



S-Series SGA Signal Generator



Getting Started

Document part no. 47090/066 (PDF version)



Getting Started
with
S-Series Signal Sources
SGA SIGNAL GENERATORS

**Read this before handling
or powering up the instrument!**
Contains important safety precautions

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Introduction

This guide covers both the S-Series SGA-3 and SGA-6 signal sources.

It contains **safety precautions** that you should observe before and during operation of the instrument.

It provides a very basic introduction to operating the instrument. For full details of all the capabilities of the instrument, please refer to the Help or Operating manual on the CD-ROM.

Help

The S-Series SGA Help manual (part no. 47090/067) on the CD-ROM provides html help on all aspects of installing and operating the instrument. You should be able to view this file on all browsers although you may observe slight changes in presentation depending on the browser used.

***Note:** if you copy the Help manual file from the CD-ROM to your computer, be aware that, for security reasons, Windows™ XP restricts access to HTML help (x.chm) files across network drives. If you try to view any html help file on a network drive, you will see an error message. You need to move such files to your C drive to view them. There should be no problems running the html Help manual directly from the CD-ROM.*

Operating manual

The operating manual (part no. 47090/068) on the CD-ROM provides the same information on installing and operating the instrument as the Help file, but in an A4 PDF format.

It is available also as a printed document, part no. 47000/068.

About this manual

Intended audience

Engineering personnel engaged on work relating to the design, development and testing of RF devices and sub-systems and modules. It is assumed that you are familiar with the terms commonly used in RF measurements.

Document conventions

The following conventions are used in this document:

CAPS	Capitals are used to identify names of controls and panel markings.
<i>[Italics]</i>	Italics in square brackets represent the titles of soft keys and other clickable areas like title bars and soft buttons.

Associated publications

If you want to...	Refer to...
View operating information for the instrument in html Help format	S-Series SGA Signal Generator Help Part no. 47090/067 On the CD-ROM and at www.aeroflex.com/
View operating information for the instrument in pdf format.	S-Series SGA Signal Generator Operating Manual Part no. 467090/068 On the CD-ROM and at www.aeroflex.com/
View operating information for the instrument in a printed format.	S-Series SGA Signal Generator Operating Manual Part no. 467000/068 Available as an optional extra
View GPIB programming information for the instrument in pdf format.	S-Series SGA Signal Generator Remote Command Reference Manual Part no. 47090/071 On the CD-ROM and at www.aeroflex.com/ .
View GPIB programming information for the instrument in printed format.	S-Series SGA Signal Generator Remote Command Reference Manual Part no. 47000/071 Available as an optional extra.

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Precautions



These terms have specific meanings in this document:

WARNING information to prevent personal injury.

CAUTION information to prevent damage to the instrument.

Hazard symbols

The meaning of hazard symbols appearing on the instrument and in the documentation is as follows:

Symbol	Description
	Refer to the operating manual when this symbol is marked on the instrument. Familiarize yourself with the nature of the hazard and the actions that may have to be taken.
	Toxic hazard

WARNING



Initial visual inspection

After unpacking the equipment, inspect the shipping container and its cushioning material for signs of stress or damage. If damage is identified, retain the packing material for examination by the carrier in the event that a claim is made. Examine the equipment for signs of damage; do not connect the equipment to a supply when damage is present, as internal electrical damage could result in shock if the equipment is turned on.

General conditions of use

This product is designed and tested to comply with the requirements of IEC/EN 61010-1 'Safety requirements for electrical equipment for measurement, control and laboratory use', for Class 1 portable equipment and is for use in a pollution degree 2 environment. The instrument is designed to operate from an installation category II supply.

The instrument should be protected from the ingress of liquids and precipitation such as rain, snow, etc. When moving the instrument from a cold to a hot environment, it is important to allow the temperature of the instrument to stabilize before it is connected to the supply to avoid condensation forming. The instrument must only be operated within the environmental conditions specified in the data sheet, otherwise the protection provided by the instrument may be impaired.

This product is not approved for use in hazardous atmospheres or medical applications. If the instrument is to be used in a safety-related application, e.g. avionics or military applications, the suitability of the product must be assessed and approved for use by a competent person.

PRECAUTIONS

WARNING



Electrical hazards (AC supply voltage)

This instrument conforms with IEC Safety Class I, meaning that it is provided with a protective grounding lead. To maintain this protection the supply lead must always be connected to the source of supply via a socket with a grounded contact.

Be aware that the supply filter contains capacitors that may remain charged after the instrument is disconnected from the supply. Although the stored energy is within the approved safety requirements, a slight shock may be felt if the plug pins are touched immediately after removal.

Do not remove instrument covers as this may result in personal injury. There are no user-serviceable parts inside.

Refer all servicing to qualified personnel.

Fuses

Note that the internal supply fuse is in series with the live conductor of the supply lead. If connection is made to a 2-pin unpolarized supply socket, it is possible for the fuse to become transposed to the neutral conductor, in which case, parts of the equipment could remain at supply potential even after the fuse has ruptured.

WARNING



Fire hazard

Make sure that only fuses of the correct rating and type are used for replacement.

If an integrally fused plug is used on the supply lead, ensure that the fuse rating is commensurate with the current requirements of this instrument. See data sheet for power requirements.

WARNING



Toxic hazards

Some of the components used in this instrument may include resins and other materials that give off toxic fumes if incinerated. Take appropriate precautions, therefore, in the disposal of these items.

WARNING



Lithium

A Lithium battery is used in this equipment.

As Lithium is a toxic substance, the battery should in no circumstances be crushed, incinerated or disposed of in normal waste.

Do not attempt to recharge this type of battery. Do not short circuit or force discharge since this might cause the battery to vent, overheat or explode.

PRECAUTIONS

WARNING



Tilt facility

When the instrument is in the tilt position, it is advisable, for stability reasons, not to stack other equipment on top of it.

WARNING



Liquid crystal display (LCD) module

The Liquid Crystal substance within the display panel used in this instrument is a toxic substance. If the display panel is damaged and any of the Liquid Crystal substance leaks out, do not allow it to come into contact with your mouth. If the substance comes into contact with your skin, immediately wash the affected areas with soap and water, and seek medical advice.

The display illumination is produced by a Cold Cathode Fluorescent Tube (CCFT). This contains a small amount of mercury gas, which is a toxic substance.

The display panel is made of glass. Therefore, do not subject the instrument to mechanical shocks that might cause fractures.

Do not dispose of these modules, or any part of them, in domestic waste. Use only approved waste disposal methods.

