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 March 31, 2019

OR

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

For the transition period from to

Commission File No. 001-06462

TERADYNE, INC.
(Exact name of registrant as specified in its charter)

Massachusetts **(State or Other Jurisdiction of Incorporation or Organization)**	**04-2272148** **(I.R.S. Employer Identification No.)**
600 Riverpark Drive, North Reading, Massachusetts **(Address of Principal Executive Offices)**	**01864** **(Zip Code)**

978-370-2700
(Registrant's Telephone Number, Including Area Code)

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 the filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files) Yes ☒ No ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, 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	☐	Emerging growth company	☐
Smaller reporting company	☐		

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. ☐

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

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, par value $0.125 per share	**TER**	**Nasdaq Stock Market LLC**

The number of shares outstanding of the registrant's only class of Common Stock as of May 6, 2019 was 171,395,402 shares.

TERADYNE, INC.

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PART I

Item 1: Financial Statements

TERADYNE, INC.

CO NDENSED CONSOLIDATED BALANCE SHEETS
(Unaudited)

	March 31, 2019	December 31, 2018
	(in thousands, except per share amount)	
ASSETS		
Current assets:		
Cash and cash equivalents	$ 483,728	$ 926,752
Marketable securities	421,088	190,096
Accounts receivable, less allowance for doubtful accounts of $1,675 and $1,673 at March 31, 2019 and December 31, 2018, respectively	333,840	291,267
Inventories, net	161,342	153,541
Prepayments and other current assets	194,044	170,826
Total current assets	1,594,042	1,732,482
Property, plant and equipment, net	283,300	279,821
Operating lease right-of-use assets, net	50,733	—
Marketable securities	91,926	87,731
Deferred tax assets	69,687	70,848
Retirement plans assets	16,791	16,883
Other assets	11,279	11,509
Acquired intangible assets, net	119,372	125,482
Goodwill	379,513	381,850
Total assets	$2,616,643	$ 2,706,606
LIABILITIES		
Current liabilities:		
Accounts payable	$ 118,816	$ 100,688
Accrued employees' compensation and withholdings	89,089	148,566
Deferred revenue and customer advances	84,764	77,711
Other accrued liabilities	67,422	78,272
Contingent consideration	22,803	34,865
Operating lease liabilities	17,176	—
Income taxes payable	41,898	36,185
Total current liabilities	441,968	476,287
Retirement plans liabilities	121,205	117,456
Long-term deferred revenue and customer advances	32,843	32,750
Deferred tax liabilities	19,614	20,662
Long-term other accrued liabilities	9,732	37,547
Long-term contingent consideration	15,510	35,678
Long-term operating lease liabilities	38,062	—
Long-term incomes taxes payable	83,891	83,891
Debt	383,590	379,981
Total liabilities	1,146,415	1,184,252
Commitments and contingencies (See Note S)		
SHAREHOLDERS' EQUITY		
Common stock, $0.125 par value, 1,000,000 shares authorized; 172,353 and 175,522 shares issued and outstanding at March 31, 2019 and December 31, 2018, respectively	21,544	21,940
Additional paid-in capital	1,679,997	1,671,645
Accumulated other comprehensive loss	(15,706)	(13,040)
Accumulated deficit	(215,607)	(158,191)
Total shareholders' equity	1,470,228	1,522,354
Total liabilities and shareholders' equity	$2,616,643	$ 2,706,606

The accompanying notes, together with the Notes to Consolidated Financial Statements included in Teradyne's Annual Report on Form 10-K for the year ended December 31, 2018, are an integral part of the condensed consolidated financial statements.

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TERADYNE, INC.

CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS
(Unaudited)

	For the Three Months Ended	
	March 31, 2019	April 1, 2018
	(in thousands, except per share amount)	
Revenues:		
Products	$ 393,442	$ 403,925
Services	100,657	83,542
Total revenues	494,099	487,467
Cost of revenues:		
Cost of products	165,368	180,958
Cost of services	41,096	36,677
Total cost of revenues (exclusive of acquired intangible assets amortization shown separately below)	206,464	217,635
Gross profit	287,635	269,832
Operating expenses:		
Selling and administrative	102,013	90,505
Engineering and development	76,791	74,408
Acquired intangible assets amortization	10,634	7,698
Restructuring and other	5,112	(313)
Total operating expenses	194,550	172,298
Income from operations	93,085	97,534
Non-operating (income) expense:		
Interest income	(8,052)	(5,981)
Interest expense	5,713	6,890
Other (income) expense, net	1,445	805
Income before income taxes	93,979	95,820
Income tax (benefit) provision	(15,159)	8,846
Net income	$ 109,138	$ 86,974
Net income per common share:		
Basic	$ 0.63	$ 0.45
Diluted	$ 0.62	$ 0.43
Weighted average common shares—basic	173,532	195,255
Weighted average common shares—diluted	176,972	203,484

The accompanying notes, together with the Notes to Consolidated Financial Statements included in Teradyne's Annual Report on Form 10-K for the year ended December 31, 2018, are an integral part of the condensed consolidated financial statements.

TERADYNE, INC.

CONDENSED CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
(Unaudited)

	For the Three Months Ended	
	March 31, 2019	April 1, 2018
	(in thousands)	
Net income	$109,138	$86,974
Other comprehensive income, net of tax:		
Foreign currency translation adjustment, net of tax of $0, $0, respectively	(4,659)	10,541
Available-for-sale marketable securities:		
Unrealized gains (losses) on marketable securities arising during period, net of tax of $577, $(718), respectively	2,100	(2,687)
Less: Reclassification adjustment for (gains) losses included in net income, net of tax of $(20), $78, respectively	(70)	1,668
	2,030	(1,019)
Defined benefit pension and post-retirement plans:		
Amortization of prior service benefit included in net periodic pension and post-retirement benefit, net of tax of $(11), $(18), respectively	(37)	(61)
Other comprehensive (loss) income	(2,666)	9,461
Comprehensive income	$106,472	$96,435

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TERADYNE, INC.

CONDENSED CONSOLIDATED STATEMENTS OF SHAREHOLDERS' EQUITY
(Unaudited)

	For the Three Months Ended March 31, 2019					
	Common Stock Shares Issued	Common Stock Par Value	Additional Paid-in Capital	Accumulated Other Comprehensive Loss	Accumulated Deficit	Total Shareholders' Equity
	(in thousands)					
Balance, December 31, 2018	175,522	$ 21,940	$1,671,645	$ (13,040)	$ (158,191)	$ 1,522,354
Issuance of common stock to employees under benefit plans, net of shares withheld for payroll tax of $14,318	1,287	161	(210)			(49)
Stock-based compensation expense			8,562			8,562
Repurchase of common stock	(4,456)	(557)			(150,913)	(151,470)
Cash dividends ($0.09 per share)					(15,641)	(15,641)
Net income					109,138	109,138
Foreign currency translation adjustment				(4,659)		(4,659)
Unrealized gains on marketable securities:						
Unrealized gains on marketable securities, net of tax of $577				2,100		2,100
Less: reclassification adjustment for gains included in net income, net of tax $(20)				(70)		(70)
Amortization of prior service benefit, net of tax of $(11)				(37)		(37)
Balance, March 31, 2019	172,353	$ 21,544	$1,679,997	$ (15,706)	$ (215,607)	$ 1,470,228

	For the Three Months Ended April 1, 2018					
	Common Stock Shares Issued	Common Stock Par Value	Additional Paid-in Capital	Accumulated Other Comprehensive Income	Retained Earnings	Total Shareholders' Equity
	(in thousands)					
Balance, December 31, 2017	195,548	$ 24,444	$1,638,413	$ 18,776	$ 272,013	$ 1,953,646
Issuance of common stock to employees under benefit plans, net of shares withheld for payroll tax of $19,629	1,199	150	(8,129)			(7,979)
Stock-based compensation expense			8,472			8,472
Repurchase of common stock	(2,939)	(368)			(140,304)	(140,672)
Cash dividends ($0.09 per share)					(17,598)	(17,598)
Net income					86,974	86,974
Foreign currency translation adjustment				10,541		10,541
Unrealized gains (losses) on marketable securities:						
Unrealized losses on marketable securities, net of tax of $(718)				(2,687)		(2,687)
Less: reclassification adjustment for losses included in net income, net of tax $78				1,668		1,668
Reclassification of unrealized gains on equity securities, net of tax of $(902)				(3,125)	3,125	—
Amortization of prior service benefit, net of tax of $(18)				(61)		(61)
Reclassification of tax effects resulting from the Tax Reform Act, net of tax of $769				769	(769)	—
Cumulative effect of changes in accounting principle related to revenue recognition					12,679	12,679
Balance, April 1, 2018	193,808	$ 24,226	$1,638,756	$ 25,881	$ 216,120	$ 1,904,983

The accompanying notes, together with the Notes to Consolidated Financial Statements included in Teradyne's Annual Report on Form 10-K for the year ended December 31, 2018, are an integral part of the condensed consolidated financial statements.

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TERADYNE, INC.

CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(Unaudited)

	For the Three Months Ended	
	March 31, 2019	April 1, 2018
	(in thousands)	
Cash flows from operating activities:		
Net income	$ 109,138	$ 86,974
Adjustments to reconcile net income to net cash provided by operating activities:		
Depreciation	16,651	16,336
Amortization	12,942	9,204
Stock-based compensation	9,474	9,544
Deferred taxes	1,206	8,696
Provision for excess and obsolete inventory	2,397	3,522
Contingent consideration fair value adjustment	2,970	(4,968)
(Gains) losses on investments	(2,828)	1,241
Other	219	152
Changes in operating assets and liabilities, net of businesses acquired:		
Accounts receivable	(41,706)	(140,747)
Inventories	(2,917)	(21,017)
Prepayments and other assets	(18,648)	(679)
Accounts payable and other liabilities	(53,323)	(46,706)
Deferred revenue and customer advances	6,455	9,644
Retirement plans contributions	(1,210)	(1,020)
Income taxes	(22,804)	(12,106)
Net cash provided by (used for) operating activities	18,016	(81,930)
Cash flows from investing activities:		
Purchases of property, plant and equipment	(25,711)	(34,797)
Purchases of marketable securities	(375,184)	(490,324)
Proceeds from sales of marketable securities	5,440	800,671
Proceeds from maturities of marketable securities	141,201	212,698
Proceeds from life insurance	273	—
Acquisition of businesses, net of cash acquired	(6,970)	(25,356)
Net cash (used for) provided by investing activities	(260,951)	462,892
Cash flows from financing activities:		
Issuance of common stock under stock purchase and stock option plans	14,268	10,654
Repurchase of common stock	(156,468)	(134,276)
Dividend payments	(15,627)	(17,588)
Payments related to net settlement of employee stock compensation awards	(14,318)	(19,629)
Payments of contingent consideration	(27,615)	(13,571)
Net cash used for financing activities	(199,760)	(174,410)
Effects of exchange rate changes on cash and cash equivalents	(329)	1,478
(Decrease) increase in cash and cash equivalents	(443,024)	208,030
Cash and cash equivalents at beginning of period	926,752	429,843
Cash and cash equivalents at end of period	$ 483,728	$ 637,873

The accompanying notes, together with the Notes to Consolidated Financial Statements included in Teradyne's Annual Report on Form 10-K for the year ended December 31, 2018, are an integral part of the condensed consolidated financial statements.

TERADYNE, INC.

NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
(Unaudited)

A. THE COMPANY

Teradyne, Inc. ("Teradyne") is a leading global supplier of automation equipment for test and industrial applications. Teradyne designs, develops, manufactures and sells automatic test systems used to test semiconductors, wireless products, data storage and complex electronics systems in the consumer electronics, wireless, automotive, industrial, computing, communications, and aerospace and defense industries. Teradyne's industrial automation products include collaborative robotic arms, autonomous mobile robots, and advanced robotic control software used by global manufacturing and light industrial customers to improve quality, increase manufacturing and material handling efficiency and decrease manufacturing costs. Teradyne's automatic test equipment and industrial automation products and services include:

- semiconductor test ("Semiconductor Test") systems;
- industrial automation ("Industrial Automation") products;
- defense/aerospace ("Defense/Aerospace") test instrumentation and systems, storage test ("Storage Test") systems, and circuit-board test and inspection ("Production Board Test") systems (collectively these products represent "System Test"); and
- wireless test ("Wireless Test") systems.

B. ACCOUNTING POLICIES

Basis of Presentation

The consolidated interim financial statements include the accounts of Teradyne and its wholly-owned subsidiaries. All significant intercompany balances and transactions have been eliminated. These interim financial statements are unaudited and reflect all normal recurring adjustments that are, in the opinion of management, necessary for the fair statement of such interim financial statements. Certain prior year amounts were reclassified to conform to the current year presentation. The December 31, 2018 condensed consolidated balance sheet data was derived from audited financial statements, but does not include all disclosures required by accounting principles generally accepted in the United States of America.

The accompanying financial information should be read in conjunction with the consolidated financial statements and notes thereto contained in Teradyne's Annual Report on Form 10-K, filed with the U.S. Securities and Exchange Commission ("SEC") on March 1, 2019, for the year ended December 31, 2018.

Preparation of Financial Statements and Use of Estimates

The preparation of consolidated financial statements requires management to make estimates and judgments that affect the amounts reported in the financial statements. Actual results may differ significantly from these estimates.

Leases

In February 2016, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") 2016-02, *"Leases (Topic 842)"* ("Topic 842"), which requires a lessee to record a right-of-use ("ROU") asset and a lease liability on the balance sheet for operating leases with terms longer than twelve months. Teradyne adopted this standard and the related amendments (collectively "ASC 842") on January 1, 2019 and utilized the modified retrospective approach provided by ASU 2018-11, *"Leases (Topic 842): Targeted*

Improvements," that allowed for a cumulative effect adjustment in the period of adoption. Under this method of adoption, the comparative information in the consolidated financial statements has not been revised and continues to be reported under the previously applicable lease accounting guidance (ASC 840). Teradyne also utilized the package of practical expedients permitted under the transition guidance which included the carry-forward of historical lease classification. Adoption of ASC 842 resulted in recording ROU assets and lease liabilities of approximately $50.1 million and $54.3 million, respectively. Operating lease liabilities were calculated using the discount rate on January 1, 2019. The adoption of ASC 842 did not have a material impact on beginning retained earnings, the consolidated statement of operations, cash flows, or earnings per share.

Under ASC 842, a contract is or contains a lease when Teradyne has the right to control the use of an identified asset. Teradyne determines if an arrangement is a lease at inception of the contract, which is the date on which the terms of the contract are agreed to and the agreement creates enforceable rights and obligations. The commencement date of the lease is the date that the lessor makes an underlying asset available for use by Teradyne. As of March 31, 2019, Teradyne does not have material leases that have not yet commenced.

Teradyne determines if the lease is operating or finance at the lease commencement date based upon the terms of the lease and the nature of the asset. The lease term used to calculate the lease liability includes options to extend or terminate the lease when it is reasonably certain that the option will be exercised.

For leases commencing after January 1, 2019, the lease liability is measured at the present value of future lease payments, discounted using the discount rate for the lease at the commencement date. As Teradyne is typically unable to determine the implicit rate, Teradyne uses an incremental borrowing rate based on the lease term and economic environment at commencement date. Teradyne initially measures payments based on an index by using the applicable rate at lease commencement. Variable payments that do not depend on an index are not included in the lease liability and are recognized as they are incurred. The ROU asset is initially measured as the amount of lease liability, adjusted for any initial lease costs, prepaid lease payments, and reduced by any lease incentives.

Teradyne's contracts often include non-lease components such as common area maintenance. Teradyne elected the practical expedient to account for the lease and non-lease components as a single lease component. For leases with a term of one year or less Teradyne has elected not to record the lease asset or liability. The lease payments are recognized in the consolidated statement of earnings on a straight-line basis over the lease term. Teradyne includes lease costs within cost of revenues and operating expenses. See Note: H: "Leases."

C. RECENTLY ISSUED ACCOUNTING PRONOUNCEMENTS

On January 26, 2017, the FASB issued ASU 2017-04, *"Intangibles—Goodwill and Other (Topic 350): Simplifying the Accounting for Goodwill Impairment."* The new guidance removes Step 2 of the goodwill impairment test, which requires a hypothetical purchase price allocation. Goodwill impairment will be the amount by which a reporting unit's carrying value exceeds its fair value, not to exceed the carrying amount of goodwill. All other goodwill impairment guidance will remain largely unchanged. Entities will continue to have the option to perform a qualitative assessment to determine if a quantitative impairment test is necessary. The same one-step impairment test will be applied to goodwill at all reporting units, even those with zero or negative carrying amounts. Entities will be required to disclose the amount of goodwill at reporting units with zero or negative carrying amounts. The revised guidance will be applied prospectively, and is effective in 2020. Early adoption is permitted for any impairment tests performed after January 1, 2017. Teradyne is currently evaluating the impact of this ASU on its financial position, results of operations and statements of cash flows.

D. ACQUISITIONS

Lemsys SA

On January 30, 2019, Teradyne acquired all of the issued and outstanding shares of Lemsys SA ("Lemsys") for a total purchase price of approximately $9.1 million. Lemsys strengthens Teradyne's position in the electrification trends of vehicles, solar, wind, and industrial applications. The Lemsys acquisition was accounted for as a business combination and, accordingly, the results have been included in Teradyne's Semiconductor Test segment from the date of acquisition. As of the acquisition date, Teradyne's preliminary purchase price allocation was goodwill of $1.2 million, which is not deductible for tax purposes, acquired intangible assets of $5.5 million with an average estimated useful life of 4.9 years, and $2.4 million of net tangible assets. The acquisition was not material to Teradyne's condensed consolidated financial statements.

Mobile Industrial Robots

On April 25, 2018, Teradyne acquired all of the issued and outstanding shares of Mobile Industrial Robots Aps ("MiR"), a Danish limited liability company located in Odense, Denmark. MiR is the leading maker of collaborative autonomous mobile robots for industrial applications. MiR is part of Teradyne's Industrial Automation segment.

The total purchase price of $197.8 million included $145.2 million of cash paid and $52.6 million of contingent consideration measured at fair value. The contingent consideration is payable in Euros upon the achievement of certain thresholds and targets for revenue and earnings before interest and taxes for periods from January 1, 2018 to December 31, 2018; January 1, 2018 to December 31, 2019; and January 1, 2018 to December 31, 2020. The contingent consideration related to revenue for the period from January 1, 2018 to December 31, 2018 in the amount of $30.8 million was paid in March 2019. The remaining maximum contingent consideration that could be paid is $83.2 million.

The valuation of the contingent consideration is dependent on the following assumptions: forecasted revenues, revenue volatility, earnings before interest and taxes, and discount rate. These assumptions were estimated based on a review of the historical and projected results.

The MiR acquisition was accounted for as a business combination and, accordingly, the results have been included in Teradyne's consolidated results of operations from the date of acquisition. MiR's products will help expand the Industrial Automation segment, which is a key component of Teradyne's growth strategy. The allocation of the total purchase price to MiR's net tangible liabilities and identifiable intangible assets was based on their estimated fair values as of the acquisition date. The excess of the purchase price over the identifiable intangible assets and net tangible liabilities in the amount of $136.0 million was allocated to goodwill, which is not deductible for tax purposes. MiR's results have been included in Teradyne's Industrial Automation segment from the date of acquisition.

The following table represents the final allocation of the purchase price:

	Purchase Price Allocation (in thousands)
Goodwill	$ 135,976
Intangible assets	80,670
Tangible assets acquired and liabilities assumed:	
Current assets	6,039
Non-current assets	1,336
Accounts payable and current liabilities	(7,336)
Long-term deferred tax liabilities	(18,007)
Other long-term liabilities	(900)
Total purchase price	$ 197,778

Teradyne estimated the fair value of intangible assets using the income and cost approaches. Acquired intangible assets are amortized on a straight-line basis over their estimated useful lives. Components of these intangible assets and their estimated useful lives at the acquisition date are as follows:

	Fair Value (in thousands)	Estimated Useful Life (in years)
Developed technology	$ 58,900	7.0
Trademarks and tradenames	13,240	11.0
Customer relationships	8,500	2.5
Backlog	30	0.2
Total intangible assets	$ 80,670	7.2

The following unaudited pro forma information gives effect to the acquisition of MiR as if the acquisition occurred on January 1, 2017. The unaudited pro forma results are not necessarily indicative of what actually would have occurred had the acquisition been in effect for the periods presented:

	For the Three Months Ended April 1, 2018 (in thousands)
Revenue	$ 493,017
Net income	85,151
Net income per common share:	
Basic	$ 0.44
Diluted	$ 0.42

Pro forma results for the three months ended April 1, 2018 were adjusted to exclude $0.6 million of acquisition related costs.

Energid Technologies Corporation

On February 26, 2018, Teradyne acquired all of the issued and outstanding shares of Energid Technologies Corporation (“Energid”) for a total purchase price of approximately $27.6 million. Energid’s technology enables and simplifies the programming of complex robotic motions used in a wide variety of end markets, ranging from heavy industry to healthcare, utilizing both traditional robots and collaborative robots. The Energid acquisition was accounted for as a business combination and, accordingly, Energid’s results have been included in Teradyne’s Industrial Automation segment from the date of acquisition. As of the acquisition date, Teradyne’s purchase price allocation was goodwill of $14.4 million which is deductible for tax purposes, acquired intangible assets of $12.3 million with an average estimated useful life of 7.7 years, and $1.0 million of net tangible assets. The acquisition was not material to Teradyne’s condensed consolidated financial statements.

E. REVENUE

Revenue recognized in accordance with ASC 606: “*Revenue from Contracts with Customers”* was $492.4 million and $483.2 million for the three months ended March 31, 2019 and April 1, 2018, respectively.

For the three months ended March 31, 2019 and April 1, 2018, Teradyne also recognized $1.7 million and $4.3 million, respectively, of revenues from leases of Teradyne systems, which are accounted for outside of ASC 606.

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Disaggregation of Revenue

The following table provides information about disaggregated revenue by primary geographical market, major product line and timing of revenue recognition.

	For the Three Months Ended March 31, 2019										
	Semiconductor Test		System Test			Industrial Automation			Wireless Test	Corporate and Other	Consolidated
	System on a Chip	Memory	Defense/ Aerospace	Storage Test	Production Board Test	Universal Robots	Mobile Industrial Robots	Energid			
	(in thousands)										
Americas											
Point in time	$ 7,977	$ 8,051	$ 14,783	$ 1,593	$ 3,254	$15,297	$ 3,539	$ —	$ 2,090	$ (151)	$ 56,433
Over time	8,190	712	6,450	—	729	246	—	260	151	—	16,738
Europe, Middle East and Africa											
Point in time	11,032	153	39	—	5,064	25,904	3,840	—	736	—	46,768
Over time	5,281	280	469	—	1,554	416	—	289	45	—	8,334
Asia Pacific											
Point in time	219,746	35,571	263	16,605	3,636	14,178	1,727	—	24,628	—	316,354
Over time	38,913	3,280	764	2,054	920	228	—	212	1,359	—	47,730
Lease Revenue	1,667	—	—	—	43	—	—	—	32	—	1,742
Total	$292,806	$48,047	$ 22,768	$20,252	$ 15,200	$56,269	$ 9,106	$ 761	$29,041	$ (151)	$ 494,099

	For the Three Months Ended April 1, 2018										
	Semiconductor Test		System Test			Industrial Automation			Wireless Test	Corporate and Other	Consolidated
	System on a Chip	Memory	Defense/ Aerospace	Storage Test	Production Board Test	Universal Robots	Mobile Industrial Robots	Energid			
	(in thousands)										
Americas											
Point in time	$ 9,600	$ 2,862	$ 11,597	$ 279	$ 1,760	$14,373	$ —	$ —	$ 4,979	$ (221)	$ 45,229
Over time	8,791	696	6,188	—	757	89	—	—	112	—	16,633
Europe, Middle East and Africa											
Point in time	12,125	139	1,497	—	4,037	22,573	—	—	1,041	—	41,412
Over time	5,214	269	551	—	1,559	143	—	—	227	—	7,963
Asia Pacific											
Point in time	224,851	66,273	101	10,122	1,861	11,583	—	—	13,664	—	328,455
Over time	36,338	2,323	208	1,533	735	73	—	—	2,296	—	43,506
Lease Revenue	3,847	—	—	—	234	—	—	—	188	—	4,269
Total	$300,766	$72,562	$ 20,142	$11,934	$ 10,943	$48,834	$ —	$ —	$22,507	$ (221)	$ 487,467

Contract Balances

The amount of revenue recognized during the three months ended March 31, 2019 and April 1, 2018 that was previously included within the deferred revenue and customer advances balance was $19.5 million and $21.8 million, respectively, and primarily relates to extended warranties, training, application support, and post contract support. Each of these represents a distinct performance obligation. Teradyne expects to recognize 72% of the remaining performance obligation in the next 12 months, 22% in 1-3 years, and the remainder thereafter.

Accounts Receivable

Teradyne sells certain trade accounts receivables on a non-recourse basis to third-party financial institutions pursuant to factoring agreements. Teradyne accounts for these transactions as sales of receivables and presents cash proceeds as a cash provided by operating activities in the consolidated statements of cash flows. Total trade accounts receivable sold under the factoring agreements were $41.7 million and $3.5 million for the three months ended March 31, 2019 and April 1, 2018, respectively. Factoring fees for the sales of receivables were recorded in interest expense and were not material.

