VC-02 Vibration Calibrator

USER GUIDE

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Notes:

As a precision instrument, be sure to read the manual carefully before using.

The warranty period is 18 months, if any problems, please contact us.

1 Overview

VC-02 vibration calibrator consists of the standard sensor, signal generators, power amplifiers, signal conditioning and digital control display circuit with a small, solid and stable structure. It is a full-functions vibration calibrator for industrial field or laboratory; High precision, simple operation, easy to use. It can calibrate a variety of types of vibration sensors such as acceleration sensors, magnetic velocity sensors and eddy displacement sensors, and calibrate some vibration monitoring systems and data acquisition system.

2 Technical Specifications

2.1 Accuracy: ± 5%

2.2 Vibration signal frequency: 10Hz-10kHz (sinusoidal signal), frequency accuracy: <0.05Hz

2.3 Maximum Load: 200 g

2.4 measured sensor type:

    2.4.1 Charge Mode Accelerometers

    2.4.2 IEPE Mode Accelerometers

    2.4.3 Voltage Output Mode Accelerometers

    2.4.4 4-20mA Output Mode Accelerometers or Velocity Sensors

    2.4.5   Eddy Displacement Sensors

2.5 Maximum Input Range:

    2.5.1 Charge Mode: ≤ ± 3000pC;

    2.5.2 Voltage(IEPE) Mode: ≤ ± 3000mV

2.6 Vibration Amplitude range (RMS):

    2.6.1 Acceleration: ≤ 50.00m/s^2

    2.6.2 Velocity   : ≤ 150.00 mm/s

    2.6.3 Displacement: ≤ 1500μm

2.7 Maximum Vibration Amplitude & Maximum Load

For the VC-02 is small, so the calibration of the different sensors at different frequencies (different weight), the calibrator can output amplitude is not the same. The maximum vibration amplitude and the maximum load at a certain frequency, is as follows: All values

are RMS.

Load \ Frequency	≤100grams			≤200 grams		
	a(m/S^2)	v(mm/S)	d(µm)	a(m/S^2)	v(mm/S)	d(µm)
10Hz	10	100	1500	10	100	1500
20Hz	20	150	1200	20	150	1200
40Hz	50	200	800	30	100	500
80Hz	50	100	200	30	60	120
160Hz	50	50	50	30	30	30
320Hz	50	25	12	30	15	7
640Hz	50	12	3	40	10	2.5
1kHz	50	8	*	40	6	*
2kHz	50	4	*	30	2.4	*
4kHz	50	2	*	30	*	*
6kHz	50	*	*	30	*	*
8kHz	50	*	*	30	*	*
10kHz	50	*	*	30	*	*

* At high frequencies,the vibration value of velocity and displacement is very small.

2.8 Mounting Type：M5 screw

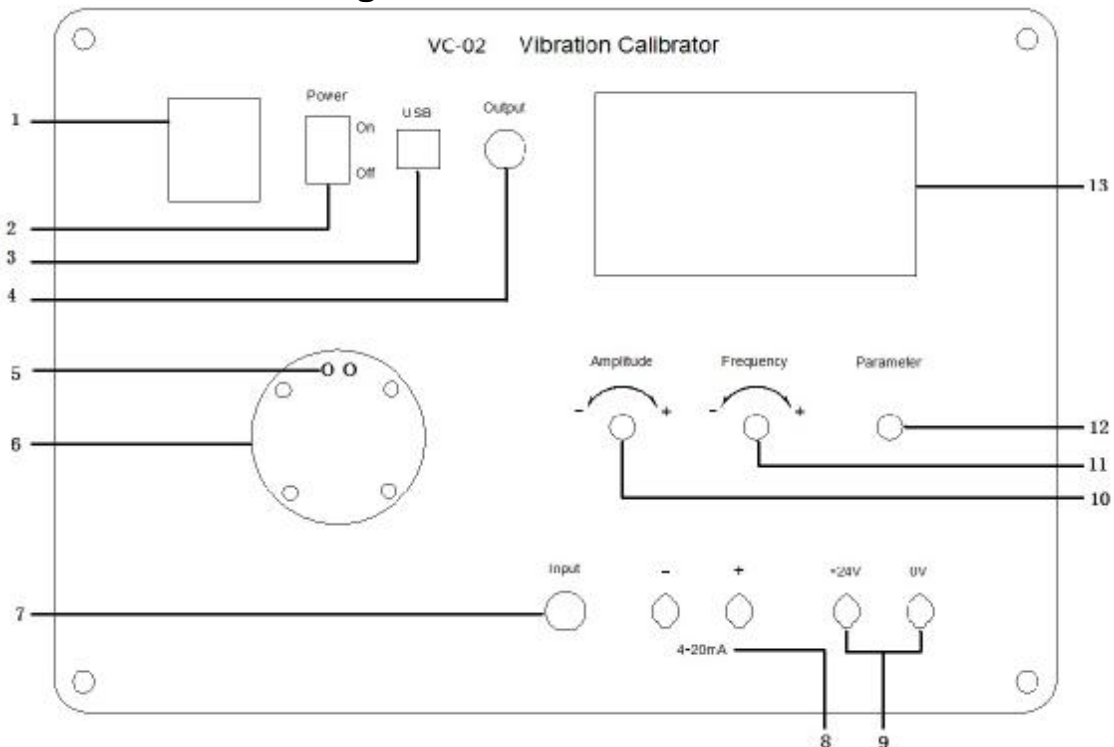2.9 Working temperature: 0℃ to +55℃; Humidity Maximum 95% R.H.

