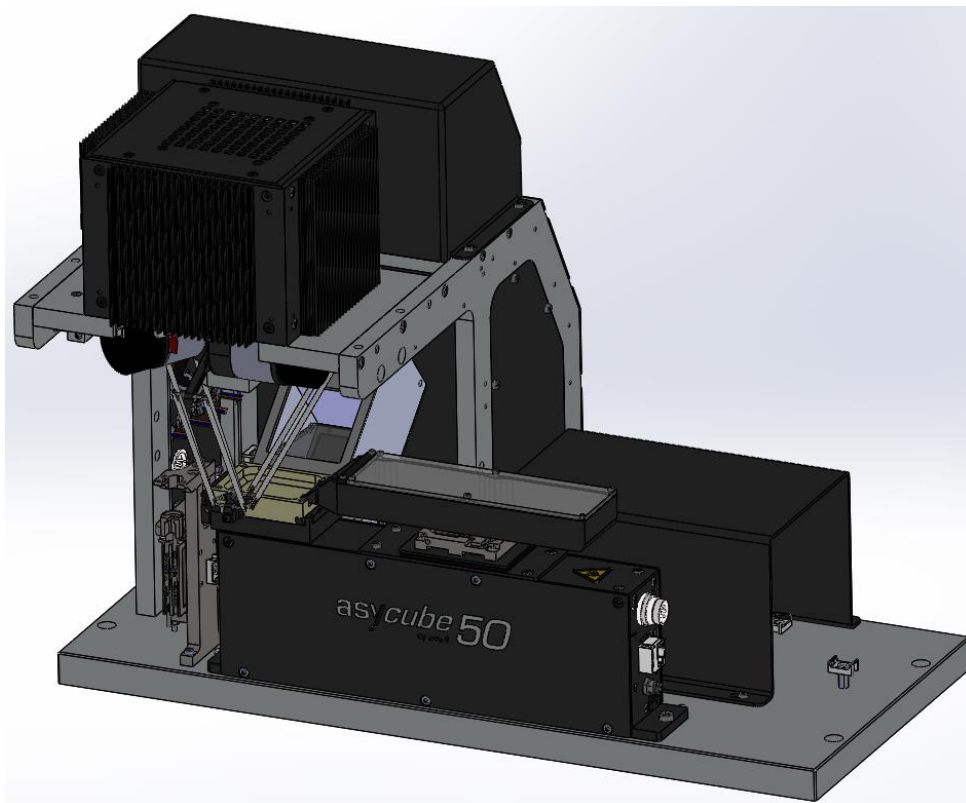


Asyfeed Module

Operating manual



Document	Asyril_MODULE_ASYFEED_Operating_Manual_EN 000.100.512		
Version	C	Date	05.04.2018

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1. Introduction

1.1. General information

This document is the property of Asyril S.A. and may not be copied or circulated without permission. The information contained in this document is subject to change without notice for the purpose of product improvement. Please read this document carefully before operating your product, to ensure it is used correctly. Should you encounter any difficulties when using the product or carrying out maintenance, please contact Asyril customer service. In this manual, the safety precautions that you must respect are classified as: “Danger”, “Warning” and “Note”; the following symbols are used:



DANGER!

Failure to observe this instruction may result in serious physical injury.



DANGER!

Failure to observe this instruction may result in electrocution or serious injury due to electric shock



WARNING!

Failure to observe this instruction may result in serious injury or property damage.



NOTE:

The reader's attention is drawn to this point in order to ensure that the product is used correctly. However, failure to respect this instruction does not pose a danger.



REFER TO...

For more information on a specific subject, the reader should read another manual, or refer to another paragraph.



WARNING!

Under no circumstances may Asyril be held liable for any loss or damage arising from a failure to observe the instructions contained in the “Safety Precautions”. The customer is responsible for ensuring the necessary instructions are passed on to all persons concerned.



NOTE:

All dimensions in this document are expressed in millimetres

1.2. Safety precautions

1.2.1. General safety precaution

1.2.1.1. Transport



DANGER!

Be aware of the weight and take care when transporting the system. For more information, please refer to chapter 3 “Transportation, handling and installation”

1.2.1.2. General information



DANGER!

Make sure that the power supply is switched off before working on the product.



DANGER!

Only qualified personnel (trained by Asyril and with the relevant professional experience) are authorised to work on this device.



DANGER!

Do not unscrew the system's electrical boxes or protective covers. Only authorised Asyril SA personnel are allowed to access these parts of the system for maintenance or for repair.



DANGER!

Do not plug or unplug the system's cables when the system is switched on.



DANGER!

Never modify the product. Unauthorised modifications may cause the product to malfunction.



DANGER!

Do not use the product in a place where the main unit or control unit may come in contact with water or oil droplets.

1.2.1.3. Disposal

When the product reaches the end of its service life, it must be disposed of in accordance with regulations concerning industrial waste.



NOTE:

All applicable laws, regulations, and standards must be observed when disposing of the product.

1.2.2. Specific warnings

1.2.2.1. Safety equipment for operators

For safety reasons, operators must wear the following safety equipment when they are working with the robot or within the robot workspace:

- Safety glasses when using the Asycube backlight

NOTE:

It is the customer's responsibility to install warning signs indicating that anyone working around the Asyfeed Pocket Module must wear safety equipment.

1.3. Warranty information

You will find all warranty information (scope, term, etc.) under the general terms of sale.

1.4. CE information

The declaration of incorporation as a partly completed machinery can be found below.

Declaration of incorporation

according to the EU Machinery Directive 2006/42/EC, Annex II 1. B
for partly completed machinery



Manufacturer	Person established in the Community authorised to compile the relevant technical documentation
Asyril SA	Jean-Baptiste Berset
ZI Le Vivier 22	Asyril SA
CH - 1690 Villaz-St-Pierre	ZI Le Vivier 22
	CH - 1690 Villaz-St-Pierre

Description and identification of the partly completed machinery

Product / Article	MFEED-POC
Type	Module Pocket
Serial number	10000000 à 50000000
Project number	MFEED-POC EN
Function	Smooth vibration feeder for ultra efficient component distribution

It is declared that the following essential requirements of the Machinery Directive 2006/42/EC have been fulfilled.

1.3., 1.3.7, 1.5.1, 1.5.10, 1.5.11, 1.6.1

It is also declared that the relevant technical documentation has been compiled in accordance with part B of Annex VII.

It is expressly declared that the partly completed machinery fulfils all relevant provisions of the following EU Directives.

2004/108/EC	Directive 2004/108/EC of the European Parliament and of the Council of 15 December 2004 on the approximation of the laws of the Member States relating to electromagnetic compatibility and repealing Directive 89/336/EEC
2006/42/EC	Directive 2006/42/EC of the European Parliament and of the Council of 17 May 2006 on machinery, and amending Directive 95/16/EC (recast) (1)

Reference to the harmonised standards used, as referred to in Article 7 (2)

EN 61000-6-3:2007/A1:2011/AC:2012	Electromagnetic compatibility (EMC) - Part 6-3: Generic standards; Emission standard for residential, commercial and light-industrial environments
EN 62471:2008	Photobiological safety of lamps and lamp systems (IEC 62471:2006, modified)
EN 60204-1:2006/AC:2010	Safety of machinery - Electrical equipment of machines - Part 1: General requirements
EN ISO 13732-1:2008	Ergonomics of the thermal environment - Methods for the assessment of human responses to contact with surfaces - Part 1: Hot surfaces (ISO 13732-1:2006)
EN 349:1993+A1:2008	Safety of machinery - Minimum gaps to avoid crushing of parts of the human body

The manufacturer or his authorised representative undertake to transmit, in response to a reasoned request by the national authorities, relevant information on the partly completed machinery. This transmission takes place
- in electronic format

This does not affect the intellectual property rights!

Important note! The partly completed machinery must not be put into service until the final machinery into which it is to be incorporated has been declared in conformity with the provisions of this Directive, where appropriate.

Villaz-St-Pierre, 2015-02-12

Place, Date

Signature
asyril asyrit SA
Z.I. du Vivier 22
CH-1690 Villaz-St-Pierre
Tél. +41 26 653 71 90 Fax +41 26 653 71 91

2. Description

2.1. Overview of the product

The Asyfeed Pocket Module comprises a flexible feeder system (Asycube), a vision system to locate the parts, and a PocketDelta robot to handle them.

- (A) Asycube
- (B) Camera
- (C) PocketDelta robot
- (D) Electrical box
- (E) DOAL (Diffused On Axis Light)
- (F) Connections for the Asyfeed Pocket Module
- (G) Tool changer

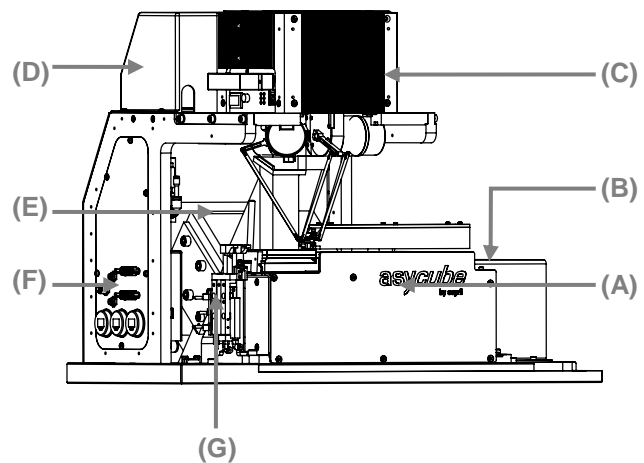


Figure 2-1: Asyfeed Pocket Module

The Asyfeed Pocket Module also includes a control unit (PC):

- (H) Control unit (Asyview)



For more information on connecting the PC to the Asyfeed Pocket Module, see section "2.3 Electrical interfaces" , page 16.