F. INVENTORIES

Inventories, net consisted of the following at March 31, 2019 and December 31, 2018:

	March 31, 2019	December 31, 2018
	(in thousands)	
Raw material	$ 94,862	$ 89,365
Work-in-process	29,725	31,014
Finished goods	36,755	33,162
	$161,342	$ 153,541

Inventory reserves at March 31, 2019 and December 31, 2018 were $100.9 million and $100.8 million, respectively.

G. FINANCIAL INSTRUMENTS

Cash Equivalents

Teradyne considers all highly liquid investments with maturities of three months or less at the date of acquisition to be cash equivalents.

Marketable Securities

Teradyne's available-for-sale debt securities are classified as Level 2 and equity securities are classified as Level 1. Contingent consideration is classified as Level 3. The vast majority of Level 2 securities are fixed income securities priced by third party pricing vendors. These pricing vendors utilize the most recent observable market information in pricing these securities or, if specific prices are not available, use other observable inputs like market transactions involving identical or comparable securities.

During the three months ended March 31, 2019 and April 1, 2018, there were no transfers in or out of Level 1, Level 2, or Level 3 financial instruments.

Realized gains recorded in the three months ended March 31, 2019 and April 1, 2018 were $0.1 million and $0.3 million, respectively. Realized losses recorded in the three months ended March 31, 2019 and April 1, 2018 were $0.1 million and $1.5 million, respectively. Realized gains are included in interest income and realized losses are included in interest expense.

Unrealized gains and losses on available-for-sale debt securities are included in accumulated other comprehensive income (loss) on the balance sheet.

Unrealized gains on equity securities are included in interest income and unrealized losses are included in interest expense. Unrealized gains related to equity securities recognized in the three months ended March 31, 2019 were $2.8 million.

The cost of securities sold is based on the specific identification method.

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The following table sets forth by fair value hierarchy Teradyne's financial assets and liabilities that were measured at fair value on a recurring basis as of March 31, 2019 and December 31, 2018.

	March 31, 2019			
	Quoted Prices in Active Markets for Identical Instruments (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Total
	(in thousands)			
Assets				
Cash	$ 222,714	$ —	$ —	$222,714
Cash equivalents	186,520	74,494	—	261,014
Available-for-sale securities:				
U.S. Treasury securities	—	191,043	—	191,043
Commercial paper	—	180,604	—	180,604
Corporate debt securities	—	91,244	—	91,244
Certificates of deposit and time deposits	—	11,496	—	11,496
U.S. government agency securities	—	9,629	—	9,629
Debt mutual funds	3,331	—	—	3,331
Non-U.S. government securities	—	378	—	378
Equity securities:				
Mutual funds	25,289	—	—	25,289
	$ 437,854	$ 558,888	$ —	$996,742
Derivative assets	—	17	—	17
Total	$ 437,854	$ 558,905	$ —	$996,759
Liabilities				
Contingent consideration	$ —	$ —	$ 38,313	$ 38,313
Derivative liabilities	—	291	—	291
Total	$ —	$ 291	$ 38,313	$ 38,604

Reported as follows:

	(Level 1)	(Level 2)	(Level 3)	Total
	(in thousands)			
Assets				
Cash and cash equivalents	$409,234	$ 74,494	$ —	$483,728
Marketable securities	—	421,088	—	421,088
Long-term marketable securities	28,620	63,306	—	91,926
Prepayments	—	17	—	17
Total	$437,854	$558,905	$ —	$996,759
Liabilities	.			
Other current liabilities	$ —	$ 291	$ —	$ 291
Contingent consideration	—	—	22,803	22,803
Long-term contingent consideration	—	—	15,510	15,510
Total	$ —	$ 291	$38,313	$ 38,604

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	December 31, 2018			
	Quoted Prices in Active Markets for Identical Instruments (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Total
	(in thousands)			
Assets				
Cash	$ 312,512	$ —	$ —	$ 312,512
Cash equivalents	253,525	360,715	—	614,240
Available-for-sale securities:				
U.S. Treasury securities	—	109,721	—	109,721
Commercial paper	—	86,117	—	86,117
Corporate debt securities	—	40,020	—	40,020
U.S. government agency securities	—	9,611	—	9,611
Certificates of deposit and time deposits	—	7,604	—	7,604
Debt mutual funds	3,187	—	—	3,187
Non-U.S. government securities	—	376	—	376
Equity securities:				
Mutual funds	21,191	—	—	21,191
	$ 590,415	$ 614,164	$ —	$1,204,579
Derivative assets	—	79	—	79
Total	$ 590,415	$ 614,243	$ —	$1,204,658
Liabilities				
Contingent consideration	$ —	$ —	$ 70,543	$ 70,543
Derivative liabilities	—	514	—	514
Total	$ —	$ 514	$ 70,543	$ 71,057

Reported as follows:

	(Level 1)	(Level 2)	(Level 3)	Total
	(in thousands)			
Assets				
Cash and cash equivalents	$566,037	$360,715	$ —	$ 926,752
Marketable securities	—	190,096	—	190,096
Long-term marketable securities	24,378	63,353	—	87,731
Prepayments	—	79	—	79
Total	$590,415	$614,243	$ —	$1,204,658
Liabilities				
Other accrued liabilities	$ —	$ 514	$ —	$ 514
Contingent consideration	—	—	34,865	34,865
Long-term contingent consideration	—	—	35,678	35,678
Total	$ —	$ 514	$70,543	$ 71,057

Changes in the fair value of Level 3 contingent consideration for the three months ended March 31, 2019 and April 1, 2018 were as follows:

	For the Three Months Ended	
	March 31, 2019	April 1, 2018
	(in thousands)	
Balance at beginning of period	$ 70,543	$ 45,102
Foreign currency impact	(610)	—
Payments (a)	(34,590)	(24,553)
Fair value adjustment (b)	2,970	(4,968)
Balance at end of period	$ 38,313	$ 15,581

(a) In the three months ended March 31, 2019, Teradyne paid $30.8 million and $3.8 million of contingent consideration for the earn-outs in connection with the acquisition of MiR and Universal Robots A/S ("Universal Robots"), respectively. In the three months ended April 1, 2018, Teradyne paid $24.6 million of contingent consideration for the earn-out in connection with the acquisition of Universal Robots.

(b) In the three months ended March 31, 2019, the fair value of contingent consideration for the earn-out in connection with the acquisition of MiR was increased by $3.0 million. In the three months ended April 1, 2018, the fair value of contingent consideration for the earn-out in connection with the acquisition of Universal Robots was decreased by $5.0 million, primarily due to a decrease in forecasted revenue.

The following table provides quantitative information associated with the fair value measurement of Teradyne's Level 3 financial instruments:

Liability	March 31, 2019 Fair Value (in thousands)	Valuation Technique	Unobservable Inputs	Weighted Average
Contingent consideration (MiR)	$38,313	Monte Carlo Simulation	Revenue volatility	17.0%
			Discount Rate	0.4%

As of March 31, 2019, the significant unobservable inputs used in the Monte Carlo simulation to fair value the MiR contingent consideration include forecasted revenues, revenue volatility, earnings before interest and taxes, and discount rate. Increases or decreases in the inputs would result in a higher or lower fair value measurement. As of March 31, 2019, the maximum amount of contingent consideration that could be paid in connection with the acquisition of MiR is $83.2 million. The remaining earn-out periods end on December 31, 2019 and December 31, 2020.

The carrying amounts and fair values of Teradyne's financial instruments at March 31, 2019 and December 31, 2018 were as follows:

	March 31, 2019		December 31, 2018	
	Carrying Value	Fair Value	Carrying Value	Fair Value
	(in thousands)			
Assets				
Cash and cash equivalents	$ 483,728	$483,728	$ 926,752	$926,752
Marketable securities	513,014	513,014	277,827	277,827
Derivative assets	17	17	79	79
Liabilities				
Contingent consideration	38,313	38,313	70,543	70,543
Derivative liabilities	291	291	514	514
Convertible debt (1)	383,590	644,575	379,981	547,113

(1) The carrying value represents the bifurcated debt component only, while the fair value is based on quoted market prices for the convertible note, which includes the equity conversion features.

The fair values of accounts receivable, net and accounts payable approximate the carrying value due to the short-term nature of these instruments.

The following table summarizes the composition of available-for-sale marketable securities at March 31, 2019:

	March 31, 2019				
	Available-for-Sale				Fair Market Value of Investments with Unrealized Losses
	Cost	Unrealized Gain	Unrealized (Loss)	Fair Market Value	
			(in thousands)		
U.S. Treasury securities	$191,715	$ 144	$ (816)	$191,043	$ 82,132
Commercial paper	180,610	1	(7)	180,604	11,237
Corporate debt securities	90,402	1,343	(501)	91,244	18,150
Certificates of deposit and time deposits	11,497	1	(2)	11,496	4,419
U.S. government agency securities	9,646	4	(21)	9,629	4,101
Debt mutual funds	3,255	76	—	3,331	—
Non-U.S. government securities	378	—	—	378	—
	$487,503	$ 1,569	$ (1,347)	$487,725	$ 120,039

Reported as follows:

	Cost	Unrealized Gain	Unrealized (Loss)	Fair Market Value	Fair Market Value of Investments with Unrealized Losses
			(in thousands)		
Marketable securities	$421,024	$ 126	$ (62)	$ 421,088	$ 91,100
Long-term marketable securities	66,479	1,443	(1,285)	66,637	28,939
	$487,503	$ 1,569	$ (1,347)	$ 487,725	$ 120,039

The following table summarizes the composition of available-for-sale marketable securities at December 31, 2018:

	December 31, 2018				
	Available-for-Sale				Fair Market Value of Investments with Unrealized Losses
	Cost	Unrealized Gain	Unrealized (Loss)	Fair Market Value	
			(in thousands)		
U.S. Treasury securities	$110,969	$ 112	$ (1,360)	$ 109,721	$ 75,040
Commercial paper	86,130	13	(26)	86,117	85,094
Corporate debt securities	41,133	432	(1,545)	40,020	24,767
U.S. government agency securities	9,646	1	(36)	9,611	7,077
Certificates of deposit and time deposits	7,604	—	—	7,604	—
Debt mutual funds	3,153	34	—	3,187	—
Non-U.S. government securities	376	—	—	376	—
	$259,011	$ 592	$ (2,967)	$ 256,636	$ 191,978

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Reported as follows:

	Cost	Unrealized Gain	Unrealized (Loss)	Fair Market Value	Fair Market Value of Investments with Unrealized Losses
			(in thousands)		
Marketable securities	$190,100	$ 88	$ (92)	$190,096	$ 140,262
Long-term marketable securities	68,911	504	(2,875)	66,540	51,716
	$259,011	$ 592	$ (2,967)	$256,636	$ 191,978

As of March 31, 2019, the fair market value of investments in available-for-sale securities with unrealized losses totaled $120.0 million. Of this value, $32.9 million had unrealized losses of $1.3 million for greater than one year and $87.1 million had unrealized losses of $0.1 million for less than one year.

As of December 31, 2018, the fair market value of investments with unrealized losses totaled $192.0 million. Of this value, $28.5 million had unrealized losses of $1.6 million greater than one year and $163.5 million had unrealized losses of $1.4 million for less than one year.

Teradyne reviews its investments to identify and evaluate investments that have an indication of possible impairment. Based on this review, Teradyne determined that the unrealized losses related to these investments at March 31, 2019 and December 31, 2018 were temporary.

The contractual maturities of investments in available-for-sale securities held at March 31, 2019 were as follows:

	March 31, 2019	
	Cost	Fair Market Value
	(in thousands)	
Due within one year	$421,024	$ 421,088
Due after 1 year through 5 years	9,325	9,343
Due after 5 years through 10 years	14,026	13,659
Due after 10 years	39,873	40,304
Total	$484,248	$ 484,394

Contractual maturities of investments in available-for-sale securities held at March 31, 2019 exclude $3.3 million of debt mutual funds as they do not have a contractual maturity date.

Derivatives

Teradyne conducts business in a number of foreign countries, with certain transactions denominated in local currencies. The purpose of Teradyne's foreign currency management is to minimize the effect of exchange rate fluctuations on certain foreign currency denominated monetary assets and liabilities. Teradyne does not use derivative financial instruments for trading or speculative purposes.

To minimize the effect of exchange rate fluctuations associated with the remeasurement of monetary assets and liabilities denominated in foreign currencies, Teradyne enters into foreign currency forward contracts. The change in fair value of these derivatives is recorded directly in earnings, and is used to offset the change in value of monetary assets and liabilities denominated in foreign currencies.

The notional amount of foreign currency forward contracts at March 31, 2019 and December 31, 2018 was $148.8 million and $163.1 million, respectively.

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Gains and losses on foreign currency forward contracts and foreign currency remeasurement gains and losses on monetary assets and liabilities are included in other (income) expense, net.

The following table summarizes the fair value of derivative instruments as of March 31, 2019 and December 31, 2018:

	Balance Sheet Location	March 31, 2019	December 31, 2018
		(in thousands)	
Derivatives not designated as hedging instruments:			
Foreign exchange contracts	Prepayments	$ 17	$ 79
Foreign exchange contracts	Other current liabilities	(291)	(514)
Total derivatives		$ (274)	$ (435)

The following table summarizes the effect of derivative instruments recognized in the statement of operations for the three months ended March 31, 2019 and April 1, 2018.

	Location of Losses (Gains) Recognized in Statement of Operations	For the Three Months Ended March 31, 2019	April 1, 2018
		(in thousands)	
Derivatives not designated as hedging instruments:			
Foreign exchange contracts	Other (income) expense, net	$ 3,934	$ 1,575

(1) The table does not reflect the corresponding gains and losses from the remeasurement of monetary assets and liabilities denominated in foreign currencies.

(2) For the three months ended March 31, 2019 and April 1, 2018, net gains from the remeasurement of monetary assets and liabilities denominated in foreign currencies were $3.2 million and $0.6 million, respectively.

See Note I: “Debt” regarding derivatives related to the convertible senior notes.

H. LEASES

On January 1, 2019, Teradyne adopted ASC 842 using the modified retrospective approach. Under this method of adoption, the comparative information in the consolidated financial statements has not been revised and continues to be reported under the previously applicable lease accounting guidance (ASC 840). Adoption of ASC 842 resulted in recording ROU assets and lease liabilities of approximately $50.1 million and $54.3 million, respectively. The adoption of ASC 842 did not have a material impact on beginning retained earnings, the consolidated statement of operations, cash flows, or earnings per share.

Teradyne has facility and auto leases, which are accounted for as operating leases. Teradyne’s facility leases are primarily used for administrative functions, research and development, manufacturing, and storage and distribution. Remaining lease terms range from less than one year to ten years.

Total lease expense for the three months ended March 31, 2019 was $7.2 million, and included $1.4 million of variable lease costs and $0.7 million of costs related to short terms leases which are not recorded on the consolidated balance sheets.

At March 31, 2019, the weighted average remaining lease term and weighted average discount rate for operating leases was 4.2 years and 5.1%, respectively.

Supplemental cash flow information related to leases was as follows:

	For the Three Months Ended March 31, 2019
	(in thousands)
Cash paid for amounts included in the measurement of lease liabilities included in operating cash flows	$ 5,059
Right-of-use assets obtained in exchange for new lease obligations	5,737

Maturities of lease liabilities as of March 31, 2019 were as follows:

	Operating Leases
	(in thousands)
2019	$ 15,375
2020	18,967
2021	14,514
2022	10,262
2023	5,719
Thereafter	11,484
Total lease payments	76,321
Less imputed interest	(21,083)
Total lease liabilities	$ 55,238

As of December 31, 2018, future non-cancelable rent obligations as determined under ASC 840 were as follows:

	Operating Leases
	(in thousands)
2019	$ 19,570
2020	18,293
2021	13,578
2022	9,693
2023	5,449
Thereafter	9,472
Total lease payments	$ 76,055

I. DEBT

Convertible Senior Notes

On December 12, 2016, Teradyne completed a private offering of $460.0 million aggregate principal amount of 1.25% convertible senior unsecured notes (the "Notes") due December 15, 2023 and received net proceeds, after issuance costs, of approximately $450.8 million, $33.0 million of which was used to pay the net cost of the convertible note hedge transactions and $50.1 million of which was used to repurchase 2.0 million shares of Teradyne's common stock under its existing stock repurchase program from purchasers of the Notes in privately negotiated transactions effected through one of the initial purchasers or its affiliates conducted concurrently with the pricing of the Note offering. The Notes will mature on December 15, 2023, unless earlier repurchased or converted. The Notes bear interest from December 12, 2016 at a rate of 1.25% per year payable semiannually in arrears on June 15 and December 15 of each year, beginning on June 15, 2017. The Notes will be convertible at the option of the noteholders at any time prior to the close of business on the business day immediately preceding September 15, 2023, only under the following circumstances: (1) during any calendar quarter beginning after March 31, 2017 (and only during such calendar quarter), if the closing sale price of Teradyne's common stock, for at least 20 trading days (whether or not consecutive) during a period of 30 consecutive trading days ending on the last trading day of the immediately preceding calendar quarter is greater than 130% of the conversion price on each applicable trading day; (2) during the five business day period after any five consecutive trading day period (the "measurement period") in which the trading price (as defined in the Indenture) per $1,000 principal amount of Notes for each trading day of the measurement period was less than 98% of the product of the closing sale price of the Teradyne's common stock and the conversion rate on each such trading day; and (3) upon the occurrence of specified corporate events. On or after September 15, 2023 until the close of business on the second scheduled trading day immediately preceding the maturity date, holders may convert their Notes at any time, regardless of the foregoing circumstances. Teradyne may satisfy its conversion obligation by paying or delivering cash, shares of its common stock or a combination of cash and shares of its common stock, at Teradyne's election. As of December 31, 2018, the conversion price was approximately $31.70 per share of Teradyne's common stock. The conversion rate is subject to adjustment under certain circumstances.

Concurrent with the offering of the Notes, Teradyne entered into convertible note hedge transactions (the "Note Hedge Transactions") with the initial purchasers or their affiliates (the "Option Counterparties"). The Note Hedge Transactions cover, subject to customary anti-dilution adjustments, the number of shares of the common stock that underlie the Notes, with a strike price equal to the conversion price of the Notes of $31.70. The Note Hedge Transactions cover, subject to customary anti-dilution adjustments, approximately 14.5 million shares of Teradyne's common stock.

Separately and concurrent with the pricing of the Notes, Teradyne entered into warrant transactions with the Option Counterparties (the "Warrant Transactions") in which it sold net-share-settled (or, at its election subject to certain conditions, cash-settled) warrants to the Option Counterparties. The Warrant Transactions cover, subject to customary anti-dilution adjustments, approximately 14.5 million shares of common stock. As of March 31, 2019, the strike price of the warrants was approximately $39.78 per share. The strike price is subject to adjustment under certain circumstances. The Warrant Transactions could have a dilutive effect to Teradyne's common stock to the extent that the market price per share of Teradyne's common stock, as measured under the terms of the Warrant Transactions, exceeds the applicable strike price of the warrants.

The Note Hedge Transactions are expected to reduce the potential dilution to Teradyne's common stock upon any conversion of the Notes. However, the Warrant Transactions could separately have a dilutive effect to the extent that the market value per share of Teradyne's common stock exceeds the applicable strike price of the warrant. The net cost of the Note Hedge Transactions, after being partially offset by the proceeds from the sale of the warrants, was approximately $33.0 million.

In connection with establishing their initial hedge of these convertible note hedge and warrant transactions, the Option Counterparties have entered into various derivative transactions with respect to Teradyne's common stock and/or purchased shares of Teradyne's common stock or other securities, including the Notes, concurrent with, or shortly after, the pricing of the Notes. In addition, the Option Counterparties may modify their hedge positions by entering into or unwinding various derivative transactions with respect to Teradyne's common stock or by selling Teradyne's common stock or other securities, including the Notes, in secondary market transactions (and may do so during any observation period related to the conversion of the Notes). These activities could adversely affect the value of Teradyne's common stock and the Notes.

Teradyne considered the guidance of ASC 815-40, *"Derivatives and Hedging—Contracts in Entity's Own Equity,"* and concluded that the convertible note hedge is both indexed to Teradyne's common stock and should be classified in stockholders' equity in its statements of financial position. The convertible note hedge is considered indexed to Teradyne's common stock as the terms of the Note Hedge Transactions do not contain an exercise contingency and the settlement amount equals the difference between the fair value of a fixed number of Teradyne's shares and a fixed strike price. Because the only variable that can affect the settlement amount is Teradyne's stock price, which is an input to the fair value of a fixed-for-fixed option contract, the convertible note hedge is considered indexed to Teradyne's common stock.

Teradyne assessed whether the convertible note hedge should be classified as equity under ASC 815-40. In the Note Hedge Transactions contract the settlement terms permit net cash settlement or net share settlement, at the option of Teradyne. Therefore, the criteria as set forth in ASC 815-40 were evaluated by Teradyne. In reviewing the criteria, Teradyne noted the following: (1) the convertible note hedge does not require Teradyne to issue shares; (2) there is no requirement to net cash settle the convertible note hedge for failure to make timely filings with the SEC; (3) in the case of termination, the convertible note hedge is settled in the same consideration as the holders of the underlying stock; (4) the counterparty does not have rights that rank higher than those of a shareholder of the stock underlying the convertible note hedge; and (5) there is no requirement to post collateral. Based on its analysis of those criteria, Teradyne concluded that the convertible note hedge should be recorded in equity and no further adjustment should be made in future periods to adjust the value of the convertible note hedge.

Teradyne analyzed the Warrant Transactions under ASC 815-40, *"Derivatives and Hedging—Contracts in Entity's Own Equity,"* and other relevant literature, and determined that it met the criteria for classification as an equity transaction and is considered indexed to Teradyne's common stock. As a result, Teradyne recorded the proceeds from the warrants as an increase to additional paid-in capital. Teradyne does not recognize subsequent changes in fair value of the warrants in its financial statements.

The provisions of ASC 470-20, "*Debt with Conversion and Other Options,*" are applicable to the Notes. ASC 470-20 requires Teradyne to separately account for the liability (debt) and equity (conversion feature) components of the Notes in a manner that reflects Teradyne's nonconvertible debt borrowing rate at the date of issuance when interest cost is recognized in subsequent periods. Teradyne allocated $100.8 million of the $460.0 million principal amount of the Notes to the equity component, which represents a discount to the debt and will be amortized to interest expense using the effective interest method through December 2023. Accordingly, Teradyne's effective annual interest rate on the Notes will be approximately 5.0%. The Notes are classified as long-term debt in the balance sheet based on their December 15, 2023 maturity date. Debt issuance costs of approximately $7.2 million are being amortized to interest expense using the effective interest method over the seven year term of the Notes. As of March 31, 2019, debt issuance costs were approximately $5.1 million.

The below tables represent the key components of Teradyne's convertible senior notes:

	March 31, 2019	December 31, 2018
	(in thousands)	
Debt Principal	$460,000	$ 460,000
Unamortized discount	76,410	80,019
Net Carrying amount of convertible debt	$383,590	$ 379,981

	For the Three Months Ended	
	March 31, 2019	April 1, 2018
	(in thousands)	
Contractual interest expense on the coupon	$ 1,438	$ 1,438
Amortization of the discount component recognized as interest expense	3,608	3,434
Total interest expense on the convertible debt	$ 5,046	$ 4,872

As of March 31, 2019, the remaining unamortized discount was $76.4 million, which will be amortized over 4.7 years using the effective interest rate method. The carrying amount of the equity component was $100.8 million. As of March 31, 2019, the if-converted value of the Notes was $578.1 million.

Revolving Credit Facility

On April 27, 2015, Teradyne entered into a Credit Agreement (the “Credit Agreement”) with Barclays Bank PLC, as administrative agent and collateral agent, and the lenders party thereto. The Credit Agreement provides for a five-year, senior secured revolving credit facility of up to $350 million (the “Credit Facility”). The Credit Agreement further provides that, subject to customary conditions, Teradyne may seek to obtain from existing or new lenders incremental commitments under the Credit Facility in an aggregate principal amount not to exceed $150 million.

Proceeds from the Credit Facility may be used for general corporate purposes and working capital. Teradyne incurred $2.3 million in costs related to the revolving credit facility. These costs are being amortized over the five-year term of the revolving credit facility and are included in interest expense in the statements of operations. As of May 10, 2019, Teradyne has not borrowed any funds under the Credit Facility.

The interest rates applicable to loans under the Credit Facility are, at Teradyne’s option, equal to either a base rate plus a margin ranging from 0.00% to 1.00% per annum or LIBOR plus a margin ranging from 1.00% to 2.00% per annum, based on the Consolidated Leverage Ratio of Teradyne and its Restricted Subsidiaries. In addition, Teradyne will pay a commitment fee on the unused portion of the commitments under the Credit Facility ranging from 0.125% to 0.350% per annum, based on the then applicable Consolidated Leverage Ratio.

Teradyne is not required to repay any loans under the Credit Facility prior to maturity, subject to certain customary exceptions. Teradyne is permitted to prepay all or any portion of the loans under the Credit Facility prior to maturity without premium or penalty, other than customary LIBOR breakage costs.

