**Annex 2.3: Technical Responsiveness Table – LOT 3**

**LOT3 DISTRIBUTION: RS 485 (serial interface)**

**Bidder should offer the full quantity per LOT. Please fill in the offered specifications in the below tables.**

|  |  |
| --- | --- |
| LOT 3:  DISTRIBUTION: RS 485 (serial Interface) | Total |
| **1 phase** |
| Total Meters | 522 |

**Smart Meters**

|  |  |  |
| --- | --- | --- |
| **TECHINCAL SPECIFICATIONS** | | |
|  | **REQUIRED SPECIFICATIONS** | **OFFERED SPECIFICATIONS** |
| **Specifications** | **Smart meters,**  **single-phase** | **Smart meters,**  **single-phase** |
| **Manufacturer:**  **Model:** |
| Accuracy class:  for Active Energy  for Reactive Energy | B  2 |  |
| Reference current | min. 5 A |  |
| Maximum current, Iref | min. 60 A |  |
| Minimum current | 0.05 Iref for active /  0.05 Iref for reactive |  |
| Reference voltage, Un | 230 V |  |
| Reference frequency | 50 Hz (± 2 %) |  |
| Inherent consumption (EN 50470-3 , IEC 62053/21-22-23, IEC 62053-61, without communications overhead) of current circuit, not more than of voltage circuit, not more than | 1 VA  2 W / 10 VA |  |
| Inherent consumption of voltage circuit (IEC 62052-11, IEC 62053/21-22-23, IEC 62053-61, including communication overhead), not more than | 5 W / 10 VA |  |
| Internal clock accuracy (IEC 62052-21) | £ 0.5 s / 24 h |  |
| Insulation strength (IEC 61010-1-90) | 4 kV, 50 Hz, 1 min |  |
| Shock voltage (IEC 60060-1) | 6 kV, 1.2/50 ms |  |
| Electrostatic discharge (IEC 61000-4-2) | 15 kV |  |
| High frequency radiant field (IEC 61000-4-3) | ³ 30 V/m |  |
| High frequency interferences (IEC 6100-4-4) | 4 kV |  |
| Surge immunity test (IEC 6100-4-5) | 6 kV |  |
| IP rating | IP54 |  |
| Mechanical class | min. M1 |  |
| MTL (Mean Total Lifetime) | not less 15 years |  |
| MTBF (Mean Time Before Fail) | less than / year 0.5% |  |
| **CERTIFICATES** | **REQUIRED SPECIFICATIONS** | **OFFERED SPECIFICATIONS** |
| Specifications | **Smart meters,**  **single-phase** | **Smart meters,**  **single-phase** |
| MID certificate | Should be issued by European recognized lab |  |
| Production certificate | According to MID (mode D) |  |
| ISO | 9001 |  |
| **FUNCTIONAL SPECIFICATIONS - METERING PARAMETERS** | **REQUIRED SPECIFICATIONS** | **OFFERED SPECIFICATIONS** |
| Specifications | **Smart meters,**  **single-phase** | **Smart meters,**  **single-phase** |
| METERING DATA | * Actual meter readings; * Periodic (billing) meter readings: Day, month; * Interval meter readings: 15’, 30’, 60'; day * Timestamp. |  |
| MULTI-RATE METERING | * Up to 4 tariff registers, flexible adjustment of tariff intervals; * Min. 4 changeovers per day; * Tariff indicator is displayed on LCD and transmitted to an external system; * Active and passive tariff plans, configurable activation time of the passive tariff plan. |  |
| MEASURED VALUES | * Active energy, class B, export/import; * Reactive energy, class 2, 4 quadrants; * Apparent energy; * Active/reactive power, apparent power; * Phase voltage/current, instantaneous value (True RMS, integration period 1 s); * Voltage angle values relative to the voltage in first phase and phase currents relative to relevant phase voltages. |  |
| METERING CALENDAR | * Up to 4 seasons per year; * Up to 7 daily profiles per week; * Up to 30 special days per year; * Support of movable holidays. |  |
| DATA STORAGE | * Non-volatile memory; * Not less than 3 interval profiles and 1 billing profile. * Storage capacity: * 15 minutes interval profile: not less than 45 days for 6 parameters * Asynchronous profile (spontaneous events), last entries data. |  |
| OPERATING MODES | * Normal mode; * Energy saving mode - real time clock, opening sensors, and data displaying are active. |  |
| POWER QUALITY CONTROL | * Quality indexes: * average voltage; * voltage sags and swells; * outages; * network frequency; * THD for voltage/current harmonics; * Remote or local configuring of parameters thresholds and control actions. |  |
| **FUNCTIONAL SPECIFICATIONS - MANAGEMENT AND CONTROL PARAMETERS** | **REQUIRED SPECIFICATIONS** | **OFFERED SPECIFICATIONS** |
| Specifications | **Smart meters,**  **single-phase** | **Smart meters,**  **single-phase** |
