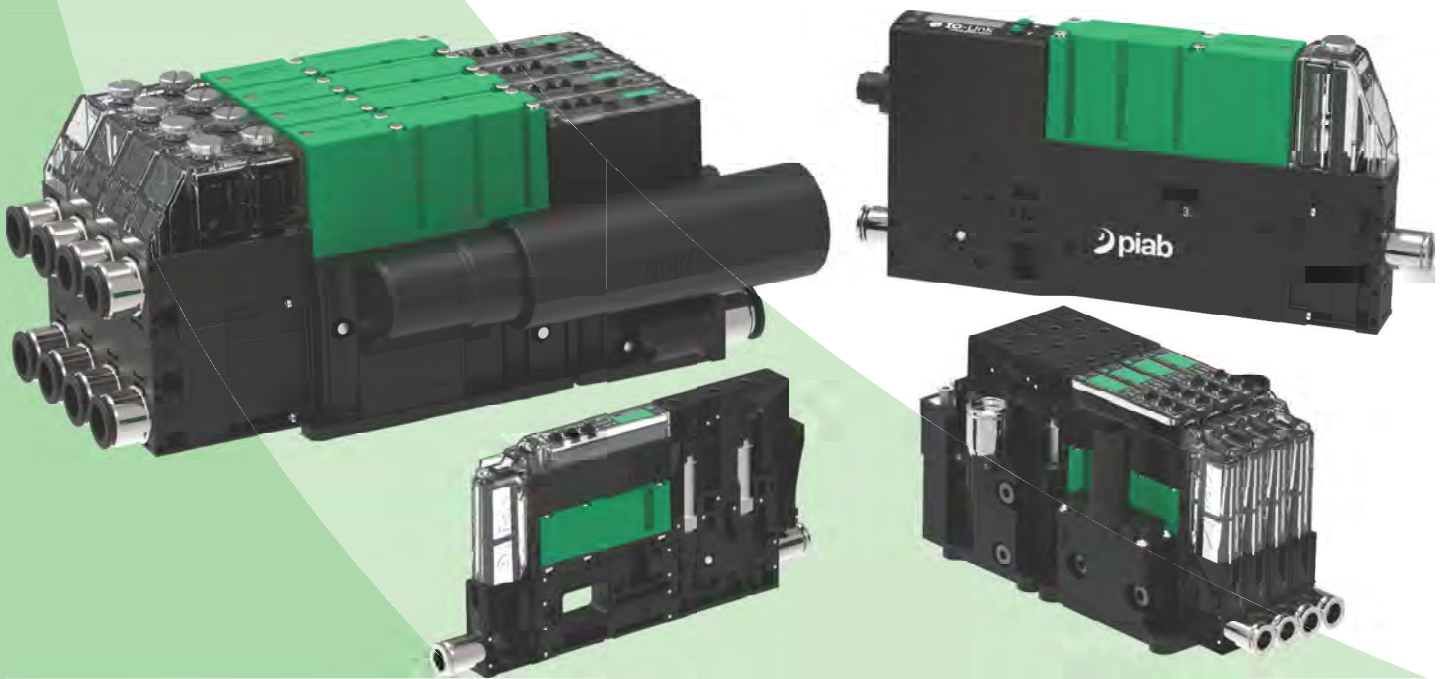




piCOMPACT®

Innovative vacuum generators with fully integrated controls for *smart* manufacturing

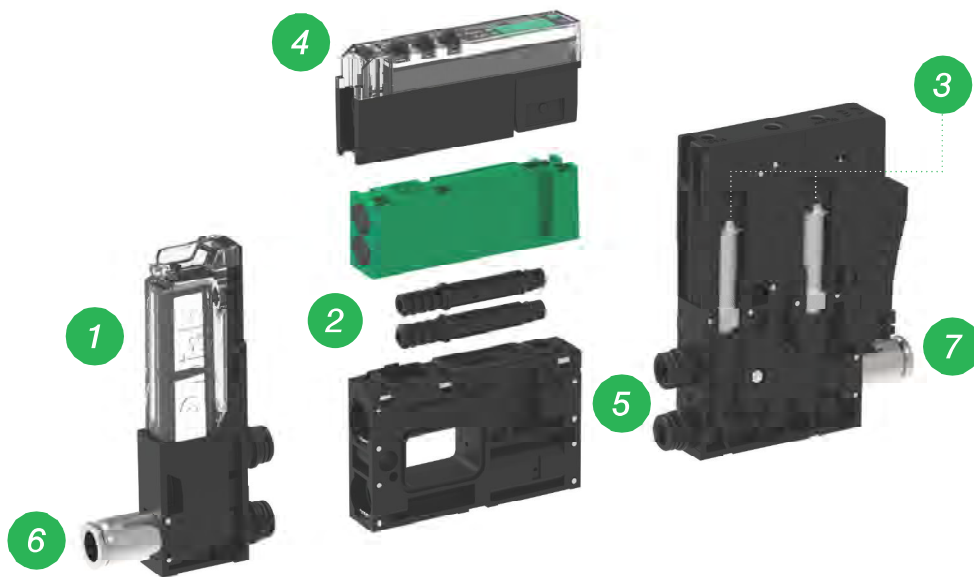


A flexible and configurable platform that revolutionizes the market of air driven vacuum generators. Several new patented functions that will meet future needs.

Why piCOMPACT® is the

piCOMPACT®'s are vacuum ejectors with integrated control

piCOMPACT®10X

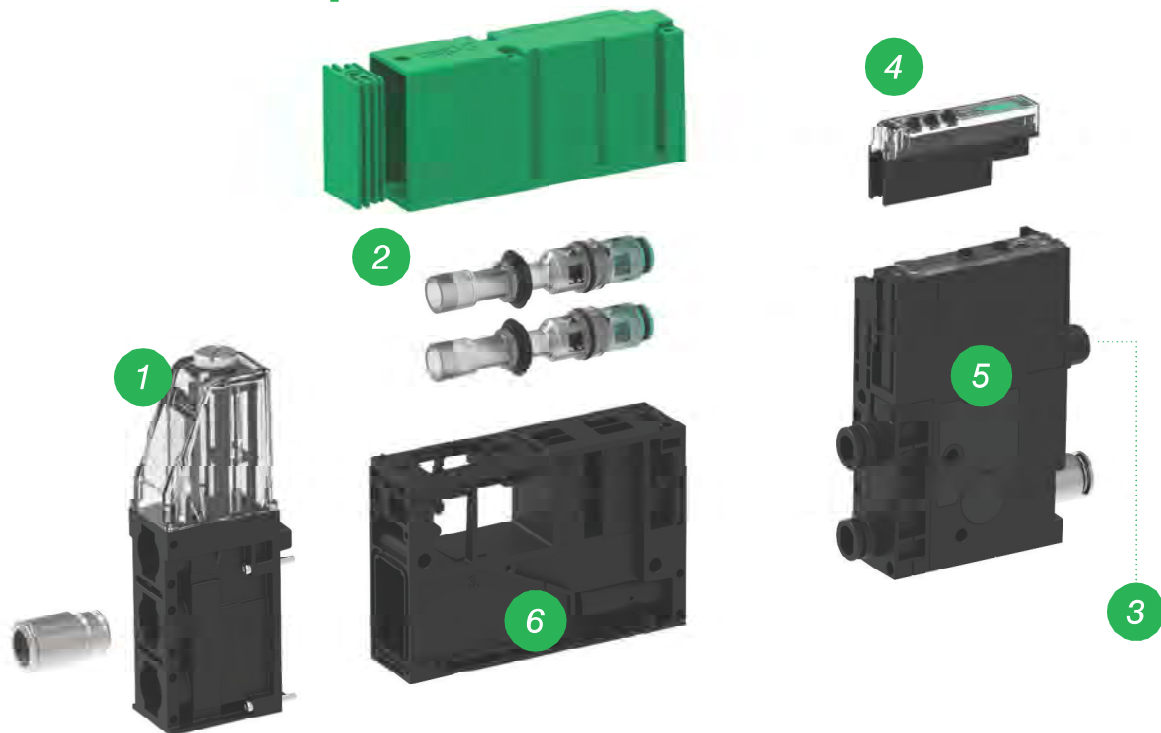


- 1 No pressure drop or reduced speed guaranteed due to an extra large cleanable filter area.
- 2 1–2 COAX® cartridges allow for supply pressure drops or pressure fluctuations without jeopardizing vacuum performance.
- 3 Short cycle times and high reliability is provided through ultra high speed direct operating valves for vacuum on/off and releasing objects.
- 4 User friendly vacuum switch.
- 5 Shorter cycle time with a unique lightweight split unit feature where pumps and valves are separated. (Optional)
- 6 The only 10 mm wide COMPACT ejector with a large 6 mm vacuum connection for maximum performance.
- 7 The only 10 mm wide COMPACT ejector with simple M8-6pin connector.

best choice for you

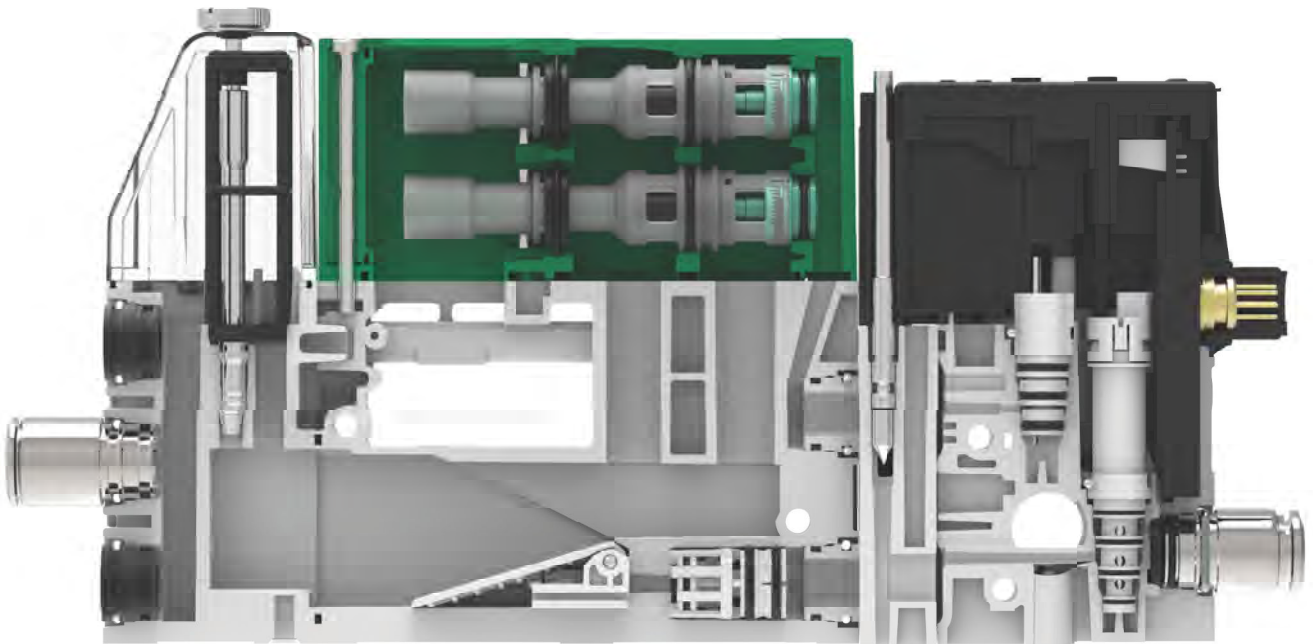
functions for on/off, blow, vacuum sensing and diagnostics.

piCOMPACT®23



- 1 Vacuum connector module with optional, easily cleanable, vacuum filter. Up to 3 vacuum ports.
- 2 Ejector module with 1–2 COAX® cartridges.
- 3 Control module with several valve options for supply and release. Integrated blow-flow control valve. Industry standard M12 connector.
- 4 User interface with display, keypad and optical indicators for valves and vacuum system status.
- 5 Optional Bi-stable (latching) on/off valve, provides security in case for emergency stop. The valve remains in the last position.
- 6 Patented amplified blow-off (ABO) provides reduced cycle times in large systems.

Features and benefits



High Reliability ensures trouble-free production

- Dust proof ejector cartridges and flap valves.
- A-PWM (adaptive pulse width modulation) technology for valves with compensation for voltage fluctuation to reduce heat generation and enhance life.
- Valve protection (Automatic Condition Monitoring, ACM, function).
- Integrated and easy to clean filters.

Impressive performance with minimal energy consumption

- Superior ejector technology gives significant more vacuum flow and faster response time with less air-consumption (30–50%) in comparison with other brands. Suction cups will secure a better grip, giving possibility to handle products faster and safer.
- Extremely fast switching valves further contributes to shorten cycles times.
- Integrated automatic air/energy-saving function (ES) with adjustable hysteresis that will further reduce energy usage (up to 90–95%). Activate and optionally sets itself automatically (Automatic Level Determination, ALD, function).
- Ejector and control section can be ordered as a split to get to position the lightweight ejector close to point of suction even faster response times.

Ultimate flexibility thanks to endless configuration possibilities

- Design your own tailor made vacuum generator as piCOMPACT® is built to order.
- Pay only for needed performance and features.

Easy to use, install and set-up with “plug-and-play”

- Manifold mounts available with common feed and exhaust ports. Reduce cost of installation.
- Up to 3 vacuum ports can be selected per unit. Facilitates routing of hoses.
- User-friendly GUI (Graphical User interface), no risk for setting up incorrectly. Analogue and digital outputs available.
- Optional Automatic Timer blow-off (ATBO) – will eliminate need to control blow-off and save on outputs from PLC or I/O block.
- Modular design make service and maintenance easy and low-cost.



piCOMPACT®23 standard display



piCOMPACT®23 IO-Link display

piCOMPACT®10X

- MTBF (Mean Time Between Failures) is > 100 million cycles for piCOMPACT®10X.
- Ultra-short valve switching time, <5ms, makes the unit suitable for very high speed applications, >1000 picks per minute is possible.
- Special version for clean room environment.
- Common electrical D-sub connector for manifold mounted units makes installation easier.

piCOMPACT®23

- MTBF (Mean Time Between Failures) is > 50 million cycles for piCOMPACT®23.
- Includes the new patented COAX® generation 2.
- Optional leakage warning signal facilitates and prevents service/maintenance.
- Possible to remote control the ES function.
- Available with a unique “mixed mode” of PNP-NPN for input and output signals.
- Self-Adhesion Control (SAC), a useful and patented feature to automatically avoid unwanted vacuum in the cups during positioning.
- Available with **IO-Link**, a generic communication technology that will fit any type of fieldbus (read more on page 9).

Technical features

P Patented

PP Patent pending

10X **23** Available for piCOMPACT®10X/23

10X Not available for piCOMPACT®10X

Dust-proof design ensures worry-free operation

COAX® Generation 2

P **10X** **23**

State-of-the-art multistage COAX® generation 2 ejector nozzles, SX12 and SX42, are made of a fully dust proof design where flap and check valves are separated. With reduced outer dimension the user of piCOMPACT®23 will enjoy a new further improved COAX® ejector characteristic (SX) that combines high vacuum flow and fast response times with high vacuum levels, up to 90 -kPa.

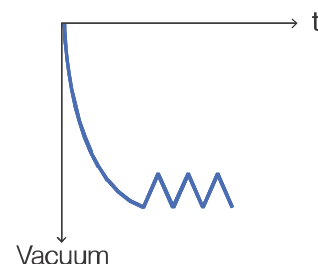


Uptime and operational savings

Energy saving (ES)

10X **23**

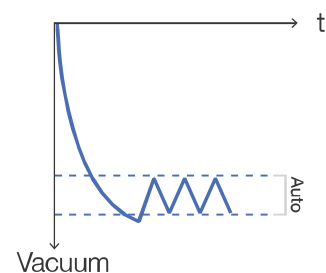
Energy saving (ES), the piCOMPACT® generator will automatically shut off when vacuum is no longer needed in a sealed or semi-sealed system. The shut-off level and hysteresis (how much vacuum level can drop before restart) is fully adjustable. The function can save up to 90–95% of compressed air usage in a cycle. Selectable function.



Automatic Level Determination (ALD)

10X **23**

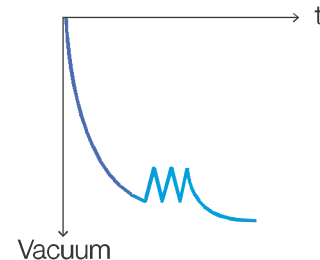
Automatic Level Determination (ALD), a feature related to the ES. ALD will automatically set optimised ES shut-off and restart levels in every cycle based on actual conditions. When purchasing a piCOMPACT® with ES, the default mode is ALD to secure that ES is really being used. ALD shall be de-activated manually. Onboard function when selecting ES.



Automatic Condition Monitoring (ACM)

10X 23

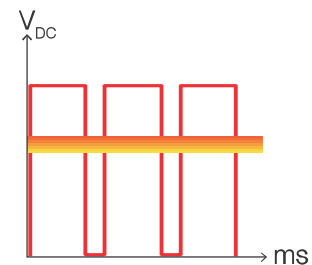
Automatic Condition Monitoring (ACM), also a feature related to ES. ACM will turn off the ES function in case of significant leakage in the system to protect the valves from going on/off rapidly and to prolong valve lifetime. A leakage warning output signal is available when ACM is triggered. The Leakage warning is a great aid for preventive maintenance and increased uptime. Onboard function when selecting ES.



Adaptive Pulse Width Modulation (A-PWM)

10X 23

Adaptive Pulse Width Modulation (A-PWM) reduces the power to the valves when they are in holding position and allows for full power when switching the valves to achieve as quick a response as possible. The adaptive part allows for fluctuating voltage without impacting functionality. A-PWM will significantly reduce power consumption, generate a lower temperature, increase robustness of the installation and extend life time of unit. Onboard function.

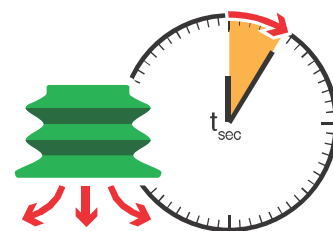


User friendly, cost savings, increased throughput

Automatic Timer Blow-off (ATBO)

10X 23

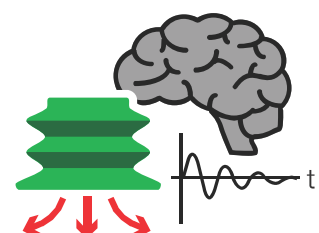
Automatic Timer Blow-off (ATBO) means that the compressed air release function will start automatically after the vacuum valve is turned off. The blow-off duration is set with a timer (0–3 sec) integrated on the piCOMPACT®. ATBO will save on I/Os needed to control piCOMPACT®, can be of great importance if several units are connected to one controller. It makes programming easier and can be used to fine-tune blow-off duration to cut cycles time by a person without software skills. Selectable function.



Intelligent Blow-off (IBO)

PP 10X 23

Intelligent Blow-off (IBO) is an alternative to save compressed air for part release, in many vacuum applications the big air consumer. The blow-off duration is optimised and blow-air will automatically stop when all vacuum is removed from the system. IBO is a self-learning function and only needs a few cycles to optimise blow-off duration for different system volumes. In the initial cycles, an extra blow-off puff can be presented to fully remove vacuum.



