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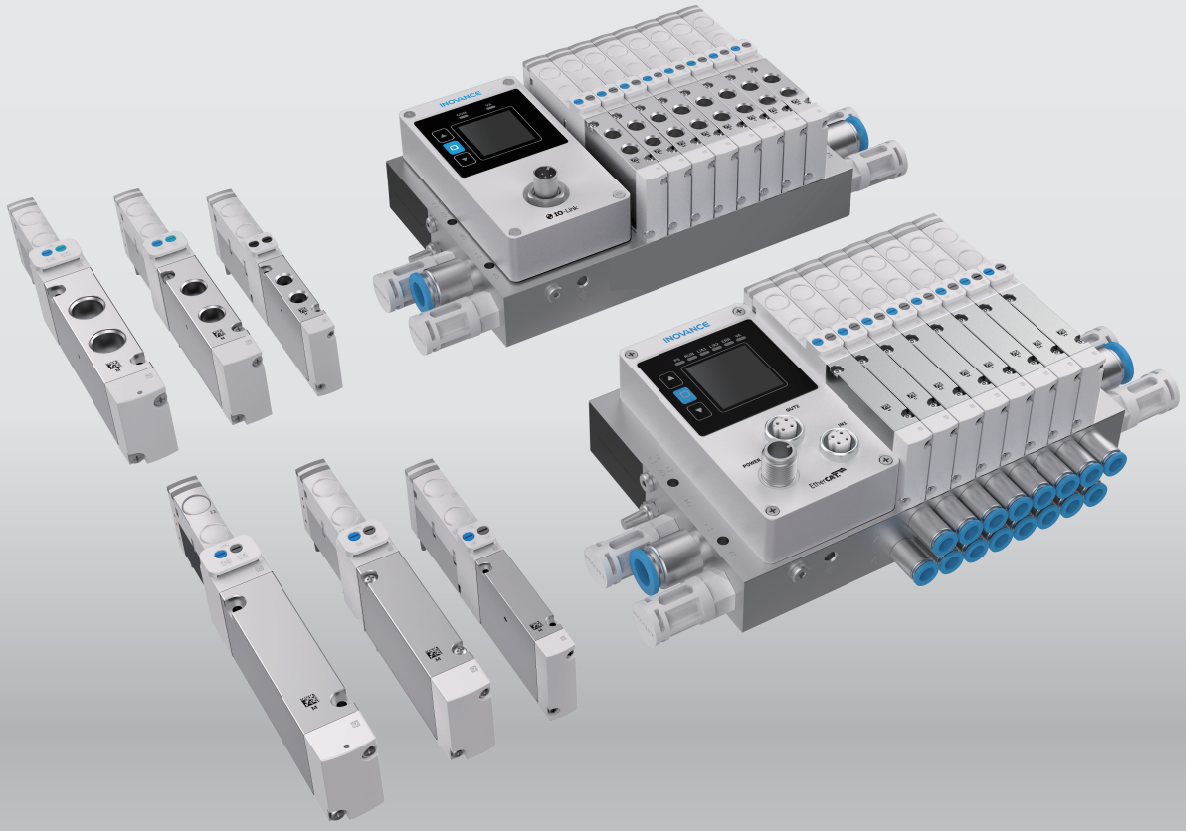


IPT Series
Fieldbus Valve Terminal

Selection Guide

Industrial Automation | Intelligent Elevator | New Energy Vehicle | Industrial Robot | Rail Transit

Data code 19012508A00

Preface

Introduction

Thank you for purchasing this product.

This product is a general-purpose valve terminal widely used in industrial automation industries, such as lithium batteries, silicon, mobile phones, packaging, and semiconductors. It is an intelligent, modular and energy saving valve terminal with functions expandable and high reliability.

This guide describes the product selection, including pilot solenoid valve information, option list, certification, standards, and ordering instructions.

More Data

Name	Data Code	Description
IPT Fieldbus Valve Terminal Selection Guide	PS00010394\19012500	Presents technical data and dimensions of the product and specifications and models of optional parts (installation accessories, cables, and periphery electrical parts).
IO-Link Fieldbus Valve Terminal User Guide	PS00017554	Describes the installation, wiring, commissioning, troubleshooting, parameters, fault codes, and others.
EtherCAT Fieldbus Valve Terminal User Guide	PS00008616	

Revision History

Date	Version	Description
July 2024	A00	First release

Access to the Guide

This guide is not delivered with the product. You can obtain the PDF version by the following methods:

- Do keyword search under Service and Support at *http://www.inovance.com*.
- Scan the QR code on the product with your smart phone.
- Scan the QR code below to install My Inovance app, where you can search for and download user guides.

Warranty Disclaimer

Inovance provides warranty service within the warranty period (as specified in your order) for faults or damage that occur during normal operation. Maintenance will be charged after the warranty expires.

Within the warranty period, maintenance will be charged for the following damage:

- Damage caused by operations not following the instructions in the user guide
- Damage caused by fire, flood, or abnormal voltage
- Damage caused by unintended use of the product

- Damage caused by use beyond the specified scope of application of the product
- Damage or secondary damage caused by force majeure (natural disaster, earthquake, and lightning strike)

The maintenance is charged according to the latest Price List of Inovance. If otherwise agreed upon, the terms and conditions in the agreement shall prevail.

For details, see Product Warranty Card.

Table of Contents

1 Model Selection

Item	IPT210/IPT210L			IPT211/IPT211L	
Industry	• Valve terminal for general industries • Valve terminal for lithium battery industry				
IP rating	• IP54 (only for 18 mm-wide valve terminals) • IP65 • IP67				
Valve type	• Semi in-line valve • Plate type valve				
Communication protocol type	• IO-Link • EtherCAT				
Pilot mode	• Internal pilot • External pilot (18 mm-wide valve terminals only support external pilot.)				
Valve width	10 mm	15 mm	18 mm	10 mm+15 mm	15 mm+18 mm (Customized)
Working port direction	• Top • Sideway • Bottom (customized, 18 mm-wide valve terminals do not support bottom piping selection)				
Working port type	• M7 thread • 4 mm tubing connector • 6 mm tubing connector	• G1/8 thread • 4 mm tubing connector • 6 mm tubing connector • 8 mm tubing connector	• G1/4 thread • 6 mm tubing connector • 8 mm tubing connector • 10 mm tubing connector	10 mm • M7 thread • 4 mm tubing connector • 6 mm tubing connector 15 mm • G1/8 thread • 4 mm tubing connector • 6 mm tubing connector • 8 mm tubing connector	15 mm • G1/8 thread • 4 mm tubing connector • 6 mm tubing connector • 8 mm tubing connector 18 mm • G1/4 thread • 6 mm tubing connector • 8 mm tubing connector • 10 mm tubing connector
Air supply port type	• G1/8 thread • 6 mm tubing connector • 8 mm tubing connector • 10 mm tubing connector	• G1/4 thread • 8 mm tubing connector • 10 mm tubing connector • 12 mm tubing connector	• G3/8 thread • 8 mm tubing connector • 10 mm tubing connector • 12 mm tubing connector • 16 mm tubing connector	• G1/4 thread • 8 mm tubing connector • 10 mm tubing connector • 12 mm tubing connector	• G3/8 thread • 8 mm tubing connector • 10 mm tubing connector • 12 mm tubing connector • 16 mm tubing connector
Position of the air exhaust	• Both sides • Left side • Right side				
Air exhaust type	• Silencer (Pilot air exhausts of 10 mm/15 mm/10 mm+15 mm-wide valve terminals are equipped with metal silencer.) • Quick connector • Thread				
Air inlet position	• Both sides • Left side • Right side				

Item	IPT210/IPT210L	IPT211/IPT211L
Direction of the air supply port	Straight	
Valve function	• 5/2 way valve with one solenoid • 5/2 way valve with two solenoids • 5/3 way valve that locked in neutral position • 5/3 way valve with mid-position pressurized • 5/3 way valve with mid-position exhausted • 2 x 3/2 way normally-open valve that reset via mechanical spring • 2 x 3/2 way normally-closed valve that reset via mechanical spring • 2 x 3/2 way valve that reset via mechanical spring, 1 x normally-open, 1 x normally-closed	

2 Product Overview

The IPT fieldbus valve terminal is an intelligent modular valve terminal with individual valve flow ranging from 200 L/min to 1000 L/min.

Intelligent

- User-friendly HMI interfaces
- Monitoring and alarm of solenoid valve and cylinder lifetime
- Intelligent diagnosis of device fault, allowing solenoid valve faults to be located quickly

Modular design

- Multiple types of communication modules interchangeable, including IO-Link and EtherCAT (Profinet and Ethernet/IP25 communication modules will be launched in the first half of 2025.)
- Individual valves interchangeable: single solenoid, dual solenoids, and 5/3 way valves interchangeable

Safe and easy to use

- Energy-saving, with power lowered to 0.3 W
- Up to 48 coils and 24 valves supported, saving costs in multi-valve applications
- Wide voltage range of solenoid valve (18 VDC to 30 VDC), applicable to applications with dramatic voltage fluctuation
- High protection, meeting IP65 and IP67
- Flexible electrical contact, applicable to high vibration manipulator applications (5G)

Full functions

- Pressure partition supported
- External pilot supported, applicable to vacuum applications
- Check module and throttle module available as options
- 10+15 hybrid valve terminal supported, and 15+18 hybrid valve terminal customizable
- Stop valve customizable to achieve valve replacement without interrupting the air supply

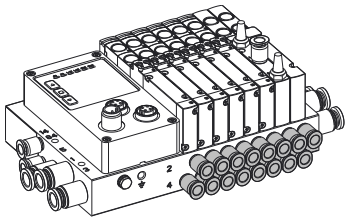
3 IPT210/211 Series Valve Terminals

3.1 Product Characteristics

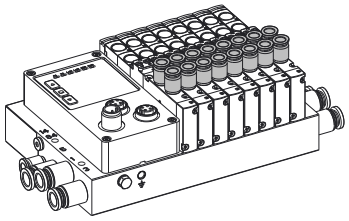
Valve terminal piping type

Three piping types are available to satisfy various market application needs. Operation of up to 24 solenoid valves is supported.

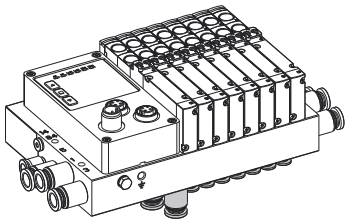
- Sideway piping



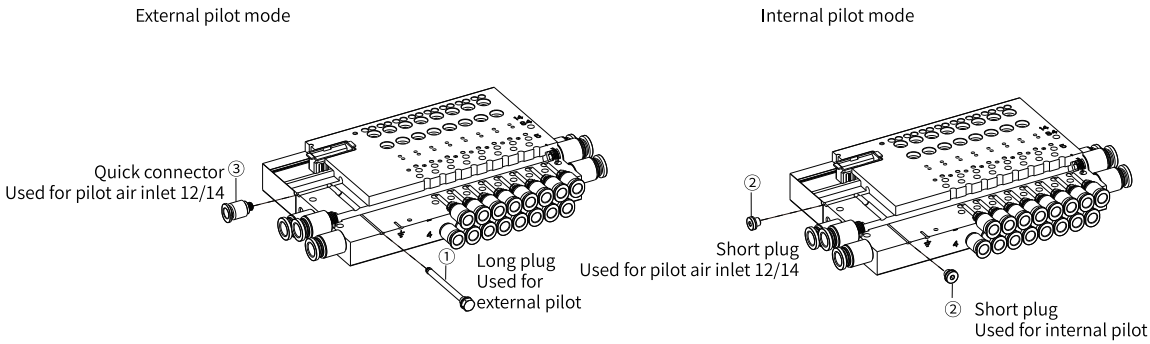
- Top piping



- Bottom piping (customizable)

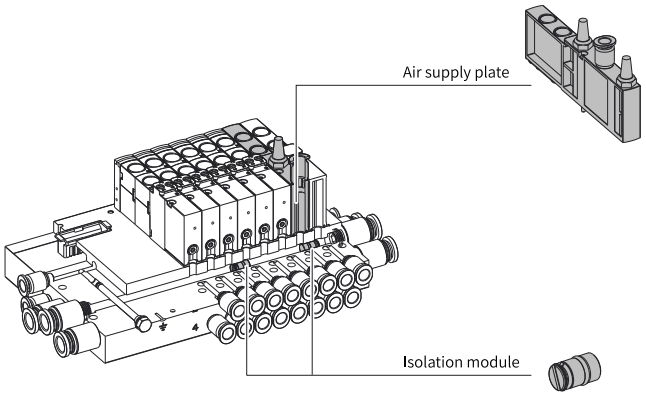


Internal/External pilot switchover method



The sub-base has an internal channel between the pilot air port 12/14 and the air inlet 1. The internal/ external pilot mode can be switched freely by installing different types of components.

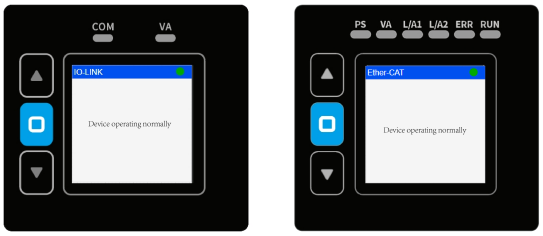
Pressure partition



The isolation module is used in applications where different working pressure needs to be established on the valve terminal. It is fixed to the air inlet and air exhaust circuits of the manifold block to allow independent pressure zones on both sides.

When the air supply board and isolation module are used together, multiple separate zones can be created. You can paste custom isolation marks at the pressure zone to mark the range of each zone in the circuit.

HMI



Through the interactive keys on the valve terminal display, the IPT valve terminal can meet the commissioning and testing needs without connecting other control devices. The operating state of the valves and equipment can also be confirmed through the screen, which helps customers to detect problems in time, reducing the production fault rate.

Valve terminal vertical expansion function

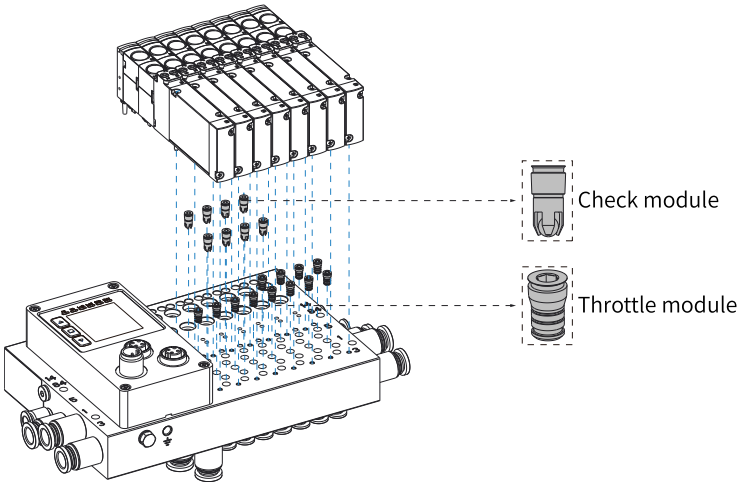


Figure 3-1 Throttle and check module

Note

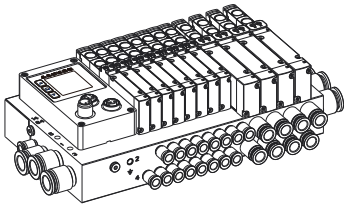
The check module is applicable to 10 mm, 15 mm, and 18 mm valves. The throttle module is only applicable to 10 mm and 15 mm valves.

