



S-Series SVA Signal Vector Analyzer



Getting Started

Document part no. 47090/125 (PDF version)



Getting Started
with
S-Series Signal Analyzers
SVA SIGNAL VECTOR ANALYZER

**Read this before handling
or powering up the instrument!**

Contains important safety precautions

© Aeroflex Ltd. 2012
Longacres House
Six Hills Way
Stevenage SG1 2AN
UK

*No part of this document may be reproduced or transmitted in any form
or by any means, electronic or mechanical, including photocopying,
or recorded by any information storage or retrieval system,
without permission in writing by Aeroflex Ltd.
(hereafter referred to throughout the document as 'Aeroflex').*

Document no. 47090/125 (PDF)

Issue 1

4 July 2012

Introduction

This guide covers the S-Series SVA-6 and SVA-13 signal vector analyzers.

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 SVA Help manual (part no. 47090/126) 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. 47090/127) on the CD-ROM provides the same information on installing and operating the instrument as the Help file, but in A4 PDF format.

It is available also as a printed document, part no. 47000/127.

About this document



Intended use

This instrument is intended for bench-top or rack installation, and operation under the conditions defined in *General conditions of use* on page v. It is intended to be used by engineering personnel engaged in vector analysis relating to the design, development and testing of RF devices and sub-systems and modules. It is assumed that users are familiar with the terms commonly used in RF measurements.

Associated publications

If you want to...	Refer to...
View operating information for the instrument in html Help format	S-Series SVA Vector Analyzer Help Part no. 47090/126 On the CD-ROM and at www.aeroflex.com/
View operating information for the instrument in pdf format.	S-Series SVA Vector Analyzer Operating Manual Part no. 467090/127 On the CD-ROM and at www.aeroflex.com/
View operating information for the instrument in printed format.	S-Series SVA Vector Analyzer Operating Manual Part no. 467000/127 Available as an optional extra
View GPIB programming information for the instrument in pdf format.	S-Series SVA Vector Analyzer Remote Command Reference Manual Part no. 47090/128 On the CD-ROM and at www.aeroflex.com/ .
View GPIB programming information for the instrument in printed format.	S-Series SVA Vector Analyzer Remote Command Reference Manual Part no. 47000/128 Available as an optional extra.

Contents

Introduction	ii
About this document	iii
Intended use.....	iii
Associated publications	iii
Contents.....	iv
Precautions.....	v
Précautions.....	viii
Vorsichtsmaßnahmen.....	xi
Precauzioni.....	xiv
Precauciones.....	xvii
Installing and switching on	1
Virus protection	1
Positioning the instrument.....	1
Installation requirements	2
Ventilation	2
Connecting to supply	2
Disconnecting device	2
On/off switch.....	2
AC fuses	3
External equipment.....	3
Goods-in check.....	3
Operation	4
Getting started	4
Front panel.....	4
Rear panel.....	5
Using a keyboard and mouse.....	6
Powering up.....	6
Touch areas on the screen.....	7
Touch!	7
How the screen is laid out	7
RF field.....	7
Function field	7
 button	7
 button	8
Status bar	8
Menu tab.....	8
Popups	9
Popup keypad	9
Enter and confirm value	9
Slider	10
Measurement title bar	10
Powering down.....	12
Removing power	12

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



Heavy instrument

The weight of this instrument may exceed the 18 kg (40 lb) guideline for manual handling by a single person. To avoid the risk of injury, an assessment should be carried out prior to handling, which takes account of the load, workplace environment and individual capability, in accordance with European Directive 90/269/EEC and associated national regulations.

PRECAUTIONS

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.

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 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 perform measurements on RF and microwave components and systems.

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: contient des informations pour éviter toute blessure au personnel.

WARNING

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



Equipement lourd

Le poids de cet appareil peut être supérieur à la limite de 18 kg, fixée pour le transport par une seule personne. Afin d'éviter tout risque de blessure, il est nécessaire de faire, avant le transport, une évaluation de la charge, des contraintes de l'environnement et des capacités de l'individu, en conformité avec la Directive Européenne 90/269/EEC ainsi que les recommandations Nationales concernées.

PRECAUTIONS

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.

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'afficheur est en verre. Il faut donc éviter de lui 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 effectuer des mesures sur des composants et des systèmes RF et hyperfréquences.

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:
dienen zur Vermeidung von Verletzungsrisiken.

