



# **Richardson Electronics, Ltd.**

## **Investor Overview**

Q4 FY18

# Safe Harbor Statement

During the course of this presentation, the Company may make certain "forward-looking" statements as defined by the SEC. Such statements regarding the Company's business which are not historical facts represent "forward-looking statements" that involve risks and uncertainties. Actual results could differ materially from those contained in the forward-looking statements due to risks and uncertainties contained under "Risk Factors" in the Company's Annual Report on Form 10-K. The Company assumes no responsibility to update the forward-looking statements as a result of new information, future events, or otherwise.

# Facts and Figures

*Founded in 1947, Richardson Electronics, Ltd. has a rich and unique history of engineering, manufacturing and distributing power grid and microwave tubes and related consumables, and customized display solutions.*

- **Global Corporate Headquarters:** La Fox, Illinois; 265K square feet facility on 100 acres
- **NASDAQ:** RELL
- **Three Business Units:** each initiated by customer requirements and defined by product offering
- **FY2018 Sales:** \$163.2 million
  - Historical sales were \$700M+; more than one thousand employees
  - Divested non-core security group (2007) and RFPD commodity businesses (2011)
  - Kept global infrastructure suitable for larger company
- **Our Future is Healthcare:** we've invested more than \$35 million since 2015
- **Strong Balance Sheet:** \$60+ million in cash and investments
- **Employees:** 440; more than half in sales, engineering and product management



- **Locations:** Global network of 60+ sales offices and stocking locations with legal entities in 24 countries
- **Customer base:** 20,000 customers; focus is aftermarket. Nearly 60% of revenue generated outside North America
- **ISO 9001:2015 certified**
- **ISO13485 certified**

**Richardson Healthcare**

# Richardson Healthcare—Growth Initiative

- Sold RFPD in 2011; decided to invest proceeds in Healthcare
- Richardson Electronics wanted to buy Dunlee, a division of Philips
- Primary interest is aftermarket replacement CT tubes—capitalizing on our strength in tube manufacturing and infrastructure to support customer base
- Philips wouldn't sell the business inclusive of the technology required to manufacture the products (license agreement only); REL decided to invest in a greenfield project to build CT tubes
- We recruited 25 engineers and technicians from Dunlee and local universities
- Decision taken to develop an Anode End Grounded (AEG) platform, with the first application as a replacement for the Toshiba/Canon Aquilion and Prime series CT scanners
- CT tube development began in early 2015



# Our Expansion into Parts/Training/Equipment



- **2015: we acquired International Medical Equipment and Services (IMES) located just outside of Charlotte, NC**
- **IMES is the leader in third party support for Toshiba/Canon CT, and was once the equivalent of GE Gold Seal refurbished systems for Toshiba**
  - Strategic addition to position REL in the Toshiba diagnostic imaging replacement parts market
- **IMES Core Competencies:**
  - QA3 Certified Diagnostic Imaging Replacement Parts
  - Accredited CT Service Training
  - Refurbished CT Equipment
- **2016: we launched our first geographic expansion with a European Parts and Training Center in Amsterdam**
- **2017: we launched a product line expansion into Philips CT Parts, Service Training, and Refurbished Equipment**



# CT Tube Launch—Alta750

- First application is a 72KW, 0.35 second rotation replacement for Toshiba/Canon Aquilion and Prime CT
- No third party replacement for Toshiba CT tubes; Varex makes tube for Toshiba/Canon exclusively
- Availability of the Toshiba CT tube allows hospitals lower cost alternative to OEM service contracts
- Performance very similar to the OEM tube with an average lifetime between 2 and 3 years
- FDA, ISO13485, UL approvals complete
- First Beta tubes installed at customer sites in March/April 2018
- Official launch: June 2018; sales anticipated to drive incremental revenue beginning in FY19
- Sales and growth rate dependent on speed at which Toshiba CTs are taken off OEM service contracts
- REL now one of six companies in the world able to make CT tubes: GE, Philips, Siemens, Toshiba and Varex
- Next up: other tubes based on the Alta platform

## By the Numbers

- Size of Replacement Parts and Service Market: \$7-8B
- All CTs Global Install Base: 60K+
- Toshiba CT Global Install Base: 12K
- Annual Toshiba Tube Replacement Opportunity: 3K-6K
- 70%-80% Systems still under OEM service contract
- OEM Retail Tube Price: \$200K; \$125K volume contract price
- REL Target Tube Price: \$75K-\$90K
- REL Target Tube Margin: 40%+
- REL Capacity: 1K tubes/year

# CT Tube Status Report: Production Is Up and Running!



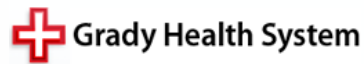
**\$20M**  
investment in  
CapEx and  
R&D