CAUTION

Suitability for use

This instrument has been designed and manufactured by Aeroflex to generate low-power RF signals for testing radio communications apparatus.

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

Aeroflex has no control over the use of this instrument and cannot be held responsible for events arising from its use other than for its intended purpose.

Précautions

WARNING

CAUTION

Note

Les termes suivants ont, dans ce manuel, des significations particulières:

WARNING

contient des informations pour éviter toute blessure au personnel.

CAUTION

contient des informations pour éviter les dommages aux équipements.

Note

contient d'importantes informations d'ordre général.

Symboles signalant un risque

La signification des symboles de danger apparaissant sur l'équipement et dans la documentation est la suivante:

Symbole

Nature du risque



Reportez-vous au manuel d'utilisation quand ce symbole apparaît sur l'instrument. Familiarisez-vous avec la nature du danger et la conduite à tenir.



Danger produits toxiques

WARNING



Inspection visuelle initiale

Lors du déballage de l'instrument, examinez l'emballage ainsi que les matériaux de protection afin de détecter tout signe de contrainte ou de dommage. Dans ce cas, gardez l'emballage pour le faire examiner par le transporteur et présenter une éventuelle réclamation. Détectez également tout signe de dommage sur l'équipement; ne pas mettre sous tension un équipement présentant des dommages, tout dommage électrique interne pouvant provoquer un choc lors de la mise en route.

Conditions générales d'utilisation

Ce produit a été conçu et testé pour être conforme aux exigences des normes CEI/EN61010-1 "Règles de sécurité pour appareils électriques de mesure, de régulation et de laboratoire", pour des équipements Classe I portables et pour une utilisation dans un environnement de pollution de niveau 2. Cet équipement est conçu pour fonctionner à partir d'une alimentation de catégorie II.

Cet équipement doit être protégé de l'introduction de liquides ainsi que des précipitations d'eau, de neige, etc. Lorsqu'on transporte cet équipement d'un environnement chaud vers un environnement froid, il est important de laisser l'équipement se stabiliser en température avant de le connecter à une alimentation afin d'éviter toute formation de condensation. L'appareil doit être utilisé uniquement dans le cadre des conditions d'environnement spécifiées dans la fiche technique, toute autre utilisation peut endommager les systèmes de protection.

Ce produit n'est pas garanti pour fonctionner dans des atmosphères dangereuses ou pour un usage médical. Si l'équipement doit être utilisé pour des applications en relation avec la sécurité, par exemple des applications militaires ou aéronautiques, la compatibilité du produit doit être établie et approuvée par une personne compétente.

WARNING



Sécurité électrique (tension d'alimentation alternative)

Cet appareil est protégé conformément à la norme CEI de sécurité Classe 1, c'est-à-dire que sa prise secteur comporte un fil de protection à la terre. Pour maintenir cette protection, le câble d'alimentation doit toujours être branché à la source d'alimentation par l'intermédiaire d'une prise comportant une borne de terre.

Notez que les filtres d'alimentation contiennent des condensateurs qui peuvent encore être chargés lorsque l'appareil est débranché. Bien que l'énergie contenue soit conforme aux exigences de sécurité, il est possible de ressentir un léger choc si l'on touche les bornes sitôt après débranchement.

Ne démontez pas le capot de l'instrument, car ceci peut provoquer des blessures. Il n'y a pas de pièces remplaçables par l'utilisateur à l'intérieur.

Faites effectuer toute réparation par du personnel qualifié.

Fusibles

Notez que le fusible d'alimentation interne est en série avec la phase du câble d'alimentation. Si la prise d'alimentation comporte deux bornes non polarisées, il est possible de connecter le fusible au neutre. Dans ce cas, certaines parties de l'appareil peuvent rester à un certain potentiel même après coupure du fusible.

WARNING



Risque lié au feu

Lors du remplacement des fusibles vérifiez l'exactitude de leur type et de leur valeur.

Si le câble d'alimentation comporte une prise avec fusible intégré, assurez vous que sa valeur est compatible avec les besoins de la fiche technique.

WARNING



Danger produits toxiques

Certains composants utilisés dans cet appareil peuvent contenir des résines et d'autres matières qui dégagent des fumées toxiques lors de leur incinération. Les précautions d'usages doivent donc être prises lorsqu'on se débarrasse de ce type de composant.

WARNING



Lithium

Une pile au Lithium est utilisé dans cet équipement.

Le Lithium étant une substance toxique, il ne faut en aucun cas l'écraser, l'incinérer ou le jeter avec des déchets normaux.

N'essayez pas de recharger ce type de pile. Ne court-circuitez pas ou ne forcez pas la décharge de la pile car cela pourrait causer une fuite, une surchauffe ou une explosion.

PRECAUTIONS

WARNING



Position inclinée

Lorsque l'appareil est dans une position inclinée, il est recommandé, pour des raisons de stabilité, de ne pas y empiler d'autres appareils.

WARNING



Module d'affichage à cristaux liquides

Ne pas démonter le module d'affichage à cristaux liquides.

La matière contenue dans l'afficheur à cristaux liquides utilisé dans cet appareil est une substance toxique. Si l'afficheur est endommagé ou si la matière des cristaux liquides s'écoule, il faut éviter de la mettre en contact avec sa bouche. En cas de contact avec la peau, laver immédiatement la surface touchée avec de l'eau et du savon et s'adresser à un service médical.

L'éclairage de l'afficheur provient d'un tube cathodique fluorescent (CCFT). Celui-ci contient une petite quantité de gaz mercure, qui est une substance toxique.

L'afficheur ainsi que le tube CCFT sont en verre. Il faut donc éviter de leur faire subir des chocs mécaniques pouvant causer des dégâts.

Ne pas se débarrasser de ces modules ni d'aucun de leurs composants dans une poubelle à usage domestique. Utilisez uniquement les containers à déchets appropriés.

CAUTION

Utilisation

Cet équipement a été conçu et fabriqué par Aeroflex pour générer des signaux RF de faible puissance pour le test d'appareils de radio communications.

La protection de l'équipement peut être altérée s'il n'est pas utilisé dans les conditions spécifiées par Aeroflex.

Aeroflex n'a aucun contrôle sur l'usage de l'instrument, et ne pourra être tenu pour responsable en cas d'événement survenant suite à une utilisation différente de celle prévue.

Vorsichtsmaßnahmen

WARNING

CAUTION

Note

Diese Hinweise haben eine bestimmte Bedeutung in diesem Handbuch:

WARNING

dienen zur Vermeidung von Verletzungsrisiken.

CAUTION

dienen dem Schutz der Geräte.

Note

enthalten wichtige Informationen.

