

LITTELFUSE INC /DE
Form 10-Q
October 31, 2018
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United States
Securities and Exchange Commission
Washington, D.C. 20549

FORM 10-Q
(Mark one)

QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT
OF 1934

For the Quarterly Period Ended September 29, 2018

OR

TRANSITION REPORT PURSUANT TO SECTION 13 or 15(d) OF THE SECURITIES ACT OF 1934

For the transition period from ___ to ___

Commission file number 0-20388

LITTELFUSE, INC.

(Exact name of registrant as specified in its charter)

Delaware

36-3795742

(State or other jurisdiction of
incorporation or organization)

(I.R.S. Employer Identification No.)

8755 West Higgins Road, Suite 500

Chicago, Illinois

60631

(Address of principal executive offices) (ZIP Code)

Registrant's telephone number, including area code: 773-628-1000

Securities registered pursuant to Section 12(b) of the Act:

Title of Each Class	Name of Each Exchange On Which Registered
Common Stock, \$0.01 par value	NASDAQ Global Select Market SM

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes No

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate website, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (Section 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes No

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act (Check one): Large accelerated filer Accelerated filer Non-accelerated filer Smaller reporting company Emerging growth company

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If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. Yes No

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes No

As of October 29, 2018, the registrant had outstanding 25,156,759 shares of Common Stock, net of Treasury Shares.

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CONDENSED CONSOLIDATED BALANCE SHEETS

(in thousands)	(Unaudited)	
	September 29, 2018	December 30, 2017
ASSETS		
Current assets:		
Cash and cash equivalents	\$ 498,215	\$ 429,676
Short-term investments	35	35
Trade receivables, less allowances (September 29, 2018 - \$36,392; December 30, 2017 - \$27,516)	251,644	182,699
Inventories	247,255	140,789
Prepaid income taxes and income taxes receivable	6,802	1,689
Prepaid expenses and other current assets	48,683	37,452
Total current assets	1,052,634	792,340
Property, plant, and equipment:		
Land	29,528	9,547
Buildings	119,380	86,599
Equipment	569,550	505,838
Accumulated depreciation and amortization	(374,575)	(351,407)
Net property, plant, and equipment	343,883	250,577
Intangible assets, net of amortization	377,151	203,850
Goodwill	830,354	453,414
Investments	29,084	10,993
Deferred income taxes	8,979	11,858
Other assets	21,401	17,070
Total assets	\$ 2,663,486	\$ 1,740,102
LIABILITIES AND EQUITY		
Current liabilities:		
Accounts payable	\$ 129,871	\$ 101,844
Accrued payroll	52,208	49,962
Accrued expenses	74,084	48,994
Accrued severance	901	1,459
Accrued income taxes	36,746	16,285
Current portion of long-term debt	10,076	6,250
Total current liabilities	303,886	224,794
Long-term debt, less current portion	690,637	489,361
Deferred income taxes	49,262	17,069
Accrued post-retirement benefits	32,901	18,742
Other long-term liabilities	67,404	62,580
Shareholders' equity:		
Common stock, par value \$0.01 per share: 34,000,000 shares authorized; shares issued, September 29, 2018–25,630,347; December 30, 2017–22,713,198	254	229
Treasury stock, at cost: 475,994 and 439,598 shares, respectively	(48,546)	(41,294)
Additional paid-in capital	830,612	310,012
Accumulated other comprehensive loss	(97,631)	(63,668)

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Retained earnings	834,577	722,140
Littelfuse, Inc. shareholders' equity	1,519,266	927,419
Non-controlling interest	130	137
Total equity	1,519,396	927,556
Total liabilities and equity	\$ 2,663,486	\$ 1,740,102

See accompanying Notes to Condensed Consolidated Financial Statements.

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LITTELFUSE, INC.
 CONDENSED CONSOLIDATED STATEMENTS OF NET INCOME
 (Unaudited)

(in thousands, except per share data)	Three Months Ended		Nine Months Ended	
	September 30, 2018	September 30, 2017	September 29, 2018	September 30, 2017
Net sales	\$439,191	\$ 317,889	\$1,316,187	\$ 916,685
Cost of sales	259,597	184,238	817,983	536,776
Gross profit	179,594	133,651	498,204	379,909
Selling, general, and administrative expenses	69,782	56,759	220,540	156,899
Research and development expenses	20,454	11,991	65,742	36,872
Amortization of intangibles	13,130	6,292	38,501	18,407
Total operating expenses	103,366	75,042	324,783	212,178
Operating income	76,228	58,609	173,421	167,731
Interest expense	5,775	3,467	16,980	9,868
Foreign exchange loss (gain)	982	632	(6,372)	(1,483)
Other expense (income), net	1,259	(1,013)	(2,362)	(962)
Income before income taxes	68,212	55,523	165,175	160,308
Income taxes	14,666	12,715	33,275	29,970
Net income	\$53,546	\$ 42,808	\$131,900	\$ 130,338
Income per share:				
Basic	\$2.13	\$ 1.88	\$5.31	\$ 5.75
Diluted	\$2.10	\$ 1.87	\$5.23	\$ 5.69
Weighted-average shares and equivalent shares outstanding:				
Basic	25,109	22,713	24,817	22,678
Diluted	25,471	22,953	25,212	22,906

See accompanying Notes to Condensed Consolidated Financial Statements.

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LITTELFUSE, INC.

CONDENSED CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

(Unaudited)

(in thousands)	Three Months Ended		Nine Months Ended	
	September 30, 2018	September 30, 2017	September 30, 2018	September 30, 2017
Net income	\$53,546	\$ 42,808	\$131,900	\$ 130,338
Other comprehensive (loss) income:				
Pension and postemployment adjustment, net of tax	(115)	(60)	648	(441)
Unrealized loss on investments	—	(1,710)	—	(1,235)
Foreign currency translation adjustments	(7,832)	1,531	(24,816)	2,912
Comprehensive income	\$45,599	\$ 42,569	\$107,732	\$ 131,574

See accompanying Notes to Condensed Consolidated Financial Statements.

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LITTELFUSE, INC.
 CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
 (Unaudited)

(in thousands)	Nine Months Ended	
	September 30, 2018	September 30, 2017
Operating activities		
Net income	\$ 131,900	\$ 130,338
Adjustments to reconcile net income to net cash provided by operating activities:		
Depreciation	37,559	28,228
Amortization of intangibles	38,501	18,407
Provision for bad debts	83	1,586
Deferred revenue	3,965	—
Non-cash inventory charges	36,927	1,607
Impairment charges	1,125	—
Loss on sale of property, plant, and equipment	511	584
Stock-based compensation	23,153	12,437
Unrealized gain on investments	(350)	—
Deferred income taxes	(10,979)	1,863
Changes in operating assets and liabilities:		
Trade receivables	(20,588)	(26,792)
Inventories	(17,624)	(17,159)
Accounts payable	17,033	9,448
Accrued expenses (including post-retirement)	11,523	1,757
Accrued payroll and severance	(5,330)	(3,788)
Accrued income taxes	14,543	7,267
Prepaid expenses and other assets	(9,836)	15,537
Net cash provided by operating activities	252,116	181,320
Investing activities		
Acquisitions of businesses, net of cash acquired	(313,475)	(38,610)
Proceeds from maturities of short-term investments	—	3,739
Decrease in entrusted loan	—	3,599
Purchases of property, plant, and equipment	(55,946)	(48,470)
Proceeds from sale of property, plant, and equipment	858	541
Net cash used in investing activities	(368,563)	(79,201)
Financing activities		
Proceeds of revolving credit facility	60,000	15,000
Proceeds of term loan	75,000	—
Net proceeds from senior notes payable	175,000	125,000
Payments of term loan	(42,525)	(4,687)
Payments of revolving credit facility	(60,000)	(112,500)
Net proceeds (payments) related to stock-based award activities	17,920	(2,336)
Payments of entrusted loan	—	(3,599)
Debt issuance costs	(878)	(2)
Cash dividends paid	(29,258)	(23,367)
Net cash provided by (used in) financing activities	195,259	(6,491)
Effect of exchange rate changes on cash and cash equivalents	(10,273)	2,076

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Increase in cash and cash equivalents	68,539	97,704
Cash and cash equivalents at beginning of period	429,676	275,124
Cash and cash equivalents at end of period	\$498,215	\$ 372,828
Supplemental disclosure of non-cash investing activities:		
Fair value of commitment to purchase non-controlling interest of Monolith	\$5,000	\$ 9,000

See accompanying Notes to Condensed Consolidated Financial Statements.

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Notes to Condensed Consolidated Financial Statements

1. Summary of Significant Accounting Policies and Other Information

Nature of Operations

Littelfuse, Inc. and subsidiaries (the “Company”) is a global manufacturer of leading technologies in circuit protection, power control and sensing. The Company has products in automotive and commercial vehicles, industrial applications, data and telecommunications, medical devices, consumer electronics and appliances. With a diverse and extensive product portfolio of fuses, semiconductors, polymers, ceramics, relays and sensors, the Company works with its customers to build safer, more reliable and more efficient products for the connected world in virtually every market that uses electrical energy. The Company has a network of global engineering centers and labs that develop new products and product enhancements, provides customer application support and test products for safety, reliability, and regulatory compliance.

Basis of Presentation

The Company’s accompanying unaudited Condensed Consolidated Financial Statements have been prepared in accordance with U.S. Generally Accepted Accounting Principles (“GAAP”) for interim financial information, the instructions to Form 10-Q and Article 10 of Regulation S-X. Accordingly, certain information and disclosures normally included in the consolidated balance sheets, statements of net income and comprehensive income and cash flows prepared in conformity with U.S. GAAP have been condensed or omitted as permitted by such rules and regulations, although the Company believes that the disclosures made are adequate to make the information not misleading. They have been prepared in accordance with accounting policies described in the Company’s Annual Report on Form 10-K for the year ended December 30, 2017, which should be read in conjunction with the disclosures therein. In the opinion of management, all adjustments considered necessary for a fair presentation have been included and are of a normal, recurring nature. Operating results for interim periods are not necessarily indicative of annual operating results.

Revenue Recognition

Adoption

On December 31, 2017, the Company adopted new guidance on revenue from contracts with customers using the modified retrospective method. The adoption did not have a significant impact on the Company’s consolidated financial statements.

Revenue Disaggregation

The following table disaggregates the Company’s revenue by primary business units for the three and nine months ended September 29, 2018:

(in thousands)	Three Months Ended September 29, 2018			Total
	Electronics Segment	Automotive Segment	Industrial Segment	
Electronics – Passive Products and Sensors	\$ 124,174	\$ —	\$ —	\$ 124,174
Electronics – Semiconductor	172,298	—	—	172,298
Passenger Car Products	—	57,761	—	57,761
Automotive Sensors	—	27,311	—	27,311

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Commercial Vehicle Products	—	29,344	—	29,344
Industrial Products	—	—	28,303	28,303
Total	\$296,472	\$ 114,416	\$ 28,303	\$439,191

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(in thousands)	Nine Months Ended September 29, 2018			Total
	Electronics Segment	Automotive Segment	Industrial Segment	
Electronics – Passive Products and Sensors	\$366,990	\$ —	\$ —	\$366,990
Electronics – Semiconductor	493,250	—	—	493,250
Passenger Car Products	—	184,922	—	184,922
Automotive Sensors	—	89,362	—	89,362
Commercial Vehicle Products	—	93,434	—	93,434
Industrial Products	—	—	88,229	88,229
Total	\$860,240	\$367,718	\$88,229	\$1,316,187

See Note 13, Segment Information for net sales by segment and countries.

Revenue Recognition

The Company recognizes revenue on product sales in the period in which the Company satisfies its performance obligation and control of the product is transferred to the customer. The Company's sales arrangements with customers are predominately short term in nature and generally provide for transfer of control at the time of shipment as this is the point at which title and risk of loss of the product transfers to the customer. At the end of each period, for those shipments where title to the products and the risk of loss and rewards of ownership do not transfer until the product has been received by the customer, the Company adjusts revenues and cost of sales for the delay between the time that the products are shipped and when they are received by the customer. The amount of revenue recorded reflects the consideration to which the Company expects to be entitled in exchange for goods and may include adjustments for customer allowance, rebates and price adjustments. The Company's distribution channels are primarily through direct sales and independent third-party distributors.

The Company has elected the practical expedient under Accounting Standards Codification ("ASC") 340-40-25-4 to expense commissions when incurred as the amortization period of the commission asset the Company would have otherwise recognized is less than one year.

Revenue and Billing

The Company generally accepts orders from customers through receipt of purchase orders or electronic data interchange based on written sales agreements and purchasing contracts. Contract pricing and selling agreement terms are based on market factors, costs, and competition. Pricing is often negotiated as an adjustment (premium or discount) from the Company's published price lists. The customer is invoiced when the Company's products are shipped to them in accordance with the terms of the sales agreement. As the Company's standard payment terms are less than one year, the Company has elected the practical expedient under ASC 606-10-32-18 to not assess whether a contract has a significant financing component. The Company also elected the practical expedient provided in ASC 606-10-25-18B to treat all product shipping and handling activities as fulfillment activities, and therefore recognize the gross revenue associated with the contract, inclusive of any shipping and handling revenue. This is similar to the Company's prior practice and therefore the effect of the new guidance is immaterial.

