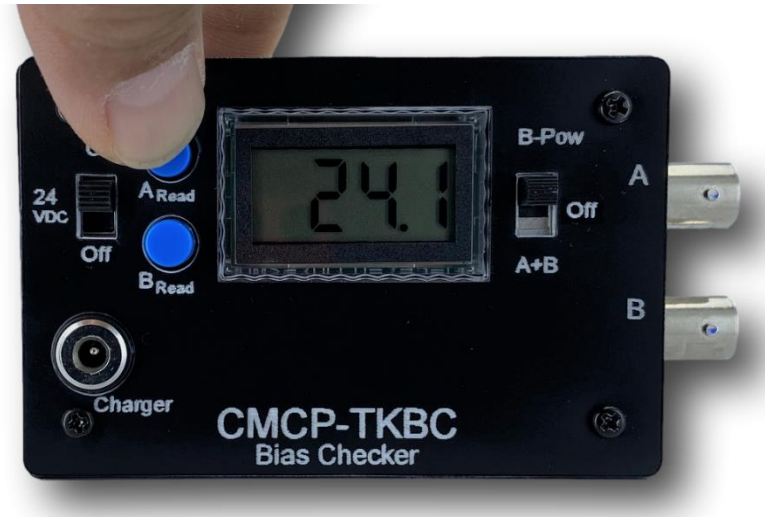
*Condition Monitoring Custom Products*

# CMCP-TKBC Bias Checker

## Swift Voltage Test on Standard Accelerometers




### Features

- Small Footprint
- Rechargeable Li-Ion Battery with 13 Hours Runtime
- Checks both Bias and Temperature Channels
- Provides +24 VDC for unpowered Accelerometers
- Measure Bias of Powered Accelerometers

### Typical Applications

Verification of Accelerometer Bias Voltages and Temperature Voltage Outputs.
In addition, provides power to Dual Parameter Sensors (Acceleration and Temperature) so Data Analyzer (Microlog) can read Temperature output.

### Product Overview

The CMCP-TKBC Bias Checker is an ideal tool for engineers and technicians who perform installation, maintenance, troubleshooting, and verification of accelerometers for vibration monitoring systems.

### Technical Performance

| Control Function | |
|---|---|
| Power On/OFF Switch: | Turns on 24 VDC for Accelerometer |
| Selector Switch to Middle Position: | CCD Power (Constant Current Diode) for BNC "A" |
| Selector Switch to A+B: | Connects BNC A and BNC B together for passthrough from Analyzer to Accelerometer |
| Selector Switch to B-Pow: | CCD Power (Constant Current Diode) for both BNC "A" and BNC "B" for two Accelerometers or Accelerometers with Temperature that need power on each Channel |
| Momentary Pushbutton $A_{Read}$: | Read-out Bias Voltage from BNC "A" |
| Momentary Pushbutton $B_{Read}$: | Read-out Bias Voltage from BNC "B" |
| | |
| Connector: | 2 BNC's (female) |
| DC Voltage: | +24 Vdc |
| Battery: | Lithium Ion 9 Vdc, 500 mAh |
| Battery Life: | >13 Hours @ 30 mA |
| Dimensions: | 3.27" x 2.13" x 1.20" (83 x 54 x 30.5 mm) |
| Weight: | 3.3 oz (94 g) |

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## Ordering Information

CMCP-TKBC Bias Checker
**Includes:** Voltage Test Unit (Bias Checker), Smart Charger, BNC to BNC Cable, BNC to Test Clip Adapter Cable, plus Storage Pouch.


### Verification of accelerometers in Condition Monitoring Systems

Condition monitoring systems should have all their various input types periodically checked. One way is to measure the bias voltage of the sensors.

