



Corporate Overview

August 8, 2019



ACCURATE



RELIABLE



RESPONSIVE

Forward Looking Statements

This Presentation contains “forward-looking statements” within the meaning of applicable Canadian securities legislation. These statements generally can be identified by use of forward-looking words such as “may”, “will”, “could”, “would”, “should”, “might”, “expect”, “estimate”, “anticipate”, “intend”, “consider”, “believe”, “plan”, “project”, “assume”, “strategy”, “goals”, “objectives”, “potential”, “possible”, “confident” or “continue” or the negative thereof or similar variations. Such forward-looking statements concern the business and anticipated financial performance of the Company and include, without limitation, the Company’s outlook on the long-term prospects of the market and the Company, the Company’s expectations with respect to the overall order activity for the balance of the year, projections of the Company’s revenue, EBITDA, cash position, share buyback, growth in the etch market, timing of the semiconductor industry cycle, cost structure, and the Company’s ability to build on its financial and operational foundation in the future.

These forward-looking statements are based on certain factors and assumptions, including, without limitation: the Company’s ability to develop, manufacture and sell new products that meet the needs of its customers and gain commercial acceptance; the Company’s ability to continue to sell its products in line with expected quantity, price and delivery times; the Company’s ability to attract new business; continued and future demand for the Company’s products; continued sales to the Company’s major customers; the Company’s operations not being adversely affected by supply, operating, cyber security, litigation or regulatory risks; the Company’s ability to react to the cyclical nature of the semiconductor industry; and, the Company’s expectations regarding market risk, including interest rate changes, tax changes and foreign currency fluctuations.

Forward-looking statements are subject to a variety of known and unknown risks, uncertainties and other factors which could cause actual events or results to differ from those expressed or implied by the forward-looking statements, including, without limitation: additional measures and controls may not be implemented as expected or along the timelines anticipated; uncertainties relating to the market for the Company’s products and maintaining a stable level of orders; fluctuations in revenue as a result of volatility in the markets and product mix; risks relating to the Company’s present reliance on its major customers for the majority of its sales; risks relating to the Company’s reliance on the financial health of and timing of cycles in the semiconductor industry; risks relating to the development of competing technologies and the possibility of increased competition; the effect of slow growth in the United States, the Company’s principal market, as well as other economies and other economic trends and conditions in the markets that the Company and its customers serve; risks associated with technical difficulties or delays in product introductions, improvements, implementation; uncertainties in product pricing or other initiatives of the Company and its competitors; uncertainties in factors that may result in a reduction in capital expenditures and/or delayed buying decisions affecting demand for the Company’s products; risks relating to currency fluctuations, particularly between the Canadian and United States dollars; risks in pursuing additional development projects to support existing customers or pursue other business opportunities; and such other risks as are identified in the Company’s Annual Information Form and other disclosure documents filed on SEDAR at www.sedar.com.

The foregoing assumptions, risks and uncertainties are not exhaustive of the items that may affect our forward-looking statements. Should underlying assumptions prove to be incorrect or one or more of these risks and uncertainties materialize, actual results may vary materially from those described in the forward-looking statements. The Company’s forward-looking statements are based on beliefs, expectations and opinions of management on the date the statements are made.

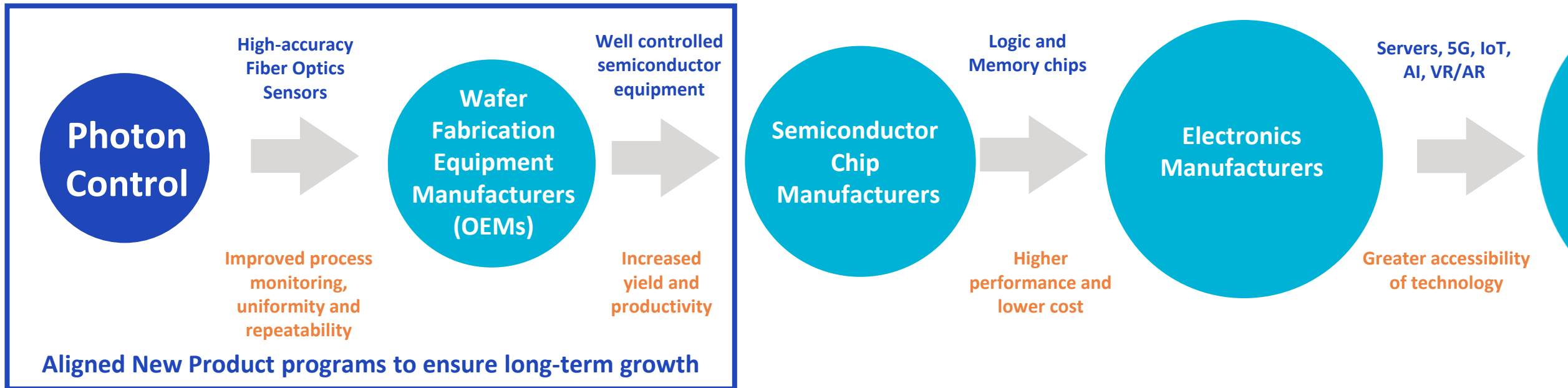
For the reasons set forth above, readers should not place undue reliance on forward-looking statements. The Company undertakes no obligation to update or revise any forward-looking statements included herein if these beliefs, estimates and opinions or other circumstances should change, except as otherwise required by applicable law.

Photon Control

- 1 A **global critical subsystems supplier** of fiber optic sensors for process monitoring of wafer fabrication equipment (WFE)
- 2 **Deeply integrated** with customers, with locations in Vancouver, Canada; San Jose, California; and Asia
- 3 A **growing** installed base of over 100,000 fiber optic sensors for process monitoring applications
- 4 **Strong balance sheet** to manage through semiconductor cycles, whilst supporting corporate priorities to create long-term shareholder value
- 5 Continued investments in **innovation and new product development** to serve our customers and grow organically

Photon Control is a Critical, Integrated Supplier

Our **high-accuracy** fiber optic sensors enable improved process monitoring, uniformity, and repeatability in harsh environments, which **provides value** throughout the supply chain.