Gefahrensymbole

Die Bedeutung der Gefahrensymbole auf den Geräten und in der Dokumentation ist wie folgt:

Symbol

Gefahrenart



Beziehen Sie sich auf die Bedienungsanleitung wenn das Messgerät mit diesem Symbol markiert ist. Machen Sie sich mit der Art der Gefahr und den Aktionen die getroffen werden müssen bekannt.



Warnung vor giftigen Substanzen

WARNING



Sofortige visuelle Überprüfung

Nach dem Auspacken des Gerät es ist die Verpackung und das Ausfütterungsmaterial auf Druckstellen und Beschädigung hin zu überprüfen. Bei Feststellung von Beschädigung sollte die Verpackung, für den Fall daß Ansprüche an den Spediteur entstehen, sichergestellt werden. Begutachten Sie anschließend das Gerät auf Anzeichen von Beschädigung und verbinden Sie dieses nicht mit dem Netz falls solche vorhanden sind. Interne elektrische Beschädigung kann beim Einschalten zu einem Stromschlag führen.

Allgemeine Hinweise zur Verwendung

Dieses Produkt wurde entsprechend den Anforderungen von IEC/EN61010-1 "Sicherheitsanforderungen für elektrische Ausrüstung für Meßaufgaben, Steuerung und Laborbedarf", Klasse I transportabel zur Verwendung in einer Grad 2 verunreinigten Umgebung, entwickelt und getestet. Dieses Gerät ist für Netzversorgung Klasse II zugelassen.

Das Gerät sollte vor dem Eindringen von Flüssigkeiten sowie vor Regen, Schnee etc. geschützt werden. Bei Standortänderung von kalter in wärmere Umgebung sollte das Gerät wegen der Kondensation erst nach Anpassung an die wärmere Umgebung mit dem Netz verbunden werden. Das Gerät darf nur in Umgebungsbedingungen wie im Datenblatt beschrieben, betrieben werden; ansonsten wird der vom Gerät vorgesehene Schutz des Anwenders beeinträchtigt.

Dieses Produkt ist nicht für den Einsatz in gefährlicher Umgebung (z.B. Ex-Bereich) und für medizinische Anwendungen geprüft. Sollte das Gerät für den Einsatz in sicherheitsrelevanten Anwendungen wie z.B. im Flugverkehr oder bei militärischen Anwendungen vorgesehen sein, so ist dieser von einer für diesen Bereich zuständigen Person zu beurteilen und genehmigen.

WARNING



Elektrische Schläge (Wechselspannungsversorgung)

Das Gerät entspricht IEC Sicherheitsklasse 1 mit einem Schutzleiter nach Erde. Das Netzkabel muß stets an eine Steckdose mit Erdkontakt angeschlossen werden.

Filterkondensatoren in der internen Spannungsversorgung können auch nach Unterbrechung der Spannungszuführung noch geladen sein. Obwohl die darin gespeicherte Energie innerhalb der Sicherheitsmargen liegt, kann ein leichter Spannungsschlag bei Berührung kurz nach der Unterbrechung erfolgen.

Öffnen Sie niemals das Gehäuse der Geräte das dies zu ernsthaften Verletzungen führen kann. Es gibt keine vom Anwender austauschbare Teile in diesem Gerät.

Lassen Sie alle Reparaturen durch qualifiziertes Personal durchführen.

Sicherungen

Die interne Sicherung in der Spannungszuführung ist in Reihe mit der spannungsführenden Zuleitung geschaltet. Bei Verbindung mit einer zweiadrigen, nicht gepolten Steckdose kann die Sicherung in der Masseleitung liegen, so daß auch bei geschmolzener Sicherung Geräteteile immer noch auf Spannungspotential sind.

WARNING



Feuergefahr

Es dürfen nur Ersatzsicherungen vom gleichen Typ mit den korrekten Spezifikationen entsprechend der Stromaufnahme des Gerätes verwendet werden. Siehe hierzu im Datenblatt.

WARNING



Warnung vor giftigen Substanzen

In einigen Bauelementen dieses Geräts können Epoxyharze oder andere Materialien enthalten sein, die im Brandfall giftige Gase erzeugen. Bei der Entsorgung müssen deshalb entsprechende Vorsichtsmaßnahmen getroffen werden.

WARNING



Lithium

Eine Lithium Batterie ist in diesem Gerät eingebaut.

Da Lithium ein giftiges Material ist, sollte es als Sondermüll entsorgt werden.

Diese Batterie darf auf keinen Fall geladen werden. Nicht kurzschließen, da sie dabei überhitzt werden und explodieren kann.

WARNING



Schrägstellung

Bei Schrägstellung des Geräts sollten aus Stabilitätsgründen keine anderen Geräte darauf gestellt werden.

WARNING



Das LCD Modul

Demontieren Sie in keinem Fall das LCD Modul.

Die Flüssigkristallsubstanz, die im Displaymodul dieses Gerätes enthalten ist, enthält giftige Substanzen. Falls das Displaymodul beschädigt wird und die darin enthaltene Flüssigkristallsubstanz entweicht, so achten Sie darauf, daß diese Substanz in keinem Fall mit Schleimhäuten in Berührung kommt. Sollte die Substanz mit Ihrer Haut in Berührung kommen, so waschen Sie die betroffenen Hautpartien mit Wasser und Seife ab und geben sich in ärztliche Behandlung.

Die Hintergrundbeleuchtung des Displays besteht aus einer CCFT (Cold Cathode Fluorescent Tube). Dieses enthält kleine Mengen Quecksilbergas. Dieses Gas ist giftig.

Sowohl das Display als auch die Hintergrundbeleuchtung bestehen aus Glas. Mechanische Einwirkungen können diese Gläser zerstören.

Entsorgen Sie diese Module oder Teile davon nicht über den normalen Hausmüll, sondern über eine geeignete Sondermüllverwertung.

CAUTION

Eignung für Gebrauch

Dieses Gerät wurde von Aeroflex entwickelt und hergestellt um HF Signale geringer Leistung zum Test von Kommunikationseinrichtungen zu erzeugen.

Sollte das Gerät nicht auf die von Aeroflex vorgesehene Art und Weise verwendet werden, kann die Schutzfunktion des Gerätes beeinträchtigt werden.

Aeroflex hat keinen Einfluß auf die Art der Verwendung und übernimmt keinerlei Verantwortung bei unsachgemäßer Handhabung.

Precauzioni

WARNING

CAUTION

Note

Questi termini vengono utilizzati in questo manuale con significati specifici:

WARNING

riportano informazioni atte ad evitare possibili pericoli alla persona.

