شركة السمرا لتوليد الكهرباء
Samra Electric Power Co. (SEPCO)

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عطاء 2024/25

Supply of Industrial Videoscope

Tender Specification for Portable industrial Videoscope

- **Introduction:** The purpose of this tender is to purchase an industrial video scope to be used for the inspection, maintenance, and troubleshooting of machinery and equipment in our industrial facility, like compressors, turbine blades, combustion chambers, pipes, valves, …etc.
- **Scope of Delivery**: The delivery of the industrial video scope should include the following:

No	Description	Qyt
1	**Industrial video scope including below items:** • **Standard insertion probe (Min :3.5 m, max: 4.5m length and 6mm diameter as a minimum),** • **Memory card 16 GB as a minimum.** • **Guide Tube for the probe.** • **lens cleaning kits.** • **Universal and HDMI cables.** • **Power supply both AC Power 240V 50Hz with supplied AC adapter, and Lithium Ion Battery 10.8 V (nominal), 73 Wh, 6.8 Ah, three-hour typical run time** • **Carrying case.** • **Optical adapter case.**	**1**
2	**Optical Tip adapters (Direct Near Focus, Direct Far Focus, Side Near Focus) for Oil Clearing Direct.**	**1 set**
3	**Extra Lithium-ion battery**	**1**
4 4.1 4.2 4.3	**(As an option):** **Measuring Optical Tip Adapters Stereoscopic, Side stereoscopic** **To measure Distance between two points, Perpendicular distance between a point and a user-defined line, Orthogonal depth/height distance between a point and a user-defined plane, Multiple point circumference and area measurement.** **Additional probe (7.5m length and 8mm diameter)** **Image quality assessment device that will allow to perform the following image quality checks:** **1- Lighting Intensity Assessment** **2- Color Accuracy Validation** **3- Resolution Confirmation**	 **1** **1** **1**
5	**Operation and Maintenance Training for the Video Scope:** The price should include and cover all travel and accommodation costs for **three Samra engineers** to the manufacturer training center (origin of device).	**3 Samra engineers**

- **Technical Specification:** The industrial video scope must meet the following technical specifications:

  - The videoscope should support stereo measurement (3D measurement).

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- The videoscope should be equipped with scalar measurement and stereo measurement options to size objects using precise three-dimensional coordinates.
- The probe in the videoscope should not be built into the base unit, and we can interchange the probe at any time.
- The probe should have high-durability tungsten braiding.
- The probe should have temperature sensors for high temperature warning.
- The videoscope should have light source interchangeability to accommodate LED light sources: white, UV, and IR.
- The video scope should be rough-designed and lightweight; its weight should not be more than 1.5 kg.
- The videoscope should have a minimum operating temperature of -25 °C to 100 °C for the insertion tube in air, and 10 °C to 30 °C for the insertion tube in water. The operating temperature for other parts should be -10 °C to 40 °C (with AC power adapter and battery charge), waterproof Insertion tube and tip to (1 bar, 10 m of water) other parts IP65.
- Flexible insertion probe with a minimum **of 4-way articulation (360° rotation), minimum bending angle of the insertion tube in all four directions is 140°.**
- The image sensor should 1/6" Color Super HAD CCD camera, or 1/10" Color Super HAD CCD camera.
- The camera Pixel Count should be SD 440K pixels or HD 1200K pixels.
- Minimum 7.0-inch LCD daylight-readable display with high brightness and contrast, type touch panel.
- The probe should have adjustable lighting functionality**.**
- The optical tip adapter should have a minimum **120-degree** field of view with an oil-clearing design.
- The optical tip adapter should have a depth of field of **2 to 200 mm**.
- The videoscope should have digital zoom capabilities.
- The video scope should have a storage size of **16 GB** as a minimum.
- The video scope should have a rechargeable battery with **a 2-to-3-hour** battery life of continuous use as a minimum.
- The video scope should be able to withstand environmental testing as per the following US department of defense standards: MIL-STD-810G: Sections 501.5, 502.5, 506.5, 507.5, 509.5, 510.5, 511.5, 514.6, 516.6, 521.3.
  This involves withstanding tests for high and low temperatures, temperature shocks, rainfall, humidity, fungi, salt fog, vibration, shock etc.
- The video scope should be complied with MIL-STD-461G for electromagnetic compatibility testing with requirements RE102 and RS103 for above deck operations and testing.
- The videoscope should have an option for marking the defects when the video is recorded.
- The videoscope should be able to capture images while the video is recorded.
- The videoscope should support a responsive touch screen for easy use.
- The videoscope supports using the ability to use the Freeze feature.
- The videoscope should have Universal and HDMI cables.
- The videoscope should have lens cleaning kits.
- The videoscope should have dynamic noise reduction features.
- The videoscope should have a different size from the rigid sleeve sets compatible with the probe.
- The videoscope should have the capability to have the message error to guide and support the user in troubleshooting when the error occurs.
- The image and video should be shared and transferred by the USB wireless LAN adaptor and using smartphones or tablets during the inspection to helps make it easy to diagnose problems with the assistance of other inspectors.