Deep Integration in Semiconductor Supply Chain

Photon Control is a Worldwide Company

Head Office

- Vancouver, BC, Canada
- Sales
- Engineering and R&D
- State-of-the-art and scalable manufacturing facility with Class 1,000 cleanroom
- ISO 9001:2015 certified

Silicon Valley Office

- Sales
- Engineering and R&D

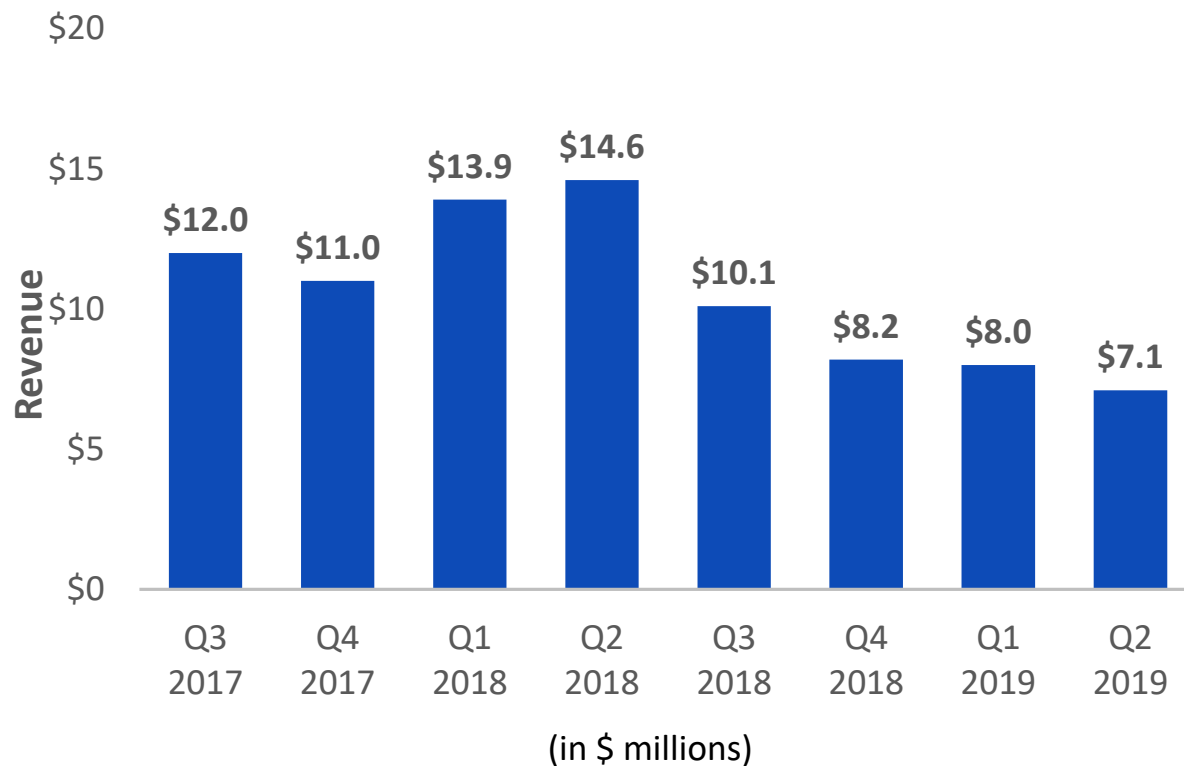
 **PHOTON CONTROL**



Asia Distribution Network

- **Japan** - Japan Laser Corporation
- **China** - Crowntech Photonics
- **South Korea** - QSP Co., Ltd.

Financial Snapshot



	Q2 2019	YTD 2019
Revenue	\$7.1M	\$15.1M
Gross Margin	55%	54%
EBITDA Margin	17%	18%

