HEDNO S.A. SPECIFICATION	"SMART" ELECTRONIC THREE PHASE LOW VOLTAGE METERS	ND/373/Rev. 03.02.2021

Issued by the Metering Branch	Network Department	

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TECHNICAL SPECIFICATION

"SMART" ELECTRONIC THREE-PHASE LOW VOLTAGE METERS

SCOPE

This specification determines the manufacturing, testing, acceptance tests and packing for transportation and delivery to HEDNO warehouses of smart electronic three-phase Low Voltage (L.V.) meters for energy measurement.

OPERATING CONDITIONS

OPERATING TEMPERATURE

1. The temperature zone in which the meter functions properly must be between -25 °C and +55 °C.
2. The storage and transport temperature zone shall be between -25 °C and +70 °C.

HUMIDITY

3. The electronic meter shall operate under an average annual relative humidity of less than 75%.
4. For 30 days in total interspersed within the year, it shall operate under relative humidity of 75% to 95 %.
5. Additionally, at random moments within the day, it shall operate under relative humidity 85 % (IEC 62052).

TABLE OF CLIMATIC AND ENVIRONMENTAL CONDITIONS

Maximum altitude	2,000 m
Minimum ambient temperature	-25^{o} C
Average ambient temperature	20^{o} C
Maximum ambient temperature	55° C
Maximum temperature at external surfaces due to solar radiation	70^{o} C
Minimum relative humidity	5 %
Maximum relative humidity	95 %

REGULATIONS - SPECIFICATIONS

ΠΡΟΤΥΠΟ	ΤΙΤΛΟΣ ΠΡΟΤΥΠΟΥ
EN / IEC62052/11 & EN/IEC62053/21-22-23	Electricity metering equipment – General requirements, tests and test conditions - Part 11: Metering equipment. Electricity metering equipment – Particular requirements – Part 21: Static meters for AC active energy (classes 0,5, 1 and 2). Electricity metering equipment – Particular requirements – Part 22: Static meters for AC active energy (classes 0,1S, 0,2S and 0,5S). Electricity metering equipment – Particular requirements – Part 23: Static meters for reactive energy (classes 2 and 3).
EN/IEC 62058-11	Electricity metering equipment (A.C.) - Acceptance inspection Part 11: General acceptance inspection methods
EN/IEC 62058-31	Electricity metering equipment (AC) - Acceptance inspection - Part 31: Particular requirements for static meters for active energy (classes 0,2 S, 0,5 S, 1 and 2)
EN 50470-1	Electricity Metering equipment (a.c.) Part 1: General requirements, tests and test conditions – Metering equipment (class indexes A, B and C)
EN 50470-3	Electricity Metering equipment (a.c.) Part 3: Particular requirements – Static meters for active energy (class indexes A, B and C)
EN / IEC 60529	Degrees of protection provided by enclosures.

EN/IEC 60068-2-6	Basic environmental testing Procedures Part 2: Tests. Test EA : shock
EN/IEC 60068-2-30	Basic environmental testing Procedures Part 2: Tests. Test Db and guidance: Damp, neat cyclic (12 + 12 – hour cycle).
EN/IEC 60695-2-1	Fire hazard testing part 2: test methods. Glow wire test and guidance.
EN/IEC 60695-2-2	Fire hazard testing part 2: Test methods Needle flame test.
CENELEC / TC13	CENELEC technical body responsible for equipment for electrical energy measurement and load control.
IEC 62055-31	Electricity metering – Payment systems – Part 31: Particular requirements – Static payment meters for active energy (classes 1 and 2)
EN / IEC 62056	Electricity metering data exchange - The DLMS/COSEM suite
P1 Companion Standard (Dutch Smart Meter Requirements)	P1 Companion Standard, February 26th, 2016, v5.0.2
EN 61010-1:2010/A1	Safety requirements for electrical equipment for measurement, control, and laboratory use – Part 1:General requirements
EN IEC 60747-5-5	Semiconductor devices – Part 5-5:Optoelectronic devices - Photocouplers

6. The electronic meters shall be industrial products manufactured according to International-European EN/IEC regulations / standards and to HEDNO Technical Specifications of as mentioned above, which are valid on the day of the bids submission as well as on the day of installation and delivery.
7. Whenever the requirements of this Specification contradict with the above editions of International Regulations / Standards or any other relevant Standards, the corresponding HEDNO specification shall prevail.