WARNING

CAUTION

Note

dienen dem Schutz der Geräte.

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



Schweres Gerät

Das Gewicht dieses Geräts kann über der 18 kg Grenze für Transport durch eine einzelne Person liegen. Zur Vermeidung von Verletzungen sollten vor einem Transport die Arbeitsumgebung und die persönlichen Möglichkeiten im Verhältnis zur Last abgewogen werden, wie in der EU-Regelung 90/269/EEC und nationalen Normen beschrieben.

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.

Das Display besteht aus Glas. Mechanische Einwirkungen können das Glas 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 Messungen an HF- und Mikrowellenkomponenten und -Systemen durchzuführen.

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: **riportano informazioni atte ad evitare possibili pericoli alla persona.**

WARNING

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, purtuttavia 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



Strumento pesante

Il peso di questo strumento può superare i 18 kg raccomandati come limite per il trasporto manuale da parte di singola persona. Per evitare rischi di danni fisici è bene quindi considerare il carico complessivo, le condizioni del trasporto e le capacità individuali in accordo con la direttiva comunitaria 90/269/EEC e con eventuali regolamenti locali.

PRECAUTIONS

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.

Lo schermo LCD è di vetro, per cui non devono essere sottoposti a shock meccanici che possono causarne la rottura.

Il modulo LCD vanno eliminati come residui speciali secondo la normativa vigente.

CAUTION

Caratteristiche d'uso

Questo strumento è stato progettato e prodotto da Aeroflex eseguire misure su componenti o sistemi RF e microonde.

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:
contienen información referente a prevención de daños personales.

WARNING

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.

PRECAUTIONS

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



Instrumento pesado

El peso de este equipo podrá ser superior a la recomendación de 18 kg, lo que debe tenerse en cuenta. si va ser transportado manualmente por una sola persona. Para evitar el riesgo de lesiones, antes de mover el equipo deberá evaluar la carga, el entorno de trabajo y la propia capacidad, de acuerdo con la Directiva Europea 90/269/EEC y el Reglamento Nacional Asociado.

PRECAUTIONS

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.

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.

WARNING



Módulo de visualizador de cristal liquido

No desmonte el módulo del Visualizador. La sustancia que forma el Cristal Liquido del panel de visualización es tóxica. En caso de dañarse el visualizador y salir a exterior dicha sustancia, no permita que la misma entre en contacto con su boca. Si la sustancia se pusiera en contacto con su piel, lave inmediatamente las áreas afectadas con agua y jabón y busque asistencia médica.

El visualizador es de vidrio. Por tanto no lo someta a golpes que puedan romperlos.

No tire estos módulos, ni parte de ellos a la basura doméstica. Deshágase de ellos con métodos aprobados para residuos industriales

CAUTION

Idoneidad de uso

Este equipo ha sido diseñado y fabricado por Aeroflex para realizar medidas en RF y microondas en componentes y sistemas.

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.

WARNING



Heavy instrument

This instrument is light enough to be handled by one person. However, if two or more instruments are attached together using the Aerolock mechanism, the combined weight of instruments may become more than 18 kg (40 lb), which exceeds the recommended maximum weight for manual handling by a single person.

In this case, *use two people* to lift the instrument. Lift it by the front surround and rear bumpers to avoid trapping fingers underneath.

CAUTION

Virus protection

This instrument is supplied without anti-virus protection software. We recommend that if you connect to the internet or accept files from portable media (for example, memory sticks), you install a proprietary anti-virus software product. Provided that you install the software in accordance with the manufacturer's recommendations, your Aeroflex warranty is not affected.

Aeroflex accepts no liability whatsoever for any loss or damage caused by viruses, worms, Trojan horses or other malicious programs downloaded through connection of the instrument to the internet or external storage device or portable media.

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 either side of, and underneath, the instrument, and expels through the fan outlet. Before switching on the instrument, insure that the fan outlet and the ventilation holes are not restricted. Leave a clearance of at least 50 mm (2 in).

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 insures 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.

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.

The power cord is the instrument's disconnecting device.

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 instrument's 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.

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

On/off switch

The switch on the front panel 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 vector signal analyzer 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.