As at June 30, 2019

Cash	\$31.4M
Order Backlog	\$10.7M

Q3 2019 Guidance

Revenue	\$6.5M - \$8.5M
Gross Margin	50% to 55%
EBITDA Margin	17% to 21%

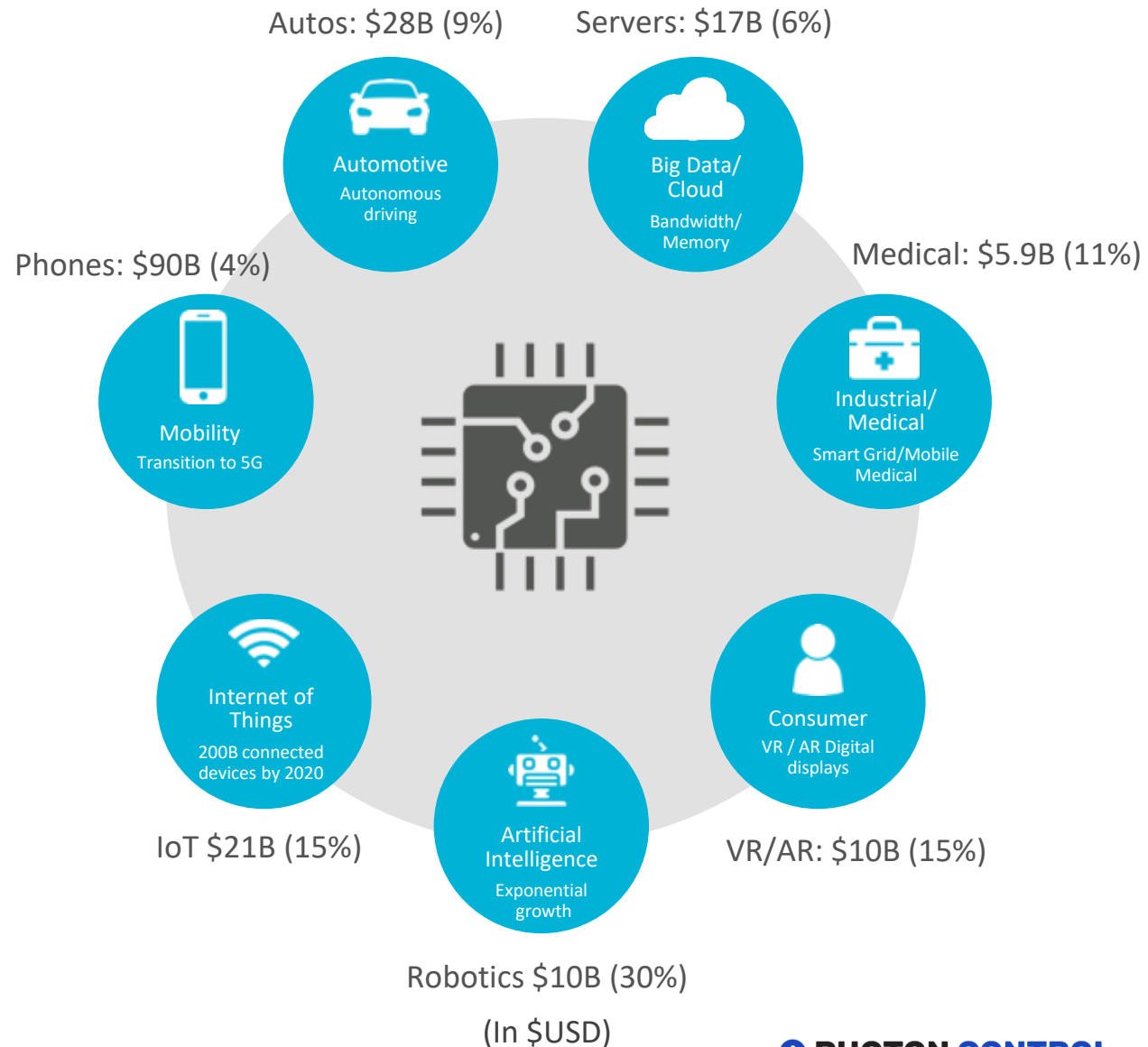
Management Delivering Operational Efficiencies



Markets & Technology Drivers

Global Semiconductor Market Is Large

Growth in these end markets and the trend toward smart semiconductor manufacturing will lead to **growing demand** for Photon Control's products



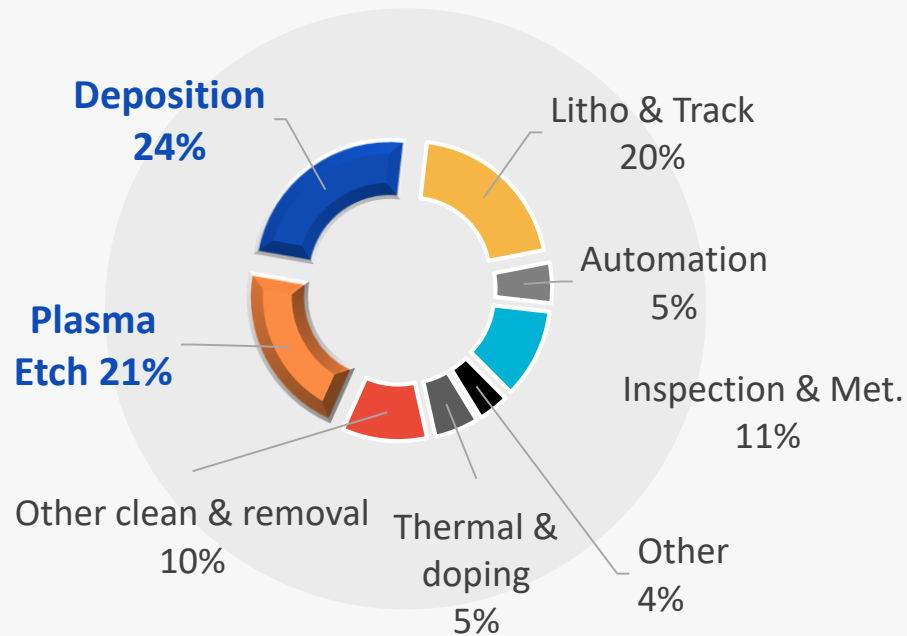
Source:
IC Insights (2018), The Robot Report (2018), Statista (2018, Technvio (2017))
Labeling convention: "Market": IC Revenue in 2020 (CAGR 2016-2020)

Photon Control's Served Market Segments

Plasma Etch and Deposition accounted for ~45% of the WFE market

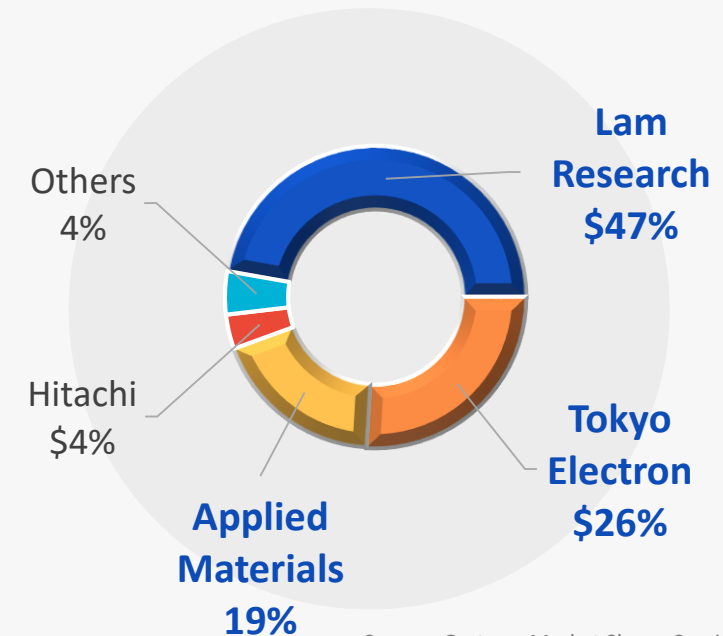
Photon Control supplies to the largest WFE suppliers

