DESFA
Hellenic Gas Transmission System Operator

HELLENIC GAS TRANSMISSION SYSTEM OPERATOR

357-359, MESSOGION AVE.,
15231 ATHENS, GREECE
Tel.: 210 6501258
Fax : 210 6501551

TECHNICAL JOB SPECIFICATION
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HIGH PRESSURE (HP) TRANSMISSION SYSTEMS

24 V.D.C POWER SUPPLY

QUALITY ASSURANCE PAGE

CHANGES LOG

REVISIONS LOG

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CONTENTS

REFERENCE DOCUMENTS

EU Directive 2006/66/EC Batteries Directive

ELOT EN 60086
[Primary Batteries]

Job Specification 721/3
[Electrical Switchboards]

1.0 SCOPE

This specification covers:

- 24 V.D.C. no-break power supplies for installation in Meter and Regulator Stations.

2.0 STANDARDS

All equipment shall be designed manufactured and tested in accordance with **ELOT EN 60086.** For material to be manufactured in accordance to other standards, the codes and regulations of the country of origin may be applied, provided that:

a) Owner's approval is obtained.

b) Manufacturer/Vendor declares under his responsibility that the adopted standard are more restrictive or at least equivalent to the applicable **ELOT EN** Standrards with regards to the concerned safety requirements.

3.0 ENGINEERING DOCUMENTATION

Contractor shall furnish (but not limited to) the following documentation:

- one line diagrams covering all equipment up to and including distribution panels with shown metering, relaying and protective devices;

- material requisitions of all equipment including all technical data;

- operation and maintenance manual furnished by the Manufacturer/Vendor of equipment;

- coordination study demonstrating the selectivity of circuit protective devices throughout the system.

Current limiting effects of components (if any) and battery internal resistance shall be considered in the study.

4.0 GENERAL DESCRIPTION AND REQUIREMENTS

4.1 GENERAL

Each of the 24 V D.C. No-Break power supply panel shall consist of:

- a 400/230 V A.C. to 24 V D.C. charger unit,
- a 24 V D.C. battery in separate section and,
- a 24 V D.C. power distribution facilities,

In normal operation the charger unit shall supply the 24 V D.C. consumers, charge and keep charged, respectively, the 24 V D.C. battery.

If a mains supply failure occurs, the 24 V D.C. battery shall - without any break - automatically take over the supply of the 24 V D.C. consumers.

If during a mains supply failure the battery voltage drops to a lower limit level, a part of the consumers shall automatically be disconnected by means of a lower limit voltage relay with adjustable lower limit level.

Once the mains supply is reestablished, the charger unit shall - without any break - automatically take over the supply of the 24 V D.C. consumers, and start the recharging of the battery. If the battery is being boost charged an SPOT potential-free contact shall be available for activation of a 230 V A.C. controlled fan which will

ventilate the battery section. The potential - free contact shall remain activated as long as boost charging is taking place.

The 24 V D.C. power supply system shall be over voltage protected as to prevent any over-or disturbing voltages or impulses to come up on the output terminals which can damage or disturb electronic and microcomputer-based equipment supplied by the 24 V D.C. system.

The 24 V D.C. power supply system may not generate any interference signals which may cause electronic equipment failure or fault conditions.

4.2 24V D.C. PANEL

The 24 V D.C. power supply shall be delivered as a separate panel with charger unit, battery and power distribution facilities included.

For the construction, arrangement, quality control, and documentation the same requirements as for Power Distribution Boards, **Job Spec. No. 721/3,** will apply.

The panel components shall be constructed as standard modules making easy replacement in case of component failure or modifications.

The battery section of the panel shall be separated from the rest of the panel. A ventilation duct shall be provided inside the panel to the top of the battery section, ending in a circular connection mouth piece.

The panel shall be equipped as a minimum with the following instruments:

-a voltmeter with phase selection switch for connection to system supply phases,

-a voltmeter connected to the 24 V D.C. output,

-an ammeter connected to the 24 V D.C. output mounted in the front of the panel,

-alarm lamps as specified in **para 4.3.**

4.3 ALARM SYSTEM

The 24 V.D.C. power supply shall include an alarm system with the following main alarms:

-400/230 V A.C. system supply failure alarm,

-Charger unit fault alarm,

-High output voltage alarm,

-Low output voltage alarm,

The system supply failure alarm shall be activated by a relay/relays monitoring all the supply phases.

The charger unit fault alarm shall be a common alarm for the standard monitoring equipment of the charger unit.

The low output voltage alarm level shall be adjustable between 12V D.C. and 24 V D.C., and shall activate the lower limit voltage relay, see **para 3.1.**

All the above-mentioned alarms shall be indicated on the front of the 24 V D.C. panel by red pumps.

An SPDT potential-free contact shall be available for remote transmission purposes.

The contact shall remain activated as long as any of the above-mentioned alarms are activated.

5.0 TECHNICAL REQUIREMENTS

5.1 GENERAL

5.1.1 IMPULSE PROTECTION LEVEL

Min. 2,5 KV.

5.1.2 POWER SUPPLY

400/230 VA.C. ± 10-15%

50 Hz +/- 2Hz.

5.2 RECTIFIER UNIT

5.2.1 SUPPLY

1,2 or 3 phases.

5.2.2 OUTPUT

24 V D.C. +/-10%, ripple max. 5%.

5.2.3 CAPACITY

Sufficient for an output consumption of all necessary 24 V.D.C. loads (e.g. instruments) and simultaneous charging of the battery.

With a completely discharged battery, the charger shall be able to charge the battery to 90% of full capacity within 8 hours.

5.3 BATTERY

5.3.1 TYPE

Nickel-Cadmium with Flame Arresting Flip Top Vents.

5.3.2 CAPACITY

Sufficient to supply all necessary 24 V.D.C. loads for min. 8 hours within voltage limits 24 V.D.C. +/-10%.

5.4 INDICATIONS

5.4.1 INSTRUMENT ACCURACY

Class 1.5.

5.5 COMMON ALARM RELAY

5.5.1 RELAY CONTACT

Normally energized. Potential free SPOT, 24 V.D.C., 1 A, with all wires connected to terminals.

5.6 CONSTRUCTION AND ARRANGEMENT

As for Power Distribution Board, **Job Spec. No. 721/3.**

6.0 QUALITY CONTROL

As for Power Distribution Board, **Job Spec. No. 721/3.**

7.0 DOCUMENTATION

As for Power Distribution Board, **Job Spec. No. 721/3.**

8.0 MARKING

As per **ELOT EN 60086-1**

9.0 DELIVERY

The 24 V.D.C. power supply will not be considered as delivered before all items and documentation have been received, and the function test has been accepted by Owner.