Air Catch Sensor
Series ISA

How to Order

Individual wiring/Centralized wiring

ISA □ – □ □ – **01** □

Output specifications

11	NPT open collector output
15	PNP open collector output

Stations 1 to 6

Wiring specifications

Nil	Individual wiring (Without terminal block BOX)
L	Centralized wiring (With terminal block BOX, left side)
R	Centralized wiring (With terminal block BOX, right side)

Option

Nil *	DIN rail compliant
B	With bracket
G	With gauge

* DIN rail must be ordered separately.

Ex. 1) NPN output, 4 stations, centralized wiring terminal block BOX (left), with bracket and gauge

ISA11-4L-01BG

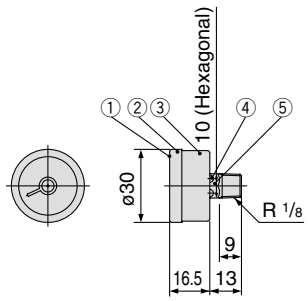
Ex. 2) PNP output, individual wiring, with gauge

ISA15-1-01G

Accessory

- **Bracket: ISA-1-A**
- **Gauge: G33-3-01**
- **DIN rail: ISA-2-1 to 7**

· Gauge: G33-3-01

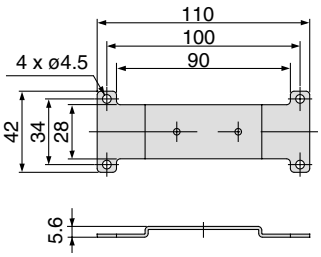


Description

No.	Description	Material
1	**Cover glass**	glass
2	**Outer frame**	Stainless steel
3	**Inner frame**	Stainless steel
4	**Round head Phillips screw**	Stainless steel
5	**Socket**	Brass

· Bracket: ISA-1-A

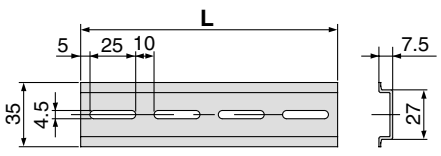
Material: SPC
(Nickel plated)



* Each part order comes with two M3 x 8 tapping screws.

· DIN rail: ISA-2-1 to 7

Material: Aluminum



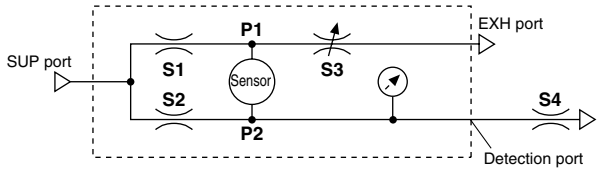
Part no.	L	Applicable model
ISA-2-1	105	ISA□-1
ISA-2-2	140	ISA□-2 · ISA□-1$^{L}_{R}$
ISA-2-3	175	ISA□-3 · ISA□-2$^{L}_{R}$
ISA-2-4	210	ISA□-4 · ISA□-3$^{L}_{R}$
ISA-2-5	245	ISA□-5 · ISA□-4$^{L}_{R}$
ISA-2-6	280	ISA□-6 · ISA□-5$^{L}_{R}$
ISA-2-7	315	ISA□-6$^{L}_{R}$

Specifications

Model			ISA2-G□□□1□	ISA2-G□□□5□	ISA2-H□□□1□	ISA2-H□□□5□
Detection distance			0.01 to 0.25 mm		0.03 to 0.50 mm	
Fluid			Dry air (filtered to 5 μm)			
Operating pressure range			30 to 200 kPa		50 to 200 kPa	
Recommended detection nozzle			ø1.5		ø2.0	
Consumption flow rate ℓ/min (ANR)	Supply pressure	50 kPa	5 or less		10 or less	
		100 kPa	8 or less		15 or less	
		200 kPa	12 or less		22 or less	
Power supply voltage			12 to 24 VDC ± 10%, Ripple (p-p) 10% or less (With power supply polarity protection)			
Current consumption			15 mA or less			
Switch output			NPN open collector: one output	PNP open collector: one output	NPN open collector: one output	PNP open collector: one output
	Maximum load current		80 mA			
	Maximum load voltage		30 VDC (at NPN output)			
	Residual voltage		1.5 V or less (at 80 mA)			
	Output protection		Yes			
Repeatability (Including temperature characteristics)			0.01 mm or less (Detection distance range 0.01 to 0.15 mm, supply pressure 100 to 200 kPa)		0.01 mm or less (Detection distance range 0.03 to 0.15 mm, supply pressure 100 to 200 kPa)	
Hysteresis Note 1)			0.01 mm or less (Detection distance range 0.01 to 0.15 mm)		0.01 mm or less (Detection distance range 0.03 to 0.15 mm)	
Indicator light			LED level meter Note 2) with 1 red, 2 green (Set value < detection distance: red, Set value = detection distance: green 1, Set value > detection distance: green 1 + green 2)			
Environmental resistance	Enclosure		IP66: with pressure gauge IP40: without pressure gauge			
	Operating temperature range		Operating: 0 to 60°C, Stored: –20 to 70°C (No condensation or no freezing)			
	Operating humidity range		Operating/stored: 35 to 85%RH (No condensation)			
	Withstand voltage		1000 VAC or more in 50/60 Hz for 1 minute between live parts and case			
	Insulation resistance		2 MΩ or more between live parts and case (at 500 VDC by megameter)			
	Vibration resistance		1.5 mm amplitude in 10 to 500Hz or acceleration of 98 m/s² without control unit and bracket mounted, Others 30 m/s², whichever is smaller for 2 hours in X, Y, Z direction each (De-energized)			
	Impact resistance		Without control unit and bracket mounted: 980 m/s², Others: 150 m/s² in X, Y and Z direction, 3 times each (De-energized)			
Port size			Nil: Rc 1/8, N type: NPT 1/8, F type: G 1/8			
Lead wire (Individual wiring type)			4 cores, oil-resistant cable (ø6, 5m) with M12 4-pin pre-wired connector, Conductor O.D.: 0.90 mm, Insulator O.D.: 1.72 mm			
Terminal block box (Centralized wiring type)			Front wiring (Electrical entry ø21)			
Mass			Individual wiring type (body only): 253 g, common wiring type (body only): 250 g, Terminal box: 205 g, lead wire: 278 g, connecting bracket with sealing for additional station: 4 g			
Standard			Compliant with CE marking			

Note 1) Refer to "Relation between Nozzle Diameter and Detection Distance" (page 798) for hysteresis.
Note 2) Refer to "Setting Procedure" (page 801) for LED level meter.

Working Principle



S1, S2: Fix orifice
S3: Variable orifice (adjusted by setting dial)
S4: Detection nozzle

In a bridge circuit as in the left figure, a detection gap is applied to the detection nozzle (S4) while the setting dial S3 is adjusted to balance the pressure applied to the pressure sensor (P1 = P2). The pressure sensor detects the differential pressure generated when the detection nozzle (S4) is released. When the work piece comes close to the detection nozzle, the back pressure P2 increases until it is larger than P1 (P2 ≥ P1). Then the switch output turns on to notify that the pressure is below the detection gap.