Total WFE Market = \$51B



Global WFE Market by Process
(in \$USD)

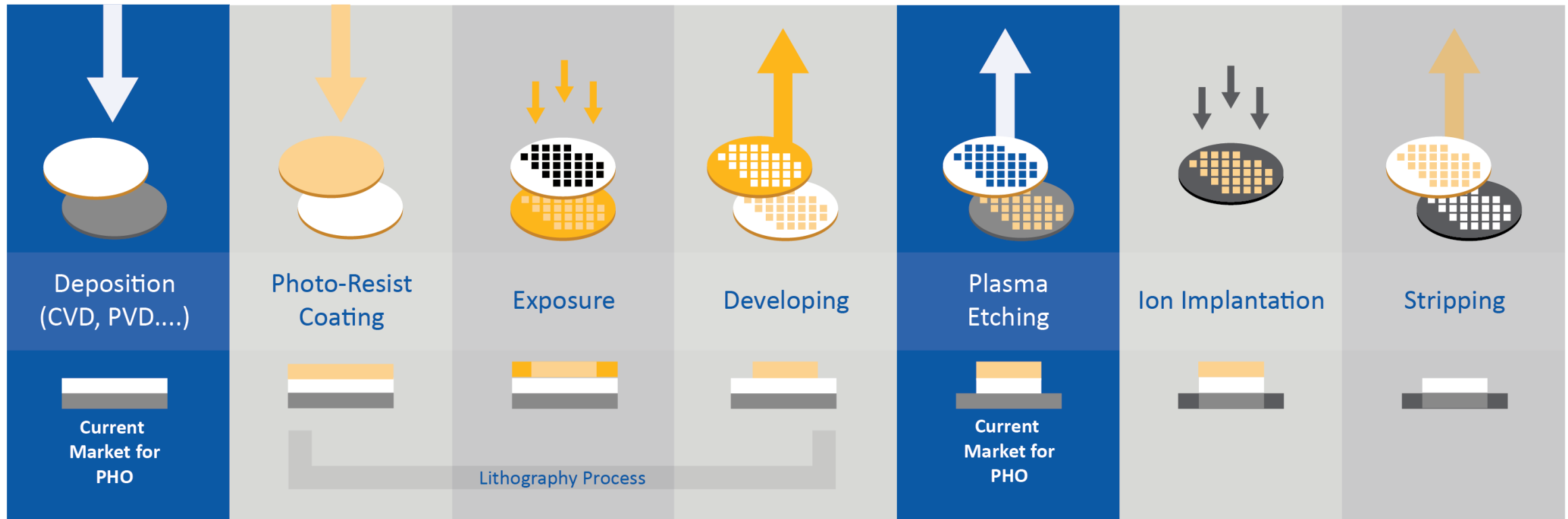
Plasma Etch Equipment Market = \$10.8B



Dry Etch Equipment Market Share
(In \$USD)

Source: Gartner, Market Share: Semiconductor Wafer Fab Equipment, Worldwide, 2017

Semiconductor Manufacturing Process Steps



Significant Opportunity For Growth in Deposition

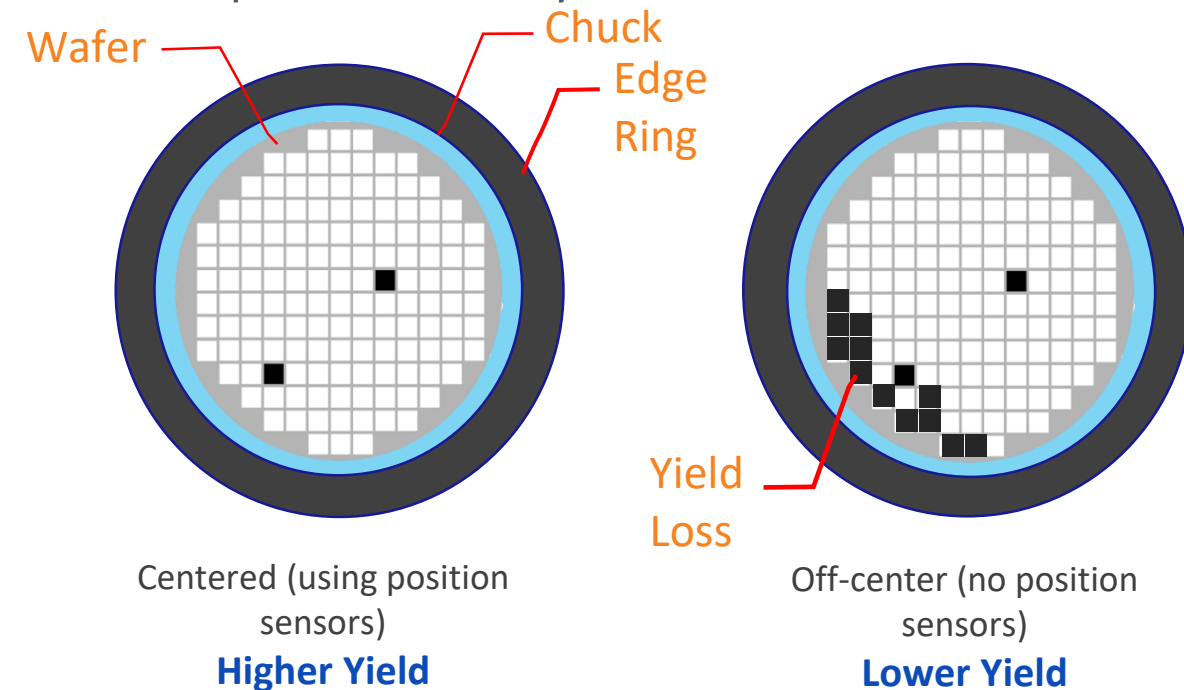
Device Scaling Trends & the Role of Sensors

Increased manufacturing challenges as device scale and process windows shrink:

- More sensors used to monitor and control critical process parameters
- More accurate sensors
- Smarter sensors

Trends toward “smart” factories which use more sensors for process monitoring to:

- Accelerate time to market
- Increase yield
- Increase uptime
- Expand data analysis



Market Potential

There is an **opportunity** to expand Photon Control's fiber optic sensors into other markets with these attributes:

- Harsh environments
- Strict manufacturing tolerances
- High cost of yield, uptime and efficiency

Capitalize on Photon Control's successful **market penetration** in the semiconductor industry by extending our product reach



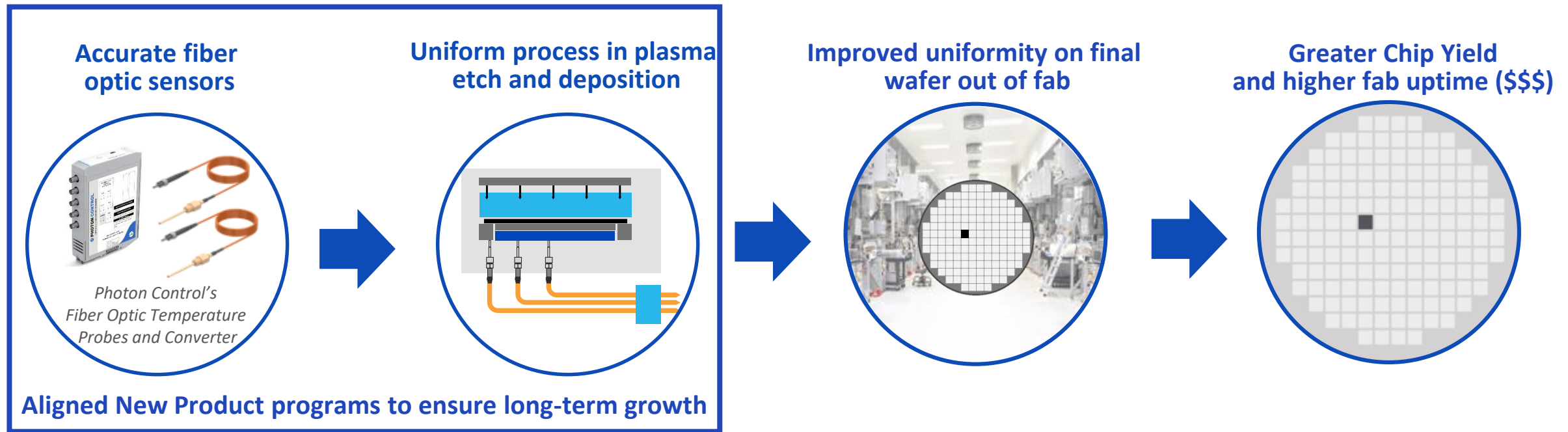


Products & Differentiators



Building World-Class Products For Advanced WFE

Our solutions become “**designed in**” to our customers’ products, producing stable growing revenue streams with multi-year life cycles.



Improved Uniformity Enables Higher Chip Yields and Fab Efficiency

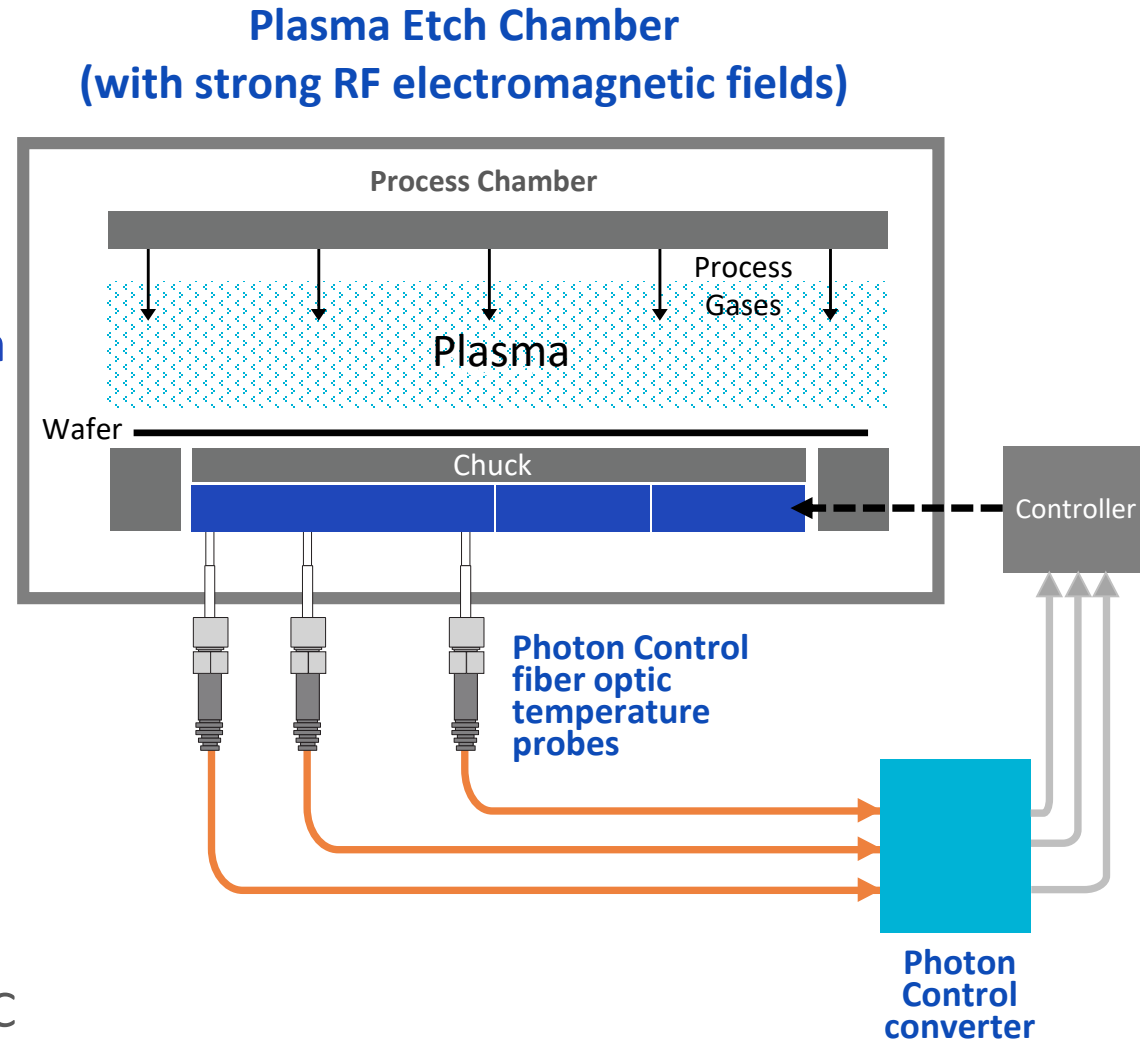
Photon Control's Fiber Optic Temperature Sensors