# Richardson Healthcare Customers

## Healthcare Providers



## Service Providers



# **Power & Microwave Technologies (PMT)**

Electron Device Group (EDG) + Power & Microwave Group (PMG)

# Power & Microwave Technology (PMT)

- Largest channel to market for power grid and microwave tubes and related consumable parts (EDG)
- Bringing key technologies to the world for power, microwave niche applications (PMG)
- Highly specialized in demand creation for new technologies in power management
- Global provider and manufacturer of Engineered Solutions focusing on industrial tube manufacturing, microwave generators, power supplies and customer specific parts and assemblies
- Technical service for medical, military, satellite communication and scientific markets

## Solutions for:

- RF & Microwave Heating
- Semiconductor
- Plasma
- Scientific
- Marine & Avionics
- Laser
- Radar
- Radio & TV Broadcast Medical
- Automotive
- Satellite Communications
- Alternative Energy
- Industrial Equipment



# Electron Device Group (EDG)

## Selected Products

- Power Grid Tubes
- Magnetrons
- Klystrons
- Hydrogen Thyratrons
- Traveling Wave Tubes
- High Voltage Capacitors
- CW/Pulsed Microwave Products
- Waveguides
- Microwave Generators
- Cathode Ray Tubes

## Engineered Solutions/New Product Development

- High power, high frequency design services
- Custom microwave & RF electron devices
- Accessories, connectors & sockets

## Services

- CW Microwave Assembly
- High Power/High Voltage Assembly
- Application Design Assistance
- CW Microwave Design & Engineering
- Air-Wound Inductors & RF Coil Testing
- CW Microwave Testing
- Electrical Testing
- High Power/High Voltage Testing
- Electron Tube Manufacturing
- Service for Traveling Wave Tube Amplifiers and Related Equipment, and CO<sub>2</sub> Laser Equipment



# Power & Microwave Group (PMG)

- **Brought back Greg Peloquin, former EVP of REL RFPD, in 2015 to launch niche technology group as part of PMT**
- **Focus on cutting edge, disruptive technologies addressing the following markets:**
  - RF & Microwave
    - Commercial: Radar, Wireless Communications/5G Infrastructure, VSAT, Home & Business Connectivity
    - Military: EW Command & Control, Space Qualified Drones
    - Industrial, Scientific and Medical: Wafer Fab Tools, Food Preparation,
  - Power Management
    - Vehicular: Automotive/Hybrid Traction Vehicles, Mining, Farming, Rail Transportation
    - Industrial, Scientific and Medical: Power Distribution Grid; Solar and Wind Conversion; Motor Control, Welding; Converter/Inverter and Power Supply for MRI, Xray, Linear Accelerator
- **Built team of 15 RF engineers focused on engineered solutions and demand creation; using existing sales organization and infrastructure to leverage expense**
- **Partnering with select technology companies including**
  - MaCom
  - Qorvo
  - Starpower
  - Anokiwave
- **Double digit revenue growth each year**
- **Will begin contributing to operating income in FY19**

## RF & Microwave

- Semiconductors - GaN, SiGe, GaAs, CMOS SOI
- Frequency Conversion
- Test & Measurement Products
- Capacitors – High Q
- Solid State Microwave Generators
- Cable Assemblies
- Connectors & Adapters
- Resistors & Terminations
- Thermal Management
- RF Amplifier Modules

## Power Management

- Semiconductors – IGBT, MOSFET, SCRs, Rectifiers
- Semiconductors – SiC, GaN, Silicon
- Semiconductors – Discrete, ICs, Modules
- Capacitors – Film & Electrolytic
- Ultracapacitors
- Power Resistors
- Current & Voltage Sensors
- Magnetics
- Thermal Management

# Global Partners and Customers

## RF & MICROWAVE



## POWER SEMICONDUCTORS



## PASSIVES



## ELECTRON TUBES AND COMPONENTS



## Some of Our Key Customers

Rockwell  
Thales  
Baxter  
CPI  
Arqiva  
Honeywell  
NBC  
Huawei  
Garmin  
Lam Research  
BT  
Rohde & Schwarz  
Leco  
Stalam  
MKS  
John Deere

# **Canvys – Visual Technology Solutions**

## Selected Products

- Customized Displays
- Monitors and Integrated Systems
- Touchscreen and Privacy Technology
- Computing Platforms and Mounting Solutions
- Installation and Calibration Services
- Solution Consulting and Custom Engineering



## Engineered Solutions

- Consultation
- Custom Display Engineering
- Prototype Design
- Display Manufacturing Integration Facilities



# Canvys

## Markets

- Medical OEM
- Automation and Industrial OEM
- Marine Radar
- Aviation
- Military Defense and Aerospace
- Retail/POS
- Financial/Stock Exchanges
- Transportation

