KEYENCE

Cat No AP30-KA-C

Two-color digital display pressure sensor

AP-30 Series

Digital Display & Digital Control
For Air Pressure

EASY-TO-SEE
2-color display

CE

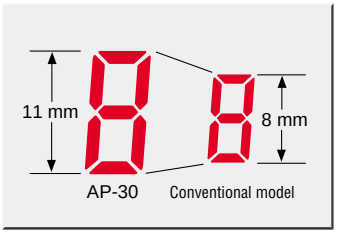
Green and red two-color LED display clearly shows abnormal pressure even from a distance.

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

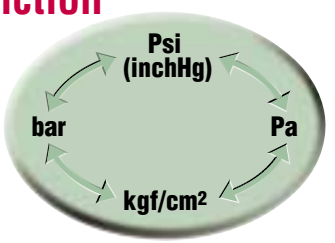
The measured value can be clearly seen even when the sensor is mounted at the back of equipment to control base pressure.



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/cm², mmHg: Japan
bar: Europe



High resolution:

1/1000

Precise adjustment

Analog output function (1 to 5 V)

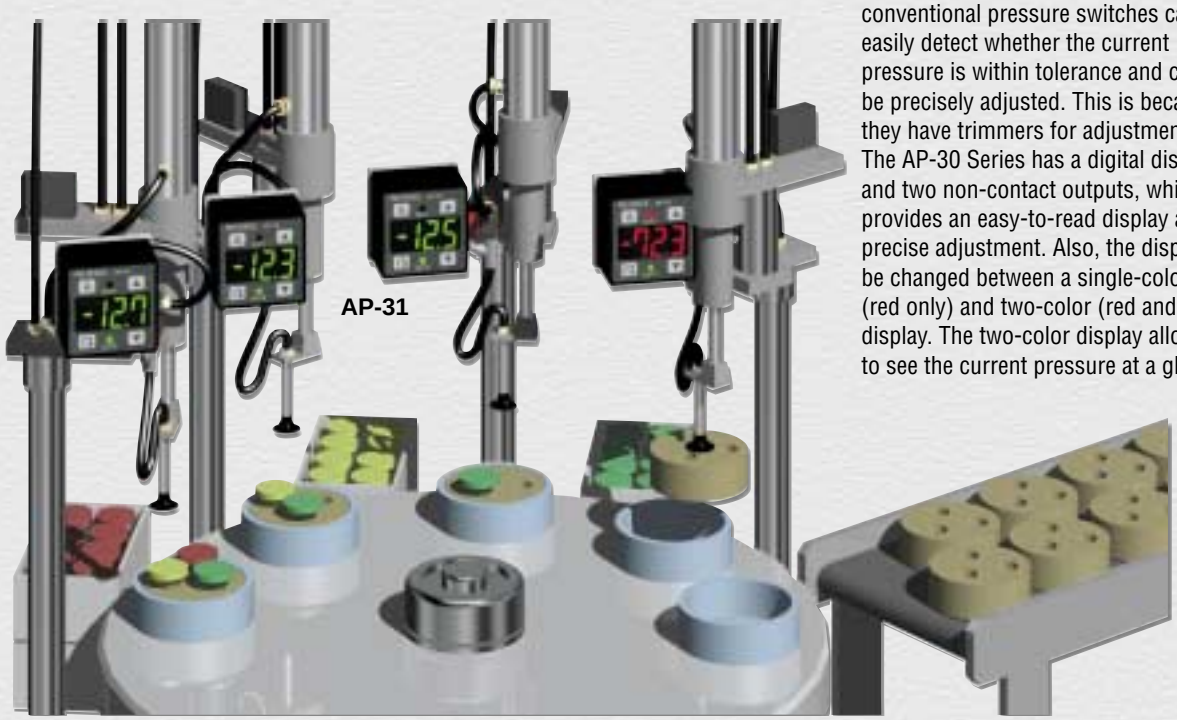
The analog output can be used to record pressure data.

