



## INSTRUCTIONAL MANUAL

**SPC DIGITAL INCLINOMETER  
MODEL KEI-123**

# **KEMKRAFT ENGINEERING, INC.**

## **MODEL KEI-123 SPC DIGITAL INCLINOMETER**



### **SWITCH DESCRIPTIONS:**

**POWER** Toggle switch to turn the unit ON or OFF.

**SNAP SHOT** A momentary push-button, that when pressed, locks the angle value at the instant the button is pressed into memory for future use and also onto the display. The display goes back to the normal run mode when the Snap Shot button is pressed the second time.

**UPLOAD** A toggle switch to allow the uploading of stored SNAP SHOT data to an IBM compatible computer.

### **OPERATION PROCEDURE:**

- This unit should be calibrated once a month. Refer to the **Calibration Procedure** of this manual.
- The Inclinometer should be fully charged before use. If the unit is used extensively during the day it should be charged at night.
- Turn the POWER switch, located on the front panel, to ON.
- The unit should display as follows:

xXX.XX

xXX.XX displays the degree angle value up to a max. of +/-10.00 deg.

The procedures on the next page explain the KEI-123 used as a steering wheel gauge.

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### **STEERING WHEEL GAUGE INCLINOMETER:**

The KEI-123 can be utilized as a digital inclinometer to monitor the angle of a steering wheel during the alignment process or while driving. To use a KEI-123 on a steering wheel, the KEI-123 should be mounted to a mechanical fixture that can be attached to a steering wheel. The locating rollers on the mechanical fixture should accurately and repeatably locate on the wheel at strategic points that represent the steering wheels horizontal axis. Mount the mechanical fixturing accurately onto the vehicle steering wheel. The digital display displays angle, SNAP SHOTS and amount of SNAP SHOTS stored in memory. 1.) In run mode, the KEI-123 will display angle at all times.

- 2.) When the SNAP SHOT button is pressed once, the angle at that instant is stored into the units memory as a snap shot value and locks that value onto the LCD display. *The unit will not go back to the run mode until the SNAP SHOT button is pressed again.*
- 3.) Once the SNAP SHOT button has been pressed the second time, and the unit is in the run mode, the KEI-123 can continually be used to measure angles or be connected to an IBM compatible computer to UPLOAD the SNAP SHOTS stored in memory.
- 4.) If the UPLOAD button is turned to ON, the unit displays the amount of SNAP SHOTS that were stored in memory and is ready to upload.
- 5.) To UPLOAD, follow the RS-232 UPLOAD PROCEDURE.

### **RS-232-C SERIAL UPLOAD PROCEDURE**

Plug the interface cable supplied with the inclinometer into the side of the unit. Plug the 25 pin computer interface connector into the COM1 serial port of the computer. Turn the inclinometer to ON. The Kemload Utility Program that was supplied with the inclinometer can be run by typing KEMLOAD <CR>. This will display on the computer CRT the Kemload program. Turn the UPLOAD button to ON and the display will read, xx snpsht, which is the amount of SNAPSHOTS. The SNAP SHOT values are now ready for upload to the computer. The Kemload Utility Program on the CRT displays the function keys of an IBM-AT keyboard at the bottom of the screen. View these function key commands and press the appropriate keys. To upload the SNAP SHOTS, press the F6 key and the SNAP SHOT values taken during the tests will be displayed on the CRT. If the file is received OK, the names of the function keys change. If the data is required to be stored onto the hard disk, a file name should be first assigned to that set of data by using the F4 key. Then by pressing the F2 key the values displayed on the CRT will be saved in an ASCII text file under the name that you assigned.

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### **CALIBRATION PROCEDURE:**

- Charge unit over night before calibrating.
- Install mechanical steering wheel fixture (with inclinometer permanently mounted onto it) onto a calibration stand that can be adjusted for 0 degrees and some other known value such as 5 or 10 degrees.
- Set the cal. stand to 0 degrees and adjust the ZERO control on the front panel of the inclinometer for 00.0 degrees.
- Set the cal. stand to eg. 10 degrees and adjust the GAIN control on the front panel of the inclinometer for 10.0 degrees.
- Repeat the following two procedures until the values are stable.

### **WARRANTY AND SERVICE INSTRUCTIONS**

KEMKRAFT Engineering, Inc. warranties this equipment against defects in workmanship and materials for a period of 90 days from date of signature of release. We will, at our option, repair or replace products which prove defective during the warranty period. No other warranty, expressed or implied, is given. KEI is not liable for consequential damages. Damage caused to the equipment as a result of improper use or abuse, or unauthorized modification of the instrument is not covered under this warranty.

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