P Patented

PP Patent pending

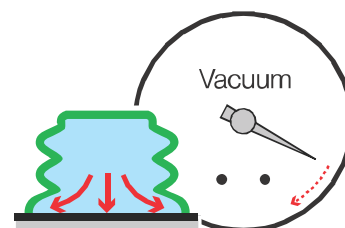
10X 23 Available for piCOMPACT®10X/23

10X Not available for piCOMPACT®10X

Self Adhesion Control (SAC)

PP 10X 23

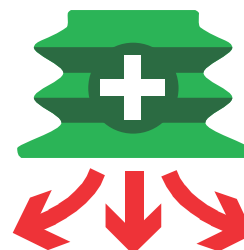
Self Adhesion Control (SAC) automatically removes “unwanted” vacuum with short blow puffs if the piCOMPACT® vacuum control valve has not been activated. Unwanted vacuum is typically created by an ergonomic vacuum handling device/manipulator where a vacuum check/non-return valve is included. For example, ejectors with ES feature have a check/non-return valve inside. When suction cups are applied against a sealed object, the weight of the handling device compresses the cups and create a small bonding force. The force can be enough to move the object in an uncontrolled manner and even cause personal injuries if glass or metal sheets with sharp edges are handled. SAC will eliminate this problem completely. Selectable function.



Amplified Blow-off (ABO)

PP 10X 23

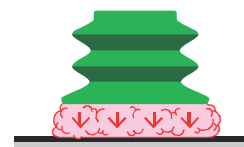
An internal valve will automatically close the flow-path to the ejector cartridge(s) during blow-off. 100% of the compressed air during blow-off goes to the cup(s) and gives a very strong and efficient part release. A recommended function for large sealed systems. Amplified blow-off (ABO) will cut cycle times. The dust-proof design of the internal valve is patented and tested for over 50 million cycles. Selectable function.



Pre-Vacuum Hovering (PVH)

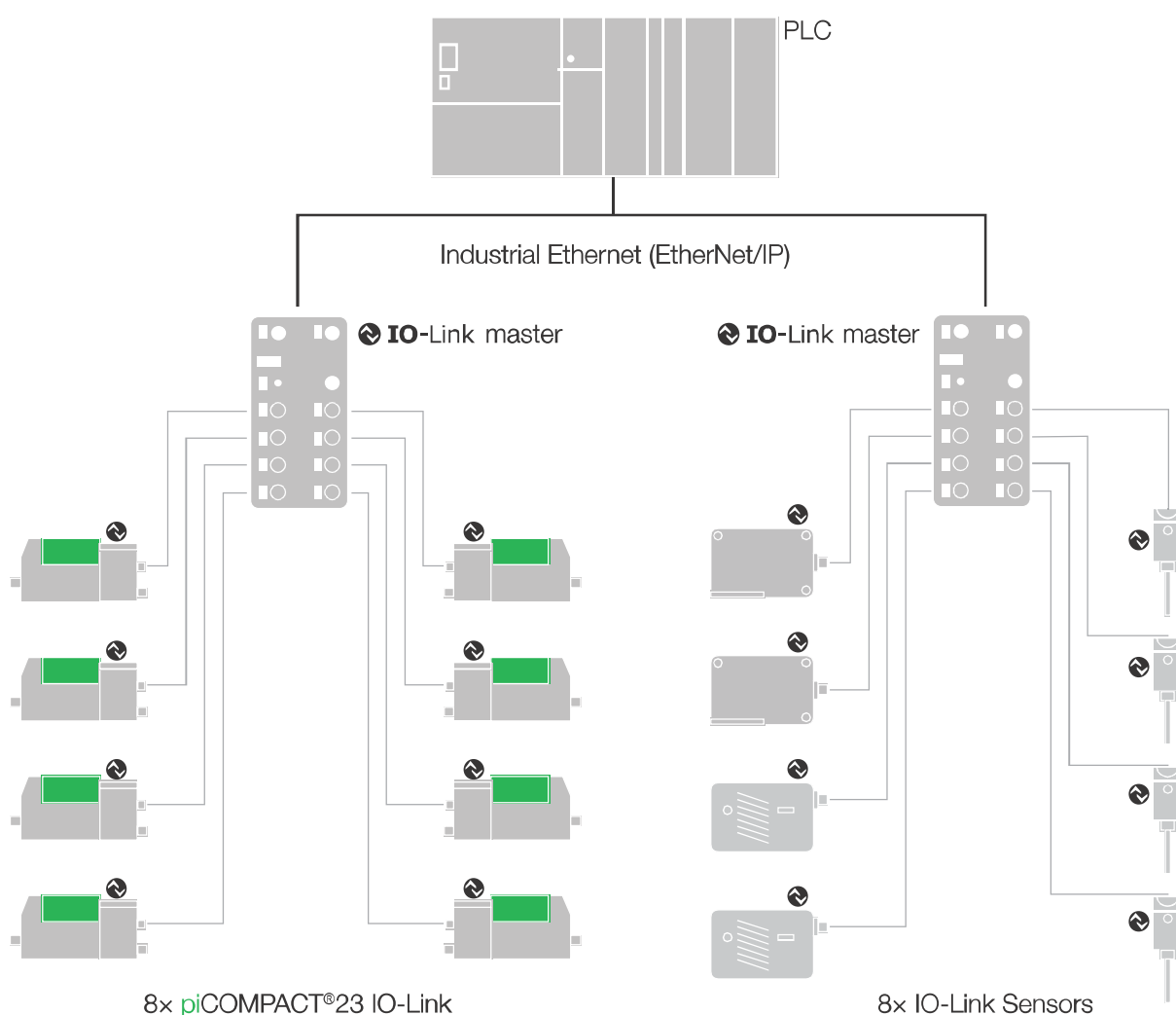
PP 10X 23

A special feature recommended for applications where blow-off air is used pre vacuum generation to hover over the cups in order to clean or position the cups right on the object. When using ergonomic vacuum handling devices (manipulators) this is a typical user scenario. Selectable function.



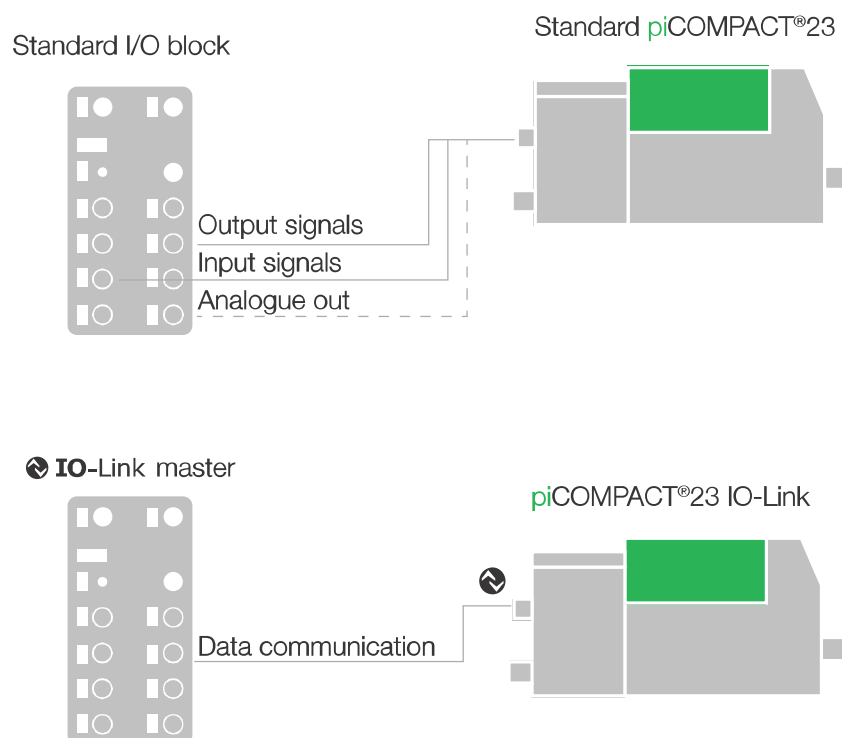
Generic communication link – new era of smart factories

The **piCOMPACT®23** is available with **IO-Link**, which fits any type of fieldbus. IO-Link is the first worldwide standard (IEC 61131-9) for IO technology used for sensor and actuator communication. The powerful point-to-point communication is based on 3-wire connection. Offering fieldbus-independence, IO-Link is really a further development of the existing, tried-and tested connection technology for sensors and actuators.

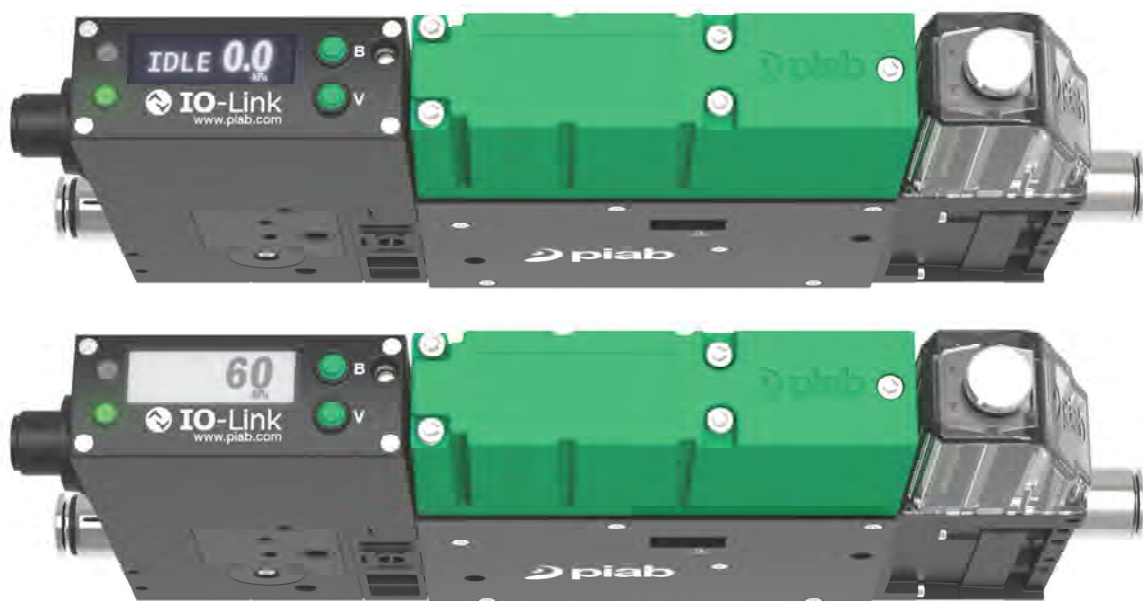


Why **pi**COMPACT®23 with IO-Link

- Simpler communication – IO-Link is a **powerful** and **secure**, yet easy to understand protocol. IO-Link provides significantly more information, configurability and control than 24V_{DC} or analog communication.
- International, **open** and independent standard with great industry support.
- IO-Link works with any fieldbus as it acts as a **gateway**. The IO-Link Master provides a universal solution for protocols such as EtherNet/IP, PROFINET, PROFIBUS and DeviceNet. You can easily integrate the IO-Link Master into an industrial network with existing and new installations.
- Improved operating **efficiency** with simple parametrization. IO-Link's ability to identify devices and provide access to the devices' parameters gives you much more freedom and flexibility to set-up the **pi**COMPACT®23 according to specific needs. The automated parameter setting ensures no parameter data loss when device is being replaced.
- **Simple to install** – No need for multiple of IO's when separating/handling input, output and analog signals. The IO-Link master will handle all these signals, significantly reducing the amount of cabling.



- Better diagnostics improve productivity with **less down time** – IO-Link offers a data storage function to identify cause of the operation/device failure for example, a overnight run.
- **Easy set-up** – Piab's IO Device Description software tool (IODD) for **piCOMPACT®23** is intuitive and easy to understand.
- Standard electrical connection, M12, compatible with **low cost standard cables**.
- Only the **piCOMPACT®** IO-Link version has a **Patented feature** where a trigger “signal” (output data) is received when **Blow-off is Completed** (BOC) for units with integrated automatic blow-off functions such as the Automatic Timer Blow-off or Intelligent Blow-off. The trigger will make it very easy to always program for fastest possible cycle time.
- The **piCOMPACT®** IO-Link Vacuum switch has a bright and easy to read **OLED display**. The display inverts background and text colors when vacuum part present signal (S1) is reached, thereby also functioning as a visual vacuum OK indicator. It also comes with manual override valve buttons which require power on.



Technical data

piCOMPACT®10X

Pneumatic technical information

Description	Unit	COAX®			
		Bi03-2 x1	Bi03-2 x2	Xi2.5-2 x1	Xi2.5-2 x2
Optimum feed pressure, pump	MPa	0.22	0.24	0.51	0.53
Optimum feed pressure, nozzle	MPa	0.20	0.20	0.50	0.50
Max. vacuum at optimum pressure	-kPa	82	82	91	91
Air consumption at optimum pressure	NI/s	0.14	0.28	0.13	0.26
Max. vacuum flow at optimum pressure	NI/s	0.21	0.34	0.23	0.37
Flow, blow off at 0.6 MPa	NI/s	1.01			
Description	Unit	COAX®			
		Si02-2 x1	Si02-2 x2	Ti05-2 x1	Ti05-2 x2
Optimum feed pressure, pump	MPa	0.60	0.62	0.43	0.50
Optimum feed pressure, nozzle	MPa	0.60	0.60	0.40	0.40
Max. vacuum at optimum pressure	-kPa	75	75	84	84
Air consumption at optimum pressure	NI/s	0.11	0.22	0.23	0.46
Max. vacuum flow at optimum pressure	NI/s	0.11	0.42	0.31	0.53
Flow, blow off at 0.6 MPa	NI/s	1.01			

General electric characteristics

Description	
Supply voltage	24 ±10% V
Current consumption	100/63 mA (Valve pull/hold at 24V _{sys})

Valve module

Description	
Function on/off	Normally closed (NC/NC 2) or normally open (NO)
Function blow-off	Normally closed (NC)
Air consumption blow-off/release	0–1.01 NI/s at 6 bar
Manual override	Yes, non-locking push style

Other data

Description	
Temperature range	-10–50°C
Materials	PA, NBR, SS, POM, TPE, PVC

Technical data

piCOMPACT®23

Pneumatic technical information

Description	Unit	COAX®			
		SX12 x1	SX12 x2	SX42 x1	SX42 x2
Optimum feed pressure, pump	MPa	0.504	0.515	0.47	0.54
Optimum feed pressure, nozzle	MPa	0.5	0.5	0.43	0.43
Max. vacuum at optimum pressure	-kPa	85	85	90	90
Air consumption at optimum pressure	NI/s	0.72	1.44	2.21	4.42
Max. vacuum flow at optimum pressure	NI/s	1.22	0.34	3.46	6.92
Flow, blow off at 0.6 MPa	NI/s	0-5.5			

General electric characteristics

Description	
Supply voltage	24 ±10% V
Current consumption	100/63 mA (Valve pull/hold at 24V _{sys})

Technical data, IO-Link

Description	Unit	
Min. cycle time	ms	2.5
Transfer type	Baud rate	230k (COM3)
IO-Link revision		1.1

Valve module



Description	
Function on/off	Normally closed (NC*) or normally open (NO)
Function blow-off	Normally closed (NC)
Air consumption blow-off/release	0-5.5 NI/s at 6 bar
Manual override	Yes, non-locking push style

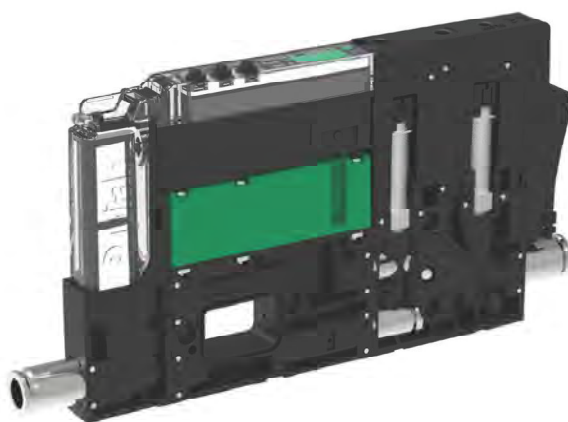
* NC failsafe version is available (power off - NO). In running mode the valve behaves like a NC valve but if power is cut the valve goes into NO-mode leaving compressed air for continuous vacuum.

Other data

Description	
Temperature range	-10-50°C
Materials	PA, NBR, SS, POM, TPE, PVC, Brass, Al

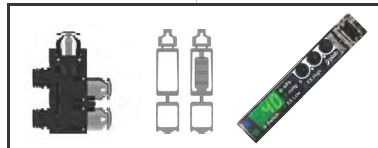
piCOMPACT®10X – customer code

			
piCOMPACT®	Ejector performance		Working enviroment
Code	Code	Nozzle model	Code
PC	Vacuum characteristics		Chemical resistance
	L Low feed pressure	MC MICRO (14–19 NI/min)	S Standard
	S High vacuum flow	Code	
	X Extra vacuum level	Nozzle rows	
	T Extra high vacuum flow	1 Single	
		2 Double	



PC . S . MC2 . S . AAA . S16 . 1X . 6 . EI . CCP6

PC . S . MC2 . S . AAA . S16 . 1X . 6 . EI . CCP6



Functionality	
Code	Control functions
A	Electrical ES, vac and blow off
B	Electrical ES, vac and automatic blow off
C	Vac and blow off
D	Vac and automatic blow off (ATBO)
E	Vacuum on/off (vac)
Code	Non-return valve
B	Without non-return valve
A	With non-return valve
Code	Vacuum sensing
A	Display, analog and digital output
X	No vacuum sensing



Vacuum connect module	
Code	Vacuum filter
S	Vacuum filter 50 µm
X	No vacuum filter
Code	Vacuum port(s)/channel
1	1 vacuum port
2	2 vacuum ports
3	3 vacuum ports
Code	Vacuum connection(s)
4	Ø4 (5/32") push-in connector(s)
6	Ø6 push-in connector(s)
14	Ø1/4" push-in connector(s)



Single unit or manifold mount	
Code	Number of channels
1	1 channel
2	2 channels
3	3 channels
4	4 channels
5	5 channels
6	6 channels
7	7 channels
8	8 channels
Code	Split control from vacuum
X	No split
A	Split Ø4
B	Split Ø6
C	Split Ø1/4"



Air supply	
Code	Air connections
4	Ø4 (5/32") push-in connector
6	Ø6 push-in connector
14	Ø1/4" push-in connector
8	Ø8 (5/16") push-in connector
26	2 x Ø6 push-in connectors
214	2 x Ø1/4" push-in connectors
28	2 x Ø8 (5/16") push-in connectors








Mounting	
Code	Options
EC	Ejectors stacked with central exhaust
EN	Ejectors stacked with central silencer
EI	Ejector(s) for individual mounts

