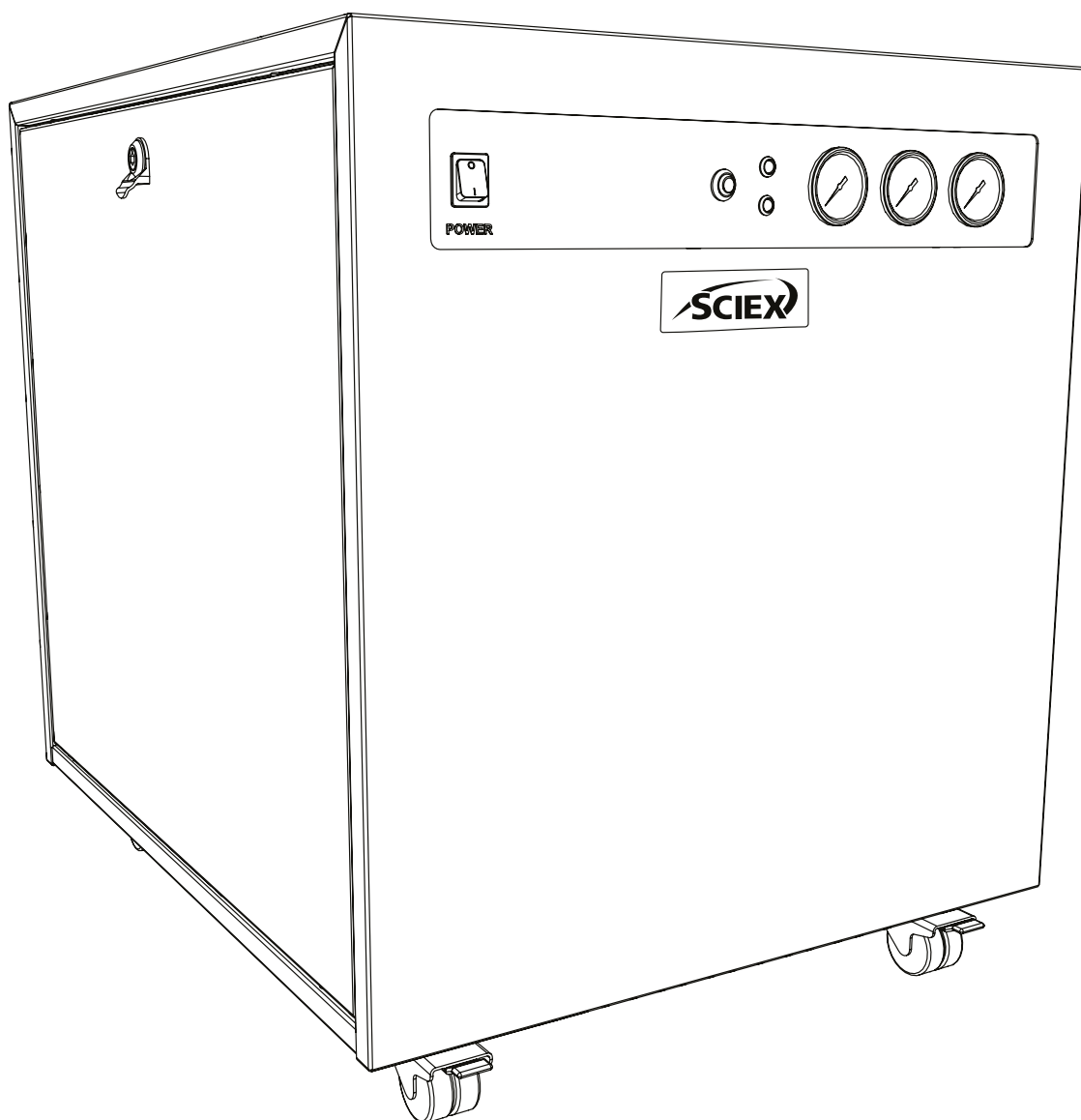


# SCIEX Gas Generator N19A26

Operator Guide



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## Change History

Rev	Comment	Name	Date
A	Initial Release	L. Couttie	01/06/2022
B	Drain Connection Warning Added	L. Couttie	06/12/2022

## How to use this Manual

This manual is intended for end users and has been written as a reference document where you can skip to the relevant information.