The throttle module can be installed to air exhausts 3 and 5 of the corresponding valve in the sub-base with self-tapping threads to adjust the flow of the air exhaust, or installed to working ports 2 and 4 of the corresponding valve to change the flow of the working port.

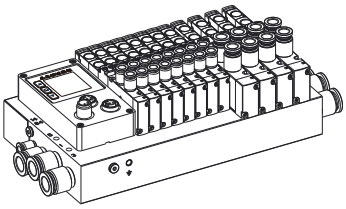
The check module is also fixed to air exhausts 3 and 5 of the corresponding valve in the sub-base with self-tapping threads to ensure that the air exhaust flow in this area is cut off in time when the exhaust flow on the manifold block is too large, preventing production line faults caused by improper operation of the end effector.

Hybrid installation of valve terminal

Hybrid type sideway piping



Hybrid type top piping



The IPT fieldbus valve terminal supports hybrid installation of 10 mm+15 mm and 15 mm+18 mm. A total of 7 configuration schemes are available, which are 4+4, 6+4, 8+4, 10+4, 12+4, 16+4, and 20+4, with top and sideway configurations covered.

Hot-swapping of valve terminal

If the valve needs to be replaced without the stop valve expansion module, disconnect the air supply without power-off. After enabling the hot-swapping mode, you can replace the valves as needed.

If you need to use the hot-swapping function without turning off the power supply or the air supply, you can make a request for a customized stop valve module. You can also use the isolation module to separate a pressure zone where the air supply can be interrupted. Turn off the air supply of this separate pressure zone to replace the valve in this zone, without affecting operation of other zones.

3.2 Model and Nameplate

Model description

IPT210 L - M S 10 IL 1 C - M7 T G01 C C Q - 2A2B – G01 – 2C2D

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ ⑬ ⑭ ⑮ ⑯ ⑰

① **Product series** IPT210: Standard valve terminal IPT211: Hybrid valve terminal (A1, A2)	② **Industry-tailored** _: General-purpose valve terminal L: Valve terminal for lithium battery industry	③ **IP rating** _: IP54[1] N: IP65 M: IP67	④ **Valve type** [2] S: Semi in-line B: Plate type
⑤ **Valve width** 10: 10 mm; 15: 15 mm; 18: 18 mm; A1: 10 mm+15 mm; A2: 15 mm+18 mm (customized)	⑥ **Communication protocol** IL: IO-Link ECT: EtherCAT	⑦ **Pilot mode** 1: Internal pilot 2: External pilot	⑧ **Working port direction**[2] C: Sideway; T: Top; B: Bottom (customized)
⑨ **Working port type** [3] M7: M7 thread; G01: G1/8 thread G02: G1/4 thread C4: 4 mm tubing connector C6: 6 mm tubing connector C8: 8 mm tubing connector C10: 10 mm tubing connector	⑩ **Direction of the air supply port** T: Straight	⑪ **Air supply port type** G01: G1/8 thread; G02: G1/4 thread G03: G3/8 thread C6: 6 mm tubing connector C8: 8 mm tubing connector C10: 10 mm tubing connector C12: 12 mm tubing connector C16: 16 mm tubing connector	⑫ **Air inlet position** C: Both sides L: Left side R: Right side B: Bottom (customized)
⑬ **Air exhaust position** C: Both sides L: Left side R: Right side B: Bottom (customized)	⑭ **Air exhaust type** Q: Plastic silencer T: Quick connector [6] D: Thread [5]	⑮ **Valve function*** A: 5/2 way with one solenoid B: 5/2 way with two solenoids C: 5/3 way that locked in neutral position D: 5/3 way with mid-position pressurized E: 5/3 way with mid-position exhausted P: 2 x 3/2 way NC valve that reset via mechanical spring Q: 2 x 3/2 way NO valve that reset via mechanical spring R: 2 x 3/2 way valve that reset via mechanical spring, 1 x NO, 1 x NC X: Air supply plate; Y: Blind plate	⑯ **Working port type of the hybrid valve** [3] [4] G01: G1/8 thread G02: G1/4 thread C4: 4 mm tubing connector C6: 6 mm tubing connector C8: 8 mm tubing connector C10: 10 mm tubing connector
⑰ **Hybrid valve function** [4] A: 5/2 way valve with one solenoid B: 5/2 way valve with two solenoids C: 5/3 way valve that locked in neutral position	D: 5/3 way valve with mid-position pressurized E: 5/3 way valve with mid-position exhausted P: 2 x 3/2 way NC valve that reset via mechanical spring Q: 2 x 3/2 way NO valve that reset via mechanical spring R: 2 x 3/2 way valve that reset via mechanical spring, 1 x NO, 1 x NC X: Air supply plate Y: Blind plate		

Note

- [1] 18 mm-wide valve terminal only complies with IP54.
- [2] If semi in-line valve is selected as the valve type, the working port can be in the top direction (optional). If plate type valve is selected as the valve type, the working port can be in the sideway or top direction, both of which are optional. 18 mm-wide valve terminal does not support bottom piping selection.
- [3] The working port of 10 mm, 15 mm, and 18 mm valve terminals are M7, G1/8, and G1/4 respectively.
- [4] It is only used in IPT211 hybrid series.
- [5] The thread of the 3/5 air port and the thread of the 1 air port are consistent. For 10 mm, 15 mm, and 10 mm +15 mm valve terminals, the thread M5 is used for pilot air exhaust. For 18 mm, 15 mm+18 mm valve terminals, the thread G1/8 is used for the pilot air exhaust.
- [6] For configuration of the quick connector, the pilot air inlet and air exhaust of 10/15/10+15 valve terminals are equipped with quick connector C6. The pilot air inlet and air exhaust of 18/15+18 valve terminals are equipped with quick connector C8.

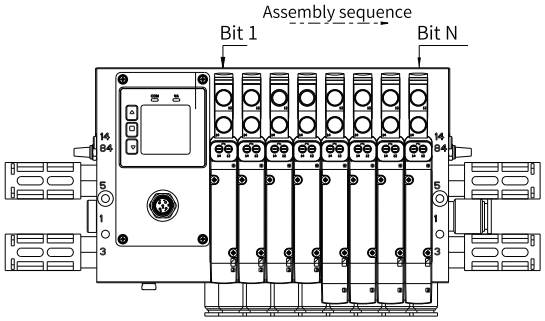
* Ordering example:

- **Standard valve terminal series**

  The standard valve terminal, which applies to the lithium battery industry, complies with IP65 and adopts the plate type valve with a width of 15 mm. It supports IO-Link communication protocol and adopts internal pilot with the working port direction being sideway. The working ports are equipped with 8 mm tubing connectors. The air supply port is in straight direction and equipped with 12 mm tubing connector. The air inlet locates on the right side and the air exhausts locate on both sides. The air exhaust is equipped with a plastic silencer.

  Valve function selection: The 1st and 2nd positions are 5/2 way solenoid valves with two solenoids. The 3rd and 4th positions are 5/2 way solenoid valves with one solenoid. The 5th to 8th positions are 5/3 way solenoid valve with mid-position exhausted.

  The valve terminal model is **IPT210L-NB15IL1C- C8TC12RCQ-2B2A4E** , as shown in the following figure.



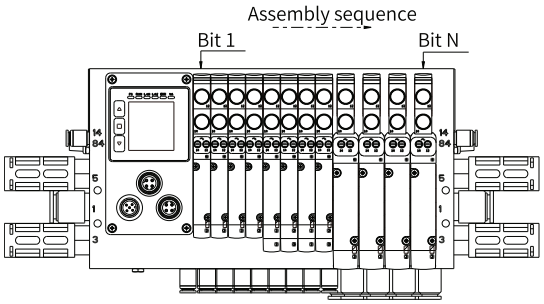
- **Hybrid valve terminal series**

  The hybrid valve terminal, which applies to general industries, complies with IP67 and adopts the plate type valve with a width of 10 mm + 15 mm. It supports EtherCAT communication protocol and adopts external pilot with the working port direction being sideway. The 10 mm-wide working port is equipped with 6 mm tubing connector. The air supply port is in straight direction and equipped with 12 mm tubing connector. The air inlet locates on the right side and the air exhausts locate on both sides. The air exhaust is equipped with a plastic silencer.

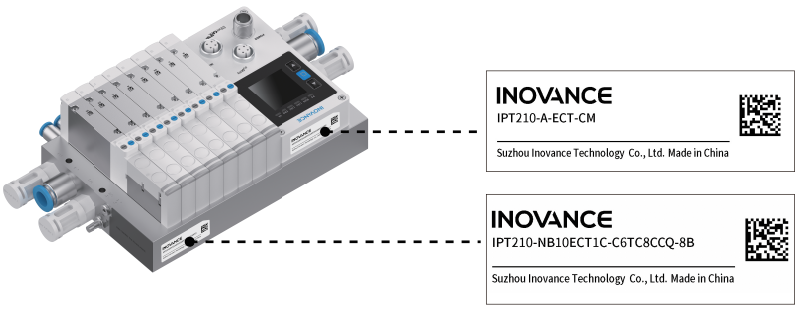
  10 mm-wide valve function selection: The 1st to 4th positions are 5/2 way solenoid valves with two solenoids. The 5th to 8th positions are 5/3 way solenoid valves with mid-position pressurized. The 15 mm-wide working port is equipped with 8 mm tubing connector. The following describes function selection for 15 mm-wide valves: The 9th to 10th positions are 2 x 3/2 way normally-closed

solenoid valves with spring reset mode. The 11th to 12th are 2 x 3/2 way normally-open solenoid valve with spring reset mode.

The valve terminal model is **IPT211- MBA1ECT2C-C6TC12CCQ-4B4D- C8-2P2Q**, as shown in the following figure.



Nameplate description



3.3 Technical Data

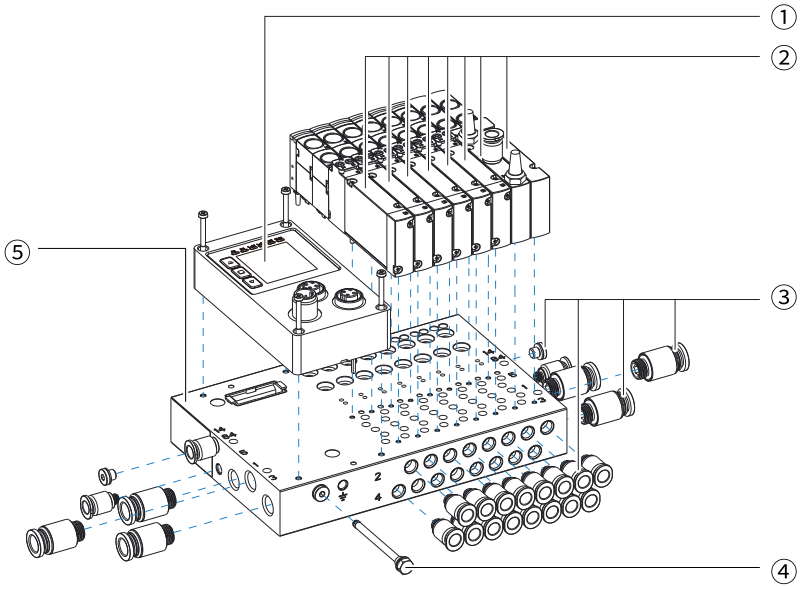
Item	Specifications
Operating voltage of the valve terminal	24 VDC (18 V to 30 V)
Control valve voltage of the valve terminal	24 VDC (18 V to 30 V)
Inherent power consumption of the load	< 45 mA (individual valve), < 12.5 mA after power consumption reduction
Logic max. current	50 mA
Max. logic power supply current	2 A
Maximum load power supply current	2 A
Power supply failure buffer	10 ms
Protection against residual voltage	Residual voltage < 0.5 V or lower
Protective functions	Short circuit detection upon power-on, open circuit detection, overcurrent protection, overvoltage protection, and undervoltage protection
Max. positive testing pulse	Signal with 0: 1200 μs
Max. negative testing pulse	Signal with 1: 3600 μs
Power consumption reduction supported	The power consumption of each circuit is reduced from 1 W to 0.3 W (24 V) 30 ms after power-on.
Hot-swapping	The valves support hot-swapping with power-on when the hot-swapping mode is enabled.

Item	Specifications	
Reverse polarity protection	The 24 VDC power supply is applied in the reverse direction by Pin1 and Pin3, 0 V by Pin1, and 24 V by Pin3. The 24 VDC power supply is applied in the reverse direction by Pin2 and Pin4, 24 V by Pin2, and 0 V by Pin4. Connection with incorrect polarity does not damage the device. The device can operate properly after you change the polarity correctly.	
Display GUI	• Main interface: Displays the operating state of the valves: normal, alarm, fault. • Information query interface: communication status module information query, valve information, and expansion module information • Valve terminal application interface: valve operation counter, activator (such as cylinder) operation counter • Diagnosis interface: diagnosis history information • System interface: language switchover, version information, and alias setting	
Communication protocol type	IO-Link, EtherCAT	
Hot swapping in communication	Hot-swapping is supported in EtherCAT ring network mode and IO-Link mode, without affecting other devices.	
Working medium	Compressed air	
Ambient temperature	-10°C to +55°C	
Requirements of the lithium battery industry	Cu< 1%, Zn < 1%, Ni < 12%, low dewpoint (-60°C)	
Working pressure	External pilot port: 0.25 MPa to 0.7 MPa, which must be 0.1 Mpa above the operating pressure of the air inlet Working pressure of the air inlet: -0.09 MPa to +0.7 MPa	
	Internal pilot Working pressure of air inlet: • 5/2 way valve with one solenoid: 0.15 MPa to 0.7 MPa • 5/2 way valve with two solenoids: 0.15 MPa to 0.7 MPa • 5/3 way: 0.25 MPa to 0.7 MPa • 2 x 3/2 way (reset via mechanical spring): 0.25 MPa to 0.7 MPa	
Max. flow of valves	10-Top piping	250 L/min
	10-Sideway piping	230 L/min
	15-Top piping	560 L/min
	15-Sideway piping	500 L/min
	18-Top piping	1080 L/min
	18-Sideway piping	900 L/min
Shock resistance	Shock test, severity level 2 (30 g shock)	
Vibration resistance	Vibration test, severity level 2 (5 g vibration)	
Corrosion resistance	Medium level	
Valve terminal status display	LCD & Display	
Hybrid installation	10 mm+15 mm supported, 15 mm +18 mm customizable	
Back pressure check	Prevents mal-operation of the valve end actuator when the air pressure in the air exhaust is too high.	
Pressure partition	Independent operation of valves supported	

Item	Specifications
Internal/External pilot switchover	The 10 mm, 15 mm, and 10 mm +15 mm valve terminals support switchover between internal and external pilot. 18 mm and 15 mm+ 18 mm valve terminals only supports external pilot, but they can achieve internal pilot function with a Y-type pneumatic adapter.
With air supply plate	After the pressure partition, the air supply plate supplies air independently.
Functions of valves	• 5/2 way valve with one solenoid • 5/2 way valve with two solenoids • 5/3 way valve that locked in neutral position • 5/3 way valve with mid-position pressurized • 5/3 way valve with mid-position exhausted • 2 x 3/2 way normally-open valve that reset via mechanical spring • 2 x 3/2 way normally-closed valve that reset via mechanical spring • 2 x 3/2 way valve that reset via mechanical spring, 1 x normally-open, 1 x normally-closed
Manual direction change of valve terminal	The solenoid valve direction can be changed manually in the de-energized state.
Number of valve holders	4, 6, 8, 10, 12, 16, 20, 24
Max. number of supported coils	48 bits
Max. number of valves supported	24 valves

3.4 Components

The IPT fieldbus valve terminal consists of the electrical communication module, functional valves, sub-bases, and other accessories, covering five types of specifications, which are 10 mm, 15 mm, 10 mm+15 mm, and 15 mm+18 mm. You can select the model of IPT valve terminals through specific configuration tool. All the configured valve terminals have been assembled properly before delivery and passed all the performance tests. This help minimize the assembly time on the user side.