Front panel

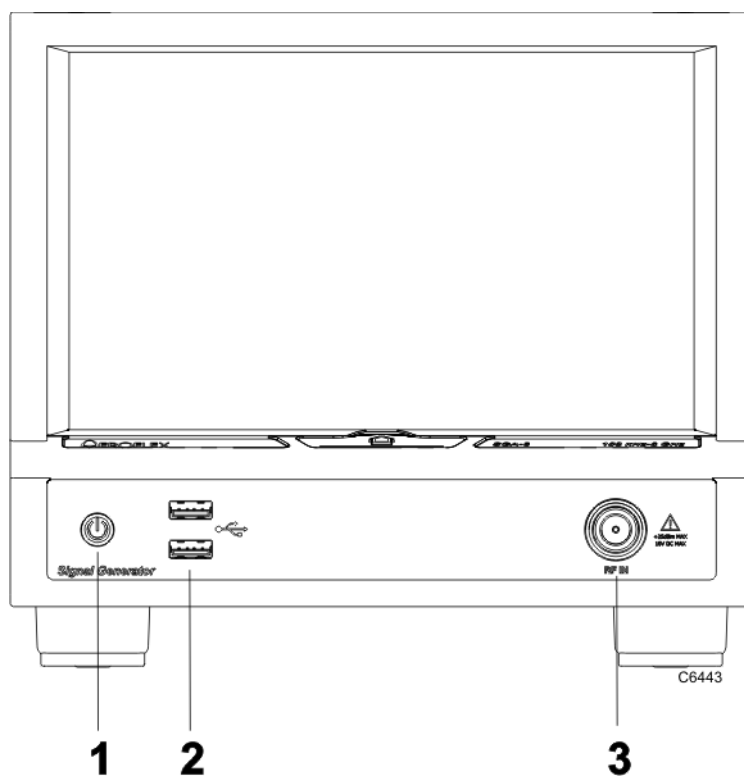



Fig. 1 Front panel

See the data sheet for all available options.

1	On/off switch	Activates the instrument using a press on/press off action. <i>Note: to completely 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 or other files, or to connect a mouse or keyboard.
3	RF IN	50 Ω N-type socket. Signal input.

