


| | | | |
|---|------------------------------|--|---|
|  | REQUEST FOR QUOTATION | | Form No: UW-RFQ-2 Version No: 1.1/2020 Effective Date: Jul 2020 |
| | RFQ No: Q23/162/NM | | |

**You are hereby invited to submit a Quotation for the following requirements of
UMGENI WATER**

| | | | |
|--|--|----------------------|-------|
| Advert Date: | 31/10/2022 | | |
| RFQ Ref Number: | Q23/162/NM | | |
| Description Of Goods: | SUPPLY AND DELIVERY MEASURING TOOLS FOR MIDMAR SYSYEM. | | |
| Closing Date: | 07/11/2022 | Closing Time: | 15H00 |
| Compulsory Briefing | "NOT APPLICABLE" | | |
| Documents Are Obtainable From: | Emailed | | |
| SCM Procedure Enquiries may be directed to: | Buyer's Name & Surname: Nokwanda. Mboyi Tel No. 033 846 1818 Email Address: nokwanda.mboyi@umgeni.co.za | | |
| Submissions: | ALL COMPLETED DOCUMENT TO BE EMAILED TO By email to: scmquotes@umgeni.co.za NB: use <u>Quote Number</u> as email subject | | |
| Technical Enquiries: (PM – Details) | Contact Person: Nikiwe Hlabisa Email: nikiwe.hlabisa@umgeni.co.za Tel : 076 858 6197 | | |

| Contents | |
|---|---|
| 1. | Invitation Cover Page |
| 2. | Information about the Tenderer |
| 3. | Terms and conditions of Request for Quotation (RFQ) |
| 4. Evaluation and Eligibility criteria | |
| 5. | RFQ Scope of work |
| 6. | Returnable Documents |
| 7. | Price Page |
| 8. | Declaration of Interest |
| 9. | Preferential Procurement Claim form |
| 10. | Certificate of Acquaintance with RFQ T&Cs. |
| 11. | Contract Forms |

Tip-Offs Anonymous Hotline:

Report unethical conduct at Umgeni Water on:

Toll Free Number: 0800 864 463

Email: umgeniwater@whistleblowing.co.za

Toll Free Fax: 0800 212 689

Postal: Freepost KZN665, Musgrave, 4062

SMS: 33490

Online: www.whistleblowing.co.za

Stop theft / fraud / dishonesty / bribery / blackmail / intimidation, and remain anonymous.

This RFQ is subject to the general conditions of the RFQ, National Treasury's general conditions of contract (GCC) and, if applicable, any other special conditions of contract (SCC).

2. Information about the Tenderer

| | |
|---|--|
| RFQ Number | |
| Name of tenderer | |
| Registration number | |
| VAT registration number | |
| Telephone number | |
| Cell number | |
| E-mail address | |
| Postal address | |
| | |
| Physical address | |
| | |
| Umgeni Water Vendor No. | |
| CSD Supplier number | |
| CSD Unique Registration Reference Number | |
| Contact person's name | |

I certify that the information furnished on this form is true and correct. I further accept that, in addition to cancellation of a contract, action may be taken against me should this declaration prove to be false.

Name of tenderer (duly authorised)

Signature of tenderer

Signature of tenderer

Date

3. TERMS AND CONDITIONS OF REQUEST FOR QUOTATION (RFQ)

1. Any alteration made by the tenderer must be initialled.
2. Use of correcting fluid is prohibited
3. This quotation is subject to the Preferential Procurement Policy Framework Act and the Preferential Procurement Regulations, 2019; the General Conditions of Contract (GCC) and if applicable any other Special Conditions of Contract.
4. Companies must be registered on the National Treasury's Central Suppliers Database.
5. Suppliers are advised that the 80/20 preference points system shall be applied in the evaluation of this quotation. To qualify for preference points suppliers are required to submit certified copies of valid B-BBEE status Level Verification Certificates to substantiate their B-BBEE rating claims. Refer to SBD 6.1 form.
6. Suppliers must complete the attached **SBD 4** -Declaration of interest form, Failure to complete these documents may result in the quotation being invalidated.
7. Quotations must be in accordance and comply with the specifications/scope of work provided, unless otherwise stipulated.
8. The official Umgeni Water quotation form must be used to tender the offered price. Should the allocated price page be insufficient, the tenderer may supplement the price page with an additional pricing breakdown.
9. The successful supplier may be required to fill in and sign a written Contract Form. (If applicable)
10. This document may contain confidential information that is the property of Umgeni Water.
11. No part of the contents may be used, copied, disclosed or conveyed in whole or in part to any party in any manner whatsoever other than for preparing a proposal in response to this RFQ, without prior written permission from Umgeni Water and the Tenderer.
12. All Copyright and Intellectual Property herein vests with Umgeni Water and its Tenderer.
13. Quotations must be submitted by email scmquotes@umgeni.co.za or be deposited in tender box situated as indicated on the quotation request form marked appropriated as directed. (*The applicable submission method is reflected on the cover page*). Suppliers should ensure that quotations are delivered before closing time and to the correct address.
14. It is the responsibility of the bidder to ensure that its response reaches Umgeni Water on or before the closing date and time of the RFQ.
15. Late and incomplete submissions will not be accepted.
16. Price Declaration must be completed, and should the total RFQ prices differ, the one indicated on the price declaration shall be considered the correct price.
17. Tenderers are required to submit a valid Tax clearance verification PIN.
18. No services must be rendered or goods delivered before an official Umgeni Water Purchase Order form has been received.

| | | |
|--|---------------|----------------------|
| The Tenderer accepts the above terms, conditions, and Umgeni Water's Standard Conditions of Tender*. | Accept | Do not accept |
| | | |

*A full copy of UW's Standard Conditions of Tender are available on Umgeni Water's website.

http://www.umgeni.co.za/pdf/cm009_standard_conditions_of_tender.pdf

CONDITIONS OF QUOTE

1. I/We hereby quote to supply all or any of the supplies and/or to render all or any of the services described in the attached documents to Umgeni Water on the terms and conditions. In accordance with the specifications stipulated in the quotation documents (and which shall be taken as part of and be incorporated into this quote) at the prices and on the terms regarding time for delivery and/or execution inserted therein.
2. I/we agree that:
 - (a) the offer herein shall remain binding upon me and open for acceptance by Umgeni Water during the validity period indicated and calculated from the closing time of the quote;
 - (b) this quote and its acceptance shall be subject to the Public Finance Management Act, 1999, Umgeni Water's Supply Chain Management Policy and Procedures, the General and Special Conditions of Contract as may be applicable, with which I/we are fully acquainted;
 - (c) if I/we withdraw my quote within the period for which I/we have agreed that the quote shall remain open for acceptance, or fail to fulfil the contract when called upon to do so. Umgeni Water may, without prejudice to its other rights, agree to the withdrawal of my quote or cancel the contract that may have been entered into between Umgeni Water and I/us. I/we will then pay to Umgeni Water any additional expenses incurred for having either to accept any less favourable quote or, if fresh quote have to be invited, the additional expenditure incurred by the invitation of fresh quotes and by the subsequent acceptance of any less favourable quotes. Umgeni Water shall reserve the right to recover such additional expenditure by set-off against monies which may be due to me under this, or any other tender or contract or against any guarantee or deposit that may have been furnished by me or on my behalf for the due fulfilment of this or any other tender or contract. Pending the ascertainment of the amount of such additional expenditure to retain such monies, guarantee or deposit as security for any loss Umgeni Water may sustain by reason of my default;
 - (d) if my quote is accepted, the acceptance may be communicated to me by electronic mail, to the email address supplied in my quotation document;
 - (e) the law of the Republic of South Africa shall govern the contract created by the acceptance of my quote and I choose *domicilium citandi et executandi* in the Republic at (full physical address) :
.....
.....
3. I/we furthermore confirm that I/we have satisfied myself as to the correctness and validity of my quote: that the price(s), rate(s) and preference quoted cover all of the work/item(s) and my obligations under a resulting contract, and I accept that any mistakes regarding the price(s) and calculations will be at my risk.
4. I/we hereby accept full responsibility for the proper execution and fulfilment of all obligations and conditions devolving on me under this agreement, as the Principal(s) liable for the due fulfilment of this contract.
5. I/we agree that any action arising from this contract may in all respects be instituted against me and I/we hereby undertake to satisfy fully any sentence or judgement which may be pronounced against me as a result of such action.
6. I/we confirm that I/we have declared all and any interest that I or any persons related to my business has with regard to this quote or any related quotations by completion of the Declaration of Interest Section.

CERTIFICATION OF CORRECTNESS OF INFORMATION SUPPLIED IN THIS DOCUMENT

I/WE, THE UNDERSIGNED, WHO WARRANT THAT I AM DULY AUTHORISED TO DO SO ON BEHALF OF THE TENDERER, CERTIFY THAT THE INFORMATION SUPPLIED IN TERMS OF THIS DOCUMENT IS CORRECT AND TRUE, THAT THE SIGNATORY TO THIS DOCUMENT IS DULY AUTHORISED AND ACKNOWLEDGE THAT:

- (1) The tenderer will furnish documentary proof regarding any tendering issue to the satisfaction of the Umgeni Water, if requested to do so.
- (2) If the information supplied is found to be incorrect and/or false then Umgeni Water, in addition to any remedies it may have, may: -
 - a) Recover from the contractor all costs, losses or damages incurred or sustained by Umgeni Water as a result of the award of the contract, and/or
 - b) Cancel the contract and claim any damages which Umgeni Water may suffer by having to make less favourable arrangements after such cancellation.

SIGNED ON THIS _____ DAY OF _____ 20 _____ AT _____

**SIGNATURE OF TENDERER OR DULY
AUTHORISED REPRESENTATIVE**

FULL NAME (IN BLOCK LETTERS)

ON BEHALF OF (TENDERER'S NAME) _____

CAPACITY OF SIGNATORY _____

NAME OF CONTACT PERSON (IN BLOCK LETTERS) _____

POSTAL ADDRESS _____

POSTAL CODE _____

TELEPHONE NUMBER:

FAX NUMBER:

CELLULAR PHONE NUMBER:

E-MAIL ADDRESS:

4. Eligibility and Evaluation Criteria

4.1 Eligibility compliance:

Umgeni Water will only consider submissions from tenderers who satisfy the following criteria:

- a) the Tenderer or any of its directors/shareholders is not listed on the Register of Tender Defaulters in terms of the Prevention and Combating of Corrupt Activities Act of 2004 as a person prohibited from doing business with the public sector;
- b) the Tenderer has not:
 - i) abused the Employer's Supply Chain Management System; or
 - ii) failed to perform on any previous contract and has been given a written notice to this effect;
- c) the Tenderer has completed and signed the Declaration of Interest and there are no conflicts of interest which may impact on the Tenderer's ability to perform the contract in the best interests of the Purchaser or potentially compromise the tender process and persons in the employ of the state are permitted to submit tenders or participate in the

4.2 EVALUATION METHOD:

- a) The tender will firstly be evaluated on eligibility. If found to be eligible, it will be further evaluated on: Price & Preference using the 80/20 Preference Point Scoring System in terms of PPPFA

5. SCOPE OF WORK

SCOPE DESCRIPTION

1.1) Umgeni Water (UW) requires a contractor to supply and deliver the following condition monitoring equipment:

- Thermal Imager
- Stroboscope
- Vibration tester package
- Ultrasonic Diagnostic Tool
- Power Quality Analyzer
- Battery Analyzer
- Optical Time Domain Reflectometer (OTDR)
- Process Meter
- Viavi 8800SX Analog and digital test set
- High Voltage Tester: Control Unit
- Low Resistance Ohmmeter
- Circuit Breaker Analyzer

1.2) The equipment must be supplied in protective carrying cases/bags.