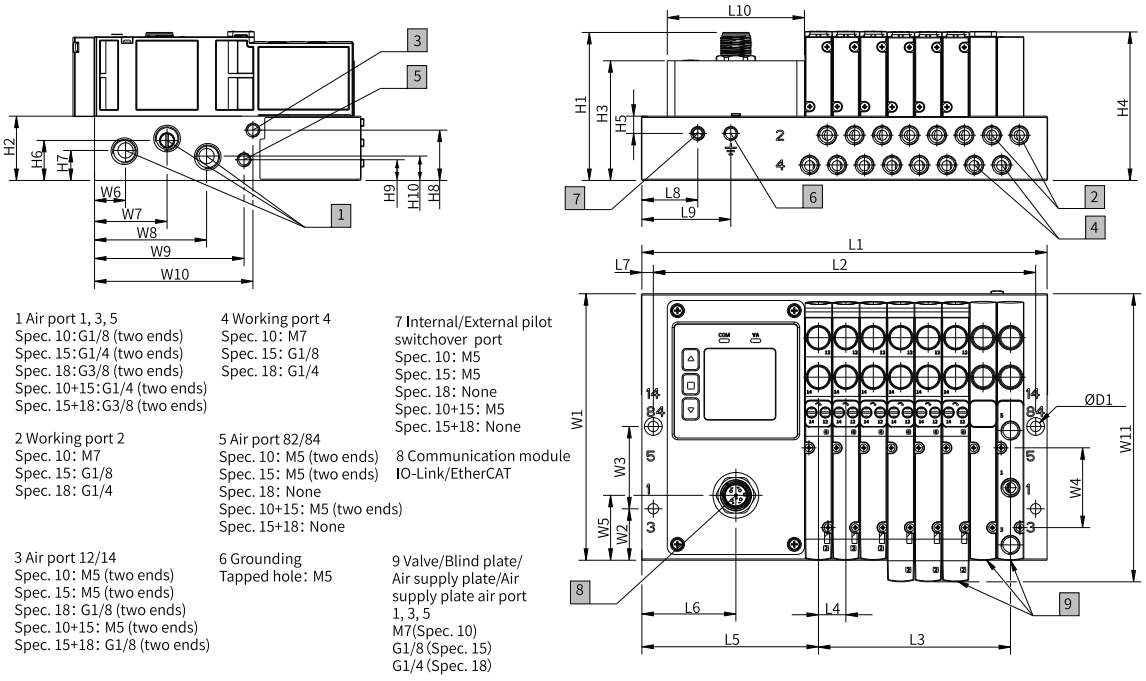


No.	Name
①	Electrical communication module
②	Functional valve

③	Pneumatic connection
④	External pilot module
⑤	Profile integrated sub-base

3.5 Product Dimensions

Sideway piping



1 Air port 1, 3, 5
Spec. 10：G1/8 (two ends)
Spec. 15：G1/4 (two ends)
Spec. 18：G3/8 (two ends)
Spec. 10+15：G1/4 (two ends)
Spec. 15+18：G3/8 (two ends)

2 Working port 2
Spec. 10：M7
Spec. 15：G1/8
Spec. 18：G1/4

3 Air port 12/14
Spec. 10：M5 (two ends)
Spec. 15：M5 (two ends)
Spec. 18：G1/8 (two ends)
Spec. 10+15：M5 (two ends)
Spec. 15+18：G1/8 (two ends)

4 Working port 4
Spec. 10：M7
Spec. 15：G1/8
Spec. 18：G1/4

5 Air port 82/84
Spec. 10：M5 (two ends)
Spec. 15：M5 (two ends)
Spec. 18：None
Spec. 10+15：M5 (two ends)
Spec. 15+18：None

6 Grounding
Tapped hole：M5

7 Internal/External pilot switchover port
Spec. 10：M5
Spec. 15：M5
Spec. 18：None
Spec. 10+15：M5
Spec. 15+18：None

8 Communication module
IO-Link/EtherCAT

9 Valve/Blind plate/
Air supply plate/Air supply plate air port
1, 3, 5
M7(Spec. 10)
G1/8 (Spec. 15)
G1/4 (Spec. 18)

Figure 3-2 Product dimensions (unit: mm)

Type/Dimension	L4	L5	L6	L7	L8	L9	L10	H1	H2	H3	H4	H5	H6	H7	H8
10 mm valve terminal	10.8	69.5	38.0	4.5	22.0	35.0	54.0	58.3	25.3	47.1	58.7	6.8	16.5	11.5	19.8
15 mm valve terminal	16.0	73.1	38.0	5.0	30.0	45.0	54.0	68.7	35.5	57.3	68.7	10.0	20.6	16.5	27.5
18 mm valve terminal	18.7	74.5	38.0	5.0	-	-	54.0	74.2	41.2	63.0	74.6	15.0	20.5	18.7	33.5
10 mm+15 mm hybrid valve terminal	10.8	69.5	38.0	5.0	30.0	45.0	54.0	68.7	35.5	57.3	68.7	10.0	20.6	16.5	27.5

Type/Dimension	H9	H10	D1	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11
10 mm valve terminal	8.2	9.3	4.1	104.9	20.3	32.4	31.4	25.6	11.8	28.6	44.6	58.9	62.4	113.4
15 mm valve terminal	17.0	14.5	4.5	123.7	28.0	20.5	42.0	52.8	17.5	38.2	58.7	75.1	80.7	135.9
18 mm valve terminal	-	25.7	5.5	141.1	34.4	25.3	53.0	61.8	21.4	46.9	74.4	95.3	-	156.5
10 mm+15 mm hybrid valve terminal	17.0	14.5	4.5	123.7	28.0	20.5	31.4	52.8	17.5	38.2	58.7	75.1	80.7	135.9

Type/Dimension	L1	L2	L3
10 mm valve terminal - 4-valve	117.1	107.3	32.4
10 mm valve terminal - 6-valve	138.7	128.9	54.0
10 mm valve terminal - 8-valve	160.3	150.5	75.6
10 mm valve terminal - 10-valve	181.9	172.1	97.2
10 mm valve terminal - 12-valve	203.5	193.7	118.8
10 mm valve terminal - 16-valve	246.7	236.9	162.0
10 mm valve terminal - 20-valve	289.9	280.1	205.2
10 mm valve terminal - 24-valve	333.1	323.3	248.4
15 mm valve terminal - 4-valve	140.3	128.5	48.0
15 mm valve terminal - 6-valve	172.3	160.5	80.0
15 mm valve terminal - 8-valve	204.3	192.5	112.0
15 mm valve terminal - 10-valve	236.3	224.5	144.0
15 mm valve terminal - 12-valve	268.3	256.5	176.0
15 mm valve terminal - 16-valve	332.3	320.5	240.0
15 mm valve terminal - 20-valve	396.3	384.5	304.0
15 mm valve terminal - 24-valve	460.3	448.5	368.0
18 mm valve terminal - 4-valve	152.1	140.1	56.1
18 mm valve terminal - 6-valve	190.5	177.5	93.5
18 mm valve terminal - 8-valve	227.9	214.9	130.9
18 mm valve terminal - 10-valve	265.3	252.3	168.3
18 mm valve terminal - 12-valve	302.7	289.7	205.7
18 mm valve terminal - 16-valve	377.5	364.5	280.5

Type/Dimension	L1	L2	L3
18 mm valve terminal - 20-valve	252.3	439.3	355.3
18 mm valve terminal - 24-valve	527.1	514.1	430.1
10 mm+15 mm hybrid valve terminal - 8-valve	184.0	172.2	32.4
10 mm+15 mm hybrid valve terminal - 10-valve	205.6	193.8	54.0
10 mm+15 mm hybrid valve terminal - 12-valve	227.2	215.4	75.6
10 mm+15 mm hybrid valve terminal - 14-valve	248.8	237.0	97.2
10 mm+15 mm hybrid valve terminal - 16-valve	270.4	258.6	118.8
10 mm+15 mm hybrid valve terminal - 20-valve	313.6	301.8	162.0
10 mm+15 mm hybrid valve terminal - 24-valve	356.8	345.0	205.2

Top piping

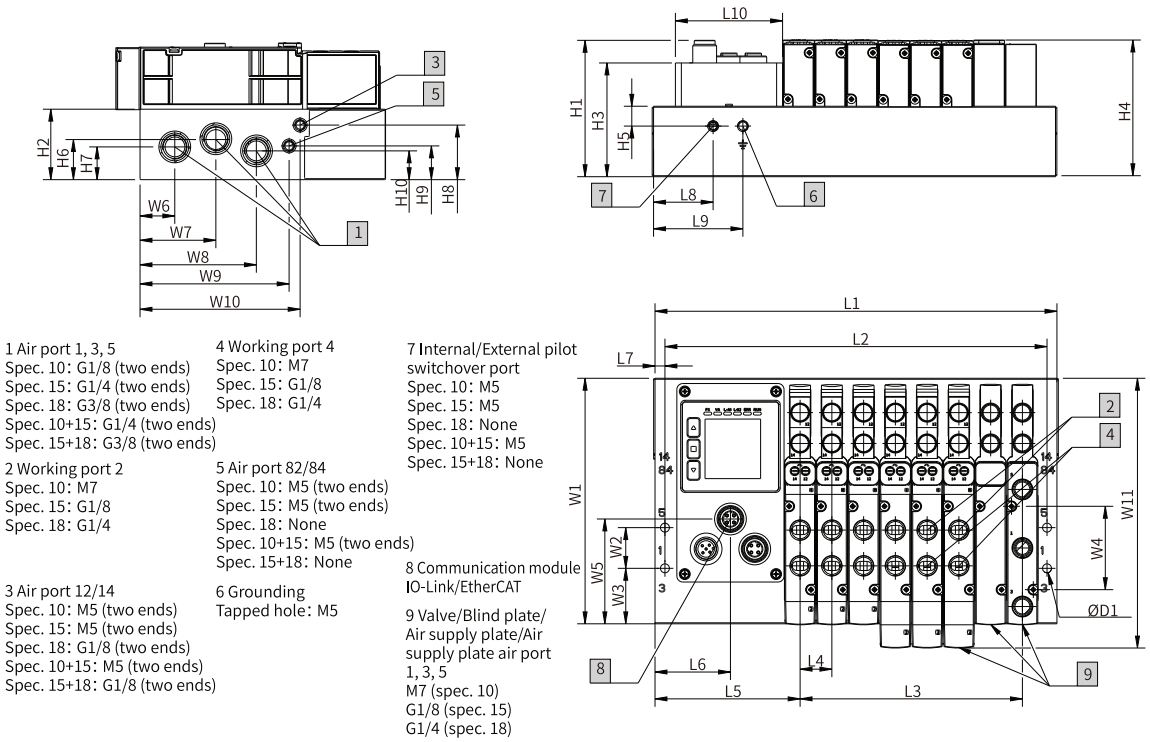


Figure 3-3 Product dimensions (unit: mm)

Type/Dimension	L4	L5	L6	L7	L8	L9	L10	H1	H2	H3	H4	H5	H6	H7	H8
10 mm valve terminal	10.8	69.5	38.0	4.5	22.0	35.0	54.0	58.3	25.3	47.1	58.7	6.8	16.5	11.5	19.8

15 mm valve terminal	16.0	73.1	38.0	5.0	30.0	45.0	54.0	68.7	35.5	57.3	68.7	10.0	20.6	16.5	27.5
18 mm valve terminal	18.7	74.5	38.0	5.0	-	-	54.0	74.2	41.2	63.0	74.6	15.0	20.5	18.7	33.5
10 mm+15 mm hybrid valve terminal	10.8	69.5	38.0	5.0	30.0	45.0	54.0	68.7	35.5	57.3	68.7	10.0	20.6	16.5	27.5

Type/Dimension	H9	H10	D1	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11
10 mm valve terminal	8.2	9.3	4.1	104.9	20.3	32.4	31.4	25.6	11.8	28.6	44.6	58.9	62.4	113.4
15 mm valve terminal	17.0	14.5	4.5	123.7	28.0	20.5	42.0	52.8	17.5	38.2	58.7	75.1	80.7	135.9
18 mm valve terminal	-	25.7	5.5	141.1	34.4	25.3	53.0	61.8	21.4	46.9	74.4	95.3	-	156.5
10 mm+15 mm hybrid valve terminal	17.0	14.5	4.5	123.7	28.0	20.5	31.4	52.8	17.5	38.2	58.7	75.1	80.7	135.9