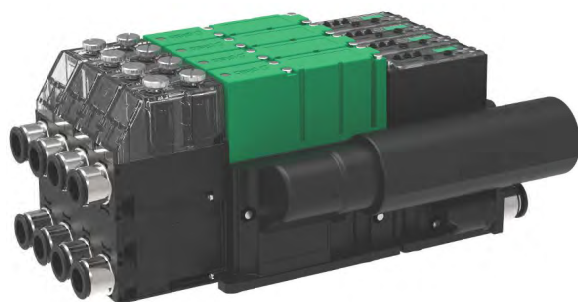


Electrical properties	
Code	Valve configuration
CC	NC vacuum + NC blow off
OC	NO vacuum + NC blow off
RC	NC 2/2 vacuum + NC 2/2 blow off
C	NC vacuum
O	NO vacuum
R	NC 2/2 vacuum
Code	Electrical input/output
P	PNP
N	NPN
Code	Electrical interface
6	6p connector(s)
A	M8 6p connector(s)
26	HD D-sub 26p connector
44	HD D-sub 44p connector

piCOMPACT®23 – customer code

			
piCOMPACT® Code PC		Functionality Code Vacuum characteristics F High vacuum performance	
Functionality Code Nozzle model 12 SX12 (73–146 NI/min) 42 SX42 (207–415 NI/min) Code Nozzle rows 1 Single 2 Double		Working enviroment Code Chemical resistance S Standard	

					
Functionality		Vacuum connect module		Single unit or manifold mount	
Code	Control functions	Code	Vacuum filter	Code	Number of channels
A	Electrical ES, vac and blow-off	S	Vacuum filter 50 µm	1	1 channel
B	Electrical ES, vac and automatic timer based blow-off (ATBO)	F	2× Vacuum filter 50 µm	2	2 channels
F	Electrical ES, vac, intelligent blow-off (IBO)	X	No vacuum filter	3	3 channels
C	Vac and blow-off	Z	No vacuum filter including sensing port	4	4 channels
D	Vac, automatic timer based blow-off (ATBO)				
G	Vac and intelligent blow off (IBO)				
E	Vacuum on/off (vac)				
H	IO-Link pre-configured				



PC · F · 422 · S · AAA · F18 · 4X · 2P1 · EN · CCAB

Internal check valves Code B Without non-return valve A With non-return valve C Amplified blow-off, without vacuum non-return valve (ABO) D Amplified blow-off, with vacuum non-return valve (ABO) E Pre-vacuum hovering, without vacuum non-return valve (PVH) F Pre-vacuum hovering, with vacuum non-return valve (PVH) Code Vacuum sensing A Display, analog and digital output B Display, 2× digital outputs C Display, leakage warning and digital output D IO-Link display X No vacuum sensing		IO-Link Energy saving type Code 1 ES pre-set on 75 -kPa 2 ES Automatic level determination (ALD) 3 ES pre-set on 75 -kPa with ALD backup 0 No ES Code IO-Link Blow-off type 1 Automatic timer based blow-off (ATBO) 2 Intelligent blow off (IBO) 0 External control Code IO-Link Additional functions 1 Self adhesion control (SAC) 0 No IO-Link additional functions	
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PC . F . 122 . S . H111AD . S1P1 . 1X . 8 . EJ . CCCC



Air supply

Code Air connections

6	Ø6 push-in connector
14	Ø1/4" push-in connector
8	Ø8(5/16") push-in connector
P1	Ø10 push-in connector
P2	Ø3/8" push-in connector
P3	Ø12 push-in connector(s)
P4	Ø1/2" push-in connector(s)
2P1	2x Ø10 push-in connector(s)
2P2	2x Ø3/8" push-in connector(s)
2P3	2x Ø12 push-in connector(s)
2P4	2x Ø1/2" push-in connector(s)



Mounting

Code Ejector options

EC	Ejectors stacked with central exhaust
EN	Ejectors stacked with central silencer
EJ	Ejector(s) for individual mounts, integrated silencer
EK	Ejector(s) for individual mounts, top mounted silencer
EL	Ejector(s) for individual mounts, central exhaust
EM	Ejector(s) for individual mounts, central silencer



Electrical properties

Code Valve configuration

CC	NC vacuum + NC blow off
FC	NC vacuum (power off - NO) + NC blow off
OC	NO vacuum + NC blow off
C	NC vacuum
O	NO vacuum
AC	Bi-stable vacuum valve + NC blow off

Code Electrical input/output

A	PNP/PNP or NPN/NPN
B	Mixed mode
C	IO-Link, PNP/PNP

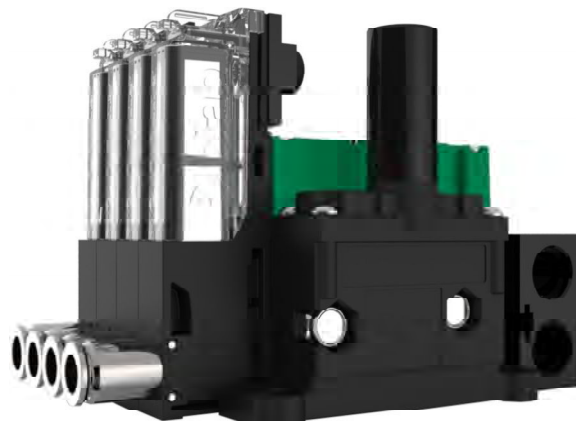
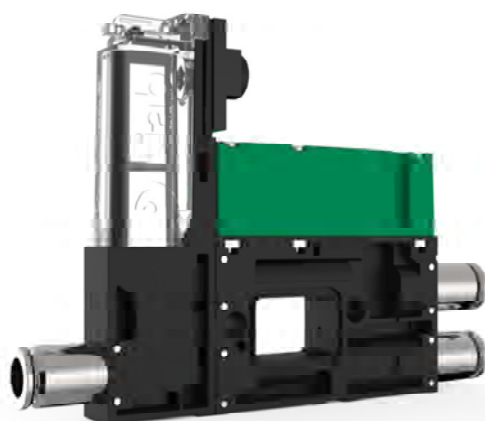
Code Electrical interface

B	M12 8p connector(s)
C	M12 4p connector(s)



PC . F . 122 . S . H111AD . S1P1 . 1X . 8 . EJ . CCCC

piPUMP10X



Compact/stackable vacuum pumps are air-driven multistage ejector families, based on COAX® technology. It provides a high operational reliability, in case of fluctuating or low compressed-air pressure. Excellent performance when a quick response time when deep vacuum is needed. There is also a quick vacuum non-return valve as an option.

Vacuum flow

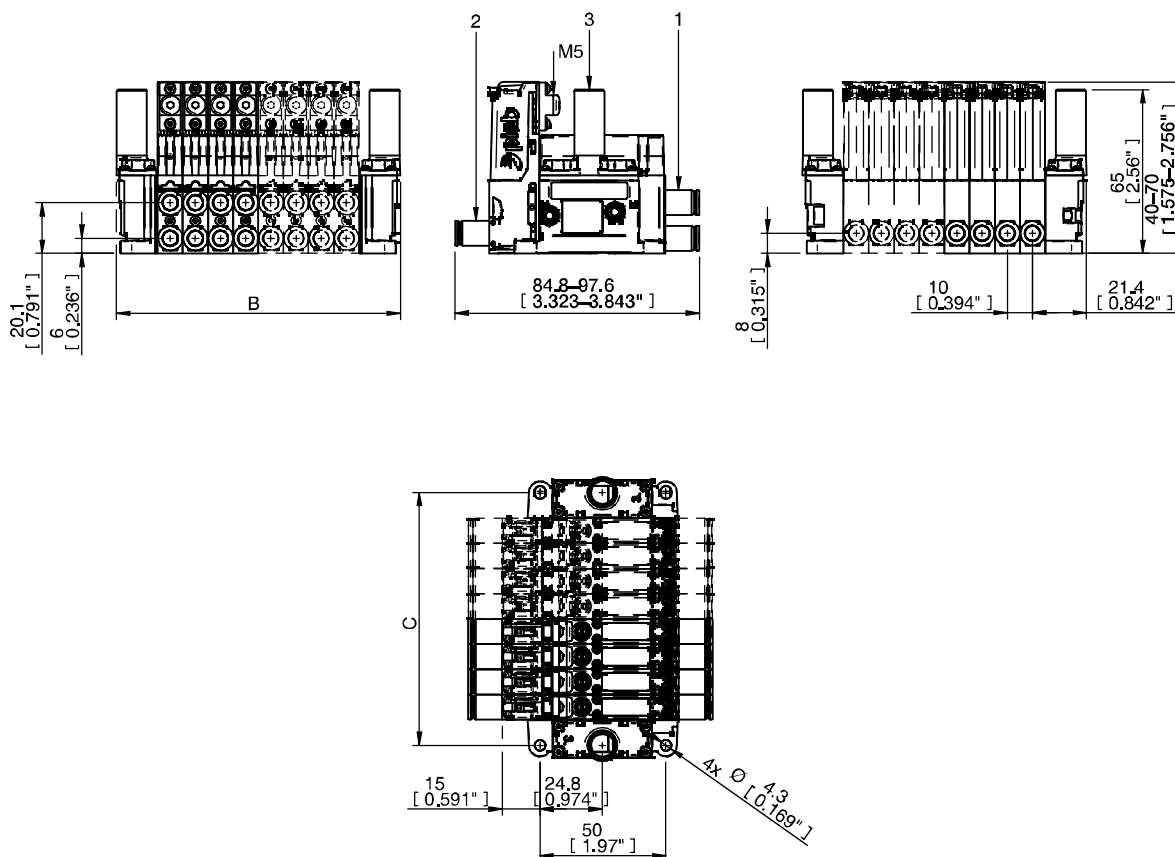
COAX® Cartridge	Feed pressure	Air consumption	Vacuum flow (NI/s) at different vacuum levels (-kPa)								Max vacuum
	MPa	NI/s	0	10	20	30	40	50	60	70	-kPa
MICRO Bi03-2	0.2	0.14	0.21	0.14	0.063	0.021	0.016	0.014	0.007	0.004	82
MICRO Si02-2	0.6	0.11	0.26	0.18	0.095	0.053	0.045	0.038	0.027	0.019	75
MICRO Ti05-2	0.4	0.23	0.31	0.28	0.22	0.16	0.088	0.063	0.045	0.023	84
MICRO Xi2.5-2	0.5	0.13	0.23	0.15	0.079	0.044	0.036	0.03	0.023	0.013	91

Evacuation times

COAX® Cartridge	Feed pressure	Air consumption	Evacuation time (s/l) to reach different vacuum levels (-kPa)											Max vacuum
	MPa	NI/s	0	10	20	30	40	50	60	70	80	90	Max	-kPa
MICRO Bi03-2	0.2	0.14	5	9.9	20.4	53	99	153	228	354	552	—	652*	82
MICRO Si02-2	0.6	0.11	5	8.9	16.2	31	48	68	95	136	—	—	185*	75
MICRO Ti05-2	0.4	0.23	5	6.7	10.2	14.8	23	35	50	70	114	—	159*	84
MICRO Xi2.5-2	0.5	0.13	5.1	8.9	16.2	35	59	87	121	169	250	421	464*	91

* Evacuation time (ms) at max vacuum level (-kPa).

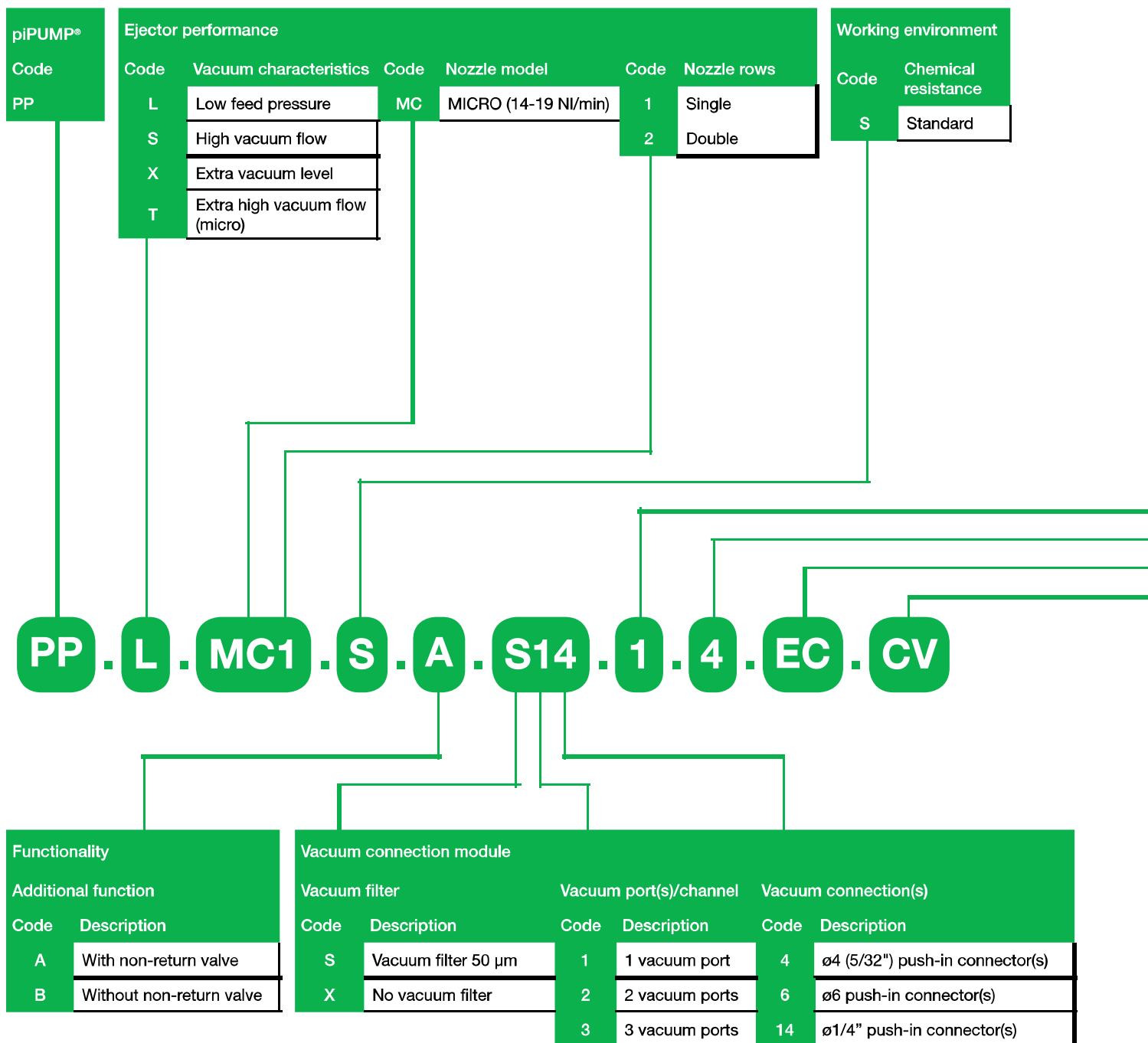
Dimensional drawing



Ordering information

For a complete list of available pumps and combinations with further information visit piab.com. On our webpage you will also be able to find dimensional drawings, CAD-drawings and much more. Register and get full access to all resources available.

piPUMP10X – Customer Code



Single unit or manifold mount		Air supply and mounting				Release functions	
Code	Number of channels	Code	Air connections	Code	Options	Code	Release functions
1	1 channel	4	ø4 (5/32") push-in connector(s)	EC	Ejectors stacked with central exhaust	CV	Blow off check valve
2	2 channels	6	ø6 push-in connector(s)	EX	Ejectors stacked without central exhaust		
3	3 channels	14	ø1/4" push-in connector(s)	EN	Ejectors stacked with central silencer		
4	4 channels	18	1/8" NPSF Common feed	X	No option		
5	5 channels						
6	6 channels						
7	7 channels						
8	8 channels						

P3010



- ▶ Patented COAX® technology.
- ▶ Available with three-stage COAX® cartridge MINI. Choose an Si cartridge for extra vacuum flow, a Pi cartridge for high performance at low feed pressure or an Xi cartridge when high flow and deep vacuum is needed.
- ▶ Includes a flow-through silencer and a built-in vacuum filter for harsh environments.
- ▶ Suitable for fast and reliable evacuation in sealed systems.
- ▶ Slim, compact, configurable and modular design.
- ▶ Low weight.

Technical data

Description	Unit	Value
Feed pressure, max.	MPa	0.7
Noise level	dBA	66–68
Temperature range	°C	-10–50
Weight	g	110–330
Material		PP, PA, NBR, Al, SS

Vacuum flow

COAX® Cartridge	Feed pressure* MPa	Air consumption NI/s	Vacuum flow (NI/s) at different vacuum levels (-kPa)											Max vacuum -kPa
			0	10	20	30	40	50	60	70	80	90		
Pi12-3	0.314	0.44	1.40	0.60	0.44	0.27	0.19	0.14	0.10	0.060	0.030	—	90	
Si08-3	0.6	0.44	1.34	0.73	0.55	0.35	0.23	0.17	0.13	0.08	—	—	75	
Xi10-3	0.5	0.46	1.43	0.70	0.50	0.33	0.19	0.15	0.11	0.07	0.045	0.011	94	

For vacuum flows at other feed pressures, see COAX® Cartridge data sheets. *Feed pressure tolerance, ± 0.01 MPa.

Evacuation time

COAX® Cartridge	Feed pressure* MPa	Air consumption NI/s	Evacuation time (s/l) to reach different vacuum levels (-kPa)									Max vacuum -kPa
			10	20	30	40	50	60	70	80	90	
Pi12-3	0.314	0.44	0.08	0.23	0.49	1.00	1.70	2.60	3.90	6.30	—	90
Si08-3	0.6	0.44	0.10	0.25	0.48	0.80	1.30	2.30	4.60	—	—	75
Xi10-3	0.5	0.46	0.09	0.26	0.50	0.90	1.5	2.2	3.4	5.2	8.8	94

For evacuation times at other feed pressures, see COAX® Cartridge data sheets. *Feed pressure tolerance, ± 0.01 MPa.

Blow flow

COAX® cartridge	Feed pressure MPa	Air consumption NI/s	Blow flow (NI/s) at different pressure levels (kPa)												Max pressure kPa
			0	20	40	60	70	80	90	100	110	120	130	140	
Pi12-3	0.6	0.75	1.87	1.4	1.33	1.12	1.03	1.03	1.03	1.03	1.0	0.95	0.86	0.79	140
Si08-3	0.6	0.44	1.78	1.16	1.03	0.86	0.80	0.75	0.66	0.53	—	—	—	—	70
Xi10-3	0.6	0.54	1.8	1.3	1.1	0.98	0.85	0.84	0.79	0.71	0.61	—	—	—	90

Ordering information

1. Select housing	P3010 Code
Housing, connection Ø=6 mm	00
Housing, connection 1/8" NPSF	01

2. COAX® cartridge modules	P3010 Code
COAX® cartridge module Pi12-3FSx1	AE
COAX® cartridge module Pi12-3FSx1, non-return valve	AF
COAX® cartridge module Pi12-3FSx2	AG
COAX® cartridge module Pi12-3FSx2, non-return valve	AH
COAX® cartridge module Si08-3FSx1	AA
COAX® cartridge module Si08-3FSx1, non-return valve	AB
COAX® cartridge module Si08-3FSx2	AC
COAX® cartridge module Si08-3FSx2, non-return valve	AD
COAX® cartridge module Xi10-3FSx1	AI
COAX® cartridge module Xi10-3FSx1, non-return valve	AJ
COAX® cartridge module Xi10-3FSx2	AK
COAX® cartridge module Xi10-3FSx2, non-return valve	AL

3. Select connection and function module	P3010 Code
B Connection module high 6x1/8"	01
A Connection module low 3x1/8"	02
Function Quick-release connection, 10 and 6 mm, 3 cm³	04
Function Quick-release connection, 8 and 6 mm, 30 cm³	05
Function Quick-release connection, 8 and 6 mm, 60 cm³	06
Function Quick-release connection, 10 and 6 mm, 30 cm³	07
Function Quick-release connection, 10 and 6 mm, 60 cm³	08
Function Quick-release connection, 1/4" NPSF and 6 mm, 3 cm³	09
Function Quick-release connection, 1/4" NPSF and 6 mm, 30 cm³	10
Function Quick-release connection, 1/4" NPSF and 6 mm, 60 cm³	11
Function Quick-release connection, 8 and 6 mm, 3 cm³	12
Function AVM™2 NO	27
Function AVM™2 NC (power off - NO)	28
Function CU NC	29
Function AVM™2 NO, automatic blow-off (1 sec)	30
Function AVM™2 NC, automatic blow-off (1 sec)	31
Function AVM™2 NC 2 (power off - NC)	32
Function CU NO	33

For detailed information on Quick-release, AVM™2 and CU, see separate datasheets.