The Credit Agreement contains customary events of default, representations, warranties and affirmative and negative covenants that, among other things, limit Teradyne’s and its Restricted Subsidiaries’ ability to sell assets, grant liens on assets, incur other secured indebtedness and make certain investments and restricted payments, all subject to exceptions set forth in the Credit Agreement. The Credit Agreement also requires Teradyne to satisfy two financial ratios measured as of the end of each fiscal quarter: a consolidated leverage ratio and an interest coverage ratio. As of May 10, 2019, Teradyne was in compliance with all covenants.

The Credit Facility is guaranteed by certain of Teradyne’s domestic subsidiaries and collateralized by assets of Teradyne and such subsidiaries, including a pledge of 65% of the capital stock of certain foreign subsidiaries.

J. PREPAYMENTS

Prepayments consist of the following and are included in prepayments and other assets on the balance sheet:

	March 31, 2019	December 31, 2018
	(in thousands)	
Contract manufacturer and supplier prepayments	$147,015	$ 131,642
Prepaid taxes	13,404	9,646
Prepaid maintenance and other services	7,703	8,487
Other prepayments	16,111	12,744
Total prepayments	$184,233	$ 162,519

K. DEFERRED REVENUE AND CUSTOMER ADVANCES

Deferred revenue and customer advances consist of the following and are included in short and long-term deferred revenue and customer advances on the balance sheet:

	March 31, 2019	December 31, 2018
	(in thousands)	
Maintenance and training	$ 58,394	$ 58,362
Extended warranty	27,242	27,422
Customer advances, undelivered performance obligations and other	31,971	24,677
Total deferred revenue and customer advances	$117,607	$ 110,461

L. PRODUCT WARRANTY

Teradyne generally provides a one-year warranty on its products, commencing upon installation, acceptance, delivery or shipment. A provision is recorded upon revenue recognition to cost of revenues for estimated warranty expense based on historical experience. Related costs are charged to the warranty accrual as incurred. The warranty balance below is included in other accrued liabilities on the balance sheet.

	For the Three Months Ended	
	March 31, 2019	April 1, 2018
	(in thousands)	
Balance at beginning of period	$ 7,909	$ 8,200
Acquisition	14	—
Accruals for warranties issued during the period	3,066	3,063
Accruals related to pre-existing warranties	1,330	(139)
Settlements made during the period	(4,567)	(3,576)
Balance at end of period	$ 7,752	$ 7,548

When Teradyne receives revenue for extended warranties, beyond one year, it is deferred and recognized on a straight-line basis over the contract period. Related costs are expensed as incurred. The balance below is included in short and long-term deferred revenue and customer advances on the balance sheet.

	For the Three Months Ended	
	March 31, 2019	April 1, 2018
	(in thousands)	
Balance at beginning of period	$ 27,422	$24,438
Deferral of new extended warranty revenue	5,820	5,139
Recognition of extended warranty deferred revenue	(6,000)	(4,987)
Balance at end of period	$ 27,242	$24,590

M. STOCK-BASED COMPENSATION

Under Teradyne's stock compensation plans, Teradyne grants stock options, restricted stock units and performance-based restricted stock units, and employees are eligible to purchase Teradyne's common stock through its Employee Stock Purchase Plan ("ESPP").

Time-based restricted stock unit awards granted to employees vest in equal annual installments over four years. Restricted stock unit awards granted to non-employee directors vest after a one year period, with 100% of the award vesting on the earlier of (a) the first anniversary of the grant date or (b) the date of the following year's Annual Meeting of Shareholders. Teradyne expenses the cost of the restricted stock unit awards subject to time-based vesting, which is determined to be the fair market value of the shares at the date of grant, ratably over the period during which the restrictions lapse.

Teradyne grants performance-based restricted stock units ("PRSUs") to its executive officers with a performance metric based on relative total shareholder return ("TSR"). Teradyne's three-year TSR performance is measured against the New York Stock Exchange ("NYSE") Composite Index. The final number of TSR PRSUs that vest will vary based upon the level of performance achieved from 200% to 0% of the target shares capped at four times the grant date value. The TSR PRSUs will vest upon the three-year anniversary of the grant date. The TSR PRSUs are valued using a Monte Carlo simulation model. The number of units expected to be earned, based upon the achievement of the TSR market condition, is factored into the grant date Monte Carlo valuation. Compensation expense is recognized on a straight-line basis over the shorter of the three-year service period or the period from the grant to the date described in the retirement provisions below. Compensation expense for employees meeting the retirement provisions prior to the grant date will be recognized in full on the date of the grant. Compensation expense is recognized regardless of the eventual number of units that are earned based upon the market condition, provided the executive officer remains an employee at the end of the three-year period. Compensation expense is reversed if at any time during the three-year service period the executive officer is no longer an employee, subject to the retirement and termination eligibility provisions noted below.

In January 2019 and 2018, Teradyne granted PRSUs to its executive officers with a performance metric based on three-year cumulative non-GAAP profit before interest and tax ("PBIT") as a percent of Teradyne's revenue. Non-GAAP PBIT is a financial measure equal to GAAP income from operations less restructuring and other, net; amortization of acquired intangible assets; acquisition and divestiture related charges or credits; pension actuarial gains and losses; non-cash convertible debt interest expense; and other non-recurring gains and charges. The final number of PBIT PRSUs that vest will vary based upon the level of performance achieved from 200% to 0% of the target shares. The PBIT PRSUs will vest upon the three-year anniversary of the grant date. Compensation expense is recognized on a straight-line basis over the shorter of the three year service period or the period from the grant date to the date described in the retirement provisions below. Compensation expense for employees meeting the retirement provisions prior to the grant date will be recognized in full on the date of grant. Compensation expense is recognized based on the number of units that are earned based upon the three-year Teradyne PBIT as a percent of Teradyne's revenue, provided the executive officer remains an employee at the end of the three-year period subject to the retirement and termination eligibility provisions noted below.

If a PRSU recipient's employment ends prior to the determination of the performance percentage due to (1) permanent disability or death or (2) retirement or termination other than for cause, after attaining both at least age sixty and at least ten years of service, then all or a portion of the recipient's PRSUs (based on the actual performance percentage achieved on the determination date) will vest on the date the performance percentage is determined. Except as set forth in the preceding sentence, no PRSUs will vest if the executive officer is no longer an employee at the end of the three-year period.

During the three months ended March 31, 2019 and April 1, 2018, Teradyne granted 0.1 million and 0.1 million TSR PRSUs, respectively, with a grant date fair value of $48.47 and $54.85, respectively. The fair value was estimated using the Monte Carlo simulation model with the following assumptions:

	For the Three Months Ended	
	March 31, 2019	April 1, 2018
Risk-free interest rate	2.6%	2.2%
Teradyne volatility-historical	31.8%	26.8%
NYSE Composite Index volatility-historical	12.0%	12.4%
Dividend yield	1.0%	0.8%

Expected volatility was based on the historical volatility of Teradyne's stock and the NYSE Composite Index for the 2019 and 2018 grant over the most recent three-year period. The risk-free interest rate was determined using the U.S. Treasury yield curve in effect at the time of grant. Dividend yield was based upon an estimated annual dividend amount of $0.36 per share for 2019 grants and 2018 grants, divided by Teradyne's stock price on the grant date of $36.75 for the 2019 grant and $47.70 for the 2018 grant.

During the three months ended March 31, 2019 and April 1, 2018, Teradyne granted 0.1 million and 0.1 million, respectively, of PBIT PRSUs with a grant date fair value of $35.67 and $46.62, respectively.

During the three months ended March 31, 2019, Teradyne granted 0.6 million of service-based restricted stock unit awards to employees at a weighted average grant date fair value of $35.88 and 0.1 million of service-based stock options to executive officers at a weighted average grant date fair value of $10.26.

During the three months ended April 1, 2018, Teradyne granted 0.5 million of service-based restricted stock unit awards to employees at a weighted average grant date fair value of $46.58 and 0.1 million of service-based stock options to executive officers at a weighted average grant date fair value of $12.17.

Restricted stock unit awards granted to employees vest in equal annual installments over four years. Stock options to purchase Teradyne's common stock at 100% of the fair market value on the grant date vest in equal annual installments over four years from the grant date and have a maximum term of seven years.

The fair value of stock options was estimated using the Black-Scholes option-pricing model with the following assumptions:

	For the Three Months Ended	
	March 31, 2019	April 1, 2018
Expected life (years)	5.0	5.0
Risk-free interest rate	2.6%	2.4%
Volatility-historical	30.1%	26.4%
Dividend yield	1.0%	0.8%

Teradyne determined the stock options' expected life based upon historical exercise data for executive officers, the age of the executive officers and the terms of the stock option grant. Volatility was determined using historical volatility for a period equal to the expected life. The risk-free interest rate was determined using the U.S. Treasury yield curve in effect at the time of grant. Dividend yield was based upon an estimated annual dividend amount of $0.36 per share for 2019 and 2018 grants divided by Teradyne's stock price on the grant date of $36.75 for the 2019 grant and $47.70 for the 2018 grant.

N. ACCUMULATED OTHER COMPREHENSIVE INCOME (LOSS)

Changes in accumulated other comprehensive income (loss), which are presented net of tax, consist of the following:

	Foreign Currency Translation Adjustment	Unrealized Gains (Losses) on Marketable Securities	Retirement Plans Prior Service Credit	Total
	(in thousands)			
Three Months Ended March 31, 2019				
Balance at December 31, 2018, net of tax of $0, $(521), $(1,081), respectively	$ (12,523)	$ (1,845)	$ 1,328	$(13,040)
Other comprehensive income before reclassifications, net of tax of $0, $577, $0, respectively	(4,659)	2,100	—	(2,559)
Amounts reclassified from accumulated other comprehensive income, net of tax of $0, $(20), $(11), respectively	—	(70)	(37)	(107)
Net current period other comprehensive income (loss), net of tax of $0, $557, $(11), respectively	(4,659)	2,030	(37)	(2,666)
Balance at March 31, 2019, net of tax of $0, $36, $(1,092), respectively	$ (17,182)	$ 185	$ 1,291	$(15,706)

	Foreign Currency Translation Adjustments	Unrealized Gains (Losses) on Marketable Securities	Retirement Plans Prior Service Credit	Total
	(in thousands)			
Three Months Ended April 1, 2018				
Balance at December 31, 2017, net of tax of $0, $1,815, $(932), respectively	$ 15,919	$ 1,362	$ 1,495	$18,776
Other comprehensive income (loss) before reclassifications, net of tax of $0, $(718), $0, respectively	10,541	(2,687)	—	7,854
Amounts reclassified from accumulated other comprehensive income, net of tax of $0, $78, $(18), respectively	—	1,668	(61)	1,607
Net current period other comprehensive income (loss), net of tax of $0, $(640), $(18), respectively	10,541	(1,019)	(61)	9,461
Reclassification of income tax effects from the Tax Reform Act, net of tax of $0, $(691), $(78), respectively (a)	—	691	78	769
Reclassification of unrealized gains on equity securities, net of tax of $0, $(902), $0, respectively (b)	—	(3,125)	—	(3,125)
Balance as April 1, 2018, net of tax of $0, $(418), $(1,028), respectively	$ 26,460	$ (2,091)	$ 1,512	$25,881

(a) In the three months ended April 1, 2018, Teradyne early adopted the ASU 2018-02, *"Income Statement—Reporting Comprehensive Income (Topic 220): Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income."* As a result, the stranded tax effects resulting from the Tax Reform Act enacted in December 2017 were reclassified from accumulated other comprehensive income to retained earnings.

(b) In the three months ended April 1, 2018, Teradyne adopted the ASU 2016-01, "*Financial Instruments—Overall (Subtopic 825-10): Recognition and Measurement of Financial Assets and Financial Liabilities."*

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Reclassifications out of accumulated other comprehensive income (loss) to the statement of operations for the three months ended March 31, 2019 and April 1, 2018 were as follows:

Details about Accumulated Other Comprehensive Income Components	For the Three Months Ended March 31, 2019	For the Three Months Ended April 1, 2018	Affected Line Item in the Statements of Operations
	(in thousands)		
Available-for-sale marketable securities:			
Unrealized gains (losses), net of tax of $20, $(78), respectively	$ 70	$(1,668)	Interest (expense) income
Defined benefit pension and postretirement plans:			
Amortization of prior service benefit, net of tax of $11, $18, respectively	37	61	(a)
Total reclassifications, net of tax of $31, $(60), respectively	$ 107	$(1,607)	Net income

(a) The amortization of prior service benefit is included in the computation of net periodic pension cost and postretirement benefit. See Note R: "Retirement Plans."

O. GOODWILL AND ACQUIRED INTANGIBLE ASSETS

Goodwill

Teradyne performs its annual goodwill impairment test as required under the provisions of ASC 350-10, *"Intangibles—Goodwill and Other"* on December 31 of each fiscal year unless interim indicators of impairment exist. Goodwill is considered impaired when the net book value of a reporting unit exceeds its estimated fair value.

The changes in the carrying amount of goodwill by reportable segments for the three months ended March 31, 2019, were as follows:

	Industrial Automation	System Test	Wireless Test	Semiconductor Test	Total
			(in thousands)		
Balance at December 31, 2018					
Goodwill	$ 363,358	$ 158,699	$ 361,819	$ 260,540	$1,144,416
Accumulated impairment losses	—	(148,183)	(353,843)	(260,540)	(762,566)
	363,358	10,516	7,976	—	381,850
Lemsys acquisition	—	—	—	1,145	1,145
Foreign currency translation adjustment	(3,494)	—	—	12	(3,482)
Balance at March 31, 2019					
Goodwill	359,864	158,699	361,819	261,697	1,142,079
Accumulated impairment losses	—	(148,183)	(353,843)	(260,540)	(762,566)
	$ 359,864	$ 10,516	$ 7,976	$ 1,157	$ 379,513

Intangible Assets

Teradyne reviews long-lived assets for impairment whenever events or changes in business circumstances indicate that the carrying amount of the assets may not be fully recoverable or that the useful lives of these assets are no longer appropriate.

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Amortizable intangible assets consist of the following and are included in intangible assets, net on the balance sheet:

	March 31, 2019			
	Gross Carrying Amount (1)	Accumulated Amortization	Foreign Currency Translation Adjustment	Net Carrying Amount
	(in thousands)			
Developed technology	$ 337,218	$ (259,129)	$ (4,812)	$ 73,277
Customer relationships	100,743	(85,469)	(408)	14,866
Tradenames and trademarks	64,670	(32,897)	(973)	30,800
Non-compete agreement	320	(320)	—	—
Backlog	780	(349)	(2)	429
Total intangible assets	$ 503,731	$ (378,164)	$ (6,195)	$119,372

	December 31, 2018			
	Gross Carrying Amount	Accumulated Amortization	Foreign Currency Translation Adjustment	Net Carrying Amount
	(in thousands)			
Developed technology	$336,308	$ (252,080)	$ (4,079)	$ 80,149
Customer relationships	97,153	(83,448)	(340)	13,365
Tradenames and trademarks	64,420	(31,653)	(799)	31,968
Non-compete agreement	320	(320)	—	—
Backlog	30	(30)	—	—
Total intangible assets	$498,231	$ (367,531)	$ (5,218)	$125,482

(1) Includes $5.5 million of intangible assets from Lemsys acquisition.

Aggregate intangible asset amortization expense was $10.6 million and $7.7 million, for the three months ended March 31, 2019 and April 1, 2018, respectively.

Estimated intangible asset amortization expense for each of the five succeeding fiscal years is as follows:

Year	Amortization Expense
	(in thousands)
2019 (remainder)	29,184
2020	24,852
2021	14,707
2022	13,815
2023	13,339
Thereafter	23,475

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P. NET INCOME PER COMMON SHARE

The following table sets forth the computation of basic and diluted net income per common share:

	For the Three Months Ended	
	March 31, 2019	April 1, 2018
	(in thousands, except per share amounts)	
Net income for basic and diluted net income per share	$ 109,138	$ 86,974
Weighted average common shares-basic	173,532	195,255
Effect of dilutive potential common shares:		
Incremental shares from assumed conversion of convertible notes (1)	2,186	4,398
Convertible note hedge warrant shares (2)	—	1,830
Restricted stock units	1,021	1,666
Stock options	222	321
Employee stock purchase plan	11	14
Dilutive potential common shares	3,440	8,229
Weighted average common shares-diluted	176,972	203,484
Net income per common share-basic	$ 0.63	$ 0.45
Net income per common share-diluted	$ 0.62	$ 0.43

(1) Incremental shares from assumed conversion of the convertible notes was calculated using the difference between the average Teradyne stock price for the period and the conversion price of $31.70, multiplied by 14.5 million shares. The result of this calculation, representing the total intrinsic value of the convertible debt, was divided by the average Teradyne stock price for the period.

(2) Convertible notes hedge warrant shares were calculated using the difference between the average Teradyne stock price for the period and the warrant price of $39.78, multiplied by 14.5 million shares. The result of this calculation, representing the total intrinsic value of the warrant, was divided by the average Teradyne stock price for the period.

The computation of diluted net income per common share for the three months ended March 31, 2019 excludes the effect of the potential vesting of 0.6 million of restricted stock units because the effect would have been anti-dilutive.

The computation of diluted net income per common share for the three months ended April 1, 2018 excludes the effect of the potential vesting of 0.4 million shares of restricted stock units because the effect would have been anti-dilutive.

Q. RESTRUCTURING AND OTHER

During the three months ended March 31, 2019, Teradyne recorded an expense of $3.0 million for the increase in the fair value of the MiR contingent consideration liability, $1.3 million of acquisition related compensation and expenses, and $0.8 million of severance charges related to headcount reductions primarily in Semiconductor Test.

During the three months ended April 1, 2018, Teradyne recorded a $5.0 million credit for the decrease in the fair value of the Universal Robots contingent consideration liability, partially offset by $3.9 million recorded for employee severance charges, primarily in Semiconductor Test, and $0.8 million of acquisition related expenses.

R. RETIREMENT PLANS

ASC 715, *"Compensation—Retirement Benefits"* requires an employer with a defined benefit plan or other postretirement benefit plan to recognize an asset or a liability on its balance sheet for the overfunded or underfunded status of the plan. The pension asset or liability represents a difference between the fair value of the pension plan's assets and the projected benefit obligation.

Defined Benefit Pension Plans

Teradyne has defined benefit pension plans covering a portion of domestic employees and employees of certain non-U.S. subsidiaries. Benefits under these plans are based on employees' years of service and compensation. Teradyne's funding policy is to make contributions to these plans in accordance with local laws and to the extent that such contributions are tax deductible. The assets of the U.S. qualified pension plan consist primarily of fixed income and equity securities. In addition, Teradyne has unfunded qualified foreign plans as well as an unfunded supplemental executive defined benefit plan in the United States to provide retirement benefits in excess of levels allowed by the Employment Retirement Income Security Act ("ERISA") and the Internal Revenue Code ("IRC").

In the three months ended March 31, 2019, Teradyne contributed $0.7 million to the U.S. supplemental executive defined benefit pension plan and $0.2 million to certain qualified pension plans for non-U.S. subsidiaries.

For the three months ended March 31, 2019 and April 1, 2018, Teradyne's net periodic pension cost was comprised of the following:

	For the Three Months Ended			
	March 31, 2019		April 1, 2018	
	United States	Foreign	United States	Foreign
	(in thousands)			
Service cost	$ 405	$ 188	$ 571	$ 213
Interest cost	1,795	173	2,997	186
Expected return on plan assets	(1,511)	(7)	(3,369)	(5)
Amortization of prior service cost	—	—	14	—
Total net periodic pension cost	$ 689	$ 354	$ 213	$ 394

Postretirement Benefit Plan

In addition to receiving pension benefits, Teradyne employees in the United States who meet early retirement eligibility requirements as of their termination dates may participate in Teradyne's Welfare Plan, which includes medical and dental benefits up to age 65. Death benefits provide a fixed sum to retirees' survivors and are available to all retirees. Substantially all of Teradyne's current U.S. employees could become eligible for these benefits, and the existing benefit obligation relates primarily to those employees.

For the three months ended March 31, 2019 and April 1, 2018, Teradyne's net periodic postretirement benefit cost was comprised of the following:

	For the Three Months Ended	
	March 31, 2019	April 1, 2018
	(in thousands)	
Service cost	$ 9	$ 9
Interest cost	85	50
Amortization of prior service credit	(48)	(93)
Special termination benefits	—	1,626
Total net periodic postretirement benefit cost	$ 46	$1,592

S. COMMITMENTS AND CONTINGENCIES

Purchase Commitments

As of March 31, 2019, Teradyne had entered into purchase commitments for certain components and materials. The purchase commitments covered by the agreements aggregate to approximately $263.0 million, of which $255.3 million is for less than one year.

Legal Claims

Teradyne is subject to various legal proceedings and claims which have arisen in the ordinary course of business. In the opinion of management, the ultimate disposition of these matters will not have a material adverse effect on Teradyne's results of operations, financial condition or cash flows.

T. INCOME TAXES

The effective tax rate for the three months ended March 31, 2019 and April 1, 2018 was (16.1)% and 9.2%, respectively.

The decrease in the effective tax rate from the three months ended April 1, 2018 to the three months ended March 31, 2019 resulted from discrete tax benefits from the release of reserves for uncertain tax positions, increases in benefits related to the U.S. foreign derived intangible income deduction and U.S. research and development tax credits, a decrease in expense related to the uncertain tax positions for transfer pricing and a reduction in discrete tax expense associated with remeasurement of deferred tax assets as a result of reductions in tax rates. These reductions were partially offset by a projected shift in the geographic distribution of income, which increases the income subject to taxation in higher tax rate jurisdictions relative to lower tax rate jurisdictions, an increase in the U.S. global intangible low-taxed income inclusion and a reduction in the discrete benefit from stock based compensation.

The effective tax rate for the three months ended March 31, 2019 and April 1, 2018 was lower than the expected federal statutory rate because of the favorable effect of statutory rates applicable to income earned outside the United States, the benefit from U.S. research and development tax credits, the benefit from stock based compensation deductions, and the benefit of the U.S. foreign derived intangible income deduction partially offset by the U.S. global intangible low-taxed income inclusion. The effective tax rate for the three months ended March 31, 2019 was also reduced by discrete tax benefits from the release of reserves for uncertain tax positions. The effective rate for the three months ended April 1, 2018 was also increased by additions to the uncertain tax positions for transfer pricing.

Discrete tax items recorded in the three months ended March 31, 2019 amounted to $30.2 million of net benefit. The $30.2 million of discrete tax benefit consisted of $28.8 million of benefit resulting from the release of reserves for uncertain tax positions, $3.8 million of benefit from stock based compensation, $2.9 million of expense from an increase in U.S. state valuation allowances and $0.5 million of other discrete tax benefit. The release of reserves for uncertain tax positions and the increase in U.S. state valuation allowances were associated with the conclusion of the U.S. Federal income tax audit for the year ended December 31, 2015.

Discrete tax items recorded in the three months ended April 1, 2018 amounted to $6.0 million of net benefit. The $6.0 million of discrete tax benefit consisted of $7.6 million of benefit from stock based compensation, $1.7 million of expense from the write down of deferred tax assets as a result of reductions in tax rates, $0.7 million of other discrete tax benefits and $0.6 million of other discrete tax expenses.

On a quarterly basis, Teradyne evaluates the realizability of the deferred tax assets by jurisdiction and assesses the need for a valuation allowance. As of March 31, 2019, Teradyne believes that it will ultimately realize the deferred tax assets recorded on the condensed consolidated balance sheet. However, should Teradyne believe that it is more-likely-than-not that the deferred tax assets would not be realized, the tax provision would increase in the period in which Teradyne determined that the realizability was not likely. Teradyne considers the probability of future taxable income and historical profitability, among other factors, in assessing the realizability of the deferred tax assets.

As of March 31, 2019 and December 31, 2018, Teradyne had $13.5 million and $43.4 million, respectively, of reserves for uncertain tax positions. The $29.9 million net decrease in reserves for uncertain tax positions is composed of reductions in uncertain tax positions amounting to $22.4 million related to transfer pricing and $7.4 million associated with U.S. research and development tax credits. These reductions resulted from the conclusion of the U.S. Federal income tax audit for the year ended December 31, 2015.

As of March 31, 2019, Teradyne estimates that it is reasonably possible that the balance of unrecognized tax benefits may decrease approximately $0.2 million in the next twelve months, as a result of a lapse of statutes of limitation. The estimated decrease is composed of reserves relating to local tax incentives.

Teradyne recognizes interest and penalties related to income tax matters in income tax expense. As of March 31, 2019 and December 31, 2018, $0.6 million and $0.3 million, respectively, of interest and penalties were accrued for uncertain tax positions. For the three months ended March 31, 2019 and April 1, 2018, expense of $0.3 million and $0.1 million, respectively, was recorded for interest and penalties related to income tax items.

Teradyne qualifies for a tax holiday in Singapore by fulfilling the requirements of an agreement with the Singapore Economic Development Board under which certain headcount and spending requirements must be met. The tax savings due to the tax holiday for the three months ended March 31, 2019 was $2.1 million, or $0.01 per diluted share. The tax savings due to the tax holiday for the three months ended April 1, 2018 was $3.0 million, or $0.01 per diluted share. The tax holiday is scheduled to expire on December 31, 2020.