8. The meters shall have markings according to the European Standards and they are particularly required to have the "CE" conformity mark.
9. The offered meters shall be of **class B**, in compliance with the EU Directive 2014/32/EC (Measuring Instruments) and according to the Ministry Decision (ref. DPP 1418/2016 - Government Gazette 1231 / issue B' / 27.04.2016).
10. All necessary certificates for the above compliance, that should have been issued for the offered meters by a competent Notified Body and should be submitted.
11. The meters supplier shall submit a certificate that the meters are calibrated in facilities compliant with the ISO 9001 quality management standard as well as the ISO/IEC 17025.

EQUIPMENT DESCRIPTION

MECHANICAL REQUIREMENTS

Cover

12. The electronic meter shall be designed and manufactured according to the protection class IP51 as specified in EN/IEC 60529 for indoor installation (but with the meter covers closed).
13. The cover window shall be made of a high purity transparent material, enabling the meter's readings to be easily read even after 15 years exposure to the sun.
14. The meter mounting dimensions shall be according to DIN 43857.
15. The meter width shall be according to DIN 43857.
16. The thickness of the meter should not be larger than 110mm.
17. The electronic meter cover shall contain a communication port which is accessible through an optical head, which shall be waterproof.
18. The electronic meter shall be connected appropriately to the communication unit. The communication unit must be modular. Moreover, the communication unit may be plug-in/modular on the front of the meter, must have a cover with the ability to install a HEDNO seal and a mechanism of tampering recording and the SIM card to be protected in order to be replaced only by authorized personel.
19. The communication with the optical head port must be performed in accordance with EN 62056-21:2002.
20. The cover of the meter must be either glued to the base or with safety screws which their head is cut off when tightening is achieved. In any case, it should have one safety seal which will indicate the year of its meteorological test and the manufacturer's logo.
21. In case that the meter is delivered with completely closed (glued) cover, every

attempt to open it shall result in a broken box in a visible manner.

22. In case that the meter is tampered, an internal tamper alarm shall be triggered.
23. It shall be possible to perform the following tasks without tampering the meter cover:
    - Reading through the display and activation of functionalities using push buttons.
    - Reading of the meter's characteristics (name table).
    - Programming and reading of the electronic meter by a laptop computer or portable handheld unit, using the optical communication port.
    - Manual reconnection of supply via a waterproof button (push button) mounted on the front cover. Note that it is intended that only authorized HEDNO personnel would utilize this method, as the button is not generally accessible by the consumer.
    - Check of measuring accuracy of active energy by a pulse signal from a LED located on the front meter cover .

Terminals and Terminal Cover

24. The terminals shall be able to connect stranded cable of cross-section at least 35 mm^2.
25. The terminals shall be of front connection type and shall have lifted insulation separators in order to provide protection against accidental short-circuits between phases and neutral during the connection or disconnection of the meter.
26. Each terminal shall have at least two terminal screws for cable tighening in order to ensure proper electrical contact and no risk of temperature rise or conductor loosening under normal operating conditions.
27. The terminals cover shall feature a tampering alarm and be sealed with HEDNO seal, so that any internal intervention to the terminals requires the breaking the cover seals with simultaneous activation of the alarm signal. The terminals cover shall be made of transparent material and its bottom part shall not be at a distance more than 10mm from the bottom part of the terminals' box.
28. The terminals position shall be according to VDE-0418.

Nameplate

29. The nameplate shall be designed and installed so that the following capabilities or information are provided:
    - The PPC S.A. logo.
    - The meter constant.
    - The symbol for double insulation protection and the CE mark for conformance

with EU regulations/standards.

- Meter information (including but not limited to meter type, serial number, nominal values / ratings, year of manufacture). The serial number will be determined by HEDNO.
- The nominal values shall include nominal voltage, nominal current and maximum voltage.
- The Material Code.

Communication via the optical head (IR-Port)

30. The electronic meter shall feature a communication port through an optical head. The communication port shall be infrared type (IR-Port).
31. The communication protocol of the IR-Port shall be in accordance with EN 62056-21:2002.
32. The optical head shall be read using a portable handheld device or PC/laptop. The optical head shall be self-supported in a manner that does not affect the proper operation of the meter (e.g. magnetic).