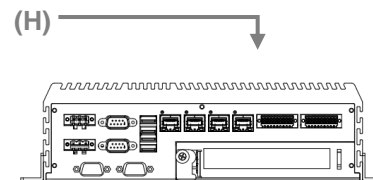


Figure 2-2: Control unit (Asyview)

2.1.1. Asycube

The Asycube sets a new standard in feeding miniature parts. Its 3D vibratory platform allows fast and flexible presentation of miniature parts (0.2 mm to 5 mm) to a robot equipped with a vision system. It consists of:

- (A) A 3D platform with integrated backlight
- (B) A removable hopper where the components are stored
- (C) Electrical interfaces.

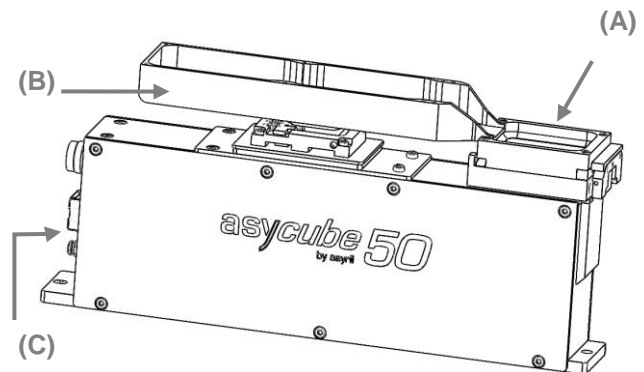


Figure 2-3: Asycube feeder system overview

2.1.2. PocketDelta robot

The PocketDelta has parallel kinematics giving 3 degrees of free movement. The PocketDelta robot consists of:

- (A) Control box
- (B) Electrical interfaces
- (C) 3 motors
- (D) Front arms
- (E) Platform
- (F) Workspace

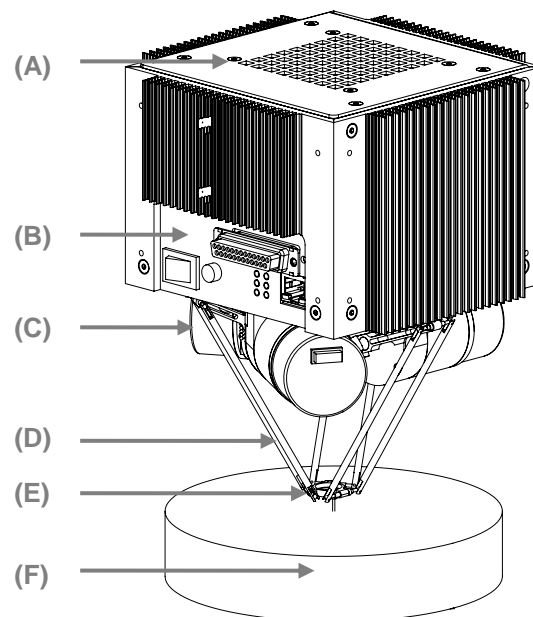


Figure 2-4: PocketDelta robot overview




2.2. General characteristics

WARNING!



Do not use the product outside the given specifications. It is particularly crucial that the maximum loading capacity is observed. Failure to follow this instruction will invalidate the warranty.

2.2.1. Technical features

Asyfeed Pocket Module	
Feed system	Asycube
Robot type	PocketDelta robot
Rate	100 cycles/min
Placing precision	± 0.01 mm
Handled part size	0.15 to 5 mm
Maximum force	2 N
Handled parts materials	Metal, ruby, ceramics, glass, semiconductor components
Tool changer	
Recognition of component position and orientation	
Sound level	< 60dBA
Flexibility	Adaptable to the customer's process
Easy configuration of new recipes	

2.2.2. Overall dimensions

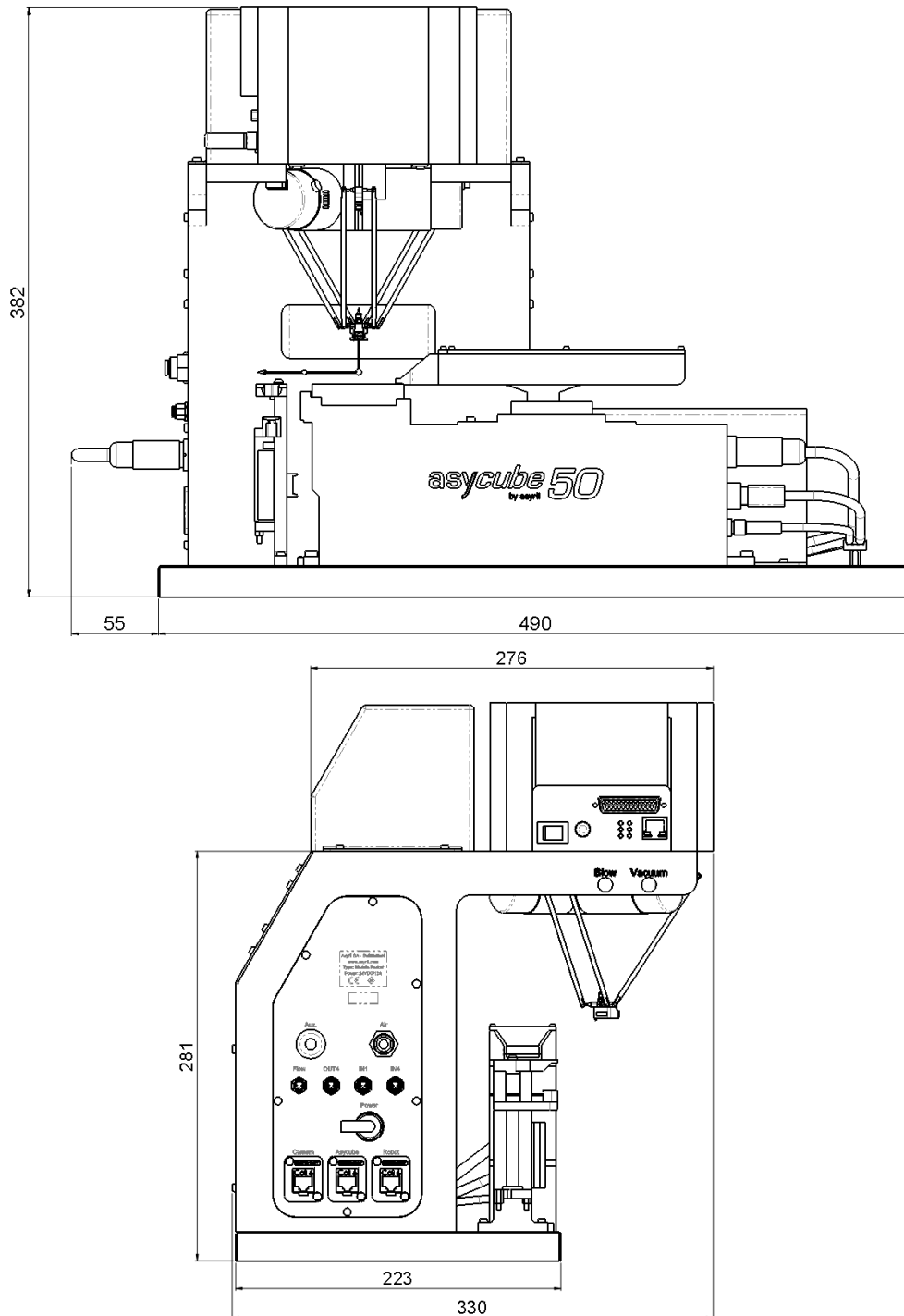


Figure 2-5: Overall dimensions (in millimetres)

