VACUUM POWER FOR FLEXIBLE MAINTENANCE

IPPS30 ION PUMP POWER-SUPPLY

PERFORM SERVICE AND MAINTENANCE ANYTIME AND ANYWHERE YOU NEED IT TO HAPPEN

GET A STAND-ALONE UNIT TO MAINTAIN THE IDEAL HIGH VACUUM IN YOUR FLASH X-RAY TUBES – GREAT FOR STORAGE!

Advantages

- Enables remote service and control for X-ray tube high vacuum
- Controls up to 4 X-ray tubes per unit
- Be ready-to-go direct from rugged storage

Core components

IPPS30 ion pump controller

Accessories

IPPS30 4-ch
RPS30 mount
IPPS cable (variable length)

Modularity

Stand alone, rack mount, or RPS30 mount

SCANDI FLASH™

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Robust optimal vacuum made easy
To generate a maximum of X-rays when electrons are emitted from the cathode to the anode in an X-ray tube, a vacuum is critical as the mean free path of electrons is very low in atmospheric pressures. The quantity of X-rays generated increases with the quality of the vacuum. For this reason, Scandiflash use active pumping in our flash X-ray tubes to achieve a precision, high vacuum.

It's no secret that our flash X-ray tubes are often used in extremely harsh scenarios, and they're likely to be moved frequently. Given these boundary conditions, our X-ray tubes as well as their integrated pumps need to be robust. The challenge is to have pumps that are as tough and reliable as our X-ray tubes. Our solution to the problem – the ion pump. A pump with no moving parts! That means our pumps are not sensitive to environmental disturbances like shock waves or rough transport. At the same time, our integrated ion pumps make our flash X-ray tubes lightweight and highly mobile making it easier to pick up, handle and carry your tubes to position them in your test location or to move them into storage. And, thanks to the ion pump maintaining a high vacuum, your tubes will be protected from contamination.

Two-step pumping for precision
Performing routine service or maintenance like a quick anode and cathode exchange on a flash X-ray tube requires venting the tube. Restoring the vacuum occurs in two steps. First, the RPS30 Service Station with a turbomolecular pump is used for fast, initial evacuation. Second, the integrated ion pump on the actual flash X-ray tube is activated to maintain the precise, optimal high vacuum.

The only requirement for running the ion pump is a high voltage cable connected to a Scandiflash ion pump power supply which means you will need stable access to electricity in order to operate and maintain your flash X-ray tubes.

During the typical use of a Scandiflash Flash X-ray system as well as performing on-site service, the integrated ion pump of each X-ray tube is powered via a high voltage cable connected to the FXRC4 Flash X-ray channel control unit in the SCF Control Tower.

A power option for even more flexibility
The same power supply unit used in our control tower is available as a stand-alone unit, the IPPS30, which can be used for service, maintenance, and X-ray tube storage at a remote location. You can service and store your tubes at the optimal high vacuum without the need for connecting the tubes to a full Scandiflash Flash X-ray System. Multiple tubes can be prepared for rapid use or even long-term storage while experiments continue uninterrupted on your SCF system.

The IPPS30 ion pump power supply is available for both bench use and rack installation. Up to three controllers can be installed in one standard 19-inch rack.

Maintain vacuum in four tubes with one controller. The IPPS30 can be combined with a four-channel splitter making it possible to maintain the vacuum in four flash X-ray tubes with each IPPS30 controller. This cost-effective method adds a real boost in efficiency for maintaining a high vacuum in all your X-ray tubes. Now all you need for proper storage of your flash X-ray tubes is an IPPS30 controller attached to mains power.

Get even more from your RPS30 Service Station. Ready to elevate your workflow to new heights? Performing service tasks with up to four flash X-ray tubes simultaneously has never been faster or easier. Simply add the IPPS30 four-channel splitter to your RPS30 Service Station and turn the entire process from service to maintaining a precision high vacuum into one smooth operation. Once the ion pumps are activated, the turbomolecular pump is no longer needed, giving you greater freedom and flexibility. Whether your choose to leave your tubes on the RPS30 Service Station, move them into storage, or place them in your test location, the tubes are ready for immediate use.

An advanced external power supply unit
The ion pump power supply is a switch mode DC-to-DC converter followed by voltage doubling circuitry. With input from any mains power supply, the output voltage is 3.3 kV maximum. The output voltage is dependent upon the load – increasing the load will decrease output voltage. This is to avoid excessive heat in the ion pump. The IPPS is short-circuit proof, and the short-circuit current is limited to 32 mA.

The supply has falling voltage vs current characteristic to prevent excessive power from being applied to the pump at high pressures and during startup conditions. The power supply also includes an ion pump protection circuit (IPPU). The IPPU has a protection function which activates, when the load current exceeds a preset level, and shuts down the high voltage. The time to shut down is a function of the load current – the higher the current, the shorter the time to shut down. The ion pump protection circuit can be set to be optimized for pumps with 2 l/s (XT150) or 8 l/s (XT300L, XT450L and XT450SL) pumping volume.