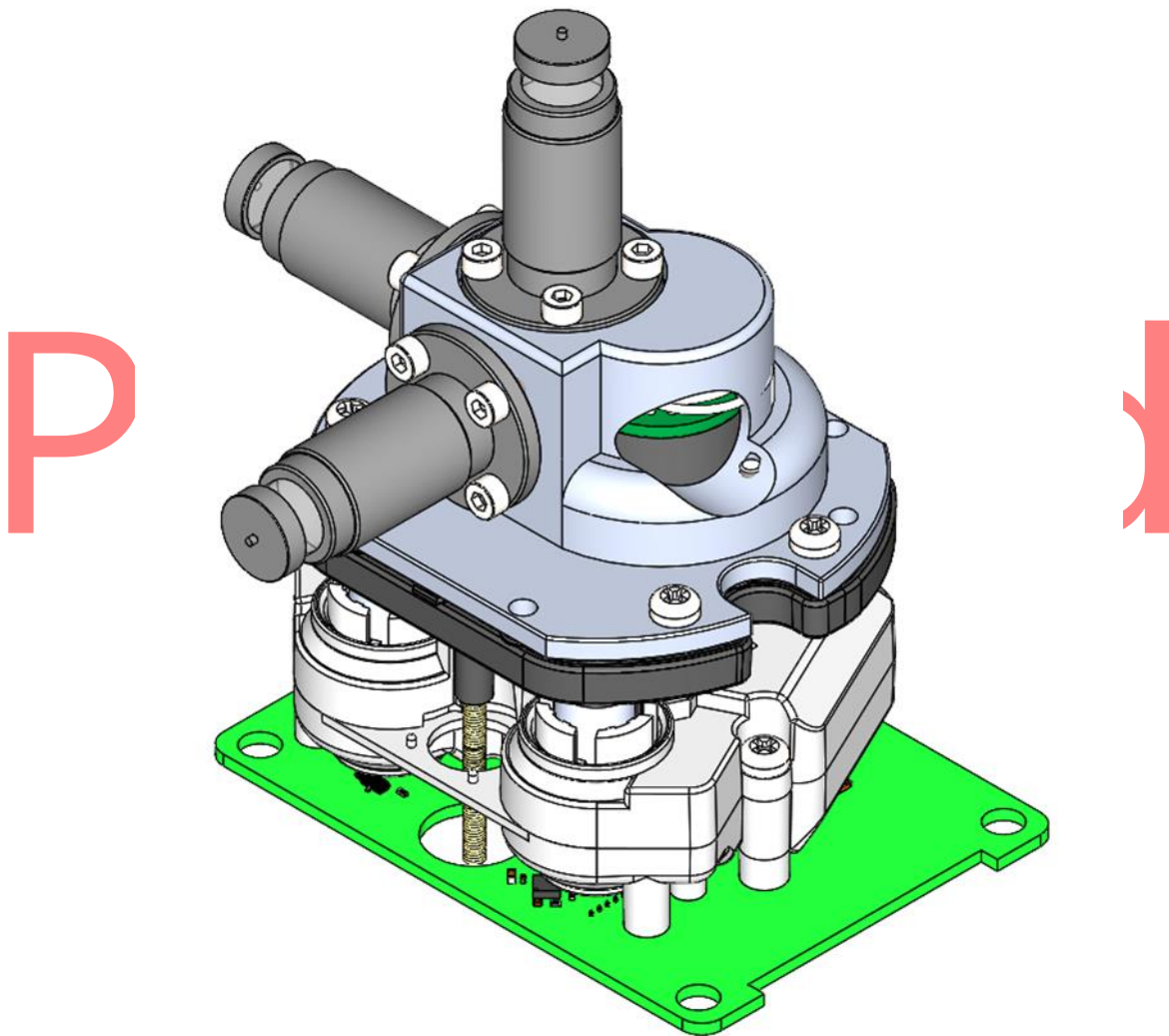


CTTN LLEC-A V1.3

Laser Levels Electronic Compensator-A V1.3



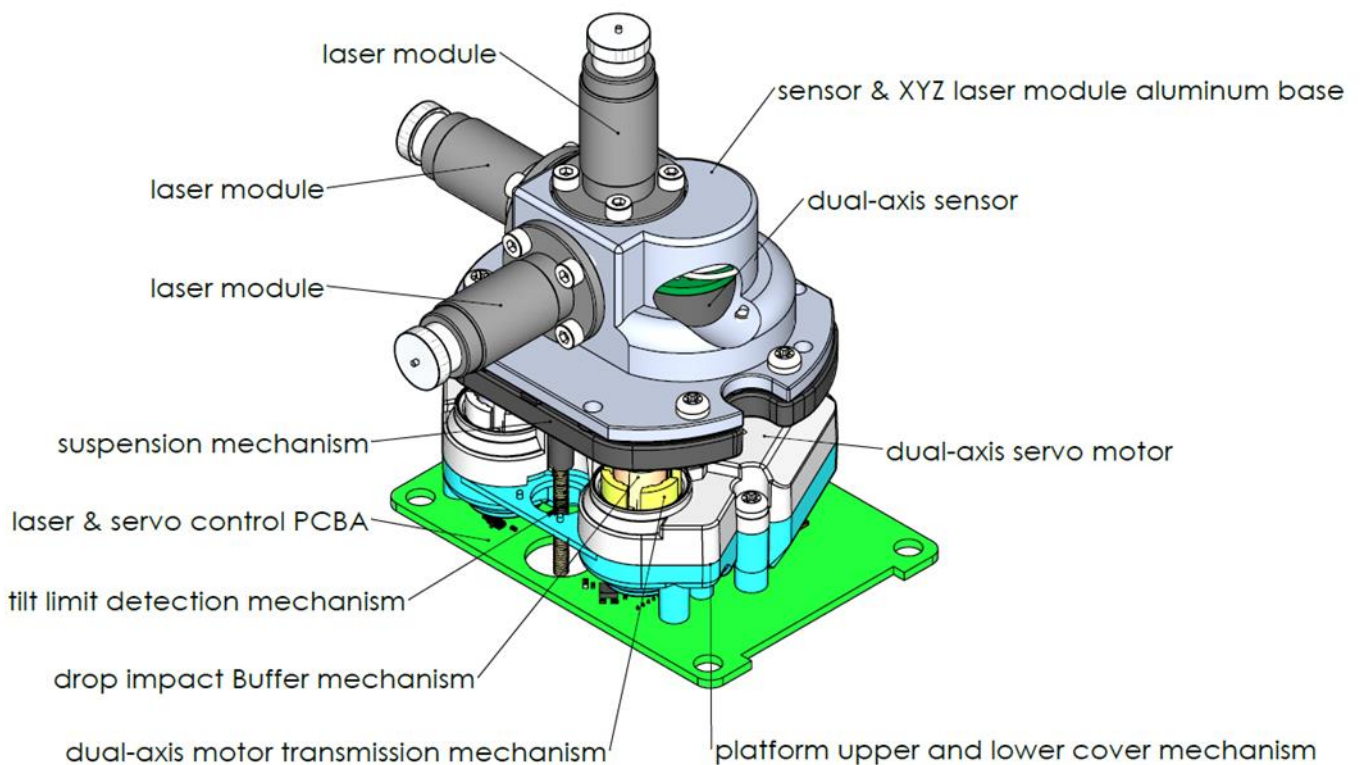
2022/6/6 Patented

Introduction

Nowadays, electronic leveling lasers excel at accuracy, minimal calibration and none jittering while being resistant to knocks and drops. However, they come with the drawbacks of slow self-leveling, being structural complicated and high manufacturing cost. **CTTN LLEC-A** was developed to address the aforementioned shortcomings with innovative approaches to achieve greater values for the users.