1.3) The contractor must make prior arrangements with the Project Leader on the delivery date and time, in order to ensure their (project leader) availability.

1.4) The equipment is to be delivered to the Project Leader's address (Refer to section 2).

1.5) All equipment must be supplied with a minimum warranty of 12 months.

1.6) Warranty payments will only be released at the end of the Warranty Period.

1.7) Calibration for all equipment must be included.

1.8.) All bidders must attach an Official Distributor Certificate.

2. PROJECT LEADER DETAILS

Name : Nikiwe Hlabisa

Tel : 033 846 1890

Cell : 076 858 6197

E-mail : Nikiwe.Hlabisa@umgeni.co.za

Address : 7 Portland Road, Mkondeni, 3201

3. TECHNICAL SPECIFICATIONS

The supplier must provide Condition Monitoring equipment with the following technical specifications:

3.1 Stroboscope

| Mechanical Specifications | |
|--|-------------------------------------|
| Size | 5.71 cm x 6.09 cm x 19.05 cm |
| Weight | 0.24 kg |
| Environmental Specifications | |
| Operating temperature | 0 °C to +45 °C |
| Storage Temperature | -10 °C to + 50 °C |
| Operating Humidity (without condensation) | Non-condensing (<10 °C) |
| | 90 % RH (10 °C to 30 °C) |
| | 75 % RH (30 °C to 40 °C) |
| | 45 % RH (40 °C to 50 °C) |
| Absorption/Corrosion | 30 °C, 95 % RH, 5 day |
| | Product functions normally |
| Operating Altitude | 2000 m |
| Storage Altitude | 12 000 m |
| Vibration | MIL-PRF-28800F Class 2 |
| Impact Resistance | 1 m drop |
| EMI, RFI, EMC | EN61326-1:2006 |
| Safety Compliance | |
| Agency Approvals | CE |
| | Class III (SELV) Pollution Degree 2 |
| Miscellaneous Specifications | |
| Flash Frequency | |
| Range | 30 to 300 00 RPM |
| | 0.5 to 5000 Hz |
| Accuracy | 0.02 % |
| Resolution | 30 to 999 RPM = 0.1 |
| | 1000 to 30 000 = 1 |
| | 0.5 Hz to 999 Hz = 0.1 |
| | 1000 Hz to 5000 Hz = 1 |
| Frequency Setting | RPM or Hz |
| Flash Pulse | |
| Duration | Adjustable in degrees |
| Delay | Adjustable in degrees |
| Light | |
| Colour | Approx. 6500 K |
| Emission Output | 4800 lx @ 6000 RPM at 30 cm |
| External Trigger | |

| | |
|---------------------|---|
| Method | Connector to externally control trigger |
| High Level | 3 V to 32 V |
| Low Level | <1 V |
| Minimum Pulse Width | 50 μ s connection |

3.2 Vibration Tester Package

| | |
|---|--|
| Vibration Meter | |
| Low frequency range (overall measurement) | 10 Hz to 1000 Hz |
| High frequency range (CF + measurement) | 4000 Hz to 20000 Hz |
| Severity levels | Good, Satisfactory, Unsatisfactory, Unacceptable |
| Vibration limit | 50 g peak (100g peak –peak |
| A/D converter | 16 - bit |
| Signal to noise ratio | 80 dB |
| Sampling rate | |
| Low frequency | 20000 Hz |
| High frequency | 80000 Hz |
| Real time clock backup | Coin battery |
| Sensor | |
| Sensitivity | 100 mV / g \pm 10% |
| Measurement range | 0.01g to 50g |
| Low frequency range (overall measurement) | 10 Hz to 1000 Hz |
| High frequency range (CF + measurement) | 4000 Hz to 20 000 Hz |
| Resolution | 0.01 g |
| Accuracy | At 100 Hz \pm 5% of measured value |
| Amplitude units | |
| Acceleration | g, m/sec ² |
| Velocity | mm/sec |
| Displacement | mm |
| Infrared thermometer (temperature measurement) | |
| Range | -20 °C to 200° |
| Accuracy | \pm 2 °C |
| Focal Length | Fixed, at ~3.8 cm |
| External Sensor | |
| Frequency range | 10 Hz to 1000 Hz |
| Bias voltage (to supply power) | 20 V dc to 22 V dc |
| Bias current (to supply power) | Maximum 5 mA |
| Firmware | |
| External interfaces | USB 2.0 (full speed) communication |

| | |
|--------------------------------|--|
| Data capacity | Database on internal flash memory |
| Upgrade | Through USB |
| Memory | Up to 3500 measurements |
| Radiated Emission | |
| Electrostatic Discharge: Burst | Standard EN 61000-4-2 |
| Electromagnetic Interference | Standard EN 61000-4-3 |
| RE | Standard CISPR 11, Class A |
| Environmental | |
| Operating Temperature | -20 °C to 50 °C |
| Storage Temperature | -30 °C to 80 °C |
| Operating Humidity | 10 % to 95 % RH (non-condensing) |
| Operating/Storage altitude | Sea Level to 3,048 meters (10 000 feet) |
| IP Rating | IP53 |
| Vibration Limit | 500 g peak |
| Drop Test | 1 meter |
| General Specifications | |
| Battery Type | AA (2) Lithium Iron Disulfide |
| Battery Life | 250 measurements |
| Size (L x W x H) | 25.72 cm x 16.19 cm x 9.84 cm |
| Weight | 1.16 kg |
| Connectors | USB mini-B 7-pin, external sensor jack (SMB connector) |
| Mobile app compatible | Yes |

3.3 Thermal Imager

| | |
|--|---|
| Key Features | |
| Infrared resolution | 640 x 480 (307,200 pixels) |
| SuperResolution | Yes, in software. Captures and combines 4x the data to create a 1280 x 960 image |
| IFOV with standard lens (spatial resolution) | 0.93 mRad, D:S 1065:1 |
| Field of view | 34 °H x 24 °V |
| Minimum focus distance | 15 cm (approx. 6 in) |
| MultiSharp Focus | Yes, focused near and far, throughout the field of view |
| LaserSharp Auto Focus | Yes, for consistently in-focus images. Every. Single. Time |
| Laser distance meter | Yes, calculates distance to the target for precisely focused images and displays distance on screen |
| Advanced manual focus | Yes |
| Wireless connectivity | Yes, to PC, iPhone® and iPad® (iOS 4s and later), Android™ 4.3 and up, and WiFi to LAN (where available) |
| Connect app compatible | Yes*, connect your camera to your smartphone, and images taken automatically upload to the Connect app for saving and sharing |

| | |
|---|---|
| Connect Assets | Through the desktop, assign images to assets, easily compare measurement types in one location and create reports. |
| Connect instant cloud upload | Yes*, connect your camera to your building's WiFi network, and images taken automatically upload to the Connect system for viewing on your smartphone or PC |
| Connect instant server upload | Yes** |
| IR-Fusion technology | Yes, adds the context of the visible details to your infrared image |
| Ruggedized touchscreen display | 3.5 inch (landscape), 640 x 480 LCD |
| Ergonomic design | Pistol-grip design for one-handed use |
| Thermal sensitivity (NETD)* | ≤ 0.05 °C at 30 °C target temp (50 mK) |
| Level and span | Smooth auto and manual scaling |
| Touchscreen adjustable level/span | Yes. Span and level can be easily and quickly set by simply touching the screen |
| Fast auto toggle between manual and auto modes | Yes |
| Fast auto-rescale in manual mode | Yes |
| Minimum span (in manual mode) | 2.0 °C (3.6 °F) |
| Minimum span (in auto mode) | 3.0 °C (5.4 °F) |
| Built-in digital camera (visible light) | 5MP |
| Frame rate | 60 Hz or 9 Hz versions |
| Laser pointer | Yes |
| LED light (torch) | Yes |
| Digital Zoom | 2x and 4x |
| Data storage and image capture | |
| Extensive memory options | Removable 4 GB micro SD memory card, 4 GB internal flash memory, save to USB flash drive capability, upload for permanent storage |
| Image capture, review, save mechanism | One-handed image capture, review, and save capability |
| Image file formats | bmp, jpeg, is2, is3, AVI |
| Memory review | Thumbnail and full screen review |
| Software | Full analysis and reporting software with access to the Connect system |
| Analyze and store radiometric data on a PC | Yes |
| Export file formats with Fluke Connect software | Bitmap (.bmp), GIF, JPEG, PNG, TIFF |
| Voice annotation | 60 seconds maximum recording time per image; reviewable playback on camera, optional Bluetooth headset available but not required |
| IR-PhotoNotes | Yes - 5 images |
| Text annotations | Yes. Including standard shortcuts as well as user programmable options |
| Video recording and formats | Standard and radiometric |
| Remote control operations | Remote display and control operation through Fluke Connect |
| Auto capture (temperature and interval) | Yes |

| | |
|---------------------------------|--|
| MATLAB® and LabVIEW® tool boxes | Integrate camera data, infrared video and images into software to support R&D analysis |
|---------------------------------|--|

| Detailed specifications | |
|---|---|
| Battery | |
| Batteries (field-replaceable, rechargeable) | Two lithium ion smart battery packs with five-segment LED display to show charge level |
| Battery life | 2-3 hours per battery (actual life varies depending on settings and usage) |
| Battery charging time | 2.5 hours to full charge |
| Battery charging system | Two-bay battery charger or in-imager charging. Optional 12 V automotive charging adapter |
| AC operation | AC operation with included power supply (100 V AC to 240 V AC, 50/60 Hz) |
| Power saving | User selectable sleep and power off modes |
| Temperature measurement | |
| Temperature measurement range (not calibrated below -10 °C) | -20 °C to +1,000 °C (-4 °F to 1,832 °F) |
| Accuracy | ± 2 °C or 2 % (at 25 °C nominal, whichever is greater) |
| On-screen emissivity correction | Yes |
| On-screen transmission correction | Yes |
| Line temperature graph | Yes |
| Color palettes | |
| Standard palettes | 9: Rainbow, Ironbow, Blue-Red, High Contrast, Amber, Amber Inverted, Hot Metal, Grayscale, Grayscale Inverted |
| Ultra Contrast palettes | 9: Rainbow, Ironbow, Blue-Red, High Contrast, Amber, Amber Inverted, Hot Metal, Grayscale, Grayscale Inverted |
| Smart lenses | |
| Macro–25 micron lens: 25 MAC2 | Yes |
| 2 x telephoto lens: TELE 2 | Yes |
| 4 x telephoto lens: TELE4 | Yes |
| Wide angle lens: WIDE 2 | Yes |
| General specifications | |
| Color alarms (temperature alarms) | High temperature, low temperature, and isotherms (within range) |
| Infrared spectral band | 7.5 µm to 14 µm (long wave) |
| Operating Temperature | -10 °C to +50 °C (14 °F to 122 °F) |
| Storage Temperature | -20 °C to +50 °C (-4 °F to 122 °F) without batteries |
| Relative humidity | 10 % to 95 % non-condensing |
| Center-point temperature measurement | Yes |
| Spot temperature | Hot and cold spot markers |
| User-definable spot markers | 3 user-definable spot markers |

