
Bergmans Mechatronics LLC

Laser Alignment System for Tunable Diode Laser Sensors

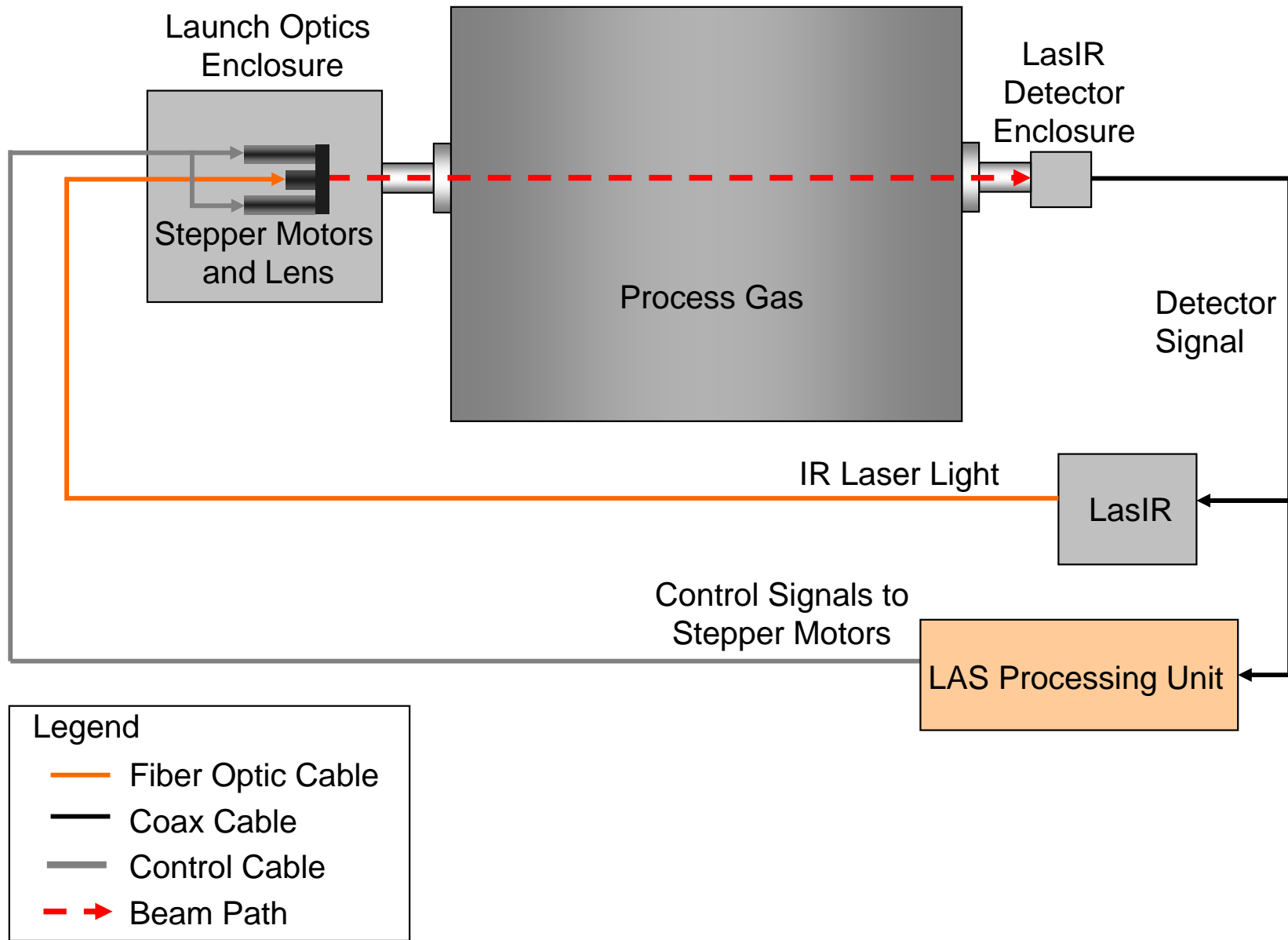
www.bergmans.com

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