Physical requirements

33. The electronic meter shall be manufactured according to the requirements of DIN 43857-1 and DIN 43857-2. This facilitates the meter installation inside meter boxes according to HEDNO specifications.

METERING SYSTEM

General

34. The metering system must be digital for direct connection to the network.
35. The meter must calculate at least the following metering quantities:
    - Incoming – Outgoing active energy
    - Incoming – Outgoing reactive energy
    - Voltage and current
    - Phase sequence
    - Direction of energy flow

Accuracy Class

36. The electronic meter shall be of accuracy class B.

Operating Voltage Range

37. The meter shall be suitable for operation with rated voltage 230 Volts, and shall

operate within a voltage range of 0.8 to 1.15 x U_n (where U_n is the nominal voltage).

Measured Current Range

38. The meter maximum current shall be Imax≥ 60A or 100A.
39. The meter shall have basic current value I_b = 10 A.

Load Capacity

40. The meter must withstand overload according to EN/IEC 62052-11, 62053-21 and -23 and EN 50470.

Network Frequency

41. The electronic meter shall operate at a network frequency of 50 Hz and a variation zone of ±2%.

OPERATION REQUIREMENTS

Starting current

42. The electronic meter for direct connection shall begin the energy measuring when the current reaches at least 0.5% of the nominal current I_n, according to EN 50470-3.
43. The electronic meter shall use the starting power instead of the starting current in order to define the starting threshold.

Accuracy

44. The electronic meter shall achieve the required accuracy for power measuring (W) according to EN/IEC 62053 and EN 50470.

Meter Power Supply

45. The meter shall be suitable for low voltage measuring, with nominal network voltage 230/400V (± 10%, in accordance with EN/IEC 62053-22 and EN/IEC 62053-11).
46. The electronic meter shall be able to operate in each of the following cases of power failure, with the accuracy that characterizes the corresponding voltage asymmetry:
    - Neutral loss
    - Phase(s) loss
    - Neutral/Phase inversion
47. Upon voltage restoration, the meter must return to normal operation in 5 seconds at maximum.
48. The electronic meter must be consistent with EN/IEC 62053, EN 50470 with

regard to the overload and over-current requirements.

49. In case of continuous voltage loss, the meter non-volatile memory shall permit information retrieval after a period of 10 years without any auxiliary power supply.

Meter self-consumption

50. The energy consumption shall be according to EN / IEC 62052-11, EN/IEC 62053/21-23 for multifunctional meters.

51. Without the communications unit and the display backlighting the energy self-consumption shall not exceed the values specified in EN/IEC 62052-11 & EN/IEC 62053/21-23.

Auxiliary Supply - Memory

52. The auxiliary supply shall provide power and to the real time clock (R.T.C).

53. The meter shall be capable for operation of the internal clock (R.T.C) for three years at least without the meter being connected to the network.

54. The billing values of the meter must be preserved in the meter memory for at least ten (10) years.

REGISTERS

Energy registers

55. The meter shall be provided with at least six (6) tariff zones with the corresponding incoming and outgoing energy registers.

56. The meter must record in the respective register the energy according to its direction per element.

Historical data registers

57. The control of the integration period shall be performed by the internal calendar clock of the meter in configurable days and hours.

58. The counter should store at least the last 12 resets in its memory and display the last 4 resets.

Instantaneous information

59. The registers for the measured quantities shall be updated at least every second.

60. This information shall be available to be shown on the display or to be registered as events.

Diagnostic functions

61. The electronic meter shall perform a diagnostic check of its circuits each time it is placed under voltage, after every voltage outage and at regular time intervals.

62. In case an error is detected, a corresponding failure message, which can be read by the optical head and via telemetering, shall be displayed on the meter display with specific obis code.

63. The meter will send last gasp message to the Telemetering System in case of voltage outage lasting at least 30 sec. In the meter, the minimum voltage outage time can be programmed (from 10 to 30 sec.) in order for the meter to send last gasp message. Furthermore, when the voltage is restored, the meter will send «First Breath» message to the Telemetering System within 2 min. from the voltage restoration.

Definition of Tariff Zones

64. The definition of the meter's tariff zones shall be performed through appropriate meter programming.
65. The tariff zone switching shall be performed through the internal time switch.

66. It must have two TOU (active & passive) which will have the ability to switch via a command of the Central System and the softwares p rovided.

Time Switch / Calendars

67. The meter must be equipped with a calendar time switch for changing tariff zones and determine the end of the billing period.