### Modes of Operation:

1. Accelerometer Test:
   Powers Accelerometer to test Bias Voltage
2. Passthrough Test:
   Connected in series between accelerometer and Analyzer. No Boost Power Provided. Reads Bias of Accelerometer in Loop by pressing $A_{Read}$ or $B_{Read}$.
3. Dual Accelerometer Test:
   Powers two Accelerometers to test Bias Voltages.
4. Accelerometer with CCD Powered Temperature Test:
   Tests Bias Voltage and supplies Constant Current Diode (CCD) Voltage to both Accelerometer and Temperature Sensor.
5. Accelerometer with Slave Temperature Test:
   Tests Bias Voltage of both Accelerometer and Temperature Sensor. Only provides power to Accelerometer side.


**Shown Above:** CMCP-TKBC Read-out of Accelerometer Bias Voltage

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# CMCP-TKSG-M Mini Field Signal Generator

## Signal Simulation for Systems with Accelerometer or Velocity Sensors


## Features

- Calibrated Acceleration and Velocity Outputs
- BNC Female Output Connector
- 8 Selectable RMS Outputs plus Variable Output
- 318 Hz Fixed Signal Frequency
- Designed for Standard Accelerometers with +24 VDC Powered Systems
- +10 VDC Bias to replicate common sensors and to enable OK circuits
- Lithium-Ion Battery Powered with Smart Charger for more than 18+ Hours of Runtime

## Typical Applications

Verification of Calibration, End to End Wiring Testing, Vibration Signal Simulation
Verification of OK Circuits, Alarms and Relays
Note: To verify Proximity Systems, please refer to the CMCP-TKSG Field Signal Generator

## Product Overview

The CMCP-TKSG-M Mini Field Signal Generator is an ideal tool for engineers and technicians who perform installation, maintenance, troubleshooting, and verification of calibration on vibration monitoring systems. The battery powered CMCP-TKSG-M simulates a fixed frequency acceleration or velocity signal with a bias of +10 VDC.

The amplitude of the signal can be adjusted in 8 pre-defined increments or manually adjusted using the variable output setting. The CMCP-TKSG-M produces a 10 VDC bias voltage to satisfy OK circuits and offers over 18 hours of runtime on its internal rechargeable lithium-ion battery pack.

## Technical Performance

| | |
|---|---|
| AC Voltage Presets: | 0.05, 0.10, 0.15, 0.20, 0.25, 0.50, 0.75 and 1.00 VAC RMS or 0.14, 0.28, 0.42, 0.57, 0.71, 1.41, 2.12 and 2.83 VAC Peak to Peak |
| AC Variable Range: | 0.0 to 1.00 VAC RMS (0 to 2.828 VAC Peak to Peak) |
| Frequency: | 318 Hz ±0.5% Fixed |
| Calibrated Units: | RMS |
| Bias Voltage: | +10 VDC |
| RMS Accuracy: | 2% @ 22 °C After 5 Minute Warmup |
| Battery: | Lithium Ion 14.8VDC, 700mAh |
| Battery Life: | >18 Hours @ 30 mA |
| Dimensions: | 4.62”x3.11”x1.3” (118x79x33 mm) |
| Weight: | 6.3 oz (178.6 g) |

**Ordering Information**
CMCP-TKSG-M Mini Field Signal Generator Kit
Includes:

(1) Signal Generator
(1) Charger
(1) 6’ BNC to BNC Cable
(1) 6’ BNC to Test Lead Cable
(1) BNC-‘T’ Adapter
(1) Protective Case.


