OLYMPUS®

Your Vision, Our Future

VANTA Specifications

VANTA

Rugged. Revolutionary. Productive.

Vanta™ handheld XRF analyzers are rugged and built for analytically demanding applications in the harshest environments. Vanta analyzers are IP 65* rated for protection against dust and water, are drop tested, and built to withstand a temperature range of -10 °C to 50 °C (14 °F to 122 °F).**

Vanta analyzers provide fast, accurate elemental analysis. Each device features Olympus' new Axon™ technology, a revolution in XRF signal processing that provides accurate, repeatable results for greater productivity and a fast return on investment. Vanta analyzers feature an intuitive interface and application-specific software so new users can work with the device with minimal training. Data is easily exported via Wi-Fi, Bluetooth®, or USB.

The Vanta Series

No matter the model, each Vanta analyzer is engineered for durability and analytical superiority. Olympus manufactures Vanta™ analyzers to suit a variety of applications depending on your needs.

M Series

Our most powerful Vanta analyzers feature exceptional performance to handle the most demanding applications. Each M Series analyzer comes equipped a large-area silicon drift detector, your choice of either a rhodium (Rh) or a tungsten (W) anode, and a 50 kV X-ray tube.

C Series

The C Series combine value with superior speed, limits of detection (LODs), and elemental range. Each C Series analyzer is equipped with a silicon drift detector and your choice of an Rh or W anode 40 kV X-ray tube, or a silver (Ag) anode at 50 kV X-ray tube.

VANTA Specifications

Dimensions (W × H × D)	8.3 cm × 28.9 cm × 24.2 cm (3.25 in. × 11.4 in. × 9.5 in.)
Weight	1.70 kg (3.75 kb) with battery, 1.48 kg (3.25 lb) without battery
Excitation Source	4-Watt X-ray tube with application optimized anode material (rhodium (Rh), silver (Ag), or tungsten (W)) M Series (Rh & W) and C Series (Ag): 8–50 kV C Series (Rh & W): 8–40 kV
Primary Beam Filtration	8-position auto selected filter per beam per mode
Detector	M Series: Large area Silicon Drift Detector C Series: Silicon Drift Detector
Power	Removable 14.4 V Li-Ion battery or 18 V power transformer 100-240 VAC, 50–60 Hz, 70 W max
Display	800 × 480 (WVGA) LCD with capacitive touch-screen supporting gesture control
Operating Environment	Temperature: -10 °C to 50 °C (continuous duty cycle with optional fan) Humidity: 10% to 90% relative humidity non-condensing
Drop Test	Military Standard 810-G 4-foot (1.3 M) drop test
IP Rating	M Series IP 64: dust tight and protected against water splashing from all directions C Series IP 65: dust tight and protected against water jets from all directions
Pressure Correction	Built-in barometer for automatic altitude and air density correction
GPS	Embedded GPS / GLONASS receiver
Operating System	Linux
Data Storage	4 GB embedded storage, micro SD slot for expandable storage
USB	(2) USB 2.0 type A host ports for accessories such as Wi-Fi, Bluetooth®, and USB flash drives. (1) USB 2.0 type mini-B port for connection to computer.
WiFi	Supports 802.11 b/g/n (2.4 GHz) via optional USB adapter
Bluetooth	Supports Bluetooth and Bluetooth Low-Energy via optional USB adapter
Aiming Camera	Full VGA CMOS camera
Panoramic Camera	5-megapixel CMOS camera with autofocus lens

OLYMPUS SCIENTIFIC SOLUTIONS AMERICAS is certified to ISO 9001, ISO 14001, and OHSAS 18001.

*M Series analyzers are IP 64 rated

** With optional fan. The fan assembly is IP 54 rated. Operates continuously at 33 °C without the fan.

All specifications are subject to change without notice.

www.olympus-ims.com

OLYMPUS®

OLYMPUS CORPORATION OF THE AMERICAS
48 Woerd Avenue, Waltham, MA 02453, USA, Tel.: (1) 781-419-3900
12569 Gulf Freeway, Houston, TX 77034, USA, Tel.: (1) 281-922-9300

For enquiries - contact
www.olympus-ims.com/contact-us

Vanta_Specs_EN_LTR_201610 • Printed in the USA • P/N: 920-404-EN Rev. B

OLYMPUS®

Your Vision, Our Future

Handheld X-ray Fluorescence

VANTA Series

VANTA

Rugged. Revolutionary. Productive.