68. The clock mechanism shall be high precision Quartz (<5 ppm deviation ±20%).

Real Time Clock (RTC)

69. The clock shall provide all required timings for the proper operation of the meters.

70. The calendar shall support leap years and automatic daylight saving time adjustment with the possibility of its abolition, according to the European standard.

71. When synchronization is performed by internal crystal, the achieved accuracy shall be greater than 5 ppm (deviation ±20%).

72. The meter shall be capable for synchronizationwith telemetering system.

DISPLAY

73. The display shall be able to display information, as referred to the paragraph "Display readings", in two rows.

74. The information shall be read based on CENELEC methods and standards. The decimal digits, the units, the multipliers, the content and the display sequence shall be defined through programming.

75. Similarly, the list content and the display sequence shall be defined through programming.

76. The meter display must be visible from a distance of 1m below and 0.75m horizontally from the front side of the meter (observation angle 30°). All screens shall be visible under low lighting conditions.

77. The meter display shall operate with the button of readings scrolling even when the meter is not under voltage.

78. The date display type shall be user-definable as follows:

- dd/mm/yy

79. The meter display shall support automatic information scrolling with configurable scrolling time (range from 5 sec to 60 sec at steps of 5 sec) and manual readings scrolling via button. The two ways of information scrolling shall have independent information entry.

Display readings

80. The meter shall store in its memory and shall be programmable which of the following information shall be shown on the display:

- Units: kW, V, A, with 3 integers and 2 decimals digits
- Units kWh, kVarh, kVA, with 6 integers and 2 decimals digits
- At least the recent 4 historical registers (energy & power)
- Meter serial number (up to 12 digits)
- Current date and time
- Active Tariff zone / calendar information
- Status of the load switch
- Error indication
- Covers tampering indications
- Communication link status indication
- Mobile network power indication

LOAD SWITCH

81. The load switch shall not require maintenance throughout the meter's lifecycle.

82. The load switch must have a lifecycle of at least 10,000 switching operations under nominal load with unit power factor.

83. The load switch shall be adjustable relative to the power of the customer's supply.

84. The load switching capability shall be according to IEC 62055-31 UC2.

85. The state of the load switch (connection/disconnection) is modified only

following a relevant command in one of the following operation modes:

1. Local operation: authorized utility personnel can turn on or turn off the load switch on-site. In this operating mode, remote disconnection is possible, but remote connection is not.
2. Remote operation: During this operating mode, local operation (on-site disconnection and connection) is not allowed, while it is possible for remote connection and reconnection of the load switch.

86. The operating mode of the load switch shall be able to change remotely or through the optical head from "Local operation" to "Remote operation" and vice versa.
87. The default operating mode of the load switch when delivered must be "Remote operation".
88. For reconnection, when the load is disconnected (i.e. disconnection due to debt), consumer actions are required, similar to the following procedure:
    a. The central system transmits a command enabling the meter to reconnect.
    b. Consumer opens (OFF state) the mains switch of the internal electrical installation, which is detected by the meter.
    c. Subsequently, the consumer closes the mains switch (ON state).
89. During a power outage, the load switch must be kept in the same position as before the power outage.
90. After power restoration, the load switch must be kept in the same position as before the power outage.
91. The state of the disconnection switch shall be remotely readable and any change must be registered in a special file (log file).
92. Load Curtailment: The meter shall permit remote setting of load limits, at a defined value, through the central system and the provided software.
93. To have the 7 operate modes (disconnect control IC), described in the corresponding chapter of DLMS/Blue Book.

COMMUNICATION PROTOCOL

94. The meter shall be fully compatible with the communication protocol DLMS/COSEM (Application Protocol) EN / IEC 62056.
95. It shall be possible to use the DLMS/COSEM for communication with the meter through every channel, like the optical head port, or the communication port.
96. The meter manufacturer shall submit the codes of the objects used (according to DLMS/COSEM), together with the meter technical data.
97. The meter must have a High Level Security for all its available two-way communication ways:

i. Client-server authentication via GMAC.

ii. Message encryption AES-GCM-128.

iii. At least 3 security access levels available.

iv. Highly configurable object oriented security system based on DLMS/COSEM security suite 0.

