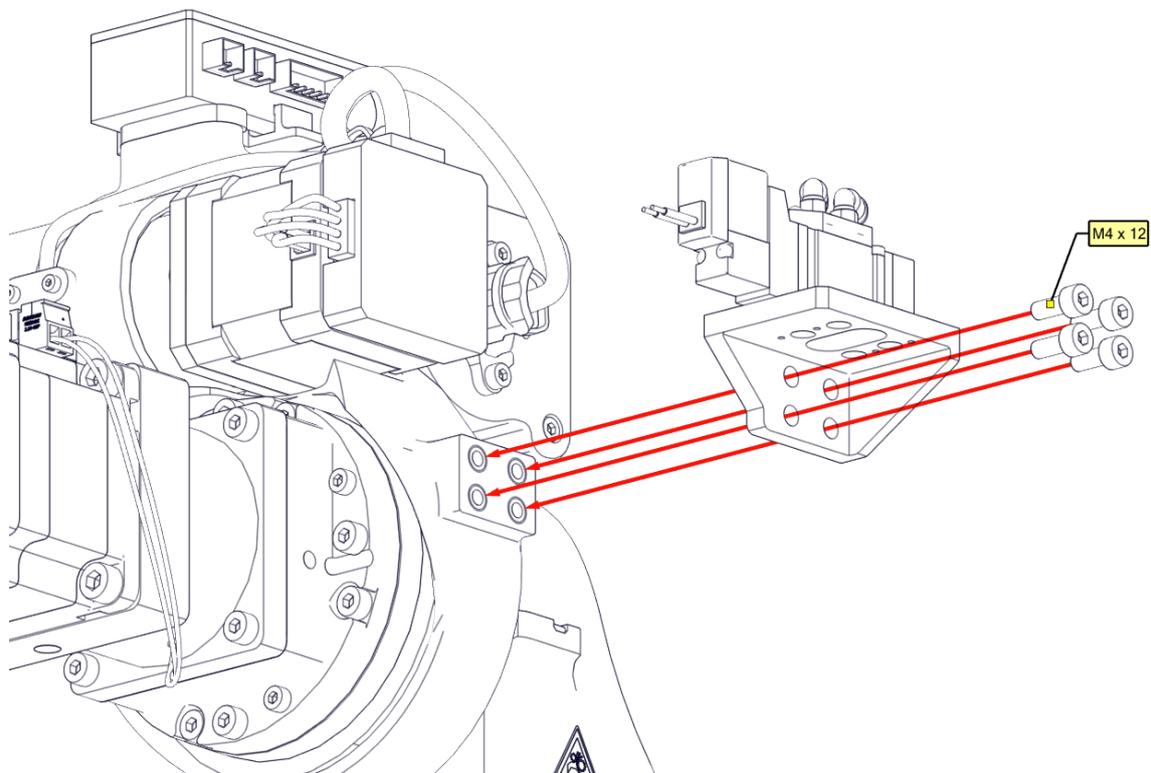
## 4.2 MOUNTING IO MODULE



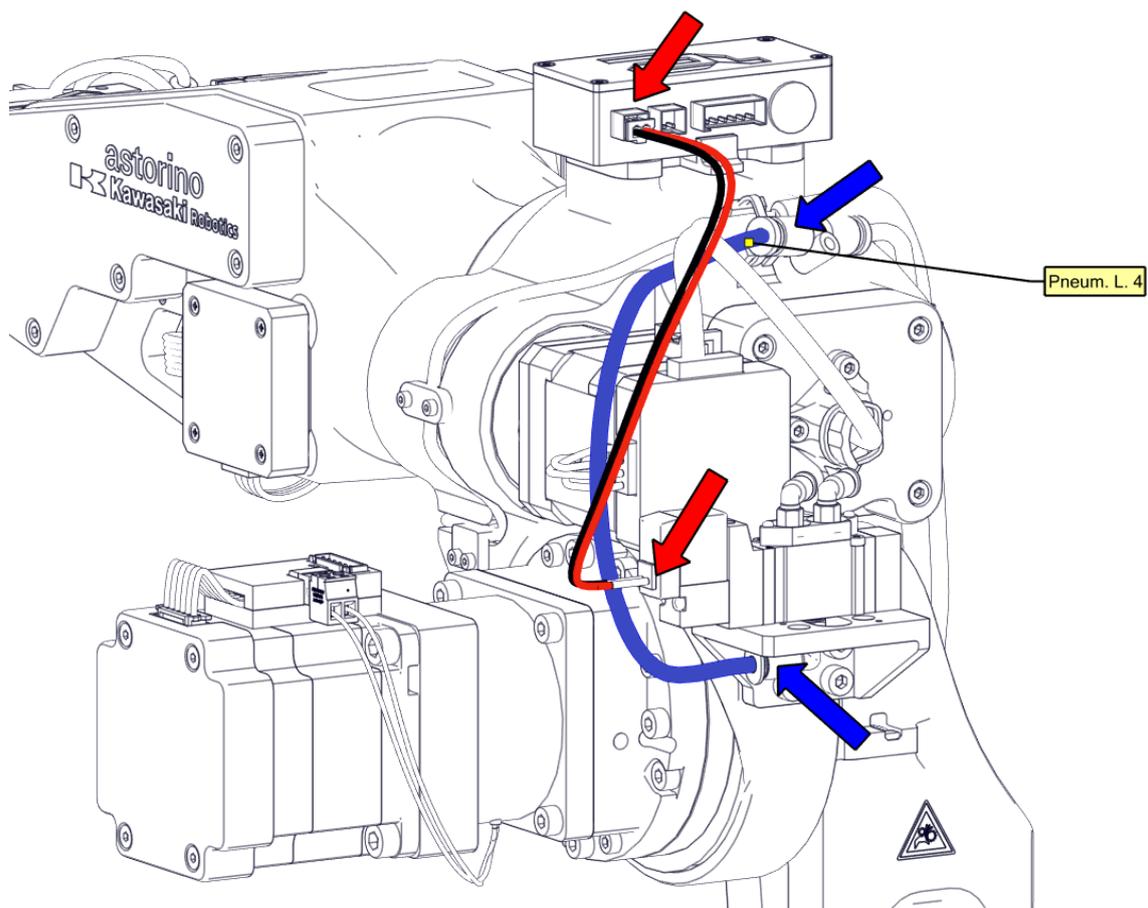