| | |
|--------------------------------|---|
| User defined measurement boxes | Up to 3 expandable contractible measurement box with MIN-MAX-AVG temp display |
| Hard Case | Rugged, IP67 rated, airtight hardcase with custom foam insert |
| Safety | IEC 61010-1: Overvoltage category II, Pollution Degree 2 |
| Electromagnetic compatibility | IEC 61326-1: Basic EM environment. CISPR 11: Group 1, Class A |
| Australian RCM | IEC 61326-1 |
| US FCC | CFR 47, Part 15 Subpart |
| Vibration | 0.03 g ² /Hz (3.8 g), 2.5 g IEC 60068-2-6 |
| Shock | 25 g, IEC 68-2-29 |
| Drop | Engineered to withstand 2 meter (6.5 feet) drop with standard lens |
| Size (H x W x L) | 27.7 cm x 12.2 cm x 16.7 cm (10.9 in x 4.8 in x 6.5 in |
| Weight (battery included) | 1.04 kg (2.3 lb) |
| Enclosure rating | IEC 60529: IP54 (protected against dust, limited ingress; protection against water spray from all directions |
| Warranty | Two-years |
| Recommended calibration cycle | Two-years |
| Supported languages | Czech, Dutch, English, Finnish, French, German, Hungarian, Italian, Japanese, Korean, Polish, Portuguese, Russian, Simplified Chinese, Spanish, Swedish, Traditional Chinese, and Turkish |

3.4 Ultrasonic Diagnostic Tool

| Receiver | |
|-----------------------------|---|
| Display Size | LCD 2.5 in (6.35 cm) |
| Display Dimensions | 1.45 x 1.93 in (36.72 x 48.96 mm) |
| Display Resolution | 240 (RGB) x 320 pixels |
| Display Type | TFT-LCD (262 K) |
| Display Color | True, 16bit/color |
| Frequency Range | 20 kHz to 90 kHz |
| Filter | ±5 KHz of main noise frequency, up to three filters |
| Power Supply | 4 x 1.5 V AA (LR6) alkaline batteries |
| Power Consumption (typical) | 75 mA |
| Battery Life (typical) | 105 hours (Alkaline) |
| Weight | Approx. 0.518 lb (0.235 kg) |
| Dimensions | 7.547 x 2.984 x 1.791 in (183 x 75 x 43 mm) |
| APO function | 60 minutes when in idle |
| Operating Temperature | -4 °F to 122 °F (-20 °C to 50 °C) |
| Storage Temperature | -4 °F to 158 °F (-20 °C to 70 °C) |
| Operating Humidity | <80% RH |
| Pollution Degree | 2 |

| | |
|-----------------------------|---|
| Protection | IP40 |
| Transmitter | |
| Frequency Range | Typical 40 kHz square wave |
| Power Supply | 2 x 1.5 V AAA (LR03) alkaline batteries |
| Power Consumption (typical) | 33 mA |
| Battery Life (typical) | 60 hours (Alkaline) |
| Low battery indication | Red LED |
| Weight | Approx. 0.335 lb (0.152 kg) |
| Dimensions | 5.295 x 2.559 x 1.326 in (137 x 65 x 33 mm) |
| APO function | 60 minutes when in idle |
| Operating Humidity | -4 °F to 122 °F (-20 °C to 50 °C) |
| Storage Temperature | -4 °F to 158 °F (-20 °C to 70 °C) |
| Pollution Degree | 2 |
| Protection | IP40 |

The following Items need to be supplied as part of the complete unit:

| Item |
|---------------------------------|
| ULD-400-R Receiver |
| ULD-400-T Transmitter |
| Headphones |
| Earbuds (for use with hard hat) |
| PB-1 Power Parabola |
| TEA-1 Flexible Tubing Adapter |
| TE-1 Tubular Extension |
| CC-ULD-400 Hard Carrying Case |
| AA Batteries (Receiver) |
| AAA Batteries (Transmitter) |
| User Manual |

3.5 Power Quality Analyzer

| Voltage Inputs | |
|-----------------------|---|
| Number of inputs | 4 inputs, 3 phases and neutral referenced to PE (5 connectors) |
| Measurement category | 1000 V CAT III / 600 V CAT IV |
| Maximum input voltage | 1000 V rms / 1000 V dc (1700 Vpk) |
| Nominal voltage range | Wye and single phase: variable (50 V – 1000 V) Delta: Variable (100 V – 1000 V) IEC 61000-4-30 Class A compliance for the nominal voltages (V _{din}) 100 V – 690 V |
| Input impedance | 10 MΩ between P-P and P-N, 5 MΩ between P-PE and N-PE |
| Bandwidth | DC to 30 kHz for PQ measurements, excluding transients |
| Resolution | 24-bit synchronous sampling |
| Sampling frequency | 80 kS/s at 50/60 Hz |
| Scaling | 1:1, variable for use of potential transformers |
| Voltage transients | |
| Measurement range | ±8 kV |
| Sampling rate | 1775: 1 MS/s 1777: 1 MS/s, 20 MS/s |
| Bandwidth | DC to 1 MHz |
| Trigger | Adjustable trigger level. Triggers on high-frequency components > 1.5 kHz |
| Resolution | 14-bit synchronous sampling |
| Current inputs | |
| Range | AC: 1 A to 1500 A with i17XX-FLEX1500 12 1 A to 1500 A with i17XX-FLEX1500 24 3 A to 3000 A with i17XX-FLEX3000 24 6 A to 6000 A with i17XX-FLEX6000 36 40 mA to 40 A with clamp i40s-EL 4 A to 400 A with clamp i400s-EL |
| | DC: 20 A to 2000 A with 80i-2010-EL clamp |
| Bandwidth | DC to 30 kHz |
| Resolution | 24-bit synchronous sampling |
| Sampling frequency | 80 kS/s at 50/60 Hz |
| Scaling | 1:1, variable |
| Input voltage | Clamp: 50 mV / 500 mV rms; CF 2.8 Rogowski Coil: 15 mV / 150 mV rms at 50 Hz, 18 mV / 180 mV rms at 60 Hz; CF 4 all at nominal probe range |
| Input impedance | 11 kΩ |

| Aux inputs | |
|--|--|
| Wired connection with 17xx-AUX adapter | |
| Number of inputs | 2 |
| Input range | Direct: 0 V dc to ± 10 V dc 0 V to 1000 V dc |
| Input impedance | Direct: 2.92 MΩ |
| Scale factor | Format: mx + b (gain and offset) user configurable |

| | |
|--------------------------------------|---|
| Displayed units | User configurable (up to 8 characters, for example °C, psi, or m/s) |
| Data acquisition voltage and current | |
| Input mains frequency | DC, 50/60 Hz $\pm 15\%$ (42.5 Hz ... 57.5 Hz, 51 Hz ... 69 Hz) |
| Topologies | 1- ϕ , 1- ϕ IT, Split phase, 3- ϕ delta, 3- ϕ wye IT, 3- ϕ Aron/Blondel (2 element delta), 3- ϕ delta open leg, 3- ϕ high leg delta |
| Data storage | 8 GB internal (expandable with microSD card) |
| Memory size | Typical 10 logging sessions of 8 weeks with 1-minute intervals and 100 events. The number of possible logging sessions and logging period depends on user requirements. |
| Real-time accuracy | Internal: 3 ppm (0.26 s per day, 8 s per month) NTP (internet time): Depending on internet latency, typical < 0.1 s absolute to UTC GPS: < 1 ms absolute to UTC |
| Trend interval | |
| Measured parameter | See operator manual |
| Trend interval | User selectable: 1 sec, 3 sec, 5 sec, 10 sec, 30 sec, 1 min, 5 min, 10 min, 15 min, 30 min |
| Averaging interval min/max values | Voltage, Current: $\frac{1}{2}$ cycle RMS (20 ms at 50 Hz, 16.7 ms at 60 Hz) Aux, Power: 200 ms |
| Total harmonic distortion | THD for voltage and current is calculated on 50 harmonics |
| Power quality measurements | |
| Harmonics | h0 ... h50 % fund and RMS for voltage, current and power Phase angles for voltage and current up to h11 |
| Interharmonics | ih0... ih50 % fund and RMS for voltage and current |
| Supraharmonics | 2–9 kHz with 200 Hz bins 9–30 kHz with 2 kHz bins RMS for voltage and current |
| Harmonics measurement method | Grouped, sub-grouped and single harmonic bins according to IEC 61000-4-7. Method selected automatically based on configured PQ standard or user configurable |
| Total harmonic distortion | Calculated on up to 50 harmonics (depends on selected PQ standard) |
| Mains signaling | 2 frequencies in the range from 110 Hz to 3000 Hz |
| Events | Voltage: Dip, swell, interruption, rapid voltage change, mains signaling, waveshape deviation, transients |
| | Current: Inrush current |
| Triggered recordings | Half cycle RMS of voltage and current for 10 s Waveform of voltage and current for 10/12 cycles Mains signaling: 200 ms RMS of mains signaling voltage up to 120 s Transients: Waveform of voltage (Fluke 1777: 1 MS/s or 20 MS/s, 500,000 pts, Fluke 1775: 1 MS/s, 25,000 pts) |
| Standard compliance | |
| Power | IEEE 1459 |
| Harmonics | IEC 61000-4-7: Class 1 IEEE 519 (short time and very short time harmonics) |
| Flicker | IEC 61000-4-15 Class F1 |

