

INTRODUCTION

The voltage/current/pressure calibrator (the calibrator in the following) is a handheld, battery-operated instrument that measures and sources electrical and physical parameters.

FEATURES

- Measure** : DC-voltage, DC-current, frequency and continuity
- Source** : DC-voltage, DC-current, simulation transmitter, frequency and pulse
- Pressure** : measuring pressure, Calibrating pressure-voltage transmitter, Calibrating 2wire pressure transmitter, Calibrating pressure switch;

OTHERS FEATURES

- Manual step source and auto -step and sweeping – step source
- Measurement/source mA% display
- Measurement wave-filter function
- Measurement manual-holding function
- Pressure source auto-holding function

SPECIFICATIONS

General Specifications for measure

These specifications assume:

- A 1-year calibration cycle
- An operating temperature of 18°C to 28°C
- Relative humidity of 35% to 70% (non_condensing)

Accuracy is expressed as ± (percentage of reading + percentage of range).



Function	Reference	Range	Resolution	Accuracy	Remark
DCV	200mV	-20.00mV ~ 220.00mV	10µV	0.02+0.02	Input Resistance : 100MΩ
	5V	-0.5000V ~ 5.5000V	0.1mV	0.02+0.01	Input Resistance : 1MΩ
	50V	-5.000V ~ 55.000V	1mV	0.03+0.01	
DCmA	50mA	-4.000mA ~ 55.000mA	1µA	0.02+0.01	Input Resistance : 5Ω
FREQ	500Hz	3Hz ~ 500.00Hz	0.01Hz	±2digit	Input Impedance : 100 kΩ at least; Sensitivity : 3Vp-p minimum; Duty Cycle : 50%.
	5KHz	3Hz ~ 5.0000KHz	0.1Hz		
	50KHz	3Hz ~ 50.000KHz	1Hz		
*CONT.	≤250Ω sound	OPEN / CLOSE			Open voltage : 2.5V

* In pressure switch module, shows specification of switch.

*Technical Specifications & Appearance are subject to change without prior notice

Other feature:

- Rate : 2 Readings per Second about
- DCV
Normal Mode Rejection Ratio (NMRR) ≥ 120dB (at 50Hz or 60Hz)
Common Mode Rejection Ratio (CMRR) ≥ 60dB (at 50Hz or 60Hz)
- Temperature Coefficient : 0.1 times the applicable accuracy specification per degree : for 5°C to 18°C and 28°C to 50°C
- Maximum voltage between VΩHz terminal and COM terminal : 60 Vpk
- Maximum Input current : 55mA
- Protected with a 63mA / 250V fast blow fuse

General Specifications for Source

These specifications assume:

A 1-year calibration cycle

An operating temperature of 18°C to 28°C (64.4°C ~ 82.4°C)

Relative humidity of 35% to 70% (non_condensing)

Accuracy is expressed as ± (percentage of set value + percentage of range)

Function	Reference	Range	Resolution	Accuracy	Remark
DCV	1000mV	-100.000mV ~ 1100.000mV	10µV	0.02+0.01	Maximum output current : 2mA
	10V	-1.0000V ~ 11.0000V	0.1mV	0.02+0.01	Maximum output current : 5mA
DCA	20mA	0.000mA ~ 22.000mA	1µA	0.02+0.02	External supply for simulate mA : 5V-28V Maximum load 1KΩ at 20mA
FREQ	100Hz	1.00Hz ~ 110.00Hz	0.01Hz	±2 count	Output voltage: 1~11 Vp-p (zero base waveform); Amplitude accuracy: ± (10% +0.5V); Maximum load: >100 KΩ; Duty Cycle: 50%.
	1KHz	0.100kHz ~ 1.100KHz	1Hz		
	10KHz	1.0KHz ~ 11.0KHz	0.1KHz		
PULSE	100Hz	1 ~ 100000 cycles	1cyc	_____	Output voltage : 1 ~ 11 Vp-p (zero base waveform); Amplitude accuracy : ± (10% +0.5V); Maximum load : >100 KΩ; Duty Cycle : 50%.
	1KHz				
	10KHz				
LOOP	24V			±10%	Maximum current : 25 mA Short circuit protected

Other feature:

- Temperature Coefficient : 0.1 times the applicable accuracy specification per degree : for 5°C to 18°C and 28°C to 50°C.
- Maximum voltage between any output terminal and earth : 30Vpk
Maximum output current : Approximately 25mA.

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General Specifications for Pressure

Function	Reference	Range	Resolution	Accuracy	Remark
PRESSURE	Determined by pressure module	—	Determined by pressure module	Determined by pressure module	For more detail, refer the pressure module about APM.