4. Select ES	P3010 Code
No energy saving	AA
Valve DS23	AB
piSAVE onoff 2/2 NO, large hysteresis	AC
piSAVE onoff 2/2 NO, small hysteresis	AD

For detailed information on Valve DS 23 and piSAVE onoff, see separate datasheets.

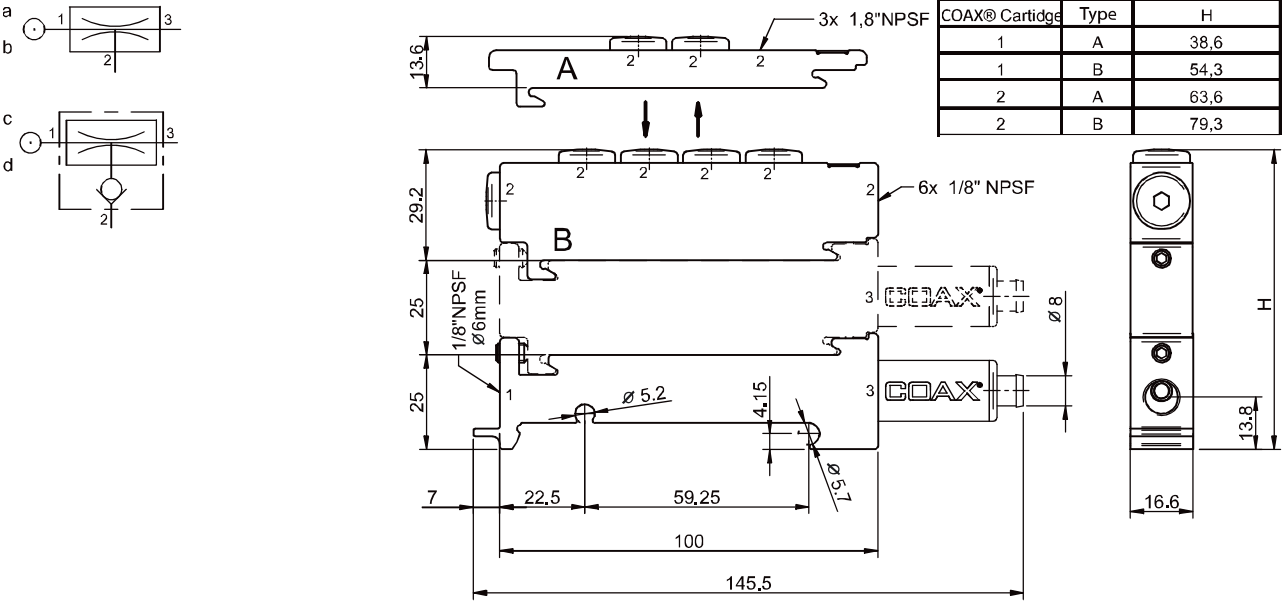
5. Select vacuum sensing	P3010 Code
No vacuum sensing	00
Vacuum switch, adjustable, PNP NO MM8	01
Vacuum switch, adjustable, NPN NO MM8	02
Vacuum switch, adjustable, PNP NO LM8	05
Vacuum switch, adjustable, PNP NO DM8	09
Vacuum switch, adjustable, NPN NO DM8	10
Vacuum switch inductive, adjustable with knob	11
Vacuum switch VS4015 Ø6, 30 -kPa	18
Vacuum switch VS4015 Ø6, 50 -kPa	19
Vacuum switch VS4015 Ø6, 70 -kPa	20
Vacuum switch VS4016 G1/8" male, 30 -kPa	21
Vacuum switch VS4016 G1/8" male, 50 -kPa	22
Vacuum switch VS4016 G1/8" male, 70 -kPa	23

For detailed information on vacuum switches, see separate datasheets.

Vacuum pumps/generators Small



Example	Ordering number
Housing, connection Ø 6 mm Pi12-3FSx1, Connection module high 6x1/8", no energy saving, no vacuum sensing	P3010.00.AE.01.AA.00



Ordering information, accessories

Description	Art. No.
Sealing kit P3010, NBR	0104201

The sealing kit includes flap valves, compressed air filter and vacuum filter.

P3010 Quick Release Module



- ▶ Patented multistage COAX® cartridge - MINI - with Pi, Si, Xi cartridge.
- ▶ Quick release volume from 3-60 cm³
- ▶ Includes a flow-through silencer and a built-in vacuum filter for harsh environments.
- ▶ Slim, compact, configurable and modular design.
- ▶ Low weight.

Technical data

Description	Unit	Value
Feed pressure, max.	MPa	0.7
Noise level	dBA	66-68
Temperature range	°C	-10-50
Weight	g	168-320
Material		PP, PA, NBR, Al, SS

Performance tables

Depending upon choice of COAX® cartridge, performance data of the P3010 can be found in the tables for vacuum flow, evacuation time and blow flow on the P3010 or Vacuum cartridges/integration datasheets.

Ordering information

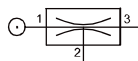
1. Select housing		P3010 Code
Housing, connection Ø=6 mm		00
Housing, connection 1/8" NPSF		01
2. COAX® cartridge modules		P3010 Code
COAX® cartridge module Pi12-3FSx1		AE
COAX® cartridge module Pi12-3FSx1, non-return valve		AF
COAX® cartridge module Pi12-3FSx2		AG
COAX® cartridge module Pi12-3FSx2, non-return valve		AH
COAX® cartridge module Si08-3FSx1		AA
COAX® cartridge module Si08-3FSx1, non-return valve		AB
COAX® cartridge module Si08-3FSx2		AC
COAX® cartridge module Si08-3FSx2, non-return valve		AD
COAX® cartridge module Xi10-3FSx1		AI
COAX® cartridge module Xi10-3FSx1, non-return valve		AJ
COAX® cartridge module Xi10-3FSx2		AK
COAX® cartridge module Xi10-3FSx2, non-return valve		AL
3. Select connection and function module		P3010 Code
A	Function Quick-release connection, 10 and 6 mm, 3 cm ³	04
B	Function Quick-release connection, 8 and 6 mm, 30 cm ³	05
C	Function Quick-release connection, 8 and 6 mm, 60 cm ³	06
B	Function Quick-release connection, 10 and 6 mm, 30 cm ³	07
C	Function Quick-release connection, 10 and 6 mm, 60 cm ³	08
A	Function Quick-release connection, 1/4" NPSF and 6 mm, 3 cm ³	09
B	Function Quick-release connection, 1/4" NPSF and 6 mm, 30 cm ³	10
C	Function Quick-release connection, 1/4" NPSF and 6 mm, 60 cm ³	11
A	Function Quick-release connection, 8 and 6 mm, 3 cm ³	12
4. Select ES		P3010 Code
No energy saving		AA
Valve DS23		AB

For detailed information on Valve DS 23, see separate datasheet.

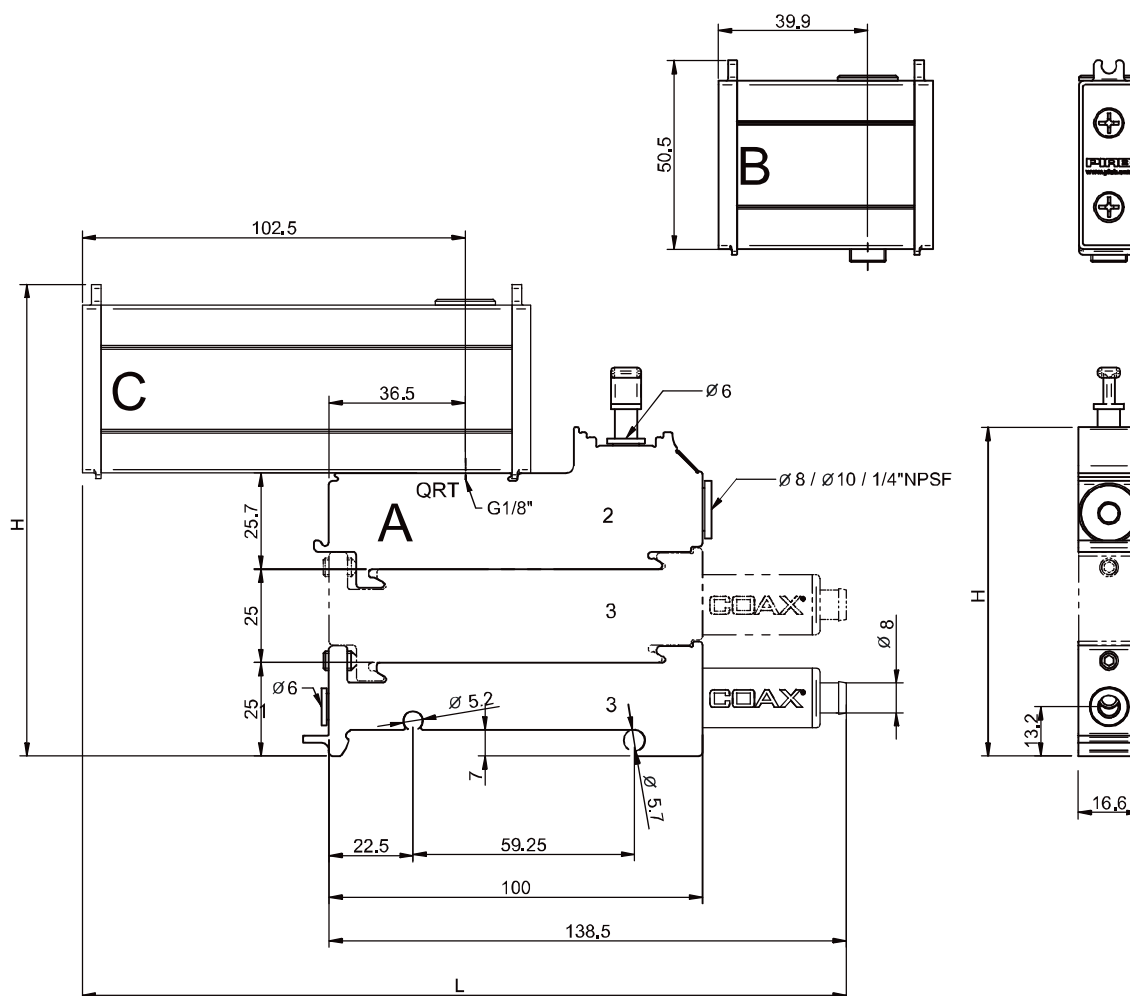
5. Select vacuum sensing	P3010 Code
No vacuum sensing	00
Vacuum switch, adjustable, PNP NO MM8	01
Vacuum switch, adjustable, NPN NO MM8	02
Vacuum switch, adjustable, PNP NO LM8	05
Vacuum switch, adjustable, PNP NO DM8	09
Vacuum switch, adjustable, NPN NO DM8	10
Vacuum switch inductive, adjustable with knob	11
Vacuum switch VS4015 Ø6, 30 -kPa	18
Vacuum switch VS4015 Ø6, 50 -kPa	19
Vacuum switch VS4015 Ø6, 70 -kPa	20

For detailed information on vacuum switches, see separate datasheets.

Example	Ordering number
Housing, connection Ø 6 mm Pi12-3FSx1, Function Quick-release module 10/6 3cm³, no energy saving, no vacuum sensing	P3010.00.AE.04.AA.00



	A	B	C
1x COAX® Cartridge	H=63	H=102	H=102
2x COAX® Cartridge	H=88	H=127	H=127
Length (L)	L=139	L=142	L=205



Ordering information, accessories

Description	Art. No.
Sealing kit P3010, NBR	0104201

The sealing kit includes flap valves, compressed air filter and vacuum filter.

P3010 Energy saving



- ▶ Patented multistage COAX® cartridge - MINI - with Pi, Si, Xi cartridge.
- ▶ Integrated air-saving function (piSAVE onoff) that minimizes the air consumption by controlling the incoming air flow to the pump.
- ▶ Large hysteresis is recommended for sealed vacuum handling applications such as metal sheet, glass or plastic handling.
- ▶ Small hysteresis is recommended if a very accurate vacuum level has to be maintained in the process.
- ▶ Adjustable ES switch level.
- ▶ Pneumatic function.

Technical data

Description	Unit	Value
Feed pressure, max.	MPa	0.7
Noise level	dBA	66-68
Temperature range	°C	-10-50
Weight	g	197-349
Material		PP, PA, NBR, AI, SS
Signal range	-kPa	15-99
Function		2/2 NO
Flow at P1=6 bar and $\Delta p=0.5$ bar	NI/s	7.3
kv		10
Life span	cycles	>10,000,000

Performance tables

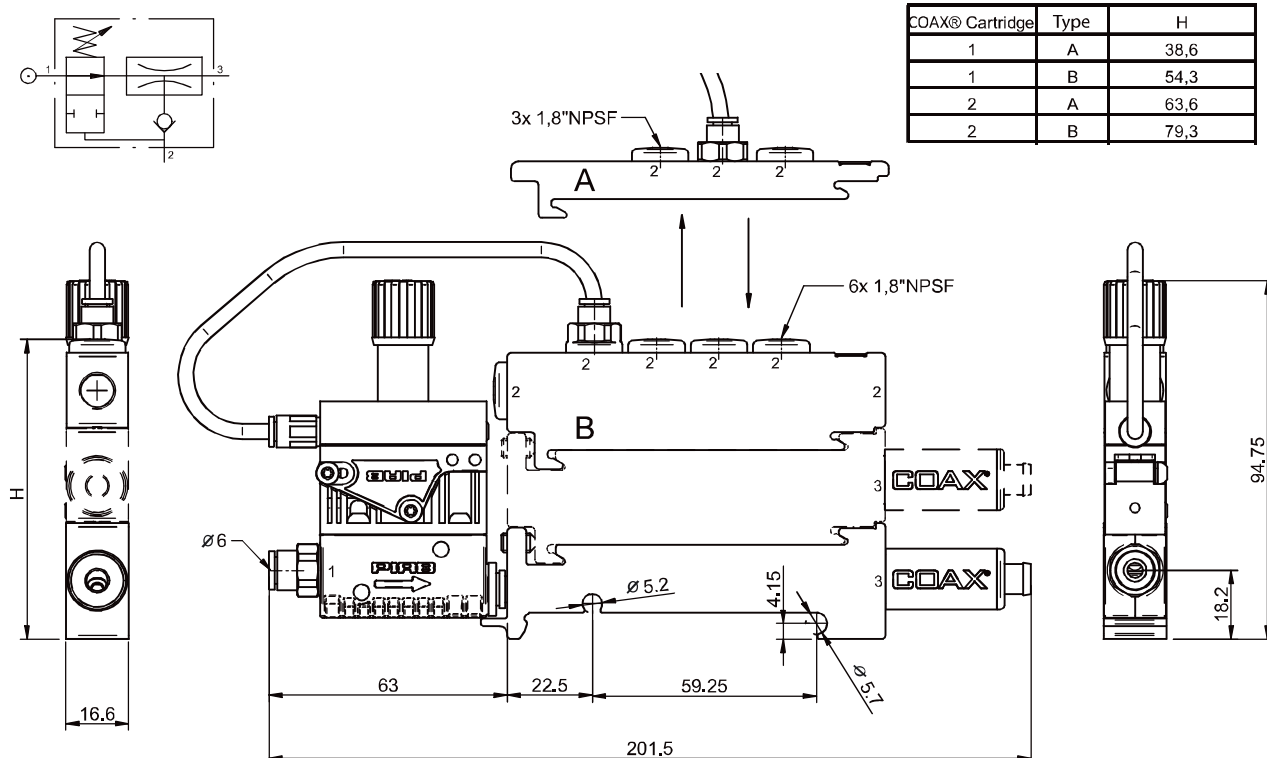
Depending upon choice of COAX® cartridge, performance data of the P3010 can be found in the tables for vacuum flow, evacuation time and blow flow on the P3010 or Vacuum cartridges/integration datasheets.

Ordering information

1. Select housing		P3010 Code
Housing, connection Ø=6 mm		00
2. COAX® cartridge modules		P3010 Code
COAX® cartridge module Pi12-3FSx1, non-return valve		AF
COAX® cartridge module Pi12-3FSx2, non-return valve		AH
COAX® cartridge module Si08-3FSx1, non-return valve		AB
COAX® cartridge module Si08-3FSx2, non-return valve		AD
COAX® cartridge module Xi10-3FSx1, non-return valve		AJ
COAX® cartridge module Xi10-3FSx2, non-return valve		AL
3. Select connection and function module		P3010 Code
B Connection module high 6x1/8"		01
A Connection module low 3x1/8"		02
4. Select ES		P3010 Code
piSAVE onoff 2/2 NO, large hysteresis		AC
piSAVE onoff 2/2 NO, small hysteresis		AD
5. Select vacuum sensing		P3010 Code
No vacuum sensing		00
Vacuum switch VS4016 G1/8" male, 30 -kPa		21
Vacuum switch VS4016 G1/8" male, 50 -kPa		22
Vacuum switch VS4016 G1/8" male, 70 -kPa		23

For detailed information on VS4016, see separate datasheet.

Example	Ordering number
Housing, connection Ø 6 mm Pi12-3FSx1, non-return valve, Connection module high 6x1/8", piSAVE onoff 2/2 NO, large hysteresis, no vacuum sensing	P3010.00.AF.01.AC.00



Ordering information, accessories

Description	Art. No.
Sealing kit P3010, NBR	0104201

The sealing kit includes flap valves, compressed air filter and vacuum filter.

P3010 Solenoid Valve



- ▶ Patented multistage COAX® cartridge - MINI - with Pi, Si, Xi cartridge.
- ▶ DS 23 3/2 valve suitable for compressed air, filtration 40µ
- ▶ 2.5 W solenoid
- ▶ Manual override
- ▶ Includes a flow-through silencer and a built-in vacuum filter for harsh environments.
- ▶ Slim, compact, configurable and modular design.
- ▶ Low weight.

Technical data

Description	Unit	Value
Feed pressure, max	MPa	0.6
Feed pressure	MPa	0.2–0.6
Material		PP, PA, NBR, Al, SS, Ni, POM, CuZn
Working temperature	°C	-10–50
Weight	g	210–485
Connection compressed air		D=6
Connection exhaust		D=6
Supply voltage	VDC	24
Safety classification, DIN (c) socket		IP65
Display		LED
Flow, nominal	NI/s	1.3
kv		1.2
Lifespan, mechanical	cycles	100,000,000
Power consumption	W	2.5
Load time rating	%	100
Electrical connection		DIN (c) socket

Performance tables

Depending upon choice of COAX® cartridge, performance data of the P3010 can be found in the tables for vacuum flow, evacuation time and blow flow on the P3010 or Vacuum cartridges/integration datasheets.