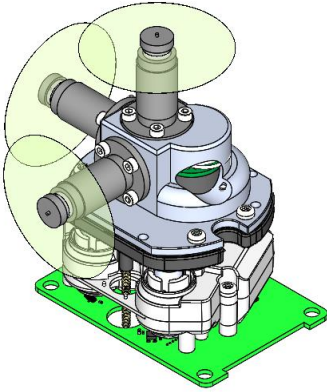
CTTN LLEC-A is an all-in-one electronic compensator for laser levels including dual-axis sensor, dual-axis servo motor, dual-axis motor transmission mechanism, suspension mechanism, platform upper and lower cover mechanism, sensor & XYZ laser module aluminum base, laser & servo control PCBA, tilt limit detection mechanism, drop impact Buffer mechanism and laser module.

The relative positions are as follows:

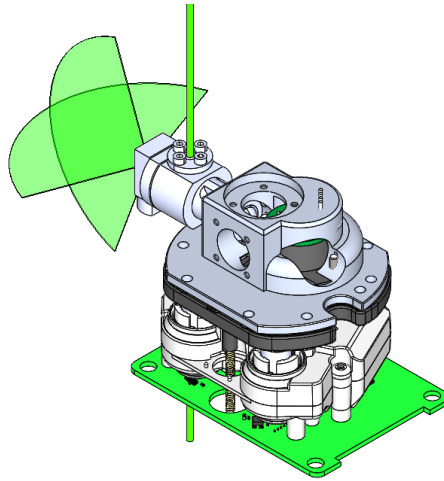


CTTN LLEC-A was designed to incorporate various laser modules, such as plane laser module, line laser module, point laser module or combined laser module. Upon attachment of one of the modules, **CTTN LLEC-A** serves as a leveling laser, as illustrated below:

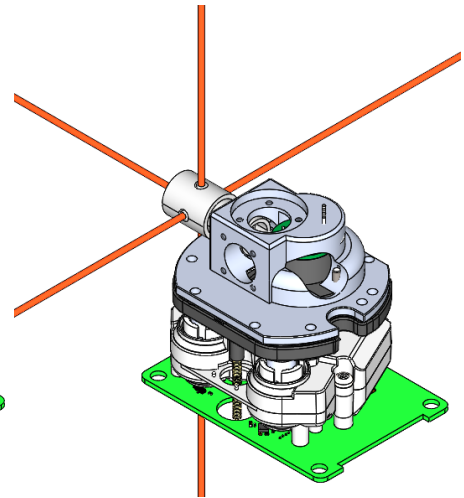
plane laser levels



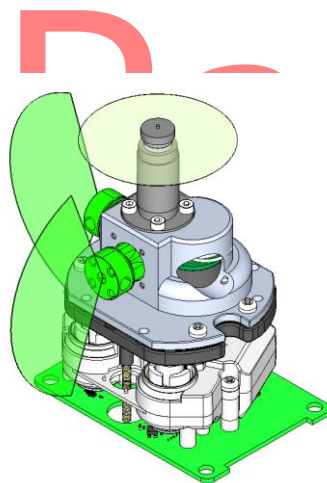
line laser levels



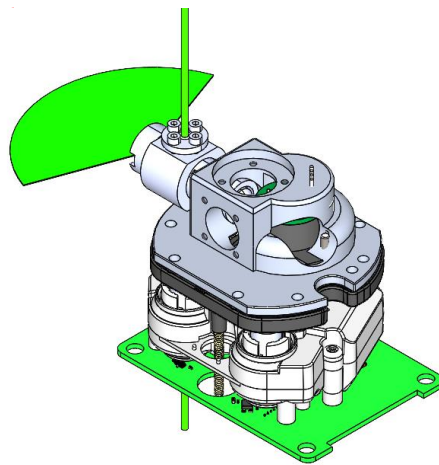
point laser level



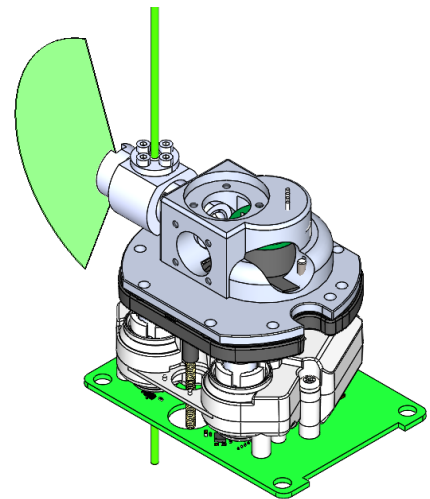
combined laser levels



combined laser levels



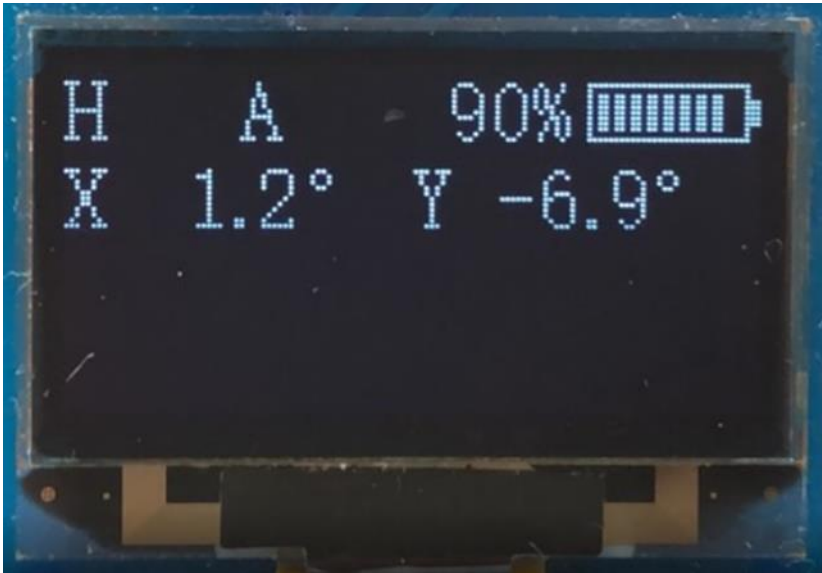
combined laser levels



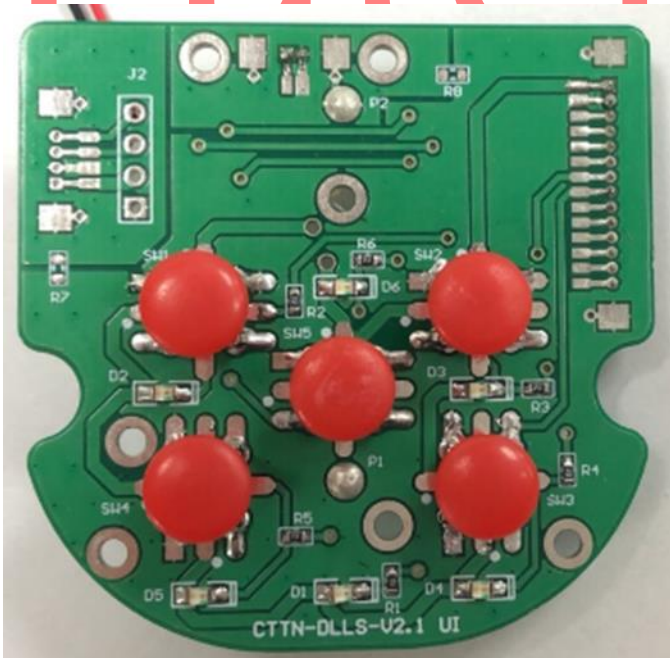
Features

- **CTTN LLEC-A** Simplifies the design of laser levels, eliminating the need for counterweight and balance or balance correction issues.
- **CTTN LLEC-A** provides integrated sensor and XYZ laser module aluminum substrate to furnish the design of various laser levels (plane laser level, line laser level, point laser level or combination laser level).
- **CTTN LLEC-A** delivers very fast leveling speed, usually within 6 seconds.
- **CTTN LLEC-A** detects large leveling angle, up to 9 degree.