Characteristic	Value
Footprint	330 x 490 mm
Weight	28 kg

2.2.3. Workspace

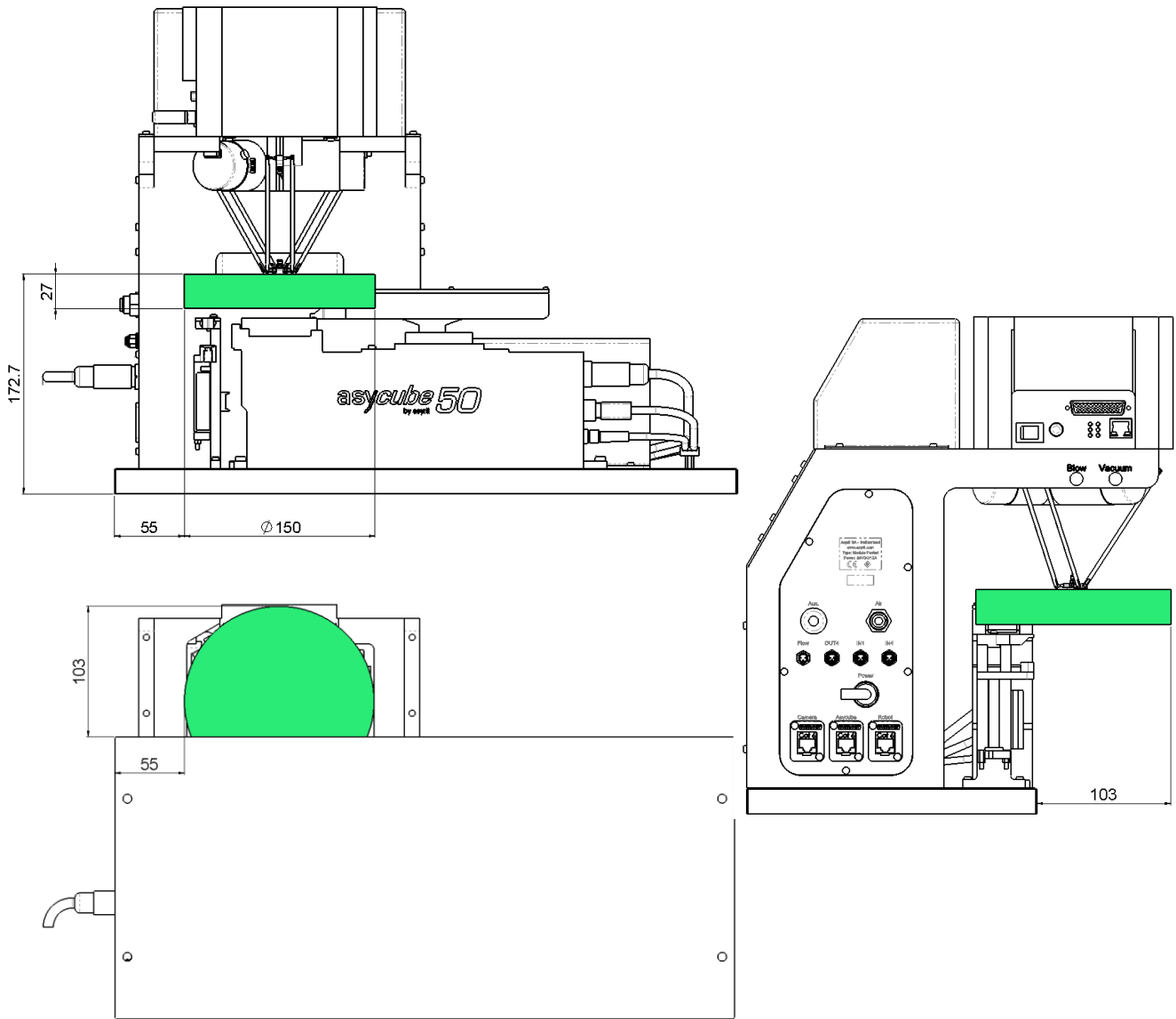


Figure 2-6: Workspace defined by the platform's midplane

The customer's process must take place within the limits of the robot workspace.



NOTE:

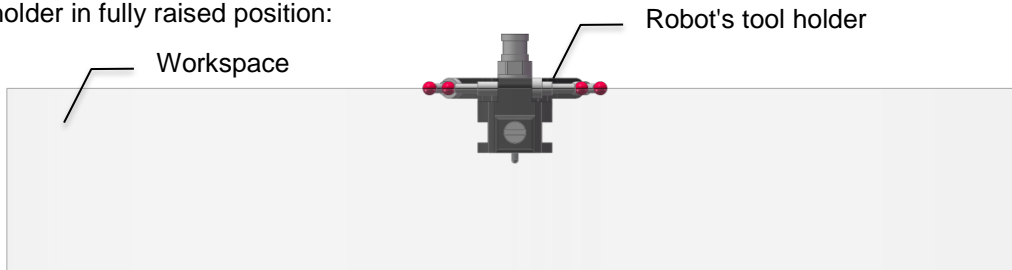
For an optimal cycle time, place your specific process as close as possible to the platform of the cube.

IMPORTANT NOTE FOR INTEGRATION

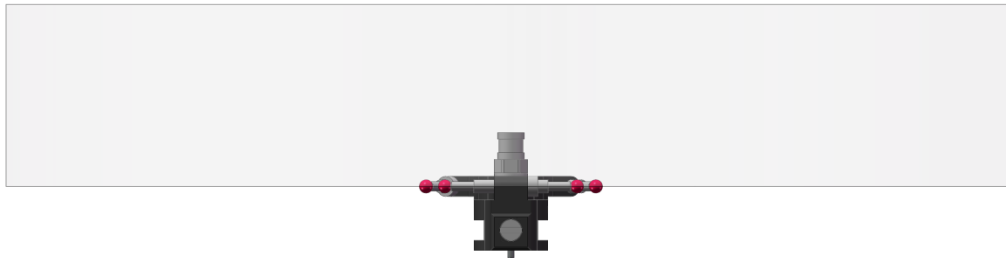


This workspace is defined by the space accessible via the midplane of the robot's tool holder as shown in the images below. When a tool is mounted on the tool holder, the workspace will be translated down as much as the length of the tool holder and the tool ($D+9.5$). The following example illustrates this phenomenon:

Tool holder in fully raised position:



Tool holder in fully lowered position:



Tool holder in fully radial position:

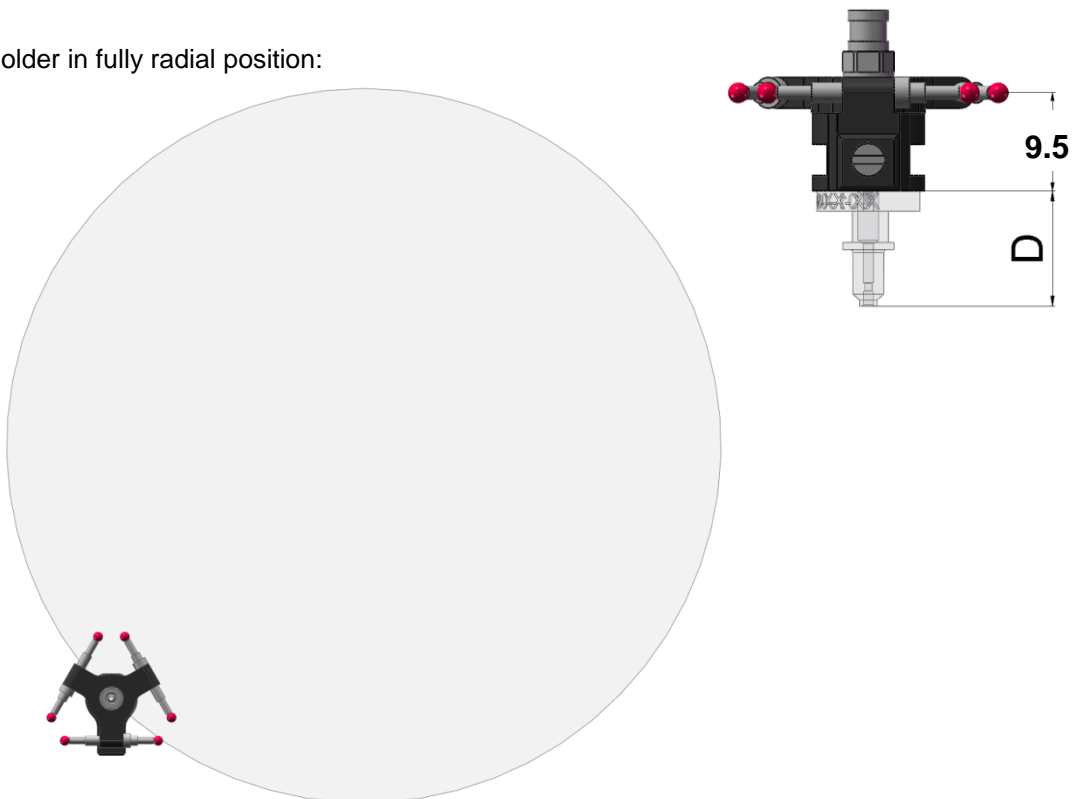


Figure 2-7: position of the tool holder in the workspace

2.2.4. Vision system performance

2.2.4.1. Lighting

The Asyfeed Pocket Module includes green, red, white or blue frontal lighting (DOAL), as well as the Asycube's integrated backlight.

2.2.4.2. Detection limit


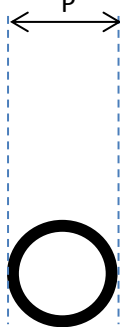
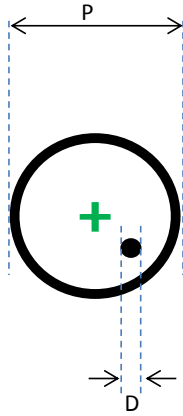
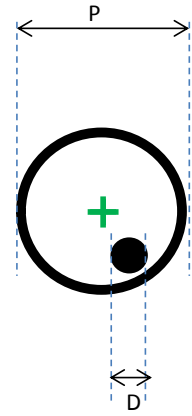
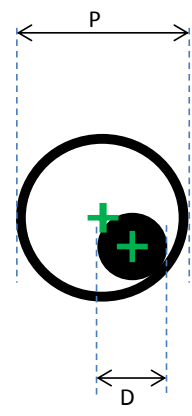
Two situations enable the detection limit to be defined:

- You want to locate a precise detail (e.g. location of a part on the surface of the Asycube, or quality control of the position of a hole on a part); in this case, details must be larger than 20 pixels to ensure accuracy of a quarter pixel.
- You want to verify the presence or absence of a detail (e.g. pitch and toss recognition) in this case, a size of 10 pixels is sufficient.