Type/Dimension	L1	L2	L3
10 mm valve terminal - 4-valve	117.1	107.3	32.4
10 mm valve terminal - 6-valve	138.7	128.9	54.0
10 mm valve terminal - 8-valve	160.3	150.5	75.6
10 mm valve terminal - 10-valve	181.9	172.1	97.2
10 mm valve terminal - 12-valve	203.5	193.7	118.8
10 mm valve terminal - 16-valve	246.7	236.9	162.0
10 mm valve terminal - 20-valve	289.9	280.1	205.2
10 mm valve terminal - 24-valve	333.1	323.3	248.4
15 mm valve terminal - 4-valve	140.3	128.5	48.0
15 mm valve terminal - 6-valve	172.3	160.5	80.0
15 mm valve terminal - 8-valve	204.3	192.5	112.0
15 mm valve terminal - 10-valve	236.3	224.5	144.0
15 mm valve terminal - 12-valve	268.3	256.5	176.0
15 mm valve terminal - 16-valve	332.3	320.5	240.0
15 mm valve terminal - 20-valve	396.3	384.5	304.0
15 mm valve terminal - 24-valve	460.3	448.5	368.0
18 mm valve terminal - 4-valve	152.1	140.1	56.1

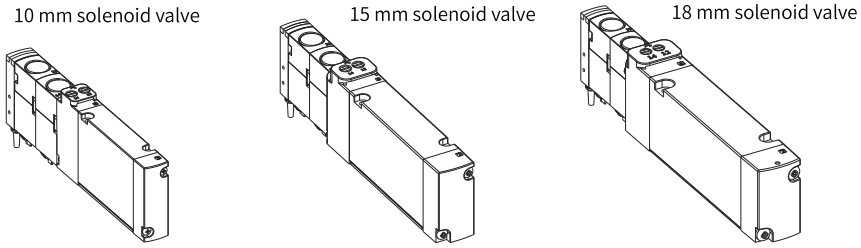
Type/Dimension	L1	L2	L3
18 mm valve terminal - 6-valve	190.5	177.5	93.5
18 mm valve terminal - 8-valve	227.9	214.9	130.9
18 mm- valve terminal - 10-valve	265.3	252.3	168.3
18 mm valve terminal - 12-valve	302.7	289.7	205.7
18 mm valve terminal - 16-valve	377.5	364.5	280.5
18 mm valve terminal - 20-valve	252.3	439.3	355.3
18 mm valve terminal - 24-valve	527.1	514.1	430.1
10 mm+15 mm hybrid valve terminal - 8-valve	184.0	172.2	32.4
10 mm+15 mm hybrid valve terminal - 10-valve	205.6	193.8	54.0
10 mm+15 mm hybrid valve terminal - 12-valve	227.2	215.4	75.6
10 mm+15 mm hybrid valve terminal - 14-valve	248.8	237.0	97.2
10 mm+15 mm hybrid valve terminal - 16-valve	270.4	258.6	118.8
10 mm+15 mm hybrid valve terminal - 20-valve	313.6	301.8	162.0
10 mm+15 mm hybrid valve terminal - 24-valve	356.8	345.0	205.2

4 IPV210 Series Solenoid Valves

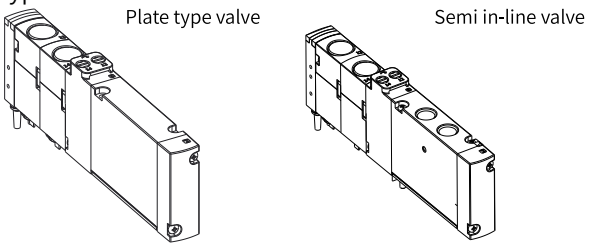
4.1 Product Characteristics

The IPT valve terminal supports 10 mm, 15 mm, and 18 mm valves to fit different application needs. In addition, semi in-line valves and plate type valves are also available to fit different installation modes. The valves include 5/2 way valve with single solenoid, 5/2 way valve with dual solenoids, 5/3 way valve that locked in neutral position, 5/3 way valve with mid-position pressurized, 2 x 3/2 way solenoid valve that reset through mechanical spring, covering all the main valve functions.

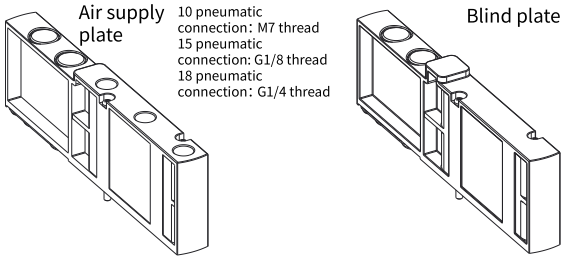
- 10 mm, 15 mm, 18 mm



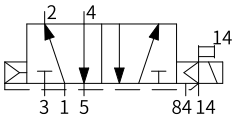
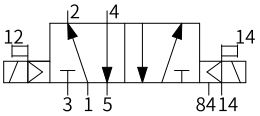
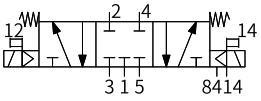
- Plate type, semi in-line type

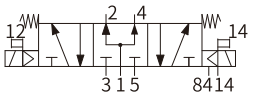
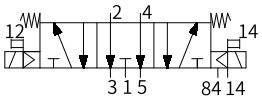
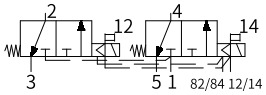
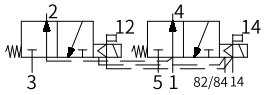
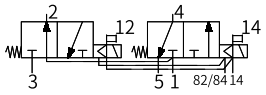


- Air supply plate, blind plate



- Valve functions

Valve function description	Abbreviation	Function symbols
5/2 way solenoid valve with one solenoid	A	
5/2 way solenoid valve with two solenoids	B	
5/3 way solenoid valve that locked in neutral position and reset via mechanical spring	C	

Valve function description	Abbreviation	Function symbols
5/3 way solenoid valve that reset via mechanical spring with mid-position pressurized	D	
5/3 way solenoid valve that reset via mechanical spring with mid-position exhausted	E	
2 x 3/2 way normally-closed solenoid valve that reset via mechanical spring	P	
2 x 3/2 way normally-open solenoid valve that reset via mechanical spring	Q	
2 x 3/2 way solenoid valve that reset via mechanical spring, 1 x normally-open, 1 x normally-closed solenoid valve that reset via mechanical spring	R	

4.2 Model Description

IPV210 L - S 10 C 2 - S D M7 A
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

① **Product series** IPV210: Solenoid valve series for valve terminal	② **Industry-tailored** _: General-purpose solenoid valve L: Solenoid valve for lithium battery industry	③ **Installation mode** S: Semi in-line type B: Plate type
④ **Valve width** 10: 10 mm 15: 15 mm 18: 18 mm	⑤ **Valve function** A: 5/2 way valve with one solenoid B: 5/2 way valve with two solenoids C: 5/3 way valve that locked in neutral position D: 5/3 valve with mid-position pressurized E: 5/3 way valve with mid-position exhausted P: 2 x 3/2 way normally-closed valve that reset via mechanical spring Q: 2 x 3/2 way normally-open valve that reset via mechanical spring R: 2 x 3/2 way valve that reset via mechanical spring, 1 x normally-open, 1 x normally-closed	⑥ **Pilot mode** 2: External pilot ⑦ **Valve reset mode** S: Reset via mechanical spring P: Reset via pneumatic spring [1]
⑧ **Button mode** D: Press to lock	⑨ **Pneumatic connection type** _: Plate type valve M7: M7 thread G01: G1/8 thread G02: G1/4 thread	⑩ **Voltage** A: 24 VDC

Note

Valve function A/B is reset via pneumatic spring and C/D/E/P/Q/R is reset via mechanical spring.

4.3 Technical Specifications

Valve function	A	B	C	D	E	P	Q	R
	5/2 way valve with one solenoid	5/2 way valve with two solenoids	5/3 way valve that locked in neutral position	5/3 way valve with mid-position pressurized	5/3 way valve with mid-position exhausted	2 x 3/2 way NC valve with spring reset mode	2 x 3/2 way NO valve with spring reset mode	2 x 3/2 way valve that reset via mechanical spring, 1 x NO, 1 x NC
Reset mode	Pneumatic reset		Reset via mechanical spring			Reset via mechanical spring		
Negative vacuum pressure supported	Yes - External pilot air supply					Yes - External pilot air supply		
Max. operating frequency	5 Hz		3 Hz			3 Hz		
Working medium	Compressed air (filter accuracy above 40 μm)							
Control mode	Pilot control							
Max. pressure resistance	1.05 MPa							
Ambient temperature	-10°C to +60°C							
Storage temperature	-20°C to +60°C							
Corrosion resistance	Medium level							
Structural feature	Piston valve							
Sealing theory	Soft sealing							
Manual-controlled switch	Manual switchover of valve core supported							
IP rating	IP65, IP67 (installed and tested on the manifold block)							
Working pressure range (external pilot)	-0.09 MPa to +0.7 MPa					-0.09 MPa to +0.7 MPa		
Working pressure range (internal pilot)	0.15 MPa to 0.7 MPa		0.25 MPa to 0.7 MPa			0.25 MPa to 0.7 MPa		
Pilot port working pressure range	0.25 MPa to 0.7 MPa. When using an external pilot, the working pressure of the pilot port must be 0.1 MPa higher than that of the air inlet.							
Response time of 10 mm valve: ON	< 15 ms		< 20 ms			< 18 ms		
Response time of 10 mm valve: OFF	< 15 ms		< 20 ms			< 18 ms		
Response time of 15 mm valve: ON	< 25 ms		< 40 ms			< 30 ms		
Response time of 15 mm valve: OFF	< 25 ms		< 40 ms			< 30 ms		
Response time of 18 mm valve: ON	< 40 ms		< 55 ms			< 40 ms		
Response time of 18 mm valve: OFF	< 40 ms		< 55 ms			< 40 ms		
Flow of 10 mm valve - Sideway operation [1]	230 L/min		220 L/min			175 L/min		
Flow of 10 mm valve - Top operation [1]	250 L/min		240 L/min			175 L/min		

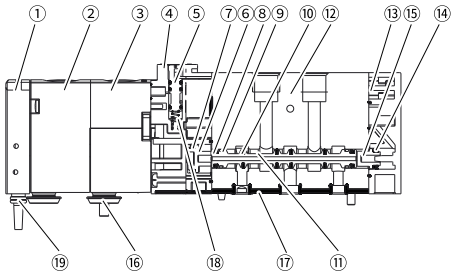
Valve function	A	B	C	D	E	P	Q	R
	5/2 way valve with one solenoid	5/2 way valve with two solenoids	5/3 way valve that locked in neutral position	5/3 way valve with mid-position pressurized	5/3 way valve with mid-position exhausted	2 x 3/2 way NC valve with spring reset mode	2 x 3/2 way NO valve with spring reset mode	2 x 3/2 way valve that reset via mechanical spring, 1 x NO, 1 x NC
Flow of 15 mm valve - Sideway operation [1]	500 L/min		450 L/min			450 L/min		
Flow of 15 mm valve - Top operation [1]	560 L/min		530 L/min			450 L/min		
Flow of 18 mm valve - Sideway operation [1]	900 L/min		810 L/min			710 L/min		
Flow of 18 mm valve - Top operation [1]	1080 L/min		900 L/min			710 L/min		
Signal display	LED (orange) ON							
Operating voltage of valves	24 VDC (18 V to 30 V)							
Power	1 W							
Certification	CE, compliant with European EMC directives.							
Electrical connection of valves	Insert-type							
Shock resistance	Shock test, severity level 2 (30 g shock)							
Vibration resistance	Vibration test, severity level 2 (5 g vibration)							
Insulation class	F							
Enclosure	Aluminum alloy							
Valve core	Aluminum alloy					Resin		
Sealing part	HNBR, NBR							
Piston	Resin							
Material requirement	Compliant with RoHS							

Note

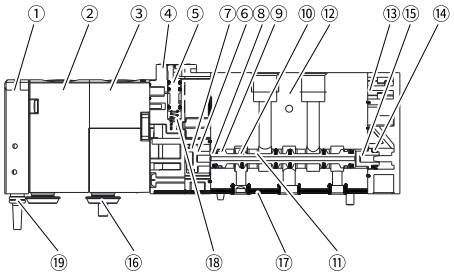
[1] Based on the difference between the test equipment and test conditions, the flow error range is ±15%.

4.4 Components

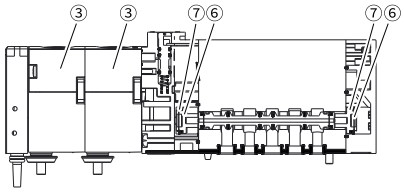
5/2 way valve with one solenoid - plate type



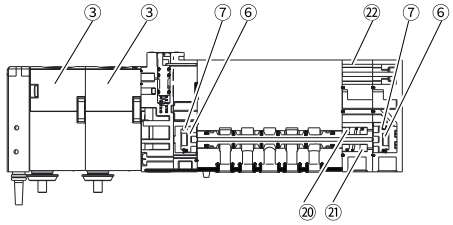
5/2 way valve with one solenoid - semi in-line type



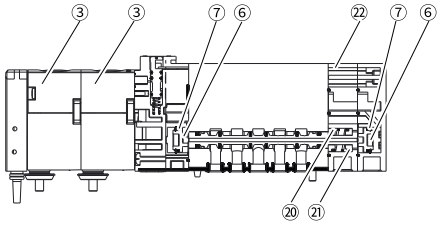
5/2 way valve with two solenoids



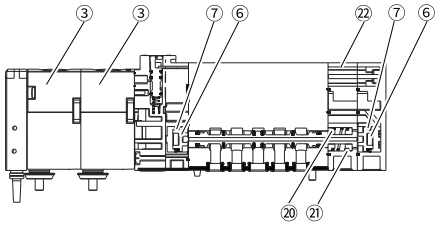
5/3 way valve that locked in neutral position



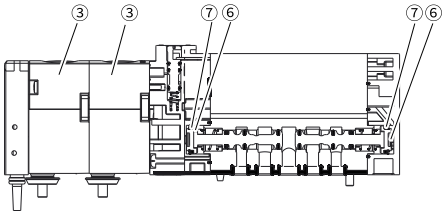
5/3 way valve with mid-position exhausted



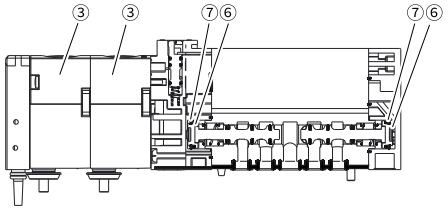
5/3 way valve with mid-position pressurized



2 x 3/2 way normally-closed solenoid valve that reset via mechanical spring



2 x 3/2 way normally-open solenoid valve that reset via mechanical spring



2 x 3/2 way solenoid valve that reset via mechanical spring, 1 x normally-open, 1 x normally-closed