INSTALLATION

Rear panel

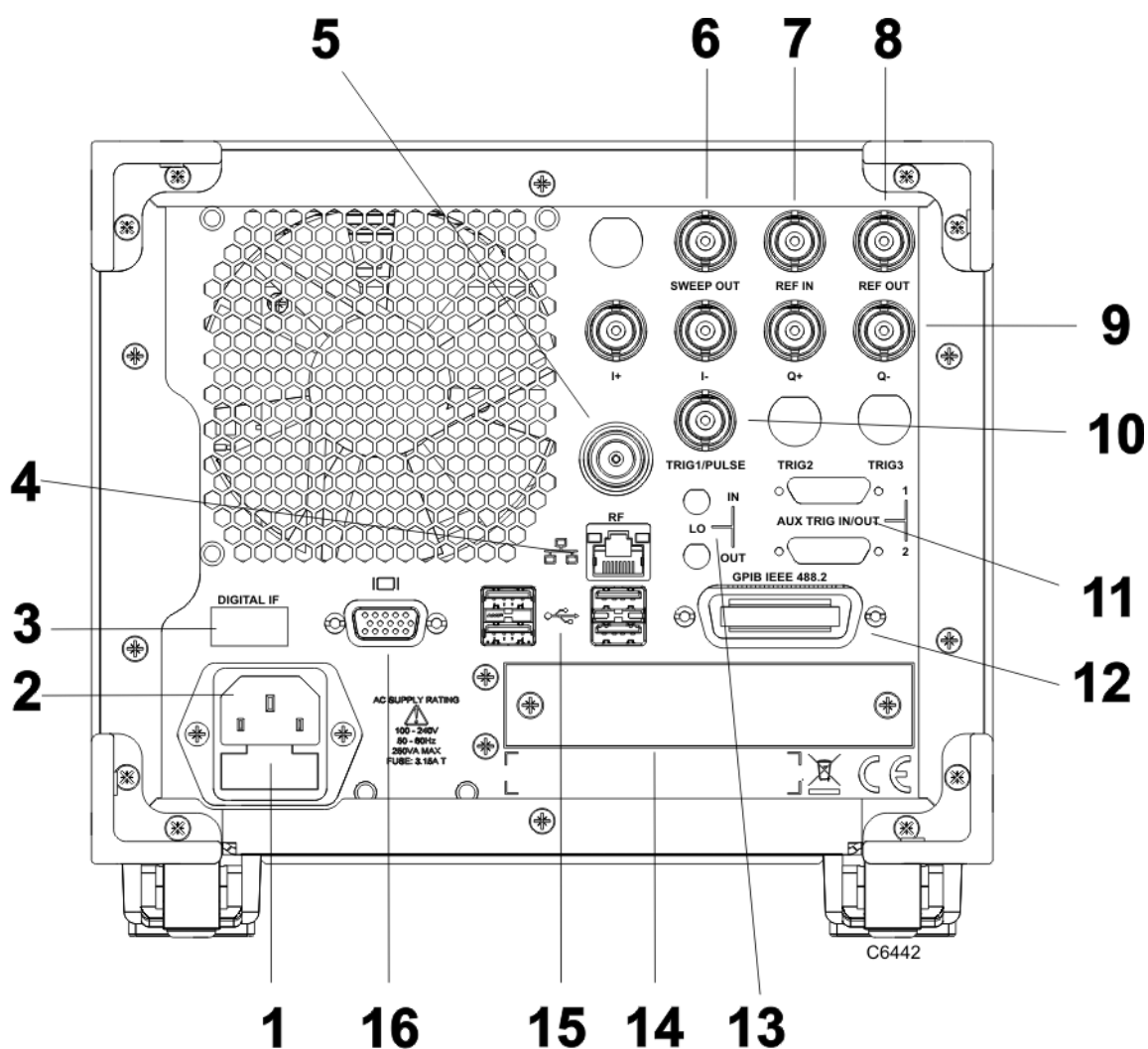





Fig. 2 Rear panel

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	Digital I/O	Infiniband connector for IF or IQ 16-bit LVDS data via Aurora interface.
4		Ethernet connector for LAN (local area network), UUT (unit under test), inter-S-Series system connections.
5	RF	Option 007 only. 50 Ω N-type socket. The RF input is moved to the rear panel.
6	SWEEP OUT	50 Ω BNC socket: generates 0 to 10 V when the analyzer is sweeping.
7	REF IN	50 Ω /100 k Ω BNC socket: accepts reference frequency of 10 MHz at 200 mV to 2 V RMS. Damage level: -0.5 V/+10 V.

INSTALLATION

8	REF OUT	50 Ω BNC socket: 10 MHz at 2 V p-p into 50 Ω . Damage level: -0.5 V/+6 V.
9	I+, I-, Q+ Q-	For future use.
10	TRIG/PULSE	50 Ω BNC socket (TTL/CMOS): accepts an external pulse trigger.
11	AUX TRIG IN/OUT	For future use.
12	GPIB IEEE488.2	24-pin socket accepts a standard GPIB connector to allow remote operation of the instrument.
13	LO	For future use.
14	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.
15		Four USB 2.0 sockets. Used to transfer memory stores or other files, or to connect a mouse or keyboard. Also provide electrical connections between multiple S-Series modules.
16		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.

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 SVA software by touching the *Exit Application* button on the menu tab.

Note: 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 SVA 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.

Similarly, 'double-touch' and 'drag' are familiar terms that work equally well for mouse or fingertip.

How the screen is laid out

This is a typical SVA screen, which is divided into a number of functional areas:

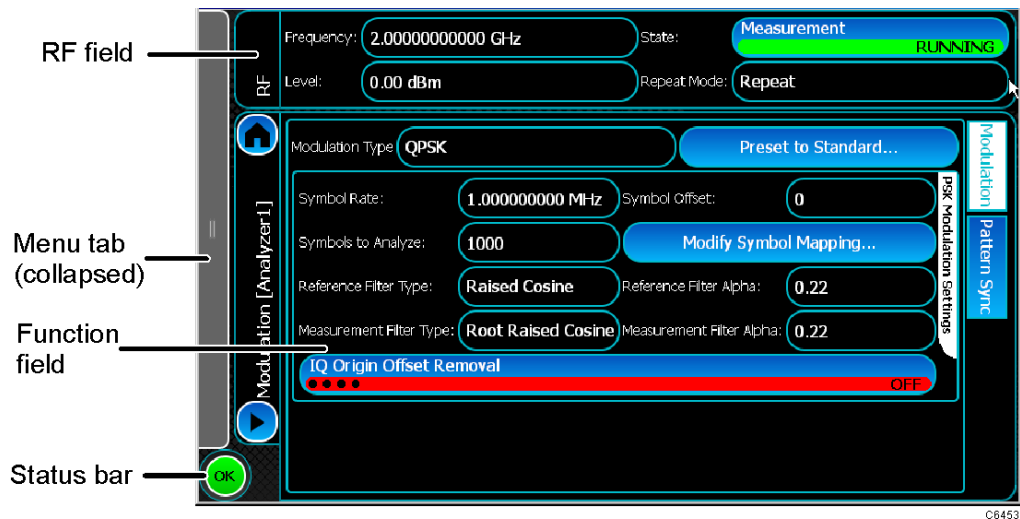


Fig. 3 Typical screen layout

RF field

This displays the current RF frequency and RF level settings, and lets you change them using the popup keypad and slider. You can also start and stop the capture, and set its repeat mode.


Function field

In this field, you set up the analyzer to perform spectrum analysis, digitization or vector analysis of cellular or general purpose analog and digitally-modulated signals.

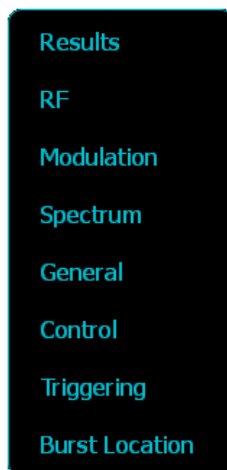
button

Within any analysis screen, the Home button  takes you back to the initial (Results) field.


button

Touch the  button to display a list of analysis functions, from which you set up each aspect of the measurement to be performed.

This list is available within each modulation analysis scheme, and displays screens specific to the type of measurement you are currently displaying

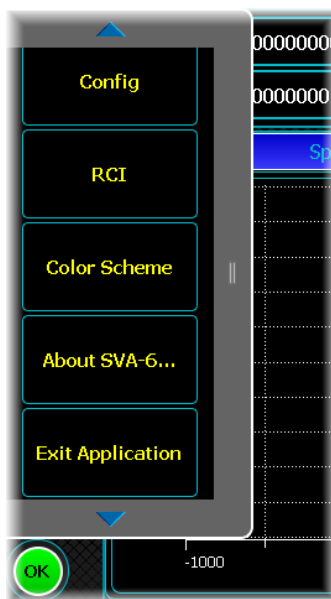


Status bar

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

Menu tab

The menu tab contains all the system functions. It is normally collapsed in order to maximize the available space on the screen. Touch anywhere on the border of the menu tab to expand it: Touch again to minimize it.



TOUCH AREAS

The menu tab does the following:

Store/Recall saves and recalls instrument settings.

Analyzer1... shows the analysis mode.

Config provides access to information about the frequency standard, hardware, power-on settings, available options, and RF level offsets.

RCI provides access to the remote control interface.

Color Scheme selects how the screen is presented, for higher visibility where required.

About... provides details of the instrument and its software.

Exit Application closes the SVA application.

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.

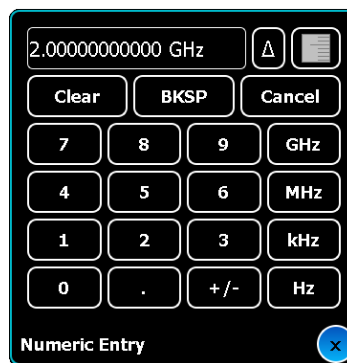




Fig. 4 Popup keypad

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.

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.

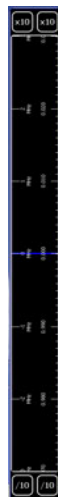

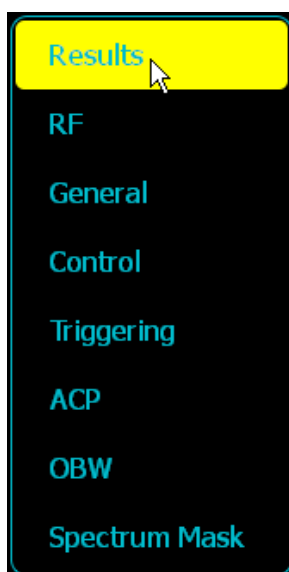


Fig. 5 Slider adjustment

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.