Ordering information

1. Select housing	P3010 Code
Housing, connection Ø=6 mm	00
2. COAX® cartridge modules	P3010 Code
COAX® cartridge module Pi12-3FSx1	AE
COAX® cartridge module Pi12-3FSx1, non-return valve	AF
COAX® cartridge module Pi12-3FSx2	AG
COAX® cartridge module Pi12-3FSx2, non-return valve	AH
COAX® cartridge module Si08-3FSx1	AA
COAX® cartridge module Si08-3FSx1, non-return valve	AB
COAX® cartridge module Si08-3FSx2	AC
COAX® cartridge module Si08-3FSx2, non-return valve	AD
COAX® cartridge module Xi10-3FSx1	AI
COAX® cartridge module Xi10-3FSx1, non-return valve	AJ
COAX® cartridge module Xi10-3FSx2	AK
COAX® cartridge module Xi10-3FSx2, non-return valve	AL

Vacuum pumps/generators Small



3. Select connection and function module		P3010 Code
B	Connection module high 6x1/8"	01
A	Connection module low 3x1/8"	02
	Function Quick-release connection, 10 and 6 mm, 3 cm ³	04
	Function Quick-release connection, 8 and 6 mm, 30 cm ³	05
	Function Quick-release connection, 8 and 6 mm, 60 cm ³	06
	Function Quick-release connection, 10 and 6 mm, 30 cm ³	07
	Function Quick-release connection, 10 and 6 mm, 60 cm ³	08
	Function Quick-release connection, 8 and 6 mm, 3 cm ³	12

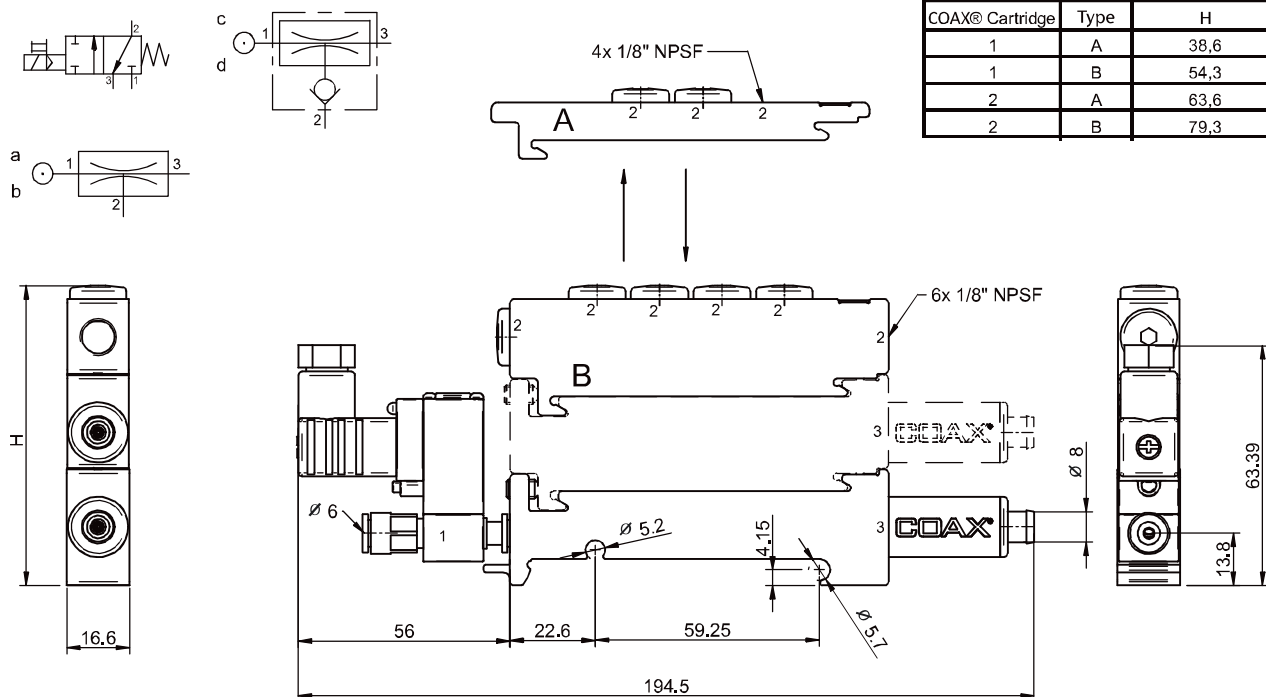
For detailed information on Quick-release, see separate datasheet.

4. Select ES	P3010 Code
Valve DS23	AB

5. Select vacuum sensing	P3010 Code
No vacuum sensing	00
Vacuum switch, adjustable, PNP NO MM8	01
Vacuum switch, adjustable, NPN NO MM8	02
Vacuum switch, adjustable, PNP NO LM8	05
Vacuum switch, adjustable, PNP NO DM8	09
Vacuum switch, adjustable, NPN NO DM8	10
Vacuum switch inductive, adjustable with knob	11
Vacuum switch VS4015 Ø6, 30 -kPa	18
Vacuum switch VS4015 Ø6, 50 -kPa	19
Vacuum switch VS4015 Ø6, 70 -kPa	20
Vacuum switch VS4016 G1/8" male, 30 -kPa	21
Vacuum switch VS4016 G1/8" male, 50 -kPa	22
Vacuum switch VS4016 G1/8" male, 70 -kPa	23

For detailed information on vacuum switches, see separate datasheets.

Example	Ordering number
Housing, connection Ø 6 mm Pi12-3FSx1, Connection module high 6 x 1/8", Solenoid valve DS23, no vacuum sensing	P3010.00.AE.01.AB.00



Ordering information, accessories

Description	Art. No.
Sealing kit P3010, NBR	0104201

The sealing kit includes flap valves, compressed air filter and vacuum filter.

P3010 Vacuum switch, adjustable with analogue output



- ▶ Patented multistage COAX® cartridge - MINI - with Pi, Si, Xi cartridge.
- ▶ 1 output NO and 1 analogue output.
- ▶ Includes a flow-through silencer and a built-in vacuum filter for harsh environments.
- ▶ High system reliability in case of fluctuating or low feed pressure.
- ▶ Suitable for fast and reliable evacuation in sealed systems.

Technical data

Description	Unit	Value
Feed pressure, max. (pump)	MPa	0.7
Noise level	dBA	66-68
Pressure, max (switch)	MPa	0.2
Vacuum range	-kPa	0-100
Material		PP, PA, AI, PC, POM, NBR, SS
Temperature range	°C	-10-50
Weight	g	218-470
Function		NO, NPN/PNP
Hysteresis	%	1-15
Supply voltage	VDC	10.8-30
Voltage output	VDC	1-5
Safety classification		IP40
Analogue output, current max. (load resistance min. 5kΩ)	mA	1
Humidity	% RH	35-85
Response time	ms	2
Accuracy at 25°C		±3% F.S.
Current consumption, max	mA	17
High-voltage resistant	VAC	500
Insulation at 500 VDC	MOhm	100
Vibration resistance, 1,5 mm, XYZ, 2 h	Hz	10-500
Electric connection		M8 4 pin male
Current output, max	mA	80

Performance tables

Depending upon choice of COAX® cartridge, performance data of the P3010 can be found in the tables for vacuum flow, evacuation time and blow flow on the P3010 or Vacuum cartridges/integration datasheets.

Ordering information

1. Select housing	P3010 Code
Housing, connection Ø=6 mm	00
Housing, connection 1/8" NPSF	01
2. COAX® cartridge modules	P3010 Code
COAX® cartridge module Pi12-3FSx1	AE
COAX® cartridge module Pi12-3FSx1, non-return valve	AF
COAX® cartridge module Pi12-3FSx2	AG
COAX® cartridge module Pi12-3FSx2, non-return valve	AH
COAX® cartridge module Si08-3FSx1	AA

2. COAX® cartridge modules	P3010 Code
COAX® cartridge module Si08-3FSx1, non-return valve	AB
COAX® cartridge module Si08-3FSx2	AC
COAX® cartridge module Si08-3FSx2, non-return valve	AD
COAX® cartridge module Xi10-3FSx1	AI
COAX® cartridge module Xi10-3FSx1, non-return valve	AJ
COAX® cartridge module Xi10-3FSx2	AK
COAX® cartridge module Xi10-3FSx2, non-return valve	AL

3. Select connection and function module	P3010 Code
Function Quick-release connection, 10 and 6 mm, 3 cm³	04
Function Quick-release connection, 8 and 6 mm, 30 cm³	05
Function Quick-release connection, 8 and 6 mm, 60 cm³	06
Function Quick-release connection, 10 and 6 mm, 30 cm³	07
Function Quick-release connection, 10 and 6 mm, 60 cm³	08
Function Quick-release connection, 1/4" NPSF and 6 mm, 3 cm³	09
Function Quick-release connection, 1/4" NPSF and 6 mm, 30 cm³	10
Function Quick-release connection, 1/4" NPSF and 6 mm, 60 cm³	11
Function Quick-release connection, 8 and 6 mm, 3 cm³	12

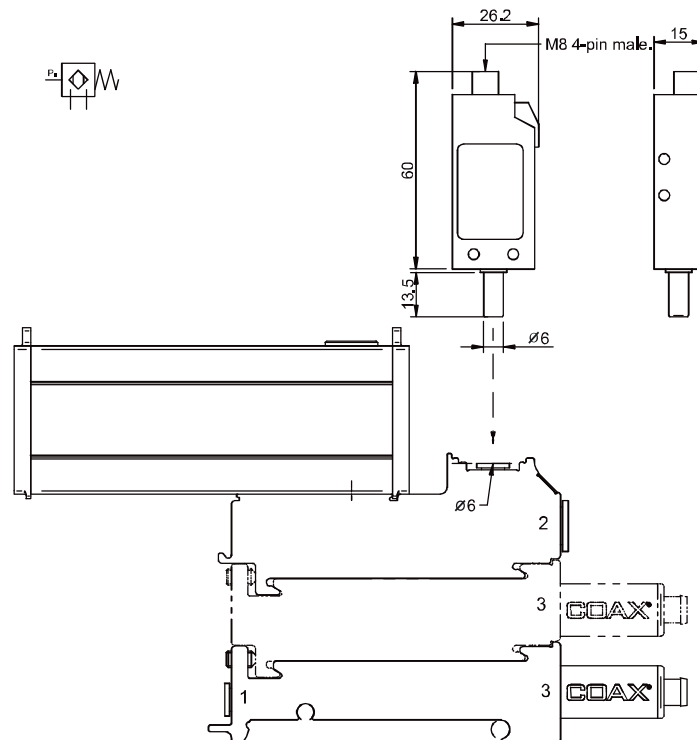
For detailed information on Quick-release, see separate datasheet.

4. Select ES	P3010 Code
No energy saving	AA
Valve DS23	AB

For detailed information on Valve DS 23, see separate datasheet.

5. Select vacuum sensing	P3010 Code
Vacuum switch, adjustable, PNP NO MM8	01
Vacuum switch, adjustable, NPN NO MM8	02

Example	Ordering number
Housing, connection Ø 6 mm Pi12-3FSx1, Function Quick-release module 10/6 3cm³, no energy saving, Vacuum switch PNP NO MM8	P3010.00.AE.04.AA.01



Ordering information, accessories

Description	Art. No.
Sealing kit P3010, NBR	0104201

The sealing kit includes flap valves, compressed air filter and vacuum filter.

P3010 Vacuum switch, adjustable with 1 output



- ▶ Patented multistage COAX® cartridge - MINI - with Pi, Si, Xi cartridge.
- ▶ Includes a flow-through silencer and a built-in vacuum filter for harsh environments.
- ▶ High system reliability in case of fluctuating or low feed pressure.
- ▶ Suitable for fast and reliable evacuation in sealed systems.

Technical data

Description	Unit	Value
Feed pressure, max. (pump)	MPa	0.7
Noise level	dBA	66-68
Pressure, max. (switch)	MPa	0.2
Vacuum range	-kPa	0-100
Material		PP, PA, PC, AI, NBR, SS
Temperature range	°C	-10-50
Weight	g	174-426
Function		NO
Hysteresis		±2% F.S.
Voltage supply	VDC	10.8-30
Safety classification		IP40
Humidity	%RH	35-85
Response time, approx.	ms	1
Accuracy, at 25°C		±3% F.S.
Current consumption, max	mA	20
High-voltage resistance	VDC	500
Insulation at 500 VDC	MOhm	100
Vibration resistance, 1.5 mm, XYZ, 2 h	Hz	10-55
Current output, max	mA	80

Performance tables

Depending upon choice of COAX® cartridge, performance data of the P3010 can be found in the tables for vacuum flow, evacuation time and blow flow on the P3010 or Vacuum cartridges/integration datasheets.

Ordering information

1. Select housing	P3010 Code
Housing, connection Ø=6 mm	00
Housing, connection 1/8" NPSF	01
2. COAX® cartridge modules	P3010 Code
COAX® cartridge module Pi12-3FSx1	AE
COAX® cartridge module Pi12-3FSx1, non-return valve	AF
COAX® cartridge module Pi12-3FSx2	AG
COAX® cartridge module Pi12-3FSx2, non-return valve	AH
COAX® cartridge module Si08-3FSx1	AA
COAX® cartridge module Si08-3FSx1, non-return valve	AB
COAX® cartridge module Si08-3FSx2	AC
COAX® cartridge module Si08-3FSx2, non-return valve	AD
COAX® cartridge module Xi10-3FSx1	AI
COAX® cartridge module Xi10-3FSx1, non-return valve	AJ
COAX® cartridge module Xi10-3FSx2	AK
COAX® cartridge module Xi10-3FSx2, non-return valve	AL

3. Select connection and function module	P3010 Code
Function Quick-release connection, 10 and 6 mm, 3 cm ³	04
Function Quick-release connection, 8 and 6 mm, 30 cm ³	05
Function Quick-release connection, 8 and 6 mm, 60 cm ³	06
Function Quick-release connection, 10 and 6 mm, 30 cm ³	07
Function Quick-release connection, 10 and 6 mm, 60 cm ³	08
Function Quick-release connection, 1/4" NPSF and 6 mm, 3 cm ³	09
Function Quick-release connection, 1/4" NPSF and 6 mm, 30 cm ³	10
Function Quick-release connection, 1/4" NPSF and 6 mm, 60 cm ³	11
Function Quick-release connection, 8 and 6 mm, 3 cm ³	12

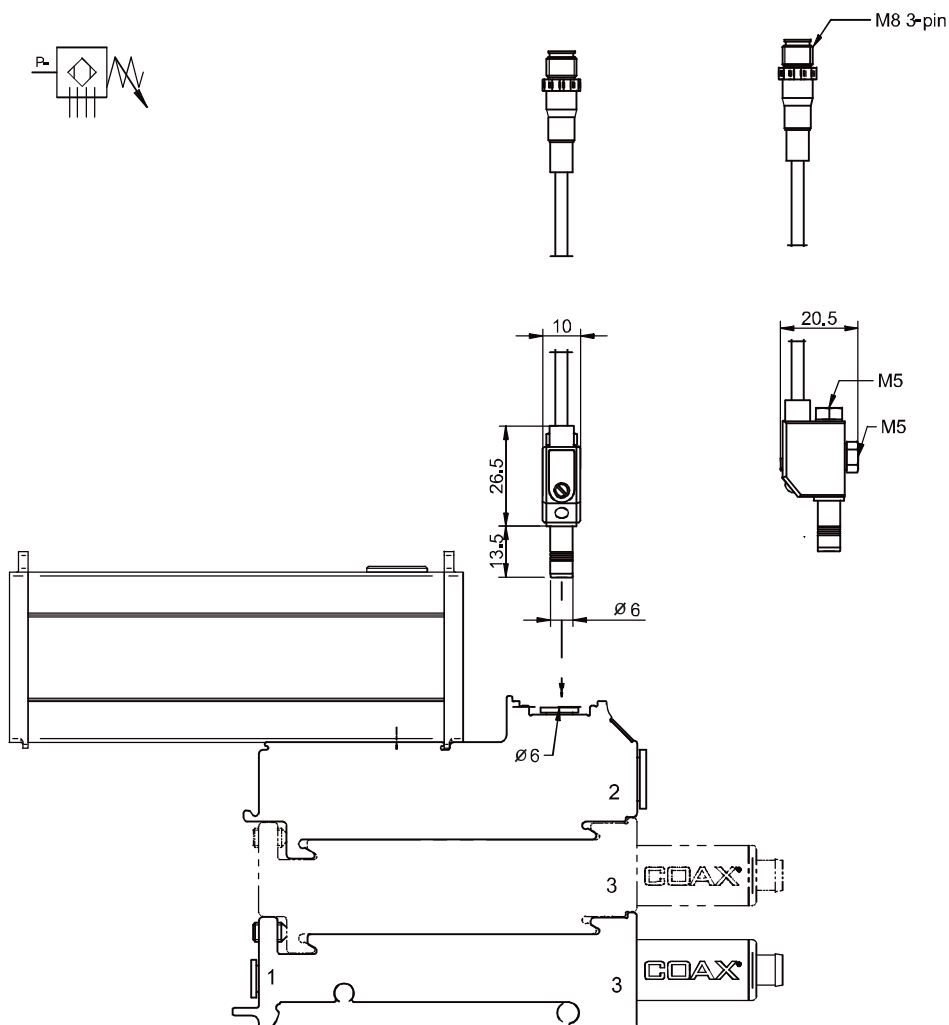
For detailed information on Quick-release, see separate datasheet.

4. Select ES	P3010 Code
No energy saving	AA
Valve DS23	AB

For detailed information on Valve DS 23, see separate datasheet.

5. Select vacuum sensing	P3010 Code
Vacuum switch, adjustable, PNP NO LM8	05

Example	Ordering number
Housing, connection Ø 6 mm Pi12-3FSx1, Function Quick-release module 10/6 3cm ³ , no energy saving, Vacuum switch PNP NO LM8	P3010.00.AE.04.AA.05



Ordering information, accessories

Description	Art. No.
Sealing kit P3010, NBR	0104201

The sealing kit includes flap valves, compressed air filter and vacuum filter.

P3010 Vacuum switch, adjustable with LED-Display



- ▶ Patented multistage COAX® cartridge - MINI - with Pi, Si, Xi cartridge.
- ▶ Includes a flow-through silencer and a built-in vacuum filter for harsh environments.
- ▶ High system reliability in case of fluctuating or low feed pressure.
- ▶ Suitable for fast and reliable evacuation in sealed systems.

Technical data

Description	Unit	Value
Feed pressure, max. (pump)	MPa	0.7
Noise level	dBA	66-68
Pressure, max. (switch)	MPa	0.2
Vacuum range	-kPa	0-100
Material		PP, PA, PC, POM, NBR, AI, SS
Temperature range	°C	-10-50
Weight	g	220-472
Function		2 NO, NPN/PNP
Hysteresis	kPa	2
Voltage supply	VDC	12-24
Dielectric strength, 1 min	VAC	500
Safety classification		IP40
Humidity	%RH	35-85
Response time	ms	2
Accuracy at 25°C		±3% F.S
Current consumption, maximum	mA	35
Insulation resistance, at 500 VDC	MO/MW	100
Display		2-digits LED
Current output, max.	mA	80

Performance tables

Depending upon choice of COAX® cartridge, performance data of the P3010 can be found in the tables for vacuum flow, evacuation time and blow flow on the P3010 or Vacuum cartridges/integration datasheets.

