

# custom designed electro-optical solutions

## revolutionary reticle-on-a-chip



Using sophisticated lithography techniques, your custom-designed reticle is pre-applied directly to a high quality detector, eliminating the glass reticle mask. Improve your profit margin:

- save on mask cost
- eliminate alignment problems
- increase air gap size without sacrificing signal-to-noise ratio
- cut packaging costs and assembly time
- extend encoder life.

Integrating reticle and detector also permits:

- higher resolution line counts
- reduced package size
- improved alignment tolerance between disk and detector

- interdigitation (black & clear active) for data clarity at higher speeds and tighter tolerances.

### Low leakage, temperature stable detectors

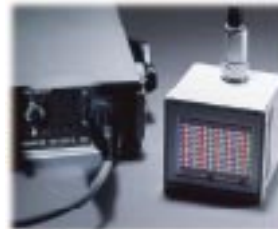
Using planar technology, integrated circuits are applied under strict manufacturing control to the highest quality detector chips. This produces:

- better signal to noise ratio
- improved thermal stability at high and low extremes
- low leakage devices approaching theoretical limits.

### Wavelength specific LED light sources

Quantum Devices offers patented advanced-technology Light Emitting Diode (LED) wavelength specific light sources featuring:

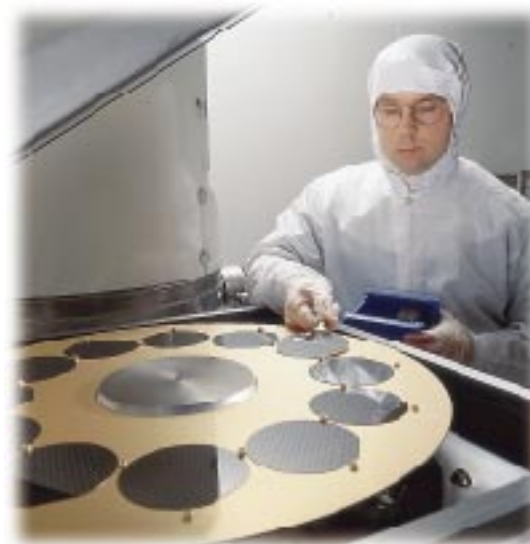
- precision central wavelength control
- single or multiple wavelength arrays
- high power monolithic arrays
- patented thermal management design allowing maximum energy transfer and cooler running LED junctions.



### Solutions to engineering challenges

Our engineering and technical team prides itself on pushing the electro-optical technology to meet your needs for value-added products. Vertical integration ensures a fast track from design to production:

- unique, patented LED, detector, and reticle technologies are at your service



- university alliances ensure access to cutting-edge technology
- experienced engineers and technicians apply their expertise to solving your motion control challenges.

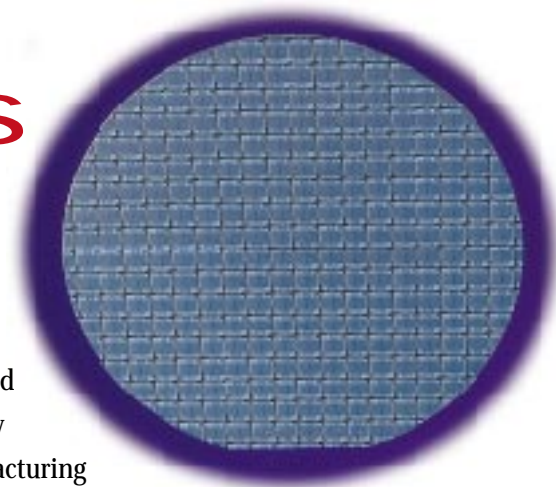
### Engineering to packaging in one convenient location

From on-line schematics to custom packaging for simplified assembly, we supply all your electro-optical component needs from Quantum Devices' central Midwest location.

Our engineering expertise, advanced technology, highly controlled manufacturing quality, stable domestic work force, and customer parts inventory for just-in-time delivery, make Quantum Devices an invaluable manufacturing partner:

- experienced engineering consultation for optimal part production and operation
- Class 1000 clean-room for wafer fabrication
- plastic and ceramic substrates engineered to meet your specifications (specializing in macro/micro precision parts)

- state-of-the-art engineering materials for surface mount assembly
- custom packaging – mounting, wire bonding – to flex circuits and engineering substrates
- computer-aided inspection stations ensures high quality and component traceability throughout the entire fabrication process.



# QUANTUM DEVICES

