GOVERNMENT OF PAKISTAN
Pakistan Meteorological Department
Headquarters Office,
Sector H–8/2, Islamabad–PAKISTAN

(Bidding Documents)
No. IP–4 (9) / 2014-15

for

SUPPLY OF METEOROLOGICAL EQUIPMENT

Under The

Project: “Establishment of Main Met Office at New International Airport at Islamabad”

April–2015

DIRECTOR GENERAL:
Pakistan Meteorological Department, Islamabad
Islamic Republic of Pakistan
Phone No. +92-51-9250595
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Tender Notice
GOVERNMENT OF PAKISTAN  
PAKISTAN METEOROLOGICAL DEPARTMENT  
(Headquarters Office)  
Post Box No. 1214, Sector H-8/2  
ISLAMABAD

Tender Notice

Separate Sealed Tenders are invited on F.O.R basis from reputed Suppliers / Authorized Dealers registered with Income and Sales Tax Departments for supply of the following item:

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Item</th>
<th>Qty</th>
<th>Closing Date &amp; Time</th>
<th>Opening Date &amp; Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Digital Pilot Balloon Theodolite</td>
<td>01</td>
<td>20-04-2015 at 11:00PST</td>
<td>20-04-2015 at 11:30PST</td>
</tr>
<tr>
<td>2</td>
<td>Digital Anemometer</td>
<td>04</td>
<td></td>
<td></td>
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</table>

Terms & Conditions:
1. Bid Security (2% of the Offer) in shape of Bank Draft / Pay Order in favour of D.G. Met. Services, Islamabad should be submitted with the Bid.
2. Incomplete or late received offer will not be considered.
3. Detail specifications can be obtained from websites: www.ppra.org.pk or www.pmd.gov.pk or undersigned during office hours.

DR. MUHAMMAD HANIF
Project Director
Ph. No. 051-9250595, Fax: 051-9250368
TECHNICAL SPECIFICATIONS
OF METEOROLOGICAL EQUIPMENT
## TECHNICAL SPECIFICATIONS

### OF METEOROLOGICAL EQUIPMENT

Terms & Conditions at Page No. 8 to 9, clause 1 to 14 should be strictly followed, failing which, proposals shall be treated as Cancelled / Rejected.

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Item</th>
<th>Technical Specifications</th>
<th>Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Digital Pilot Balloon Theodolite)</td>
<td>Digital Pilot Balloon Theodolite: Digital Pilot Balloon Theodolite to measure and record angle of elevation and azimuth of pilot balloon as well as moon sighting. Theodolite should have built-in memory function, compatible with computer.</td>
<td>01</td>
</tr>
</tbody>
</table>

**Main Telescope:**
- Image: Inverted
- Magnification: 16 – 18x
- Diameter: 45 – 47mm
- Resolution Power: 3 to 3.5"
- Field of view: 2" 30"

**Angle Display (Digital)**
- Azimuth: 0 – 360
- Elevation: 0 – 360
- Display: LCD (Minimum of 2 lines)

**Functions:**
- Built-in Clock & Calendar
- Timer
- Alarm: Buzz
- Input / Output Function RS-232C
- Operating Time: 15 to 18 hours continuous

**Sub Telescope:**
- Magnification: 3 – 4x
- Image: Inverted
- Field of View: 11 to 12"
- Resolution: 10 to 12"
- Diameter: 16mm

**Main Power with backup:**
- Power: Rechargeable Battery preferably made of lithium.

**Level:**
- Sensitivity: 90" per 2 millimeter (mm)

**Software:**
- Graphics software having facility to show and record the following features:
  - a) Altitude and wind speed
  - b) Altitude and wind direction
  - c) Tracking of Pilot Balloon
  - d) Graphic display of azimuth and elevation data.

**Accessories:**
- Standard / Optional Accessories, including Carrying Case, Eyepieces, Tool Kit, Battery Charger, Operational / Technical Manual.

**Country of Origin:** USA, Europe or Japan
### Technical Specifications of Wind Speed and Direction Sensor:

- **First Class state-of-the-art technology** anemometer with **very high precision**, manufactured to meet the **IEC61400-12** standards for measuring the wind.
- Sensors should be made of metal with high quality materials to ensure reliability and durability, allowing maintaining over times the initial characteristics of sensitivity and precision.
- Sensors should be conformed to **WMO standards** (World Meteorological Organization) having different signal outputs, normalized voltage or current 0 to 2Vdc, 4 to 20mA or RS485
- **Wind Direction** Sensor *(Gonio-anemometer type)* should be made of materials with high reliability and durability that maintain for long time characteristics of sensitivity and precision.
- The mechanical body shape of sensor should allow resisting at high wind speed or squalls (up to 200km/h) or better.
- Sensor should be a **special high-precision potentiometric transducer**, and it should provide excellent resolution, high sensitivity and a long mechanical duration in an **operative angle of 360°**.

#### a) Wind Speed Sensor:
- **High linearity** R>0.99998
- **First Class in accordance to IEC 61400-12-1:2005 and WMO standards**.
- Rotor with high speed and long life ball bearing
- According to IP67 fast connection standard
- **Range**: 0.1–100 m/s (freq. Output)
- **Resolution**: 0.05 m/s
- **Average accuracy**:<0.1 m/s (0.4–30m/s) or better
- **Standard error** 0.02m/s or better in precision
- **Threshold**: <0.3 m/s or better in precision
- Made of anodized aluminium and stainless steel, with easy replacing components
- **Power supply and consumption**: 10–30Vdc <0.1W
- **Working conditions**: -20–60°C