CAUTION

riportano informazioni per evitare possibili pericoli all'apparecchiatura.

Note

riportano importanti informazioni di carattere generale.

Simboli di pericolo

Il significato del simbolo di pericolo riportato sugli strumenti e nella documentazione è il seguente:

Simbolo

Tipo di pericolo



Fare riferimento al manuale operativo quando questo simbolo è riportato sullo strumento. Rendervi conto della natura del pericolo e delle precauzioni che dovrete prendere.



Pericolo sostanze tossiche

WARNING



Ispezione visiva iniziale

Dopo aver sballato lo strumento, ispezionare l'imballo e verificare che non vi siano segni di urti o deformazioni. Nel caso si dovessero riscontrare dei danni, conservare l'imballo per un'eventuale contestazione al cordiere.

Verificare che lo strumento non abbia segni di danni, nel caso si dovessero riscontrare tali segni, non dare alimentazione in quanto vi potrebbero essere dei danni interni causa di possibili shock.

Condizioni generali d'uso

Questo prodotto è stato progettato e collaudato per rispondere ai requisiti della direttiva IEC/EN61010-1 'Safety requirements for electrical equipment for measurement, control and laboratory use' per apparati di classe I portatili e per l'uso in un ambiente inquinato di grado 2. L'apparato è stato progettato per essere alimentato da un alimentatore di categoria II.

Lo strumento deve essere protetto dal possibile ingresso di liquidi quali, ad es., acqua, pioggia, neve, ecc. Qualora lo strumento venga portato da un ambiente freddo ad uno caldo, è importante lasciare che la temperatura all'interno dello strumento si stabilizzi prima di alimentarlo per evitare formazione di condense. Lo strumento deve essere utilizzato esclusivamente nelle condizioni ambientali descritte nella scheda tecnica, in caso contrario le protezioni previste nello strumento potrebbero risultare non sufficienti.

Questo prodotto non è stato approvato per essere usato in ambienti pericolosi o applicazioni medicali. Se lo strumento deve essere usato per applicazioni particolari collegate alla sicurezza (per esempio applicazioni militari o avioniche), occorre che una persona o un istituto competente ne certifichi l'uso.

WARNING



Pericoli da elettricità (alimentazione c.a.)

Quest 'apparato è provvisto del collegamento di protezione di terra e rispetta le norme di sicurezza IEC, classe 1. Per mantenere questa protezione è necessario che il cavo, la spina e la presa d'alimentazione siano tutti provvisti di terra.

Il circuito d'alimentazione contiene dei filtri i cui condensatori possono restare carichi anche dopo aver rimosso l'alimentazione. Sebbene l'energia immagazzinata è entro i limiti di sicurezza, purtroppo una leggera scossa può essere avvertita toccando i capi della spina subito dopo averla rimossa.

Non rimuovete mai le coperture perché così potreste provocare danni a voi stessi. Non vi sono all'interno parti di interesse all'utilizzatore.

Tutte gli interventi sono di competenza del personale qualificato.

Fusibili

Notare che un fusibile è posto sul filo caldo del cavo di alimentazione. Qualora l'alimentazione avvenga tramite due poli non polarizzati, è possibile che il fusibile vada a protezione del neutro per cui anche in caso di una sua rottura, l'apparato potrebbe restare sotto tensione.

WARNING



Pericolo d'incendio

Assicurarsi che, in caso di sostituzione, vengano utilizzati solo fusibili della portata e del tipo prescritti.

Se viene usata una spina con fusibili, assicurarsi che questi siano di portata adeguata ai requisiti di alimentazione richiesti dallo strumento. Tali requisiti sono riportati nella scheda tecnica.

WARNING



Pericolo sostanze tossiche

Alcuni dei componenti usati in questo strumento possono contenere resine o altri materiali che, se bruciati, possono emettere fumi tossici. Prendere quindi le opportune precauzioni nell'uso di tali parti.

WARNING



Litio

Quest 'apparato incorpora una batteria al litio.

Poiché il litio è una sostanza tossica, la batteria non deve essere mai né rotta, né incenerita, né gettata tra i normali rifiuti.

Questo tipo di batteria non può essere sottoposto né a ricarica né a corto-circuito o scarica forzata. Queste azioni possono provocare surriscaldamento, fuoriuscita di gas o esplosione della batteria.

WARNING



Posizionamento inclinato

Quando lo strumento è in posizione inclinata è raccomandato, per motivi di stabilità, non sovrapporre altri strumenti.

WARNING



Schermo a cristalli liquidi (LCD - Liquid Crystal Display)

Non disassemblare il modulo LCD.

La sostanza contenuta nello schermo LCD è tossica. Se il modulo LCD viene danneggiato e si ha una perdita di liquido, occorre evitarne il contatto con la bocca. In caso di contatto con la pelle, lavare immediatamente le aree interessate con acqua e sapone e contattare un medico.

L'illuminazione dello schermo è prodotta tramite un tubo fluorescente a catodo freddo (CCFT - Cold Cathode Fluorescent Tube) che contiene una piccola quantità di gas mercurio, anch'esso tossico.

Sia lo schermo LCD sia il tubo CCFT sono di vetro, per cui non devono essere sottoposti a shock meccanici che possono causarne la rottura.

Il modulo LCD, il tubo CCFT o i loro residui vanno eliminati come residui speciali secondo la normativa vigente.

CAUTION

Caratteristiche d'uso

Questo strumento è stato progettato e prodotto da Aeroflex generare segnali RF in bassa potenza per provare apparati di radio comunicazione.

Se lo strumento non è utilizzato nel modo specificato da Aeroflex, le protezioni previste sullo strumento potrebbero risultare inefficaci.

Aeroflex non può avere il controllo sull'uso di questo strumento e non può essere ritenuta responsabile per eventi risultanti da un uso diverso dallo scopo prefisso.

Precauciones

WARNING

CAUTION

Note

Estos términos tienen significados específicos en este manual:

WARNING

contienen información referente a prevención de daños personales.

CAUTION

contienen información referente a prevención de daños en equipos.

Note

contienen información general importante.

Símbolos de peligro

El significado de los símbolos de peligro en el equipo y en la documentación es el siguiente:

Símbolo

Naturaleza del peligro



Vea el manual de funcionamiento cuando este símbolo aparezca en el instrumento. Familiarícese con la naturaleza del riesgo y con las acciones que deban de tomarse.