Ordering information

1. Select housing	P3010 Code
Housing, connection Ø=6 mm	00
Housing, connection 1/8" NPSF	01
2. COAX® cartridge modules	P3010 Code
COAX® cartridge module Pi12-3FSx1	AE
COAX® cartridge module Pi12-3FSx1, non-return valve	AF
COAX® cartridge module Pi12-3FSx2	AG
COAX® cartridge module Pi12-3FSx2, non-return valve	AH
COAX® cartridge module Si08-3FSx1	AA
COAX® cartridge module Si08-3FSx1, non-return valve	AB
COAX® cartridge module Si08-3FSx2	AC
COAX® cartridge module Si08-3FSx2, non-return valve	AD
COAX® cartridge module Xi10-3FSx1	AI
COAX® cartridge module Xi10-3FSx1, non-return valve	AJ
COAX® cartridge module Xi10-3FSx2	AK
COAX® cartridge module Xi10-3FSx2, non-return valve	AL

3. Select connection and function module	P3010 Code
Function Quick-release connection, 10 and 6 mm, 3 cm ³	04
Function Quick-release connection, 8 and 6 mm, 30 cm ³	05
Function Quick-release connection, 8 and 6 mm, 60 cm ³	06
Function Quick-release connection, 10 and 6 mm, 30 cm ³	07
Function Quick-release connection, 10 and 6 mm, 60 cm ³	08
Function Quick-release connection, 1/4" NPSF and 6 mm, 3 cm ³	09
Function Quick-release connection, 1/4" NPSF and 6 mm, 30 cm ³	10
Function Quick-release connection, 1/4" NPSF and 6 mm, 60 cm ³	11
Function Quick-release connection, 8 and 6 mm, 3 cm ³	12

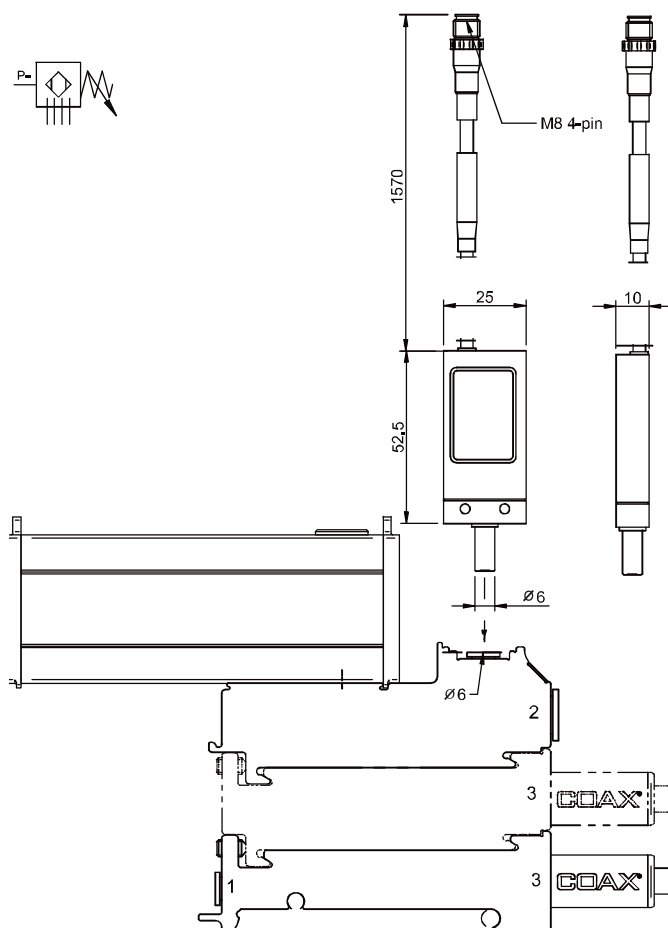
For detailed information on Quick-release, see separate datasheet.

4. Select ES	P3010 Code
No energy saving	AA
Valve DS23	AB

For detailed information on Valve DS 23, see separate datasheet.

5. Select vacuum sensing	P3010 Code
Vacuum switch, adjustable, PNP NO DM8	09
Vacuum switch, adjustable, NPN NO DM8	10

Example	Ordering number
Housing, connection Ø 6 mm Pi12-3FSx1, Function Quick-release module 10/6 3cm ³ , no energy saving, Vacuum switch PNP NO DM8	P3010.00.AE.04.AA.09



Ordering information, accessories

Description	Art. No.
Sealing kit P3010, NBR	0104201

The sealing kit includes flap valves, compressed air filter and vacuum filter.

P3010 Vacuum switch, inductive universal



- ▶ Patented multistage COAX® cartridge - MINI - with Pi, Si, Xi cartridge.
- ▶ Adjustable vacuum switch is actuated at a set vacuum level and set by a knob.
- ▶ Includes a flow-through silencer and a built-in vacuum filter for harsh environments.
- ▶ High system reliability in case of fluctuating or low feed pressure.
- ▶ Suitable for fast and reliable evacuation in sealed systems.

Technical data

Description	Unit	Value
Feed pressure, max. (pump)	MPa	0.7
Noise level	dBA	66-68
Pressure, max (switch)	MPa	0.6
Material		PP, PBTP, PVC, PA, SS, NBR, POM, Al, CuZn
Temperature range	°C	-10-50
Weight	g	233-485
Function		PNP NO, PNP NC, NPN NO and NPN NC
Hysteresis	kPa	2
Cable		2 x 0.14 mm ² x 2m
Supply voltage	VDC	24 (5-36)
Safety classification		IP67
Current Output, max	mA	200
Voltage drop, max	VDC	4.6

The switch must be connected in series with the load.

Performance tables

Depending upon choice of COAX® cartridge, performance data of the P3010 can be found in the tables for vacuum flow, evacuation time and blow flow on the P3010 or Vacuum cartridges/integration datasheets.

Ordering information

1. Select housing	P3010 Code
Housing, connection Ø=6 mm	00
Housing, connection 1/8" NPSF	01
2. COAX® cartridge modules	P3010 Code
COAX® cartridge module Pi12-3FSx1	AE
COAX® cartridge module Pi12-3FSx1, non-return valve	AF
COAX® cartridge module Pi12-3FSx2	AG
COAX® cartridge module Pi12-3FSx2, non-return valve	AH
COAX® cartridge module Si08-3FSx1	AA
COAX® cartridge module Si08-3FSx1, non-return valve	AB
COAX® cartridge module Si08-3FSx2	AC
COAX® cartridge module Si08-3FSx2, non-return valve	AD
COAX® cartridge module Xi10-3FSx1	AI
COAX® cartridge module Xi10-3FSx1, non-return valve	AJ
COAX® cartridge module Xi10-3FSx2	AK
COAX® cartridge module Xi10-3FSx2, non-return valve	AL

3. Select connection and function module	P3010 Code
Function Quick-release connection, 10 and 6 mm, 3 cm ³	04
Function Quick-release connection, 8 and 6 mm, 30 cm ³	05
Function Quick-release connection, 8 and 6 mm, 60 cm ³	06
Function Quick-release connection, 10 and 6 mm, 30 cm ³	07
Function Quick-release connection, 10 and 6 mm, 60 cm ³	08
Function Quick-release connection, 1/4" NPSF and 6 mm, 3 cm ³	09
Function Quick-release connection, 1/4" NPSF and 6 mm, 30 cm ³	10
Function Quick-release connection, 1/4" NPSF and 6 mm, 60 cm ³	11
Function Quick-release connection, 8 and 6 mm, 3 cm ³	12

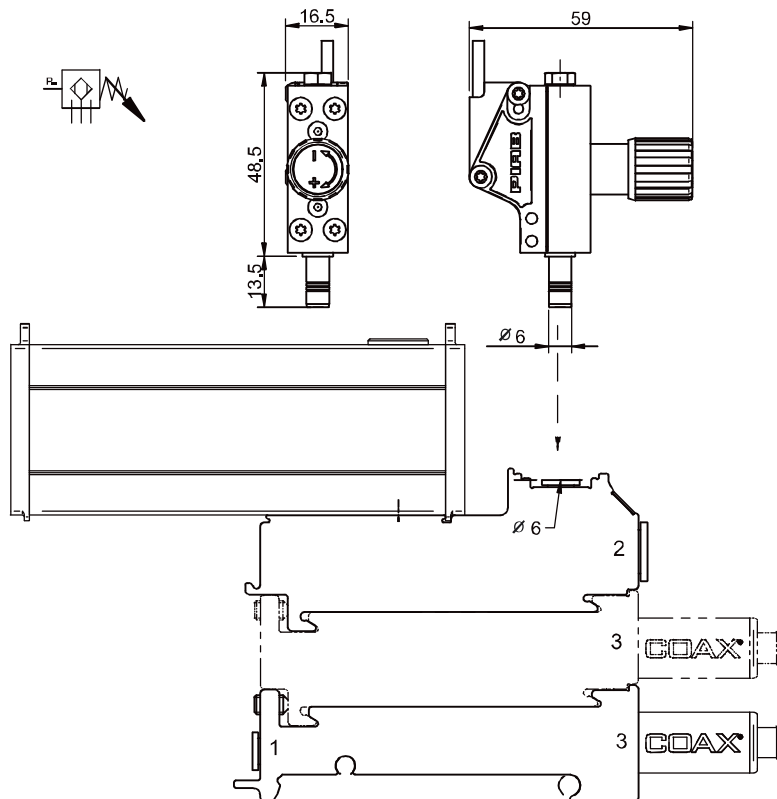
For detailed information on Quick-release, see separate datasheet.

4. Select ES	P3010 Code
No energy saving	AA
Valve DS23	AB

For detailed information on Valve DS 23, see separate datasheet.

5. Select vacuum sensing	P3010 Code
Vacuum switch inductive, adjustable with knob	11

Example	Ordering number
Housing, connection Ø 6 mm Pi12-3FSx1, Function Quick-release module 10/6 3cm ³ , no energy saving, Vacuum switch inductive, adj. knob	P3010.00.AE.04.AA.11



Ordering information, accessories

Description	Art. No.
Sealing kit P3010, NBR	0104201

The sealing kit includes flap valves, compressed air filter and vacuum filter.

P3010 Vacuum switch, mini, pre-set, push-in



- ▶ Patented multistage COAX® cartridge - MINI - with Pi, Si, Xi cartridge.
- ▶ Electromechanical vacuum switch with digital output.
- ▶ Built-in red LED that indicates status.
- ▶ Includes a flow-through silencer and a built-in vacuum filter for harsh environments.
- ▶ High system reliability in case of fluctuating or low feed pressure.
- ▶ Suitable for fast and reliable evacuation in sealed systems.

Technical data

Description	Unit	Value
Feed pressure, max. (pump)	MPa	0.7
Noise level	dBA	66-68
Pressure, max (switch)	MPa	0.2
Material		PP, PA, Al, , NBR, TPU, SS, CuZn(Au)
Temperature range	°C	-10-50
Weight	g	173-425
Signal range	-kPa	30, 50 or 70 +5/-3
Function		PNP NO/NC, NPN NO/NC
Hysteresis	kPa	6 ± 1
Voltage	VDC	24 (12-30)
Safety classification		IP40
Current max	mA	100 inductive/400 resistive
Voltage drop, max (100mA/24V inductive load)	VDC	0.055
Response time	ms	4
Display		Red LED
Electric connection		M8 3-pin male

Performance tables

Depending upon choice of COAX® cartridge, performance data of the P3010 can be found in the tables for vacuum flow, evacuation time and blow flow on the P3010 or Vacuum cartridges/integration datasheets.

Ordering information

1. Select housing	P3010 Code
Housing, connection Ø=6 mm	00
Housing, connection 1/8" NPSF	01
2. COAX® cartridge modules	P3010 Code
COAX® cartridge module Pi12-3FSx1	AE
COAX® cartridge module Pi12-3FSx1, non-return valve	AF
COAX® cartridge module Pi12-3FSx2	AG
COAX® cartridge module Pi12-3FSx2, non-return valve	AH
COAX® cartridge module Si08-3FSx1	AA
COAX® cartridge module Si08-3FSx1, non-return valve	AB
COAX® cartridge module Si08-3FSx2	AC
COAX® cartridge module Si08-3FSx2, non-return valve	AD
COAX® cartridge module Xi10-3FSx1	AI
COAX® cartridge module Xi10-3FSx1, non-return valve	AJ
COAX® cartridge module Xi10-3FSx2	AK
COAX® cartridge module Xi10-3FSx2, non-return valve	AL

3. Select connection and function module	P3010 Code
Function Quick-release connection, 10 and 6 mm, 3 cm ³	04
Function Quick-release connection, 8 and 6 mm, 30 cm ³	05
Function Quick-release connection, 8 and 6 mm, 60 cm ³	06
Function Quick-release connection, 10 and 6 mm, 30 cm ³	07
Function Quick-release connection, 10 and 6 mm, 60 cm ³	08
Function Quick-release connection, 1/4" NPSF and 6 mm, 3 cm ³	09
Function Quick-release connection, 1/4" NPSF and 6 mm, 30 cm ³	10
Function Quick-release connection, 1/4" NPSF and 6 mm, 60 cm ³	11
Function Quick-release connection, 8 and 6 mm, 3 cm ³	12

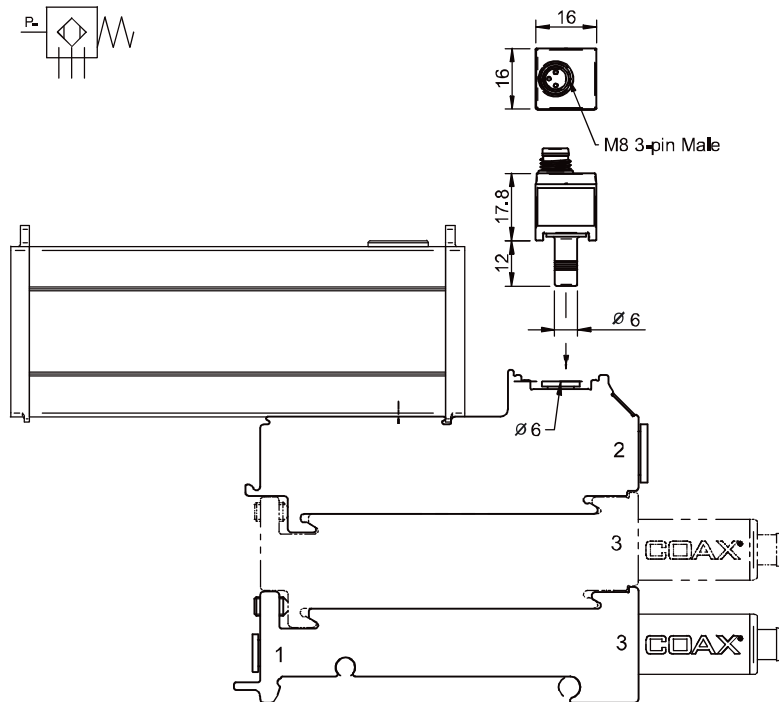
For detailed information on Quick-release, see separate datasheet.

4. Select ES	P3010 Code
No energy saving	AA
Valve DS23	AB

For detailed information on Valve DS 23, see separate datasheet.

5. Select vacuum sensing	P3010 Code
Vacuum switch VS4015 Ø6, 30 -kPa	18
Vacuum switch VS4015 Ø6, 50 -kPa	19
Vacuum switch VS4015 Ø6, 70 -kPa	20

Example	Ordering number
Housing, connection Ø 6 mm Pi12-3FSx1, Function Quick-release module 10/6 3cm ³ , no energy saving, Vacuum switch VS4015 30 -kPa	P3010.00.AE.04.AA.18



Ordering information, accessories

Description	Art. No.
Sealing kit P3010, NBR	0104201

The sealing kit includes flap valves, compressed air filter and vacuum filter.

P3010 Vacuum switch, mini, pre-set, threaded



- ▶ Patented multistage COAX® cartridge - MINI - with Pi, Si, Xi cartridge.
- ▶ Electromechanical vacuum switch with digital output.
- ▶ Built-in red LED that indicates status.
- ▶ Includes a flow-through silencer and a built-in vacuum filter for harsh environments.
- ▶ High system reliability in case of fluctuating or low feed pressure.
- ▶ Suitable for fast and reliable evacuation in sealed systems.

Technical data

Description	Unit	Value
Feed pressure, max. (pump)	MPa	0.7
Noise level	dBA	66-68
Pressure, max (switch)	MPa	0.2
Material		PP, PA, Al, , NBR, TPU, SS, CuZn(Au)
Temperature range	°C	-10-50
Weight	g	115-362
Signal range	-kPa	30, 50 or 70 +5/-3
Function		PNP NO/NC, NPN NO/NC
Hysteresis	kPa	6 ± 1
Voltage	VDC	24 (12-30)
Safety classification		IP40
Current max	mA	100 inductive/400 resistive
Voltage drop, max (100mA/24V inductive load)	VDC	0.055
Response time	ms	4
Display		Red LED
Electric connection		M8 3-pin male

Performance tables

Depending upon choice of COAX® cartridge, performance data of the P3010 can be found in the tables for vacuum flow, evacuation time and blow flow on the P3010 or Vacuum cartridges/integration datasheets.

Ordering information

1. Select housing	P3010 Code
Housing, connection Ø=6 mm	00
Housing, connection 1/8" NPSF	01
2. COAX® cartridge modules	P3010 Code
COAX® cartridge module Pi12-3FSx1	AE
COAX® cartridge module Pi12-3FSx1, non-return valve	AF
COAX® cartridge module Pi12-3FSx2	AG
COAX® cartridge module Pi12-3FSx2, non-return valve	AH
COAX® cartridge module Si08-3FSx1	AA
COAX® cartridge module Si08-3FSx1, non-return valve	AB
COAX® cartridge module Si08-3FSx2	AC
COAX® cartridge module Si08-3FSx2, non-return valve	AD
COAX® cartridge module Xi10-3FSx1	AI
COAX® cartridge module Xi10-3FSx1, non-return valve	AJ
COAX® cartridge module Xi10-3FSx2	AK
COAX® cartridge module Xi10-3FSx2, non-return valve	AL

Vacuum pumps/generators Small



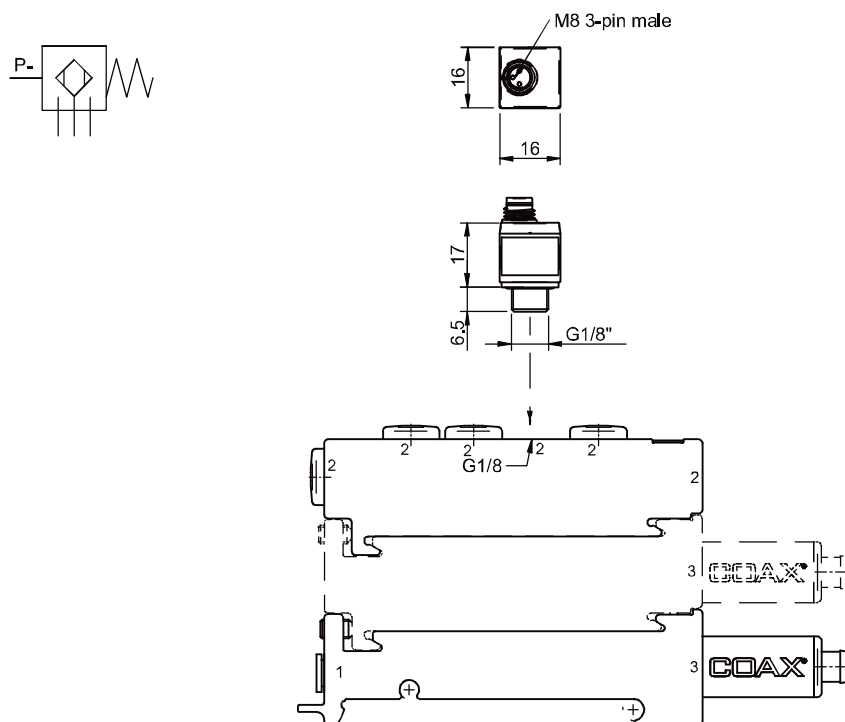
3. Select connection and function module	P3010 Code
Connection module high 6x1/8"	01
Connection module low 3x1/8"	02

4. Select ES	P3010 Code
No energy saving	AA
Valve DS23	AB

For detailed information on Valve DS 23, see separate datasheet.