- **CTTN LLEC-A** has three electronic leveling angle detection modes:
 1. Single tilt angle detection using traditional mechanism.
 2. Use VR to detect any tilt angle.
 3. Use Mems to detect any tilt angle.
- **CTTN LLEC-A** can connect to OLED to display lithium battery power, Mems angle and laser output mode.

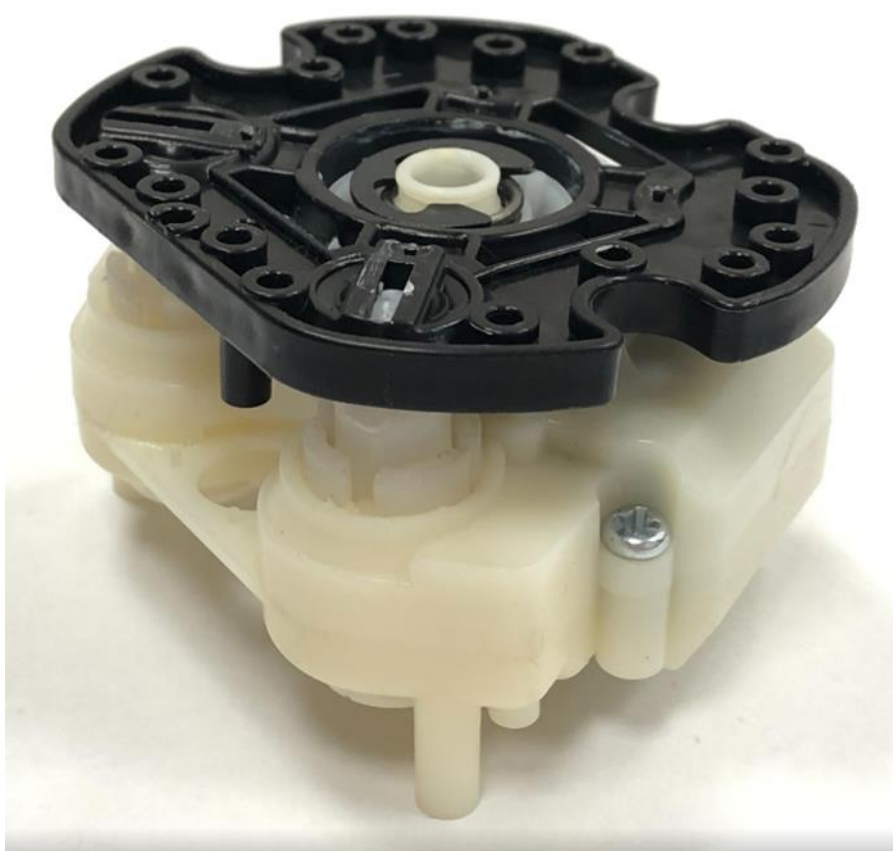


- **CTTN LLEC-A** can connect 5 keys (Key1,2,3,4,5) and 6 LEDs (LED1,2,3,4,5,6).



1. Power on/off Key1.
2. Horizontal line module on/off Key2
3. Vertical line module on/off Key3.
4. Laser output chess-type Key4 (full power, pulse power, power saving).

