USER'S MANUAL

TRANSPORT POWER SUPPLY
IP-05

saes group

SAES ADVANCED TECHNOLOGIES S.p.A. – Italy
www.saesgetters.com

The **TRANSPORT POWER SUPPLY IP05** power supply serves for operating the **NEXTorr** pumps.

WARNING

After transportation, the device has to be left idle without mains voltage for at least 3 hours at the laboratory

Security provisions

ATTENTION

Inside the instrument and also in the connector and cable for the ion pump connection, a high voltage is present which is capable of causing a casualty even without any direct touch.

Manipulation the high voltage cable and also of the grounding wire is prohibited during the course of the supply operation.

Likewise, the supply operation without protective covers is prohibited.

Protect the device against humidity and against penetration of conductive objects and liquids into the ventilation slots.

Symbols on the Product

These symbols appear on the product:

WARNING
High voltage

Ground
terminal

CAUTION
Refer to
manual

INDEX

IE-5 is IP only w/ Battery Pack.

1. OPERATION

1.1. Operating instructions for transport ion getter pump source

The transport source is used for pumping any vacuum system with diode type ion getter pumps (with a positive voltage supply) during transport.

The source allows to power a vacuum pumps with the working voltage of 5 kV and the total current up to 100 µA.

The source is using the 9 piece LR14 batteries with total nominal voltage of 13,5V.

After connection of the HV output cables at the ion pumps switch on the main switch. The operation is indicated by the weak whistling (the height of the tone is dependent on immediate current of the vacuum pumps) and by flashing the lights on the Panel. The first 10 s one red and one green light is flashing and then only some of the three green lights is also flashing, that indicates the total current in both pumps in the fields of 0-10 µA, 10-50 µA, or 50-100 µA. If there is an excess of total current over 100 µA (or short circuit), the source is automatically shut down for a period of 1 min during that the red light is flashing. Then the source tries to start again.

If the source is in use, it is possible to press the button (by the appropriate instrument) with the BATTERY mark to display the battery status. The red light flashing means the critical batteries discharge (the voltage < 9V) and they need to be replaced as soon as possible.

The source automatically turns off if the battery voltage falls below 6.5 V. When using alkaline batteries and the total current of pumps is 20 µA the source can work of about 16 days. This period may also be adversely affected by temperature.

The operating parameters and historical record can be visualized on PC via RS-232 interface with communication speed of 115 200bit/s.

1.2. List of commands

End of every command	**<Enter>**
Immediate output voltage *example*	U 5990 V >
Immediate total current example	I 430 nA >
Immediate battery voltage example	B 12800 mV >
Immediate total current example	I 430 nA >

Immediate temperature example	T 24 C >
Number of records example	F 07Records >

The record of current list of value is called by command F00, previous one F01 etc. The oldest record has the highest number. The record is realized only when the source is running more than 1 min.

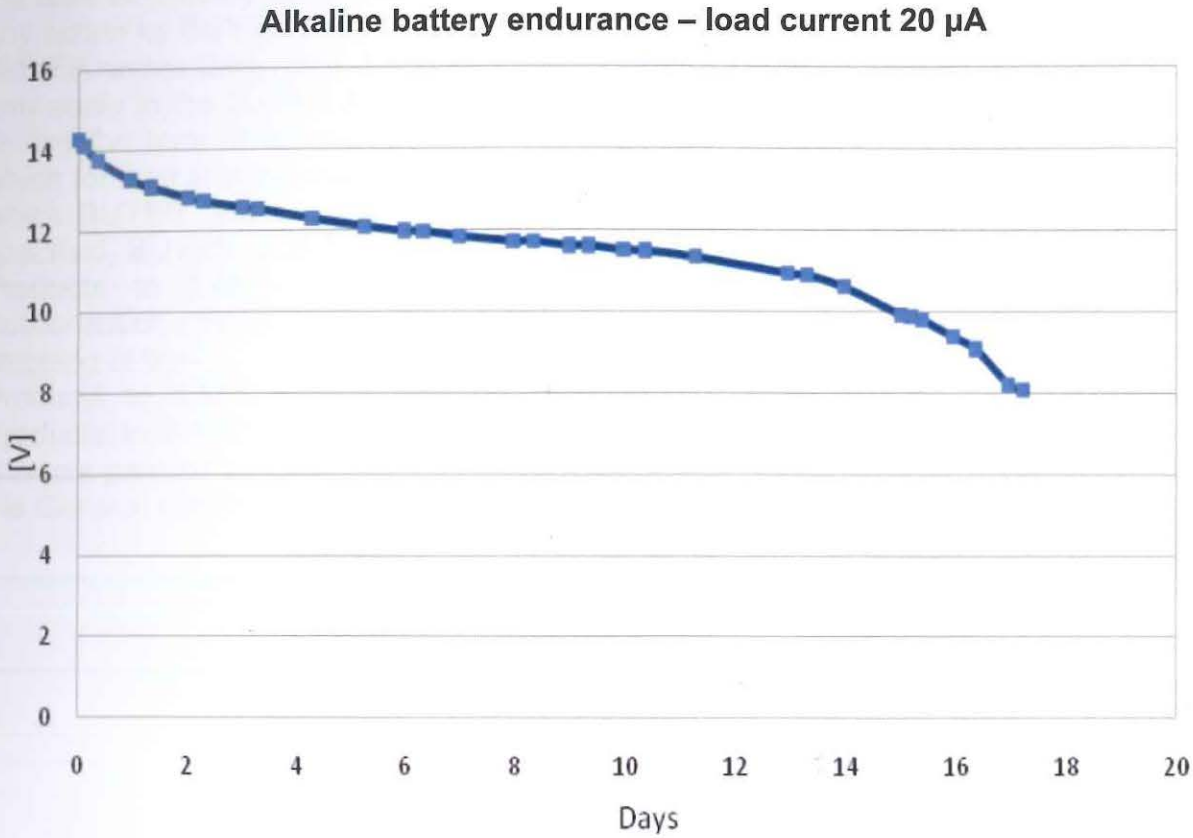
Command	Displayed (typed) value	Description
History record	F07	
Example	Record # 7	
	Total Time: 24600 min	Total time after battery change
	On Time: 1475770 s	Total time after source switching on
	Charge: 266490149 uC	Total curried charge
	Max. I: 539864 s: 20140 nA	Maximum current and corresponding time
	Min. I: 1466 s: 19490 nA	Minimum current and corresponding time
	Max. T: 1376897 s: 26 C	Maximum temperature and corresponding time
	Min. T: 423169 s: 18 C	Minimum temperature and corresponding time
	Min. B: 1475738 s: 7900 mV	Minimum battery voltage and corresponding time
	Current: 00 nA	Last value of current
	Voltage: 00 V	Last value of pump voltage
	Battery: 3200 mV	Last value of battery voltage

