THESSALONIKI PORT AUTHORITY
SOCIÉTÉ ANONYME
(THPA S.A.)
S.A. Reg. No.: 42807/06/B/99/30
GECR No. 58231 004000
SEAT THESSALONIKI

Thessaloniki 07.01.2019

Ref. No.:139/9.1.2019

CALL FOR OPEN TENDER

(TED 022/2019)

FOR THE SUPPLY AND INSTALLATION OF OUTDOOR MEDIUM VOLTAGE SUBSTATION 6ΣΤ

TENDER PROCEDURE SUMMARY DOCUMENTATION

OPEN TENDER	
ECONOMIC OPERATOR	**THESSALONIKI PORT AUTHORITY SA** Main activity: Port services Address: Inside the Port of Thessaloniki GR 54012 Thessaloniki Tel.: + 30 2310593121, Fax: +30 2310510500 Email address: secretariat@thpa.gr Website address: http://www.thpa.gr
Tender closing date	**23.1.2019**
Final date to submit clarification requests	**17.1.2019**
Award criterion	Most economically advantageous offer, based on cost alone (Lowest Price)
Estimated procurement value	**€420,000 (plus VAT)**
Contact persons for information / clarifications	**On the tender procedure** Name: Chrysanthi Athanasiou E-email: cathanasiou@thpa.gr Phone: +30 2310 593360,363 **On technical issues** Name: Dimitrios Tsitsamis E-mail: dtsitsamis@thpa.gr Phone: +30 2310 593620

PART A: GENERAL & SPECIAL TERMS

ARTICLE 1 - Description of the Physical & Financial Scope of the Contract

1.1. Physical Scope

The object of this tender is the supply of a new outdoor Medium Voltage Substation 6ΣΤ to power the new refrigerated container deposit positions, as well as the de-installation and transport of the existing Substation 6Δ to a new location.

1.2. Financial Scope

The estimated project value is four hundred twenty thousand euro (€420,000), plus VAT. This amount includes the procurement, installation, connection and commissioning of the equipment, as well as the works related to moving the existing Substation to a new location.

1.3. Award Criteria

The contract shall be awarded according to the criterion of the most economically advantageous offer, based on cost alone (lowest price), provided that the requirements of this tender notice are fulfilled.

ARTICLE 2 - Eligibility - Quality Selection Criteria

2.1 Eligible Tenderers

2.1.1. Eligible to participate in the conclusion of this contract are the natural or legal persons and, in the case of an association of economic operators, their members that perform professional activities relevant to the object of the tendered services.

2.1.2. The participants must:

- Not be in a state of bankruptcy, liquidation or compulsory receivership.
- Not be convicted by means of a final judgement for the offences listed below. In the case of Limited Liability Companies and Limited or General Liability Partnerships, this requirement refers to the Administrators. In the case of Société Anonymes, this requirement refers to the Chairman and CEO. In all other cases, this requirement refers to the natural persons managing the company.
  a) Participation in a criminal organisation, as defined in Article 2(1) of Council Joint Action No. 98/773/DEY.
  b) Bribery, as defined in Article 3 of the Council Act of 26 May 1997(21) and Article 3(1) of Council Joint Action 98/742/KEPPA.
  c) Fraud within the meaning of Article 1 of the Convention relating to the protection of the financial interests of the European Communities.
  d) Money laundering, as defined in Article 1 of Council Directive No. 91/308/EEC, on the prevention of the use of the financial system for the purpose of money laundering.

e) Embezzlement (article 375 of the Criminal Code)

f) Fraud (article 386-388 of the Criminal Code)

g) Extortion (article 385 of the Criminal Code)

h) Forgery (article 216-218 of the Criminal Code)

i) Perjury (article 224 of the Criminal Code)

j) Bribery (article 235-237 of the Criminal Code)

k) Bankruptcy fraud (article 398 of the Criminal Code)

2.1.3. The associations of economic operators, including any temporary partnerships, are not required to assume a specific legal form in order to submit an offer. The selected Joint Venture or Association of Suppliers may be required to assume a specific legal form to the extent that the specific legal form is necessary for the proper execution of the contract.

2.1.4. When a bid is submitted by an association of economic operators, all its members are liable against the contracting authority, jointly and severally.

2.2 Technical & Professional Skill

The participants must cumulatively meet the following minimum requirements of technical and professional skill:

- ✓ They must have know-how and experience in the execution of similar contracts, and more specifically, previous experience in the supply, installation and commissioning of at least ten (10) MV transformers, rated 1000kVA and above, in the last three years.
- ✓ They must have an Electrical Engineer with a professional license.

In cases of company partnerships, company associations or joint ventures, it suffices that one member fulfils the criteria of articles 2.2

ARTICLE 3 – Proof of Fulfilment of the Participation Criteria

In order for the participants to demonstrate that they meet the respective selection criteria of *article 2, Eligibility - Quality Selection Criteria*, they must submit along with their offer the following participation documents:

a) To prove their eligibility in accordance with paragraph 2.1:

- A certificate of registration to the corresponding chamber (domestic economic operators) and a similar certificate/approval/licence from the competent authority in their country of origin (foreign economic operators).
- A solemn statement by the economic operators that the grounds for disqualification defined in paragraph 2.1.2 do not apply for them and for their legal representatives, and that they have no reason to believe that these impairments shall apply during the offer validity period or any of its extensions.

b) To prove their technical ability in accordance with paragraph 2.2,

- A detailed table, according to the sample, of at least ten (10) similar projects (supply, installation and connection of transformers rated 1000 kVA or above at Substations), that the participant carried out in the last three (3) years (2016-2017-2018), accompanied by customer statements, if possible.
- A solemn statement where the tenderer shall determine the legally liable Engineer, who will be responsible for monitoring and supervising any construction, connection and coupling, accompanied by a copy of the Engineer's relevant licence to work on low and medium voltage electrical panels. The selected Engineer must co-sign the statement to show they have accepted the responsibility.
- Sample

No.	Customer	Brief project description	Project duration	Budget	Statement from or contact information of the Customer

c) To prove their lawful incorporation and representation, in the cases when the economic operator is a legal person, the legal establishment and lawful representation documents (such as articles of incorporation, certificate of changes, corresponding Government Gazettes, Board of Directors formal establishment in the case of SA, etc., depending on the participants legal form). The lawful incorporation, all the relevant amendments to the articles of association, the person/s that lawfully bind the company at the time of the tender (lawful representative, power of signature etc.), any third parties with representation authority, as well as their term and/or the term of the administrative body members/lawful representative must all derive from the aforementioned documents.

d) The economic operator associations submitting a joint tender, submit the supporting documents referenced in paragraphs (a) & (c) for each economic operator participating in the association.

e) In the case when an economic operator wishes to rely on the capabilities of other operators to prove it will have the necessary means at its disposal, it must furnish a relevant written commitment by these operators to this end.

NOTE: The Solemn Statements specified in this call for tender, if prepared by Greek citizens, must be in the form provided for in article 8(2) Law 1559/1986 and submitted by the interested natural persons or in the case of legal persons and depending on the legal status of the participating legal person: a) by general partners and administrators for general and limited partnerships or b) by administrators for limited liability companies or) by the legal representative for Société Anonyme (e.g. CEO) provided it is demonstrated by a Board of Directors Act published in a Government Gazette issue, where the relevant competence is stated.

ARTICLE 4 - Means & Time for Submitting Bids

Tenders are submitted by the economic operators during business days and hours, by no later than **23.01.2019** at 3:00 pm, in Greek, not subject to terms, requirements, conditions or prejudice.

Address for offer submission:

Thessaloniki Port Authority SA

(Administration Division - Secretariat Department)

Pier 1 (within the Port facilities)

GR 54012 Thessaloniki

After the tender closing date and time, it shall not be possible to submit tenders. Tenders submitted late shall be returned.