Aviso de toxicidad

WARNING



Inspección visual inicial

Tras desembalar el equipo inspeccione tanto la caja como el material de amortiguamiento para verificar si han sido forzados o dañados. Si encuentra daños, retenga el embalaje para que, en caso de reclamación, pueda ser inspeccionado por el transportista. Examine el equipo para verificar que no ha sufrido daños. No conecte el equipo a la alimentación cuando esté dañado, la avería interna podría originar una descarga al encender el equipo.

Condiciones generales de uso

Este producto ha sido diseñado y probado para cumplir los requerimientos de la normativa IEC/EN61010-1 “Requerimientos de la normativa para equipos eléctricos de medida, control y uso en laboratorio”, para equipos clase I portátiles y para uso en un ambiente con un grado de contaminación 2. El equipo ha sido diseñado para funcionar sobre una instalación de alimentación de categorías II.

Debe protegerse el equipo de la entrada de líquidos y precipitaciones como nieve, lluvia, etc. Cuando se traslada el equipo de entorno frío a un entorno caliente, es importante aguardar la estabilización del equipo para evitar la condensación. Solamente debe utilizarse el equipo bajo las condiciones ambientales especificadas en la hoja técnica, en caso contrario la propia protección del equipo puede resultar dañada.

Este producto no ha sido aprobado para su utilización en entornos peligrosos o en aplicaciones médicas. Si se va a utilizar el equipo en una aplicación con implicaciones en cuanto a seguridad, como por ejemplo aplicaciones de aviónica o militares, es preciso que un experto competente en materia de seguridad apruebe su uso.

WARNING



Nivel peligroso de electricidad (tensión de red)

Este equipo cumple las normas IEC Seguridad Clase 1, lo que significa que va provisto de un cable de protección de masa. Para mantener esta protección, el cable de alimentación de red debe de conectarse siempre a una clavija con terminal de masa.

Tenga en cuenta que el filtro de red contiene condensadores que pueden almacenar carga una vez desconectado el equipo. Aunque la energía almacenada está dentro de los requisitos de seguridad, pudiera sentirse una ligera descarga al tocar la clavija de alimentación inmediatamente después de su desconexión de red.

No retire las cubiertas del chasis del instrumento, ya que pudiera resultar dañado personalmente. No existen partes que puedan ser reparadas en su interior.

Deje todas las tareas relativas a reparación a un servicio técnico cualificado. Vea la lista de Centros de Servicios Internacionales en la parte trasera del manual.

Fusibles

Se hace notar que el fusible de alimentación interno está en serie con el activo del cable de alimentación a red. Si la clavija de alimentación de red cuenta con sólo dos terminales sin polaridad, el fusible puede pasar a estar en serie con el neutro, en cuyo caso existen partes del equipo que permanecerían a tensión de red incluso después de que el fusible haya fundido.

WARNING



Peligro de incendio

Asegúrese de utilizar sólo fusibles del tipo y valores especificados como repuesto.

Si se utiliza una clavija con fusible incorporado, asegúrese de que los valores del fusible corresponden a los requeridos por el equipo. Consulte la hoja técnica para comprobar los requisitos de alimentación.

WARNING



Aviso de toxicidad

Alguno de los componentes utilizados en este equipo pudieran incluir resinas u otro tipo de materiales que al arder produjeran sustancias tóxicas. Por tanto, tome las debidas precauciones en la manipulación de esas piezas.

WARNING



Litio

En este equipo se utiliza una batería de litio.

Dada que el litio es una sustancia tóxica las baterías de este material no deben ser aplastadas, quemadas o arrojadas junto a basuras ordinarias.

No trate de recargar este tipo de baterías. No las cortocircuite o fuerce su descarga ya que puede dar lugar a que la esta emita gases, se recaliente o explote.

PRECAUTIONS

WARNING



Tener en cuenta con el equipo inclinado

Si utiliza el equipo en posición inclinada, se recomienda, por razones de estabilidad, no apilar otros equipos encima de él.

CAUTION

Idoneidad de uso

Este equipo ha sido diseñado y fabricado por Aeroflex para generar señales de RF de bajo nivel para probar equipos de radiocomunicaciones.

Si el equipo fuese utilizado de forma diferente a la especificada por Aeroflex, la protección ofrecida por el equipo pudiera quedar reducida.

Aeroflex no tiene control sobre el uso de este equipo y no puede, por tanto, exigirsele responsabilidades derivadas de una utilización distinta de aquellas para las que ha sido diseñado.

Installing and switching on

WARNING



Initial visual inspection

After unpacking the instrument, inspect the shipping container and its cushioning material for signs of stress or damage. If there is damage, retain the packing material for examination by the carrier in the event that a claim is made. Examine the instrument for signs of damage; do not connect the instrument to a supply when damage is present, as internal electrical damage could result in a shock if the instrument is turned on.

CAUTION

Positioning the instrument

Excessive temperatures may affect the performance of the instrument. Completely remove any protective plastic covering, and avoid standing the instrument on or close to another instrument that is hot.

Stability

If you stand the instrument on end on its rear-panel protectors, make sure that you provide support to prevent it from toppling over.

CAUTION

Installation requirements

Ventilation

This instrument is air-cooled by a fan mounted on the rear panel. Air enters through ventilation holes on the sides and underside of the instrument, and expels through the fan outlet.

Before switching on the instrument, ensure that the fan outlet on the rear panel is not restricted. Leave a clearance of at least 50 mm (2 in) at the rear.

Make sure also that the ventilation holes on the sides and underside are not closely covered; maintain a minimum clearance of 6 mm (1/4 in) at each side of a single instrument. If you do not provide adequate clearance, internal temperatures will increase and may affect the instrument's performance adversely.

When two or more instruments are joined together, the design ensures that each instrument receives adequate airflow.

Power cord

General

When the instrument has to be plugged into a Class II (ungrounded) 2-terminal socket outlet, the cable should either be fitted with a 3-pin Class I plug and used in conjunction with an adapter incorporating a ground wire, or be fitted with a Class II plug with an integral ground wire. Fasten the ground wire securely to ground. Grounding one terminal on a 2-terminal socket does not provide adequate protection.

INSTALLATION

If a molded plug has to be removed from a lead, dispose of it immediately. A plug with bare flexible cords is hazardous if it is inserted into a live socket outlet.

Connecting to supply

The instrument is a Safety Class 1 product and therefore must be earthed. Use the supplied power cord or an appropriate replacement. Make sure that the instrument is plugged into an outlet socket with a protective earth contact.

Ensure that the AC supply is correctly connected to the line power receptacle. For line power in the range 100 to 240 V~, 50 to 60 Hz, the PSU automatically selects the appropriate range. No manual voltage-range selection is provided.

