

**Two-color digital display  
pressure sensor  
AP-30 Series**

***Digital Display & Digital Control  
For Air Pressure***



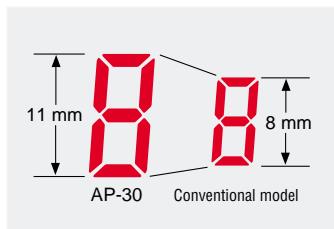
# **Green and red two-color LED display clearly shows abnormal pressure even from a distance.**

With the two-color digital display, the AP-30 enables more reliable pressure control than conventional mechanical pressure switches or digital pressure sensors.



**The tallest character height in its class:  
11 mm**

The measured value can be clearly seen even when the sensor is mounted at the back of equipment to control base pressure.



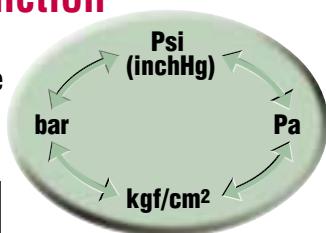
**High resolution:  
1/1000**

Precise adjustment

## **Unit conversion function**

The AP-30's pressure can be displayed in any of 4 pressure units enabling it to be used worldwide.

Psi: North America  
Pa: International System of Units (SI)  
kgf/cm<sup>2</sup>, mmHg: Japan  
bar: Europe



## **Analog output function (1 to 5 V)**

The analog output can be used to record pressure data.



# **Measure and detect: The AP-30 Series prevents system problems caused by abnormal pressure.**

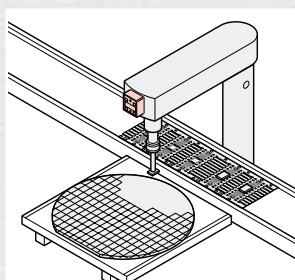
## **Simple setting: Checking suction condition**

### **Suction transfer process**

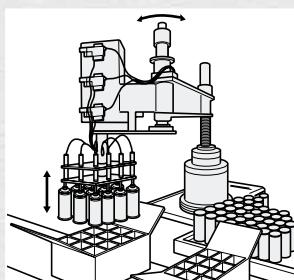
**Before a serious problem arises the AP-30 Series can detect a fall in base pressure or a damaged vacuum pad**



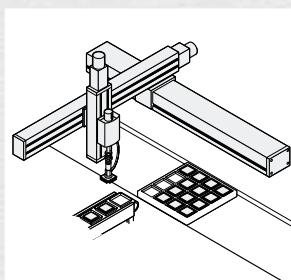
As in the process shown in the figure, conventional pressure switches cannot easily detect whether the current pressure is within tolerance and cannot be precisely adjusted. This is because they have trimmers for adjustment. The AP-30 Series has a digital display and two non-contact outputs, which provides an easy-to-read display and precise adjustment. Also, the display can be changed between a single-color (red only) and two-color (red and green) display. The two-color display allows you to see the current pressure at a glance.



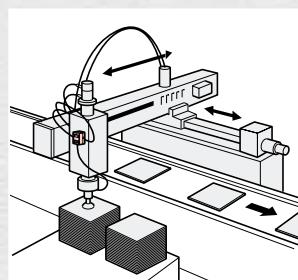
Checking suction of chip elements



Checking suction of bottles



Checking suction of ICs



Checking suction of PC boards

### **Simple automatic tuning (AP-30 offers 4 convenient tuning modes.)**

The auto-tuning mode enables you to set the detection level automatically with two presses of the key when a target is picked up and released. One of the two outputs can be used to alert operators when the vacuum pad is damaged or clogged.