98. All above must be documented by compliance certification according to DLMS User Association procedure (http://www.dlms.com/conformance/certificationprocess/index.html)

99. The meter must communicate smoothly/uninterrupted (either as master or as slave) with the Low Voltage electronic meters already installed in the HEDNO network, via the DLMS/COSEM communication protocol in case of a serial group of meters communication through the RS485 communication port.

ELECTROMAGNETIC COMPATIBILITY (EMC)

100. The meter shall comply with the following standards:

- Electrostatic discharge according to IEC 61000-42
- High frequency electromagnetic field according to IEC 61000-4-4
- Line transients according to IEC 61000-4-4
- Radio interference attenuation according to IEC/CISPR22 class B

HARMONIC DISTORTION 2-150 KHZ

101. The offered meter should satisfy tests regarding its tolerance to the influence of symmetric high frequency currents (range 2kHz - 150kHz), such as those produced by photovoltaic inverters.

Successful test results of the offered meter should be proved by the respective test certificate or test protocol issued by an accredited and certified by EN ISO / IEC 17025: 2005 test laboratory.

Meters must comply with the Test Procedure as defined in the technical report of CENELEC CLC / TR 50579 or in EN 50470.

COMMUNICATION INTERFACES

102. The electronic meter shall be equipped with a communication port RS485 with terminal of a type terminal strip with screws.

103. The electronic meter shall be capable of communicating via RS485 communication port, with a device that supports DLMS / COSEM (eg. Meter, external modem) for telemetering – parameterization.

104. The communication unit shall be powered directly from the meter, without any external power supply.

105. The communication interface RS485 shall support communication with data transfer rate from 9.600 – 19.200bps at least.

106. The communication port shall be capable to support serial communication of a group of meters, as defined above, when a MODEM is installed in one of these meters (named head meter) and the rest of the meters shall be in series connected with the head meter, using the RS485 communication port (terminal of a type terminal strip with screws), with appropriate addressing (Physical Address: the number 1000 will be added to the last 4 digits of the serial number), and be capable for telemetering.

107. The communication port shall be in a protected point of the meter with the possibility of sealing, not accessible by unauthorized personnel.

108. Access to the communication port must be protected with a tampering event logging feature.

109. The meter must also have a P1 port with an RJ12 connector according to to Dutch Smart Meter Requirements (DSMR) and the DSMR P1 Protocol (DSMR P1 Companion Standard, February 26th, 2016, Version: 5.0.2), for the interconnection between meter and the customer's device for monitoring metering data.

110. Port P1 will be able to be activated / deactivated by the central system.

PROFILES RECORDING

111. Meters must be capable of load profiles recording for the following quantities:

- Incoming – Outgoing active energy
- Incoming - outgoing active real power (average)
- Incoming – Outgoing reactive energy
- The three voltages and currents (average).

The above load profiles must record and display the code of critical events in the corresponding completion period.

112. Integration period duration shall be programmable from 5 to 60 minutes (5, 10, 15, 20, 30 and 60).

113. For integration period of 15 minutes, the above profiles data shall be stored for at least the last sixty (60) days.

114. Internal memory shall be non-volatile for a minimum preservation time of 10 years.

TAMPERING EVENT LOGGING

115. The meter shall have the capability, via appropriate devices and parameterization, of detecting and logging at least the following events, of potential attempt for tampering the meter while in normal operation under voltage, and also when it is not under voltage (each event individually), by logging the time (date and hour) of appearance and disappearance of each event:
    - strong DC magnetic field influence
    - terminal cover removal
    - communication unit (modem) cover removal
    - tampering/ any form of removal of the metercover

POWER QUALITY MONITORING

116. The meter shall have the capability, via appropriate parameterization for the definition of the measured quantities thresholds, of logging at least the following events (each event type individually), by logging the time (date and time) of appearance and disappearance of each event:
    - under-voltage (phase to neutral)
    - over-voltage (phase to neutral)
    - over-current (phase)
    - power-down
    - power-up
    - incorrect phase sequense

METER HEALTH MONITORING

117. The meter shall have the capability to detect and log the following events:
    - Low level of auxiliary supply
    - Meter error malfunction code
    - Meter reprogrammed status/feedback
    - Meter communication complete
    - Load control switch state change

REGISTRY OF EVENTS – ENERGY QUALITY – METER OPERATION

118. All the tampering events, the energy quality data and the meter operational state, will be registered in 2 obis codes, one for the active and the other for the previous states.
119. Deleting previous states will be only feasible remotely through the provided

softwares and the Telemetering System

REMOTE CONFIGURATION AND FIRMWARE UPGRADE

120. The electronic meter shall be capable of local and remote configuration.
121. Firmware for the electronic meter shall be capable of being deployed remotely via the selected communication method.
122. Changes in firmware or configuration shall be acknowledged by the meter via communication with the central system.
123. Firmware upgrades for the electronic meter shall be validated upon sending (local or remote) and shall be able to be held inactive until activation at a certain future time.