Disconnecting device

The detachable power cord is the instrument's disconnecting device, but if the instrument is integrated into a rack or system, an external power switch or circuit breaker is required. Whatever the disconnecting device, make sure that you can reach it easily and that it is accessible at all times.

Power cord

Use only an approved power cord that does not exceed three meters.

Standby/on switch

The switch on the front panel is only a standby switch, and does not isolate the instrument from the supply. Remove the power cord from the socket outlet to isolate the instrument.

AC fuses

The fuse-holder is integral with the 3-pin supply receptacle on the rear panel. To change the fuse, remove the line cord and then use a screwdriver to lever out the holder.

For the AC voltage range of 100 to 240 V, the fuse rating is T3.15AL250V. One fuse is fitted, in the live line of the supply. It is a glass cartridge type, measuring 20 mm × 5 mm.

The plug attached to the line cord is fitted with a 5 A fuse also (in the UK only).

External equipment

Connect only equipment complying with the relevant IEC safety standards to the connectors on the instrument, in order to maintain the protection provided by the instrument.

To minimize electromagnetic interference (EMI), follow the following recommendations:

- Do not use connecting cables longer than 1 m.
- Use double-screened cables where possible.

Goods-in check

The following goods-in check confirms only that the instrument is functioning correctly. It does not verify conformance to the specification given in the data sheet.

- 1 Ensure that the correct fuse is fitted and that the supply is in the range specified on the data sheet.
- 2 Connect the instrument to the supply.
- 3 Press the standby/on switch on the front panel. The instrument starts up and displays the signal generator menu.
- 4 If the instrument appears to be completely dead, do the following:
Check that the power cord is providing power to the instrument.
Check that the instrument's fuse has not blown.

Operation

Getting started

This chapter introduces you to the instrument's controls and connectors. It then takes you through a simple example set-up exercise to provide some familiarity with operating the instrument.

Front panel

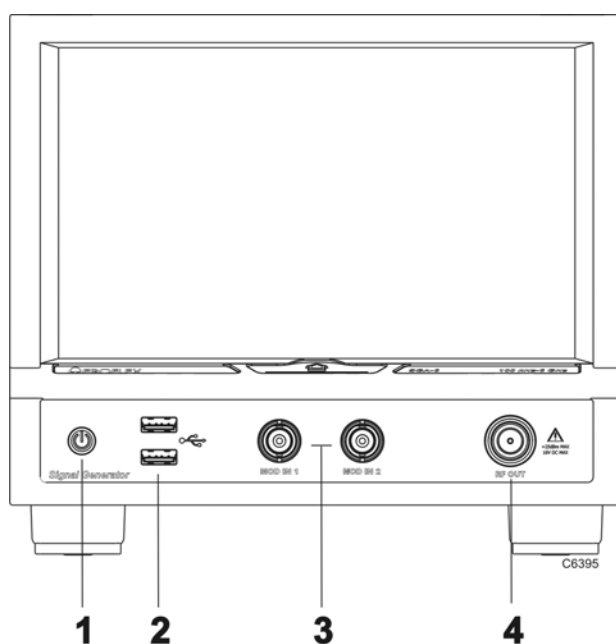



Fig. 1 Front panel

See the data sheet for all available options.

1	On/off switch	Switches the instrument using a press on/press off action. <i>Note: to remove AC line power from the instrument, you must disconnect the power cord.</i>
2		Dual USB 2.0 socket. Used to transfer memory stores, ARB waveforms or other files, or to connect a mouse or keyboard.
3	MOD IN 1 and 2	External modulation inputs, selectable input impedance $>100\text{ k}\Omega$ or $600\text{ }\Omega$. N-type socket. AC or DC coupled. Modulation calibrated for 1 V RMS or 1 V peak (selectable). Damage level: $\pm 5\text{ V}$.
4	RF OUT	50 Ω N-type socket. Signal generator output. Option 002 only. This option protects SGA-3 against the application of reverse power at this port of up to 20 dBm (50 W) from a 50 Ω source. Protection remains active when AC line power is removed from the instrument. SGA-6 cannot be provided with reverse power protection. Reverse power damage level for SGA-6 is +25 dBm, $\pm 16\text{ V DC}$.