Olympus' new Vanta™ analyzer is our most advanced handheld X-ray fluorescence (XRF) device. These rugged, powerful, and intuitive instruments provide rapid, accurate element analysis and alloy identifications to customers who demand laboratory-quality results in the field.

Vanta handheld XRF analyzers are some of the toughest devices Olympus has ever made. Their rugged and durable design makes them resistant to damage for greater uptime and a lower cost of ownership. With intuitive navigation and configurable software, the Vanta series are easy to use with minimal training for high throughput and fast return on investment. Olympus' innovative Axon™ technology means Vanta analyzers give you accurate results and help boost productivity no matter the environment or working conditions.

- Exceptional durability under extreme conditions
- Analytical excellence
- Optional Wi-Fi and Bluetooth® for real-time data sharing
- Intuitive user interface

Rugged

Working conditions can be tough on electronic devices, often causing breakdowns that cost time and money. Vanta™ analyzers are durable for increased uptime and a low cost of ownership. The Vanta series are drop tested using U.S. Department of Defense methods (MIL-STD-810G), reducing the risk of damage and costly repairs when a device is dropped or jostled.

Vanta devices are also IP 65* rated dust and water resistant to protect against the hazards found in even the most challenging environments. Able to withstand a temperature range of -10 °C to 50 °C (14 °F to 122 °F) at full duty cycle, Vanta analyzers ensure you achieve 100% uptime without wasting time waiting for your analyzer to cool, even in hot environments.** The detector shutter on C and M series models helps prevent punctures so you can analyze rough surfaces with confidence.

Revolutionary

Every circuit, contour, and interface of Vanta handhelds is engineered to be the best of its kind. Vanta analyzers incorporate Olympus' new Axon™ technology, a breakthrough in XRF signal processing that delivers accurate and repeatable test results. Axon uses ultra-low-noise electronics enabling higher X-ray counts per second and faster results. Coupled with a new quad-core processor, Axon makes Vanta analyzers remarkably responsive, pushing the limits of performance so you get the best results in the least amount of time. Axon technology provides both test-to-test and instrument-to-instrument repeatability. Whether it's your first test on your first analyzer or your thousandth test with your hundredth analyzer, the Vanta handheld XRF gives you a consistent result.

Productive

Vanta analyzers maximize user throughput and make data archiving easy. Application-specific software features improve user productivity for fast ROI.

- A new, intuitive interface (UI) enables the user to quickly navigate the device's settings and software functions.
- The UI can be configured based on a customer's specific needs. Users can customize which software features and functions are displayed on the main screen.
- Data are easily exported via a USB flash drive, Wi-Fi, or Bluetooth. Vanta analyzers are designed to enable powerful cloud applications.
- Vanta analyzers feature a clear, bright LCD touch screen that is readable in any light.
- Ergonomic buttons and an industrial-grade, push-button joystick enable users to easily navigate the system with gloved hands.
- Olympus' Vanta handheld XRF offers embedded GPS so users can pair results with precise GPS coordinates to document and map the location of elements. The optional 5-megapixel panoramic camera combines images of XRF data with GPS coordinates for inclusive archiving and streamlined reporting which provides unmatched data traceability to the field.

Vanta™ analyzers provide fast results in a diverse range of applications from alloy identification (ID) to archaeological site evaluation. Olympus' range of application-specific software features enable operators to get the most out of their analyzers with simplified report creation and traceable results.

Scrap Sorting

Vanta analyzers for scrap sorting feature a SmartSort function that intuitively lengthens or shortens test times based on material to save time while providing the best possible match. The software automatically compares results to a library of alloy compositions to quickly match unknown materials to known alloys. The Grade Match Messaging feature enables users to program messages for each grade to display warnings or instructions. These messages make it easy for operators to use the analyzer with little training, putting the knowledge of your most experienced person to work for everyone.

