KEMKRAFT ENGINEERING, INC.

INSTRUCTIONAL MANUAL

SPC DIGITAL INCLINOMETER
MODEL KEI-200

REVISION DATE:

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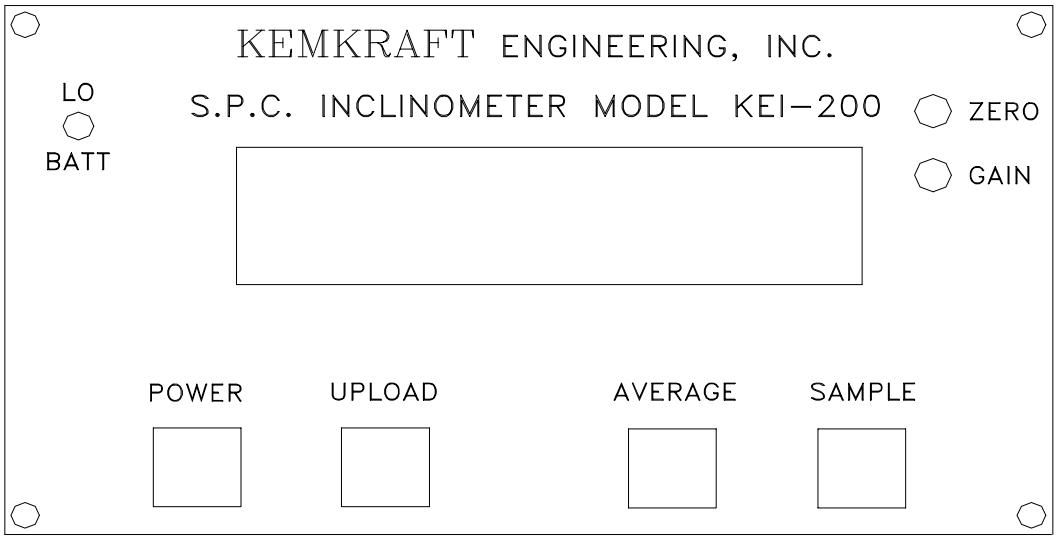
47650 CLIPPER DR. PLYMOUTH TWP., MICHIGAN 48170 (734) 414-6500



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.
- Depress the power switch, located on the front panel, to turn the unit on. The unit should display as follows:

XX.X**deg** XX**smpls**
avg XX**avgcnt**

XX.X**deg** displays the degree angle value up to a max. of +/-12.7 deg.

smpls: is the sample counter and indicates the amount of samples stored into the units' memory.

avg: is the abbreviation for average and will display the average value of the sum of the samples taken when the SAMPLES button is depressed.

avgct: is the abbreviation for average counter and will display the amount of averages stored into the units memory each time the AVERAGE button is depressed.

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Mount the mechanical fixturing accurately onto the vehicle steering wheel. Tests performed should be done on the flattest, smoothest road possible and starting and stopping points should be noted. Drive the vehicle at a slow, constant speed and at the starting point depress the SAMPLE button. The sample counter will automatically up count. (**When the sample button is pushed at the begining of the first and second pass, a one second delay timer has been added to give the driver a second to straighten the vehicle.**) When the stopping point is reached, depress the SAMPLE button again and the sample taking will cease. Turn the vehicle around and drive at the same constant speed as was in the opposite direction. When the vehicle reaches the previous point that the SAMPLE button was pressed to stop the sampling, press the SAMPLE button again. The sample counter will automatically down count and stop when it reaches 00 SAMPLES. If the test was performed without any flaws, and the values taken you felt were accurate, depress the AVERAGE button. This will display, in front of AVG, the average value of the sum of samples taken and also display in front of AVGCT the amount of averages saved for future uploading. When the tests are complete and averages have been stored into the units memory, the unit can than be turned off and taken to a computer that has a serial port on the back.

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 serial port of the computer. Turn the inclinometer back on and notice that the average counter reads the same amount of samples when the unit was turned off. 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. Depress on the inclinometer the UPLOAD button and the display will read, RS232 SRL UPLOAD, XX AVRGS STORED. The average 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 averages in the inclinometer, press the F2 key and the average values taken during the tests will be displayed on the screen. A file name should be assigned to that set of data by using the F5 key for editing. By pressing the F3 key the values displayed on the CRT are then 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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