Ship and Debit Program

Some of the terms of the Company's sales agreements and normal business conditions provide customers (distributors) the ability to receive price adjustments on products previously shipped and invoiced. This practice is common in the industry and is referred to as a "ship and debit" program. This program allows the distributor to debit the Company for the difference between the distributors' contracted price and a lower price for specific transactions. Under certain

circumstances (usually in a competitive situation or large volume opportunity), a distributor will request authorization for pricing allowances to reduce its price. When the Company approves such a reduction, the distributor is authorized to “debit” its account for the difference between the contracted price and the lower approved price. The Company establishes reserves for this program based on historic activity and actual authorizations for the debit and recognizes these debits as a reduction of revenue.

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Return to Stock

The Company has a return to stock policy whereby certain customers, with prior authorization from Littelfuse management, can return previously purchased goods for full or partial credit. The Company establishes an estimated allowance for these returns based on historic activity. Sales revenue and cost of sales are reduced to anticipate estimated returns.

Volume Rebates

The Company offers volume based sales incentives to certain customers to encourage greater product sales. If customers achieve their specific quarterly or annual sales targets, they are entitled to rebates. The Company estimates the projected amount of rebates that will be achieved by the customer and recognizes this estimated cost as a reduction to revenue as products are sold.

Recently Adopted Accounting Standards

In March 2017, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") No. 2017-07 "Compensation-Retirement Benefits (Topic 715): Improving the Presentation of Net Periodic Pension Cost and Net Periodic Post-Retirement Benefit Cost," which changed the presentation of net periodic pension and post-retirement benefit cost (net benefit cost) within the Statement of Income. Under the previous guidance, net benefit cost was reported as an employee cost within operating income. The amendment required the bifurcation of net benefit cost, with the service cost component to be presented with other employee compensation costs in operating income while the other components will be reported separately outside of income from operations. ASU No. 2017-07 was effective for the first quarter of 2018 with the Company adopting the new standard on December 31, 2017.

In January 2016, the FASB issued ASU No. 2016-01, "Financial Instruments-Recognition and Measurement of Financial Assets and Financial Liabilities" which addressed certain aspects of the recognition, measurement, presentation and disclosure of financial instruments. The ASU requires the Company to recognize any changes in the fair value of certain equity investments in net income. Previously these changes were recognized in other comprehensive income ("OCI"). The Company adopted the new standard on December 31, 2017, on a modified retrospective basis, recognizing the cumulative effect as a \$9.8 million increase to retained earnings. As a result of the adoption of the new standard and change in fair value of our equity investments, for the nine months ended September 29, 2018, the Company recognized an unrealized loss of \$0.3 million in Other (income) expense, net in the Condensed Consolidated Statements of Net Income.

In May 2014, the FASB issued ASU No. 2014-09, "Revenue from Contracts with Customers" (Topic 606) which supersedes the revenue recognition requirements in ASC 605, "Revenue Recognition." This ASU provides a single comprehensive model for entities to use in accounting for revenue arising from contracts with customers and will supersede most current revenue recognition guidance. The guidance permits two implementation approaches, one requiring retrospective application of the new standard with restatement of prior years and one requiring prospective application of the new standard with disclosure of results under old standards. The Company adopted the new standard on December 31, 2017 using the modified retrospective method, however, no adjustment to retained earnings was needed. The new guidance did not have a material effect on the Company's Condensed Consolidated Statements of Net Income. See the Revenue Recognition section above for further discussion.

In October 2016, the FASB issued ASU No. 2016-16, "Income Taxes" (Topic 740). This ASU update requires entities to recognize the income tax consequences of many intercompany asset transfers at the transaction date. The seller and buyer will immediately recognize the current and deferred income tax consequences of an intercompany transfer of an asset other than inventory. The tax consequences were previously deferred. The Company adopted the new standard

on December 31, 2017 and it did not have a material impact.

Recently Issued Accounting Standards

In February 2016, the FASB issued ASU No. 2016-02, "Leases" (Topic 842). This ASU requires lessees to recognize, on the balance sheet, assets and liabilities for the rights and obligations created by leases of greater than twelve months. The accounting by lessors will remain largely unchanged. The ASU is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2018, with early adoption permitted. Adoption will require a modified retrospective transition. The Company will adopt the standard in the first quarter of 2019. The Company has made progress on assessing the Company's portfolio of leases and compiling a central repository of all active leases. We are in the process of assessing the design of the future lease process and drafting a policy to address the new standard requirements. Key lease data elements are being evaluated including developing a methodology for determining the incremental borrowing rate across all countries where we have operations. While the Company has not yet completed its evaluation of the impact the new lease accounting standard will have on its Consolidated

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Financial Statements, the Company expects to recognize right of use assets and lease liabilities for its operating leases in the Consolidated Balance Sheet upon adoption.

In January 2018, the FASB released guidance on the accounting for tax on the global intangible low-taxed income ("GILTI") provisions of the 2017 U.S. Tax Cuts and Jobs Act (the "Tax Act"). The GILTI provisions impose a tax on foreign income in excess of a deemed return on tangible assets of foreign corporations. The guidance indicates that either accounting for deferred taxes related to GILTI inclusions or treating any taxes on GILTI inclusions as period cost are both acceptable methods subject to an accounting policy election. The Company has not yet completed its assessment and therefore has not yet elected an accounting policy.

In February 2018, the FASB issued ASU No. 2018-02 "Income Statement—Reporting Comprehensive Income (Topic 220): Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income," which permits the reclassification of tax effects stranded in accumulated other comprehensive income to retained earnings as a result of the Tax Act. The standard also requires entities to disclose whether or not they elected to reclassify the tax effects related to the Tax Act as well as their policy for releasing income tax effects from accumulated other comprehensive income. The standard allows the option of applying either a retrospective adoption, meaning the standard is applied to all periods in which the effect of the Tax Act is recognized, or applying the amendments in the period of adoption, meaning an adjustment is made to shareholder's equity as of the beginning of the reporting period. ASU 2018-02 will be effective in the first quarter of 2019; however early adoption is permitted for interim and annual periods, including the reporting period in which the Tax Act was enacted. The Company is currently evaluating the impact of ASU 2018-02 on the Consolidated Financial Statements.

In August 2018, the FASB issued ASU No. 2018-13, "Fair Value Measurement (Topic 820): Disclosure Framework - Changes to the Disclosure Requirements for Fair Value Measurement." ASU 2018-13 modified the disclosure requirements in Topic 820, "Fair Value Measurement," based on the FASB Concepts Statement, "Conceptual Framework for Financial Reporting - Chapter 8: Notes to Financial Statements," including consideration of costs and benefits. The guidance is effective for fiscal years beginning after December 15, 2019 and for interim periods within those fiscal years, with early adoption permitted. The company is currently evaluating the potential effects of this guidance on its Consolidated Financial Statements.

In August 2018, the FASB issued ASU No. 2018-14 "Disclosure Framework - Changes to the Disclosure Requirements for Defined Benefit Plans, which amends ASC 715-20, Compensation - Retirement Benefits - Defined Benefit Plans - General. The amended guidance modifies the disclosure requirements for employers that sponsor defined benefit pension or other post-retirement plans by removing and adding certain disclosures for these plans. The eliminated disclosures include (a) the amounts in OCI expected to be recognized in net periodic benefit costs over the next fiscal year, and (b) the effects of a one percentage point change in assumed health care cost trend rates on the net periodic benefit costs and the benefit obligation for post-retirement health care benefits. Additional disclosures include descriptions of significant gains and losses affecting the benefit obligation for the period. The adoption of this guidance will modify our disclosures but will not have a material effect on our Consolidated Financial Statements.

In August 2018, the FASB issued ASU No. 2018-15, "Intangibles - Goodwill and Other - Internal-Use Software (Subtopic 350-40): Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract (a consensus of the FASB Emerging Issues Task Force)." ASU 2018-15 aligns the requirements for capitalizing implementation costs incurred in a hosting arrangement that is a service contract with the requirements for capitalizing implementation costs incurred to develop or obtain internal-use software (and hosting arrangements that include an internal-use software license). The guidance is effective for fiscal years beginning after December 15, 2019 and for interim periods within those fiscal years, with early adoption permitted. The Company is currently evaluating this guidance on its Consolidated Financial Statements.

2. Acquisitions

The Company accounts for acquisitions using the acquisition method in accordance with ASC 805, “Business Combinations,” in which assets acquired and liabilities assumed are recorded at fair value as of the date of acquisition. The operating results of the acquired business are included in the Company’s Consolidated Financial Statements from the date of the acquisition.

IXYS Corporation

On January 17, 2018, the Company acquired IXYS Corporation (“IXYS”), a global pioneer in the power semiconductor and integrated circuit markets with a focus on medium to high voltage power control semiconductors across the industrial, communications, consumer and medical markets. IXYS has a broad customer base, serving more than 3,500 customers through

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its direct sales force and global distribution partners. The acquisition of IXYS is expected to accelerate the Company's growth across the power control market driven by IXYS's extensive power semiconductor portfolio and technology expertise. With IXYS, the Company will be able to diversify and expand its presence within industrial electronics markets, leveraging the strong IXYS industrial OEM customer base. The Company also expects to increase long-term penetration of its power semiconductor portfolio in automotive markets, expanding its global content per vehicle.

Upon completion of the acquisition, at IXYS stockholders' election and subject to proration, each share of IXYS common stock, par value \$0.01 per share, owned immediately prior to the effective time was canceled and extinguished and automatically converted into the right to receive: (i) \$23.00 in cash (subject to applicable withholding tax), without interest (referred to as the cash consideration), or (ii) 0.1265 of a share of common stock, par value \$0.01 per share, of Littelfuse (referred to as the stock consideration). IXYS stockholders received cash in lieu of any fractional shares of Littelfuse common stock that the IXYS stockholders would otherwise have been entitled to receive. Additionally, each outstanding option to purchase shares of IXYS common stock granted under an IXYS equity plan were assumed by Littelfuse and converted into an option to acquire (i) a number of shares of Littelfuse common stock equal to the number of shares of IXYS common stock subject to such option immediately prior to the effective time multiplied by 0.1265, rounded down to the nearest whole share, with (ii) an exercise price per share of Littelfuse common stock equal to the exercise price of such IXYS stock option immediately prior to the effective time divided by 0.1265, rounded up to the nearest whole cent.

Based on the \$207.5 per share opening price of Littelfuse common stock on January 17, 2018, the consideration IXYS stockholders received in exchange of their IXYS common stock in the acquisition had a value of \$814.8 million comprised of \$380.6 million of cash and \$434.2 million of Littelfuse stock. In addition to the consideration transferred related to IXYS common stock, the value of consideration transferred, and included in the purchase price, related to IXYS stock options that were converted to Littelfuse stock options, or cash settled, had a value of \$41.7 million. As a result, total consideration was valued at \$856.5 million.

The total purchase price of \$856.5 million has been allocated, on a preliminary basis, to assets acquired and liabilities assumed, as of the completion of the acquisition, based on preliminary estimated fair values. The purchase price allocation is preliminary because the evaluations necessary to assess the fair values of the net assets acquired are still in process. The primary area that is not yet finalized relates to the completion of the computation of the adoption of the Tax Act. As a result, these allocations are subject to change during the purchase price allocation period as the computation is finalized.

The following table summarizes the purchase price allocation of the fair value of assets acquired and liabilities assumed in the IXYS acquisition:

(in thousands)	Purchase Price Allocation
Total purchase consideration:	
Cash, net of cash acquired	\$302,865
Cash settled stock options	3,622
Littelfuse stock	434,192
Converted stock options	38,109
Total purchase consideration	\$778,788
Allocation of consideration to assets acquired and liabilities assumed:	
Current assets, net	\$155,930
Property, plant, and equipment	77,442
Intangible assets	212,720

Goodwill	379,619
Other non-current assets	31,570
Other non-current liabilities	(78,493)
	\$778,788

Included in IXYS's current assets, net was approximately \$49.1 million of receivables. All IXYS goodwill, other assets and liabilities were recorded in the Electronics segment and primarily reflected in the Americas and European geographic areas. The goodwill resulting from this acquisition consists largely of the Company's expected future product sales and synergies from

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combining IXYS's products and technology with the Company's existing electronics product portfolio. Goodwill resulting from the IXYS acquisition is not expected to be deductible for tax purposes.

Included in the Company's Condensed Consolidated Statements of Net Income for the three and nine months ended September 29, 2018 are net sales of approximately \$99.7 million and \$286.2 million, respectively, and a income (loss) before income taxes of \$6.2 million and \$(25.5) million, respectively, since the January 17, 2018 acquisition of IXYS. The Company recognized approximately \$4.3 million and \$11.8 million of stock compensation expense related to IXYS stock options converted to Littelfuse stock options during the three and nine months ended September 29, 2018, of which \$4.5 million was recognized immediately as it related to prior service periods.