### SELECT CUSTOMERS



Carestream

VARIAN | A partner for life  
medical systems

PLANT \* CML<sup>®</sup>  
an EADS North America Company

ZEISS  
CARL ZEISS MEDITEC

Dräger

Richardson  
Electronics

# Canvys Product Examples

## Medical Grade



## Fully Embedded Custom Designs



## Rack Mount and Chassis Designs



## True Flat Series



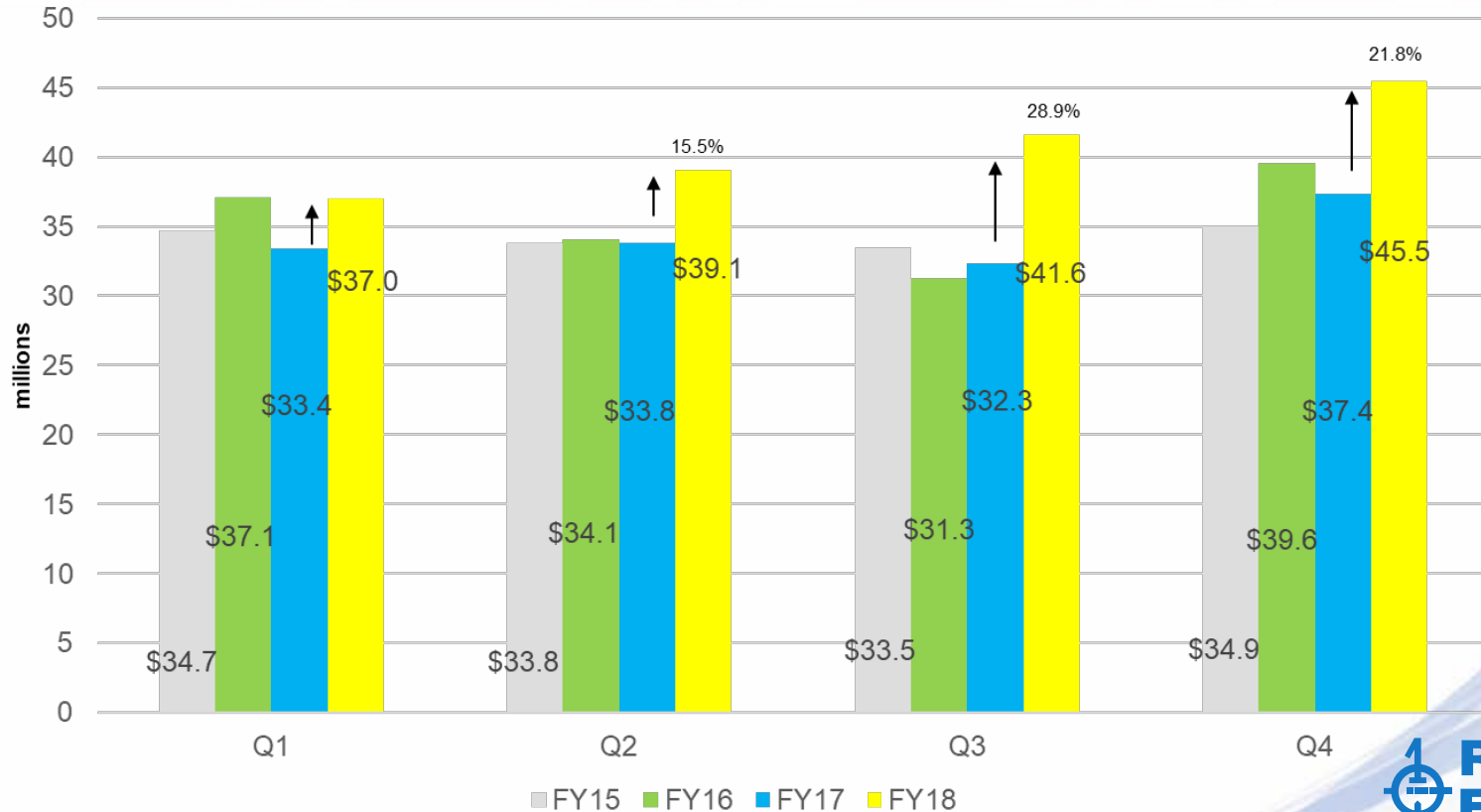
# Financials

# FY2018 Results

(in thousands)