Measurement title bar

This screen is common to many modulation types. It is displayed when you select Results from the  menu:

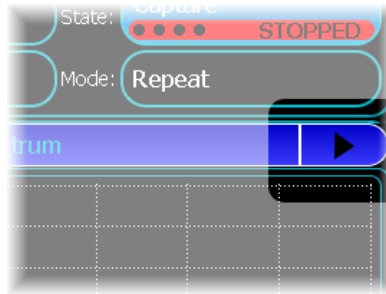


TOUCH AREAS

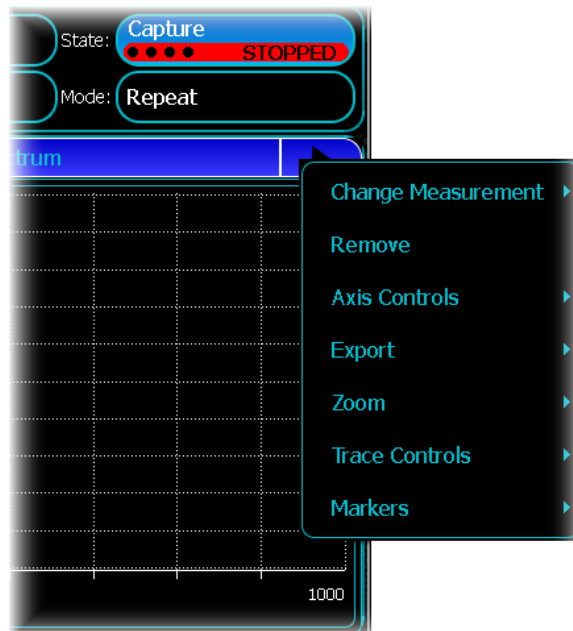
The title bar shows the measurement currently being analyzed:



The title bar in each measurement screen has a button...



...that displays a drop-down measurement menu:



...that lets you change or modify the measurement and how it is displayed.

Most of the items on this menu are specific to the type of measurement you are currently displaying.

Powering down

Press the on/off switch on the front panel.

The instrument takes a few seconds to power down, first closing the SVA 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 all power from the instrument, disconnect the power cord.

Do not disconnect the line cord until the instrument has finished powering down, as you may corrupt data.

AEROFLEX LIMITED

SOFTWARE LICENSE AND WARRANTY

This document is an Agreement between the user of this Licensed Software, the Licensee, and Aeroflex Limited ('Aeroflex'), the Licensor. By installing or commencing to use the Licensed Software you accept the terms of this Agreement. If you do not agree to the terms of this Agreement do not use the Licensed Software.

1. DEFINITIONS

The following expressions will have the meanings set out below for the purposes of this Agreement:

Add-In Application Software	Licensed Software that may be loaded separately from time to time into the Designated Equipment to improve or modify its functionality
Computer Application Software	Licensed Software supplied to run on a standard PC or workstation
Designated Equipment	means either: the single piece of equipment or system supplied by Aeroflex upon which the Licensed Software is installed; or a computer that is connected to a single piece of equipment or system supplied by Aeroflex upon which computer the Licensed Software is installed
Downloaded Software	any software downloaded from an Aeroflex web site
Embedded Software	Licensed Software that forms part of the Designated Equipment supplied by Aeroflex and without which the Equipment cannot function
License Fee	means either the fee paid or other consideration given to Aeroflex for the use of the Licensed Software on the Designated Equipment
Licensed Software	all and any programs, listings, flow charts and instructions in whole or in part including Add-in, Computer Application, Downloaded and Embedded Software supplied to work with Designated Equipment
PXI Software	Licensed Software specific to Aeroflex's 3000 Series PXI product range

2. LICENSE FEE

The Licensee shall pay the License Fee to Aeroflex in accordance with the terms of the contract between the Licensee and Aeroflex.

3. TERM

This Agreement shall be effective from the date of receipt or download (where applicable) of the Licensed Software by the Licensee and shall continue in force until terminated under the provisions of Clause 8.

