

Republic of the Philippines  
Office of the President  
**BASES CONVERSION and DEVELOPMENT AUTHORITY**  
2/F Bonifacio Technology Center, 31st Street corner 2nd Avenue  
Bonifacio Global City, 1634 Taguig City  
VAT Reg. TIN 002-219-694-000

## PURCHASE ORDER

<b>To: CERTEZA INFOSYS CORPORATION</b>	PO Number	2017-12-0030
2nd Floor, VAG Building, Ortigas Ave., Greenhills, San Juan City	PO Date	December 29, 2017
Attention: REYNALDO R. ADORADOR TIN: 242-843-823-000	Payment	30 days
• Tel. No: 721-0113 • Fax No: 727-0940	Mode of Procurement	Negotiated Procurement - SVP
Place of Delivery:	Date of Delivery:	30 to 60 calendar days upon receipt thereof
2/F Bonifacio Technology Center, Bonifacio Global City, Taguig City Tel No: 575-1700 • Fax No: 816-0996		

NO.	Ref Code	PRODUCT SPECIFICATIONS, Brand, Country of Origin	Qty.	UNIT	UNIT PRICE	AMOUNT
		<b>PROCUREMENT OF BCDA SURVEYING EQUIPMENT</b>				9,344,000.00
1		<b>SMARTSTATION (Total Station with Integrated GNSS)*</b>	1	LOT		
		<b>Angle Measurement</b>				
		Accuracy Hz and V				
		Absolute, continuous, quadruple				
		1" (0.03 mgon)				
		<b>Distance Measurement</b>				
		Range				
		Prism (GPR1, GPH1P)				
		1.5m to >10,000m				
		Non-Prism / Any surface				
		1.5m to 2,000m				
		Accuracy / Measurement time				
		Single (prism)				
		1mm + 1.5ppm / typically 1.5s				
		Single (any surface)				
		2mm + 2ppm / typically 1.5s				
		Laser dot size				
		At 50m				
		8mm x 20mm				
		Measurement technology				
		Wave Form Digitising				
		Coaxial, visible red laser				
		<b>Scanning</b>				
		Max. range / range noise (1 sigma)				
		1000 Hz mode				
		300m / 1.0mm at 50m				
		250 Hz mode				
		400m / 0.8mm at 50m				
		62 Hz mode				
		500m / 0.6mm at 50m				
		1 Hz mode				
		1000m / 0.6mm at 50m				
		Scan data				
		3D point cloud including true colour, intensity and signal-to-noise data				
		<b>Imaging</b>				
		Overview and telescope camera				
		Sensor				
		5 megapixel CMOS sensor				
		Field of View				
		19.44° / 1.5°				
		Frame rate				
		<b>Motorisation</b>				
		Direct drives based on Piezo technology				
		Rotation speed / Time to change face				
		Maximum 200 gon (180°) per sec / typically 2.9s				
		<b>Automatic Aiming</b>				
		Target aiming range / target locking range				
		Circular prism (GPR1, GPH1P)				
		1500m / 1000m				
		360° prism (GRZ4, GRZ122)				
		1000m / 1000m				
		Accuracy / Measurement time				
		Angle accuracy HZ, V				
		1" (0.3 mgon) / typically 2.5s				
		<b>Powersearch</b>				
		Range / search time				
		360° prism (GRZ4, GRZ122)				
		300m / typically 5s				
		<b>Guide Light</b>				
		Working range / Accuracy				
		5-150m / typically 5cm @100m				
		<b>General</b>				
		Processor				
		T1 OMAP4430 1GHz Dual-core ARM® Cortex™ A9 MPCore™				
		Operating system - Windows EC7				
		Autofocus telescope				
		Magnification / Focus Range				
		30 x / 1.7m to infinity				
		Display and keyboard				
		5" (inch), WVGA, colour, touch, both faces				
		3x endless drives, 1x Servofocus drive, 2x Autofocus				
		37 keys, illumination				
		Operation				
		keys, User-definable SmartKey				
		Power management				
		Exchangeable Lithium-Ion battery with internal charging capability				
		Operating time 7-9 h				
		Data storage				
		Internal memory / Memory card				
		2 GB / SD card 1 GB or 8 GB				
		Interfaces				
		RS232, USB, Bluetooth®, WLAN				
		Weight				
		MultiStation including battery				
		7.7kg				
		Environmental specifications				
		Working temperature range Dust & Water (IEC 60529) / Blowing rain Humidity				
		-20°C to + 50°C, IP65 / MIL-STD-810G, Method 506.5-I 95%, non-condensing				