Rear panel

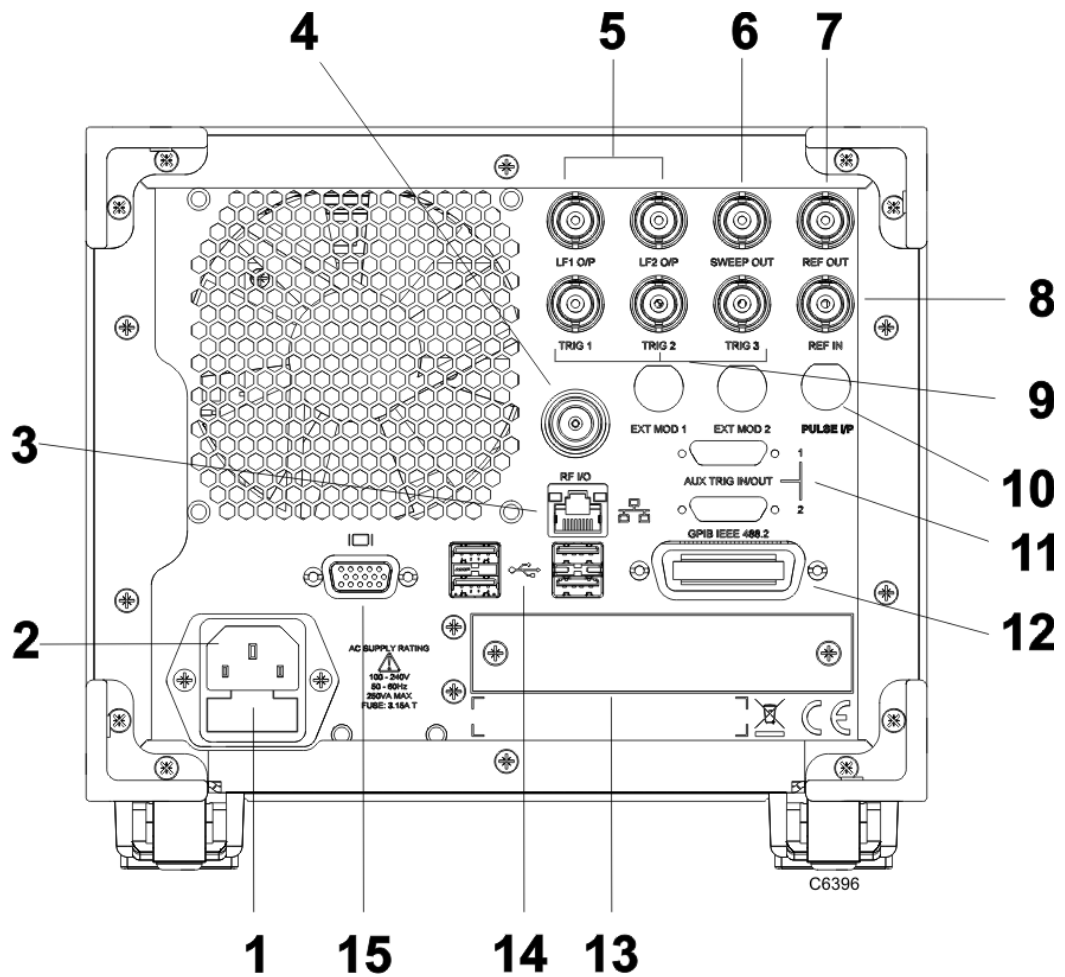





Fig. 2 Rear panel

1	Fuse holder	Contains 5 x 20 mm AC line fuse.
2	Power supply receptacle	3-pin IEC C14 filtered panel-mounted male power inlet.
3		Ethernet connector for LAN (local area network), UUT (unit under test), inter-SGA system connections.
4	RF I/O	Option 007 only. 50 Ω N-type socket. The RF output is moved to the rear panel.
5	LF1 and LF2 O/P	50 Ω BNC sockets: can be configured to provide an output from the internal modulation oscillator or from the internal modulation paths.
6	SWEEP OUT	50 Ω BNC socket: generates 0 to 10 V when the generator is sweeping.
7	REF OUT	50 Ω BNC socket: 10 MHz at 2 V p-p into 50 Ω. Damage level: -0.5 V/+6 V.
8	REF IN	50 Ω/100 kΩ BNC socket: accepts reference frequency of 10 MHz at 200 mV to 2 V RMS. Damage level: -0.5 V/+10 V.
9	TRIG1, 2, 3	50 Ω BNC sockets (TTL): apply 0 V to start sweep or step from point to point on a sweep. Sockets pulled up to +5 V by 10 kΩ. Damage level: ±5 V.
10	PULSE I/P	Option 004 only. 50 Ω BNC socket (TTL/CMOS): accepts an external pulse trigger.

OPERATION

11	AUX TRIG IN/OUT	For future use. 25-way connector inputs/outputs burst gate control signals; A/B level burst attenuation control signals; ARB trigger; markers.
12	GPIB IEEE488.2	24-pin socket accepts a standard GPIB connector to allow remote operation of the instrument.
13	Removable hard drive	Option 005 only. Removable serial ATA 80 Gbyte 2.5 inch drive. Can be used to store instrument settings for removal to a secure area.
14		Four USB 2.0 sockets. Used to transfer memory stores, ARB waveforms or other files, or to connect a mouse or keyboard. Also provide electrical connections between multiple S-Series modules.
15		15-way D-type for connecting a VGA monitor.

Using a keyboard and mouse

You can use the instrument with or without keyboard and mouse (see [Touch!](#) on page 26).

If you are using keyboard and mouse, they need to be USB compatible. Plug them into the USB sockets on the front or rear panel.

If you are using the instrument without keyboard or mouse, you can access all Windows™ functions through your fingertips. To access Windows, close down the SGA software by touching the Exit Application button on the menu tab.

Connecting a mouse and/or keyboard may compromise the EMC performance of the instrument.

Powering up

Plug the line cord into the supply socket and the power supply receptacle on the rear panel.

Press the on/off switch on the front panel. The instrument starts up, first loading Windows™, and then the SGA application.

Allow 10 minutes warm-up time for the instrument to stabilize.

Touch areas on the screen

Touch!

In this document, when we use the term 'touch', it describes the action of touching lightly on an area on the screen with a finger

or

clicking on that area with a mouse.

Referring to parameters on the screen




Titles that appear on the screen are represented as **bold** text. For example:

Carrier

Waveform

Referring to touch areas

Touch areas like menu items, value fields and soft buttons are displayed in the main screen area. They are represented as ***bold italics***. For example:

Looks like this on the screen:	Represented in this document as:
	<i>Store/Recall</i>
	<i>2000.000000MHz</i>
	<i>Modulation</i>

How the screen is laid out

This is the main screen, which is divided into a number of functional areas:



C6429

Fig. 3 Main screen layout


RF field

This displays the current RF frequency and level settings, and lets you change them using the popup keypad and slider. You can also select the frequency standard, and enable or disable RF output and modulation.


Function field

In this field, you set up the signal's modulation and configure sweep and pulse modes. Modulation setup is the default.

Touch the **Forward** button  to see the Sweep and Pulse modes.

The **Home** button  takes you back to the Modulation field.

Status bar

Touch the **Status** button  to see the current state of subsystems such as the frequency standard. Error messages are displayed here.

Menu tab

The menu tab contains all the system functions. It is normally collapsed in order to make space for the main SGA menus. Touch anywhere on the menu tab to expand it:

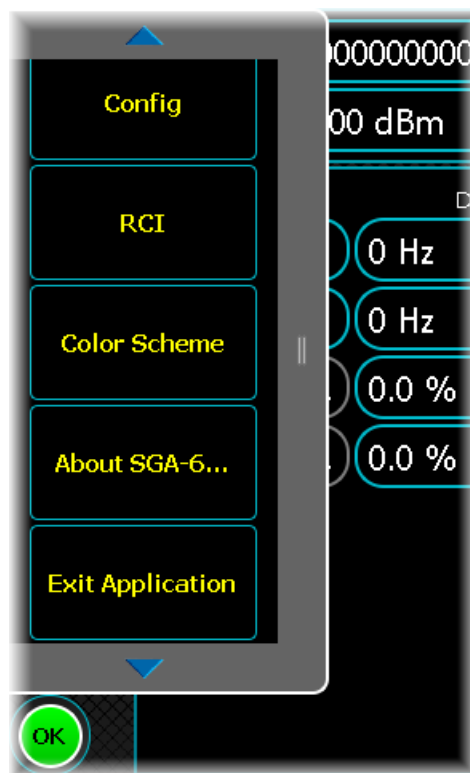


Fig. 4 Menu tab, expanded

Popups

To ensure that the screen is not cluttered with unnecessary information, the instrument displays a popup keypad, and sometimes a slider adjustment, that overlay the fixed window layout when numeric entries are required.

Popup keypad

In this example, the popup keypad lets you enter a new value of frequency. There are similar popup keypads for power level and voltage entries.