4. LICENCE

- 4.1 The following rights and restrictions in this Article 4 apply to all Licensed Software unless otherwise expressly stated in other Articles of this Agreement.
- 4.2 Unless and until terminated, this License confers upon the Licensee the non-transferable and non-exclusive right to use the Licensed Software on the Designated Equipment.
- 4.3 The Licensee may not use the Licensed Software on other than the Designated Equipment, unless written permission is first obtained from Aeroflex and until the appropriate additional License Fee has been paid to Aeroflex.
- 4.4 The Licensee may not amend or alter the Licensed Software and shall have no right or license other than that stipulated herein.
- 4.5 Except as specifically permitted elsewhere in this Agreement the Licensee may make not more than two copies of the Licensed Software (but not the Authoring and Language Manuals) in machine-readable form for operational security and shall ensure that all such copies include Aeroflex's copyright notice, together with any features which disclose the name of the Licensed Software and the Licensee. Furthermore, the Licensee shall not permit the Licensed Software or any part to be disclosed in any form to any third party and shall maintain the Licensed Software in secure premises to prevent any unauthorized disclosure. The Licensee shall notify Aeroflex immediately if the Licensee has knowledge that any unlicensed party possesses the Licensed Software. The Licensee's obligation to maintain confidentiality shall cease when the Licensed Software and all copies have been destroyed or returned. The copyright in the Licensed Software shall remain with Aeroflex. The Licensee will permit Aeroflex at all reasonable times to audit the use of the Licensed Software.
- 4.6 The Licensee will not disassemble or reverse engineer the Licensed Software, nor sub-license, lease, rent or part with possession or otherwise transfer the whole or any part of the Licensed Software.

5 ADDITIONAL LICENSE RIGHTS SPECIFIC TO PXI SOFTWARE

5.1 Definitions for PXI Software

The following expressions will have the meanings set out below for the purposes of the supplementary rights granted in this Article.

PXI Drivers	All 3000 Series PXI module device drivers including embedded firmware that are installed at runtime
PXI Executable Applications	All executable applications supplied with each 3000 Series PXI module including:- PXI Studio Soft Front Panels (manual operation graphical user interfaces) Utilities including: RF Investigator, PXI Version Information and Self Test
PXI Spectrum Analysis Library	The spectrum analysis measurement suite library .dll software supplied with each 3000 Series PXI module
PXI Optional Application Library	Individual measurement suite available from a range of optional .dll application libraries

5.2 PXI Drivers, PXI Executable Applications and PXI Spectrum Analysis Library License Rights

Subject to the License granted in Article 4 hereof notwithstanding the limitations on number of copies in Clause 4.5 hereof, the Licensee is entitled to make and distribute as many copies of the PXI Drivers and PXI Executable Applications as necessary for use with 3000 Series PXI modules acquired by the Licensee from Aeroflex or its authorized distributor or reseller provided that the Licensee may not sell or charge a fee for the PXI Drivers and PXI Executable Applications.

5.3 PXI Optional Application Library License Rights

Subject to the License granted in Article 4 hereof notwithstanding the limitations on number of copies in Clause 4.5 hereof, the Licensee is entitled to distribute as many copies of any PXI Optional Application Library as necessary for use with 3000 Series PXI modules acquired by the Licensee from Aeroflex or its authorized distributor or reseller provided that:

5.3.1 copies of the applicable PXI Optional Application Library are used solely with 3000 Series PXI modules which the customer has purchased with the corresponding option or part number for the applicable PXI Optional Application Library; and

5.3.2 the Licensee may not sell or charge a fee for the PXI Optional Application Library.

6 WARRANTY

6.1 Aeroflex certifies that the Licensed Software supplied by Aeroflex will at the time of delivery function substantially in accordance with the applicable Software Product Descriptions, Data Sheets or Product Specifications published by Aeroflex.

6.2 The warranty period (unless an extended warranty for Embedded Software has been purchased) from date of delivery in respect of each type of Licensed Software is:

PXI Drivers	24 months
Embedded Software	12 months
Add-In Application Software	90 days
Computer Application Software	90 days
Downloaded Software	No warranty

6.3 If during the appropriate Warranty Period the Licensed Software does not conform substantially to the Software Product Descriptions, Data Sheets or Product Specifications Aeroflex will provide:

6.3.1 In the case of Embedded Software and at Aeroflex's discretion either a fix for the problem or an effective and efficient work-around.

6.3.2 In the case of Add-In Application Software and Computer Application Software and at Aeroflex's discretion replacement of the software or a fix for the problem or an effective and efficient work-around.

6.4 Aeroflex does not warrant that the operation of any Licensed Software will be uninterrupted or error free.

6.5 The above Warranty does not apply to:

6.5.1 Defects resulting from software not supplied by Aeroflex, from unauthorized modification or misuse or from operation outside of the specification.

6.5.2 Third party produced proprietary software which Aeroflex may deliver with its products, in such case the third party software license agreement including its warranty terms shall apply.