Positive Material Identification (PMI) and Manufacturing Quality Control/Assurance

Vanta analyzers help ensure that refineries, petrochemical plants, and other processing facilities are safe by verifying that correct alloys are installed in critical locations by following American Petroleum Institute Recommended Practice 578 (API-RP-578). Manufacturers and installers of expensive or mission-critical components and machinery can rest easy knowing that they are manufactured with the correct alloy grades, regardless of the material source. The Vanta series' integrated GPS, optional panoramic camera, user-defined input fields, connectivity features, and extensive data reporting capabilities maximize inspector confidence and traceability to the field.

Regulatory and Safety Screening

The Vanta series screens for Pb, Cd, As, Hg, Cr, and other toxic metals in consumer products such as toys, apparel and footwear, and electronics to comply with RoHS regulations. With an optional camera, Vanta handhelds automatically archive sample images and results, making it the ideal tool for a reasonable testing program. Excellent sensitivity enables it to achieve low detection limits for pass/fail results of regulated elements.

Geochemistry and Mining Exploration

The Vanta™ handheld analyzer is the preferred tool for mining exploration including surface mapping and core analysis. It provides accurate and reproducible results in any environment. Vanta analyzers work all day even in the high temperatures found in desert or jungle environments; remote areas where instrument downtime cannot be afforded. Geo-referenced XRF data transfer wirelessly, via Bluetooth or Wi-Fi, for real-time geochemical mapping on a GIS-equipped tablet or laptop. Map, visualize, assess, and follow-up on targets in the field for faster in-field geological exploration and decision-making.

Jewelry/Precious Metals ID

Vanta analyzers can provide on-the-spot characterization of a range of jewelry and precious metals including Au, Ag, Pt, and Pd. The analyzer accurately classifies the purity of gold alloys (0–24 karat) and can also detect plating. With the high price of precious metals, return-on-investment is rapid.

Research and Education

Vanta instruments provide quantitative, semi-quantitative, and qualitative elemental information to guide research and identification of unknown or complex materials. Fast results keep students engaged with relevant data in applicable science-based projects.

Environmental Assessments

The Vanta analyzer readily screens soil and other materials for pollutant metals. Paired with GPS data, the results can be wirelessly transferred to a GIS to create pollutant metal maps. Get fast, decisive results for site characterizations, assessments, property evaluations, and contamination tracking.

The Vanta Series

No matter the model, the rugged, fast, and reliable Vanta™ analyzer features Olympus' Axon™ technology, and is rated to pass a 4 foot drop test, and is rated to IP 65.*

M Series

Our most powerful Vanta analyzers feature exceptional performance to handle the most demanding applications. Each M Series analyzer comes equipped a large-area silicon drift detector, your choice of either a tungsten (W) or rhodium (Rh) anode, and a 50 kV X-ray tube.

C Series

The C Series combine value with superior speed, limits of detection (LODs), and elemental range. Each C Series analyzer is equipped with a silicon drift detector and your choice of a Rh or W anode 40 kV X-ray tube, or a silver (Ag) anode at 50 kV X-ray tube.

Olympus

Olympus is a leader in XRF technology with a reputation for quality and accuracy. We are committed to providing the best technical support and after-sales service for our products, applications, training, and technologies through our global network of sales and service teams.

OLYMPUS CORPORATION OF THE AMERICAS
is certified to ISO 9001, ISO 14001, and OHSAS 18001.