| | |
|--------------------------|--|
| Power quality | IEC 61000-4-30 Class A, IEC 62586 PQI-A-PI |
| Power quality compliance | EN 50160 + GOST + NEQUAL + NETCODE + FOL |
| Interfaces | |
| Ethernet | 1 Gbit/s 1000BASE-T |
| USB type A | USB 2.0 high speed for USB flash drives to transfer measurement data, firmware updates and license installation. Max. supply current: 500 mA |
| USB-C | USB 2.0 high speed for data download to PC and calibration (requires USB type A to USB-C or USB-C to USB-C cable) Auxiliary power supply for the Analyzer (requires USB C power adapter PD 2.0 or higher with 9 V 1.8 A support) USB 3.0 super-speed for USB-C flash drives to transfer measurement data, firmware updates and license installation. Max. supply current: 900 mA |
| WiFi/BLE module1 | 802.11 ac 2.4 GHz / 5 GHz, support for concurrent access point and client mode Bluetooth 5.0/BLE Antenna: Internal and external2 |
| LTE/4G module3 | LTE-A Cat 12 Worldwide LTE-A and UMTS/HSPA+ coverage Antenna: External2 |
| GPS | MCX connector to attach a GNSS antenna for GPS/GLONASS2 |

| Electrical measurement accuracy | | | | |
|----------------------------------|--------------------------------------|---------------|-------------------|--|
| Parameter | | Range | Resolution | Intrinsic Accuracy at Reference Conditions % of Reading + % of Full Scale |
| Voltage | | 1000 V | 0.1 V | 0.1 % of nominal voltage in accordance with IEC 61000-4-30 Class A1,2 $\pm (0.04 \% + 0.004 \%)^3$ |
| Voltage dips and swells | | | 0.1 V | 0.2 % of Vnom1,2 |
| Voltage transients | | ± 8 kVpk | | $\pm (5 \% + 0.25 \%)$ |
| Voltage harmonics/interharmonics | | 100 % | 0.1 % / 0.1 mV | $\geq 1 \%$ Vnom1: $\pm 2.5 \%$ of rdg. $< 1 \%$ Vnom1: ± 0.025 Vnom |
| THD on voltage | | 100 % | 0.1 % / 0.1 V | $\pm (2.5 \% + 0.5 \%)$ |
| Voltage distortions 2-9 kHz | | Max 100 V | 0.1 mV | $\pm (2.5 \% + 0.1 \text{ V})$ |
| Voltage distortions 9-30 kHz | | Max 100 V | 0.1 mV | $\pm (2.5 \% + 0.1 \text{ V})$ |
| Current (Rogowski clamp mode) | With iFlex 1500 A, i17XX-FLEX1500 24 | 150A 1500A | 0.01 A 0.1 A | $\pm (1 \% + 0.02 \%)$ |
| | With iFlex 3000 A, i17XX-FLEX3000 24 | 300A 3000A | 0.01 A 0.1 A | $\pm (1 \% + 0.03 \%)$ |
| | With iFlex 6000 A, i17XX-FLEX6000 36 | 600A 6000A | 0.1A 1A | $\pm (1 \% + 0.03 \%)$ |
| | With AC clamp 40 A, i40s-EL | 4A 40A | 0.001 A 0.01 A | $\pm (0.7 \% + 0.02 \%)$ |
| | With AC clamp 400 A, i400s-EL | 40A 400A | 0.01 A 0.1 A | $\pm (2 \% + 0.2 \%)$ $\pm (0.7 \% + 0.1 \%)$ |

| | | | | |
|----------------------------------|--|----------------------------------|-------------------------|--|
| | With AC/DC clamp 2000 A, 80i-2010s- EL | 200A 2000A | 0.01 A 0.1 A | ±(0.8 % + 0.2 %) |
| Current min/max | | 100 % | defined by accessory | x2 of intrinsic accuracy |
| Current harmonics/interharmonics | | 100 % | 0.1 % / 0.01 A | ≥3 % Inom: ±2.5 % of rdg.4 <3 % Inom: ±0.15 % of Inom |
| THD on current | | 100 % | 0.1 % | ±(2.5 % + 0.5 %) |
| Frequency | | 42.5 Hz ... 69 Hz | 0.001 Hz | ±0.01 Hz |
| Voltage unbalance | | 100 % | 0.1 % | ±0.15 % |
| Current unbalance | | 100 % | 0.1 % | ±0.15 % |
| Flicker Pinst, Pst, Plt | | 0 to 20 | 0.01 | 5 % |
| Mains signaling voltage | | Up to 3 kHz 0-15 % of Vnom | 0.1 V / 0.1 % | 1-3% Vnom: ±0.15 % of Vnom 3-15 % Vnom : ±0.5 % of rdg. |
| AUX input | | ±10 V | 0.1 mV | ±(0.2 % + 0.05 %) |

| Power/Energy | | | | |
|---|---|---|--|--|
| Parameter | Direct Input1 | | Clamp i40S-E | |
| Power range W, VA, var | Clamp: 50 mV / 500 mV Rogowski: 15 mV / 150 mV | | 4 A / 40 A | |
| | Clamp: 50 W / 500 W Rogowski: 15 W / 150 W | | 4 kW / 40 kW | |
| Max. resolution W, VA, var | 0.1 W | | 1 W / 10 W | |
| | ±0.2° | | ±1° | |
| Parameter | iFlex 1500A, I17XX-FLEX1500 24 | | iFlex 3000A, I17XX-FLEX3000 | iFlex 6000A, I17XX-FLEX6000 |
| Power range W, VA, var | 150 A / 1500 A | | 300 A / 300 A | 600/6000 A |
| | 150 kW / 1.5 MW | | 300 kW / 3MW | 600 kW / 6 MW |
| Max. resolution W, VA, var | 0.1 kW / 1kW | | 1 kW / 10 kW | 1 kW / 10k W |
| Parameter | | I17XX-FLEX1500 24 | I17XX-FLEX3000 | I17XX-FLEX6000 |
| Active power P | PF ≥ 0.99 | 150 A / 1500 A | 300 A / 3000 A | 600/6000 A |
| | | 1.2 % + 0.005 % | 1.2 % + 0.0075 % | 1.7 % + 0.0075 % |
| Active energy Ea | 0.1 ≤ PF < 0.9 | (1.2+√(1- PF2))/(2×PF)) % + 0.005 % | (1.2+√(1- PF2))/(2×PF)) % + 0.0075 % | (1.7+√(1- PF2))/(2×PF)) % + 0.0075 % |
| Apparent power S Apparent energy Eap | 0 ≤ PF ≤ 1 | 1 1.2 % + 0.005 % | 1.2 % + 0.0075 % | 1.7 % + 0.0075 % |
| Reactive power Q Reactive energy Er | 0 ≤ PF ≤ 1 | 2.5 % of measured apparent power/energy | | |
| Additional uncertainty (% of power high range) | VP-N > 250 V | 0.02 % | 0.02 % | 0.02 % |
| Phase (voltage to current) | | 0.28° | 0.28° | 0.28° |

| General specification | |
|-----------------------|---|
| Key features | |
| Warranty | Analyzer: 2 years (battery not included) Accessories: 1 year (including battery) |
| Calibration cycle | 2 years |

| | |
|-------------------------------------|---|
| Size (L X W X HD) | 28.0 cm x 19.0 cm x 6.2 cm (11.0 in x 7.5 in x 2.4 in) |
| Weight | 2.1 kg (4.6 lb) |
| Anti-theft protection | Slot to support Kensington lock |
| Environmental specifications | |
| Operating temperature range | -10 °C to 50 °C |
| Storage temperature range | -20 °C to 60 °C |
| Operating humidity | IEC 60721-3-3: 3K5, modified: -10 °C to 30 °C: ≤95 %, no condensation or ice 35 °C: 70 % 40 °C: 55 % 50 °C: 35 % |
| IP Rating | IEC 60529: IP50 |
| Vibration | IEC 60721-3-3 / 3M2 |
| Power supply | |
| Voltage range | 100 V – 600 V -15 % / +10 % (85 V ... 660 V) |
| Power consumption | Max. 40 VA |
| Mains frequency | 50/60 Hz (42.5 Hz ... 69 Hz) |
| UPS | Li-Ion battery BP1770 with extended temperature range, customer replaceable On-battery runtime: 1.5 hours |
| Safety | |
| General | IEC 61010-1: Pollution Degree 2 |
| Power supply | Overvoltage Category IV 600 V With Mains Adapter MA-C8: Overvoltage Category II 300 V |
| Measurement | IEC 61010-2-030: CAT IV 600 V, CAT III 1000 V |
| Altitudes 2000 m to 4000 m | Derate to: Power Supply: Category IV 300 V With MA-C8 Adapter: Category II 150 V Measurement: CAT IV 300 V, CAT III 600 V, CAT II 1000 V |

The following Items need to be supplied as part of the complete unit:

| Equipment |
|--|
| Power Quality Analyzer |
| Flat cable, voltage test Lead 3-phase+N |
| AC285, Black Alligator clip |
| Flat cable, voltage test lead 3-phase+N |
| AC285, Black Alligator clip |
| AC285, Green Alligator clip |
| Black 1 M USB-C cable |
| Line cord |
| FLK-17XX 0.18 M Test Lead Set, nonstock /stack |
| Green Test Lead |
| MP1-3R/1B, magnet probe 1, 3 red / 1 black magnet probes for 4 MM BANANA |
| 174X-Hanger Kit |
| 177X-4204 WIFI/BLE Module |

| |
|--|
| Cable marker set (for voltage and current) |
| 174X-MA-C8 Wall Outlet Adapter |
| Statement Of Calibration Practises |
| Black soft case |

3.6 Battery Analyzer

| Parameter | Range | Resolution | Accuracy |
|---|--|------------|-------------|
| Specifications | | | |
| Size (HxWxD) | 22 cm x 10.3 cm x 5.8 cm (9 in x 4 in x 2 in) | | |
| Weight | 850 g (1.9 lb) | | |
| Screen dimensions | 7.7 cm x 5.6 cm (3 in x 2.2 in) | | |
| Interface | USB mini | | |
| Battery resistance/Strap resistance ¹ | 3 mΩ | 0.001 mΩ | 1% +68 |
| | 30 mΩ | 0.01 mΩ | 0.8%+12 |
| | 300 mΩ | 0.1 mΩ | 0.8 % + 6 |
| | 3000 mΩ | 1 mΩ | 0.8 % + 6 |
| Vdc | 6 V | 0.001 V | 0.09 % + 5 |
| | 60 V | 0.01 V | 0.09 % + 5 |
| | 600 V | 0.1 V | 0.09 % + 5 |
| | 1000 V | 1 V | 0.09 % + 5 |
| Vac (45 Hz to 500 Hz with 800 Hz filter) | 600 V | 0.1 V | 2 % + 10 |
| Frequency (displayed with Vac and Aac) ² | 500 Hz | 0.1 Hz | 0.5 % + 8 |
| AC voltage ripple (20 KHz Max) | 600 mV | 0.1 mV | 3 % + 20 |
| | 6000 mV | 1 mV | 3 % + 10 |
| Adc/Aac (with accessory Fluke i410) | 400 A | 1 A | 3.5 % + 2 |
| Temperature | 0 °C to 60 °C | 1 °C | 2 °C (4 °F) |
| Meter mode | 999 records for each measurement position with time stamp | | |
| Sequence mode | Up to 100 profiles and 100 profile templates (Each profile stores up to 450 batteries) with time stamp | | |

| | |
|--|-------------------------------|
| Environment specifications | |
| Operating temperature | 0 °C to 40 °C |
| Storage temperature | -20 °C to 50 °C |
| Lithium-ion battery charging temperature | 0 °C to 40 °C |
| Operating humidity | Non-condensing (10 °C) |
| | <=80 % RH (at 10 °C to 30 °C) |
| | <=75 % RH (at 30 °C to 40 °C) |
| Operating altitude | Sea level to 2000 meters |

| | |
|--------------------------|---|
| Storage altitude | Sea level to 12,000 meters |
| IP rating | IP40 |
| Radio | FCC Class A |
| Vibration requirements | MIL-PRF-28800F: Class 2 |
| Drop test requirements | 1 meter |
| Temperature coefficients | Add 0.1 x specified accuracy for each degree C above 28 °C or below 18 °C |
| Safety compliance | 600 V CAT III |
| EMC | IEC 6132 |
| ROHS | China, Europe |
| Protection Class 2 | Pollution Degree II |
| Battery compliance | UN38.3 |
| | UL2054 |
| | IEC62133 |
| | 2G per IEC68-2-26, 25G, and 29 |