	FY2018	FY2017
	Actual	Reported
<b>Net sales</b>	<b>\$ 163,212</b>	<b>\$ 136,872</b>
Cost of sales	108,130	92,989
Gross margin	55,082	43,883
gross margin %	33.7%	32.1%
SG&A expenses	51,729	49,854
% of net sales	31.7%	36.4%
Gain on disposal of assets	(276)	-
Gain on sale of business		(209)
<b>Operating income (loss)</b>	<b>3,629</b>	<b>(5,762)</b>
% of net sales	2.2%	-4.2%
Investment/interest income	(432)	(234)
Foreign exchange loss	224	612
Other, net	(23)	(24)
Total other (income) expense	(231)	354
<b>Income (loss) before taxes</b>	<b>3,860</b>	<b>(6,116)</b>
Income tax provision	1,534	812
<b>Income (loss) from continuing operations</b>	<b>\$ 2,326</b>	<b>\$ (6,928)</b>
% of net sales	1.4%	-5.1%
Income from discontinued operations, net of tax	1,496	-
<b>Net income (loss)</b>	<b>\$ 3,822</b>	<b>\$ (6,928)</b>

# Sales Trends Fiscal 2015 - 2018



# Balance Sheet Highlights

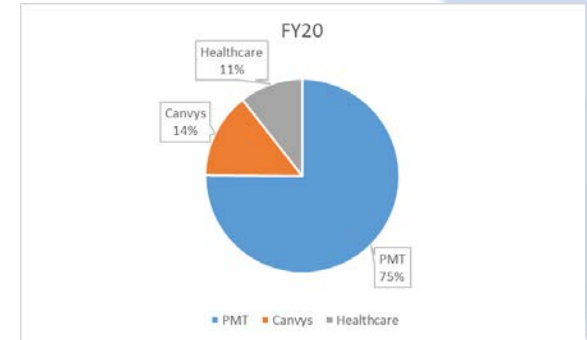
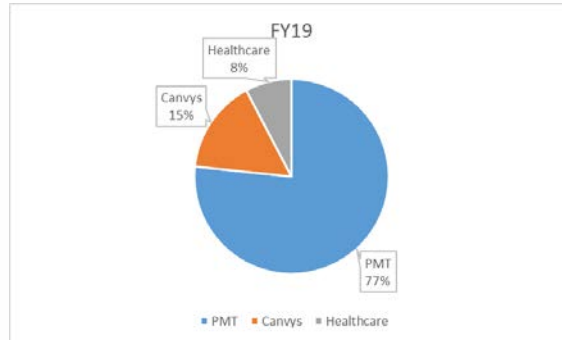
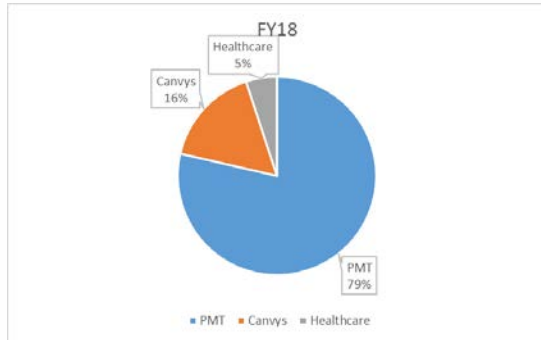
(in thousands)

	FY18 Q4	FY18 Q3	FY18 Q2	FY18 Q1	FY17 Q4	FY16 Q4
<b>Cash &amp; Investments:</b>						
Cash	\$ 60,465	\$ 59,882	\$ 54,453	\$ 56,429	\$ 55,327	\$ 60,454
ST investments	-	199	4,136	2,424	6,429	2,268
LT investments	-	-	686	2,514	2,419	7,799
Total	<u>\$ 60,465</u>	<u>\$ 60,081</u>	<u>\$ 59,275</u>	<u>\$ 61,367</u>	<u>\$ 64,175</u>	<u>\$ 70,521</u>
<b>Working Capital:</b>						
Accounts Receivable	\$ 22,892	\$ 21,893	\$ 21,016	\$ 19,260	\$ 20,782	\$ 24,928
Inventories	50,720	49,129	48,059	46,136	42,749	45,422
Accounts Payable	<u>(19,603)</u>	<u>(15,846)</u>	<u>(15,224)</u>	<u>(13,382)</u>	<u>(15,933)</u>	<u>(14,896)</u>
Working Capital	<u>\$ 54,009</u>	<u>\$ 55,176</u>	<u>\$ 53,851</u>	<u>\$ 52,014</u>	<u>\$ 47,598</u>	<u>\$ 55,454</u>

# Potential Revenue Split Between SBUs

(in thousands)

## Percent of Revenues



## FY19-20 Revenue Growth Assumptions

- CT Tube Sales growth as market acceptance grows and scanners come off OEM service contracts
- Incremental Replacement Parts Sales driven by availability of CT tube
- PMG Sales Growth driven by 5G
- No decline in semiconductor wafer fab demand



**Thank You**