#### b) Wind Direction Sensor:
- **High precision Wind Direction Sensor**
- **According to WMO standards**
- Compact and light design in aluminium.
- **Range**: 0–360°
- **High dynamic response to wind**
- According to IP67 fast connection standards
- **Resolution**: 0.1° to 0.5° better in precision
- **Accuracy**:±1° better in precision
- **Threshold**: <0.5m/s or better in precision
- Made of anodized aluminium and stainless steel, with easy replacing components
- **Power supply and consumption**: 10 to 30Vdc
- **Working conditions**: -20 to +60°C
- **Humidity 0 to 100%**
c) **Data logger with software** having following features:

- Microsoft Windows or Linux based
- RISC 32bit processor with built-in operating system technology
- Web page configuration
- Programmable Terminal.
- Built-in display
- Sampling frequency programmable for both sensors.
- Low power consumption.
- Sensor Input Channels: minimum 04 channels or more
- 4 programmable analogical high-resolution inputs (24Bit)
- 4 programmable analogical high-resolution inputs (12Bit)
- 5 programmable frequency inputs up to 2000Hz/channel
- 4 programmable ON/OFF outputs
- 4 programmable (12Bit) 0 to 2Vdc analogical outputs
- Serial ports RS232, RS485, SDI, 2 USB, LAN Ethernet port & TCP/IP interface
- Internal memory: 32MB to 2GB
- External removable memory (USB)
- Integrated charge regulator up to 40Ah
- Communication protocols: RTU, TCP, SDI-12, TCP-IP, http, FTP, NTP etc
- Data format: ASCII txt file, AES encrypted etc
- Operating temperature: -20°C to + 70° C
- Built-in solar charger for battery
- Alarms for thresholds to be sent through SMS or any other suitable method
- Power supply: 12Vdc (operational battery upto 15 Vdc)

d) **Data Logger Software** should have following minimum features:

1) Built-in web server & software and web applications:
2) Displays the instantaneous data in numeric and graphic format.
3) Easy to download data by using web browsers
4) Alarms and digital outputs
5) Data should be stored internally to the datalogger or in the USB memory or from FTP.
6) Backup storage of data
7) Easy to install & programmable locally and remotely through dedicated web-pages.

e) **Wind Monitor display (both for wind speed and direction, configurable)**

- Current Loop Indicator
- Graphics Display 2 to 3" colour TFT screen
- Programmable with USB interface
- Current Loop: 4 - 20mA
- Operating voltage: 4V-30Vdc
- Simple panel mounting solution

**Note:** All necessary hardware like cables, connectors, clamps, mounting brackets, and other fastening hardware should be provided with complete set of **Anemometer with Digital Datalogger & Display**


**Terms & Conditions**

**Eligibility Criteria for Bidders**

1. Bidder of this tender must meet the following required criteria:

   a) be a **Local Agent** or **Authorized Distributor** of Foreign Principal / Manufacturer [attach certificate in his support].

   b) **Manufacturer should be of USA / European or equivalent.**

2. **Earnest Money/Bid Security:** The Bidder shall furnish 2% earnest money as part of its bid with the Financial Proposal and its **photocopy with Technical Proposal.** The bid security shall be in the form of a **Bank Draft / Pay Order** in favour of **Director General, Meteorological Services, Islamabad.** The Bid Security of unsuccessful bidders will be returned as promptly as possible.

3. **In case of submission of various options / offers by a bidder for Technical / Financial Proposal then he must submit separate Bank Draft / Pay Order against each option / offer, failing which the proposal shall be treated as “Cancelled”**.

4. **Separate Sealed Proposals shall be accepted e.g. :**

   - Digital Pilot Balloon Theodolite [separate proposal along with separate earnest money should be submitted]
   - Digital Anemometer [separate proposal along with separate earnest money should be submitted]

5. **Sealing & Marking the Bids:** The inner and outer envelopes shall be addressed as;

   (i) **The Director General, Pakistan Meteorological Services, PMD HQs Office, Sector H–8/2, ISLAMABAD.**

   (ii) bear the following identification:

   - **Bid for Supply of Meteorological Equipments.**
   - **Bid Reference Number: ____________** [time and date for bid opening]

6. **Deadline for Submission of Offers:** Technical and Financial Proposals should reach on or before **April 20, 2015 at 1100PST.** Technical Proposals will be opened on same day at **11:30PST** in the presence of Bidder’s Representatives. Only Technically accepted / qualified Bidders would be invited to attend Opening of Financial Proposals later on.

7. **Incomplete or late received Bid / Offer will not be considered.**

8. **Bidding Procedure:**

   a) **Single-stage two envelopes i.e. Technical and Financial.**
b) The bid submitted by the bidder shall comprise two envelopes submitted simultaneously, one containing only the Technical Proposal and the other one Price Proposal.

c) Optional Proposal / Alternate Proposal should also be submitted as per above mentioned clause (a) & (b) along with earnest money separately, in case submission.

9. Documents Comprising the Bid: The bid submitted by the bidder shall comprise two envelopes submitted simultaneously, one containing only the Technical Proposal and the other one Price Proposal as follow:

A) The Technical Proposal shall contain the following:
   
   (i) Schedule of Major Items of Equipment/Instrument;
   (ii) Copy of Bid Security, and;
   (iii) Technical Brochures of quoted items (in original).

B) The Price Proposal shall contain the following:

   (i) Price Proposal / Quotation;
   (ii) Bid Security (Original);
   (iii) Schedule of Prices.

10. At least 24-Month Warranty on all supplied goods.

11. Proposals should be submitted on F.O.R. ISLAMABAD Basis inclusive of all taxes.

12. Inspection: Inspection shall be conducted at PMD HQs Office, Islamabad.

13. The Buyer will have the right to increase or decrease the quantity of sensors / equipments / instruments.

14. Bids shall remain valid for a period of at least 120 days after the date of opening of technical proposals.

For further detail, please Contact:

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