Users can refer to the contents page to find the relevant information.

Review each of the following sections carefully.





Thank you for selecting SCIEX to meet your gas generation needs, and should you require any further assistance or support do not hesitate to contact SCIEX.

# Safety Notices

The warnings detailed within this manual refer to the most likely potential hazards, but by definition cannot be all inclusive. If the user employs an operating procedure, item of equipment or a method of working which is not specifically recommended by SCIEX, the user must ensure that the equipment will not be damaged or become hazardous to persons or property.

## Symbols

This manual uses the following symbols to highlight specific areas important to the safe and proper use of the generator.

 WARNING	A WARNING notice denotes a hazard. It calls attention to an operating procedure, process or similar, which if not correctly performed or adhered to, could cause personal injury or in the worst case death. Do not proceed beyond a WARNING notice until the indicated conditions are fully understood or met.
 CAUTION	A CAUTION notice denotes a hazard. It calls attention to an operating procedure, process or similar, which if not correctly performed or adhered to, could cause damage to the generator or the application. Do not proceed beyond a CAUTION notice until the indicated conditions are fully understood or met.
	Caution, risk of electric shock. Ensure power to the generator has been removed before proceeding.
	Symbol denotes details of the products manufacturer.

## Safety Notice to Users



These instructions must be read thoroughly and understood before installation and operation of your SCIEX Gas Generator. Use of the generator in a manner not specified by SCIEX MAY impair the SAFETY provided by the equipment.



When handling, operating or carrying out any maintenance, personnel must employ safe engineering practices and observe all relevant local health and safety requirements and regulations. The attention of UK users is drawn to the Health and Safety at Work Act 1974, and the Institute of Electrical Engineers regulations.



If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

# Electromagnetic Environment

## Electromagnetic Compatibility

**Basic Electromagnetic Environment:** Environment existing at locations characterized by being supplied directly at low voltage from the public mains network.

**Performance Criteria A (Criteria A):** Equipment shall operate as intended with no degradation of performance and no loss of function during or after test.

**Performance Criteria B (Criteria B):** Equipment may experience loss of function (one or more) during test but shall operate as intended with some degradation of performance and functions self-recoverable after test.

**Performance Criteria C (Criteria C):** Equipment may experience loss of function (one or more) during test but shall operate as intended with some degradation of performance and functions recoverable by operator after test.

The equipment is intended for use in a basic electromagnetic environment.

Make sure that a compatible electromagnetic environment for the equipment can be maintained so that the device will perform as intended. If the power supply line is subject to high electrical noise, then install a surge protector.

## Electromagnetic Interference

**Group 1 Equipment:** This equipment is classified as industrial, scientific, and medical (ISM) equipment that might use RF energy for internal operation.

**Class A Equipment:** Equipment which is suitable for use in all establishments other than domestic and those directly connected to a low voltage power supply network which supplies buildings used for domestic purposes. [Derived from CISPR 11:2009, 5.3] Class A equipment shall meet Class A limits.

**CAUTION: Potential Radio Interference. This equipment is not intended for use in residential environments and may not provide adequate protection to radio reception in such environments.**

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC (Federal Communications Commission) Compliance Rules.

These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the operator's manual, can cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference in which case you will be required to correct the interference, at your own expense. Changes or modifications not expressly approved by the manufacturer could void your authority to operate the equipment.

# WEEE Compliance Statement

The Waste Electrical and Electronic Equipment (WEEE) Regulations SI 2013 No 3113 and or the Waste Electrical and Electronic Equipment (WEEE) Directive 2012/19/EU apply to all electrical and electronic equipment placed on the market in the UK and EU covered by the scope of regulations which can be found in the Government Guidance Notes (PDF) produced by the Department for Business Innovation and skills for the UK and here for Europe.

All SCIEX products that are subject to the WEEE directive are compliant with the WEEE marking requirement. Such products are marked with the “crossed-out wheellie bin” symbol (shown below) in accordance with European standard EN50419. All old electrical equipment can be recycled. Please do not dispose of any electrical equipment (including those marked with this symbol) in general rubbish bins. Please contact your dealer or distributor for clarity.



