

KEMKRAFT **ENGINEERING, INC.**

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**INSTRUCTIONAL MANUAL
RF WIRELESS INCLINOMETER**

MODEL # KEI-1566A
433 MHZ

**REVISION DATE:
12 MAR 1999**

* CALIBRATION PROCEDURE *

NOTES:

Charge unit overnight before calibrating.

Use a Calibration Stand that can be adjusted for 0 degrees and another known value such as +/-5 or +/-10 degrees. The calibration stand must be located in a position for the transmitter to transmit a signal to the receiver. The receiver XMIT led must be green at all times during calibration indicating a good transmission. The Cal Stand should be positioned on a solid, stable table and should not move, during the cal procedure, to assure accuracy and repeatability.

- 1) Level the Cal Stand, to 0 degrees, with the bubble level located on the Cal Stand.
- 2) Install the mechanical steering wheel fixture onto the calibration stand.

3) TRANSMITTER CALIBRATION

- A) Set the calibration stand to zero degrees. Adjust the ZERO trimpot on the front of the **transmitter** until the digital display reads 0.0 degrees.
- B) Set the calibration stand to a known angle such as 5 degrees. Adjust the GAIN trimpot on the front of the **transmitter** until the digital display reads 5.0 degrees.
- C) Repeat steps B, C until values are stable within +/-0.1 degrees.

TRANSDUCER CENTERING *(should be performed ONLY if the ZERO pot on the Transmitter does not go to zero.)*

Remove the front panel of the Transmitter and place the tool in the calibration stand so that the receiver will receive the proper signal indicated by the green XMIT LED being on. Loosen the 2) 6-32 screws holding the transducer in place. One of the mounting holes of the transducer is a slot so that it can be pivoted slightly to adjust for true zero degrees. If the Receiver is properly calibrated: rotate transducer (slightly) and tighten down mounting screws so that when the ZERO pot is adjusted, on the front panel of the transmitter, it is symmetrical about zero. Replace cover.

4) RECEIVER CALIBRATION

NOTE: This section calibrates the Analog Output section only. If the RS-232 output is utilized and the analog output is not used, this section does not need to be done. Connect a Digital VOM to the Analog Output for this procedure (if analog output is used).

- A) With the mechanical S.W.G. still on the calibration stand, set the cal stand to 0 degrees, and verify that the receiver displays 0.0 degrees.
- B) Adjust the ZERO trimpot, on the front panel of the **receiver**, for the VOM to display 0.00 volts DC.
- C) Set the Cal Stand to -10 degrees and verify that the receiver displays -10.0 Degrees. Adjust the GAIN trimpot, on the front panel of the **receiver**, to display -10.00 volts DC on the VOM.
- D) Set the Cal Stand to +10 degrees and verify that the receiver displays +10.0 Degrees and that the VOM reads +10.0 volts.
- E) Repeat steps A thru D until the numbers are repeatable.

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*** INSTALLATION INSTRUCTIONS ***

1. The Inclinometer should be fully charged before use. For optimum performance, the inclinometer should be placed in the charging stand daily when not in use and through the night to insure a fully charged battery for the next day
2. The receiver box should be permanently installed in a location that is best for the application.
3. When the box is installed, place a vehicle in the alignment machine and install the mechanical fixture onto the steering wheel.
4. The holder/charger stand should be mounted near the vehicle, directly outside of the drivers window where he could reach the tool from inside the vehicle.
7. If the remote pit meter is used, mount the meter on the wall of the pit where the operator can see it during alignment procedures. For wiring instructions refer to the diagrams at the end of this manual.

*** OPERATING INSTRUCTIONS ***

1. The Inclinometer should be fully charged before use. For optimum performance, the inclinometer should be placed in the charging stand daily when not in use and through the night to insure a fully charged battery for the next day.
2. Remove the steering wheel gauge from its holder/charger stand and place it onto the steering wheel. The mechanical fixture can be attached to a steering wheel in the following manner.
3. Place the rollers, into the spokes of the steering wheel.
4. While placing the fixture onto the steering wheel, note the receivers' display reading and turn the wheel until the display indicates as near zero as possible.
5. Go through normal vehicle alignment procedures and when done, remove the steering wheel gauge and place it in its holder/charging stand.

COMPUTER INTERFACE

The connector on the bottom of the box is the computer interface port.

This connector is set up for three wire RS-232 interface; ground, transmit and receive. The "D" connector plugs into any IBM or compatible computers' serial port. When the KEI-1566A RF inclinometer display box is receiving a good signal from the KEI-1566A transmitter, the tools' angle (on the KEI-1566A box) dumps (in ASCII) out of the serial port.

SERIAL PORT PROTOCOL: N, 8, 1, 9600 BAUD

DUMP STRING: -xx.x - (+/- sign of the angle)
 x (tens digit)
 x (ones digit)
 . (decimal point)
 x (tenths digit)

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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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