ARTICLE 5 – Tender extension, amendment, addition or annulment

THPA SA may proceed to take the following actions, without any liability, cost or penalty, following the decision of its competent body:

- Change the date and/or time specified as the tender closing date at any time prior to the completion of the procedure.
- Within four (4) to eight (8) days prior to the tender closing date, amend the call for tenders.
- At any time prior to or after the tender closing date, cancel the call for tenders, if the company requirements have changed significantly.

ARTICLE 6 – Clarifications on the Call of Tender

Clarification requests are submitted electronically at the THPA SA Procurement Department at cathanasiou@thpa.gr, by no later than 17.01.2019.

Clarification requests submitted in other forms shall not be reviewed.

The clarifications shall be posted on the THPA SA website www.thpa.gr.

ARTICLE 7 – Preparation – Content of Bids

The contents of the tender folder are defined as follows:

(a) one (sub)folder* marked "Participation Documents - Technical Offer" and

(b) one (sub)folder* marked "Financial Offer".

When the participants submit their tender, they note the included confidential information.

In all other respects, alternative offers, counteroffers or amended offers or any proposals that may be construed as counteroffers shall not be considered and shall be rejected by the THPA SA competent body, following the recommendation of the Tender Committee.

ARTICLE 8 – Bid Validity Period

The submitted offers must be valid for **one hundred twenty (120) days** from the bid closing date. Bids with a shorter validity period will be rejected **as unacceptable**.

The bid validity may be extended, if requested by THPA SA, before it expires, for a maximum period equal to the original bid validity period specified in the Call for Tender.

ARTICLE 9 – Contents of (sub)folder "Participation Documents - Technical Offer"

9. 1. Participation Documents.

The economic operators submit the relevant information and supporting documents to participate in the tender, which include:

- A solemn statement whereby Candidates declare that they have been apprised on the special terms and requirements of the Tender Object and unreservedly accept the terms of the Tender Notice.
- The documents specified above, in Article 3 - Proof of Fulfilment of the Participation Criteria

9. 2. Technical Offer

The Technical Offer must comply with all the requirements and specifications set out by THPA SA in Part B herein and describe in detail how said requirements and specifications are met. It specifically includes the documents and supporting evidence according to which the eligibility of the offered services is going to be evaluated, based on the award criterion, per the detailed requirements of Part B.

ARTICLE 10 – Financial Offer

The Financial Offer is prepared based on the award criterion referenced herein (lowest price) and must:

a) Define the total offered price in Euro, including the procurement and the provided services, VAT not included. (The economic operators must provide a break-down for the cost of the equipment and services in their financial offer)

b) Indicate the offer validity period, in accordance with Article 8 of this Tender Notice.

c) Indicate the project implementation time, in accordance with Article 14.2 of this Tender Notice.

d) Indicate the warrantee period, which cannot be less than one (1) year.

e) Be signed by the lawfully authorised representative of the participating economic operator.

Note that offers which do not include the group of 7 Pillars of 8 outlets shall be accepted. Offers that include all the specified equipment shall have an advantage over the rest.

In all other respects, alternative offers, **counteroffers** or amended offers or any proposals that may be construed as counteroffers shall not be considered and shall be **rejected** by the THPA SA competent body, following the recommendation of the Tender Committee.

ARTICLE 11 – Language

The official language of this procedure is the Greek language and any bids and information included therein must be prepared in Greek or be accompanied by an official Greek translation. With regard to foreign public documents, the Hague Convention of 5 October 1961, ratified by Law 1497/1984 (A' 188) is applicable.
Note that the dominant phrasing is always the Greek one.

ARTICLE 12 – Bid opening & Evaluation

Bids shall be opened, without the presence of the participants, at a reasonable time after the bid closing date.

Bids shall be evaluated by the appointed Evaluation Committee.
During the evaluation, the committee addresses requests to the participating economic operators to provide clarifications on the submitted supporting documentation and the economic operators must provide the clarifications within the specified deadlines, as the case may be.
The tenderers are informed whether their bid has been accepted or rejected.

ARTICLE 13 – Contract – Amendments

After the outcome of the tender is notified, a contract is signed between THPA SA and the selected company.
The contract may be amended during its term of validity, without the need for a new contract conclusion procedure, following an agreement between the two parties.

ARTICLE 14 – Special Terms of the Project

14.1 Performance bond

To sign the contract, the Contractor must submit a Performance Bond, the amount of which is defined as up to 5% on the contract value, not including VAT, delivered before or upon contract signing.
The performance bond shall be forfeited in the case where the terms of the contract are violated, as specifically defined.
The performance bond shall cover the implementation of all contractual terms and requirements of THPA SA against the supplier, in their entirety and without discriminations.

14.2. Delivery - Installation

The Project shall be completed in two stages.
The Contractor must complete the equipment delivery, installation and connection, **except from the transformer**, within 60 days from signing of the contract, at the latest. The time for the installation connection works must not be more than 10 days.

The transformer installation and connection must be completed within 135 days from signing of the contract, at the latest.
Offers indicating longer lead-times shall be **rejected**.
The days of delay due to THPA SA omissions are not counted in the lead-time.
Note that the equipment shall be installed during business days and hours under the supervision of the legally liable Engineer of the Contractor, in coordination with the THPA SA Monitoring and Acceptance Committee. The Monitoring and Acceptance Committee shall address any technical issues arising during the contract execution to the legally liable Engineer of the Contractor.
In case the project is not completed on time, a 1% penalty on the contractual price shall apply for each day of delay, up to a maximum of 5%.

14.3 Equipment Performance Warranty

14.3.1 Performance warranty period

The minimum acceptable good performance warranty period is one (1) year, starting from the date of signing of the provisional acceptance protocol. During the warranty period the Contractor is responsible for the operation of the transformer and shall restore any damage or fault resulting from poor construction or defective materials.

In case the transformer is replaced, the warranty period shall be correspondingly extended.

14.3.2 Performance warranty bond

A Performance Warranty Bond, in the amount of **eight thousand euro (€8,000.00)**, with an expiry date sixty (60) days after the end of the performance warranty period shall be submitted after the project completion. The performance warranty bond shall be returned after the end of the warranty period and the preparation of the Final Acceptance Protocol, without remarks, by the THPA SA competent Committee.

In the case where the Contractor has not complied to their contractual obligations, the committee shall recommend to the competent THPA SA body to seize the Performance Warranty Bond, in all or in part.

14.4 Acceptance

14.4.1 Provisional Acceptance

The project shall be accepted by a competent committee of THPA SA employees, after successful completion of all inspections and tests. The committee shall then draft the relevant Provisional Acceptance Protocol.

After the Provisional Acceptance and drafting of the relevant Protocol, without remarks, the Performance Bond is returned to the Contractor.

14.4.2 Final Acceptance

Within a month from the expiry of the provisioned good performance warranty period, the acceptance committee shall draft the relevant Guaranteed Operation Acceptance Protocol, determining the Contractor compliance to the contract requirements. In the case of non-compliance, total or partial, on the part of the Contractor, the committee may recommend collecting, in all or in part, the Performance Warranty Bond.

14.5 Payment method – Withholdings

The procurement financing shall be included in the THPA SA regular budget.

An amount up to **forty per cent (40%)** of the total contract value, VAT not included, may be provided as an advance payment upon signing of the contract and against an Advance Payment Bond.

Final payment of the CONTRACTOR shall be effected within sixty (60) days from submission of an invoice to THPA SA and following the signing of the Provisional Acceptance Protocol by the competent THPA SA committee, without negative remarks.

14.6 Advance Payment Bond

In case of an advance payment exceeding the amount covered by the performance bond, the Contractor shall submit an Advance Payment Bond to cover the difference between the performance bond amount and the advance payment amount.