Conversion of pixels into millimetres depends on the field of view and on the resolution of the camera. The table below gives the minimum size of the detail in micrometres:

Configuration	Resolution	sensor size		field of view		Minimum detail size in pixels	Minimum detail size in micrometres
		width	length	width	length		
	Mpx	px	px	mm	mm	px	µm
Standard resolution	2	1200	1600	35	46	20	575
						10	288
						1	29
High resolution	5	2050	2448	35	46	20	376
						10	188
						1	19
Reduced field of view	5	2050	2448	25	30	20	245
						10	123
						1	12

This table summarises the minimum size of part or detail to be located or detected:

Part size [pixels]	P < 20 px		P > 20 px		
			D < 10 px	10 px < D < 20 px	D > 20 px
Detail size [pixels]					
Example					
Location of the part	✗	✓ ¼ px accuracy	✓ ¼ px accuracy	✓ ¼ px accuracy	✓ ¼ px accuracy
Detail detection			✗	✓	✓
Detail location			✗	✗	✓ ¼ px accuracy

2.3. Electrical interfaces

2.3.1. Overview

The electrical interfaces for the Asyfeed Pocket Module are situated on the right.

- (A) Ioniser cable outlet (*supplied mounted if the option is ordered*)
- (B) Digital input/output
- (C) Power connection
- (D) RJ 45 connector (x3)

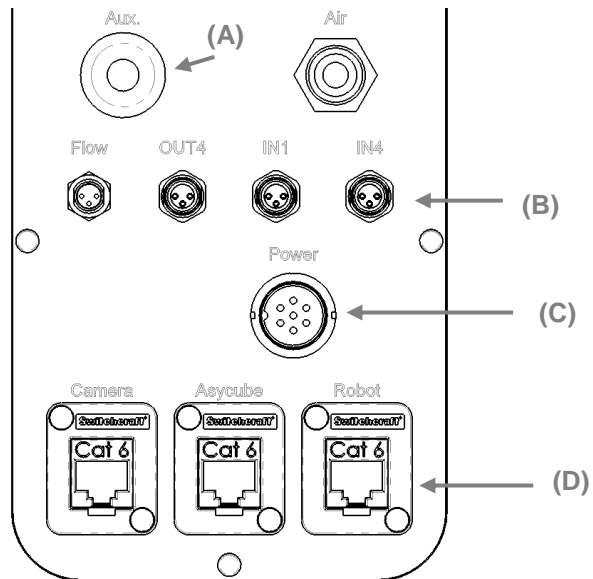


Figure 2-8: Electrical interfaces to the Asyfeed Pocket Module

2.3.2. Connecting the Asyfeed Pocket Module

The Asyfeed Pocket Module is fully cabled prior to shipping (PocketDelta robot, Asycube, lighting, camera, etc.), however, the next section describes the electrical interfaces to the PocketDelta robot and the Asycube.



For more detailed information on the interfaces to the PocketDelta robot or the Asycube, refer to the Operating Manual for the product in question.

The electrical interfaces to the Asycube are:

- (A) Power connection
- (B) Ethernet connection (RJ45)
- (C) Backlight synchronisation

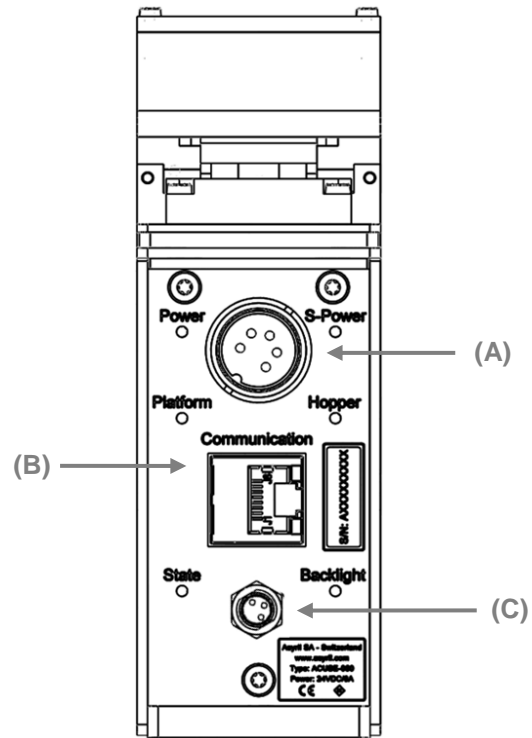


Figure 2-9: Electrical interfaces to the Asycube

The electrical interfaces to the PocketDelta robot are:

- (D) Power connection
- (E) Main stop switch
- (F) Input/output connection
- (G) Ethernet connector
- (H) Robot platform

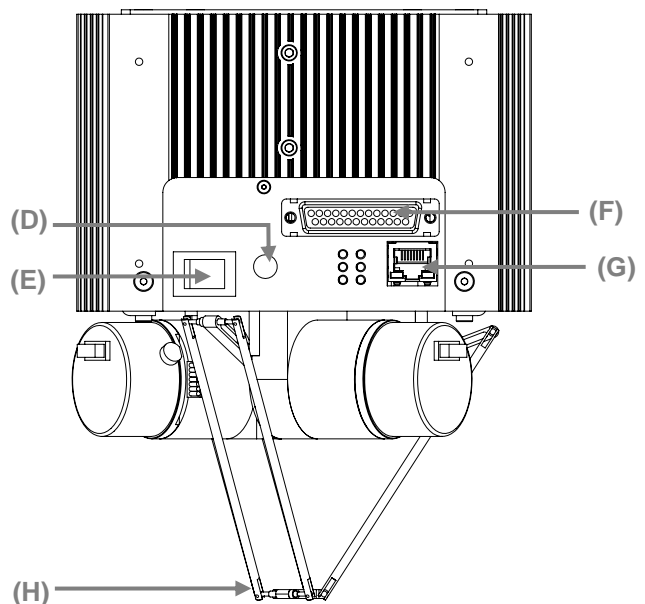


Figure 2-10: Electrical interfaces to the PocketDelta robot

2.3.3. Flow

A standard M8 three-pole female cable is used to connect the integrated flow meter (± 1 l/min, 1-5 VDC signal). This cable must be connected as follows:

Pin	Waveform	Wire colour
(1)	24 VDC supply	BN
(3)	0 VDC supply	BU
(4)	1-5 VDC signal	BK

Connector type (Asycube side):

M8, 3 poles, male

The cable can be supplied as an option

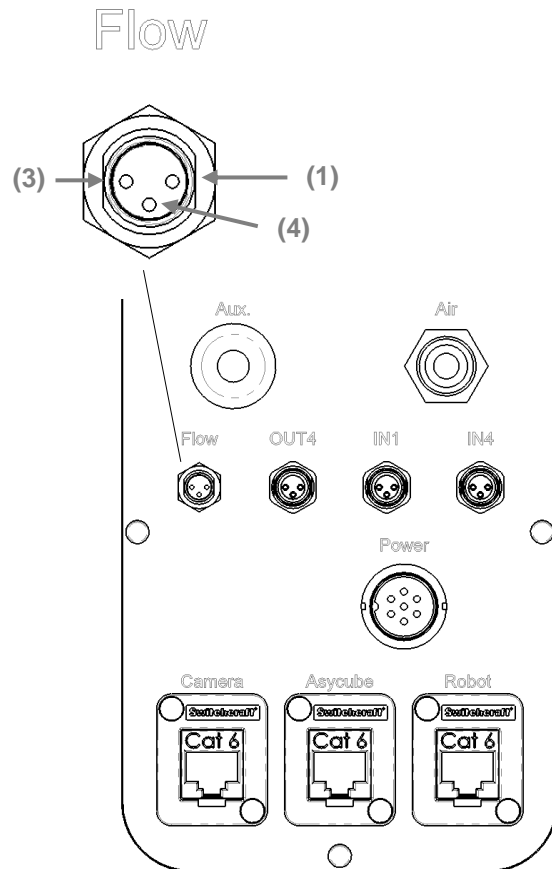


Figure 2-11: Flow connector

2.3.4. OUT4 digital output

Pin	Waveform	Wire colour
(1)	24 VDC supply	BN
(3)	0 VDC supply	BU
(4)	24VDC signal	BK

Max. current = 0.5 A

Connector type (Asycube side):

M8, 3 poles, female

The cable can be supplied as an option

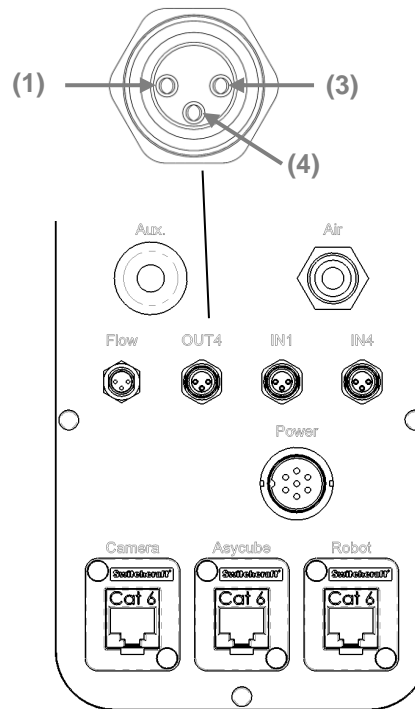


Figure 2-12: OUT4 connector

2.3.5. IN1 and IN4 digital inputs

Pin	Waveform	Wire colour
(1)	24 VDC supply	BN
(3)	0 VDC supply	BU
(4)	24VDC signal	BK

Connector type (Asycube side):

M8, 3 poles, female

The cable can be supplied as an option

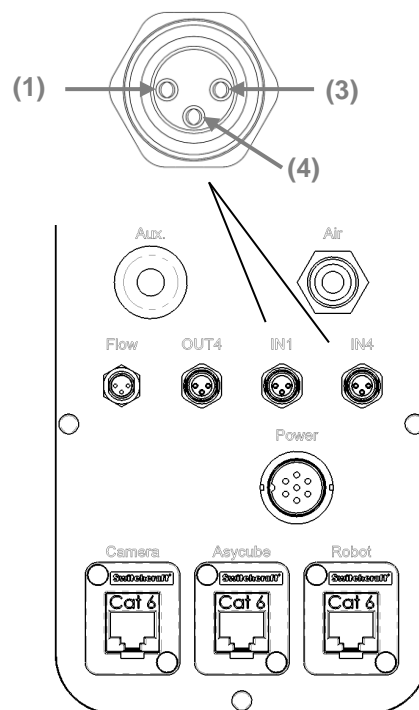


Figure 2-13: IN1 and IN4 connector

2.3.6. Power connection (C)

The Asyfeed Pocket Module is powered by 24VDC/10 A.