## 4.3 VALVE PREPARATION



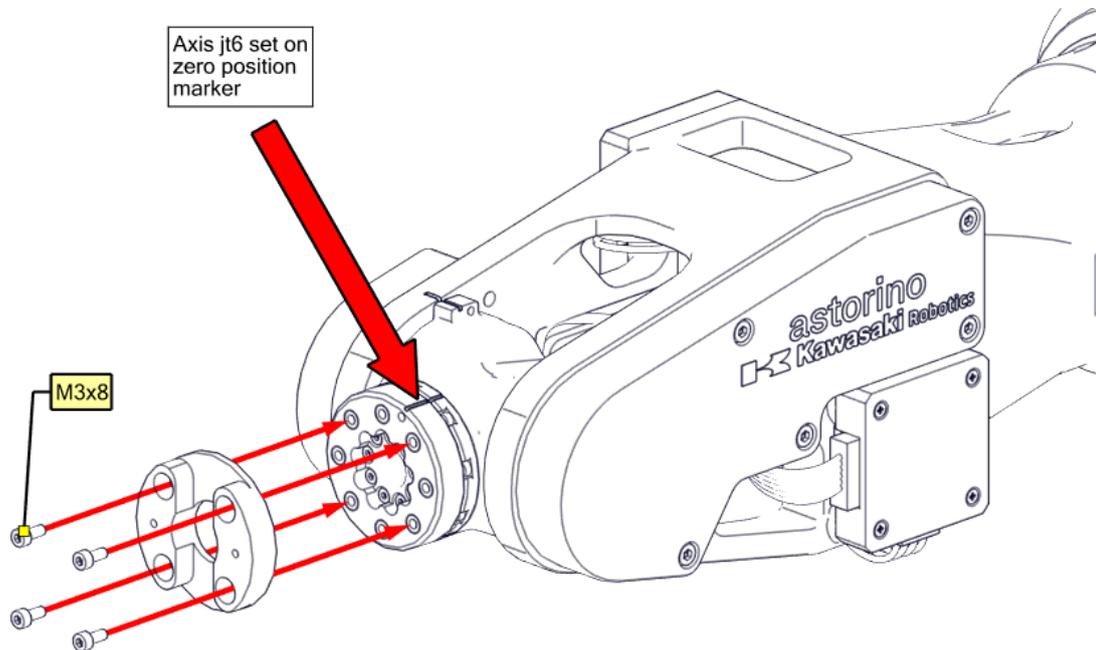
## 4.4 VALVE