2.10 Power Supply：AC220V ±10% 50～60Hz

2.11 Size：300mm×210mm×130mm

2.12 Weight： about 6.5Kg

3 How to Operate

3.1 The Panel Diagram

1. Power input socket: connect the AC 220V power supply;

2. Power Switch: AC 220V power switch

3. USB interfaces: Connect the PC for vibration control by software;

4. The testing sensor signal output socket: the testing sensor signal output can be measured by a digital multi-meter or other instruments through this socket ;

5. The mounting screws for eddy sensors: the testing bracket can be mounted on the calibration instrument panel via the screw holes for testing the eddy current sensors;

6. The table: for fixing adjusted sensors;

7. Input socket: connect the output of the adjusted sensors；

8. 4 ~ 20mA input terminals: connect the output of 4 ~ 20mA output sensors;

9. -24V power supply: offer the power for testing the sensors such as eddy sensors；

10. Vibration amplitude adjustment knob

11. Vibration amplitude adjustment knob

12. Vibration frequency adjustment knob

13. LCD window

3.2 Operation Steps

3.2.1   Mounting Sensor

3.2.1.1 Sensor (Acceleration or Velocity) installation: put the M5 screw, sensor fixed on the table in turn. Different sensors, sometimes need to use the corresponding conversion screw;

3.2.1.2 The eddy sensor installation: Put the benchmark on the test plate, the eddy sensor fixed suite in sequence;

3.2.1.3   When calibrating, place the calibrator stable as possible. When change the sensor, need to turn off the power supply. After the calibration, the sensor should be removed for avoiding the sensor is left for a long time on the table.

3.2.2   Cable Connection

3.2.2.1   The calibrator can measure and display the value of measured sensor output , so the output of these sensor such as charge mode ,IEPE mode and Voltage mode can be connected to the socket of signal input socket(BNC);

3.2.2.2   For the output of 4-20 mA sensor, please connect the signal to "4-20 mA" terminal, internal calibration instrument is illustrated

below.
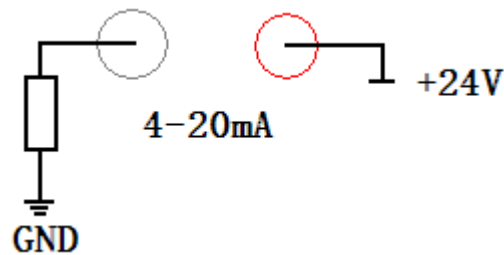
3.2.2.3 For eddy displacement sensor, the calibrator can offer the power to the preamplifier; The green terminal is -24VDC, the black one is 0V; And the output of preamplifier connect to the signal socket of the BNC ;

3.2.2.4 If hope to measure the output signal of adjusted sensor, please check the socket of sensor output signal–(BNC); For this signal can be adjusted automatic by the calibrator, so the output signal should be amplified X1 or X10.

3.2.2.5 Connect to AC Power: Please confirm the AC power supply should be 220 V / 50 Hz;

3.2.2.6 If hope to operate by PC, connect the calibrator to PC by one USB cable.

3.2.3 Operation Setting

After checking cables and sensors be fixed correctly, turn on the power and the LCD will display as follows:
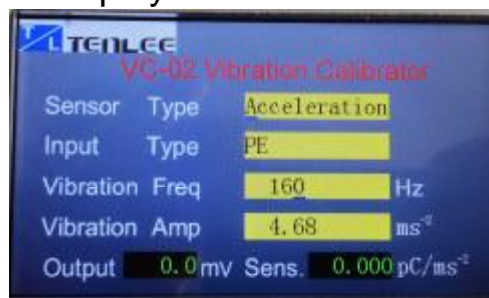
3.2.3.1 Sensor Type ： can select the type of tested sensor such as Acceleration, Velocity and Displacement.

3.2.3.2 Input Type: select the input type of tested sensor such as PE(Charge Mode),IEPE Mode ,Voltage Mode and 4-20mA output Mode.

Setting Method: Press the knob ⟳ ， can change <Sensor Type> or <Input

Type>，and counter clockwise or clockwise this knob ⟳ ， can change the types of current location.

3.2.3.3   Vibration Freq: Vibration Frequency adjustment

Setting Method: Press the knob ⟳ to change the cursor position; counter

clockwise or clockwise adjust this knob ⟳ , set the frequency ;

3.2.3.4   Vibration Amp: Vibration Amplitude adjustment

3.2.3.5   Setting method: Turn this knob ⟳ counter clockwise, can be reduced vibration amplitude; And Turn this knob ⟳ clockwise, can add vibration amplitude. LCD displays this RMS Value of vibration amplitude. Please note the amplitude cannot over the maximum rated output amplitude; when finished, please set the amplitude to a minimum level.

3.2.3.6   Output: the output of adjusted sensors, the value is RMS;

3.2.3.7   Sens.: The sensitivity of calibrated sensor.

4 Software Operation

Please see the software user guide.

5 Accessories

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