The battery analyzer must have the following measurement modes:

1. Resistance (mΩ)
2. Battery voltage
3. Voltage dc
4. Voltage ac and frequency (Hz)
5. Ripple volt
6. Temperature of negative battery post (Using BTL21 straight probes)
7. DC and ac current (and frequency)
8. DMM mode
9. Sequence mode
10. Discharge measurement mode
11. Automatic measurement save
12. Wireless communication
13. Memory view

The following Items need to be supplied as part of the complete unit:

| Equipment |
|--|
| Battery analyzer |
| 4-wire test pin (set) |
| BTL10 Basic Test Lead (set) |
| TL175 TwistGuard™ Test Leads with adapter |
| BTL20 Intelligent Test Probe Set, with extender (no temperature sensor) |
| BTL20ANG Intelligent Test Probe Set, with extender and angled tips (no temperature sensor) |
| BTL21 Intelligent Test Probe set, with extender and temperature sensor |
| i410 AC/DC Current Clamp |

| |
|--|
| BP500 7.4 V 3000 mAh lithium-ion battery |
| BC500 18 V AC Charger |
| Standard mini-b USB cable (cable length:1 m) |
| Shoulder strap |
| Belt strap |
| Magnetic hanging strap |
| Battery Management (CD) containing USB driver and manuals in all languages |
| Soft carrying case |
| Spare fuses |
| Paper battery tags |

3.7 Optical Time Domain Reflectometer (OTDR)

| Specifications | | |
|--|--|--|
| | Multimode module | Single-mode module |
| Wavelengths | 850nm \pm 10nm 1300nm \pm 35/-15nm | 1310nm \pm 25nm 1550nm \pm 30nm |
| Compatible fiber types | 50/125 μ m 62.5/125 μ m | Single mode |
| Event dead zone 1 | 850nm: 0.5m typical 1300nm: 0.7m typical | 1310nm: 0.6m typical 1550nm: 0.6m typical |
| Attenuation dead zone 2 | 850nm: 2.5m typical 1300nm: 4.5m typical | 1310nm: 3.6m typical 1550nm: 3.7m typical |
| Dynamic range 3, 5, 6 | 850nm: 28dB typical 1300nm: 30dB typical | 1310nm: 32dB typical 1550nm: 30dB typical |
| Max Distance range setting | 40km | 130km |
| Distance measurement range 4, 5, 7, 8, 9, 10 | 850nm: 9km 1300nm: 35km | 1310nm: 80km 1550nm: 130km |
| Reflectance range 4, 5 | 850nm: -14dB to -57dB (typical) 1300nm: -14dB to -62dB (typical) | 1310nm: -14dB to -65dB (typical) 1550nm: -14dB to -65dB (typical) |
| Sample resolution | 30mm to 4000mm | 30mm to 4000mm |
| Pulse width | 850nm: 3, 5, 20, 40, 200ns 1310nm: 3, 5, 20, 40, 200, 1000ns | 1310/1550nm: 3, 10, 30, 100, 300, 1000, 3000, 10000, 20000ns |
| Test time (per wavelength) | Auto setting: 5 sec (typical) Quick test setting: 2 sec (typical) Best resolution setting: 2 to 180 sec FaultMap setting: 2 sec (typical), 180 sec (max) DataCenter OTDR setting: 1 sec (typical at 850 nm), 7 sec (max) Manual setting: 3, 5, 10, 20, 40, 60, 90, 120, 180 sec | Auto setting: 10 sec (typical) Quick test setting: 5 sec (typical) Best resolution setting: 5 to 180 sec FaultMap setting: 10 sec (typical), 180 sec (max) DataCenter OTDR setting: 20 sec (typical), 40 sec (max) Manual setting: 3, 5, 10, 20, 40, 60, 90, 120, 180 sec |

| Fiber Inspector probe specification | |
|-------------------------------------|--|
| Magnification | 200X with OptiFiber Pro Display |
| Light source | Blue LED |
| Power source | Versiv mainframe |
| Field of View (FOV) | Horizontal: 425 μm Vertical: 320 μm |
| Minimum detectable particle size | 0.5 μm |
| Temperature range | Operating: -10°C to +60 °C Storage: -10°C to +70°C |
| VFL Specifications | |
| On/Off control | Mechanical switch and a button on the touch screen |
| Output power | 316 μW (-5 dBm) = peak power = 1.0 mW (0 dBm) |
| Operating wavelength | 650 nm nominal |
| Spectral width (RMS) | ± 3 nm |
| Output modes | Continuous wave Pulsed mode (2 Hz to 3 Hz blink frequency) |
| Connector adapter | 2.5 mm universal |
| Laser safety (classification) | Class II CDRH Complies to EN 60825-2 |

3.8 Process meter

| Specification | |
|---------------------------------|-------------------------------------|
| mA measure (range and accuracy) | 0 – 30mA at 0.05% |
| mA source/simulate | 0 24mA at 0.05% |
| DC voltage | CAT IV 600 V/CAT III 1000V |
| AC voltage | CAT IV 600 V/CAT III 1000V |
| 24V loop power | yes |
| Auto step/ramp | yes |
| Hart Communication | yes (calibration and configuration) |
| Valve testing | Analog |

3.9 RF Communications Analog and Digital Test Set (Similar or equivalent to VIAVI 8800SX)

| Specifications | |
|----------------|---|
| Dimensions: | 34.3 cm x 29.3 cm x 14.6 cm |
| Display Size | 30.5 cm (12 inches), diagonal |
| Weight: | 17 lbs (Base Unit) |
| Battery | Internal, 2.5+ Hours Operation |
| Rugged | 30 G Shock |
| Test Range | -140 dBm to 57 dBm |
| Technologies | P25, P25 Phase 2, DMR, NXDN™, TETRA, dPMR™, ARIB T98, FM, AM, DMR Repeater, PTC |

| Technologies |
|--------------|
|--------------|

| | | | | | | |
|--|--|---|--|--|---|--|
| <ul style="list-style-type: none">• P25 y• AM | | <ul style="list-style-type: none">• P25 Phase 2• FM | <ul style="list-style-type: none">• DMR• ARIB T98 | <ul style="list-style-type: none">• NXDN• dPMR | <ul style="list-style-type: none">• TETRA | <ul style="list-style-type: none">• Positive Train Control |
| Digital Test Features | | | | | | |
| Digital Test Patterns | | | | | | |
| Distribution, Constellation, Eye Diagram Plots | | | | | | |
| TDMA Burst Profile with Mask for DMR and P25 Phase 2 | | | | | | |
| Digital Voice Quality Verification | | | | | | |
| Meters | | Signal Power, FSK Error, Magnitude, Slot Power, Symbol Deviation, Symbol Clock Error | | | | |
| Advanced Digital | | | | | | |
| <ul style="list-style-type: none">• DMR Repeater Testing• Positive Train Control Analysis• Digital Voice Tests• Wideband Analyzer• Auto-Test | | <ul style="list-style-type: none">• P25 Phase 2 Analysis• Color Meters• Quick Preset• Tracking Generator | | <ul style="list-style-type: none">• TETRA Base Station Analysis• Frequency List• Wideband Power Sensor• NEON® Signal Mapper Package | | |
| Analog Test Features | | | | | | |
| Audio Oscilloscope | | | | | | |
| Channel Analyzer | | | | | | |
| Dual Modulation Source | | | | | | |
| Audio Function Generator | | | | | | |
| Tone Remote/Two-Tone/Tone Sequential | | | | | | |
| Meters | | RF Error, Frequency, Distortion, Audio Level, SNR, RF Power, SINAD, Audio Frequency, DMM | | | | |

The following Items must be supplied as part of the complete unit:

| Item |
|---|
| RF Communications Analog and Digital Test Set |
| Option 01. DMR Software Option |
| Option 03. NXDN Software |
| Option 10. Tracking Generator |
| Soft case Hard transit case |

3.10 High Voltage Tester: Control Unit

| Product Specification | |
|---|---|
| Power Frequency | 50 HZ |
| RATING | 100 % - 10 minutes and 50 % - continuous. |
| OUTPUT CONTROL | One knob manual control. |
| MOC | Sheet steel cabinets powder coated. |
| METERING | Analogue, linear scaled moving coil meters of 96 mm square. kV meter : Two ranges mA meter : Two ran |
| Machine Feature | |
| Panel mounted controls & indicators with easy to read legend. | |
| Continuously variable output from zero to full voltage. | |
| Low end ground test. | |
| Multi range analogue kV meter and current meter. | |
| Fast acting overload circuit breaker. | |

| | |
|--|---|
| Zero start interlock. | |
| Machine Technical Specification | |
| INPUT | 220 Volts \pm 10 %, 50/60 HZ AC single phase. |
| RATING | 100 % – 10 minutes and 50 % – continuous. |
| METERING | Analogue, linear scaled moving coil meters of 96 mm square. kV meter : Two ranges mA meter : Two ranges Accuracy of measurement : \pm 4 % of full scale. |
| TRIP | 20% to 100% of rating adjustable. |
| OUTPUT CONTROL | One knob manual control. |
| COOLING | Air cooled epoxy resin cast up to 50 kV and oil cooled for 75 kV and above. |
| CONSTRUCTION | Sheet steel cabinets powder coated. Up to 30 kV : Single unit with lifting handles and rubber legs. 50 kV and above : Two unit on wheels. |

| AC H V TESTERS | | DC H V TESTERS | |
|----------------|-----------------|----------------|--------------------|
| Model | Output: 50 HZ | Model | Output: Peak value |
| HJ-5-50 | 0-5kV / 50mA | HPD-3-20 | 0-3kV / 20mA |
| HT-10-100 | 0-10kV / 100mA | HPD-5-20 | 0-5kV / 20mA |
| HT-20-100 | 0-20kV / 100mA | HPD-10-20 | 0-10kV / 20mA |
| HT-30-100 | 0-30kV / 100mA | HPD-20-20 | 0-20kV / 20mA |
| HT-50-100 | 0-50kV / 100mA | HPD-30-20 | 0-30kV / 20mA |
| HT-75-100 | 0-75kV / 100mA | HPD-50-20 | 0-50kV / 20mA |
| HT-100-100 | 0-100kV / 100mA | HPD-75-20 | 0-75kV / 20mA |

| AC & DC H V TESTERS | | | |
|---------------------|-----------------------|------------------|--|
| Model | Output-DC(peak Value) | Output-AC(50 Hz) | |
| HPACD-5 | 0-5kV / 10mA | 0-5kV / 10mA | |
| HPACD-10 | 0-10kV / 10mA | 0-10kV / 10mA | |
| HPACD-20 | 0-20kV / 10mA | 0-15kV / 10mA | |
| HPACD-30 | 0-30kV / 10mA | 0-20kV / 20mA | |
| HPACD-50 | 0-50kV / 6mA | 0-35kV / 12mA | |
| HPACD-75 | 0-75kV / 5mA | 0-50kV / 10mA | |