14.7 – Price Adjustment

The offered prices shall be considered **fixed and final,** and shall not be subject to any adjustments for any cause or reason, until the project is completed. For this reason, by signing this contract the Contractor explicitly, unreservedly and irrevocably waives all its rights with regard to any adjustment of the offered prices that might arise from other relevant provisions.

14.8 Supplier Obligations

During the Contract execution, the Supplier must fulfil its obligations in the areas of environmental, social security and labour law, established by the EU & national legislation, the collective bargaining agreements or any international provisions of environmental, social security and labour law.

14.9 – Subcontracting – Assignment

Subcontracting the contract execution is not permitted. The Contractor does not have the right to assign all or part of its rights and demands arising from this Contract or to proceed in any way to transfer, pledge or requisition them.

ARTICLE 15 – Dispute Resolution – Applicable Law

This contract is governed by the Greek and EU Legislation and any dispute that may arise between THPA SA and the Supplier, regarding the execution, implementation of or, in general, the relationships created with this contract, and until the warranty period of the contractual object expires, shall be settled by the competent courts in Thessaloniki.

PART B: TECHNICAL SPECIFICATIONS

EXPANSION OF REFIRGERATED CONTAINER POWER SYSTEMS

A. Object of the Project

The object of this project is the supply and installation of a new outdoor Medium Voltage Substation 6ΣΤ to power the new refrigerated container deposit positions, as well as the de-installation and transport of the existing Substation 6Δ to a new location.

B. Scope of the Supply

The project includes the supply and installation of the following material:

No.	Description	Minimum Quantity
1	Control panel extension of the existing Substation 6A, to power the new 6ΣΤ 2x1000 kVA Substation.	**1 piece**
2	Medium voltage cable, 2XSY 1X50mm², supply and installation in existing trench	**~2200 m**
3	Supply, transport, installation and connection of termination boxes	**14 pieces**
3.1	Law Voltage main switchboard, with an automatic circuit breaker and 17 feeders for existing Sub-switchboards.	**1**
3.2	Junction box (pillar) 17 switchboard feeders (old or new type).	**1**
4	New outdoor prefabricated substation 6E 2x1000kVA (see description)	**1**
5	Power interconnection with the new outdoor 6E 2x1000kVA substation for twenty (20) new outlet switchboards.	**1**
6	Moving and commissioning of Substation 6Δ at new location.	**1**
7	Pillars 8 safety outlets 32A 480VAC Safety-interlocked Power Outlet *[1]	**20**
8	Supply and installation of all the electrical and other equipment not specified which is necessary for the operation of the New Substation and the commissioning of the relocated substation.	

1. Supply, transport, installation, connection and commissioning of one (1) SM6 DM1-S MV Cubicle (extension of the existing Substation 6A MV switchboard) to power the new 6ΣΤ 2x1000kVA substation.

The new cubicle shall be installed next to an existing MV switchboard of the Substation 6A (**Container Terminal**) that is already in operation and shall be an extension of said substation. Therefore, to manufacture/select the offered switchboard, the dimensions of the existing switchboard cubicles must be taken into consideration so that the entire installation is uniform.

On (1) SM6 DM1-S cubicle, measuring: W x D x H: (750 x 1220 x 1700) mm, including

- Copper busbars 630A
- Disconnector 24kV, 630A, 16 kA/1 in common housing with earthing switch, mechanical interlocking between switches and with the door, SF6-filled, with manual CS operation, safety key at ON position (coupled with the SF1 automatic circuit breaker)
- Automatic circuit breaker, SF6-filled, type SF1 24kV, 630A, 16 kA/1 with manual RI operation, auxiliary position contacts and shunt trip 230V AC.
- Three (3) toroidal current transformers CRa 200/1A

[1] ***Inability to offer the specific pillars does not constitute grounds for disqualification of the tenderer for the rest of the tender items.**

- A secondary protection relay SEPAM S10B, providing the following protection 50/51, 50N/51N.
- Cable earthing switch, with manual operation, mechanically interlocked with the above earthing switch.
- Three capacitor voltage dividers, with the corresponding light indicators.
- Suitable sockets to connect power cables.

2. Medium voltage cable, 2XSY 1X50mm², supply and installation in existing trench

Supply, transport and installation inside and existing trench of two thousand two hundred **{(3+1)x550=2200} meters of Medium Voltage Cable** 2XSY 1x50mm^2 to power the new Substation 6ΣΤ 2x1000 kVA, from the new extension cubicle DM1-S for the Medium Voltage Panel of the existing Substation 6A, as well as to power the relocated existing Substation 6Δ from the new Substation 6E 2x1000 kVA.

Attention!

Any excavations, backfilling, slab or brick work and medium voltage cable routing net, sand and generally any civil engineering works are the responsibility of THPA SA and are not included in this offer.

3. Supply, transport, installation and connection of termination boxes:

Supply, transport, installation and connection of fourteen (14) outdoor termination boxes, dry-type, 24kV, 50mm^2

Specifically:

1. Four (4) for the new DM1-S extension of the Medium Voltage Panel of the existing Substation 6A.
2. Four (4) for the incoming medium voltage SDC unit for the new Substation 6ΣΤ 2x1000kVA.
3. Three (3) for the new outgoing SFC unit for the new Substation 6E 2x1000kVA to power the relocated existing Substation 6Δ.
4. Three (3) for the incoming unit of the relocated Substation 6ΣΤ 6Δ.

3.1 Law Voltage main switchboard, with an automatic circuit breaker and 17 feeders for existing Sub-switchboards.

- De-commissioning of the old/existing 1250A switchboard for the existing outlet switchboards.

- Supply, transport and installation of one (1) new Low Voltage Panel with a main Circuit Breaker 1250A and seventeen (17) feeders, 250 A each.
  Specifically:
  - Law Voltage Electrical Switchboard with independent front-access doors IP65, form 2b, with type and series test certificates per **EN61439-1-2 / IEC 61439-1-2** (*system pro E power ABB*)
  - One (1) Main Automatic Circuit Breaker 3x1250A 50kA (*T7S **ABB***)
  - Three (3) current transformers 1250/5A
  - Three (3) voltage indicator lights
  - Network analyser, embedded RS485 (*M2M LV ModBus ABB*)
  - Seventeen (17) automatic circuit breakers 4x250A (configuration 100...250A), 50kA, electronic protection unit ((*XT4S Ekip ABB*), with earth leakage or REC Select, undervoltage release, auxiliary contacts (3Q) and remote-control motor.
  - Seventeen (17) electronic time relays (*CT-MFE ABB*) to work with the above switches.
- Supply, transport, installation, routing via the ducts of an existing trench and connection of **17x100x4=1700** meters of low voltage cable, 50 mm^2, to interconnect the above electrical panel 1250A with the new Junction box (pillar) 12 switchboard feeders (old or new type) and new wiring for 5 new sub-switchboards.

Note that all cable quantities are estimated. The tenderers must visit the facilities to form their own opinion on the works and quantities involved.

3.2 Junction box (pillar) 17-switchboard feeders (old or new type).

- Supply, transport, installation and connection of one (1) new Low Voltage Panel Junction Box 17-switchboard feeders (old or new type), at the low voltage panel of the existing Substation 6Δ, where there are cables going to the existing sub-switchboards, and interconnection with the new outgoing cables from the new 17-feeder Main Low Voltage Switchboard that will be installed in Substation 6A (see 3.1)
  Specifically:
  - Special metal structure, IP65, pillar type, from galvanized sheet metal, 2mm thick, electrostatically coated, with two (2) access doors (front and back) on the inside.
  - Standardized metal enclosure (inside the above pillar), IP55, Rittal TS8, with hinged inside access door and removable external back.

- Two (2) copper busbars shall be installed inside the enclosure, with suitable lower profile for the earthing (PE) and neutral (N) terminals and 17x3 = 51 pcs phase terminals of suitable dimensions. The terminals shall not be mounted on the enclosure solid back but on independent metal plates, placed vertically in the middle of the enclosure, so they can be accessed from all sides.