**CMCP-TKSG-M Top View**


**CMCP-TKSG-M Kit**

**Back Label:**

| CMCP-TKSG Millivolt Output @ 318 Hz | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| DIP Switch | D1-On | D2-On | D3-On | D4-On | D5-On | D6-On | D7-On | All-Off | D8-On |
| mV RMS | 50.0 | 100.0 | 150.0 | 200.0 | 250.0 | 500 | 750 | 1,000 | Variable |
| mV Peak | 70.7 | 141.4 | 212.1 | 282.8 | 353.5 | 707 | 1,060 | 1,414 | |
| mV P-P | 141.4 | 282.8 | 424.2 | 565.6 | 707.0 | 1,414 | 2,121 | 2,828 | |
| 100 mv/g RMS Accelerometer | | | | | | | | | |
| g's | 0.5 | 1.0 | 1.5 | 2.0 | 2.5 | 5.0 | 7.5 | 10.0 | |
| in/sec | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 1.0 | 1.5 | 2.0 | |
| mm/sec | 2.5 | 5.1 | 7.6 | 10.2 | 12.7 | 25.4 | 38.1 | 50.8 | |
| 100 mv/in/sec (4 mv/mm/sec) RMS Velocity Sensor | | | | | | | | | |
| in/sec | 0.5 | 1.0 | 1.5 | 2.0 | 2.5 | 5.0 | 7.5 | 10.0 | |
| mm/sec | 12.7 | 25.4 | 38.1 | 50.8 | 63.5 | 127.0 | 190.5 | 254.0 | |

The above chart details the outputs which have been optimized for standard sensor calibrations of 100 mV/g and 100 mV/in/sec (3.94 mV/mm/s).

**Verification of Calibration of Condition Monitoring Systems**
Condition monitoring systems should have all their various input types periodically calibrated and verified to maintain proper process control and safe operation of the equipment.

**Testing Alarm Conditions**
An essential function of Condition Monitoring systems is often to trigger an alarm or trip a safety switch when unwanted or dangerous conditions are detected. These alarms must be routinely checked for proper operation.

**Sensor Simulation and Verification**
All the conditions that a system is expected to operate under can often not be created on demand and instead must be simulated. The simulation is not only necessary to test for the proper connection of wiring and electronics, but also to test the overall system end to end functionality.

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# CMCP-TKAT
## Portable Handheld Accelerometer and Cable Tester

**Features:**

- Verifies Sensor Bias Voltage
- Verifies Cable Wiring
- LED Voltage Display
- OK, Short or Open LED Indicators
- 9V Battery Powered
- BNC Cable For Direct Connection
- Test Leads for Junction Boxes
- Includes Carry Case and Spare Battery

### Technical Performance

| | |
|---|---|
| Input: | Constant Current Accelerometer or Velocity Sensor |
| Display: | Indicates the Sensors DC Bias Voltage |
| LED: | Green: OK<br>Amber: High Bias Voltage / Open Cable Connection<br>Red: Low Bias Voltage / Shorted Cable |
| Connection: | BNC Socket |
| Leads: | 2’ BNC to BNC Cable and Clip On Leads |

### Electrical

| | |
|---|---|
| Power: | 9VDC Battery |
| Battery Life: | 3 Hours (1xPP3) |
| Low Battery Indicator: | Low Battery Indicator on Display |
| EMC: | EN61326-1:2013 |

### Mechanical

| | |
|---|---|
| Case Material: | Plastic with Rubber Molding |
| Dimensions: | 3”x5”x12 with Cable Connected |
| Weight: | 9.5 Oz. |

### Ordering Information:

| | |
|---|---|
| CMCP-TKAT | Accelerometer Test Kit |

## Instructions:

**Description.**
The CMCP-TKAT Cable & Bias Checker is a battery powered, hand-held unit designed to enable installation engineers to verify plant cabling in vibration monitoring systems. The unit provides constant current accelerometer power via a BNC connector and indicates correct accelerometer operation or cabling short /open circuits using a tri-color LED. In addition, the accelerometer bias voltage is indicated on an LCD display. The battery compartment, containing a single 9V battery, is accessible on removing the rubber protective cover.