Pin	Signal description	Current (A)
(1)	24 VDC_1	5
(2)	0 VDC_1	
(3)	24 VDC_2	5
(4)	0 VDC_2	
(5)	S-24 VDC	2
(6)	S-0 VDC	
(7)	PE	-

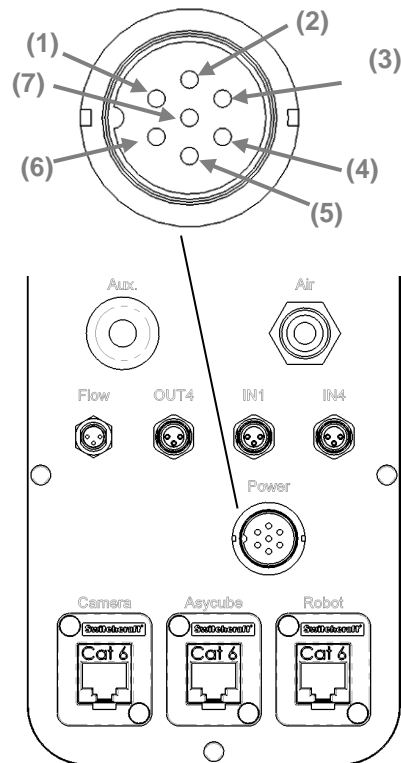


Figure 2-14: Power connection

The 7 poles must be supplied with power to enable the system to operate.

Poles (5) and (6) (safe supply) can be integrated in the machine's safety circuit to ensure safe shutdown of the module's potentially dangerous components (Asycube lighting, tool changer, robot).

Connector type (Asycube side):
M16, 7 poles, male



WARNING!

- Before supplying power to the product, check that your voltage distribution is the same as the nominal voltage of the Asyfeed Pocket Module.

2.3.7. RJ 45 connector

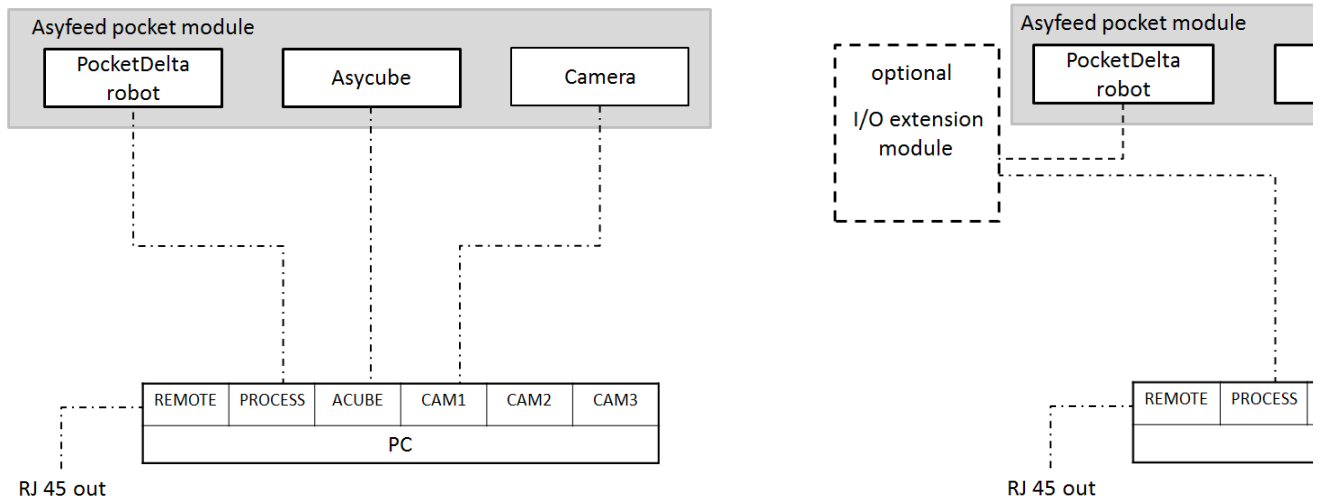


Figure 2-15: Ethernet connection of the main components



NOTE:

The I/O extension module is an optional component, see section 2.6.4

The three RJ 45 connections enable communication with:

- (A) The camera

NOTE:



The camera must be connected using a category 6 Ethernet cable.

- (B) The Asycube
- (C) The PocketDelta robot

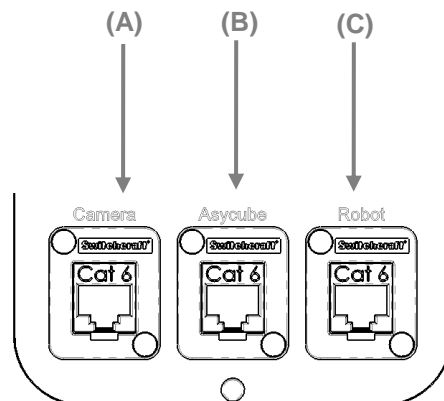


Figure 2-16: RJ 45 connection

2.3.8. Control unit

The electrical interfaces to the control unit are:

- (A) Remote Ethernet connection
- (B) Process (robot) Ethernet connection
- (C) Asycube Ethernet connection
- (D) Camera 1 Ethernet connection
- (E) Camera 2 Ethernet connection
- (F) Camera 3 Ethernet connection
- (G) USBs connection for keyboard or mouse
- (H) Power supply

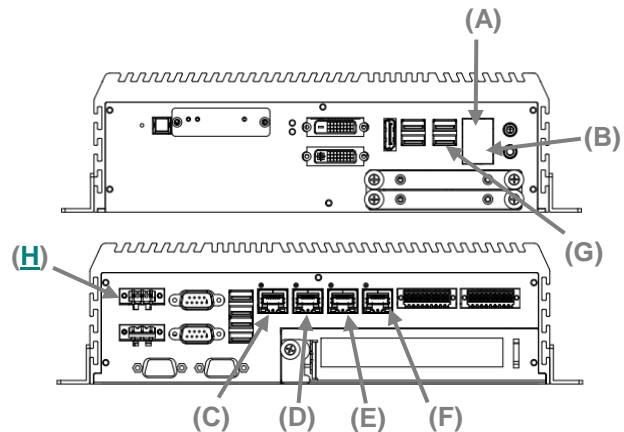


Figure 2-17: Electrical interfaces to the control unit

2.3.8.1. Power

The connector provided must be connected to a power supply (not supplied by Asyri) with the following characteristics:

Characteristics	Value
Voltage	24VDC
Power	75 W

Table 2-1: Control unit power supply

2.3.8.2. Connection to the Human-Machine interface (HMI)

The graphic interface is installed on the control unit. A keyboard, mouse and screen (supplied by the customer) are necessary for interaction and can be connected to the control unit via the USB, VGA or DVI interfaces.

The screen must have the following minimum characteristics:

Characteristic	Value
Resolution	1280 x 1024

Table 2-2: optimal resolution for the HMI screen

2.4. Pneumatic interfaces

2.4.1. Pneumatic connection

The pneumatic connection of the Asyfeed Module has one quick connector:

(A) Tool changer and venturi connection

connector	Nominal pressure	Diameter
A	6 Bar	6 mm

Average consumption: 10 l/min

NOTE:



The customer is responsible for installing a pressure monitoring system for maintenance and control purposes.