- Cables shall pass through a suitable gland box before entering the switchboards.

Attention!

Any excavations, piping, backfilling, sand and generally any civil engineering works are the responsibility of THPA SA and are not included in this offer.

4. Supply, transport, installation, connection and commissioning of one (1) new Outdoor Prefabricated Substation 6E, rated 2x1000 kVA

4.1. General (see Annex)

The outdoor substation is divided into **four (4)** walk-in rooms

I. 20 kV medium voltage room

II. Dry type transformer rooms

III. 0.4kV low voltage room

Prefabricated base frame from IPE 160 or UNP 120.

Enclosure base, covered underneath with a trapezoidal galvanized steel plate

Three (3) axial fans and gravity venetian blinds controlled by corresponding thermostats (***2x3500 m³/h for the transformers and 1x3500 m³/h for the Low Voltage room.***

Access to the MV switchboard room shall be from an independent door, **(along the entire width of the enclosure)** with an external lock. The opening (**along the entire width of the enclosure**) shall permit removal of the Medium Voltage switchboard. The authorized personnel **shall walk into the compartment** to operate the switchboard.

Access to the LV switchboard room shall be from an independent door, (**along the entire width of the enclosure**) with an external lock. The opening (**along the entire width of the enclosure**) shall permit removal of the Low Voltage switchboards. The authorized personnel **shall walk into the compartment** to operate the switchboards.

Access to each transformer room shall be from independent doors on both sides, with external locks. The openings will be such to allow removal of the transformers.

- The lighting in each compartment will be activated when a door opens or with a suitable light switch.

- Air inlet grilles **with removable, washable filters (2 pieces per access door)**
- All metal parts of the Substation shall be grounded and four additional grounding terminals to connect to an equipotential loop. **{Galvanized grounding plate around each room}**
- Twelve (6+6) pieces of indoor termination boxes, dry type, 24kV, 50mm^2
- Medium voltage cable 2XSY 1x50mm^2
- Low voltage cable NYY 3, with suitable cross section per phase + 2//(1x240mm^2) neutral + Cu 2//(1x70mm^2) grounding

4.2. GENERAL TECHNICAL CHARACTERISTICS

Main Enclosure Body {additional reinforcement so it can be lifted and transported as is, without the need to disconnect/remove the transformer from the rest of the equipment }:

External galvanized frame, high rigidity, with profiles more than 2mm:

Galvanized base

Surrounding walls from thermal insulation polyurethane panels, 40 mm thick:

Roof from thermal insulation polyurethane panel, 50 mm thick

Mounting from the top

Surrounding horizontal drainage:

Internal partitions from polyurethane panels, 40 mm thick:

Enclosure frames:

Double-leaf entrance door with a safety lock: 6 pieces

Door stop mechanism 12 pieces

Enclosure floor:

Trapezoidal galvanized steel plate:

Sea plywood, 10 mm thick:

Final surface from single ***PVC sheet, without heavy duty joints***

Around the floor there shall be a white baseboard, 6 cm high:

Medium Voltage Switchboard Panel (medium voltage compartment)

4.3. General

The Switchboard shall have **ABB** equipment.

Standardized Medium Voltage modules (cells), ABB **UniSec** series, fully expansible, made from galvanized sheet metal. The front doors as well as the face covers shall be coated with **RAL 7035** paint.

UniSec air-insulated switchgear, class **LSC2A-PM** in terms of continuous operating loss, per **IEC 62271-200.**

The metal partitions between the busbars and cable compartments help increase safety and operational continuity.

The Medium Voltage switchboard must be in line with the following international standards:

IEC 62271-1 for the general applications

IEC/EN 62271-200 for the switchboard

- Continuous operating losses **LSC2A**
- Partitioning, PM class (metallic partitions)

IEC 62271-102 for the earthing switch

IEC 62271-100 for the automatic circuit breaker

IEC 60071-2 for the insulation coordination

IEC 60470 for the contacts

IEC 60265-1 for the load switches

IEC 60529 for the protection classes

4.4. ELECTRICAL CHARACTERISTICS

Rated voltage		kV	24
Test voltage (50-60 Hz x 1 min)	kV	50	
Impulse withstand voltage		kV	125
Rated frequency		Hz	50
Rated current, main busbar		A	630
Rated current, equipment:			
- GSEC switch disconnector (SF6)		A	630
Short-time withstand current	kA (3s)	16	
Rated peak current		kA	40
Internal arc withstand current (IAC **AFLR**)		kA (1s)	16

4.5. OPERATIING CONDITIONS

– Storage temperature:	–5 °C ... +70 °C
– Ambient temperature range:	–5 °C ... +40 °C
– Maximum relative humidity without condensation:	95 %
– Minimum relative humidity without condensation:	5 %
– Altitude:	<1000 m from sea level

4.6. DEGREE OF PROTECTION

The protection degree rating of the panel conforms to **IEC 60529.**

– IP 4X external housing (IP3X front-access switch)

– IP 2X compartment separation

– IP 3X mechanical equipment

4.7. DESIGN

All units shall be manufactured entirely out of pre-galvanized sheet metal. They shall be made up from various compartments, which are described in the following paragraphs. The busbar compartment shall extend along the entire length of the switchboard. All modules shall bear holes, so they can be mounted on the ground and suitable openings for the cables to pass.

All modules shall be equipped with an inspection door and window with mechanical locks, opening only under safe conditions.

4.8. PARTITIONING

Each unit is composed from different power compartments: cable, busbar and equipment compartments.

The compartments are metal, separated from each other by the switch disconnector. The units may be equipped with one auxiliary circuit compartment [7], which holds all the instruments and their cables.

4.9. MAIN BUSBARS

The busbar compartment holds the main busbar system, which is connected to the fixed upper disconnector switch contacts. The main busbars are manufactured from electrolytic copper Cu-ETP 99.90% **full radius edge,** with PVC insulation 630A.

4.10. EARTHING BARS

The earthing busbar 25x3 mm is manufactured from electrolytic copper Cu-ETP 99.90% **radius edge** and runs along the switchboard, whereas a flexible grounding conductor is installed on the door.

4.11. SWITCH-DISCONNECTOR

The equipment is housed in an enclosure fabricated from two materials:

the top part is made from sealed resin, to ensure the insulation level and the bottom part is made from stainless steel to ensure metal partitioning and earthing between the busbar compartments and the cables. This metal partitioning (***PM class*** *according to IEC 62271-200*) provides maximum safety *(class* ***LSC2A***) for the personnel, in the event of accessing the cable compartment to replace the fuses or check the cables, even if the busbars are live.

4.12. EARTHING SWITCH

Each incoming/outgoing unit shall be equipped with an earthing switch for cable earthing. The same device may be used to for earthing the busbar system. It may also be installed directly on the central busbar system in a special booth (busbar application). The earthing switch has a short-circuit making capacity (with

the exception of the fused unit). It shall be operated from the front of the panel and it shall be possible to determine its position from the front of the panel via a mechanical indicator.