INSTALLATION



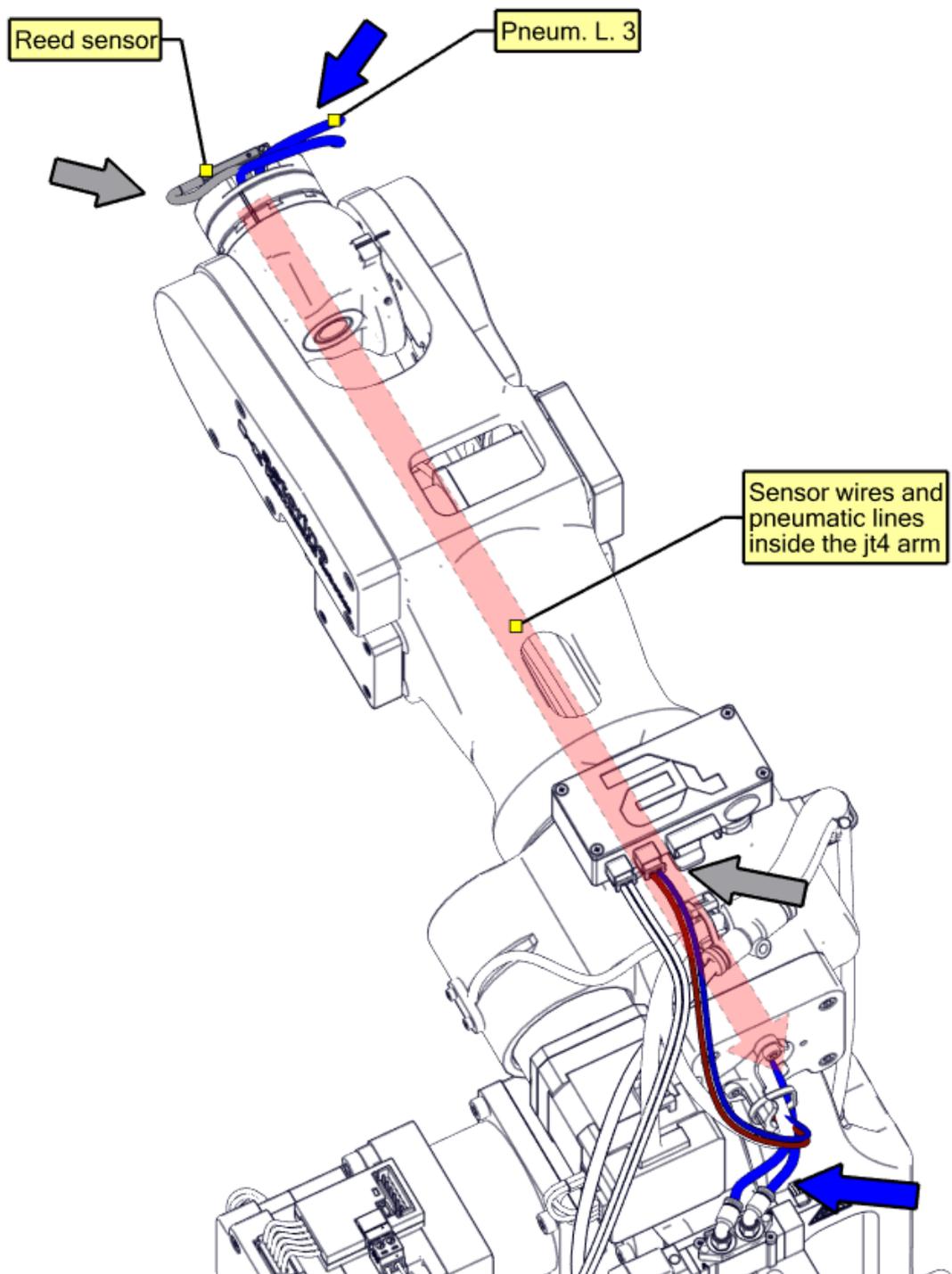
ASTORINO Pneumatic Gripper Operation Manual