U. SEGMENT INFORMATION

Teradyne has four reportable segments (Semiconductor Test, System Test, Industrial Automation and Wireless Test). Each of the Semiconductor Test, System Test, and Wireless Test segments is also an individual operating segment. The Industrial Automation reportable segment consists of operating segments with discrete financial information, which have been combined into one reportable segment as they share similar economic characteristics, types of products, production processes, distribution channels, and currency risks. The Semiconductor Test segment includes operations related to the design, manufacturing and marketing of semiconductor test products and services. The System Test segment includes operations related to the design, manufacturing and marketing of products and services for defense/aerospace instrumentation test, storage test and circuit-board test. The Industrial Automation segment includes operations related to the design,

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manufacturing and marketing of collaborative robotic arms, autonomous mobile robots and advanced robotic control software. The Wireless Test segment includes operations related to the design, manufacturing and marketing of wireless test products and services.

Teradyne evaluates performance based on several factors, of which the primary financial measure is business segment income (loss) before income taxes. The accounting policies of the business segments in effect are described in Note B: "Accounting Policies" in Teradyne's Annual Report on Form 10-K for the year ended December 31, 2018.

Segment information for the three months ended March 31, 2019 and April 1, 2018 is as follows:

	Semiconductor Test	Industrial Automation	System Test	Wireless Test	Corporate and Other	Consolidated
			(in thousands)			
Three Months Ended March 31, 2019						
Revenues	$ 340,853	$ 66,136	$58,220	$29,041	$ (151)	$ 494,099
Income (loss) before income taxes (1)(2)	83,049	(5,295)	15,340	3,628	(2,743)	93,979
Total assets (3)	770,967	596,899	98,916	73,066	1,076,795	2,616,643
Three Months Ended April 1, 2018						
Revenues	$ 373,328	$ 48,834	$43,019	$22,507	$ (221)	$ 487,467
Income before income taxes (1)(2)	88,079	784	5,888	464	605	95,820
Total assets (3)	758,737	406,557	90,785	59,739	1,679,375	2,995,193

(1) Included in Corporate and Other are: contingent consideration adjustments, severance charges, interest income, interest expense, net foreign exchange gains (losses), intercompany eliminations and acquisition related charges.
(2) Included in the income (loss) before income taxes for each of the segments are charges and credits related to restructuring and other and inventory charges.
(3) Total business assets are directly attributable to each business. Corporate assets consist of cash and cash equivalents, marketable securities and certain other assets.

Included in the Semiconductor Test segment are charges in the following line items in the statements of operations:

	For the Three Months Ended	
	March 31, 2019	April 1, 2018
	(in thousands)	
Cost of revenues—inventory charge	$ 1,174	$ 2,166
Restructuring and other—employee severance	567	3,761

Included in the Industrial Automation segment are charges in the following line items in the statements of operations:

	For the Three Months Ended	
	March 31, 2019	April 1, 2018
	(in thousands)	
Restructuring and other—acquisition related expenses and compensation	$ 1,261	$ —
Cost of revenues—inventory charge	416	200

Included in the System Test segment are charges in the following line item in the statements of operations:

	For the Three Months Ended	
	March 31, 2019	April 1, 2018
	(in thousands)	
Cost of revenues—inventory charge	$ 468	$ 320

Included in the Wireless Test segment are charges in the following line items in the statements of operations:

	For the Three Months Ended	
	March 31, 2019	April 1, 2018
	(in thousands)	
Cost of revenues—inventory charge	$ 339	$ 836

Included in Corporate and Other are charges and credits in the following line items in the statements of operations:

	For the Three Months Ended	
	March 31, 2019	April 1, 2018
	(in thousands)	
Restructuring and other—MiR contingent consideration adjustment	$ 3,003	$ —
Restructuring and other—Universal Robots contingent consideration adjustment	—	(4,968)
Restructuring and other—acquisition related expenses	—	774

V. SHAREHOLDERS' EQUITY

Stock Repurchase Program

In January 2018, Teradyne's Board of Directors cancelled the December 2016 stock repurchase program and authorized a new stock repurchase program for up to $1.5 billion of common stock. Teradyne intends to repurchase $500 million in 2019.

During the three months ended March 31, 2019, Teradyne repurchased 4.5 million shares of common stock for $156.5 million at an average price of $35.12 per share. The cumulative repurchases under the $1.5 billion stock repurchase program as of March 31, 2019 totaled 26.1 million shares of common stock for $979.9 million at an average price per share of $37.55.

During the three months ended April 1, 2018, Teradyne repurchased 2.9 million shares of common stock for $134.3 million at an average price of $45.69 per share.

The total price includes commissions and is recorded as a reduction to retained earnings.

Dividend

Holders of Teradyne's common stock are entitled to receive dividends when they are declared by Teradyne's Board of Directors.

In January 2019, Teradyne's Board of Directors declared a quarterly cash dividend of $0.09 per share. Dividend payments for the three months ended March 31, 2019 were $15.6 million.

In January 2018, Teradyne's Board of Directors declared a quarterly cash dividend of $0.09 per share. Dividend payments for the three months ended April 1, 2018 were $17.6 million.

While Teradyne declared a quarterly cash dividend and authorized a share repurchase program, it may reduce or eliminate the cash dividend or share repurchase program in the future. Future cash dividends and stock repurchases are subject to the discretion of Teradyne's Board of Directors, which will consider, among other things, Teradyne's earnings, capital requirements and financial condition.

Item 2: Management's Discussion and Analysis of Financial Condition and Results of Operations

Statements in this Quarterly Report on Form 10-Q which are not historical facts, so called "forward-looking statements," are made pursuant to the safe harbor provisions of Section 21E of the Securities Exchange Act of 1934, as amended. Investors are cautioned that all forward-looking statements involve risks and uncertainties, including those detailed in our filings with the Securities and Exchange Commission. See also Part II, Item 1A of this Quarterly Report on Form 10-Q and Part I, Item 1A "Risk Factors" in our Annual Report on Form 10-K for the year ended December 31, 2018. Readers are cautioned not to place undue reliance on these forward-looking statements which reflect management's analysis only as of the date hereof. We assume no obligation to update these forward-looking statements to reflect actual results or changes in factors or assumptions affecting forward-looking statements, except as may be required by law.

Overview

We are a leading global supplier of automation equipment for test and industrial applications. We design, develop, manufacture and sell automatic test systems used to test semiconductors, wireless products, data storage and complex electronics systems in the consumer electronics, wireless, automotive, industrial, computing, communications, and aerospace and defense industries. Our industrial automation products include collaborative robotic arms, autonomous mobile robots and advanced robotic control software used by global manufacturing and light industrial customers to improve quality, increase manufacturing and material handling efficiency and decrease manufacturing costs. Our automatic test equipment and industrial automation products and services include:

- semiconductor test ("Semiconductor Test") systems;
- industrial automation ("Industrial Automation") products;
- defense/aerospace ("Defense/Aerospace") test instrumentation and systems, storage test ("Storage Test") systems, and circuit-board test and inspection ("Production Board Test") systems (collectively these products represent "System Test"); and
- wireless test ("Wireless Test") systems.

We have a customer base which includes integrated device manufacturers ("IDMs"), outsourced semiconductor assembly and test providers ("OSATs"), original equipment manufacturers ("OEMs"), wafer foundries, fabless companies that design, but contract with others for the manufacture of integrated circuits ("ICs"), developers of wireless devices and consumer electronics, manufacturers of circuit boards, automotive suppliers, wireless product manufacturers, storage device manufacturers, aerospace and military contractors, and distributors that sell collaborative robots, autonomous mobile robots and wireless test systems.

The market for our test products is concentrated with a limited number of significant customers accounting for a substantial portion of the purchases of test equipment. One customer drives significant demand for our products both through direct sales and sales to the customer's supply partners. We expect that sales of our test products will continue to be concentrated with a limited number of significant customers for the foreseeable future.

The sales of our products and services are dependent, to a large degree, on customers who are subject to cyclical trends in the demand for their products. These cyclical periods have had, and will continue to have, a significant effect on our business because our customers often delay or accelerate purchases in reaction to changes in their businesses and to demand fluctuations in the semiconductor and electronics industries. Historically, these demand fluctuations have resulted in significant variations in our results of operations.

On February 26, 2018, we acquired Energid Technologies Corporation ("Energid") for a total purchase price of approximately $27.6 million. Energid's technology enables and simplifies the programming of complex robotic motions used in a wide variety of end markets, ranging from heavy industry to healthcare, utilizing both traditional robots and collaborative robots.

On April 25, 2018, we acquired Mobile Industrial Robots ApS ("MiR"), a Danish limited liability company. MiR is the leading maker of collaborative autonomous mobile robots for industrial applications. The total purchase price was approximately $198 million, which included cash paid of approximately $145 million and $53 million in fair value of contingent consideration payable upon achievement of certain thresholds and targets for revenue and earnings before interest and taxes through 2020. Contingent consideration for 2018 was $31 million and was paid in March 2019. The maximum payment for the remaining MiR contingent consideration that could be paid is $83.2 million.

MiR and Energid are included in our Industrial Automation segment.

On January 30, 2019, we acquired all of the issued and outstanding shares of Lemsys SA ("Lemsys") for a total purchase price of approximately $9.1 million. Lemsys strengthens our position in the electrification trends of vehicles, solar, wind, and industrial applications. Lemsys is included in our Semiconductor Test segment.

We believe our recent acquisitions have enhanced our opportunities for growth. We intend to continue to invest in our business, grow market share in our markets and expand further our addressable markets while tightly managing our costs.

Critical Accounting Policies and Estimates

We have identified the policies which are critical to understanding our business and our results of operations. There have been no significant changes during the three months ended March 31, 2019 to the items disclosed as our critical accounting policies and estimates in Management's Discussion and Analysis of Financial Condition and Results of Operations in our Annual Report on Form 10-K for the fiscal year ended December 31, 2018, except as noted below.

Leases

In February 2016, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") 2016-02, *"Leases (Topic 842)"* ("Topic 842"), which requires a lessee to record a right-of-use ("ROU") asset and a lease liability on the balance sheet for operating leases with terms longer than twelve months. We adopted this standard and the related amendments (collectively "ASC 842") on January 1, 2019 and utilized the modified retrospective approach provided by ASU 2018-11, *"Leases (Topic 842): Targeted Improvements,"* that allowed for a cumulative effect adjustment in the period of adoption. Under this method of adoption, the comparative information in the consolidated financial statements has not been revised and continues to be reported under the previously applicable lease accounting guidance (ASC 840). We also utilized the package of practical expedients permitted under the transition guidance which included the carry-forward of historical lease classification. Adoption of ASC 842 resulted in recording ROU assets and lease liabilities of approximately $50.1 million and $54.3 million, respectively. Operating lease liabilities were calculated using the discount rate on January 1, 2019. The adoption of ASC 842 did not have a material impact on beginning retained earnings, the consolidated statement of operations, cash flows, or earnings per share.

Under ASC 842, a contract is or contains a lease when we have the right to control the use of an identified asset. We determine if an arrangement is a lease at inception of the contract, which is the date on which the terms of the contract are agreed to and the agreement creates enforceable rights and obligations. The commencement date of the lease is the date that the lessor makes an underlying asset available for use. As of March 31, 2019, we do not have material leases that have not yet commenced.

We determine if the lease is operating or finance at the lease commencement date based upon the terms of the lease and the nature of the asset. The lease term used to calculate the lease liability includes options to extend or terminate the lease when it is reasonably certain that the option will be exercised.

For leases commencing after January 1, 2019, the lease liability is measured at the present value of future lease payments, discounted using the discount rate for the lease at the commencement date. As we are typically unable to determine the implicit rate, we use an incremental borrowing rate based on the lease term and economic environment at commencement date. We initially measure payments based on an index by using the applicable rate at lease commencement. Variable payments that do not depend on an index are not included in the lease liability and are recognized as they are incurred. The ROU asset is initially measured as the amount of lease liability, adjusted for any initial lease costs, prepaid lease payments, and reduced by any lease incentives.

Our contracts often include non-lease components such as common area maintenance. We elected the practical expedient to account for the lease and non-lease components as a single lease component. For leases with a term of one year or less we elected not to record the lease asset or liability. The lease payments are recognized in the consolidated statement of earnings on a straight-line basis over the lease term. We include lease costs within cost of revenues and operating expenses

Preparation of Financial Statements and Use of Estimates

The preparation of consolidated financial statements requires management to make estimates and judgments that affect the amounts reported in the financial statements. Actual results may differ significantly from these estimates.

SELECTED RELATIONSHIPS WITHIN THE CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS

	For the Three Months Ended	
	March 31, 2019	April 1, 2018
Percentage of revenues:		
Revenues:		
Products	80%	83%
Services	20	17
Total revenues	100	100
Cost of revenues:		
Cost of products	33	37
Cost of services	8	8
Total cost of revenues (exclusive of acquired intangible assets amortization shown separately below)	42	45
Gross profit	58	55
Operating expenses:		
Selling and administrative	21	19
Engineering and development	16	15
Acquired intangible assets amortization	2	2
Restructuring and other	1	—
Total operating expenses	39	35
Income from operations	19	20
Non-operating (income) expense:		
Interest income	(2)	(1)
Interest expense	1	1
Other (income) expense, net	—	—
Income before income taxes	19	20
Income tax provision	(3)	2
Net income	22%	18%

Results of Operations

First Quarter 2019 Compared to First Quarter 2018

Revenues

Revenues by our four reportable segments were as follows:

	For the Three Months Ended		
	March 31, 2019	April 1, 2018	Dollar Change
	(in millions)		
Semiconductor Test	$ 340.9	$ 373.3	$ (32.4)
Industrial Automation	66.1	48.8	17.3
System Test	58.2	43.0	15.2
Wireless Test	29.0	22.5	6.5
	$ 494.1	$ 487.5	$ 6.6

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The decrease in Semiconductor Test revenues of $32.4 million, or 8.7%, was driven primarily by a decrease in memory test sales and lower mobility test sales, partially offset by higher image sensor test sales. The increase in Industrial Automation revenues of $17.3 million, or 35.5%, was due to higher demand for collaborative robotic arms and the acquisition of MiR, which was acquired in April 2018. MiR added $9.1 million of revenue in the three months ended March 31, 2019.

The increase in System Test revenues of $15.2 million, or 35.3%, was primarily due to higher sales in Storage Test of 3.5" hard disk drive and higher sales in Production Board Test. The increase in Wireless Test revenues of $6.5 million, or 28.9%, was primarily due to higher demand for millimeter wave and cellular test products.

Revenues by country as a percentage of total revenues were as follows (1):

	For the Three Months Ended	
	March 31, 2019	April 1, 2018
Taiwan	17%	28%
China	17	17
United States	15	13
Japan	12	5
Europe	11	10
Korea	10	11
Singapore	6	3
Philippines	4	6
Thailand	4	2
Malaysia	3	4
Rest of World	1	1
	100%	100%

(1) Revenues attributable to a country are based on location of customer site.

Gross Profit

Our gross profit was as follows:

	For the Three Months Ended		Dollar/ Point Change
	March 31, 2019	April 1, 2018	
	(in millions)		
Gross profit	$ 287.6	$269.8	$ 17.8
Percent of total revenues	58.2%	55.4%	2.8

Gross profit as a percent of revenue increased by 2.8 points, primarily due to favorable product mix.

We assess the carrying value of our inventory on a quarterly basis by estimating future demand and comparing that demand against on-hand and on-order inventory positions. Forecasted revenue information is obtained from sales and marketing groups and incorporates factors such as backlog and future revenue demand. This quarterly process identifies obsolete and excess inventory. Obsolete inventory, which represents items for which there is no demand, is fully reserved. Excess inventory, which represents inventory items that are not expected to be consumed during the next twelve quarters for our Semiconductor Test, System Test and Industrial Automation segments and the next four quarters for our Wireless Test segment, is written-down to estimated net realizable value.

During the three months ended March 31, 2019, we recorded an inventory provision of $2.4 million included in cost of revenues primarily due to downward revisions to previously forecasted demand levels, of which $1.2 million was related to Semiconductor Test and $0.5 million was related to System Test.

During the three months ended April 1, 2018, we recorded an inventory provision of $3.5 million included in cost of revenues primarily due to downward revisions to previously forecasted demand levels of which $2.2 million was related to Semiconductor Test, $0.8 million was related to Wireless Test, $0.3 million was related to System Test, and $0.2 million was related to Industrial Automation.

During the three months ended March 31, 2019 and April 1, 2018, we scrapped $0.4 million and $0.3 million of inventory, respectively. During the three months ended March 31, 2019 and April 1, 2018, we sold $0.8 million and $2.2 million of previously written-down or written-off inventory, respectively. As of March 31, 2019, we had inventory related reserves for inventory, which had been written-down or written-off totaling $100.9 million. We have no pre-determined timeline to scrap the remaining inventory.

Selling and Administrative

Selling and administrative expenses were as follows:

	For the Three Months Ended		
	March 31, 2019	April 1, 2018	Dollar Change
	(in millions)		
Selling and administrative	$ 102.0	$ 90.5	$ 11.5
Percent of total revenues	20.6%	18.6%	

The increase of $11.5 million in selling and administrative expenses was due primarily to higher spending in Industrial Automation due to higher sales and marketing spending in Universal Robots and due to the acquisitions of MiR and Energid in 2018.

Engineering and Development

Engineering and development expenses were as follows:

	For the Three Months Ended		
	March 31, 2019	April 1, 2018	Dollar Change
	(in millions)		
Engineering and development	$ 76.8	$ 74.4	$ 2.4
Percent of total revenues	15.5%	15.3%	

The increase of $2.4 million in engineering and development expenses was primarily due to higher spending in Industrial Automation and Wireless Test, partially offset by lower spending in Semiconductor Test.

Acquired Intangible Assets Amortization

Acquired intangible assets amortization expense was as follows:

	For the Three Months Ended		
	March 31, 2019	April 1, 2018	Dollar Change
	(in millions)		
Acquired intangible assets amortization	$ 10.6	$ 7.7	$ 2.9
Percent of total revenues	2.2%	1.6%	

Acquired intangible assets amortization expense increased primarily due to Industrial Automation acquisitions of MiR and Energid in 2018 and the Semiconductor Test acquisition of Lemsys in 2019.

Restructuring and Other

During the three months ended March 31, 2019, we recorded an expense of $3.0 million for the increase in the fair value of the MiR contingent consideration liability, $1.3 million of acquisition related compensation and expenses, and $0.8 million of severance charges related to headcount reductions primarily in Semiconductor Test.

During the three months ended April 1, 2018, we recorded a $5.0 million credit for the decrease in the fair value of the Universal Robots contingent consideration liability, partially offset by $3.9 million recorded for employee severance charges, primarily in Semiconductor Test, and $0.8 million of acquisition related expenses.

Interest and Other

	For the Three Months Ended		
	March 31, 2019	April 1, 2018	Dollar Change
	(in millions)		
Interest income	$ (8.1)	$ (6.0)	$ (2.1)
Interest expense	5.7	6.9	(1.2)
Other (income) expense, net	1.4	0.8	0.6

Interest income increased by $2.1 million due primarily to unrealized gains on equity marketable securities in 2019. Interest expense decreased by $1.2 million due primarily to lower realized losses on sales of marketable securities in 2019.

Income (Loss) Before Income Taxes

	For the Three Months Ended		
	March 31, 2019	April 1, 2018	Dollar Change
	(in millions)		
Semiconductor Test	$ 83.0	$ 88.1	$ (5.0)
System Test	15.3	5.9	9.5
Wireless Test	3.6	0.5	3.2
Industrial Automation	(5.3)	0.8	(6.1)
Corporate and Other (1)	(2.7)	0.6	(3.3)
	$ 94.0	$ 95.8	$ (1.8)

(1) Included in Corporate and Other are: contingent consideration adjustments, employee severance, interest income, interest expense, net foreign exchange gains and losses, intercompany eliminations, and acquisition related expenses.

The decrease in income before income taxes in Semiconductor Test was driven primarily by a decrease in memory test sales and lower mobility test sales partially offset by higher image sensor test sales. The increase in income before income taxes in System Test was primarily due to higher sales in Storage Test of 3.5" hard disk drive and higher sales in Production Board Test. The increase in income before income taxes in Wireless Test was primarily due to higher demand for millimeter wave and cellular test products. The decrease in income before income taxes in Industrial Automation was primarily due to increased intangible assets amortization expense from the acquisitions of MiR and Energid in 2018.

Income Taxes

The effective tax rate for the three months ended March 31, 2019 and April 1, 2018 was (16.1)% and 9.2%, respectively. The decrease in the effective tax rate from the three months ended April 1, 2018 to the three months ended March 31, 2019 resulted from discrete tax benefit from the release of reserves for uncertain tax positions, increases in benefits related to the U.S. foreign derived intangible income deduction and U.S. research and development tax credits, a decrease in expense related to the uncertain tax positions for transfer pricing and a reduction in discrete tax expense associated with remeasurement of deferred tax assets as a result of reductions in tax rates. These reductions were partially offset by a projected shift in the geographic distribution of income, which increases the income subject to taxation in higher tax rate jurisdictions relative to lower tax rate jurisdictions, an increase in the U.S. global intangible low-taxed income inclusion and a reduction in the discrete benefit from stock based compensation.

Contractual Obligations

The following table reflects our contractual obligations as of March 31, 2019:

	Payments Due by Period					
	Total	Less than 1 year	1-3 years	3-5 years	More than 5 years	Other
	(in thousands)					
Convertible debt	$ 460,000	$ —	$ —	$460,000	$ —	$ —
Purchase obligations	262,970	255,335	7,635	—	—	—
Retirement plans contributions	126,034	4,993	10,370	11,019	99,652	—
Transition tax payable (1)	91,186	7,295	14,590	14,590	54,711	—
Operating lease obligations	76,323	20,487	31,178	14,346	10,312	—
Fair value of contingent consideration	38,313	22,803	15,510	—	—	—
Interest on long-term debt	28,750	5,750	11,500	11,500	—	—
Other long-term liabilities reflected on the balance sheet under GAAP (2)	62,189	—	25,571	7,272	—	29,346
Total	$1,145,765	$316,663	$116,354	$518,727	$164,675	$29,346

(1) Represents our estimate of a provisional tax amount for the transition tax liability associated with our accumulated foreign earnings as a result of the enactment of the Tax Reform Act on December 22, 2017.

(2) Included in other long-term liabilities are liabilities for customer advances, extended warranty, uncertain tax positions, deferred tax liabilities and other obligations. For certain long-term obligations, we are unable to provide a reasonably reliable estimate of the timing of future payments relating to these obligations and therefore we included these amounts in the column marked "Other."

Liquidity and Capital Resources

Our cash, cash equivalents, and marketable securities balances decreased by $207.8 million in the three months ended March 31, 2019 to $996.7 million.

Operating activities during the three months ended March 31, 2019 provided cash of $18.0 million. Changes in operating assets and liabilities used cash of $134.2 million. This was due to a $63.3 million increase in operating assets and a $70.9 million decrease in operating liabilities.

The increase in operating assets was primarily due to a $41.7 million increase in accounts receivable due to increased sales, a $18.6 million increase in prepayments and other assets, and a $2.9 million increase in inventories.

The decrease in operating liabilities was due to a $59.5 million decrease in accrued employee compensation due primarily to first quarter payments related to variable compensation, a $22.8 million decrease in income taxes, an $11.5 million decrease in other accrued liabilities, and $1.2 million of retirement plan contributions, partially offset by a $17.7 million increase in accounts payable, and a $6.5 million increase in deferred revenue and customer advance payments.

Investing activities during the three months ended March 31, 2019 used cash of $261.0 million, due to $375.2 million used for purchases of marketable securities, $25.7 million used for purchases of property, plant and equipment, and $7.0 million, net of cash acquired, used for the acquisition of Lemsys, partially offset by $141.2 million and $5.4 million in proceeds from maturities and sales of marketable securities, respectively, and proceeds from life insurance of $0.3 million related to the cash surrender value from the cancellation of a Teradyne owned life insurance policy.

Financing activities during the three months ended March 31, 2019 used cash of $199.8 million, due to $156.5 million used for the repurchase of 4.5 million shares of common stock at an average price of $35.12 per share, $27.6 million used for a payment related to MiR and Universal Robots acquisition contingent consideration, $15.6 million used for dividend payments, and $14.3 million used for payments related to net settlements of employee stock compensation awards, partially offset by $14.3 million from the issuance of common stock under employee stock purchase and stock option plans.

Operating activities during the three months ended April 1, 2018 used cash of $81.9 million. Changes in operating assets and liabilities used cash of $212.6 million. This was due to a $162.4 million increase in operating assets and a $50.2 million decrease in operating liabilities.

The increase in operating assets was primarily due to a $140.7 million increase in accounts receivable due to an increase in shipments during the last month of the quarter and the impact of the new revenue recognition standard, a $21.0 million increase in inventories, and a $0.7 million increase in prepayments and other assets.

The decrease in operating liabilities was due to a $56.3 million decrease in accrued employee compensation due primarily to first quarter payments related to variable compensation, a $12.1 million decrease in income taxes, a $7.5 million decrease in other accrued liabilities, and $1.0 million of retirement plan contributions, partially offset by a $17.1 million increase in accounts payable and a $9.6 million increase in deferred revenue and customer advance payments.

Investing activities during the three months ended April 1, 2018 provided cash of $462.9 million, due to $800.7 million and $212.7 million in proceeds from sales and maturities of marketable securities, respectively, partially offset by $490.3 million used for purchases of marketable securities, $34.8 million used for purchases of property, plant and equipment and $25.4 million used for the acquisition of Energid.