The switchboard shall be composed from the following units (cells):

- One (1) incoming SDC unit from the existing Substation 6A
- One (1) outgoing SFC unit to the existing (relocated) Substation 6Δ 1000kVA
- Two (2) transformer protection unit SFC, Substation 6E 2x1000kVA

Incoming unit SDC

Includes:

DESCRIPTION	TYPE	MANUFACTURER	PIECES
SF6 SWITCH DISCONNECTOR	G-Sec/T1	ABB	1
Three-phase SF6 switch disconnector, three (3) position (line-open-earth) 24kV 630A 16kA(3sec) 50kV 125kVp, with mimic diagram and safety keys, auxiliary contacts 4+4 NO/NC, switch disconnector and earthing switch position indicator			
SURGE ARRESTER 21kV	PBP	ABB	3
21kV surge arrester, surge current rated 10kA, disconnector and relief valve.			
SET OF INDICATOR LIGHTS	VPIS	ABB	1
Voltage indicator set with three (3) lights			
THREE-PHASE VOLTAGE-SENSING RELAY			1
COMPARTMENT - LOW VOLTAGE EQUIPMENT BOX			1
Miniature circuit-breakers, terminals etc. necessary for the equipment operation			

Outgoing SFC unit to Substation 6Δ 1000kVA

Includes:

SF6 SWITCH DISCONNECTOR	G-Sec	ABB	1
Three-phase SF6 switch disconnector, three (3) position (line-open-earth) 24kV 630A 16kA(3sec) 50kV 125kVp, with mimic diagram and safety keys, shunt trip, auxiliary contacts and fuse bases, mechanical position indication, fuse blown auxiliary contacts *Earthing switch, mechanically interlocked with the switch disconnector and the unit door.*			
FUSE 24kV/...A	CEF 24-…	ABB	3
Medium voltage fuses, rated current....A and rated voltage 24 kV			
SET OF INDICATOR LIGHTS	VPIS	ABB	1
Voltage indicator set with three (3) lights			
LOW VOLTAGE COMPARTMENT			1

Transformer protection unit SFC (2 pieces)

Includes:

SF6 SWITCH DISCONNECTOR	G-Sec	ABB	1 +1
Three-phase SF6 switch disconnector, three (3) position (line-open-earth) 24kV 630A 16kA(3sec) 50kV 125kVp, with mimic diagram and safety keys, shunt trip, auxiliary contacts and fuse bases, mechanical position indication, fuse blown auxiliary contacts *Earthing switch, mechanically interlocked with the switch disconnector and the unit door.*			
FUSE 24kV/...A	CEF 24-...	ABB	3 +3
Medium voltage fuses, rated current....A and rated voltage 24 kV			
SET OF INDICATOR LIGHTS	VPIS	ABB	1 +1
Voltage indicator set with three (3) lights			
LOW VOLTAGE COMPARTMENT			1 +1

4.13. 1000 kVA Power transformer (transformer compartment)

MATERIAL DESCRIPTION	MANUFACTURER	PIECES
Dry type 1000kVA 20/0.4kV **IP00, AL/AL** Eco design (in accordance with the new European regulation on ecodesign) Transformer, with temperature sensors and monitoring system for alarm and disconnection. Must be accompanied by **F1**/ fire - **C2**/ climate - **E2**/ environmental & quality assurance **ISO 9001**	**SIEMENS, ABB, SCHNEIDER ELECTRIC, AEG**	**2**

I. General characteristics

Each transformer shall be 1000 KVA power, suitable for indoor installation, three-phase, dry-type, epoxy cast-resin insulation, air-cooled, with special composition aluminium or copper windings for resistance to high mechanical and electrical stress.

Moreover, they shall be moisture and fire resistant and shall not produce harmful or toxic gases of any type

They shall have transformer temperature control sensors, and shall be equipped with systems and instruments offering protection against overheating, overloading and any internal faults.

All materials used in the transformer construction shall be non-toxic and environmentally friendly.

The transformers to be supplied shall be new, recently manufactured by a recognised OEM, in accordance with International or European Standards (IEC, DIN etc.) and shall be accompanied by corresponding Certificates, referencing all of its characteristics.

Note that in this tender, the only transformers that will be accepted shall be medium voltage, dry type 20/0.4 KV, 1000 kVA power, manufactured by the recognized transformer manufacturers SIEMENS, ABB or SCHNEIDER ELECTRIC, AEG, to maintain uniformity with the existing installed THPA SA transformers.

Moreover, they shall bear a CE marking, as a sign of conformity with the directive in force, 548/2014. The marking shall be mounted on the transformer nameplate. The manufacturers is obligated to have a signed CE Declaration of Conformity.

II. Technical Characteristics

The basic electrical characteristics of the transformer to be supplied shall be as follows:

Regulations - Standards for short-circuit withstand strength VDE532, IEC 726, 761

Phases 3

Operating Frequency 50 Hz

Rated Power (KVA) 1000 kVA

Rated Primary Voltage 20kV

Rated Secondary Voltage	0.23/0.4 kV
Altitude of Operation Up to 1000 m	
Maximum Operating Voltage	24kV
Rated short-circuit current, 3 sec	40 kA (Zms)
Short-circuit Power	250 MVA
Cooling	AN
Vector group	Dyn5 or 11 with outgoing LV neutral conductor
Short-circuit voltage (at 75 °C)	6%
Maximum Ambient Temperature	40°C
Insulation Temperature Class F	
Copper/Iron Losses	per IEC 76.1
Taps (+/-)	2×2.5 %
Sound Pressure (LpA) (1m)	< 60 dB
Maximum Short-circuit Duration	>=3s

The transformer ratio shall be adjustable by +-5% minimum, in steps of +-2,5% with external operation (taps), i.e. -5%, -2,5%, 0, +2,5%, +5%. Both the transformer ratio and primary winding voltage shall be set by special switch plates, offload.

The transformer degree of protection shall be IP 00, suitable for indoor installation.

The transformer insulation temperature class shall be F, i.e. maximum allowed temperature increase per VDE 0532, part 12, Table 1.

In terms of climatic & environmental class, and fire protection, the transformer shall be: climatic class C2, environmental class E2 and fire behaviour class F1, respectively.

Transformer monitoring and thermal protection

In terms of the transformer protection against overheating, the accompanying winding temperature monitoring system shall be used on each phase, along with the accompanying sensors.

The thermal protection system installation (visual inspection and sound level test) shall be carried out inside the Substation low voltage compartment.

III. Rated Power

The transformer shall be manufactured to generate continuous rated current, under constant load and with no temperature rise, considering that the applied voltage is equal to the rated voltage and power supply frequency is the rated frequency.

IV. Core

The core shall be made of three parallel vertical limbs, connected by the yokes. The mechanical stress put on the coils by the core and vice versa shall be absorbed by suitable rubber vibration pads.

The core shall be high quality laminated steel, with low losses, insulated on both sides, protected from corrosion with a coat of varnish, manufactured by grain oriented cold rolling.

V. Windings

The transformer shall have two windings. The MV and LV windings shall be aluminium or copper. The winding characteristics are:

VI. MV Windings

These shall be independent from the LV windings and shall be manufactured from aluminium or copper wire (according to the manufacturer's preference), with class F insulation.

MV Windings shall be vacuum cast in fire-resistant epoxy resin casting system and shall be capable of withstanding temporary overload at a maximum temperature >1800C, without excessive material stress.

The casting system shall consist of:

- Epoxy resin
- Anhydrous hardener with flexibility additives
- Flame-retardant filler

The flame-retardant filler shall be carefully mixed-in with the resin and hardener. It shall consist of aluminium hydroxide or other flame-retardant agent, mixed with silica.

The product of the above process shall be Class F insulation.

VII. LV Windings

These shall be manufactured from aluminium or copper foils (according to the manufacturer's preference) and impregnated in polyester alkyd resin, to get Class F insulation.

The ends of the LV coils shall be coated with epoxy resin and the foil shall be protected by insulating material everywhere, even in-between layers.

VIII. Connections

MV Connections

The MV connections shall be made from above, on the top of the connecting bars. Each bar shall be drilled with a 13 mm hole, ready for connection. To create the MV triangle, rigid bars shall be used instead of cables, protected by heat-shrink tubing.

LV Connections

The LV connections shall be made onto bars located at the top of the LV coils, opposite the MV connections. The LV neutral shall be connected directly onto the neutral bar. The connection bars shall be manufactured from copper or tinned aluminium (according to the manufacturer's preference).

