



User's Manual

MEII Optical Sensor

| Revision History | | | |
|-------------------------|-------------|---------------|------------------|
| Rev | Date | Author | Change |
| 1.0 | 1/12/05 | Bela Geczy | Original version |



Introduction

The MEII Optical Sensor is a test system that performs non-contact displacement measurements. It is specially suitable for measurements of tape edges.

The user is able to measure displacement changes from 100nm to 100 μ m, at frequencies from 0 to 5kHz.

No additional equipment is required. The sensor is easy to use. To read output voltage, simply position the sensor head until two green LEDs are illuminated.

Specifications

| | |
|-----------------------------------|--|
| Power requirement | 115VAC |
| Output range | 0.5 to 10VDC |
| Linear region of operation | 3.0 to 7.0 Volts DC as seen at the output into a high impedance load |
| Bandwidth | 0 to 5.0kHz |
| Output impedance | 10 Ω |
| Gain | Sensor specific. See appendix B. The gain is also noted on a label on the sensor |

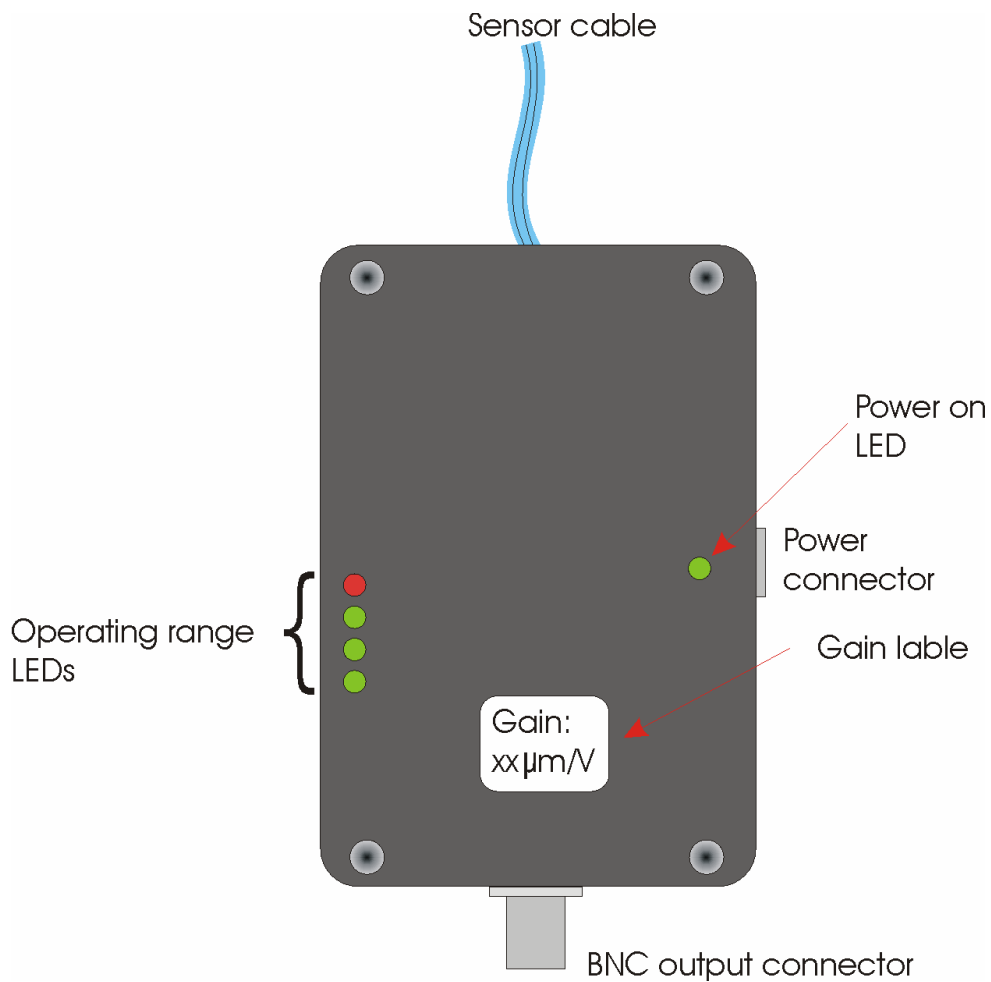
Operating Instructions

1. Connect the sensor head to the cable provided.
2. Position the sensor head as desired
3. Attach an oscilloscope or voltmeter to the output BNC connector
4. Plug the power supply into a wall outlet
5. Plug the power source into the Amplifier and Conditioner Module
6. Wait at least two minutes for temperature stabilization to occur
7. Adjust the sensor head until two green LEDs illuminate
8. Take measurements as desired



The MEII sensor measurement system will function in its linear region if one, two or three green LEDs are illuminated. If the red LED illuminates or none of the green LEDs are on, the optical sensor is no longer in its linear region of operation.

NOTE: For maximum linear range, the initial position for all measurements should begin only after two green LEDs become illuminated.





Appendix A

Included Items

1. Amplifier and conditioner module
2. Sensor head
3. Power supply
4. Manual including sensor specific calibration graph



Appendix B

Calibration curve for S/N xxx

Gain (S/N:xxx): XX $\mu\text{m}/\text{V}$