5. Select vacuum sensing	P3010 Code
Vacuum switch VS4016 G1/8" male, 30 -kPa	21
Vacuum switch VS4016 G1/8" male, 50 -kPa	22
Vacuum switch VS4016 G1/8" male, 70 -kPa	23

Example	Ordering number
Housing, connection Ø 6 mm Pi12-3FSx1, Connection module high 6x1/8", no energy saving, Vacuum switch VS4016 30 -kPa	P3010.00.AE.01.AA.21



Ordering information, accessories

Description	Art. No.
Sealing kit P3010, NBR	0104201

The sealing kit includes flap valves, compressed air filter and vacuum filter.

P3010 AVM™2



- ▶ Patented multistage COAX® cartridge - MINI - with Pi, Si, Xi cartridge.
- ▶ AVM™2, Automatic Vacuum Management, unit with built-in control and monitoring functions.
- ▶ Valves for vacuum on/off, blow-off, blow-off flow control and non-return valve.
- ▶ Option with Normally Closed "fail safe" on/off valve (NC). It changes to an open valve if power is lost and vacuum will be generated. A conventional normally closed on/off valve (NC 2) is also available. It stays closed if electrical power is lost or removed.
- ▶ Option with automatic blow-off (1 sec) reduces number of outputs needed from PLC or I/O box.
- ▶ Analogue vacuum sensor with two digital outputs.
- ▶ Digital display with "-kPa" or "-inHg" as unit options.
- ▶ Integrated energy saving function (ES) that minimizes the air consumption in sealed systems. The ES function can be activated manually or via a signal (signal override).
- ▶ Three-colour LED status indicators for valves, signal outputs and ES.

Technical data

Description	Unit	Value
Feed pressure, max.	MPa	0.7
Noise level	dBA	66-68
Material		PA, NBR, AI, SS, PMMA
Temperature range	°C	0-50
Weight	g	250-330
Signal range, adjustable	-kPa	20-80
Hysteresis	kPa	7±1
Voltage	VDC	24 (22-28)
Ripple, max.	V _p	1V _{rms}
Current consumption, nominal	mA	110
Safety classification		IP65 [NEMA 4]
Current, max. output load		100
Display		LED indicators, numeric
Flow, blow-off	NI/s	0-7.5

Performance tables

Depending upon choice of COAX® Cartridge, performance data of the P3010 can be found in the tables for vacuum flow, evacuation time and blow flow on the P3010 or COAX® Cartridge datasheets.

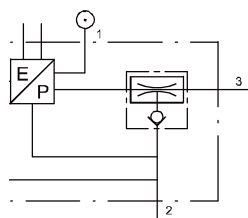
Ordering information

1. Select housing	P3010 Code
Housing, connection Ø=6 mm	00
Housing, connection 1/8" NPSF	01
2. COAX® cartridge modules	P3010 Code
COAX® cartridge module Pi12-3FSx1, non-return valve	AF
COAX® cartridge module Pi12-3FSx2, non-return valve	AH
COAX® cartridge module Si08-3FSx1, non-return valve	AB
COAX® cartridge module Si08-3FSx2, non-return valve	AD

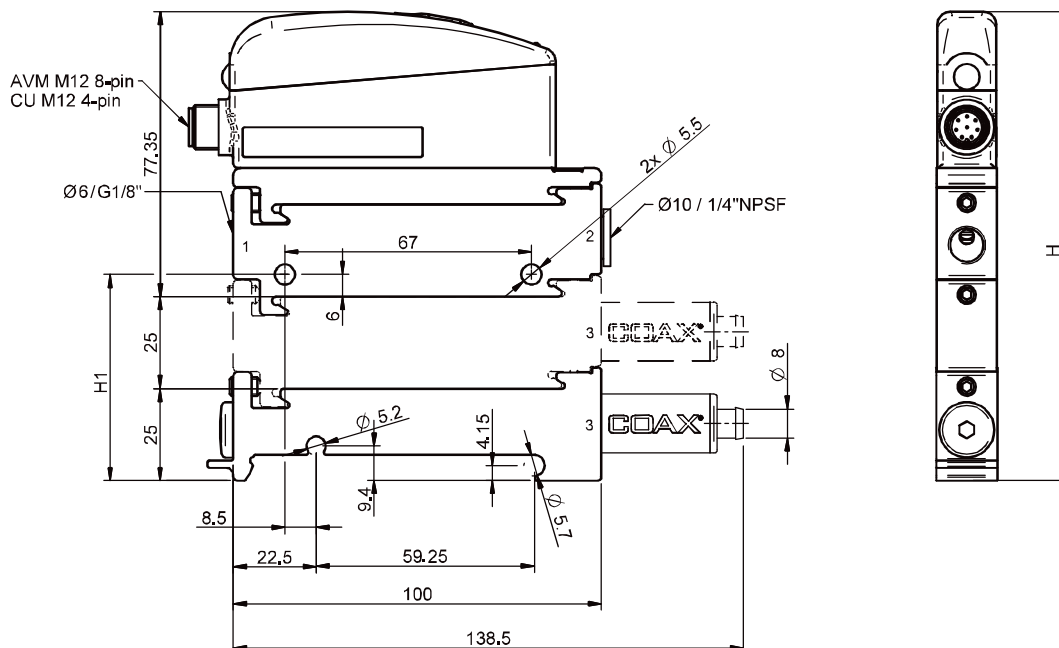
Vacuum pumps/generators Small



2. COAX® cartridge modules	P3010 Code
COAX® cartridge module Xi10-3FSx1, non-return valve	AJ
COAX® cartridge module Xi10-3FSx2, non-return valve	AL
3. Select connection and function module	P3010 Code
Function AVM™2 NO	27
Function AVM™2 NC (power off - NO)	28
Function AVM™2 NO, automatic blow-off (1 sec)	30
Function AVM™2 NC, automatic blow-off (1 sec)	31
Function AVM™2 NC 2 (power off - NC)	32
4. Select ES	P3010 Code
No energy saving	AA
5. Select vacuum sensing	P3010 Code
No vacuum sensing	00
Example	Ordering number
Housing, connection 1/8" NPSF Pi12-3FSx1, non-return valve, Function AVM2 NO, no energy saving function, no vacuum sensing	P3010.01.AF.27.AA.00



COAX® Cartridge	H	H1
1	102,4	31
2	127,4	56



Ordering information, accessories

Description	Art. No.
Cable M12 8-pin female, PUR, L=2m	0110238
Cable M12 8-pin female, PUR, L=5m	0117746
Y-cable M12 8-pin female, 2xM12 4-pin male, PNP, PUR, L=2m	0118407
Y-cable M12 8-pin female, 2xM12 5-pin male, NPN, PUR, L=2m	0120229
Sealing kit P3010, NBR	0104201

The sealing kit includes flap valves, compressed air filter and vacuum filter.

P3010 CU



- ▶ Patented multistage COAX® cartridge - MINI - with Pi, Si, Xi cartridge.
- ▶ Integrated Control Unit (CU) with electric valves for vacuum on-off and blow-off control.
- ▶ Mechanical valve for blow-off flow adjustment.
- ▶ Slim, compact, configurable and modular design.

Technical data

Description	Unit	Value
Feed pressure, max.	MPa	0.7
Noise level	dBA	66–68
Material		PA, NBR, AI, SS, PMMA
Temperature range	°C	0–50
Weight	g	236–316
Voltage	VDC	24 (22–28)
Safety classification		IP65 [NEMA 4]
Humidity	%RH	90
Current consumption, nominal	mA	60
Ripple, max.	V _p	1 V _{rms}
Flow, blow-off	NI/s	0–7.5
Function, on/off		NC

Performance tables

Depending upon choice of COAX® Cartridge, performance data of the P3010 can be found in the tables for vacuum flow, evacuation time and blow flow on the P3010 or COAX® Cartridge datasheets.

Ordering information

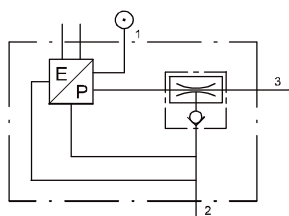
1. Select housing	P3010 Code
Housing, connection Ø=6 mm	00
Housing, connection 1/8" NPSF	01
2. COAX® cartridge modules	P3010 Code
COAX® cartridge module Pi12-3FSx1	AE
COAX® cartridge module Pi12-3FSx1, non-return valve	AF
COAX® cartridge module Pi12-3FSx2	AG
COAX® cartridge module Pi12-3FSx2, non-return valve	AH
COAX® cartridge module Si08-3FSx1	AA
COAX® cartridge module Si08-3FSx1, non-return valve	AB
COAX® cartridge module Si08-3FSx2	AC
COAX® cartridge module Si08-3FSx2, non-return valve	AD
COAX® cartridge module Xi10-3FSx1	AI
COAX® cartridge module Xi10-3FSx1, non-return valve	AJ
COAX® cartridge module Xi10-3FSx2	AK
COAX® cartridge module Xi10-3FSx2, non-return valve	AL
3. Select connection and function module	P3010 Code
Function CU NC	29
Function CU NO	33
4. Select ES	P3010 Code
No energy saving	AA

Vacuum pumps/generators Small

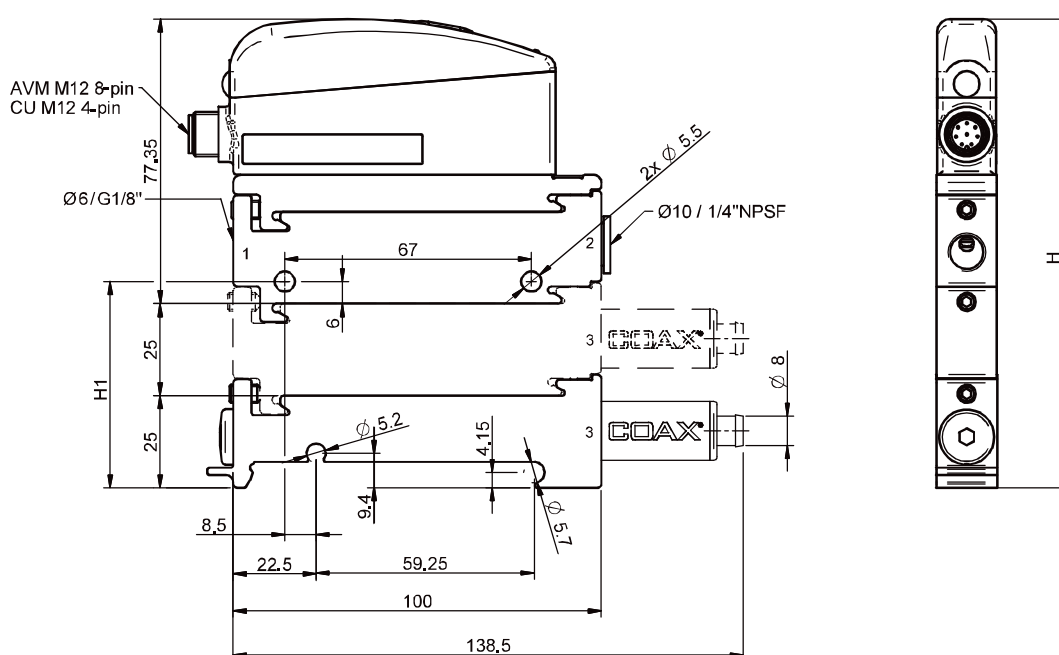


5. Select vacuum sensing	P3010 Code
No vacuum sensing	00

Example	Ordering number
Housing, connection 1/8" NPSF Pi12-3FSx1, Function CU NC, no energy saving function, no vacuum sensing	P3010.01.AE.29.AA.00



COAX® Cartridge	H	H1
1	102,4	31
2	127,4	56



Ordering information, accessories

Description	Art. No.
Cable M12 4-pin female, PUR, L=5m*	0121817
Cable M12 4-pin female, M12 4-pin male, PUR, L=2m	0118322
Sealing kit P3010, NBR	0104201

The sealing kit includes flap valves, compressed air filter and vacuum filter. *) Pin No. 1 is not used.

P5010



- ▶ New patented COAX® push-in technology allows insertion and removal of the cartridge without tools.
- ▶ Available with a two or three-stage COAX® cartridge MIDI. Choose an Si cartridge for extra vacuum flow, a Pi cartridge for high performance at low feed pressure or an Xi cartridge when high flow and deep vacuum is needed.
- ▶ Integrated flow-through silencer that is unaffected by dust and dirt.
- ▶ Substantially lower air-consumption as compared to conventional ejectors of similar sizes.
- ▶ Slim, compact, configurable and modular design.
- ▶ Low weight.

Technical data

Description	Unit	Value
Feed pressure, max	MPa	0.7
Noise level *)	dBA	68–70
Temperature range	°C	-10–80
Weight	g	230–600
Material		AL, CuZn, NBR, PA, SS, PE

*) At vacuum level 40 -kPa and feed pressure 0.3 MPa.

Vacuum flow

COAX® cartridge	Feed pressure* MPa	Air consumption NI/s	Vacuum flow (NI/s) at different vacuum levels (-kPa)										Max vacuum -kPa
			0	10	20	30	40	50	60	70	80	90	
Pi48-2	0.30	2.0	5.6	2.5	1.8	1.1	0.65	0.50	0.35	0.25	0.10	—	90
Pi48-3	0.30	2.0	5.6	2.5	1.8	1.1	0.65	0.50	0.35	0.25	0.10	—	90
Si32-2	0.60	1.75	3.3	3.0	2.6	1.7	0.90	0.60	0.50	0.35	—	—	75
Si32-3	0.60	1.75	6.0	3.5	2.6	1.7	0.90	0.60	0.50	0.35	—	—	75
Xi40-2	0.45	1.83	2.8	2.3	1.6	1.0	0.73	0.58	0.43	0.32	0.18	0.03	95
Xi40-3	0.45	1.83	5.9	3.0	2.0	1.3	0.73	0.58	0.43	0.32	0.18	0.03	95

For vacuum flows at other feed pressures, see COAX® cartridge data sheets. *Feed pressure tolerance, ± 0.01 MPa.

Evacuation time

COAX® cartridge	Feed pressure* MPa	Air consumption NI/s	Evacuation time (s/l) to reach different vacuum levels (-kPa)										Max vacuum -kPa
			10	20	30	40	50	60	70	80	90		
Pi48-2	0.30	2.0	0.030	0.070	0.13	0.26	0.46	0.70	1.0	1.6	4.0	90	
Pi48-3	0.30	2.0	0.020	0.060	0.12	0.25	0.45	0.70	1.0	1.6	4.0	90	
Si32-2	0.60	1.75	0.030	0.070	0.10	0.18	0.33	0.53	0.80	—	—	75	
Si32-3	0.60	1.75	0.020	0.050	0.10	0.18	0.33	0.53	0.80	—	—	75	
Xi40-2	0.45	1.83	0.04	0.09	0.17	0.28	0.44	0.63	0.90	1.3	2.3	95	
Xi40-3	0.45	1.83	0.022	0.062	0.12	0.22	0.37	0.57	0.84	1.2	2.2	95	

For evacuation times at other feed pressures, see COAX® cartridge data sheets. *Feed pressure tolerance, ± 0.01 MPa.

Blow flow

COAX® cartridge	Feed pressure MPa	Air consumption NI/s	Blow flow (NI/s) at different pressure levels (kPa)												Max pressure kPa
			0	20	40	60	70	80	90	100	110	120	130	140	
Pi48-2	0.6	3.5	6.15	6.15	5.95	5.03	4.49	4.49	4.49	4.49	4.49	4.26	4.0	3.63	140
Pi48-3	0.6	3.55	9.5	6.5	6.0	5.3	4.7	4.6	4.6	4.5	4.5	4.3	4.0	3.7	140
Si32-2	0.6	1.75	5.05	4.25	3.30	2.65	2.35	1.8	—	—	—	—	—	—	70
Si32-3	0.6	1.75	7.8	4.6	3.3	2.7	2.3	1.8	—	—	—	—	—	—	70
Xi40-2	0.6	2.33	5.1	4.6	3.4	3.3	3.1	2.8	2.4	—	—	—	—	—	90
Xi40-3	0.6	2.33	8.4	5.1	3.92	3.39	3.23	2.95	2.58	—	—	—	—	—	90

For performance graphs, see COAX® cartridge data sheets.