# CSA Compliance Statement

CSA Group (Canadian Standards Authority) is a Nationally Recognised Testing Laboratory (NRTL), headquartered in Toronto Canada.

They are authorised to evaluate product to both their own and Underwriters Laboratory (UL) standards and certify the product to be in compliance to the relevant standards.

SCIEX products are certified to the current in force revision of the following standards in order to cover both Canadian and United States requirements for “Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory use, Part 1: general Requirements”.

Canada: CAN/CSA C22.2 No 61010-1

United States: UL 61010-1

As a result the products covered by this statement are certified and listed by CSA accordingly and are entitled to carry the CSA mark with both Canadian and United States subscripts , as shown below on the product rating label.



# Technical Specification

## Environment

	SCIEX Gas Generator N19A26
Minimum Operating Ambient Temperature	5°C (41°F)
Maximum Operating Ambient Temperature	30°C (86°F)
Maximum Altitude	3000 m
Maximum Relative Humidity	80% Non-Condensing
Minimum Storage Temperature*	-20°C (-4°F)
Maximum Storage Temperature*	60°C (140°F)

\*NOTE - When taken out of storage the generator should be allowed to acclimatize at room temperature for a minimum of 3 hours before operation.

## Generator Outlets

Curtain Maximum Flow <sup>^</sup>	19 L/min @ 4.48 bar (0.67 cfm @ 65 psi)
Source Maximum Flow <sup>^</sup>	26 L/min @ 6.89 bar (0.92 cfm @ 100 psi)
Exhaust Maximum Flow <sup>^</sup>	25 L/min @ 4.13 bar (0.88 cfm @ 60 psi)
Particles	<0.01µm
Phthalates	NONE
Suspended Liquids	NONE
Gas Outlets	3 × ¼" BSPP
Drain Outlet	1 × ¼" BSPP
Pressure Gauges	3

<sup>^</sup>NOTE - These performance characteristics are valid only when paired with an approved SCIEX application. Refer to current application matrix for a list of supported products.

## Electrical Requirements

Voltage	220-240V ± 10%
Frequency	50/60 Hz
Current	7 Amps
Input Connection	C20 Plug
Power Cord (Supplied)	C19 socket to local connection (13A minimum)
Pollution Degree	2
Insulation Category	II

## General

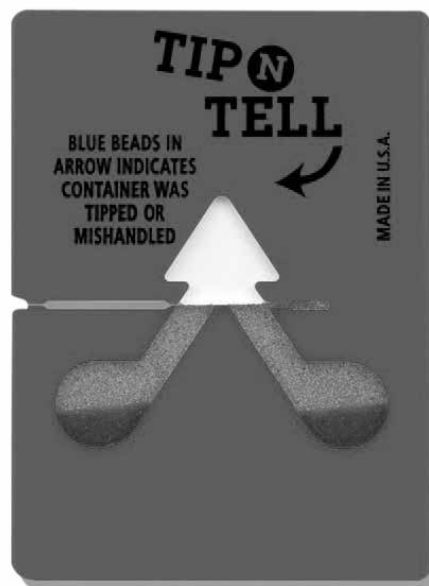
Dimensions cm (inches) W × D × H	60 × 75 × 71.2 (23.6 × 29.5 × 28)
Generator Weight Kg (lbs)	108.5 (239)
Shipping Weight Kg (lbs)	134 (295)
Heat Output	5,490 BTU/hr



# Unpacking

Although SCIEX takes every precaution with safe transit and packaging, it is advisable to fully inspect the unit for any sign of transit damage.

Check 'SHOCKWATCH' and 'TIP-N-TELL' labels for signs of rough handling prior to unpacking.



**Any damage should be reported immediately to the carrier and SCIEX.**

Follow the unpacking instructions posted on the side of the crate. It will require two people to remove the unit from the shipping crate and to manoeuvre the generator to the desired location.

Save the product packaging for storage or future shipment of the generator.

Note: Included with the generator is a "Fittings Kit" containing mains power leads for UK, EU & US and also all the required fittings and warranty registration card. Be careful not to discard these with the packaging.