Financing activities during the three months ended April 1, 2018 used cash of $174.4 million, due to $134.3 million used for the repurchase of 2.9 million shares of common stock at an average price of $45.69 per share, $19.6 million used for payment related to net settlement of employee stock compensation awards, $17.6 million used for dividend payments, and $13.6 million used for a payment related to Universal Robots acquisition contingent consideration, partially offset by $10.7 million from the issuance of common stock under employee stock purchase and stock option plans.

In January 2019, our Board of Directors declared a quarterly cash dividend of $0.09 per share. Dividend payments for the three months ended March 31, 2019 were $15.6 million.

In January 2018, our Board of Directors declared a quarterly cash dividend of $0.09 per share. Dividend payments for the three months ended April 1, 2018 were $17.6 million.

In January 2018, our Board of Directors cancelled the December 2016 stock repurchase program and authorized a new stock repurchase program for up to $1.5 billion of common stock. We intend to repurchase $500 million in 2019. During the three months ended March 31, 2019, we repurchased 4.5 million shares of common stock for $156.5 million at an average price of $35.12 per share. During the three months ended April 1, 2018, we repurchased 2.9 million shares of common stock for $134.3 million at an average price of $45.69 per share. The cumulative repurchases under the $1.5 billion stock repurchase program as of March 31, 2019 totaled 26.1 million shares of common stock for $979.9 million at an average price per share of $37.55.

While we declared a quarterly cash dividend and authorized a share repurchase program, we may reduce or eliminate the cash dividend or share repurchase program in the future. Future cash dividends and stock repurchases are subject to the discretion of our Board of Directors, which will consider, among other things, our earnings, capital requirements and financial condition.

We believe our cash, cash equivalents and marketable securities balance will be sufficient to pay our quarterly dividend, execute our authorized share repurchase program and meet our working capital and expenditure needs for at least the next twelve months. Inflation has not had a significant long-term impact on earnings.

Equity Compensation Plans

As discussed in Note O: "Stock Based Compensation" in our 2018 Annual Report on Form 10-K, we have a 1996 Employee Stock Purchase Plan and a 2006 Equity and Cash Compensation Incentive Plan (the "2006 Equity Plan").

The purpose of the 1996 Employee Stock Purchase Plan is to encourage stock ownership by all eligible employees of Teradyne. The purpose of the 2006 Equity Plan is to provide equity ownership and compensation opportunities in Teradyne to our employees, officers, directors, consultants and/or advisors. Both plans were approved by our shareholders.

Recently Issued Accounting Pronouncements

On January 26, 2017, the FASB issued ASU 2017-04, *"Intangibles—Goodwill and Other (Topic 350): Simplifying the Accounting for Goodwill Impairment."* The new guidance removes Step 2 of the goodwill impairment test, which requires a hypothetical purchase price allocation. Goodwill impairment will be the amount by which a reporting unit's carrying value exceeds its fair value, not to exceed the carrying amount of goodwill. All other goodwill impairment guidance will remain largely unchanged. Entities will continue to have the option to perform a qualitative assessment to determine if a quantitative impairment test is necessary. The same one-step impairment test will be applied to goodwill at all reporting units, even those with zero or negative carrying amounts. Entities will be required to disclose the amount of goodwill at reporting units with zero or negative carrying amounts. The revised guidance will be applied prospectively, and is effective in 2020. Early adoption is permitted for any impairment tests performed after January 1, 2017. We are currently evaluating the impact of this ASU on our financial position, results of operations and statements of cash flows.

Item 3: Quantitative and Qualitative Disclosures about Market Risks

For "Quantitative and Qualitative Disclosures about Market Risk" affecting Teradyne, see Part 2 Item 7a, "Quantitative and Qualitative Disclosures about Market Risks," in our Annual Report on Form 10-K filed with the SEC on March 1, 2018. There were no material changes in our exposure to market risk from those set forth in our Annual Report on Form 10-K for the fiscal year ended December 31, 2018.

In addition to market risks described in our Annual Report on Form 10-K, we have an equity price risk related to the fair value of our convertible senior unsecured notes issued in December 2016. In December 2016,

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Teradyne issued $460 million aggregate principal amount of 1.25% convertible senior unsecured notes (the "Notes") due December 15, 2023. As of March 31, 2019, the Notes had a fair value of $644.6 million. The table below provides a sensitivity analysis of hypothetical 10% changes of Teradyne's stock price as of the end of the first quarter of 2019 and the estimated impact on the fair value of the Notes. The selected scenarios are not predictions of future events, but rather are intended to illustrate the effect such event may have on the fair value of the Notes. The fair value of the Notes is subject to equity price risk due to the convertible feature. The fair value of the Notes will generally increase as Teradyne's common stock price increases and will generally decrease as the common stock price declines in value. The change in stock price affects the fair value of the convertible senior notes, but does not impact Teradyne's financial position, cash flows or results of operations due to the fixed nature of the debt obligation. Additionally, we carry the Notes at face value less unamortized discount on our balance sheet, and we present the fair value for required disclosure purposes only. In connection with the offering of the Notes we also sold warrants to the option counterparties. These transactions have been accounted for as an adjustment to our shareholders' equity. The convertible note hedge transactions are expected to reduce the potential equity dilution upon conversion of the Notes. The warrants along with any shares issuable upon conversion of the Notes will have a dilutive effect on our earnings per share to the extent that the average market price of our common stock for a given reporting period exceeds the applicable strike price or conversion price of the warrants or Notes, respectively.

Hypothetical Change in Teradyne Stock Price	Fair Value	Estimated change in fair value	Hypothetical percentage increase (decrease) in fair value
10% Increase	$693,013	$ 48,438	7.5%
No Change	644,575	—	—
10% Decrease	598,497	(46,078)	(7.1)

See Note I: "Debt" for further information.

Item 4: Controls and Procedures

As of the end of the period covered by this report, our management, with the participation of our Chief Executive Officer and Chief Financial Officer, evaluated the effectiveness of our disclosure controls and procedures pursuant to Rule 13a-15(b) or Rule 15d-15(f) promulgated under the Exchange Act. Based upon that evaluation, our Chief Executive Officer and Chief Financial Officer concluded that, as of the end of the period covered by this report, our disclosure controls and procedures were effective in ensuring that material information required to be disclosed in the reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms, including ensuring that such material information is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer, as appropriate to allow timely decisions regarding required disclosure.

PART II. OTHER INFORMATION

Item 1: Legal Proceedings

We are subject to various legal proceedings and claims, which have arisen, in the ordinary course of business. In the opinion of management, the ultimate disposition of these matters will not have a material adverse effect on our results of operations, financial condition or cash flows.

Item 1A: Risk Factors

In addition to other information set forth in this Form 10-Q, you should carefully consider the factors discussed in Part I, “Item 1A: Risk Factors” in our Annual Report on Form 10-K for the year ended December 31, 2018, which could materially affect our business, financial condition or future results. The risk factors described in our Annual Report on Form 10-K remain applicable to our business.

The risks described in our Annual Report on Form 10-K are not the only risks that we face. Additional risks and uncertainties not currently known to us or that we currently deem to be immaterial also may materially adversely affect our business, financial condition and/or operating results.

Item 2: Unregistered Sales of Equity Securities and Use of Proceeds

In January 2018, our Board of Directors cancelled the December 2016 stock repurchase program and authorized a new stock repurchase program for up to $1.5 billion of common stock. We intend to repurchase $500 million in 2019. During the three months ended March 31, 2019, we repurchased 4.5 million shares of common stock for $156.5 million at an average price of $35.12 per share. During the three months ended April 1, 2018, we repurchased 2.9 million shares of common stock for $134.3 million at an average price of $45.69 per share. The cumulative repurchases under the $1.5 billion stock repurchase program as of March 31, 2019 totaled 26.1 million shares of common stock for $979.9 million at an average price per share of $37.55.

The following table includes information with respect to repurchases we made of our common stock during the three months ended March 31, 2019 (in thousands except per share price):

Period	(a) Total Number of Shares (or Units) Purchased		(b) Average Price Paid per Share (or Unit)		(c) Total Number of Shares (or Units) Purchased as Part of Publicly Announced Plans or Programs	(d) Maximum Number (or Approximate Dollar Value) of Shares (or Units) that may Yet Be Purchased Under the Plans or Programs
January 1, 2019 – January 27, 2019	2,424		$ 31.59		2,424	$ 599,950
January 28, 2019 – February 24, 2019	1,240		$ 37.58		853	$ 567,513
February 25, 2019 – March 31, 2019	1,183		$ 40.24		1,180	$ 520,054
	4,847	(1)	$ 35.24	(1)	4,457	

(1) Includes three hundred ninety one thousand shares at an average price of $36.60 withheld from employees for the payment of taxes.

We satisfy U.S. federal and state minimum withholding tax obligations due upon the vesting and the conversion of restricted stock units into shares of our common stock, by automatically withholding from the shares being issued, a number of shares with an aggregate fair market value on the date of such vesting and conversion that would satisfy the minimum withholding amount due.

Item 4: Mine Safety Disclosures

Not Applicable

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Item 6: Exhibits

Exhibit Number	Description
10.1	Teradyne Offer of Employment dated February 8, 2019 for Sanjay Mehta*
10.2	Executive Officer Change in Control Agreement dated April 25, 2019 between Teradyne, Inc. and Sanjay Mehta*
10.3	Employment Agreement dated April 25, 2019 between Teradyne, Inc. and Sanjay Mehta *
10.4	Agreement Regarding Termination Benefits dated April 25, 2019 between Teradyne, Inc. and Sanjay Mehta*
10.5	Time-Based Restricted Stock Unit Agreement dated May 1, 2019 for Sanjay Mehta under 2006 Equity and Cash Compensation Incentive Plan*
31.1	Certification of Principal Executive Officer, pursuant to Rule 13a-14(a) of Securities and Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002 (filed herewith)
31.2	Certification of Principal Financial Officer, pursuant to Rule 13a-14(a) of Securities and Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002 (filed herewith)
32.1	Certification of Principal Executive Officer pursuant to 18 U.S.C. 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 (furnished herewith)
32.2	Certification of Principal Financial Officer pursuant to 18 U.S.C. 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 (furnished herewith)
101.INS	XBRL Instance Document
101.SCH	XBRL Taxonomy Extension Schema Document
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	XBRL Taxonomy Extension Label Linkbase Document
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document

* Mangement Contract and Compensatory Plan

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

TERADYNE, INC.
Registrant

/S/ SANJAY MEHTA

Sanjay Mehta
Vice President,
Chief Financial Officer and Treasurer
(Duly Authorized Officer
and Principal Financial Officer)

May 10, 2019

Exhibit 10.1

TERADYNE

February 8, 2019

Sanjay Mehta

Re: Teradyne Offer of Employment

Dear Sanjay,

We are pleased to offer you the regular, full-time position of Vice President and Chief Financial Officer, reporting to myself, at our North Reading, MA headquarters. We expect your start date will be April 24, 2019 ("Start Date").

Cash Compensation

You will be paid on a monthly basis at a rate of $41,667 per month. This represents an annualized salary of $500,000**.** You also will be eligible to participate in our Variable Compensation Plan at a 75% factor. The actual Variable Compensation payout will be determined after the end of the fiscal year by Teradyne's Compensation Committee. For certain salary-dependent benefits programs such as life insurance and profit sharing, Teradyne will use your "model compensation" that equals your base salary plus your variable compensation at target, or $875,000. Your first salary review will be in January 2020. Also, we are pleased to offer you participation in Teradyne's discretionary cash profit sharing plan, prorated based on the Start Date.

Equity Compensation

In addition to your cash compensation, you will be eligible to participate in our Executive Officer Equity Compensation Program. In connection with the commencement of your employment, Teradyne will grant you a new hire equity award in the amount of $1,400,000 as follows:

1. Restricted Stock Unit award consisting of the right to receive shares of Teradyne common stock equivalent in value to $560,000. The number of restricted stock unit shares will be determined by dividing $560,000 by the closing price of Teradyne common stock on the first trading day of the month following your Start Date ("Grant Date"). This Restricted Stock Unit award will vest in equal amounts annually over four (4) years, subject to the terms of the Company's Restricted Stock Unit Agreement.
2. Performance-based Restricted Stock Unit awards consisting of the right to receive shares of Teradyne common stock equivalent in value to $700,000 at target. The target number of performance-based restricted stock unit shares will be determined by dividing $700,000 by the closing price of Teradyne common stock on the Grant Date. The final number of performance-based restricted stock unit shares earned will be determined by the Compensation Committee upon the completion of the performance periods of the awards (December 31 of the year prior to the three-year anniversary of the grant date). These Performance-based Restricted Stock Unit awards will vest in full on the third anniversary of the date of grant, subject to the terms of the Company's Performance-based Restricted Stock Unit Agreement.

3. Non-qualified Stock Option award consisting of the right to purchase shares of Teradyne common stock equivalent in value to $140,000 at a strike price equal to the closing price of Teradyne common stock on the Grant Date. The number of stock options will be determined based on the fair market value of the options calculated as of the Grant Date. The stock options will vest in equal amounts annually over four (4) years and will expire seven years from the date of grant, subject to the terms of the Company's Non-qualified Stock Option Agreement.

The equity awards set forth above are subject to approval of the Compensation Committee, will be made on the Grant Date and will be subject to the terms and conditions of the Company's equity agreements and the terms of the 2006 Equity and Cash Compensation Incentive Plan.

Sign-on Compensation

Teradyne offers you sign-on compensation as follows:

1. A Restricted Stock Unit award consisting of the right to receive shares of Teradyne common stock equivalent in value to $1,100,000. The number of restricted stock unit shares will be determined by dividing $1,100,000 by the closing price of Teradyne common stock on the Grant Date. This Restricted Stock Unit award will vest in equal amounts annually over two (2) years, subject to the terms of the Company's Restricted Stock Unit Agreement.

2. A one-time, sign-on cash bonus of $600,000 ("Sign-on Bonus"), subject to all required taxes and withholdings, to be paid in the amount of $300,000 one (1) month from your Start Date and $300,000 six (6) months from your Start Date. The Sign-on Bonus is an unvested wage advance upon receipt that you will earn 50% by remaining employed by Teradyne for one (1) month following your Start Date and 50% by remaining employed by Teradyne for six (6) months from your Start Date. If your employment with Teradyne terminates (voluntarily or for Cause) less than thirteen (13) full months after your Start Date, you agree to repay one hundred percent (100%) of the Sign-on Bonus. If your employment with Teradyne terminates (voluntarily or for Cause) at least thirteen (13) months after the Start Date, but less than twenty-four (24) full months after the Start Date, you agree to repay the full amount of the Sign-on Bonus, less 8.33% for each full month of employment completed after the twelfth month of employment. You agree that these repayment obligations are not reduced by completion of partial months of employment.

   You agree that you will repay the Sign-on Bonus amounts by no later than the effective date of employment termination. You further agree that any repayment due may be deducted to the extent permitted by law from any amounts due to you at the time of employment termination, including wages, accrued vacation pay, incentive compensation payments and bonuses, and hereby expressly authorize such deduction(s).

   You will have no obligation to repay the Sign-on Bonus if Teradyne terminates your employment other than for Cause. For purposes of this section, "Cause" shall mean conduct involving one or more of the following: (i) your substantial and continuing failure, after notice thereof, to render services to Teradyne in accordance with the terms or requirements of your employment, as established by the Company Board of Directors from time to time and communicated to you; (ii) your disloyalty, gross negligence, willful misconduct, dishonesty, fraud or breach of fiduciary duty to Teradyne, each in connection with your employment by Teradyne; (iii) your deliberate disregard of the rules or policies of, or breach of an agreement with, Teradyne which results in direct or indirect material loss, damage or injury to Teradyne; (iv) the intentional, unauthorized disclosure by you of any trade secret or confidential information of Teradyne; (v) the commission by you of an act which constitutes unfair competition with Teradyne; or (vi) the conviction of, or the entry of a plea of guilty or nolo contendere by you, to any crime involving moral turpitude or any felony. In the event that Teradyne determines that Cause may exist pursuant to clauses (i), (iii) and (v) above, Teradyne shall give you written notice of the facts constituting such Cause and you shall have thirty (30) days following receipt of such notice to remedy such Cause.

Benefits

In addition to your cash compensation, you may participate in all of Teradyne's benefit programs that the Company makes available to employees from time to time, provided you meet eligibility requirements, including the Company's Employee Stock Purchase Plan. Additional information on our health, dental and protection plans can be found by following this link www.teradyne.com/benefits. You are eligible for Flex time of twenty-five (25) days a year.

Relocation Benefit

In addition to your regular employment benefits, Teradyne will assist you with your relocation expenses as set forth in Appendix A to this offer letter. Teradyne's relocation provider, Bristol Global Mobility, will be contacting you to coordinate your relocation. You will be provided a complete description of the terms and conditions of the relocation program by Bristol Global Mobility. Reimbursable relocation expenses must be incurred prior to December 31, 2019.

If your employment with Teradyne terminates (voluntarily or for Cause) less than thirteen (13) full months after your Start Date, you agree to repay one hundred percent (100%) of your relocation expenses paid by Teradyne. If your employment with Teradyne terminates (voluntarily or for Cause) at least thirteen (13) months after the Start Date, but less than twenty-four (24) full months after the Start Date, you agree to repay the full amount of your relocation expenses paid by Teradyne, less 8.33% for each full month of employment completed after the twelfth month of employment. These repayment obligations are not reduced by completion of partial months of employment.

You agree that you will repay the relocation expenses amounts by no later than the effective date of employment termination. You further agree that any repayment due may be deducted to the extent permitted by law from any amounts due to you at the time of employment termination, including wages, accrued vacation pay, incentive compensation payments and bonuses, and hereby expressly authorize such deduction(s).

Employment Agreements

As a condition of employment, you will enter into the Company's standard Employment Agreement.

As an Executive Officer, you are eligible to enter into an Executive Officer Change in Control Agreement, which covers termination without cause or for good reason following a change in control, as defined in the agreement.

As Chief Financial Officer, you also are eligible to enter into an Agreement regarding Termination Benefits, which covers termination without cause other than in connection with a change in control.

Other Terms

This offer is contingent upon approval by the Company's Compensation Committee and the successful completion of the background screening process.

This letter is not an agreement to employ you for any stated term, and in no way alters your status as an at-will employee.

You represent that you are not bound by any agreement preventing you from being employed by and performing your job at Teradyne.

You agree to provide to Teradyne, within three days of your Start Date, documentation of your eligibility to work in the United States, as required by the Immigration Reform and Control Act of 1986. In the event you need to obtain a work visa in order to be eligible to work in the United States, your employment with the Company will be conditioned upon your obtaining a work visa in a timely manner as determined by Teradyne. This position may involve access to export controlled technology and may be subject to export licensing requirements prior to employment.

If this letter correctly states the terms of your offer by Teradyne, please sign the enclosed duplicate of this letter in the space provided below and return it by email to Michal Kimeldorfer-Rabinowitz, Vice President of Human Resources. Please return the signed letter by February 10th, 2019.

Sanjay, we greatly look forward to your joining our team! If you have any questions at all, please contact me.

Sincerely,

/s/ Mark Jagiela Date: February 8, 2019
Mark Jagiela
President and CEO

/s/ Sanjay Mehta Date: February 13, 2019
Sanjay Mehta

Exhibit 10.2

EXECUTIVE OFFICER CHANGE IN CONTROL AGREEMENT

EXECUTIVE OFFICER CHANGE IN CONTROL AGREEMENT entered into this 25th day of April 2019 by and between Teradyne, Inc. (including its subsidiaries, "Teradyne"), and the undersigned executive officer Teradyne ("Employee").

WITNESSETH:

WHEREAS, Teradyne and Employee desire to set forth certain terms and conditions relating to the termination of Employee's employment upon the occurrence of a Change in Control (as hereinafter defined) of Teradyne.

NOW THEREFORE, in consideration of the premises and of the mutual covenants and agreements hereinafter set forth, the parties hereto hereby agree as follows:

1. Entitlements Upon a Termination Event. If, within twenty-four (24) months following a Change in Control or in contemplation of a Change in Control, there is a Termination Event, and subject to the conditions set forth herein and the performance by Employee of the undertakings and duties set forth herein, Employee shall be entitled to the rights, payments and other benefits set forth below:

(a) Treatment of Awards. Equity Awards that are not subject to Performance Criteria shall be governed by Section 1(b) below, and Cash Awards and Equity Awards that are subject to Performance Criteria shall be governed by Section 1(c) below. The parties hereto acknowledge that, except as otherwise provided herein, the terms of this Agreement are intended to modify the terms of Employee's existing Cash Award and Equity Award agreements and to be a supplement to Cash Award and Equity Award agreements granted on or subsequent to the date hereof.

(b) Acceleration of Equity Awards. All of Employee's unvested or unexercisable Equity Awards or Equity Awards subject to restrictions on transfer imposed by Teradyne or repurchase rights in favor of Teradyne, as applicable, granted prior to, on, or after the date hereof (but only (I) such Equity Awards as have been granted to Employee by Teradyne as of the date of the Change in Control or (II) such Equity Awards as have been assumed by an acquiring company at the time of a Change in Control or such new cash and equity awards that have been substituted by an acquiring company for Equity Awards existing at the time of a Change in Control, each pursuant to the terms of any Teradyne incentive plan) shall automatically become fully vested, exercisable or free of restrictions on transfer imposed by Teradyne or repurchase rights in favor of Teradyne, as applicable, as of the date of such Termination Event, and all Equity Awards granted on or after the date hereof shall, to the extent applicable, remain exercisable for the remainder of the generally applicable term of such Equity Award.

(c) Satisfaction of Performance Criteria. All of Employee's Cash Awards and Equity Awards that are subject to Performance Criteria shall be settled and paid in the following manner: Employee shall be deemed to have satisfied the necessary percentage of the Performance Criteria to which such Cash Awards and Equity Awards are subject as of the date of the Termination Event, that will provide Employee with the target level of such Cash Awards and Equity Awards; and Employee shall be entitled to receive that portion of each Cash Award and Equity Award payable, at the target level. For purposes of the Cash Awards, the payment shall be multiplied by a fraction, the numerator of which shall be the number of calendar months that have passed during the period in which the Performance Criteria are to be measured (treating the month in which the Termination Event occurs as a full calendar month) and the denominator of which shall be the total number of calendar months in such period. For purposes of this Agreement, "target level" is that percentage of the Performance Criteria established at the beginning of each calendar year in order for the Employee to achieve Model Compensation. Unless otherwise required under Section 1(e) below, such Cash Awards and Equity Awards shall be paid to Employee or the restrictions on transfer removed not later than 10 days following the Termination Event.

(d) Salary Continuation. Unless otherwise required under Section 1 (e) below, Teradyne shall pay Employee monthly an amount equal to 1/12th of Employee's current annual Model Compensation as of the Termination Event for a period of 24 months following the date of the Termination Event (the "Salary Continuation Period"). In the event a Termination Event constitutes termination for Good Reason on account of a material reduction in Model Compensation, the payment obligation pursuant to this Section 1(d) shall be calculated without giving effect to any such reductions in Model Compensation. All such continued payments shall be made in accordance with Teradyne's customary pay practices. Subject to Section 1(e)(i) of this Agreement but notwithstanding any other provision of this Agreement to the contrary, the continued payments to Employee contemplated by this Section 1(d) and any benefits provided to Employee that are subject to Section 409A of the Code shall commence on the 60th day following the Termination Event provided Employee has complied with the requirements of Section 1(g) of this Agreement and the release of claims has become irrevocable under applicable law no later than on the 60th day following his Termination Event.

(e) Deferred Compensation/Section 409A.

(i) Notwithstanding any other provision of this Agreement, if the Employee is a " specified employee" at the time of the Employee's "separation from service" as defined in Section 409A of the Code , all payments, benefits, or removal of restrictions on the transfer of equity under this Agreement with respect to the Employee's "separation from service" that constitute compensation deferred under a nonqualified deferred compensation plan as defined in Section 409A of the Code to which such specified employee would otherwise be entitled during the first six months following the date of separation from service shall be made on the first day of the seventh month after the date of separation from service (or, if earlier, the date of death of the Employee).

(ii) For purposes of this Agreement, each amount to be paid or benefit to be provided shall be construed as a separate identified payment for purposes of Section 409A, and any payments that are due within the "short term deferral period" as defined in Section 409A or payments that are made under separation pay plans as described in Treasury Regulation

Section 1.409A-1(b)(9)(ii), (iii) or (iv), shall not be treated as deferred compensation unless applicable law requires otherwise. Neither Teradyne nor the Employee shall have the right to accelerate or defer the delivery of any payments or benefits under this Agreement except to the extent specifically permitted or required by Section 409A.

(iii) This Agreement is intended to comply with the provisions of Section 409A and the Agreement shall, to the extent practicable, be construed in accordance therewith. Terms defined in the Agreement shall have the meanings given such terms under Section 409A if and to the extent required to comply with Section 409A. In any event, Teradyne makes no representations or warranty and shall have no liability to Employee or any other person if any provisions of or payments under this Agreement are determined to constitute deferred compensation subject to Code Section 409A but not to satisfy the conditions of that section.