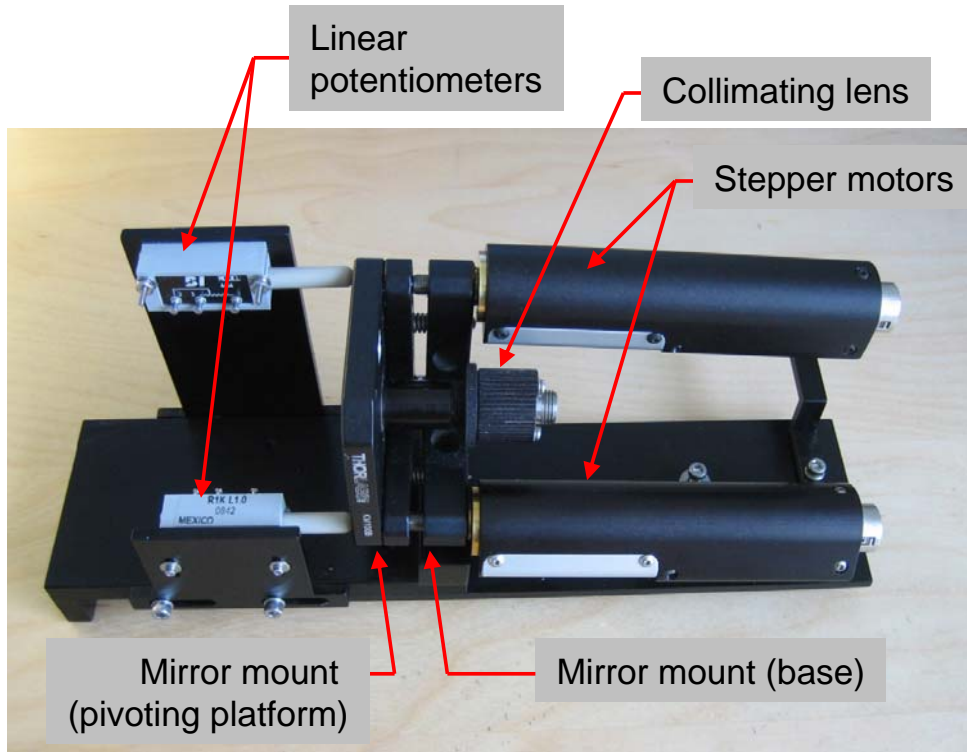
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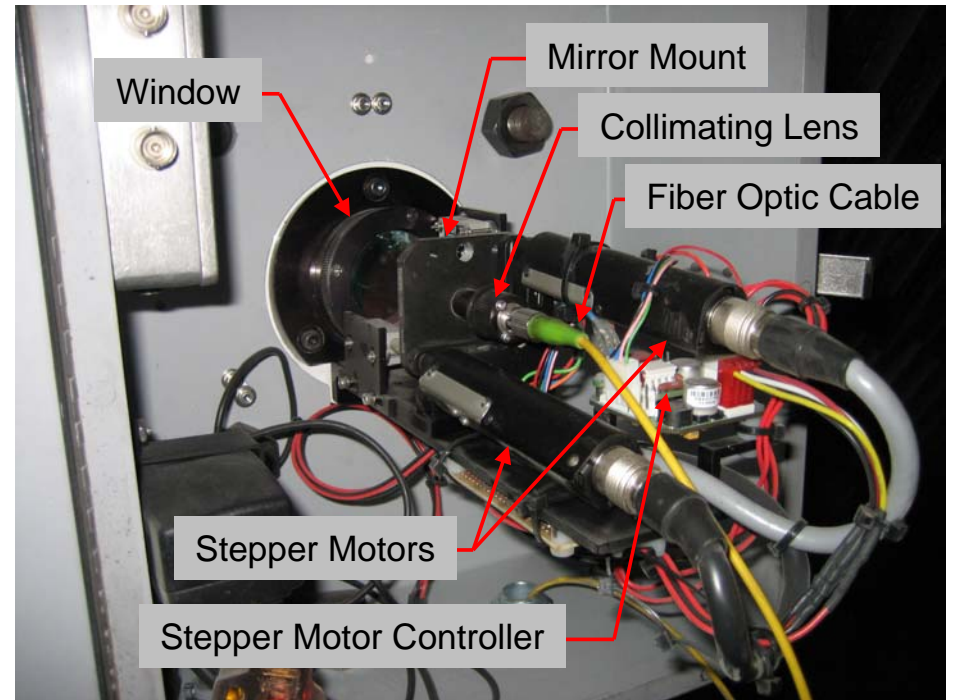
Laser Alignment System - Schematic