### **High-accuracy and High-speed response**

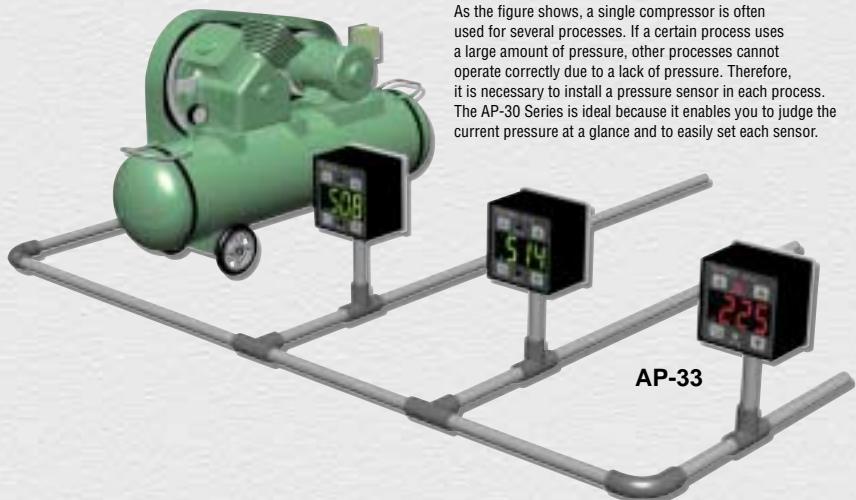
Repeatability:  
**±0.2% of F.S.**

Response time:  
**2.5 ms**

### **Compound pressure type (AP-34)**

To save time in the suction transfer process of small parts, a negative pressure sensor is used to check the suction of the target and a positive pressure sensor is used to detect a vacuum break. A single AP-34 can detect both negative and positive pressure.

## Confirm base pressure at a glance



### Chatter prevention function

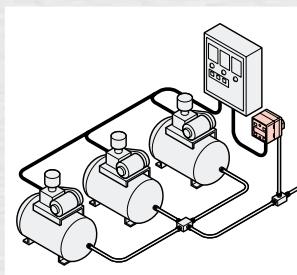
When a large-bore cylinder or an ejector is activated, the base pressure drops momentarily. Conventional digital pressure sensors regard the instantaneous pressure drop as an abnormal condition and stop the machine, even if the pressure drop is too small to affect operation. The AP-30's chatter prevention function ignores instantaneous changes in pressure and reliably detects only a serious drop in base pressure.

### Analog output function (1 to 5 V)

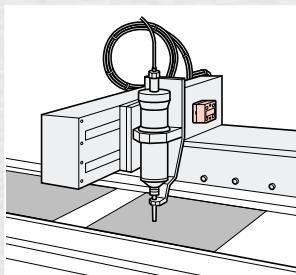
Pressure changes can be monitored for record keeping.

### N.O./N.C. output selectable

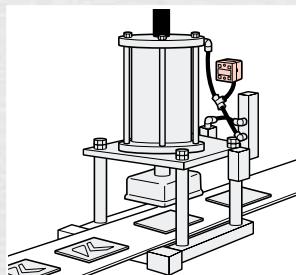
The peak-hold/bottom-hold value can be checked on the display.



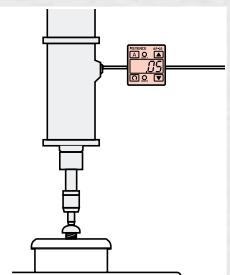
Control of compressor operation



Control of application pressure of dispenser



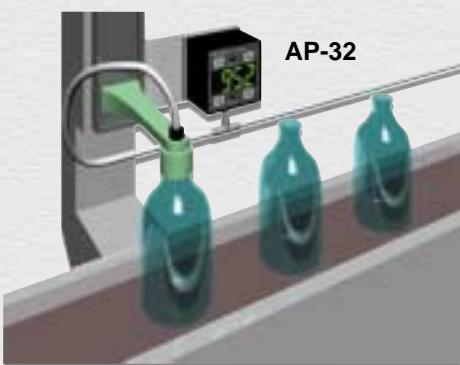
Observing pressure of air press machine



Observing pressure of screw tightness

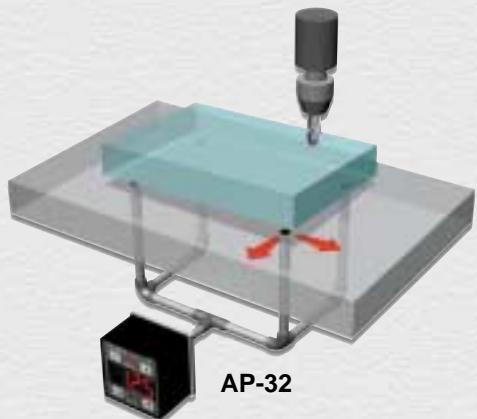
## Leakage test

The AP-30 Series detects a fall in pressure caused by a crack in PET bottles.