As required by purchase accounting rules, the Company recorded a \$36.9 million step-up of inventory to its fair value as of the acquisition date based on the preliminary valuation. The step-up was fully amortized as a non-cash charge to cost of goods sold during the first and second quarters of 2018, as the acquired inventory was sold, and reflected as other non-segment costs.

During the nine months ended September 29, 2018, the Company incurred approximately \$11.0 million of legal and professional fees related to this acquisition which were primarily recognized as selling, general, and administrative expenses. These costs were reflected as other non-segment costs.

2017 Acquisitions

U.S. Sensor

On July 7, 2017, the Company acquired the assets of U.S. Sensor Corporation ("U.S. Sensor"). The acquisition purchase price of \$24.3 million, net of the finalization of an income tax gross up which was settled in the fourth quarter of 2017, was funded with available cash. The acquired business expands the Company's existing sensor portfolio in several key electronics and industrial end markets. U.S. Sensor manufactures a variety of high quality negative temperature coefficient thermistors as well as thermistor probes and assemblies. Product lines also include thin film platinum resistance temperature detectors ("RTDs") and RTD assemblies.

The following table summarizes the purchase price allocation of the fair value of assets acquired and liabilities assumed in the U.S. Sensor acquisition:

(in thousands)	Purchase Price Allocation
Total purchase consideration:	
Cash	\$ 24,340
Allocation of consideration to assets acquired and liabilities assumed:	
Current assets, net	\$ 4,635
Patented and unpatented technologies	1,090
Trademarks and tradenames	200
Non-compete agreement	50
Customer relationships	2,830
Goodwill	16,075
Current liabilities	(540)
	\$ 24,340

Included in U.S. Sensor's current assets, net was approximately \$1.5 million of receivables. All U.S. Sensor goodwill, other assets and liabilities were recorded in the Electronics segment and reflected in the United States geographic area. The goodwill resulting from this acquisition consists largely of the Company's expected future product sales and synergies from combining U.S. Sensor's products and technology with the Company's existing electronics product portfolio. Goodwill for the above acquisition is expected to be deductible for tax purposes.

As required by purchase accounting rules, the Company recorded a \$1.6 million step-up of inventory to its fair value as of the acquisition date based on the preliminary valuation. The step-up was amortized as a non-cash charge to cost of goods sold during the third quarter of 2017, as the acquired inventory was sold, and reflected as other non-segment costs.

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Monolith

In December 2015, the Company invested \$3.5 million in the preferred stock of Monolith Semiconductor Inc. (“Monolith”), a U.S. start-up Company developing silicon carbide technology, which represented approximately 12% of the common stock of Monolith on an as-converted basis. The Company accounted for its investment in Monolith under the cost method with any changes in value recorded in other comprehensive income. The value of the Monolith investment was \$3.5 million at December 31, 2016.

On February 28, 2017, pursuant to a Securities Purchase Agreement between the Company and the stockholders of Monolith (“Securities Purchase Agreement”) and conditioned on Monolith achieving a product development milestone and other provisions, the Company acquired 62% of the outstanding common stock of Monolith for \$15.0 million. The Securities Purchase Agreement includes provisions whereby the Company will acquire the remaining outstanding stock of Monolith (“non-controlling interest”) at a time or times based on Monolith meeting certain technical and sales targets. During the first quarter of 2018, Monolith met the next set of technical and sales targets. As a result, and pursuant to the Securities Purchase Agreement, in April 2018 the Company acquired an additional 19% of the outstanding common stock of Monolith for \$5.0 million, of which \$4.0 million was paid to the stockholders of Monolith. On October 5, 2018, the Company acquired the remaining 19% outstanding common stock for \$5.0 million.

The additional investment, in the first quarter of 2017, resulted in the Company gaining control of Monolith and was accounted for as a step-acquisition with the fair value of the original investment immediately before the acquisition estimated to be approximately \$3.5 million. As the fair value of the investment immediately prior to the transaction equaled the carrying value, there was no impact on the Company’s Consolidated Statements of Net Income. As the Securities Purchase Agreement includes an obligation of the Company to mandatorily redeem the non-controlling interest for cash, the fair value of the non-controlling interest was recognized as a liability on the Company’s Consolidated Balance Sheets. The original investment of \$3.5 million, additional cash consideration of \$14.2 million (net of cash acquired), and the non-cash consideration of the fair value of the commitment to purchase the non-controlling interest of \$9.0 million resulted in a purchase price of \$26.7 million. Changes in the fair value of the non-controlling interest are recognized in the Company’s Consolidated Statements of Net Income.

Commencing March 1, 2017, Monolith was reflected as a consolidated subsidiary within the Company’s Consolidated Financial Statements. Had the acquisition occurred as of January 1, 2017, the impact on the Company’s consolidated results of operations would not have been material.

The following table summarizes the purchase price allocation of the fair value of assets acquired and liabilities assumed in the Monolith acquisition:

(in thousands)	Purchase Price Allocation
Total purchase consideration:	
Original investment	\$ 3,500
Cash, net of cash acquired	14,172
Non-cash, fair value of commitment to purchase non-controlling interest	9,000
Total purchase consideration	\$ 26,672
Allocation of consideration to assets acquired and liabilities assumed:	
Current assets, net	\$ 891

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Property, plant, and equipment	789
Patented and unpatented technologies	6,720
Non-compete agreement	140
Goodwill	20,641
Current liabilities	(639)
Other non-current liabilities	(1,870)
	\$ 26,672

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Included in Monolith's current assets, net was approximately \$0.7 million of receivables. All Monolith goodwill, other assets and liabilities were recorded in the Electronics segment and reflected in the United States geographic area. The goodwill resulting from this acquisition consists largely of the Company's expected future product sales and synergies from combining Monolith's products and technology with the Company's existing electronics product portfolio. Goodwill for the above acquisition is not expected to be deductible for tax purposes.

Pro Forma Results

The following table summarizes, on a pro forma basis, the combined results of operations of the Company and IXYS as though the acquisition had occurred as of January 1, 2017. The Company has not included pro forma results of operations for U.S. Sensor or Monolith as these results were not material to the Company. The pro forma amounts presented are not necessarily indicative of either the actual consolidated results had the IXYS acquisition occurred as of January 1, 2017 or of future consolidated operating results.

(in thousands, except per share amounts)	Three Months Ended	
	September 29, 2018	September 30, 2017
Net sales	\$439,191	\$ 405,573
Income before income taxes	71,737	50,883
Net income	56,060	40,004
Net income per share — basic	2.23	1.61
Net income per share — diluted	\$2.18	\$ 1.59

(in thousands, except per share amounts)	Nine Months Ended	
	September 29, 2018	September 30, 2017
Net sales	\$1,332,900	\$ 1,171,283
Income before income taxes	228,503	102,429
Net income	179,264	95,047
Net income — basic	7.17	3.84
Net income — diluted	\$7.16	\$ 3.78

Pro forma results presented above primarily reflect the following adjustments:

(in thousands)	Three Months Ended		Nine Months Ended	
	September 29, 2018	September 30, 2017	September 29, 2018	September 30, 2017
Amortization(a)	\$3,104	\$ (6,304)	\$8,289	\$ (18,905)
Depreciation	—	139	—	417
Transaction costs(b)	—	—	9,976	(9,976)
Amortization of inventory step-up(c)	—	—	36,927	(36,927)
Stock compensation(d)	421	(426)	5,110	(6,206)
Interest expense(e)	—	(2,582)	—	(7,746)
Income tax impact of above items	\$(1,011)	\$ 2,906	\$(14,290)	\$ 25,802

The amortization adjustment for the nine months ended September 29, 2018 primarily reflects the reduction of amortization expense in the period related to the Order backlog intangible asset. The Order backlog has a useful life of twelve months and will be fully amortized in the fiscal 2017 pro forma results. The amortization adjustment for the three

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and nine months ended September 30, 2017 reflects incremental amortization resulting for the measurement of intangibles at their fair values.

(b) The transaction cost adjustments reflect the reversal of certain bank and attorney fees from the nine months ended September 29, 2018 and recognition of those fees during the nine months ended September 30, 2017.

The amortization of inventory step-up adjustment reflects the reversal of the amount recognized during the nine (c) months ended September 29, 2018 and the recognition of the full amortization during the nine months ended September 30, 2017. The inventory step-up was amortized over five months as the inventory was sold.

The stock compensation adjustment reflects the reversal of the portion of stock compensation for IXYS stock (d) options that were converted to Littelfuse stock options and expensed immediately during the nine months ended September 29, 2018. The adjustment for the nine months ended September 30, 2017 reflect the incremental stock compensation for the converted stock options.

(e) The interest expense adjustment reflects incremental interest expense related to the financing of the transaction.

3. Inventories

The components of inventories at September 29, 2018 and December 30, 2017 are as follows:

(in thousands)	September 29 2018	December 30 2017
Raw materials	\$ 69,575	\$ 39,030
Work in process	83,115	27,454
Finished goods	94,565	74,305
Total	\$ 247,255	\$ 140,789

4. Goodwill and Other Intangible Assets

The amounts for goodwill and changes in the carrying value by segment for the nine months ended September 29, 2018 are as follows:

(in thousands)	Electronics	Automotive	Industrial	Total
As of December 30, 2017	\$ 278,959	\$ 135,829	\$ 38,626	\$ 453,414
Additions(a)	380,199	—	—	380,199
Currency translation	(1,090)	(2,040)	(129)	(3,259)
As of September 29, 2018	\$ 658,068	\$ 133,789	\$ 38,497	\$ 830,354

(a) The additions resulted from the acquisition of IXYS and an immaterial acquisition.

The components of other intangible assets at September 29, 2018 are as follows:

(in thousands, except weighted average useful life)	Weighted Average Useful Life (Years)	Gross Carrying Value	Accumulated Amortization	Net Book Value
Patents, licenses and software	10.5	\$ 192,215	\$ 71,451	\$ 120,764
Distribution network	12.6	44,098	34,214	9,884
Customer relationships, trademarks, and tradenames	18	312,267	69,478	242,789
Order backlog	0.3	12,420	8,706	3,714
Total		\$ 561,000	\$ 183,849	\$ 377,151

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During the nine months ended September 29, 2018, the Company recorded additions to other intangible assets of \$212.7 million, related to the IXYS acquisition, the components of which were as follows:

(in thousands, except weighted average useful life)	Weighted Average Useful Life (Years)	Amount
Patents, licenses and software	8	\$51,500
Customer relationships, trademarks, and tradenames	17.2	148,800
Order backlog	1	12,420
Total		\$212,720

During the three and nine months ended September 29, 2018 and September 30, 2017, the Company recorded amortization expense of \$13.1 million and \$38.5 million and \$6.3 million and \$18.4 million, respectively, for intangible assets with definite lives.

Estimated annual amortization expense related to intangible assets with definite lives as of September 29, 2018 is as follows:

(in thousands)	Amount
2018	\$53,383
2019	40,454
2020	40,237
2021	38,403
2022	37,506
2023 and thereafter	206,586
Total	\$416,569

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5. Debt

The carrying amounts of debt at September 29, 2018 and December 30, 2017 are as follows:

(in thousands)	September 29, 2018	December 30, 2017
Term Loan	\$ 155,000	\$ 122,500
Euro Senior Notes, Series A due 2023	136,819	139,623
Euro Senior Notes, Series B due 2028	111,092	113,369
U.S. Senior Notes, Series A due 2022	25,000	25,000
U.S. Senior Notes, Series B due 2027	100,000	100,000
U.S. Senior Notes, Series A due 2025	50,000	—
U.S. Senior Notes, Series B due 2030	125,000	—
Other	2,694	—
Unamortized debt issuance costs	(4,892) (4,881
Total debt	700,713	495,611
Less: Current maturities	(10,076) (6,250
Total long-term debt	\$ 690,637	\$ 489,361

Revolving Credit Facility / Term Loan

On March 4, 2016, the Company entered into a five-year credit agreement (“Credit Agreement”) with a group of lenders for up to \$700.0 million. The Credit Agreement consisted of an unsecured revolving credit facility (“Revolving Credit Facility”) of \$575.0 million and an unsecured term loan credit facility (“Term Loan”) of up to \$125.0 million. In addition, the Company had the ability, from time to time, to increase the size of the Revolving Credit Facility and the Term Loan by up to an additional \$150.0 million, in the aggregate, in each case in minimum increments of \$25.0 million, subject to certain conditions and the agreement of participating lenders.

On October 13, 2017, the Company amended the Credit Agreement to increase the Revolving Credit Facility from \$575.0 million to \$700.0 million and increase the Term Loan from \$125.0 million to \$200.0 million and to extend the expiration date from March 4, 2021 to October 13, 2022. The Credit Agreement also includes the option for the Company to increase the size of the Revolving Credit Facility and the Term Loan by up to an additional \$300.0 million, in the aggregate, subject to the satisfaction of certain conditions set forth in the Credit Agreement. Term Loans may be made in up to two advances. The first advance of \$125.0 million occurred on October 13, 2017 and the second advance of \$75.0 million occurred on January 16, 2018. For the Term Loan, the Company is required to make quarterly principal payments of 1.25% of the original term loan (\$2.5 million with the second advance on January 16, 2018) through maturity, with the remaining balance due on October 13, 2022. In addition to the quarterly principal payments, the Company paid an additional \$35.0 million of principal on the term loan during the nine months ended September 29, 2018.