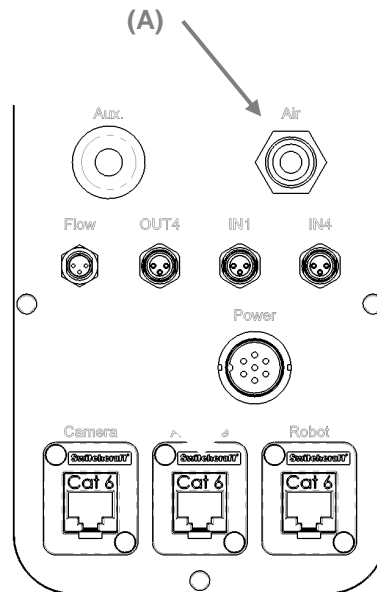


Figure 2-18: Pneumatic connection

2.4.2. Compressed air characteristics

To ensure the pneumatic interface provides the best possible performance, observe the following parameters:

Characteristic	Value
Nominal filtration rating	< 5 µm
Recommended lubricant	No lubrication

2.4.3. Vacuum and air flow

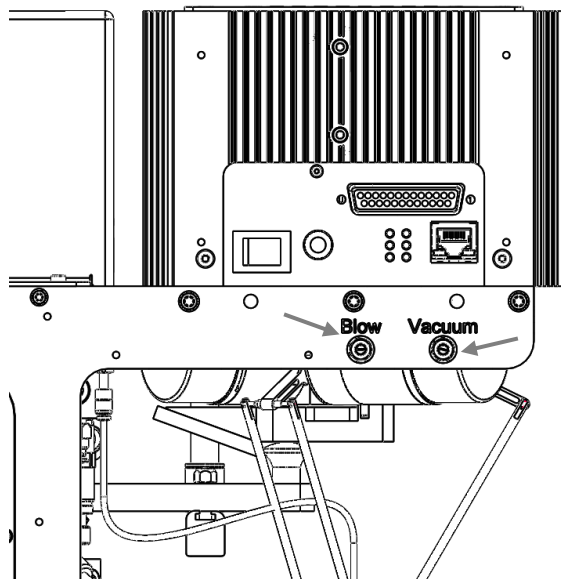
Characteristic	Value
Vacuum level	-0.8 bar
Suction capacity	1 l/min
Airflow rate (factory settings)	0.5 l/min

The suction capacity can be adjusted with the "Vacuum" screw

Clockwise = reduce suction capacity

The airflow rate can be adjusted with the "Blow" screw

Clockwise = reduce airflow



2.5. Mechanical interfaces

2.5.1. Mounting the Asyfeed Pocket Module

Install the Asyfeed Pocket Module on a smooth, flat and solid surface. It must be secured using four M6x20 bolts.

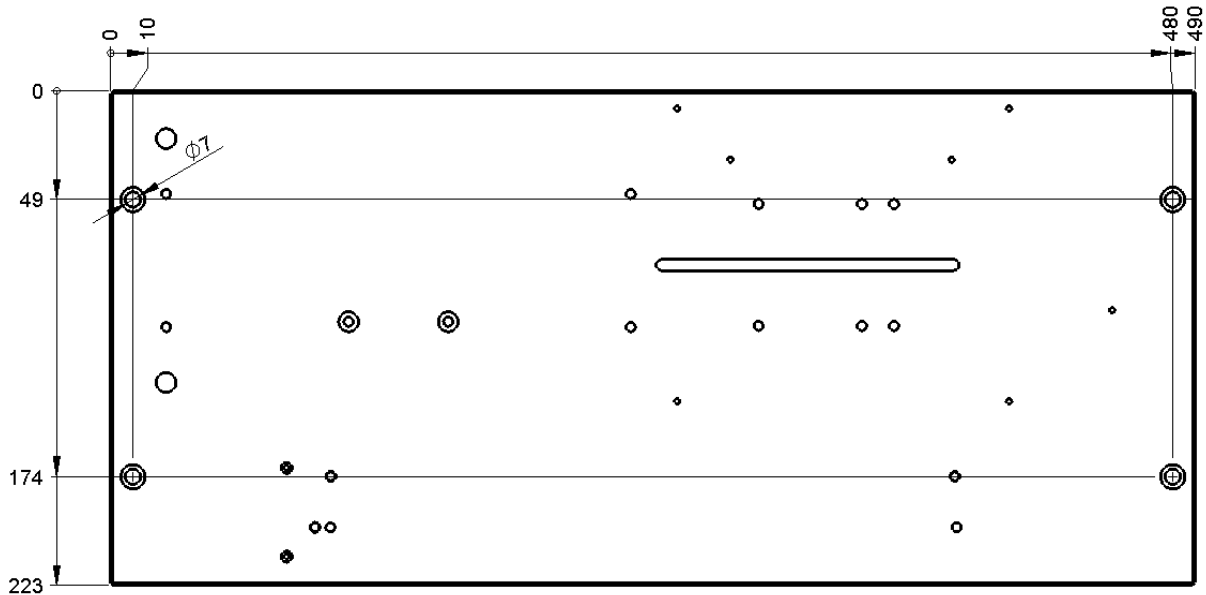


Figure 2-19: Mounting the Asyfeed Pocket Module

2.5.2. Control unit

The control unit is fixed to two rails, and the dimensions are indicated in Figure 2-20.

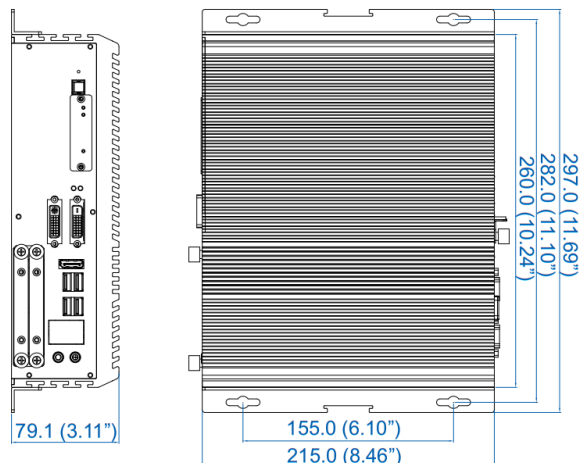


Figure 2-20: Dimension of the control unit and mounting rails

2.5.3. Tooling

Tools and grippers are not supplied with the robot. Their design depends on the application and has to be adapted specifically. Tools and grippers can be attached to the robot's platform.

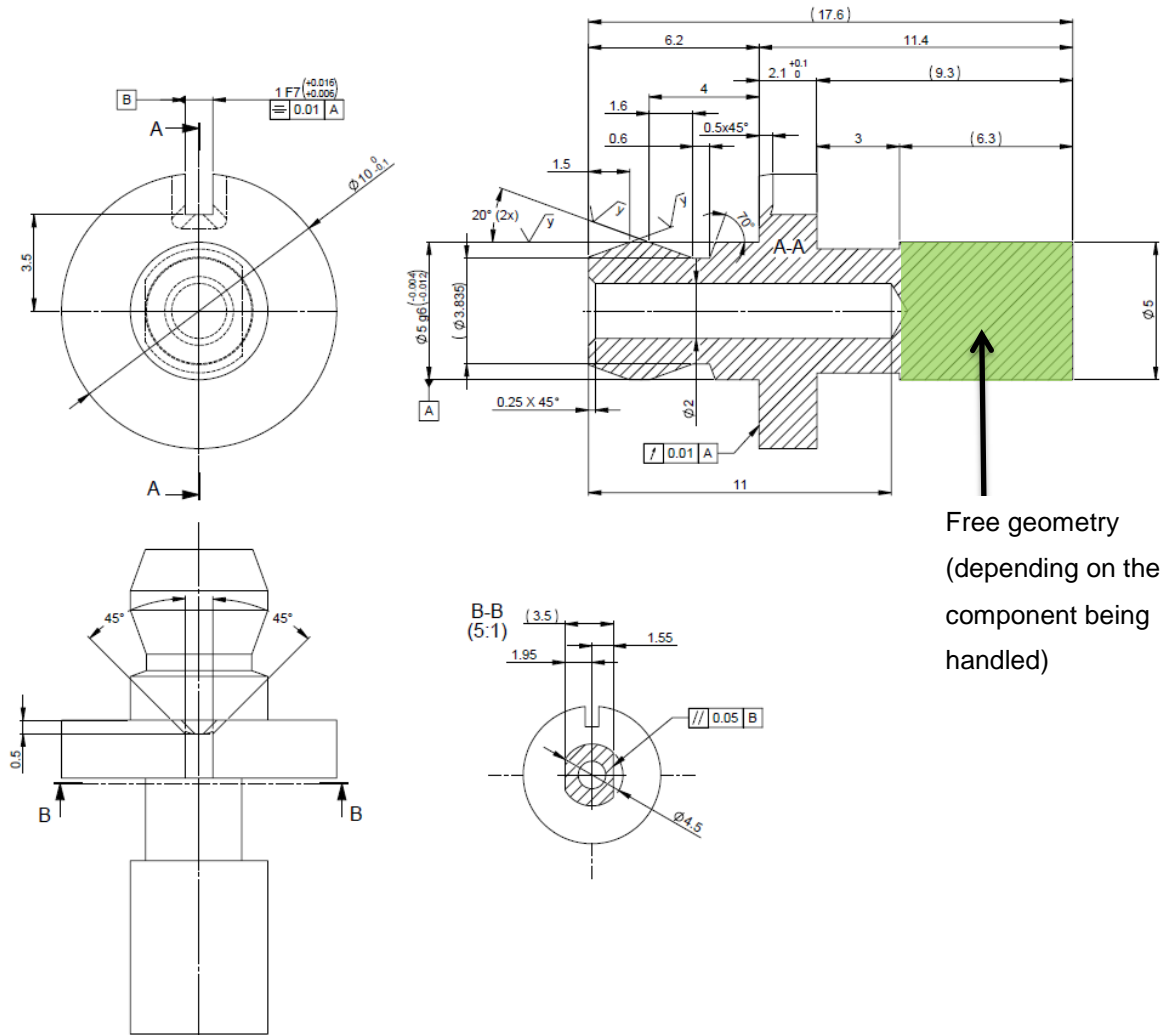


Figure 2-21: Example of a standard tool (with free geometry based on the component)



NOTE:

To ensure the best possible performance, note that the length of the tool must be the same as the calibration tool length.

