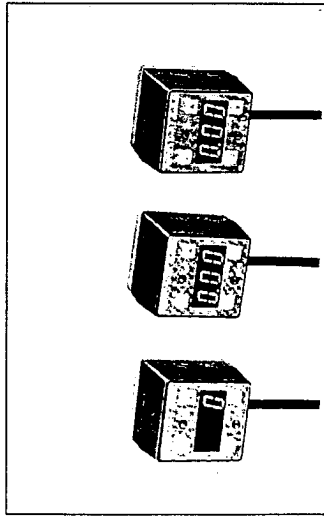


## Digital Pressure Sensor

### AP-20A

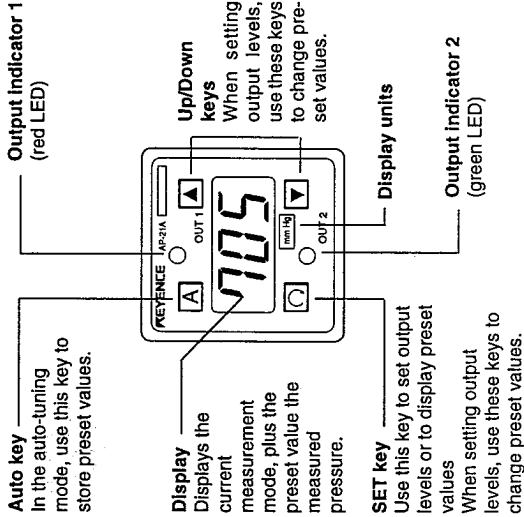
#### Instruction Manual



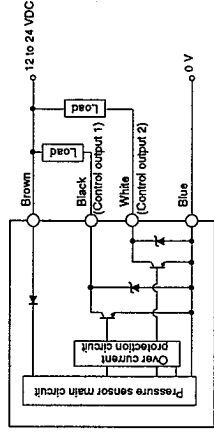
## SPECIFICATIONS

Type	Negative pressure	Positive (low) pressure	Positive (standard) pressure
Model	AP-21A	AP-22A	AP-23A
Rated pressure	0 to -99 kPa 0 to -760 mmHg 0 to -14.5 psi 0 to -1.00 bar	0 to 100 kPa 0 to 1.00 kgf/cm <sup>2</sup> 0 to 14.5 psi 0 to 1.00 bar	0 to 1 MPa 0 to 9.99 kgf/cm <sup>2</sup> 0 to 145 psi
Proof pressure	490 kPa (5 kgf/cm <sup>2</sup> )	490 kPa (5 kgf/cm <sup>2</sup> )	1.47 MPa (15 kgf/cm <sup>2</sup> )
Applicable fluid	Air/Non-corrosive gases		
Type of pressure	Gauge pressure		
Display	3-digit 7-segment LED (Character height: 8 mm)		
Display resolution	1 kPa, 5 mmHg, 0.1 psi, 0.01 bar	1 kPa, 0.01 kgf/cm <sup>2</sup> , 0.1 psi, 0.01 bar	0.01 MPa, 0.05 kgf/cm <sup>2</sup> , 1 psi, 0.1 bar
Repeatability	±1% max. of F.S.		
Response time	5 ms		
Temperature characteristic	±3% max. of F.S. pressure detected at 25°C (When detected between 0 and +50°C)		
Control output (two)	NPN open-collector: 100 mA max. (40 V max.) Residual voltage: 1 V max.		
Power supply	12 to 24 VDC ±10% Ripple (P-P): 10% max.		
Current consumption	45 mA 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		
Shock	100 m/s <sup>2</sup> (approx. 10 G) in X, Y, and Z directions, 3 times respectively		
Material	Front case: Polycarbonate; Pressure port: Die-cast zinc		
Weight	Approx. 105 g (including 2-m cable)		

## PART NAMES

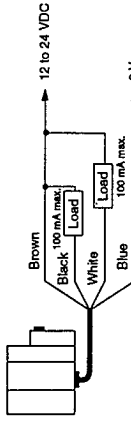


## OUTPUT CIRCUIT

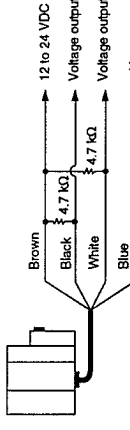


## CONNECTIONS

Drive current load



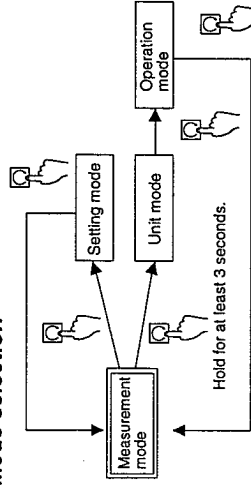
Input to voltage input equipment (at ON: low voltage)



Cut an unused output cable or connect it to the 0 V terminal.

## ADJUSTMENT

### Mode selection



### Setting the unit mode

In the measurement mode, hold down for at least 3 seconds. "..." appears first, and then the unit currently used is displayed. Using or , select the desired unit from those listed below. Pressing completes the unit setting procedure and enters the operation mode.

Set	AP-21A: mmHg AP-22A/23A: kgf/cm <sup>2</sup>	psi
PR	AP-21A/22A: kPa AP-23A: MPa	bar

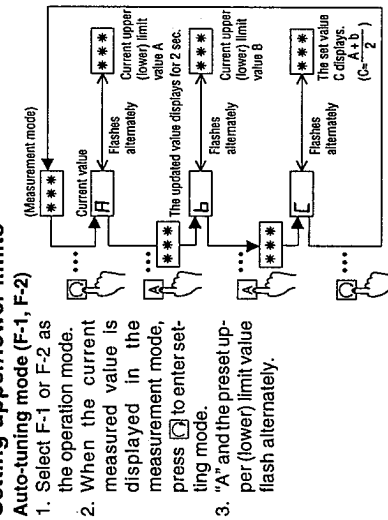
Note: If you change the unit after setting upper/lower limit values, be sure to set these values again.

### Setting the operation mode

To set the operation mode, press while in unit mode. "..." appears first, and then "F..." is displayed. Select the desired mode from those listed below using or . Pressing completes the operation mode setting procedure.

F-1	Auto-tuning mode 1 (Self-diagnosis)
F-2	Auto-tuning mode 2 (Stability)
F-3	Hysteresis mode
F-4	2 independent output mode
F-5	Window mode

### Setting upper/lower limits



## ADJUSTMENT

- "H" and the preset H value flash alternately. Set the H value to the desired value using or .
- Press to register the updated H value. Then "H"2, and the preset H value flash alternately. Set the h value to the desired value using or .
- This completes the setting procedure. The unit returns to the measurement mode.
- To confirm the preset value, press repeatedly.
- Note: In the hysteresis mode, be sure not to set the h value larger than the H value.
- 1: "A" appears in the 2 independent outputs mode.
- 2: "B" appears in the 2 independent outputs mode.
- "L" appears in the window mode.

### Zero-point adjustment

In the measurement mode, hold down for at least 3 seconds at normal atmospheric pressure. "..." appears first, and then "0" is displayed.

### Hysteresis mode (F-3)/ 2 Independent outputs mode (F-4)

- Select the desired mode from F-3 to F-5.
- When the current measured value is displayed in the measurement mode, press to enter the setting mode.

### Window mode (F-5)

- Select the desired mode from F-3 to F-5.
- When the current measured value is displayed in the measurement mode, press to enter the setting mode.