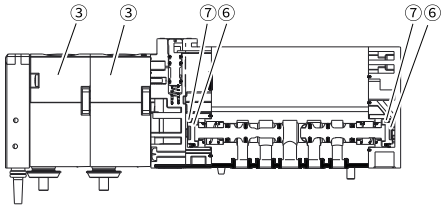


Table 4–1 Internal structure and components

No.	Name	No.	Name	No.	Name	No.	Name
①	Light-guiding components	⑦	Large piston Y-ring	⑬	Rear cover	⑲	Dust-proof ring of light guide
②	Pilot valve blind plate	⑧	Y-ring of the valve core	⑭	Small piston Y-ring	⑳	Reset base
③	Pilot valve	⑨	Wear ring	⑮	Small piston	㉑	Reset spring
④	Guide body	⑩	Valve core O-ring	⑯	Dust-proof ring of pilot valve	㉒	Side cover
⑤	Manual pin	⑪	Valve core	⑰	Solenoid valve sealing gasket		
⑥	Large piston	⑫	Valve body	⑱	Manual pin reset spring		

4.5 Product Dimensions

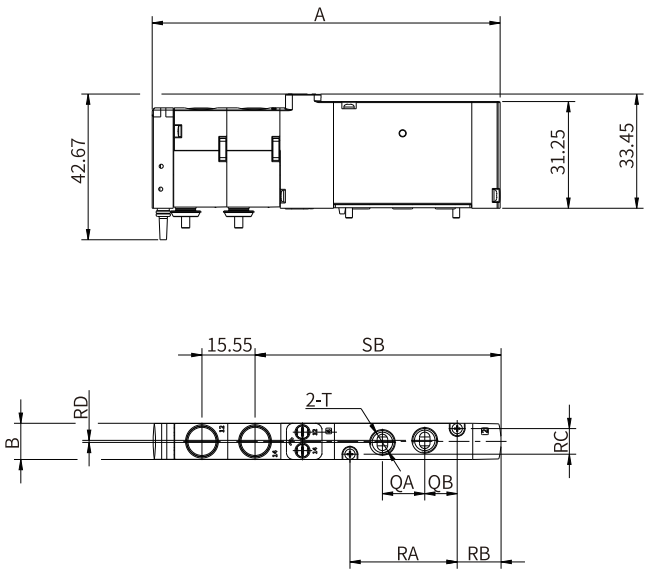


Figure 4-1 Product dimensions (mm)

Valve width	Valve model	A	B	SB	RA	RB	RC	RD-	QA*	QB*	T*	Weight (g)
10	5/2 way	102	10.6	72.1	31.4	12.9	7.5	0.6	12.4	9.5	M7x1	65
	5/3 way	110	10.6	80.6	31.4	21.4	7.5	0.6	12.4	9.5	M7x1	65
	2 x 3/2 way	102	10.6	72.1	31.4	12.9	7.5	0.6	12.4	9.5	M7x1	65
15	5/2 way	121	15.8	91.4	42	17.7	11	-	18	12	G1/8	102
	5/3 way	133	15.8	103.1	42	29.4	11	-	18	12	G1/8	102
	2 x 3/2 way	121	15.8	91.4	42	17.7	11	-	18	12	G1/8	102
18	5/2 way	138	18.5	108.3	53	20.4	12.5	-	22	16	G1/4	150
	5/3 way	152	18.5	121.9	53	34	12.5	-	22	16	G1/4	150
	2 x 3/2 way	138	18.5	108.3	53	20.4	12.5	-	22	16	G1/4	150

Note

* The dimensions of QA, QB, and T are used only for semi in-line valves.

4.6 Ordering Data

Name	Appearance	Model	Description	Material code
Semi in-line solenoid valve - Lithium battery type		IPV210L-S10A2-PDM7A	5/2 way semi in-line 10 mm solenoid valve that reset via pneumatic spring and carries one solenoid	01540545
		IPV210L-S10B2-PDM7A	5/2 way semi in-line 10 mm solenoid valve that reset via pneumatic spring and carries two solenoids	01540546
		IPV210L-S10C2-SDM7A	5/3 way semi in-line 10 mm solenoid valve that locked in neutral position and reset via mechanical spring	01540547
		IPV210L-S10D2-SDM7A	5/3 way semi in-line 10 mm solenoid valve with mid-position pressurized and reset via mechanical spring	01540548
		IPV210L-S10E2-SDM7A	5/3 way semi in-line 10 mm solenoid valve that reset via mechanical spring, with mid-position exhausted	01540549
		IPV210L-S10P2-SDM7A	2 x 3/2 way semi in-line 10 mm normally-closed solenoid valve that reset via mechanical spring	01540553
		IPV210L-S10Q2-SDM7A	2 x 3/2 way semi in-line 10 mm normally-open solenoid valve that reset via mechanical spring	01540554
		IPV210L-S10R2-SDM7A	2 x 3/2 way, 1 x normally-opened, 1 x normally-closed semi in-line 10 mm-wide solenoid valve that reset via mechanical spring	01540555
		IPV210L-S15A2-PDG01A	5/2 way semi in-line 15 mm solenoid valve that reset via pneumatic spring and carries one solenoid	01540567
		IPV210L-S15B2-PDG01A	5/2 way semi in-line 15 mm solenoid valve that reset via pneumatic spring and carries two solenoids	01540568
		IPV210L-S15C2-SDG01A	5/3 way semi in-line 15 mm solenoid valve that locked in neutral position and reset via mechanical spring	01540569
		IPV210L-S15D2-SDG01A	5/3 way semi in-line 15 mm solenoid valve that reset via mechanical spring, with mid-position pressurized	01540570
		IPV210L-S15E2-SDG01A	5/3 way semi in-line 15 mm solenoid valve that reset via mechanical spring, with mid-position exhausted	01540571
		IPV210L-S15P2-SDG01A	2 x 3/2 way semi in-line 15 mm normally-closed solenoid valve that reset via mechanical spring	01540575
		IPV210L-S15Q2-SDG01A	2 x 3/2 way semi in-line 15 mm normally-open solenoid valve that reset via mechanical spring	01540576
		IPV210L-S15R2-SDG01A	2 x 3/2 way, 1 x normally-opened, 1 x normally-closed semi in-line 15 mm-wide solenoid valve that reset via mechanical spring	01540577
		IPV210L-S18A2-PDG02A	5/2 way semi in-line 18 mm solenoid valve that reset via pneumatic spring and carries one solenoid	01540589
		IPV210L-S18B2-PDG02A	5/2 way semi in-line 18 mm solenoid valve that reset via pneumatic spring and carries two solenoids	01540590

Name	Appearance	Model	Description	Material code
(Continued)		IPV210L-S18C2-SDG02A	5/3 way semi in-line 18 mm solenoid valve that locked in neutral position and reset via mechanical spring	01540591
		IPV210L-S18D2-SDG02A	5/3 way semi in-line 18 mm solenoid valve that reset via mechanical spring, with mid-position pressurized	01540592
		IPV210L-S18E2-SDG02A	5/3 way semi in-line 18 mm solenoid valve that reset via mechanical spring, with mid-position exhausted	01540593
		IPV210L-S18L2-SDG02A	2 x 3/2 way semi in-line 18 mm normally-closed solenoid valve that reset via mechanical spring	01540597
		IPV210L-S18M2-SDG02A	2 x 3/2 way semi in-line 18 mm normally-open solenoid valve that reset via mechanical spring	01540598
		IPV210L-S18N2-SDG02A	2 x 3/2 way, 1 x normally-opened, 1 x normally-closed semi in-line 18 mm-wide solenoid valve that reset via mechanical spring	01540599

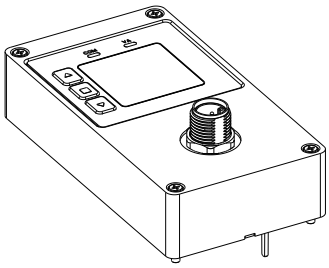
Name	Appearance	Model	Description	Material code
Plate type solenoid valve - Lithium battery type		IPV210L-B10A2-PDA	5/2 way 10 mm plate type solenoid valve that reset via pneumatic spring and carries one solenoid	01540556
		IPV210L-B10B2-PDA	5/2 way 10 mm plate type solenoid valve that reset via pneumatic spring and carries two solenoids	01540557
		IPV210L-B10C2-SDA	5/3 way 10 mm plate type solenoid valve that locked in neutral position and reset with mechanical spring	01540558
		IPV210L-B10D2-SDA	5/3 way 10 mm plate type solenoid valve that reset via mechanical spring, with mid-position pressurized	01540559
		IPV210L-B10E2-SDA	5/3 way 10 mm plate type solenoid valve that reset via mechanical spring, with mid-position exhausted	01540560
		IPV210L-B10P2-SDA	2 x 3/2 way 10 mm plate type normally-closed solenoid valve that reset via mechanical spring	01540564
		IPV210L-B10Q2-SDA	2 x 3/2 10 mm plate type normally-open solenoid valve that reset via mechanical spring	01540565
		IPV210L-B10R2-SDA	2 x 3/2, 1 x normally-opened, 1 x normally-closed 10 mm-wide plate type solenoid valve that reset via mechanical spring	01540566
		IPV210L-B15A2-PDA	5/2 way 15 mm plate type solenoid valve that reset via mechanical spring and carries one solenoid	01540578
		IPV210L-B15B2-PDA	5/2 way 15 mm plate type solenoid valve that reset via pneumatic spring and carries two solenoids	01540579
		IPV210L-B15C2-SDA	5/3 way 15 mm plate type solenoid valve that locked in neutral position and reset via mechanical spring	01540580
		IPV210L-B15D2-SDA	5/3 way 15 mm plate type solenoid valve that reset via mechanical spring, with mid-position pressurized	01540581
		IPV210L-B15E2-SDA	5/3 way 15 mm plate type solenoid valve that reset via mechanical spring, with mid-position exhausted	01540582
		IPV210L-B15P2-SDA	2 x 3/2 15 mm plate type normally-closed solenoid valve that reset via mechanical spring	01540586
		IPV210L-B15Q2-SDA	2 x 3/2 15 mm plate type normally-open solenoid valve that reset via mechanical spring	01540587
		IPV210L-B15R2-SDA	2 x 3/2, 1 x normally-opened, 1 x normally-closed 15 mm-wide plate type solenoid valve that reset via mechanical spring	01540588
		IPV210L-B18A2-PDA	5/2 way 18 mm plate type solenoid valve that reset with pneumatic spring and carries one solenoid	01540600
		IPV210L-B18B2-PDA	5/2 way 18 mm plate type solenoid valve that reset with pneumatic spring and carries two solenoids	01540601

Name	Appearance	Model	Description	Material code
(Continued)		IPV210L-B18C2-SDA	5/3 way 18 mm plate type solenoid valve that locked in neutral position and reset via mechanical spring	01540602
		IPV210L-B18D2-SDA	5/3 way 18 mm plate type solenoid valve that reset via mechanical spring, with mid-position pressurized	01540603
		IPV210L-B18E2-SDA	5/3 way 18 mm plate type solenoid valve that reset via mechanical spring, with mid-position exhausted	01540604
		IPV210L-B18L2-SDA	2 x 3/2 18 mm plate type normally-closed solenoid valve that reset via mechanical spring	01540608
		IPV210L-B18M2-SDA	2 x 3/2 18 mm plate type normally-open solenoid valve that reset via mechanical spring	01540609
		IPV210L-B18N2-SDA	2 x 3/2, 1 x normally-opened, 1 x normally-closed 18 mm-wide plate type solenoid valve that reset via mechanical spring	01540610
Blind plate		IPT210-A-B10-BP	10 mm solenoid valve blind plate	01550219
		IPT210-A-B15-BP	15 mm solenoid valve blind plate	01550220
		IPT210-A-B18-BP	18 mm solenoid valve blind plate	01550221
Air supply plate		IPT210-A-B10-SM7	10 mm solenoid air supply plate	01550222
		IPT210-A-B15-SG01	15 mm solenoid air supply plate	01550223
		IPT210-A-B18-SG02	18 mm solenoid air supply plate	01550224

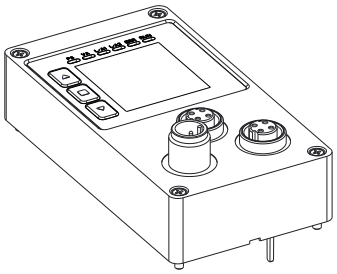
5 Communication Module Series

5.1 Product Characteristics

The IPT fieldbus valve terminal supports EtherCAT and IO-Link, the two most popular communication protocols in the market. They are equipped with interface display functions to enable better human-machine interaction, and provide easy commissioning and problem analysis for users on-site.



IO-Link



EtherCAT

5.2 Model Description

IPT210 - A - IL - CM
① ② ③ ④

① **Product series** IPT210: Standard valve terminal series	② **Product type** A: Accessory
③ **Communication protocol type** IL: IO-Link ECT: EtherCAT	④ **Accessory type** CM: Communication module

5.3 Components

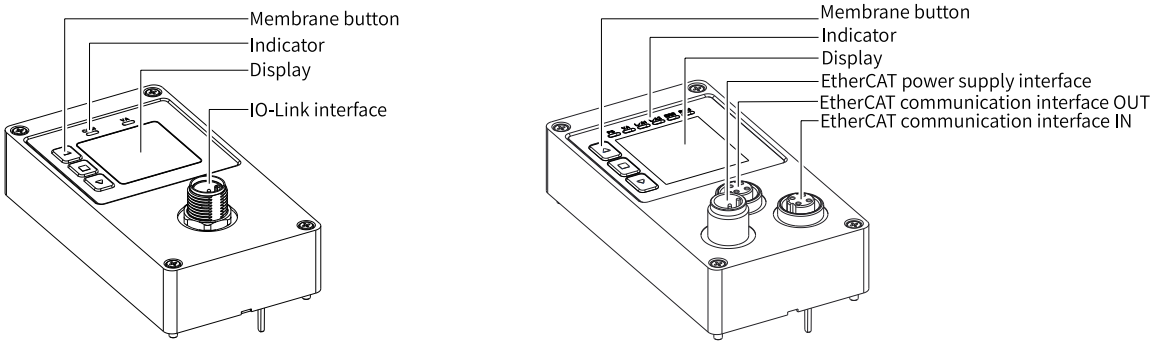


Figure 5-1 Component description (left: IO-Link communication module; right: EtherCAT communication module)