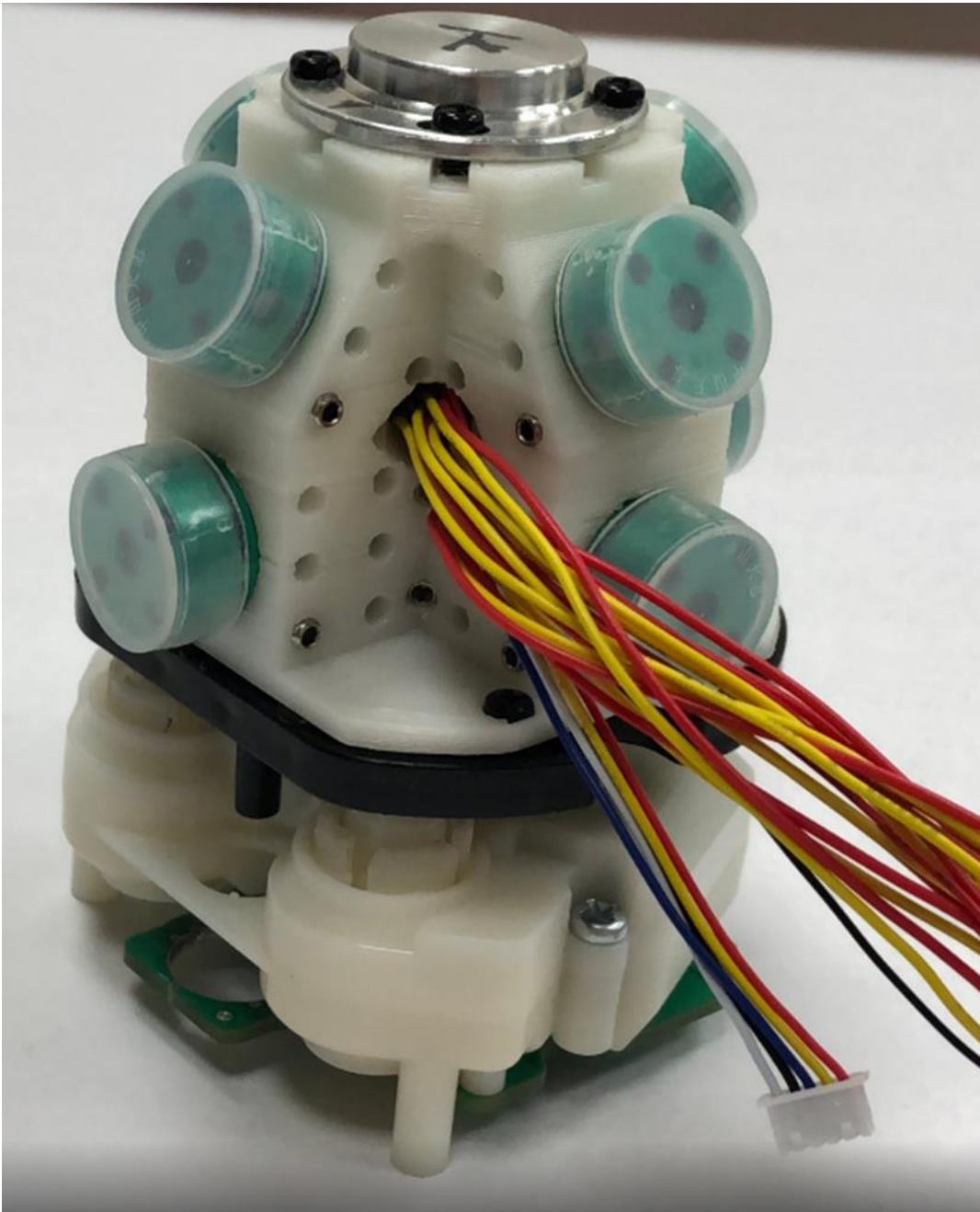
- 5. Electronic leveling mode Key5
(automatic, after leveling change to manual, manual).
- 6. Power on/off LED1.
- 7. Electronic leveling in progress LED2.
- 8. Lithium battery power (LED3,4,5,6).
- CTTN LLEC-A controls up to 9 laser modules.
- CTTN LLEC-A For more features and capabilities, please contact us at sue@constance.com.tw
- CTTN LLEC-A Actual mechanism is as follows:



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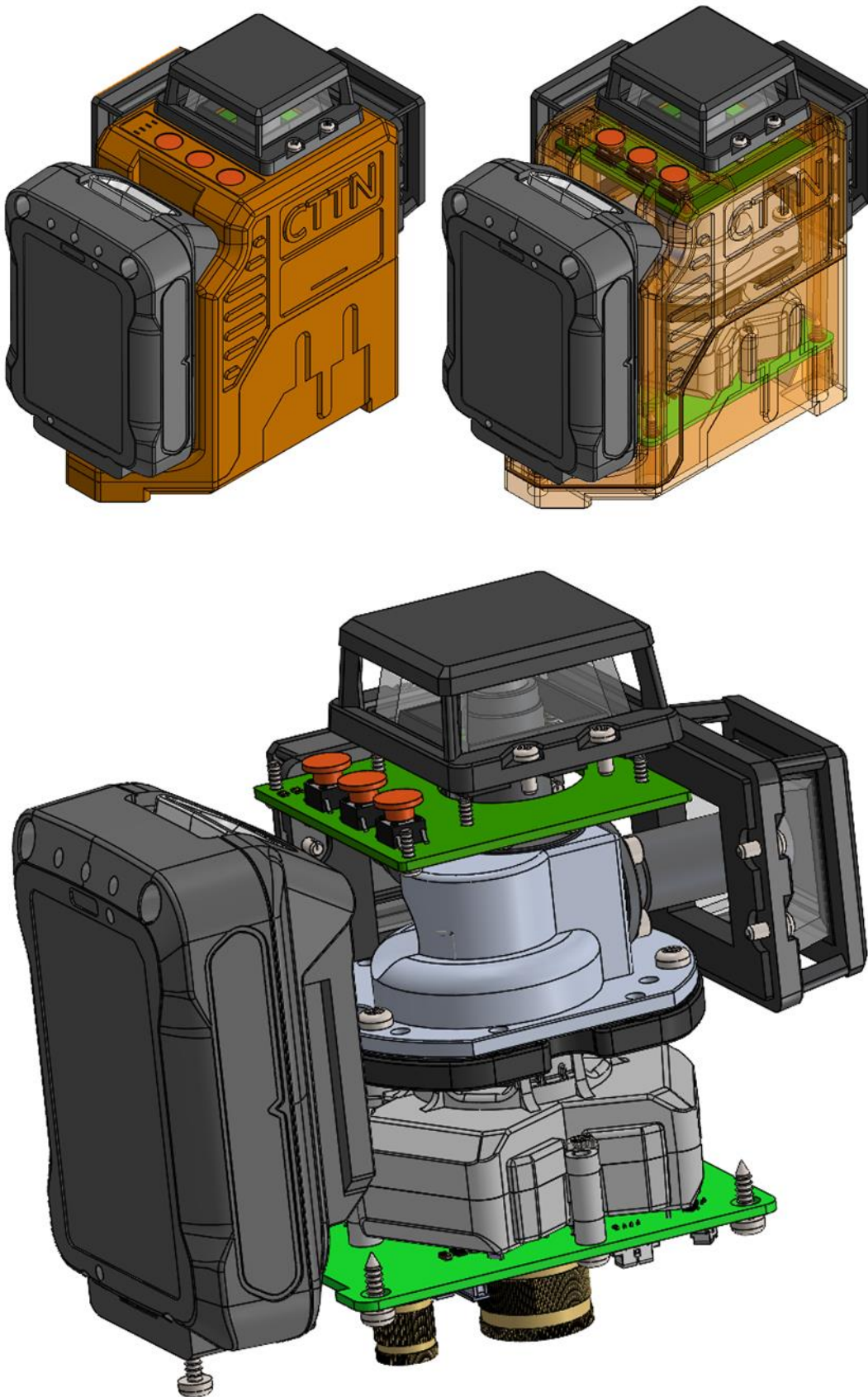