TESTS

DEFINITION OF TESTS

- **Type Tests**

All tests intended to identify the type characteristics of the meter in order to prove the compliance with the requirements of the relevant standards/regulations that these characteristics are required to comply with.

- **Series tests**

Tests performed on new meters to ensure that they comply with the results of the above tests or to prove that the batch meets the specialized general and specific requirements of the relevant specification.

- **Acceptance tests**

Sampling tests performed on a batch of meters prior to delivery for the purpose of making a decision regarding the acceptance or rejection of the batch.

124. All tests shall be performed as described in each relevant and most recent issue of the IEC standards.

Sample tests (acceptance tests)

125. Sampling tests for acceptance during the acceptance check are all the tests specified in IEC EN 62058-31.
126. The sampling procedure for the tests shall be according to IEC 60410 using the following criteria:
    - Test level II table I, IEC 60410.
    - Simple or double sampling (tables II and III, IEC 60410).
    - Acceptable quality level A.Q.L. = 1 for each separate test.

METERS PARAMETERISATION

127. The meters shall be delivered programmed with the parameterization and the

firmware that will be proposed and agreed by HEDNO, during the sample approval procedure, before the starting of the series production of the meters.

128. The meters shall be delivered with the real-time clock (RTC) programmed at the local time in Greece.

METERS' READING/PARAMETERISATION SOFTWARES

129. The manufacturing House shall provide to HEDNO:
    a. software for onsite and remote reading, full and partial parameterisation of the meters.
    b. software for automated mass (onsite and remote) full and partial meters' parameterization and firmware upgrade.

130. Supported software communication methods shall include:
    a. Commucation via the meter's local ports (optical /IR port, port RS485 etc).
    b. Communication via meter's modem from PTSN call, GSM and connection to HEDNO VPN network.

131. Softwares shall operate on Microsoft Windows 10 and later, at 32 & 64 bit editions and shall be user friendly, e.g. by using predefined scripts for the execution of the above changes and suitable file with the meters' communication data (e.g. telephone number, identification number ID and MAC address of the meters).

132. Softwares shall support at least the communication protocols DLMS and IEC 62056-21.

133. Softwares with user instructions in greek or in english shall be provided for testing and evaluation.

- **Software for onsite and remote reading, full and partial parameterisation of the meters**

134. The software shall reflect in real time, in chart and values at the same time, all the voltages, the currents, the angles between them, the values of apparent, real and reactive power per phase with positive or negative sign. Data refresh time must be less than 15 seconds.

- **Software for automated mass onsite and remote, full and partial meters' parameterization and firmware upgrade**

135. The software shall be capable of mass importing the meters to be processed and their communication data, from a file in MS excel or TXT or CSV format, and upon parameterization shall be capable to export the file with the parameterization results, in a compatible MS excel format.

136. The actions of changes and their results (e.g. group of tasks) will be automatically logged and stored in a corresponding log file of the software in plain text format.

137. In addition to the Software for automated mass onsite and remote full and partial meters' parameterization and firmware upgrade, the functions should also be possible from the central system of the ZFA-F type Telemetry Center of the German company Sagemcom ITF-EDV Froeschl, with appropriate configured driver.

GUARANTEE

138. The meters and the firmware shall be accompanied by five (5) years warranty from their delivery date.

SPARE PARTS

139. The suppliers shall guarantee the availability of spare parts for a period of 5 years after the end of the warranty period.

140. The suppliers are required to submit, together with their bid, a price list for the necessary spare parts.

OPERATING INSTRUCTIONS

141. Bidders shall submit in their offers, the operating instructions manual of the meters.

PACKING

142. The meters shall be placed, carefully packed, inside protective cardboard.boxes.

143. The cardboard boxes shall be placed on EU palettes to facilitate transport.

144. These boxes shall be externally and indelibly marked with the Contract number, the material Code and the Manufacturer's Data.