LAS Basic Mechanical Components

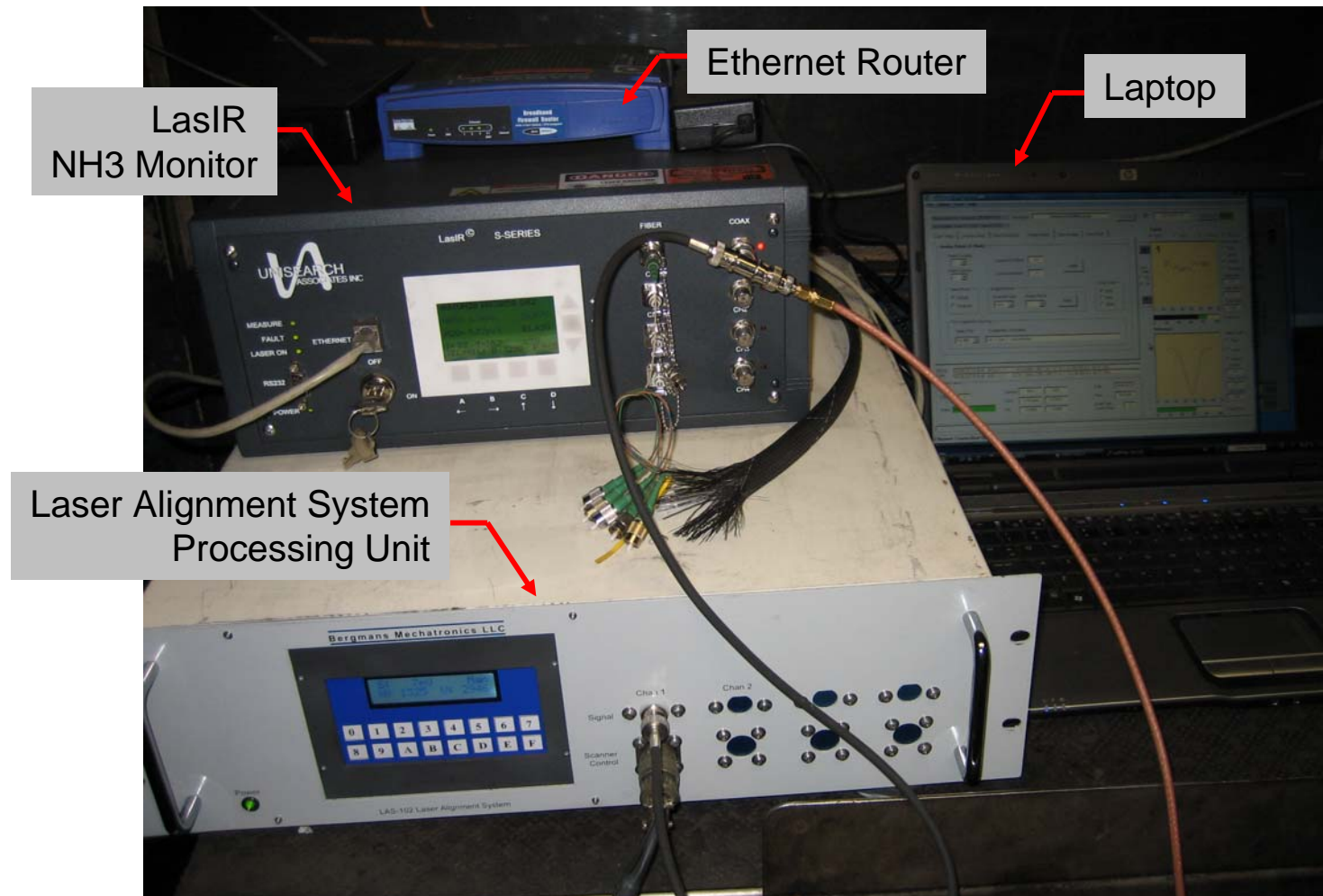


Left side view

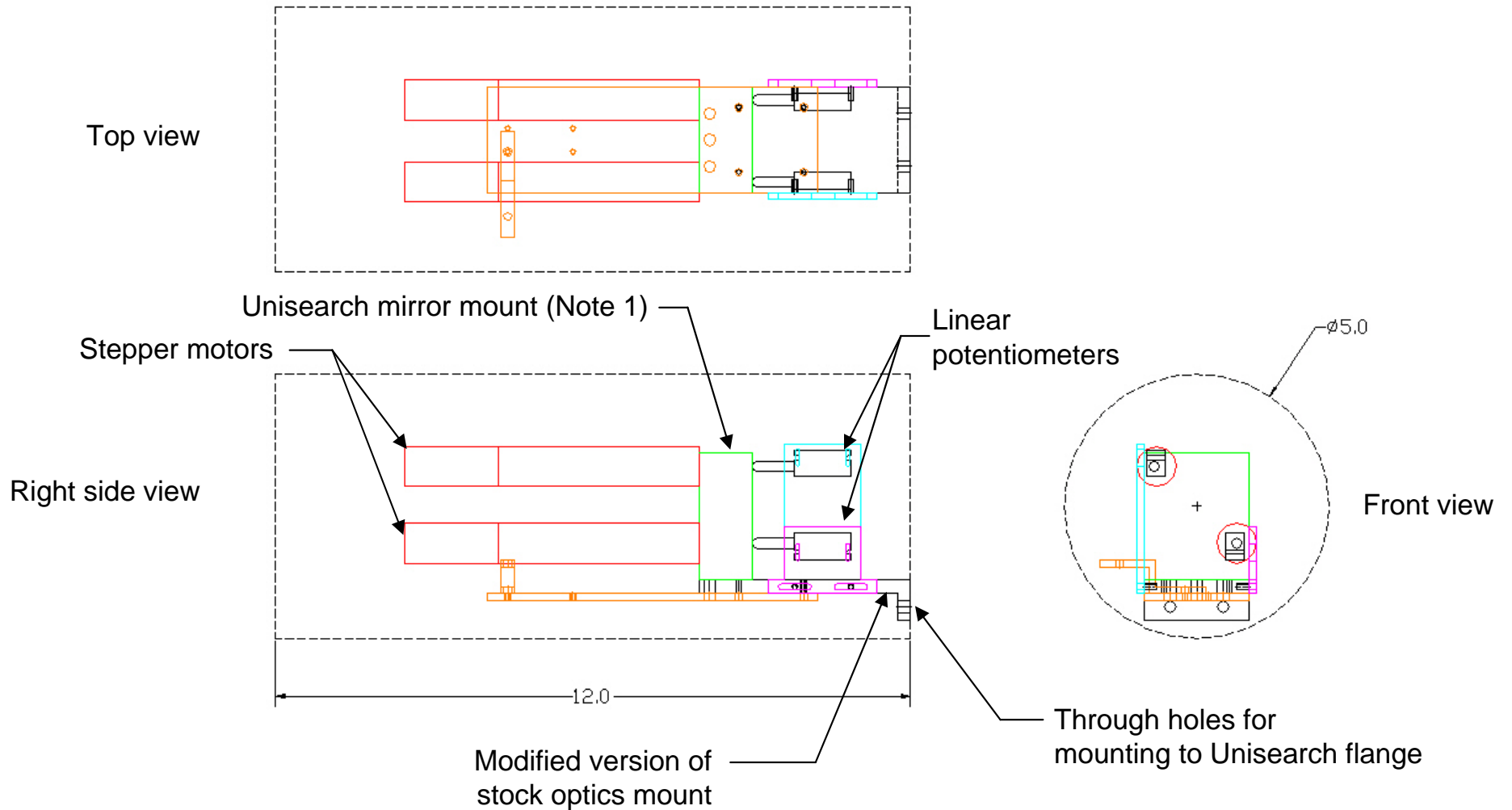


Launch optics mechanism within Unisearch NEMA-4 enclosure at power plant

LAS Processing Unit Integrated with LasIR Ammonia Monitor



Laser Alignment System - Launch Optics Envelop