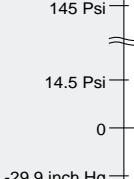
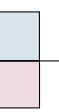


## Confirmation of workpiece seating

The AP-30 Series detects a fall in pressure caused by air leakage from a gap between the base and target.



## Specifications and selection guide

Type	Negative pressure	Positive pressure		Compound pressure
Model <sup>1</sup>	AP-31(P)	AP-32(P)	AP-33(P)	AP-34(P)
<b>Typical applications</b>				
	Suction confirmation	Leakage test	Base pressure control	Suction confirmation
				
<b>Rated pressure</b>	0 to -1.013 bar (0 to -101.3 kPa)	0 to 1.000 bar (0 to 100.0 kPa)	0 to 10.00 bar (0 to 1.000 MPa)	1.013 to -1.013 bar (101.3 to -101.3 kPa)
<b>Proof pressure</b>	4.9 bar (490 kPa)	4.9 bar (490 kPa)	14.7 bar (1.47 MPa)	4.9 bar (490 kPa)
<b>Pressure type</b>	Gauge pressure			
<b>Fluid types</b>	Air or noncorrosive gases			
<b>Display</b>	3 1/2-digit, 2-color, 7-segment LED (Character height: 11 mm)			
<b>Display resolution</b>	0.001 bar 0.1 inchHg 0.1 kPa, 1 mmHg,	0.001 bar 0.02 Psi 0.1 kPa, 0.001 kgf/cm <sup>2</sup> ,	0.01 bar 0.2 Psi 0.001 Mpa, 0.001 kgf/cm <sup>2</sup> ,	0.002 bar 0.1 inchHg 0.2 kPa, 2 mmHg,
<b>Detectable pressure range</b>	-15% to +110% of F.S.			
<b>Repeatability</b>	±0.2% of F.S. (5 ms or more)			
<b>Response time (chattering prevention function)</b>	2.5/5/100/500 ms (selectable)			
<b>Control output</b>	2NPN or 2PNP open-collector: 100 mA max. (40 V max.), Residual voltage: 1 V max. 2-output (N.O./N.C. selectable)			
<b>Analog output</b>	1 to 5 V (Load impedance: 47 kΩ min.)			
<b>Temperature fluctuation for analog output</b>	±2% max. (of F.S.) of detecting pressure at 25°C (0 to 50°C)			
<b>Temperature fluctuation for display</b>	±1% max. (of F.S.) of detecting pressure at 25°C (0 to 50°C)			
<b>Current consumption</b>	50 mA (at 24 V), 90 mA (at 12 V)			
<b>Power supply</b>	12 to 24 VDC±10%, Ripple (p-p): 10% max.			
<b>Ambient temperature</b>	0 to 50°C			
<b>Relative humidity</b>	35 to 85%			
<b>Vibration</b>	10 to 55 Hz, 1.5 mm double amplitude in X, Y, and Z directions, 2 hours respectively			
<b>Material</b>	Front housing: Polymamide, Front panel sheet: PET, Rear housing: Polysulfone, Pressure port: Die-cast zinc, Cable: Oil-proof cabtyre cable			
<b>Weight (including 2 m cable)</b>	Approx. 120 g			

1. A "P" following the model number indicates PNP-output type.

## Options/Accessories



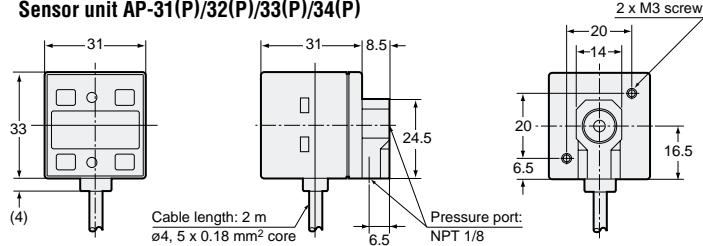
Panel mounting holder set  
OP-31357 (Option)