Our fiber optic temperature sensors are used to measure the electrostatic chuck temperature in plasma etch systems

- The measured temperature is used to maintain a **uniform wafer temperature** during processing

Why does temperature uniformity matter?

- The performance of an individual chip is very sensitive to the local wafer temperature
- **More sensors** and **higher accuracy sensors** enable better wafer temperature control which produces higher yield
- Photon Control's current accuracy specification is $\pm 0.5^{\circ}\text{C}$



Photon Control's Temperature Sensor Products

Single Channel Temperature Converters



- Highly accurate, stable, and reliable converter
- Field-proven - Over 100,000 in the field for semiconductor manufacturing

MC5 Multi-Channel Temperature Converters



- Reduced cost and form factor for multi-probe applications
- FLEXGLO™ technology improves long-term stability and lifetime
- Added self-diagnostic capabilities for predictive maintenance
- EtherCAT communication option

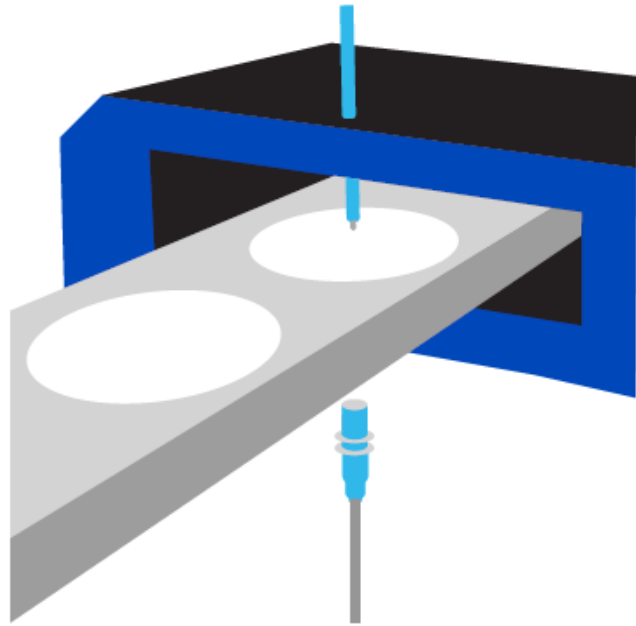
Fiber Optic Contact and Immersion Probes



- Proprietary optical materials and manufacturing process enables high accuracy and stability within a temperature range of -100°C to +450°C
- In-house calibration expertise ensures tight probe-to-probe repeatability

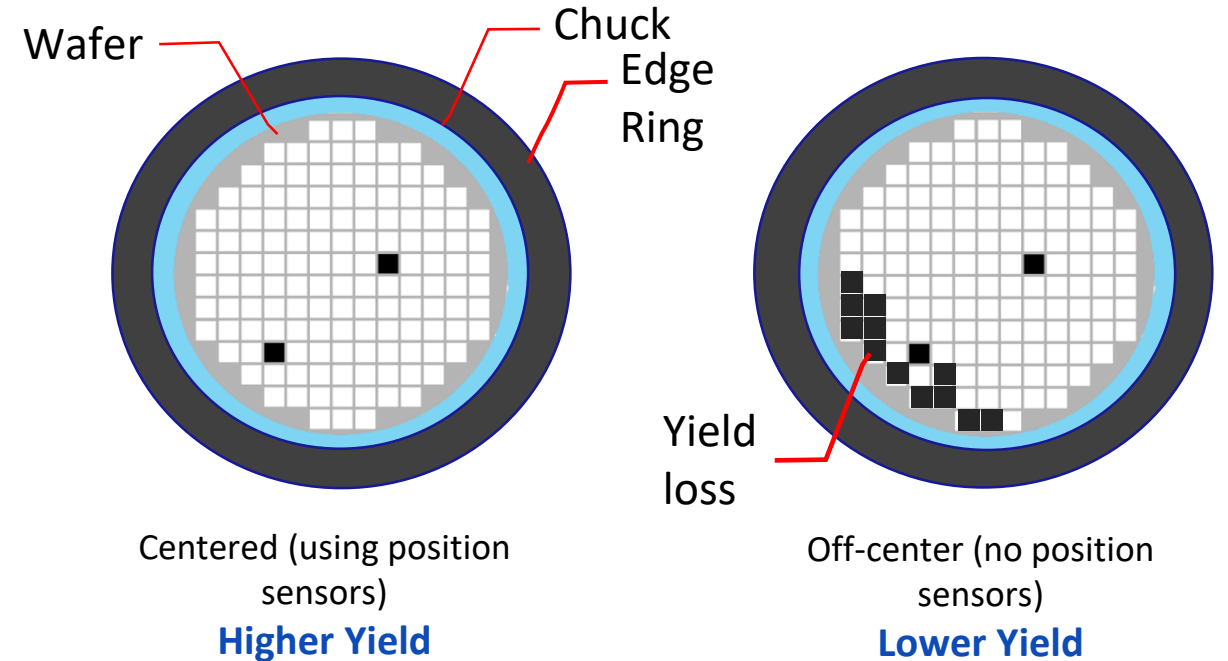
Photon Control's Position Sensor Systems