- Notes: 1) Mirror mount is stock ThorLabs model KM100B
2) Dimensions in inches

Laser Alignment System – NEMA-4 Enclosure

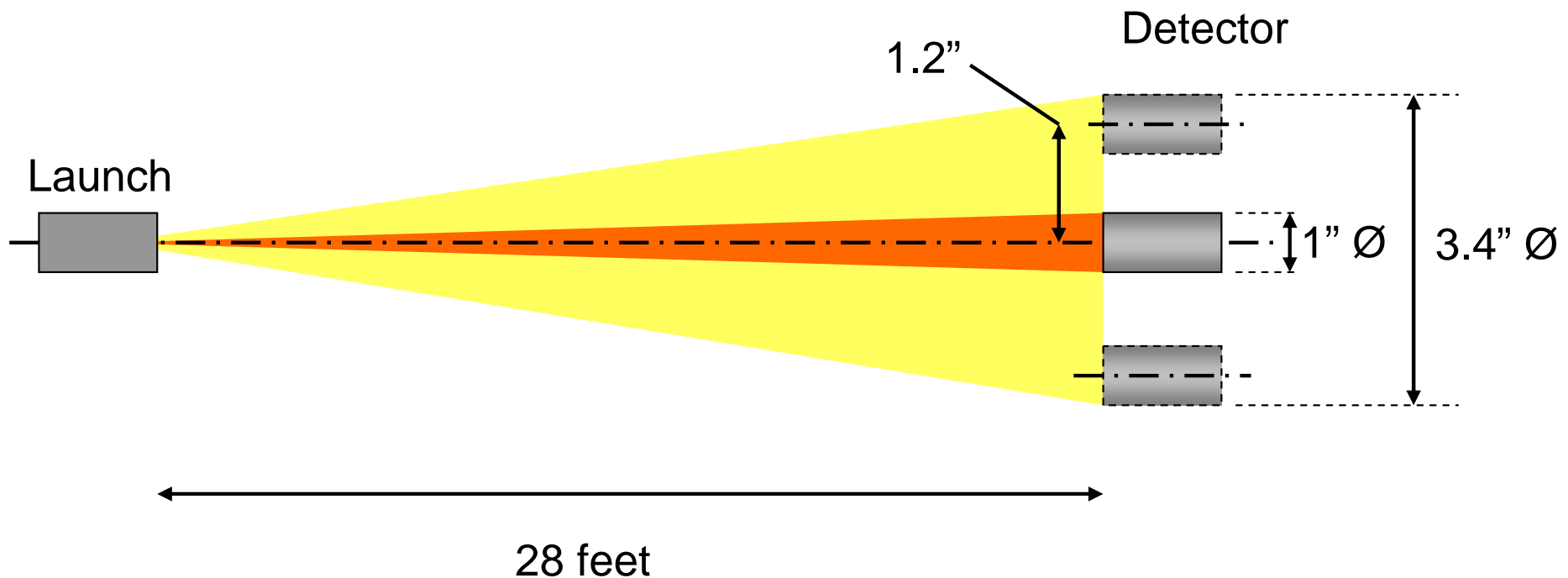
Launch optics mechanism mounted within Unisearch NEMA-4 enclosure at power plant



Effect of Detector Movement on Beam Power

Based on results of full-scale testing in coal-fired power plant duct:

- For manually aligned system with 1.2" of detector movement, spot size must be 3.4" diam (9.1 in² area)
- Auto-aligned system, spot size can be 1" diam (0.8 in² area)
- Resulting power density of manually aligned system is 8.6% of auto-aligned system



Interfacing Non-Fiber Coupled TDL Sensor to Laser Alignment System (Proposed)