5.4 Technical Specifications

5.4.1 IO-Link Communication Module

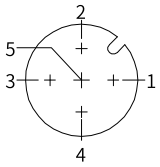
Table 5–1 Technical specifications

Item	Specifications
Communication mode	IO-Link
Process data length	Input 8-byte/Output 8-byte
Electrical interface	M12 plug - 5 pins
	A-coded (class B)
	The metal thread is used for shielding purpose.
Supported configuration	IODD XML file
Baud rate	COM3 (230.4 kbps)
Min. cycle period	2 ms
Operating voltage	24 VDC (18 V to 30 V)
Load voltage	24 VDC (18 V to 30 V)
Power supply failure buffer	10 ms
Inherent current consumption, logic power supply	60 mA
Inherent current consumption, valve power supply	< 45 mA (individual valve), < 12.5 mA after power consumption reduction
Max. number of electromagnetic coils	48
Max. number of valves	24
Max. address capacity (input)	8-byte
Max. address capacity (output)	8-byte
Ambient temperature	-10°C to +55°C
Product weight	49 g
Corrosion resistance	Medium level
Certification	CE
Display	Supports human-machine interaction, display, and setting of valve terminal parameters.
Installation mode	Screw installation
Status display	Display & LED
Protective functions	Open circuit detection, overcurrent protection, overvoltage protection, and undervoltage protection
Device diagnosis	Communication diagnosis, logic power supply voltage diagnosis, load power supply voltage diagnosis, load power supply overcurrent diagnosis, and valve insertion detection diagnosis
Load detection	Valve coil counter, actuator counter, and valve coil open circuit detection
Valve sub-base detection	Detects the sub-base width and number of valves.
Parameter setting	Manual enable of coils, actuator counter clear, safety mode setting, and hot-swapping setting
Additional functions	Parameter dictionary read/write supported
	DS parameter storage supported
	IO-Link slave upgrade through IO-Link protocol supported

Table 5–2 IO-Link indicator

LED indicator				Description
COM	Green	OFF	○	Power supply voltage too low
		Solid ON		IO-Link communication fault
		Flashing in green		Communication OK
	Red	OFF	○	No error
		Flashing		Internal communication fault
VA	Green	Solid ON		Communication and valve operation OK
	Red	OFF	○	No error
		Flashing in red		Valve fault

Table 5–3 Pin assignment (class B)

Name	Pin		Color	Function
	1	24V_US	Brown	Working power supply voltage (electronic components)
	2	24V_UA	White	Load power supply voltage (valve)
	3	0V_US	Blue	Working power supply voltage (electronic components)
	4	C/Q	Black	Data communication
	5	0V_UA	Gray	Load power supply voltage (valve)

5.4.2 EtherCAT Communication Module

Table 5–4 Technical Specifications

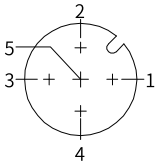
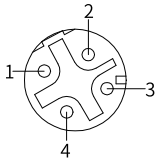
Item	Specifications
Communication mode	EtherCAT
Electrical interface	M12 plug - 5 pins, A-coded
Communication interface	2 x M12 plug - 4 pins, D-coded
Supported configuration	XML file
Baud rate	100 Mbps
Min. cycle period	1 ms
Operating voltage	24 VDC (18 V to 30 V)
Load voltage	24 VDC (18 V to 30 V)
Power supply failure buffer	10 ms
Inherent current consumption, logic power supply	100 mA
Inherent current consumption, valve power supply	< 45 mA (individual valve), < 12.5 mA after power consumption reduction
Max. number of electromagnetic coils	48
Max. number of valves	24
Ambient temperature	-10°C to +55°C

Item	Specifications
Product weight	49 g
Corrosion resistance	Medium level
Certification	CE
Display	Supports human-machine interaction, display, and setting of valve terminal parameters.
Installation mode	Screw installation
Status display	Display & LCD
Hot swapping in communication	Hot-swapping is supported in EtherCAT ring network mode and IO-Link mode, without affecting other devices.
Device diagnosis	Communication diagnosis, logic power supply voltage diagnosis, load power supply voltage diagnosis, load power supply overcurrent diagnosis, and valve insertion detection diagnosis
Load detection	Valve coil counter, actuator counter, and valve coil open circuit detection
Valve sub-base detection	Detects the sub-base width and number of valves.
Parameter setting	Manual enable of coils, actuator counter clear, safety mode setting, and hot-swapping setting
Additional functions	Access to standard COE supported
	DC and SM mode synchronization supported
	Ring network redundancy supported
	ECAT and FOE slave upgrade through EOE supported

Indicator	Status			Status indication
RUN	Green	OFF	○	EtherCAT initialization
		Flashing		EtherCAT pre-operational
		Single flashing		EtherCAT safe-operational
		Solid ON		EtherCAT running normally
ERR	Red	OFF	○	EtherCAT communication OK
		Double flashing		EtherCAT watchdog timeout
		Flashing		EtherCAT SM setting error
L/A1 (IN)	Green	OFF	○	No link in EtherCAT
		Flashing		Link and data transmission existed in EtherCAT
		Solid ON		Link existed but no data transmission in EtherCAT
L/A2 (OUT)	Green	OFF	○	No link in EtherCAT
		Flashing		Link and data transmission existed in EtherCAT
		Solid ON		Link existed but no data transmission in EtherCAT
PS	Green	OFF	○	Logic voltage lower than 11 V
		Flashing		The logic voltage or load voltage is lower than 18 V or higher than 30 V.
		Solid ON		Logic voltage and load voltage OK

Indicator	Status			Status indication
VA	Green	Solid ON		Valve and internal communication OK
	Red	OFF		No error
		Flashing		Error message & Internal communication error

Table 5–5 Pin assignment

Power supply, M12, A-coded	Pin		Color	Function
	1	24V_US	Brown	Working voltage power supply (communication module)
	2	24V_UA	White	Load voltage power supply (valves)
	3	0V_US	Blue	Working voltage power supply (communication module)
	4	0V_UA	Black	Load voltage power supply (valves)
	5	FE	Gray	Grounding
Communication interface, M12, D-coded	**Pin**			**Function**
	1	TD+		Transmitting data+
	2	RD+		Receiving data+
	3	TD-		Transmitting data-
	4	RD-		Receiving data-
	Enclosure			Cable shield, connected to functional grounding

5.5 Product Dimensions

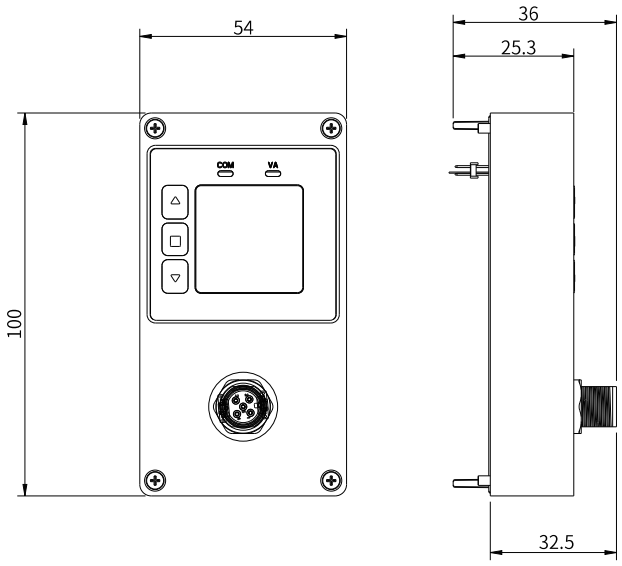


Figure 5-2 Dimensions of IO-Link communication module (unit: mm)

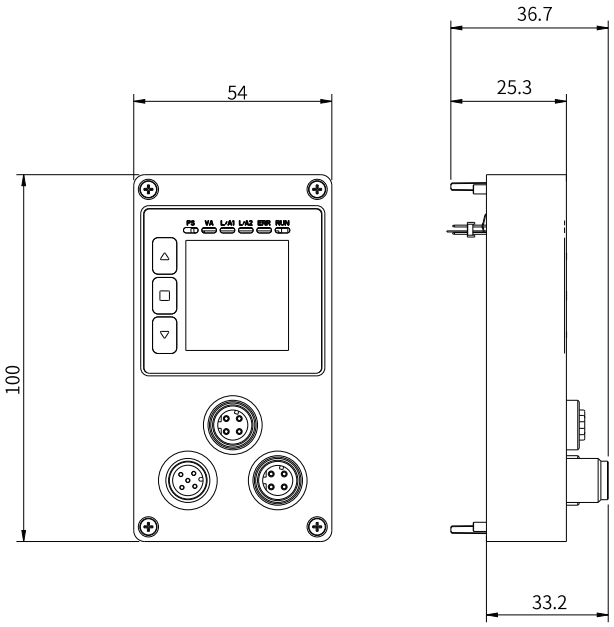


Figure 5-3 Dimensions of EtherCAT communication module (unit: mm)

5.6 Ordering Data

Name	Appearance	Model	Description	Material code
Communication module series		IPT210-A-IL-CM	IO-Link communication module	01550145
		IPT210-A-ECT-CM	EtherCAT communication module	01550146

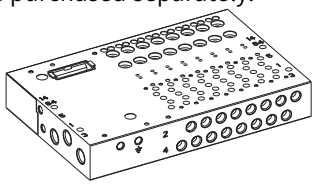
6 IPT Valve Terminal Sub-base Series

6.1 Product Characteristics

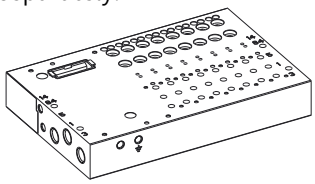
The IPT sub-base module includes the driver board, profile sub-base, sealing surface and snap hook to facilitate the building of customized valve terminal modules.

Currently, the IPT sub-bus valve terminal has three types of sub-bases:

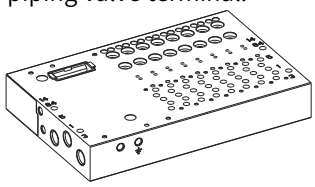
- Sideway piping: Applicable to plate type valves. The working port locates on the side face of the valve terminal. You can purchase it separately according to the ordering code. The sideway piping sub-base of hybrid valves cannot be purchased separately.



- Top piping: Applicable to semi in-line valves. The working port locates on the top of the valve terminal. You can purchase it separately according to the ordering code. The top piping sub-base of hybrid valves cannot be purchased separately.



- Bottom piping: Applicable to the installation of the control cabinet. The working port locates at the bottom, but the sub-base of the bottom piping cannot be purchased separately. Customization is available only for the whole bottom piping valve terminal.



Note

For special requirements or customization, consult the sales personnel.

6.2 Model Description

IPT210 - A - S 10 - B 6 G
① ② ③ ④ ⑤ ⑥ ⑦

① **Product series** IPT210: Standard valve terminal series IPT211: Hybrid valve terminal series[1]	② **Product type** A: Accessory	③ **Installation mode** S: Semi in-line valve top piping sub-base BL: Plate type valve sideway piping sub-base BB: Plate type valve bottom piping sub-base [1]
④ **Valve width** 10: 10 mm 15: 15 mm 18: 18 mm A1: 10 mm+15 mm [1] A2: 15 mm+18 mm [1]	⑥ **Number of valves** 4: 4 6: 6 8: 8 10: 10 12: 12 16: 16 20: 20 24: 24	⑦ **Thread** G: G thread
⑤ **Accessory type** B: Sub-base		

Note

[1] The hybrid type and bottom piping type sub-bases cannot be purchased separately.

6.3 Technical Specifications

Item		Specifications				
Manifold block		10	15	18	10+15 (A1) [1]	15+18 (A2) [1]
Connection mode		Plate type/Semi in-line type				
Working port piping mode		Bottom piping [1]/Top piping/ Sideway piping		Top piping/Sideway piping		
Installation position		Any				
Max. number of valves		24				
Air port	12, 14	M5	M5	G1/8	M5	G1/8
	82, 84	M5	M5	G1/8	M5	G1/8
	2, 4	M7	G1/8	G1/4	M7 (10) G1/8 (15)	G1/8 (15) G1/4 (18)
	1, 3, 5	G1/8	G1/4	G3/8	G1/4	G3/8
Storage temperature		-20°C to +60°C				
Certification		CE				
Corrosion resistance		Medium level				
Material		Aluminum alloy				

Note

[1] The hybrid type and bottom piping type sub-bases cannot be purchased separately.

Table 6–1 Sub-base weight (unit: g)

Valve position x	4	6	8	10	12	16	20	24
IPT210-A-S10-BxG	590	699	808	916	1025	1243	1460	1678
IPT210-A-BL10-BxG	661	769	869	977	1085	1301	1518	1734
IPT210-A-S15-BxG	1158	1425	1692	1959	2226	2761	3295	3829
IPT210-A-BL15-BxG	1315	1569	1823	2077	2330	2838	3346	3853
IPT210-A-S18-BxG	1461	1861	2261	2661	3061	3861	4661	5461
IPT210-A-BL18-BxG	1461	1861	2261	2661	3061	3861	4661	5461

6.4 Product Dimensions

Sideway piping

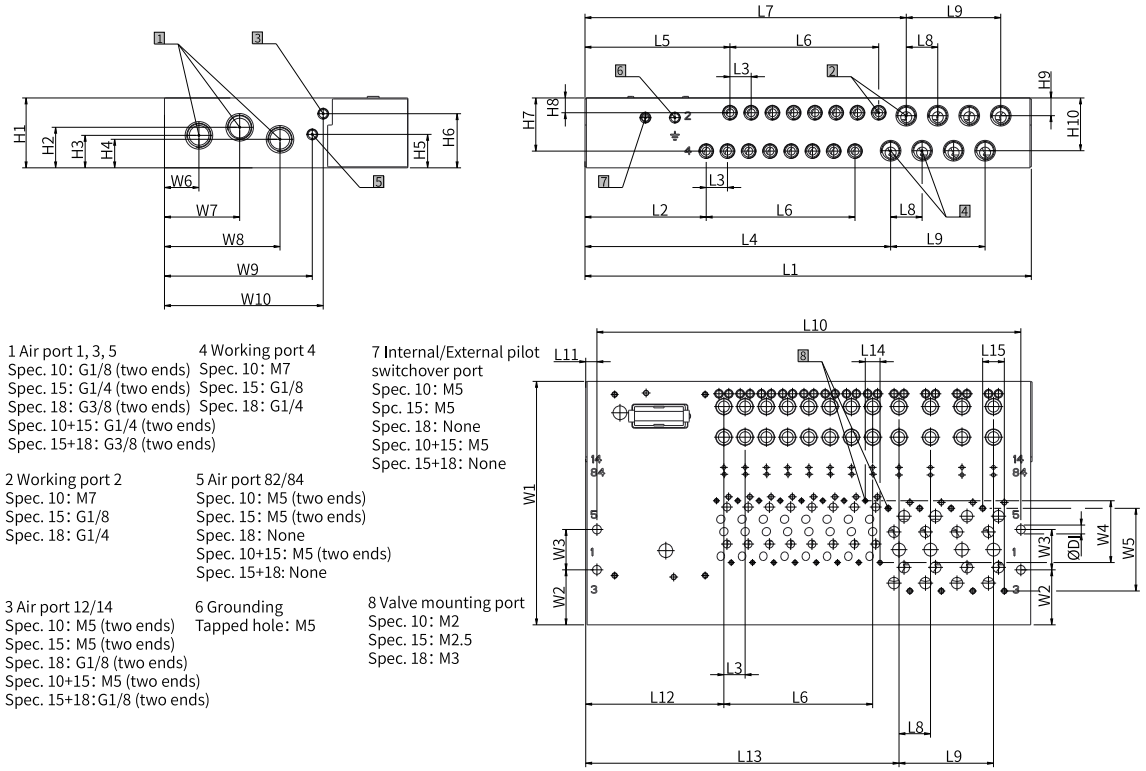


Figure 6-1 Product dimensions (unit: mm)