Outstanding borrowings under the Credit Agreement bear interest, at the Company’s option, at either LIBOR, fixed for interest periods of one, two, three or six-month periods, plus 1.00% to 2.00%, or at the bank’s Base Rate, as defined, plus 0.00% to 1.00%, based upon the Company’s Consolidated Leverage Ratio, as defined. The Company is also required to pay commitment fees on unused portions of the credit agreement ranging from 0.15% to 0.25%, based on the Consolidated Leverage Ratio, as defined in the agreement. The credit agreement includes representations, covenants and events of default that are customary for financing transactions of this nature. The effective interest rate on outstanding borrowings under the credit facility was 3.49% at September 29, 2018.

As of September 29, 2018, the Company had \$0.1 million outstanding in letters of credit and had available \$699.9 million of borrowing capacity under the Revolving Credit Facility. At September 29, 2018, the Company was in compliance with all covenants under the Credit Agreement.

Senior Notes

On December 8, 2016, the Company entered into a Note Purchase Agreement, pursuant to which the Company issued and sold €212 million aggregate principal amount of senior notes in two series. The funding date for the Euro denominated senior notes

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occurred on December 8, 2016 for €117 million in aggregate amount of 1.14% Senior Notes, Series A, due December 8, 2023 (“Euro Senior Notes, Series A due 2023”), and €95 million in aggregate amount of 1.83% Senior Notes, Series B due December 8, 2028 (“Euro Senior Notes, Series B due 2028”) (together, the “Euro Senior Notes”). Interest on the Euro Senior Notes is payable semiannually on June 8 and December 8, commencing June 8, 2017.

On December 8, 2016, the Company entered into a Note Purchase Agreement, pursuant to which the Company issued and sold \$125 million aggregate principal amount of senior notes in two series. On February 15, 2017, \$25 million in aggregate principal amount of 3.03% Senior Notes, Series A, due February 15, 2022 (“U.S. Senior Notes, Series A due 2022”), and \$100 million in aggregate principal amount of 3.74% Senior Notes, Series B, due February 15, 2027 (“U.S. Senior Notes, Series B due 2027”) (together, the “U.S. Senior Notes due 2022 and 2027”) were funded. Interest on the U.S. Senior Notes due 2022 and 2027 is payable semiannually on February 15 and August 15, commencing August 15, 2017.

On November 15, 2017, the Company entered into a Note Purchase Agreement pursuant to which the Company issued and sold \$175 million in aggregate principal amount of senior notes in two series. On January 16, 2018, \$50 million aggregate principal amount of 3.48% Senior Notes, Series A, due February 15, 2025 (“U.S. Senior Notes, Series A due 2025”) and \$125 million in aggregate principal amount of 3.78% Senior Notes, Series B, due February 15, 2030 (“U.S. Senior Notes, Series B due 2030”) (together the “U.S. Senior Notes due 2025 and 2030” and with the Euro Senior Notes and the U.S. Senior Notes due 2022 and 2027, the “Senior Notes”) were funded. Interest on the U.S. Senior Notes due 2025 and 2030 is payable semiannually on February 15 and August 15, commencing on August 15, 2018.

The Senior Notes have not been registered under the Securities Act, or applicable state securities laws. The Senior Notes are general unsecured senior obligations and rank equal in right of payment with all existing and future unsecured unsubordinated indebtedness of the Company.

The Senior Notes are subject to certain customary covenants, including limitations on the Company’s ability, with certain exceptions, to engage in mergers, consolidations, asset sales and transactions with affiliates, to engage in any business that would substantially change the general business of the Company, and to incur liens. In addition, the Company is required to satisfy certain financial covenants and tests relating to, among other matters, interest coverage and leverage. At September 29, 2018, the Company was in compliance with all covenants under the Senior Notes.

The Company may redeem the Senior Notes upon the satisfaction of certain conditions and the payment of a make-whole amount to noteholders, and are required to offer to repurchase the Senior Notes at par following certain events, including a change of control.

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6. Fair Value of Assets and Liabilities

For assets and liabilities measured at fair value on a recurring and nonrecurring basis, a three-level hierarchy of measurements based upon observable and unobservable inputs is used to arrive at fair value. Observable inputs are developed based on market data obtained from independent sources, while unobservable inputs reflect the Company's assumptions about valuation based on the best information available in the circumstances. Depending on the inputs, the Company classifies each fair value measurement as follows:

Level 1—Valuations based on unadjusted quoted prices for identical assets or liabilities in active markets;

Level 2—Valuations based upon quoted prices for similar instruments, prices for identical or similar instruments in markets that are not active, or model-derived valuations, all of whose significant inputs are observable, and

Level 3—Valuations based upon one or more significant unobservable inputs.

Following is a description of the valuation methodologies used for instruments measured at fair value and their classification in the valuation hierarchy.

Investments in Equity Securities

Investments in equity securities listed on a national market or exchange are valued at the last sales price and classified within Level 1 of the valuation hierarchy and recorded in investments and other assets.

Mutual Funds

The Company has a non-qualified Supplemental Retirement and Savings Plan which provides additional retirement benefits for certain management employees and named executive officers by allowing participants to defer a portion of their annual compensation. The Company maintains accounts for participants through which participants make investment elections. The marketable securities are classified as Level 1 under the fair value hierarchy as they are maintained in mutual funds with readily determinable fair value and recorded in other assets.

There were no changes during the quarter ended September 29, 2018 to the Company's valuation techniques used to measure asset and liability fair values on a recurring basis. As of September 29, 2018, and December 30, 2017, the Company did not hold any non-financial assets or liabilities that are required to be measured at fair value on a recurring basis.

The following table presents assets measured at fair value by classification within the fair value hierarchy as of September 29, 2018:

(in thousands)	Fair Value Measurements Using			Total
	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	
Investments in equity securities	\$ 12,204	\$ —	\$ —	\$ 12,204

Mutual funds

10,546 — — 10,546

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The following table presents assets measured at fair value by classification within the fair value hierarchy as of December 30, 2017:

(in thousands)	Fair Value Measurements Using			Total
	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	
Investments in equity securities	\$ 10,993	\$ —	\$ —	\$ 10,993
Mutual funds	7,962	—	—	7,962

In addition to the methods and assumptions used for the financial instruments recorded at fair value as discussed above, the following methods and assumptions are used to estimate the fair value of other financial instruments that are not marked to market on a recurring basis. The Company's other financial instruments include cash and cash equivalents, short-term investments, accounts receivable and its long-term debt. Due to their short-term maturity, the carrying amounts of cash and cash equivalents, short-term investments and accounts receivable approximate their fair values. The Company's revolving and term loan debt facilities' fair values approximate book value at September 29, 2018 and December 30, 2017, as the rates on these borrowings are variable in nature.

The carrying value and estimated fair values of the Company's Euro Senior Notes, Series A and Series B and USD Senior Notes, Series A and Series B, as of September 29, 2018 and December 30, 2017 were as follows:

(in thousands)	September 29, 2018		December 30, 2017	
	Carrying Value	Estimated Fair Value	Carrying Value	Estimated Fair Value
Euro Senior Notes, Series A due 2023	\$ 136,819	\$ 135,392	\$ 139,623	\$ 138,294
Euro Senior Notes, Series B due 2028	111,092	108,511	113,369	111,579
USD Senior Notes, Series A due 2022	25,000	24,052	25,000	24,737
USD Senior Notes, Series B due 2027	100,000	94,474	100,000	99,992
USD Senior Notes, Series A due 2025	50,000	47,333	—	—
USD Senior Notes, Series B due 2030	125,000	115,231	—	—

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7. Benefit Plans

The Company has company-sponsored defined benefit pension plans covering employees in the U.K., Germany, the Philippines, China, Japan, and France. The amount of the retirement benefits provided under the plans is based on years of service and final average pay.

The Company recognizes interest cost, expected return on plan assets, and amortization of prior service, net within Other expense (income), net in the Condensed Consolidated Statements of Net Income. The components of net periodic benefit cost for the three and nine months ended September 29, 2018 and September 30, 2017 were as follows:

(in thousands)	For the Three Months Ended		For the Nine Months Ended	
	September 2018	September 30, 2017	September 2018	September 30, 2017
Components of net periodic benefit cost:				
Service cost	\$533	\$ 408	\$1,599	\$ 1,224
Interest cost	501	360	1,503	1,080
Expected return on plan assets	(540)	(476)	(1,620)	(1,428)
Amortization of prior service	74	84	222	252
Net periodic benefit cost	\$568	\$ 376	\$1,704	\$ 1,128

The Company expects to make approximately \$2.3 million of cash contributions to its pension plans in 2018.

8. Shareholders' Equity

The following table sets forth the changes in shareholders' equity for the nine months ended September 29, 2018:

(in thousands)	Littelfuse, Inc. Shareholders' Equity	Non-controlling Interest	Total
Balance at December 30, 2017	927,419	137	927,556
Net income	131,900	—	131,900
Other comprehensive loss	(24,168)	—	(24,168)
Stock-based compensation	23,153	—	23,153
Withheld shares on restricted share units for withholding taxes	(7,252)	—	(7,252)
Stock options exercised	25,171	—	25,171
Issuance of common stock(a)	472,301	—	472,301
Cash dividends paid	(29,258)	—	(29,258)
Non-controlling interest	—	(7)	(7)
Balance at September 29, 2018	1,519,266	130	1,519,396

(a) The issuance of common stock (2,092,491 shares) during the nine months ended September 29, 2018 relates to the acquisition of IXYS. See Note 2, Acquisitions for further discussion.

As of October 29, 2018, the Company has repurchased 200,000 shares of its common stock totaling \$35.9 million since the quarter ended September 29, 2018.

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9. Other Comprehensive (Loss) Income

Change in other comprehensive (loss) income by component were as follows:

(in thousands)	Three Months Ended September 29, 2018			Three Months Ended September 30, 2017		
	Pre-tax	Tax	Net of Tax	Pre-tax	Tax	Net of Tax
Defined benefit pension plans adjustments	\$(115)	\$ —	\$(115)	\$(149)	\$89	\$(60)
Unrealized loss on investments	—	—	—	(1,710)	—	(1,710)
Foreign currency translation adjustments	(7,832)	—	(7,832)	1,531	—	1,531
Total change in other comprehensive (loss) income	\$(7,947)	\$ —	\$(7,947)	\$(328)	\$89	\$(239)

(in thousands)	Nine Months Ended September 29, 2018			Nine Months Ended September 30, 2017		
	Pre-tax	Tax	Net of Tax	Pre-tax	Tax	Net of Tax
Defined benefit pension plans adjustments	\$630	\$(18)	\$648	\$(585)	\$144	\$(441)
Unrealized loss on investments	—	—	—	(1,235)	—	(1,235)
Foreign currency translation adjustments	(24,816)	—	(24,816)	2,912	—	2,912
Total change in other comprehensive (loss) income	\$(24,186)	\$(18)	\$(24,168)	\$1,092	\$144	\$1,236

The following table sets forth the changes in accumulated other comprehensive (loss) income by component for the nine months ended September 29, 2018:

(in thousands)	Pension and postretirement liability and reclassification adjustments	Unrealized gain (loss) on investments	Foreign currency translation adjustment	Accumulated other comprehensive income (loss)
Balance at December 30, 2017	\$ (10,836)	\$ 9,795	\$(62,627)	\$ (63,668)
Cumulative effect adjustment (a)	—	(9,795)	—	(9,795)
Activity in the period	648	—	(24,816)	(24,168)
Balance at September 29, 2018	\$ (10,188)	\$ —	\$(87,443)	\$ (97,631)

The Company adopted ASU 2016-01 on December 31, 2017 on a modified retrospective basis, recognizing the (a)cumulative effect as a \$9.8 million increase to retained earnings. See Note 1, Summary of Significant Accounting Policies and Other Information, for further discussion.

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Amounts reclassified from accumulated other comprehensive (loss) income to earnings for the three and nine months ended September 29, 2018 and the three and nine months September 30, 2017 were as follows:

(in thousands)	Three Months Ended		Nine Months Ended	
	September 29, 2018	September 30, 2017	September 29, 2018	September 30, 2017
Pension and Postemployment plans:				
Amortization of prior service	\$ 74	\$ 84	\$ 222	\$ 252

The Company recognizes net periodic pension cost, which includes amortization of prior service costs, in both selling, general, and administrative expenses and cost of sales within the Condensed Consolidated Statements of Net Income, depending on the functional area of the underlying employees included in the plans.

10. Income Taxes

The effective tax rates for the three and nine months ended September 29, 2018 were 21.5% and 20.1%, respectively, compared to effective tax rates for the three and nine months ended September 30, 2017 of 22.9% and 18.7%, respectively.