3.11 Low Resistance Ohmmeter

| KEY FEATURES | | | | |
|--|--------------------------------|---------------------------------|------------------------|-----------------|
| Safe: sustain external voltages in case of wrong connection, protection level (CAT IV, 50 V); automatically detects continuity in current circuit. | | | | |
| Single and continuous measuring mode. | | | | |
| Portable: rugged carrying case with a handle and lightweight design enable easy moving the instrument between sites | | | | |
| High protection degree: IP 64 | | | | |
| Custom limits: the limits can be set for PASS or FAIL evaluation of test result. | | | | |
| Battery powered: the instrument enables measurements with 100 A for up to 10 minutes when powered from internal battery only. | | | | |
| Memory: built-in memory enables storage of up to 1000 test results. | | | | |
| Downloadable: downloads test results via RS232 or USB cable directly to the PC with the help of the software. | | | | |
| Technical Specifications | | | | |
| Function | Range | Resolution | Accuracy | Current |
| | 10,000 ... 199,999 $\mu\Omega$ | 1 n Ω 10 n Ω | \pm 0,25% of reading | 100 A |
| | 0,20000 ... 1,99999 m Ω | 100 n Ω 1 $\mu\Omega$ | | 100 A / 50 A |

| | | | | |
|------------|--------------------------|--------|--|------------------------|
| Resistance | 2,0000 ... 19,9999 mΩ | 10 μΩ | | 50 A / 10 A |
| | 20,000 ... 199,999 mΩ | 100 μΩ | | 1 / 10 A |
| | 0,20000 ... 1,99999 Ω | | | 1 A / 100 mA |
| | 2,0000 ... 19,9999 Ω | | | 100 mA |

| Function | Res. range | Voltage range | Resolution | Accuracy | Current |
|-----------------------------|------------|---------------------------|------------------------------|----------------------|---------|
| Voltage | 200 μΩ | 1,000 mV ... 20,000 mV | 1 μV | ±0,25% of reading | 100 A |
| | 2 mΩ | 20,00 mV ... 200,00 mV | 10 μV | | 100 A |
| | 20 mΩ | 10,00 mV ... 100,00 mV | 10 μV | | 50 A |
| | 200 mΩ | 100,0 mV ... 1,0000 V | 0,1 mV | | 50 A |
| | 2 Ω | 20,0 mV ... 200,0 mV | 0,1 mV | | 10 A |
| | 20 Ω | 200,0 mV ... 2,0000 V | 0,1 mV | | 1 A |
| | | 20,0 mV ... 200,0 mV | 0,1 mV | | 10 A |
| | | 200,0 mV ... 2,0000 V | 0,1 mV | | 1 A |
| | | 20,0 mV ... 200,0 mV | 0,1 mV | | 100 mA |
| | | 200,0 mV ... 2,0000 V | 0,1 mV | | 100 mA |
| Power supply | | | 230 / 115 VAC | | |
| Battery | | | 12 VDC / 12 Ah | | |
| Overvoltage category | | | 50 V / CAT IV | | |
| Display | | | 320 x 240 LCD with backlight | | |
| Communications | | | 2 x RS232 and USB | | |
| Memory | | | 512 kB (1000 test results) | | |
| Dimensions | | | 410 x 175 x 370 mm | | |
| Weight | | | 11,8 kg | | |

3.12 Circuit Breaker Analyzer

| TECHNICAL SPECIFICATIONS | |
|--------------------------|--|
| MAIN CONTACT INPUTS | |
| Number | 3 inputs + common (ground) |
| Open circuit voltage | 10 V DC maximum |
| Testing current | 100 mA maximum |
| States | Closed (C) ($r < 30\Omega$) Preinsertion (R) ($30\Omega < r < 10k\Omega$) Open (O) ($r > 10k\Omega$) |

| | |
|--|--|
| AUXILIARY INPUTS | |
| Number | 2 isolated binary inputs |
| Contact mode | Open circuit voltage: 5 V DC |
| Testing current | 20 mA maximum |
| Voltage mode: Range | Range: From ± 1.5 to ± 360 V AC/DC |
| Low activation mode | (Low) ± 1.5 V AC/DC |
| High activation mode | (High) ± 15 V AC/DC |
| Single command | Close (C), Open (O) |
| Double | Close-Open (C-O), Open-Close (O-C) |
| Triple | Close-Open-Close (C-O-C), Open-Close-Open (O-C-O) |
| COMMAND DURATION | |
| Close, Open, Interval | Between 10 and 2,000 ms |
| Acquisition start delay | Between 0 and 18 s |
| ACQUISITION START SIGNAL | |
| Coil operation | Selectable between: Aux1 or aux2 status change |
| Main contact status change | Programmed DELAY |
| MEASUREMENTS | |
| Time measurement and graphic representation | RANGES: Selectable between 100 ms, 200 ms, 400 ms, 800 ms and 2000 ms |
| RESOLUTION | ± 0.1 ms (sampling frequency of 10 kHz) |
| Accuracy | $\pm 0.05\%$ ± 0.1 ms |
| Graphic representation resolution | 0.8 ms per mm |
| Current measurement and graphic representation | Range: 0 – 50 A DC |
| Resolution | 0.1 A (sampling frequency of 1 kHz) |
| Accuracy | 1% of the range ± 100 mA |
| Graphic representation Automatic scale up | resolution: to 50 mA per mm (vertical) |
| Contact resistance measurement | Ranges: Automatic range selection from 100.0 $\mu\Omega$ to 1.000 Ω |
| Resolution | 0.1 $\mu\Omega$ maximum |
| Accuracy | $\pm 1\%$ of the range ± 1 digit |
| Testing current | 10 A DC maximum |
| TOUCH SCREEN PANEL, PRINTER AND MEMORY - GRAPHIC TOUCH SCREEN | |
| Type | Transflective LCD |
| Dimensions | 113 x 61 mm / 4.4" x 2.4" |
| Color | Black and white |
| Contrast | Adjustable |
| Illumination | CCFL |
| BUILT IN PRINTER | |
| Type | Thermal |
| Paper width | 110 mm (standard) / 4.3" |
| Maximum diameter of paper roll | 40 mm / 1.5" |
| MEMORY | |
| Internal memory | Stores up to 60 test results |

| GENERAL | |
|------------------------|---|
| Compliance | IEC-61010 / EMC-50081-2 / EN-50082-2 |
| Voltage supply | 100 to 240 V AC 50-60 Hz |
| Internal battery | NiMH Type 12 V DC |
| Normal operating time | 10 hours |
| Battery recharge time | 4.5 hours |
| Dimensions | (in mm) Height: 340/Width: 300/Depth: 150 (in inches): 13.3 11.8 5.9 |
| Weight | 8 kg. - 17.6 lb. |
| Working temperature | 0° - 55° C |
| Storage temperature | -40° / +70° C // -40 °F / 158°F |
| Humidity | Up to 95% (non condensating) |
| Languages incorporated | English, Spanish, French, German, Italian, etc. |

| |
|---|
| The following Items need to be supplied as part of the complete unit: |
| EuroBreaker Basic software for Windows |
| User's manual |
| Voltage supply cord, Schuko type 2.5 m / 8.2 ft. |
| Coil control & measurement cable 5 m* / 16.4 ft.* |
| Auxillary input timing & trigger cable 5 m* / 16.4 ft.* |
| Three-phase main contact timing test cable 5 m* / 16.4 ft.* |
| RS-232 communications cable |
| Lightweight Nylon carrying bag |
| Set of spare fuses |
| Coil protection diodes |
| Set of crocodile type clamps |
| Thermal paper rolls |

5. INSTRUCTION TO TENDERERS

| | Mandatory Requirement | Comply (Yes/No) | Remarks |
|---|---|--------------------|---------|
| 1 | CSD Summary report | | |
| 2 | B-BBEE Certificate and/or Affidavit | | |
| 3 | Tax Clearance Certificate and/or TAX Verification PIN | | |
| 4 | Certificate of Incorporation (CIPC Registration Certificate listing company directors/shareholders/owner/s) | | |