Model/Dimension	L2	L3	L5	L8	L9	L11	L12	L14	L15	D1	H1	H2	H3	H4	H5
IPT210-A-BL10-BxG	66.1	10.8	73.0	-	-	4.5	69.5	7.5	-	4.1	25.3	16.5	11.5	9.3	8.2
IPT210-A-BL15-BxG	69.2	16.0	77.2	-	-	5.0	73.1	11.0	-	4.5	35.5	20.6	16.5	14.5	17.0
IPT210-A-BL18-BxG	69.8	18.7	80.6	-	-	5.0	74.5	12.5	-	5.5	41.2	20.5	18.7	25.7	-
IPT211-A-BLA1-BxG	60.9	10.8	73.0	16.0	48.0	5.0	69.5	7.5	11.0	4.5	35.5	20.6	16.5	14.5	17.0

Model/Dimension	H6	H7	H8	H9	H10	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10

IPT210-A-BL10-BxG	19.8	19.2	7.5	-	-	104.9	20.3	32.4	31.4	-	11.8	28.6	44.6	58.9	62.4
IPT210-A-BL15-BxG	27.5	26.8	9.0	-	-	123.7	28.0	20.5	42.0	-	17.5	38.2	58.7	75.1	80.7
IPT210-A-BL18-BxG	33.5	33.2	11.7	-	-	141.1	34.4	25.3	53.0	-	21.4	46.9	74.4	95.3	-
IPT211-A-BLA1-BxG	27.5	27.0	7.5	9.0	26.8	123.7	28.0	20.5	31.4	42.0	17.5	38.2	58.7	75.1	80.7

Model/Dimension	L1	L4	L6	L7	L10	L13
IPT210-A-BL10-B4G	117.1	-	32.4	-	107.3	-
IPT210-A-BL10-B6G	138.7	-	54.0	-	128.9	-
IPT210-A-BL10-B8G	160.3	-	75.6	-	150.5	-
IPT210-A-BL10-B10G	181.9	-	97.2	-	172.1	-
IPT210-A-BL10-B12G	203.5	-	118.8	-	193.7	-
IPT210-A-BL10-B16G	246.7	-	162.0	-	236.9	-
IPT210-A-BL10-B20G	289.9	-	205.2	-	280.1	-
IPT210-A-BL10-B24G	333.1	-	248.4	-	323.3	-
IPT210-A-BL15-B4G	140.3	-	48.0	-	128.5	-
IPT210-A-BL15-B6G	172.3	-	80.0	-	160.5	-
IPT210-A-BL15-B8G	204.3	-	112.0	-	192.5	-
IPT210-A-BL15-B10G	236.3	-	144.0	-	224.5	-
IPT210-A-BL15-B12G	268.3	-	176.0	-	256.5	-
IPT210-A-BL15-B16G	332.3	-	240.0	-	320.5	-
IPT210-A-BL15-B20G	396.3	-	304.0	-	384.5	-
IPT210-A-BL15-B24G	460.3	-	368.0	-	448.5	-
IPT210-A-BL18-B4G	152.1	-	56.1	-	140.1	-
IPT210-A-BL18-B6G	190.5	-	93.5	-	177.5	-
IPT210-A-BL18-B8G	227.9	-	130.9	-	214.9	-
IPT210-A-BL18-B10G	265.3	-	168.3	-	252.3	-
IPT210-A-BL18-B12G	302.7	-	205.7	-	289.7	-
IPT210-A-BL18-B16G	377.5	-	280.5	-	364.5	-
IPT210-A-BL18-B20G	252.3	-	355.3	-	439.3	-
IPT210-A-BL18-B24G	527.1	-	430.1	-	514.1	-
IPT211-A-BLA1-B8G	184.0	111.4	32.4	119.4	172.2	115.3
IPT211-A-BLA1-B10G	205.6	133.0	54.0	141.0	193.8	136.9
IPT211-A-BLA1-B12G	227.2	154.6	75.6	162.6	215.4	158.5
IPT211-A-BLA1-B14G	248.8	176.2	97.2	184.2	237.0	180.1
IPT211-A-BLA1-B16G	270.4	197.8	118.8	205.8	258.6	201.7
IPT211-A-BLA1-B20G	313.6	241.0	162.0	249.0	301.8	244.9
IPT211-A-BLA1-B24G	356.8	284.2	205.2	292.2	345.0	288.1

Top piping

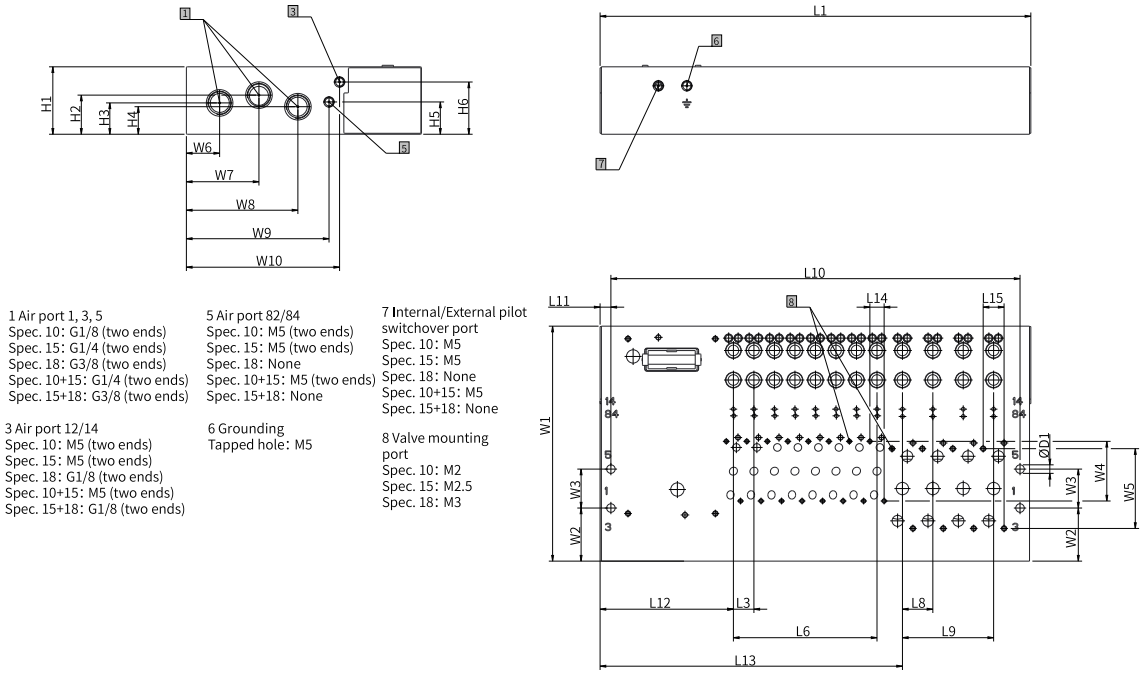


Figure 6-2 Product dimensions (unit: mm)

Model/Dimension	L3	L8	L9	L11	L12	L14	L15	D1	H1	H2	H3	H4
IPT210-A-S10-BxG	10.8	-	-	4.5	69.5	7.5	-	4.1	25.3	16.5	11.5	9.3
IPT210-A-S15-BxG	16.0	-	-	5.0	73.1	11.0	-	4.5	35.5	20.6	16.5	14.5
IPT210-A-S18-BxG	18.7	-	-	5.0	74.5	12.5	-	5.5	41.2	20.5	18.7	25.7
IPT211-A-SA1-BxG	10.8	16.0	48.0	5.0	69.5	7.5	11.0	4.5	35.5	20.6	16.5	14.5

Model/Dimension	H5	H6	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10
IPT210-A-S10-BxG	8.2	19.8	104.9	20.3	32.4	31.4	-	11.8	28.6	44.6	58.9	62.4
IPT210-A-S15-BxG	17.0	27.5	123.7	28.0	20.5	42.0	-	17.5	38.2	58.7	75.1	80.7
IPT210-A-S18-BxG	-	33.5	141.1	34.4	25.3	53.0	-	21.4	46.9	74.4	95.3	-
IPT211-A-SA1-BxG	17.0	27.5	123.7	28.0	20.5	31.4	42.0	17.5	38.2	58.7	75.1	80.7

Model/Dimension	L1	L6	L10	L13
IPT210-A-S10-B4G	117.1	32.4	107.3	-
IPT210-A-S10-B6G	138.7	54.0	128.9	-
IPT210-A-S10-B8G	160.3	75.6	150.5	-
IPT210-A-S10-B10G	181.9	97.2	172.1	-
IPT210-A-S10-B12G	203.5	118.8	193.7	-
IPT210-A-S10-B16G	246.7	162.0	236.9	-
IPT210-A-S10-B20G	289.9	205.2	280.1	-
IPT210-A-S10-B24G	333.1	248.4	323.3	-
IPT210-A-S15-B4G	140.3	48.0	128.5	-
IPT210-A-S15-B6G	172.3	80.0	160.5	-
IPT210-A-S15-B8G	204.3	112.0	192.5	-
IPT210-A-S15-B10G	236.3	144.0	224.5	-

Model/Dimension	L1	L6	L10	L13
IPT210-A-S15-B12G	268.3	176.0	256.5	-
IPT210-A-S15-B16G	332.3	240.0	320.5	-
IPT210-A-S15-B20G	396.3	304.0	384.5	-
IPT210-A-S15-B24G	460.3	368.0	448.5	-
IPT210-A-S18-B4G	152.1	56.1	140.1	-
IPT210-A-S18-B6G	190.5	93.5	177.5	-
IPT210-A-S18-B8G	227.9	130.9	214.9	-
IPT210-A-S18-B10G	265.3	168.3	252.3	-
IPT210-A-S18-B12G	302.7	205.7	289.7	-
IPT210-A-S18-B16G	377.5	280.5	364.5	-
IPT210-A-S18-B20G	252.3	355.3	439.3	-
IPT210-A-S18-B24G	527.1	430.1	514.1	-
IPT211-A-SA1-B8G	184.0	32.4	172.2	115.3
IPT211-A-SA1-B10G	205.6	54.0	193.8	136.9
IPT211-A-SA1-B12G	227.2	75.6	215.4	158.5
IPT211-A-SA1-B14G	248.8	97.2	237.0	180.1
IPT211-A-SA1-B16G	270.4	118.8	258.6	201.7
IPT211-A-SA1-B20G	313.6	162.0	301.8	244.9
IPT211-A-SA1-B24G	356.8	205.2	345.0	288.1

6.5 Ordering Data

Name	Appearance	Model	Description	Material code
Sideway piping sub-base		IPT210-A-BL10-B4G	10 mm sideway piping sub-base with 4 valve positions	01550155
		IPT210-A-BL10-B6G	10 mm sideway piping sub-base with 6 valve positions	01550156
		IPT210-A-BL10-B8G	10 mm sideway piping sub-base with 8 valve positions	01550157
		IPT210-A-BL10-B10G	10 mm sideway piping sub-base with 10 valve positions	01550158
		IPT210-A-BL10-B12G	10 mm sideway piping sub-base with 12 valve positions	01550159
		IPT210-A-BL10-B16G	10 mm-wide sideway piping sub-base with 16 valve positions	01550160
		IPT210-A-BL10-B20G	10 mm sideway piping sub-base with 20 valve positions	01550161
		IPT210-A-BL10-B24G	10 mm sideway piping sub-base with 24 valve positions	01550162
		IPT210-A-BL15-B4G	15 mm sideway piping sub-base with 4 valve positions	01550179
		IPT210-A-BL15-B6G	15 mm sideway piping sub-base with 6 valve positions	01550180
		IPT210-A-BL15-B8G	15 mm sideway piping sub-base with 8 valve positions	01550181
		IPT210-A-BL15-B10G	15 mm sideway piping sub-base with 10 valve positions	01550182
		IPT210-A-BL15-B12G	15 mm sideway piping sub-base with 12 valve positions	01550183
		IPT210-A-BL15-B16G	15 mm sideway piping sub-base with 16 valve positions	01550184
		IPT210-A-BL15-B20G	15 mm sideway piping sub-base with 20 valve positions	01550185
		IPT210-A-BL15-B24G	15 mm sideway piping sub-base with 24 valve positions	01550186
		IPT210-A-BL18-B4G	18 mm sideway piping sub-base with 4 valve positions	01550203
		IPT210-A-BL18-B6G	18 mm sideway piping sub-base with 6 valve positions	01550204
		IPT210-A-BL18-B8G	18 mm sideway piping sub-base with 8 valve positions	01550205
		IPT210-A-BL18-B10G	18 mm sideway piping sub-base with 10 valve positions	01550206
		IPT210-A-BL18-B12G	18 mm sideway piping sub-base with 12 valve positions	01550207
(Continued)		IPT210-A-BL18-B16G	18 mm sideway piping sub-base with 16 valve positions	01550208
		IPT210-A-BL18-B20G	18 mm sideway piping sub-base with 20 valve positions	01550209
		IPT210-A-BL18-B24G	18 mm sideway piping sub-base with 24 valve positions	01550210

Name	Appearance	Model	Description	Material code
Top piping sub-base		IPT210-A-S10-B4G	10 mm top piping sub-base with 4 valve positions	01550147
		IPT210-A-S10-B6G	10 mm top piping sub-base with 6 valve positions	01550148
		IPT210-A-S10-B8G	10 mm top piping sub-base with 8 valve positions	01550149
		IPT210-A-S10-B10G	10 mm top piping sub-base with 10 valve positions	01550150
		IPT210-A-S10-B12G	10 mm top piping sub-base with 12 valve positions	01550151
		IPT210-A-S10-B16G	10 mm top piping sub-base with 16 valve positions	01550152
		IPT210-A-S10-B20G	10 mm top piping sub-base with 20 valve positions	01550153
		IPT210-A-S10-B24G	10 mm top piping sub-base with 24 valve positions	01550154
		IPT210-A-S15-B4G	15 mm top piping sub-base with 4 valve positions	01550171
		IPT210-A-S15-B6G	15 mm top piping sub-base with 6 valve positions	01550172
		IPT210-A-S15-B8G	15 mm top piping sub-base with 8 valve positions	01550173
		IPT210-A-S15-B10G	15 mm top piping sub-base with 10 valve positions	01550174
		IPT210-A-S15-B12G	15 mm top piping sub-base with 12 valve positions	01550175
		IPT210-A-S15-B16G	15 mm top piping sub-base with 16 valve positions	01550176
		IPT210-A-S15-B20G	15 mm top piping sub-base with 20 valve positions	01550177
		IPT210-A-S15-B24G	15 mm top piping sub-base with 24 valve positions	01550178
		IPT210-A-S18-B4G	18 mm top piping sub-base with 4 valve positions	01550195
		IPT210-A-S18-B6G	18 mm top piping sub-base with 6 valve positions	01550196
		IPT210-A-S18-B8G	18 mm top piping sub-base with 8 valve positions	01550197
		IPT210-A-S18-B10G	18 mm top piping sub-base with 10 valve positions	01550198
		IPT210-A-S18-B12G	18 mm top piping sub-base with 12 valve positions	01550199
		IPT210-A-S18-B16G	18 mm top piping sub-base with 16 valve positions	01550200
		IPT210-A-S18-B20G	18 mm top piping sub-base with 20 valve positions	01550201
		IPT210-A-S18-B24G	18 mm top piping sub-base with 24 valve positions	01550202