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NO.	Ref Code	PRODUCT SPECIFICATIONS, Brand, Country of Origin	Qty.	UNIT	UNIT PRICE	AMOUNT
		<b>Standard Accessories</b>				
		1 set Pole and Tripod setup accessories (Traverse Kit)				
		1 set battery and charger				
		1 pc. processing software				
		1x processing laptop, Core i7				
		1 set One-Man Survey kit				
2		<b>GNSS- RTK (1 Base and 2 Rover Receivers)**</b>	1	LOT		
		<b>Number of Channels</b>				
		555 or more (more signals, fast acquisition, high sensitivity)				
		<b>Signal Tracking</b>				
		GPS (L1, L2, L2C, L5), Glonass (L1, L2, L3*2), BeiDou (B1, B2, B32), Galileo (E1, E5a, E5b, Alt-BOC, E6*2), QZSS, NavIC L5*3, SBAS (WAAS, EGNOS, MSAS, GAGAN), L-band				
		<b>Tilt Compensation</b>				
		Increased measurement productivity and traceability				
		Calibration-free Immune to magnetic disturbances Integrated quality assurance of pole tilt				
		<b>Smartcheck</b>				
		Continuous check of RTK solution				
		Reliability 99.99%				
		<b>Measurement Performance &amp; Accuracy</b>				
		<b>RTK technology</b>				
		SmartCheck, continuous check of RTK solution, reliability 99.99%				
		4G, CMR, CMR+, RTCM 2.2, 2.3, 3.0, 3.1, 3.2 MSM				
		<b>RTK data protocols</b>				
		NMEA output Network RTK				
		NMEA 0183 V 4.00 VRS, FKP, iMAX, MAC (RTCM SC 104)				
		<b>Time for initialisation</b>				
		Typically 4s				
		<b>Code differential</b>				
		DGPS / RTCM				
		Typically 25cm				
		<b>Real-time kinematic (Compliant to ISO17123-8 standard)</b>				
		Single baseline (< 30km)				
		Hz 8mm + 1ppm / V 15mm + 1ppm				
		<b>Network RTK</b>				
		Hz 8mm + 0.5ppm / V 15mm + 0.5ppm				
		<b>Real-time kinematic tilt compensated</b>				
		Topographic points (not for static control points)				
		Additional Hz pole tip uncertainty typically less than 10mm + 0.7mm /degree tilt				
		<b>Post processing</b>				
		Static (phase) with long observations				
		Hz 3mm + 0.1ppm / V 3.5mm + 0.4ppm				
		<b>Position Update &amp; Data Recording</b>				
		Static and rapid static (phase)				
		Hz 3mm + 0.5ppm / V 5mm + 0.5ppm				
		5 Hz / 20 Hz positioning				
		<b>Raw data / RINEX data logging</b>				
		NMEA out				
		<b>Communications</b>				
		<b>Communication ports</b>				
		Lemo				
		USB and RS232 serial				
		Bluetooth®				
		Bluetooth® v2.00 + EDR, class 1.5				
		TPS Integration				
		<b>Communication protocols</b>				
		RTK data protocols				
		4G, CMR, CMR+, RTCM 2.2, 2.3, 3.0, 3.1, 3.2 MSM				
		NMEA output				
		NMEA 0183 V 4.00				
		<b>Network RTK</b>				
		VRS, FKP, iMAX, MAC (RTCM SC 104)				
		Fully integrated, internal antenna				
		<b>Built-in data links</b>				
		3.75G GSM / UMTS / CDMA phone modem				
		Fully integrated, receive and transmit, external antenna				
		Radio modem				
		403 - 470 MHz, 1 W output power, up to 28800 bps over air				
		<b>External data links</b>				
		GSM / GPRS / UMTS / CDMA and UHF / VHF modem				
		<b>User interface</b>				
		Buttons and LEDs				
		On/Off and Function button, 8 status LEDs				
		Web server				
		Full status information and configuration options				
		<b>Data recording</b>				
		Storage				
		Removable SD card, 8 GB				
		<b>Data type and recording rate</b>				
		GNSS raw data and RINEX data up to 20 Hz				