Other 4V4H1P Laser Levels Electronic Compensator sample



d

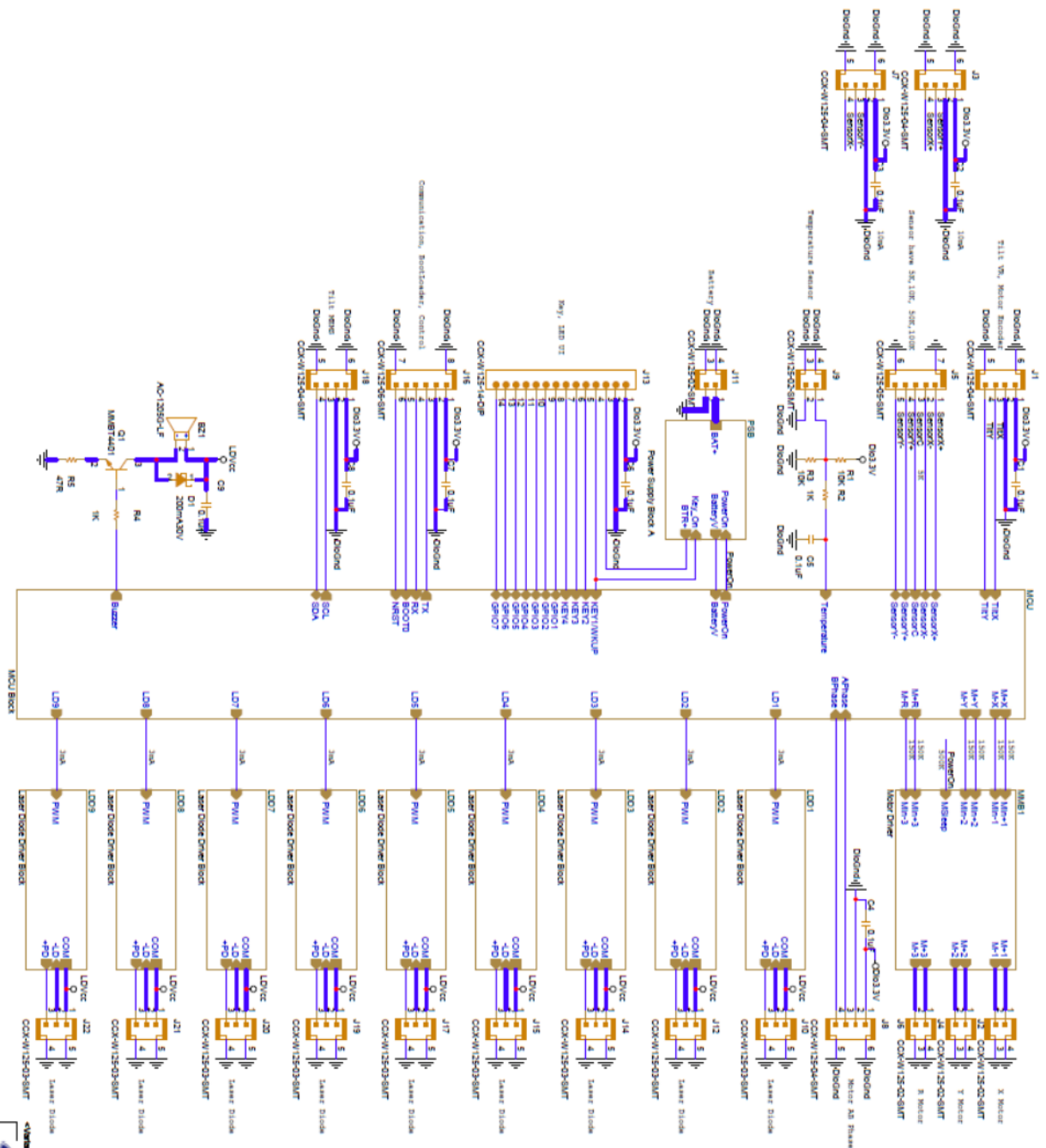
- CTTN LLEC-A finished product demo entities are as follows:



- Dust does not affect the horizontal accuracy. Horizontal accuracy depends on the relative positioning between the sensor and the laser module.
- **CTTN LLEC-A** has a drop shock buffer mechanism for protecting itself as well as attached laser modules.
- **CTTN LLEC-A** can set slope.
- **CTTN LLEC-A** can reset the Mems angle after electronic leveling, making the Mems laser tilt angle more accurate.
- **CTTN LLEC-A** can tolerate high voltage operation.
- **CTTN LLEC-A** can save power by automatically powering off.

Patented

The system block diagram is as follows:



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