Accurate and **repeatable** wafer placement and wafer leveling in the process chamber are critical for achieving high yield



We custom design, develop, and manufacture optical position and displacement sensors that can **accurately** measure wafer/chuck edge and center locations

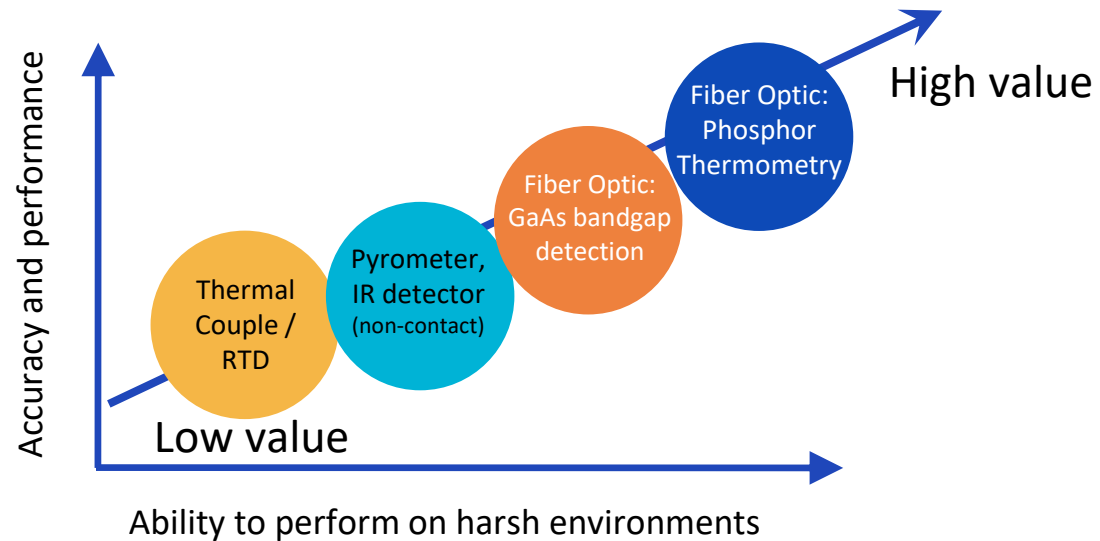
Wafer on Chuck in a Generic Process Chamber



- Precise wafer placement for processing is a critical requirement for high yield
- Photon Control's position sensors improve precision and repeatability of wafer placement

Competitive Advantages

Advantages vs. Competing Technologies



Advantages of phosphor fiber optic technology:

- High accuracy** → process control and improved yield
- Long term stability** → wafers will not be misprocessed
- Immune to magnetic fields** → No interference from RF plasma or microwave sources

Our Advantages vs. Direct Competitors

Customer knowledge

Product expertise, fast response time, relationship focused, local support

Product performance

Best accuracy and long-term stability in harsh environments
NPI to deliver high performance and achieve cost down

Proven in high volume semiconductor manufacturing

>100,000 sensors in semiconductor fabs worldwide

Rapid prototyping

Rapid prototyping helps our customers quickly develop process monitoring solutions

World-class manufacturing

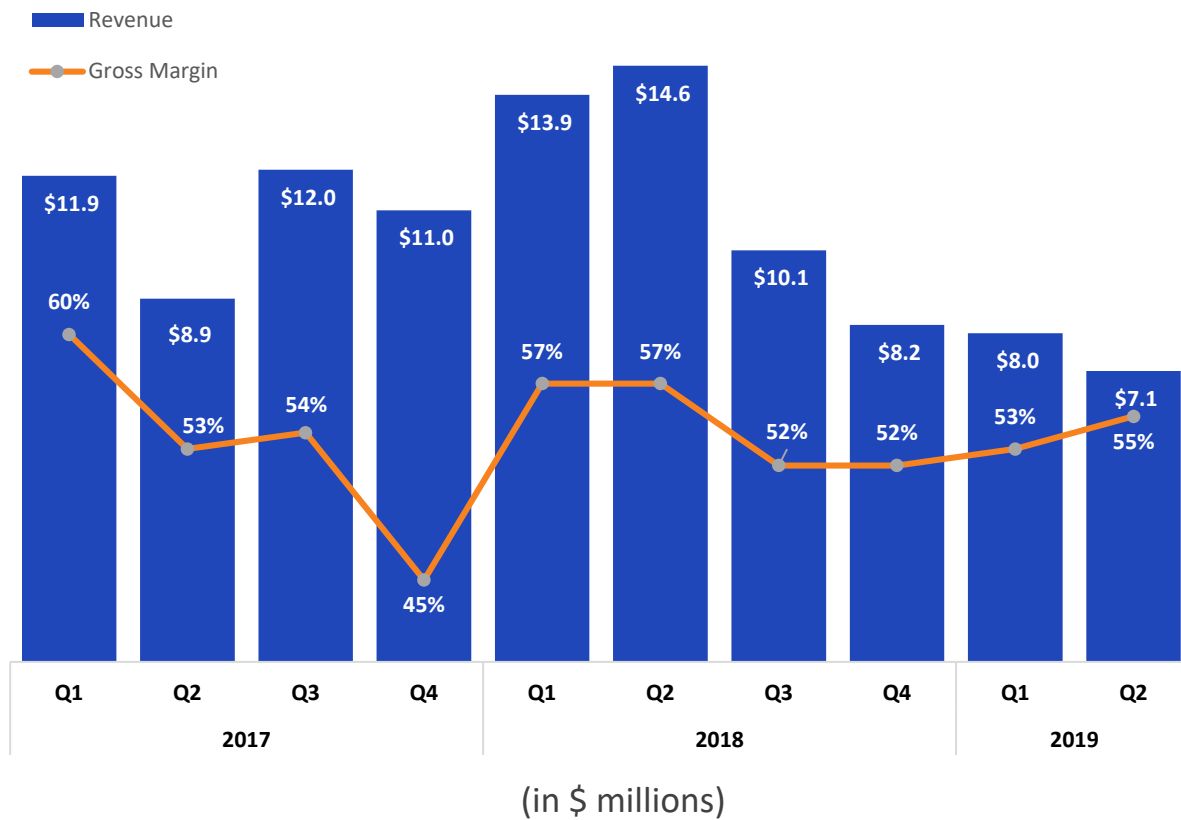
New scalable manufacturing facility, in-house phosphor lab, calibration expertise, ISO clean room, on-time delivery