7. PRICE PAGE

| TENDERER'S NAME AND ADDRESS | | | | DETAILS OF PURCHASING OFFICE | | |
|-----------------------------|--|---------------------|-----|--|--------|--|
| COMPANY NAME: | | | | UMGENI WATER (HEAD OFFICE) Supply Chain Management Unit 310 Burger Street Pietermaritzburg,3201 Enquiries: NOKWANDA.MBOYI Tel no.: 033 846 1818 Email: NOKWANDA.MBOYI@UMGENI.CO.ZA | | |
| ADDRESS: | | | | | | |
| | | | | | | |
| | | | | | | |
| COMPANY REG. NUMBER: | | | | | | |
| CONTACT NO. | | | | | | |
| CONTACT PERSON | | | | | | |
| REFERENCE (REQ NO.) | | CLOSING DATE & TIME | | VALIDITY PERIOD: | | |
| Q23/162NM | | 07/11/2022 | | DAYS | | |
| Item | Description | Unit | Qty | Rate | Amount | |
| 1 | Stroboscope | EA | 1 | R | R | |
| 2 | Stroboscope Warranty | Months | 12 | R | R | |
| 3 | Vibration Tester Package | EA | 1 | R | R | |
| 4 | Vibration Tester Package Warranty | Months | 12 | R | R | |
| 5 | Thermal Imager | EA | 1 | R | R | |
| 6 | Thermal Imager Warranty | Months | 12 | R | R | |
| 7 | Ultrasonic Diagnostic Tool | EA | 1 | R | R | |
| 8 | Ultrasonic Diagnostic Tool Warranty | Months | 12 | R | R | |
| 9 | Power Quality Analyzer | EA | 1 | R | R | |
| 10 | Power Quality Analyzer Warranty | Months | 12 | R | R | |
| 11 | Battery Analyzer | EA | 1 | R | R | |
| 12 | Battery Analyzer Warranty | Months | 12 | R | R | |
| 13 | OTDR | EA | 1 | R | R | |
| 14 | OTDR Warranty | Months | 12 | R | R | |
| 15 | Process Meter | EA | 1 | R | R | |
| 16 | Process Meter Warranty | Months | 12 | R | R | |
| 17 | RF Communications Analog and Digital Test Set | EA | 1 | R | R | |
| 18 | RF Communications Analog and Digital Test Set Warranty | Months | 12 | R | R | |
| 19 | High Voltage Tester: Control Unit | EA | 1 | R | R | |
| 20 | High Voltage Tester: Control Unit Warranty | Months | 12 | R | R | |
| 21 | Low Resistance Ohmmeter | EA | 1 | R | R | |
| 22 | Low Resistance Ohmmeter Warranty | Months | 12 | R | R | |
| 23 | Circuit Breaker Analyzer | EA | 1 | R | R | |
| 24 | Circuit Breaker Analyzer Warranty | Months | 12 | R | R | |
| 25 | Transportation | KM | | R | R | |
| A | SUBTOTAL | | | R | R | |
| B | ALLOWANCE FOR VAT AT 15% OF SUBTOTAL A | | | R | R | |
| C | TOTAL (A+B) | | | R | R | |

| Item No. | Material / Description of item | Qty (A) | Unit Measure | Unit Price Excl. (B) | Quoted Price(AxB) Excl. Vat |
|--|--------------------------------|---|--------------|----------------------|-----------------------------|
| SUB TOTAL | | | | | |
| C.S.D Reg No. | | | VAT @ 15% | | |
| GRAND TOTAL INCLUSIVE OF VAT | | | | | |
| Does the offer comply with the specification? If not, furnish details of deviation. | | | | | |
| STATE DELIVERY PERIOD: Definite period/s must be stated e.g. 1 day, 1 week. | | | | | |
| OFFICIAL CPANY STAMP | | Returnable Documents & Evaluation Criteria: <ol style="list-style-type: none"> 1. Certificate of Incorporation (CIPC Registration Certificate listing company directors/shareholders/owner/s) 2. Above R30 000, Tax Clearance, BEE Certificate/ EME affidavit & a CSD summary report not older than 30 days 3. The 80/20 preference points system will apply in line with threshold. And compliance to specification. | | | |
| SIGNATURE OF TENDERER : | | DATE: | | FULL NAME & SURNAME: | |
| | | | | | |

7.1 **Price Declaration**

Please indicate your total RFQ price in words below (**compulsory**):

NB: It is mandatory to indicate your total RFQ price as requested above. This price must be the same as the total RFQ price you submit in your pricing schedule. Should the total RFQ prices differ, the one indicated above shall be considered the correct price.

The following must be noted:

- All prices must be VAT inclusive and must be quoted in South African Rand (ZAR).
- All prices must be firm and fixed from the quotation closing date and for the duration of the contract
- All prices must have supplied according to the costing template provided, pricing breakdown schedules may be supplied as annexures to the quoted if deemed necessary.
- The cost of delivery, labour etc. must be included in the total quoted price.

8. BIDDER'S DISCLOSURE

1. PURPOSE OF THE FORM

Any person (natural or juristic) may make an offer or offers in terms of this invitation to bid. In line with the principles of transparency, accountability, impartiality, and ethics as enshrined in the Constitution of the Republic of South Africa and further expressed in various pieces of legislation, it is required for the bidder to make this declaration in respect of the details required hereunder.

Where a person/s are listed in the Register for Tender Defaulters and / or the List of Restricted Suppliers, that person will automatically be disqualified from the bid process.

2. Bidder's declaration

- 2.1 Is the bidder, or any of its directors / trustees / shareholders / members / partners or any person having a controlling interest¹ in the enterprise,

employed by the state?

YES/NO

- 2.1.1 If so, furnish particulars of the names, individual identity numbers, and, if applicable, state employee numbers of sole proprietor/ directors / trustees / shareholders / members/ partners or any person having a controlling interest in the enterprise, in table below.

| Full Name | Identity Number | Name of State institution |
|-----------|-----------------|---------------------------|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

¹ the power, by one person or a group of persons holding the majority of the equity of an enterprise, alternatively, the person/s having the deciding vote or power to influence or to direct the course and decisions of the enterprise.

2.2 Do you, or any person connected with the bidder, have a relationship with any person who is employed by the procuring institution? **YES/NO**

2.2.1 If so, furnish particulars:

.....
.....

2.3 Does the bidder or any of its directors / trustees / shareholders / members / partners or any person having a controlling interest in the enterprise have any interest in any other related enterprise whether or not they are bidding for this contract? **YES/NO**

2.3.1 If so, furnish particulars:

.....
.....

3 DECLARATION

I, the undersigned, (name)..... in submitting the accompanying bid, do hereby make the following statements that I certify to be true and complete in every respect:

- 3.1 I have read and I understand the contents of this disclosure;
- 3.2 I understand that the accompanying bid will be disqualified if this disclosure is found not to be true and complete in every respect;
- 3.3 The bidder has arrived at the accompanying bid independently from, and without consultation, communication, agreement or arrangement with any competitor. However, communication between partners in a joint venture or consortium² will not be construed as collusive bidding.
- 3.4 In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications, prices, including methods, factors or formulas used to calculate prices, market allocation, the intention or decision to submit or not to submit the bid, bidding with the intention not to win the bid and conditions or delivery particulars of the products or services to which this bid invitation relates.
- 3.4 The terms of the accompanying bid have not been, and will not be, disclosed by the bidder, directly or indirectly, to any competitor, prior to the date and time of the official bid opening or of the awarding of the contract.
- 3.5 There have been no consultations, communications, agreements or arrangements made by the bidder with any official of the procuring institution in relation to this procurement process prior to

² Joint venture or Consortium means an association of persons for the purpose of combining their expertise, property, capital, efforts, skill and knowledge in an activity for the execution of a contract.

and during the bidding process except to provide clarification on the bid submitted where so required by the institution; and the bidder was not involved in the drafting of the specifications or terms of reference for this bid.

- 3.6 I am aware that, in addition and without prejudice to any other remedy provided to combat any restrictive practices related to bids and contracts, bids that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties in terms of section 59 of the Competition Act No 89 of 1998 and or may be reported to the National Prosecuting Authority (NPA) for criminal investigation and or may be restricted from conducting business with the public sector for a period not exceeding ten (10) years in terms of the Prevention and Combating of Corrupt Activities Act No 12 of 2004 or any other applicable legislation.

I CERTIFY THAT THE INFORMATION FURNISHED IN PARAGRAPHS 1, 2 and 3 ABOVE IS CORRECT.

I ACCEPT THAT THE STATE MAY REJECT THE BID OR ACT AGAINST ME IN TERMS OF PARAGRAPH 6 OF PFMA SCM INSTRUCTION 03 OF 2021/22 ON PREVENTING AND COMBATING ABUSE IN THE SUPPLY CHAIN MANAGEMENT SYSTEM SHOULD THIS DECLARATION PROVE TO BE FALSE.

| | |
|-----------|----------------|
| | |
| Signature | Date |
| | |
| Position | Name of bidder |

9. PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2019

This preference form must form part of all bids invited. It contains general information and serves as a claim form for preference points for Broad-Based Black Economic Empowerment (B-BBEE) Status Level of Contribution

NB: BEFORE COMPLETING THIS FORM, BIDDERS MUST STUDY THE GENERAL CONDITIONS, DEFINITIONS AND DIRECTIVES APPLICABLE IN RESPECT OF B-BBEE, AS PRESCRIBED IN THE PREFERENTIAL PROCUREMENT REGULATIONS, 2019.

1. GENERAL CONDITIONS

1.1 The following preference point systems are applicable to all bids:

- the 80/20 system for requirements with a Rand value of up to R50 000 000 (all applicable taxes included); and
- the 90/10 system for requirements with a Rand value above R50 000 000 (all applicable taxes included).

1.2 The value of this bid is estimated to exceed/not exceed R50 000 000 (all applicable taxes included) and therefore the 80/20 preference point system shall be applicable; or

1.3 Points for this bid shall be awarded for:

- (a) Price; and
- (b) B-BBEE Status Level of Contributor.

1.4 The maximum points for this bid are allocated as follows:

| | POINTS |
|--|------------|
| PRICE | 80 |
| B-BBEE STATUS LEVEL OF CONTRIBUTOR | 20 |
| Total points for Price and B-BBEE must not exceed | 100 |

1.5 Failure on the part of a bidder to submit proof of B-BBEE Status level of contributor together with the bid, will be interpreted to mean that preference points for B-BBEE status level of contribution are not claimed.

1.6 The purchaser reserves the right to require of a bidder, either before a bid is adjudicated or at any time subsequently, to substantiate any claim in regard to preferences, in any manner required by the purchaser.

2. DEFINITIONS

- (a) **“B-BBEE”** means broad-based black economic empowerment as defined in section 1 of the Broad-Based Black Economic Empowerment Act;
- (b) **“B-BBEE status level of contributor”** means the B-BBEE status of an entity in terms of a code of good practice on black economic empowerment, issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act;
- (c) **“bid”** means a written offer in a prescribed or stipulated form in response to an invitation by an organ of state for the provision of goods or services, through price quotations, advertised competitive bidding processes or proposals;
- (d) **“Broad-Based Black Economic Empowerment Act”** means the Broad-Based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003);
- (e) **“EME”** means an Exempted Micro Enterprise in terms of a code of good practice on black economic empowerment issued in terms of section 9 (1) of the Broad-Based Black Economic Empowerment Act;
- (f) **“functionality”** means the ability of a tenderer to provide goods or services in accordance with specifications as set out in the tender documents.
- (g) **“prices”** includes all applicable taxes less all unconditional discounts;
- (h) **“proof of B-BBEE status level of contributor”** means:

1) B-BBEE Status level certificate issued by an authorized body or person;

2) A sworn affidavit as prescribed by the B-BBEE Codes of Good Practice;

3) Any other requirement prescribed in terms of the B-BBEE Act;

(i) “QSE” means a qualifying small business enterprise in terms of a code of good practice on black economic empowerment issued in terms of section 9 (1) of the Broad-Based Black Economic Empowerment Act;

(j) “rand value” means the total estimated value of a contract in Rand, calculated at the time of bid invitation, and includes all applicable taxes;

3. POINTS AWARDED FOR PRICE

3.1 THE 80/20 PREFERENCE POINT SYSTEM WILL BE APPLIED FOR THIS TRANSACTION

A maximum of 80 points is allocated for price on the following basis:

80/20

$$P_s = 80 \left(1 - \frac{P_t - P_{\min}}{P_{\min}} \right)$$

Where

P_s = Points scored for price of bid under consideration

P_t = Price of bid under consideration

P_{min} = Price of lowest acceptable bid

4. POINTS AWARDED FOR B-BBEE STATUS LEVEL OF CONTRIBUTOR

4.1 In terms of Regulation 6 (2) and 7 (2) of the Preferential Procurement Regulations, preference points must be awarded to a bidder for attaining the B-BBEE status level of contribution in accordance with the table below:

| B-BBEE Status Level of Contributor | Number of points (90/10 system) | Number of points (80/20 system) |
|------------------------------------|------------------------------------|------------------------------------|
| 1 | 10 | 20 |
| 2 | 9 | 18 |
| 3 | 6 | 14 |
| 4 | 5 | 12 |
| 5 | 4 | 8 |
| 6 | 3 | 6 |
| 7 | 2 | 4 |
| 8 | 1 | 2 |
| Non-compliant contributor | 0 | 0 |

5. BID DECLARATION

5.1 Bidders who claim points in respect of B-BBEE Status Level of Contribution must complete the following:

6. B-BBEE STATUS LEVEL OF CONTRIBUTOR CLAIMED IN TERMS OF PARAGRAPHS 1.4 AND 4.1

6.1 B-BBEE Status Level of Contributor: . =(maximum of 10 or 20 points)

(Points claimed in respect of paragraph 7.1 must be in accordance with the table reflected in paragraph 4.1 and must be substantiated by relevant proof of B-BBEE status level of contributor.