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

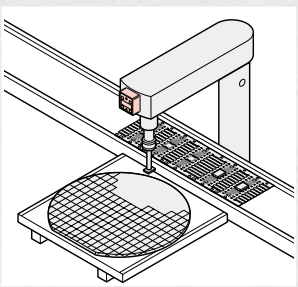
Simple setting: Checking suction condition

Suction transfer process

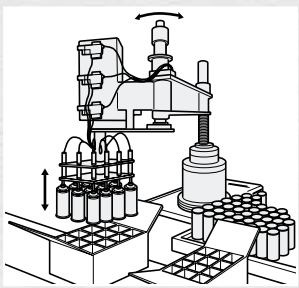
Before a serious problem arises the AP-30 Series can detect a fall in base pressure or a damaged vacuum pad



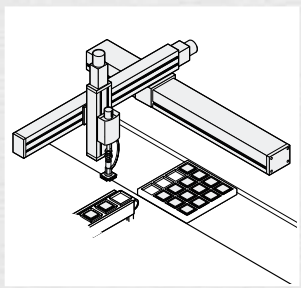
As in the process shown in the figure, conventional pressure switches cannot easily detect whether the current pressure is within tolerance and cannot be precisely adjusted. This is because they have trimmers for adjustment. The AP-30 Series has a digital display and two non-contact outputs, which provides 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.



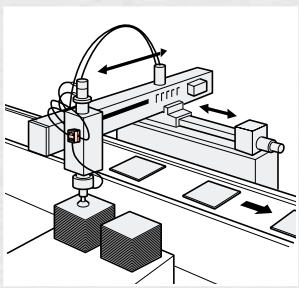
Checking suction of chip elements



Checking suction of bottles



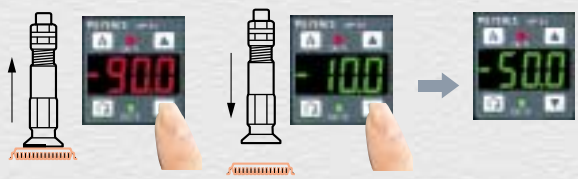
Checking suction of ICs



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

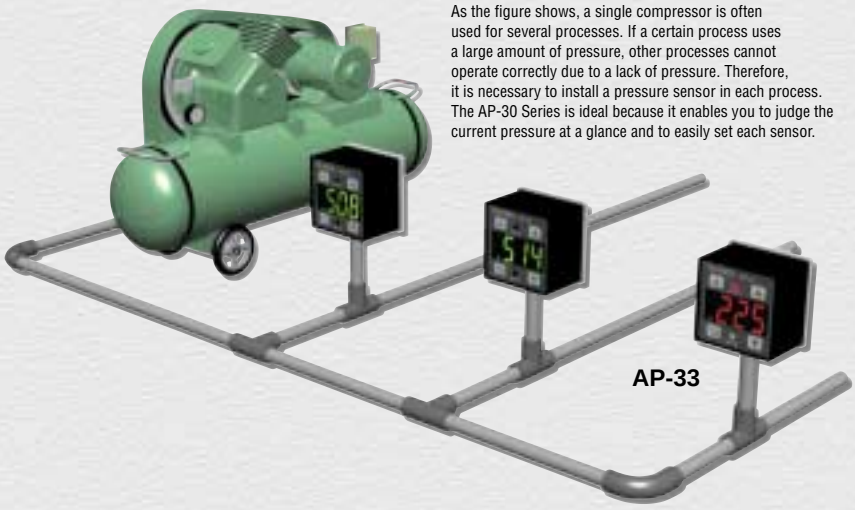
Repeatability:
±0.2% of F.S.

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



As the figure shows, a single compressor is often used for several processes. If a certain process uses a large amount of pressure, other processes cannot operate correctly due to a lack of pressure. Therefore, it is necessary to install a pressure sensor in each process. The AP-30 Series is ideal because it enables you to judge the current pressure at a glance and to easily set each sensor.

Chatter prevention function

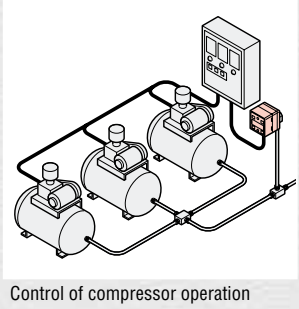
When a large-bore cylinder or an ejector is activated, the base pressure drops momentarily. Conventional digital pressure sensors regard the instantaneous pressure drop as an abnormal condition and stop the machine, even if the pressure drop is too small to affect operation. The AP-30's chatter prevention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

Analog output function (1 to 5 V)

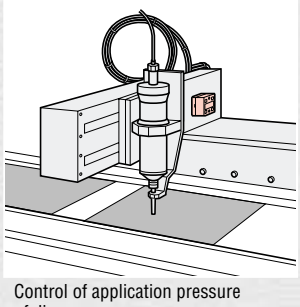
Pressure changes can be monitored for record keeping.