⚠ **Caution:**

After communication cable connection the consumption from battery is rising of about 5mA. Therefore if it is not necessary, do not leave the communication cable connected!

2. SPECIFICATION

Operating voltage:	6 kV
Maximum load current:	100 µA
Standalone operation required:	9 battery cells (size LR14, C, baby)
Total nominal voltage:	13.5 V.
Communication protocol (History record):	RS232/115200 Bd



3. TROUBLESHOOTING

The device conforms with ČSN EN 61010-1 standard safety requirements.

4. INSTRUCTION FOR INSTRUMENT DISPOSAL

The instrument disposal should be carried out in compliance with the user's country applicable regulations.
The instrument contains materials which may endanger the environment. When disposing of the instrument, separate disassembly by material is to be arranged for and the different materials shall be collected separately for disposal. Neither the collection nor the transport of thus collected and separated materials is subject to any special requirements.

5. WARRANTY CONDITIONS

SAES guarantees that the Products delivered shall be free from operational and material defects and shall comply with the construction and functional data and specifications indicated in the Contractual Documents.
This warranty shall have a term of TWELVE (12) MONTHS. For Products which require installation at BUYER's facility by SAES personnel, the warranty shall have a term of TWELVE (12) MONTHS from the date of installation or FOURTEEN (14) MONTHS from the date of delivery, whichever term is shorter. Subject to the remainder of this Article 14, any action by BUYER for any alleged breach of this warranty shall be brought in writing by BUYER within thirty (30) days of BUYER's discovery of the breach. This warranty shall only apply to the BUYER and may not be assigned.
During the term of the warranty set forth above, SAES will promptly repair the Products which for their features can be repaired and which do not conform to the specifications and which BUYER returns to SAES at the address provided. Unless otherwise agreed and specified, BUYER shall be responsible for all transportation charges incurred in returning Products to SAES for repair; BUYER shall have obtained a Returned Material Authorization ("RMA") number and specific shipping instructions from SAES prior to its shipping of the
Products to SAES. SAES shall not unreasonably deny BUYER authorization to ship Products to SAES. SAES shall return repaired Products to BUYER, with transportation charges prepaid by SAES, unless otherwise agreed. Additional information is available on the General conditions of sales.

6. SERVICE

For a request of return of the component contact a SAES Customer Service and will receive a **Return Merchandise Authorization** (RMA) number.

SAES S.p.A. can not accept any instrument which contains biological hazards or radioactivity. If this requirement present a problem call SAES Customer Service to discuss alternatives solutions:

6.1. Sales & Service Locations:

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NEG only w/ turbo on but valved off

5.7E-7	0
6.5E-7	10min
7.0E-7	20min
7.3E-7	30min
7.6E-7	40min
3.4E-7	IPoN
2.9E-7	10min
2.8E-7	1 day
2.6E-7	1.5 hrs
2.1E-7	overnight
7E-7	after bake.
1.7E-7	after cool

Log

10/10/15 accidentally vented w/ N_2 to ~ 100 torr
re-activated pump 1 hr.
Pressures even lower to 8.8E-8 torr

10/14/15 Reactivated pump again 1.5 hrs to see if could get lower pressures → 7.5E-8
New battery pack → 8.3E-8