MV Taps

Taps shall be connected with copper bars, bolted on the corresponding taps.

IX. Transformer Accessories

The transformer will be equipped, at minimum, with the following:

Four (4) bidirectional rollers 4

Four (4) lifting lugs - pcs 4

Three (3) MV terminals, suitable for the cables in use - pcs 3

Three (3) LV terminals with bars and a neutral - pcs 3

Five-position off-load tap changer

Connecting cable rack

IP31 sensor cable terminal block

Haulage holes on the under base

Two (2) earthling terminals

Temperature control sensors

"DANGER ELECTRICITY" warning label

Transformer tap selector switch

Manufacturer's test certificate

Installation, commissioning and maintenance instructions

Transformer metal rating plate, including, at minimum, the following:

- Transformer type
- Manufacturer's name
- Serial Number
- Year and lot number
- Cooling type
- Number of phases
- Rated Power (KVA)
- Rated Frequency
- Rated Primary & Secondary Voltage
- Rated MV & LV Current (A)
- Vector group
- Number of taps
- Tap changing information

- Ambient temperature
- Temperature rise
- Noise level

- Impedance voltage at 75^0C
- Insulation class
- No-load losses
- Load losses
- MV & LV winding material
- Core weight
- Total transport weight

- The transformer shall be designed for continuous operation, delivering rated power output at 40^0C ambient temperature.
- Transformer losses (no-load and short-circuit), as well as impedance voltage shall be in accordance with DIN 42523/ IEC 60076.
- The transformer shall be manufactured so that the average noise level is below the permissible limits per DIN 42523/ IEC 60076-10:2001.

X. Drawings & Instructions

The transformers shall be accompanied by the following:

- General layout drawings that must show the transformer dimensions, weight and accessories.
- Transformer operating and maintenance instructions.
- Connection diagrams and operating protection drawings for temperature rise.

XI. Tests – Test Certificates

After the transformer is manufactured and before it is transported on site, it shall undergo type and routine tests, per IEC 60076 either at the manufacturer's plant or at an official, appropriate test laboratory (e.g. National Technical University of Athens).

After the transformer is transported on site and before it is installed, the contractor shall deliver to the supervising Office all the Reports / Certificates for the following tests:

A. Type Tests

- Temperature rise test
- Full impulse wave, followed by chopped wave tests.

As regards the Type Test Certificates, these shall apply to the plant's transformer products and not exclusively to the supplied transformer.

B. Routine Tests

- Measurement of windings resistance
- Measurement of the transformer ratio, polarity and vector relationship check
- Measurement of impedance voltage
- Measurement of no-load losses and no-load operating current at Rated Voltage
- Measurement of load losses
- Induced overvoltage test
- Applied voltage test with separate source
- Sealing test (macroscopic)

4.14. Low Voltage Switchboards (Low voltage compartment)

Low Voltage Main Switchboard No1 1600A & Automatic compensation 300kVAR (6x50)

- Law Voltage Electrical Switchboard with independent front-access doors IP65, form 2b,with type and series test certificates per **EN61439-1-2 / IEC 61439-1-2** (*system pro E power ABB*)
- One (1) Main Automatic Circuit Breaker 3x1600A 50kA (T7S *ABB*)
- Three (3) current transformers 1600/5A
- Three (3) voltage indicator lights
- Network analyser, embedded RS485 (*M2M LV ModBus ABB*)
- Ten (10) automatic circuit breakers 4x250A (configuration 100...250A), 50kA, electronic protection unit ((*XT4S Ekip ABB*), with earth leakage or REC Select, undervoltage release, auxiliary contacts (3Q) and remote-control motor.
- Ten (10) electronic time relays (*CT-MFE ABB*) to work with the above switches.
- Permanent compensation 50kVAR with an automatic circuit breaker 3x160/TMD125A 50KA
- Six (6) fuse disconnectors 3x160 with 125A fuse links, six (6) capacitor relays 50kVAR, six (6) 50kVAR capacitors, one (1) 12-step reactive power regulator, one (1) exhaust filter fan

Low Voltage Main Switchboard No2 1600A & Automatic compensation 300kVAR (6x50)

- Law Voltage Electrical Switchboard with independent front-access doors IP65, form 2b, with type and series test certificates per **EN61439-1-2 / IEC 61439-1-2** (*system pro E power ABB*)
- One (1) Main Automatic Circuit Breaker 3x1600A 50kA (T7S *ABB*)
- Three (3) current transformers 1600/5A
- Three (3) voltage indicator lights
- Network analyser, embedded RS485 (*M2M LV ModBus ABB*)

- Ten (10) automatic circuit breakers 4x250A (configuration 100...250A), 50kA, electronic protection unit ((*XT4S Ekip ABB*), with earth leakage or REC Select, undervoltage release, auxiliary contacts (3Q) and remote-control motor.

- Ten (10) electronic time relays (*CT-MFE ABB*), to work with the above switches.
- Permanent compensation 50kVAR with an automatic circuit breaker 3x160/TMD125A 50KA
- Six (6) fuse disconnectors 3x160 with 125A fuse links, six (6) capacitor relays 50kVAR, six (6) 50kVAR capacitors, one (1) 12-step reactive power regulator, one (1) exhaust filter fan

1. The switchboards shall be fully wired and tested, ready for operation, in accordance with **EN61439-1-2 / IEC 61439-1-2** for Low Voltage and **IEC 62271-200** for Medium Voltage.
2. Each switchboard (**Medium & Low Voltage**) shall be accompanied by CAD electrical schematics (EPLAN) and the corresponding **type and series test certificates**.

Attention!

Upon construction of the enclosure, the Contractor shall provide a drawing for the concrete base where the enclosure shall be installed.

Any excavations, backfilling, building materials, equipment and generally any civil engineering works are the responsibility of THPA SA and are not included in this offer.

4.15. Supply, transport, installation, connection and commissioning of one (1) grounding triangle

For grounding the outdoor Substation 6ΣΤ, 2x1000kVA, including the necessary material, connection and mounting components. In case the grounding resistance is more than 1Ω it shall be necessary to reinforce the grounding. The additional cost to meet this requirement shall be stated **separately** in the offer.

5. Interconnection of twenty (20) new Outlet Switchboards with the new Outdoor Substation 6E, 2x1000kVA

- Supply, transport, installation, routing by the ducts of an existing trench and connection of ~2000 *4= **8.000** meters of low voltage cable 50 mm^2 to connect the Low Voltage Main Switchboards. 1600A No1 & No2 (inside the Outdoor Substation 6E 2x1000kVA) with the twenty (20) new outlet

switchboards. *The new Sub-switchboards shall be installed by THPA SA and is not included in this offer.*

Attention!

Any excavations, piping, backfilling, sand and generally any civil engineering works are the responsibility of THPA SA and are not included in this offer.

Moreover, THPA SA shall be responsible for the supply, installation and mounting of the twenty (20) new outlet switchboards.

6. Moving and commissioning of Substation 6Δ to new location

In order to power the refrigerators at the new location the following works will be required:

1. Disconnection of the existing Medium Voltage Substation 6Δ

2. Transport of the Substation 6Δ to a new area, within the Container Terminal.

3. The Contractor shall provide a drawing for the concrete base where the enclosure shall be installed.

4. Connection of the Substation 6Δ to the outgoing SFC Transformer cell of the new Substation 6ΣΤ 2x1000kVA. (Medium voltage cable, 2XSY 1X50mm², supply and installation in existing trench)

5. Supply, transport, installation, connection and commissioning of one (1) grounding triangle

For grounding Substation 6Δ, including the necessary material, connection and mounting components. In case the grounding resistance is more than 1Ω it shall be necessary to reinforce the grounding. The additional cost to meet this requirement shall be stated **separately** in the offer.