**Operation.**
The CMCP-TKAT can be connected to multi-channel switch boxes via a BNC/ BNC coaxial lead, or to junction box terminals by use of the BNC lead adapter and the test probes provided. The center BNC contact should be connected to the accelerometer power/signal wire and the BNC outer to the accelerometer 0V. On switching on via the toggle switch, the LCD meter will indicate accelerometer bias voltage. The LED will be green if this bias voltage is between 5V and 15V. Bias voltages outside these limits indicate a faulty accelerometer. The LED will be amber for bias voltages less than 5V and red for bias voltages greater than 15V. Cable short-circuits are indicated by an amber LED and 0V on the LCD meter. Open circuits are indicated by a red LED and a bias voltage greater than 20V. The battery current is 35mA in normal operation which will allow many hours of continuous operation, however to preserve battery life, the unit should be switched off when not in use. A low battery condition is indicated on the LCD display when the battery voltage falls below 7.5V. The LCD display can be calibrated, if required, via a potentiometer located on the rear of the display module. This is accessible on removal of the four case fixing screws.

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# CMCP-TKPC

## QuickClick Pocket Calibrator for Proximity Probes


**Features:**

- Used to Verify Proximity Probe Calibration
- Small, Portable Size (1.5”x3.5”)
- QuickClick for Precise Incremental Measurements
- 1/4”, 3/8”, M8 and M10 Collets
- 24mm Diameter 4140 Steel Target
- Handheld, Tabletop or Magnetic Mount
- English or Metric Micrometer (mils or mm)
- Hard Carrying Case Included

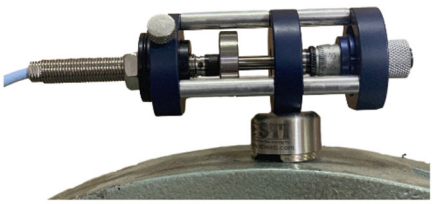
The **CMCP-TKPC QuickClick Pocket Calibrator** provides a convenient and precise method of verifying the voltage output vs. physical gap of a Proximity Probe system. Designed for use in the field or shop environment, the CMCP-TKPC will work with any manufacturer’s 5mm and 8mm probes and is supplied with probe holders to accommodate 1/4-28, 3/8-24, M8 and M10 thread sizes.

STI’s patented QuickClick micrometer allows the user to easily adjust the micrometer in 0.005” (English option) or 0.1mm (Metric option) increments quickly and reliably, improving the overall time it takes to complete a report and with greater precision. The QuickClick can be disengaged to allow for 0.001” or 0.01mm graduations.

With the length of the physical gap, and the output of the Proximity Probe, a calibration curve can then be generated using STI’s Proximity Probe Calibration tool and Microsoft Excel.


Collets for Standard Probe Sizes

Hard Shell Carrying Case



2-Pole Magnet for Machine or Pedestal Mounting

The CMCP-TKPC comes in a Protective Carrying Case complete with a 2-Pole Magnet and Four (4) Standard Collets. Material specific targets are also available.

| **Specifications:** | |
|---|---|
| Dimensions: | 1.5” Diameter x 3.5” Long (38x89mm) |
| Weight: | 1 Lb. 5 Oz. (582g) |
| Target Material: | 4140 Steel (Others Available Upon Request) |
| Target Diameter: | 0.938” (24mm) |
| Probe Collet Sizes: | 1/4”, 3/8”, M8 and M10 |
| Frame Material: | Anodized Aluminum |
| Micrometer Range: | 0.5” (13mm) |
| Micrometer Adjustment: | 0.001” (English Version)<br>0.01mm (Metric Version) |
| QuickClick Adjustment: | 0.005” (English Version)<br>0.1mm (Metric Version) |
| Magnet Strength: | 45 Lb (20.4kg) Pull Strength Curved Surface Magnet |

| Ordering Information: | | |
|---|---|---|
| **CMCP-TKPC** | **-XX** | **Description** |
| | -E | English Micrometer (mils) |
| | -M | Metric Micrometer (mm) |

**Custom Targets Available On Request**

**Similar Products:**

**CMCP610**
Benchtop Probe Calibrator
1.5” (38.1mm) Target

**CMCP-TKSC**
Shaft Calibrator

**CMCP-TKPro**
Vibration Test Kit

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# CMCP-TKPW-KIT

## Pocket Wobulator Test Kit for Dynamic and Static Signal Simulation

### Features:

- Compact, Battery Powered Wobulator
- Compact Static Calibrator Included
- For Use with Proximity Probes
- 4140 Steel Wobble Plate
- 0-15 mil Dynamic Range
- Collets for English and Metric Probe Sizes
- Precision Dial Indicator Included
- Variable Speed (0-7,000 RPM)
- Tachometer and Key Phase Notch for Speed Probes
- Includes Travel Case, Battery Pack, Charger and Mounting Magnet