2.6. Accessories and optional modules

2.6.1. Robot calibration tool

The calibration tool may vary according to the type of application (whether or not a control camera is used, size of the holes in the calibration plate, etc.). The grey column below corresponds to the standard tool delivered with your equipment.

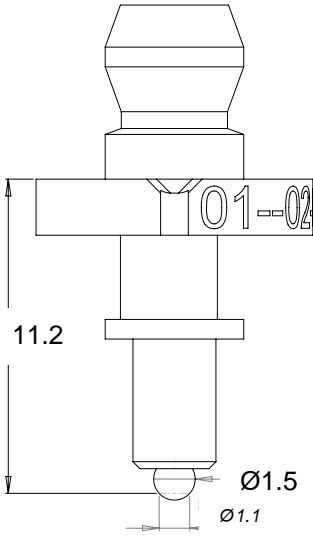
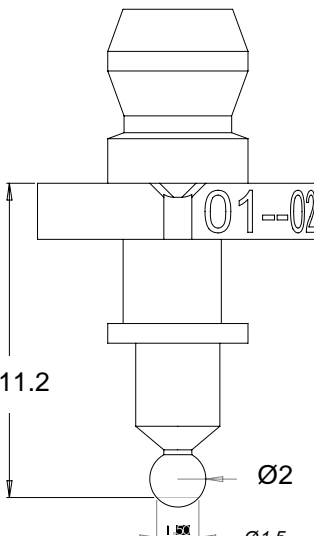
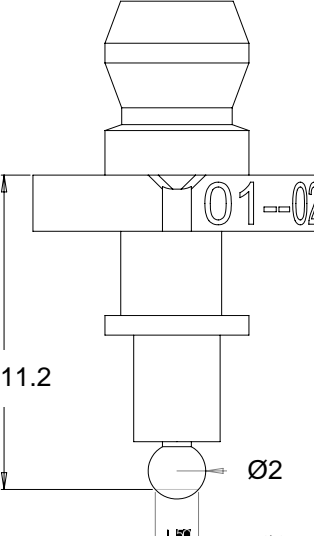
		
<p>Perfectly suited for a control camera with <u>front light</u> lighting.</p>	<p>Perfectly suited for a control camera with <u>dark field</u> lighting.</p>	<p>Perfectly suited for a control camera with <u>front light</u> lighting.</p>
<p>Perfectly suited for calibrating holes of Ø1.1 mm.</p>	<p>Perfectly suited for calibrating holes of Ø1.5 mm.</p>	<p>Perfectly suited for calibrating holes of Ø1.5 mm.</p>

Figure 2-22: Available calibration tools



NOTE:

For more information on the available calibration tools, please contact Asyрил.



For more information about the calibration procedure, refer to the User Guide.

2.6.2. Calibration plate (for Asycube)

A specific calibration plate can be delivered as an option with your equipment.

The following drawing gives the positioning of the holes used to calibrate the robot on the Asycube.

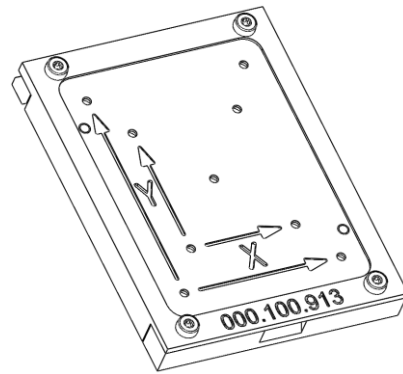


Figure 2-23: Asycube calibration plate

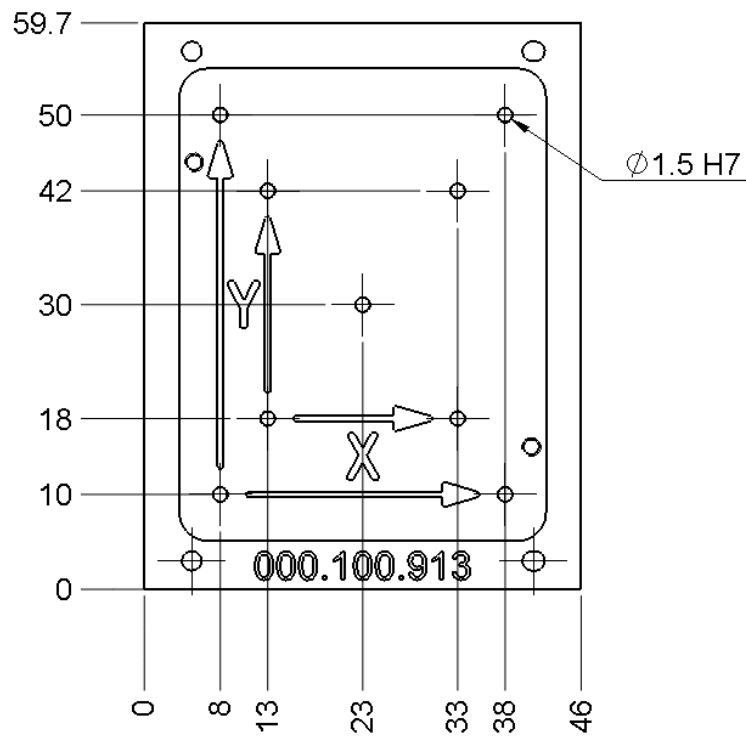


Figure 2-24: Detail of the position of holes in the calibration plate.



For more information about the calibration procedure, refer to the HMI manual.

2.6.3. Ioniser

The ioniser makes it possible for the air molecules to carry charges. The ioniser module's role is therefore to neutralise the electrostatic charges that can cause the components to stick to the plate.

If the option was purchased, the ioniser is supplied with the unit, wired, mounted and ready to be used.



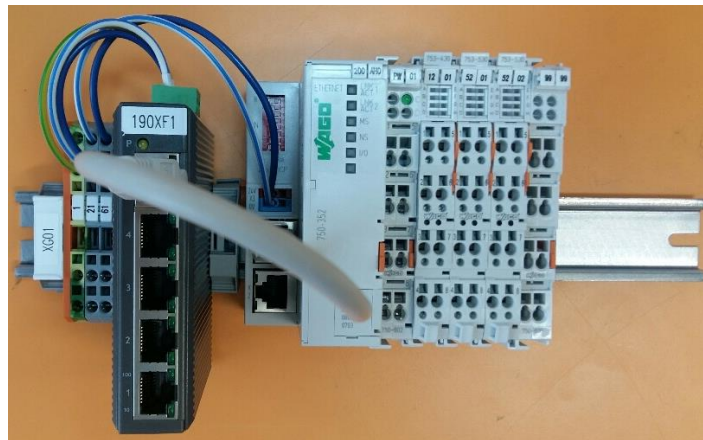
For more information on the ioniser, please refer to the manufacturer's datasheet.

2.6.4. Input/output extension module

The input/output extension module is available as an option.

It can be configured by combining the following types of board:

- Digital, PNP or NPN I/Os
- Analogue I/O, 4-20 mA



Example of input/output module

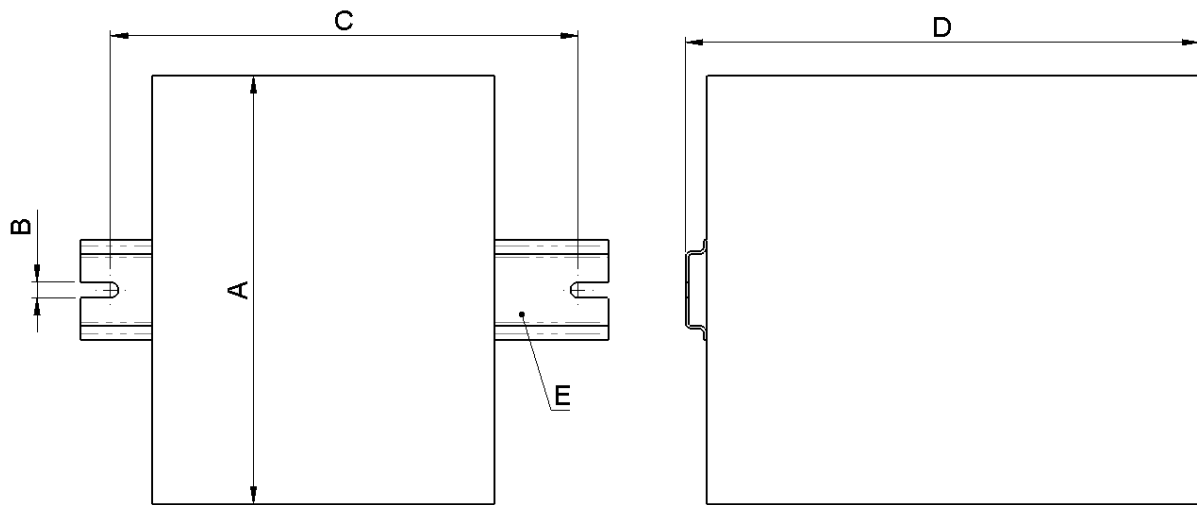


For more information concerning the boards available and their connection, refer to the wiring diagram for the input/output extension module, supplied with the Asyfeed Pocket Module

Description

Version: C

- **Dimensions**



A	150 mm
B	5.5 mm
C	Depends on the chosen configuration
D	180 mm
E	DIN 35 rail

3. Transportation, handling and installation

3.1. Packaging of the product, transportation and handling

The product must be transported in accordance with the specific instructions indicated on the package (top, bottom and fragile, etc.). The following instructions must also be observed:

WARNING!