6. Supply, transport, installation, routing by the ducts of an existing trench and connection of ~1300 *4=**5.200** meters of low voltage cable NYY 50 mm^2, to connect the existing Low Voltage Main Switchboard. 1600A (inside the Outdoor Substation 6Δ) with the eleven (11) existing outlet switchboards.

Note:

- The offer must include a detailed table of the offered materials, along with quantities, types and manufacturer details.
- Care must be given to the offered quantities as they are estimations. The delivery time for the transformers and all the other equipment/materials must be provided separately.
- The substation design, protection schemes etc. must be in accordance with the applicable law, and all drawings must be delivered in hard and e-plan soft copies.
- The project works shall begin as soon as possible, i.e. upon completion of the civil engineering works and following the advice of THPA SA.
- Upon contract signing, the Contractor shall immediately deliver the drawings to construct the base for the prefabricated substation kiosk.
- Since the lead-time for the transformers is long, the project shall begin with the installation of the new substation without the transformers, which shall be installed as soon as they are delivered by the manufacturer, so that it is possible to complete the relocation of Substation 6Δ.

7. Pillars with safety outlets 32A 480VAC Safety-interlocked Power Outlet

Supply of 20, 8-gang pillars, 32A, 480VAC Safety-interlocked Power Outlet by ESL POWER SYSTEM. (see Annex).

Please state the cost of each pillar separately.

Thessaloniki, ...01.2019

SOTIRIOS THEOFANIS

THPA SA BOD CHAIRMAN & CEO

ANNEXES
1 Technical characteristics of pillars
2. Existing substation
3 Installation location
4 Table of indicative distances
5 New outdoor substation drawing

ANNEX

Technical characteristics of pillars 1

10-Gang Reefer Outlet Pedestal Mount Assembly

32A 480VAC

(32A 380/440VAC per IEC 60309-1 & -2)

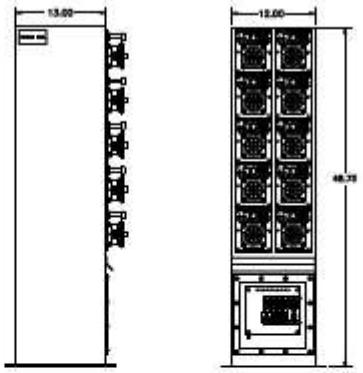
Catalog No: E10-R32-480-30-22SND-SP

Item No: 2219-65B

Features

- UL Listed 10-gang assembly complete with UL Listed safety-interlocked outlets each containing an integral 30A circuit breaker
- Type 4X enclosure manufactured from 14GA seam-welded stainless steel powder-coated texture gray (RAL7038)
- (10) safety-interlocked ESL 32A outlets #1700-56AN factory wired to power distribution block (PDB)
- UL Listed circuit breaker rated 22kAIC @ 480VAC provides short circuit & overcurrent protection at each outlet
- Each oultet's actuator rod allows user to turn on/off and reset tripped breaker
- PDB accepts incoming cable range of (2) #4 - 500kcmil per phase line side
- Gasketed bolt-on access cover with drip shield

Drawing



SIDE VIEW FRONT VIEW

Approvals

- ULc/UL Listed modules and assembly
- UL 489 Listed / CSA certified molded case circuit breakers

ESL Power Systems, Inc. | 2800 Palisades Dr. | Corona, CA 92880 | 800.922.4188 | +1.951.739.7000 | www.eslpwr.com | info@eslpwr.com

©2018 ESL Power Systems, Inc. All rights reserved

2219-65B

180309

Technical characteristics of pillars 2

Specifications

Catalog No: E10-R32-480-30-22SND-SP
Item No: 2219-65B

Ratings	
10-Gang assembly	300A 480VAC (440/480VAC 50/60hz) 3 phase 3 wire + ground, 22kAIC RMS symmetrical amps
Receptacles	32A 480VAC (380/440VAC 50/60 Hz) per IEC 60309-1 & -2
Circuit breakers	30A trip, 22,000AIC @ 480VAC, other trip and AIC ratings available - contact factory
Environmental	Type 4X/IP67
PDB terminals	Line side terminal accepts (2) #4 - 500kcmil per phase Ground terminal accepts (12) #14 - #4AWG
Materials	
Stainless steel	Enclosure, access cover, outlet frames, on/off rods, interlock mechanisms, contact terminal screws & springs, snap covers and all fasteners
Aluminum	PDB Lugs
Nickel plated brass	Contact sleeves
Rynite®	Receptacle insert
Polyamide	Receptacle housing
Buna-N (Nitrile/NBR)	O-rings, gaskets, cover seals
Approximate Weight	
Approx. weight	165 lbs.
Approx. shipping weight	175 lbs.

Replacement Parts

Description	Item No.	Description	Item No.
Safety-interlocked power outlet	1700-56AN	Circuit breaker	4020-01
Stainless steel snap cover assembly	1500-01	Ground sleeve kit	4016-03
Receptacle insert contact sleeve assembly	4010-75	Phase sleeve Kit	4015-01

ESL Power Systems, Inc. | 2800 Palisades Dr. | Corona, CA 92880 | 800.922.4188 | +1.951.739.7000 | www.eslpwr.com | info@eslpwr.com

©2018 ESL Power Systems, Inc. All rights reserved
2219-65B
180309

INTERLOCKED POWER MODULE

32AMP 480VAC

(32A 380/440VAC per IEC 309/CEE-17 3h)

Catalog No: R32-480-30-22SNDP-SP
Item No: 1700-56ANP

- 2-Piece Receptacle with High-Temperature, Heavy-Duty Rynite® Insert and Polyamide Receptacle Housing
- Heavy Duty Stainless Steel Construction Resists Corrosion & Abuse
- UL Listed Circuit Breaker Protects Operator & Equipment
- Neon Pilot Light Indicates 'Live' Receptacle
- Nickel Plated Brass Contacts & Unique Outlet Design Resists Corrosion & Arc Tracking

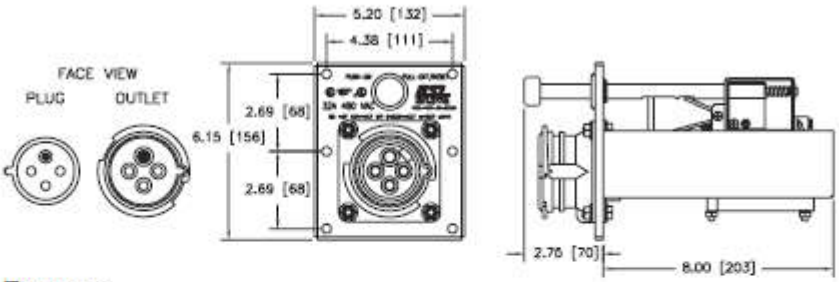
ESL Power Systems, Inc. • Tel: (951) 739-7020• (800) 922-4188 • Fax: (951) 739-7048 • www.eslpwr.com • info@eslpwr.com

©2007 ESL Power Systems
1700-56ANP

ESL POWER SYSTEMS

SPECIFICATIONS

Catalog No: R32-480-30-22SNDP-SP
Item No: 1700-56ANP



RATING:

Receptacle -	32A 380/440V 50/60 Hz (480V 60Hz USA) per IEC 309-2 (CEE-17 3h)
Circuit Breaker -	30A Trip / 22,000AIC @ 480VAC other Trip and AIC ratings available - Contact Factory
Environmental - (With Mated Plug or Screw Cover)	IP67 per IEC 529 / IEC 309-1 Type 4X capable per NEMA 250, UL 50/508, CSA 22.2
Terminals -	(3) Phase & (1) Ground pressure type screw terminal Phase: #10 - #2 AWG (2.5-10mm²) Wire Range Ground: #10 - #2AWG (2.5-10mm²) Wire Range

MATERIALS:

Stainless Steel -	Frame, On/Off Rod, Interlock Mechanism, Contact Terminal Screws & Spring, Snap Cover, Screw Cover Tether, and all Fasteners
Nickel Plated Brass -	Contact Sleeves
Polyamide -	Receptacle Housing, Screw Cover (optional)
Neoprene (CR) -	Gaskets, Cover Seals
Buna-N (Nitrile/NBR) -	O-Rings
Rynite -	Receptacle Insert

APPROVALS:

UL 489 Listed / CSA Certified Molded Case Circuit Breaker

ACCESSORIES / PARTS

Description	Item No.	Description	Item No.
• Stainless Steel Snap Cover Assy	1500-01	• Circuit Breaker	4020-01
• Screw Cover & Tether Assy (optional)	1500-15	• Phase Sleeve Kit (set of 3)	4015-01
• Receptacle Insert & Contact Sleeve Assy	4010-76	• Ground Sleeve Kit	4016-03
		• Pilot Light	4090-10

ESL POWER SYSTEMS, INC.
2800 Palisades Drive • Corona, CA 92880-9427
Tel: (951) 739-7020 • (800) 922-4188 • Fax: (951) 739-7048
www.eslpwr.com • e-mail: info@eslpwr.com

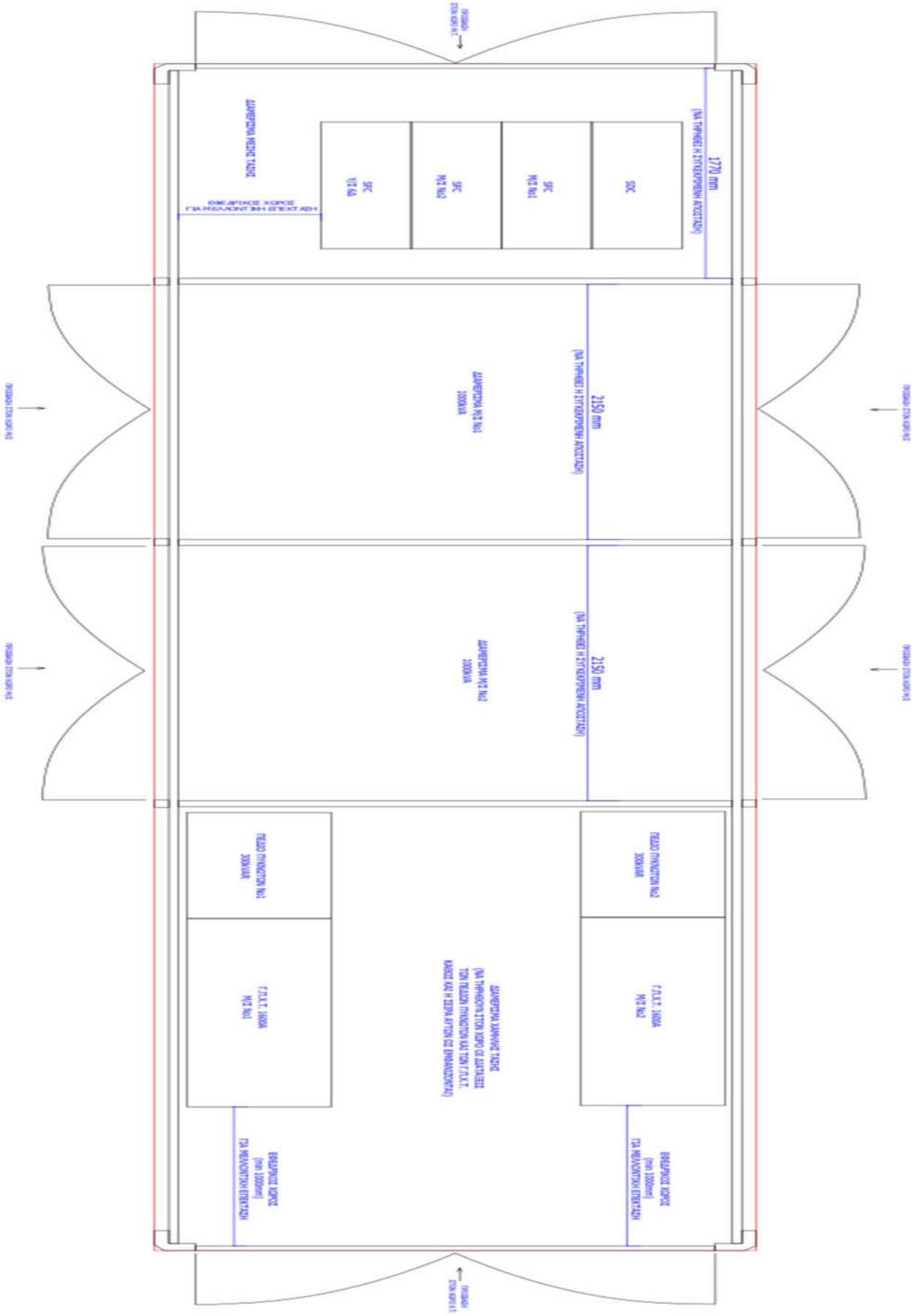
©2007 ESL Power Systems
1700-56ANP

1 Existing substation

New location of Substation 6Δ
New Substation ΣT
Moving of Substation 6Δ
A new switchboard shall be installed at that location to connect the existing pillars with Substation 6A
17 new LV cables
Substation ΣT
1000 KVA
Substation 6Δ
2000KVA
Substation 6Γ
1000 KVA
Substation6A
2500 KVA
88 plugs
160 plugs
80 plugs

Indicative distances			
From	***To***	***Distance***	***Routing***
Substation 6A	*Existing Substation 6Δ*	*80m*	*Transformer Cables (4x50 mm^2)* *LV Cables (17*4) $50mm^2$*
Substation 6A	*Last Pillar (greatest distance)*	*150m*	*LV Cables (17*4) 50mm2*
Substation 6A	*New Substation 6ΣT*	*320m*	*Transformer Cables (4x50 mm^2)*
New Substation 6ΣT	*Substation 6Δ- New Location*	*250m*	*Transformer Cables (4x50 mm^2)*
New Substation 6ΣT	*Last Pillar - right*	*70m*	*LV Cables (17*4) 50mm2*
New Substation 6ΣT	*Last Pillar - left*	*70m*	*LV Cables (17*4) 50mm2*
Substation 6Δ- Final Location	*Substation 6A*	*120m*	*LV Cables (17*4) 50mm2*

NEW OUTDOOR SUBSTATION



ANNEX

2 Existing substation

New location of Substation 6Δ
New Substation ΣT
Moving of Substation 6Δ
A new switchboard shall be installed at that location to connect the existing pillars with Substation 6A
17 new LV cables
Substation ΣT
1000 KVA
Substation 6Δ
2000KVA
Substation 6Γ
1000 KVA
Substation6A
2500 KVA
88 plugs
160 plugs
80 plugs

Indicative distances			
From	***To***	***Distance***	***Routing***
Substation 6A	*Existing Substation 6Δ*	*80m*	*Transformer Cables (4x50 mm^2)* *LV Cables (17*4) $50mm^2$*
Substation 6A	*Last Pillar (greatest distance)*	*150m*	*LV Cables (17*4) 50mm2*
Substation 6A	*New Substation 6ΣT*	*320m*	*Transformer Cables (4x50 mm^2)*
New Substation 6ΣT	*Substation 6Δ- New Location*	*250m*	*Transformer Cables (4x50 mm^2)*
New Substation 6ΣT	*Last Pillar - right*	*70m*	*LV Cables (17*4) 50mm2*
New Substation 6ΣT	*Last Pillar - left*	*70m*	*LV Cables (17*4) 50mm2*
Substation 6Δ- Final Location	*Substation 6A*	*120m*	*LV Cables (17*4) 50mm2*

NEW OUTDOOR SUBSTATION