(iv)If any amount is payable under the provisions of paragraph (f), below, as a reimbursement of Employee's expenses, under the provisions of Section 2 and 13, or any other provision of this Agreement that constitutes a reimbursement of expenses under Section 409A then, notwithstanding the other provisions of this Agreement with respect to the payment of such reimbursement, the following limitations shall apply; (A) the expenses eligible for reimbursement may not affect the expenses eligible for reimbursement in any other taxable year; (B) such reimbursement must be made on or before the last day of the year following the year in which the expenses are incurred; (C) the right to reimbursement is not subject to liquidation or exchange for another benefit; and (D) in connection with reimbursements under Section 13 the period during which such expenses can be incurred extends to the end of the period permitted for such claims under the applicable statute of limitations.

(f) Benefit Continuation. During the Salary Continuation Period, Teradyne shall arrange or provide for continued health, dental and vision insurance plan coverage for the Employee at the same levels of coverage in existence prior to the Termination Event subject to Teradyne and Employee each contributing to the applicable insurance premium payments on the same basis and in the same proportions as in existence at the date of the Termination Event. If the Employee is not eligible for continued health, dental and vision insurance plan coverage for any portion of the twenty-four (24) month period defined herein, Teradyne shall provide or reimburse Employee for comparable individual insurance and, if such provision or reimbursement constitutes taxable income to the Employee, such additional amount as is necessary to place the Employee in substantially the same after tax position as he was while an employee of Teradyne with respect to such insurance plan coverages. All other benefits, including but not limited to flex/vacation time accrual, short and long term disability insurance, life insurance, contributions (including company matches) into savings plan and "savings plan plus", profit sharing payments and participation in the Employee stock purchase plan shall cease as of the date of the Termination Event.

To the extent that amounts paid by Teradyne to provide the benefits under this paragraph (f) are deemed to be deferred compensation subject to Section 409A, then such payments shall be made monthly and any payment to preserve the Employee's after tax position shall be made within 60 days after the end of each calendar year in which the taxable provision or reimbursement occurs.

(g) Release. Notwithstanding any other provision of this Agreement to the contrary, no payment, benefit or removal of restriction on the transfer of equity provided for under or by virtue of the provisions of this Agreement shall be paid or otherwise made available unless Teradyne shall have first received from Employee a valid, binding and irrevocable general release, in the form of Attachment A to this Agreement within twenty-one (21) days of the date of the Termination Event. Employee shall sign such release within twenty-one (21) days of a Termination Event subsequent to a Change in Control. Teradyne agrees to provide Employee an estimate relating to payments to be made under this Agreement upon Employee's written request. All rights, benefits, payments and other entitlements contemplated to be provided or paid to Employee under this Agreement shall be forfeited as of the 60th day following Employee's Termination Event if Employee has not provided Teradyne with a valid, irrevocable release of claims as of such 60th day.

(h) Certain Definitions. For purposes of this Agreement, the following terms shall have the following meanings:

"Cash Awards" shall mean any cash-based bonus, cash incentive or other cash awards provided by Teradyne to Employee pursuant to incentive plans that Teradyne maintains, including but not limited to its 2006 Equity and Cash Compensation Incentive Plan.

"Cause" shall mean conduct involving one or more of the following: (i) the substantial and continuing failure of Employee, after notice thereof, to render services to Teradyne in accordance with the terms or requirements of his or her employment as established by the Teradyne Board of Directors from time to time and communicated to the Employee; (ii) Employee's disloyalty, gross negligence, willful misconduct, dishonesty, fraud or breach of fiduciary duty to Teradyne, each in connection with Employee's employment by Teradyne; (iii) Employee's deliberate disregard of the rules or policies of, or breach of an agreement with, Teradyne which results in direct or indirect material loss, damage or injury to Teradyne; (iv) the intentional unauthorized disclosure by Employee of any trade secret or confidential information of Teradyne; (v) the commission by Employee of an act which constitutes unfair competition with Teradyne; or (vi) the conviction of, or the entry of a plea of guilty or nolo contendere by the Employee, to any crime involving moral turpitude or any felony. In the event that Teradyne determines that Cause may exist pursuant to clauses (i), (iii) and (v) above, Teradyne shall give Employee written notice of the facts constituting such Cause and Employee shall have 30 days following receipt of such notice to remedy such Cause.

A "Change in Control" shall be deemed to have occurred upon the occurrence of any of the following events: (i) any consolidation, cash tender offer, reorganization, recapitalization, merger or plan of share exchange following which the capital stock of Teradyne outstanding immediately prior to such transaction constitutes less than a majority of the combined voting power of the then-outstanding securities of the combined corporation or person immediately after such transaction; (ii) any sale, lease, exchange or other transfer of all or substantially all of Teradyne's assets; (iii) the adoption by the Board of Directors of Teradyne of any plan or proposal for the liquidation or dissolution of Teradyne; (iv) a change in the majority of the Board of Directors of Teradyne through one or more contested elections occurring within a three-year period; or (v) any person (as that term is used in Section 13(d)(3) or Section 14(d)(2) of the Securities Exchange Act of 1934, as amended) becomes beneficial owner of 30% or more of the combined voting power of Teradyne's outstanding voting securities, other than (A) as a result of a consolidation, reorganization, recapitalization, merger or plan of share exchange following which the capital stock of Teradyne outstanding immediately prior to such transaction constitutes at least a majority of combined voting power of the then-outstanding securities of the combined corporation or person immediately after such transaction, (B) by any trustee or other fiduciary holding securities under an employee benefit plan of Teradyne, or (C) by a person temporarily acquiring beneficial ownership in its capacity as an underwriter (as defined pursuant to Section 2(a)(11) of the Securities Act of 1933, as amended) in connection with a public offering of Teradyne securities.

"Equity Awards" shall mean the equity ownership, participation or appreciation opportunities provided by Teradyne to Employee pursuant to incentive plans that Teradyne maintains, including but not limited to its 2006 Equity and Cash Compensation Incentive Plan, the Teradyne, Inc. 1991 Employee Stock Option Plan and the Teradyne, Inc. 1997 Employee Stock Option Plan, and any stock options, restricted stock units, restricted stock, stock appreciation rights, phantom stock and other stock-based awards granted thereunder.

"Good Reason" shall mean any one or more of the following: (i) any material reduction of Employee's responsibilities (other than for Cause or as a result of death or disability) as they shall exist on the date of the consummation of the Change in Control; (ii) any material reduction in Employee's Model Compensation as in effect on the date of the consummation of the Change in Control, or as the same may be increased from time to time, or any failure by Teradyne to pay to Employee any bonus accrued, but not yet paid, upon written notice by Employee to Teradyne, within 45 days; (iii) a material reduction in the value of Employee's benefit package from the value of Employee's benefit package on the date of the consummation of the Change in Control; or (iv) a requirement that Employee be based at an office that is greater than 50 miles from the location of Employee's office immediately prior to the Change in Control except for required travel on Teradyne's business to an extent substantially consistent with the business travel obligations which Employee undertook on behalf of Teradyne prior to the date of the consummation of the Change in Control. In the event of a Termination Event in contemplation of a Change in Control, the applicable baseline measurement date shall be six months prior to such Termination Event and not the date of the consummation of the Change in Control.

"Model Compensation" shall mean Employee's annual "Model Compensation" as determined by Teradyne's Compensation Committee or Board of Directors, which consists of (i) a fixed annual salary and (ii) a target annual variable amount.

"Performance Criteria" shall have the meaning ascribed to that term in the Teradyne, Inc. 2006 Equity and Cash Compensation Incentive Plan.

"Termination Event" shall mean (i) any termination of Employee by Teradyne without Cause or (ii) any voluntary termination by Employee for Good Reason; provided, that it shall not be a Termination Event merely because Employee ceases to be employed by Teradyne and becomes employed by a successor to Teradyne involved in the Change in Control that assumes or is otherwise bound by this Agreement as provided in Section 7(a). It is expressly understood that no Termination Event shall be deemed to have occurred merely because, upon the occurrence of a Change in Control, Employee ceases to be employed by Teradyne and does not become employed by a successor to Teradyne after the Change in Control if the successor makes an offer to employ Employee on terms and conditions which, if imposed by Teradyne, would not give Employee a basis on which to terminate employment for Good Reason.

(i) Termination in Contemplation of a Change in Control. For purposes of this Agreement, including without limitation, this Section 1, a Termination Event occurring "in contemplation of a Change in Control" means a Termination Event occurring within 3 months prior to an actual Change in Control at the request or direction of a person who enters or has entered into an agreement the consummation of which would cause a Change in Control or who conditions the entry into such an agreement on the Employee's termination whether or not such person actually enters into such an agreement. A termination by the Employee for Good Reason shall constitute a Termination Event in contemplation of a Change in Control if the actions constituting Good Reason were taken at the request or direction of a person who has entered into an agreement the consummation of which would cause a Change in Control.

2. Reduction of Payments

(a) Notwithstanding any other provision of this Agreement, in the event that the Company undergoes a Change in Ownership or Control (as defined below), the Company shall not be obligated to provide to the Executive a portion of any "Contingent Compensation Payments" (as defined below) that the Executive would otherwise be entitled to receive to the extent necessary to eliminate any "excess parachute payments" (as defined in Section 280G(b)(1) of the Internal Revenue Code of 1986, as amended (the "Code")) for the Executive. For purposes of this Section 2, the Contingent Compensation Payments so eliminated shall be referred to as the "Eliminated Payments" and the aggregate amount (determined in accordance with Treasury Regulation Section 1.280G-1, Q/A-30 or any successor provision) of the Contingent Compensation Payments so eliminated shall be referred to as the "Eliminated Amount."

(b) For purposes of this Section 2, the following terms shall have the following respective meanings:

(i) "Change in Ownership or Control" shall mean a change in the ownership or effective control of the Company or in the ownership of a substantial portion of the assets of the Company determined in accordance with Section 280G(b)(2) of the Code.

(ii) "Contingent Compensation Payment" shall mean any payment (or benefit) in the nature of compensation that is made or made available (under this Agreement or otherwise) to a "disqualified individual" (as defined in Section 280G(c) of the Code) and that is contingent (within the meaning of Section 280G (b)(2)(A)(i) of the Code) on a Change in Ownership or Control of the Company.

(c) If and to the extent that any Contingent Compensation Payments are required to be treated as Eliminated Payments pursuant to this Section 2, then the Payments shall be reduced or eliminated, as determined by the Company, in the following order (i) any cash payments, (ii) any taxable benefits, (iii) any nontaxable benefits and (iv) any vesting of equity awards, in each case in reverse order beginning with the payments or benefits that are to be paid the farthest in time from the date that triggers the applicability of the excise tax, to the extent necessary to maximize the Eliminated Payments.

3. Non-Competition and Non-Solicitation.

(a) From the Termination Event through the end of the Salary Continuation Period, Employee shall not directly or indirectly:

(i) Engage in any business or enterprise (whether as an owner, partner, officer, employee, director, investor, lender, consultant, independent contractor or otherwise, except as the holder of not more than 1% of the combined voting power of the outstanding stock of a publicly held company) that is competitive with Teradyne (including but not limited to, any business or enterprise that develops, designs, produces, markets, sells or renders any product or service competitive with any product or service developed, produced, marketed, sold or rendered by Teradyne while Employee was employed by Teradyne);

(ii) Either alone or in association with others, recruit, solicit, hire or engage as an independent contractor, any person who was employed by Teradyne at any time during the period of Employee's employment with Teradyne, except for an individual whose employment with Teradyne has been terminated for a period of six months or longer; and

(iii) Either alone or in association with others, solicit, divert or take away, or attempt to divert or to take away, the business or patronage of any client or customer or entity that was a prospective client or customer of Teradyne during the Employee's employment.

(b) If any restriction set forth in this Section 3 is found by any court of competent jurisdiction to be unenforceable because it extends for too long a period of time or over too great a range of activities or in too broad a geographic area, it shall be interpreted to extend only over the maximum period of time, range of activities or geographic area as to which it may be enforceable.

(c) Employee acknowledges that the restrictions contained in this Section 3 are necessary for the protection of the business and goodwill of Teradyne and are considered by Employee to be reasonable for such purpose. Employee agrees that any breach of this Section 3 will cause Teradyne irreparable harm and therefore, in the event of any such breach, in addition to such other remedies that may be available, Teradyne shall have the right to seek equitable and/or injunctive relief.

(d) The geographic scope of this Section 3 shall extend to anywhere Teradyne or any of its subsidiaries is doing business, has done business or has plans to do business.

(e) Employee agrees that during the Salary Continuation Period, he/she will make reasonable good faith efforts to give verbal notice to Teradyne of each new business activity he/she plans to undertake, at least (5) business days prior to beginning any such activity.

(f) If Employee violates the provisions of this Section 3, Teradyne shall be entitled to suspend and recoup any salary continuation payment made per Section 1(d) above and Employee shall continue to be bound by the restrictions set forth in this Section 3 for an additional period of time equal to the duration of the violation, such additional period not to exceed 24 months.

4. No Obligation of Employment. Employee understands that the employment relationship between Employee and Teradyne will be "at will" and Employee understands that, prior to any Change in Control, Teradyne may terminate Employee with or without "Cause" at any time, including in contemplation of a Change in Control. Following any Change in Control, Teradyne may also terminate Employee with or without "Cause" at any time subject to Employee's rights and Teradyne's obligations specified in this Agreement.

5. Governing Law. This Agreement shall be governed by and construed in accordance with the internal laws of the Commonwealth of Massachusetts and this Agreement shall be deemed to be performable in Massachusetts.

6. Severability. In case any one or more of the provisions contained in this Agreement for any reason shall be held to be invalid, illegal or unenforceable in any respect, such invalidity, illegality or unenforceability shall not affect any other provision of this Agreement and this Agreement shall be construed to the maximum extent permitted by law.

7. Waivers and Modifications. This Agreement may be modified, and the rights, remedies and obligations contained in any provision hereof may be waived, only in accordance with this Section 7. No waiver by either party of any breach by the other or any provision hereof shall be deemed to be a waiver of any later or other breach thereof or as a waiver of any other provision of this Agreement. This Agreement may not be waived, changed, discharged or terminated orally or by any course of dealing between the parties, but only by an instrument in writing signed by the party against whom any waiver, change, discharge or termination is sought.

8. Assignment.

(a) Teradyne shall require any successor (whether direct or indirect, by purchase, merger, consolidation or otherwise) to all or substantially all of the business or assets of Teradyne expressly to assume and agree to perform under the terms of this Agreement in the same manner and to the same extent that Teradyne and its affiliates would be required to perform it if no such succession had taken place (provided that such a requirement to perform which arises by operation of law shall be deemed to satisfy the requirements for such an express assumption and agreement), and in such event Teradyne (as constituted prior to such succession) shall have no further obligation under or with respect to this Agreement. Failure of Teradyne to obtain such assumption and agreement with respect to Employee prior to the effectiveness of any such succession shall be a breach of the terms of this Agreement with respect to Employee and shall entitle Employee to compensation from Teradyne (as constituted prior to such succession) in the same amount and on the same terms as Employee would be entitled to hereunder were Employee's employment terminated for Good Reason following a Change in Control, except that for purposes of implementing the foregoing, the date on which any such succession becomes effective shall be deemed the date of the Termination Event. As used in this Agreement, "Teradyne" shall mean Teradyne as hereinbefore defined and any successor to its business or assets as aforesaid which assumes and agrees (or is otherwise required) to perform this Agreement. Nothing in this Section 8(a) shall be deemed to cause any event or condition which would otherwise constitute a Change in Control not to constitute a Change in Control.

(b) Notwithstanding Section 8(a), Teradyne shall remain liable to Employee upon a Termination Event after a Change in Control if Employee is not offered continuing employment by a successor to Teradyne or is offered continuing employment by a successor to Teradyne only on a basis which would constitute Good Reason for termination of employment hereunder.

(c) This Agreement, and Employee's and Teradyne's rights and obligations hereunder, may not be assigned by Employee or, except as provided in Section 8(a), Teradyne, respectively; any purported assignment by Employee or Teradyne in violation hereof shall be null and void.

(d) The terms of this Agreement shall inure to the benefit of and be enforceable by the personal or legal representatives, executors, administrators, permitted successors, heirs, distributees, devisees and legatees of Employee. If Employee shall die while an amount would still be payable to Employee hereunder if they had continued to live, all such amounts, unless otherwise provided herein, shall be paid in accordance with the terms of this Agreement to Employee's devisee, legatee or other designee or, if there is no such designee, Employee's estate.

9. Entire Agreement. This Agreement constitutes the entire understanding of the parties relating to the subject matter hereof and supersedes and cancels all agreements, written or oral, made prior to the date hereof between Employee and Teradyne relating to the subject matter hereof; provided, however, that Employee's existing Cash Award and Equity Award agreements, as modified hereby, shall remain in effect. This Agreement shall not limit any right of Employee to receive any payments or benefits under an employee benefit or Employee compensation plan of Teradyne, initially adopted as of or after the date hereof, which are expressly contingent thereunder upon the occurrence of a Change in Control (including, but not limited to, the acceleration of any rights or benefits thereunder); provided that in no event shall Employee be entitled to any payment or benefit under this Agreement which duplicates a payment or benefit received or receivable by Employee under any severance or similar plan or policy of Teradyne, and in any such case Employee shall only be entitled to receive the greater of the two payments.

10. Notices. All notices hereunder shall be in writing and shall be delivered in person or mailed by certified or registered mail, return receipt requested, addressed as follows:

If to Teradyne, to: Teradyne, Inc.
600 Riverpark Drive
MS NR600-2-2 (Legal Department)
North Reading, MA 01864
Attention: General Counsel

If to Employee, at Employee's address in his employment file on record with the Human Resources Department.

11. Counterparts. This Agreement may be executed in two or more counterparts, each of which shall be deemed to be an original, but all of which together shall constitute one and the same instrument.

12. Section Headings. The descriptive section headings herein have been inserted for convenience only and shall not be deemed to define, limit, or otherwise affect the construction of any provision hereof.

13. Term. The term of this Agreement (the "Term") shall commence upon the Effective Date hereof and terminate upon the earlier of (i) twenty-four (24) months following any Change in Control of Teradyne, (ii) the date prior to any Change in Control of Teradyne that Employee for any reason ceases to be an employee of Teradyne (other than a Termination Event in contemplation of a Change in Control) and (iii) the date following any Change in Control of Teradyne that Employee is terminated for Cause or voluntary terminates his employment (other than for Good Reason).

14. Expenses. All reasonable legal fees and expenses incurred in a legal proceeding by Employee in seeking to obtain or enforce any right or benefit provided by this Agreement against a successor to Teradyne shall be the responsibility of and paid for by the successor to Teradyne (but not Teradyne as constituted prior to such succession). Such payments are to be made within twenty (20) days after Employee's request for payment accompanied with such evidence of fees and expenses incurred as Teradyne's successor reasonably may require; provided that if Employee institutes a proceeding and the judge or other decision-maker presiding over the proceeding affirmatively finds that Employee has failed to prevail substantially, Employee shall pay Employee's own costs and expenses (and, if applicable, return any amounts theretofore paid on Employee's behalf under this Section 14).

15. Payments. Any payments hereunder shall be made out of the general assets of Teradyne. The Employee shall have the status of general unsecured creditor of Teradyne, and this Agreement constitutes a mere promise by Teradyne to make payments under this Agreement in the future as and to the extent provided herein. Unless otherwise determined by Teradyne in an applicable plan or arrangement, no amounts payable hereunder upon a Termination Event shall be deemed salary or compensation for the purpose of computing benefits under any employee benefit plan or other arrangement of Teradyne for the benefit of its employees. Teradyne shall be entitled to withhold from any payments or deemed payments any amount of tax withholding required by law.

IN WITNESS WHEREOF, the parties have executed this Agreement as of the day and year first above written.

TERADYNE, INC.

By: /s/ Charles J. Gray
Name: Charles J. Gray
Title: Vice President and General Counsel

EMPLOYEE

/s/ Sanjay Mehta
Name: Sanjay Mehta

ATTACHMENT A

Release

In consideration of the payments and benefits described in the Executive Officer Change in Control Agreement dated April 25, 2019 between me and Teradyne, Inc. (the "Company"), all of which I acknowledge I would not otherwise be entitled to receive, I hereby fully, forever, irrevocably and unconditionally release, remise and discharge the Company, its successors and assigns and their respective officers, directors, stockholders, corporate affiliates, subsidiaries, parent companies, agents and Executives (each in their individual and corporate capacities) (hereinafter, the "Released Parties") from any and all claims, charges, complaints, demands, actions, causes of action, suits, rights, debts, sums of money, costs, accounts, reckonings, covenants, contracts, agreements, promises, doings, omissions, damages, executions, obligations, liabilities, and expenses (including attorneys' fees and costs), of every kind and nature which I ever had or now have against the Released Parties arising out of my employment with and/or termination or separation from the Company or relating to my relationship as an officer or in any other capacity for the Company, including, but not limited to, all employment discrimination claims under Title VII of the Civil Rights Act of 1964, as amended; the Age Discrimination in Employment Act of 1967, as amended; the Family and Medical Leave Act; the Employee Retirement Income Security Act of 1974, 29 U.S.C. § 1001, et seq.; the Americans With Disabilities Act of 1990, as amended; the Worker Adjustment and Retraining Notification Act; the Civil Rights Act of 1991; the National Labor Relations Act, as amended; Sections 1981 through 1988 of Title 42 of the United States Code, as amended; the Older Workers Benefit Protection Act; the Occupational Safety and Health Act, as amended; the Civil Rights Act of 1866, 29 U.S.C. § 1981, et seq; the Rehabilitation Act of 1973, 29 U.S.C. § 701, et seq.; the Immigration Reform and Control Act; the Fair Credit Reporting Act; the Equal Pay Act; the Massachusetts Law Against Discrimination, G.L. c. 151B; the Massachusetts Privacy Statute, G.L. c. 214, § 1B; the Massachusetts Civil Rights Act, G.L. c. 12, § 11H and 11I; the Massachusetts Equal Rights Act, G.L. c. 93, § 102; the Massachusetts Labor and Industries Act, G.L. c. 149, § 1 et seq.; the Massachusetts Parental Leave Act, G.L. c. 149, § 105D; the Massachusetts Sexual Harassment Statute, G.L. c. 214 § 1C; the Massachusetts Wage Payment Statute, G.L. c. 149, §§ 148, 148A, 148B, 148C, 149, 150, 150A-150C, 151, 152, 152A, et seq.; the Massachusetts Wage and Hour laws, G.L. c. 151§1A et seq.; The Massachusetts Leave Law for Victims and Family Members of Abusive Behavior, G.L. c.149, § 52E; et seq.; The Massachusetts Earned Sick Time Law, G.L. c.149, § 148C), all as amended; all common law claims including, but not limited to, actions in tort, defamation and breach of contract; all claims to any non-vested ownership interest in the Company, contractual or otherwise, including but not limited to claims to stock or stock options; and any claim or damage arising out of my employment with, termination or separation from the Company (including a claim for retaliation) under any common law theory or any federal, state or local statute or ordinance not expressly referenced above; provided, however, that notwithstanding the foregoing, the Company agrees and hereby acknowledges that this Release Agreement is not intended to and does not (i) apply to any claims I may bring to enforce the terms of the Executive Officer Agreement, (ii) release the Company of any obligation it may have pursuant to a written agreement, the Company's articles of organization or bylaws, or as mandated by statute to indemnify me as an officer of the Company; and (iii) release the Company of any obligation to provide and/or pay benefits to me or my estate, conservator or designated beneficiary(ies) under and in accordance with the terms of any applicable Company benefit plan and/or program; provided further, that nothing in this Release Agreement prevents me from filing, cooperating with, or participating in any proceeding before the EEOC or a state Fair Employment Practices Agency (except that I acknowledge that I may not be able to recover any monetary benefits in connection with any such claim, charge or proceeding).

__**Waiver of Rights and Claims Under the Age Discrimination in Employment Act of 1967:**__ Since I am 40 years of age or older, I have been informed that I have or may have specific rights and/or claims under the Age Discrimination in Employment Act of 1967 (ADEA) and I agree that:

in consideration for the payments and benefits described in the Executive Officer Change in Control Agreement, which I am not otherwise entitled to receive, I specifically and voluntarily waive such rights and/or claims under the ADEA I might have against the Released Parties to the extent such rights and/or claims arose prior to the date this Release Agreement was executed;

I understand that rights or claims under the ADEA which may arise after the date this Release Agreement is executed are not waived by me;

I was advised that I have at least 21 days within which to consider the terms of this Release Agreement and to consult with or seek advice from an attorney of my choice or any other person of your choosing prior to executing this Release Agreement;

I have carefully read and fully understand all of the provisions of this Release Agreement, and I knowingly and voluntarily agree to all of the terms set forth in this Release Agreement; and in entering into this Release Agreement I am not relying on any representation, promise or inducement made by the Company or its attorneys with the exception of those promises described in this document.

__**Period for Review and Consideration of Agreement:**__

I acknowledge that I was informed and understand that I have twenty-one (21) days to review this Release Agreement and consider its terms before signing it. The 21-day review period will not be affected or extended by any revisions, whether material or immaterial, that might be made to this Agreement.

Accord and Satisfaction: The amounts set forth in the Executive Officer Change in Control Agreement shall be complete and unconditional payment, settlement, accord and/or satisfaction with respect to all obligations and liabilities of the Released Parties to me, including, without limitation, all claims for back wages, salary, vacation pay, draws, incentive pay, bonuses, cash awards, equity awards, commissions, severance pay, reimbursement of expenses, any and all other forms of compensation or benefits, attorney's fees, or other costs or sums.