The effective tax rate for the third quarter of 2018 was lower than the effective tax rate for the third quarter of 2017 primarily due to a third quarter 2017 accrual for taxes on certain undistributed earnings of non-US affiliates, offset in part by the impact of US tax reform and the acquisition of IXYS. The effective tax rate of the first nine months of 2018 is higher than the effective tax rates for the first nine months of 2017 primarily due to the impact of U.S. tax reform and the acquisition of IXYS. The effective tax rates for the 2017 periods were lower than the then applicable 35% U.S. statutory tax rate primarily due to income earned in lower tax jurisdictions.

On December 22, 2017, the U.S. enacted legislation commonly referred to as the Tax Cuts and Jobs Act (the "Tax Act"). Among other things, the Tax Act reduces the U.S. corporate federal income tax rate from 35% to 21%, adds base broadening provisions which limit deductions and address excessive international tax planning, imposes a one-time tax (the "Toll Charge") on accumulated earnings of certain non-U.S. subsidiaries and enables repatriation of earnings of non-U.S. subsidiaries free of U.S. federal income tax. Other than the Toll Charge (which, except for the IXYS impact, is applicable to the Company for 2017), the provisions will generally be applicable to the Company in 2018 and beyond.

In accordance with the guidance provided in SEC Staff Accounting Bulletin ("SAB") No. 118, in the fourth quarter of 2017 the Company recorded a charge of \$47.0 million as a provisional reasonable estimate of the impact of the Tax Act, including \$49.0 million for the Toll Charge net of \$2.0 million for other net tax benefits. The Company did not adjust the provisional reasonable estimate in the first nine months of 2018. In addition, the Company recorded a preliminary estimate of \$8.0 million for the Toll Charge associated with IXYS as part of the IXYS acquisition purchase price allocation (this estimate reflects a reduction of \$2.0 million recorded in the third quarter of 2018). This estimate was reflected in the opening balance sheet as an increase to goodwill and other long-term liabilities. The Company is continuing to analyze the Tax Act and plans to finalize the 2017 provisional reasonable estimate within the measurement period outlined in SAB No. 118 and the IXYS Toll Charge estimate during the purchase price allocation period. The final charges may differ from the estimates if provisions of the Tax Act, and their interaction with other provisions of the U.S. Internal Revenue Code, are interpreted differently than interpretations made by the Company in determining the estimates, whether through issuance of administrative guidance, or through further review of the Tax Act by the Company and its advisors. Aside from these interpretation issues, the final charges may differ from the estimates due to refinements of accumulated non-U.S. earnings and tax pool data.

The Company has elected to pay the 2017 Littelfuse Toll Charge and will elect to pay the 2018 IXYS Toll Charge over the eight-year period prescribed by the Tax Act. The long-term portion of these Toll Charges totaling \$29.7 million (which includes the 2017 Littelfuse provisional reasonable estimate and the 2018 IXYS provisional estimate, partially offset by foreign tax credits, other current deductions and the actual 2018 and anticipated 2019 annual installment payments) is recorded in the Other long-term liabilities on the Condensed Consolidated Balance Sheet as of September 29, 2018.

The Company recognized deferred tax liabilities of \$12.0 million (\$11.8 million for non-U.S. taxes and \$0.2 million for U.S. state taxes) as of December 30, 2017 related to taxes on certain non-U.S. earnings which are not considered to be permanently reinvested. Some of these taxes may provide a U.S. federal income tax benefit as a foreign tax credit. However, due to uncertainty in regard

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to the Tax Act's provisions, no such tax benefit was recorded as of December 30, 2017, and no such tax benefit was recorded in the first nine months of 2018. The Company will reconsider this provisional conclusion when it finalizes its 2017 preliminary reasonable estimate of the impact of the Tax Act, based upon interpretations and administrative guidance as of that time.

One of the base broadening provisions of the Tax Act is commonly referred to as the "GILTI" provisions. In accordance with guidance issued by the FASB staff, the Company has not adopted an accounting policy for GILTI. Thus, deferred taxes were computed without consideration of the possible future impact of the GILTI provisions. The Company intends to adopt an accounting policy for GILTI within the measurement period outlined in SAB 118. Although such an accounting policy has not been adopted, the Company considered GILTI when determining the current portion of income tax expense recorded for the three and nine months ended September 29, 2018.

Although certain administrative guidance has been issued, the appropriate application of many provisions of the Tax Act remain uncertain. The Company used its best judgement as to the application of these provisions in determining its income tax expense for the three and nine months ended September 29, 2018. Adjustments to income tax expense related to the first nine months of 2018 may be necessary if provisions of the Tax Act, and their interaction with other provisions of the U.S. Internal Revenue Code, are interpreted differently than interpretations made by the Company in determining its estimates, whether through issuance of administrative guidance, or through further review of the Tax Act by the Company and its advisors.

11. Earnings Per Share

The following table sets forth the computation of basic and diluted earnings per share:

(in thousands, except per share amounts)	Three Months Ended		Nine Months Ended	
	September 30, 2018	September 30, 2017	September 29, 2018	September 30, 2017
Numerator:				
Net income as reported	53,546	42,808	131,900	130,338
Denominator:				
Weighted average shares outstanding				
Basic	25,109	22,713	24,817	22,678
Effect of dilutive securities	362	240	395	228
Diluted	25,471	22,953	25,212	22,906
Earnings Per Share:				
Basic earnings per share	2.13	1.88	5.31	5.75
Diluted earnings per share	2.10	1.87	5.23	5.69

Potential shares of common stock relating to stock options excluded from the earnings per share calculation because their effect would be anti-dilutive were 38,082 and 30,579 for the three months ended September 29, 2018 and September 30, 2017, respectively, and 39,446 and 35,858 for the nine months ended September 29, 2018 and September 30, 2017, respectively.

12. Related Party Transactions

As a result of the Company's acquisition of IXYS, the Company has equity ownerships in various investments that are accounted for under the equity method. The following is a description of the investments and related party

transactions.

Powersem GmbH: The Company owns 45% of the outstanding equity of Powersem GmbH (“Powersem”), a module manufacturer based in Germany. During the three and nine months ended September 29, 2018, the Company recorded revenues of \$0.2 million and \$0.6 million, respectively from sales of products to Powersem for use as components in their products. During the three and nine months ended September 29, 2018, the Company purchased \$1.3 million and \$3.4 million, respectively of products from Powersem. At September 29, 2018, the accounts receivable balance from Powersem was \$0.1 million and the accounts payable balance to Powersem was \$0.2 million.

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EB Tech Ltd.: The Company owns approximately 20% of the outstanding equity of EB Tech Ltd. (“EB Tech”), a company with expertise in radiation technology based in South Korea. During the three and nine months ended September 29, 2018 EB Tech rendered processing services for the Company totaling approximately \$0.1 million and \$0.3 million, respectively. As of September 29, 2018, the Company’s accounts payable balance to EB Tech was \$0.1 million.

Automated Technology, Inc.: The Company owns approximately 24% of the outstanding common shares of Automated Technology, Inc (“ATEC”), a supplier located in the Philippines that provides assembly and test services. During the three and nine months ended September 29, 2018, ATEC rendered assembly and test services to the Company totaling approximately \$2.5 million and \$7.7 million, respectively. As of September 29, 2018, the Company’s accounts payable balance to ATEC was \$0.6 million.

13. Segment Information

The Company and its subsidiaries design, manufacture and sell components and modules for circuit protection, power control and sensing throughout the world. The Company reports its operations by the following segments: Electronics, Automotive, and Industrial. An operating segment is defined as a component of an enterprise that engages in business activities from which it may earn revenues and incur expenses, and about which separate financial information is regularly evaluated by the Chief Operating Decision Maker (“CODM”) in deciding how to allocate resources. The CODM is the Company’s President and Chief Executive Officer (“CEO”). The CODM allocates resources to and assesses the performance of each operating segment using information about its revenue and operating income (loss) before interest and taxes, but does not evaluate the operating segments using discrete balance sheet information.

Sales, marketing, and research and development expenses are charged directly into each operating segment. Manufacturing, purchasing, logistics, customer service, finance, information technology, and human resources are shared functions that are allocated back to the three operating segments. The Company does not report inter-segment revenue because the operating segments do not record it. Certain expenses, determined by the CODM to be strategic in nature and not directly related to segments current results, are not allocated but identified as “Other”. Additionally, the Company does not allocate interest and other income, interest expense, or taxes to operating segments. These costs are not allocated to the segments, as management excludes such costs when assessing the performance of the segments. Although the CODM uses operating income (loss) to evaluate the segments, operating costs included in one segment may benefit other segments. Except as discussed above, the accounting policies for segment reporting are the same as for the Company as a whole.

Electronics Segment: Consists of one of the broadest product offerings in the industry, including fuses and fuse accessories, positive temperature coefficient (“PTC”) resettable fuses, polymer electrostatic discharge (“ESD”) suppressors, varistors, gas discharge tubes; semiconductor and power semiconductor products such as discrete transient voltage suppressor (“TVS”) diodes, TVS diode arrays, protection and switching thyristors, silicon carbide, metal-oxide-semiconductor field-effect transistors (“MOSFETs”) and silicon carbide diodes; and insulated gate bipolar transistors (“IGBT”) technologies. The segment covers a broad range of end markets, including automotive electronics, industrial applications, data and telecommunications, medical devices, consumer electronics and appliances.

Automotive Segment: Consists of a wide range of circuit protection, power control and sensing technologies for global original equipment manufacturers (“OEMs”), Tier-I suppliers and parts distributors in the automotive, commercial vehicle, and agricultural and construction equipment industries. Passenger car fuse products include fuses and fuse accessories for internal combustion engine vehicles and hybrid and electric vehicles, which are blade fuses, battery cable protectors, varistors, high-current fuses, and high-voltage fuses. Commercial vehicle products include fuses, switches, relays, and power distribution modules for the commercial vehicle industry. Automotive sensor products include a wide range of automotive and commercial vehicle sensors designed to monitor the passenger

compartment occupants and environment as well as the vehicle's powertrain, emissions, speed and suspension.

Industrial Segment: Consists of power fuses, protection relays and controls and other circuit protection products for use in heavy industrial applications such as mining, oil and gas, energy storage, construction, HVAC systems, elevator and other industrial equipment.

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Segment information is summarized as follows:

(in thousands)	Three Months Ended		Nine Months Ended	
	September 30, 2018	September 30, 2017	September 29, 2018	September 30, 2017
Net sales				
Electronics	\$296,472	\$ 175,899	\$860,240	\$ 499,052
Automotive	114,416	113,797	367,718	338,094
Industrial	28,303	28,193	88,229	79,539
Total net sales	\$439,191	\$ 317,889	\$1,316,187	\$ 916,685
Depreciation and amortization				
Electronics	\$15,898	\$ 8,986	\$45,227	\$ 26,080
Automotive	5,891	5,622	17,830	16,572
Industrial	1,364	1,338	4,291	3,982
Other	3,105	—	8,712	—
Total depreciation and amortization	\$26,258	\$ 15,946	\$76,060	\$ 46,634
Operating income (loss)				
Electronics	\$72,464	\$ 44,345	\$193,739	\$ 122,518
Automotive	10,863	16,821	44,965	47,599
Industrial	4,134	3,757	14,123	5,769
Other(a)	(11,233)	(6,314)	(79,406)	(8,155)
Total operating income	\$76,228	\$ 58,609	\$173,421	\$ 167,731
Interest expense	5,775	3,467	16,980	9,868
Foreign exchange loss (gain)	982	632	(6,372)	(1,483)
Other expense (income), net	1,259	(1,013)	(2,362)	(962)
Income before income taxes	\$68,212	\$ 55,523	\$165,175	\$ 160,308

(a) Included in “Other” Operating income (loss) for the 2018 third quarter is \$11.2 million (\$79.4 million year-to-date) of charges primarily related to IXYS acquisition, which include \$36.9 million year-to-date of purchase accounting inventory step-up charges previously recorded during the first and second quarters of 2018, \$2.5 million (\$16.3 million year-to-date) in acquisition-related and integration costs primarily related to legal, accounting and other expenses, \$3.1 million (\$8.7 million year-to-date) in backlog amortization costs, \$4.6 million (\$9.4 million year-to-date) of severance and other restructuring charges, and \$4.5 million year-to-date stock compensation expense recognized immediately upon close for converted IXYS options related to prior services periods. In addition, there were \$1.0 million (\$3.6 million year-to-date) of severance, other restructuring charges and acquisition-related expenses for other contemplated acquisitions which included \$1.1 million year-to-date associated with the exit of the Custom business in the second quarter.

The third quarter of 2017 includes approximately \$6.3 million of non-segment charges (\$8.2 million year-to-date). These charges were primarily attributable to acquisition-related and integration costs related to legal, accounting and other expenses associated with completed or contemplated acquisitions of approximately \$4.8 million (\$6.6 million year-to-date), including \$1.6 million (\$1.6 million year-to-date) of purchase accounting inventory charges related to the Company's 2017 acquisition of U.S. Sensor and \$1.5 million (\$1.5 million year-to-date) of charges related to restructuring and production transfers in our Asia operations.