*M Series analyzers are IP 64 rated
** With optional fan. The fan assembly is IP 54 rated. Operates continuously at 33 °C without the fan.
All specifications are subject to change without notice.

www.olympus-ims.com

OLYMPUS®

OLYMPUS CORPORATION OF THE AMERICAS
48 Woerd Avenue, Waltham, MA 02453, USA, Tel.: (1) 781-419-3900
12569 Gulf Freeway, Houston, TX 77034, USA, Tel.: (1) 281-922-9300

For enquiries - contact
www.olympus-ims.com/contact-us

Vanta_Series_EN_LTR_201604 • Printed in the USA • P/N: 920-400-EN Rev. A

OLYMPUS®

Your Vision, Our Future

Vanta™ Handheld XRF Analyzers

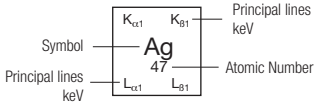
Limits of Detection

Low-Density Sample Types — (soils, powders, liquids)

Not Available	<3000 ppm	<400 ppm	<50 ppm
<25 ppm	<10 ppm	<5 ppm	

	IIA	IIIB	IVB	VB	VIB	VIIB	Group VIII			IB	IIB	IIIA	IVA	VA	VIA	VIIA	
																	He 2
	0.05 Li 3	0.11 Be 4										0.18 B 5	0.28 C 6	0.39 N 7	0.52 O 8	0.68 F 9	0.85 Ne 10
1.04 1.07 Na 11	1.25 1.3 Mg 12											1.49 1.56 Al 13	1.74 1.84 Si 14	2.01 2.14 P 15	2.31 2.46 S 16	2.62 2.82 Cl 17	2.96 3.19 Ar 18
3.31 3.59 K 19	3.69 4.01 Ca 20 0.34 0.34	4.09 4.46 Sc 21 0.4 0.4	4.51 4.93 Ti 22 0.45 0.46	4.95 5.43 V 23 0.51 0.52	5.41 5.95 Cr 24 0.57 0.58	5.9 6.49 Mn 25 0.64 0.65	6.4 7.06 Fe 26 0.71 0.72	6.93 7.65 Co 27 0.78 0.79	7.48 8.26 Ni 28 0.85 0.87	8.05 8.91 Cu 29 0.93 0.95	8.64 9.57 Zn 30 1.01 1.03	9.25 10.26 Ga 31 1.1 1.12	9.89 10.98 Ge 32 1.19 1.22	10.54 11.73 As 33 1.28 1.32	11.22 12.5 Se 34 1.38 1.42	11.92 13.29 Br 35 1.48 1.53	12.65 14.11 Kr 36 1.59 1.64
13.4 14.96 Rb 37 1.69 1.75	14.17 15.84 Sr 38 1.81 1.87	14.96 16.74 Y 39 1.92 2	15.78 17.67 Zr 40 2.04 2.12	16.62 18.62 Nb 41 2.17 2.26	17.48 19.61 Mo 42 2.29 2.39	18.37 20.62 Tc 43 2.42 2.54	19.28 21.66 Ru 44 2.56 2.68	20.22 22.72 Rh 45 2.83	21.18 23.82 Pd 46 2.84 2.99	22.16 24.94 Ag 47 2.98 3.15	23.17 26.1 Cd 48 3.13 3.32	24.21 27.28 In 49 3.29 3.49	25.27 28.49 Sn 50 3.44 3.66	26.36 29.73 Sb 51 3.6 3.84	27.47 31 Te 52 3.77 4.03	28.61 32.29 I 53 3.94 4.22	29.78 33.62 Xe 54 4.11 4.42
30.97 34.99 Cs 55 4.29 4.62	32.19 36.38 Ba 56 4.47 4.83		55.79 63.23 Hf 72 7.9 9.02	57.53 65.22 Ta 73 8.15 9.34	59.32 67.24 W 74 8.4 9.67	61.14 69.31 Re 75 8.65 10.01	63 71.41 Os 76 8.91 10.36	64.9 73.56 Ir 77 9.18 10.71	66.83 75.75 Pt 78 9.44 11.07	68.8 77.98 Au 79 9.71 11.44	70.82 80.25 Hg 80 9.99 11.82	72.87 82.58 Tl 81 10.27 12.21	74.97 84.94 Pb 82 10.55 12.61	77.11 87.34 Bi 83 10.84 13.02	79.29 89.8 Po 84 11.13 13.45	81.52 92.3 At 85 11.43 13.88	83.78 94.87 Rn 86 11.73 14.32
86.1 97.47 Fr 87 12.03 14.77	88.47 100.13 Ra 88 12.34 15.24																