## Fittings Kit Contents

Supplied in the Fittings Kit are all the fittings required to connect the generator to the application. The contents of the Fittings Kit are as follows:

1. ¼" PTFE Tubing	× 9m
2. 5/16" PTFE Tubing	× 3m
3. 6mm PE Tubing	× 3m
4. ¼" Compression Fitting	× 3
5. 5/16" Compression Fitting	× 1
6. 6mm Push-Fit Fitting	× 1
7. Flow Control Silencer	× 3
8. UK Mains Power Cable 230v	× 1
9. EU Mains Power Cable 230v	× 1
10. US Mains Power Cable 230v	× 1
11. 8mm Hex Key	× 1

All of the generators output ports are located on the output panel at the rear of the unit.

# Installation

## Generator Environment

The generator should be situated in a well ventilated environment, with at least a 75mm (3”) air gap all around it and should be positioned such that it can be easily disconnected from the mains supply if required. If this is not convenient then the unit can be sited elsewhere; however, consideration should be made of the lengths of pipe runs as pressure drops can result from extended runs of pipe.

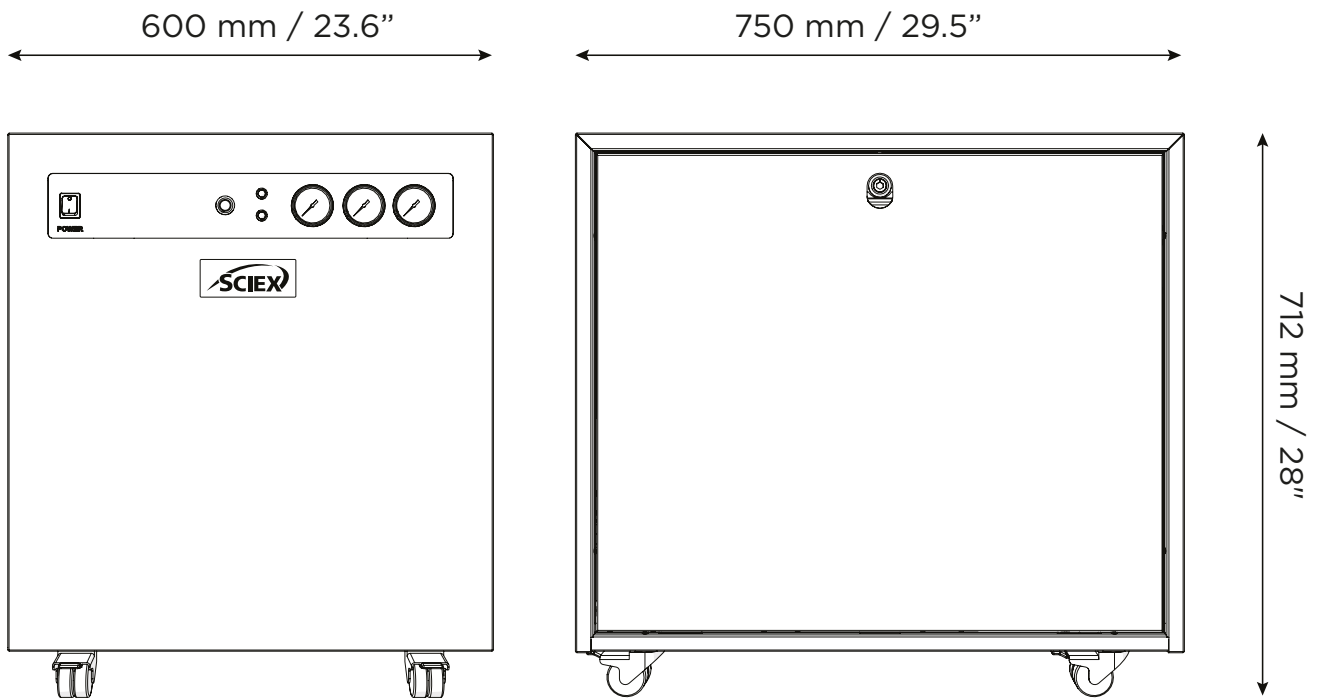
Performance of the generator (like all sophisticated equipment) is affected by ambient conditions. Note should also be taken to the proximity of Air Conditioning outlets. These can sometimes give rise to “pockets” of air with high relative humidity. Operation of the unit within such a pocket could adversely affect its performance. Consideration should also be given to the air flow around the unit. It is recommended that an air gap of 75mm (3”) should be maintained down both sides and at the rear of the unit. Refer to the drawing on the following page for the general dimensions of the unit.