Revocation Period: I may revoke this Release Agreement at any time during the seven-day period immediately following my execution hereof. As a result, this Release Agreement shall not become effective or enforceable and the Company shall have no obligation to make any payments or provide any benefits described herein until the seven-day revocation period has expired.

Name:	Date
Witness	Date

IF YOU DO NOT WISH TO USE THE 21-DAY PERIOD,
PLEASE CAREFULLY REVIEW AND SIGN THIS DOCUMENT

I, Sanjay Mehta, acknowledge that I was informed and understand that I have 21 days within which to consider the attached Release Agreement, have been advised of my right to consult with an attorney regarding such Agreement and have considered carefully every provision of the Agreement, and that after having engaged in those actions, I prefer to and have requested that I enter into the Agreement prior to the expiration of the 21 day period.

Dated: ____________________	____________________ Name:
Dated: ____________________	____________________ Witness

TERADYNE

Employment Agreement

In consideration of my employment by Teradyne, Inc., a corporation of the Commonwealth of Massachusetts (hereinafter referred to as "the Company"), and the payments made to me as consequence thereof, I agree that I will promptly report to an officer of the Company or to such other individual as may from time to time be designated, all inventions and new ideas which I have conceived since the time of entering the employment of the Company in respect to any subject matter relating to the business in which the Company is engaging as of the date of conception of each such invention or new idea. This obligation ceases with termination of my employment with the Company.

I further agree to assign to the Company the entire interest throughout the world in all inventions and new ideas referred to in the preceding paragraph and to execute all papers and do anything necessary and reasonable to secure to the Company title therein and Letters Patent pertaining thereto including the giving of testimony in any suit if called so to do during or after my employment but all at the expense of the Company.

All inventions and new ideas that would fall within the scope of this agreement, but for the fact that they were conceived prior to my employment by the Company, may be excluded from this agreement only if I can establish, under applicable inventorship law, a date of conception prior to my entering the employment of the Company.

I further agree that I will make a written record of all inventions and new ideas falling with the scope of this agreement in the form of notes, sketches, drawing, or reports relating thereto, which records shall be and remain the property of and available to the company at all times.

I further agree that I will not, during or after the period of my employment with the Company, divulge to any unauthorized persons confidential information concerning the Company's or its customers' or suppliers' intellectual property, trade secrets or business that I learn during the period of my employment, except as required or permitted by law.

I acknowledge that I shall not be held criminally or civilly liable under any Federal or State trade secret law for the disclosure of a trade secret that—(A) is made—(i) in confidence to a Federal, State, or local government official, either directly or indirectly, or to an attorney; and (ii) solely for the purpose of reporting or investigating a suspected violation of law; or (B) is made in a complaint or other document filed in a lawsuit or other proceeding, if such filing is made under seal. Accordingly, I have the right to disclose in confidence trade secrets to Federal, State, and local government officials, or to an attorney, for the sole purpose of reporting or investigating a suspected violation of law. I also have the right to disclose trade secrets in a document filed in a lawsuit or other proceeding, but only if the filing is made under seal and protected from public disclosure. Nothing in this Agreement is intended to conflict with 18 U.S.C. § 1833(b) or create liability for disclosures of trade secrets that are expressly allowed by 18 U.S.C. § 1833(b).

I further agree that I will observe all rules and regulations laid down by the Government agencies relating to the safeguarding of classified information which may be disclosed or entrusted to me in connection with any contract between the Company and the Government or any contractor with the Government. I further agree that I will not, during the period of my employment by the Company, directly or indirectly enter the employment of, or render any professional services, except such as are rendered at the request of the Company, to any individual, partnership, association or corporation who or which is a competitor of the Company without the prior permission in writing of the Company. I further agree that I will notify the Company of any outside employment in which I am engaged during the period of my employment with the Company.

This agreement supersedes all previous agreements between me and the Company relating to the subject matter hereof, and may not be modified on behalf of the Company in whole or in part except by a statement in writing signed by the President thereof or an officer designated by him.

Signed at: North Reading, MA, this 25th day of April, 2019

Witnessed: /s/ Ryan E. Driscoll Signature: /s/ Sanjay Mehta

Accepted: TERADYNE, INC By: /s/ Charles J. Gray

Rev 8/2016

Exhibit 10.4

AGREEMENT REGARDING TERMINATION BENEFITS

This Agreement Regarding Termination Benefits ("Agreement") is entered into as of April 25, 2019 (the "Effective Date") by and between Teradyne, Inc., a Massachusetts corporation with a principal office at 600 Riverpark Drive, North Reading, MA 01864 (the "Company") and Sanjay Mehta, Vice President and Chief Financial Officer of the Company ("Executive").

WHEREAS, the Company and Executive have agreed on certain Termination Benefits in the event the Executive's employment with the Company terminates under the conditions described herein.

NOW, THEREFORE, in consideration of the premises and the mutual covenants and agreements contained herein, the Company and the Executive agree as follows:

1. Effective Date and Term: This Agreement shall become effective as of the date set forth in the opening paragraph. Subject to the provisions of Sections 4 and 9 below and unless earlier terminated as permitted herein, this Agreement shall continue in effect for a period of three (3) years from the Effective Date ("Term") and thereafter, the Term shall be extended for additional one-year periods unless, not later than sixty (60) days prior to the end of the then current Term, the Company shall have given notice to the Executive not to extend the then current Term.

2. Definitions: For purposes of this Agreement, capitalized terms shall be defined as follows:

"Model Compensation" shall mean the Executive's annual "model compensation" as determined by the Company's Compensation Committee or Board of Directors, which consists of (a) a fixed annual salary and (b) a target annual variable amount.

"Cause" shall mean conduct involving one or more of the following: (i) the substantial and continuing failure of the Executive, after notice thereof, to render services to Company in accordance with the terms or requirements of his employment, as established by the Company Board of Directors from time to time and communicated to the Executive; (ii) the Executive's disloyalty, gross negligence, willful misconduct, dishonesty, fraud or breach of fiduciary duty to the Company each in connection with the Executive's employment by the Company; (iii) the Executive's deliberate disregard of the rules or policies of, or breach of an agreement with, Company which results in direct or indirect material loss, damage or injury to the Company; (iv) the intentional, unauthorized disclosure by the Executive of any trade secret or confidential information of the Company; (v) the commission by the Executive of an act which constitutes unfair competition with the Company or (vi) the conviction of, or the entry of a plea of guilty or nolo contendere by the Executive, to any crime involving moral turpitude or any felony. In the event that the Company determines that Cause may exist pursuant to clauses (i), (iii) and (v) above, the Company shall give the Executive written notice of the facts constituting such Cause and the Executive shall have thirty (30) days following receipt of such notice to remedy such Cause.

“Change in Control” shall be deemed to have occurred upon the occurrence of any of the following events: (i) any consolidation, cash tender offer, reorganization, re-capitalization, merger or plan of share exchange following which the capital stock of the Company immediately prior to such transaction constitutes less than a majority of the combined voting power of the then-outstanding securities of the combined corporation or person immediately after such transaction; (ii) any sale, lease, exchange or other transfer of all or substantially all of the Company’s assets; (iii) the adoption by the Board of Directors of Company of any plan or proposal for the liquidation or dissolution of the Company; (iv) a change in the majority of the Board of Directors of the Company through one or more contested elections occurring within a three year period; or (v) any person (as that term is used in Section 13(d)(3) or Section 14(d)(2) of the Exchange Act of 1934, as amended) becomes beneficial owner of 30% or more of the combined voting power of the Company’s outstanding voting securities other than (A) as a result of a consolidation, reorganization, recapitalization, merger or plan of share exchange following which the capital stock of the Company outstanding immediately prior to such transaction constitutes at least a majority of the combined voting power of the then-outstanding securities of the combined corporation or person immediately after such transaction, (B) by any trustee or other fiduciary holding securities under an employee benefit plan of the Company, or (C) by a person temporarily acquiring beneficial ownership in its capacity as an underwriter (as defined pursuant to Section 2(a)(11) of the Securities Act of 1933, as amended) in connection with a public offering of the Company’s securities.

“Code” shall mean the Internal Revenue Code of 1986, as amended.

“Company” shall mean “Teradyne, Inc. and shall include its successors and assigns, and any corporation or other entity which is the surviving or continuing entity following a merger, consolidation, or sale of all or substantially all of the Company’s assets or stock.

“Competitor” includes, but is not limited to, any business or enterprise that develops, designs, produces, markets, sells, or renders any product or service developed, produced, marketed, sold or rendered by the Company, including actual or demonstrably anticipated research or development.

“Date of Termination” shall mean the last day of Executive’s employment with the Company.

“Disability” shall mean an illness, injury or other incapacitating condition as a result of which the Executive is absent from full time performance of his duties with the Company or is unable to perform his duties and responsibilities for a period of sixty (60) consecutive days during the Term or a period or periods aggregating to more than ninety (90) days in any consecutive six (6) month period but shall not include death.

“Equity Awards” shall mean the equity ownership, participation or appreciation opportunities provided by the Company to the Executive pursuant to incentive plans that the Company maintains, including but not limited to its 2006 Equity and Cash Compensation Incentive Plan, and any stock options, restricted stock units, restricted stock, stock appreciation rights, phantom stock and other stock-based awards granted thereunder.

“Restricted Activities” shall include the following:

a) Recruiting, soliciting, hiring or engaging, as an employee or independent contractor, any employees or former employees (excluding any former employee whose employment with the Company or its subsidiaries has been terminated for a period of six months or longer) of the Company or its subsidiaries;

b) Soliciting, enticing, or encouraging employees of the Company or its subsidiaries to leave employment with the Company or its subsidiaries;

c) Soliciting (for the purpose of providing a product or service that is competitive with the Company) any customer or prospective customer of the Company or its subsidiaries;

d) Soliciting, enticing, advising, encouraging, or inducing (i) customers of the Company or its subsidiaries to discontinue or alter their business relationship or (ii) customers or prospective customers to refrain from entering into a business relationship with the Company or its subsidiaries;

e) Entering the employment, rendering any professional services or taking a position as an officer, director, partner, owner, consultant, independent contractor, advisory board or committee member, principal, agent, employee or 10% or more shareholder with or to any individual, partnership, association or corporation which is a Competitor of the Company or its subsidiaries; but this clause (e) shall not preclude the Executive from rendering services to an entity that competes with an entity that has acquired Teradyne, Inc. (an “Acquirer”) so long as (i) the Executive’s services do not involve products or services that are competitive to those that were produced, marketed, sold or rendered by Teradyne, Inc. or any of its subsidiaries (including actual or demonstratively anticipated research or development) before the acquisition (“Teradyne Product/Services”) and (ii) the Executive is not retained as an Officer of the Acquirer following the consummation of the acquisition to render services involving the Acquirer’s products and services which are not Teradyne Products/Services.

f) Establishing, funding, purchasing or managing a business which is competitive with the business of the Company or its subsidiaries.

3. Employment & Agreement Consideration: In consideration of (a) the sign-on cash bonus and sign-on equity grant of Restricted Stock Units provided by the Company to the Executive in connection with his hiring as Vice President and Chief Financial Officer; and (b) the Company's willingness to enter into this agreement regarding termination benefits, the Executive covenants and agrees that during his employment and for one year after the Executive's Date of Termination resulting from the Executive's resignation, retirement or a termination by the Company for Cause, the Executive will not directly or indirectly engage in any of the Restricted Activities.

4. Termination Benefits and Covenants:

4.1 For the Executive: In consideration of, and as condition to, the performance by the Executive of the covenants, undertakings and other agreements set forth in Section 4.3 below, and for so long as the Executive performs such obligations, the Company shall provide the Termination Benefits described in subsections (a)-(f) below to the Executive if his employment with the Company is terminated by the Company for any reason other than for death, Disability, or Cause, provided that such termination by the Company does not trigger or entitle the Executive to any payments or benefits under the Executive Officer Change in Control Agreement (the "Executive Officer Change in Control Agreement"). If the Executive's employment with the Company is terminated within twenty-four (24) months following a Change in Control or within three (3) months prior to an actual Change in Control, then the terms and conditions of the Executive Officer Change in Control Agreement shall govern such employment termination and the Executive shall not be entitled to the payments and benefits described below. Subject to Section 4.1(b)(i) of this Agreement but notwithstanding any other provision of this Agreement to the contrary, payment or provision of the Executive's Termination Benefits that are subject to Section 409A of the Code shall commence on the 60th day following the Date of Termination provided the Executive has complied with the requirements of Section 4.3 of this Agreement and the release of claims has become irrevocable under applicable law no later than on the 60th day following his Date of Termination. All Termination Benefits shall be forfeited as of the 60th day following the Executive's Date of Termination if the Executive has not provided the Company with a valid, irrevocable release of claims as of such 60th day.

(a) Continued Payments: Unless otherwise required under Section 4.1(b) below, the Company shall pay monthly to the Executive an amount equal to 1/12th of his current annual Model Compensation as of the Date of Termination for a period of twelve (12) months from the Date of Termination (the "Severance Period"). Except as otherwise expressly provided herein, under no circumstances shall the Executive receive more than a total of twelve (12) months of payments under this Agreement. All such continued payments shall be in accord with the Company's customary pay practices. Executive shall not be eligible to receive a cash profit sharing payment for the year in which the Executive's employment is terminated.

(b) Deferred Compensation/Section 409A.

(i) Notwithstanding any other provision of this Agreement, if the Executive is a "specified employee" at the time of Executive's "separation from service," as defined in Section 409A of the Code, all payments, benefits, or removal of restrictions on the transfer of equity under this Agreement with respect to Executive's separation from service that constitute compensation deferred under a nonqualified deferred compensation plan as defined in Section 409A of the Code to which such specified employee would otherwise be entitled during the first six months following the date of separation from service shall be made on the first day of the seventh month after the date of separation from service (or, if earlier, the date of death of the Executive).

(ii) For purposes of this Agreement, each amount to be paid or benefit to be provided shall be construed as a separate identified payment for purposes of Section 409A, and any payments that are due within the "short term deferral period" as defined in Section 409A or payments that are made under separation pay plans as described in Treasury Regulation Section 1.409A-1(b)(ii), (iii) or (iv), shall not be treated as deferred compensation unless applicable law requires otherwise. Neither the Company nor the Executive shall have the right to accelerate or defer the delivery of any payments or benefits under this Agreement except to the extent specifically permitted or required by Section 409A.

(iii) This Agreement is intended to comply with the provisions of Section 409A and the Agreement shall, to the extent practicable, be construed in accordance therewith. Terms defined in the Agreement shall have the meanings given such terms under Section 409A if and to the extent required to comply with Section 409A. In any event, the Company makes no representations or warranty and shall have no liability to Executive or any other person if any provisions of or payments under this Agreement are determined to constitute deferred compensation subject to Code Section 409A but not to satisfy the conditions of that section.

(c) Benefits: During the Severance Period, the Company shall arrange or provide for continued health, dental and vision insurance plan coverage for the Executive at the same levels of coverage in existence prior to the Date of Termination subject to the Company and Executive each contributing to the applicable insurance premium payments on the same basis and in the same proportions as in existence at the Date of Termination. If the Executive is not eligible for continued health, dental and vision insurance plan coverage for any portion of the Severance Period, the Company shall provide or reimburse the Executive for comparable individual insurance and, if such provision or reimbursement constitutes taxable income to the Executive, such additional amount as is necessary to place the Executive in substantially the same after tax position as he was while an employee of the Company with respect to such insurance plan coverages. All other benefits, including but not limited to flex/vacation time accrual, short and long term disability insurance, life insurance, contributions (including company matches) into savings plan and savings plan plus, profit sharing payments and participation in the employee stock purchase plan shall cease as of the Date of Termination.

To the extent that amounts paid by the Company to provide benefits under this paragraph (c), are deemed to be deferred compensation subject to Section 409A, then such payments shall be made monthly and to the extent any such benefits are reimbursements of expenses incurred by the Executive then the expenses eligible for reimbursement in one taxable year may not effect the expenses eligible for reimbursement in another taxable year; such reimbursement must be made on or before the last day of the year following the year in which the expenses are incurred; and the right to reimbursement is not subject to liquidation or exchange for another benefit.

(d) Equity Awards: All unvested Equity Awards held by the Executive as of the date of the Executive's termination by the Company shall cease to vest pursuant to the terms of the the applicable equity Plan(s) and Equity Award Agreements (including any successor plans and agreements) under which the Equity Awards were granted to the Executive.

(e) Taxes and Withholdings: All payments made by the Company to the Executive under this Agreement shall be net of any applicable taxes (whether local, state, federal, provincial or otherwise) or other required or voluntary withholdings or deductions.

(f) Notwithstanding anything to the contrary herein, in the event the Executive dies after (i) his employment with the Company has been terminated for any reason other than Death, Disability and Cause and (ii) his right to the Termination Benefits stated in Section 4.1 has attached, the Company agrees that the Executive's estate, conservator or designated beneficiary(ies), as the case may be, shall be entitled to the remainder of the Executive's Termination Benefits described in Section 4.1.

4.2 Notwithstanding the preceding Section 4.1 and in consideration of, and as condition to, the Executive providing to the Company the covenants and agreements set forth in Section 4.3 below, the Company agrees that if the Executive's employment with the Company is terminated by the Company for Disability, the Company shall, unless otherwise required under Section 4.1(b) above:

(a) provide the monthly payments described in Section 4.1(a) above, as reduced pursuant to 4.2(b) below, to the Executive for each month during the twelve (12) month period following his termination during which the Executive does not receive or is no longer eligible to receive any Company disability insurance benefits under the applicable insurance policy or program(s), other than as a result of Executive's intentional malfeasance or death; and

(b) under this Section 4.2, reduce each monthly payment described in Section 4.1(a) above to the Executive by any compensation received by the Executive from other employment, consulting or the rendition of services outside the Restricted Activities.

The Executive agrees to use his best efforts to obtain and maintain any benefits from any disability policy or program under which he is an insured party or participant.

4.3 Executive's Covenants: In consideration of, and as a condition to, the Company providing to the Executive the Termination Benefits set forth in Sections 4.1 and 4.2, the Executive covenants and agrees:

(a) that during the Term of this Agreement and for one year after the Executive's Date of Termination resulting from a termination by the Company for any reason other than for Death or Disability and so long as such termination does not trigger or entitle the Executive to any payments or benefits under the Executive Officer Change in Control Agreement, the Executive will not directly or indirectly engage in any of the Restricted Activities.

(b) to sign a valid, binding, irrevocable general release of any claims he has or may have against the Company, including its subsidiaries, in connection with or relating to his employment by and/or termination from employment with the Company in the form attached hereto as Attachment A, within twenty-one (21) days of his Date of Termination resulting from a termination by the Company. Notwithstanding the foregoing, the Company agrees and hereby acknowledges that the Release contained in Attachment A is not intended to and does not (i) apply to any claims the Executive may bring to enforce the terms of this Agreement, the Executive Officer Change in Control Agreement, or any outstanding Equity Award Agreement and applicable equity Plan; (ii) release the Company of any obligation it may have pursuant to a written agreement, the Company's articles or organization or bylaws or as mandated by statute to indemnify the Executive as an officer or director of the Company; and (iii) release the Company of any obligation to provide and/or pay benefits to the Executive or the Executive's estate, conservator or designated beneficiary (ies) under and in accordance with the terms of any applicable Company benefit plan and/or program.

(c) to continue to comply with any post-termination obligations he may have to the Company arising from this Agreement or any other agreement the Executive has with the Company, its subsidiaries, affiliates or divisions, including but not limited to the following:

- All Outstanding Equity Award Agreements
- Employment Agreement
- Executive Officer Change in Control Agreement

(d) to cooperate with and provide all reasonable assistance to the Company, with respect to any civil, criminal or administrative investigations, actions and/or proceedings involving the Company and relating in any way to Executive's positions, duties and responsibilities while at the Company or to any matters which the Executive handled, participated in or had knowledge of while employed by the Company.

(e) not to make any false or disparaging or derogatory statements or remarks to any person or entity about the Company's (including its subsidiaries') business affairs, financial condition, or about any Company or subsidiary directors, officers, employees, stockholders and agents.

4.4 <u>Return of Property:</u> Within sixty (60) days of the Executive's termination of employment, for any reason, or his resignation or retirement, the Executive shall (a) return to the Company all Company property in his possession or control, including all electronic documents; and (b) submit all documentation for any reimbursements owed to the Executive for business expenses incurred prior to the Date of Termination.

4.5 <u>No Termination Benefits:</u> Except as expressly stated otherwise in Section 4.2, the Executive shall not be eligible for or receive any of the Termination Benefits described in Section 4.1 above upon the occurrence of any one of the following: (a) the Executive's resignation of or retirement from employment with the Company, or (b) the termination of Executive's employment with the Company resulting from Death or Disability, or (c) the termination of Executive's employment by the Company for Cause; or (d) the Executive's failure to perform or breach of any of the covenants, undertakings or other agreements set forth in Section 4.3; or (e) the Executive's entitlement to receive payments or benefits under the Executive Officer Change in Control Agreement.

5. <u>Termination Notice</u>: Any termination of the Executive's employment by the Company (other than by reason of Death) shall (a) be in writing; (b) indicate the basis for termination (such as with or without Cause, Disability, etc…) and with respect to a termination for Cause indicate the basis for termination in reasonable detail and (c) be delivered to the Executive in accordance with Section 17 below.

6. <u>Resignation or Retirement Notice</u>: Any resignation or retirement by Executive shall be (a) in writing, (b) explain the resignation or retirement and (c) be delivered to the Company at least ninety (90) days in advance of the resignation or retirement date and otherwise in accordance with Section 17 below.

7. <u>Resignation as a Director:</u> Upon termination of Executive's employment by the Company for any reason or the resignation of or retirement from employment by the Executive, if the Executive is then serving on the Company's Board of Directors, the Executive shall provide the Chairman of the Board with his written resignation from the Company's Board and all subsidiary Boards, and the Board may choose to accept or reject the Executive's resignation as a Company Board member.

8. No Third Party Beneficiaries: Except as otherwise provided in Section 4.1(f) above and in the Executive Officer Change in Control Agreement, nothing in this Agreement shall confer upon any person or entity not a party to this Agreement, or the legal representative, executor, administrator or heir of such person or entity, any rights or remedies of any nature or kind whatsoever under or by reason of this Agreement.

9. No Obligation of Employment. Nothing in this Agreement shall be construed as an express or implied contract of employment between the Executive and the Company (or its subsidiaries, affiliate or divisions) or as a commitment on the part of the Company to retain Executive in any capacity for any period of time. Executive understands that the employment relationship between the Executive and the Company will be "at will" and the Executive understands that the Company may terminate Executive with or without "Cause" at any time (including prior to a Change in Control) or for any or no reason. Following any Change in Control, the Company may also terminate Executive with or without "Cause" at any time subject to the terms of this Agreement and the Executive's rights and the Company's obligations specified in the Executive Officer Change in Control Agreement.

10. Specific Performance: Executive acknowledges that (a) the services to be rendered under this Agreement and the obligations of the Executive assumed herein are of a special, unique and extraordinary character, (b) it would be difficult or impossible to replace such services and obligations, (c) the Company, its subsidiaries and affiliates will be irreparably harmed, and (d) the award of monetary damages will not adequately protect the Company, its subsidiaries and affiliates in the event of a breach hereof by the Executive. As a result, the Executive agrees and consents that if he violates any of the provisions of this Agreement, the Company shall, without any bond or other security, being required and without the necessity of proving monetary damages, be entitled to temporary and/or permanent injunctive relief to be issued by a court of competent jurisdiction restraining the Executive from committing or continuing any violation of this Agreement or any other appropriate decree of specific performance. Such remedies shall not be exclusive and shall be in addition to any other remedy the Company may have whether at law or in equity.

11. Dispute Resolution: Except for the equitable relief provisions set forth in Section 10, the Executive and the Company agree that any dispute, controversy or claim arising between the parties relating to this Agreement, otherwise relating in any way to Executive's employment with and/or termination from the Company, or relating to Executive's relationship as a director or in any other capacity for the Company (whether such dispute arises under any federal, state or local statute or regulation, or at common law), shall be resolved by final and binding arbitration before a single arbitrator. The arbitrator shall be selected in accordance with the Employment Dispute Resolution Rules of the American Arbitration Association ("AAA") pertaining at the time the dispute

arises. The parties agree that such arbitration shall take place at the offices of the AAA in Boston, Massachusetts. In such arbitration proceedings, the arbitrator shall have the discretion, to be exercised in accordance with applicable law, to allocate among the parties the arbitrator's fees, tribunal and other administrative and litigation costs and, to the prevailing party, reasonable attorneys' fees. The award of the arbitrator may be confirmed before and entered as a judgment of any court having jurisdiction of the parties.

12. Governing Law. This Agreement shall be governed by and construed in accordance with the internal laws of the Commonwealth of Massachusetts and this Agreement shall be deemed to be performable in Massachusetts.

13. Severability. In case any one or more of the provisions contained in this Agreement for any reason shall be held to be invalid, illegal or unenforceable in any respect, such invalidity, illegality or unenforceability shall not affect any other provision of this Agreement and this Agreement shall be construed to the maximum extent permitted by law.