Lanthanides 57–71	33.44 37.8 La 57 4.65 5.04	34.72 39.26 Ce 58 4.84 5.26	36.03 40.75 Pr 59 5.03 5.49	37.36 42.27 Nd 60 5.23 5.72	38.72 43.83 Pm 61 5.43 5.96	40.12 45.41 Sm 62 5.64 6.21	41.54 47.04 Eu 63 5.85 6.46	43 48.7 Gd 64 6.06 6.71	44.48 50.38 Tb 65 6.27 6.98	46 52.12 Dy 66 6.5 7.25	47.55 53.88 Ho 67 6.72 7.53	49.13 55.68 Er 68 6.95 7.81	50.74 57.52 Tm 69 7.18 8.1	52.39 59.37 Yb 70 7.42 8.4	54.07 61.28 Lu 71 7.66 8.71
Actinides 89–103	90.88 102.85 Ac 89 12.65 15.71	93.35 105.61 Th 90 12.97 16.2	95.87 108.43 Pa 91 13.29 16.7	98.44 111.3 U 92 13.61 17.22	101.00 114.18 Np 93 13.95 17.74	103.65 117.15 Pu 94 14.28 18.28	106.35 120.16 Am 95 14.62 18.83	109.10 123.24 Cm 96 14.96 19.39	111.90 126.36 Bk 97 15.31 19.97	114.75 129.54 Cf 98 15.66 20.56	117.65 132.78 Es 99 16.02 21.17	120.60 136.08 Fm 100 16.38 21.79	Md 101	No 102	Lr 103



For alloy LODs, please see the separate alloy analysis LOD specifications.

Detection limits are a function of testing time, sample matrix, and presence of interfering elements.
Detection limits are estimates based on 2 minutes test times and detection confidence of 3σ (99.7% confidence).
Interference-free detection limits are intended as guidelines: please contact Olympus to discuss your specific application.
Rare earth element (REE) LODs are calculated using L lines in the absence of any transition-metal elements.