| DLMS/COSEM SUPPORT | * IEC 62056 compliant; * Object Identification System compliant; * Standard data models; * Standard communications protocols. |  |
| DATA TRANSMISSION | * On demand; * By Schedule; * Remote HES request; * Local request (via optical port). * Internal interface for transformer connected meters (which is an integrated part of the data concentrator) |  |
| SOFTWARE UPGRADE | * Remote (via communication channel); * Local (via RS-485 or optical port) |  |
| FRAUD AND THEFT PROTECTION | * Non-stop monitoring, including sleep mode time; * Meter cover opening sensor; * Terminal block cover sensor; * Reverse meter connection control; * Strong magnetic field detection; * Events registering in relevant logs; |  |
| BUILT IN CLOCK | * Real-time clock with 0.5 s accuracy per day; * IEC 62052-21 standard compliant; * External synchronization with HES |  |
| EVENTS AND ALARMS HANDLING | * Continuous control of current state of meter functional nodes and alarms/events; * Standard set of events processing including: registration in special logs and registers, event report sending, states displaying; * Different types of event logs; * Asynchronous sending of Event; * Notification can be configured for specific events. |  |
| METER SELF CONTROL | * Built-in test for continuous self-control; * Quick response on severe error |  |
| POWER LOAD CONTROL | * Basic relay (80 A) – for direct connected meters only * Control modes: * remote (by command) * local (by condition) * manual - by push button * Basic relay status displayed on the meter LCD |  |
| METER PARAMETRIZATION | * Remote (via communication channel) or local (via optical port); * Access rights assignment from HES; |  |
| THRESHOLDS MANAGEMENT | * Threshold for active power, active power demand, current/voltage (per phase), differential current (direct connected meters only); * Remote or local configuring of parameters thresholds; * Possibility to disconnect consumer from the network, when a threshold is crossed. |  |
| BACK-UP POWER SUPPLY | * Supports clock/meter operation when the power is off; * Battery, lifetime - not less than 10 years. |  |
| **FUNCTIONAL SPECIFICATIONS - SECURITY** | **REQUIRED SPECIFICATIONS** | **OFFERED SPECIFICATIONS** |
| Specifications | **Smart meters,**  **single-phase** | **Smart meters,**  **single-phase** |
| INFORMATION SECURITY | * Communication encryption (AES-GCM-128 security suite); * Data access according to access rights stated; * Firmware protection. |  |
| **FUNCTIONAL SPECIFICATIONS - INTERFACES** | **REQUIRED SPECIFICATIONS** | **OFFERED SPECIFICATIONS** |
| Specifications | **Smart meters,**  **single-phase** | **Smart meters,**  **single-phase** |
| OPTICAL PORT | * IEC 62056-21 Compliant; * Data rates - up to 19200 bps; * Password protected; * Multiple access levels. |  |
| BUILT-IN DISPLAY | * LCD with min 8 lines; * Configurable decimal places (up to 3 digits); * Manual and automatic scrolling; * Backlight. |  |
| TEST OUTPUTS | * 2 led outputs; * Active and reactive energy; |  |
| PUSH BUTTON | * Scroll meter screens; * View data on LCD, when the power is off. |  |
| RS485 SERIAL INTERFACE | * EIA/TIA-485A standard; * Baud rate - up to 38400 bps |  |
| **FUNCTIONAL SPECIFICATIONS - REMOTE COMMUNICATION** | **REQUIRED SPECIFICATIONS** | **OFFERED SPECIFICATIONS** |
| Specifications | **Smart meters,**  **single-phase** | **Smart meters,**  **single-phase** |
| REMOTE DISCONNECTION | * Bi-stable switching module for local or remote disconnection/reconnection; * Min. 10 000 mechanical disconnections/reconnections under maximum load. |  |

|  |  |  |
| --- | --- | --- |
| **TECHNICAL SPECIFICATIONS - HES SOFTWARE** | | |
|  | **REQUIRED SPECIFICATIONS** | **OFFERED SPECIFICATIONS** |
| SOFTWARE LICENCES | * HES software licenses will be offered for piloting, free of charge with full functionality; * The Bidder will provide the necessary hardware and operating system specifications for the HES software installation; * The HES platform must have sufficient licenses to cover the meters delivered by the Bidder; * Licenses must be valid for a period of 12 months from the time of commissioning. |  |