7 Accessories

Table 7–1 List of Options

Name	Appearance	Model	Description	Code	Packaging unit (pcs)
Pneumatic accessory module		IPT210-A-10-M	Isolation module for 10 mm sub-base	32017552	1
		IPT210-A-15-M	Isolation module for 15 mm sub-base	32017553	1
		IPT210-A-18-M	Isolation module for 18 mm sub-base	32017554	1
		IPT210-A-10-W	External pilot module for 10 mm/15 mm valve sub-base	32021412	1
		IPT210-A-10-H	Check module for 10 mm valve sub-base	32021395	1
		IPT210-A-15-H	Check module for 15 mm valve sub-base	32021396	1
		IPT210-A-18-H	Check module for 18 mm valve sub-base	32021397	1
		IPT210-A-10-TM05	Throttle module, nominal diameter: 0.5 mm	32021398	1
		IPT210-A-10-TM06	Throttle module, nominal diameter: 0.6 mm	32021399	1
		IPT210-A-10-TM07	Throttle module, nominal diameter: 0.7 mm	32021400	1
		IPT210-A-10-TM08	Throttle module, nominal diameter: 0.85 mm	32021401	1
		IPT210-A-10-TM10	Throttle module, nominal diameter: 1.05 mm	32021403	1
		IPT210-A-10-TM12	Throttle module, nominal diameter: 1.2 mm	32021404	1
		IPT210-A-10-TM15	Throttle module, nominal diameter: 1.55 mm	32021405	1
		IPT210-A-15-TM07	Throttle module, nominal diameter: 0.7 mm	32021406	1
		IPT210-A-15-TM08	Throttle module, nominal diameter: 0.85 mm	32021402	1
		IPT210-A-15-TM10	Throttle module, nominal diameter: 1.05 mm	32021407	1
		IPT210-A-15-TM11	Throttle module, nominal diameter: 1.15 mm	32021408	1
		IPT210-A-15-TM14	Throttle module, nominal diameter: 1.4 mm	32021409	1
		IPT210-A-15-TM16	Throttle module, nominal diameter: 1.6 mm	32021410	1
		IPT210-A-15-TM18	Throttle module, nominal diameter: 1.8 mm	32021411	1
Connector		IPNB-C4M7	Connector - IPNB series mini circular connector - Outer diameter of the air pipe Φ 4 - Thread M7	72233906	1
		IPNB-C6M7	Connector - IPNB series mini circular connector - Outer diameter of the air pipe Φ 6 - Thread M7	72233908	1
		IPNB-C6M5	Connector - IPNB series mini circular connector - Outer diameter of the air pipe Φ 6 - Thread M5	72233907	1

Name	Appearance	Model	Description	Code	Packaging unit (pcs)
Connector		IPNR-C4G01	Connector - IPNR series circular connector - Outer diameter of the air pipe Φ 4 - Thread G1/8	72233909	1
		IPNR-C6G01	Connector - IPNR series circular connector - Outer diameter of the air pipe Φ 6 - Thread G1/8	72233910	1
		IPNR-C8G01	Connector - IPNR series circular connector - Outer diameter of the air pipe Φ 8 - Thread G1/8	72233911	1
		IPNR-C10G01	Connector - IPNR series circular connector - Outer diameter of the air pipe Φ10 - Thread G1/8	72233912	1
		IPNR-C6G02	Connector - IPNR series circular connector - Outer diameter of the air pipe Φ6 - Thread G1/4	72233913	1
		IPNR-C8G02	Connector - IPNR series circular connector - Outer diameter of the air pipe Φ8 - Thread G1/4	72233914	1
		IPNR-C10G02	Connector - IPNR series circular connector - Outer diameter of the air pipe Φ10 - Thread G1/4	72233915	1
		IPNR-C12G02	Connector - IPNR series circular connector - Outer diameter of the air pipe Φ12 - Thread G1/4	72233916	1
		IPNR-C8G03	Connector - IPNR series circular connector - Outer diameter of the air pipe Φ8 - Thread G3/8	72233918	1
		IPNR-C10G03	Connector - IPNR series circular connector - Outer diameter of the air pipe Φ10 - Thread G3/8	72233920	1
		IPNR-C12G03	Connector - IPNR series circular connector - Outer diameter of the air pipe Φ12 - Thread G3/8	72233921	1
		IPNR-C16G03	Connector - IPNR series circular connector - Outer diameter of the air pipe Φ16 - Thread G3/8	72233922	1
Connector		IPNBL-C4M7	Connector - IPNBL series mini circular lithium battery connector - Outer diameter of the air pipe Φ 4 - Thread M7	72233948	1
		IPNBL-C6M7	Connector - IPNBL series mini circular lithium battery connector - Outer diameter of the air pipe Φ 6 - Thread M7	72233947	1
		IPNBL-C6M5	Connector - IPNBL series mini circular lithium battery connector - Outer diameter of the air pipe Φ 6 - Thread M5	72233946	1

Name	Appearance	Model	Description	Code	Packaging unit (pcs)
Connector		IPNRL-C4G01	Connector - IPNRL series circular lithium battery connector - Outer diameter of the air pipe Φ 4 - Thread G1/8	72233945	1
		IPNRL-C6G01	Connector - IPNRL series circular lithium battery connector - Outer diameter of the air pipe Φ 6 - Thread G1/8	72233944	1
		IPNRL-C8G01	Connector - IPNRL series circular lithium battery connector - Outer diameter of the air pipe Φ8 - Thread G1/8	72233943	1
		IPNRL-C10G01	Connector - IPNRL series circular lithium battery connector - Outer diameter of the air pipe Φ10 - Thread G1/8	72233942	1
		IPNRL-C6G02	Connector - IPNRL series circular lithium battery connector - Outer diameter of the air pipe Φ6 - Thread G1/4	72233941	1
		IPNRL-C8G02	Connector - IPNRL series circular lithium battery connector - Outer diameter of the air pipe Φ8 - Thread G1/4	72233940	1
		IPNRL-C10G02	Connector - IPNRL series circular lithium battery connector - Outer diameter of the air pipe Φ10 - Thread G1/4	72233939	1
		IPNRL-C12G02	Connector - IPNRL series circular lithium battery connector - Outer diameter of the air pipe Φ12 - Thread G1/4	72233938	1
		IPNRL-C8G03	Connector - IPNRL series circular lithium battery connector - Outer diameter of the air pipe Φ8 - Thread G3/8	72233937	1
		IPNRL-C10G03	Connector - IPNRL series circular lithium battery connector - Outer diameter of the air pipe Φ10 - Thread G3/8	72233935	1
		IPNRL-C12G03	Connector - IPNRL series circular lithium battery connector - Outer diameter of the air pipe Φ12 - Thread G3/8	72233931	1
		IPNRL-C16G03	Connector - IPNRL series circular lithium battery connector - Outer diameter of the air pipe Φ16 - Thread G3/8	72233930	1
Plug		IPNC-M5	Plugs - IPNC series general-purpose plug - Hexagon H2- Thread M5	72233929	1
		IPNC-G01	Plugs - IPNC series general-purpose plug - Hexagon H4 - Thread G1/8	72233951	1
		IPNC-G02	Plugs - IPNC series general-purpose plug - Hexagon H6 - Thread G1/4	72233952	1
		IPNC-G03	Plugs - IPNC series general-purpose plug - Hexagon H8 - Thread G3/8	72233953	1
		IPNCU-M5	Plugs - IPNCU series stainless steel plug - Hexagon H2.5 - Thread M5	72233957	1
		IPNCAU-G01	Plug - IPNCAU series stainless steel plug - Indented hexagon H14 - Thread G1/8	72234582	1
		IPNCAU-G02	Plug - IPNCAU series stainless steel plug - Indented hexagon H16 - Thread G1/4	72234583	1
		IPNCAU-G03	Plug - IPNCAU series stainless steel plug - Indented hexagon H20 - Thread G3/8	72234584	1
Silencer		IPNS-M5	Silencer - IPNS series general-purpose silencer - Thread M5	72233961	1
		IPNS-M7	Silencer - IPNS series general-purpose silencer - Thread M7	72234268	1
		IPNSU-M5	Silencer - IPNSU series stainless steel silencer - Thread M5	72234269	1
		IPNSU-M7	Silencer - IPNSU series stainless steel silencer - Thread M7	72234270	1
		IPNSP-G01	Silencer - IPNSP series plastic silencer - Thread G1/8	72233962	1
		IPNSP-G02	Silencer - IPNSP series plastic silencer - thread G1/4	72233963	1
		IPNSP-G03	Silencer - IPNSP series plastic silencer - Thread G3/8	72233964	1

Name	Appearance	Model	Description	Code	Packaging unit (pcs)
IO-Link cable		CAB-M12AMS5-M12AFS5-1	M12x1, 5-pin, A-coded cable, M12 male straight connector - M12 female straight connector, 1 m, suitable for I/O-Link and power cables (not fit for drag chains)	15310268	1
		CAB-M12AMS5-M12AFS5-3	M12x1, 5-pin, A-coded cable, M12 male straight connector - M12 female straight connector, 3 m, suitable for I/O-Link and power cables (not fit for drag chains)	15310269	1
		CAB-M12AMS5-M12AFS5-5	M12x1, 5-pin, A-coded cable, M12 male straight connector - M12 female straight connector, 5 m, suitable for I/O-Link and power cables (not fit for drag chains)	15310267	1
		CAB-M12AMS5-M12AFS5-3-T-taiyo	M12x1, 5-pin, A-coded cable, M12 male straight connector - M12 female straight connector, 3 m, suitable for I/O-Link and power cables (fit for drag chains)	15310336	1
		CAB-M12AMS5-M12AFS5-5-T-taiyo	M12x1, 5-pin, A-coded cable, M12 male straight connector - M12 female straight connector, 5 m, suitable for I/O-Link and power cables (fit for drag chains)	15310335	1
		CAB-M12AFS5-1.5	M12x1, 5-pin, A-coded cable, M12 female straight connector - jump wire, 1.5 m, suitable for I/O-Link and power cables (not fit for drag chains)	15310294	1
		CAB-M12AFS5-3	M12x1, 5-pin, A-coded cable, M12 female straight connector - jump wire, 3 m, suitable for I/O-Link and power cables (not fit for drag chains)	15310295	1
		CAB-M12AFS5-5	M12x1, 5-pin, A-coded cable, M12 female straight connector -jump wire, 5 m, suitable for IO-Link and power cables (not fit for drag chains)	15310249	1
		CAB-M12AFS5-M12AYMS5-0.2	M12x1, 5-pin, A-coded, 1 female-to-2 male straight connectors with cable adaptor for slave CLASS B	15051333	1
		CON-M12AFS5-YM5	M12x1, 5-pin, A-coded, 1 female-to-2 male straight connectors without wire adapter for slave CLASS B	15051334	1

Name	Appearance	Model	Description	Code	Packaging unit (pcs)
EtherCAT communication cable		CAB-M12DMS4-M12DMS4-1	M12x1, 4-pin, D-coded cable, M12 double-head straight male connector, 1 m, applicable to ECT, PN, and EIP communication cable (not fit for drag chains)	15310259	1
		CAB-M12DMS4-M12DMS4-3	M12x1, 4-pin, D-coded cable, M12 double-head straight male connector, 3 m, applicable to ECT, PN, and EIP communication cable (not fit for drag chains)	15310153	1
		CAB-M12DMS4-M12DMS4-5	M12x1, 4-pin, D-coded cable, M12 double-head straight male connector, 5 m, applicable to ECT, PN, and EIP communication cable (not fit for drag chains)	15310178	1
		CAB-M12DMS4-M12DMS4-3-T-taiyo	M12x1, 4-pin, D-coded cable, M12 double-head straight male connector, 3 m, applicable to ECT, PN, and EIP communication cables (fit for drag chains)	15310314	1
		CAB-M12DMS4-M12DMS4-5-T-taiyo	M12x1, 4-pin, D-coded cable, M12 double-head straight male connector, 5 m, applicable to ECT, PN, and EIP communication cables (fit for drag chains)	15310222	1
		CAB-RJ45-M12DMS4-1	M12x1, 4-pin, D-coded cable, M12 in-line connector - RJ45 1 m for ECT, PN, and EIP communication cables (not fit for drag chains)	15310255	1
		CAB-RJ45-M12DMS4-3	M12x1, 4-pin, D-coded cable, M12 in-line connector - RJ45 3 m for ECT, PN, and EIP communication cables (not fit for drag chains)	15310154	1
		CAB-RJ45-M12DMS4-5	M12x1, 4-pin, D-coded cable, M12 in-line connector - RJ45 5 m for ECT, PN, and EIP communication cables (not fit for drag chains)	15310187	1
		CAB-RJ45-M12DMS4-3-T-Taiyo	M12x1, 4-pin, D-coded cable, M12 in-line connector - RJ45 3 m for ECT, PN, and EIP communication cables (fit for drag chains)	15310210	1
		CAB-RJ45-M12DMS4-5-T-Taiyo	M12x1, 4-pin, D-coded cable, M12 in-line connector - RJ45 5 m for ECT, PN, and EIP communication cables (fit for drag chains)	15310214	1

8 Standards Compliance

Directive name	Standards compliance	Model
EMC Directive 2014/30/EU	EN 61131–2	IPT series products
RoHS Directive 2011/65/EU Amended by (EU)2015/863	-	

9 Ordering Instructions

The ordering number of IPT series valve terminal is the same as the product model. For IPT210/211 series, see *"3.2 Model and Nameplate" on page 12*.

The ordering number of IPV series solenoid valves is the same as the product model. For IPV210 series, see *"4.2 Model Description" on page 24*.

The ordering number of the communication module is the same as the product model. For the IPT210-A series, see *"5.2 Model Description" on page 33*.

The ordering number of the IPT valve terminal sub-base series is the same as the product model. For the IPT210-A/IPT211-A series, see *"6.2 Model Description" on page 40*.

10 Service and Support

Downloads

More product manuals, leaflets, brochures, certificates, 2D/3D drawings and other information can be downloaded in the following way:

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