PHOTON ENERGIES, IN ELECTRON VOLTS, OF PRINCIPAL K- AND L-SHELL EMISSION LINES

Element	Symbol	Atomic #	$K_{\alpha 1}$	$K_{\beta 1}$	$L_{\alpha 1}$	$L_{\beta 1}$
Actinium	Ac	89	90.88	102.85	12.65	15.71
Aluminum	Al	13	1.49	1.56	0	0
Antimony	Sb	51	26.36	29.73	3.6	3.84
Argon	Ar	18	2.96	3.19	0	0
Arsenic	As	33	10.54	11.73	1.28	1.32
Astatine	At	85	81.52	92.3	11.43	13.88
Barium	Ba	56	32.19	36.38	4.47	4.83
Beryllium	Be	4	0.11	0	0	0
Bismuth	Bi	83	77.11	87.34	10.84	13.02
Boron	B	5	0.18	0	0	0
Bromine	Br	35	11.92	13.29	1.48	1.53
Cadmium	Cd	48	23.17	26.1	3.13	3.32
Calcium	Ca	20	3.69	4.01	0.34	0.34
Carbon	C	6	0.28	0	0	0
Cerium	Ce	58	34.72	39.26	4.84	5.26
Cesium	Cs	55	30.97	34.99	4.29	4.62
Chlorine	Cl	17	2.62	2.82	0	0
Chromium	Cr	24	5.41	5.95	0.57	0.58
Cobalt	Co	27	6.93	7.65	0.78	0.79
Copper	Cu	29	8.05	8.91	0.93	0.95
Dysprosium	Dy	66	46	52.12	6.5	7.25
Erbium	Er	68	49.13	55.68	6.95	7.81
Europium	Eu	63	41.54	47.04	5.85	6.46
Fluorine	F	9	0.68	0	0	0
Francium	Fr	87	86.1	97.47	12.03	14.77
Gadolinium	Gd	64	43	48.7	6.06	6.71
Gallium	Ga	31	9.25	10.26	1.1	1.12
Germanium	Ge	32	9.89	10.98	1.19	1.22
Gold	Au	79	68.8	77.98	9.71	11.44
Hafnium	Hf	72	55.79	63.23	7.9	9.02
Holmium	Ho	67	47.55	53.88	6.72	7.53
Indium	In	49	24.21	27.28	3.29	3.49
Iodine	I	53	28.61	32.29	3.94	4.22
Iridium	Ir	77	64.9	73.56	9.18	10.71
Iron	Fe	26	6.4	7.06	0.71	0.72
Krypton	Kr	36	12.65	14.11	1.59	1.64
Lanthanum	La	57	33.44	37.8	4.65	5.04
Lead	Pb	82	74.97	84.94	10.55	12.61
Lithium	Li	3	0.05	0	0	0
Lutetium	Lu	71	54.07	61.28	7.66	8.71
Magnesium	Mg	12	1.25	1.3	0	0
Manganese	Mn	25	5.9	6.49	0.64	0.65
Mercury	Hg	80	70.82	80.25	9.99	11.82
Molybdenum	Mo	42	17.48	19.61	2.29	2.39
Neodymium	Nd	60	37.36	42.27	5.23	5.72
Neon	Ne	10	0.85	0	0	0
Nickel	Ni	28	7.48	8.26	0.85	0.87
Niobium	Nb	41	16.62	18.62	2.17	2.26
Nitrogen	N	7	0.39	0	0	0
Osmium	Os	76	63	71.41	8.91	10.36
Oxygen	O	8	0.52	0	0	0
Palladium	Pd	46	21.18	23.82	2.84	2.99
Phosphorus	P	15	2.01	2.14	0	0
Platinum	Pt	78	66.83	75.75	9.44	11.07
Polonium	Po	84	79.29	89.8	11.13	13.45
Potassium	K	19	3.31	3.59	0	0
Praseodymium	Pr	59	36.03	40.75	5.03	5.49
Promethium	Pm	61	38.72	43.83	5.43	5.96
Protactinium	Pa	91	95.87	108.43	13.29	16.7
Radium	Ra	88	88.47	100.13	12.34	15.24
Radon	Rn	86	83.78	94.87	11.73	14.32
Rhenium	Re	75	61.14	69.31	8.65	10.01
Rhodium	Rh	45	20.22	22.72	2.7	2.83
Rubidium	Rb	37	13.4	14.96	1.69	1.75
Ruthenium	Ru	44	19.28	21.66	2.56	2.68
Samarium	Sm	62	40.12	45.41	5.64	6.21
Scandium	Sc	21	4.09	4.46	0.4	0.4
Selenium	Se	34	11.22	12.5	1.38	1.42
Silicon	Si	14	1.74	1.84	0	0
Silver	Ag	47	22.16	24.94	2.98	3.15
Sodium	Na	11	1.04	1.07	0	0
Strontium	Sr	38	14.17	15.84	1.81	1.87
Sulfur	S	16	2.31	2.46	0	0
Tantalum	Ta	73	57.53	65.22	8.15	9.34
Technetium	Tc	43	18.37	20.62	2.42	2.54
Tellurium	Te	52	27.47	31	3.77	4.03
Terbium	Tb	65	44.48	50.38	6.27	6.98
Thallium	Tl	81	72.87	82.58	10.27	12.21
Thorium	Th	90	93.35	105.61	12.97	16.2
Thulium	Tm	69	50.74	57.52	7.18	8.1
Tin	Sn	50	25.27	28.49	3.44	3.66
Titanium	Ti	22	4.51	4.93	0.45	0.46
Tungsten	W	74	59.32	67.24	8.4	9.67
Uranium	U	92	98.44	111.3	13.61	17.22
Vanadium	V	23	4.95	5.43	0.51	0.52
Xenon	Xe	54	29.78	33.62	4.11	4.42
Ytterbium	Yb	70	52.39	59.37	7.42	8.4
Yttrium	Y	39	14.96	16.74	1.92	2
Zinc	Zn	30	8.64	9.57	1.01	1.03
Zirconium	Zr	40	15.78	17.67	2.04	2.12