6.6 The remedies offered above are sole and exclusive remedies and to the extent permitted by applicable law are in lieu of any implied conditions, guarantees or warranties whatsoever and whether statutory or otherwise as to the Licensed Software all of which are hereby expressly excluded.

7. INDEMNITY

7.1 Aeroflex shall defend, at its expense, any action brought against the Licensee alleging that the Licensed Software infringes any patent, registered design, trademark or copyright, and shall pay all Licensor's costs and damages finally awarded up to an aggregate equivalent to the License Fee provided the Licensee shall not have done or permitted to be done anything which may have been or become any such infringement and shall have exercised reasonable care in protecting the same failing which the Licensee shall indemnify Aeroflex against all claims costs and damages incurred and that Aeroflex is given prompt written notice of such claim and given information, reasonable assistance and sole authority to defend or settle such claim on behalf of the Licensee. In the defense or settlement of any such claim, Aeroflex may obtain for the Licensee the right to continue using the Licensed Software or replace it or modify it so that it becomes non-infringing.

7.2 Aeroflex shall not be liable if the alleged infringement:

- 7.2.1 is based upon the use of the Licensed Software in combination with other software not furnished by Aeroflex, or
 - 7.2.2 is based upon the use of the Licensed Software alone or in combination with other software in equipment not functionally identical to the Designated Equipment, or
 - 7.2.3 arises as a result of Aeroflex having followed a properly authorized design or instruction of the Licensee, or
 - 7.2.4 arises out of the use of the Licensed Software in a country other than the one disclosed to Aeroflex as the intended country of use of the Licensed Software at the commencement of this Agreement.
- 7.3 Aeroflex shall not be liable to the Licensee for any loss of use or for loss of profits or of contracts arising directly or indirectly out of any such infringement of patent, registered design, trademark or copyright. Notwithstanding anything in this Agreement to the contrary, the total liability of Aeroflex and its employees, in contract, tort, or otherwise (including negligence, warranty, indemnity, and strict liability) howsoever arising out of this License shall be limited to the total amount of the License Fee and total support fees actually paid to Aeroflex by the Licensee.

8. TERMINATION

- 8.1 Notwithstanding anything herein to the contrary, this License shall forthwith determine if the Licensee:
- 8.1.1 As an individual has a Receiving Order made against him or is adjudicated bankrupt or compounds with creditors or as a corporate body, compounds with creditors or has a winding-up order made against it or
 - 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.

**CHINA Beijing**

Tel: [+86] (10) 6539 1166
Fax: [+86] (10) 6539 1778

CHINA Shanghai

Tel: [+86] (21) 2028 3588
Fax: [+86] (21) 2028 3558

CHINA Shenzhen

Tel: [+86] (755) 3301 9358
Fax: [+86] (755) 3301 9356

FINLAND

Tel: [+358] (9) 2709 5541
Fax: [+358] (9) 804 2441

FRANCE

Tel: [+33] 1 60 79 96 00
Fax: [+33] 1 60 77 69 22

GERMANY

Tel: [+49] 89 99641 0
Fax: [+49] 89 99641 160

HONG KONG

Tel: [+852] 2832 7988
Fax: [+852] 2834 5364

INDIA

Tel: [+91] 80 [4] 115 4501
Fax: [+91] 80 [4] 115 4502

JAPAN

Tel: [+81] (3) 3500 5591
Fax: [+81] (3) 3500 5592

KOREA

Tel: [+82] (2) 3424 2719
Fax: [+82] (2) 3424 8620

SCANDINAVIA

Tel: [+45] 9614 0045
Fax: [+45] 9614 0047

SINGAPORE

Tel: [+65] 6873 0991
Fax: [+65] 6873 0992

TAIWAN

Tel: [+886] 2 2698 8058
Fax: [+886] 2 2698 8050

UK Stevenage

Tel: [+44] (0) 1438 742200
Fax: [+44] (0) 1438 727601
Freephone: 0800 282388

USA

Tel: [+1] (316) 522 4981
Fax: [+1] (316) 522 1360
Toll Free: (800) 835 2352

As we are always seeking to improve our products, the information in this document gives only a general indication of the product capacity, performance and suitability, none of which shall form part of any contract. We reserve the right to make design changes without notice. All trademarks are acknowledged. Parent company Aeroflex, Inc.

web: www.aeroflex.com

Email: info-test@aeroflex.com

April 2012