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- The videoscope should have the capability to automatically record, at a minimum, the last 30 minutes of your inspection, even if you forget to press the record button.
- The videoscope software should include the following features:
  - ❖ Recording Formats:
    - Audio: ACC (.M4A file)
    - Images: Bitmap (.BMP), JPEG (.JPG)
    - Video: MPEG4 AVC/H.264 (.MP4 file), Windows Media Player 12 compatible
    - Video recording: high frame rate for smooth videos. not less than **60 fps**
  - ❖ Image Control Functions:
    - Brightness adjustment
    - Long exposure/night mode
    - Invert, inverse effects
    - Single/split screen views
    - Illumination control
    - Color saturation adjustment
    - Distortion correction
    - Adaptive noise reduction
    - High dynamic range imaging
    - Dark boost
    - Image transformations
  - ❖ Additional Features:
    - Continuous 5X digital zoom
    - 16-step brightness control
    - 4-step adjustable gain control (Manual, Auto, Wider1, Wider2)
    - 4-mode sharpness adjustment
    - 3-step adjustable control of color saturation (Monotone, Natural, Vivid)
    - Text Annotation: Built-in on-screen text overlay generator with selectable font size
    - Graphic Annotation: User placement of arrows
    - Articulation Control: User-selectable steer and Steer-and-Stay* articulation; tip "Home" return to neutral forward-tip orientation
    - Software update: Field updatable via WiFi/USB
- The supply package should include all the auxiliary parts that are necessary to use the videoscope as a package, and all the complementary parts should be offered as optional parts.
- The videoscope should have the country of origin from the USA or European countries.

➢ **Compliance**: The borescope must comply with the following widely accepted industry and regulatory standards:

- Electromagnetic Compatibility (EMC): EN61326-1 Class A
- Safety: UL/EN/CSA-C22.2 61010-1
- Batteries: IEC 62133
- Transportation: UN/DOT T1-T8 hazardous material transportation regulations
- Environmental: EU RoHS 2 Directive, EU RED Directive
- Packaging: ISTA 2G international safe transit association testing
- Regulatory Markings: CE marking, FCC Part 15
- Substances of Concern: RoHS/REACH compliant

➢ **Warranty**: The industrial video scope should have a minimum one-year warranty covering manufacturing defects and faults. Any repairs or replacements should be covered by the manufacturer or supplier.

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- **Training:** The supplier should include in the offer the cost of the operation and maintenance training of the industrial video scope. The training should be conducted in the training center of the device manufacturer that have the demo for parts Inspection for at least **three Samra engineers,** and the price should include and cover all travel and accommodation costs for the three engineers. It should also cover all aspects of the equipment, including troubleshooting and maintenance.
- **Technical Support**: The supplier should provide technical support for the industrial video scope including remote support and onsite support if required.
- **Price:** The price should include all costs associated with the purchase, delivery, and training of the industrial video scope. The price should be inclusive of all taxes and fees.
- **Submission Requirements**: Tender submissions should include the following:

  - Technical specifications of the industrial video scope
  - Compliance certificates and documentation
  - Delivery timeline
  - Warranty and technical support details
  - Training Center details and schedule.
  - Demo of the video scope device if possible.
  - Price quotation.