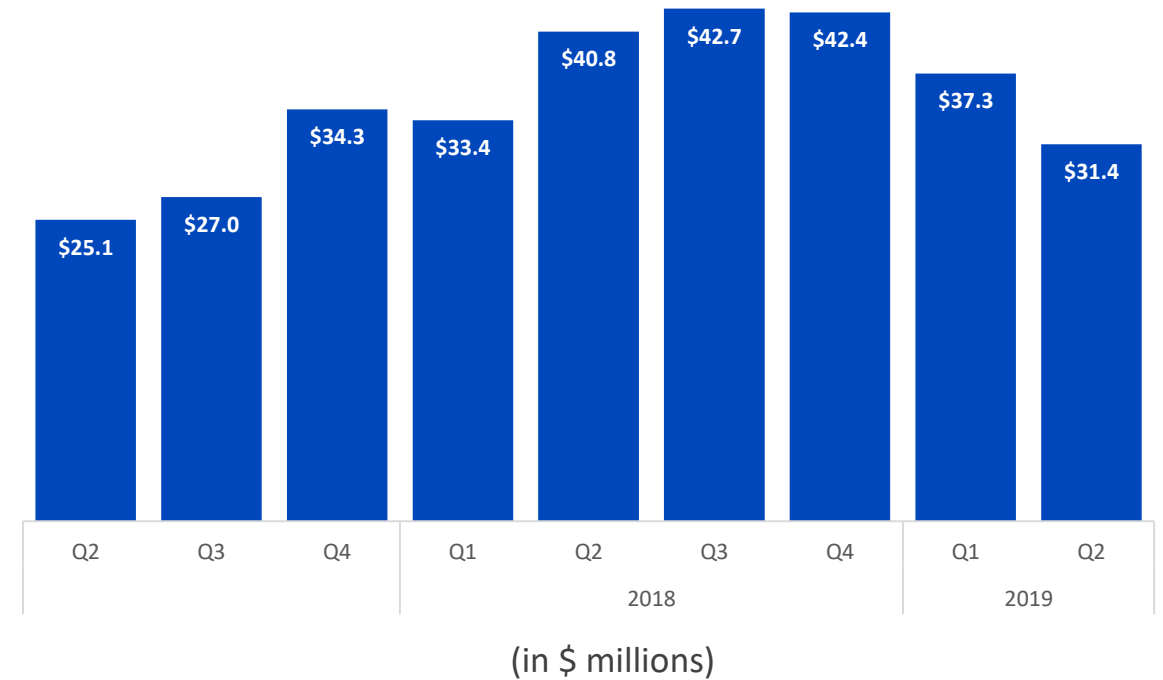
Financial Information

Key Financial Metrics

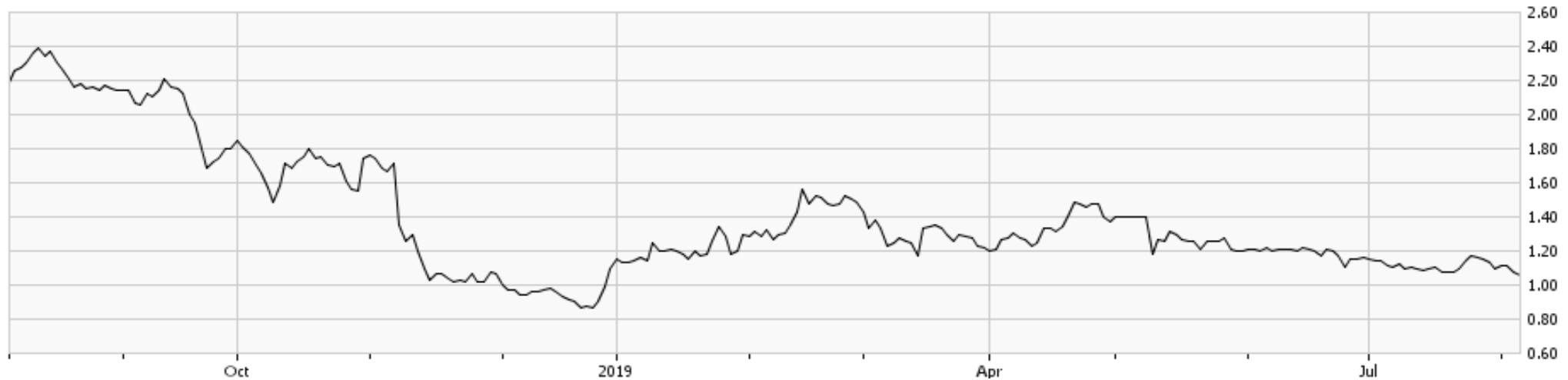
Proven Business Model



Strong Cash Position



Stock Information



TSX: PHO

Closing Share Price (August 7/19)	\$1.05
# of Shares Outstanding (Basic)	105M
# of Shares (Fully Diluted)	109M
52-Week High	\$2.40
52-Week Low	\$0.84
Market Capitalization (@August 7/19)	\$110M
Enterprise Value ("EV") (@August 7/19)	\$79M

Valuation Metrics

Price-to-Earnings ratio (TTM)	26.3x
EV-to-Revenue ratio (TTM)	2.4x
EV-to-EBITDA ratio (TTM)	9.6x
Cash/Share	\$0.30

Key Takeaways

1

Continuing to invest in **product development and innovation** in anticipation of improving industry trends

2

Investing with customers on joint development provides organic growth from etch and deposition product lines

3

Managing the business through the **cyclical** downturn

4

Opportunities for **growth** within high tech industries



www.photoncontrol.com
TSX: PHO