Minimum Operating Ambient Temperature:        5 °C (41 °F)

Maximum Operating Ambient Temperature:        30 °C (86 °F)

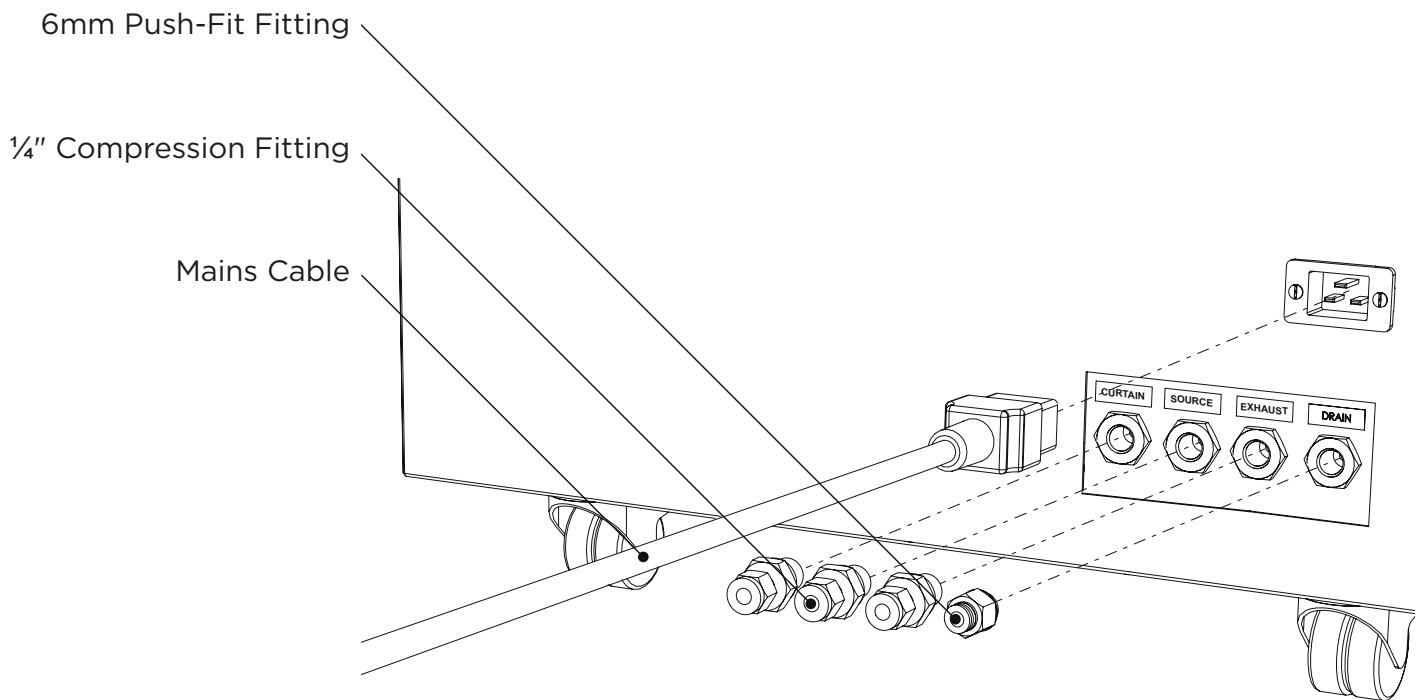
# Generator Overview

## General Dimensions

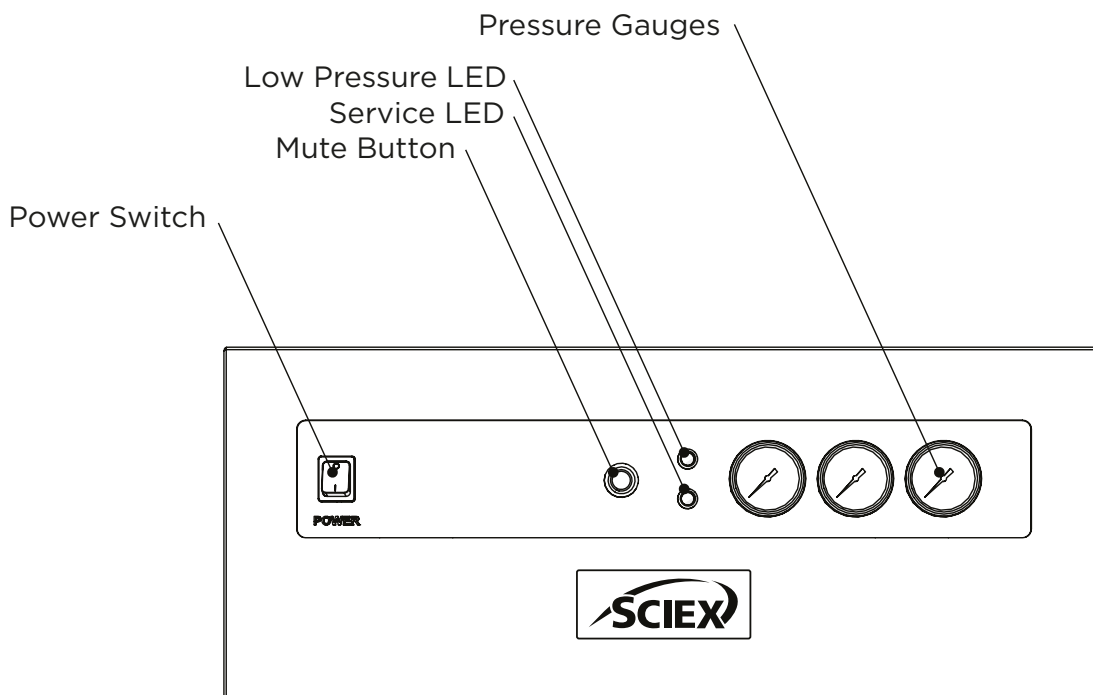


The generator must always be placed on a flat, level surface. Failure to do so will affect the performance of the generator.

## Rear Connections



## Unit Controls



## Drain Connection

Fit the 6mm push fit fitting to the drain port located on the output panel. Tighten using a 16mm or 5/8" spanner. Use the 6mm tubing to connect this to a suitable drain connection or container. It should be noted that the generator can expel a considerable amount of water from this (dependant on ambient humidity).



If a container is used it should be emptied at regular intervals. **The container used MUST be a plastic material and MUST NOT be glass for safety reasons. The container MUST NOT have an airtight seal as water and air will be expelled periodically under slight pressure.**

# Electrical Connection

Connect the generator to an appropriate 230 volt single-phase supply. Refer to the generator serial plate for input specification and ensure your supply matches the requirements.

If an appropriate mains power cords is not supplied or a substitute one is used then ensure that all components of it the plug, cord and connector have adequate ratings for the generator and appropriate approvals for the country of use.



This unit is classified as SAFETY CLASS 1. THIS UNIT MUST BE EARTHED. Before connecting the unit to the mains supply, check the information on the serial plate. The mains supply must be of the stated AC voltage and frequency.

EARTH/GROUND (E):-	Green & Yellow	or	Green
LIVE (L):-	Brown	or	Black
Neutral (N):-	Blue	or	White

Electrical requirements are 220 - 240v  $\pm 10\%$ . However, running continuously at voltages outside this is not recommended. Extended periods at extremes can have a detrimental effect on the operation and life of the generator.



If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment maybe impaired.

To ensure that the correct voltage is being supplied to the generator, the generator comes equipped with an inbuilt voltmeter. This is located on the underside of the compressor compartment, and will measure and display the mains voltage that is being supplied to the generator.

The voltmeter should be checked prior to the initial purge of the system.