N.O./N.C. output selectable

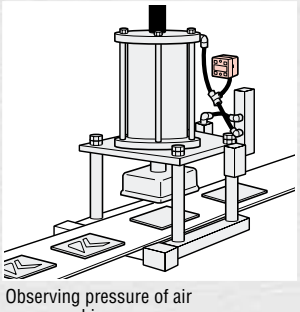
The peak-hold/bottom-hold value can be checked on the display.



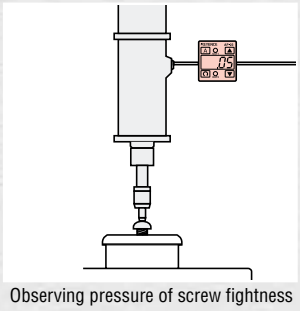
Control of compressor operation



Control of application pressure of dispenser



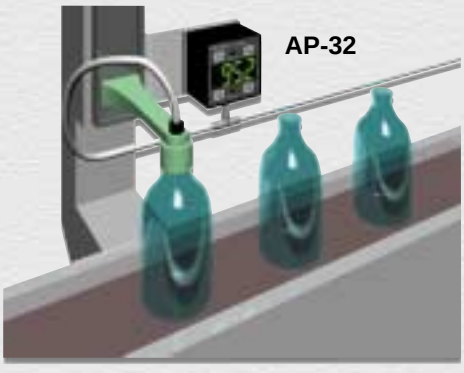
Observing pressure of air press machine



Observing pressure of screw fightness

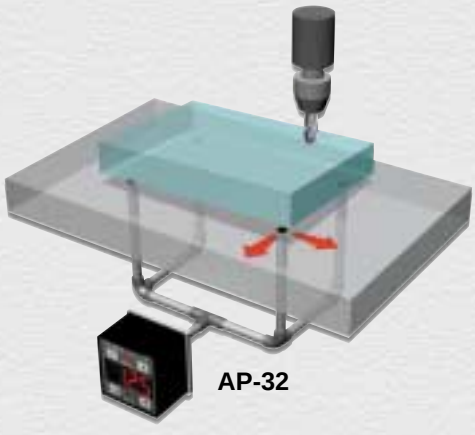
Leakage test

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

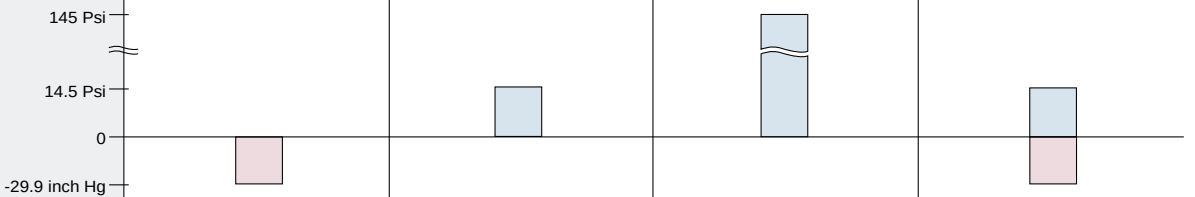


Confirmation of workpiece seating

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 [1]	AP-31(P)	AP-32(P)	AP-33(P)	AP-34(P)
Typical applications	 Suction confirmation	 Leakage test	 Base pressure control	 Suction confirmation
				
Rated pressure	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)
Proof pressure	4.9 bar (490 kPa)	4.9 bar (490 kPa)	14.7 bar (1.47 MPa)	4.9 bar (490 kPa)
Pressure type	Gauge pressure			
Fluid types	Air or noncorrosive gases			
Display	3 1/2-digit, 2-color, 7-segment LED (Character height: 11 mm)			
Display resolution	0.001 bar 0.1 inchHg 0.1 kPa, 1 mmHg,	0.001 bar 0.02 Psi 0.1 kPa, 0.001 kgf/cm²,	0.01 bar 0.2 Psi 0.001 Mpa, 0.01 kgf/cm²,	0.002 bar 0.1 inchHg 0.2 kPa, 2 mmHg,
Detectable pressure range	-15% to +110% of F.S.			
Repeatability	±0.2% of F.S. (5 ms or more)			
Response time (chattering prevention function)	2.5/5/100/500 ms (selectable)			
Control output	2NPN or 2PNP open-collector: 100 mA max. (40 V max.), Residual voltage: 1 V max. 2-output (N.O./N.C. selectable)			
Analog output	1 to 5 V (Load impedance: 47 kΩ min.)			
Temperature fluctuation for analog output	±2% max. (of F.S.) of detecting pressure at 25°C (0 to 50°C)			
Temperature fluctuation for display	±1% max. (of F.S.) of detecting pressure at 25°C (0 to 50°C)			
Current consumption	50 mA (at 24 V), 90 mA (at 12 V)			
Power supply	12 to 24 VDC±10%, Ripple (p-p): 10% max.			
Ambient temperature	0 to 50°C			
Relative humidity	35 to 85%			
Vibration	10 to 55 Hz, 1.5 mm double amplitude in X, Y, and Z directions, 2 hours respectively			
Material	Front housing: Polyamide, Front panel sheet: PET, Rear housing: Polysulfone, Pressure port: Die-cast zinc, Cable: Oil-proof cabtyre cable			
Weight (including 2 m cable)	Approx. 120 g			