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The Company's net sales by country are as follows:

(in thousands)	Three Months Ended		Nine Months Ended	
	September 29, 2018	September 30, 2017	September 29, 2018	September 30, 2017
Net sales				
United States	\$ 125,867	\$ 103,233	\$ 386,980	\$ 290,538
China(a)	117,813	82,986	352,097	240,731
Other countries(b)	195,511	131,670	577,110	385,416
Total net sales	\$ 439,191	\$ 317,889	\$ 1,316,187	\$ 916,685

(a) Includes mainland China, Taiwan, and Hong Kong.

(b) Each country included in other countries are less than 10% of net sales.

The Company's long-lived assets by country, as of September 29, 2018 and December 30, 2017, were as follows:

(in thousands)	September 29, 2018	December 30, 2017
Long-lived assets		
United States	\$ 66,098	\$ 23,490
China(a)	89,856	86,866
Mexico	69,395	62,510
Germany	37,281	1,082
Philippines	31,589	31,129
Other countries	49,664	45,500
Total long-lived assets	\$ 343,883	\$ 250,577

(a) Includes mainland China, Taiwan, and Hong Kong.

The Company's additions to long-lived assets by country were as follows:

(in thousands)	Nine Months Ended	
	September 29, 2018	September 30, 2017
Additions to long-lived assets		
United States	\$ 5,636	\$ 2,752
China(a)	19,043	22,165
Mexico	14,089	15,041
Germany	5,917	67
Philippines	6,133	2,018
Other countries	5,128	6,427
Total additions to long-lived assets	\$ 55,946	\$ 48,470

(a) Includes mainland China, Taiwan, and Hong Kong.

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ITEM 2. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS.

Cautionary Statement Regarding Forward-Looking Statements Under the Private Securities Litigation Reform Act of 1995 ("PSLRA").

Certain statements in this section and other parts of this Quarterly Report on Form 10-Q may constitute "forward-looking statements" within the meaning of the federal securities laws and are entitled to the safe-harbor provisions of the PSLRA. These statements include statements regarding the Company's future performance, as well as management's expectations, beliefs, intentions, plans, estimates or projections relating to the future. Such statements can be identified by the use of forward-looking terminology such as "believes," "expects," "may," "estimates," "will," "should," "plans" or "anticipates" or the negative thereof or other variations thereon or comparable terminology, or by discussions of strategy, although not all forward-looking statements contain such terms. The Company cautions that forward-looking statements, which speak only as of the date they are made, are subject to risks, uncertainties and other factors, and actual results and outcomes may differ materially from those indicated or implied by the forward-looking statements. These risks, uncertainties and other factors include, but are not limited to, risks relating to product demand and market acceptance; economic conditions; the impact of competitive products and pricing; product quality problems or product recalls; capacity and supply difficulties or constraints; coal mining exposures reserves; failure of an indemnification for environmental liability; exchange rate fluctuations; commodity price fluctuations; the effect of the Company's accounting policies; labor disputes; restructuring costs in excess of expectations; pension plan asset returns less than assumed; uncertainties related to political or regulatory changes; the risk that expected benefits, synergies and growth prospects of the Company's completed acquisition of IXYS Corporation ("IXYS") may not be achieved in a timely manner, or at all; the risk that IXYS's business may not be successfully integrated with the Company's; the risk that the Company and IXYS will be unable to retain and hire key personnel; and the risk that disruption from the acquisition may adversely affect the Company's or IXYS' business and their respective relationships with customers, suppliers or employees; and other risks which may be detailed in the Company's other Securities and Exchange Commission filings, including those set forth under Item 1A. "Risk Factors" of the Company's Annual Report on Form 10-K for the year ended December 30, 2017. The Company does not undertake any obligation to update or revise any forward-looking statements to reflect future events or circumstances, new information or otherwise.

This report, including the Management's Discussion and Analysis of Financial Condition and Results of Operations, should be read in conjunction with information provided in the consolidated financial statements and the related Notes thereto appearing in the Company's Annual Report on Form 10-K for the year ended December 30, 2017.

Management's Discussion and Analysis of Financial Condition and Results of Operations ("MD&A") is designed to provide information that is supplemental to, and should be read together with, the consolidated financial statements and the accompanying notes. Information in MD&A is intended to assist the reader in obtaining an understanding of (i) the consolidated financial statements, (ii) the changes in certain key items within those financial statements from year-to-year, (iii) the primary factors that contributed to those changes, and (iv) any changes in known trends or uncertainties that we are aware of and that may have a material effect on future performance. In addition, MD&A provides information about the Company's segments and how the results of those segments impact the results of operations and financial condition as a whole.

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Executive Overview

Founded in 1927, Littelfuse is a global manufacturer of leading technologies in circuit protection, power control and sensing. The Company has products in automotive and commercial vehicles, industrial applications, data and telecommunications, medical devices, consumer electronics and appliances. With a diverse and extensive product portfolio of fuses, semiconductors, polymers, ceramics, relays and sensors, the Company works with its customers to build safer, more reliable and more efficient products for the connected world in virtually every market that uses electrical energy.

The Company maintains a network of global laboratories and engineering centers that develop new products and product enhancements, provide customer application support and test products for safety, reliability, and regulatory compliance. The Company conducts its business through three reportable segments: Electronics, Automotive, and Industrial. For each of these segments, the Company designs, manufactures and sells circuit protection products that protect against electrostatic discharge, power surges, short circuits, voltage spikes and other harmful occurrences; power control products that safely and efficiently control power to mitigate equipment damage, minimize electrical hazards and improve productivity; and sensor products used to identify and detect temperature, proximity, flow speed and fluid level in various applications. The Company's customer base includes original equipment manufacturers ("OEMs"), Tier One automotive suppliers, and distributors.

Executive Summary

For the third quarter of 2018, the Company recognized net sales of \$439.2 million compared to \$317.9 million in the third quarter of 2017 representing an increase of \$121.3 million, or 38.2%. The increase was primarily driven by the acquisition of IXYS, which added \$99.7 million in sales. Additionally, net sales increased in the Electronics segment driven by higher volumes due to strong demand across various end markets and geographies within the segment. The Company recognized net income of \$53.5 million, or \$2.10 per diluted share, in the third quarter of 2018 compared to net income of \$42.8 million, or \$1.87 per diluted share in the third quarter of 2017. The increase in net income reflects operating income increases across the Electronics segment, partially offset by lower operating income in the Automotive segment. Additionally, the per share results reflect an increase in the weighted average diluted shares outstanding of 2.1 million resulting from the shares issued in conjunction with the acquisition of IXYS.

Net cash provided by operating activities was \$252.1 million for the nine months ended September 29, 2018 as compared to \$181.3 million for the nine months ended September 30, 2017. The increase in net cash provided by operating activities reflected higher earnings and favorable working capital management, which more than offset higher payments related to acquisition and integration costs and higher cash tax payments.

On July 6, 2018, the Trump administration imposed Section 301 tariffs on certain products (known as List 1) that are imported into the United States where the country of origin is China. Additionally, on August 23, 2018, List 2 was put into effect which imposed an additional 25% tariff to products on the list items. These tariffs primarily impact the Electronics segment and to a lesser extent our Automotive segment. The Company is currently evaluating the impact on our future results of operations.

In September 2018, the European Union began applying the Worldwide harmonized Light vehicles Test Procedure (WLTP) to all new car registrations, which defines a global standard for acceptable European Union wide emissions. As a result of this incoming standard, there has been a slow down in the European passenger car market as manufacturers need to validate and test new cars under the new regulatory standards.

Results of Operations

The following table summarizes the Company's condensed consolidated results of operations for the periods presented. The third quarter of 2018 includes \$11.2 million (\$79.4 million year-to-date) of non-segment charges primarily related to the IXYS acquisition, which includes \$36.9 million year-to-date of purchase accounting inventory step-up charges previously recorded during the first and second quarters of 2018, \$2.5 million (\$16.3 million year-to-date) in acquisition-related and integration costs related to legal, accounting and other expenses \$3.1 million (\$8.7 million year-to-date) in backlog amortization costs, \$4.6 million (\$9.4 million year-to-date) of severance and other restructuring charges, \$4.5 million year-to-date stock compensation expense recognized immediately upon close for converted IXYS options related to prior services periods. In addition, for the three months ended September 29, 2018, there were charges of \$1.0 million (\$3.6 million year-to-date) of severance, other restructuring charges and acquisition-related charges, of which \$1.1 million of charges associated with the exit of the Custom business in the second quarter.

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The third quarter of 2017 includes approximately \$6.3 million of non-segment charges (\$8.2 million year-to-date). These charges were primarily attributable to acquisition-related and integration costs related to legal, accounting and other expenses associated with completed or contemplated acquisitions of approximately \$4.8 million (\$6.6 million year-to-date), including \$1.6 million (\$1.6 million year-to-date) of purchase accounting inventory charges related to the Company's 2017 acquisition of U.S. Sensor and \$1.5 million (\$1.5 million year-to-date) of charges related to restructuring and production transfers in our Asia operations.

(in thousands)	Third Quarter				First Nine Months			
	2018	2017	Change	% Change	2018	2017	Change	% Change
Net sales	\$439,191	\$317,889	\$121,302	38.2 %	\$1,316,187	\$916,685	\$399,502	43.6 %
Gross profit	179,594	133,651	45,943	34.4 %	498,204	379,909	118,295	31.1 %
Operating expenses	103,366	75,042	28,324	37.7 %	324,783	212,178	112,605	53.1 %
Operating income	76,228	58,609	17,619	30.1 %	173,421	167,731	5,690	3.4 %
Income before income taxes	68,212	55,523	12,689	22.9 %	165,175	160,308	4,867	3.0 %
Income taxes	14,666	12,715	1,951	15.3 %	33,275	29,970	3,305	11.0 %
Net income	\$53,546	\$42,808	\$10,738	25.1 %	\$131,900	\$130,338	\$1,562	1.2 %

Net Sales

Net sales increased \$121.3 million or 38.2%, for the third quarter of 2018 compared to the third quarter of 2017 with increases of \$99.7 million resulting from incremental net sales related to the IXYS acquisition partially offset by \$1.5 million of unfavorable changes in foreign exchange rates. The remaining increase in net sales was driven by higher volume primarily in the Electronics businesses and higher volume in the Industrial segment.

Net sales for the first nine months of 2018 increased \$399.5 million, or 43.6%, compared to the first nine months of 2017 with increases of \$286.2 million and \$6.5 million resulting from incremental net sales related to the IXYS and U.S. Sensor acquisitions, respectively and \$20.0 million of favorable changes in foreign exchange rates. The remaining increase in net sales was driven by higher volume across all three segments.

Gross Profit

Gross profit was \$179.6 million, or 40.9% of net sales, in the third quarter of 2018, compared to \$133.7 million, or 42.0% of net sales, in the third quarter of 2017. The increase in gross profit reflects the impact of the IXYS acquisition and volume growth in Electronics and Industrial segments. The decrease in gross margin is primarily due to unfavorable mix in products from the IXYS acquisition, which historically has lower gross margin.

Gross profit was \$498.2 million, or 37.9% of net sales, in the first nine months of 2018, compared to \$379.9 million, or 41.4% of net sales in the first nine months of 2017. The increase in gross profit reflects the IXYS acquisition and volume growth and expense leverage across all segments. The decrease in gross margin is primarily due to the purchase accounting inventory charges of \$36.9 million which negatively impacted gross margin by 2.8 percentage points.

Operating Expenses

Total operating expenses were \$103.4 million, or 23.5% of net sales, for the third quarter of 2018 compared to \$75.0 million, or 23.6% of net sales, for the third quarter of 2017. The increase in operating expenses of \$28.3 million is primarily due to incremental operating expenses related to the IXYS acquisition and an increase of \$6.8 million in amortization expense resulting from the acquisition of IXYS.

Total operating expense for the first nine months of 2018 was \$324.8 million, or 24.7% of net sales, compared to \$212.2 million, or 23.1% of net sales, for the first nine months of 2017. The increase in operating expenses of \$112.6 million is primarily due to incremental operating expenses related to the IXYS and U.S. Sensor acquisitions, an increase in amortization expense of \$20.1 million resulting from the acquisition of IXYS as well as higher acquisition-related and integration costs of \$11.9 million. Total operating expenses as a percent of net sales increased from 23.1% for the first nine months of 2017 to 24.7% for the first nine months of 2018 primarily due to the higher amortization expense and acquisition-related and integration charges noted above.

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Operating Income

Operating income was \$76.2 million, an increase of \$17.6 million, or 30.1%, for the third quarter of 2018 compared to \$58.6 million for the third quarter of 2017. The increase in operating income is due to the acquisition of IXYS and higher volume due to the strong demand across various end markets and geographies within our Electronics segment that was partially offset by lower operating income in the Automotive segment. Operating margins decreased from 18.4% in the third quarter of 2017 to 17.4% in the third quarter of 2018 driven by higher amortization expense, restructuring and integration charges.

Operating income for the first nine months of 2018 was \$173.4 million compared to \$167.7 million for the first nine months of 2017. The increase in operating income is primarily due to the acquisition of IXYS and higher volume in the electronics and industrial businesses partially offset by \$36.9 million of purchase accounting inventory charges, higher acquisition and integration charges and amortization expense. Operating margins decreased from 18.3% to 13.2% in 2018 driven by the purchase accounting inventory charges, higher amortization expense and acquisition and integration charges that negatively impacted margins by 2.8%, 1.5% and 1.2%, respectively.