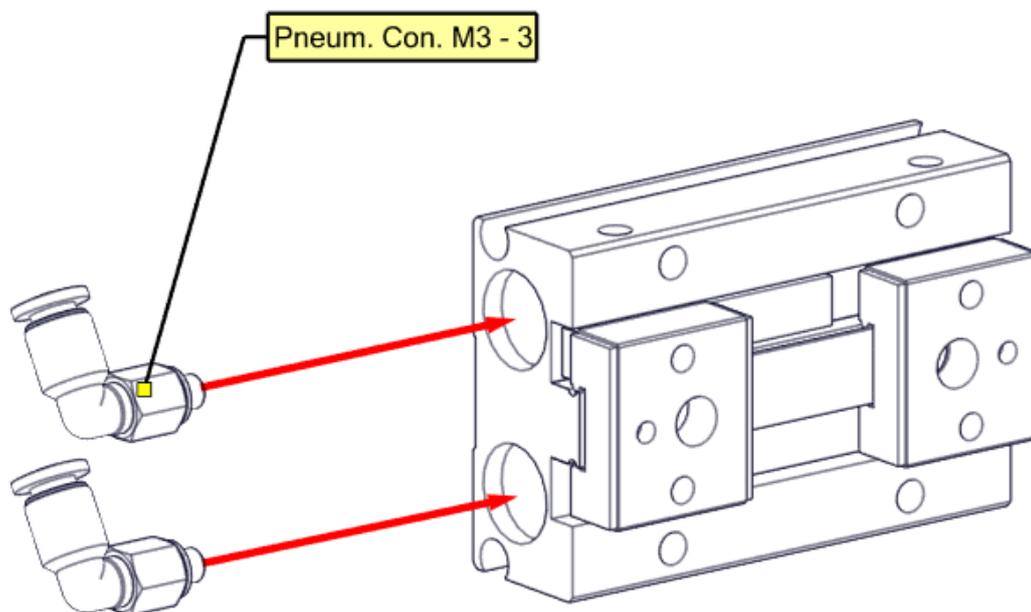
## 4.5 FLANSE ASSEMBLY



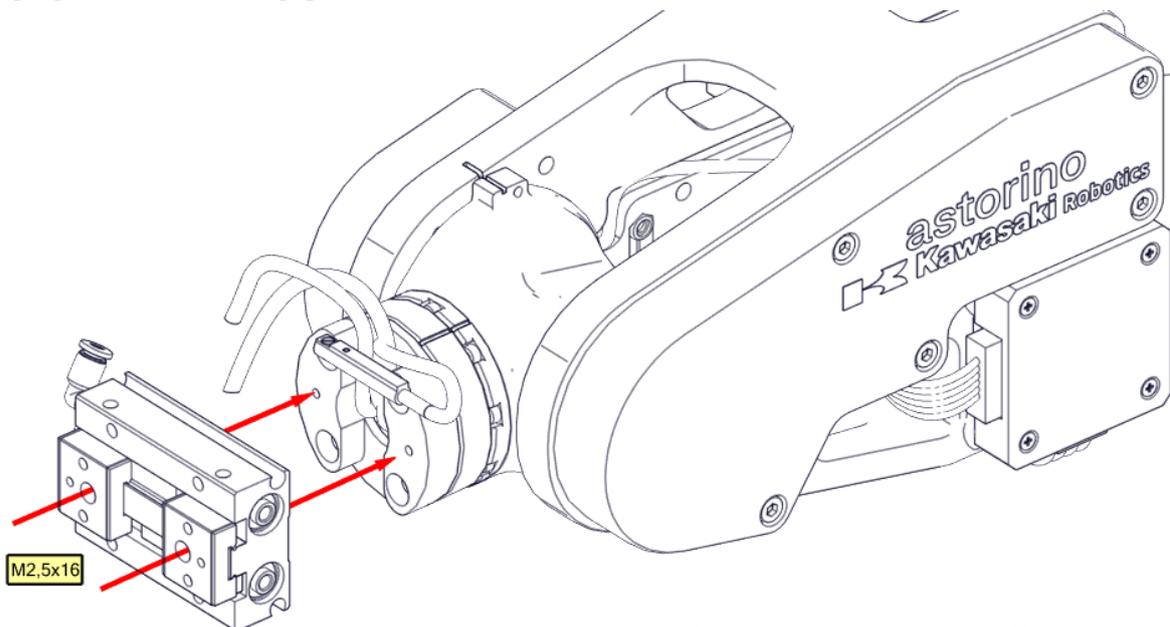
## 4.6 CABLE ROUTING



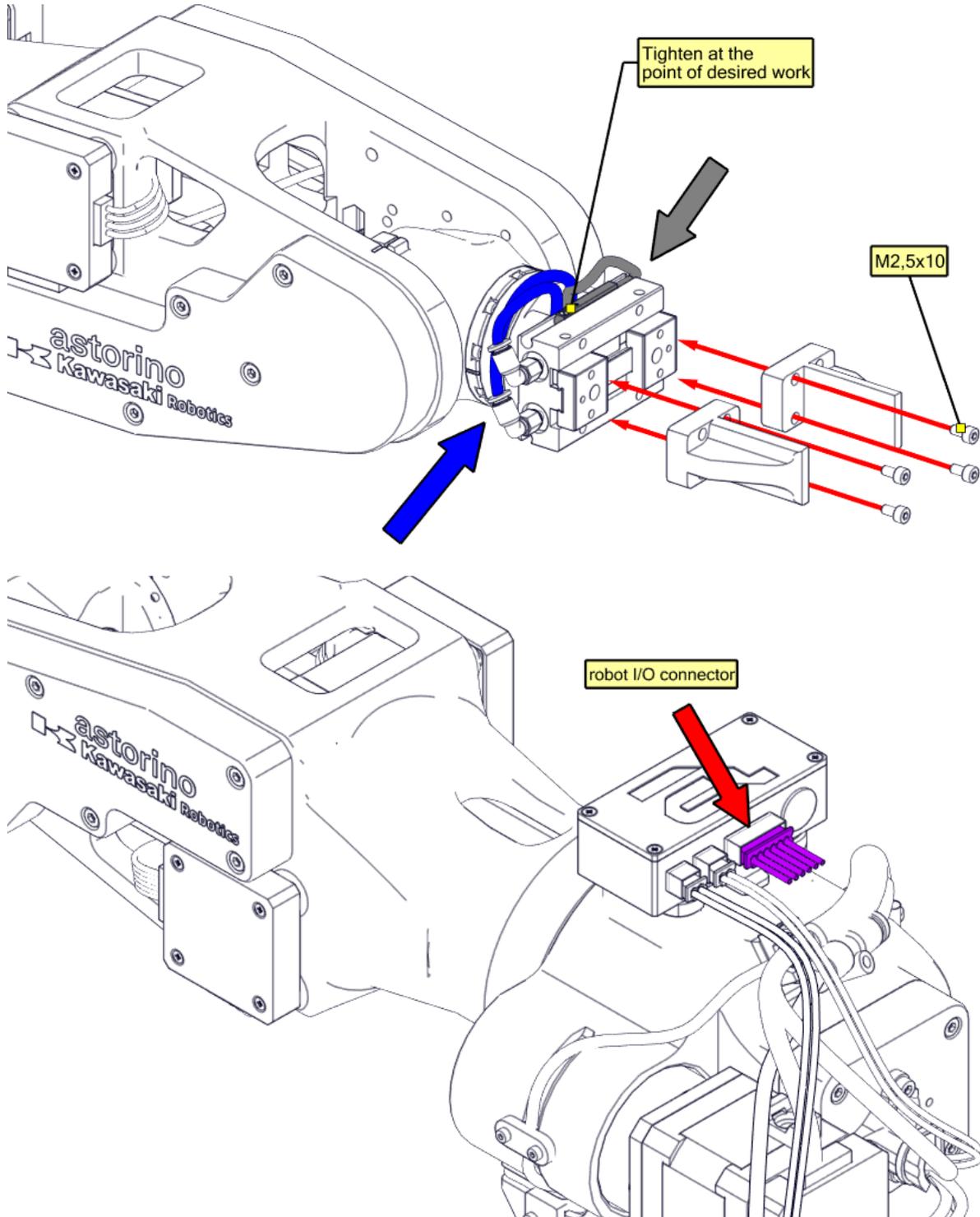
## 4.7 GRIPPER PREPARATION



## 4.8 GRIPPER ASSEMBLY

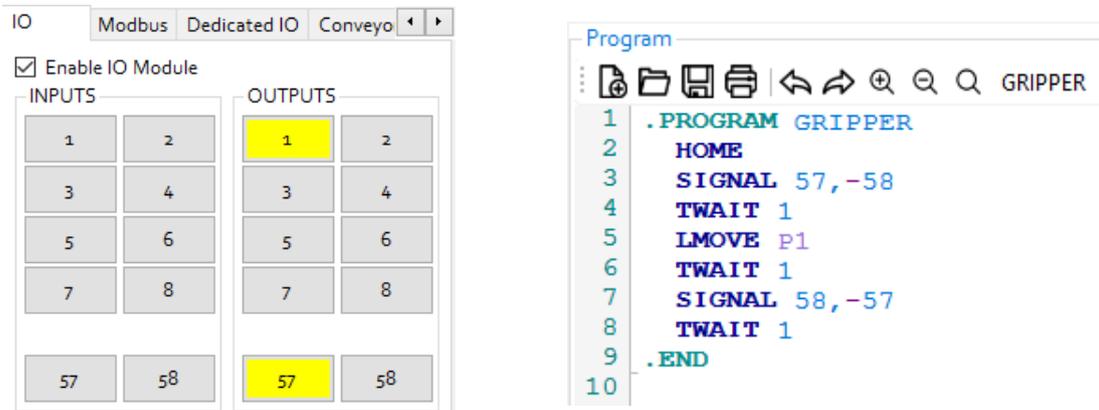


## 4.9 MOUNTING CLAWS AND ACCESORIES



## 5 CONTROLLING GRIPPER VIA OUTPUTS

To control gripper use astorino software or Teach Pendant to turn ON or OFF OUTPUTS that are connected to the gripper, or use SIGNAL command in your program.



The screenshot shows the 'IO' configuration window with 'Modbus' selected. The 'Enable IO Module' checkbox is checked. Under 'OUTPUTS', signal 57 is highlighted in yellow. To the right, a 'Program' window shows the following code:

```

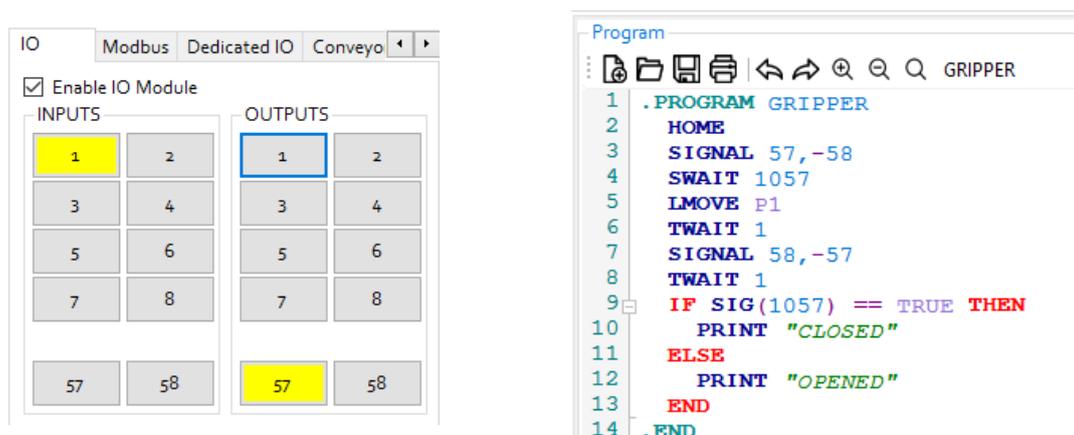
1 .PROGRAM GRIPPER
2 HOME
3 SIGNAL 57,-58
4 TWAIT 1
5 LMOVE P1
6 TWAIT 1
7 SIGNAL 58,-57
8 TWAIT 1
9 .END
10
  
```

[ATTENTION]

B – version of the robot uses ARM IO for controlling grippers. Use 57 or 58 signal to switch gripper ON or OFF.

## 6 READING GRIPPER PISTON SENSOR

To read gripper piston position sensor use astorino software or Teach Pendant to view INPUT that is connected to the gripper sensor, or use SIG/SWAIT command in your program.



The screenshot shows the 'IO' configuration window with 'Modbus' selected. The 'Enable IO Module' checkbox is checked. Under 'INPUTS', signal 1 is highlighted in yellow. Under 'OUTPUTS', signal 57 is highlighted in yellow. To the right, a 'Program' window shows the following code:

```

1 .PROGRAM GRIPPER
2 HOME
3 SIGNAL 57,-58
4 SWAIT 1057
5 LMOVE P1
6 TWAIT 1
7 SIGNAL 58,-57
8 TWAIT 1
9 IF SIG(1057) == TRUE THEN
10 PRINT "CLOSED"
11 ELSE
12 PRINT "OPENED"
13 END
14 .END
  
```

[ATTENTION]

B – version of the robot uses ARM IO for reading grippers sensor. Use 1057 or 1058 signal.

## **7 MANUFACTURER DATA**

---

Kawasaki Robotics Astorino  
Pneumatic Gripper Operation Manual

---

2024-01: 1st. edition

Publication: ASTOR & KAWASAKI Robotics GmbH

---

---

Copyright © 2024 ASTOR & KAWASAKI Robotics GmbH.  
All rights reserved.