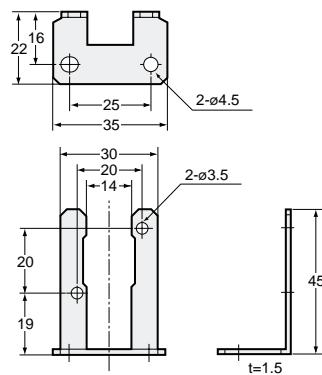
Mounting bracket (2 pcs.)  
(Accessory)

## Dimensions

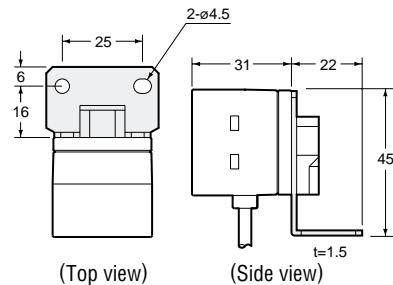
### Sensor unit AP-31(P)/32(P)/33(P)/34(P)



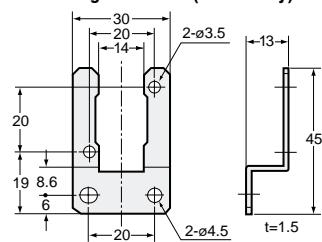
### Mounting bracket A (Accessory)



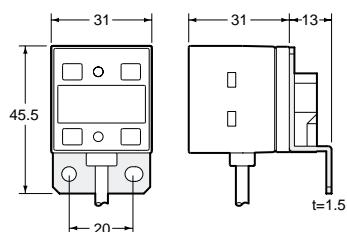
### When mounting bracket A is attached



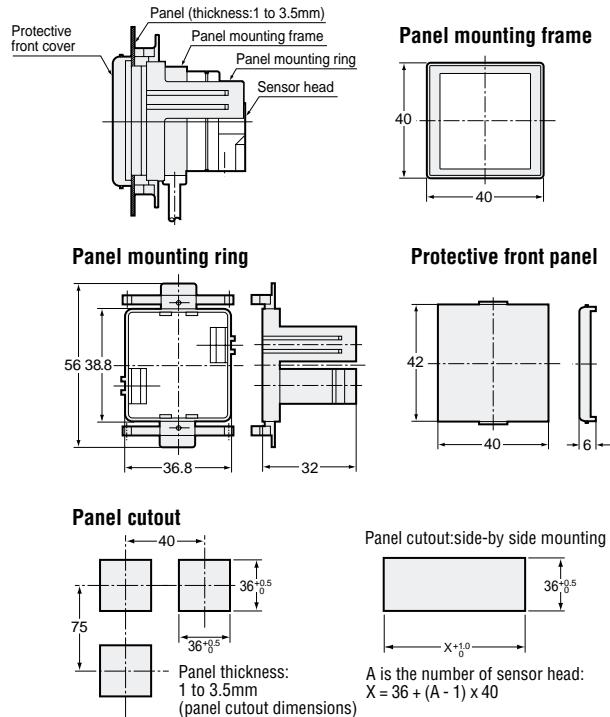
### Mounting bracket B (Accessory)



### When mounting bracket B is attached



### When flush-mounted in control panel with OP-31357



## FAX Request Form

If you would like to know more, or you have an application to discuss, please complete the fax request form below.

Name:	Title:
Company:	
Address:	Street: _____ City: _____ State: _____ Zip: _____
Phone:	
Fax:	

- I have an urgent application and would like an engineer to contact me.
- I would like to know more about other Keyence products.
- Please send me a general catalog.
- Please send me more information on the AP-30 series.

Visit our website for Keyence products at <http://www.keyence.com.tw>

Specifications are subject to change without notice.

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