Income Before Income Taxes

Income before income taxes was \$68.2 million, or 15.5% of net sales, for the third quarter of 2018 compared to \$55.5 million, or 17.5% of net sales, for the third quarter of 2017. In addition to the factors impacting comparative results for operating income discussed above, income before taxes was impacted by increased interest expense of \$2.3 million associated with increased borrowings for the IXYS acquisition and other expense of \$1.3 million as a result of unrealized investment losses associated with our equity investments during the three months ended September 29, 2018 as compared to other income of \$1.0 million in the three months ended September 30, 2017

Income before income taxes for the first nine months of 2018 was \$165.2 million, or 12.5% of net sales compared to \$160.3 million, or 17.5% of net sales, for the first nine months of 2017. In addition to the factors impacting comparative results for operating income discussed above income before income taxes was favorably impacted by increases in foreign exchange gains of \$4.9 million and increases in other income of \$1.4 million primarily due to unrealized investment gains in our equity investments partially offset by higher interest expense of \$7.1 million mainly resulting from increased borrowings for the IXYS acquisition.

Income Taxes

Income tax expense was \$14.7 million, or an effective tax rate of 21.5%, for the third quarter of 2018 compared to \$12.7 million, or an effective tax rate of 22.9%, for the third quarter of 2017. The effective tax rate for the third quarter of 2018 was lower than the effective tax rate for the third quarter of 2017 primarily due to a third quarter 2017 accrual of taxes on certain undistributed earnings of non-US affiliates, offset in part by the impact of U.S. tax reform and the acquisition of IXYS. The effective tax rate for the third quarter of 2017 was lower than the then applicable 35% U.S. statutory tax rate primarily due to income earned in lower tax jurisdictions.

Income tax expense for the first nine months of 2018 was \$33.3 million, or an effective tax rate of 20.1%, compared to income tax expense of \$30.0 million, or an effective tax rate of 18.7%, for the first nine months of 2017. The effective tax rate for the first nine months of 2018 was higher than the effective tax rate for the first nine months of 2017 primarily due to the impact of U.S. tax reform and the acquisition of IXYS. The effective tax rate for the first nine months of 2017 was lower than the then applicable 35% U.S. statutory tax rate primarily due to income earned in lower tax jurisdictions.

Segment Results of Operations

The Company reports its operations by the following segments: Electronics, Automotive and Industrial. Segment information is described more fully in Note 13, Segment Information, of the Notes to Condensed Consolidated Financial Statements included in this Quarterly Report.

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The following table is a summary of the Company's net sales by segment:

(in thousands)	Third Quarter				First Nine Months			
	2018	2017	Change	% Change	2018	2017	Change	% Change
Electronics	\$296,472	\$175,899	\$120,573	68.5 %	\$860,240	\$499,052	\$361,188	72.4 %
Automotive	114,416	113,797	619	0.5 %	367,718	338,094	29,624	8.8 %
Industrial	28,303	28,193	110	0.4 %	88,229	79,539	8,690	10.9 %
Total	\$439,191	\$317,889	\$121,302	38.2 %	\$1,316,187	\$916,685	\$399,502	43.6 %

Electronics Segment

The Electronics segment net sales increased \$120.6 million, or 68.5%, in the third quarter of 2018 compared to the third quarter of 2017 due to incremental net sales related to the IXYS acquisition of \$99.7 million and the strong demand across various end markets and geographies within our Electronics segment.

The Electronics segment net sales increased \$361.2 million, or 72.4%, in the first nine months of 2018 compared to the first nine months of 2017 due to incremental net sales related to the IXYS and U.S. Sensor acquisitions of \$286.2 million and \$6.5 million, respectively, higher volume driven by the continued strong demand across various end markets and geographies within our Electronics segment and favorable foreign exchange impacts of \$7.9 million.

Automotive Segment

The Automotive segment net sales increased \$0.6 million, or 0.5%, in the third quarter of 2018 compared to the third quarter of 2017 due to increased volume in automotive sensors and commercial vehicle businesses offset by lower volumes in the Passenger Car Products and unfavorable changes in foreign exchange rates of \$0.8 million.

The Automotive segment net sales increased \$29.6 million, or 8.8%, in the first nine months of 2018 compared to the first nine months of 2017 due to increased volume across all businesses with the commercial vehicle and sensor businesses having the most growth and favorable changes in foreign exchange rates of \$11.6 million.

Industrial Segment

The Industrial segment net sales increased slightly by \$0.1 million, or 0.4%, in the third quarter of 2018 compared to the third quarter of 2017 primarily due to higher volume across the power fuse and relay businesses despite the full exit of the Custom business during the second quarter of 2018.

The Industrial segment net sales increased \$8.7 million, or 10.9% in the first nine months of 2018 compared to the first nine months of 2017 due to higher volumes primarily in the power fuse and relay operations.

Geographic Net Sales Information

Net sales by geography represent net sales to customer or distributor locations. The following table is a summary of the Company's net sales by geography:

(in thousands)	Third Quarter				First Nine Months			
	2018	2017	Change	%	2018	2017	Change	%

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				Change				Change
Americas	\$156,852	\$115,499	\$41,353	35.8 %	\$442,200	\$328,563	\$113,637	34.6 %
Europe	89,090	63,365	25,725	40.6 %	297,884	182,534	115,350	63.2 %
Asia-Pacific	193,249	139,025	54,224	39.0 %	576,103	405,588	170,515	42.0 %
Total	\$439,191	\$317,889	\$121,302	38.2 %	\$1,316,187	\$916,685	\$399,502	43.6 %

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Americas

Net sales in the Americas increased \$41.4 million, or 35.8%, in the third quarter of 2018 compared to the third quarter of 2017 driven by incremental net sales related to the IXYS acquisitions of \$25.0 million, continued strong volumes in the passives, electronic sensors, auto sensors, commercial vehicles, and relays partially offset by lower volumes in passenger car and exit from the Custom business.

Net sales in the Americas increased \$113.6 million, or 34.6%, in the first nine months of 2018 compared to the first nine months of 2017 driven by incremental net sales related to the IXYS and U.S. Sensor acquisitions of \$68.9 million and \$5.5 million, respectively, increased volume in the Electronics, Automotive and Industrial segments and favorable foreign currency effects of \$0.6 million.

Europe

European net sales increased \$25.7 million, or 40.6%, in the third quarter of 2018 compared to the third quarter of 2017. The increase in net sales was primarily due to incremental net sales related to the IXYS acquisition of \$31.0 million partially offset by lower passenger car volumes in the Automotive segment and unfavorable foreign currency effects of \$0.8 million.

European net sales increased \$115.4 million, or 63.2%, in the first nine months of 2018 compared to the first nine months of 2017. The increase in net sales was primarily due to incremental net sales related to the IXYS acquisition of \$86.7 million with strong growth especially in the passive and sensor businesses in the Electronics segment and continued growth in commercial vehicle, automotive sensor businesses as well as favorable foreign currency effects of \$14.4 million partially offset by lower volumes in the passenger car business.

Asia-Pacific

Asia-Pacific net sales increased \$54.2 million, or 39.0%, in the third quarter of 2018 compared to the third quarter of 2017. The increase in net sales was primarily due to incremental net sales related to the IXYS acquisition of \$43.7 million and higher volumes in the Electronics passives and sensor businesses partially offset by unfavorable foreign currency effects of \$0.6 million.

Asia-Pacific net sales increased \$170.5 million, or 42.0%, in the first nine months of 2018 compared to the first nine months of 2017. The increase in net sales was primarily due to incremental net sales related to the IXYS acquisition of \$130.6 million and higher volumes in the Electronics and Automotive segments as well as favorable foreign currency effects of \$5.0 million.

Liquidity and Capital Resources

The Company has historically supported its liquidity needs through cash flows from operations. Management expects that the Company's (i) current level of cash, cash equivalents, and marketable securities, (ii) current and forecasted cash flows from operations, (iii) availability under existing funding arrangements, and (iv) access to capital in the capital markets will provide sufficient funds to support the Company's operations, capital expenditures, investments, and debt obligations on both a short-term and long-term basis.

Revolving Credit Facility/Term Loan

On March 4, 2016, the Company entered into a five-year credit agreement (“Credit Agreement”) with a group of lenders for up to \$700.0 million. The Credit Agreement consisted of an unsecured revolving credit facility (“Revolving Credit Facility”) of \$575.0 million and an unsecured term loan credit facility (“Term Loan”) of up to \$125.0 million. In addition, the Company had the ability, from time to time, to increase the size of the Revolving Credit Facility and the Term Loan by up to an additional \$150.0 million, in the aggregate, in each case in minimum increments of \$25.0 million, subject to certain conditions and the agreement of participating lenders.

On October 13, 2017, the Company amended the Credit Agreement to increase the Revolving Credit Facility from \$575.0 million to \$700.0 million and increase the Term Loan from \$125.0 million to \$200.0 million and to extend the expiration date from March 4, 2021 to October 13, 2022. The Credit Agreement also includes the option for the Company to increase the size of the Revolving Credit Facility and the Term Loan by up to an additional \$300.0 million, in the aggregate, subject to the satisfaction of certain conditions set forth in the Credit Agreement. Term Loans may be made in up to two advances. The first advance of \$125.0 million

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occurred on October 13, 2017 and the second advance of \$75.0 million occurred on January 16, 2018. For the Term Loan, the Company is required to make quarterly principal payments of 1.25% of the original term loan (\$2.5 million with the second advance on January 16, 2018) through maturity, with the remaining balance due on October 13, 2022. In addition to the quarterly principal payments, the Company paid \$35.0 million of additional principal on the term loan during the nine months ended September 29, 2018.

Outstanding borrowings under the Credit Agreement bear interest, at the Company's option, at either LIBOR, fixed for interest periods of one, two, three or six-month periods, plus 1.00% to 2.00%, or at the bank's Base Rate, as defined, plus 0.00% to 1.00%, based upon the Company's Consolidated Leverage Ratio, as defined. The Company is also required to pay commitment fees on unused portions of the credit agreement ranging from 0.15% to 0.25%, based on the Consolidated Leverage Ratio, as defined in the agreement. The credit agreement includes representations, covenants and events of default that are customary for financing transactions of this nature. The effective interest rate on outstanding borrowings under the credit facility was 3.49% at September 29, 2018.

As of September 29, 2018, the Company had \$0.1 million outstanding in letters of credit and had available \$699.9 million of borrowing capacity under the Revolving Credit Facility. At September 29, 2018, the Company was in compliance with all covenants under the Credit Agreement. Further information regarding the Company's credit agreement is provided in Note 5, Debt, of the Notes to the Condensed Consolidated Financial Statements included in this Quarterly Report.

Senior Notes

On December 8, 2016, the Company entered into a Note Purchase Agreement, pursuant to which the Company issued and sold €212 million aggregate principal amount of senior notes in two series. The funding date for the Euro denominated senior notes occurred on December 8, 2016 for €117 million in aggregate amount of 1.14% Senior Notes, Series A, due December 8, 2023 ("Euro Senior Notes, Series A due 2023"), and €95 million in aggregate amount of 1.83% Senior Notes, Series B due December 8, 2028 ("Euro Senior Notes, Series B due 2028") (together, the "Euro Senior Notes"). Interest on the Euro Senior Notes is payable semiannually on June 8 and December 8, commencing June 8, 2017.

On December 8, 2016, the Company entered into a Note Purchase Agreement, pursuant to which the Company issued and sold \$125 million aggregate principal amount of senior notes in two series. On February 15, 2017, \$25 million in aggregate principal amount of 3.03% Senior Notes, Series A, due February 15, 2022 ("U.S. Senior Notes, Series A due 2022"), and \$100 million in aggregate principal amount of 3.74% Senior Notes, Series B, due February 15, 2027 ("U.S. Senior Notes, Series B due 2027") (together, the "U.S. Senior Notes due 2022 and 2027") were funded. Interest on the U.S. Senior Notes due 2022 and 2027 is payable semiannually on February 15 and August 15, commencing August 15, 2017.

On November 15, 2017, the Company entered into a Note Purchase Agreement pursuant to which the Company issued and sold \$175 million in aggregate principal amount of senior notes in two series. On January 16, 2018, \$50 million aggregate principal amount of 3.48% Senior Notes, Series A, due February 15, 2025 ("U.S. Senior Notes, Series A due 2025") and \$125 million in aggregate principal amount of 3.78% Senior Notes, Series B, due February 15, 2030 ("U.S. Senior Notes, Series B due 2030") (together the "U.S. Senior Notes due 2025 and 2030" and with the Euro Senior Notes and the U.S. Senior Notes due 2022 and 2027, the "Senior Notes") were funded. Interest on the U.S. Senior Notes due 2025 and 2030 is payable semiannually on February 15 and August 15, commencing on August 15, 2018. Further information regarding the Company's Senior Notes is provided in Note 5, Debt, of the Notes to the Condensed Consolidated Financial Statements included in this Quarterly Report.