7. SUB-CONTRACTING

7.1 Will any portion of the contract be sub-contracted? (*Tick applicable box*)

| | | | |
|-----|--|----|--|
| YES | | NO | |
|-----|--|----|--|

7.1.1 If yes, indicate:

i) What percentage of the contract will be subcontracted.....%

ii) The name of the sub-contractor.....

iii) The B-BBEE status level of the sub-contractor.....

iv) Whether the sub-contractor is an EME or QSE (*Tick applicable box*)

| | | | |
|-----|--|----|--|
| YES | | NO | |
|-----|--|----|--|

v) Specify, by ticking the appropriate box, if subcontracting with an enterprise in terms of Preferential Procurement Regulations,2019:

| Designated Group: An EME or QSE which is at last 51% owned by: | EME <input checked="" type="checkbox"/> | QSE <input checked="" type="checkbox"/> |
|---|---|---|
| Black people | | |
| Black people who are youth | | |
| Black people who are women | | |
| Black people with disabilities | | |
| Black people living in rural or underdeveloped areas or townships | | |
| Cooperative owned by black people | | |
| Black people who are military veterans | | |
| OR | | |
| Any EME | | |
| Any QSE | | |

8. DECLARATION WITH REGARD TO COMPANY/FIRM

8.1 Name of company/firm:.....

8.2 VAT registration number:.....

8.3 Company registration number:.....

9. TYPE OF COMPANY/ FIRM [Tick applicable box]

- ☐ Partnership/Joint Venture / Consortium
- ☐ One person business/sole propriety
- ☐ Close corporation
- ☐ Company
- ☐ (Pty) Limited

9.1 DESCRIBE PRINCIPAL BUSINESS ACTIVITIES

.....

.....

.....

9.2 COMPANY CLASSIFICATION [TICK APPLICABLE BOX]

- ☐ Manufacturer
- ☐ Supplier

- ☐ Professional service provider
- ☐ Other service providers, e.g. transporter, etc.

9.3 Total number of years the company/firm has been in business: _____

9.4 I/we, the undersigned, who is / are duly authorised to do so on behalf of the company/firm, certify that the points claimed, based on the B-BBE status level of contributor indicated in paragraphs 1.4 and 6.1 of the foregoing certificate, qualifies the company/ firm for the preference(s) shown and I / we acknowledge that:

- i) The information furnished is true and correct;
- ii) The preference points claimed are in accordance with the General Conditions as indicated in paragraph 1 of this form;
- iii) In the event of a contract being awarded as a result of points claimed as shown in paragraphs 1.4 and 6.1, the contractor may be required to furnish documentary proof to the satisfaction of the purchaser that the claims are correct;
- iv) If the B-BBEE status level of contributor has been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the purchaser may, in addition to any other remedy it may have –
 - (a) disqualify the person from the bidding process;
 - (b) recover costs, losses or damages it has incurred or suffered as a result of that person's conduct;
 - (c) cancel the contract and claim any damages which it has suffered as a result of having to make less favourable arrangements due to such cancellation;
 - (d) recommend that the bidder or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, be restricted by the National Treasury from obtaining business from any organ of state for a period not exceeding 10 years, after the *audi alteram partem* (hear the other side) rule has been applied; and
 - (e) forward the matter for criminal prosecution.

| | |
|--|--|
| <p>WITNESSES (Full Name & Signature)</p> <p>1. _____</p> <p>Signature: _____</p> <p>2. _____</p> <p>Signature: _____</p> <p style="text-align: center;">_____</p> <p style="text-align: center;">Date</p> | <p>Signatory: _____</p> <p>Tenderer's Signature: _____</p> <p>Address: _____</p> <p>_____</p> <p>_____</p> <p style="text-align: center;">_____</p> <p style="text-align: center;">Date</p> |
|--|--|

10. RFQ Number: Q23/162NM FOR THE SUPPLY/PROVISION OF
SUPPLY AND DELIVERY MEASURING TOOLS FOR MIDMAR SYSEM.

CERTIFICATE OF ACQUAINTANCE WITH RFQ, TERMS & CONDITIONS & APPLICABLE DOCUMENTS

By signing this certificate, the **Respondent** is deemed to acknowledge that he/she has made himself/herself thoroughly familiar with, and agrees with all the conditions governing this **RFQ**. This includes those terms and conditions contained in any printed form stated to form part hereof, including but not limited to the documents stated below. As such, **Umgeni Water** will recognise no claim for relief based on an allegation that the **Respondent** overlooked any such condition or failed properly to take it into account for the purpose of calculating tendered prices or any other purpose:

1 Umgeni Water's Standard Conditions of Tender*

2 Umgeni Water's Terms and Conditions of Contract for the supply of Good/Services to Umgeni Water's

Should the Tenderer find any terms or conditions stipulated in any of the relevant documents quoted in the RFQ unacceptable, it should indicate which conditions are unacceptable.

The Tenderer accepts that an obligation rests on them to obtain clarity relating to any uncertainties regarding any quote, which they intend to respond on, before submitting an offer. The Tenderer agrees that he/she will have no claim based on an allegation that any aspect of this RFQ was unclear but in respect of which he/she failed to obtain clarity.

SIGNED at _____ on this _____ day of _____
20_____

SIGNATURE OF WITNESSES

ADDRESS OF WITNESSES

1 _____

Name _____

2 _____

Name _____

SIGNATURE OF TENDERER'S AUTHORISED REPRESENTATIVE:

NAME: _____ DESIGNATION: _____

*A full copy of UW's Standard Conditions of Tender are available on Umgeni Water's website.
http://www.umgeni.co.za/pdf/cm009_standard_conditions_of_tender.pdf

11.CONTRACT FORM - PURCHASE OF GOODS/WORKS

THIS FORM MUST BE FILLED IN DUPLICATE BY BOTH THE SUCCESSFUL BIDDER (PART 1) AND THE PURCHASER (PART 2). BOTH FORMS MUST BE SIGNED IN THE ORIGINAL SO THAT THE SUCCESSFUL BIDDER AND THE PURCHASER WOULD BE IN POSSESSION OF ORIGINALLY SIGNED CONTRACTS FOR THEIR RESPECTIVE RECORDS.

PART 1 (TO BE FILLED IN BY THE BIDDER)

1. I hereby undertake to supply all or any of the goods and/or works described in the attached bidding documents to **UMGENI WATER** in accordance with the requirements and specifications stipulated in **Quote** number **Q23/162NM** at the price/s quoted. My offer/s remain binding upon me and open for acceptance by the purchaser during the validity period indicated and calculated from the closing time of tender.
2. The following documents shall be deemed to form and be read and construed as part of this agreement:
 - (i) Tendering documents, viz
 - Invitation to Quote;
 - Tax clearance certificate;
 - Pricing schedule(s);
 - Technical Specification(s);
 - Preference claims for Broad Based Black Economic Empowerment Status Level of Contribution in terms of the Preferential Procurement Regulations 2017;
 - Declaration of interest;
 - Declaration of bidder's past SCM practices;
 - Certificate of Independent Bid Determination
 - Umgeni Water's Standard Conditions of Tender t;
 - (ii) General Conditions of Contract; and
 - (iii) Other (specify)
3. I confirm that I have satisfied myself as to the correctness and validity of my bid; that the price(s) and rate(s) quoted cover all the goods and/or works specified in the quotation documents; that the price(s) and rate(s) cover all my obligations and I accept that any mistakes regarding price(s) and rate(s) and calculations will be at my own risk.
4. I accept full responsibility for the proper execution and fulfilment of all obligations and conditions devolving on me under this agreement as the principal liable for the due fulfilment of this contract.
5. I declare that I have no participation in any collusive practices with any bidder or any other person regarding this or any other quote.
6. I confirm that I am duly authorised to sign this contract.

NAME (PRINT)

CAPACITY

SIGNATURE

NAME OF FIRM

DATE

WITNESSES (Full Name & Signature)

1. _____

Signature: _____

2. _____

Signature: _____

Date: _____

**CONTRACT FORM - PURCHASE OF GOODS/WORKS
PART 2 (TO BE FILLED IN BY THE PURCHASER)**

1. I _____ in my capacity as _____ accept your Quote under reference number _____ Dated _____ for the supply of goods indicated hereunder and/or further specified in the annexure(s).
2. An official order indicating delivery instructions is forthcoming.
3. I undertake to make payment for the goods/works delivered in accordance with the terms and conditions of the contract, within 30 (thirty) days after receipt of an invoice accompanied by the delivery note.

| ITEM DESCRIPTION BOQ(ATTACHED) | PRICE (ALL APPLICABLE TAXES INCLUDED) | DELIVERY DATE / PERIOD | B-BBEE STATUS LEVEL OF CONTRIBUTION | MINIMUM THRESHOLD FOR LOCAL PRODUCTION AND CONTENT (if applicable) |
|--|---|------------------------------|---|---|
| SUPPLY AND DELIVERY MEASURING TOOLS FOR MIDMAR SYSEYEM. | | | | |

4. I confirm that I am duly authorised to sign this contract.

SIGNED AT _____ ON _____ / _____ / _____

NAME (PRINT) _____ SIGNATURE _____

| |
|------------------------|
| OFFICIAL COMPANY STAMP |
|------------------------|

| | |
|--|--|
| WITNESSES (Full Name & Signature) | |
| 1. _____ | |
| Signature: _____ | |
| 2. _____ | |
| Signature: _____ | |
| Date: _____ | |