If the reading is 219V or less, then we would highly recommend fitting a **Dual Tap Transformer 06-3200**. This can be ordered from SCIEX.

## Start-Up Sequence



Before the generator is connected to the application, the generator should be operated in isolation (i.e. not connected to the application) for thirty minutes. This is to ensure any impurities present are purged from the system. Failure to do this may harm the application.

Following the voltage check, (see Page 16), the unit should be switched off and silencers fitted to each of the three outlet ports of the output panel (see the Installation Guide).

Once this is done, the generator can be re-connected to the mains and switched on.

Pressure will start to build in the internal storage tanks, which can be monitored by watching the output pressure gauge on the front panel. This will climb to the factory set pressure as noted in the specifications.

Once this pressure is reached, the compressors will continue to run until the internal tank upper pressure limit is reached and the compressor has run for a period of at least two and a half minutes.

The compressors will then rest until the internal tank lower pressure limits is reached. Once this limit is reached the compressors will switch back on again. This compressor cycling is normal and will continue throughout the operation of the generator.

When the system has been operated for a period of 30 minutes, all the internal pipe-work and storage tanks will have been purged with Nitrogen.

The generator is now purged and the tubes can be connected at the rear of the unit.



## Connecting to the application

Once the initial purge run of 30 minutes has completed, and the generator has been running for 1 hour, (required to reach purity for the application) it is ready to be connected to the application(s).



The pressure in the internal storage tanks must be allowed to dissipate before connecting the generator to the application(s).

Attach the 1/4" compression fittings to the outlets of the generator. Using the 1/4" tubing supplied, connect the outlets of the generator to the inlets on the application.

If you require more tubing than is supplied refer to the Tubing Lengths section.



Once the tubing is connected to the application, ensure that it is thoroughly checked for being leak-tight. Even the slightest leak in the gas supply between the generator and the application can lead to a reduction in efficiency.

### Tubing Lengths



The diameter of the tubing which will be connected to the gas outlets is important and is determined by the length of tubing required. Failure to follow these recommendations could lead to pressure between generator and application.

- < 10 meters: Use 1/4"/3/16" (1/4" O/D, 3/16" I/D) P.T.F.E. tubing.
- > 10 - 40 meters: Use 3/8"/5/16" (3/8" O/D, 5/16" I/D). Tubing and fittings not supplied in the fittings kit.
- > 40 metres: Contact SCIEX with the relevant distance and we will calculate the flow resistance and the tubing size required.

A combination of 1/4"/3/16" and 3/8"/5/16" tubing may be used to ensure that there is no large diameter tubing within the lab (i.e. for the first 20 meters from the generator use 3/8"/5/16" and the final 10 meters to the application use 1/4"/3/16" tubing). Keep the connections and bends to a minimum.

## Normal Operation

The generator is designed specifically to minimize operator involvement. Given that the system is installed as described in earlier sections and is serviced in accordance with the specified maintenance recommendations (see Service Requirements), then it should simply be a matter of turning the generator on when it is required.

The generator will automatically produce the factory set pressure as detailed in the Technical Specifications.

## On Demand Gas

When the application requires a gas flow, the generator will produce gas on demand.

The generator will continue to supply gas whilst the application is in a 'Standby' mode. As soon as a demand is detected from the application, the generator will match the applications requirements.

## Generator Cycling

The generator is designed to either operate in a cyclic mode or run continuously. The mode will be dependent on the output flow.

The cyclic rate of the compressors will depend on the gas demand of the application; the generator will cycle when the upper tank pressure set limits are achieved within a 3-minute time period.

When the application demands increase, the compressor duty will be higher and the rest period of the compressor cycle will be shorter. If operated at maximum flow, the generator will run continuously to maintain the upper tank pressures. Another cause for continuous operation would be if the generator is installed: at high altitude, in an extreme environment or subjected to low voltage supply. The compressors will undergo periods where they do not cycle.

## Unusual Operation

If at any time the generator begins to emit excessive noise or vibration, then it should be switched off and you should contact SCIEX.