14. Waivers and Modifications. This Agreement may be modified, and the rights, remedies and obligations contained in any provision hereof may be waived, only in accordance with this Section 14. No waiver by either party of any breach by the other or any provision hereof shall be deemed to be a waiver of any later or other breach thereof or as a waiver of any other provision of this Agreement. This Agreement may not be waived, changed, discharged or terminated orally or by any course of dealing between the parties, but only by an instrument in writing signed by the party against whom any waiver, change, discharge or termination is sought.

15. Assignment. Executive may not assign any of his rights or delegate any of his duties or obligations under this Agreement. The rights and obligations of the Company under this Agreement shall inure to the benefit of, and shall be binding upon, the successors and assigns of the Company.

16. Entire Agreement. This Agreement constitutes the entire understanding of the parties relating to the subject matter hereof and supersedes and cancels all agreements, written or oral, made prior to the date hereof between Executive and the Company relating to the subject matter hereof; provided, however, that the following Executive Agreements, as may be modified herein, shall remain in effect in accordance with their terms.

a) All Outstanding Equity Award Agreements

b) Employment Agreement between the Company and the Executive

c) Executive Officer Change in Control Agreement

d) Any written indemnification agreements signed by the Company

e) The Release, Attachment A hereto, once executed between the Company and the Executive.

17. Notices. All notices hereunder shall be in writing and shall be delivered (a) in person, (b) mailed by U.S. certified or registered mail, return receipt requested, postage prepaid, (c) sent via facsimile with a confirmed facsimile transmission receipt, or (d) sent via overnight delivery with a confirmed receipt of delivery; in each instance addressed, if to the Executive or the Company, as the case may be at the address noted below or to such other address as either party may furnish to the other in writing in accordance herewith, except that notice of a change of address shall be effective only upon actual receipt.

To the Company:
Teradyne, Inc.
600 Riverpark Drive
North Reading, MA 01864
Attention: General Counsel

To the Executive:
Executive's address in his employment file on record with the Human Resources Department

18. Counterparts. This Agreement may be executed in two or more counterparts, each of which shall be deemed to be an original, but all of which together shall constitute one and the same instrument.

19. Section Headings. The descriptive section headings herein have been inserted for convenience only and shall not be deemed to define, limit, or otherwise affect the construction of any provision hereof.

IN WITNESS WHEREOF, this Agreement has been executed as a sealed instrument by the Company, by a duly authorized director, and by the Executive.

TERADYNE, INC.

/s/ Charles J. Gray
Name: Charles J. Gray
Title: Vice President & General Counsel

EXECUTIVE

/s/ Sanjay Mehta
Sanjay Mehta
Vice President & Chief Financial Officer

ATTACHMENT A

Release

In consideration of the payment and receipt of the Termination Benefits described in the "Agreement Regarding Termination Benefits" dated April 25, 2019 between me and Teradyne, Inc. of 600 Riverpark Drive, North Reading, MA 01864 (the "Company"), all of which I acknowledge I would not otherwise be entitled to receive, I hereby fully, forever, irrevocably and unconditionally release, remise and discharge the Company, its successors and assigns and their respective officers, directors, stockholders, corporate affiliates, subsidiaries, parent companies, agents and Executives (each in their individual and corporate capacities) (hereinafter, the "Released Parties") from any and all claims, charges, complaints, demands, actions, causes of action, suits, rights, debts, sums of money, costs, accounts, reckonings, covenants, contracts, agreements, promises, doings, omissions, damages, executions, obligations, liabilities, and expenses (including attorneys' fees and costs), of every kind and nature which I ever had or now have against the Released Parties arising out of my employment with and/or termination or separation from the Company or relating to my relationship as an officer or in any other capacity for the Company, including, but not limited to, all employment discrimination claims under Title VII of the Civil Rights Act of 1964, as amended; the Age Discrimination in Employment Act of 1967, as amended; the Family and Medical Leave Act; the Employee Retirement Income Security Act of 1974, 29 U.S.C. § 1001, et seq.; the Americans With Disabilities Act of 1990, as amended; the Worker Adjustment and Retraining Notification Act; the Civil Rights Act of 1991; the National Labor Relations Act, as amended; Sections 1981 through 1988 of Title 42 of the United States Code, as amended; the Older Workers Benefit Protection Act; the Occupational Safety and Health Act, as amended; the Civil Rights Act of 1866, 29 U.S.C. § 1981, et seq; the Rehabilitation Act of 1973, 29 U.S.C. § 701, et seq.; the Immigration Reform and Control Act; the Fair Credit Reporting Act; the Equal Pay Act; the Massachusetts Law Against Discrimination, G.L. c. 151B; the Massachusetts Privacy Statute, G.L. c. 214, § 1B; the Massachusetts Civil Rights Act, G.L. c. 12, § 11H and 11I; the Massachusetts Equal Rights Act, G.L. c. 93, § 102; the Massachusetts Labor and Industries Act, G.L. c. 149, § 1 et seq.; the Massachusetts Parental Leave Act, G.L. c. 149, § 105D; the Massachusetts Sexual Harassment Statute, G.L. c. 214 § 1C; the Massachusetts Wage Payment Statute, G.L. c. 149, §§ 148, 148A, 148B, 148C, 149, 150, 150A-150C, 151, 152, 152A, et seq.; the Massachusetts Wage and Hour laws, G.L. c. 151§1A et seq.; The Massachusetts Leave Law for Victims and Family Members of Abusive Behavior, G.L. c.149, § 52E; et seq.; The Massachusetts Earned Sick Time Law, G.L. c.149, § 148C), all as amended; all common law claims including, but not limited to, actions in tort, defamation and breach of contract; all claims to any non-vested ownership interest in the Company, contractual or otherwise, including but not limited to claims to stock or stock options; and any claim or damage arising out of my employment with, termination or separation from the Company (including a claim for retaliation) under any common law theory or any federal, state or local statute or ordinance not expressly referenced above; provided, however, that notwithstanding the foregoing, the Company agrees and hereby acknowledges that this Release Agreement is not intended to and does not (i) apply to any claims I may bring to enforce the terms of the Executive Officer Agreement, (ii) release the Company of any obligation it may have pursuant to a written agreement, the Company's articles of organization or bylaws, or as mandated by statute to indemnify me as an officer of the Company; and (iii) release the Company of any obligation to provide and/or pay benefits to me or my estate, conservator or designated beneficiary(ies) under and in accordance with the terms of any applicable Company benefit plan and/or program; provided further, that nothing in this Release Agreement prevents me from filing, cooperating with, or participating in any proceeding before the EEOC or a state Fair Employment Practices Agency (except that I acknowledge that I may not be able to recover any monetary benefits in connection with any such claim, charge or proceeding).

Waiver of Rights and Claims Under the Age Discrimination in Employment Act of 1967: Since I am 40 years of age or older, I have been informed that I have or may have specific rights and/or claims under the Age Discrimination in Employment Act of 1967 (ADEA) and I agree that:

(a) in consideration for the severance payments and benefits described in Section 4.1 of the Agreement Regarding Termination Benefits, which I am not otherwise entitled to receive, I specifically and voluntarily waive such rights and/or claims under the ADEA I might have against the Released Parties to the extent such rights and/or claims arose prior to the date this Release Agreement was executed;

(b) I understand that rights or claims under the ADEA which may arise after the date this Release Agreement is executed are not waived by me;

(c) I was advised that I have at least 21 days within which to consider the terms of this Release Agreement and to consult with or seek advice from an attorney of my choice or any other person of your choosing prior to executing this Release Agreement;

(d) I have carefully read and fully understand all of the provisions of this Release Agreement, and I knowingly and voluntarily agree to all of the terms set forth in this Release Agreement; and

(e) in entering into this Release Agreement I am not relying on any representation, promise or inducement made by the Company or its attorneys with the exception of those promises described in this document.

Period for Review and Consideration of Agreement:

I acknowledge that I was informed and understand that I have twenty-one (21) days to review this Release Agreement and consider its terms before signing it.

The 21-day review period will not be affected or extended by any revisions, whether material or immaterial, that might be made to this Agreement.

Accord and Satisfaction: The amounts set forth in the Agreement Regarding Termination Benefits shall be complete and unconditional payment, settlement, accord and/or satisfaction with respect to all obligations and liabilities of the Released Parties to me, including, without limitation, all claims for back wages, salary, vacation pay, draws, incentive pay, bonuses, cash awards, Equity Awards, commissions, severance pay, reimbursement of expenses, any and all other forms of compensation or benefits, attorney’s fees, or other costs or sums.

Revocation Period: I may revoke this Release Agreement at any time during the seven-day period immediately following my execution hereof. As a result, this Release Agreement shall not become effective or enforceable and the Company shall have no obligation to make any payments or provide any benefits described herein until the seven-day revocation period has expired.

Sanjay Mehta	Date
Witness	Date

IF YOU DO NOT WISH TO USE THE 21-DAY PERIOD,
PLEASE CAREFULLY REVIEW AND SIGN THIS DOCUMENT

I, Sanjay Mehta, acknowledge that I was informed and understand that I have 21 days within which to consider the attached Release Agreement, have been advised of my right to consult with an attorney regarding such Agreement and have considered carefully every provision of the Agreement, and that after having engaged in those actions, I prefer to and have requested that I enter into the Agreement prior to the expiration of the 21 day period.

Dated: ___________________

____
Sanjay Mehta

Dated: ___________________

____
Witness

TERADYNE, INC. 2006 EQUITY AND CASH COMPENSATION INCENTIVE PLAN
NOTICE OF RESTRICTED STOCK UNIT GRANT AND TERMS FOR U.S. RECIPIENTS

Name: Sanjay Mehta
Employee ID: 748893

Supervisor: Mark Jagiela

In granting restricted stock units, Teradyne, Inc. ("Teradyne") seeks to provide employees of Teradyne and its subsidiaries with incentive to help drive Teradyne's future success and to share in the economic benefits of that success. We all look forward to your contributions to that effort.

You have been granted a restricted stock unit award consisting of the right to receive up to 22,569 shares of Teradyne common stock. This grant was approved effective May 1, 2019 (the "Effective Date").

This award is subject to the Restricted Stock Unit Terms for U.S. Recipients attached hereto and the terms of the Teradyne, Inc. 2006 Equity and Cash Compensation Incentive Plan (the "Plan"). The shares covered by this award will be delivered over time as described in and subject to the vesting conditions of the Restricted Stock Unit Terms for U.S. Recipients.

The Plan prospectus, consisting of a "Participant Information" document that summarizes the Plan and the complete Plan, is available on "In-Site," Teradyne's internal Web site:

http://cms.corp.teradyne.com/insite/FunctionsGroups/GeneralAdministrative/HumanResources/GLOBALPOLICY/EquityCompensationOptionsRSU%E2%80%99s/index.htm.

Please note that printed versions of the Plan prospectus documents are available to you, at no charge, upon request to the HR Service Center, Teradyne, Inc., 600 Riverpark Drive, North Reading, MA 01864, (978) 370-3041.

TERADYNE, INC

Charles J. Gray
V.P., General Counsel and Secretary

(2019 RSU)
Grant #

RESTRICTED STOCK UNIT TERMS FOR U.S. RECIPIENTS

1. Award Grant, Vesting and Transfer

(a) Award Grant. Teradyne, Inc. hereby grants to the recipient an award (this "Award") of restricted stock units (the "RSUs") under the Teradyne, Inc. 2006 Equity and Cash Compensation Incentive Plan (the "Plan"). The RSUs represent the right of the recipient to receive that number of shares of Teradyne common stock set forth in the Notice of Restricted Stock Unit Grant and Terms for U.S. Recipients (the "Notice of Grant") attached hereto upon satisfaction of the terms set forth in these Restricted Stock Unit Terms for U.S. Recipients (this "Agreement"). This Award is governed by and subject to the terms of the Plan, the Notice of Grant and this Agreement.

Capitalized terms used but not otherwise defined herein will have the meaning set forth in the Notice of Grant or the Plan. In the event of any inconsistencies or differences between the Plan and this Agreement, the Plan shall prevail. The terms governing this Award are intended to comply with all applicable laws and regulations.

(b) This Award vests yearly on the anniversary of the Effective Date. None of the RSUs subject to this Award will be vested on the Effective Date. Except as provided in (c) below, 50% of the RSUs granted will vest on the first and second anniversaries of the Effective Date. The Committee shall have the right to accelerate the date that any installment of this Award becomes vested, including, but not limited, to events such as disability, death or upon the acquisition of control of Teradyne by another entity.

(c) This Award will not vest further after termination of employment or other business relationship except in limited certain circumstances. This Award will not vest after the recipient's employment or other business relationship ends, regardless of the reason, provided, however, that if the recipient's employment or other business relationship with Teradyne or, if different, the recipient's employer (the "Employer") or any of the other Subsidiaries of Teradyne ends on account of permanent disability or death, the unvested portion of this Award which would have vested under the applicable rule stated in (b) above shall automatically become vested in full on the date of his or her termination of employment or business relationship on account of permanent disability or death.

The recipient's employment or other business relationship shall be considered as continuing uninterrupted during any bona fide leave of absence (such as those attributable to illness or military obligations) provided that the period of such leave does not exceed 90 days or, in the case of an employee, if longer, any period during which the employee's right to reemployment is guaranteed by statute. A bona fide leave of absence with the written approval of the Committee shall not be considered an interruption of employment or other business relationship, provided that such written approval contractually obligates Teradyne, the Employer or any other Subsidiary of Teradyne to continue the recipient's employment or other business relationship after the approved period of absence.

(d) No rights as stockholder; Issuance. The recipient shall not have any rights as a stockholder in, to or with respect to any shares which may be covered by this Award (including but not limited to the right to vote or to receive dividends) until this Award is settled by issuance of shares to the recipient. All shares issued in respect of this Award will be transferred or issued to the recipient (or his or her estate, in the event of his or her death) as soon as is practicable after the date the RSUs vest but, in any event, within 2½ months following the calendar year in which the RSUs become vested (or any earlier date, after vesting, as required to avoid characterization as non-qualified deferred compensation under Section 409A of the Code). Teradyne will not be required to transfer or issue any shares upon vesting of the RSUs until arrangements satisfactory to it have been made by the recipient to address any Tax-Related Items (as defined in Section 4 below) which might arise by reason of the vesting of the RSUs and/or transfer or issuance of shares.

(e) This Award may not be assigned or transferred. Other than as provided in Section 11(a) of the Plan, this Award is not assignable or transferable (except by will or the laws of descent and distribution).

2. Capital Changes and Business Succession. Section 3(c) of the Plan contains provisions for adjusting (or substituting) the number and class of securities, vesting schedule and other terms of outstanding stock-based awards granted under the Plan if a recapitalization, stock split, merger, or other specified event occurs and the Committee determines that an adjustment (or substitution) is appropriate. In that event, the recipient of this Award will be notified of the adjustment (or substitution), if any, to this Award.

3. Employment or Business Relationship. This Award and the recipient's participation in the Plan shall not create any right of continued employment or business relationship or be interpreted as forming or amending an employment contract or business relationship with Teradyne or its Subsidiaries, and does not affect the right of the recipient, Teradyne or the Employer to terminate the recipient's employment or a business relationship at any time.

4. Tax Obligations.

(a) Responsibility for Taxes. The recipient acknowledges that, regardless of any action taken by Teradyne or the Employer, the ultimate liability for all income tax, social insurance, payroll tax, fringe benefits tax, payment on account or other tax-related items related to the recipient's participation in the Plan and legally applicable to the recipient ("Tax-Related Items"), is and remains the recipient's responsibility and may exceed the amount actually withheld by Teradyne or the Employer. The recipient further acknowledges that Teradyne and/or the Employer (1) make no representations or undertakings regarding the treatment of any Tax-Related Items in connection with any aspect of this Award, including, but not limited to, the grant, vesting or settlement of the RSUs, the subsequent sale of shares acquired pursuant to such settlement and the receipt of any dividends or other distributions, and (2) do not commit to and are under no obligation to structure the terms of the grant or any aspect of this Award to reduce or eliminate the recipient's liability for Tax-Related Items or achieve any particular tax result. Further, if the recipient is subject to Tax-Related Items in more than one jurisdiction, the recipient acknowledges that Teradyne and/or the Employer (or former employer, as applicable) may be required to withhold or account for Tax-Related Items in more than one jurisdiction.

(b) Tax Withholding. Prior to any relevant taxable or tax withholding event, as applicable, the recipient agrees to make adequate arrangements satisfactory to Teradyne and/or the Employer to satisfy all Tax-Related Items. The recipient authorizes Teradyne and/or the Employer, or their respective agents, to satisfy any applicable withholding obligations with regard to all Tax-Related Items by withholding in shares to be issued upon settlement of the RSUs; provided, however, that the number of shares withheld will be determined using rates that do not exceed the maximum statutory tax rates for the jurisdiction(s) applicable to the recipient. For tax purposes, the recipient is deemed to have been issued the full number of shares subject to the vested RSUs, notwithstanding that a number of the shares are held back solely for the purpose of paying the Tax-Related Items. Alternatively, a recipient may elect to satisfy his or her obligations for Tax-Related Items by delivery of cash or check to Teradyne or the Employer. In the event that withholding in shares is problematic under applicable tax or securities law or has materially adverse accounting consequences and the recipient does not satisfy his or her obligations for Tax-Related Items by delivery of cash or check, the recipient (1) authorizes and directs Teradyne and any brokerage firm determined acceptable to Teradyne to sell on the recipient's behalf a whole number of shares from those shares issuable to the recipient as Teradyne determines to be appropriate to generate cash proceeds sufficient to satisfy any applicable withholding obligation for Tax-Related Items; (2) authorizes Teradyne or the Employer to withhold the Tax-Related Items from the recipient's wages or other compensation; and (3) agrees, upon request from Teradyne or the Employer, to make a cash payment in an amount equal to the withholding obligations for any Tax-Related Items. Teradyne may refuse to issue or deliver the shares or the proceeds of the sale of shares if the recipient fails to comply with his or her obligations in connection with the Tax-Related Items.

5. Compliance with Laws. Shares to be issued under this Award are currently registered under the United States Securities Act of 1933, as amended. If such registration is not in effect at the time of vesting, the recipient will be required to represent to Teradyne that he or she is acquiring such shares as an investment and not with a view to the sale of those shares. Notwithstanding any other provision of the Plan or the Agreement, unless there is an available exemption from any registration, qualification or other legal requirement applicable to the shares of common stock, Teradyne shall not be required to deliver any shares of common stock issuable upon settlement of the RSUs prior to the completion of any registration or qualification of the shares under any local, state, federal or foreign securities or exchange control law or under rulings or regulations of the United States Securities and Exchange Commission ("SEC") or of any other governmental regulatory body, or prior to obtaining any approval or other clearance from any local, state, federal or foreign governmental agency, which registration, qualification or approval Teradyne shall, in its absolute discretion, deem necessary or advisable. The recipient understands that Teradyne is under no obligation to register or qualify the shares with the SEC or any state or foreign securities commission or to seek approval or clearance from any governmental authority for the issuance or sale of the shares. Further, the recipient agrees that Teradyne shall have unilateral authority to amend the Plan and the Agreement without the recipient's consent to the extent necessary to comply with securities or other laws applicable to issuance of shares.

6. Code Section 409A. This Award is intended to be exempt from the application of Section 409A of the Code, and any ambiguities herein will be interpreted to so comply. Teradyne reserves the right, to the extent Teradyne deems necessary or advisable in its sole discretion, to amend or modify the terms of this Award (or the Plan) or adopt other policies and procedures (including amendments, policies and procedures with retroactive effect), or take other actions, including any amendments or actions that would result in a reduction to the benefit payable under this Award, in each case, without the consent of the recipient of the Award, as may be necessary to ensure that all vesting or settlement provided under this Award are made in a manner that complies with Section 409A of the Code or to mitigate any additional tax, interest and/or penalties or other adverse tax consequences that may apply under Section 409A of the Code if compliance is not practical; provided, however, that nothing in this Section 6 creates an obligation on the part of Teradyne to modify the terms of this Award or the Plan. In that light, Teradyne makes no representation that the terms of this Award will comply with Section 409A of the Code or that the settlement of this Award will not be subject to taxes, interest and penalties or other adverse tax consequences under Section 409A of the Code. In no event whatsoever shall Teradyne or any of its affiliates be liable to the recipient of this Award or any other party for any additional tax, interest, penalties or other liability that may be imposed on the recipient of this Award by Section 409A of the Code or for any action taken by Teradyne with respect thereto.

7. Governing Law and Venue. The Award and the provisions of this Agreement are governed by, and subject to, the laws of the Commonwealth of Massachusetts, without regard to the conflict of law provisions, as provided in the Plan. For purposes of litigating any dispute that arises under this Award or this Agreement, the parties hereby submit to and consent to the jurisdiction of the Commonwealth of Massachusetts, agree that such litigation shall be conducted in the courts of Middlesex County, or the federal courts for the United States for the District of Massachusetts, where this grant is made and/or to be performed.

8. Electronic Delivery and Acceptance. Teradyne may, in its sole discretion, decide to deliver any documents related to current or future participation in the Plan by electronic means. The recipient hereby consents to receive such documents by electronic delivery and agrees to participate in the Plan through an on-line or electronic system established and maintained by Teradyne or a third party designated by Teradyne.

9. Severability. The provisions of this Agreement are severable and if any one or more provisions are determined to be illegal or otherwise unenforceable, in whole or in part, the remaining provisions shall nevertheless be binding and enforceable.

10. Imposition of Other Requirements. Teradyne reserves the right to impose other requirements on the recipient's participation in the Plan, on the RSUs and on any shares of common stock acquired under the Plan, to the extent Teradyne determines it is necessary or advisable for legal or administrative reasons, and to require the recipient to sign any additional agreements or undertakings that may be necessary to accomplish the foregoing.

11. Waiver. The recipient acknowledges that a waiver by Teradyne of breach of any provision of this Agreement shall not operate or be construed as a waiver of any other provision of this Agreement, or of any subsequent breach by the recipient or any other recipient.

12. No Advice Regarding Grant. Teradyne is not providing any tax, legal or financial advice, nor is Teradyne making any recommendations regarding the recipient's participation in the Plan, or the recipient's acquisition or sale of the underlying shares of common stock. The recipient should consult with his or her own personal tax, legal and financial advisors regarding his or her participation in the Plan before taking any action related to the Plan.

13. Insider Trading Restrictions/Market Abuse Laws. The recipient acknowledges that, depending on the recipient's or his or her broker's country of residence or where the shares of common stock are listed, the recipient may be subject to insider trading restrictions and/or market abuse laws which may affect the recipient's ability to accept, acquire, sell or otherwise dispose of shares of common stock, rights to shares of common stock (*e.g.*, RSUs) or rights linked to the value of shares of common stock under the Plan during such times the recipient is considered to have "inside information" regarding Teradyne (as defined by the laws or regulations in the recipient's country). The recipient is responsible for ensuring compliance with any restrictions and should consult his or her personal legal advisor on this matter.

14. Recoupment. The recipient agrees that the RSUs and any financial gain realized by the recipient through settlement of the RSUs or sale of any shares of common stock acquired shall be subject to forfeiture and/or repayment to the Company to the extent required to comply with any applicable laws or the rules and regulations of the securities exchange or inter-dealer quotation system on which the shares of common stock are listed or quoted, including, without limitation, pursuant to Section 954 of the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010.

Exhibit 31.1

CERTIFICATIONS

I, Mark E. Jagiela, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Teradyne, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent function):

a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: May 10, 2019

By: /S/ MARK E. JAGIELA

Mark E. Jagiela
Chief Executive Officer

Exhibit 31.2

CERTIFICATIONS

I, Sanjay Mehta, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Teradyne, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant’s other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

c) Evaluated the effectiveness of the registrant’s disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

d) Disclosed in this report any change in the registrant’s internal control over financial reporting that occurred during the registrant’s most recent fiscal quarter (the registrant’s fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant’s internal control over financial reporting; and

5. The registrant’s other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant’s auditors and the audit committee of the registrant’s board of directors (or persons performing the equivalent function):

a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant’s ability to record, process, summarize and report financial information; and

b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant’s internal control over financial reporting.

Date: May 10, 2019

By: /S/ SANJAY MEHTA

Sanjay Mehta
Chief Financial Officer

Exhibit 32.1

CERTIFICATION PURSUANT TO
18 U.S.C SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Quarterly Report of Teradyne, Inc. (the “Company”) on Form 10-Q for the period ended March 31, 2019 as filed with the Securities and Exchange Commission on the date hereof (the “Report”), I, Mark E. Jagiela, Chief Executive Officer of the Company, certify pursuant to 18 U.S.C (S) 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that to the best of my knowledge:

(1) The Report fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company as of the dates and for the periods expressed in the Report.

/S/ MARK E. JAGIELA

Mark E. Jagiela
Chief Executive Officer
May 10, 2019

Exhibit 32.2

CERTIFICATION PURSUANT TO
18 U.S.C SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Quarterly Report of Teradyne, Inc. (the "Company") on Form 10-Q for the period ended March 31, 2019 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Sanjay Mehta, Chief Financial Officer of the Company, certify pursuant to 18 U.S.C (S) 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that to the best of my knowledge:

(1) The Report fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company as of the dates and for the periods expressed in the Report.

/S/ SANJAY MEHTA

Sanjay Mehta
Chief Financial Officer
May 10, 2019