Dividends

During July 2018, the Company's Board of Directors approved an increase in the quarterly cash dividend from \$0.37 to \$0.43. This equates to an annualized dividend of \$1.72 per share.

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Cash Flow Overview

(in thousands)	First Nine Months	
	2018	2017
Net cash provided by operating activities	\$252,116	\$181,320
Net cash used in investing activities	(368,563)	(79,201)
Net cash provided by (used in) financing activities	195,259	(6,491)
Effect of exchange rate changes on cash and cash equivalents	(10,273)	2,076
Increase in cash and cash equivalents	68,539	97,704
Cash and cash equivalents at beginning of period	429,676	275,124
Cash and cash equivalents at end of period	\$498,215	\$372,828

Cash Flow from Operating Activities

Operating cash inflows are largely attributable to sales of the Company's products. Operating cash outflows are largely attributable to recurring expenditures for raw materials, labor, rent, interest, taxes and other operating activities.

Net cash provided by operating activities was \$252.1 million for the first nine months of 2018, compared to \$181.3 million during the nine months September 30, 2017. The increase in net cash provided by operating activities was primarily driven by higher earnings and favorable working capital management that more than offset higher payments related to acquisition and integration costs and higher cash taxes.

Cash Flow from Investing Activities

Net cash used in investing activities was \$368.6 million for the nine months ended September 29, 2018, compared to \$79.2 million during the nine months ended September 30, 2017. Net cash used for the acquisition of IXYS was \$306.5 million for the nine months ended September 29, 2018 as compared to net cash used for the acquisition of a majority stake in Monolith of \$38.6 million for the nine months ended September 30, 2017. Capital expenditures were \$55.9 million, representing an increase of \$7.5 million compared to 2017.

Cash Flow from Financing Activities

Net cash provided by financing activities was \$195.3 million for the nine months ended September 29, 2018 compared to net cash used in financing activities of \$6.5 million for the nine months ended September 30, 2017. The Company had \$310.0 million of proceeds from the credit facility, term loan and senior notes payable partially offset by payments \$102.5 million on the credit facility and term loan during the nine months ended September 29, 2018 as compared to \$140.0 million of proceeds from the credit facility and senior notes payable and \$117.2 million of payments on the credit facility and term loan during the nine months September 30, 2017. Additionally, dividends paid increased \$5.9 million from \$23.4 million in 2017 to \$29.3 million for the nine months ended September 29, 2018.

Share Repurchase Program

The Company's Board of Directors authorized the repurchase of up to 1,000,000 shares of the Company's common stock under a program for the period May 1, 2018 to April 30, 2019 ("Share Repurchase Program"). The Company did not repurchase any shares of its common stock during the third quarter of 2018.

As of October 29, 2018, the Company has repurchased 200,000 shares of its common stock totaling \$35.9 million since the quarter ended September 29, 2018.

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Off-Balance Sheet Arrangements

As of September 29, 2018, the Company did not have any off-balance sheet arrangements, as defined under SEC rules. Specifically, the Company was not liable for guarantees of indebtedness owed by third parties, the Company was not directly liable for the debt of any unconsolidated entity and the Company did not have any retained or contingent interest in assets. The Company does not participate in transactions that generate relationships with unconsolidated entities or financial partnerships, such as entities often referred to as structured finance or special purpose entities.

Critical Accounting Policies and Estimates

The Company's Condensed Consolidated Financial Statements are prepared in accordance with U.S. GAAP. In connection with the preparation of the Condensed Consolidated Financial Statements, the Company uses estimates and makes judgments and assumptions about future events that affect the reported amounts of assets, liabilities, revenue, expenses, and the related disclosures. The assumptions, estimates, and judgments are based on historical experience, current trends, and other factors the Company believes are relevant at the time it prepares the Condensed Consolidated Financial Statements.

The significant accounting policies and critical accounting estimates are consistent with those discussed in Note 1, Summary of Significant Accounting Policies and Other Information, to the consolidated financial statements and the MD&A section of the Company's Annual Report on Form 10-K for the year ended December 30, 2017. During the three months ended September 29, 2018, there were no significant changes in the application of critical accounting policies.

Recent Accounting Pronouncements

In February 2016, the FASB issued Accounting Standards Update ("ASU") No. 2016-02, "Leases" (Topic 842). This ASU requires lessees to recognize, on the balance sheet, assets and liabilities for the rights and obligations created by leases of greater than twelve months. The accounting by lessors will remain largely unchanged. The ASU is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2018, with early adoption permitted. Adoption will require a modified retrospective transition. The Company will adopt the standard in the first quarter of 2019. The Company has made progress on assessing the Company's portfolio of leases and compiling a central repository of all active leases. We are in the process of assessing the design of the future lease process and drafting a policy to address the new standard requirements. Key lease data elements are being evaluated including developing a methodology for determining the incremental borrowing rate across all countries where we have operations. While the Company has not yet completed its evaluation of the impact the new lease accounting standard will have on its Consolidated Financial Statements, the Company expects to recognize right of use assets and lease liabilities for its operating leases in the Consolidated Balance Sheet upon adoption.

In January 2018, the FASB released guidance on the accounting for tax on the global intangible low-taxed income ("GILTI") provisions of the Tax Act. The GILTI provisions impose a tax on foreign income in excess of a deemed return on tangible assets of foreign corporations. The guidance indicates that either accounting for deferred taxes related to GILTI inclusions or treating any taxes on GILTI inclusions as period cost are both acceptable methods subject to an accounting policy election. The Company has not yet completed its assessment and therefore has not yet elected an accounting policy.

In February 2018, the FASB issued ASU No. 2018-02 "Income Statement—Reporting Comprehensive Income (Topic 220): Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income," which permits the reclassification of tax effects stranded in accumulated other comprehensive income to retained earnings as a result of

the Tax Act. The standard also requires entities to disclose whether or not they elected to reclassify the tax effects related to the Tax Act as well as their policy for releasing income tax effects from accumulated other comprehensive income. The standard allows the option of applying either a retrospective adoption, meaning the standard is applied to all periods in which the effect of the Tax Act is recognized, or applying the amendments in the period of adoption, meaning an adjustment is made to shareholder's equity as of the beginning of the reporting period. ASU 2018-02 will be effective in the first quarter of 2019; however early adoption is permitted for interim and annual periods, including the reporting period in which the Tax Act was enacted. The Company is currently evaluating the impact of ASU 2018-02 on the Consolidated Financial Statements.

In August 2018, the FASB issued ASU No. 2018-13, "Fair Value Measurement (Topic 820): Disclosure Framework - Changes to the Disclosure Requirements for Fair Value Measurement." ASU 2018-13 modified the disclosure requirements in Topic 820, "Fair Value Measurement," based on the FASB Concepts Statement, "Conceptual Framework for Financial Reporting - Chapter 8: Notes to Financial Statements," including consideration of costs and benefits. The guidance is effective for fiscal years beginning after December 15, 2019 and for interim periods within those fiscal years, with early adoption permitted. The company is currently evaluating the potential effects of this guidance on its Consolidated Financial Statements.

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In August 2018, the FASB issued ASU No. 2018-14 "Disclosure Framework - Changes to the Disclosure Requirements for Defined Benefit Plans, which amends ASC 715-20, Compensation - Retirement Benefits - Defined Benefit Plans - General. The amended guidance modifies the disclosure requirements for employers that sponsor defined benefit pension or other post-retirement plans by removing and adding certain disclosures for these plans. The eliminated disclosures include (a) the amounts in accumulated other comprehensive income ("OCI") expected to be recognized in net periodic benefit costs over the next fiscal year, and (b) the effects of a one percentage point change in assumed health care cost trend rates on the net periodic benefit costs and the benefit obligation for post-retirement health care benefits. Additional disclosures include descriptions of significant gains and losses affecting the benefit obligation for the period. The adoption of this guidance will modify our disclosures but will not have a material effect on our Consolidated Financial Statements.

In August 2018, the FASB issued ASU No. 2018-15, "Intangibles - Goodwill and Other - Internal-Use Software (Subtopic 350-40): Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract (a consensus of the FASB Emerging Issues Task Force)." ASU 2018-15 aligns the requirements for capitalizing implementation costs incurred in a hosting arrangement that is a service contract with the requirements for capitalizing implementation costs incurred to develop or obtain internal-use software (and hosting arrangements that include an internal-use software license). The guidance is effective for fiscal years beginning after December 15, 2019 and for interim periods within those fiscal years, with early adoption permitted. The Company is currently evaluating this guidance on its Consolidated Financial Statements.

ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK.

See Item 7A, Quantitative and Qualitative Disclosures about Market Risk, of our Annual Report on Form 10-K for the year ended December 30, 2017. During the nine months ended September 29, 2018, there have been no material changes in our exposure to market risk.

ITEM 4. CONTROLS AND PROCEDURES

(a) Evaluation of Disclosure Controls and Procedures

Disclosure controls and procedures (as defined in Rules 13a-15(b) and 15d-15(e) under the Exchange Act) are designed to ensure that information required to be disclosed in reports filed or submitted under the Exchange Act is recorded, processed, summarized, and reported within the time periods specified in the SEC rules and forms, and that such information is accumulated and communicated to management, including our Chief Executive Officer and Chief Financial Officer, to allow timely decisions regarding required disclosures.

In connection with the preparation of this report, management, under the supervision and with the participation of the Chief Executive Officer and Chief Financial Officer, conducted an evaluation of the effectiveness of the design and operation of our disclosure controls and procedures as of September 29, 2018. Based on that evaluation, our Chief Executive Officer and Chief Financial Officer have concluded that, as of the quarter ended September 29, 2018, our disclosure controls and procedures were effective.

(b) Changes in Internal Control over Financial Reporting

The Company acquired IXYS Corporation on January 17, 2018. IXYS Corporation operated with a different internal control environment than that of Littelfuse, Inc. The Company's evaluation of IXYS's internal controls over financial reporting and integration of IXYS into the Company's internal control structure is ongoing. Otherwise, there were no changes in our internal control over financial reporting identified in connection with the evaluation required by Rules

13a-15(f) and 15d-15(f) under the Exchange Act that occurred during the quarter ended September 29, 2018 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

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PART II – OTHER INFORMATION

ITEM 1. LEGAL PROCEEDINGS

None.

ITEM 1A. RISK FACTORS

During the nine months ended September 29, 2018, there have been no material changes from the risk factors disclosed in our Annual Report on Form 10-K for our year ended December 30, 2017.

ITEM 2. UNREGISTERED SALES OF EQUITY SECURITIES AND USE OF PROCEEDS

Recent Sales of Unregistered Securities

None.

Purchases of Equity Securities

None.

ITEM 3. DEFAULTS UPON SENIOR SECURITIES

None.

ITEM 4. MINE SAFETY DISCLOSURES

None.

ITEM 5. OTHER INFORMATION

None.

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ITEM 6. EXHIBITS

Exhibit	Description
10.1*	<u>Consulting Agreement between Nathan Zommer and Littelfuse Inc., effective August 1, 2018</u>
10.2*	<u>Joinder Agreement, dated as of August 22, 2018, by and between Reaction Technology Epi, LLC and Reaction Tech RE, LLC and Bank of America, N.A., as agent.</u>
10.3*	<u>U.S. Subsidiary Guarantor Supplement, dated as of August 22, 2018, made by Reaction Technology Epi, LLC and Reaction Tech RE, LLC in favor of the note purchasers and the other holders.</u>
10.4*	<u>Cross Border Subsidiary Guarantor Supplement, dated as of August 22, 2018, made by Reaction Technology Epi, LLC and Reaction Tech RE, LLC in favor of the note purchasers and the other holders.</u>
10.5*	<u>Note Purchase Agreement Subsidiary Guarantor Supplement, dated as of August 22, 2018, made by Reaction Technology Epi, LLC and Reaction Tech RE, LLC in favor of the note purchasers and the other holders.</u>
31.1*	<u>Certification of David W. Heinzmann, Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.</u>
31.2*	<u>Certification of Meenal A. Sethna, Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.</u>
32.1**	<u>Certification Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.</u>
101.INS*	XBRL Instance Document
101.SCH*	XBRL Taxonomy Extension Schema Document
101.CAL*	XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF*	XBRL Taxonomy Definition Linkbase Document
101.LAB*	XBRL Taxonomy Extension Label Linkbase Document
101.PRE*	XBRL Taxonomy Extension Presentation Linkbase Document
+	Certain schedules and exhibits omitted pursuant to Item 601(b)(2) of Regulation S-K promulgated by the SEC. The registrant agrees to furnish supplementary a copy of any omitted schedule or exhibit to the SEC upon request.
*	Filed herewith.
**	Furnished herewith.

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SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this Quarterly Report on Form 10-Q for the quarter ended September 29, 2018, to be signed on its behalf by the undersigned thereunto duly authorized.

Littelfuse, Inc.

By: /s/ Meenal A. Sethna
Meenal A. Sethna
Executive Vice President
and Chief Financial
Officer

Date: October 31, 2018

By: /s/ Jeffrey G. Gorski
Jeffrey G. Gorski
Vice President and Chief
Accounting Officer