- Be aware of the weight and take all necessary precautions when transporting the system.
- The operator should try to carry heavy shipping boxes unaided.
- If the shipping box is to be left standing, it should be in a horizontal position.
- Do not climb on the shipping box.
- Do not place heavy objects on top of the shipping box.
- Take care to ensure the system is not damaged during handling

The Asycube Pocket Module is shipped on a wooden pallet and the entire system is protected with a plastic film wrap. It must be handled with care using a forklift or a pallet truck.

	Value
Dimensions	490*328*372 mm
Total weight	28 kg

Table 3-1: gross weight and dimensions of the packaged product

3.2. Installation and storage environment

WARNING!



The Asyfeed Pocket Module must be installed on a smooth, flat and solid surface. Make sure that the Asyfeed Pocket Module is not exposed to excessive vibrations or flex. Failure to do so could adversely affect the Asyfeed Pocket Module's performance.

3.2.1. Installation environment

The Asyfeed Pocket Module can be used under following conditions:

- Working temperature: +5°C to +40°C
- Humidity: 30% to 95% max. non-condensing

WARNING!



note that variations in temperature may affect the precision of the robot, especially if the required level of precision is less than 10 microns

WARNING!



The customer is responsible for installing equipment to protect the Asyfeed Pocket Module from dust and excessive light levels.

WARNING!



Please note that very high levels of humidity may affect the overall performance of the *Asyfeed Pocket Module*. In addition, if the humidity level is below 30% electrostatic forces may disrupt the behaviour of the components.

- Avoid using the product in an area where the machine and/or its control unit may be exposed to water or oil droplets.
- Clean room application: cleanliness class ISO7 and ISO8

WARNING!



Do not use the product in atmospheres containing corrosive gas, as this could cause oxidation and damage some of the product's components.

3.2.2. Storage environment

The storage environment should be similar to the operating environment. The Asyfeed Pocket Module should also be protected against dust during storage.



NOTE:

After a period of inactivity, the robot may require recalibration.



For more information on the calibration procedure, please refer to the programming manual.

4. Maintenance and repair

4.1. Safety precautions

4.1.1. General safety precautions

WARNING!



The product does not contain any parts which may be repaired by the user. Contact a supplier to have maintenance carried out. Failure to follow this instruction will invalidate the warranty.



DANGER!

Disconnect the power supply before any maintenance work.



DANGER!

Do not wash the product with water. Failure to follow this instruction could result in malfunctions or short circuits, etc.

4.2. Personnel responsible for maintenance or repair

Maintenance operations must be performed by persons who have received training on the system. Three categories of personnel are defined for this purpose:

- (A) Maintenance technician without any specific training from Asyril
- (B) Maintenance technician with specific training from Asyril
- (C) Technician from Asyril customer service

Ensure that the person who is performing maintenance has received and read this manual, and has the necessary skills to be able to work according to the instructions given in the following sections. All personnel must observe the safety precautions given in this manual.

NOTE:



A report will be issued for all maintenance performed by Asyril.

For more information on our maintenance service, please call Asyril customer service.

4.3. Maintenance

NOTE:



The information given in "Table 4-1: Periodic maintenance schedule" is only to be used as a guide. Maintenance and frequency must be adapted by the operator according to the customer's specific process, the operating environment and the workload.

4.3.1. Periodic maintenance schedule

Our robots generally operate without the need for maintenance. However, basic inspections should be carried out at regular intervals to optimise performance and ensure that the product operates safely.

	Item	Period	Personnel	Reference
General information	Cleaning of the machine	Weekly	A	4.3.2.1
Tool	Visual inspection of the tools (check the condition) Change any nozzles in poor condition	Weekly	B	
	Cleaning of the tool's drill holes.	Weekly	A	
Optical parts	Visual check of the optical parts and, if necessary, cleaning and calibration of the vision system	Annually	B	
Pneumatics	Replacement of the air filter, if necessary	Annually	B	
Asycube	Visual check and cleaning of the hopper and plate	Weekly	A	
Robot	Visual check, cleaning and lubrication the articulations of the parallel structure (including the moving plate and its compliance)	Annually	C	Contact Asyril
	Cleaning of the robot	Annually	B	4.3.3.1

Table 4-1: Periodic maintenance schedule



WARNING!

For any kind of maintenance, always use original factory replacement parts.

4.3.2. General maintenance

4.3.2.1. Cleaning of the machine

Material needed:

- Cloth
- isopropanol alcohol

Clean all the exterior surfaces of the Asyfeed Pocket Module (baseplate, chassis, etc.)

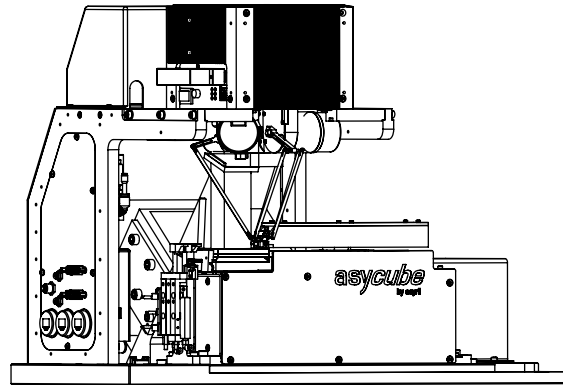


Figure 4-1: Cleaning of the machine

4.3.3. PocketDelta robot maintenance

4.3.3.1. Cleaning robot

Material needed:

- Lint-free cloth
- isopropanol alcohol
- Vacuum cleaner

Step 1 Clean all exterior surfaces of the robot. Pay specific attention to the front arms **(B)**

Step 2 Use the vacuum cleaner to remove dust accumulated in the filter **(A)**

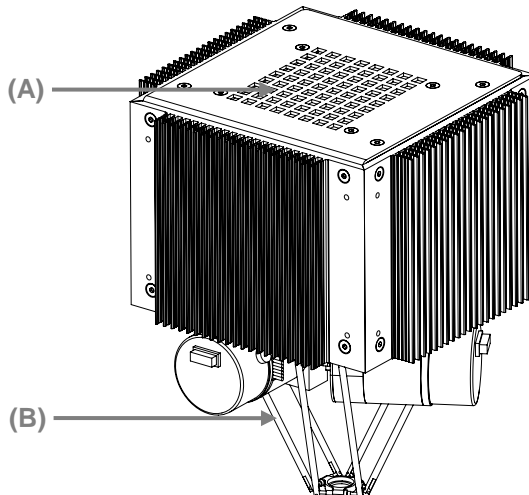


Figure 4-2: Cleaning the PocketDelta robot

4.3.3.2. *Checking the parallel structure*

**NOTE:**

This maintenance operation can only be performed by an Asyril technician.
For more information on this operation, please contact Asyril customer service.

- Clean and lubricate the joints of the parallel structure
- Check the wear of the arms
- Check the clearance of the robot plate

4.3.3.3. *Checking the motor assembly*

**NOTE:**

This maintenance operation can only be performed by an Asyril technician.
For more information on this operation, please contact Asyril customer service.

- Check the motor
- Check the brakes

4.3.3.4. *Inspection of the control box*

**NOTE:**

This maintenance operation can only be performed by an Asyril technician.
For more information on this operation, please contact Asyril customer service.

- Clean the air filter

4.3.3.5. *Check of the actuators and audit of system behaviour*

**NOTE:**

This maintenance operation can only be performed by an Asyril technician.
For more information on this operation, please contact Asyril customer service.

4.4. Repairs

Any repairs will require the product to be returned to Asyril. Subject to formal agreement by Asyril S.A. this work may be performed at the customer's site by trained personnel as defined in section 4.2.

**WARNING!**

For all repairs, use original factory replacement parts.

The list of replacement parts is available on request

IMPORTANT NOTE:

For more information on the replaceable parts of your PocketDelta robot, please refer to the "repair" section of your PocketDelta robot Operating Manual

4.5. Technical support

4.5.1. For better service ...

Before calling the support service, note the following information for your system:

- serial number and product key for your equipment
- software version
- alarm or error message displayed on the screen

4.5.2. Contact

A wealth of information is available on our website: www.asyril.com

You can also contact us by mail or call our support service:

support@asyril.com

+41 26 653 7190

Revision table

Rev.	Date	Author	Comments
A	20.09.2011	SiA	Initial version
A1	19.10.2012	SiA	Updating of replacement parts list Modification of Asycube maintenance (internal cleaning)
A2	16.01.2014	SiA	Updating of change from 1 Lanner PC to 1 Arbor PC (images, legends, parts list)
A3	24.02.2015	SiA	Update following product modification (1 pneumatic pass, mounting interface modification, modification of replacement parts list)
A4	27.11.2015	DaM	Update following PM-140211-1
A5	11.08.2016	DaM	Updating of product names and documentation, other docs, connector numbering, PC power supply
B	1.12.2016	BeJ	Modification following redesign of the module and integration of the Asycube 50
B1	30.01.2017	BeJ	Addition of section 2.6.4
B2	20.09.2017	BeJ	Addition of section 2.4.3
C	05.04.2018	HsJ	Update for new computer

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