Other feature:

- Temperature Coefficient : 0.1 times the applicable accuracy specification per degree : for 5°C to 18°C and 28°C to 50°C.
- Maximum voltage between any output terminal and earth : 60Vpk
Maximum output current : Approximately 55mA.
- Protected with a 63mA / 250V fast blow fuse.

Specifications and Capacitance of External Pressure Module

The pressure module output can possibly cause overflow the five digits of LCD. Or when choosing an unsuitable unit, the value cannot be read due to smallness. LCD displays OL (overload) if the reading exceeds those range listed in the following table.

Table 8.APM-S Pressure Module Specification

Part number	Range	Pressure Type	1 Reference	2 Entire Accuracy
3APM010WGSG	0to2.49kPa (0to 10 inH20)	gauge	0.20%	0.30%
APM007KGSG	0to7kPa	gauge	0.10%	0.20%
APM035KGSG	0to35kPa	gauge	0.035%	0.07%
APM070KGSG	0to70kPa	gauge	0.035%	0.07%
APM001BGSG	0to100kPa	gauge	0.035%	0.07%
APM160KGSG	0to160kPa	gauge	0.03%	0.07%
APM200KGSG	0to200kPa	gauge	0.025%	0.05%
APM250KGSG	0to250kPa	gauge	0.025%	0.05%
APM004BGSG	0to400kPa	gauge	0.025%	0.05%
APM006BGSG	0to600kPa	gauge	0.025%	0.05%
APM010BGSG	0to1MPa	gauge	0.025%	0.05%
APM016BGSG	0to1.6MPa	gauge	0.025%	0.05%
APM021BGSG	0to2.1MPa	gauge	0.025%	0.05%
APM025BGSG	0to2.5MPa	gauge	0.025%	0.05%
APM040BGSG	0to4MPa	gauge	0.025%	0.05%
APM060BGSG	0to6MPa	gauge	0.025%	0.05%
APM100BGSG	0to10MPa	gauge	0.025%	0.05%
APM160BGSG	0to16MPa	gauge	0.025%	0.05%
APM200BGSG	0to20MPa	gauge	0.025%	0.05%
APM250BGSG	0to25MPa	gauge	0.025%	0.05%
APM400BGSG	0to40MPa	gauge	0.025%	0.05%
APM600BGSG	0to60MPa	gauge	0.025%	0.05%
APM700BGSG	0to70MPa	gauge	0.025%	0.05%
APM005PDSG	0to34kPa(0to 5psi)	Differential	0.035%	0.07%

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APM100PDSG	0to689kPa(0to 100psi)	Differential	0.025%	0.05%
APM005PASG	0to34kPa(0to 5psi)	absolute	0.035%	0.07%
APM015PASG	0to103kPa(0to15psi)	absolute	0.025%	0.05%
APM030PASG	0to207kPa(0to 30psi)	absolute	0.025%	0.05%
APM007BASG	0to700kPa	absolute	0.025%	0.05%
APM200PCSG	-103kPa to 1.379MPa (-15 to 200psi)	combination	0.025%	0.05%
APM001BCSG	-100kPa to 100kPa / -1bar to 1bar	combination	0.035%	0.07%
APM001BVSG	-100kPa to 0kPa	Vacuum	0.035%	0.07%

1. Reference Accuracy is defined as the full scale range accuracy gained in the lab environment.
2. Entire Accuracy is defined as the full scale range accuracy in one year including 0°C - 50°C temperature compensation.
3. APM010WGSG pressure module terminal is non-isolated, which is compatible only with dry or non-corrosive air. Other pressure module terminal is 316LSS isolation, which can be combined with all mediums compatible with 316-type stainless steel, all pressure module reference terminal are non-isolated.

Table 9. APM-H Pressure Module Specification

APM-H Pressure Module 1 Accuracy 0.010% F.S.		
APM005PGHG	103kPa(15psi)	gauge
APM020PGHG	345kPa(50psi)	gauge
APM100PGHG	689kPa(100psi)	gauge
APM500PGHG	3450kPa(500psi)	gauge
APM01KPGHG	6890kPa(1000psi)	gauge
APM015PAHG	103kPa(15psi)	absolute
APM050PAHG	345kPa(50psi)	absolute
APM100PAHG	689kPa(100psi)	absolute
APM500PAHG	3450kPa(500psi)	absolute
APM01KPAHG	6890kPa(1000psi)	absolute
APM03KPAHG	20670kPa(3000psi)	absolute

1. Six-month full scale range accuracy includes 15°C - 45°C temperature compensation.
2. All pressure terminals are non-isolated, which are compatible only with dry or non-corrosive air.

ACCESSORIES

- A set of Industrial testing Lead (CL727220)
- A set of Testing Lead (Tp727110)
- A set of Alligator clip (CC807130)
- A quick reference guide
- A User's Manual
- One Fuse 50mA / 250V
- One Fuse 63mA / 250V

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