Ordering information

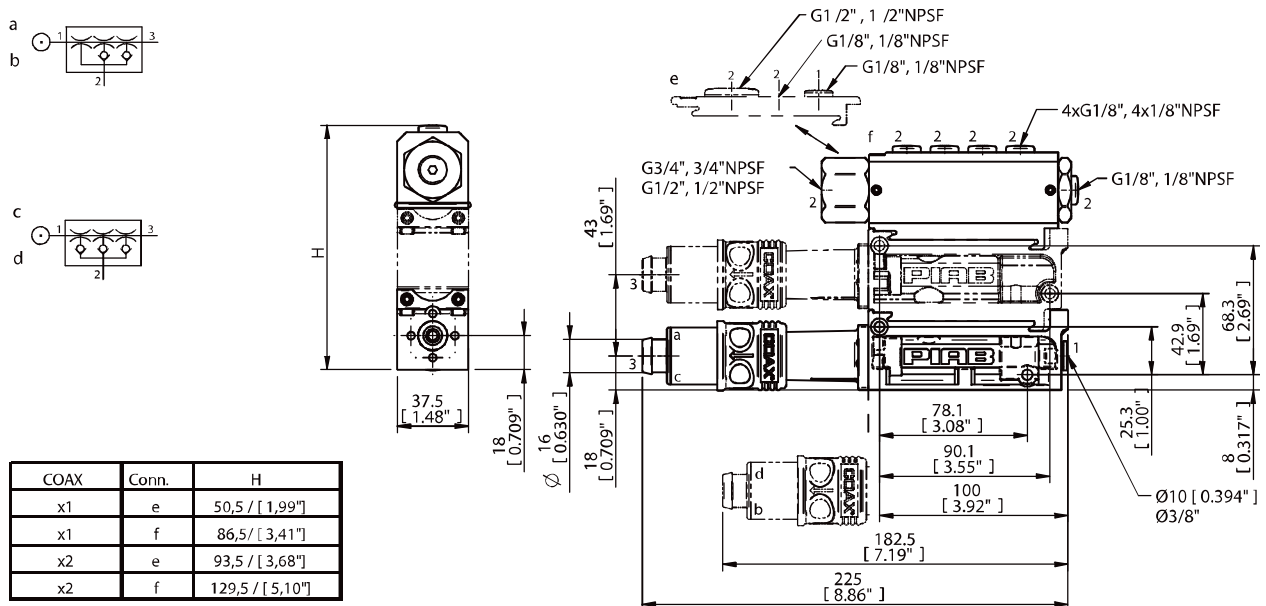
1. Select Housing	P5010 code
Housing, connection Ø 10 mm	00
Housing, connection Ø 3/8"	01

	2. COAX® push-in modules	P5010 Code
b	COAX® push-in module Pi48-2X1	AI
a	COAX® push-in module Pi48-3X1	AJ
d	COAX® push-in module Pi48-2X1, non-return valve	AK
c	COAX® push-in module Pi48-3X1, non-return valve	AL
b	COAX® push-in module Pi48-2X2	AM
a	COAX® push-in module Pi48-3X2	AN
d	COAX® push-in module Pi48-2X2, non-return valve	AO
c	COAX® push-in module Pi48-3X2, non-return valve	AP
b	COAX® push-in module Si32-2X1	AA
a	COAX® push-in module Si32-3X1	AB
d	COAX® push-in module Si32-2X1, non-return valve	AC
c	COAX® push-in module Si32-3X1, non-return valve	AD
b	COAX® push-in module Si32-2X2	AE
a	COAX® push-in module Si32-3X2	AF
d	COAX® push-in module Si32-2X2, non-return valve	AG
c	COAX® push-in module Si32-3X2, non-return valve	AH
b	COAX® push-in module Xi40-2X1	AQ
a	COAX® push-in module Xi40-3X1	AR
d	COAX® push-in module Xi40-2X1, non-return valve	AS
c	COAX® push-in module Xi40-3X1, non-return valve	AT
b	COAX® push-in module Xi40-2X2	AU
a	COAX® push-in module Xi40-3X2	AV
d	COAX® push-in module Xi40-2X2, non-return valve	AW
c	COAX® push-in module Xi40-3X2, non-return valve	AX

	3. Select connection and function module	P5010 Code
e	Connection module low, G connection	01
f	Connection module high, G connection	02
e	Connection module low, NPSF connection	03
f	Connection module high, NPSF connection	04
	Function AVM™2 NO, G connection	05
	Function AVM™2 NC (power off - NO), G connection	06
	Function AVM™2 NO, NPSF connection	07
	Function AVM™2 NC (power off - NO), NPSF connection	08
	Function CU NC, G connection	09
	Function CU NC, NPSF connection	10
	Function P5010 ES 2/2 NO large hysteresis	11
	Function P5010 ES 2/2 NO small hysteresis	12
	Function AVM™2 NO, automatic blow-off (1 sec), G connection	13
	Function AVM™2 NC, automatic blow-off (1 sec), G connection	14
	Function AVM™2 NC 2 (power off - NC), G connection	15
	Function AVM™2 NO, automatic blow-off (1 sec), NPSF connection	16
	Function AVM™2 NC, automatic blow-off (1 sec), NPSF connection	17
	Function AVM™2 NC 2 (power off - NC), NPSF connection	18

For detailed information on AVM™2, CU and ES, see separate datasheets.

Example	Ordering number
Housing, connection Ø 10 mm PI48-2X1, Connection module, low G threads	P5010 00 AI 01



Ordering information, accessories

Description	Art. No.
Common feed adapter Ø10 mm P5010	0117762
Mounting rail DIN P5010	0117763
Mounting rail x1 P5010	0118209
Mounting rail x2 P5010	0118208
Vacuum gauge 100 -kPa	0112531

Vacuum gauge recommended with high connection modules (02/04)

P5010 AVM™2



- ▶ P5010 multistage ejector with Pi, Si or Xi COAX® push-in cartridge(s).
- ▶ AVM™2, Automatic Vacuum Management, unit with built-in control and monitoring functions.
- ▶ Valves for vacuum on/off, blow-off, blow-off flow control and non-return valve.
- ▶ Option with Normally Closed "fail safe" on/off valve (NC). It changes to an open valve if power is lost and vacuum will be generated. A conventional normally closed on/off valve (NC 2) is also available. It stays closed if electrical power is lost or removed.
- ▶ Option with automatic blow-off (1 sec) reduces number of outputs needed from PLC or I/O box.
- ▶ Enhanced blow-off effect thanks to a directed blow-off pipe.
- ▶ Analogue vacuum sensor with two digital outputs, 16 pre-set combinations of signal levels to choose from.
- ▶ Digital display with "-kPa" or "-inHg" as unit options.
- ▶ Integrated energy saving function (ES) that minimizes the air consumption in sealed systems. The ES function can be activated manually or via a signal (signal override).
- ▶ Three-colour LED status indicators for valves, signal outputs and ES.

Technical data

Description	Unit	Value
Feed pressure, max.	MPa	0.7
Noise level *)	dBA	68–71
Temperature range	°C	0–50
Weight	g	430–720
Signal range, adjustable	-kPa	20–80
Hysteresis	kPa	7±1
Material		AL,CuZn, NBR, PA, SS, PE, PMMA
Voltage	VDC	24 (22–28)
Ripple, max.	V _p	1V _{rms}
Current consumption, nominal	mA	110
Safety classification		IP65 [NEMA 4]
Current, max. output load		100
Display		LED indicators, numeric
Flow, blow-off	NI/s	0–7.5

*) At vacuum level 40 -kPa and at recommended feed pressure for respective push-in cartridge.

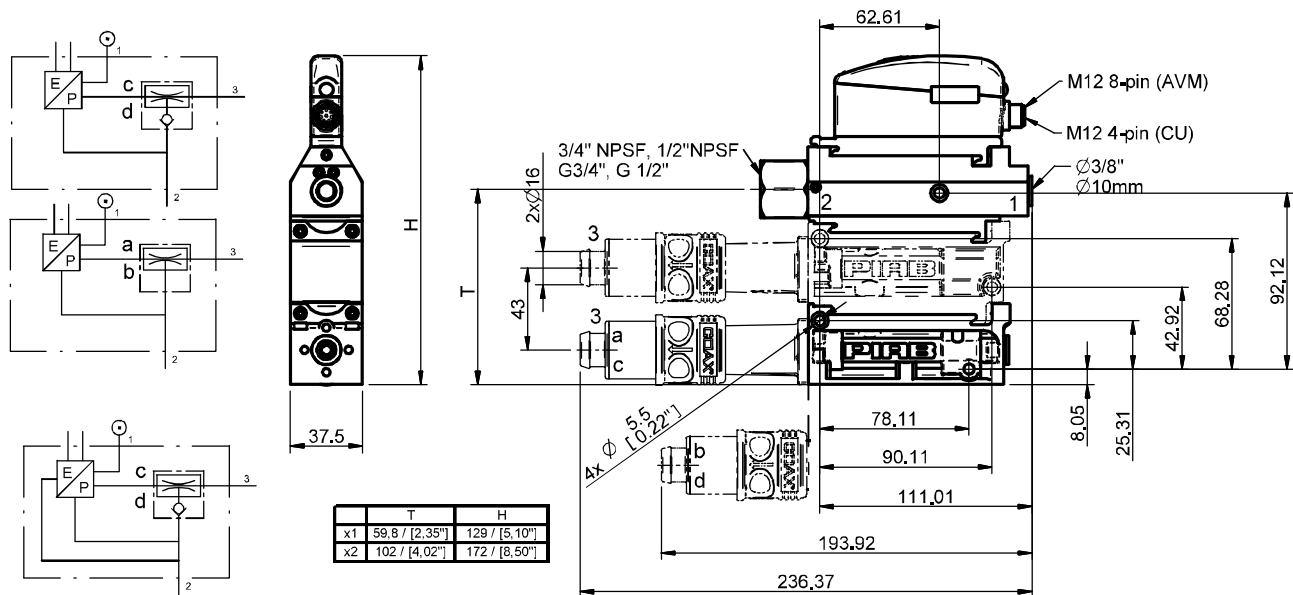
Ordering information

1. Select Housing		P5010 code
	Housing, connection Ø 10 mm	00
	Housing, connection Ø 3/8"	01
2. COAX® push-in modules		P5010 Code
d	COAX® push-in module Pi48-2X1, non-return valve	AK
c	COAX® push-in module Pi48-3X1, non-return valve	AL
d	COAX® push-in module Pi48-2X2, non-return valve	AO

	2. COAX® push-in modules	P5010 Code
c	COAX® push-in module Pi48-3X2, non-return valve	AP
d	COAX® push-in module Si32-2X1, non-return valve	AC
c	COAX® push-in module Si32-3X1, non-return valve	AD
d	COAX® push-in module Si32-2X2, non-return valve	AG
c	COAX® push-in module Si32-3X2, non-return valve	AH
d	COAX® push-in module Xi40-2X1, non-return valve	AS
c	COAX® push-in module Xi40-3X1, non-return valve	AT
d	COAX® push-in module Xi40-2X2, non-return valve	AW
c	COAX® push-in module Xi40-3X2, non-return valve	AX

	3. Functions	P5010 Code
	Function AVM™2 NO, G connection	05
	Function AVM™2 NC (power off - NO), G connection	06
	Function AVM™2 NO, NPSF connection	07
	Function AVM™2 NC (power off - NO), NPSF connection	08
	Function AVM™2 NO, automatic blow-off (1 sec), G connection	13
	Function AVM™2 NC, automatic blow-off (1 sec), G connection	14
	Function AVM™2 NC 2 (power off - NC), G connection	15
	Function AVM™2 NO, automatic blow-off (1 sec), NPSF connection	16
	Function AVM™2 NC, automatic blow-off (1 sec), NPSF connection	17
	Function AVM™2 NC 2 (power off - NC), NPSF connection	18

Example	Ordering number
Housing, connection Ø 10 mm Pi48-2X1, Function AVM™2, NO, G-threads	P5010 00 AK 05



Ordering information, accessories

Description	Art. No.
Cable M12 8-pin female, PUR, L=2m	0110238
Cable M12 8-pin female, PUR, L=5m	0117746
Y-cable M12 8-pin female, 2xM12 4-pin male, PNP, PUR, L=2m	0118407
Y-cable M12 8-pin female, 2xM12 5-pin male, NPN, PUR, L=2m	0120229

P5010 CU



- ▶ P5010 multistage ejector with Pi, Si or Xi COAX® push-in cartridge(s).
- ▶ Integrated Control Unit (CU) with electric valves for vacuum on-off and blow-off control.
- ▶ Mechanical valve for blow-off flow adjustment.
- ▶ Enhanced blow-off power thanks to a directed blow-off pipe.
- ▶ Slim, compact, configurable and modular design.

Technical data

Description	Unit	Value
Feed pressure, max	MPa	0.7
Noise level *)	dBA	68–71
Temperature range	°C	0–50
Weight	g	430–720
Material		AL, CuZn, NBR, PA, SS, PE, PMMA
Voltage	VDC	24 (22–28)
Safety classification		IP65 [NEMA4]
Humidity	%RH	90
Current consumption, nominal	mA	60
Ripple, max.	V _p	1 V _{rms}
Flow, blow-off	NI/s	0–7.5
Function, on/off		NC

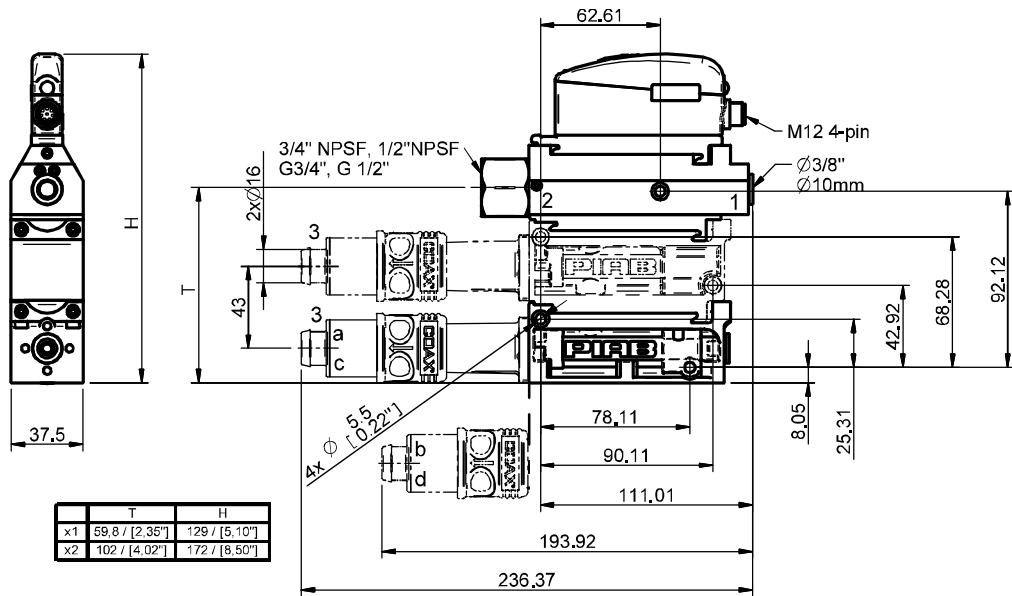
*) At vacuum level 40 -kPa and at recommended feed pressure for respective push-in cartridge.

Ordering information

1. Select Housing		P5010 code
Housing, connection Ø 10 mm		00
Housing, connection Ø 3/8"		01

2. COAX® push-in modules		P5010 Code
b	COAX® push-in module Pi48-2X1	AI
a	COAX® push-in module Pi48-3X1	AJ
d	COAX® push-in module Pi48-2X1, non-return valve	AK
c	COAX® push-in module Pi48-3X1, non-return valve	AL
b	COAX® push-in module Pi48-2X2	AM
a	COAX® push-in module Pi48-3X2	AN
d	COAX® push-in module Pi48-2X2, non-return valve	AO
c	COAX® push-in module Pi48-3X2, non-return valve	AP
b	COAX® push-in module Si32-2X1	AA
a	COAX® push-in module Si32-3X1	AB
d	COAX® push-in module Si32-2X1, non-return valve	AC
c	COAX® push-in module Si32-3X1, non-return valve	AD
b	COAX® push-in module Si32-2X2	AE
a	COAX® push-in module Si32-3X2	AF
d	COAX® push-in module Si32-2X2, non-return valve	AG
c	COAX® push-in module Si32-3X2, non-return valve	AH
b	COAX® push-in module Xi40-2X1	AQ
a	COAX® push-in module Xi40-3X1	AR
d	COAX® push-in module Xi40-2X1, non-return valve	AS
c	COAX® push-in module Xi40-3X1, non-return valve	AT
b	COAX® push-in module Xi40-2X2	AU
a	COAX® push-in module Xi40-3X2	AV
d	COAX® push-in module Xi40-2X2, non-return valve	AW
c	COAX® push-in module Xi40-3X2, non-return valve	AX

3. Function	P5010 Code
Function CU NC, G connection	09
Function CU NC, NPSF connection	10
Example	Ordering number
Housing, connection Ø 10 mm PI48-2X2, non-return valve, function CU NC G threads	P5010 00 AO 09



Ordering information, accessories

Description	Art. No.
Cable M12 4-pin female, PUR, L=5m*	0121817
Cable M12 4-pin female, M12 4-pin male, PUR, L=2m	0118322

*) Pin No. 1 is not used.

P5010 ES



- ▶ P5010 multistage ejector with Pi, Si or Xi COAX® push-in cartridge.
- ▶ Integrated air-saving function (ES) that minimises the air consumption by controlling the incoming air flow to the pump.
- ▶ Operates on a roughly similar system to that of a thermostat in a heating system.
- ▶ Large hysteresis is recommended for sealed vacuum handling applications such as metal sheet, glass or plastic handling.
- ▶ Small hysteresis is recommended if a very accurate vacuum level has to be maintained in the process.
- ▶ Adjustable ES switch level.
- ▶ Pneumatic function.
- ▶ Configurable and modular design.
- ▶ Separate port with built-in blow-off check valve. High flow capacity to maximize efficiency to release an object.

Technical data

Description	Unit	Value
Feed pressure, max.	MPa	0.7
Feed pressure, minimum to break away for blow-off	MPa	0.4*
Noise level	dBA	68-71
Material		NBR, PA, Al, SS, POM, CuZn
Temperature range	°C	0-60
Weight	g	640-890
Signal range	-kPa	15-99
Function		2/2 NO
Flow, blow-off at 0.6 MPa	NI/s	7.5

*For Pi cartridge(s) - do not use common feed pressure for pump and blow-off.

Technical data, specific

Description	Unit	Value	
		ES small hysteresis	ES large hysteresis
Hysteresis	kPa	1-6	5-10

Performance tables

Depending upon choice of COAX® cartridge, applicable performance data of the P5010 ES can be found in the tables for vacuum flow and evacuation time for models P5010 Pi, Si and Xi.

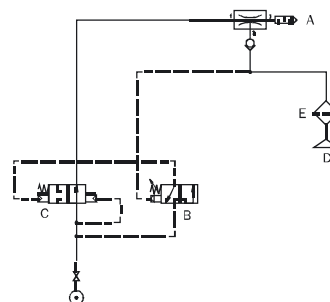
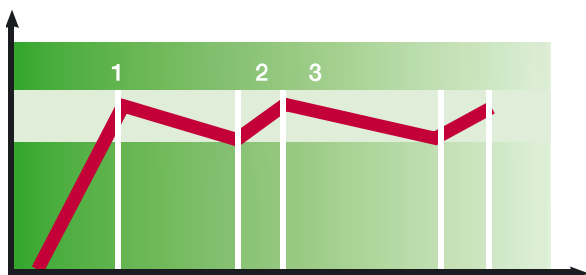
Function

A vacuum-controlled valve shuts off the flow of compressed air to the pump when the pre-set vacuum level is reached (1). The vacuum level is set by a knob. Because of minor leakage in a vacuum system the vacuum level drops, and after a while the start-up level of the valve is reached (2). Then the pump will start and work until the shut-off level is reached again (3), etc.

Connection for ES function*

A = Vacuum pump with non-return valve
B = Vacuum switch
C = Feed valve
D = Suction cup
E = Vacuum filter

*Connection for blow-off found with dimensional drawing below.



Ordering information

1. Select Housing	P5010 code
Housing, connection Ø 10 mm	00
Housing, connection Ø 3/8"	01

2. COAX® push-in modules	P5010 Code
d COAX® push-in module Pi48-2X1, non-return valve	AK
c COAX® push-in module Pi48-3X1, non-return valve	AL
d COAX® push-in module Pi48-2X2, non-return valve	AO
c COAX® push-in module Pi48-3X2, non-return valve	AP
d COAX® push-in module Si32-2X1, non-return valve	AC
c COAX® push-in module Si32-3X1, non-return valve	AD
d COAX® push-in module Si32-2X2, non-return valve	AG
c COAX® push-in module Si32-3X2, non-return valve	AH
d COAX® push-in module Xi40-2X1, non-return valve	AS
c COAX® push-in module Xi40-3X1, non-return valve	AT
d COAX® push-in module Xi40-2X2, non-return valve	AW
c COAX® push-in module Xi40-3X2, non-return valve	AX

3. Function	P5010 Code
Function P5010 ES 2/2 NO large hysteresis	11
Function P5010 ES 2/2 NO small hysteresis	12

Example	Ordering number
Housing, connection Ø 10 mm Pi48-2X1, non-return valve, Function P5010 ES 2/2 NO small hysteresis	P5010 00 AK 12