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

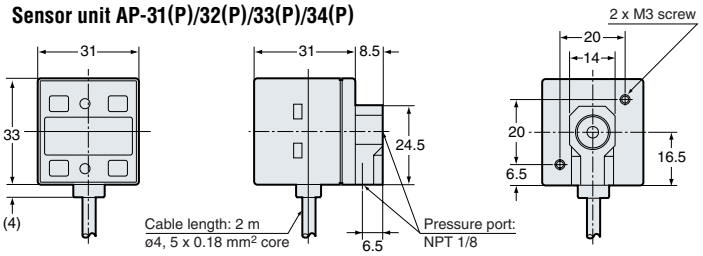
Options/Accessories

Panel mounting holder set
OP-31357 (Option)

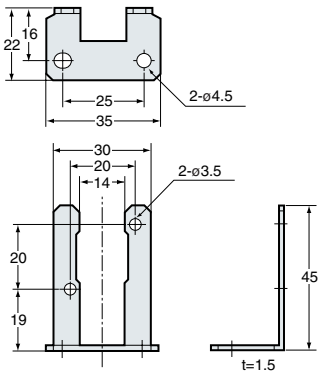
Mounting bracket (2 pcs.)
(Accessory)

Dimensions

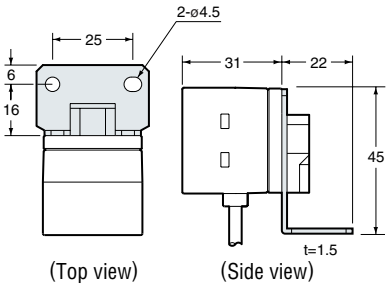
Sensor unit AP-31(P)/32(P)/33(P)/34(P)



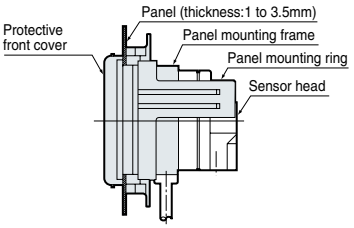
Mounting bracket A (Accessory)



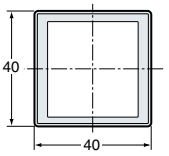
When mounting bracket A is attached



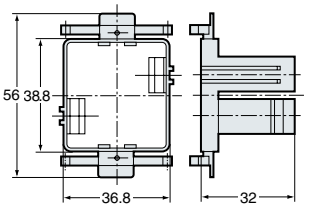
When flush-mounted in control panel with OP-31357



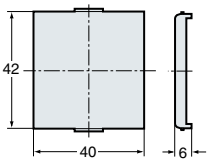
Panel mounting frame



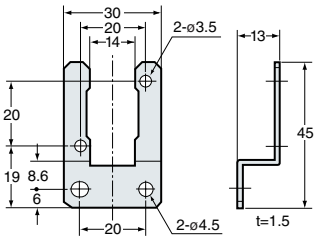
Panel mounting ring



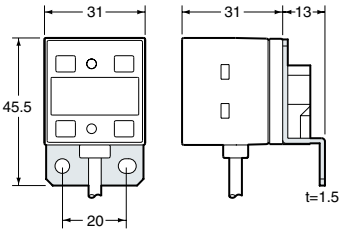
Protective front panel



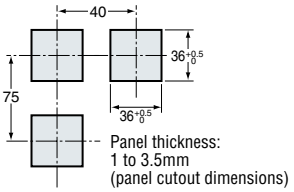
Mounting bracket B (Accessory)



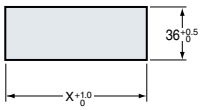
When mounting bracket B is attached



Panel cutout



Panel cutout:side-by side mounting



A is the number of sensor head:
X = 36 + (A - 1) x 40

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 other Keyence products at http://world.keyence.com

Specifications are subject to change without notice.

KEYENCE

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