# Service Requirements

## Service Schedule

Purchase Interval	Component	Visit
12 Months	Annual Maintenance Kit*	Contact your SCIEX service representative to arrange for the annual maintenance to be completed.
4 Years	Year 4 Service Kit*	

\* Quote your generator serial number when ordering your Maintenance Kit to ensure selection of the appropriate kit for your generator.

Note: To be serviced by manufacturer.

# Service Indication

The generator has the following Service Indication Stages:

## Stage 1

Once either compressor requires a service the LED indicator (yellow) on the front of the generator will illuminate.

This is to make the user aware that a service of the generator is due and should be planned at the earliest convenience. The generator will continue to operate as normal with the LED on.

## Stage 2

If the service is not completed the generator will continue to run. After 2 weeks, the service LED indicator (yellow) will start to flash.

This is to make the user aware that the service of the generator is now overdue and must be completed immediately to ensure the continuous trouble free operation of the generator.

## Service Indication Reset

Once the service has been completed the Service Indication LED can be reset in the main control PLC. This will be performed by the trained service representative that completes the service operation.

## Cleaning

Clean the outside of the generator only using warm soapy water and a clean damp cloth. Ensure all excess fluid is thoroughly removed from the cloth prior to use.



Cleaning should only be undertaken with the power switched off and the power cord removed from the rear of the generator.



Under no circumstances should any solvents or abrasive cleaning solutions be used as these can contain fumes that could be harmful to the generator.



Care should be taken with Leak Detections Liquids.


## Run Time Alarm

The SCIEX Gas Generator N19A26 monitors the operating tank pressures, in this case the N2. When this is at the set point, there is no alarm. Only when the pressure drops to a pre-determined set point will the alarm be activated, indicating LOW pressure.

**It should be noted that the generator will continue to operate so long as it can maintain pressure during these alarms.**

**Note: The buzzer may be temporarily silenced for approximately 90 minutes by pressing the “MUTE” button on the front facia; the Alarm LED will remain lit.**

# Troubleshooting

Problem	Possible Solution
<p>The generator will not switch on and the power switch does not illuminate.</p>	<ul style="list-style-type: none"> <li>• Ensure power cord is plugged into the generator and that the power socket is turned on.</li> <li>• Check the fuse in the power cord plug.</li> <li>• Contact your Technical Assistance Centre.</li> </ul> 
<p>Compressors are running but pressure is not building.</p>	<ul style="list-style-type: none"> <li>• Contact your Technical Assistance Centre.</li> </ul>
<p>The mass spec is reporting low pressure.</p>	<ul style="list-style-type: none"> <li>• Check pressure gauges are showing normal pressure.</li> <li>• Contact your Technical Assistance Centre.</li> </ul>
<p>Yellow “SERVICE” LED on front panel is on constantly.</p>	<ul style="list-style-type: none"> <li>• A compressor(s) is due for service. Contact your Technical Assistance Centre.</li> <li>• Refer to Service Indication section of this manual for further information.</li> </ul>
<p>Yellow “SERVICE” LED on front panel is flashing.</p>	<ul style="list-style-type: none"> <li>• A compressor(s) has not cycled for 8 hours. Refer to the Run Time Alarm section of this manual.</li> <li>• Ensure ambient temperatures are within the specification.</li> <li>• Turn the generator off and on to reset the alarm and contact your Technical Assistance Centre.</li> </ul>

## Contact us

To find software product documentation, refer to the release notes or software installation guide that comes with the software.

To find hardware product documentation, refer to the Customer Reference DVD that comes with the system or component.

The latest versions of the documentation are available on the SCIEX website, at **[sciex.com/customer-documents](http://sciex.com/customer-documents)**.

Note: To request a free, printed version of this document, contact **[sciex.com/contact-us](http://sciex.com/contact-us)**.

For warranty information visit **[sciex.com/warranty](http://sciex.com/warranty)**.

## SCIEX Support

SCIEX and its representatives maintain a staff of fully-trained service and technical specialists located throughout the world. They can answer questions about the system or any technical issues that might arise. For more information, visit the SCIEX website at [sciex.com](http://sciex.com) or contact us in one of the following ways:

- **[sciex.com/contact-us](http://sciex.com/contact-us)**
- **[sciex.com/request-support](http://sciex.com/request-support)**









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