### Product Overview

The CMCP-TKPW-KIT Pocket Wobulator Test Kit is used to provide a calibrated mechanical vibration using a variable speed Wobble Plate. A precision dial indicator is placed in the probe shuttle and set at the desired amplitude. The dial indicator is then replaced with a proximity probe to simulate vibration signals. Both the proximity probe system and monitoring system can be verified by this method. The CMCP-TKPW's Wobble Plate is made from 4140 Steel, the standard material used for proximity probe calibration, and features a 0-15 mil dynamic range. The CMCP-TKPW Test Kit incudes the CMCP-TKPC Pocket Calibrator for static calibration verification and features STI's QuickClick Micrometer for quick and consistent calibration.

### Pocket Wobulator Specifications:

| | |
|---|---|
| Material: | Anodized Aluminum |
| Wobble Plate Material: | 4140 Steel |
| Dynamic Range: | 0 to 15 mils (0 to 381 Microns) Minimum |
| Dimensions: | 5.0"x3.0"x3.0" (127x76.2x76.2mm) |
| Weight: | 1.8 Lbs (0.81kg) |
| Collet Sizes: | 1/4", 3/8", M6, M8 and M11 |
| Power: | 22.2VDC Lithium Ion Battery |
| Mounting: | Handheld or Magnetic Base |


### Static Calibrator Specifications:

| | |
|---|---|
| Material: | Anodized Aluminum |
| Target Material: | 4140 Steel |
| Target Diameter: | 0.938" (24mm) |
| Micrometer Range: | 0.5" (13mm) |
| Micrometer Adjustment: | 0.001" |
| QuickClick Adjustment: | 0.005" |
| Mounting: | Handheld or Magnetic Base |

### Travel Case:

| | |
|---|---|
| Dimensions: | 12.0"x12.0"x5.5" (304.8x304.8x139.7mm) |
| Weight: | 5.4 Lbs (2.45) Loaded |

### Kit Contents:

Qty. 1 CMCP-TKPW Pocket Wobulator
Qty. 1 CMCP-TKPC Static Calibrator
Qty. 1 Lithium Ion Battery Pack
Qty. 1 Battery Charger

Qty. 1 Power/Charger Cable
Qty. 1 Dial Indicator with English and Metric Units
Qty. 5 Assorted Collects for English and Metric Probes
Qty. 1 CMCP-MB03 Magnetic Base
Qty. 1 Steel Plate for Table Mount
Qty. 1 Hard Travel Case


## Dynamic Signal Simulation Instructions:

Insert the 3/8" collect into the shuttle.
Insert the dial indicator into the collet.
Lock collet in place using the brass thumbscrew.
Turn motor on at slow RPM.
Adjust shuttle until the dial indicator shows the desired amplitude.
Use thumbscrew to lock shuttle into place.
Remove dial indicator and replace with proximity probe.

## Key Phase (Speed) Simulation Instructions:

Insert a ¼-28 threaded probe into the side bracket.
Turn motor on and adjust speed as required.
Probe will provide two pulses per revolution.

## Static Signal Simulation Instructions:

Zero micrometer on CMCP-TKPC.
Insert probe into collect and place into static calibrator, pressing the probe tip against the target.
Back out micrometer in 5mil increments using STI's QuickClick adapter.
Record probe output voltage and enter values into probe curve chart.

## Ordering Information:

| | |
|---|---|
| CMCP-TKPW-KIT-E | Pocket Wobulator Test Kit with English Units |
| CMCP-TKPW-KIT-M | Pocket Wobulator Test Kit with Metric Units |