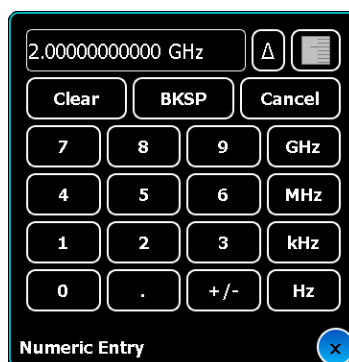




Fig. 5 Popup keypad

Popup keypads are overlaid on the main window. They have a standard set of features:

-  button. Defines the size of a frequency or power step.
-  button. Shows or hides the popup slider
- **Clear** button. Clears the current displayed value.
- **BKSP** button. Deletes the last entry.
- **Cancel** button. Closes the popup window without making any changes.
- **X** button. Closes the popup window.

Enter and confirm value

Enter the value required. The entry is confirmed when you touch the units key.

Popup slider

For all numeric entries, there is also a slider adjustment.

The slider provides fast adjustment of a parameter. It consists of a high- and a low-resolution slider (as shown below). Drag the sliders with your fingertip to change the value.



Fig. 6 Slider adjustment

Use the **/10** and **x10** factor buttons to increase or decrease the resolution of the sliders. To see how this works, set the top slider to maximum resolution (touch **/10** repeatedly) and the lower slider to minimum resolution (touch **x10** repeatedly). Now drag the lower slider. You can see that it acts as a vernier scale for the upper slider, which moves accordingly.


Example setup

To help you quickly become familiar with the basic operation of the instrument, try the following exercise, which demonstrates how to set up a typical signal with these parameters:

- Carrier frequency: 100 MHz
- Output level: –10 dBm
- Frequency modulation: 100 kHz deviation at 500 Hz modulation.

Once you have followed this example once, you are unlikely to need it again — the instrument is very intuitive to use!



Setting the carrier frequency

- 1 Touch the **Carrier** button  and select carrier frequency as the current function.
- 2 Use the popup numeric keypad to enter 100 MHz, by:
entering **100**
and terminating with the **MHz** button.
- 3 The frequency displayed changes to 100.000000 MHz.

Backspace and clear buttons

If you make a mistake when keying in, touch the backspace button BKSP and enter the correct value. You can also clear the entire entry by touching the **Clear** button.

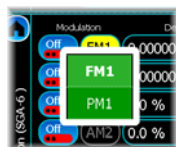
Setting RF level

- 1 Touch the **RF Level** button  and select RF level as the current function.
- 2 Use the popup numeric keypad to enter –10 dBm, by:
touching 
entering **10**
and terminating with the **dBm** button.
- 3 The RF level displayed changes to –10.0 dBm.

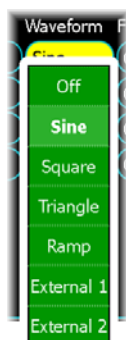
Setting analog modulation



- 1 Touch any **Modulation** button and select the FM1 modulation type from the dropdown menu:



- 2 Touch the **Depth/Deviation** button.
Use the popup numeric keypad to enter 100 kHz deviation by:
entering **100**
and terminating with the **kHz** button.
- 3 Touch the **Waveform** button and select the sine waveform shape from the dropdown menu:



- 4 Touch the **Frequency** button.
Use the popup numeric keypad to enter 500 Hz modulating frequency by:
entering **500**
and terminating with the **Hz** button.

Turning a selected modulation source on and off

Touching the **Source** button toggles the selected modulation on and off. Turn the modulation source on:



Turning all modulation on and off

Touching the **Modulation ON/OFF** button toggles all modulation on the output on and off. Select Modulation ON.



Turning modulated carrier on and off

Touching the **RF** button toggles the RF output on and off. Select RF ON.



A 100 MHz, -10 dBm carrier, with 100 kHz deviation, modulated at 500 Hz, now appears at the RF OUT socket.

Powering down

Press the on/off switch on the front panel.

The instrument takes a few seconds to power down, first closing the SGA application, then Windows®. There is no need to exit Windows separately.

Removing power

Note: the on/off switch does not isolate the instrument from the line power. To remove power from the instrument, disconnect the power cord.

Do not disconnect the line cord until the instrument has finished powering down, as (similar to a PC) you may corrupt data.

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 - 8.1.2 Parts with possession of the Designated Equipment.
- 8.2 This License may be terminated by notice in writing to the Licensee if the Licensee shall be in breach of any of its obligations hereunder and continue in such breach for a period of 21 days after notice thereof has been served on the Licensee.
- 8.3 On termination of this Agreement for any reason, Aeroflex may require the Licensee to return to Aeroflex all copies of the Licensed Software in the custody of the Licensee and the Licensee shall, at its own cost and expense, comply with such requirement within 14 days and shall, at the same time, certify to Aeroflex in writing that all copies of the Licensed Software in whatever form have been obliterated from the Designated Equipment.

9. THIRD PARTY LICENCES

- 9.1 The Licensed Software or part thereof may be the proprietary property of third party licensors. In such an event such third party licensors (as may be referenced on the software media, or any on screen message on start up of the software or on the order acknowledgement) and/or Aeroflex may directly enforce the terms of this Agreement and may terminate the Agreement if the Licensee is in breach of the conditions contained herein.
- 9.2 If any third party software supplied with the Licensed Software is supplied with, or contains or displays the third party's own license terms then the Licensee shall abide by such third party license terms (for the purpose of this Article the term "third party" shall include other companies within the Aeroflex group of companies).

10. EXPORT REGULATIONS

The Licensee undertakes that where necessary the Licensee will conform with all relevant export regulations imposed by the Governments of the United Kingdom and/or the United State of America.

11. U.S. GOVERNMENT RESTRICTED RIGHTS

The Licensed Software and documentation are provided with RESTRICTED RIGHTS. Use, duplication, or disclosure by the Government is subject to restrictions as set forth in subparagraph (c)(1)(ii) of the Rights in Technical Data and Computer Software clause at DFARS 252.227-7013 or subparagraphs (c)(1) and (2) of the Commercial Computer Software-Restricted Rights at 48 CFR 52.227-19, as applicable.

12. NOTICES

Any notice to be given by the Licensee to Aeroflex shall be addressed to:

Aeroflex Limited, Longacres House, Six Hills Way, Stevenage, SG1 2AN, UK.

13. LAW AND JURISDICTION

This Agreement shall be governed by the laws of England and shall be subject to the exclusive jurisdiction of the English courts. This agreement constitutes the whole agreement between the parties and may be changed only by a written agreement signed by both parties.

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